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BEFORE THE WATER QUALITY APPEALS BOARD

THE TOWN OF FLORENCE, a political subdivision of the State of Arizona; SWVP-GTIS MR, LLC, a Delaware limited liability company; and PULTE HOME CORPORATION, a Michigan corporation, Appellants, vs. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY, an agency of the State of Arizona; and MISAEL CABRERA, in his official capacity as Director of the Arizona Department of Environmental Quality, Respondents. FLORENCE COPPER INC., a Nevada Corporation, Intervenor.	Case No. 16-002 **APPELLANTS' INITIAL BRIEF RE ISSUES ON APPEAL**

On October 13, 2016, this Board requested that the parties submit briefing on: (1) issues on appeal that arise from the deficiencies in FCI's Temporary APP, as reflected in the Board's November 14, 2014 Order (Board Order), with references to terms in the Significant Amendment intended to address those deficiencies; and (2) issues on appeal that arise from revisions to the permit or new permit terms. This initial brief includes a third category of issues arising from ADEQ's failure to follow Arizona law and the agency's own regulations designed to provide adequate due process during the permit revision process. This brief addresses the limited scope of the Board's request and is not intended to present the full breadth of Appellant's arguments regarding the merits of the issues on appeal.

I. Issues on appeal arising from deficiencies reflected in the Board Order.

The myriad deficiencies identified by the ALJ and this Board can be broadly grouped into five general categories:

1. ADEQ has defied the Board by approving Point of Compliance (POC) wells at the exact locations that the Board found unlawful and unreasonable, and by approving a Pollution Management Area (PMA) that is no less arbitrary that the PMA previously rejected and which continues to overtly ignore statutory requirements and the Board Order.

2. ADEQ has defied the Board by ignoring its directive to provide meaningful monitoring of vertical leachate excursions into the local drinking water aquifer, the Lower Basin Fill Unit (LBFU).

3. ADEQ has defied the Board by failing to require meaningful monitoring of horizontal leachate excursions, and continuing to rely on an inaccurate depiction of the aquifer and the hydrogeology of the Production Test Facility (PTF) area to assume that the required monitoring wells will identify any excursions.

4. ADEQ has failed to meet its statutory obligations by approving a new, but flawed, restoration plan that is based on inadequate and invalid models.

5. Despite Board direction to the contrary, ADEQ has continued to give inadequate consideration to information and reports from the 1997-98 pilot test conducted at this same site by BHP Copper (BHP) and, most remarkably, has now taken the position that because the BHP results are from a small test in one part of the ore body, they cannot be relied upon to evaluate mining impacts elsewhere in the ore body, thus invalidating the entire concept of a PTF.

These deficiencies encompassed several issues raised in the previous appeal and

form the basis of most of the issues in this pending appeal.

A. ADEQ has defied the Board by approving POC wells at the exact locations that the Board found illegal and unacceptable and by approving a PMA that overtly ignores statutory requirements and the Board's decision.

Issue B

The Significant Amendment utilizes a Pollutant Management Area ("PMA") that does not reflect the area on which pollutants are or will be placed. A.R.S. § 49-244(1). The WQAB and 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 WQAB and ALJ have already found 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." The Significant Amendment relies on an arbitrary circular line with a 500-foot radius from the observation wells. The PMA boundary not only is arbitrary, but also is unlawful because it does not comply with A.R.S. § 49-244(1) or with the Board Order and ALJ Decision.

The Board expressly rejected the Temporary APP's PMA. The Significant Amendment incorporates a redrawn PMA around the PTF well field, but the new PMA is still arbitrary and unlawful. FCI has designed the new PMA to help it avoid meaningful compliance monitoring, just as it did before.

1. Relevant findings of fact and conclusions of law

The Board rejected FCI's original PMA because it had no legal or scientific basis.[1] It found that "FCI's applications for the Temporary APP and for the Underground Injection Control (UIC) permit made clear that lixiviant would be placed in the [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. . . ."[2] The Board Order found that it was unreasonable to expand the size of the PMA far beyond

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[1] *Town of Florence v. ADEQ*, No. 12-005-WQAB, *Administrative Law Judge Decision*, at 137, Conclusion of Law 52 (Sept. 29, 2014) ("ALJ Decision") ("A barrier consisting of a 1,600-foot cone of depression to justify a 200-acre PMA for a 2.2-acre PTF well field would render superfluous the definition in A.R.S. § 49-244(1) that '[t]he [PMA] is the limit projected in the horizontal plane of the area on which pollutants are or will be placed'"); *id.* at 139, Conclusion of Law 55 ("Appellants established through FCI's applications for the Temporary APP and UIC permit that FCI's witnesses' testimony that a 1,600 or 1,000-foot cone of depression justified the PMA was a post hoc rationalization for the PMA that was first asserted at the hearing, not a permitted control mechanism under BADCT.").

[2] *Id.* at 136, Conclusion of Law 50.

the area on which pollutants are or will be placed.[3]

2. Relevant permit terms

The PMA approved by ADEQ in the Significant Amendment similarly ignores Arizona law by placing the PMA well beyond the boundary of where pollutants are or will be placed. The Significant Amendment's PMA allows pollutants to be placed up to 500 feet beyond the observation wells.[4] This is not only an arbitrary distance,[5] but also again relies on an arbitrary cone of depression argument to expand the PMA boundaries.[6] The POC well locations are premised on the unlawful and unreasonable PMA, so this issue impacts all terms of the permit regarding the POC wells and compliance and enforcement at those locations.

Issues D & E

Issue D: The Significant Amendment utilizes the same POC wells that were explicitly found to be unlawful in the Board Order and ALJ Decision. The POC well locations continue to violate the requirements of A.R.S. § 49-244 and will not provide meaningful monitoring of pollutants that may escape the PMA during the time of active PTF operations.

Issue E: The POC wells cannot be justified as "less costly" because the Significant Amendment requires the installation of new monitoring wells near the PTF well field that could be used as POC wells without any significant additional cost and because, for new POC wells, the cost will be the same if they are placed in the legally-required locations.

The Board Order found that the POC wells were unlawful and directed ADEQ on

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[3] *Id.* at 137, Conclusion of Law 52.

[4] FCI, *Response to Comprehensive Request for Additional Information*, at 30-31 (Sept. 14, 2015); Town of Florence v. ADEQ, No. 12-005 WQAB, OAH Hearing Transcript, ADEQ, *Summary and Response to Public Comments*, at 12 (Aug. 4, 2016). This is the same problem highlighted by SWVP during the administrative hearing with regard to the original PMA. *See Town of Florence v. ADEQ*, No. 12-005WQAB, *Appellants' Post-Hearing Response*, at 35-38 (Sept. 9, 2014).

[5] The 500-foot radius presumably is based on federal requirements for the Area of Review (AOR) under USEPA Underground Injection Control program, which are unrelated to Arizona statutory requirements for a PMA. *See generally* 40 C.F.R. Part 146. Under federal regulations, a permittee must close wells within the AOR that penetrate the injection zone, account for faults, address public water systems, and define the vertical limits of underground sources of drinking water. These protective measures are obviously enhanced by a larger AOR.

[6] 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. ADEQ Testimony, April 4 at 161:3-14 (cone of depression extends a "little bit" past the well field boundaries); *id.* at 161:24-162:19 (ADEQ was never told of a 1,000-foot cone of depression during its review and knew of no relationship between the cone of depression and PMA); Adrian Brown Testimony, April 25 at 35:22-36:2 (cone of depression extends 1,600 feet from center of PTF well field); Adrian Brown Testimony, April 29 at 76:12-22 (the commercial cone of depression would extend across the entire groundwater basin).

remand to provide for POC locations that provided lawful and meaningful compliance monitoring. The POC locations in the Significant Amendment are exactly the same as before.

1. Relevant findings of fact and conclusions of law

The Board Order concluded that "the location of the POC wells described in the application and permitted by the Temporary APP were arbitrary, unreasonable, and unlawful."[7]

In support of its conclusion, the Board recognized that "A.R.S. § 49-244(1) requires POCs to be located at the limit of the PMA, unless FCI establishes that an alternative POC will be substantially less costly under A.R.S. § 49-244(2)."[8] However, the Board Order also explained that for ADEQ to legally allow a "substantially less costly" POC well location, it must comply with A.R.S. § 49-244(2)(b).[9] The Order concluded that "the existing POC wells are too far from 'the limit projected in the horizontal plane of the area on which [lixiviant] will be placed,' or PMA, to comply with A.R.S. § 49-244(2)(b)(iii)."[10] The WQAB additionally found that "the permitted locations of the POC wells do not allow any meaningful monitoring of pollutants that may escape the PMA during PTF operations."[11]

2. Relevant permit terms

The new permit accepts FCI's proposal to use the exact same POC wells that were unequivocally rejected by the Board.[12] Two of these wells, M54-O and M54-LBF, now are located at the proposed PMA line (because FCI arbitrarily expanded its new PMA to the area of these two wells[13]). But because that PMA line has no more justification than the one previously rejected by the Board, the locations for these two POC wells are similarly unreasonable and unlawful. As the Board already found, these POC wells do not provide

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[7] ALJ Decision at 140, Conclusion of Law 61.
[8] *Id.* at 141, Conclusion of Law 58.
[9] *Id.*, Conclusion of Law 59.
[10] *Id.*
[11] *Id.* at 141, Conclusion of Law 60.
[12] Significant Amendment, § 2.4.
[13] FCI, Significant Amendment Application, Fig. 3-1(March 31, 2015); Significant Amendment, at 5, Table 2-4.

meaningful monitoring of pollutant migration during the PTF's operational life.

The other four POC wells (M23-UBF, M22-O, M15-GU, and M14-GL) also are in exactly the same location as before, even farther from the PTF well field.[14] In its application following remand, FCI again claimed the cost exception as the justification for these locations, a claim the Board rejected and for which no new evidence has been submitted.[15] Appellants contested the applicability of that exception in their formal comments on the draft permit,[16] but ADEQ responded only that these POC wells met statutory requirements.[17] The Board has already held these locations do not provide meaningful monitoring, regardless of any cost savings to FCI.

B. ADEQ has defied the Board by completely ignoring its directive to provide meaningful monitoring of vertical leachate excursions into the local drinking water aquifer, the LBFU.

Issue F

The Significant Amendment does not require meaningful monitoring of possible vertical migration through electric conductivity sensors or HydraSleeve sampling in the LBFU within the PTF well field during PTF operations. Instead of complying with the Board Order requiring meaningful vertical monitoring in the well field, ADEQ allowed FCI to rely exclusively on horizontal monitoring outside of the well field. This attempt to avoid actual vertical monitoring is unchanged from permit terms that were rejected by the ALJ and the WQAB. Additionally, although ADEQ initially requested that FCI explain how its proposed monitoring would detect vertical migration into the LBFU and demonstrate vertical containment, ADEQ never required FCI to provide an answer.

The Board remanded the Temporary APP to ADEQ, in part, to address the lack of meaningful monitoring for vertical migration of mining pollutants into the LBFU at and around the PTF well field. In Issue F, Appellants assert that the Significant Amendment still lacks meaningful vertical monitoring.

1. Relevant findings of fact and conclusions of law

The WQAB adopted Conclusions of Law 30 through 36 regarding FCI's failure to monitor for fluid migrating vertically from the oxide zone into the LBFU within the well

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[14] *Id.*

[15] FCI Significant Amendment Application, at 3-4 and 3-5 (March 31, 2015).

[16] Jennings, Haug & Cunningham, Letter to Richard Mendolia, at 8-9 (May 19, 2016).

[17] ADEQ, *Summary and Response to Public Comments*, at 13 (Aug. 4, 2016).

field and to address issues such as short circuits.[18] The Board held, among other things, that monitoring requirements did not ensure the greatest degree of discharge reduction achievable under BADCT; would violate the requirement in § 2.3.1 of the Temporary APP that FCI inject and maintain in-situ solutions in the oxide zone; and that vertical migration would only be detected years after PTF operations already have ended:[19]

> 30. ADEQ has a duty to "[p]romote and coordinate the protection and enhancement of the quality of water resources consistent with the environmental policy of this state" and to "[p]rovide for the prevention and abatement of all water . . . pollution . . . in accordance with statutes relating to water quality control, including APP statutes and regulations. A.R.S. § 49-243(B)(1) requires that the Temporary APP ensure the greatest degree of discharge reduction achievable through application of BADCT. BADCT prescribes mechanisms to control fluids used in ISL mining and proscribes construction of any new deep injection wells that allow migration of fluids into or between underground sources of drinking water. Although "[m]onitoring is generally not regarded as part of the BADCT design, unless it is performed as a specific feedback mechanism to adjust the design or operational aspects of the facility," BADCT includes a warning that "[p]otential for short circuiting of anticipated solution migration pathways due to fractures and solution/rock chemical reactions over time is a potential concern that should be assessed for in-situ mining in most instances."
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> 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.
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> 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.

[18] ALJ Decision, at 129-132.

[19] For the Board's reference, the ALJ's Findings of Fact relating to the need for meaningful vertical monitoring include Findings of Fact 121, 125, 134-136, 139, 223-224, 227-228, 231-233, 242, 246, 248-252, and 263-265.

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.

34. Section 2.7.4.4(4) of the Temporary APP requires FCI to submit quarterly reports that included "[a] graphical representation of electric conductivity readings from the injection and observation wells." The current plans for the injection and recovery wells provide that wells will not have sensors in the exclusion zone or the LBFU, where the Temporary APP prohibits migration of fluid.

35. Because the Temporary APP does not require that readings be taken or reported from any aquifer unit or elevation, even if sensors indicate that fluid is migrating through the exclusion zone toward the LBFU, the Temporary APP does not require FCI to report the migration or to take any contingency action. Without required monitoring and reporting of fluid migration into the LBFU in the well field, the Temporary APP's requirement that FCI contain injected in-situ solutions within the oxide zone does not protect the LBFU and the aquifer.

The Board summed up ADEQ's failure to require meaningful monitoring for vertical monitoring in Conclusion of Law 36:

> In light of acknowledged vertical migration of in-situ solution into the LBFU at BHP's pilot project, Appellants established that the Temporary APP does not require meaningful monitoring of possible vertical migration through electric conductivity sensors or a hydrosleeve in the LBFU in the PTF well field or require any contingency action if such migration is identified. Therefore, Appellants established that ADEQ's issuance of the Temporary APP without requiring meaningful monitoring of vertical excursions of fluid into the LBFU was arbitrary, unreasonable, and based upon a technical judgment, was clearly invalid because it did not comply with A.R.S. § 49-243(B)(1) and BADCT § 3.4.4.2.

2. ***Relevant permit terms***

Although the Board required "meaningful monitoring of possible vertical migration ... in the PTF well field,"[20] ADEQ ignored that directive because the Significant Amendment does not require FCI to monitor for vertical migrations from the oxide zone into the LBFU within the PTF well field.

[20] ALJ Decision at 131, Conclusion of Law 36.

The Significant Amendment ostensibly claims to monitor for *vertical* migration through *horizontal* monitoring at observation and supplemental monitoring wells.[21] But monitoring at locations far outside the recovery wells cannot detect vertical migration of mining pollutants into the LBFU within the PTF well field, as occurred during BHP's pilot test. At best, monitoring wells might detect mining pollutants that travel horizontally through the aquifer and reach that distant detection point while the PTF is still operating. To the extent that *any* horizontal movement occurred in the LBFU, FCI would have violated the Significant Amendment long before the violation was detected at a monitoring well.[22] This violates the basic monitoring principles recognized by the ALJ that permit violations must be detected through a "maximum early warning" system.[23]

ADEQ and FCI also claim that the requirement for vertical migration monitoring is addressed through the electrical conductivity sensors in observation wells.[24] The specific locations are in the LBFU just above the top of the oxide zone, outside of the area where injection will occur.[25] This does not meet the requirement for "meaningful" monitoring

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[21] Significant Amendment § 2.5.8, BADCT Monitoring Wells (Non-POC).

[22] *See* Significant Amendment § 2.3.1.

[23] ALJ Decision at 96, Finding of Fact 339. MW-01 may be an appropriate monitoring location for horizontal, if not vertical escapes, depending upon its final location and construction. But ADEQ and FCI have already acknowledged that MW-01 is insufficient by itself to demonstrate containment of acid mining solutions across the entire well field and will not provide adequate monitoring for vertical escapes inside the well field. *See* ADEQ Testimony, March 31 at 217:7-15, 219:7-220:5 ("Q. And if contaminants are in the water that are flowing in a specific direction, unless that flow takes it through MW-01, you'll agree with me that MW-01 will not necessarily see those contaminants? A. Yes. Q. And assuming that MW-01 doesn't see those contaminants, there's no other way for ADEQ to know that those contaminants escaped until they reach the POC wells several years down the road? A. Yes."); ALJ Decision at 132-33 (Conclusion of Law 41) ("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 . . . will effectively prevent migration of fluid."); *id.* at 96-97 (Finding of Fact 339) ("ADEQ's Substantive Review Checklist states that the intent of POC placement 'is to achieve the earliest detection of any contaminants migrating out of the PMA, for 'maximum early warning' of a problem that will require a remediation response.'").

[24] ADEQ Answer, at 6-7 (Sept. 21, 2016), citing Significant Amendment §§ 2.5.9 and 2.6.2.7 (LBFU Bulk Electrical Conductivity); FCI Answer, at ¶ 15.

[25] Significant Amendment, § 2.5.9 ("Four conductivity probes (sensors) shall be placed within the annulus of each of the seven PTF observation wells, and shall be installed with a spacing of 20 feet between sensors, with the lowest sensor placed in the middle of the exclusion zone.").

because there is still no monitoring directly above the area where acid is to be injected and is most likely to move upward. The Significant Amendment also requires well-bore conductivity monitoring in the multi-level wells.[26] Although the exact method of the monitoring is unclear, it is nonetheless irrelevant because these sensors will monitor the Upper Basin Fill Unit (UBFU) instead of the LBFU, which is the aquifer unit of concern. By the time these sensors detect pollutants, those contaminants already will have traveled *through* the LBFU. The practical option of placing such sensors in the multi-level wells just above the oxide zone was ignored.

C. ADEQ has defied the Board by failing to require meaningful monitoring of horizontal leachate excursions, and continuing to rely on an inaccurate depiction of the aquifer and the hydrogeology of the PTF area to assume that the required monitoring wells will identify any excursions.

Issues H & L

Issue H: The Significant Amendment relies on an arbitrary and clearly invalid technical assumption that the aquifer system acts as equivalent porous media.

Issue L: The new monitoring wells on which the permit relies to ostensibly detect horizontal migrations unreasonably ignores the implications of heterogeneity in the aquifer system, including short circuits and spatial bias in FCI' s groundwater flow model.

ADEQ and FCI continue to rely upon the assumption that this aquifer acts as an equivalent porous media (EPM) for purposes of modeling groundwater flow and contaminant fate and transport. The ALJ's decision does not preclude Appellants from challenging this assumption because the ALJ expressly recognized that the assumption was subject to further review and evaluation.

1. Relevant findings of fact and conclusions of law

The ALJ provided a detailed explanation of Dr. Wilson's expert opinion that the oxide zone at this site does not act as an EPM for purposes of modeling assumptions.[27] Those findings include references to technical observations from the BHP pilot test that are inconsistent with an EPM assumption, including differences in well water levels, electric

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[26] Significant Amendment, § 2.5.8.4 and Table 2.5-3.

[27] ALJ Decision at 37-40, Findings of Fact 144-149; 44-45, Finding of Fact 164.

conductivity differences among wells, results from BHP bromide tests, and conclusions in a report authored by Dr. Lichtner.[28]

The ALJ found a bona fide difference of expert opinion on the issue of whether this aquifer acts as EPM. Appellants do not dispute that considering what she viewed as a draw between the expert witnesses, the ALJ deferred to ADEQ on the technical issue of whether it was reasonable to accept FCI's EPM assumption in its groundwater flow and fate and transport models.[29] But she did so with two caveats. First, she directed ADEQ to scrutinize the BHP reports and data because "BHP's draft reports raise serious questions about the appropriateness of the equivalent porous media assumption in FCI's fate and transport model."[30] It cannot be forgotten that, although the ALJ deferred to ADEQ on this technical issue, she did not independently review the new BHP reports and data obtained by Appellants through subpoena to determine whether they supported the EPM assumption. Rather, she directed ADEQ to consider them "to gauge whether the terms that ADEQ approved" were reasonable and lawful.[31] One of Appellants' key objections is that ADEQ has not analyzed the BHP data, instead choosing once again to defer to FCI's version of the facts, including FCI's new claim that the BHP results cannot be relied upon in assessing the PTF.

Second, she directed ADEQ to require more robust monitoring for "any escape of fluid that would demonstrate the shortcomings" of FCI's EPM-based models.[32] The lack of such monitoring is another key issue raised by Appellants.[33] If the EPM assumption was a settled issue, as ADEQ and FCI contend, there would have been no reason for the ALJ to require more robust monitoring for this specific purpose on remand.

All of these issues are intertwined. If the Board finds that ADEQ did not adequately

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[28] ALJ Decision at 37-40, Findings of Fact 145-46; 44-45, Finding of Fact 164.
[29] *Id.* at 128-129, Conclusion of Law 27.
[30] *Id.* at 128, Conclusion of Law 26.
[31] *Id.*, Conclusion of Law 25.
[32] *Id.* at 128-129, Conclusion of Law 27.
[33] See, e.g., Issues F,G,H,L and P.

scrutinize the BHP reports and data, then the validity of FCI's EPM assumptions remains open. And if the Board agrees with Appellants that the permit's testing and monitoring scheme remains inadequate to detect fluid migrations during the life of the PTF, then there is insufficient monitoring to determine if FCI's EPM-based models are reasonable. Moreover, additional monitoring to evaluate EPM would not have been necessary on remand in the first place if EPM was a settled issue. All of which means that FCI would be allowed to move forward with an inadequate monitoring scheme based on inadequate testing and unreasonable and unlawful modeling assumptions if Appellants are precluded from addressing the EPM assumptions in this appeal.

2. Relevant permit terms

The EPM assumption is not a permit term. In fact, the permit's only reference to the concept is a requirement that a pre-operational report include an evaluation of the EPM assumption based upon results of an aquifer pump test.[34] Rather, the EPM assumption represents a systematic flaw in the groundwater modeling that underlies FCI's entire application and ADEQ's amended permit.

For example, the ALJ directed ADEQ to require more monitoring wells at locations that would detect horizontal migration of acid mining solutions away from the PTF well field.[35] The Significant Amendment designates the supplemental monitoring wells, previously required by USEPA, for this purpose. FCI asserted that these wells were "sufficient to monitor well field performance and to verify BADCT performance in the Bedrock Oxide Unit because that unit has been demonstrated to respond as an equivalent porous media (EPM) to hydraulic stresses induced by pumping."[36] In other words, notwithstanding the ALJ's concern that FCI relied on a pre-BHP pilot test report to support its EPM assumption, and despite the subsequently-produced reports and data showing anisotropy in the BHP pilot test, FCI continued to assume that the oxide unit acted as an

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[34] Significant Amendment, § 2.7.4.3.

[35] ALJ Decision at 130, Conclusion of Law 33.

[36] FCI, *Significant Amendment Application, Temporary APP No. P-106360*, at 2-4 (Mar. 31, 2015).

EPM for purposes of modeling its project and locating the additional monitoring wells required on remand.[37] FCI has also failed to propose simple tests, such as the bromide tracer test performed by BHP, which would provide definitive information on the validity of the EPM assumption.

3. ADEQ itself questioned FCI's EPM assumptions on remand.

Although ADEQ now contends that the EPM assumption is a settled issue, the agency itself questioned FCI's modeling assumptions in requests for information issued to FCI on remand. In a request to FCI for additional information on remand, ADEQ concluded that newly-obtained reports from the BHP pilot test indicated "that there is anisotropy in the fractured oxide unit" and required that FCI provide a discussion of fractures and evaluate additional characterization methods for purposes of placing supplemental observation wells.[38] FCI provided no new analysis or information, instead referring to BHP's work in the 1990s—before the BHP pilot test that produced the data in these reports—as support for its hydrogeologic model.[39] FCI also ignored the fact that many of these model assumptions and predictions were called into question by the BHP pilot test data, as the ALJ recognized.[40] ADEQ refused to follow-up with FCI and require FCI to answer the questions in its request for information (RFI). In doing so, ADEQ chose to ignore information that it acknowledged, though its RFI, was relevant.

Issues N & O

Issue N: The Significant Amendment fails to properly account for all sulfuric acid injected into the aquifer.

Issue O: The Significant Amendment's requirement that FCI maintain only a minimum one-foot inward gradient on a daily average basis is inadequate to ensure hydraulic control. The inadequacy of this requirement was admitted by both ADEQ and FCI at the Hearing.

Although the Board Order deferred to ADEQ in finding that the minimum one-foot

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[37] Other permit terms relying on EPM-based modeling include, but are not limited to, terms related to FCI's cone of depression, *see* FCI Response to ADEQ, at 3 (Sept. 14, 2015) (groundwater flow model results as basis for projected cone of depression); and terms related to vertical migration, *id.* at 15 (discussing groundwater models as basis for projections of vertical migration).

[38] ADEQ, *Comprehensive Request for Additional Information*, at 2, Issue 2 (Aug. 8, 2015).

[39] FCI, *Response to Comprehensive Request for Additional Information*, at 2-3 (Sept. 14, 2015).

[40] ALJ Decision at 127-28, Conclusions of Law 24-25.

inward gradient or the failure to require an acid balance did not necessarily violate Arizona law, the Order clearly recognized that substantial evidence raised serious questions about those deficiencies.[41] The deference to ADEQ clearly assumed that a remanded permit would require robust and meaningful monitoring that would detect escapes that would otherwise be detected by an acid balance, and also detect losses of hydraulic control that could have been more reasonably prevented with a greater minimum inward gradient requirement.[42] ADEQ's refusal to require a greater minimum inward gradient is shocking considering that even ADEQ and FCI admitted during the hearing that it is unreasonable to rely on a one-foot minimum inward gradient on a daily average as the basis to ensure hydraulic control.[43]

These issues were discussed in the public comments incorporated by reference into the Notice of Appeal.[44] Unfortunately, ADEQ has not required FCI to implement meaningful monitoring to detect escapes and loss of hydraulic control. Consequently, the need for an acid balance and a larger inward gradient are issues that ADEQ can and must address.

D. ADEQ has failed to meet its statutory obligations by approving a new but flawed restoration plan that is based on inadequate and invalid models.

Issue M

ADEQ failed to require FCI to show that groundwater chemistry will be properly restored

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[41] *See, e.g.*, Conclusion of Law 42, at 133 ("Appellants' desire that the Temporary APP should require FCI to provide an acid balance during PTF operations is not unreasonable."); ALJ Decision, Conclusion of Law 33, at 130 ("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.")

[42] *See, e.g.*, ALJ Decision, Conclusion of Law 60, at 140-141; Board Order, at 2 (November 14, 2014) (ordering remand instead of rescission in part because of "the ability of Respondent to implement the required amendments through the process of a significant amendment as set forth in relevant statutes and rules, which provides for public comment and further appeal rights.").

[43] *See, e.g.*, OAH Hearing Transcript, April 8 at 175:23-176:5 (testimony of ADEQ engineer Jeff Bryan); OAH Hearing Transcript, April 18 at 214:13-18, 215:18-22 and April 21 at 7:1-6 (testimony of FCI consultant Mark Nicholls).

[44] SWVP Comments in May 19, 2016 Letter to Richard Mendolia, ADEQ, at 24-15 (acid balance), 25-27 (one-foot inward gradient).

after rinsing.

1. Relevant findings of fact and conclusions of law

The Board Order remanded the previous permit in part because ADEQ had relied upon a geochemical model that predicted groundwater quality and pollutant concentrations after cleanup, based on closure and groundwater rinsing methods that FCI knew it was not going to use.[45] The Order acknowledged that FCI's model, as presented in its original application, was based on assumptions that FCI knew were false and that there were significant problems with FCI's geochemical model and its calculations of restoration times under different cleanup scenarios.[46]

2. Relevant permit terms

FCI must demonstrate that it will reduce mining pollutant concentrations in the aquifer to legal levels when PTF operations end.[47] That showing depends in part on FCI's geochemical model and FCI's predictions about impacts to, and restoration of, groundwater chemistry.[48] FCI could not obtain a permit if modeling showed that PTF operations would cause exceedances of Aquifer Water Quality Standards that could not be cured through groundwater restoration efforts at closure.

Appellants allege that ADEQ has done nothing in this permit to address the Board's concerns or remedy the serious flaws regarding FCI's geochemical model and groundwater restoration. Appellants also allege ADEQ did not reasonably analyze FCI's model to ensure that it was a reasonable predictor of post-cleanup contaminant levels and ensure that FCI has proposed a reasonable cleanup plan.

Issue Q

The Significant Amendment continues to rely on an inaccurate groundwater flow model that

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[45] ALJ Decision at 144, Conclusion of Law 72.

[46] ALJ Decision at 143-44, Conclusions of Law 70-72.

[47] Significant Amendment, §§ 2.1; 2.9.2; and 6.4.

[48] *See* ALJ Decision, Finding of Fact 366 ("The primary objectives of the geochemical model simulations developed for the PTF include: Estimate the concentration of constituents in the ISCR process and solutions as identified in the existing APP 101704. Predict the potential impacts on groundwater quality after cessation of operations.") (quoting FCI consultant).

contains significant spatial bias and is not properly calibrated.

ADEQ and FCI assert that Appellants' Claim Q and the issue of FCI's inaccurate groundwater flow model was not remanded and was previously decided against Appellants.[49] ADEQ and FCI have misrepresented the Board Order. Despite Respondents' protests, analysis of FCI's groundwater model was required on remand, and was logically necessary regardless.

1. Relevant findings of fact and conclusions of law

The ALJ held that "Appellants established spatial bias in FCI's groundwater flow model in the PTF well field."[50] Coupled with other evidence cited in this paragraph, the ALJ concluded that "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."[51]

Science, logic and common sense dictate that if FCI's groundwater model is biased, and if there is a "substantial possibility" of escapes of mining solutions, then FCI needs to re-evaluate its groundwater model. The model is the basis for the all of the Significant Amendment's monitoring requirements, the monitoring well locations, and compliance and contingency requirements. FCI cannot propose reasonable monitoring terms if those terms are based on a flawed model. It was ADEQ's responsibility to ensure that the model was corrected and that it reasonably supported FCI's monitoring and hydraulic control proposals.

Even were this not the case, ADEQ's and FCI's contention that the groundwater model was not subject to remand is simply not true. In her fee order, the ALJ stated "Appellants prevailed on the issue that the monitoring that the Temporary APP required, including MW-01 and the Point of Compliance ("POC") wells, did not provide the meaningful monitoring that A.R.S. §§ 49-203, 49-243, and 49-244 require." She then cited to

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[49] ADEQ Answer, at 11 (Sept. 21, 2016); FCI Answer, at 10 (Sept. 21, 2016).
[50] ALJ Decision, at 132, Conclusion of Law 40.
[51] *Id.*

§ 3.7.3.3 of her decision as the basis for this statement.[52] Paragraph 40, in which the ALJ held that FCI's groundwater model was spatially biased, is part of Section 3.7.3.3. Thus, there can be no dispute that this issue was remanded to ADEQ.

2. Relevant permit terms

In its requests for information to FCI on remand, ADEQ itself laid out numerous permit terms impacted by FCI's model.[53] These included the hydraulic capture evaluation (Section 2.2.4); the supplemental monitoring well locations (Section 2.5.8.2); POC locations (Sections 2.4 and 2.5.3); the cone of depression as a BADCT barrier (Section 2.2.1.1); and the PMA (not described in the Significant Amendment itself). Appellants agree that FCI's model impacts most, if not all of the key terms in this permit.

3. ADEQ itself questioned FCI's modeling and assumptions

Among the issues raised by ADEQ after its initial review of FCI's revised permit application were the following:

- Monitoring and evaluation of stagnation zones as part of the capture evaluation required by Permit Section 2.2.4 pursuant to A.A.C. R18-9-A202(A)(9).[54]
- An explanation of how supplemental monitoring well locations were selected to monitor the cone of depression barrier.[55]
- Whether the groundwater flow model considered the impact of the nearby irrigation wells pursuant to A.A.C. R18-9-A202(A)(8)(b)(iv).[56]
- A discussion of the PMA, the Cone of Depression Barrier, the location where pollutants will be contained within the oxide zone, the one foot drawdown required by the permit, and the POC locations pursuant to A.R.S. 49-244(1), A.A.C. R18-9-A202(A)(4)(c), R18-9-A202(A)(3) and (5) and A.A.C. R18-9-A202(A)(9).[57]

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[52] *Town of Florence v. ADEQ*, No. 12-005-WQAB, *Order No. 29 Denying SWVP's Request for Attorney's Fees and Costs*, at 4 and n.13 (Jan. 23, 2015).

[53] ADEQ, *Comprehensive Request for Additional information*, at 2-6 (Aug. 3, 2015).

[54] ADEQ, *Comprehensive Request for Additional information*, at 2 (Aug. 3, 2015). There were no stagnation zones in FCI's groundwater model, so ADEQ is here looking beyond the model and finding a potential issue. This is explicit recognition that review of the BHP data requires further analysis of the groundwater model.

[55] *Id.*

[56] *Id.* at 3.

[57] *Id.* at 6.

ADEQ continued to raise issues implicating FCI's flawed groundwater model in a second RFI, where it directed FCI to, among other things, describe:

- Why the edge of the DIA was chosen for the four supplemental monitoring wells in the Oxide Unit (M57-O, M58-O, M59-O and M60-O) and how the locations relate to effective monitoring during the active phase of the testing.[58]
- The rationale for placement of the three supplemental wells located in the alluvial aquifers (M55-UBF, M56-LBF and M61-LBF) and how those locations relate to effective groundwater monitoring during the active phase of the testing.[59]
- How MW-01 is sufficiently located to monitor changes in groundwater quality as a result of an excursion of lixiviant from the PTF well field in a meaningful and effective timeframe.[60]

FCI's responses to these inquiries were inadequate, but ADEQ did not pursue these issues further.

4. FCI supported its application with its groundwater model

As for FCI, it did not have a problem in its Significant Amendment application with running groundwater model simulations in support of its cone of depression argument.[61] FCI also cited its groundwater model in support of responses to ADEQ's requests for information and changes made in the permit. For instance, with regard to the locations of its supplemental observation wells, FCI asserted that it:

> "used data derived from drill core to perform statistical analysis of fracture intensity . . . and to construct an electronic three-dimensional (3-D) geologic model. The geologic model was in turn used directly in the construction of the groundwater flow model used to simulate the

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[58] ADEQ, *Inadequate Response to a Comprehensive Request for Additional Information*, at 2 (Dec. 22, 2015).

[59] *Id.*

[60] *Id.* at 3.

[61] FCI, *Significant Amendment Application, Temporary APP No. P-106360*, at 3-3 (Mar. 31, 2015) ("Groundwater model simulation of PTF operations indicates that the cone of depression induced by groundwater extraction at the PTF well field will extend as far as approximately 4,800 feet under the planned operational conditions (net extraction of 60 gpm)."); FCI, *Response to Comprehensive Request for Additional Information*, at 7 (Sept. 14, 2015) ("The DIA in the Oxide Unit shown in Figure 14A-37 of the Temporary APP Application was developed using a groundwater flow model that incorporated the geologic model and is described in Attachment 14A of the Temporary APP Application. Additional model simulations were run using the same groundwater flow model to develop the distance drawdown information provided in Table 3-1 of the Amendment Application submitted on March 31, 2015.").

> Discharge Impact Area (DIA) shown on Figure 14A-38 of the Temporary APP Application dated March 1, 2012 and submitted to ADEQ on March 2, 2012, and which resulted in the issuance of the Temporary APP (Temporary APP Application). Modeling results generated by the groundwater flow model indicated that the cone of depression generated by operation of the proposed PTF well field will extend beyond the proposed supplemental monitoring wells. . . .Based on this drilling information, corehole data, modeling, and planned aquifer tests, FCI has concluded that the PTF supplemental monitoring wells are located appropriately to demonstrate inward gradient (captures) as required by permit BADCT requirements . . . ."[62]

FCI also used its groundwater flow model to simulate drawdown values used to Develop Table 3-1 in its amended permit application.[63] Thus, FCI has clearly used its groundwater flow model in its permit application on remand, belying any assertion that the model is irrelevant to issues on remand.[64]

In truth, FCI is fine using its flawed groundwater flow model to support its position, but refuses to review or revise its flawed model in evaluating issues that it prefers to avoid. For instance, as to a contested issue like the adequacy of its monitoring, FCI refused to review or update its groundwater model, instead relying on conclusory statements that the aquifer responds as EPM in support of proposed operational monitoring.[65] And in direct response to the ALJ's Conclusion of Law that "BHP's draft reports raise serious questions about the appropriateness of the equivalent porous media assumption in FCI's fate and transport model,"[66] FCI did not re-evaluate its model but instead discounted the analysis of the BHP data by a single BHP consultant.[67]

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[62] FCI, *Response to Comprehensive Request for Additional Information*, at 3 (Sept. 14, 2015).

[63] *Id.* at 12.

[64] Appellants contest the model's reasonableness and reliability, but not its relevancy.

[65] FCI, *Significant Amendment Application, Temporary APP No. P-106360*, at 2-4 (Mar. 31, 2015) ("The proposed operational monitoring is sufficient to monitor well field performance and to verify BADCT performance in the Bedrock Oxide Unit because that unit has been demonstrated to respond as an equivalent porous media (EPM) to hydraulic stresses induced by pumping (Golder, 1996).").

[66] ALJ Decision at 128, Conclusion of Law 26.

[67] FCI, *Significant Amendment Application, Temporary APP No. P-106360*, at 2-5 (Mar. 31, 2015) ("In contrast to Dr. Orr's work, one geochemist (Norton) engaged in analyzing geochemical data derived from the Hydraulic Control Test, felt that difficulties encountered in calibrating his geochemical model suggested that the EPM concept, which was proven to apply to groundwater flow, may not adequately represent mineral dissolution (BHP, 1999). The Norton geochemical model appears to suffer from excessive sensitivity and could not be

Issue R
The Significant Amendment relies on geochemical model results regarding arsenic that are inconsistent with FCI's previous fate and transport model and with testimony at the Hearing based on FCI' s own test results.

This claim is not, as ADEQ and FCI assert, a rehash of whether the Significant Amendment's narrative standard for arsenic is appropriate.[68] Appellants are not arguing that ADEQ has exceeded its authority in basing the arsenic Alert Levels for the POC wells on calculated arsenic levels at the compliance point.[69] Rather, Appellants here assert that, because FCI's groundwater models remain flawed, they cannot be relied upon as the basis for calculating those alert levels.

1. Relevant findings of fact and conclusions of law

The ALJ discussed the Temporary APP's narrative standard for arsenic in Findings of Fact 371 through 382. Notably, the ALJ found that ADEQ did not know if FCI's fate and transport model, upon which the arsenic standard was based, was accurate.[70] In her Conclusions of Law, the ALJ upheld the 10 ppb Use Protection Limit for arsenic in the Temporary APP. And she held that calculation of the UPL through a fate and transport model was not unreasonable, unlawful, or technically invalid.[71]

The ALJ did not herself opine on the validity of FCI's fate and transport model for arsenic, because the model had not yet been created.[72] Therefore, the issue of whether FCI can reasonably and reliably model the fate and transport of arsenic remains an issue. Furthermore, because the fate and transport model is dependent upon and intertwined with FCI's other groundwater modeling efforts, it cannot be a reliable basis for setting a

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made to represent the observed mineral dissolution without application of unrealistic parameters (BHP, 1999). The EPM concept was developed to describe groundwater flow properties, rather than mineral dissolution, and consequently, Norton's observation regarding the applicability of EPM to his geochemical model should not be extended to describe groundwater flow. Rather, an appropriate assessment of the applicability of the EPM concept to the FCP Bedrock Oxide Unit is found in both Orr (1997) and Golder (1996).").

[68] ADEQ Motion to Strike, at 11-12; FCI Motion to Dismiss, at 10.

[69] Significant Amendment, § 2.5.7.

[70] ALJ Decision at 108, Finding of Fact 374 ("Ms. Widlowski did not know whether the model was accurate.").

[71] *Id.* at 142, Conclusion of Law 65.

[72] *Id.* at 108, Finding of Fact 375. It remains unclear how FCI could have calculated an arsenic standard at the compliance point in the Temporary APP when it had not yet created an arsenic fate and transport model.

compliance standard unless FCI's other models are reliable. And as detailed in many of Appellants' other issues, FCI's groundwater models are seriously flawed.

The proper modeling of arsenic movement in the aquifer is also dependent upon FCI's geochemical model, which was remanded by the ALJ. In finding that FCI's geochemical model was flawed, the ALJ also found that "Appellants' concerns about the inclusion of [arsenic and nitrate] in FCI's geochemical model are reasonable."[73] Therefore, just as FCI's geochemical model remains problematic and in dispute in this appeal, so is FCI's arsenic modeling in dispute. For instance, that model shows much higher arsenic concentrations at the PTF well field than before, as well as arsenic concentrations in groundwater to be used for dilution that is less than any known data from the area.[74] This raises serious questions about how arsenic levels can be reduced through restoration and how the UPL will be attained. These questions are based on new information supporting the permit and thus cannot be precluded by the ALJ's previous decision.

2. Relevant permit terms

Section 2.5.7 of the Significant Amendment establishes a UPL of 10 ppb for arsenic at the northwest corner of the state land parcel. No monitoring at this location is required. Instead, this section requires that Alert Levels be established at POC wells and MW-01, based on groundwater modeling for arsenic. The Significant Amendment also provides for contingencies if an Alert Level is exceeded.[75] The arsenic issue also implicates the Closure Plan requirements,[76] because the aquifer restoration and monitoring requirements rely upon groundwater and geochemical models that use sulfate as an indicator parameter to determine when other contaminants, including arsenic, have reached concentrations that meet closure requirements.

Again, Appellants are not challenging the UPL, the arsenic standard, or the

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[73] *Id.* at 144, Conclusion of Law 71.

[74] FCI, Significant Amendment Application, Attach.4, Ex. 4-A, Table 3.1 (March 31, 2015)

[75] Significant Amendment, § 2.6.2.4.3. *See also* § 3.0, Compliance Schedule, Item 13.

[76] *Id.*, §§ 2.9.1 and 2.9.2.

calculation of Alert Levels through modeling. Rather, Appellants are challenging ADEQ's continued reliance on flawed and unreliable groundwater models that will be used to set those Alert Levels. Thus, the arsenic issue raised here is intertwined with numerous other issues on appeal.

E. Despite Board direction to the contrary, ADEQ has continued to give inadequate consideration to information and reports from the 1997-98 pilot test conducted at this same site by BHP.

Issues I, J & K

Issue I: The Significant Amendment inappropriately relies on certain data from the BHP pilot test that supports FCI's proposed permit terms, but ignores other data that is unfavorable to the operational plans and permit terms endorsed by ADEQ.

Issue J: ADEQ failed to properly review, analyze, and incorporate all information regarding, and data generated in, the BHP pilot test before approving FCI' s application.

Issue K: ADEQ did not require FCI to investigate concerns raised by BHP's staff and consultants regarding the geochemistry and hydrogeology of the aquifer system.

The Board Order directed ADEQ to review and analyze the BHP data to help determine whether the permit was protective of drinking water resources, contained adequate monitoring and compliance terms, and was based on reasonably reliable models and assumptions. Appellants contend that ADEQ did little or no independent analysis of this data, allowing FCI to once again avoid relevant facts that are not to the company's liking.

1. Relevant findings of fact and conclusions of law

The ALJ's discussion regarding the relevancy of data from BHP's pilot test generally are found at Findings of Fact 98 to 176, although the data is relevant to other parts of her decision as well. She discussed the data in Conclusions of Law 22 to 25, concluding that "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 judgment that was clearly invalid."[77]

[77] ALJ Decision at 128, Conclusion of Law 25.

The Board Order found that "draft BHP reports are the kind of evidence upon which reasonable persons would rely in serious matters," especially for the purpose of determining "whether the Temporary APP's terms provide adequate protection to the aquifer."[78] The Significant Amendment again inappropriately relies on certain data from the BHP pilot test that supports FCI's proposed permit terms, but ignores other data that is unfavorable to the operational plans and permit terms endorsed by ADEQ. ADEQ again cherry-picked limited BHP data to support its decision, while ignoring other data that undermined the agency's assumptions.

2. Relevant permit terms

The BHP data is relevant to a substantial number of the Significant Amendment's terms. The data should have been reviewed to help provide for better pre-operational aquifer testing and ambient monitoring.[79] It is relevant to operational and compliance monitoring, as it represents the only real-world data of impacts to the aquifer from the in-situ leach process at this site.[80] It should have been used to revise and better calibrate FCI's groundwater and geochemical models, which form the basis for key permit terms like the location of monitoring wells[81] and plans for restoration.[82]

It is clear from FCI's application on remand, its responses to ADEQ's requests for information, and ADEQ's own responses to public comments and its answer in this appeal, that neither FCI nor ADEQ conducted any meaningful review of the BHP data with an eye toward improving this permit. Indeed, FCI went so far as to claim in its application materials that data from the BHP pilot test cannot be applied to the PTF well field because the two sites are allegedly so dissimilar.[83] FCI does not explain why that position does not refute its EPM assumption as a valid basis for FCI's modeling and much of the Significant

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[78] *Id.* at 127-28, Conclusion of Law 24.
[79] Significant Amendment, § 2.2.3.
[80] *Id.*, § 2.5.
[81] *Id.*, Table 2.5-1.
[82] *Id.*, §§ 2.9 & 2.10.
[83] FCI, *Significant Amendment Application, Temporary APP No. P-106360*, at 1-6 (Mar. 31, 2015)

Amendment's monitoring and compliance scheme. Nor does FCI explain how the PTF results will be in any way relevant to commercial operations if the BHP data cannot be used at the PTF well field. Taking FCI's argument at face value, the PTF becomes a meaningless exercise with no relevance to a commercial permit.

F. Issues pertaining generally to the previous need to remand the permit

Issue A

The Significant Amendment does not meet the requirements of the November 14, 2014 Board Order, which adopted and incorporated the Administrative Law Judge Decision dated September 29, 2014. The Board Order and ALJ Decision found that the permit as issued was unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgments. As a matter of law, the Significant Amendment must comply with all applicable law, and must cure all reasons for which the previous iteration of the Temporary APP was found to be unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgments.

This issue does not relate to any one single finding in the Board Order. The Significant Amendment largely ignores the Order and its instructions on remand. Appellants include this issue on appeal because ADEQ and FCI continually act in a manner that disrespects the Board Order. The Order represents a final agency decision that interpreted the law applicable to this permit and is binding on ADEQ.[84] Appellants believe that FCI's application and the permit issued by ADEQ violate this basic legal principle of administrative law and that the Board should make clear through its decision in this matter that ADEQ and FCI must follow the Board's final and binding decision without question.

Issue C

The Significant Amendment's PMA allows contaminants to be placed 500 feet downgradient from the observation wells in the Lower Basin Fill Unit ("LBFU"), which other terms of the Significant Amendment prohibit.

Significant Amendment § 2.3.1 precludes mining solutions from leaving the Oxide Zone, but other permit terms combine to allow mining solutions far beyond the PTF well field, where they will contaminate the LBFU in violation of that permit term. This issue was the subject of extensive testimony at the previous hearing; was the subject of Findings of Fact and Conclusions of Law by the ALJ; was remanded to ADEQ by the ALJ; and was the

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[84] *See* A.A.C. § R2-17-125(A)(2); *see also Grigoleit Co. v. Pollution Control Bd.*, 613 N.E.2d 371, 375 (Ill. App. 1993) (agency lacks discretion to ignore Pollution Control Board's order on remand).

subject of public comments to which ADEQ responded. Significant Amendment § 2.3.1 remains unchanged in relevant part from the Temporary APP.

1. Relevant findings of fact and conclusions of law

The ALJ made several Findings of Fact describing testimony by ADEQ witnesses that the required monitoring would allow mining solutions to migrate into the LBFU undetected, in violation of the Temporary Permit:

> 220. Ms. Widlowski and Mr. Bryan both testified that Temporary APP § 2.3.1 required solution to be contained in the oxide zone and that **if FCI allowed solution to migrate into the LBFU, FCI would violate the APP, even if the solution was later drawn back into the cone of depression.** *See* ADEQ-7 at 4 § 2.3.1.
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> 223. Section 9A.3.1.3 of FCI's application provided that the screened interval would vary in length at each well and might include one or more screened segments within the broader injection interval. *See* ADEQ-1 at 230. **Ms. Widlowski acknowledged that because all of FCI's injection wells were screened in the oxide unit, sampling would not occur in the LBFU and that until closure, ADEQ would not be able to gauge the impact of the PTF on the LBFU.**
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> 224. Mr. Smit acknowledged that ADEQ assumed that if FCI maintained an inward gradient and ensured that the volume of recovered solution exceeded the volume of injected solution averaged over a 24-hour period, fluid would not escape. **Mr. Smit also acknowledged that the Temporary APP did not require FCI to monitor or to report to ADEQ if contaminants reached the observation wells or the LBFU.**[85]

The permit violation arose from Section 2.3.1, which "required solution to be contained in the oxide zone."[86]

In Conclusion of Law 31, the ALJ held that 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."[87] She then held that if ADEQ failed to require meaningful monitoring—such as monitoring needed to detect excursions in the LBFU—in reliance on the permit's hydraulic

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[85] ALJ Decision at 63-64 (emphasis added).
[86] *Id.* at 63, Finding of Fact 220.
[87] *Id.*, at 130.

control standards, "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."[88] Thus, the ALJ remanded the permit for ADEQ to reevaluate the monitoring scheme in light of the fact that mining solutions could migrate into the LBFU undetected, in violation of Temporary APP § 2.3.1.

2. Relevant Permit Terms

The Significant Amendment contains the same requirement as before that FCI maintain its mining solutions in the Oxide Zone.[89] This term is statutorily required because FCI must demonstrate that the pollutants it discharges will not violate aquifer water quality standards at the Point of Compliance wells.[90] And it is required by BADCT guidance that prohibits injection that would "allow the migration of fluids into or between underground sources of drinking water."[91]

Despite this express prohibition, the permit allows mining solutions to migrate at least 500 feet beyond the PTF well field.[92] At that point, according to FCI's own diagrams that ADEQ relied upon in drafting the Significant Amendment, mining contaminants will have already reached the LBFU.[93] These diagrams show a steep drop-off in the Oxide Zone to the west of the PTF well field, with the LBFU deepening substantially in that same area. They also show that FCI's POC Wells M15-GU and M14-GL are screened in the LBFU more than 500 feet west of the observation wells. Thus, these POC wells can only detect contaminants if those contaminants already have been traveling through the LBFU for

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[88] *Id.*, Conclusion of Law 33.

[89] Significant Amendment, § 2.3.1 ("In-situ solutions shall be injected and contained within the oxide unit.").

[90] A.R.S. § 49-243.

[91] ADEQ BADCT Manual, § 3.4.5.3.1.

[92] Significant Amendment, §§ 2.2.1.1; Table 4.1-1.

[93] *See* Mark Nicholls email to Richard Mendolia re *LTF-61845 APP P-106360 - Clarification of Materials Previously Submitted - Florence Copper,* attachment entitled *FCI Fig. 8-1, West Pollutant Management Area Production Test Facility (Rev. 12-14-2015)* (email submitted to ADEQ Dec. 14, 2015) (depicting location of POC wells and PTF well field); *id.*, attachment entitled *EW USDW cross-section 746013 N Looking North (Dec. 2015)* (showing POC wells screened in the LBFU downgradient of the PTF well field).

hundreds of feet and many months, if not years, in direct violation of Significant Amendment § 2.3.1.

Thus, the permit terms that incorporated and rely upon FCI's revised PMA, as well as those that allow FCI's POC wells to remain unchanged from the Temporary APP, are directly at issue in this appeal as being in conflict with Significant Amendment § 2.3.1. Similarly, permit terms that allow closure based in part on this compliance scheme are insufficient to protect drinking water resources.[94]

Issue G

The Significant Amendment does not ensure the maximum early warning of permit violations.

The ALJ found that the Temporary APP's compliance and operational monitoring was unreasonable, unlawful, and technically invalid, largely because FCI was not required to monitor for horizontal and vertical escapes of mining pollutants at locations that would alert ADEQ and trigger contingency actions early enough to protect drinking water resources. She directed ADEQ to re-evaluate and improve compliance and operational monitoring of PTF operations to ensure early detection of mining pollutants. In the Significant Amendment, ADEQ did not make FCI move its POC compliance wells, as the ALJ specifically directed, and did not require sufficient changes in operational monitoring to ensure meaningful monitoring that would provide for early detections of pollutant escapes. This claim raises ADEQ's failure to address one of the ALJ's key findings as an issue that arises out of and impacts numerous permit terms.

1. Relevant findings of fact and conclusions of law

In Finding of Fact 339, the ALJ cited ADEQ's Substantive Review Checklist for the proposition that the intent of POC placement "is to achieve the earliest detection of any contaminants migrating out of the PMA, for 'maximum early warning' of a problem that will require a remediation response."[95] She went on in multiple Conclusions of Law to find

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[94] Significant Amendment, § 2.9.

[95] ALJ Decision, at 96-97.

that the Temporary APP's monitoring scheme was wholly inadequate to detect vertical and horizontal migration of mining pollutants during the life of the PTF.[96]

FCI complains that Appellants are trying to hold it to a standard, "maximum early warning," that does not appear in statute or regulation.[97] Appellants are not attempting to create a new legal standard, we are simply advocating our position using words from ADEQ's own guidance documents and the ALJ's decision. If the Board doesn't like the phrase "maximum early warning," Appellants will be happy to have the Board apply the similar standard of "meaningful monitoring," which the ALJ clearly imposed as a standard on remand.[98] Regardless of whether "maximum early warning" is a statutory standard, the ALJ clearly intended the permit to be revised to include "meaningful monitoring" that would provide "early" or "immediate detection" of the migration of pollutants.[99] This is in keeping with ADEQ's own BADCT guidance, which requires operational monitoring "to allow early detection and correction of problems."[100] And meaningful monitoring that provides early warning of pollutant migration is a necessary requirement for a permit program that is intended to prevent violation of aquifer water quality standards or further degradation of aquifer conditions.[101]

2. Relevant permit terms

The Significant Amendment fails to provide maximum early warning of permit violations, thereby endangering drinking water supplies, because its monitoring scheme

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[96] *See, e.g., id.*, Conclusions of Law 30-36; 39-41; 49-50.

[97] FCI Motion to Dismiss, at 7 (Sept. 28, 2016).

[98] *See, e.g.*, ALJ Decision at 130, Conclusion of Law 33 ("if ADEQ did not require meaningful monitoring . . . the Temporary APP would violate A.R.S. § 49-243(B)(1) and BADCT"); *id.* at 131, Conclusion of Law 36 ("Appellants established that the Temporary APP does not require meaningful monitoring of possible vertical migration"); *id.* at 132, Conclusion of Law 41 ("ADEQ should have heeded the warning in BADCT § 3.4.4.2 and required meaningful monitoring of potential short circuits in the Temporary APP"); *id.* at 140-41, Conclusion of Law 60 ("the POC wells do not allow any meaningful monitoring of pollutants that may escape the PMA during PTF operations").

[99] ALJ Decision at 140, n.75 (citing and quoting cases requiring monitoring "at the edge of the waste management area to provide early detection" and "at the limit of the waste management area to 'immediately'detect migration of hazardous waste.").

[100] BADCT Manual at 1-15.

[101] A.R.S. § 49-243.

remains woefully insufficient, unreasonable, unlawful, and technically invalid. These failings arise from numerous permit terms:

- 2.4 & 2.5.3, Points of Compliance: The POC wells west of the PTF well field will not detect permit violations during the life of the PTF, much less provide any form of early warning.

- 2.5.8.1, Monitoring Well MW-01: This well remains insufficient to provide maximum early warning or meaningful monitoring, as previously found by ALJ.[102]

- 2.5.8.2, Supplemental Wells: These wells are still too far from PTF well field to provide relevant data within the 2-year life of the PTF.

- 2.5.8.3, Observation Wells: The relevant monitoring at the Observation Wells is for fluid electrical conductivity, with Alert Levels that are impossible to violate.[103]

- 2.5.8.4, Multi-Level Wells: These wells are only monitored in the UBFU, thereby providing absolutely no protection to the LBFU.

In addition, the contingency plans of Section 2.6 are not protective because they are dependent on the alert triggers of an inadequate monitoring scheme. These problems are easily solved at essentially no cost to FCI, should they be willing to accept a permit with valid compliance requirements.

ADEQ and FCI argue that Issue G should be stricken because Appellants have not indicated how the permit fails to provide sufficient monitoring to warn of permit violations. Appellant's Notice of Appeal included, among other things, Issues B through F, L and P, all of which raise concerns with the Significant Amendment's monitoring and compliance scheme. Appellants incorporated their public comments and supporting materials into the notice of appeal, which describe these issues in great detail. Because ADEQ and FCI expressly defended their monitoring scheme in their answers and motions, they cannot claim they don't understand Appellants' objections.

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[102] ALJ Decision, at 132-133, Conclusions of Law 39-41.

[103] *See* discussion of Claim P, *infra*.

II. Issues on appeal that arise from revisions to the permit.

Appellants raise one issue that arises solely from wholly new permit terms.[104] Neither ADEQ nor FCI dispute that this issue should be heard on the merits.

Issue P

The Significant Amendment contains an unreasonable and technically erroneous 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.[105]

1. Relevant findings of fact and conclusions of law

The ALJ made numerous findings of fact regarding electrical conductivity as a monitoring device to ensure that mining pollutants do not escape into the LBFU.[106] In her conclusions of law, the ALJ found that ADEQ and FCI had admitted that migration of mining pollutants into the LBFU would violate the permit;[107] that the Temporary APP lacked any monitoring inside the PTF well field for vertical migration of mining pollutants;[108] and that existing monitoring in the Temporary APP would not detect mining pollutants until long after PTF operations had ended.[109] The ALJ directed ADEQ on remand to require "meaningful monitoring," in part through electrical conductivity monitoring for vertical migration of mining pollutants into the LBFU within the PTF well field.[110]

2. Relevant permit terms

ADEQ purportedly included the fluid electrical conductivity requirement in the Significant Amendment to help confirm hydraulic control.[111] Relevant permit terms include

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[104] Appellants originally included an issue regarding ADEQ's failure to properly investigate potential physical impacts of FCI's pumping to public water resources in the Florence area (Issue S). Although this potentially is a significant issue regarding FCI's planned full-scale project, Appellants have decided to not pursue that issue in regards to the PTF project. For that reason, Appellants withdraw Issue S as to this Significant Amendment only, but explicitly reserve the right to raise this issue regarding future permits sought by FCI.

[105] Significant Amendment, Table 4.1-8.

[106] *See generally* ALJ Decision at 70-73, Findings of Fact 243-252.

[107] *Id.* at 130, Conclusion of Law 31.

[108] *Id.* at 131, Conclusion of Law 35.

[109] *Id.* at 130, Conclusion of Law 32.

[110] *Id.* at 130-131, Conclusions of Law 33 and 35-36.

[111] Significant Amendment. § 2.2.4.

Sections 2.2.4 (Operational Requirements); 2.6.2.9 (Alert Levels); and Table 4.1-8 (BADCT Monitoring). These new terms generate new issues not addressed in the previous appeal because the required monitoring is wholly inadequate.

III. Issues on appeal that arise from ADEQ's failure to follow due process.

Issue T

ADEQ violated A.R.S. § 49-241 and applicable law by failing to provide proper and accurate information in the public notice of the Significant Amendment, by failing to properly record, transcribe, and respond to public comments, and by publishing a fact sheet that contained significant misleading statements.

This claim is a new issue arising out of ADEQ's mishandling of the public comment and hearing process. ADEQ objected to this claim because Appellants' allegations were supposedly not specific enough. ADEQ has no basis to strike this claim as insufficient to provide adequate notice. Appellants previously notified ADEQ of the inadequacies in the public comment process in a series of letters to and from ADEQ and the Attorney General's office, so ADEQ cannot claim it doesn't understand this claim.[112]

The last paragraph of ADEQ's response to Claim T provides no basis for striking this claim. Appellants cited to A.R.S. § 49-241 and applicable law as the basis for the violations at issue. Appeals to this Board are made under A.R.S. § 49-233, which states that an appeal to the Board can be taken from an agency decision under A.R.S. § 49-241, among other things. This is the reason Appellants cited to Section 241 "and applicable law," and is more than sufficient to provide the basis for the issue raised. Again, ADEQ is mischaracterizing Appellants' claim and intentionally attempting to apply an overly technical reading of applicable statutes to avoid a decision on the merits. Arizona deserves better from its agencies; protection of the environment is not a procedural game.

Nor is this claim outside of the Board's jurisdiction. ADEQ mischaracterizes the Board's enabling statute, which does not preclude the Board's consideration of whether

[112] Letter from Ronnie Hawks to Richard Mendolia, ADEQ (May 24, 2016); Letter from Jeffrey Cantrell, AG Office, to Hawks and Barbara Rodriquez-Pashkowski (June 6, 2016); Letter from Trevor Baggiore, ADEQ, to Hawks and Pashkowski (July 6, 2016); Hawks Letter to Baggiore (July 27, 2016); Cantrell Letter to Hawks (July 29, 2016); Hawks Letter to Cantrell (August 2, 2016).

ADEQ's public comment and hearing process was valid.[113] Administrative decisions are reviewed based on the record before the agency, which in this case includes written and oral public comments. If ADEQ ignored those comments or failed to provide a reasonable opportunity for the public to submit its input during the deliberation process, that failure affects the record before the agency. And the impact on the record and the agency's decision is obviously subject to the Board's review. The Board cannot opine on the legality of a statute requiring certain administrative procedures as part of the decision-making process.[114] But numerous administrative decisions in this State have addressed whether required procedures have been satisfied by the agency during the decision-making process,[115] in keeping with the unremarkable principle that administrative review panels can address claims based on flaws in the decision-making process under review.[116]

FCI's motion to dismiss this claim fails for the same reasons that ADEQ's motion fails. Like ADEQ, FCI cannot claim it does not know the basis for this claim, since FCI

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[113] A.R.S. § 49-323.

[114] *In the Matter of DWR Denial of Curly Horn Partners' Request*, OAH No. 14A-AWS001-DWR (May 18, 2015) ("under well-established common-law authorities, principles of judicial review and separation of powers prevent an administrative agency from declaring that a statute violates the United States or the Arizona Constitutions or that a duly enacted statute is invalid on its face due to the legislature's failure to follow proper legal procedures in enacting the statute.").

[115] *In the Matter of City of Phoenix*, Nos. 01A-Z072-DEQ & Z099-DEQ (OAH January 7, 2002) (deciding whether ADEQ's public comment process was adequate); *In the Matter of ARCO AM/PM*, No. 03A-C181-DEQ (OAH January 28, 2004) (discussing legality of notice by mail); *Mobile Community Council for Progress, Inc. v. ADEQ*, No. 04A-S164-DEQ (OAH October 21, 2005) (deciding issues of whether ADEQ violated Equal Protection Clause and whether it met requirements for public participation and comment); *In the Matter of Downtown Southwest Neighborhood Ass'n*, Nos. 02A-S030-DEQ & S031-DEQ (OAH April 11, 2002) (deciding whether ADEQ's notice of a public hearing was adequate); *In the Matter of the Application for a Permit to Appropriate Public Water of Cherry Creek*, No. 02A-SW002-DWR (OAH January 23, 2003) (deciding whether an agency manual was guidance or should have been promulgated as a formal rule subject to public comment); *In the Matter of the Decision of the Director to Grant the Salt River Valley Water Users' Associations' Amended Applications*, No. 13A-SW001-DWR (OAH September 2, 2014) (deciding whether water users were denied due process).

[116] *Richardson v. Tenn. Bd. of Dentistry*, 913 S.W.2d 446, 455 (Tenn. 1995) ("To require administrative tribunals to ignore procedural issues and delay correction until judicial review . . . would diminish the effectiveness of administrative proceedings and cause a considerable waste of effort on the part of the parties and the tribunal. . . . To summarize, administrative agencies have no authority to determine the facial constitutionality of a statute. They are authorized, however, to determine the constitutionality of the application of statutes or rules and of the procedures employed.")

participated in the series of letters between Appellants and ADEQ regarding the process.[117] Furthermore, the fact that ADEQ held a public hearing does not, ipso facto, mean that the hearing provided a reasonable opportunity for public comment. Nor does the fact that ADEQ issued a response to public comments conclusively demonstrate that ADEQ considered those comments in making its decision. ADEQ did not agree with a single critique or suggestion from the public for improving the permit and to Appellants' knowledge made no changes to the Significant Amendment as a result of public comment. The validity of the process, despite ADEQ's facial compliance with applicable law, is the issue raised by Appellants and FCI has adequate notice of the claim.

Issue U

ADEQ' s permit decision was predetermined long before the public comment period was opened and ADEQ acted with a closed mind to public comment, in violation of its due process obligation to provide a meaningful opportunity for the public to comment before a decision is made.

This is a new claim arising out of ADEQ's refusal to abide by the ALJ's decision; the consistent hostility of ADEQ management to opponents and critics; ADEQ's obvious deference to the wishes of a foreign mining corporation over the interests of its citizens; and ADEQ's mishandling of the public comment and hearing process.

This claim is within the Board's jurisdiction for the same reasons discussed in Appellants' response regarding Claim T. As to ADEQ's assertion that it considered the public comments, it is worth noting that ADEQ did not deny that it made no significant changes to the permit on remand. This alone raises a reasonable inference, to be determined on appeal, whether ADEQ considered public comment at all, given that it made no significant changes to the permit despite the ALJ's and Board's direction that it do so and public comments chastising the agency for ignoring the ALJ's decision. Nor is there any evidence in the record available to Appellants to support ADEQ's contention that it "posed additional questions to FCI based on the public comments."[118] The fact the ADEQ

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[117] Letter from Shane Ham to Hawks (July 21, 2016).

[118] ADEQ Motion, at 14 (Sept. 21, 2016)

responded to public comments is not conclusive on the issue of whether ADEQ actually considered the comments in making its permit decision. Appellants' claim is within the Board's jurisdiction and is sufficient to withstand ADEQ's and FCI's motions.

IV. Conclusion

ADEQ has already issued one permit to FCI that was found to be unlawful, arbitrary, unreasonable, and based on clearly invalid technical judgments. However, ADEQ and FCI graciously were given a second bite at the apple to draft a permit that complied with Arizona law, which should not be difficult for a company and agency that are capable of following the regulations. Instead of doing so, ADEQ and FCI have again worked together to produce a permit that ignores Arizona law and even ignores this Board's clear directives. Because this permit does not comply with the directives on remand, many of the issues that the ALJ felt would be addressed through other required changes remain a significant issue on appeal.

Appellants have worked hard to hone the issues on appeal and provided substantial and repeated notice of the issues on appeal through informal comments, in the formal public comment process, and again in the pending Notice of Appeal. Rather than wasting valuable time and resources on procedural gamesmanship, the parties should focus their attention on determining whether this Significant Amendment complies with Arizona law and will adequately protect the important water resources of this State and the citizens of Arizona.

Dated this 14th day of November, 2016.

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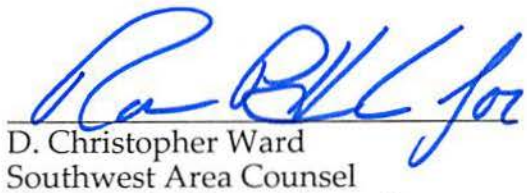

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