BEFORE THE RECLAMATION COMMISSION
STATE OF OHIO

CAM-MAD RIVER TOWNSHIP, ET AL.	)	
	)	
Appellants,	)	
	)	
vs.	)	
	)	
DIVISION OF MINERAL RESOURCES MANAGEMENT OHIO DEPARTMENT OF NATURAL RESOURCES	)	CASE NO. RC-17-004-006
	)	
	)	
Appellee,	)	
	)	
and	)	
	)	
ENON SAND & GRAVEL, LLC	)	
	)	
Intervenor.	)	
	)	

APPELLANTS' POST-HEARING BRIEF

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TABLE OF APPENDICES[1]

[1] Appendices A-O were attached to the Appellants' Pre-hearing Brief. Only Appendices P-V are being attached to the Post-Hearing Brief.

Appellants, by and through their undersigned counsel, hereby file and serve their Post-hearing Brief.

I. BRIEF STATEMENT OF FACTS

ODNR Permit IM-340 was first issued on April 27, 1977 to Keifer Sand & Gravel, and comprised 13.8 acres in Mad River Township, Clark County, Ohio. Stipulations of Fact and Authenticity (hereinafter "Stipulations") at ¶ 44. On October 23, 1990 Permit IM-340 was amended to add 8 acres to the permit area, making the total permit area 21.8 acres. *Id.* at ¶ 45. On August 22, 2005, Permit IM-340 was modified to allow for blasting on the 21.8-acre permit area, and on July 30, 2009, a modification was issued to increase the mining depth of the permit area and to allow for dewatering. *Id*. at ¶¶ 46 and 47.

ODNR Permit IM-375 was first issued on June 6, 1977 to Demmy Sand and Gravel, and originally comprised of 156.8 acres in Mad River Township. *Id*. at ¶ 59. On or about January 31, 1990, Permit IM-375 was amended to add 240.9 acres to the permit area. *Id*. at ¶ 61. On or about July 13, 2017 the Division of Mineral Resources Management ("Division") approved three related applications to amend and modify Mining Permit Number IM-340 (Application numbers A-340-1, IMM-340-4, and IMM-340-5) for Enon Sand & Gravel, LLC ("Enon" or "Intervenor") (hereinafter "Amendments and Modifications"). The approval of Application Number A-340-1 combined the permit acreage of IM-340 and IM-375. *Id*. at ¶ 48. The approval of Application Number IMM-340-4 authorized dewatering and an increase in mining depth at the mine site, including the 398.8 acres that were previously under Permit IM-375. *See* Appellants' Ex. E. The IMM-340-4 Application includes a brief description of two impoundments, Impoundment #1 and Impoundment #2, with estimated surface areas of 70 acres and 77.9 acres and maximum depths of 127 feet and 141 feet, respectively. *See id*. at Bates No. 3552, ¶ 28. Pursuant to the application to

dewater, IMM-340-4, a groundwater modeling report to establish a projected 10-foot cone drawdown contour was approved by Division Geologist Kelly Barrett on November 21, 2016. Appellants' Ex. K. Finally, the approval of Application Number IMM-340-5 authorized blasting on the combined permit acreage. *See* Appellants' Ex. F.

On or about August 3, 2017 the Appellants filed a Notice of Appeal with this Commission, appealing the Division's decisions issuing the Amendments and Modifications of July 13, 2017. Notice of Appeal, pp. 1-2. All of the Appellants clearly have interests that are or may be adversely affected by the changes in mining authorized by the Application approvals. Appellant CAM-Mad River Township ("CAM') is a non-profit, membership-based organization. Stipulations at ¶ 4. CAM formed out of concern that the industrial mining impacts from the Amendments and Modifications are going to "negatively impact [their] residential neighborhood" in a number of ways. Day 1 Tr. 65:7-10. CAM and its members, who live adjacent to the mine site and within the cone of depression, are concerned about impacts to water supplies, property, quality of life, and other environmental concerns related to the planned mining. *See generally* Appellants' Ex. T (Comment and Petition of CAM to ODNR-DMRM dated April 18, 2017); Day 2 Tr. at pp. 351-402 (testimony of CAM members Jon Vanderglas, Kyle Peterson, and Carol Culbertson).

Appellant Charles Swaney owns property at 4261 Fairfield Pike, Springfield, Ohio. Day 1 Tr. 64:3-4. The water source on the property is a domestic water well. *Id*. at 64:23-24. The home and water source are located directly between Phases I and II of Enon's proposed mining. *See Id*. at 64:18-22. The well for Mr. Swaney's property is between the 60 to 70-foot cone of depression contours for Phase I of the proposed mining, and between the 10 to 20-foot cone of depression

contours for Phase II of the proposed mining operation. *Id*. at 71:11-20 and 72:4-17. Mr. Swaney is also a member and director of CAM. *Id*. at 64:25-65:1-2.

Appellant Michael Verbillion owns and resides on with his wife a 42-acre property located at 5256 Hagan Road, Springfield, Ohio 45502. Stipulations at ¶ 5. This property has been owned by Michael Verbillion's family since the early 1900s. Day 1 Tr. 82:9-10. The Verbillion property utilizes two water wells, one for domestic use for their residence, and one for agricultural use to water livestock and crops. *Id*. at 84:15-20. The Mud Run stream runs through Mr. Verbillion's property from east to west, and the property is located downstream from the mining operation's proposed activities around Mud Run. *Id.* at 83:11-23; *see also* Appellants' Ex. D. In addition, the unnamed tributary that runs through mining area #2 (Phase I) also runs through Mr. Verbillion's property and runs into Mud Ron on his property, also downstream from the proposed mining operations. Appellants' Ex. D.

II. LAW AND ARGUMENT

A. Standard of Review

The burden of persuasion, by a preponderance of the evidence, is on the Appellants to show that the decisions of the Division in issuing the permit Amendments and Modifications were arbitrary, capricious, or otherwise inconsistent with the law. R.C. 1513.13(B). The Commission reviews the evidence *de novo*, meaning that the Commission may independently evaluate the evidence presented at hearing, and it may issue a decision based on additional factors outside of those involved in the appealed decision. *See Brad Fisher v. Division & American Energy Corporation*, RC-09-012 at p. 13. While the arbitrary and capricious standard is a deferential one, "the Chief's decision must still by supported by properly established facts and by applicable law, in order to qualify as neither arbitrary, capricious, nor inconsistent with the law." *Tri-State*

Reclamation, LLC v. Division of Mineral Resources Management, et al. Case Nos. RC-007-009 and RC-030 at p. 17.

The issuance and modification of surface mining permits in Ohio for industrial minerals other than coal is governed by Chapter 1514 of the Ohio Revised Code. Ohio Revised Code Chapter 1514 "was enacted to ensure the future usefulness of the land being mined and to moderate adverse impacts of surface mining on the public health and safety, the natural beauty of the state, and the environment." *Natl. Lime & Stone Co. v. Div. of Mines & Reclamation,* 122 Ohio App.3d 602, 607, 702 N.E.2d 486 (3d Dist.1997). R.C. 1514.02 charges the Chief of the Division of Mineral Resources Management with issuing surface mining permits and amendments to mining permits. The Supreme Court of Ohio has held that that statutes designed to promote the health, safety and welfare of people should be broadly construed. *Buckeye Forest Council v. Div. of Mineral Resources Mgt.*, 7th Dist. Belmont CASE NO. 01 BA 18, 2002-Ohio-3010, ¶ 13 (citing *Pizza v. Sunset Fireworks Co.*, 25 Ohio St. 3d 1, 494 N.E.2d 1115 (1986)). Therefore, as a mining statute designed to promote the health, safety, and welfare of the people, R.C. 1514 "should be broadly construed and any exceptions should be narrowly construed." *Buckeye Forest Council* 2002-Ohio-3010 at ¶ 13.

B. Enon's Submission of Groundwater Modeling Information Fails to Comply with R.C. 1514.13, and the Division Unlawfully Approved Enon's Modeling.

Pursuant to Enon's plan to add dewatering and significantly deeper mining for more than 140 acres of the previous permit area, it was required to, among other things, submit data for groundwater modeling or to submit groundwater modeling itself that complies with R.C. 1514.02(A)(16) and R.C. 1514.13.

R.C. 1514.02(A)(16) requires applications that include dewatering to "contain a compilation of data in a form that is prescribed by the chief and that is suitable to conduct

groundwater modeling in order to establish a projected cone of depression for purposes of section 1514.13 of the Revised Code." R.C. 1514.13(A) requires the following:

> The chief of the division of mineral resources management shall use the compilation of data for ground water modeling submitted under section 1514.02 of the Revised Code to establish a projected cone of depression for any surface mining operation that may result in dewatering. The chief shall consult with the chief of the division of water resources when projecting a cone of depression. An applicant for a surface mining permit for such an operation may submit ground water modeling that shows a projected cone of depression for that operation to the chief, provided that the modeling complies with rules adopted by the chief regarding ground water modeling. However, the chief shall establish the projected cone of depression for the purposes of this section.

1. The Application allowing dewatering was approved in error because the Chief failed to establish the projected cone of depression and the Chief failed to consult with the Chief of the Division of Water Resources.

R.C. 1514.13(A) plainly requires that the "**chief of the division of mineral resources management shall** … establish a projected cone of depression for any surface mining operation that may result in dewatering." (Emphasis added). The statute does allow an applicant to submit their own groundwater model but reiterates, "[h]owever, the chief shall establish the projected cone of depression for purposes of this section." *Id*. Although not defined by statute, the rules promulgated under R.C. 1514.13 define "chief" to plainly mean "the chief of the division of mineral resources management." OAC 1501:14-1-01(L).

The testimony and evidence at hearing conclusively established that the Chief of the Division of Mineral Resources Management did not establish the projected cone of depression as required by the statute. The evidence proved that Kelly Barrett approved Eagon's projected cone of depression. *See* Appellant's Hearing Ex. K; Day 3 Tr. 615:18-24. When asked what role the Chief even played in the approval, Kelly Barrett stated, "I act on behalf of the Chief when we establish the cone of depression when we [approve] it." *Id*. at 616:2-3. When asked where the Ohio Revised Code gives this authority, Ms. Barrett could not point to any provision, but instead

stated, "generally the employees of the Chief do actions for the Chief, and the Chief can't be everywhere at all times." *Id*. at 616:12-14. However, Ms. Barrett also testified that she reviews between one and three groundwater models annually and that she is the only geologist who reviews them. Day 3. Tr. 547:5-11. One to three models annually can hardly be described as an unreasonable burden on the Chief to have enough involvement to establish the cone of depression himself.

Moreover, the final established cones of depression in this case are taken straight from Eagon's Hydrology Report verbatim, and still have the modeler's name on them. *See* Appellant's Hearing Exs. L and M; Stipulations at ¶¶ 25 and 26. Thus, the statute's clear requirement that it be the Chief of the Division of Mineral Resources Management that establishes the cone of depression was not met. The Division's position is that the Chief establishes the cone of depression by simply having his staff review it. Day 1 Tr. 28:1-15. However, the legislature clearly intended the Chief to establish the cone of depression, and the Division's practices in this case violate that clear intent. Chief's decisions have important implications under the Ohio Revised Code, including rights of informal review and appeal. *See* R.C. 1513.13(A)(1) and (A)(3).

In addition, R.C. 1514.13(A) clearly requires that the Chief consult with the Chief of the Division of Water Resources when projecting the final cone of depression. Not only does the evidence show that the Chief of the Division of Mineral Resources Management failed to consult with the Chief of the Division of Water, Kelly Barrett testified that she also did not consult with the Chief of the Division of Water. Day 3 Tr. 616:21-25. Whatever the legislature's wisdom with regard to this specific requirement, it is not up to the Division to simply ignore its plain language. Therefore, as a result of the Division's failures to comply with these mandatory requirements of

R.C. 1514.13(A), the Commission should vacate and revoke the approval of Enon's Application to allow for dewatering, and require the Division to follow these mandatory requirements.

2. The groundwater model fails to comply with the regulatory requirements in OAC 1501:14-5-01 related to groundwater modeling for dewatering applications.

The specific regulations and requirements for data submitted with a dewatering application are found at OAC 1501:14-5. OAC 1501:14-5-01(A) and (B) provide that, except in compliance with paragraph C ("Groundwater model submitted by the applicant"), each application must include a detailed hydrologic map and a hydrologic description in sufficient detail to determine the cone of depression for the proposed mining. Paragraph C states that the applicant:

> may choose to submit a ground water model with his or her application for a permit that defines the projected cone of depression for the proposed operation. **The model must accurately reflect the ground water flow conditions associated with the hydrologic study area and be consistent with ASTM international standards.** The website for ASTM international is http://www.astm.org/. **The submission shall include detailed explanations of the hydrologic and geologic parameters used to construct the model** and the model results must be submitted in a format prescribed by the chief.

OAC 1501:14-5-01(C). (Emphasis added).

Here, although both the Division and Enon seemed to confuse the two separate options, Eagon & Associates, Inc. submitted a groundwater model pursuant to OAC 1501:14-5-01(C) on behalf of Enon Sand & Gravel. *See* Appellants' Ex. G at Bates No. 4163. The evidence at hearing clearly showed that the model does not accurately reflect groundwater flow conditions associated with the hydrologic study, does not include detailed explanations of the hydrologic and geologic parameters used, and is inconsistent with ASTM international standards.

2a. The Eagon Model does not accurately represent groundwater flow conditions, and it is inconsistent with ASTM International Standards because it fails to accurately conceptualize the hydrologic study area.

The evidence at hearing established that ASTM standards related to groundwater modeling were ignored at all levels. The ASTM standard for Conceptualization and Characterization of Ground-Water Systems was introduced at hearing. Appellants' Ex. Y. This standard requires modelers to:

> Characterize, quantify, and evaluate the uncertainty of the hydrostratigraphic units in terms of thickness, porosity, permeability, hydraulic conductivity (or soil moisture characteristic functions), transmissivity, and storativity….
>
> Characterize, quantify, and evaluate the uncertainty of the hydrostructural units, such as faults, fracture zones, fractured materials and karst conduits, in terms of thickness, porosity, permeability, hydraulic conductivity, transmissivity, and storativity. Fracture and fracture/karst porosity and permeability values, or hydraulic conductivity, transmissivity, and storativity values may be quantified based on aquifer tests, laboratory analysis, or parameter estimation.

Appellants' Ex. Y at p. 5, ¶¶ 10.1 and 10.2. The ASTM Standard Guide for Application of a Ground-Water Flow Model to a Site Specific Problem reiterates that:

> The conceptual model **identifies and describes** important aspects of the physical hydrogeologic system, including: geologic and hydrologic framework, **media type (for example, fractured or porous)**, physical and chemical processes, hydraulic properties, and sources and sinks (water budget). These components of the conceptual model may be described either in a separate document or as a chapter within the model report.

Appellants' Ex. Z at p. 3, ¶ 6.3.1 (Emphasis added). The standard also requires that the "conceptual model must address the degree to which the aquifer system behaves as a porous media. If the aquifer system is significantly fractured or solutioned, the conceptual model must address these issues." *Id*. at p. 2, ¶ 6.3.

The Eagon model did not even attempt to characterize, identify, or evaluate the different structural units in terms of permeability, faults, fracture zones, and karst conduits. A glaring omission of the model's characterization of the study area is any discussion of karst or fractured

features of the bedrock. This is further evinced (and argued more fully in Part 2b. below) by the fact that the Eagon model used a groundwater flow rate (hydraulic conductivity) of just 1 foot per day for the permit area, and for miles surrounding the permit area, for the entire limestone bedrock aquifer. *See* Appellants' Ex. G at Figures 10 and 11 (Bates Nos. 4191-4192). Imagine how impermeable a media has to be to only allow 1 foot of water flow per day.

Appellants introduced numerous pieces of evidence into the record, including reports, studies, first hand testimony, and photographs related to the study area that clearly identified karst and/or fractured geology of the limestone bedrock in the study area. (1) Karst of Springfield, Ohio (Aden & Martin) studied an area just a few miles north of the Permit area, along the Mad River. Appellants' Ex. DD at Bates No. 0006. It is notable that karst features were identified on the southern portion of the study area along Mud Run, toward the direction of, and within 1 mile of, the proposed quarry site. *Id.*; Day 3 Tr. 659:7-17 (Barrett testimony). A comparison to Figure 11 in the Eagon Model (Model Hydraulic Conductivity (K) Distribution – Layer Three) shows that the model area runs north beyond the Mad River, and includes a large potion of the Aden Karst Study area, where karst features were identified. Appellants' Ex. G. at Bates No. 4192. (2) Appellants also entered into evidence a Karst Investigation study conducted by the Ohio EPA in 2007. The study areas are in Mad River Township, in a similar location to the Aden study. Appellants' Ex. EE at Bates No. 6465 and 6467. This study found that the dissected Niagara escarpment carbonate aquifer in this region "behaves as a karst aquifer with measured flow rates from dye traces ranging from 3,100 to 28,800 ft/day." *Id*. at Bates No. 6487. (3) In addition, the Ohio EPA conducted an investigation into the Echo Hills subdivision in 2005-2006, which is located directly adjacent to Phase II of the planned mining area, and characterized the geology as "thin glacial till which overlies weathered and fractured Silurian limestone and dolomite bedrock

aquifers, a karst setting." Appellants' Ex. II at p. 58 (Bates No. 6555). Kelly Barrett testified that during a call with an Ohio EPA representative, the representative did state that there was karst geology in Echo Hills and that Ohio EPA had concerns about nitrate pollution. Day 3 Tr. 769:15-770:1-2. (4) Also, Ohio EPA indicated in comment letters to the Division that there are a number of public wells, including the Greenon High School well approximately 2,460 feet away from the permit area, located in carbonate bedrock with karst features. Appellee's Ex. 42 at Bates No. 1796. (5) Brent Huntsman, a Professional Geologist, surveyed the area himself and documented a number of bedrock outcrops that contained fractured and karst features in areas adjacent to the permit area. Appellants' Ex. CC at Bates Nos. 4567-4577; Day 1 Tr. pp. 184-88 and 195-196. Mr. Hunstman also testified, using the bedrock contour map at Plate 2 of the Eagon report, that this same bedrock runs through the permit area, and that he would expect it to be fractured and karst as well. Day 1 Tr. 191:2-192:1-13 and 193:11-194:22. (6) Finally, Kyle Peterson, a local resident, testified to his survey of properties surrounding the mine site, and his identification of numerous springs, sinkholes, and other karst features. Day 2 Tr. 364:24- 371:1; Appellants' Ex W at Bates No. 4754 (map).

In addition, the other reports in evidence and that were discussed at hearing describe the upper carbonate aquifer as being fractured and weathered, and more permeable than the lower carbonate aquifer. Appellants' Ex. FF at Bates No. 4884 (describing the upper portions of the carbonate aquifer as "highly weathered with solution channels present along the regularly spaced joints and fractures"); Appellants' Ex. Q at p.24 (a groundwater model report approved for IM-340 in 2009, noting that the bedrock in the Mud Run drainage valley "appears to possess a significantly higher permeability than bedrock in other areas of the model, which is likely attributable to the presence of the Brassfield and a higher degree of weathering or fracturing").

Intervenor's Exhibit XVI actually shows the upper portion of the bedrock aquifer and its common faults and fractures on the mine site itself. Mr. Huntsman described that the limestone in the photograph is "bedded in small chunks, 6, 8 inches thick, and they have bedding planes in between them where the rocks are piled upon – upon top of each other, and then you have vertical cracks about every 8 to 10 feet that you can discern yourself." Day 5 Tr. 1216:4-9. The bedrock weathering and fractures are comparable to those depicted in Appellants' Ex. CC. *Id*. at 1217:3-1218:1-19. Mr. Huntsman testified that given the clear fractures in the bedrock, water would move through this bedrock at a *far greater* rate than 1 foot per day. *Id*. at 1219:5-12. A comparison of the photo in Intervenor's Ex. XVI and the geological cross section in the study Surface Water Impacts on Ground Water Quality in Shallow Limestone and Dolomite Bedrock Aquifer, Clark County, Ohio shows that the bedrock looks like the "highly weathered" upper bedrock with "solution channels" that exhibited a higher aquifer yield, rather than the lower bedrock portion of the bedrock that appears to have thinner bricks and less room for solution channels. *See* Appellants' Ex. FF at Figure 2 (Bates No 4885).

When confronted with this evidence, the Division's expert stated that "we know they exist. We acknowledge they exist, but we don't know exactly where they are to fully characterize the carbonate aquifer." Day 3 Tr. 659:4-6. The Division seems to take the position that characterizing, quantifying, and evaluating the fracturing and karst in the model domain would be too difficult and is, for some reason, outside the scope of the Ohio Revised Code. Day 3 Tr. 659:21-660:3; Appellants' Ex. JJ at p. 4, no. 9. Likewise, Mr. Champa feels that these standards that would require identification and evaluation of fracturing and karst are just guidelines, and he doesn't have to "go out and do a bunch of extra work in the field for ODNR requirements for these models." Day 4 Tr. 1064:1-7.

First, it should be reiterated that the model was submitted pursuant to OAC 1501:14-5-01(C), not (A) and (B). This section requires that the model "must accurately reflect the ground water flow conditions associated with the hydrologic study area and be consistent with ASTM international standards", and include detailed "explanations of the hydrologic and geologic parameters used to construct the model…." OAC 1501:14-5-01(C). Nothing here limits what a modeler must do to obtain this information. Likewise, even applying OAC 1501:14-5-01(A) and (B), nothing in those sections limits what a modeler must do to obtain the required information and hydrologic descriptions. Instead, these sections lay out **minimum requirements** for descriptive information. *See e.g.* 1501:14-5-01(B)(4).

Even without fieldwork, the Eagon model did not even use the resources available to it in a meaningful way to attempt to determine an estimate of fracturing and permeability. For example, the report briefly acknowledges "higher specific capacity wells in the bedrock" may "indicate fracturing of bedrock in the valleys." Appellants' Ex. G. at p. 6. However, well data was not used to attempt to identify fracture zones. Brent Huntsman likewise describes that wells completed in "joint/fracture" zones can be identified by higher specific capacity values, and he goes on to describe a few examples in his report. Appellants' Ex. W at p. 9. In addition, Mr. Huntsman conducted specific capacity measurements using a subset of 69 wells to graph a range of higher specific capacity wells. *Id*. at pp. 9-11. The report states "[a]ccording to Smart et al. (1992) those higher capacity wells would represent groundwater flow from fissures and well connected fissures in the carbonate aquifer." *Id*. at p. 11. Moreover, all experts agree that the more permeable the aquifer, the greater the hydraulic conductivity. Day 3 Tr. 623:11-13; Day 4 Tr. 1062:14-16. In analyzing the specific capacity graphs in his report, Mr. Huntsman explained that this data shows:

> There are 1 foot per day hydraulic conductivity for some of the wells because some of the wells will very -- they are in really tight portions of the aquifer. They don't intersect very many fractures whatsoever … So it's not that you will not see a 1 foot per day. It's the probability and how often you see it, you know, those very low numbers versus the very high numbers. This just speaks to how in -- inhomogeneous or, you know, how inconsistent it is depending upon where you're at in the aquifer itself. But comparing these two graphs, it's telling you that most of the wells that you would anticipate putting in this limestone aquifer or this carbonated aquifer are all going to be above or mostly above the point -- or the 1 foot per day hydraulic conductivity, calculated hydraulic conductivity. That's what these graphs are telling you.

Day 1 Tr. 152:7-153:1-4; Appellants' Ex W at pp. 9-10. In addition, Mr. Huntsman testified that there are methods to model for fracture flow within MODFLOW. Day 1 Tr. 201:2-18. Thus, the argument that there wasn't enough information to attempt to characterize the aquifers for the model is without merit.

A related and important flaw is that the Eagon model treats both the upper and lower bedrock aquifers essentially the same with regard to permeability by assigning them both virtually the same hydraulic conductivity values. Day 4 Tr. 1062:22-25. As argued more fully in Part 2b. below, every resource made available at hearing identifies the upper bedrock aquifer as being more fractured and permeable than the lower bedrock aquifer. There is simply no way to justify using the same hydraulic conductivity for both the upper and lower bedrock aquifers. When asked about a difference in permeability, Mr. Champa testified, "there may be; there may not be," and that he didn't differentiate between the aquifers because "[e]very well that's completed in the lower aquifer is also crossing the upper aquifer." Day 4 Tr. 1059:22-1060:5-7. However, a closer look at the data the Eagon model used reveals that they didn't attempt to differentiate the aquifers. Table 1 of the Eagon report reflects information required by OAC 1501:14-5-01(B)(4), which requires a description of representative water sources to "represent all aquifers and producing zones within the aquifers" with specific information about each well that includes casing length.

OAC 1501:14-5-01(B)(4)(a)(xi). First, a look at Table 1 tells the reader that, based on depth, there are a number of wells that are completed in the upper bedrock, allowing the modeler to isolate wells and aquifer characteristics of the upper bedrock. Appellants' Ex. G at Bates No. 4197 (*e.g.* the first 5 well numbers from the top); Day 5 Tr. 1157:11-21. Second, the casing length on Table 1 is left completely blank. However, nearly every well log from ODNR lists the casing length. A look at a similar table that Brent Huntsman created, from the same data, using well logs near the quarry site, shows that casing length can be used to isolate wells that reflect the lower bedrock aquifer. *See* Appellants' Ex. X. Mr. Champa could have easily looked at the well logs and determined the casing length in order to isolate wells in the lower bedrock aquifer, but he didn't. Day 5 Tr. 1162:15-18. Thus, Mr. Champa's claim that he couldn't isolate the lower bedrock aquifer is arbitrary, capricious, and plainly false. He didn't even try.

Therefore, the Division acted in an arbitrary, capricious, and unlawful manner in approving the Eagon model and the related Applications, because (1) the model does not accurately reflect the groundwater flow conditions associated with the hydrologic study area and (2) is clearly inconsistent with ASTM international standards because it does not accurately conceptualize the hydrologic flow system. As discussed below, this inaccurate conceptualization likely led to woefully underestimated aquifer parameters, which ultimately lead to an inaccurate cone of depression.

2b. The hydraulic conductivity values are inaccurately low in the model, and as a result, the model fails to accurately reflect groundwater flow conditions and be consistent with ASTM International Standards.

Hydraulic conductivity accuracy is vital to modeling predictive groundwater impacts, such as a cone of depression, because it reflects the potential rate of groundwater flow through a permeable medium. Day 3 Tr. 580:15-18. All experts agree that the more permeable the media,

the higher the hydraulic conductivity will be. Day 3 Tr. 623:11-13; Day 4 Tr. 1062:14-16. Appellants presented expert testimony to show that hydraulic conductivity in particular is inaccurately reflected in the Eagon model. Day 1 Tr. 141:5-16 (Mr. Huntsman testifying that the hydraulic conductivity value used in the model "grossly underestimates" the flow rate, and that it "should be much higher, which, in turn, increases the growth of the cone of depression."); *see also Id*. at pp. 149-155.

The Eagon model separates the upper carbonate bedrock aquifer from the lower carbonate bedrock aquifer, with the aquifers generally being separated by the Massie Shale, which is an aquitard. Appellants' Ex. G at pp. 6-7. The upper bedrock aquifer is designated as Model Layer 1, and the lower bedrock aquifer is Model Layer 3, with the intervening shale designated Model Layer 2. *Id*. at p. 6. Figures 10 and 11 of the Eagon Report show the hydraulic conductivity values used in the model for Layer 1 (upper bedrock aquifer) and Layer 3 (lower bedrock aquifer), respectively. Appellants' Ex. G at Bates Nos. 4191 and 4192. The bedrock aquifer in the permit area and immediately adjacent areas was assigned a hydraulic conductivity value of 1 foot per day[2] ("ft/day") for both Model Layers 1 and 3, extending up to the mad river to the north, and to Yellow Springs to the south. *See Id*. At a little less than 6,000 feet east of the permit area, the hydraulic conductivity for both layers increases, but only to approximately 2.68 ft/day. *Id*.

1 foot per day is a low value, and 1 foot per day "would not allow you to develop wells that would produce more than a few gallons a minute." Day 1 Tr. 149:4-7 (Huntsman testimony). Importantly, all published literature, studies, and reports that were presented at hearing support the fact that these hydraulic conductivity values used in the model for the permit area and

[2] The value of 7.5 gallons per day per square foot translates to 1 foot per day, and the value of 20 gallons per day per square foot translates to 2.68 feet per day. *See* Appellants' Ex. JJ at p. 5, no. 16. For purposes of this brief, Appellants will use the foot per day values where possible because it is a simpler unit of measurement to understand.

surrounding areas are inaccurately low. First, and most directly, Appellants' Exhibit LLL was introduced as evidence at hearing, and testified to by the Appellee and Intervenor's expert witnesses. Using a broad range of resources for Clark County, this report states:

> Values for hydraulic conductivity also varied for the bedrock aquifers. For the limestone and dolomite aquifers, values of 100 to 300 gpd/ft^2 (2), 300 to 700 gpd/ft^2 (4), and 700 to 1,000 gpd/ft^2 (6) were selected. These various values reflected the stratigraphy and nature of the particular carbonate units, the amount of solutioning, and most importantly, the degree of fracturing. Yields from completed wells, particularly larger diameter wells, and drillers' logs were carefully checked. Limestones underlying or bordering both modern stream valleys and buried valleys tend to be more highly fractured. Limestones close to the ground surface with shallow depths to water also tend to be more highly weathered and fractured.

Appellants' Ex. LLL at p. 41. The lowest value here of 100 gallons per day per square foot would come out to above 10 ft/day after conversion. Day 3. Tr. 652:1-653:1-4. This is more than 10 times above the value used by Eagon to represent the permit area and adjacent areas for these same aquifers in Model Layer 1 and Model Layer 3. Also in evidence is a hydrogeologic study of the quarry site that was completed and approved by the Division in 2009. *See* Appellants' Ex. Q. This study ultimately found hydraulic conductivity for the limestone aquifer in the same area to range from 3 to 65 feet per day. *Id*. at p. 22. Neither the Division Geologist, nor the Eagon modeler even bothered to review this study during the permit application process. Day 3 Tr. 785:8-13; Day 4 Tr. 1055:2-7.

Prior to Day Four of the hearing, the only published explanation given for the inaccurately low hydraulic conductivity value in the Eagon model is that it correspondence to the lower yielding area of 5 to 15 gallons permit versus the area to the west with yields up to 100 gallons per minute in the ODNR Division of Water Ground-Water Resources Maps from 1982. Appellants' Ex. JJ at p. 5, no. 16 (ODNR response to Huntsman letter); Ex. JJ at Addendum, Response 2 (Eagon response to Barrett questions); Day 3 Tr. 634:13-635:15 (Barrett testimony).

However, these maps only give ranges of well yields (reflected on Plate 7 of Appellants' Ex. G (Bates No. 4593)) and do not tell you the characteristics to evaluate what the actual transmissivity and hydraulic conductivity values of the site-specific aquifers would be, and they certainly wouldn't justify on their own uniform low values of 1 and 2.68 feet per day. Indeed, The Clark County Pollution Potential Report referenced these Ground-Water Resources Maps, among other sources, when they developed ranges for aquifer parameters in Clark County, but cited to more specific studies when discussing hydraulic conductivity ranges. *See* Appellants' Ex. LLL at pp. 40-41.

In any event, it was at least the Division's understanding that when developing hydraulic conductivity values used in the model Eagon, the modeler simply "narrowed it down as they calibrated." Day 3 Tr. 636:3-7. Simply calibrating your hydraulic conductivity to match modeled heads ignores ASTM standards, and ignores the fact that groundwater models are generally highly sensitive to hydraulic conductivity. The ASTM standard on calibration recognizes that:

> Since the accuracy of a prediction depends strongly on using (at least approximately) correct hydraulic conductivity values, it is necessary to resolve the non-uniqueness of the calibrated data set (4). This is done by using measured hydraulic conductivities or transmissivities (see 9.3), calibrating to measured ground-water flow rates as well as heads, or calibrating to data collected from multiple distinct hydrologic conditions, or both.

Appellants' Ex. BB at ¶ 8.4. Thus, ASTM standards recognize that hydraulic conductivity must be reasonably accurate when making predictions, and it therefore should be measured. When confronted with this standard, Ms. Barrett confusingly responded that "the heads" are what was calibrated to, and also that they calibrated data collected from distinct hydrologic conditions using the groundwater resources map. Day 3 Tr. 639:4-13. However, this is a clear misreading of the standard, which requires using **measured** hydraulic conductivities calibrated to measured flow rates, as well as heads, *or* using measured hydraulic conductivities calibrated to data collected

from multiple distinct hydrologic conditions. You can't just skip the measured hydraulic conductivity part, as it is required for both options.

On day four of the hearings, for the very first time, Intervenor's expert and the main author of the Eagon Report informed everyone that he had attempted to calculate hydraulic conductivity using some of the specific capacity data measures from well logs. *See* Day Four Tr. pp. 984 and 992-995. First, Mr. Champa testified that he attempted to use a single well in Yellow Springs, which is miles away from the permit area, to calculate transmissivity and hydraulic conductivity. Day 4 Tr. 984:11-22. Mr. Champa then testified that this value from a single well in Yellow Springs didn't result in well heads matching so he tried "varying permeability to shale, then recharge values, and still [was] not able to come to an acceptable calibration with that high value." *Id*. at 992:2-4. Mr. Champa then testified that he used specific capacity for wells within one mile of the permit area, and multiplied the specific capacity by 1,500 to get transmissivity, and then divided the specific capacity by aquifer thickness to get hydraulic conductivity. *Id*. at 999:12-24. This exercise supposedly gave Mr. Champa a geometric mean hydraulic conductivity value of a little less than 2 feet per day. *Id*. at 1000:6-10. Further examination revealed numerous errors, inconsistencies, and omissions in this exercise that make it wholly unreliable. First, Mr. Champa stated in his exercise of calculating hydraulic conductivity and transmissivity he "assumed unconfined conditions." *Id*. at 1053:6-8. This is a grave error because, when calculating transmissivity, unconfined aquifers are multiplied by 1,500, while confined aquifers are multiplied by 2,000. *See id*. at 1057:24-1058:13. The entirety of the lower bedrock aquifer is confined, and was treated that way in Eagon's modeling. *See* Ex. G. at p. 7. These careless and incorrect calculations, which ultimately must underestimate transmissivity and hydraulic

conductivity values by using a lower multiple for many, if not most, of the wells, cannot be used to justify such unsubstantiated low flow values for the limestone aquifers.

Moreover, the alleged values of the specific capacity are inconsistent with the general specific capacity values that are actually in the report. Mr. Champa testified this his subset of wells within one mile of the permit area had specific capacities ranging from .02 to 25 gpm/ft with a mean less than 1. Day 4 Tr. 999:23-1000:3. The Eagon report notes that specific capacity values on Plate 9 range from .05 to 58.33 gpm/ft, with an average of 2.18 gpm/ft. Appellants' Ex. G at p. 6. It is unclear how Mr. Champa somehow found specific capacities below .05 for the subset of the same data. In addition, Mr. Huntsman's calculation of specific capacity for 69 wells near the quarry site resulted in far greater specific capacity values than Mr. Champa's analysis. Appellants' Ex. X (second column from right, reflecting specific capacity values ranging up to 100 gpm/ft, with seven values at or above 10 gpm/ft). Importantly, unlike Mr. Champa's exercise, Mr. Huntsman's data is fully reflected in Appellants' Ex. X, with each well listed and able to be double-checked and verified, including casing length, in order to determine which wells would reflect which aquifers.

As if the methods that were testified to weren't faulty enough, the lack of evidence that such calculations were completed at all is highly concerning and inconsistent with ASTM international standards. Discussion of the use of site-specific well data to calculate transmissivity and hydraulic conductivity is found nowhere in the Eagon report. In addition, when Mr. Huntsman raised the low hydraulic conductivity value issue in comments to the Division, the Division posed those questions to Eagon. Appellants' Ex. JJ at Appendix, p.1, Question 2. The response, in the letter dated June 12, 2017 and signed by Mr. Champa, doesn't mention using any type of calculation analysis to determine reasonable hydraulic conductivity values, but instead

references the general Groundwater Resources maps, and it states that the value "was determined during model calibration and resulted in the best comparison between observed and modeled heads." *Id*. at p. 2. When asked directly if Eagon did this type of calculation, Kelly Barrett responded at the hearing that "[t]hey didn't do that process. But – well, to my knowledge. They didn't put it in the report," and furthermore, that had they performed such calculations, they should have been described in their report. Day 3 Tr. 642:13-21. This, predictably, is wholly inconsistent with the ASTM Standard Guide for Application of a Ground-Water Flow Model to a Site Specific Problem (such as a cone of depression), which requires reports to:

> document the procedures and assumptions inherent in the study, and to provide detailed information for peer review. The report should be a complete document allowing reviewers and decision makers to formulate their own opinion as to the credibility of the model. The report should be detailed enough that an independent modeler could duplicate the model results.

Appellants' Ex. Z at p.5, ¶ 7. A simple comparison of the hydraulic conductivity analysis of the 2009 Bowser-Morner study to that of the Eagon report shows a clear difference in detail and analysis, with the 2009 study being clearly more consistent with the relevant ASTM international standards, and also much more careful to develop and include realistic values **before** calibration. *Compare* Appellants' Ex. G at p. 8 (generally discussing hydraulic conductivity being "determined during model calibration…and adjusted in relation to the groundwater pollution potential indicated on Plate 7" *with* Appellants' Ex. Q at pp. 21-22 (calculating transmissivity and hydraulic conductivity from well data and providing a detailed discussion of justifiable values using multiple studies, and arriving at final reasonable values before calibration).

2c. The recharge values used in the model are inaccurately low, and as such, the model fails to accurately reflect groundwater flow conditions and be consistent with ASTM International Standards.

Similar to hydraulic conductivity, the recharge values used in the model are unjustifiably low. Recharge is defined as the total amount of water reaching the land surface that infiltrates the aquifer measured in inches per year. Appellants' Ex. LLL at p. 37. The Eagon report states that recharge distribution for the model is shown on Figure 9 of the report. Appellants' Ex. G at p. 8. The report states that the *distribution* of recharge values is based on the groundwater resources mapping shown on Plate 7 of the report, but the report is confusing in how it comes to the *values* of recharge used. *Id*. The report correctly references the ODNR Ground Water Pollution Potential Report, which states that recharge over the carbonate aquifer ranges from 4 to 7 inches per year. *Id*. Yet, the Eagon Report inexplicably states that they started with a value of just 2 inches per year. *Id*. The Model Recharge Distribution on Figure 9 shows that the permit area and miles beyond the permit area were given a recharge value of .5 inches per year, with a large portion to the east given a recharge value of just 1 inch in per year. *Id*. at Figure 9 (Bates No. 4190).

A close look at the Ground Water Pollution Potential Report reveals that even the four to seven inches per year values were relatively conservative, and they reflect areas with moderate depth to water, flat to rolling topography, and clay loam or silt loam soils. Appellants' Ex. LLL at p. 37. The values of 2 to 4 inches per year were the lowest potential values, and reflect areas with greater depths to water, clay loam soils, steep topography, and areas which do not have overlying streams. *Id*. The 2009 hydrology study on the same area used recharge values of 4 to 9 inches per year. Appellants' Ex. Q at p. 21. The permit area and surrounding areas are not particularly steep (Day 3 Tr. 670:25-671:1-3), and have varying ranges to water, including wells near the permit area that indicate a depth to water level of just 10 feet or less. Day 3 Tr. 758:1-8; Day 4 Tr. 1042:10-13; *see also, e.g.,* Appellants' Ex. G at Table 1 (Bates No. 4197)(Well log Nos. 33526, 63761, 150543, 139438, and 174168). When confronted with this information at hearing, Mr.

Champa, stated that "[g]reater depths to water don't have anything to do with recharge." Day 4 Tr. 1043:2-3. Curiously, the Eagon report itself states that recharge distribution "reflects higher rates of recharge in upland areas with relatively thinner drift thickness and lower rates of recharge in areas of thicker drift or steeper surface topography." Appellants' Ex. G at p. 8.

The only source Mr. Champa could eventually identify that reflects a recharge rate anywhere near .5 or 1 inch per year was the study Cones of Influence Developed in the Silurian-Devonian Aquifer, Maumee River Basin, Ohio. Intervenor's Ex. XVII. This report measured recharge to the aquifer as it occurs as vertical leakage through the drift overlying the bedrock aquifer in Northwest Ohio. Intervenor's Ex. XVII at Bates No. 66119; Day 5 Tr. 1147:18-1148:2. This report is not referenced in the Eagon report, and when asked if he had used or referred to it when putting his report together, Mr. Champa vaguely testified: "It was in my mind." Day 5 Tr. 1150:17-1151:1-3. In any event, the study has little relevance to actual recharge rates in Clark County. The study took place in Northwest Ohio, where the drift is highly impermeable (as evinced by its low hydraulic conductivity of less than 1 foot per day), which greatly restricts the vertical recharge rate. Intervenor's Ex. XVII at Bates Nos. 6621-66222. By contrast, the hydraulic conductivity of the till in Clark County is relatively highly permeable sand and gravel, with a range far above 1 foot per day. Appellants' Ex. LLL at p. 41.

Mr. Champa's testimony is riddled with these inconsistencies, but possibly the most perplexing and troubling opinion from his testimony might be that:

> In order to maintain calibration in the model, if you increase the hydraulic conductivity, you would have to increase the recharge and the two would balance out and you probably have about the same definition of the 10 foot drawdown contour that you do now.

Day 4 Tr. 1064:13-18. This is an opinion that is completely inconsistent with the ASTM standards discussed herein, but more concerning is that it is mathematically infeasible. Recharge is reflected

in the value of inches per year, where the hydraulic conductivity values discussed are in values of feet per day. A look at the 2009 dewatering study for IM-340 and its recharge analysis is helpful on this point. There, the modeler did a foot per day ("ft/day") value corresponding with inches per year in summarizing values used to simulate recharge. Appellants' Ex. Q at p. 21 (Table 3). The table shows that a value of .0021 feet per day corresponds to a recharge rate of approximately 9 inches per year. *Id*. Therefore, in order to balance out raising hydraulic conductivity to a value of just 3 ft/day, the recharge value would have to be raised to an extremely unrealistically high level, likely many multiples of 9 inches per year. Calibrating and varying recharge this way is what Mr. Huntsman refers to as "black box" science and in no way reflects accurate groundwater flow conditions as required by OAC 1501:14-5-01(C). Appellants' Ex. W at p. 12 (last paragraph).

2d. The Eagon Model calibration process was inconsistent with ASTM International Standards and cannot be trusted to represent accurate hydrologic conditions.

Throughout the comment process, and throughout the hearing, both the Division and Eagon defended the hydrologic characteristics and parameters used in the model by arguing that everything was worked out through calibration. They rely almost exclusively on the residuals processed during calibration, and represented on graphs in Figures 13 and 14 of the Eagon Report. Day 3 Tr. pp. 568-571; Day 4 Tr. pp. 1018-1020. However, there were serious omissions and errors during the calibration process that were inconsistent with ASTM Standards and clear grounds for disapproval of the hydrology model. Calibration is defined as "the process of refining the model representation of the hydrogeologic framework, hydraulic properties, and boundary conditions to achieve a desired degree of correspondence between the model simulations and observations of the ground-water flow system." Appellants' Ex. BB at p. 1, ¶ 1.2. The ASTM standard on calibration notes that calibration "is a necessary, but not sufficient, condition which

must be obtained to have confidence in the model's predictions." *Id*. at p. 2, ¶ 5.1. This is partially because:

> [o]ften, during calibration, it becomes apparent that there are no realistic values of the hydraulic properties of the soil or rock which will allow the model to reproduce the calibration targets. In these cases the conceptual model of the site may need to be revisited or the construction of the model may need to be revised. In addition, the source and quality of the data used to establish the calibration targets may need to be reexamined. For example, the modeling process can sometimes identify a previously undetected surveying error, which would result in inaccurate hydraulic head targets.

Id. at p. 2, ¶ 5.2

The Division and Enon defend using unrealistically low values for hydraulic conductivity and recharge by arguing that the model heads wouldn't match with higher values. This ignores this standard guidance that instructs modelers to revisit the conceptual model and the source of the quality of the data used to establish the calibration targets. If realistic hydraulic conductivity parameters are throwing off your calibration targets, there is likely something wrong with your calibration targets. This relates to the problem of "nonuniqueness" that was discussed at hearing. Nonuniqueiness was described as follows:

> Nonuniqueness means you can use a different combination of numbers that will give you the same result that you are looking for. And they don't have to be realistic numbers. Typically when you're dealing with an aquifer, as we were talking earlier, you have a range of hydraulic conductivities. You know, in the Bowser Morner report, they said the range of conduct -- hydraulic conductivity is going to be up to 65, 5 to 65. It was referenced in the Eagon report they were using --they said that they were in the correct ballpark at 1 foot per day because it fell within the published range of .1 to 500. Well, you can get numbers. You can get your model to work using very low or ridiculous numbers to produce the results you want, but they're not unique.

Day 1 Tr. 208:12-209:3 (Huntsman testimony); *see also* Day 3 Tr. 638:11-14 (Kelly Barrett testifying that nonuniqueness means you can put "different types of data or different values of data in" and "you could still get the same result"). Put simply, just because your calibration

targets match your inputs, does not mean your inputs are correct, and it does not mean your targets are correct. As Mr. Huntsman further testified, the risk of nonuniqueness is that:

> When you go out and put in real numbers like what the water level really is or how fast a well is pumping or how deep their excavation is at, it's going to produce a whole different set of parameters and numbers that you are going to have to run that model to see if it calibrates, and they never did any of that at all.

Day 1 Tr. 209:3-9.

What Mr. Huntsman is also alluding to is another flaw in the calibration process in the Eagon model: there was no sensitivity analysis conducted. A "[s]ensitivity analysis is where you [vary] the parameters that you put into [the model] to see how it affects the outcome of the model." Day 1 Tr. 205:23-25. The Standard Guide for Application of a Ground-Water Flow Model to a Site Specific Problem requires the model to be calibrated **and** a sensitivity analysis to be performed. Appellants' Ex. Z at p. 2, ¶ 4.1.5. The "purpose of a sensitivity analysis is to quantify the uncertainty in the calibrated model caused by uncertainty in the estimates of aquifer parameters, stresses, and boundary conditions." *Id*. at p. 5, ¶ 6.7. The sensitivity analysis should be:

> performed during model calibration and during predictive analyses. Model sensitivity provides a means of determining the key parameters and boundary conditions to be adjusted during model calibration. Sensitivity analysis is used in conjunction with predictive simulations to assess the effect of parameter uncertainty on model results.

Id. at p. 5, ¶ 6.7.1. The Eagon model and hydrology report does not contain a sensitivity analysis. Day 1 Tr. 206:1-2. Even if a sensitivity analysis was completed, and there is no evidence that it was, the fact that there is no description of the results in the report is in and of itself inconsistent with the standard. Appellants' Ex. Z, at p. 5, ¶ 7.1. In contrast, the 2009 hydrology study for IM-340 contains a clear description of a sensitivity analysis. Appellants' Ex. Q at p. 25. The residual data that the Division and Enon rely on so heavily does not address these serious omissions and

flaws in the model. Without defensible parameter inputs and a careful sensitivity analysis, Eagon has done nothing to address the problem of nonuniqueness.

Even when just used to match observed heads to modeled heads, the residual data and the corresponding graphs are heavily misleading. The ASTM standard related to modeling a site-specific problem speaks directly to this part of calibration, and states:

> The calibration is evaluated through analysis of residuals. A residual is the difference between the observed and simulated variable. Calibration may be viewed as a regression analysis designed to bring the mean of the residuals close to zero **and to minimize the standard deviation of the residual.**

Appellants' Ex. Z at p.4, ¶ 6.6.2. (Emphasis added). While Eagon's report provided a comparison of all of the residuals, it did nothing to analyze or speak to their **standard deviation**. Mr. Huntsman testified that the distributions shown on table two show problems with the residuals. Day 2 Tr. 287:21-288:1. Taking a look at just the first page of Table 2 shows a large number of residuals above 10 feet, both negative and positive. Appellants' Ex. G at Table 2, p.1 (Bates No. 4205) (showing 20 out of 49 data points were greater than 10 feet off, and only 19 of the 49 data points were within 5 feet of matching). While the *coefficient of determination* of the residuals may be close to 1, the standard deviation appears be far greater. Without analysis of the standard deviation, these distributions can't be said to be fully evaluated or reliable. In addition, Mr. Huntsman testified that Table 2 shows that Eagon "double counted" wells for use in Model Layer 1 and Model Layer 3, which are supposed to be different aquifers. Day 1 Tr. 287:13-19; Appellants' Ex. G. at Table 2 (Bates No. 4205-4222).

Moreover, Figure 14 shows that 237 wells are within a positive or negative residual range of 10-20 feet. *Id*. at Figure 14 (Bates No. 4195). In fact, the total number of wells that have a greater than 10 foot positive or negative residual is 354. *See id.* Much more than half the wells calibrated did not match the observed head by 10 feet or more. *Id.* Furthermore, Figure 14 reveals

that the residuals are heavily skewed to the negative, with 482 negative residuals, compared to 378 positive residuals. *Id.* In addition, the normal distribution curves represented on Figure 14 appear to be shifted left of zero to give the appearance of better fitting results. *Id.*

The ASTM standard requires the modeler to establish both calibration targets and acceptable residuals *See* Appellants' Ex. Y at p. 2, ¶ 6.1. It appears neither Enon nor the Division established acceptable residuals, as neither could answer the question at hearing. Day 3 Tr. 680:1-14; Day 4 Tr. 1074:12-20 (Mr. Champa testifying that he doesn't "know that that's even a fair question to ask. The residuals are what they are. You try to average everything out"). The ASTM standard on calibration tells us that:

> For any particular calibration target, the magnitude of the acceptable residual depends partly upon the magnitude of the error of the measurement or estimate of the calibration target and partly upon the degree of accuracy and precision required of the model's predictions. All else equal, the higher the intended fidelity of the model, the smaller the acceptable absolute values of the residuals.

Appellants' Ex. Y at p. 2, ¶ 6.4. Appellants would argue that given the fact that the purpose of the model is to establish a 10-foot drawdown contour, and given the legal implications of being within the contour, an acceptable residual should at a minimum be 10 feet or less. In any event, an acceptable residual value should be at least established and defended, and that was not done by the Division or by Enon.

In addition, Eagon did nothing to analyze where the 354 wells with residuals of plus or minus 10 feet or greater were located and their relationship to acceptable residuals. Kelly Barrett did testify that one way to think about acceptable residuals is that closer values near the mine would be more acceptable, and that "[i]t may not matter so much if you're further away near the boundary." Day 3 Tr. 680:20-24. Notably, the biggest issue with significant negative residuals was in a large cluster of wells in the Echo Hills development, directly adjacent to the proposed

mine. Appellants' Ex. G. at p. 10 and Plates 10 and 11 (Bates Nos. 4596 and 4597)(with Plate 11 showing this residual cluster to contain numerous residuals of more than -30 and -40 feet).

The real world impact of the accuracy of the cone of depression should not be understated. R.C. 1514.13 provides that where a water supply owner within the 10-foot cone of depression complains of diminution, contamination, or an interruption of their water supply "[a] rebuttable presumption exists that the operation caused the diminution, contamination, or interruption of the owner's water supply." R.C. 1514.13(B)(2). Mr. Huntsman testified that in his opinion that if hydraulic conductivity were accurately represented "the cone of depression would be much larger and deeper, farther away from the quarry site itself." Day 1 Tr. 305:23-306:2.

The Commission has acknowledged the complexities and uncertainties inherent in groundwater evaluations and is aware of the challenges faced by a landowner who has to prove causation when water loss or contamination occurs. *See e.g.*, Ben Combs, et al. v. Division & Oxford Mining Company RC-16-007. Ohio courts have recognized that "[t]he right to a water source is a crucial right for rural landowners." *Citizens Organized against Longwalling v. Div. of Reclamation, Ohio Dept. of Natural Resources*, 41 Ohio App.3d 290, 302, 535 N.E.2d 687 (4th Dist.1987). In analyzing a water supply complaint plan that did not contain a presumption of liability, that same court rightfully questioned whether "all landowners will … have access to legal counsel in order to negotiate on an equal footing with [the mining company]." *Id*. Overall, the regulatory mandate pursuant to OAC 1501:14-5-01(C) that the model "must accurately reflect the ground water flow conditions associated with the hydrologic study area" is vital to the practical application of handling water loss complaints, and vital for landowners to have some assurance that their water supplies will be protected. For all of the foregoing reasons, the Chief

acted in violation of the law, and in an arbitrary and capricious manner, in approving the model and the related Applications.

C. The Amendments and Modifications Fail to Comply with R.C. 1514.13 and OAC 1501:14-5-02, and the Chief Acted in an Arbitrary, Capricious, and Unlawful Manner in Approving the Applications in the Absence of Suitable Replacement Water Sources.

OAC 1501:14-5-02 requires that:

> (A) An applicant for a permit or an amendment that will be dewatering shall submit, **as part of the application, an analysis of the availability and suitability of alternative water supply sources that will be utilized to fulfill the water supply replacement provisions of O.R.C. Section 1514.13**.
>
> (B) The absence of suitable replacement water supply sources will be grounds for denial of an application for a permit or amendment as provided in O.R.C. Section 1514.02(B).

(Emphasis added). R.C. 1514.13 requires a permanent replacement water supply to be "comparable, in quantity and quality, to the owner's water supply prior to the diminution, contamination, or interruption of the owner's water supply." R.C. 1514.13(B)(3). Neither the Eagon Report nor the application materials for Application IMM-340-4 contain an analysis of alternative water supply sources to fulfill the water supply replacement provisions of R.C. 1514.13. This is, in and of itself, a clear violation of OAC 1501:14-5-02(A).

1. The model shows that wells closest to the quarry are at serious risk of complete dewatering, and there was no meaningful analysis on the availability of alternate water supply sources.

The Eagon report approved by the Division contains one small paragraph related to water replacement entitled "Groundwater Remediation." The remedial measures in the report only include lowering pumps and deepening or installing replacement wells. Appellants' Ex. G at p. 12. However, there is no analysis whatsoever of what water supplies they will be lowering into, and whether they would be comparable in quantity and quality pursuant to R.C. 1514.13. The

evidence at hearing established conclusively that the Division approved Enon to mine to base of the carbonate aquifer for mining Phases I and II. Day 3 Tr. 702:9-12. The evidence also established that the formation beneath the carbonate aquifer, the Ordovician shale, is not an aquifer and would not be considered an alternate water supply. Day 3 Tr. 702:13-15; Day 1 Tr. 213:2-12.

According to Mr. Huntsman, the lack of analysis of an adequate water supply could have grave consequences for wells near the quarry because "all the water is going to be removed, and deepening the well is not going to do anything because there is nothing to get water from." Day 1 Tr. 211:5-10. When asked about this issue at hearing, Kelly Barrett responded that Eagon did "supply an additional analysis when I asked for additional information for Mr. Huntsman's letter." Day 1 Tr. 702:16-21. In this so called "analysis" Eagon confirmed that "[m]ining is planned to extend to the base of the carbonate aquifer." Appellants' Ex. JJ at Addendum, p. 2, Response 3 (Bates Nos. 1720-21). The Response states that "aquifer saturation that will remain in the carbonate aquifer at the full extent of dewatering was evaluated using the groundwater flow model results." *Id*. According to the modeling results there would be 32 to 37 feet of saturation along Garrison Road and Fairfield Pike near Phase I of the quarry area, and 21 to 26 feet of saturation for residences near the Echo Hills subdivision. *Id*.

First, it should be noted that, as argued above, the model output is based on inaccurate hydrologic information, and it is clearly flawed. However, even applying Eagon's own modeled drawdown contour to well logs in these areas completely contradicts their analysis on aquifer saturation. Three wells on the edge of the permit boundary in Echo Hills were introduced at hearing. *See* Appellants' Exs. MMM, NNN, and OOO; Day 5 Tr. at pp. 1164-1165. All three of these well are located in close proximity to one another, and all three have a similar static water

levels, approximately 90-100 feet. *See Id*. Well log 895519 shows the Ordovician shale was encountered at 143 feet. Appellants' Ex. MMM. All of the wells are located at least within the 50-60 foot drawdown contour line. Day 5 Tr. 1166:14-18; Ex. G, *compare* log numbers on Plate 1 (Bates No. 4587) *with* Plate 13 drawdown (Bates No. 4599). When asked if the model drawdown showed that aquifers for these wells would be completely dewatered, Mr. Champa stated that "[i]f you just look at the numbers, then yes. But you're taking and assuming the drawdown is coming from that water level elevation. That is not what is depicted on that map." Day 5 Tr. 1167:15-18. What Mr. Champa appears to be arguing is that the model doesn't show that the wells will be dewatered because this is the area where there are 30 and 40 foot negative residuals (meaning the modeled water level was 30 and feet higher than what is reflected the well logs). *Id*. at 1167:22-1168:14.

The first major flaw in this reasoning is that you are supposed to be able to apply well logs to the drawdown contour because the modeled water level is supposed to reasonably match the water levels in the well logs. This is reflected in testimony by Kelly Barrett, where after she stated that Greenon High School's well is within the 10 foot contour, she stated she looked at the well log to determine what effect the 10 foot drawdown would have. Day 3 Tr. 774:4-13. Based on this review she concluded "it's within the 10 foot line so there is potential that the water level could drop 10 feet but the water level where it was 10 feet lower was still above where they were getting water in the well." *Id*. at 774:17-21. If you can't reliably apply the drawdown contours to the water levels used as calibration targets, then there must be something wrong with the model.

Even more concerning is the fact that the "groundwater flow model results" were used to conclude that there would be 21 to 26 feet of saturation near Echo Hills. Appellants' Ex. JJ at Appendix, Response 3 (Bates Nos. 1720-21). If the model **overpredicted** the groundwater level

by 30-40 feet, how can anyone assert with any confidence that those nearby wells will have any usable saturation, when this overprediction left only 21 to 26 feet of saturation in the aquifer? At best, there has been no reliable analysis whatsoever about what the dewatering is going to do to that aquifer, and whether it will be an available and suitable water supply after dewatering.

Similarly, the model is flawed when applied to water wells along Garrison Road. There was a lot of testimony on the Culbertson well log, but the facts are that it has a surface elevation of approximately 960 msl and a static water level of 75 feet, meaning that the static water level is at 885 msl. Appellants' Ex. OO; Day 1 Tr. 227:1-228:1-20. The well is 115 feet in depth, so the bottom of the well is at 845 msl. Appellants' Ex. OO. The well is within the 70-foot drawdown contour of Phase I, and the correct way to interpret the drawdown is a 70-foot drawdown of the water level. Day 3 Tr. 710:24-711:1-5. The base of the carbonate aquifer in the area is at approximately 850 msl. *Id*. at 712:21-713:13. Thus, applying the drawdown contour to this well tells us that the aquifer is projected to be completely dewatered. Both the Division's and Enon's experts' response to this argument is to question whether the static water level in the Culbertson well is at all correct, and to instead use a well to the north of it. *Id*. at 713:24-25; Day 4 Tr. 1036:19-20. The Commission has previously recognized that an original well log can provide "the best evidence of [the well's] pre-mining condition." *Brad Fisher v. Division & American Energy Corporation*, RC-09-012 at p. 11. In addition, Mr. Champa introduced into evidence an exhibit that reflects a water level just south of the Culbertson well that has an almost identical static water level elevation. Intervenor's Ex. XIII (*compare* 871890 *with* 654921). Mr. Champa further insists that since its impossible for the well to be dewatered below the quarry, the well log should simply not be not believed, and that, for some unexplained reason, the model cannot be wrong. Day 4 Tr. 1036:12-20. However, given that the wells around the quarry are just approximately 200 feet

away from the proposed quarry (Day 4 Tr. 1077:6-8), and given the fact that the quarry is going to completely dewater the carbonate aquifer at the greatest extent of mining, it cannot be said to be impossible to dewater the wells that rely on that aquifer. Day 1 Tr. 210:8-16. The sumps are actually going to be located below the carbonate aquifer, into the shale, pumping out water from below the aquifer. Day 1 Tr. 210:21-211:1-3; Appellants' Ex. G at Bates No. 4183 (showing sump msl elevations of 846 for Phase I and 836 for Phase II).

In addition, and again, **at best** this exercise only proves that the analysis and the model output cannot be trusted as an analysis of alternative water supplies for wells closest to the mine. A look at Plate 1 shows that the Culbertson well log located along Garrison was not even considered in the model. *See* Appellants' Ex. G. at Plate 1 (Bates No. 4587). Moreover, Plate 1 reflects a glaring gap in well data along Garrison Road, to the south and west of the Culbertson well. Indeed, the Culbertson well and the wells to the south shown on Intervenor's Ex. XIII were not collected or considered in the model. *See Id*. Thus, the alleged modeled saturation level of 32 to 37 feet along Garrison cannot be trusted in any way and cannot be considered an analysis of a suitable water supply for wells in this area. If these examples create this many problems when applying the drawdown contours to measured water levels in just these areas, the model cannot blindly be trusted to reflect adequate water levels for the wells surrounding the rest of the mine.

2. There was no analysis on the suitability and comparability of any alternate water supply sources to show compliance with OAC 1501:14-5-02(A).

What little analysis that was done by Enon in Response to Kelly Barrett's question is inadequate because it also says nothing about the potential production of the aquifers after dewatering, and it therefore doesn't speak to whether the alternative supply will be comparable in quantity. Day 3 Tr. 704:1-9 (Ms. Barrett testifying that she doesn't know what the yield would be for the aquifer after dewatering, and doesn't know if it could supply a residence with a suitable

water supply); Day 4 Tr. 1078:24-1079-1 (Mr. Champa testifying that he won't know the yield of the aquifer "until we drill the water").

Mr. Champa's offhand opinion that a storage tank for a well that pumps 1 gallon per minute, where it used to pump 3 gallons per minute, could maintain supply at "an adequate level" is not only troubling for landowners who are at risk of dewatering, it is in contradiction with R.C. 1514.13(B)(3). First, storage can only replenish when the well isn't in use, and it would leave landowners with no water while storage replenishes. This is hardly comparable, as the "obligation is to return the water supply to the condition that existed prior to mining." *Trina Patterson v. Division of Mineral Resources Management, et al*. RC-13-010 at. p. 13. Second, the wells discussed had yields of 12, 25, 9, and 15 gpm. *See* Appellants' Exs. OO, MMM, NNN, and OOO. This testimony again just highlights the lack of any meaningful analysis of an alternate water supply for wells around the quarry. In addition, without having a reliable analysis on aquifer saturation levels, it is unclear whether wells would have enough water for installation of a pump for use.

Finally, the hydrology report and remediation plan fail to even consider the potential for groundwater contamination in any way. The lower bedrock aquifer has "significantly lower yields" and "this is an important consideration when the Lockport Dolomite is contaminated and attempts are being made to establish an adequate water supply in the sub-Lockport aquifer." Appellants' Ex. FF at Bates No. 4885. As argued more fully in Part II.D.5. of this Brief, there is serious risk of contamination in this area if dewatering occurs.

Altogether, the completely flawed analysis of aquifer saturation combined with the complete uncertainty of the production of any remaining saturation of the aquifer cannot be said to be an "analysis of the availability and suitability of alternative water supply sources that will be

utilized to fulfill the water supply replacement provisions of O.R.C. Section 1514.13" in compliance with OAC 1501:14-5-02(A). The absence of this analysis, and the serious risk of dewatering the carbonate aquifer, mandate denial under OAC 1501:14-5-02(B).

3. The monitoring plan is not relevant to compliance with OAC 1501:14-5-02.

The three sentence monitoring plan as it is listed in the Eagon report, and therefore apparently considered part of the Application and mining and reclamation plan for permit IM-340, says nothing about the availability and suitability of alternate water supplies. Appellants' Ex. G at p. 12. Enon has the **option** to stop mining if their monitoring shows dewatering greater than anticipated, but they are **permitted** to mine to depths approved by the Division. Day 3 Tr. 702:9-12; Day 4 Tr. 953:4-13 (when asked if there was anything that required Enon by law to decrease mining depth at any point, Mr. Garrison testified: "No. We are permitted to mine to a stipulated depth"). Nothing that was said at hearing about the specifics of the monitoring plan that isn't in the Applications or the mining plan is required or enforceable, and it is understandable if the public takes no comfort in undefined and unenforceable options to cease mining.

In addition, if the monitoring somehow shows that Enon or any other operator that may obtain these permit rights has dewatered to the point where they can't comply with R.C. 1514.13's water replacement requirements, and therefore arguably must stop mining because they can't comply with the code, it only means that the analysis pursuant under OAC 1501:14-5-02(A) was a complete failure. That is exactly the type of situation the regulation is designed to prevent. As such, the monitoring plan does nothing to establish compliance with OAC 1501:14-5-02.

4. There was no analysis of dewatering impacts on water supplies used for recreational use, including springs that feed fens and streams.

R.C. 1514.13(B)(1) requires replacement of water supplies impacted by mining used for "domestic, agricultural, industrial, or **other legitimate use**." (Emphasis added). The Commission

has previously recognized recreational use as a legitimate use protected by a nearly identical water supply protection and replacement provision. *See Sidwell Materials, Inc. v. Division of Mineral Resources Management*, RC-13-012, at p. 21 (holding recreational use of water supplies to be protected by R.C. 1513.162(A) (the water supply replacement provision for supplies impacted by coal mining operations) as a "legitimate use"); *see also Spires v. Div. of Mineral Resources Mgt.*, 7th Dist. Belmont No. 06 BE 54, 2007-Ohio-5038, ¶ 55. (noting that rewatering a pond would be the mining company's responsibility if dewatering occurred pursuant to the water supply replacement provision).

Similar to the landowner in *Sidwell Materials*, the springs, fens, and streams on Mr. Vanderglas and Ms. Culbertson's properties provide "great recreational value" to them. *Sidwell Materials* at p. 20. Mr. Vanderglas testified that the fen on the Vanderglas property is:

> basically my Walden. It's my escape. It's my calm place. Even when I did not live here and I lived in other parts of the country, when I would come and visit my family, I would make it a point to walk through the wetland because it seems so prehistoric or prewhite colonization to me, and it always drew me.

Day 2 Tr. 359:8-14. Ms. Culbertson testified that her fen and stream provide her with "mindfulness, stress release, sit in the creek with my feet in, sitting beside the creek and knitting." *Id*. at 391:19-21. She also testified that the stream and fen:

> gives me a lot of joy just to look at all of the meadow and think of how it's changed in the past 13 years. I've taken out the invasive species. So this property gives me a lot of exercise, and it also gives me a lot of enjoyment. I'm an outdoors person. I like to be outside.

Id. at 391:1-7.

As argued more fully in Part II.D.4., *infra*, of this Brief, the Amendments allowing for deepening mining, dewatering, and blasting, pose a serious risk of dewatering nearby springs that feed fens and springs on the Culbertson and Vanderglas properties. There was no analysis done

whatsoever on the suitability or availability of replacement sources for these water supplies. Moreover, the remediation plan only relates to replacement of groundwater wells, and wouldn't cover springs, fens, streams or ponds. Appellants' Ex. G at p. 12.

Therefore the Commission should vacate and remand the Applications for a complete analysis pursuant to OAC 1501:14-5-02.

D. The Division's Approvals Violate R.C. 1514.02 by Failing to Include Measures to Protect Adjacent Property and by Failing to Include Adequate Performance Measures Pursuant to R.C. 1514.02(A)(10).

R.C. 1514.02(B) provides that

> [n]o permit application **or amendment** shall be approved by the chief if the chief finds that the reclamation described in the application will not be performed in full compliance with this chapter or that there is not reasonable cause to believe that reclamation as required by this chapter will be accomplished. (Emphasis added).

This section further states that:

> The chief **shall** issue an order denying an application for an operating permit **or an amendment** if the chief determines that the measures set forth in the plan are likely to be inadequate to prevent damage to adjoining property or to achieve one or more of the performance standards required in division (A)(10) of this section.

R.C. 1514.02(B). (Emphases added). Similarly, R.C. 1514.02(E) allows an operator to:

> amend the plan of mining and reclamation filed with the application for a permit … provided that the plan, **as amended**, **includes measures that the chief determines will be adequate to prevent damage to adjoining property and to achieve the performance standards set forth in division (A)(10) of this section**." (Emphasis added).

Thus, the updated mining and reclamation plan that now includes blasting, dewatering, deepening mining, and one new permanent impoundment, **as amended**, must include the measures to achieve the performance standards in R.C. 1514.02(A)(10). R.C. 1514.02(A)(10) requires, generally:

> A complete plan for surface or in-stream mining and reclamation of the area to be affected, which shall include a statement of the intended future uses of the area and show the approximate sequence in which mining and reclamation measures are to occur, the approximate intervals following mining during which the reclamation of all various parts of the area affected will be completed, and the measures the operator will perform to prevent damage to adjoining property and to achieve all of the following general performance standards for mining and reclamation…

R.C. 1514.02(A)(10)(a)-(o) then list the performance measures that must be in the mining and reclamation plan, if applicable. Consistent with these standards, courts have held that a *complete* mining and reclamation plan:

> must include the measures the operator will perform to prevent damage to adjoining property and to achieve various general performance standards for mining and reclamation. The general performance standards include ensuring that contamination of underground water supplies is prevented, that the effect of any reduction of the quality of ground water is minimized, and that mining and reclamation are carried out in the sequence and manner set forth in the plan.

Roadway Servs. v. Sponsler, 138 Ohio Misc.2d 17, 2006-Ohio-3765, 856 N.E.2d 326, ¶ 15 (C.P.). The uncontroverted evidence at hearing proved that the mining and reclamation plan for IM-340 was not amended in any way to meet the requirements of R.C. 1514.02(A)(10) and the performance standards discussed below, and this is a clear violation of R.C. 1514.02(B) and (E).

1. Facts and procedure related to the Application approvals.

Prior to the approval of Application A-340-1, Permit IM-340 consisted of 21.8 acres and Permit IM-375 consisted of 398.8 acres. Appellants' Ex. C at Bates No. 3562. The permit area for IM-375 was governed by its own mining reclamation plan, and the permit area for IM-340 was governed by its own mining and reclamation plan. Day 2 Tr. 467:19-468:1-9. When the acreage of both permits was combined, IM-375's mining and reclamation plan was essentially deleted, and is no longer used by the division. *Id*. at 569:12-23; Day 4 Tr. 923:19-924:1-3. In addition, because IM-340 had a renewal application approved in 2008, currently the only mining and reclamation plan applicable to the current IM-340 area is the 2008 IM-340 renewal and any

amendments to the plan thereafter, including the ones appealed in this action. *Id*. at 470:2-12. The changes in mining authorized on July 13, 2017 on the previous IM-375 acreage include adding more than 79 acres of quarry that is proposed to be mined to total depths of over 129 feet. *See* Appellants' Ex. E at Bates No. 3552; Appellants' Ex. G at Bates No. 4183. The changes also include amending a previously planned 70-acre impoundment which had a total depth of 30 feet, to a total depth of over 129 feet, an increase of more the four times the previous total depth of mining. Stipulations at ¶ 63; Appellants' Ex. E at Bates No. 3552. The changes also include allowing for dewatering and pumping of groundwater, and allowing for blasting over the permit area. Appellants' Exs. E and F.

Despite these significant changes in mining to the approximately 400-acre mining area, the Applications only very minimally updated the mining and reclamation plan. Application A-340-1 updated the permitted area section of the plan (Item 13) to include the additional 398.8 acres and added an Amendment map reflecting the mining areas and other requirements. Appellants' Ex. C at Bates No. 3562 and Appellants' Ex. D. IM-340-4 updated Items 1 (mailing address), 25 (Mining areas), and 28 of the mining plan (Impoundments). Appellants' Ex. E; Day 1 Tr. 20:2-21. Finally, Application IMM-340-5 updated the plan for blasting at Item 22 of the mining and reclamation plan. Appellants' Ex. F.

Importantly, no other sections of measures to meet performance standards in the mining and reclamation plan were amended along with the Applications. The current mining plan for IM-340 is so inadequate that it is virtually impossible to understand which requirements apply to the mining areas that were previously under IM-375. *See e.g.*, Day 2 Tr. 486:11-488:1-2 (Mr. Mitchell testifying that there are no two Impoundment #1s, due to an "overview error").

2. The Application materials and the Division's approvals violate R.C. 1514.02 (A)(10) and (A)(10)(a) because the mining and reclamation plan was not amended to achieve compliance with these standards.

R.C. 1514.02(A)(10) requires "a statement of the intended future uses of the area" and R.C. 1514.02(A)(10)(a) requires the mining and reclamation plan to contain performance standards that ensure that the mining site is prepared "adequately for its intended future uses." In order to achieve compliance with the requirements, Item 26 of the mining and reclamation plan requires:

> For **each** mining area, specifically identify the future intended land use and fully describe the sequence of steps that will be used to prepare the land for its future intended use. Also describe steps that will be taken to achieve soil stability, prevent landslides, erosion and sedimentation. Be specific in addressing the use of overburden, backfilling, grading, terracing, contouring, degree of final slopes and any other related activity.

Appellants' Ex. N at Bates No. 2732. (Emphasis added). The description provided states that "there is only one (1) mining area for the operation and it is # 1." *Id*. The description goes on to provide the intended use for that one area, presumably the 21.8 acres of previous IM-340, and the steps to be undertaken for that one area. *Id*. The Amendment Map shows that there are now four mining areas for IM-340. Appellants' Ex. D. Despite this, the mining and reclamation plan was not revised to include the required statement of intended future uses for **each** mining area, nor was it amended to contain performance standards to ensure that the lands will be prepared for those uses. The Division should have made determinations on these issues, and the public should have had a right to comment and raise objections during the application period.

3. The Application materials and the Division's approvals violate R.C. 1514.02(A)(10) and (A)(10)(k) because the mining and reclamation plan was not amended to achieve compliance with these standards.

R.C. 1514.02(A)(10)(k) requires the mining and reclamation plan to contain measures to "[e]nsure that mining and reclamation are carried out in the sequence and manner set forth in the

plan and that reclamation measures are performed in a timely manner." In compliance with R.C. 1514.02(A)(10) and the performance standards at (A)(10)(k), the mining and reclamation plan at Part 19 requires the applicant to describe, "[f]or each mining area, … the sequence of mining in detail… and the typical sequence of events that will be undertaken to extract minerals." Appellants' Ex. N at Bates No. 2730. The current plan for IM-340 reads, in part, "[t]here is only one (1) mining area for this operation & it is designated #1. About ninety-five (95) percent of the permit area had already been affected by mining & all top & subsoil has been removed & stored along the perimeter of the Permit." *Id*. at ¶ 19. These statements are simply no longer true. Day 1 Tr. 34:11-23. In addition, the sequence of mining could very well be different for each mining area. Day 2 Tr. 484:11-485:24 (Mr. Mitchell testifying that the sequence of mining "[d]epends on if material is there or not" and "sometimes the sequence will be different. Sometimes you'll take the topsoil and remove the limestone. Sometimes you'll take the topsoil and remove the sand and gravel").

Consistent with the noncompliance of the section argued above, this section of the plan was also not amended to reflect the new mining areas that are now a part of IM-340. There is clearly more than one mining area for the operation, and it is also clearly not 95 percent affected. *See* Appellants' Ex. D.

4. The Applications and related materials do not include measures the operator will perform to prevent damage to adjoining property, in violation of R.C. 1514.02(A)(10) and (B), and R.C. 1514.12.

R.C. 1514.02(A)(10) and R.C. 1514.02(B) require that the mining and reclamation plan include "measures the operator will perform to prevent damage to adjoining property." *Roadway Servs.,* 2006-Ohio-3765 at ¶ 15. Numerous regulations and additional statutory requirements under R.C. 1514 add more specificity to this general requirement as it relates to quarry mining, dewatering, and blasting. OAC 1501:14-3-11(D) states that in constructing any impoundment the

operator must "[a]ssure that water controlled by pumping or other mechanical methods is controlled in a manner that will prevent damage to adjoining property." R.C. 1514.12(A) requires explosives to be used in a manner that prevents "damage to public or private property that is located outside the area for which a permit was issued…." In addition, OAC 1501:14-3-11(E) requires the operator to "[c]omply with all federal, state, or local laws applicable to the design, construction, operation, and maintenance of dams, dikes, diversions, drainage channels, and impoundments." One example of local laws applicable to the quarrying related to protection of adjacent property are local set back requirements. Chapter 7, Section 129 part 8(a) of the Clark County Zoning Regulations requires that "[q]uarrying shall not be carried out closer than three hundred (300) feet to any adjoining property line." It is clear from all of these provisions that preventing damage to property adjacent to mining operations is an important consideration in the permitting process.

Of particular relevance to the issue of Enon's and the Division's failure to consider the prevention of damage to adjacent property is the Vanderglas fen, which stretches to within 200 feet of Phase I of the proposed mining operation. *See* Appellants' Ex. VV. Testimony from Mr. Vanderglas revealed the great extent to which he uses and enjoys this feature of his property, and also to what extent his property would be damaged if the fen were to be impacted by dewatering from mining. *See* Day 2 Tr. 357:1-359:14. The Vanderglas fen is a large, high quality, groundwater-fed wetland which supports many rare and highly specialized plant species, including 68 native species identified on-site by ODNR. *See* Day 2 Tr. 343:13-22; Appellants' Ex. QQ. The record clearly shows that Mr. Vanderglas has a property interest in the fen and the surrounding land, as he holds power of attorney for Nancy Vanderglas, his mother, and as he has an option to purchase the property written into his mother's will. Day 2 Tr. 351:23-352:5. In

December of 2010, Mrs. Vanderglas entered into an agreement with Tecumseh Land Trust to place the fen and the surrounding property under a conservation easement, which explicitly describes the "2-acre fen harboring rare native flora" as a feature of the property. Day 2 Tr. 354:21-356:16; Appellants' Ex. RR (Vanderglas conservation easement). Mr. Vanderglas is responsible for ensuring the requirements of the conservation easement are maintained, and stated unequivocally that any damage to the fen would be damage to the property. Day 2 Tr. 356:19-25 and 357:14-16.

Likewise, Carol Culbertson's wetland and headwater stream are critical features of Ms. Culbertson's property, which she enjoys daily and has sought to protect and improve. Day 2 Tr. 390:24-391:21; 398:25-399:11. Like the Vanderglas property, Ms. Culbertson's property shares Garrison Road as a common boundary with Phase I of the proposed mining operation, which is visible directly from her house. Day 2 Tr. 387:15-19. Of the 2.5 acres of property Ms. Culbertson owns, over half is covered by her wetland. Day 2 Tr. 390:5-15; Appellants' Ex. MM (wetland determination). Ms. Culbertson has actively cultivated native flora and has identified numerous rare and obligate wetland plants in her wetland, including marsh marigold. Day 2 Tr. 391:9-393:12; Appellant's Ex. LL at Bates No. 7072 (Culbertson marsh marigold photograph). If Ms. Culbertson's wetland or stream were damaged by the proposed dewatering operation it would clearly constitute damage to her property.

Mr. Huntsman, who has visited the Vanderglas and Culbertson properties, testified to the likely impacts the dewatering operations will have on these critical features of the properties, stating, "I believe because of the size and the depth of it, [the Vanderglas fen] also will dry because it's going to steal the water that's feeding it and it's going to be pumped to Mud Run so it's not going to be able to apply water to the fen." Day 1 Tr. 241:1-6. In his expert report, Mr.

Huntsman made clear that the lowering of groundwater levels by the proposed dewatering will damage or destroy nearby springs, streams, and fens, which are "especially sensitive to a constant, stable and adequate groundwater supply." Appellants' Ex. W at p. 17. Mr. Gardner, ODNR's Chief Botanist, stated that to be a fen, a wetland must be fed by groundwater. Day 2 Tr. 339:19. Thus, if the groundwater were to be removed, the Vanderglas and Culbertson fens would cease to exist. Mr. Huntsman further opines, "blasting and groundwater extractions, in all cases, serve to reactivate and enhance karst leading to sinkhole development…[q]uarry blasting may result in the disruption of groundwater flow paths, changes in the pattern of groundwater movement, and changes in the quantity of water flowing through the karst system." Appellants' Ex. W at p. 16. Because of these probable impacts which would cause damage to adjacent properties, the mining plan should have been updated with measures included to prevent these damages. *Roadway Servs.*, 2006-Ohio-3765 at ¶ 15. During the comment period for the Amendments and Modifications, the Division was made explicitly aware of these critical and sensitive features of the Vanderglas and Culbertson properties, as well as of the concerns of Mr. Vanderglas and Ms. Culbertson that these features would be impacted by the proposed dewatering. *See* Appellants' Ex. PP (letter from Culbertson and Vanderglas to Chief); Appellants' Ex. NN (email from Culbertson to Chief).

The Division maintains the untenable position that because "the section on hydrology in the Code doesn't address wetlands," and because other agencies have jurisdiction over the enforcement of various laws pertaining to wetlands, the Division has no jurisdiction to consider impacts to wetlands from mining. Day 3 Tr. 768:10-13; Day 2 Tr. 510:13-21; Day 3 Tr. 786:5-789:8. However, Appellants' are raising issues regarding damage to their "property", which is plainly within R.C. 1514.02. The Ohio Supreme Court has held that surface and groundwater

rights "are appurtenant to title in real property." *McNamara v. City of Rittman*, 107 Ohio St.3d 243, 2005-Ohio-6433, 838 N.E.2d 640, ¶¶ 28-34. In addition, although "property" or "adjoining property" is not defined in Chapter 1514, R.C. 1513.27 does define "Damage to adjacent property" as

> physical injury or harm to nearby property…including, without limitation, **injury or harm to vegetation on adjacent property, pollution of surface or underground waters on adjacent property, loss or interruption of water supply on adjacent property**, flow of acid water onto or across adjacent property, **flooding of adjacent property**, landslides onto or across adjacent property, erosion of adjacent property, or deposition of sediment upon adjacent property. (Emphasis added).

Fens, springs, streams, wetlands, and groundwater on the nearby properties easily fit within this definition. Courts are often "guided by the legislature's use of the same terms defined elsewhere in the Revised Code" and "it is helpful to look to definitions elsewhere in the Code to determine the meaning of terms not defined in a particular statute." *Ohio River Pipeline LLC v. Gutheil,* 144 Ohio App 3d 694, 700 (4th Dist. 2001); *Ohio River Pipeline LLC v. Henley,* 144 Ohio App. 3d 703 at 708 (5th Dist. 2001). Thus, it is reasonable and helpful to utilize the definition of "property" in R.C. 1513.17 when analyzing the undefined "property" under Chapter 1514.

Mr. Champa opined that because the "elevation of the fen is above the elevation of the bedrock" in the mining area, deepening the quarry will not impact the perched aquifer. Day 5 Tr. 1205:21-24. This ignores the fact that the surface of the mine site is at the same elevation as the Vanderglas property, and above the Culbertson property, and considering the close proximity of those wetlands, the mining is likely to intercept the perched aquifers. *See* Appellants' Ex. D (showing the mine elevation at 970 msl, the Vanderglas property at 970 msl, and the Culbertson property at 960 msl); Day 2 Tr. 315:19-25. The aquitard for the perched aquifer is going to be somewhere below the surface. *Id*. at 315:4-19. Mr. Champa simply has no basis whatsoever for

his opinion. He has never been to the properties to observe their characteristics, and his model report contained no recognition or analysis of the fens, streams, or any of the springs that feed them. Day 5 Tr. 1177:15-1178:11.

In addition, the evidence presented at hearing established that both the Mud Run stream and the unnamed tributary that will receive the pumped water and discharge from Enon's operations intersect on, and run across, the Verbillions' property. Day 1 Tr. 83:4-23; Appellants' Ex. D. Mr. Verbillion testified that he already experiences flooding damage from the Mud Run on occasion, and he provided photographic evidence of the ways in which flooding from the Mud Run damages his property. Day 1 Tr. 95:8-98-8; Appellants' Ex. UU. The modelers predict that quarry pumpage will be "about 260,000 gallons per day (gpd) for Phase I dewatering and 520,000 gpd for Phase II dewatering." Appellants' Ex. G at p. 12. Mr. Huntsman opines that this amount is underestimated, and pumpage could be increased by more than 50%. Day 1 Tr. 173:3-17. In any event, Mr. Verbillion is reasonably concerned that since his property already experiences damage from flooding of the Mud Run, increased discharge of water to the Mud Run puts his property at additional flooding risk. *Id*. at 98:17-23. Despite these obvious risks, there is nothing in the Amendments, Modifications, nor the current mining and reclamation plan to prevent this damage to Mr. Verbillion's property.

Finally, the proximity of the two impoundments for which cross-sections were included in the Applications to numerous adjacent properties closer than three hundred (300) feet is a clear violation of Chapter 7, Section 129 part 8(a) of the Clark County Zoning Resolution ("CCZR"), and is therefore also a violation of OAC 1501:14-3-11(E). While an east-west cross-section is not provided for the impoundment proposed for Phase I of the quarry, cross-section C'-C included with A-340-1 and IMM-340-4 shows quarrying and a final impoundment which reaches to the

very edge of the southern border of the permit boundary for Phase I ("Mining Area #2" on Appellants' Ex. D). Appellants' Ex. C at Bates No. 3567; Appellants' Ex. E at Bates No. 3553; Appellants' Ex. D. Numerous properties exist on this boundary well within the 300 foot setback required by the CCZR. Likewise, the northern wall of the northern impoundment for Phase II of the quarry ("Mining Area #4" on Appellants' Ex. D) also directly abuts adjacent properties. *See id*. While less obvious than the previous two examples, the east-west cross-section D-D' reveals that the northern impoundment will likely violate the setback requirements of the CCZR to both the east and to the west, with the Echo Hills development. Thus the proposed designs of these impoundments described in the Applications plainly violate the requirement of OAC 1501:14-3-11(E) that the operator "[c]omply with all federal, state, or local laws applicable to the design, construction, operation, and maintenance of … impoundments."

Therefore, the Commission should follow the plain meaning and purposes of the statute, and it should vacate the approvals and remand with instructions for the Division to require the inclusion of measures to prevent damage to adjoining properties.

5. The Amendments and Modifications completely fail to comply with R.C. 1514.02(A)(10)(h).

R.C. 1514.02(A)(10)(h) requires that a mining and reclamation plan must contain measures the operator will perform to achieve the following performance standard:

> **During mining and reclamation, ensure that contamination, resulting from mining, of underground water supplies is prevented.** Upon completion of reclamation, ensure that any watercourse, lake, or pond located within the site boundaries is free of substances resulting from mining in amounts or concentrations that are harmful to persons, fish, waterfowl, or other beneficial species of aquatic life.

5a. The Mining and Reclamation Plan does not contain measures that ensure that contamination, resulting from mining, of underground water supplies is prevented.

The mining and reclamation plan, as amended, does not contain any measures whatsoever to ensure that contamination, resulting from mining, of underground water supplies is prevented. *See* Appellants' Ex N at Bates No. 2731, ¶¶ 23 and 24; Day 1 Tr. 35:1-7. This is despite a wealth of concerns and evidence raised during the comment period regarding the potential for contamination of underground water supplies resulting from the dewatering and blasting activities that are now permitted on the amended acreage. The Ohio EPA commented with concerns that:

> Water systems, private and public, located in the potential karst settings have experienced water quality impacts from potentially pathogenic organisms and nitrates. Ohio EPA is concerned that dewatering operations could further affect ground water quality for nearby systems.

Appellee's Ex. 40. The Ohio EPA previously found that the Echo Hills development was in an area "vulnerable to contamination from surface water and anthropogenic sources" and that the "recharge pathways are both vertical and horizontal." Appellants' Ex. II at p. 58-59 (Bates Nos. 6555-6556).

The Clark County Combined health district commented that the:

> subject property is located…where geology and ground water levels are of special concern as the majority of drinking water is generated from private water wells. A housing subdivision located adjacent to the mining property has several water wells that have tested positive for e-coli bacteria mainly due to the karst geology in the area. Wells drilled subsequent to these were drilled deeper in order to tap into a safer water supply.
>
> Mining deeper than previously permitted, and pumping and discharging water in order to facilitate mining, has the potential to negatively impact over two hundred homes, a public high school, and small businesses in the area…

Appellee's Ex. 17. Mr. Huntsman explained the very real risk of contamination as follows:

> The contamination is at the surface or very close to the surface itself. It can come from the septic systems up into the developments. That's where the nitrates and the E. coli can come from. It can come from farmers' fields, the nitrates that they put on for their fertilizer. What happens it's up there, it's high in the aquifer, and then you dewater. You lower the water table below which increases the speed of the --

> of the water that's up at the surface moving downward to the rest of the aquifer. It's really that simple.

Day 1 Tr. 235:18-236:3. Mr. Huntsman later testified that:

> The groundwater recharges more quickly carrying the E. coli and the nitrates down along with it. It first affects the groundwater wells and where the contamination is entering the aquifer, entering the water table, coming into it.

Day 2 Tr. 273:22-274:1. In addition, the blasting activities permitted could enhance groundwater flow paths and increase the amount of movement of groundwater between aquifers. Appellants' Ex. W at p. 16. Thus, the record reflects a clear risk of contamination due to deepening mining, blasting, and dewatering.

Neither the Division nor Intervenor offered evidence disputing these risks, but instead the Division takes the position that no measures or analysis related to these contamination issues were necessary, and therefore none were required or conducted. Day Tr. 43:13-44:3. The Deputy Chief of the Division testified as follows:

> Q: Okay. Is the operator required to prevent offsite contamination from mining?
>
> A: No.

Day 4 Tr. 889:15-17. The Division also takes the troubling position that the potential contamination about which the Ohio EPA and the Clark County Department of Health raised concerns is outside the scope of their regulations because the dewatering is not "resulting from mining." Day 4 Tr. 900:16-24. This is contrary to the purposes and definitions within the surface mining statute at issue. R.C. 1514.01(A) defines surface mining broadly, to include:

> **all or any part of a process followed** in the production of minerals from the earth or from the surface of the land by surface excavation methods, such as open pit mining, dredging, placering, or quarrying, and includes the removal of overburden for the purpose of determining the location, quantity, or quality of mineral deposits…. (Emphasis added).

The statute goes on to list a number of exemptions from this very broad definition, and none of those exemptions include dewatering due to mining activity. R.C. 1514.01(A). Certainly dewatering due to quarrying fits within the meaning of "all or any *part* of a process followed in the production" of the limestone at issue. Enon's President and CEO testified that dewatering is indeed a part of quarrying to the depths that are now permitted. Day 4 Tr. 955:9-13. Moreover, because the statute was enacted to control mining impacts on the public health and safety, and dewatering could pose a threat to those interests, it would be unreasonable to so narrowly construe the statute so that the contamination resulting from dewatering nearby aquifers would be exempt from this statutory definition. *See Call v. G. M. Sader Excavating & Paving, Inc.*, 68 Ohio App.2d 41, 49, 426 N.E.2d 798 (6th Dist.1980).

Even considering potential contamination on the mine site itself, there are still no measures in the mining and reclamation plan to ensure that contamination of underground water supplies is prevented. The land subject to Phase I and Phase II of mining has been used for farming for decades. Day 1 Tr. 75:20-76:15 and 100:2-13. There is a risk that nitrates and fertilizers in the soil near the surface can enter groundwater aquifers as mining progresses. Day 1 Tr. 235:21-23 and 236:9-12.

Therefore, the Commission should follow the plain meaning and purposes of the statute, and vacate the Applications and remand with instructions for the Division to require measures that ensure that contamination, resulting from mining, of underground water supplies is prevented.

> ***5b. The Mining and Reclamation Plan does not ensure that the two impoundments related to Phases I and II of mining will be free of substances resulting from mining in amounts or concentrations harmful to persons or aquatic life.***

The second part of R.C. 1514.02(A)(10)(h) requires:

> Upon completion of reclamation, ensure that any watercourse, lake, or pond located within the site boundaries is free of substances resulting from mining in amounts or concentrations that are harmful to persons, fish, waterfowl, or other beneficial species of aquatic life.

Although the mining and reclamation plan does not specify, Enon apparently plans to have two permanent lakes upon the completion of reclamation. Day 4 Tr. 955:17-22; Appellants' Ex. E at Bates No. 3553-3554 (cross sections). Application IMM-340-4 includes two impoundments over 70 acres in size and 127 and 141 feet in total depth. Appellants' Ex. E at Bates No. 3552. Item number 29 asks to "[d]escribe all measures you will take to prevent contamination in each of the impoundments described above", and it is left completely blank. Notably, Mr. Huntsman opined that the e-coli and nitrate pollution in the nearby developments and in the fields would "move into the quarry." Day 1 Tr. 236:11-12. Therefore, the Application, which included these two impoundments, was improperly approved without meeting, and without the Chief even making a determination on, this required performance standard.

6. The Amendments and Modifications fail to comply with R.C. 1514.02(A)(10)(j).

Pursuant to R.C. 1514.02(A)(10)(j), a complete mining and reclamation plan must contain measures the operator will perform to achieve the following performance standard: "[d]uring mining and reclamation, ensure that the effect of any reduction of the quantity of groundwater is minimized."

6a. There are no measures to ensure that the potential contamination due to the reduction of the quantity of groundwater is minimized.

In addition to the requirements of R.C. 1514.02(A)(10)(h), offsite contamination plainly fits within the definition of the **effect** of the reduction of the quantity of groundwater within R.C. 1514.02(A)(10)(j); See also *Roadway Servs.* 2006-Ohio-3765 at ¶ 15. Appellants adopt the evidence and reasoning of Part II.D.5. of this Brief above, for the argument that the mining and

reclamation plan, as amended does not contain measures to ensure that the effect of the reduction of the quantity of groundwater is minimized as it relates to groundwater contamination. There was no analysis undertaken, and ultimately no measures were included in the plan to prevent contamination of groundwater due to deepening mining and dewatering activities. As such, the Division was required to deny the Applications until they contained measures that the chief determined would meet the performance standards.

6b. There are no measures to ensure the effect of the reduction of the quantity of groundwater is minimized because aquifers are at risk of complete dewatering.

As argued more fully in Section II.C. *supra* of this Brief, and such argument being fully adopted for purposes of this section, numerous wells around the quarry are projected to be completely dewatered, leaving no remaining aquifer to utilize for an alternate water supply. Despite these serious risks, there are no discernable measures in the mining and reclamation plan to minimize these reductions in groundwater. The monitoring plan in the Eagon report lacks any specificity, and it lays out no measures that will be undertaken should these risks come to fruition. Without specificity, any measures or specifics that were testified to at the hearing related to the monitoring plan would not be enforceable as measures by the Division until **after** damage or irreparable damage occurs. This must be found to go against the proactive purposes of requiring measures to minimize effects from dewatering. The fact that meaningful measures were not required in the application process is arbitrary, capricious, and a clear violation of R.C. 1514.02(A)(10)(j).

7. The Amendments and Modifications fail to comply with R.C. 1514.02(A)(10)(c), (d), (e), (i), and (l).

Additionally, R.C. 1514.02(A)(10) requires that for a mining and reclamation plan to be complete, it must include a number of other specific measures to be performed to achieve the

following performance standards applicable and relevant to the changes in mining approved by the Applications:

> **(c)** Grade, contour, or terrace final slopes, wherever needed, sufficient to achieve soil stability and control landslides, erosion, and sedimentation. Highwalls will be permitted if they are compatible with the future uses specified in the plan and measures will be taken to ensure public safety. Where ponds, impoundments, or other resulting bodies of water are intended for recreational use, establish banks and slopes that will ensure safe access to those bodies of water. Where such bodies of water are not intended for recreation, include measures to ensure public safety, but access need not be provided.

R.C. 1514.02(A)(10)(c). Application IMM-340-4 includes two impoundments, presumably to be located where Phase I and II of mining are two occur. Appellants' Ex. E at Bates No. 3552. However, because the measures in IM-340's mining and reclamation plan were not amended, there was no update to the plan to include measures to meet this performance standard. *See id*. (parts 30 and 31 left completely blank).

> **(d)** Resoil the area of land affected, wherever needed, with topsoil or suitable subsoil, fertilizer, lime, or soil amendments, as appropriate, in sufficient quantity and depth to raise and maintain a diverse growth of vegetation adequate to bind the soil and control soil erosion and sedimentation;
>
> **(e)** Establish a diverse vegetative cover of grass and legumes or trees, grasses, and legumes capable of self-regeneration and plant succession wherever required by the plan;
> …
>
> **(i)** During mining and reclamation, control drainage so as to prevent the causing of flooding, landslides, and flood hazards to adjoining lands resulting from the mining operation. Leave any ponds in such condition as to avoid their constituting a hazard to adjoining lands.
>
> …
>
> **(l)** During mining, store topsoil or fill in quantities sufficient to complete the backfilling, grading, contouring, terracing, and resoiling that are specified in the plan. Stabilize the slopes of and plant each spoil bank to control soil erosion and sedimentation wherever substantial damage to adjoining property might occur.

Again, due to the significant changes in mining to the 398.8 acres that was previously under Permit IM-375, and also due to the fact that IM-375's mining and reclamation plan is essentially deleted, the mining and reclamation plan must be updated to include measures that meet these performance standards. Looking at the mining and reclamation plan, it is a complete mystery how and if topsoil will be stored on the permit area, how drainage will be controlled to prevent causing flooding and landslides onto adjoining lands, how and if the land will be soiled, and whether a vegetative cover will be established. The law requires the chief to deny an application if there aren't measures in the plan to comply with these standards. R.C. 1514.02(B). In this case the chief didn't even make the required determination that measures in the plan are adequate, because he did not even require that they be updated. Therefore, the Applications were clearly approved in violation of R.C. 1514.02(B) and (E). The public and the adjacent landowners should be afforded the opportunity of notice, comment, and appeal of whatever planned mining and reclamation measures Enon plans to take pursuant to the changes and modifications in mining. *See Tri-State Reclamation LLC v. Div. of Mines & Mineral Resources Mgt.*, 5th Dist. Perry No. 04 CA 19, 2005-Ohio-6439, ¶ 13 (holding that landowner had standing to challenge "the form and timing of the reclamation… of property" pursuant to a mining permit modification).

8. The Amendments and Modifications fail to comply with R.C. 1514.02(A)(10)(n) by not including adequate measures to prevent damage to adjoining property.

R.C. 1514.02(A)(10)(n) requires measures to ensure that "[d]uring mining, detonate explosives in a manner that will prevent damage to adjoining property." The updated blasting plan includes measures that are designed to prevent damage to structures on adjoining property. Day 4 Tr. 846:9-16 (Mann testimony). There was no analysis, and there are no measures taken to

prevent damages to springs, streams, or wetlands on adjoining property. Day 4 Tr. 848:13-849:12. As argued more fully in Part II.D.4. of this Brief, these features exist on adjoining property, and are at serious risk of damage due to the mining activities, including blasting. Therefore, by not including any measures to protect these adjoining properties, the mining and reclamation plan is incomplete, and the Chief erred in approving the Applications.

E. The Map Submitted with the Applications Fails to Comply with R.C. 1514.02(A)(12).

R.C. 1514.02(A)(12) requires Enon to submit a map showing "the names and locations of all **streams, creeks, or other bodies of water**, roads, railroads, utility lines, buildings, cemeteries, and oil and gas wells on the area of land to be affected **and within five hundred feet of the perimeter of the area**." R.C. 1514.02(A)(12)(e). (Emphasis added). The Division's staff testified that there is "[n]o requirement that it has to be a named stream" and that any "stream that's located on the map within the boundary areas…look[ed] at" would be on the map. Day 2 Tr. 443:1-7. Indeed, the map itself does list a different unnamed tributary of Mud Run. *See* Appellants' Ex. D (running over Mining Area # 2).

Carol Culbertson provided testimony and photographic evidence of the existence of a perennial stream running through her property, within 500 feet of the permit area. Day 2 Tr. 390:21-23; Appellants' Ex. LL at Bates Nos. 7048 and 7086. Other witnesses testified to the existence of this stream. Day 1 Tr. 237:11-13. In addition, the Division cannot hide behind an excuse that they weren't informed of the existence of the stream. In an email to the Chief, Ms. Culbertson stated that her house "sits on Garrison Road-directly in front of the site" and that she has "a headwater stream running along the back of my property…." Appellants' Ex. NN. In a written comment letter to the Chief, Ms. Culbertson lists her address and describes her wetlands and stream as being "within 200 feet of the property owned by Enon Sand and Gravel."

Appellants' Ex. PP at p. 1. Thus, it cannot be said that the Division did not have notice of the stream and its proximity to the permit area. Despite these comments, the Application and mining map that was approved does not include this stream running through the Culbertson property. *See* Appellants' Ex. D.

Finally, Appellant CAM clearly has standing to raise issues with this standard. Ms. Culbertson testified that she a member of CAM, and the stream is located on her property. Day 2 Tr. 387:9-10. She testified as to her injuries if her stream and wetland were impacted. Day 2 Tr. 399:2-11. Mr. Huntsman testified that the stream is at risk of being impacted by mining. Day 1 Tr. 237:23-2381-6. Thus CAM, through the adverse impact to its member, clearly has standing to raise this issue related to R.C. 1514.02(A)(12).

Therefore, the Chief erred in approving the Applications as they failed to contain a complete map as required by R.C. 1514.02(A)(12).

F. The Applications Fail to Comply with Permit Application Requirements Related to Zoning and Land Use Planning.

R.C. 1514.02(A)(3), (10)(b), and (14) establish requirements for mining permit applications to prevent conflict between mining operations and local land use planning. These provisions require that permit applications must (1) identify applicable local zoning regulations and describe how compliance will be achieved (R.C. 1514.02(A)(3)); (2) describe measures to be performed to ensure that future land uses within the permit site will not conflict with applicable zoning or comprehensive plans (1514.02(A)(10)(b)); and (3) include a sworn statement by the applicant that compliance with all valid and applicable zoning regulations will be maintained throughout the duration of the permit (1514.02(A)(14)).

1. The Applications were incomplete because they failed to include information required by R.C. 1514.02(A)(3).

R.C. 1514.02(A)(3) specifically requires that surface mining applications contain, among other things:

> The name of each county, township, or municipal corporation, if any, that has in effect a zoning resolution or ordinance that would affect the proposed surface or in-stream mining operation or, if no such zoning resolution or ordinance is in effect, a statement attesting to that fact. The application also shall contain an explanation of how the applicant intends to comply with any applicable provisions of a zoning resolution or ordinance.

To meet the requirements of R.C. 1514.02(A)(3), permit applications must identify all counties, townships, or municipal corporations with zoning regulations which would affect the proposed mining operation, and then they must explain how compliance will be achieved. *See Independence Excavating, Inc. v. City of Twinsburg*, 9th Dist. Summit C.A. No. 20942, 2002-Ohio-4526, fn. 1 (noting that "R.C. 1514.02(A)(3) of the amended statute requires an applicant for a surface mining permit both to **identify** any local zoning regulations that might affect the applicant's proposed mining operations and to **explain** how the applicant intends to comply with such provisions"). (Emphasis added). The Applications failed to include any explanation of how compliance is intended to be achieved, and they therefore failed to meet the requirements of R.C. 1514.02(A)(3).

While the original IM-340 application and subsequent renewal applications identify Clark County as having in place zoning regulations which would affect the proposed mining operation, no application which is part of the current IM-340 permit explains how Enon intends to comply with these regulations. *See* Appellee's Ex. 27 at Part B(2) (original IM-340 permit); Appellee's Ex. 3 at Item 17 (1997 renewal permit); Appellee's Ex. 4 at Item 14 (2007 renewal permit). Instead, Enon and the Division attempt to avoid the clear statutory requirement for an explanation of how compliance with applicable zoning regulations will be achieved by arguing that sworn statements pursuant to R.C. 1514.02(A)(14) are somehow sufficient to also satisfy R.C.

1514.02(A)(3). *See e.g.* Intervenor's Reply in Supp. of its Mot. In Lim. at p. 4; Division's Reply to Pre-Hearing Briefs at p. 10. If the position of Intervenor and Appellee is correct on this issue, the second sentence of R.C. 1514.02(A)(3) would be superfluous. It must therefore be assumed that the legislature intended both R.C. 1514.02(A)(3) and R.C. 1514.02(A)(14) to have meaning, and position of the Division and Enon is therefore untenable. None of the Applications contain an explanation of how compliance with zoning will be achieved, as is required by R.C. 1514.02(A)(3), and it is absurd to posit that the sworn statements included in compliance with R.C. 1514.02(A)(14) can serve the dual function put forth by Enon and the Division. The approval of the Applications, which were lacking this required explanation, was therefore arbitrary, capricious, and a clear violation of R.C. 1514.02(A)(3).

2. The Applications were incomplete because they failed to comply with R.C. 1514.02(A)(10)(b).

R.C. 1514.02(A)(10)(b) requires mining and reclamation plans to contain measures to be performed to achieve the following performance standard:

> (b) Where a plan of zoning or other comprehensive plan has been adopted that governs land uses or the construction of public improvements and utilities for an area that includes the area sought to be mined, **ensure that future land uses within the site will not conflict with the plan**. On and after March 15, 2002, division (A)(10)(b) of this section does not apply to any surface or in-stream mining permit or applications for a surface or in-stream mining permit, any renewal of an existing surface or in-stream mining permit or application for a renewal of an existing surface or in-stream mining permit, any amendment or application for an amendment to an existing surface or in-stream mining permit, or any modification or application for a modification of a mining and reclamation plan of an existing surface or in-stream mining permit unless the application for such a permit, renewal, amendment, or modification is a resubmission, **revision**, or reconsideration of an application that was pending before the chief or was **first approved prior to March 15, 2002**.

(Emphasis added). R.C. 1514.02(A)(10)(b) requires that mining and reclamation plans for permit applications approved by the chief prior to March 15, 2002 contain measures to prevent a

conflict between future land uses within the permit site and applicable zoning and land use regulations. *Athens Metro. Hous. Auth. v. Pierson*, 4th Dist. Athens Case Nos. 01CA28, 01CA29, 2002-Ohio-2164, ¶ 40. Furthermore, Ohio courts have held that the plain language of R.C. 1514.02(B) "requires the chief to make a *determination*" regarding whether a mining and reclamation plan contains measures sufficient to ensure that future uses of the permit area do not conflict with local zoning or land use regulations. *Div. of Mines & Reclamation v. Bd. of Cty. Commrs.*, 10th Dist. Franklin Nos. 98AP-1569, 98AP-1571, 1999 Ohio App. LEXIS 5530, at *17 (Nov. 23, 1999)(emphasis in original).[3] Finally, this Commission held that "if future land use planning requirements remain applicable to permits issued prior to March 15, 2002, such requirements would also be applicable to amendments to, and modifications of, those pre-March 15, 2002 permits." Order Denying Motion for Reconsideration of Commission's Order On Motion In Limine at p. 4.

The language of R.C. 1514.02(A)(10)(b), as amended on March 15, 2002, states in relevant parts that division (A)(10)(b) does not apply to applications for an amendment to or modification of a mining and reclamation plan for an existing surface mining permit, unless such an application is a resubmission, revision, or reconsideration of an application that was first approved prior to March 15, 2002. While the full text of R.C. 1514.02(A)(10)(b) is arguably somewhat confusing and has been a subject of contention through much of this litigation, the performance standard described in the first sentence of the provision (ensure that future land uses within the site will not conflict with applicable land use plans) applies to the Applications at issue in this litigation because they fall under the listed exceptions, as **revisions** of applications first approved prior to March 15, 2002.

[3] Note that although *Div. of Mines & Reclamation v. Bd. of Cty. Commrs.* was decided prior to the March 15, 2002 amendment of R.C. 1514.02 which moved the language from R.C. 1514.02(A)(9)(b) to (A)(10)(b), the language of the relevant first sentence of the provision is identical.

The permits for IM-340 and IM-375 have been revised numerous times since they were first approved in 1977 through renewal applications and ultimately through the Amendment and Modification Applications at issue in this litigation. Examples of these revisions to the mining and reclamation plan include adding and revising impoundment cross-sections, adding or revising the blasting plan, and revising the depth of mining. Although the term "revision" is not expressly defined in R.C. 1514 and its plain and ordinary meaning (i.e. alteration, change, adjustment, etc.) must therefore be applied, the Division seeks to add gloss to the term through the self-contradictory testimony of Mr. Crow, suggesting that the term "revision" can only apply to pending applications. Day 5 Tr. 1229:13-23. Mr. Crow testified that "[a] revision is just changes to an existing application that was already submitted for review" and then that IMM-340-4, IMM-340-5, and A-340-1 are not revisions. *Id*. Notwithstanding Mr. Crow's earlier testimony referring to other revisions, such as with regard to impoundments (*See* Day 1 Tr. 35:24-36:16 (discussing revision of Impoundment 1); *see also* Appellants' Ex. E at Item 5 (IMM-340-4 impoundment diagram), the Division's interpretation of the word "revision" would render the relevant language of R.C. 1514.02(A)(10)(b) nonsensical. By the plain language of R.C. 1514.02(A)(10)(b), an application may be a "revision" of an application which "was first approved prior to March 15, 2002." If the term "revision" were somehow limited only to changes made during the application review process, this provision would have no meaning. It is clear from the plain language of the statute that revisions can be made to permits after applications have been approved, and the mining and reclamation plan revisions in the Applications therefore constitute "revisions" as contemplated by R.C. 1514.02(A)(10)(b). Thus, R.C. 1514.02(A)(10)(b) applies to the Applications at issue in this appeal.

The parties have stipulated that the Clark County Zoning Resolution (hereinafter "CCZR") applies to the proposed mining area. Stipulations at ¶ 7. The proposed mining area has been zoned as A-1 Agricultural District since before the original IM-340 permit application was filed. *See* Appellee's Ex. 26 at Part B(2). The CCZR describes the A-1 Agricultural District as follows:

> The A-1 Agricultural District is intended to preserve areas where soils, topographic conditions, and physical features are best suited for the pursuit of agricultural use. Also, it is to protect the agricultural uses from encroachment of incompatible non-agricultural land uses and to preserve open areas from the encroachment of scattered urban type uses or until such time that the area is ready for more intensive development and can be provided with appropriate infrastructure and services. This district is intended to ensure that land areas which are within the unincorporated areas which are well suited for agriculture production are retained for such production, unimpeded by the establishment of incompatible uses which would hinder agricultural uses and inevitably deplete agricultural lands and uses.

(at p. 1-4) It is unclear from the Applications what the future land use of the permit area is intended to be because such information is absent from the Applications. However, it is clear that the conversion of prime farmland into two large impoundments described in the Applications will not serve to ensure that "areas which are well suited for agriculture production are retained for such production," and the significant possibility of a conflict exists. Evidence of additional likely conflict between the proposed mining operation and local zoning regulations may be found in the concerns raised to the Division by Thomas Hale, the Clark County Zoning Administrator. *See* Appellants' Ex. A (Hale letter to the Division).

Intervenor and Appellee have made clear their position that R.C. 1514.02(A)(10)(b) does not apply to the Amendments and Modifications, and they have acknowledged that no measures at all were taken to ensure compliance. *See* Intervenor's Motion In Limine and Mem. In Supp. at 5; *see also e.g.* Day 5 Tr. 1239:10-13. Additionally, the Division has likewise made its position

clear that the measures required by R.C. 1514.02(A)(10)(b) were absent from the Applications and that the Chief made no determination regarding whether or not potential conflict exists between future uses of the mining site and applicable zoning and land use regulations. *See* Day 5 Tr. 1238:13.

Thus, the Chief acted arbitrarily, capriciously, and in violation of R.C. 1514.02(A) and 1514.02(B) by approving the Applications, which failed to satisfy the requirements of R.C. 1514.02(A)(3) and R.C. 1514.02(A)(10)(b), and by failing to make a determination regarding the likely conflict between proposed future uses of the mining area and existing zoning and land use regulations.

III. CONCLUSION

As detailed above, the evidence presented at hearing overwhelmingly demonstrates that the Division acted arbitrarily, capriciously, and unlawfully in approving the Amendments and Modifications, which failed to satisfy numerous provisions of R.C. 1514 and regulations promulgated thereunder. Appellants request that the Chief's approvals on July 13, 2017 be vacated and remanded for compliance with the applicable laws and regulations.

Respectfully submitted,

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CERTIFICATE OF SERVICE

A true and correct copy of the foregoing **Post-hearing Brief** and attached Appendices was served on May 22, 2018 to following counsel of record via electronic mail:

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