

SUMMARY AND RESPONSE TO PUBLIC COMMENTS

Permit No: Temporary Aquifer Protection Permit (APP) P-106360

Facility Name: Florence Copper Project Production Test Facility (PTF)

Applicant: Florence Copper Inc. (FCI)

Permit Action: Response to comments received during the public comment period:
4/14/16– 5/20/16

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Water Permits Section
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Date: July, 2016

A. INTRODUCTION

On March 6, 2012 ADEQ received an application for a Temporary Individual Aquifer Protection Permit (APP) from Curis Resources, Inc. for the copper mine historically known as the Florence Copper Project to operate the Production Test Facility (PTF). The permit was signed September 28, 2012. An Other Amendment was issued on July 3, 2013, to make several changes to the permit, in part in consideration of public comments received. A Minor Amendment was issued on February 3, 2014 to change the name on the permit from Curis Resources, Inc. to Florence Copper Inc.

On April 1, 2015, the permittee submitted an application for significant amendment in accordance with Water Quality Appeals Board (WQAB) order issued in Case No. 12-005-WQAB on November 14, 2014 (Board Order). The Board Order remanded the permit to ADEQ to address issues identified by the Administrative Law Judge (ALJ) decision dated September 29, 2014. ADEQ grouped the issues identified in the decision into four main topics as follows:

- Historical documentation of the BHP Copper pilot test conducted in 1997-1998
- Additional monitoring: BADCT performance, electrical conductivity, monitoring well MW-01
- Pollutant Management Area (PMA): proposed PMA boundary, proposed Point of Compliance (POC) locations
- Documentation of closure and reclamation: rinsing flow sheet, geochemical model documentation

As stated in the public notice text:

The permit is being issued subsequent to an appeal in which the majority of the permit was upheld. Therefore, those sections of the permit that have been upheld are not subject to public

comments. Public comment is limited to only those sections that were remanded to the department for additional development.

Public Notice, Public Meetings and Public Hearing Comments

The public comment period began on April 14, 2016 and ended May 20, 2016. Publication of this decision to issue an amendment to the Temporary Individual APP and the associated public hearing were published in the Florence Reminder on April 14, 2016. A public hearing was held at Florence High School in Florence, AZ, on May 19, 2016. This summary is prepared in accordance with the Arizona Administrative Code (A.A.C.) R18-9-109.

Comments received during the public comment period are summarized below. The comments are followed by ADEQ's response shown in blue *italics*. Comments are organized as follows:

Commenter #	Source	Method
1	Jeanine Engen, citizen	Written
2	Joseph Cline, citizen	Written
3	Chaz Smith, citizen	Written
4	Jim & Penny Thomson, citizen	Written
5	Douglas Coplen, citizen	Written
6	Julie Starkey, San Tan Valley YMCA	Written
7	Patricia DeStefano, citizen	Written
8	Lewis Moon, citizen	Written
9	Richard Dale, citizen	Written
10	Richard Wibbelmann, citizen	Written
11	Mark Lewis, citizen	Written
12	Martin Jackson, citizen	Written
13	Thomas J. Moll, citizen	Written
14	David P. Nulton, citizen	Written
15	Ray V. Huff, citizen	Written
16	Phillip V. Ramos, citizen	Written
17	Eric Ortega, citizen	Written
18	Kristy Lagunas, citizen	Written
19	Ron Gutierrez, citizen	Written
20	Jafer Jaweed, citizen	Written
21	Sandy Erickson, citizen	Written
22	Ken Pratt, citizen	Written
23	Dodi Freeman, citizen	Written
24	Manuela Bowler, citizen	Written
25	Todd Knauss, citizen	Written
26	Nick Myers, citizen	Written
27	Terry McNulty, citizen	Written
28	Cathy Egger, citizen	Written
29	Alan Gilda, citizen	Written

30	A. J. Smith, citizen	Written
31	Tony Velez, citizen	Written
32	Keith Alexander, citizen	Written
33	Doretta Allison, citizen	Written
34	Jacqueline Dunsing, citizen	Written
35	Eric Barcon, citizen	Written
36	Roy & Janice Kindrick, citizen	Written
37	Loretta Ford, citizen	Written
38	James Delcoure, citizen	Written
39	Jeffrey Kramer, citizen	Written
40	Patrick Merrin, citizen	Written
41	Paul Stockburger, citizen	Written
42	Larry M. Brown, citizen	Written
43	Wayne Bachmann, San Tan Valley Chamber of Commerce	Written
44	Gary Mittendorf, citizen	Written
45	Greg Bauer, citizen	Written
46	Curtis Mohns, citizen	Written
47	Gordon Skotarczyk, citizen	Written
48	Lois Severson, citizen	Written
49	Matthew Branche, citizen	Written
50	William Vockel, citizen	Written
51	James Tchida, citizen	Written
52	Zach Larsen, citizen	Written
53	James Gilloon, citizen	Written
54	Fred Barcon, citizen	Written
55	Ruth Ann Penrose, citizen	Written
56	Donna Gates, citizen	Written
57	Christopher Wolf, citizen	Written
58	Suresh Patil, citizen	Written
59	John Holley, citizen	Written
60	Chaz Smith, Senior VP, AZ Landsource	Written
61	Mark Cardenas, Arizona Legislative District 19 Representative	Written
62	Bob Thorpe, Arizona Legislative District 6 Representative	Written
63	Michele Whitman, citizen	Written
64	Joe Bardswitch, citizen	Written
65	Dan Johnson, Vice President, Florence Copper Inc.	Written
66	Steve Trussell, Executive Director, Arizona Rock Products Association	Written
67	Pete Rios, Pinal County Board of Supervisors, District 1	Written
68	Alastair Rasquinha, citizen	Written
69	Kelly Shaw Norton, President, Arizona Mining Association	Written
70	Carlos Cortez, citizen	Written
71	Nick Tsalikis, citizen	Written

72	Lyn Thomas, President, Pioneer Equipment Inc.	Written
73	Rebecca A. Miller, citizen	Written
74	Stanley Sachak, citizen	Written
75	Harry Roberts, citizen	Written
76	Lina K. Austin, President BizPro Contract services	Written
77	Kevin Gilbreth, citizen	Written
78	Dennis Tucker, Arcadis, Inc.	Written
79	Dale Rucker	Written
80	Mr. & Mrs. Whitlock, citizens	Written
81	Alicia Bedoya, citizen	Written
82	David & Bonnie Jost, citizens	Written
83	Lillie Treuter & Leland Johnson, citizens	Written
84	Elizabeth & Jeffrey Cuneo, citizens	Written
85	Luis Alvillar, citizen	Written
86	Bob King, citizen	Written
87	Gerald Kruse, citizen	Written
88	Robert M. Shoppell, citizen	Written
89	Anne Jones, citizen	Written
90	Linda Lee, citizen	Written
91	Michael Mendlen, citizen	Written
92	Kathleen & Robert Thomas, citizens	Written
93	Martha Gonzales, citizen	Written
94	Kristen Martinez , citizen	Written
95	Cindy Padilla, citizen	Written
96	Frank & Karen Annin, citizens	Written
97	Ferdinand and Audrey Sobota, citizens	Written
98	Judy Bojak, citizen	Written
99	Armand Young, citizen	Written
100	Robert Barrett, citizen	Written
101	Pedro Ybarra, citizen	Written
102	Ron & Ann Lieske, citizens	Written
103	Robert and Kathleen Plocinski, citizens	Written
104	Ruth F. Wloczewski, citizen	Written
105	Jim Nadeau, citizen	Written
106	Jane Nadeau, citizen	Written
107	Ervin Eaton, citizen	Written
108	Paul & Pat Neff, citizens	Written
109	Janet Schaeffer, citizen	Written
110	Teresa Doonan, citizen	Written
111	Deborah & John Stanton, citizens	Written
112	T. Kowalczyk, citizen	Written
113	William Goldfarb, citizen	Written
114	Richard & Mary Davidson, citizens	Written
115	Louis & Jean Severino, citizens	Written

116	Richard Yelich, citizen	Written
117	Arne Hawkins & Judy Grove, citizens	Written
118	Dennis Manning, citizen	Written
119	Vicki D'Elia, citizen	Written
120	Bradley Cole, Chief Operating Officer, Johnson Utilities	Written
121	Ronnie Hawks, Jennings, Haug & Cunningham	Written
122	Michael Jones	Written
123	Barbara U. Rodriguez-Pashkowski, Gust & Rosenfeld	Written
124	Tara Walter	Oral
125	Rebecca Miller	Oral
126	Rodney Lawson	Oral
127	Larry Putrick	Oral
128	Richard Sichling	Oral
129	Bill Hawkins	Oral
130	Dan Johnson	Oral
131	David Malton	Oral
132	Chuck Watson	Oral
133	James Stevens	Oral
134	Greg Koontz	Oral
135	Douglas Carlson	Oral
136	Meghan Kuebler	Oral
137	Eric Mears	Oral
138	Denise Kolbert	Oral
139	Mason Bolitho	Oral
140	Clint Sundt	Oral
141	Brad Cole	Oral
142	Barbara Sylvester	Oral
143	Mark Nicholls	Oral
144	Dr. Christina Dumas	Oral
145	John Anderson	Oral
146	Lina Austin	Oral
147	Patricia DeStefano	Oral
148	Tom Rankin	Oral
149	Tom Parish	Oral
150	Sydney Hay	Oral
151	Valerie Woolridge	Oral
152	Karen Wall	Oral
153	Rick Grinnell	Oral
154	Raymond Grant	Oral
155	Keith Kinney	Oral
156	Steve Hildebrand	Oral
157	Richard Travis	Oral
158	Arne Hawkins	Oral
159	Lee Decker	Oral

160	Barbara Manning	Oral
161	Glenn Hoffmeyer	Oral
162	Ronnie Hawks	Oral
163	Norma Henderson	Oral
164	Ellen Whitebird	Oral
165	Brett Tanner	Oral
166	Brad Glass	Oral
167	Stacy Brimhall	Oral
168	Richard Murdick	Oral
169	Matthew Brower	Oral

Comments may have been shortened or paraphrased for presentation in this document; a copy of the unabridged comments is available upon written request from ADEQ Records Center, recordscenter@azdeq.gov.

B. WRITTEN COMMENTS

Written comments received on the official record were received during the Public Comment period.

Commenters 1-77 -

Submitted statements in support of Florence Copper conducting the in-situ copper recovery (ISCR) pilot test.

ADEQ Response –

The comments are noted.

Commenter 78, Dennis Tucker, Arcadis -

“In my opinion, the number and design of the monitoring wells in the amended permit is more than adequate to monitor the creation of the cone of depression needed for hydraulic control. The use of a cone of depression for hydraulic control has been proven effective for decades in environmental remediation applications and is an accepted technique throughout the U.S. Further, this approach to hydraulic control is analogous to the passive containment capture zone (PCCZ) approach which has been proven effective and is the basis of the APPs granted to every operating open-pit copper mine in Arizona.

The water chemistry and general parameters designated for monitoring are appropriate and adequate to assess changes in groundwater quality should they occur, so as to not negatively impact groundwater quality outside the pollutant management area.”

ADEQ Response –

ADEQ agrees with the commenter that the concept of creating a cone of depression to achieve hydraulic control being proposed by FCI during this pilot test is conceptually similar to passive containment of pollutants as described in A.R.S. §49-243.G.

Commenter 79, Dr. Dale Rucker -

“As a matter of reference, I helped to design the original model of placing steel electrodes in the boreholes at Florence Copper to electrically monitor solution movement within the economic zone of interest. The spatial and temporal scale of monitoring was deliberately designed to capture the movement of barren raffinate and copper rich solution as it migrated through the formation. After a short period of time, the hydrogeological and metallurgical conditions of the site will reach steady state, after which no more changes are expected to occur. Any electrical resistivity geophysical monitoring after this point will not further validate engineering analyses. After viewing the changes to my design, it appears that the length of monitoring will occur well into the steady state period. From my experience, it is unprecedented in the mining industry to use geophysical monitoring for this length of time and is on par with that being used to monitor underground storage tanks at the Hanford Nuclear Site”.

ADEQ Response –

ADEQ agrees that electrical conductivity will reach steady state within the zone where lixiviant is placed in the ore body. Since Dr. Rucker's involvement, the measurement of bulk electrical conductivity has increased from just measuring bulk electrical conductivity of the ore production zones to include measurement of the exclusion zone and Lower Basin Fill Unit to monitor for excursions into the Lower Basin Fill Unit. ADEQ agrees that the increased amount of monitoring is unprecedented and is appropriate for the project.

Commenters 80-117 -

The commenters submitted statements opposing issuance of the permit due to environmental and public health threats without specific reference to permit requirements.

ADEQ Response –

The comments are noted. The ADEQ Aquifer Protection Program (APP) is responsible for issuing environmentally protective permits to facilities and activities that are subject to the requirements of Arizona Revised Statutes (A.R.S.) §49-241. The APP application submitted by FCI for the Production Test Facility has been evaluated and determined to meet all of the requirements of A.R.S. §49-241, Arizona Administrative Code (A.A.C.) R18-9-A210, and conformance with the Arizona Mining Best Available Demonstrated Control Technology (BADCT) Guidance Manual.

If ADEQ has reason to believe that conditions in the permit are or have been violated, ADEQ will take appropriate action, as provided in Arizona Administrative code (A.A.C.) R18-9-110.

Commenter 118, Dennis Manning –

“The failure by ADEQ to provide full disclosure of information and the failure of ADEQ to provide specific directions for public comment for the hearing May 19th regarding a Significant Amendment to the Aquifer Protection Permit will prevent a fair hearing.

In a letter dated Dec.22, 2015 ADEQ informed Florence Copper that 11 of its responses were considered inadequate and that Florence Copper was to respond to this request for additional information on or before Jan. 25, 2016 either by hard copy or email. In other words the documentation should be written. That documentation would be available for review by all parties concerned.

Florence Copper refused to submit the additional information in writing.

ADEQ has either ignored the refusal of Florence Copper to respond to these 11 significant deficiencies or concessions/compromises have been made with Florence Copper which allows ADEQ to proceed with a hearing on the Notice of the Preliminary Decision to issue a Significant Amendment to the Aquifer Protection Permit.

ADEQ has also ignored its own procedures regarding the failure of Florence Copper to respond in writing on or before Jan. 25, 2016 by proceeding with a hearing. ADEQ warned Florence Copper that failure to comply with the deadline will result in initiation of the denial process for this APP amended application.

Where is the additional information Florence Copper submitted on the 11 inadequacies? If there was no additional information submitted what concessions/compromises were made by ADEQ with Florence Copper? If Florence Copper did not submit the additional information as required what is ADEQ's rationale for proceeding?

Once again ADEQ appears to be operating in an unlawful, arbitrary, and unreasonable manner.”

ADEQ Response –

Section 5, item 3 of the draft permit lists all of the application documents reviewed in making a decision regarding the permit amendment for the Florence Copper Temporary APP, including FCI's January 25, 2016 response to ADEQ's request for additional information. The Public Notice of Decision and Hearing for the FCI amendment listed instructions for how to obtain public records, however the commenter did not make any records requests during this process. The document in question was provided to the commenter upon ADEQ's receipt of these concerns.

Commenter 119, Vicki D'Elia -

“What is the exact location to the seven Supplemental Monitoring Wells that have been added to the proposed PTF in the amended permit?”

ADEQ Response –

The Supplemental well locations, as well as screened interval and aquifer unit monitored are listed in Table 2.5-1 of the revised permit.

“Where is the scientifically valid methods to detect migration of the sulfuric acid into the aquifer?”

ADEQ Response –

The permit requires groundwater monitoring at the Supplemental Wells, MW-1 and the POC wells, as listed in Tables 4.1-6 (Quarterly Compliance Groundwater Monitoring), 4.1-6B (Quarterly Operational Groundwater Monitoring), Table 4.1-7 (Semi-Annual Compliance Groundwater Monitoring), and Table 4.1-7B (Semi-Annual Operational Groundwater Monitoring). The permit also requires electrical conductivity monitoring in Observation Wells

within the Exclusion Zone and Lower Basin Fill Unit (Table 4.1—8). Monitoring at these locations will allow observation of movement of solution in the oxide zone and, if it should occur, within the Lower Basin Fill Unit, Middle Fine Grained Unit, and Upper Basin Fill Unit.

“With the numerous fractures (too many to count) in the ground how is it determine the direction the sulfur will go?”

ADEQ Response –

The leach solution will be injected into the oxide zone through injection wells and the copper rich solution will be removed from the oxide zone through recovery wells. Recovery wells will be pumped at a higher rate than injection wells in order to recover the copper rich solution to mine the oxide zone. The injected solutions will move through fractures in the oxide zone toward the recovery wells because of the hydraulic gradient, or pull, caused by pumping of the recovery wells. Monitoring at the Injection, Recovery and Observation Wells will allow determination of the direction of solution movement.

“How will you protect me from a truck spilling sulfuric acid trucked to the Florence Copper Site?”

ADEQ Response –

The comment is noted. The ADEQ Aquifer Protection Program (APP) is responsible for issuing environmentally protective permits to facilities and activities that are subject to the requirements of Arizona Revised Statutes (A.R.S.) §49-241. Shipment of sulfuric acid is outside the scope of the APP program.

Commenter 120, Bradley Cole, Johnson Utilities -

“The Amended Permit contemplated in the public comment meeting in Florence on May 19 is so riddled with errors and false assumptions that I fear for the health and safety of our residents.

ADEQ has openly defied the ALJ’s Decision and the Water Quality Appeals Board Order. The Amended Permit does not address the reasons for remanding the previous Temporary APP nor does it implement the amendments required by the ALJ and WQAB.

The amended permit no more complies with Arizona Law than the Temporary APP already found by the ALJ and WQAB to be unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgements. ADEQ should withdraw the Amended Permit and should require Florence Copper to meet the requirements of the WQAB Order.”

ADEQ Response –

ADEQ disagrees with the commenter. However, without specific reference to sections or requirements in the permit, ADEQ cannot respond to the commenter’s claims.

Commenter 121, Ronnie Hawks, Jennings, Haug & Cunningham -

The Amended Permit does not address the primary ALJ and WQAB reasons for finding the previous permit to be unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgments.

Of the failings in the Amended Permit, the most egregious are that FCI and ADEQ have systematically ignored the directives of the ALJ and WQAB to properly specify a Pollutant Management Area (PMA); to properly place Points of Compliance (POC) wells; and to provide meaningful monitoring of potential excursions of acid mining solution upward into the LBFU.

A. The western PMA and POC wells still are not located according to Arizona law and the ALJ Decision.

An APP without adequate compliance monitoring does nothing to ensure that groundwater resources will be protected, or to provide a foundation for evaluation of the commercial application. FCI has consistently pushed for minimum compliance monitoring at locations so far distant from the Pilot Test Facility (“PTF”) well field as to be irrelevant. This provides FCI with an absolute guarantee that no permit violations will be identified during PTF operations. The ALJ rejected FCI’s proposed PMA and POC well locations, finding that the PMA and POC well locations were “arbitrary, unreasonable, and unlawful” and did “not allow any meaningful monitoring of pollutants.”

The Amended Permit does not meet the ALJ and WQAB requirements regarding the PMA and placement of POC wells. Instead, the Amended Permit allows an equally unlawful and arbitrary PMA and uses the identical inadequate POC locations as before, based on slightly different reasoning that still falls far short of compliance with Arizona law and standards. For this reason alone, and given that FCI has directly defied the WQAB directive, ADEQ should deny FCI’s application.

1. The PMA remains nothing more than an arbitrary line.

ADEQ must “designate a point or points of compliance for each facility receiving an [APP].” Because POC locations are determined by reference to the PMA, ADEQ must first correctly determine the PMA boundary, ensuring that it is tailored to the site-specific discharge activities of the applicant. The PMA is basically the area that will be polluted during facility operations, and that will need to be cleaned up afterward. Common sense dictates that this area should be as small as possible. The definition of a PMA is “the limit projected in the horizontal plane of the area on which pollutants are or will be placed,” and includes the “horizontal space taken up by any liner, dike, or other barrier designed to contain pollutants in the facility.” The ALJ concluded that “A.R.S. § 49-244(1) is not ambiguous: the PMA ‘is the limit projected in the horizontal plane of the area on which pollutants are or will be placed’ or for the PTF, where the lixiviant will be injected and recovered.”

The ALJ rejected FCI's original PMA because she found that it had no legal or scientific basis and that FCI tried to justify it after the fact with arguments created during the hearing. The ALJ found that "FCI's applications for the Temporary APP and for the UIC permit made clear that lixiviant would be placed in the IRZ [Injection and Recovery Zone] and was not expected to migrate more than one or two well spacings to the northwest of the PTF well field. All of FCI's witnesses agreed with this interpretation.

The Amended Permit's PMA does nothing to meet the ALJ's requirement to place the PMA at the boundary of where pollutants are or will be placed. The Amended Permit again relies on an arbitrary cone of depression argument to expand the PMA boundaries. FCI has never taken a consistent position on the cone of depression, variously characterizing it as extending a few feet beyond the recovery wells, thousands of feet outward, and basin-wide. Despite these conflicting positions, FCI has never explained how it selected 500 feet as an appropriate radius for the PMA in the Amended Permit. ADEQ's reliance on FCI's unsupported and self-interested position is unlawful, arbitrary, and unreasonable.

The Amended Permit's PMA also is fatally flawed because it allows pollutants to be placed up to 500 feet beyond the observation wells. As can be seen in FCI's cross-section view, the Oxide Zone drops off precipitously just beyond the observation wells.

As a result, contaminants placed 500 feet downgradient from the observation wells will be in the LBFU, which the Amended Permit purportedly prohibits. The *only* way FCI can avoid a PMA that extends into the LBFU at this location is to place the PMA line just outside the observation wells, as SWVP contended during the administrative hearing. Any larger area will allow FCI to pollute the aquifer that provides the Town's drinking water supply.

FCI attempts to justify the 500-foot radius as providing a "safety factor" that is 2.5 times the distance that acid mining solutions would travel under "worst case conditions" of 30 days of injection with no extraction. But this "safety factor" radius is based upon federal requirements for the Area of Review (AOR) under USEPA Underground Injection Control program, not APP requirements. As the ALJ found, the intent of the APP statutes is to achieve the greatest discharge reduction possible by locating the PMA as close to the PTF well field as possible. A larger AOR is beneficial because it maximizes preventative and protective measures, while a smaller PMA is preferable because it maximizes compliance. The different functions of these two imaginary lines require different considerations, such that the "safety factor" of the PMA is actually reduced as it grows larger. FCI's reference to the AOR standard undercuts, rather than supports, its PMA argument.

The ALJ specifically found that it was unreasonable to expand the size of the PMA far beyond the area on which pollutants are or will be placed. Yet this is exactly what FCI has done yet again by incorporating a federal AOR as the PMA for this state permit. The Amended Permit's PMA is still much larger than the area on which

pollutants can or will be placed. As with the previously approved PMA, it lacks any justification in the law or facts and fails to meet APP requirements. Consequently, it is just as "arbitrary, unreasonable, and unlawful" as the PMA already rejected by the ALJ and WQAB.

ADEQ Response-

The PMA in the permit is not an arbitrary line. The PMA meets the criteria described as the limit projected on the horizontal plane of the area on which pollutants are or will be placed, including horizontal space taken up by any liner, dike or other barrier designed to contain pollutants in the facility (A.R.S. §49-244). The application indicates that the cone of depression under operational conditions, recovery wells pumping at 60 gallons per minute (gpm), will extend as far as 4,800 feet. The 500 foot radius of the western PMA is 10 percent of the cone of depression expected under operational conditions. This provides a safety factor of almost 10 times. As stated above, the cone of depression is the barrier designed to contain pollutants, and the APP requires Florence Copper to demonstrate a measurable drawdown at the PMA boundary during operations. If Florence Copper does not observe drawdown at the PMA boundary, prior to start-up or during operations, Florence Copper will not be allowed to inject lixiviant. ADEQ's concurrence on the results of the start-up testing will also be required before FCI may begin mining. FCI's application and the permit conditions completely address the ALJ decision with regard to the PMA.

2. The POC wells cannot be justified based on cost.

The new permit accepts FCI's proposal to use the exact same POC wells that were unequivocally rejected by the ALJ. Two of these, M54-O and M54-LBF, are located at the proposed PMA line. But because that PMA line is unreasonable and illegal, the locations for these two POC wells are similarly unreasonable and illegal.

Four other POC wells were originally drilled by BHP in the 1990s for the full commercial mine project and have never had anything to do with FCI's PTF facility. This time around, FCI attempted to justify the locations of these four wells under a statutory exception. POC wells must be located at the "limit" of the PMA (*i.e.*, in close proximity to where deliberate contamination is allowed) unless the applicant can demonstrate that alternative POC locations are required because it is technically impracticable or inappropriate to place them at the PMA boundary or it is substantially less costly. FCI attempted to justify existing POC wells M23-UBF, M22-O, M15-GU, and M14-GL as being substantially less costly than new ones properly located at the PMA boundary. FCI apparently values the safety of the public drinking water supply at something less than \$377,000—the alleged cost of drilling more protective compliance wells at legal and reasonable locations.

The legislature made clear that alternative well locations based on cost were not allowed if the locations result "in an increased threat to an existing or reasonably foreseeable drinking water source." These POC wells clearly pose an increased threat to the Town's drinking water aquifer because they are located at least 12 years

of groundwater travel time from the PTF well field. This ensures that these compliance wells will never detect escapes of acid mining solution into the drinking water aquifer during the active life of the PTF well field.

Furthermore, the ALJ found that “the evidence submitted at the hearing confirmed that the permitted locations of the POC wells do not allow any meaningful monitoring of pollutants that may escape the PMA during PTF operations.” FCI and ADEQ have ignored this finding by allowing these 4 POC wells to remain in the very locations that the ALJ rejected. Moving the PMA line, but keeping the same POC locations does nothing to remedy the fatal flaw found by the ALJ and WQAB.

FCI could ensure meaningful monitoring at no additional cost simply by designating wells already mandated by EPA to be used as POC wells. This eliminates the cost argument FCI relies upon to justify its useless POC locations. Indeed, FCI has already agreed to install those wells. Designating them as POC wells instead of relegating them to monitoring wells poses no appreciable increase in cost to FCI. FCI’s use of cost to defend its misplaced POC wells, in direct defiance of the ALJ’s decision, reflects its obvious concern that properly placed POC wells create a high risk of non-compliance.

ADEQ Response-

ADEQ has determined the POCs meet the statutory requirement in A.R.S. §49-244. The supplemental wells and MW-01 have been included in the APP as BADCT monitoring wells to use multiple lines of evidence that groundwater capture is maintained during PTF operation and provide an “early warning” system if there are issues. MW-01 will be located within two-year travel time in the LBFU based on Darcy velocity calculated using ambient gradient conditions. The location of MW-01 will be proposed by FCI for ADEQ approval after data is available from aquifer pump tests conducted in the PTF well field.

3. The Amended Permit does not attempt to meet the ALJ and WQAB’s requirement for meaningful vertical monitoring.

The ALJ held that “the Temporary APP does not require meaningful monitoring of possible vertical migration through electric conductivity sensors or a HydraSleeve in the LBFU in the PTF well field.” The ALJ concluded that without this monitoring and the reporting of fluid migration into the LBFU above the well field, the Temporary APP’s requirement that FCI contain injected solutions within the Oxide Zone is meaningless.

The Amended Permit similarly requires no monitoring to detect vertical escapes of acid mining solution into the LBFU inside the PTF well field. ADEQ and FCI acknowledged at the hearing that the existing monitoring system will not detect permit violations resulting from vertical escapes for several years after PTF operations have ceased. FCI also acknowledged that, at little cost, electrodes can be placed on the Westbay wells that FCI intends to drill through the center of the PTF

mine block to monitor for vertical escapes. Indeed, relevant design details for proposed Westbay wells are no different than those of the observation wells, where FCI will be monitoring electrical conductivity into the LBFU. Yet ADEQ continues to defer to FCI, which claims against all evidence that such vertical monitoring is not feasible.

FCI claimed that it is not “practical” to install monitoring wells at the LBFU/Oxide Unit contact within the PTF well field because such wells would induce fluid to flow from the Oxide Unit into the LBFU.

This argument is absurd on its face for at least two reasons. First, these wells would be drilled *before* PTF operations, so the impacts of their drilling and completion would dissipate long before there could be any potential impact to PTF operations. Second, the anticipated volume of a HydraSleeve sample is no more than a few liters, and then only at separated points in time. Such small amounts cannot possibly have an impact on the acid solution unless FCI ceases its recovery pumping.

ADEQ agreed that use of a HydraSleeve to collect a liter of solution would not defeat hydraulic control and would impose little or no additional costs on FCI. FCI’s arguments to the contrary strain credibility, given the company’s belief in the strength of its cone of depression “barrier.” ADEQ’s reliance on these arguments after they were rejected by the ALJ and WQAB is unlawful, arbitrary, unreasonable, and/or based on clearly invalid technical judgments.

Similarly, FCI cannot legitimately continue to portray MW-01 as an effective means to monitor for vertical escapes. MW-01 would detect vertical migration only after acid mining solutions have traveled horizontally through the aquifer and reached that distant detection point. To the extent that horizontal movement occurred in the LBFU, FCI would be in violation of the Amended Permit long before the violation was detected at MW-01. This violates the basic monitoring principles recognized by the ALJ that permit violations must be detected through a “maximum early warning” system.

In its revised project design, FCI proposes to address this issue through the electrical conductivity sensors to be installed in observation wells. The specific locations are in the LBFU just above the top of the oxide zone, outside of the area where injection will occur. This is a slight improvement on the original application but does not meet the “meaningful” requirement for this specific purpose because there is still no monitoring directly above the area where acid is to be injected. In what is perhaps an effort to address FCI’s omission, the Amended Permit requires well-bore conductivity monitoring in the multi-level wells. The exact method of the monitoring is not clear, but it is nonetheless irrelevant these sensors will monitor the *UPPER* Basin Fill Unit, instead of the LBFU, which is the aquifer unit of concern!

Regardless of the reason for such a nonsensical provision, ADEQ must require meaningful monitoring in the LBFU to comply with the ALJ’s decision. In effect,

this means treating the contact between the oxide zone and the LBFU as the upper limit of the PMA. Effective sensors on the multi-level wells and recovery wells at or just above that contact could at least partly satisfy this requirement. Other permit changes that would improve vertical monitoring and compliance include: adding sampling ports to at least one multi-level well, just above the top of the oxide zone; and installing monitoring wells very close to recovery wells that allow for hydrosleeve sampling of water at the LBFU/oxide zone contact.

In sum, the Amended Permit ignores the ALJ and WQAB requirement that the revised permit must provide adequate monitoring for vertical escapes, which the ALJ concluded was a “substantial possibility”:

40. Mr. Kline acknowledged that fluid migrated vertically into the LBFU during BHP’s pilot project. Appellants established that during BHP’s pilot project, fluid may have migrated horizontally, short circuits were reported, and some data caused BHP to be concerned about the propriety of its equivalent porous media assumption. Appellants established spatial bias in FCI’s groundwater flow model in the PTF well field. All of this evidence raises a substantial possibility that despite FCI’s maintenance of hydraulic control as defined by the Temporary APP, vertical or horizontal migration of in-situ solution may occur during the two-year term of the PTF.

41. A.R.S. § 49-243(K)(1) allows ADEQ to require monitoring that is necessary to ensure compliance with APP statutes. As noted above, in light of the evidence of vertical and possible horizontal migrations of fluid during BHP’s pilot project, ADEQ should have heeded the warning in BADCT § 3.4.4.2 and required meaningful monitoring of potential short circuits in the Temporary APP. *In light of the uncertainties about whether the oxide zone is equivalent porous media, a single monitoring well between the PTF well field and the POC wells does not adequately monitor whether FCI’s maintenance of hydraulic control, as defined by the Temporary APP, will effectively prevent migration of fluid. Therefore, ADEQ’s issuance of the Temporary APP that required only a single monitoring well downgradient to detect vertical and horizontal migration of in-situ solution during the two-year term of the PTF was unreasonable and based on a technical judgment that was clearly invalid.*

Despite this clear finding regarding the inadequacy of MW-01 as the sole monitoring point for vertical migration, the Amended Permit adds no new meaningful monitoring for vertical migration and continues to rely on MW-01, with no basis to show that this well has any value in monitoring vertical migration. The Amended Permit’s failure to address this issue as the ALJ directed merits withdrawal of the Amended Permit and denial of FCI’s application.

ADEQ Response-

The amended permit contains meaningful and adequate monitoring. The addition of electrical conductivity (EC) monitoring requirements included in the revised permit provide meaningful monitoring to detect potential vertical migration of mining solution. The APP requires several different types of EC monitoring. The first is the bulk EC monitoring where sensors have been included that are placed in the exclusion zone of the Oxide Unit and into the Lower Basin Fill; these sensors will provide notice if there has been an excursion of lixiviant into the Lower Basin Fill Unit above the PTF wellfield. A detailed description is provided in the FCI application documents (March 31, 2015, Section 2.1, and September 14, 2015 FCI Response to ADEQ Request 11). The second type is well bore EC monitoring where sensors have been included that are placed above the Middle Fine Grained Unit to ensure the lixiviant does not migrate along the well annulus of wells within the PMA. The third type of monitoring is fluid EC in which wells within the Oxide Zone will be sampled daily to detect any migration of the lixiviant during PTF operation.

This provides sufficient monitoring to detect an excursion of lixiviant and the ability to respond quickly to any excursion into the Lower Basin Fill.

B. FCI and ADEQ have no excuse for not complying with the ALJ's Decision.

The ALJ could not have been clearer in her finding that additional monitoring is necessary:

31. ADEQ's and FCI's witnesses asserted that if the solution migrated into the LBFU, it would be pulled back by the cone of depression or react with calcium to become solid gypsum. *But ADEQ's and FCI's witnesses acknowledged that migration of fluid into the LBFU would violate the requirement in § 2.3.1 of the Temporary APP that FCI inject and maintain in-situ solutions in the oxide zone.*

32. Similarly, ADEQ's and FCI's witnesses asserted that MW-01 and the POC wells *will eventually detect* solution that migrates vertically and/or horizontally from the PTF well field. *But ADEQ's and FCI's witnesses acknowledged that years could pass before such detection occurs and that by that time, PTF operations will have ended.*

33. Therefore, if ADEQ did not require meaningful monitoring because it assumed that FCI's net recovery of fluid and maintenance of a 1-foot inward hydraulic gradient were sufficient to prevent vertical and/or horizontal migration of fluid, *the Temporary APP would violate A.R.S. § 49-243(B)(1) and BADCT by failing to ensure that the Temporary APP's BADCT hydraulic control mechanisms effectively achieved the greatest degree of discharge reduction achievable.*

Monitoring must detect horizontal and vertical excursions as they occur during PTF operations—not years afterward—in order to meet Arizona law.

1. The Amended Permit does not meet the ALJ and WQAB requirement to ensure meaningful monitoring of escapes during PTF operations.

In an obvious attempt to redefine the ALJ's conclusion of law, FCI defined "effective monitoring within the active phase of PTF operations" as monitoring to detect escapes or loss of hydraulic control "within the timeframe of active PTF operations *and the closure monitoring period.*" Since the closure monitoring period could extend for decades, ADEQ allowed FCI to fundamentally rewrite the ALJ's decision to eliminate the likelihood that contaminants will be detected by the monitoring wells in a timely manner.

The ALJ's decision criticized the proposed permit monitoring scheme because "MW-01 and the POC wells *will eventually detect* solution that migrates vertically and/or horizontally from the PTF well field," so that contaminant migration would not be detected until years after "PTF operations will have ended." The ALJ clearly was not including the closure monitoring period as part of the active PTF operations period.

Despite the clear finding of the ALJ, ADEQ did not ensure that MW-01 would provide meaningful monitoring within the two-year PTF. During the application period, ADEQ requested that FCI explain how MW-01's location will "monitor changes in groundwater quality as a result of an excursion of lixiviant from the PTF well field in a meaningful and effective timeframe." FCI responded that MW-01 will be located "*2 years groundwater travel time in the LBFU*" from the PTF well field. Remarkably, FCI proudly touted how MW-01 was closer than the supplemental monitoring wells it proposed, which it placed five years travel time in the Oxide Zone from the PTF well field.

Clearly, FCI understands—as would any reasonable person—that a meaningful and effective timeframe for PTF operations is two years, not the five or more years of operations, restoration, and closure monitoring. ADEQ improperly allowed FCI to define an effective timeframe as including post-closure monitoring and refused to require monitoring to detect escapes during actual PTF operations. By not requiring meaningful monitoring, the Amended Permit does not meet the requirements of the ALJ Decision and WQAB Order.

2. The supplemental monitoring well locations could potentially meet APP requirements if moved closer to the PTF.

The Amended Permit claims to satisfy the ALJ's requirement for additional monitoring, in part, by using four supplemental monitoring wells (M57-O, M58-O, M59-O, M60-O) requested by USEPA for purposes of federal UIC permit requirements. ADEQ, correctly, had asked FCI to explain "why the edge of the DIA was chosen for the four supplemental monitoring wells in the Oxide Unit . . . and how the locations relate to effective monitoring *during the active phase of the*

testing.” FCI responded by supplying quoted language from EPA’s 2012 request for the wells that has nothing to do with this APP permit.

Given that FCI has agreed to construct these wells, and that they are far closer to the mine block than the POC wells now proposed, at a minimum FCI should agree to designating these wells (and the others required by EPA) as the Points of Compliance. If the project operates as FCI claims, these wells will not see any significant impact of the mine even after many years. But if an escape occurs (as documented by the observation wells), they do provide a basis for potentially determining the extent of the escape. These wells are arguably too distant from the active mine to be assuredly of value for this purpose, so the ideal outcome would be to seek EPA’s approval for locations within the two-year discharge impact area.

ADEQ Response-

The amended permit contains meaningful and adequate monitoring. The addition of bulk electrical conductivity monitoring and the inclusion of seven new supplemental wells screened within the different hydrologic units provides adequate monitoring for potential escape of solution during PTF operations. The monitoring is designed to demonstrate and confirm the BADCT requirements for the facility within the PMA, therefore, the locations of the supplemental wells are appropriate for this purpose. If alert levels established in Permit Section 4.1, Table 4.1-8 are exceeded, contingency actions are required by the permit to re-establish BADCT. Since the closure monitoring period is also a time when effective monitoring of BADCT is needed, ADEQ is requiring that the PTF closure monitoring be included in the area-wide permit for the mine.

C. The Amended Permit continues to ignore the heterogeneity of the aquifer system that FCI seeks to exploit.

ADEQ again allowed FCI to distance itself from BHP results that do not support its position, such as the demonstration of heterogeneity. ADEQ accepted FCI’s dismissal of those results without further investigation or inquiry. FCI provided no additional monitoring or reporting to prove up its position on the BHP data. The Town of Florence and its residents deserve more than facile assurances from a company that has demonstrated a willingness to obfuscate, sidestep, and stonewall when faced with tough questions.

1. The ALJ found that the BHP data required additional investigation and monitoring.

Despite FCI’s attempts to discredit them, the ALJ found that the BHP pilot test results and subsequent reports “are the kind of evidence upon which reasonable persons would rely in serious matters.” She found that the BHP pilot test data raised “serious questions” about FCI’s assumptions and calculations, including FCI’s assumption of equivalent porous media, which was based upon analysis and calculations conducted *before* the BHP pilot test. Although the ALJ did not find ADEQ’s acceptance of FCI’s model to be arbitrary, unreasonable, unlawful, or based upon invalid technical judgment, she did mandate that FCI “monitor for any escape of fluid that would demonstrate the shortcomings of its models.”

ADEQ Response-

The 1999 BHP draft Florence Project Field Test Report was submitted by FCI as part of this amendment application as required in the ALJ Decision and reviewed by ADEQ. Upon review of the 1999 BHP draft Report, ADEQ has not changed its position regarding the equivalent porous media assumption. ADEQ has included a permit requirement for a pre-operational report to confirm the assumption of equivalent porous media. The report must document establishment of measurable drawdown at the PMA and measurement of drawdown at the supplemental monitoring wells installed in the Oxide Unit during the establishment of capture. FCI must obtain ADEQ approval prior to injection of lixiviant to provide additional justification of the equivalent porous media assumption. The permit requires monitoring during operation to confirm capture is maintained and to detect any excursion of lixiviant into the LBFU.

2. FCI's approach to the BHP data continues to be contradictory and inconsistent.

As revealed in detail during the administrative hearing, the BHP pilot test data and reports showed that BHP, due to short circuits, the heterogeneous nature of the aquifer, and other operational factors, failed to maintain hydraulic control over the injected solutions, both horizontally and vertically, within its well field. Yet ADEQ allowed FCI to withhold that information and accept FCI's blatantly false statement that BHP maintained *complete* hydraulic control. FCI used this statement repeatedly to justify its model assumptions and predictions and in its public boasts in support of the project. Ultimately, it took the ALJ's Order to wrench the data from FCI. Once that happened, the reasons why FCI so desperately wanted to hide the data became clear: the BHP test results were devastating to FCI's APP application.

In its September 2015 response to ADEQ's Request for Additional Information, FCI criticized BHP pilot test data and reports as incomplete drafts, and rejected information that was unfavorable to FCI's position. But FCI continues to rely on select BHP reports in support of its depiction of the site's hydrogeology. Tellingly, the documents favored by FCI are from *before* the BHP pilot test, allowing FCI to avoid the unfavorable data from that test. Thus, FCI continues to follow the pattern it established early in the APP application process—cite to BHP data in its favor and attempt to conceal or discredit unfavorable data.

ADEQ wrongly continues to defer to FCI in light of this inconsistent approach and FCI's intentional decision to withhold BHP's real-world pilot test data from its original application package. ADEQ cannot reasonably continue to rely on FCI's statements. The BHP pilot test is the only real-world data available for this type of in-situ operation. It is from the same geological area as FCI's test and used essentially the same technology and mining processes. The BHP data is therefore highly relevant to FCI's pilot test proposal. Approval of this Amended Permit would repeat the same mistake made by ADEQ when issuing the initial Temporary APP to

FCI. Again, ADEQ has ignored and defied the ALJ and WQAB requirements to amend this permit in compliance with Arizona law.

ADEQ also has failed to require FCI to disclose all relevant information regarding the BHP test. This is shown by the recent production of BHP materials in a separate legal case, which contain new insights into problems with that project. In particular, copper concentrations during the test appear to confirm acid escape. The only information disclosed to ADEQ is what FCI deemed responsive to SWVP's subpoena. That subpoena was drafted with only limited knowledge of FCI's files. The recent production reveals that there is substantial additional information related to the BHP pilot test that FCI has not disclosed to ADEQ. With these comments, SWVP is putting ADEQ on notice that additional relevant data and documentation from the BHP pilot test exists that FCI has not disclosed. ADEQ has an obligation to obtain and review this information as part of its permit decision process and failure to do so is a basis for the final permit to be rescinded on appeal.

ADEQ Response-

The commenter states that ADEQ "cannot reasonably continue to rely on FCI's statements." ADEQ disagrees. The APP statutes and rules require that the applicant provide information to the department in support of an application (A.R.S. §49-243.A. and A.A.C.R18-9-A201, et. seq.). FCI and their consultants have provided the information required and ADEQ has reviewed and evaluated the information and included the appropriate requirements in the amended permit.

The commenter indicates there are materials presented in a separate legal case which contain "new insights" into problems with the project, but did not provide any such documents as part of the submitted comments. In response to the commenter's assertion, ADEQ requested the commenter provide these documents, however, the commenter's response did not include any additional documents for ADEQ to consider.

In addition, ADEQ requested that FCI provide any additional documents in their possession that are responsive to issues the WQAB remanded to ADEQ or the issues referenced in the commenter's comment. FCI responded that all documents have been provided.

3. ADEQ improperly allowed FCI to stonewall and obfuscate when asked to account for the BHP pilot test information in its models, calculations and proposals.

ADEQ asked FCI for a discussion of geologic conditions in the PTF area, given the anisotropy identified by FCI's consultant in a 2010 report analyzing the BHP data. FCI provided no new analysis or information, instead referring to BHP's work in the 1990s as support for its hydrogeologic model. FCI ignored the fact that many of BHP's model assumptions and predictions were called into question by the BHP pilot test. It also ignored the fact that the BHP model, with its equivalent porous media assumption, was called into question by the ALJ.

FCI also asserted that there was no additional characterization needed to understand the aquifer system beneath the PTF well field and no additional techniques or tests

that would answer the questions raised by BHP's pilot test. But BHP itself disagreed with that conclusion. The Draft Field Test Report and other BHP Pilot Test reports contain repeated statements that the aquifer is extremely heterogeneous and that FCI's Equivalent Porous Media (EPM) assumption cannot work. BHP's staff and consultants concluded that:

- the EPM assumption should be re-evaluated;
- calibration may never be achieved;
- the model did not fit the data;
- the EPM assumption didn't match the actual system geometry; and
- a model other than the EPM was "minimally necessary."

BHP also concluded that additional pilot tests under different conditions were necessary to better understand aquifer conditions. Undoubtedly, these pilot tests would have included monitoring designed to address the issues BHP identified, something FCI has consistently tried to avoid. In addition, BHP's successor found "major disparities" between BHP's assumptions and the pilot test results, recommending additional investigation to improve understanding of the geochemistry and hydrogeology.

Notwithstanding FCI's refusal to acknowledge the issues raised by the BHP pilot test and to design a monitoring program to investigate those issues further, as the ALJ directed, ADEQ issued this Amended Permit. By doing so, ADEQ rewarded FCI for continuing to promote flawed models and assumptions despite the BHP pilot test evidence and putting the Town's drinking water supply at risk. Worse, ADEQ again ignored and defied the clear directions from the ALJ and WQAB to properly consider the BHP reports and data regarding the hydrogeology of this site.

ADEQ's approach to the BHP data is part of a larger problem. ADEQ staff twice requested additional information from FCI to support its amended application. As it has done many times before, FCI responded to many of ADEQ's questions with dismissals, obfuscation, or outright hostility, as evidenced by just a few examples:

- FCI dismissed ADEQ's requirement that it evaluate additional methods of evaluating geologic conditions at the site, purportedly because nothing more could be done beyond what BHP and its predecessors did 20 years ago. This despite Dr. Wilson's testimony at the hearing describing several additional investigations that FCI should conduct in light of the BHP data. ADEQ never followed up to require more from FCI.
- ADEQ asked FCI repeatedly to clarify how its proposed monitoring would detect vertical migration into the LBFU and demonstrate vertical containment. FCI claimed that there was no evidence vertical migration would be an issue (despite clear evidence to the contrary in the BHP data); any monitoring data would be "noisy" and apparently unreliable; and there is no reliable way to monitor vertical migration inside the PTF well field. ADEQ let the issue go, relying largely on MW-01 to detect vertical

migration even though it is well outside the PTF well field, is largely useless for that purpose, and has already been explicitly rejected by the ALJ and WQAB as sufficient for this purpose.

- FCI “strongly” disagreed with ADEQ that its response to ADEQ’s first RFI was inadequate, complaining as if ADEQ had no right to ask additional questions. This is not the attitude of a company that is truly interested in transparency and “getting it right.” Rather, it is further evidence of FCI using bullying and political maneuvering to quiet ADEQ and its staff.

ADEQ Response-

ADEQ received all of the information deemed necessary to proceed with the permit. The amended APP includes additional monitoring to address the WQAB decision and requires pre-operational demonstration of capture. FCI responses to ADEQ requests for further information were reviewed and found to be acceptable to complete the permit. The data to be gathered during the Pilot Test will allow further evaluation of the model.

D. The permit should better address heterogeneity.

In the prior appeal, the ALJ agreed that Appellants had established short circuits in the BHP test results and spatial bias in FCI’s groundwater flow model. The current project design, operations plan, and monitoring strategies continue to ignore the implications of such heterogeneity.

ADEQ responded to some aspects of this problem through draft permit Section 2.7.4.3, which requires a Pre-Operations Report. SWVP appreciates that many provisions in this section will substantially improve ADEQ’s ability to assess the project before final approval to operate. However, a number of modifications to this section would further support a conclusion that the project can perform in an environmentally sound manner.

- Given concerns over aquifer heterogeneity, the requirement for only four aquifer tests is a bare minimum, especially with only three observation wells per test. Further, the draft permit provides no minimum specifications as to what constitutes a proper monitoring well, nor is there any assurance that the tests will be conducted at an appropriate pumping rate and for an appropriate duration. No tests should be conducted until FCI has submitted a testing plan and that plan has been made available for public review and comment.
- Certain critical tests that were conducted during the BHP project and that provided data of enormous value should be added to the pre-operations testing requirements. An example of such a test is formation hydraulic conductivity profiling of newly drilled open holes.

- Newly developed technologies for fracture mapping, such as 3D Electrical Resistivity Tomography, should be employed to evaluate heterogeneity (and would benefit FCI in its own design and operation of the project).

SWVP understands that the PTF is an experiment, and that not all project attributes can be fully resolved in advance of actually conducting that experiment. However, as for any sound experiment, FCI should be required to bring the best scientific tools to design a project that will gather and analyze data to test whether the ore body will assuredly function as an EPM. Failure to do so will only exacerbate the issues that will arise when a full project is under review.

ADEQ Response-

The purpose of the temporary permit is to test the feasibility of in-situ mining at the site. The permit requires submittal of the pre-operational report for review and approval prior to lixiviant injection to confirm capture. Aquifer tests are routinely conducted and ADEQ does not agree that a testing plan should be submitted prior to testing. FCI proposed four 24-hour constant rate discharge tests to determine aquifer properties to allow for calculations to place MW-01. The permit includes Tables for the POC wells, MW-01, and supplemental wells which includes the locations and proposed screened intervals, and the application provides well design details. Once MW-01 is installed, FCI will establish the capture zone using all recovery wells and inject Oxide Unit water from all injection wells. Data collected during operation of the longer term capture zone evaluation of the PTF will be evaluated to confirm the assumption of equivalent porous media and geologic heterogeneity.

ADEQ allows the use of numeric and analytic models to evaluate hydrogeologic conditions in support of permit applications to predict how a facility may impact the aquifer and environment prior to permit issuance. Data collected during operations is collected and used to update the model to confirm model assumptions. Although additional tests and geophysical methods could be performed, FCI has not proposed, and ADEQ does not require, all available testing and methods to be used. FCI has proposed sufficient testing to meet APP requirements.

E. FCI's revised geochemical model calls into question the groundwater model on which the permit is supposedly based.

The ALJ required FCI to provide a revised geochemical model because the model in its Temporary APP application depicted closure methods that FCI knew were inaccurate. The revised model that FCI has submitted with its amended application raises a host of new questions and issues. In particular, Section 4 of the application contains numerous statements, conclusions and data estimates, none of which are supported with any analysis or documents. As one example, the chemistry of Pregnant Leach Solution is said to be based on lab experiments, which apparently achieved considerably more copper recovery than was obtained by the real-world BHP experiment. SWVP cannot review, and ADEQ cannot accept, such results without substantial access to the supporting materials, including experimental methods and resulting data.

In addition, nothing in the report supports the most critical model result, that groundwater chemistry will be “restored” after rinsing. Of particular importance, FCI needs to explain the fate of the saline water (5,150 mg/l TDS) that will remain at the end of the project, and which seems likely to eventually contaminate the freshwater of the LBFU; this explanation will be of special value in assessing the ultimate consequences should a full-scale project go forward.

Yet another concern is that the revised geochemical model is based in part on a groundwater quality sample from PW2-1, which is screened in the LBFU and is located a few hundred feet east of the proposed PMA. FCI will pump 120 gpm from PW2-1 for rinse water during restoration, not much less than FCI intends to pump from the recovery wells. Given this large pumping volume so close to the PTF well field, the impacts of this pumping should have been incorporated into FCI’s groundwater model.

Especially important is an analysis of potential impacts to the cone of depression “barrier” FCI depends upon, since this pumping will tend to pull contaminants to the east. Yet ADEQ required no such analysis and there is no indication that FCI has done so. If the geochemical model represents FCI’s current restoration plan, then FCI’s groundwater model has been rendered even more unreliable than before. It is unreasonable to approve the Amended Permit based upon that model.

ADEQ Response-

The geochemical model report was properly sealed by an Arizona Registrant. ADEQ has reviewed and determined that the report is acceptable. In response to the change of chemistry of the pregnant leach solution, BHP conducted their pilot test with pregnant leach solution from the San Manuel mine, while Florence Copper is using their own pregnant leach solution. The criteria for PTF Mine Block Closure is specified in Permit Section 2.9.2 as sulfate concentration of 750 parts per million, pH above 5.0 standard units, and parameters less than AWQS or pre-operational concentrations. This permit condition has not been changed from the previous permit and the commenter's suggestion that TDS fate must be determined is beyond the scope of the ALJs findings and Water Quality Appeals Board Order. ADEQ does not agree that the revised geochemical model raises questions about the groundwater model. The geochemical and groundwater models are tools. The hydrologic, hydrogeologic and groundwater data collected from the pilot test will be used to evaluate and update the groundwater and geochemical models. Therefore, evaluation of the groundwater flow model is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

III. The Amended Permit suffers from additional problems.

A. The Amended Permit fails to properly account for all sulfuric acid injected into the aquifer.

To measure whether FCI is truly controlling acid solution, a legal, reasonable, and technically valid permit must require a regular accounting of how much acid is going into the ground and how much is coming out, with reasonable allowances for some minimal amount of loss and retention. Far from a novel concept, an acid balance was actually completed by Mr. Kline for the BHP Pilot Test and an acid balance requirement

was included as a condition in an early draft of the Temporary APP. The acid balance becomes even more important in light of the lack of meaningful monitoring in the Amended Permit.

ADEQ Response-

A sulfuric acid balance is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

B. The minimum one-foot inward gradient is inadequate to ensure hydraulic control.

The Amended Permit again wrongly assumes that a one-foot inward gradient is an adequate measure of hydraulic control, despite unanimous agreement from all experts at the hearing (including FCI's) that this differential is inadequate to ensure control. Although the ALJ did not direct this permit provision to be modified, she likely did so under the assumption that additional meaningful monitoring would be required on remand, which it was not. Furthermore, ADEQ on its own has enough evidence to recognize this permit condition is insufficient to assure environmental protection.

ADEQ Response-

The comment is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

C. The Amended Permit's comparison of electrical conductivity does not accurately determine whether injected acid solution has escaped FCI's containment.

Table 4.1-8 of the Amended Permit contains problems beyond those mentioned above. Most remarkable is the alert level for fluid electrical conductivity, which is not triggered unless the observation well conductivity is equal to or greater than the injection well conductivity. Injection well conductivity reflects the full strength injected acid solution. Therefore, if injected solution reaches the observation well in any state other than full strength (*i.e.*, if even one drop is recovered or diluted) then the alert level is not triggered. Given that at least some dilution is inevitable, there is no physical possibility that this permit condition will ever be violated.

A proper condition would require that *any* increase in conductivity at an observation well above background levels indicates that FCI potentially has lost control of its injected acid solution. That must trigger an immediate investigation by FCI, and a prompt response if a potential release of acid is identified.

It should be noted that except in Table 4.1-8 there are no requirements for bulk, wellbore or fluid conductivity monitoring in Section 4.0, Tables of Monitoring Requirements. Rather, that section typically specifies requirements for monitoring of "Specific Conductance," a term never used elsewhere in the permit. It is evident that ADEQ has not taken care to provide clear and consistent permit language, even though such language is essential if the permit is to be understandable and enforceable.

ADEQ Response-

The alert level for fluid electrical conductivity is set to detect possible loss of horizontal capture near the observation wells and recovery wells. The area near the recovery wells and observation wells is dynamic and fluid electrical conductivity values range widely and because of this, ADEQ does not agree that any increase in fluid electrical conductivity in an observation well is an appropriate alert level. The AL is exceeded when the fluid electrical conductivity is equal to or greater than the injection well fluid electrical conductivity, which would indicate a failure to maintain capture of the injected lixiviant. ADEQ must be notified within 24-hours of an exceedance and FCI must immediately investigate the exceedance.

Permit Section 2.2.4 clearly states that bulk, wellbore and fluid conductivity monitoring is required by Table 4.1-8. Sections 2.5.2 and 2.5.8 also require monitoring in accordance with Table 4.1-8. Fluid electrical conductivity in Table 4.1-8 and specific conductance in groundwater monitoring Tables 4.1-5 through 4.1-7B are the same parameter. The permit language is clear and consistent, resulting in a permit that is understandable and enforceable.

D. The Amended Permit does not address the deficiencies in FCI's groundwater and fate and transport models.

The Amended Permit continues to rely on an inaccurate groundwater flow model that contains significant spatial bias and is not properly calibrated. Hearing testimony showed that FCI's groundwater flow model shows significant spatial bias (errors not randomly or evenly distributed) in the area of the PTF pilot. In other words, FCI's groundwater flow model simply doesn't work. In support of the previous Temporary APP, and again in support of this Amended Permit, FCI relied on an error-ridden groundwater flow model and ADEQ allowed such reliance with full knowledge of its inaccuracy.

The Amended Permit also continues to rely on a fate and transport model that is not correctly calibrated. Deficiencies in the fate and transport model also have not been addressed. As with FCI's other models, the fate and transport model relies on an erroneous assumption that the aquifer acts as an EPM.

FCI's models incorporate inaccurate assumptions and, consequently, produce inaccurate predictions of how FCI's mining operations will affect the aquifer and nearby water supplies. The Amended Permit's continued reliance on inaccurate models and the inaccurate predictions that result is both unreasonable and based on clearly invalid technical judgments.

ADEQ Response-

ADEQ determined that the EPM assumption was valid. Data collected during operation of the PTF will be evaluated to confirm the assumption of equivalent porous media and geologic heterogeneity. Evaluation of the groundwater flow model is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

E. ADEQ unreasonably accepted FCI's claim regarding arsenic contamination.

The Amended Permit relies on geochemical model results from FCI showing that there will be no water quality issues associated with arsenic. This outcome is in gross disagreement with FCI's prior fate and transport model and with testimony at the appeal hearing.

The Temporary APP originally issued by ADEQ incorporated FCI's prediction that arsenic levels would be 15 ppb in groundwater after mining and restoration. Although FCI's previous predicted value for arsenic complied with the AWQS of 50 ppb, it significantly exceeded the federal arsenic drinking water standard of 10 ppb. ADEQ now adopts the 10 ppb limit for the FCI permit, and FCI predicts compliance, with no explanation of what has changed to achieve less arsenic than previously predicted.

This issue is particularly important because FCI's own expert consultant testified late in the hearing that FCI's original prediction, on which ADEQ had relied, was wrong. Dr. Terence P. McNulty, who has been serving as FCI's representative overseeing laboratory testing for the Florence Copper Project, had tested myriad core samples from the PTF ore field, including regular testing for arsenic concentrations, both in the pregnant leach solution and in the rinse water.

Dr. McNulty testified that 4 out of 24 samples of pregnant leach solution tested contained arsenic in excess of 1 part per million (*i.e.*, 1,000 ppb), with at least one of those samples testing as high as 32 parts per million (*i.e.*, 32,000 ppb). Based on the way that the arsenic testing was conducted, Dr. McNulty could not say how close the remaining 20 samples were to 1 part per million of arsenic.

Dr. McNulty testified that arsenic levels were also regularly tested in the rinse water resulting from rinsing the leached cores with a neutralizing solution and site water in simulation of field conditions. Although Dr. McNulty originally testified that arsenic concentrations averaged approximately 50 ppb, he later admitted that a more accurate estimate was 80 ppb.

Given these substantial inconsistencies with FCI's prior positions and the testimony of FCI's own expert consultant, it is unreasonable and technically invalid for ADEQ to simply accept this presumption without a comprehensive evaluation of the data upon which it is based.

Yet another issue regarding arsenic is that compliance is based on extrapolation of data near the mine to a single point at the project boundary. Compliance should instead be based on the appropriate POC wells. Alternatively, if predictions are to be made, they should be made for the entire mine periphery.

ADEQ Response-

The comment is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

F. ADEQ unreasonably failed to consider pumping impacts beyond the bedrock/LBFU boundary.

FCI has now produced results from their groundwater model that show pumping impacts truncated at the bedrock/LBFU boundary, which is assuredly contrary to hydrologic reality. Consequently, potential physical impacts to public water resources in the Florence area cannot be evaluated from the information submitted.

ADEQ Response-

The comment is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

G. The monitoring requirements in the draft permit are still inadequate.

Rigorous monitoring of the PTF is essential to ensure environmental protection against escapes of injected acid and to provide data essential to evaluation of a full-scale project. In response to the ALJ's finding that the original monitoring program was inadequate, FCI has now modified and in some respects expanded that program. The result appears to provide important improvements in monitoring of potential horizontal excursions, although significant problems remain as indicated below.

- FCI's proposal to add electrical conductivity sensors in the annulus of the observation wells is welcome. Their proposal shows sensors from just above the bedrock exclusion zone down to the bottom of each well. However, for some reason the draft permit only specifies these probes to be placed in the LBFU and exclusion zone. The full suite of sensors should be required, to ensure they are installed and properly used in project evaluations.
- Consistent with FCI's design, the Amended Permit approves well MW-01 as having two extremely long screens (320-600 feet and 620-1200 feet). Lixiviant escapes will likely be in discrete plumes. Sampling over several hundred feet of screen greatly increases the prospect that any such plume will be diluted out during sampling. The permit should specify that FCI do depth-specific discrete sampling in this well. Indeed, depth-specific sampling should be standard practice in all monitoring wells with long screens.
- It also is a problem that the Amended Permit requires indicator parameters to stabilize before any sample is taken for analysis. Conductivity and pH should not be included in the list of indicator parameters, since their stabilization will potentially mean that clean water has been drawn into the well, masking actual contamination.

ADEQ Response-

The comment is incorrect. Well bore electrical conductivity sensors are required to be installed in all observation, supplemental, operational monitoring and multi-level wells within the PMA. The sensors are required to be installed above the MFGU.

If the comment is referring to the bulk electrical conductivity sensors, they are only placed in the exclusion zone and LBFU on all observation wells to observe whether there are excursions of high conductivity fluids from the Oxide Unit to the LBFU.

ADEQ does not agree that if there are lexiviant escapes laterally from the PTF, they will be in discrete plumes. Lixiviant will be placed in injection wells that are screened from the top of the Oxide Unit to the bottom of the Oxide Unit. The screen intervals for MW-01 are within the LBFU for the upper screen interval (320 to 600 feet) and the Oxide Unit for the lower screen interval (620-1,200 feet). The common practice for screening monitoring wells to observe deep injection is to screen the monitoring wells at the same interval as the injections wells, most typically for deep groundwater effluent recharge.

Lastly, the third comment is incorrect. The purpose of using stabilization of indicator parameters for groundwater sampling is to indicate that the well is has been purged and is receiving water from the aquifer. Purging a well to stabilization will not mean that clean water has been drawn into the well but that the well is drawing groundwater from the aquifer, whatever its pH or conductivity may be. This is also common and accepted well sampling practice.

H. The Amended Permit contains no requirement for acid accounting.

The Amended Permit requires that more water be recovered than injected, and assumes that this establishes that hydraulic control has been totally achieved. The ALJ did not agree with SWVP that the permit should restate this requirement as an acid balance, rather than a water balance. Her decision, based as it was on the assumption that additional rigorous monitoring would be implemented on remand, does not preclude a requirement that FCI at least gather and report the data that would be used in an acid balance. If FCI and ADEQ refuse to do so, it is certain that the result will be to add to the issues associated with the permit for the full-scale mine, making the next proceeding more contentious than in needs to be.

ADEQ Response-

The comment is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

I. FCI has not explained how this pilot test will provide meaningful results for a commercial mine when it claims that the nearby BHP pilot test well field is significantly different than the location for this pilot test.

Despite the fact that the two well fields are located over the same hydrogeologic system and are just hundreds of feet apart, FCI claims that the hydrogeology of the BHP pilot test well field is significantly different than the PTF well field.

- In reference to the BHP project, FCI stated that “Even if the tracer tests were found to be representative of formation properties, the tests were conducted in a small portion of the larger Poston Butte copper deposit and those formation properties would not be

directly transferable or applicable to the area where the PTF test is planned to be conducted.”

- FCI makes a similar argument in the section regarding BHP’s “Groundwater Flow Model”, where FCI states that “even if the model results were found to be representative of formation performance during the BHP Copper Hydraulic Control Test, they would only be applicable to a small area of the Poston Butte copper deposit where the test was conducted and would not be directly transferable or applicable to the proposed PTF well.”

FCI apparently offered these opinions so as to justify discounting any BHP results unfavorable to the new project. However, if one assumes FCI is correct, then even if reliable data are obtained for the test area, those data will be of questionable or no relevance in assessing the safety of acid injection and recovery elsewhere in the project area, including areas to be impacted by the full-scale project.

If the PTF and BHP well fields are so different that data from one location cannot be used to evaluate the other, then it is unreasonable, arbitrary, and technically invalid for ADEQ to accept FCI’s assertion that the PTF results can be used to design a uniform injection, recovery, and restoration system for dozens of commercial mine blocks across hundreds of acres as commercial production unfolds.

ADEQ Response-

These comments are directed towards commercial mining at the Florence Copper site which is beyond the scope of the ALJs findings and Water Quality Appeals Board Order.

IV. The Public Comment Process is Procedurally Flawed in Ways That Appear Intended to Chill Public Participation in ADEQ’s Permit Decision.

ADEQ’s public comment process for the Amended Permit has the look and feel of a rote exercise intended to check the box for public participation without any intention of meaningfully involving the public in ADEQ’s decision. A brief 30-day comment period for one of the most controversial permit decisions in ADEQ history; vague descriptions of the basis for remand and the scope of changes to the permit; misleading statements and limited access to background information. All things that appear intended to meet a minimum threshold for legality without any desire to fulfill ADEQ’s obligations to receive and respond to meaningful public input. The public participation process in this case is broken, whether ADEQ wants to admit it or not.

A. Public notice of the Amended Permit was inadequate.

ADEQ’s public notice of the Amended Permit failed to provide the information necessary for the general public to effectively comment on and participate in the agency’s decision-making process. ADEQ’s public notice stated:

This permit is being issued subsequent to an appeal in which the majority of the permit was upheld. Therefore, those sections of the permit that have been upheld are not subject

to public comments. Public comment is limited to only those sections that were remanded to the department for additional development.

ADEQ did not provide a copy of the referenced decision as part of its notice and did not tell the public where it could go to find the decision. Nor did ADEQ attempt to explain the decision or explain which of the sections of the original Temporary APP were upheld so that the public could focus on the issues that ADEQ believed relevant to its decision. ADEQ cannot reasonably expect the general public, untrained in legal or technical matters, to find this information on its own. By not explaining the basis for its actions, ADEQ has created a public comment process that is inherently unfair and serves to chill meaningful public input.

Furthermore, ADEQ misstated the law regarding the scope of public comment. Public comment is not limited to those sections of the permit that were remanded for further review. ADEQ's statement that permit terms that were upheld "are not subject to public comment" is obviously incorrect because the ALJ directed ADEQ to review and consider data and reports from the previous BHP in situ leach project at this site. None of that information is captured in the permit. Rather, it is background, real-world information that ADEQ was supposed to consider in re-drafting the permit. By failing to tell the general public that it was allowed to comment on the relevance of the BHP information and by failing to inform the public of where it could find that information in the record, ADEQ prevented the public from intelligently commenting on a key issue of importance to the ALJ's decision.

Nor can ADEQ unilaterally limit public comment to the issues it believes were remanded by the ALJ. *Anything* in the Amended Permit that changed from the previous permit is open to public comment if the change gave rise to new issues or resurrected old issues, as are the collateral impacts of permit modifications. ADEQ's position is merely parroting FCI's public position regarding the scope of issues on remand, which is intended to chill public comment.

Unreasonable attempts to limit the scope of public comment on the Amended Permit undercut any claim that the public process is fair and transparent. SWVP has no desire to reopen the dozens of issues raised with regard to FCI's original Temporary APP permit, nor does it need to. The serious flaws in the Amended Permit, if left unchanged, are fatal and ensure that the permit will not withstand scrutiny on appeal. But ADEQ should not be attempting to limit public comment on such an important decision, when ignoring public comment only increases the risk to groundwater supplies and increases the potential that FCI's pilot test will not provide the information needed to assess the company's application for a commercial permit.

ADEQ Response-

ADEQ gave appropriate public notice of its request for written public comment for the significant amendment to the FCI Temporary APP pursuant to A.A.C. R18-9-109. The public notice also included information on how to review the draft permit, and related documents. The public may access the documents including all submittals from FCI, all memorandums and

letters produced by ADEQ, and the previous permit and permit documents, at any time by contacting the ADEQ Records Center. The appeal documents are public records, and are available through a records request to the WQAB. ADEQ correspondence within the permit file includes reference to the WQAB Case, which could have been used to obtain the WQAB decision. ADEQ held the written comment period open for greater than 30 days, up to and including after the public hearing.

ADEQ reviewed and considered the BHP report in developing the Temporary APP. Those portions of the permit that were upheld by the WQAB are no longer appealable under the legal doctrine of issue preclusion. Those portions of the permit that are unchanged are not appealable as the time to appeal those provisions has run. The only portions of the permit that are subject to public comment are those that have changed.

B. ADEQ's Fact Sheet contains significant misleading errors.

ADEQ's Fact Sheet is intended to meaningfully summarize the key components of this project and the key terms of the Amended Permit in a concise and accurate manner that can be understood by the general public. The Fact Sheet for the Amended Permit fails woefully in this regard. The Fact Sheet begins by stating that "The Arizona Department of Environmental Quality (ADEQ) *has issued* a Temporary Individual Aquifer Protection Permit (APP) for the subject facility that is valid for one (1) year and may be renewed for one (1) additional year This document gives pertinent information concerning *the issuance of the permit.*" These statements give the reader the impression that a final and enforceable permit has been issued, rather than a draft permit that purportedly may be changed based on public input. This impression is reinforced by FCI's recent self-serving public pronouncements that a permit has been issued. Such an impression serves to chill public comment, as many members of the general public could interpret this to mean a final decision already has been made.

The Fact Sheet further states, as if it were a permit condition, that the "cone of depression from pumping the PTF recovery wells will be measured at the 500-foot radius and all injected solutions must remain within this PMA." This implies that the Amended Permit requires monitoring of the cone of depression at the 500-foot line around the PTF well field. This is not true at all. The Amended Permit has no monitoring wells at the 500-foot line to monitor the existence or gradient of the cone of depression. As described in more detail above, the 500-foot radius is nothing more than an arbitrary line that FCI used to justify not moving its POC wells. By implying that the 500-foot line was a monitoring location for the cone of depression, ADEQ has misled the public and misrepresented the facts.

The Fact Sheet also states that Monitoring Well MW-01 is to be located downgradient of the PTF well field "to measure changes in chemical groundwater concentrations in the injection zones within the time frames allowed by the Temporary APP, *but no more than one-year from the effective date of this permit using aquifer travel times.*" This statement gives the impression that the Amended Permit requires MW-01 to be located within one-year's groundwater travel time of the PTF injection zones, such that MW-01 would detect escapes of acid mining solutions occurring during active mining. But this is not the case at all. Nothing in the Amended Permit requires MW-01 to be placed within a year's aquifer travel time of the PTF injection zones. In fact, the language governing placement of MW-01

remains unchanged from that in the original Temporary APP. Given that the location of monitoring wells was a key consideration in the ALJ's and WQAB's decision to remand the Temporary APP, this incorrect and misleading statement in the Fact Sheet cannot be dismissed as a minor error.

The Fact Sheet goes on to incorrectly state that a "network" of supplemental, observation, and multi-level wells will be used to "monitor for any potential migration of solutions outside of the permitted area of solution injection." As described in more detail above, the Amended Permit requires no "meaningful monitoring" for vertical escapes into the drinking water aquifer, as mandated by the ALJ and WQAB. Therefore, the Fact Sheet is both factually incorrect and misleading to the public.

Furthermore, the wording in this paragraph implies that FCI will monitor and report water chemistry, electrical conductivity, and groundwater contour data from the multi-level wells inside the PTF well field. Although we have repeatedly requested that ADEQ require such monitoring of the multi-level wells, the Amended Permit only requires FCI to report electrical conductivity data from a sensor placed *above the MFGU* in each multi-level well. This single data point does nothing to monitor for excursions of acid mining solutions into the drinking water aquifer, and falls far short of monitoring for the numerous parameters listed in the Fact Sheet. Thus, FCI will not be reporting any meaningful monitoring data from the multi-level wells, contrary to the clear implication in the Fact Sheet.

The Fact Sheet for the Amended Permit fails woefully in this regard. The Fact Sheet begins by stating that "The Arizona Department of Environmental Quality (ADEQ) *has issued* a Temporary Individual Aquifer Protection Permit (APP) for the subject facility that is valid for one (1) year and may be renewed for one (1) additional year This document gives pertinent information concerning *the issuance of the permit*." These statements give the reader the impression that a final and enforceable permit has been issued, rather than a draft permit that purportedly may be changed based on public input."

ADEQ Response-

Factsheets are not required in statute or rule. As a courtesy to the public, ADEQ provides factsheets that include general information about the facility and permit.

ADEQ agrees that the language "(ADEQ) has issued a Temporary Individual Aquifer Protection Permit" is confusing and has modified the language to indicate that "ADEQ proposes to issue". For clarification, Page 6 of the factsheet has also been revised to state that the placement of monitoring well MW-01 be no more than two years travel time from the PTF. The location of MW-01 is still subject to approval by ADEQ, pending the outcome of aquifer pump tests.

The factsheet describes the PTF PMA and the monitoring that will be conducted to confirm that cone of depression is present at the edge of the PMA to demonstrate BADCT. The factsheet has been revised to indicate that the cone of depression from pumping the PTF recovery wells will be monitored at the 500-foot radius.

ADEQ disagrees that the permit does not require meaningful monitoring to detect excursions into the LBFU; the monitoring has been described in response to previous comments. The

factsheet provides an overview of the monitoring to be performed, with the permit including all details and requirements. ADEQ does not attempt to provide a detailed description in the fact sheet of each type of well and each type of monitoring to be performed at the well. Detailed review of the permit by interested parties would be the best way to obtain this understanding.

C. ADEQ should issue a new Public Notice and make supporting documents easily available to the public.

As a result of the issues described above, ADEQ's public notice and comment process is fundamentally flawed and illegal. Moreover, it fails to meet the spirit and intent of the law. ADEQ should issue a new public notice with an accurate and truthful description of its decision and the scope of public comment, and provide additional time for public comment.

ADEQ Response-

ADEQ gave appropriate public notice of its request for written public comment for the significant amendment to the FCI Temporary APP pursuant to A.A.C. R18-9-109. All relevant documentation for the FCI application and permit were available for public review, and instructions for obtaining public records were provided in the public notice for this amendment. ADEQ does not intend to issue a new public notice.

V. ADEQ should withdraw the Amended Permit and deny FCI's application because it is unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgments.

The Amended Permit posted by ADEQ is no less unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgments than the previous Temporary APP remanded by the WQAB. Notably, the ALJ had recommended revocation of the permit based on the scope of the permit's failure to comply with Arizona law. Nevertheless, WQAB allowed a remand of the permit with the understanding that FCI and ADEQ would implement the changes required by the ALJ and WQAB.

Unfortunately, ADEQ issued the Amended Permit without implementing the required changes. In doing so, ADEQ and FCI have openly and repeatedly defied the ALJ and WQAB. It is our sincere hope that ADEQ reviews these comments with objectivity and a desire to comply fully with Arizona law as ordered by the ALJ and WQAB. If ADEQ persists in issuing this unlawful Amended Permit to FCI for the Florence Copper Project, SWVP and other interested parties will continue to assert their appeal rights to ensure the environmental protection that ADEQ is charged with protecting on the public's behalf.

ADEQ Response-

ADEQ required FCI to submit the permit amendment application to address the scope of the ALJs findings and Water Quality Appeals Board Order. ADEQ reviewed the application, drafted a revised permit, and gave appropriate public notice. ADEQ intends to proceed with issuance of the significant amendment.

Commenter 122, Michael Jones –

In the Florence Copper website it shows a cross section of the geology, simplified I am sure. According to this illustration there is a 60' aquitard [as defined: A body of rock or stratum of

sediment that retards but does not prevent the flow of groundwater from one aquifer to another.]. The lower basin [aquifer] is in direct contact with the copper bearing bedrock. My question is how will the acid water solution be controlled to NOT melt the upper part of the copper bearing bed rock formation by migrating? Even though there is a supposed 40' buffer.

The state of Arizona has incredible resources, in my opinion the most valuable of all is water which is probably one of the lesser resources particularly in that large valley. Once the water table is contaminated, game over, the water supply to thousands, hundreds of thousands has just been compromised, Flint Michigan on a much grander scale, although a different poison. There goes farming, ranching, the endless things a good water supply provides.

In conclusion I feel this is a terrible idea, the possibility of a wreck is too great.

ADEQ Response-

The acid solution will be injected and recovered within the oxide zone below the 40 foot buffer. The cone of depression within groundwater will be established to provide a barrier to contain the injected acid within the oxide zone. Florence Copper must demonstrate that the cone of depression is established prior to start-up. If the barrier is not established Florence Copper will not be allowed to inject the acid solution. The revised permit adds electrical conductivity monitoring above the area of acid injection to provide adequate monitoring for potential escape of acid solution above the oxide zone. If there is an excursion of acid solution, FCI must increase pumping from the recovery wells and reduce injection of acid solution until the electrical conductivity returns to the ambient condition.

Commenter 123, Barbara U. Rodriguez-Pashkowski, Gust & Rosenfeld –

“Knowing that there are many interested parties, most who do not have the technical or legal expertise to analyze the Amended Permit, ADEQ, in its Fact Sheet, should have identified how and where in the Amended Permit it addressed the ALJ’s and WQAB’s recommendations and order. The seven points listed on page 3 of the ADEQ Fact Sheet are not helpful as they do not provide the detail necessary to evaluate how ADEQ addressed the recommendations remanded to it by the WQAB. Providing that detail is necessary to allow meaningful comment from the public who will be directly affected by the proposed mining operations. And, providing that detail is especially critical as ADEQ attempts to limit public comment to the issues remanded to ADEQ by the WQAB.

ADEQ Response-

Factsheets are not required in statute or rule. As a courtesy to the public, ADEQ provides factsheets that include general information about the facility and permit. The public record for this permit, including ADEQ’s analysis, is available for review from the ADEQ Records Center.

The Town, therefore, requests that ADEQ clearly identify its basis, including, how and where in the Amended Permit it addressed each of the ALJ’s recommendations as adopted by the WQAB. Without limiting the Town’s request that ADEQ address each of the ALJ’s recommendations, the following ALJ’s recommendations, which are referenced by paragraph and page, are of particular interest to the Town:

Paragraph 25, pg. 128

“...BHP’s draft reports and the reports conclusions about hydraulic control and migration of fluid during the 1997-1998 pilot project should be considered to gauge whether the terms that ADEQ approved in the Temporary APP were arbitrary, unreasonable, unlawful, or based upon a technical judgement that was clearly invalid.”

Paragraph 27, pg. 128

“...FCI should be required to monitor for any escape of fluid that would demonstrate the shortcomings of its models.”

Paragraph 33, pg. 130

“...ADEQ did not require meaningful monitoring because it assumed that FCI’s net recovery of fluid and maintenance of a 1-foot inward hydraulic gradient were sufficient to prevent vertical and/or horizontal migration of fluid, the Temporary APP would violate ARS Sec. 49-243(B)(1) and BADCT by failing to ensure that the Temporary APP’s BADCT hydraulic control mechanisms effectively achieved the greatest degree of discharge reduction available.”

Paragraph 36, pg. 131

Failure to require “meaningful monitoring [through electric conductivity sensors or a hydrosleeve] of vertical excursions of fluid into the LBFU was arbitrary, unreasonable, and based upon a technical judgement that was clearly invalid”

Paragraph 41, pg. 132

“A single monitoring well downgradient to detect vertical and horizontal migration of in-situ solution during the two-year term of the PTF was unreasonable and based on a technical judgement that was clearly invalid.”

Paragraph 49, pg. 135-136

The “Temporary APP...cannot authorize FCI to use the same POC wells as the commercial APP...”

Paragraph 55, pg. 139

“The 1600 or 1000 foot cone of depression...is not a permit control mechanism under BADCT.”

Paragraph 57, pg. 139

“...to expand the size of the PMA to nearly 100 times the size of the ‘[t]he area on which pollutants are or will be placed’ defeats ARS sec. 49-243(B)(1)...”

Paragraph 59, pg. 140 and Paragraph 60, pg. 141

POC wells do not and cannot define the PMA as they are “to far from ‘the limit projected in the horizontal plane of the area on which [lixiviant] will be placed,...’and do not allow for meaningful monitoring of pollutants that may escape the PMA during the PTF operations.

Paragraph 72, pg. 144

Where in the amended permit are FCI’s closure plans addressed?

ADEQ Response-

A summary of the permit changes are listed in the ADEQ Factsheet. The complete public record for this permit, including ADEQ's analysis, is available for review from the ADEQ Records Center.

Commenter 124, Tara Walter –

Commented that the amended permit does not address the Water Quality Appeals Board Order due to lack of scientific methods to detect migration of sulfuric acid.

ADEQ Response-

Adequate monitoring mechanisms are in place to monitor migration of sulfuric acid. The bulk electrical conductivity monitoring uses sensors that are placed in the exclusion zone of the Oxide Unit and into the Lower Basin Fill; these sensors will provide notice if there has been an excursion of the sulfuric acid (lixiviant) into the Lower Basin Fill Unit above the PTF wellfield. A detailed description is provided in the FCI application documents (March 31, 2015, Section 2.1, and September 14, 2015 FCI Response to ADEQ Request 11).

Commenter 125, Rebecca Miller –

Commented on the on the economic feasibility of the Florence Copper project and perceived benefits to the local community.

ADEQ Response-

The comments are noted.

Commenter 126, Rodney Lawson –

Commented that the revised permit provides adequate protection and FCI should conduct the pilot test.

ADEQ Response-

The comments are noted.

Commenter 127, Larry Putrick –

“When you look at the same in Arizona, there's one hell of a lot in terms of data which says, every time you mine for copper, you have some kind of a problem and it usually deals with water and that's all we're saying. We don't care where you mine for copper, just don't mine in the water supply.”

ADEQ Response-

The purpose of the Aquifer Protection Program is to protect Arizona's groundwater. This permit requires FCP to take precautions and monitor to prevent contamination of groundwater in the area.

If ADEQ has reason to believe that conditions in the permit are or have been violated, ADEQ will take appropriate action, as provided in Arizona Administrative code (A.A.C.) R18-9-110.

Commenter 128, Richard Sichling –

“With all demonstrated changes made with the permit that was requested, additional monitor wells and the assurance of a the BADCT technologies follow, I strongly support Florence Copper and the request to ADEQ issue the temporary individual aquifer protection permit allowing this test facility to move forward.”

ADEQ Response-

The comments are noted.

Commenter 129, Bill Hawkins –

“I haven't seen anything on (unintelligible) test that includes the water. I saw nothing in the application of who's going to pay to remediate the problem. (Unintelligible). Look what they're going through. You don't - you're - I (unintelligible) numerous times from Florence Copper, from ADEQ everything showing - show one in-situ copper mining operation that did not pollute the water. I have yet to have anybody come up with one.

“They say it's proven technology. Nobody's shown me one example of any successful in-situ copper mining operation in the world that has not polluted the water. And as important as water is to Arizona, the government itself just vetoed two bills to protect our water. So it just boggles my mind that you would even consider this and then you're not even addressing the - you're letting them get by with stuff, that would be (unintelligible) the Water Quality Board said that they want it answered and you're not addressing that - (unintelligible) slide on that and the judge that oversaw it - you haven't addressed his concerns that just - I'm shocked that it has gotten this far and it goes on and on.”

“And who is going to pay for that remediation plan? I haven't seen anything on that, you know. And that's going to be millions of dollars if it even goes (unintelligible). Are the taxpayers going to be stuck with it? That's my main concern here is the water. You know, I'm not anti-business by any means, but I'll guarantee you this would never happen in any other area. If you went to Phoenix, if you went to Mesa, Gilbert, Scottsdale and wanted to put mine in the middle of their town. Look at - okay here's an example (unintelligible) they pollute the water in Scottsdale, it bled in Scottsdale, North Tempe, they're still trying to remediate that and that was 30 years ago.”

ADEQ Response-

ADEQ has determined that the permit application for this pilot project satisfies the requirements of APP program regulations and the requirements of the Water Quality Appeal Board Order. The purpose of the pilot project is to provide information that will support a decision on whether in-situ mining can be permitted at this facility. The permit requires engineering controls and groundwater monitoring to ensure that Aquifer Water Quality Standards (AWQS) will not be exceeded. The permit contains alert levels that, when triggered, requires Florence Copper to take contingency actions to investigate and correct alert level exceedances. Additionally the permit requires Florence Copper to take corrective action in the event of a permit violation, including any remediation necessary to correct a violation of an AWQS.

The commentator refers to remediation of groundwater pollution that occurred 30 years ago in Scottsdale, and may be referring to a "Superfund" cleanup site. The Aquifer Protection Program came into being in 1987, to protect Arizona's groundwater resources and to prevent such past uncontrolled contamination of groundwater from occurring.

Commenter 130, Dan Johnson –

Commented that the proposed FCI pilot test is based on sound science and proven mining techniques and that the monitoring requirements in the draft permit are adequate to ensure that the local aquifer will be protected from contamination.

ADEQ Response-

The comments are noted.

Commenter 131, David Malton –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 132, Chuck Watson –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 133, James Stevens –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 134, Greg Koontz –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 135, Douglas Carlson –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 136, Meghan Kuebler –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 137, Eric Mears –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 138, Denise Kolbert –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 139, Mason Bolitho –

“From my experience I believe the Florence Copper permit is the most protective permit I have reviewed because of the extensive monitoring requirements. Those requirements include such services as electrical connectivity monitoring, right for the water level surface monitoring, seven point of compliance wells for each (unintelligible) ADEQ, seven operational monitoring wells for EPA, one operational monitoring wells for DEQ and 24 hour pumpage and injection monitoring.

As former - a senior hydrologist in the APP program I urge ADEQ to issue the Florence Copper permit. The permit has extremely protective monitoring requirements to protect groundwater in the area of the facility. Thank you.”

ADEQ Response-

The comments are noted.

Commenter 140, Clint Sundt –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 141, Brad Cole –

“The risk to our water supply should not be something that you should accept either. ADEQ has openly defied the ALJ’s decision in the water quality (unintelligible). The amended permit does not address the reasons for remanding the previous temporary APP, nor does it implement the amendments required by the ALJ and the Appeals Board.

The amended permit no more complies with Arizona law than the temporary (unintelligible) already found, why the ALJ and the Appeals Board to be unlawful, arbitrary, unreasonable and based - and clearly based on clearly invalid technical judgements. ADEQ should withdraw the amended permit and should require Florence Copper to meet the requirements of the Appeals Board Order.

Let me get to the bottom line. The acid solution is strong enough to dissolve copper off (unintelligible) and in addition it will be re-circulated at high concentrations numerous times after it is pulled out of the ground until they get a high enough concentration of copper. I will add, there is much more to fear than a dangerous acid solution. Numerous other metals and harmful chemicals will be released as part of the process.

Finally, let me remind you, the State mission of the ADEQ is to protect and enhance public health and the environment. Testimony from prior BHP personnel and the appeal of the permit confirm that they could not contain the acid solution. I would expect the same to be true in this case. The ADEQ rescind the permit or its (unintelligible) requirements of the Appeals Board Order. Thank you.”

ADEQ Response-

The modifications made to the draft permit satisfy the terms of the remand by the Water Quality Appeals Board. Without specific reference to sections or requirements in the permit, ADEQ cannot respond further to the commenter’s claims.

The commenter is correct that the Mission of ADEQ is to protect human health and the environment. ADEQ supports environmentally responsible economic growth. Through compliance with the permit, the FCP pilot project’s impacts to the environment will be minimized.

Commenter 142, Barbara Sylvester –

“The network of thirty wells which has been monitored continuously for almost twenty years. Twenty years of solid, consistent data. Background data before anything ever took place (unintelligible) in the project. Even minor changes in water quality that occur naturally are easily visible to the data set that is this large and continuous.

The monitor wells service samples surrounding the property, watching for any changes that might occur post-process. Protecting downstream users. A process effect that would come from this (unintelligible) process very clear and distinct, easily visible in (unintelligible). I entered environmental engineering to work on projects like this to be in the forefront of technology where we find ways of managing resources that protect the environment.

I am thrilled to work on a project, a mine, that will not destroy acres of land, that will not convert a mountain of debris to (unintelligible) in the summer and leave (unintelligible), but instead will only leave a quiet cluster of wells at the surface which are moved, sealed and (unintelligible) a farm (unintelligible).”

ADEQ Response-

The comments are noted, however did not address the draft APP.

Commenter 143, Mark Nicholls –

“Of course as you know the permit has gone back to ADEQ for the addition of more commentary partly at the request of members of the community and some of the influence there. I am familiar with the monitoring that has been added to that permit, and it is extensive, it is more extensive than any APP permit I've seen or any permit of similar scope. In fact, I would like to talk to you a little about one of the monitoring methods that we've added to the permit.

We've heard people say here tonight that they won't be able to detect if there was an exclusion of sulfuric acid. We've heard people say that there's no scientific method included in the permit to detect that migration. These statements are fundamentally untrue and I'm saddened by the fact that this misinformation is circulated in the community. But the reality is, this permit will incorporate electrical sensors that will be placed within the exclusion zone, outside of the injection area, above the injection area, at the inner base between bedrock and the lower basin fill and then within the lower basin fill unit.

Those sensors will detect in a scientific manner migration of any fluids that were moved upward from the injection well-field. And in, when I say in a scientific manner, I would challenge you to, as an opponent, to find a PhD geophysicist who will tell you that electrical conductivity monitoring is not a scientific method. Certainly this permit is more protective than any APP permit issued, certainly any temporary permit issued for a project of similar type and scope. I appreciate the opportunity to voice these comments.”

ADEQ Response-

The comments are noted. With consideration for the type of project being proposed and the characteristics of the site, the operational and monitoring requirements of the revised permit are appropriate, provide adequate protection and are within ADEQ's authority.

Commenter 144, Dr. Christina Dumal –

“It has recently been brought to our attention that during the BHP pilot test hydraulic control was not able to be maintained. What guarantees do we have that FCP will retain hydraulic control. Just because they say so does not guarantee anything because we are aware of the companies past nefarious actions.”

ADEQ Response-

The permit requires FCI to demonstrate hydraulic control before they can begin injecting mining solutions. See draft permit Section 2.7.4.3, and Compliance Schedule Section 3.0, Item

2. During operation hydraulic control will be monitored as a condition of the permit. See draft permit Sections 2.2.4, 2.5.2, 2.6.2.10 and Table 4.1-8.

“Florence Copper Project does not have any other (unintelligible) mines. Thus it will be using this mine and the surroundings 100,000 residents will be used as guinea pigs while they perform their testing. Florence Copper has not adequately addressed the issue of monitoring for contamination of our drinking water aquifer, the lower basin fill unit.

This aquifer, especially the area which runs adjacent to the proposed mine, drops down vertically running adjacent to the proposed mining area. It is just those vulnerable areas that we are concerned about will be contaminated.

If this is so safe, why are you not putting one of these wells between the mine area and our aquifer? That is one of the problems. We need to make sure that our water is not contaminated. But Florence Copper is not putting wells there.

According to ADEQ's 7/5/2013 response, Florence Copper, aka Curis Resources, has determined that the closure cost would be \$3,457,743. And ADEQ has deemed this adequate. This is for closing costs only, this will not even cover the loss of our homes, homes values if indeed this aquifer becomes contaminated.”

ADEQ Response-

The permit conditions that FCO is required to meet, including monitoring requirements, will ensure that the aquifers will be protected. The addition of electrical conductivity monitoring and the inclusion of seven new wells screened within the various different hydrologic units provides adequate monitoring for potential escape of solution.

Commenter 145, John Anderson –

“Is the Arizona Department of Environmental Quality responsible for protecting the environmental quality of state owned lands as it relates to the requested amendment?”

ADEQ Response-

Yes.

“Is the groundwater considered to be under the protection of ADEQ?”

ADEQ Response-

Yes.

“The meeting notice for tonight’s meeting clearly states: The facility is located in Pinal County, Arizona, over groundwater of the Pinal Active Management Area. The groundwater for this amendment and original permit application is the specific aquifer that supplies my drinking water! The technical data for this amendment clearly states the aquifer will be contaminated, If so, how can ADEQ approve such an amendment?”

ADEQ Response-

See group response to commenters 80-117. The Aquifer Protection Program was established to regulate the type of activity being proposed by FCI.

Commenter 146, Lina Austin –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 147, Patricia DeStefano –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 148, Tom Rankin –

The commenter stated that the draft amended permit does not satisfy the findings of the Administrative Law Judge, and the permit should not be issued.

ADEQ Response-

The new requirements in the draft permit adequately address the Administrative Law Judge's Decision and Water Quality Appeals Board Order.

Commenter 149, Tom Parish –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 150, Sydney Hay –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 151, Valerie Woolridge –

Commenter stated concerns about transportation of sulfuric acid in Florence and costs/dangers associated with sulfuric acid spills.

ADEQ Response-

Chemical transportation and spill response are outside of the scope of the APP program.

Commenter 152, Karen Wall –

“Before issuing the draft permit ADEQ should have but did not provide an explanation clearly showing if or how Florence Copper complied with Water Quality Appeals Board’s Order and where in DEQ’s proposed draft permit, compliance is demonstrated. This explanation should have been made available to the Administrative Law Judge, the Water Quality Appeals Board and all interested parties. The general public should not have to scour a highly technical document to determine whether or not all requirements have been met.”

ADEQ Response-

The Water Quality Appeals Board Order remanded the FCI Temporary APP for modification through the significant amendment process, and ADEQ followed all public participation requirements for this Temporary APP under A.A.C. R18-9-219. The changes to the draft permit were listed on Page 3 of the Factsheet.

“I personally believe the ADEQ and Florence Copper have not fully complied with the sections that were remanded and that concessions were finally made that disregarded portions of the Administrative Law Judge's conclusions and the Water Quality Appeals Board's order.”

ADEQ Response-

ADEQ cannot respond to these claims without specific reference to permit language or requirements.

“Florence Copper has argued they provided all of the information necessary for ADEQ to issue the APP and the ADEQ had no right to require any other changes except those in the Water Quality Appeals Board’s order. This contention is despite the fact that ADEQ notified Florence Copper in December of 2015 that 11 of their responses to ADEQ’s previous request for additional information were inadequate.”

ADEQ Response-

The FCI submittal from January 25, 2016, satisfied all of the information requested in the December 2015 letter.

“Based on what I've seen in the draft permit and recognizing my time to speak is limited, here are just three of my main concerns:

One, that a pollution management area and point of compliance wells are so far away from production test facility that it would be impossible to detect permit violations during the proposed two-year test period. It could be years or decades before the point of compliance wells would detect any pollutant escapes.”

ADEQ Response-

The PMA and POC wells meet the statutory requirements and are appropriately located to provide effective monitoring of the proposed pilot test. The revised permit includes electrical conductivity monitoring and seven additional monitoring wells. The bulk electrical conductivity monitoring uses sensors that are placed in the exclusion zone of the Oxide Unit and into the Lower Basin Fill; these sensors will provide notice if there has been an excursion

of the sulfuric acid (lixiviant) into the Lower Basin Fill Unit above the PTF wellfield. A detailed description is provided in the FCI application documents (March 31, 2015, Section 2.1, and September 14, 2015 FCI Response to ADEQ Request 11). In addition, the placement of monitoring well MW-01 be no more than two years travel time from the PTF.

“Two, Arizona law requires that monitoring must detect horizontal and vertical excursions as they occur. The monitoring scheme outlined in the draft permit does not meet that requirement.”

ADEQ Response-

See previous response.

“Three, the Administrative Law Judge and Water Quality Appeals Board, in clear direction to ADEQ to properly consider BHP’s 1998 pilot test reports. These test reports clearly demonstrated that hydraulic control had not been maintained. Florence Copper ignored this data when it developed its models and now ADEQ has relied on Florence Copper’s faulty models in the amended permit.”

ADEQ Response-

The draft BHP report mentioned was submitted and reviewed as part of this significant amendment as required by the ALJ’s Decision and WQAB Order. The permit requires FCI to demonstrate hydraulic control before they can begin injecting mining solutions. See draft permit Section 2.7.4.3, and Compliance Schedule Section 3.0, Item 2.

Commenter 153, Rick Grinnell –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 154, Raymond Grant –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 155, Keith Kinney –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 156, Steve Hildebrand –

“Monitoring is extensive as far as I’m concerned. The additional monitoring, making compatible with the (UIC) makes a lot of sense and I think that - one other thing I should probably mention is in 1998 I did work on the Florence in-situ project, that BHP initiated.

I don't recall that there was an imbalance in solutions and one way you can tell what solutions that you're mining or how well you're capturing things is you do a thorough examination by looking for what cations and anions are in your solutions. This allows you to tell. These are like tracers that tell you how the system is working. And they're constantly monitored.”

ADEQ Response-

The comments are noted.

Commenter 157, Richard Travis –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 158, Arne Hawkins –

The commenter stated that the draft amended permit does not satisfy the findings of the Administrative Law Judge, and the permit should not be issued.

ADEQ Response-

The Department disagrees. The new requirements in the draft permit adequately address the Administrative Law Judge’s Decision.

Commenter 159, Lee Decker –

“I echo and support the statements that have been made for this permit is extremely robust and in my opinion is the most stringent I've ever seen. It will insure that ground water quality is protected beyond the footprint of the limited pilot test in full compliance with Arizona's aquifer protection laws and regulations.

Also, the permit completely addresses each of the four issues identified in the water quality bill as put forth. For example, on the point of the client's concept, the pollutant management area in the vicinity of the in-situ well field has been narrowed to include only the well field as well as the cone depression barrier that will be created by the well field's operation.

The cone of depression barrier is specifically identified in the amended permit (unintelligible) as a required regulatory hydraulic control mechanism. This BADCT control mechanism must be continually monitored and maintained at a distance of at least 500 feet from the well field.

The point of compliance wells related to the well field having established at or near the downgradient edge of the narrow pollutant management area in strict compliance with Arizona's Aquifer Protection permit statute regulations. Contrary to misleading statements

about the monitoring provisions in the permit ADEQ has revised the permit to include extensive and additional ground water monitoring including electrical conductivity monitoring.

This monitoring is required to occur directly above the in-situ well field at the boundary of the oxide zone in the lower basin fill unit and in all relevant directions surrounding the well. The monitoring is specifically designed to ensure immediate detection of any potential horizontal or vertical escape of mining solutions from the permitted mining zone. And (unintelligible) limitation appropriate contingency options in the event of vertical or horizontal escapes.”

ADEQ Response-

The comments are noted.

Commenter 160, Barbara Manning –

The commenter stated that the draft amended permit does not satisfy the findings of the Administrative Law Judge, and the permit should not be issued.

ADEQ Response-

The Department disagrees. The new requirements in the draft permit adequately address the Administrative Law Judge’s Decision.

Commenter 161, Glenn Hoffmeyer –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 162, Ronnie Hawks –

The commenter stated that the draft amended permit does not satisfy the findings of the Administrative Law Judge, and the permit should not be issued.

ADEQ Response-

The Department disagrees. The new requirements in the draft permit adequately address the Administrative Law Judge’s Decision.

Commenter 163, Norma Henderson –

Stated opposition to issuance of the permit due to environmental and public health threats without specific reference to permit requirements.

ADEQ Response-

See group response to commenters 80-117.

Commenter 164, Ellen Whitebird –

Stated opposition to issuance of the permit due to environmental and public health threats without specific reference to permit requirements.

ADEQ Response-

See group response to commenters 80-117.

Commenter 165, Brett Tanner –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 166, Brad Glass –

“Thank you for the opportunity to speak in support of the Florence Copper Project. My name is (Brad Glass) and I'm an attorney with (Gallagher and Kennedy) and I represented Florence Copper in the prior administrative hearing on the permit.

There have been several misrepresentations and false statements about that hearing this evening and I would like to correct the record regarding several of those statements.

First, the (WQAB)'s order upheld the vast majority of the permit. The (WQAB) determined that nearly all provisions in the permit were lawful, scientifically sound and reasonable. (Dale Jay) at (WQAB) rejected nearly all of the issues raised by the opposition. Those issues resolved ADEQ's in Florence Copper's favor. They're not subject to further administrative challenge and they are outside the scope of public comment this evening.

Second, (WQAB) determined that only four issues needed further consideration and significant amendment. First, ADEQ needed to consider graph reports and information from a previous test facility site. Second, Florence Copper needed to update closure plan identified on the permit. Third, ADEQ needed to consider additional monitoring of vertical migration of fluids. And fourth, ADEQ needed to consider additional monitoring of horizontal migration of fluids.

Florence Copper's application for a significant amendment and the revised permit issued by ADEQ comprehensively addressed each of these four issues. Specifically, ADEQ has now received and fully considered draft (unintelligible) and information from a previous test facility. Florence Copper has updated the closure plan that is now reflected in the permit and, regarding the permit issues, ADEQ has added additional monitoring wells and (unintelligible) the permit, has strengthened the permit's electrical conductivity monitoring requirements and has expanded the permit's requirements for monitoring the cone of depression barrier.

These additional requirements by ADEQ fully and comprehensively address the two monitoring issues raised in the Board's order. They also require the specific electrical conductivity monitoring requested by the opposition and their expert, and they provide comprehensive, meaningful monitoring of Florence Copper's pilot test facility.

ADEQ asked and Florence Copper agreed to address each of the issues identified in the Board's order. The permit addresses those issues and fully complies with Arizona law. It is lawful,

principled, scientifically sound and reasonable. I ask that you finalize and issue the permit and allow Florence Copper to move forward with its project.

Finally, many this evening, and in writing, have suggested that ADEQ and Florence Copper have chosen to openly defy the (WQAB)'s order. Those statements are reckless and totally unsubstantiated and are simply designed by the opposition to fuel unnecessary concern in the community.

Florence Copper has worked diligently, openly, and in good faith with ADEQ to address the issues identified in the order. You may disagree with the permit and the project but that is no excuse to attack the integrity and character of the employees of Florence Copper ADEQ.

I ask that those comments be rejected. And I thank you for the opportunity to comment this evening.”

ADEQ Response-

The comments are noted.

Commenter 167, Stacy Brimhall –

“I believe that if there is even a shadow of a doubt that this may hurt the environment, I believe that it’s ADEQ’s responsibility to not issue this permit. Thank you.”

ADEQ Response-

The ADEQ Aquifer Protection Program (APP) is responsible for issuing environmentally protective permits to facilities and activities that are subject to the requirements of Arizona Revised Statutes (A.R.S.) §49-241. The APP application submitted by FCI for the Production Test Facility has been evaluated and determined to meet all of the requirements of A.R.S. §49-241, Arizona Administrative Code (A.A.C.) R18-9-A210, and conformance with the Arizona Mining Best Available Demonstrated Control Technology (BADCT) Guidance Manual, in order to obtain the necessary permit required to discharge.

If ADEQ has reason to believe that conditions in the permit are or have been violated, ADEQ will take appropriate action, as provided in Arizona Administrative code (A.A.C.) R18-9-110.

Commenter 168, Richard Murdick –

Submitted comments in support of FCI conducting the pilot test without addressing the draft permit.

ADEQ Response-

The comments are noted.

Commenter 169, Matthew Brower –

“As a plumber our job is to protect the drinking water. Regardless of all the safety issues to prevent leaks, none are failsafe. Breaks happen, leaks happen every day. You can put monitors

in place but they only go off when there is a break and when a break occurs it can take hours and days for water to stop.

There has never been one instance in mind that has not contaminated ground water. The problem here is that if the leak occurs our water is contaminated and our property values drop and we have no recourse. The acid they push into the ground safely also has to be exited from the ground in and leached onto the fields of our land. They bring harmful chemicals from the sulfuric acid, mercury and arsenic.

And so I am not in favor of this and especially when the monsoon hits in our dry season then all of a sudden, boom, this monsoon hits and all of this water is on the ground and it's all going to leach back into our ground water.”

ADEQ Response-

The permit requires injection wells to meet mechanical integrity testing requirements to ensure that the wells don't leak. If there is a loss of fluid in a well, FCI must cease injection or adjust flow rates until solutions are recovered. Injection may not resume until repairs of any failed structures are performed and tested.

If ADEQ has reason to believe that conditions in the permit are or have been violated, ADEQ will take action, as provided in Arizona Administrative code (A.A.C.) R18-9-110.

