BEFORE THE

RECLAMATION COMMISSION

CAM – MAD RIVER TOWNSHIP, *ET AL.*,	:	
	:	Case Nos. RC-17-004 - 006
Appellants,	:	
	:	
-vs-	:	Review of Permit Amendment #A-340-1,
	:	Permit Modification #IMM-340-4 & Permit
DIVISION OF MINERAL RESOURCES MANAGEMENT,	:	Modification #IMM-340-5; Permit IM-340
	:	(Enon Sand & Gravel, LLC)
Appellee,	:	
	:	
and	:	**FINDINGS, CONCLUSIONS**
	:	**& ORDER OF THE**
ENON SAND & GRAVEL, LLC,	:	**RECLAMATION COMMISSION**
	:	
Intervenor.	:	

Appearances: James Yskamp, Nathan A. Hunter, Counsel for Appellants CAM – Mad River Township, *et al.*; Brian Ball, Molly Corey, Assistant Attorneys General, Counsel for Appellee Division of Mineral Resources Management; Matthew D. Harper, Brian P. Barger, Sarah E. Stephens, Counsel for Intervenor Enon Sand & Gravel, LLC.

Date Issued: July 25, 2018

BACKGROUND

On August 7, 2017, Appellants CAM - Mad River Township, Charles D. Swaney and Michael Verbillion ["CAM"] filed with the Reclamation Commission a ***Notice of Appeal*** from three decisions rendered by the Chief of the Division of Mineral Resources Management [the "Division" or the "DMRM"]. These decisions: (1) approved an amendment to surface mining permit IM-340, adding acreage to the permitted area, (2) approved a modification to permit IM-340, increasing the proposed depth of mining and authorizing dewatering operations to facilitate mining, and (3) approved a modification to permit IM-340, revising the blasting plan for the permitted area. Appellants CAM contest these revisions to permit IM-340.

On November 1, 2017, the Commission **consolidated** these three appeals for hearing and decision.

Permit IM-340 is held by Enon Sand & Gravel, LLC ["Enon"]. On August 16, 2017, the Commission **granted** Enon intervenor status in these matters.

Prior to hearing, Enon filed a ***Motion in Limine***, seeking a limiting instruction on three issues: (1) the applicability of local zoning to permit IM-340, (2) the submission of evidence regarding federal litigation pending between Enon and the Clark County Board of Commissioners, *et al.*, and (3) any claims of diminution in property values as a result of mining. On January 21, 2018, the Commission issued a ruling **granting** Enon's ***Motion in Limine*** as regards claims of diminution in property values, but **denying** the motion as regards the other identified issues.

Enon subsequently filed a ***Motion for Reconsideration*** of the Commission's ruling on the ***Motion in Limine***, which the Commission **denied** on February 9, 2018.[1]

This matter came on for hearing before the Commission on April 4, April 5, April 25, April 26 and May 9, 2018. At hearing, the parties presented documentary evidence and examined witnesses appearing for and against them.

After a review of the Record, the Commission makes the following findings of fact and conclusions of law:

[1] During the pendency of the Commission appeals Enon also brought an original action in prohibition against the Commission in the 10th District Court of Appeals for Franklin County, case number 18APD-03-213. Through this action, Enon attempted to prohibit the Commission from considering zoning issues in consolidated appeals RC-17-004 - 006. Enon's ***Complaint for Writ of Prohibition*** was filed on March 27, 2018. On April 26, 2018, a ***Magistrate's Decision*** was issued, recommending the dismissal of Enon's prohibition action. This matter was submitted to a court panel on the **Magistrate's Decision**, without oral argument, on July 19, 2018.

FINDINGS OF FACT

1. The Appellants in these matters are: (1) a local non-profit organization, known as Citizens Against Mining - Mad River Township ["CAM"], (2) Mr. Charles D. Swaney (the Director of CAM), and (3) Mr. Michael Verbillion (a member of CAM). The individual Appellants, and other members of CAM, reside or own property within Mad River Township. The individual Appellants, and other members of CAM, live adjacent to, or within a short distance from, areas that are proposed to be mined by Enon Sand & Gravel, LLC ["Enon"]. The individual Appellants, and other members of CAM, assert that their properties will be damaged and/or that their domestic water supplies will be diminished or contaminated as a result of Enon's mining operations. The Appellants assert that they have been adversely affected by certain permitting decisions made by the Division of Mineral Resources Management [the "Division" or "DMRM"] relative to Enon's IM-340 mining permit. The Appellants have appealed three permitting decisions made by the Division Chief. CAM submitted, as part of its evidence at hearing, a petition containing 953 signatures, which opposed Enon's proposed mining operations. This petition was also submitted to the Division Chief during the permitting process. *(See Appellants Exhibit T.)*

2. The permit area at issue is located in Mad River Township, Clark County, Ohio, near the village of Enon and approximately four miles southwest of Springfield, Ohio.

3. Some members of CAM live on small farms or residential tracts in the vicinity of mining permit IM-340. Some members of CAM reside in the Echo Hills Estate Subdivision. This subdivision is situated along the northwest boundary of permit IM-340. In this area of Clark County there is no public water system in place and residents rely upon private water wells. The Echo Hills Estate Subdivision includes approximately 60 homes, each with an individual domestic water well and a private septic system. The farms and residential tracts in this area also rely upon domestic water wells.

4. Mr. Jon Vanderglas, a member of CAM and a witness at hearing, lives on a 78-acre family farm located on Garrison Road. The Vanderglas property is situated along the southwest portion of the permit IM-340 area. A fen exists on the Vanderglas property.[2] This fen covers more than 2 acres, and is situated about 200 feet from the permit IM-340 boundary. The Vanderglas Fen has been documented on the National Wetlands Inventory Map and contains a diversity of vegetation, specific to this type of environment. The fen provides water to a small unnamed stream. Evidence at hearing established that the Vanderglas Fen is likely fed by ground water from a shallow perched aquifer. Two domestic water wells are located on the Vanderglas property, one of which provides water to the residence.

5. Ms. Carol Culbertson, a member of the Board of Directors of CAM and a witness at hearing, owns an approximately 2.5-acre property on Garrison Road. Ms. Culbertson has lived on this property for about 13 years. The Culbertson property is located adjacent to the southwest portion of permit IM-340 and north of the Vanderglas property. A small unnamed stream, originating in the Vanderglas Fen, crosses the Culbertson property. This unnamed stream is located within 500 feet of the permit IM-340 boundary. The U.S. Department of Agriculture has identified a 1.3-acre wetland on the Culbertson property. The Culbertson residence is served by a domestic water well.

6. Mr. Michael Verbillion, a member of the Board of Directors of CAM, a witness at hearing and an individual Appellant, owns property on Hagan Road. The Verbillion family has lived on this property since the early 1900s. The Verbillion property is located to the west of permit IM-340. Mud Run crosses the Verbillion property in an east to west direction. An unnamed tributary to Mud Run crosses the Verbillion property in a south to north direction. Mr. Verbillion raises cattle and grows alfalfa on this property. In testimony, Mr. Verbillion expressed concern that quarry dewatering could exacerbate flooding that occurs on his property. The Verbillion property contains two water wells, one is used for the residence and one is used to water cattle.

[2] A fen is a type of wetland, which is often fed by ground water and which frequently possesses unique wetland vegetation.

7. Mr. Charles Swaney, the Director of CAM, a witness at hearing and an individual Appellant, owns property on Fairfield Pike, which has been in his family since the 1920s. The Swaney property consists of a wedge of land, surrounded on two of its three sides by permit IM-340. The residence on the Swaney property is supplied by a domestic water well.

8. Mr. Kyle Peterson, a member of CAM and a witness at hearing, owns property on Sullivan Road in the Echo Hills Estate Subdivision. Mr. Peterson's property is served by a domestic water well.

9. Mining for sand, gravel and limestone has taken place on, or in the near vicinity of, the permit IM-340 area since at least the 1950s. Three inundated quarries, developed by prior mining operations, exist in this area.

10. Mining of industrial minerals ["IM mining"] was not regulated until the passage of Ohio's Surface Mine Law in 1975. In 1975, the Division of Mineral Resources Management gained permitting and regulatory authority over such operations. After 1975, existing quarries were required to seek permits from the Division, and these operations became subject to the regulatory requirements of Revised Code Chapter 1514. Chapter 1514 establishes mining and reclamation standards. Among the many provisions of Chapter 1514 are "set-back" requirements for the protection of adjacent properties and bonding requirements to ensure reclamation of affected ground. Chapter 1514 establishes the Division's permitting authority, as well as the Division's regulatory and enforcement authority, over operating IM mines and quarries.

11. Following the enactment of Chapter 1514, the mining areas at issue in these appeals were covered by two separate mining permits - permit IM-340 and permit IM-375.

12. Permit IM-340 was first issued on April 27, 1977 to Keifer Sand & Gravel, and initially covered 13.8 acres. While permit IM-340 was not issued until 1977, mining had been occurring on this site for many years. Between 1977 and 2015, permit IM-340 was: (1) amended to add 8.0 acres, (2) modified to allow blasting, (3) modified to increase mining depth and to allow quarry dewatering, and (4) transferred from Keifer Sand & Gravel to Demmy Construction, Inc. In December 2015, Demmy Construction, Inc. transferred permit IM-340 to Enon.

13. At the time of the 2015 transfer to Enon, permit IM-340 covered 21.8 acres, from which sand & gravel, and a limited amount of limestone, had already been extracted. Quarry lakes remain on the original 21.8-acre area. No active mining is occurring, or is currently anticipated, on the original 21.8-acre area of permit IM-340.

14. Permit IM-375 was first issued on June 6, 1977 to Demmy Sand & Gravel, and initially covered 156.8 acres. While permit IM-375 was not issued until 1977, some mining had already occurred on this site. Between 1977 and 2015, permit IM-375 was amended to both increase, and later decrease, its size. At the most-recent permit renewal in 2007, IM-375 covered 398.8 acres. In December 2015, Demmy Sand & Gravel transferred permit IM-375 to Enon.

15. At the time of the 2015 transfer of permit IM-375 to Enon, only 18.8 acres of the permitted 398.8-acre area had actually been affected. Thus, very little excavation had occurred on the permit IM-375 area, and the land was being used primarily for agricultural purposes.

16. After acquiring permits IM-340 and IM-375 in December of 2015, Enon began efforts to combine these two permits and to modify the existing mining and reclamation plans in order to allow Enon to engage in additional mining activities on this combined site. To this end, in late 2016 and early 2017, Enon submitted three applications to the Division, those applications being:

1. Application to amend permit IM-340, **#A-340-1**, seeking to add acreage to permit IM-340. Through this application Enon sought to "combine" permits IM-340 and IM-375 into a single permit. At this time, IM-340 covered 21.8 acres and permit IM-375 covered 398.8 acres. When combined under permit IM-340, the permit would cover 420.6 acres.

2. Application to modify permit IM-340, **#IMM-340-4**, seeking permission to increase the allowable depth of mining and to allow dewatering operations on the site. This application included a ground water model prepared on behalf of Enon by Eagon & Associates Inc. [the "EAI model"].

3. Application to modify permit IM-340, **#IMM-340-5**, seeking to revise and update the permit's existing blasting plan. Blasting had been allowed on the permit IM-340 area since 2005. This application proposed revisions to the existing blasting plan.

17. On July 13, 2017, the Division approved the three applications submitted by Enon. These three permitting decisions are the subject of the consolidated appeals.

18. Based upon the Division's July 13, 2017 approvals of Enon's applications to amend or modify permit IM-340, and consistent with the provisions of IM-340, as last renewed, proposed mining under permit IM-340:

- Covers a 420.6-acre area.

- Will be conducted in two phases.

- Phase I mining will commence on the southern portion of the permit. A quarry, which ultimately may cover as much as 70 acres, will be created to extract the Cedarville Limestone and possibly the Brassfield Limestone. During the first year of Phase I mining approximately 20 acres will be affected for facilities. Annually, about 4 acres will be mined. Mining on the Phase I area will take place over approximately 24 - 25 years. Mining will be conducted using dry mining methods, which will require quarry dewatering.

- When Phase I mining is completed, pumping of the Phase I quarry will cease and the quarry will be allowed to fill with water.

- It is projected that once Phase I mining is completed, Phase II mining will commence on the northern portion of the permit. A quarry, which ultimately may cover as much as 78 acres, will be created to extract the Cedarville Limestone and possibly the Brassfield Limestone. During the first year of Phase II mining approximately 20 acres will be affected for facilities. Annually, about 4 acres will be mined. Mining on the Phase II area will take place over approximately 40 years. Mining will be conducted using dry mining methods, which will require quarry dewatering.

- When Phase II mining is completed, pumping of the Phase II quarry will cease and the quarry will be allowed to fill with water.

19. Additional factual information, specific to the issues discussed, will be developed under the Conclusions of Law.

CONCLUSIONS OF LAW

1. THE ULTIMATE BURDEN OF PERSUASION IN THESE MATTERS IS UPON THE APPELLANTS TO PROVE THAT THE CHIEF'S DECISIONS TO APPROVE AN AMENDMENT TO, AND MODIFICATIONS OF, PERMIT IM-340 WERE ARBITRARY, CAPRICIOUS OR OTHERWISE INCONSISTENT WITH LAW.

Discussion: Pursuant to O.R.C. §1514.09, the Reclamation Commission serves as the administrative appeal board under Ohio Revised Code Chapter 1514. Appeal procedures are addressed at O.R.C. §1513.13 and O.R.C. §1513.131, as well as through the Commission's procedural rules. *See O.A.C. §§1513-3-01 through 1513-3-22.*

O.R.C. §1513.13(B) sets forth the standard of review in Commission appeals:

> The commission shall affirm the . . . decision of the chief unless the commission determines that it is arbitrary, capricious, or otherwise inconsistent with law; . . .

O.A.C. §1513-3-16(B) places the burden of persuasion in these appeals upon the Appellants. *See O.A.C. §1513-3-16(B)(3).*

Ohio law sets forth specific requirements that must be met in order for a mining permit to be issued, amended or modified. In reviewing permitting applications, the Division Chief must ensure that all statutory requirements are met.

Division permitting decisions are appealable to the Commission. The Commission has *de novo* jurisdiction in reviewing such decisions. *Helton vs. Div. of Mineral Resources Mgt.*, 4th Dist. Meigs Cty., no. 03CA 14, 2004-Ohio-6838, ¶22. However, the Commission may not substitute its judgment for that of the Division or its Chief. *Tri-State Reclamation, LLC vs. Div. of Mineral Resources Mgt.*, RC-04-030, RC-08-007-009, p.16 (April 8, 2010). In reviewing permitting decisions, if the Commission finds that the decisions were not arbitrary, capricious or inconsistent with law, the Commission will affirm the decisions. *See O.R.C. §1513.13(B).*

2. THE DIVISION, AND ITS CHIEF, POSSESSES BROAD PERMITTING AND ENFORCEMENT AUTHORITIES UNDER CHAPTER 1514.

Discussion: Industrial minerals ["IM"] mining operations are permitted and regulated by the Division under the authority of Ohio Revised Code Chapter 1514. *See O.R.C. §1514.011.* Accordingly, all mining and reclamation activities must be conducted in compliance with the requirements of Chapter 1514.

No mining may occur in the absence of an approved permit. *See O.R.C. §1514.10(A)(1).* To obtain a permit, or to amend or modify an existing permit, an operator must apply to the Division. *See O.R.C. §1514.02.* The Division Chief, through his staff, evaluates applications for permits, amendments and modifications to ensure compliance with Ohio law.

A mining permit, amendment or modification will be granted only upon a positive showing that the proposed plan of operations meets all legal performance standards, including the requirement that the operator perform measures to prevent damage to adjoining properties. *See O.R.C. §1514.02(A)(10); O.R.C. §1514.10(D).*

Once a permit is issued, the mine operator is required to act in accordance with its approved mining and reclamation plan and in compliance with Ohio law. To ensure this, the Division possesses broad inspection and enforcement authorities, and active permits are subject to regular inspections:

> Each permit shall be issued upon condition that the operator will comply with this chapter and perform the measures set forth in the operator's plan of mining and reclamation in a timely manner. The chief, mineral resources inspectors, or other authorized representatives of the chief may enter upon the premises of the operator at reasonable times for the purposes of determining whether or not there is compliance with this chapter.

See O.R.C. §1514.02(B).

Moreover, the Division and the mine operator must be responsive to any complaints lodged by the public relative to the impacts of mining upon private water supplies. *See O.R.C. §1514.13(B).*

3. PERMIT IM-340, AS CURRENTLY IN EFFECT, INCLUDES INFORMATION CONTAINED IN THE IM-340 MINING AND RECLAMATION PLAN AS THAT PLAN WAS RENEWED EFFECTIVE APRIL 25, 2007, EXCEPT AS THAT PLAN HAS BEEN UPDATED BY SUBSEQUENT AMENDMENTS AND MODIFICATIONS, INCLUDING THE AMENDMENT AND MODIFICATIONS APPROVED ON JULY 13, 2017.

Discussion: CAM puts forth that the Division's approval of the permit amendment and modifications at issue do not comply with the law because Enon was not required to update all information in its permit at the time of seeking these permit revisions.

Quarries are long-term operations. Mining in the area of permit IM-340 has been occurring since the 1950s. Indeed, the properties currently covered by permit IM-340 have been under permit since 1977. Assuming that Enon accomplishes all projected mining, the permit IM-340 area will be mined for at least 65 years into the future. Of course, the mining will progress slowly, with only about 4 acres affected per year, and the timely reclamation of affected acres will be required as mining progresses.

IM permits are issued for 15-year terms, and are subject to renewal at the 15-year anniversary. *See O.R.C. §1514.02(C); O.R.C. §1514.021.* As testified to by the Division, at the time of permit renewal, **all** aspects of the permit are subject to review and must be updated to comply with current law and field conditions. *See O.R.C. §1514.021.*

While information submitted in support of specific amendments and modifications may be limited in scope, such amendments and modifications are added to - and become part of - the existing permit file. O.R.C. §1514.02(D) specifically provides that when a permit is amended "the same prohibitions and restrictions applicable to land described in the original application for a permit" remain applicable. *See O.R.C. §1514.02(D).*

Permit IM-340 was last renewed on February 28, 2008, with an effective renewal date of April 25, 2007. *(See Division Exhibit 4.)* All provisions of the 2007 permit renewal remain in effect, except as specifically amended or modified. Thus, any un-amended or un-modified aspects of the mining and reclamation plan for permit IM-340 remain in effect, and are incorporated into the Chief's consideration of Enon's current requests to amend or modify. The IM-340 mining and reclamation plan is described by the **entire** permit file, which - in its entirety - addresses **all** mining and reclamation standards.

As only the provisions of the permit that are actively being amended or modified must be addressed in an amendment or modification application, there is no requirement to submit information relating to provisions of the permit that are not directly affected by a proposed amendment or modification. Therefore, the Chief's July 13, 2017 approvals of revisions to permit IM-340 are not contrary to law for failing to include permitting information beyond information directly relevant to the revisions being sought.

4. THE DIVISION CONDUCTED A THOROUGH REVIEW OF THE PERMIT IM-340 AMENDMENT AND MODIFICATION APPLICATIONS, WHICH INCLUDED, AND ACTIVELY SOUGHT, THE INPUT OF POTENTIALLY AFFECTED PERSONS AND ENTITIES.

Discussion: CAM asserts, as an overarching claim, that the Division Chief acted arbitrarily, capriciously or in a manner inconsistent with law in his review of Enon's applications to amend and modify permit IM-340.

In reviewing Enon's applications, Division staff actively sought the input of citizens and organizations, as well as the input of state and local agencies, that might be impacted by the proposed mining.

In response to citizen concerns, the Division conducted a public meeting regarding this permit area.

The Commission finds that the Division conducted a thorough review of Enon's applications to amend or modify permit IM-340, which met and exceeded the review anticipated by Chapter 1514.

5. THE DIVISION CHIEF DID NOT ACT ARBITRARILY, CAPRICIOUSLY OR IN A MANNER INCONSISTENT WITH LAW AS REGARDS THE DIVISION'S APPROVAL OF THE GROUND WATER MODEL SUBMITTED BY ENON.

Discussion: Through application #IMM-340-4, Enon asked to increase the depth of mining on the permit IM-340 area in order to extract materials from the Cedarville and Brassfield Limestone Formations.

Enon intends to begin its mining operations on the southern portion of permit IM-340 [the "Phase I area"], and then move to the northern portion [the "Phase II area"]. Consistent with known characteristics of local geology, as the quarry is deepened, the mining will intersect aquifers. Such aquifers may be the source of ground water to various water users.

An aquifer is defined at O.A.C. §1501:14-1-01(G) as:

> "Aquifer" means a consolidated or unconsolidated geologic formation or series of formations that are hydraulically interconnected and that have ability to receive, store, or transmit water.

When mining intersects an aquifer, ground water from that aquifer will flow into, and accumulate in, the open mining pit.

Quarry operations may be "wet" or "dry." Wet operations utilize a floating dredge, and excavation occurs underwater. With dry operations, earth moving equipment excavates and moves rock and minerals from an open pit. When a dry operation intersects a ground water aquifer, the mining pit must be pumped, or "dewatered," in order to maintain a dry quarry floor. Generally, a sump is constructed below the lowest level of excavation so that - as ground water enters the quarry - that water can be discharged and a dry work area can be maintained.

Enon intends to conduct a dry mining operation on permit IM-340. This means that, once an aquifer is encountered, the quarry pit will require "dewatering" through pumping in order to remove accumulating ground water.

"Dewatering" is defined at O.R.C. §1514.01(I) as:

> "Dewatering" means the withdrawal of ground water from an aquifer or saturated zone that may result in the lowering of the water level within the aquifer or saturated zone or a decline of the potentiometric surface within that aquifer or saturated zone.

Dewatering of a mining pit has the potential to temporarily impact area aquifers, and - consequently - to impact wells developed in these aquifers. When dewatering is proposed as part of a mining operation, Ohio law mandates that certain additional steps be taken, which include the modeling of the possible impacts of the proposed dewatering. Specifically, an application to dewater must provide information relating to local hydrology and nearby water supplies. The applicant may include a completed ground water model that the applicant developed based upon its own study of the area hydrology. Or, the applicant may provide sufficient information to the Division so that the Division may produce such a model. *See O.R.C. §1514.02(A)(16); O.R.C. §1514.13.*

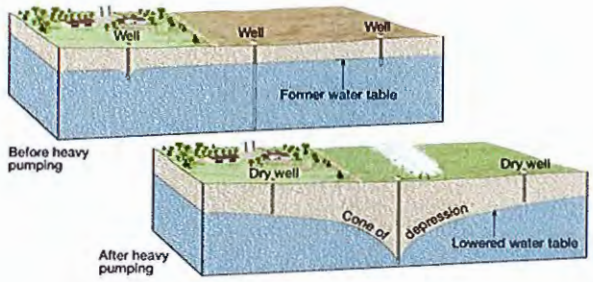
A ground water model is a simplified representation of real world hydrogeologic conditions that serves as an aid in evaluating the potential impacts of dewatering upon both the general hydrology and upon specific nearby water supplies. A model may estimate the "cone of depression" that will be created by the pumping of water from a quarry.

O.R.C. §1514.02(K) defines a "cone of depression" as:

> "Cone of depression" means a depression or low point in the water table or potentiometric surface of a body of ground water that develops around a location from which ground water is being withdrawn.

A cone of depression is an area, theoretically conical in shape, with the smallest point of the cone at the pumping source. The actual shape of the cone of depression will be more irregular and will be determined by area geology.

The following graphic depicts the cone of depression created by a water well. This graphic illustrates that, in the immediate area of pumping, the water table is lowered, creating a temporary reduction in available ground water within a discrete area emanating from the point of pumping.



A quarry that is being dewatered functions similarly to a very large open well.

(Graphics from Division Exhibit 2.)

Pumping at an open quarry will create a cone of depression and will lower the water table in the immediate vicinity of the quarry. The lowering of the water table may result in the temporary lowering, or loss, of ground water to nearby water wells. The mine operator is responsible to replace any water supplies that are affected by mining.

The dimensions of the quarry's cone of depression are important, as the law creates a rebuttable presumption that the mine operator is responsible for water losses experienced in wells located within the geographic area defined by the cone of depression. *See O.A.C. §1501:14-5-03.* Enon plans to mine permit IM-340 in two phases, creating two quarries. Each quarry will require dewatering during the period of active mining. Dewatering of the quarries will create separate cones of depression.

The ground water model submitted by Enon was reviewed by the Division under the proper regulation.

By law, if a permit is modified to allow dewatering, hydrologic modeling must take place in order to project the cone of depression that will result from quarry dewatering. Operators are given the choice to either: (1) submit sufficient information to the Division so that the Division may construct a ground water model *(see O.A.C. §1501:14-5-01(A) & (B))*, or (2) submit a completed ground water model, which will then be subject to the Division's review and approval *(see O.A.C. §1501:14-5-01(C) & (D))*.

Enon elected to submit a **completed** ground water model, which was prepared by Eagon & Associates, Inc. [the "EAI model"].

The EAI model was accompanied by a form on which Enon could either check a box indicating: (1) that it was submitting an information package so that the Division could create a model, or (2) that it was submitting a completed ground water model. (*See* Appellants Exhibit G, p. 004163.)

Enon checked the box indicating that it was submitting information so that the Division could independently create a model. However, this box was clearly checked in error. Enon had actually submitted a completed model, and obviously was not requesting that the Division independently generate a model. The Division appropriately reviewed Enon's submission under O.A.C. §1501:14-5-01(C).

The EAI model was appropriately reviewed by Division staff. And, the cone of depression was established by the Division Chief.

CAM asserts that the Division failed to comply with O.R.C. §1514.13, in that the Chief of the Division of Mineral Resources Management [the Chief of the "DMRM"] did not consult with the Chief of the Division of Water Resources [the Chief of the "DWR"] regarding the EAI model. CAM also asserts that the DMRM Chief failed to comply with O.R.C. §1514.13, as the DMRM Chief delegated certain duties to staff with regards to the establishment of the permit IM-340 cones of depression.

a. The Division Chief is not required to consult with the Chief of the Division of Water Resources regarding modeling when an applicant submits a completed hydrology model. The Division Chief is only required to so consult when the Division is asked to create the model.

O.R.C. §1514.13 provides in pertinent part:

> (A) 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 [of the division of mineral resources management] 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**.

Consistent with the first two sentences of O.R.C. §1514.13(A), the only time that a consultation between the DMRM Chief and the DWR Chief is mandated is when the DMRM Chief is asked to actually develop a ground water model from information provided by an applicant.

In this case, Enon submitted a completed ground water model. Therefore, Enon did not ask the DMRM Chief to independently construct his own model from submitted data, and consultation was not required. However, the evidence revealed that DMRM's geologist did consult with a DWR hydrologist. This consultation - although not required by law - occurred consistent with the provisions of a Memorandum of Understanding entered into by the Chiefs of these two Divisions. *(See Division Exhibit 7.)*

b. The Division Chief is permitted to delegate review of a ground water model to qualified staff.

On November 21, 2016, the Division approved the EAI ground water model, thereby establishing the cones of depression for Enon's two proposed quarries. Thereafter, on July 13, 2017, the Division approved Enon's application to modify #IMM-340-4, which allowed quarry dewatering to occur on the IM-340 area.

The approval of #IMM-340-4 was signed by the Division's Deputy Chief David Crow. *(See Division Exhibit 9.)* CAM asserts that the Chief had no discretion to delegate this approval to staff. However, CAM does not refer to any statutory provision prohibiting such delegation.

O.R.C. §1501.05 authorizes Division Chiefs to employ technical staff as necessary. Here, the DMRM Chief delegated the review of the EAI model to his staff geologist, Kelly Barrett. Ms. Barrett was qualified at hearing as an expert in hydrology, geology and ground water modeling. As such, Ms. Barrett possesses the appropriate knowledge and expertise to review the EAI ground water model and to recommend the establishment of a 10-foot drawdown contour.

Without a provision specifically prohibiting delegation to staff, and in light of the authority in O.R.C. §1501.05, it is unreasonable to preclude the Chief from acting through qualified staff, such as Ms. Barrett or Mr. Crow. CAM's restrictive interpretation of O.R.C. §1514.13 - suggesting that the Chief alone must review and approve technical permit filings - is unreasonable, unworkable and fails to reflect reality in regards to the operation of a regulatory agency.

The Commission finds that it was both reasonable and appropriate for the DMRM Chief to operate through qualified staff in reviewing the EAI model and in establishing the cones of depression for permit IM-340. The delegation of such tasks to competent staff, possessing relevant expertise, is not arbitrary, capricious or inconsistent with law.

The EAI ground water model complies with the requirements of O.R.C. §1514.13 and O.A.C. §1501:14-5-01.

Ground water modeling is required to project the possible reach of quarry dewatering upon local aquifers. In this matter, Enon submitted a ground water model developed by EAI. This model was submitted consistent with the requirements of O.R.C. §1514.13(A):

> (A) * * * 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. * * *

The Chief adopted rule O.A.C. §1501:14-5-01 to more fully set forth the scope of a ground water model and to articulate the specific information that must be included in such a model. The EAI model submitted by Enon complies with O.A.C. §1501:14-5-01.

Ground water systems are complex, and are influenced by many elements, such as hydraulic pressures, the slope and dip of rock units, the characteristic of surrounding geologic formations and the capability of water to infiltrate and recharge these systems. The inability to directly view underground water systems adds to the complexity of predicting ground water flow patterns. Another level of complexity is added when one attempts to predict how a ground water system will react to specific activities such as dewatering. Scientific principles, applied through the process of modeling, are an aid in evaluating and predicting the impact of quarry dewatering upon surrounding hydrology.

Constructing a ground water model is largely an exercise in entering known data into a software program. However, an extensive amount of data must be collected and entered into the model. EAI hydrologist Stephen Champa testified that it took EAI approximately two years to conceptualize and develop the EAI model for permit IM-340.

During development of this model, EAI gathered information regarding surface topography, bedrock structure, ground water availability and area soil types. The hydrology witnesses at hearing all recognized that constructing a ground water model requires some degree of professional judgment, particularly in the area of calibration. In this regard, the American Society for Testing and Materials ["ASTM"] standards are available as an aid and a guide. *See O.A.C. §1501:14-5-01(C).* And, while the ASTM standards provide guidance, these standards are subordinate to regulatory mandates and do not trump professional judgment.

The model anticipated under O.R.C. §1514.13 and O.A.C. §1501:14-5-01 is not intended to provide discrete analysis of impacts to individual water supplies. The model's "view" is broader than that. Rather, the model required by O.R.C. §1514.13 is intended to project how mining and quarry dewatering may impact **area** hydrology. The law requires that this model "accurately reflect the ground water flow conditions associated with the hydrologic study area." *See O.A.C. §1501:14-5-01(C).* Moreover, the model is subject to the limitation that it be developed from information available within the "public domain." *See O.A.C. §1501:14-5-01(B)(2).*

Pursuant to paragraph (A)(2) of O.A.C. §1501:14-5-01, a map must be submitted showing the "hydrologic study area," which is defined as "the area encompassing a four mile radius from the boundary of the proposed permit area." The regulation clearly anticipates that modeling will address a large area. EAI's study area encompassed most of the area within a four-mile radius of the mine, but was expanded so that the area's north and south boundaries included, and paralleled, Mad River to the north and the Little Miami River to the south.

CAM puts forth that the study area is too large and is not as site specific as required by ASTM standards. However, these standards must follow the reasonableness requirements mandated by the applicable administrative code provisions. As noted above, the EAI study covered an area similar in size to what must be considered by the Chief if the Chief were producing the model. In light of this fact, the size of the study area utilized by EAI cannot be shown to be unreasonable.

EAI utilized the MODFLOW ground water modeling software to characterize the proposed dewatering effects of Enon's anticipated mining. Significantly, the MODFLOW software is recommended by name in the Ohio regulations as an acceptable three-dimensional ground water flow model. *See O.A.C. §1501:14-5-01(C).*

At paragraph (B)(2) of O.A.C. §1501:14-5-01, the rule provides that - for purposes of supplying sufficient information to the Chief to produce a modeled cone of depression - such information shall be "available in the public domain." Therefore, there cannot be an obligation upon EAI to use information other than what is available in the public domain.

The ground water model required by O.R.C. §1514.13 is intended to be a predicter of the possible effects of dewatering upon area ground water flow. In conceptualizing a model, known and measured field values are inputted and then certain adjustments are made in order to predict impacts upon ground water flow. In this case, the reported water levels for approximately 2,000 area water wells were entered into MODFLOW as known quantities. The known static water levels of these wells formed the basis of the EAI model. Thus, based upon water well logs available in the public domain, actual hydraulic head values were established at approximately 2,000 points within the hydrologic study area. These actual values were inputted to create a "map" of the potentiometric surface (the water table elevation) for this area.

The EAI model generated ground water flow information that was reviewed after certain calibrations against the existing well log data were made. These calibrations were based upon the modeler's professional judgment. Calibration is an accepted modeling process, wherein certain parameters are altered in order to "match" most closely the information produced by the model to information that is known and measured. The calibration process is undertaken consistent with accepted scientific principles applicable to modeling.

Hydraulic conductivity is the rate of flow of water through a permeable medium. The accepted hydraulic conductivity in the area of permit IM-340 ranges from 0.1 to 500 feet per day. In the EAI model, hydraulic conductivity was assigned a value of 1 foot per day. CAM argued that this hydraulic conductivity rate was unreasonably low. However, Enon through its witness Stephen Champa, provided supporting information for this assigned rate, which was not successfully contested by CAM.

Recharge rates for the IM-340 area range from .5 inches to 11 inches per year. The EAI model applied more than one recharge rate in its model. But in the immediate area of IM-340, a recharge rate of .5 inch per year was used. CAM argued that the recharge rate used in the EAI model was again unreasonably low. However, Enon through its witness Stephen Champa, provided evidence supporting this recharge rate, which also was not successfully contested.

Hydraulic conductivity and recharge rates are interrelated. In light of the known hydraulic heads, these values must "harmonize." Changes in the conductivity or recharge rates - given the known hydraulic heads - would not significantly alter the results of EAI's ground water model. Therefore, CAM's position that there should be an alteration in the conductivity or recharge rates would not have a significant effect on the modeled cones of depression.

CAM also argued that the EAI model did not adequately account for possible karst features in the hydrologic study area. "Karst" conditions develop as a result of the weathering of soluble rocks, such as limestone and dolomite. A karst setting may suggest greater ground water movement, in that underground voids may store water and increased fracturing may allow for greater water movement. The evidence established that karst conditions **do** exist in Clark County. However, the documented karst settings are all outside of the EAI hydrologic study area.

As model input data is limited to information available in the public domain, there is no requirement that the modeler actively search for unreported karst features when developing the model. Moreover, if significant karst features actually exist within this hydrologic study area, the effects of such karst features upon ground water flow should already be reflected in the known and measured well log data. The evidence does not support CAM's conclusion that EAI failed to adequately account for karst features in the hydrologic study area.

Enon submitted the EAI ground water model in support of its request to increase its mining depth on the IM-340 area and to engage in dewatering operations. The EAI model was developed by a qualified hydrologist, utilizing accepted modeling software that was properly calibrated.

The EAI model utilized a reasonable process based upon available public data, which met generally-accepted scientific principles. CAM has not proven that the results of the EAI model are outside the scope of what is reasonable, given the required input into the model. The Commission finds that the EAI model met all statutory and regulatory requirements, as well as all generally-accepted scientific principles. As such, CAM has not established that the Chief's approval of the cones of depression developed from the EAI ground water model were unreasonable or contrary to law.

6. PERMIT IM-340, AS AMENDED AND MODIFIED, ADEQUATELY PROVIDES FOR THE REPLACEMENT OF WATER SUPPLIES THAT ARE DETERMINED TO BE AFFECTED BY MINING.

Discussion: The mine operator is responsible to replace affected water supplies. In this regard, O.R.C. §1514.13(B) provides:

> If an owner of real property who obtains all or part of the owner's water supply for domestic, agricultural, industrial, or other legitimate use from ground water has a diminution, contamination, or interruption of that water supply and the owner's real property is located within the projected cone of depression of a surface mining operation established under this section, the owner may

> submit a written complaint to the operator of that operation or to the chief informing the operator or the chief that there is a diminution, contamination, or interruption of the owner's water supply.

(Emphasis added; see also O.A.C. §1501:14-5-03.)

If dewatering is anticipated at a mine, the applicant for a permit or amendment must specifically set forth its plan for replacing impacted water supplies. In this regard, O.A.C. §1501:14-5-02(A) provides:

> (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 section 1514.13 of the Revised Code.

O.A.C. §1501:14-5-02(B) specifically provides that the absence of suitable replacement supply sources is grounds for the denial of a permit or the disapproval of an amendment:

> (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 division (B) of section 1514.02 of the Revised Code.

O.A.C. §1501:14-5-03 sets forth the geographic area in which water replacement is the absolute responsibility of the operator, unless the operator is able to overcome a statutorily-imposed presumption that water loss occurring within this specified area is mining-related:

> For the purposes of section 1514.13 of the Revised Code, unless otherwise determined by the chief, water replacement provisions shall be applicable within the **geographic area defined by the ten foot contour line of the cone of depression** established under rule 1501:14-5-01 of the Administrative Code. The chief may, however, designate a different contour line based upon water resource availability, seasonal variations, other water users in the hydrologic study area as well as other ground water data available.

(Emphasis added.)

Where the affected water supply is located within the ten-foot contour line of the modeled cone of depression, the operator **must** provide a temporary replacement water supply within 72 hours of notification of water loss. For water supplies located within this projected cone of depression, a rebuttable presumption exists that the diminution, contamination or interruption of the water supply is mining-related. The operator has 14 days to rebut this presumption. If the presumption is not successfully rebutted, the operator is required to provide a replacement water supply not later than 28 days after the landowner's initial complaint. The replacement supply must be "comparable, in quantity and quality" to the owner's previous water supply. *See O.R.C. 1514.13(B).*

The law also requires that water loss complaints involving water supplies located **beyond** the projected cone of depression be investigated. *See O.R.C. 1514.13(C).*

Enon's analysis of the availability and suitability of alternative water supply sources is contained in the EAI model, which addresses the implementation of a monitoring program and ground water remediation.[3] Enon's replacement plan provides for remediation though: (1) lowering of pumps, (2) deepening of existing wells, or (3) installation of replacement wells.

[3] Enon's ground water monitoring and remediation plan provides:

> **GROUNDWATER MONITORING**
>
> Prior to initiation of quarry dewatering, all of the wells encompassed by the Phase I 10-foot drawdown contour will be surveyed to update and expand the pre-mining database on groundwater levels and water quality. A network of key wells will be selected and measured annually to monitor groundwater levels. The residential well survey and monitoring network will be expanded as appropriate for Phase II so that the effect of quarry operations on groundwater levels can be accurately assessed and remedial measures can be performed if needed.
>
> **GROUNDWATER REMEDIATION**
>
> If existing groundwater wells are adversely affected by quarry operations, appropriate remedial measures will be taken by Enon Sand & Gravel. The monitoring program should provide the information needed to enable anticipation of any significant impacts so that remedial action can be accomplished before a problem or interruption of water supply for critical users potentially occurs. Remedial measures may include lowering of pumps, deepening of existing wells, or installation of replacement wells. Enon Sand & Gravel will confer with the landowners and restore their water supply through mutually agreeable means, if and when water supplies of existing users are impaired by the quarry operations.

Prior to approving the modification of permit IM-340, the Division sought additional information and assurances from Enon regarding alternative water supplies and regarding Enon's plans for accomplishing water replacement. *(See Division Exhibit 21.)* In its supplemental materials, Enon provided additional information to demonstrate that aquifers will not be totally dewatered by mining. In all cases, Enon anticipates that ground water will be available to local users in adequate quantities.

Enon's monitoring network will allow the operator to continually assess the vulnerability of individual wells. Enon acknowledged that it always has the option to stop mining at an elevation above the maximum allowable quarry floor depth. *(See Division's Exhibit 21, pp. 001720-21).* In testimony, Mr. Garrison of Enon expanded even further upon the company's ground water remediation plan, indicating a willingness to: (1) deepen impacted wells in order to enhance water storage, (2) provide public water, (3) temporarily cease mining to allow for water levels to recover, or (4) permanently abandon certain planned mining.

CAM contends that, based upon the cone of depression projections, no water will be available if wells are deepened. To the extent that cone of depression projections indicate that water levels will fall below the level of mining, that is impossible. The cone of depression rises higher in the geologic strata the further it is from the mine. Therefore, there should be some water available to which a well could be deepened. In addition, a well could be drilled below the water productizing zones for the express purpose of creating storage space within the well bore. Testimony was also presented that a well could be reconfigured so that, if it was not producing significant amounts of water, it could be sporadically pumped into a storage tank to ensure that sufficient stored water is available to the user. CAM has not established that it would be impossible to supply replacement water by the methods put forth by Enon.

It is important to note that mining on the permit IM-340 area will occur over a long period of time. Indeed, Enon anticipates that mining at the southern quarry will take place over 24-25 years. The northern quarry is projected to commence only after mining and dewatering at the southern quarry concludes. The northern quarry will be mined over a 40-year period. Enon expects to affect only about 4 acres per year.

In light of the pace of mining, and the institution of a monitoring program, any negative effects of mining upon nearby water supplies should be detected promptly.

The monitoring and replacement plans provide significant protections from water losses to landowners located both within and outside the projected cones of depression. The plan ensures that, if water loss is experienced, it will be addressed expeditiously and consistent with the requirements of O.R.C. §1514.13. The approved monitoring and replacement plans are now enforceable components of the mining and reclamation plan for IM-340. Taken in conjunction with the approved ground water model, the operator possesses sufficient information to avoid - or effectively address - any water loss issues.

7. WATER QUALITY ISSUES WILL BE ADDRESSED UNDER PERMIT IM-340 AS REQUIRED BY O.R.C. §1514.02(A)(10)(h).

Discussion: Under O.R.C. §1514.13, the mine operator has a responsibility to replace water supplies affected by mining. This protection extends to supplies used for "domestic, agricultural, industrial, or other legitimate use," and addresses "diminution, **contamination** or interruption" of the supplies.

While O.R.C. §1514.13 addresses an operator's responsibility to replace water supplies affected by mining, CAM has raised an issue as to Enon's compliance with O.R.C. §1514.02(A)(10)(h). O.R.C. §1514.02(A)(10)(h) addresses a different type of ground water contamination, and provides:

> 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.

(Emphasis added.)

O.R.C. §1514.02(A)(10)(h) addresses contamination generated on mine sites where acid-forming strata (such as coal) is encountered in the geologic strata of the mining operation. If acid-forming materials are encountered, O.A.C. §1501:14-3-05 sets forth specific steps that an operator must take to protect ground water from contamination.

The 2008 renewal permit for IM-340 indicates that acid-forming strata does not exist within the permit area. *(See Division Exhibit 4, p. 002731, question 23.)*

As to impoundments, the 2008 renewal contains a description of how Enon will prevent contamination of water in any impoundments remaining on the site. *(See Division Exhibit 4, p. 002733, question 29.)*

As these provisions of permit IM-340 have not been revised, the requirements found in the 2008 permit renewal currently apply to the entire permitted area of IM-340.

The requirements of O.R.C. §1514.02(A)(10)(h) do not extend to contamination from other, non-mining sources, such as fecal coliform or nitrates that may already exist in the soils or waters within the vicinity of a mine site. However, CAM suggests that quarry pumping could cause such existing contaminants to migrate and pollute ground water. Division staff testified that this is not the type of contamination addressed by O.R.C. §1514.02(A)(10)(h). Nor would the Division have jurisdiction over contaminants such as fecal coliform or nitrates. This type of contamination would fall under the jurisdiction of other government agencies, such as Ohio EPA or the County Departments of Health.

In this case, the evidence established that there is no acid-forming strata at the IM-340 site. With this determination, Enon satisfied the requirements of O.R.C. §1514.02(A)(10)(h), and CAM has not met its burden to prove non-compliance with this section. Nor has CAM shown that offsite contamination, created by others, qualifies as "contamination caused by mining" under the language of O.R.C. §1514.02(A)(10)(h).

8. THE DIVISION DID NOT ACT ARBITRARILY, CAPRICIOUSLY OR IN A MANNER INCONSISTENT WITH LAW AS REGARDS THE APPROVAL OF MODIFICATION #IMM-340-5, WHICH UPDATED AND REVISED ENON'S BLASTING PLAN.

Discussion: Blasting is utilized in quarries as an effective means of fracturing rock and allowing that rock to be excavated and removed by earth-moving equipment. The evidence revealed that a blasting plan has been in place on the permit IM-340 area since 2005. Enon intends to continue to utilize blasting in its operations and submitted modification #IMM-340-5 to update its existing blasting plan.

The evidence at hearing established that Enon's blasting plan addresses all requirements of O.R.C. §1514.12. Enon's plan provides for blasting to be conducted by trained personnel and sets forth a comprehensive seismographic monitoring program.

A concern was raised at hearing regarding whether blasting may cause increased turbidity in ground water or may change ground water flow through fracturing. On these issues, the Division's blasting expert Michael Mann testified that the impacts of blasting are very localized, with the fracturing of rock occurring no more than 20 to 30 feet from a blast hole. Mr. Mann also testified that increased turbidity from blasting is temporary, if it happens at all.

The Division's blasting expert confirmed that Enon's blasting plan meets – and, in fact, exceeds - all legal requirements. No evidence was presented to contest this. Therefore, CAM failed to establish that Enon's proposed modifications to its blasting plan failed to comply with O.R.C. §1514.12.

9. PERMIT IM-340 ADEQUATELY PREVENTS OFF-SITE DAMAGE TO ADJOINING PROPERTIES.

Discussion: Ohio's IM law takes many opportunities to re-enforce the statutory requirement that an operator must prevent damage to off-site property. The repair or replacement of impacted water supplies falls within this protection. *See O.R.C. §1514.13.* But, this protection extends beyond water replacement.

The Vanderglas Fen is located off the permit IM-340 area, but in close proximity to the proposed Phase I mining area. While the Division may not have primary jurisdiction over wetlands, that does not necessarily mean that impacts to an adjacent wetland cannot be addressed by the Division if such impacts are found to be mining-related.

The law addresses the operator's responsibility to remediate impacts to water supplies and water features, including supplies utilized for "domestic, agricultural, industrial or other legitimate use." *See O.R.C. §1514.13.*

This Commission has recognized "recreational use" as a "legitimate use" of a water feature. *Sidwell Materials, Inc. vs. Division,* RC-13-012 (June 25, 2014). Mr. Vanderglas testified to the significance of the fen located on this family's property. In addition, Ms. Culbertson testified regarding the fen. The Commission can understand their interest in maintaining this unique feature, as well as their concern that mining could negatively impact the fen.

Based upon evidence submitted at hearing, the Commission finds that the Vanderglas Fen is fed by a perched aquifer, separated by an aquitard from the aquifers modeled by EAI. The testimony of Stephen Champa was that the EAI model did not model mining affects upon the fen, because the fen's water source does not have any data in the public domain that could be inputted into MODFLOW. This is because no wells are developed at the relatively shallow depth of the perched aquifer feeding the fen. Under the law, there is no obligation to model the aquifer contributing to the fen, as there is no information relating to that particular perched aquifer in the public domain. CAM did not put on any evidence to establish that it was likely that the mine would dewater the perched aquifer that feeds the fen. Thus, no evidence was presented to establish that offsite damage to the Vanberglas Fen was likely to occur due to mining, and no actionable claim currently exists relating to the dewatering of the Vanderglas Fen.

However, if the fen were to be affected by the mining and dewatering activities on permit IM-340, the provisions of O.R.C. §1514.13 would allow Mr. Vanderglas to address this issue with the operator and the Division.

The Commission also received the testimony of Mr. Verbillion, as to his specific concern that pumping at the quarry - and the discharge of that pumped water - could exacerbate flooding issues that currently exist on his property. It is clear that the flooding of Mud Run which Mr. Verbillion currently experiences is not directly connected to any activities on the permit IM-340 area.

However, the prevention of off-site damage is an important component in Ohio's IM mining law, and off-site damage can take many forms. The evidence did not establish that flooding will increase as a result of mining or dewatering and no actionable claim currently exists relating to potential flooding. However, if increased flooding should occur, this may be a regulatory enforcement issue that Mr. Verbillion would need to address directly with the Division.

10. PERMIT IM-340 PROPERLY IDENTIFIES AND MAPS AREA WATER RESOURCES.

Discussion: O.R.C. §1514.02(A)(12) contains mapping requirements for IM permits, and provides, in part, that such maps:

> (e) Show 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;

In general, Enon met the above-requirement based upon its existing submissions. However, CAM raised an issue about Enon's failure to identify a stream on the Carol Culbertson property. O.A.C. §1501:14-5-01(A) identifies the USGS topographic map as the base map for hydrologic information. The "Culbertson Stream" does not appear on the USGS map for this area. But, clearly this stream **does** exist, and it is located within 500 feet of the permit IM-340 boundary.

Enon's failure to map the unnamed Culbertson Stream does not violate Ohio law. Nor does it invalidate the Division's approval of Enon's permit amendment and modifications.

Significantly, this stream is not reported in other government publications, such as the *Gazetteer of Ohio Streams*. Moreover, the Culbertson Stream is not the type, or size, of watercourse entitled to the protective set-back provisions of O.R.C. §1514.10(E) or (F).

11. PERMIT IM-340, AS RENEWED IN 2008 AND AS AMENDED AND MODIFIED IN 2017, DOES NOT VIOLATE O.R.C. §1514.02(A)(10)(b). THE ZONING REQUIREMENTS OF CHAPTER 1514 ARE ADEQUATELY ADDRESSED IN PERMIT IM-340.

Discussion: O.R.C. §1514.023 specifically states that the Division Chief shall not enforce zoning resolutions or ordinances:

> Nothing in this chapter or rules adopted under it shall be construed to prevent any county, township, or municipal corporation from enacting, adopting, or enforcing zoning resolutions or ordinances. However, the chief of the division of mineral resources management shall not enforce such zoning resolutions or ordinances.

While O.R.C. §1514.02(A)(3) specifically prohibits the Chief from "enforcing" local zoning, the existence of local zoning is not totally irrelevant to the permitting process. Indeed, there are provisions in O.R.C. §1514.02 that **require** a permit applicant to provide information on local zoning during the permitting process.

O.R.C. §1514.02(A)(3) requires permit applicants to identify local zoning resolutions and ordinances in its application, and requires that the applicant explain how it intends to comply with such provisions:

> An application for a surface ... mining permit ... shall contain all of the following:
>
> ***

> (3) 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.

O.R.C. §1514.02(A)(14) requires an applicant to submit a sworn statement that it will comply with applicable zoning resolutions or ordinances:

> An application for a surface ... mining permit ... shall contain all of the following:
>
> ***
>
> (14) A sworn statement by the applicant that, during the term of any permit issued under this chapter or of any renewal of such a permit, the applicant will comply with all applicable zoning resolutions or ordinances that are in effect at the time the application is filed unless the resolutions or ordinances subsequently become invalid during the term of the permit or renewal;

O.R.C. §1514.02(A)(10)(b) requires an applicant to provide a mining plan that includes a statement of the intended future land uses, and that ensures that proposed future land uses will not conflict with a plan of zoning or other comprehensive plans. However, this provision - by its language - does not apply to permitting decisions issued after March 15, 2002.

The evidence revealed that the 2008 renewal of IM-340, at question 14, identifies the local zoning authority in response to O.R.C. §1514.02(A)(3). *(See Division Exhibit, p. 002728, question 14.)* The operator answered the permit application question by providing the name of the local authority.

At hearing, the Division testified that the sworn statement regarding zoning compliance required by O.R.C. §1514.02(A)(14) also satisfies the requirement of O.R.C. §1514.02(A)(3). And, both the 2008 permit renewal, and 2017 amendment, include a sworn statement attesting to zoning compliance. *(See Division Exhibit 4, p. 002740 and Division Exhibit 5, p. 003570.)*

Moreover, as the Commission did not receive any evidence or persuasive argument that Enon's submissions on zoning failed to satisfy the requirements of O.R.C. §1514.02(A)(3) and §1514.02(A)(14), the Commission finds that these requirements have been met.

Finally, regarding the applicability of O.R.C. §1514.02(A)(10)(b), prior to 2002 there was a requirement that a permit applicant provide a mining plan that included a statement of the intended future land uses, which ensured that these land uses would not conflict with a plan of zoning or other comprehensive plan. This requirement was removed in 2002, although it still applied to certain permit applications.

O.R.C. §1514.02(A)(10)(b) consists of a single sentence, containing more than 170 words, and frankly - until the last day of hearing- it was unclear to this Commission as to how the Division actually applied this section of law to permits that existed prior to March 15, 2002.

The Commission is satisfied with the testimony of Deputy Chief David Crow, given on the last day of hearing, which established - for the first time - that the permit renewal in 2008 removed the requirements of O.R.C. §1514.02(A)(10)(b) from permit IM-340.

ORDER

The Commission **FINDS** that Enon has successfully complied with all statutory requirements associated with (1) its amendment to permit IM-340, #A-340-1, which added acreage to the permitted area, (2) its modification to permit IM-340, #IMM-340-4, which increased the depth of mining, allowed dewatering operations and included a ground water model, and (3) its modification to permit IM-340, #IMM-340-5, which revised and updated Enon's blasting plan for the permit IM-340 area. **WHEREFORE,** the Commission **FINDS** that the Chief's decisions reflected in #A-340-1, #IMM-340-4 and #IMM-340-5, and which represent an amendment to and two modifications of Enon Sand & Gravel's permit IM-340, are hereby **AFFIRMED** in full.

7/25/18
DATE

SEAN A. McCARTER
Chairman, Reclamation Commission

INSTRUCTIONS FOR APPEAL

This decision may be appealed to the Court of Common Pleas, within thirty days of its issuance, in accordance with Ohio Revised Code §1514.09 and §1513.14 and Ohio Administrative Code §1513-3-22. If requested, copies of these sections of the law will be provided to you from the Reclamation Commission at no cost.

DISTRIBUTION:

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BEFORE THE

RECLAMATION COMMISSION

CAM – MAD RIVER TOWNSHIP, *ET AL.*,	:	
	:	Case Nos. RC-17-004 - 006
Appellants,	:	
	:	
-vs-	:	Review of Permit Amendment #A-340-1,
	:	Permit Modification #IMM-340-4 & Permit
DIVISION OF MINERAL RESOURCES MANAGEMENT,	:	Modification #IMM-340-5; Permit IM-340
	:	(Enon Sand & Gravel, LLC)
Appellee,	:	
	:	
and	:	**INDEX OF EVIDENCE**
	:	**PRESENTED AT HEARING**
ENON SAND & GRAVEL, LLC,	:	
	:	
Intervenor.	:	

Before: Sean A. McCarter.

In Attendance: Richard Birt, Koral Clum, George Mizer, Craig Porter, Ray Rummell and Hearing Officer Linda Wilhelm Osterman.

Appearances: James Yskamp, Nathan A. Hunter, Counsel for Appellants CAM – Mad River Township, *et al.*; Brian Ball, Molly Corey, Assistant Attorneys General, Counsel for Appellee Division of Mineral Resources Management; Matthew D. Harper, Brian P. Barger, Sarah E. Stephens, Counsel for Intervenor Enon Sand & Gravel, LLC.

WITNESS INDEX

Appellants' Witnesses:

David Crow	Cross Examination; Direct Examination
Charles D. Swaney	Direct Examination; Cross Examination
Michael Verbillion	Direct Examination; Cross Examination

Appellants' Witnesses (continued):	
Brent E. Huntsman	Direct Examination; Cross Examination; Rebuttal
Richard Gardner	Direct Examination; Cross Examination
Jon Vanderglas	Direct Examination; Cross Examination
Kyle Peterson	Direct Examination; Cross Examination
Carol Culbertson	Direct Examination; Cross Examination

Appellee's Witnesses:

Mike Mitchell	Direct Examination; Cross Examination
Karl Hildebrand	Direct Examination; Cross Examination
Kelly Barrett	Direct Examination; Cross Examination
Michael J. Mann	Direct Examination; Cross Examination
David Crow	Direct Examination; Cross Examination; Recalled

Intervenor's Witnesses:

Dennis Garrison	Direct Examination; Cross Examination; Rebuttal
Stephen J. Champa	Direct Examination; Cross Examination

EXHIBIT INDEX

Appellants' Exhibits:

Appellants' Exhibit A	Letter from Thomas A. Hale (Clark County Zoning Administrator) to Karl Hildebrand (Division); dated March 6, 2017 (1 page)
Appellants' Exhibit B	OPEN; exhibit not admitted
Appellants' Exhibit C	Surface Mine Permit Amendment A-340-1; effective July 13, 2017 (10 pages)
Appellants' Exhibit D	Amendment Map, Permit IM-340; certified December 6, 2016 (1 oversized page)
Appellants' Exhibit E	Surface Mine Permit Modification IMM-340-4; effective July 13, 2017 (7 pages)
Appellants' Exhibit F	Surface Mine Permit Modification IMM-340-5; effective July 13, 2017 (5 pages)

Appellants' Exhibit G	Evaluation of Groundwater Impacts, Dewatering of Proposed Enon Quarry, Clark County Ohio; prepared for Enon Sand & Gravel by Eagon & Associates, Inc.; dated October 2016 (81 pages, including oversized pages, which were also presented as oversized exhibit boards)
Appellants' Exhibit H	OPEN; exhibit not admitted
Appellants' Exhibit I	OPEN; exhibit not admitted
Appellants' Exhibit J	Letter from Stephen J. Champa (Eagon & Associates, Inc.) to Kelly Barrett (Division); dated June 12, 2017 (3 pages)
Appellants' Exhibit K	Letter from Kelly Barrett (Division) to Cory Kiser (Melvin Stone Company); dated November 21, 2016 (1 page)
Appellants' Exhibit L	Map 12, Model Drawdown – Phase I Quarry Dewatering (1 oversized page)
Appellants' Exhibit M	Map 13, Model Drawdown – Phase II Quarry Dewatering (1 oversized page)
Appellants' Exhibit N	Surface Mine Renewal Permit IMR-0340-3, effective April 25, 2007 (signed February 28, 2008); Surface Mine Renewal Permit IM-340, effective April 27, 1997 (signed April 29, 1997); Surface Mine Renewal Permit IM-340, effective April 26, 1987 (signed May 18, 1988) (58 pages)
Appellants' Exhibit O	OPEN
Appellants' Exhibit P	OPEN
Appellants' Exhibit Q	Hydrologeologic [sic] Study of Demmy Quarry Site South Tecumseh Road, Springfield Ohio, prepared by Bowser Morner for Demmy Construction Inc.; dated April 23, 2009 (38 pages)
Appellants' Exhibit R	OPEN
Appellants' Exhibit S	OPEN
Appellants' Exhibit T	Petition of Citizens Against Mining, Mad River Township; dated April 18, 2017 (5 pages)

Appellants' Exhibit U	*Curriculum Vitae*, Brent E. Huntsman, President & Principal Hydrogeologist Terran Corporation (29 pages)
Appellants' Exhibit V	Letter from Brent E. Huntsman (Terran Corporation) to Division Chief Lanny E. Erdos; dated May 15, 2017 (12 pages)
Appellants' Exhibit W	Letter & Expert Report by Brent E. Huntsman (Terran Corporation) to Appellants' Attorney James Yskamp; dated February 1, 2018 (23 pages)
Appellants' Exhibit X	Information on 65 wells (1 page)
Appellants' Exhibit Y	ASTM, Designation: D5979 - 96 (reapproved 2008) (8 pages)
Appellants' Exhibit Z	ASTM, Designation: D5447 - 04 (reapproved 2010) (7 pages)
Appellants' Exhibit AA	ASTM, Designation: D5717 - 95 (approved 1995, revised 1998) (18 pages)
Appellants' Exhibit BB	ASTM, Designation: D5981 - 96 (reapproved 2008) (6 pages)
Appellants' Exhibit CC	Fourteen Photographs, geologic features in the general area of permit IM-340 (7 pages)
Appellants' Exhibit DD	Karst of Springfield Ohio, by Douglas J. Aden with Dean R. Martin (Ohio Division of Geological Survey); Open-File Report 2012-2; dated 2012 (6 pages)
Appellants' Exhibit EE	Clark County Karst Investigation (Ohio EPA); dated July 2007 (28 pages)
Appellants' Exhibit FF	Surface Water Impacts on Ground Water Quality in a Shallow Limestone and Dolomite Bedrock Aquifer, Clark County Ohio (The Professional Geologist); dated March 1999 (5 pages)
Appellants' Exhibit GG	OPEN
Appellants' Exhibit HH	OPEN
Appellants' Exhibit II	2008 305(b) Report, Ohio's Ground Water Quality (Ohio EPA); dated December 2008 (23 pages)

Appellants' Exhibit JJ	Letter from Kelly Barrett (Division) to Brent E. Huntsman (Terran Corporation); dated June 19, 2017 (14 pages)
Appellants' Exhibit KK	OPEN
Appellants' Exhibit LL	Fifteen Photographs, Culbertson property (15 pages)
Appellants' Exhibit MM	Carol Culbertson - Wetland Determination (United States Department of Agriculture); dated April 6, 2017 (5 pages)
Appellants' Exhibit NN	E-Mail Communication, Carol Culbertson to Division Chief Lanny E. Erdos; dated April 19, 2017 (1 page)
Appellants' Exhibit OO	Well Log and Drilling Report 871190; completion date August 7, 1998 (1 page)
Appellants' Exhibit PP	Letter from Carol Culbertson and Jon Vanderglas to Division Chief Lanny E. Erdos; dated April 30, 2017 (2 pages)
Appellants' Exhibit QQ	Vanderglos [sic] Fen - Species List; survey date August 9, 2017 (4 pages)
Appellants' Exhibit RR	Deed of Conservation Easement, Vanderglas property; filed December 30, 2010 (7 pages)
Appellants' Exhibit SS	Letter Jolyn Verbillion to Division Chief Lanny E. Erdos; dated March 29, 2017 (2 pages)
Appellants' Exhibit TT	Well Log and Drilling Report 1012451; completion date October 6, 2009 (1 page)
Appellants' Exhibit UU	Eight Photographs, Verbillion property (4 pages)
Appellants' Exhibit VV	National Wetlands Inventory, Wetland Map; dated January 11, 2018 (1 page)
Appellants' Exhibit WW	E-Mail Communications between Kyle Peterson and Douglas Aden (Ohio Division of Geological Survey), December 22, 2017 to January 23, 2018 (2 pages)

Appellants' Exhibit XX	Letter from Charles A. Patterson (Clark County Health Commissioner) to Karl Hildebrand (Division); dated March 1, 2017 (2 pages)
Appellants' Exhibit YY	Letter from Craig Smith (OEPA) to Karl Hildebrand (Division); dated March 9, 2017 (5 pages)
Appellants' Exhibit ZZ	OPEN
Appellants' Exhibit AAA	OPEN
Appellants' Exhibit BBB	OPEN
Appellants' Exhibit CCC	OPEN
Appellants' Exhibit DDD	OPEN
Appellants' Exhibit EEE	OPEN
Appellants' Exhibit FFF	Intervenor Enon Sand & Gravel, LLC's Objections and Responses to Appellants' First Set of Discovery Requests; dated November 20, 2017 (32 pages)
Appellants' Exhibit GGG	Appellee Ohio Department of Natural Resources, Division of Mineral Resources Management's Objections and Responses to Appellants' First Set of Requests for Admission, Interrogatories, and Requests for Production of Documents; dated November 9, 2017 (33 pages)
Appellants' Exhibit HHH	OPEN; exhibit not admitted
Appellants' Exhibit III	OPEN; exhibit not admitted
Appellants' Exhibit JJJ	Operator's Guidelines for Completing a Surface Industrial Mineral Mining Permit Application; Division of Mineral Resources Management (13 pages)
Appellants' Exhibit KKK	OPEN
Appellants' Exhibit LLL	Ground Water Pollution Potential of Clark County Ohio; by Joel D. Vormelker, Michael Angle, Wayne Jones (Ohio Division of Water); dated March 1995 (140 pages)

Appellants' Exhibit MMM	Well Log and Drilling Report 895519; completion date August 15, 1999 (1 page)
Appellants' Exhibit NNN	Well Log and Drilling Report 771225; completion date June 24, 1993 (1 page)
Appellants' Exhibit OOO	Well Log and Drilling Report 772970; completion date August 24, 1993 (1 page)
Appellants' Demonstrative 1	Drawing by Brent E. Huntsman (Terran Corporation) drawn on April 4, 2018 (1 oversized sheet); **not admitted as an exhibit**
Appellants' Demonstrative 2	Drawing by Brent E. Huntsman (Terran Corporation) drawn on April 4, 2018 (1 oversized sheet); **not admitted as an exhibit**

Appellee's Exhibits:

Appellee's Exhibit 1	Agenda, Special Work Session of Mad River Township Trustees, Greenon High School; March 27, 2017 (1 page)
Appellee's Exhibit 2	ODNR - Division of Mineral Resources Management, Informal Conference (28 pages)
Appellee's Exhibit 3	Surface Mine Renewal Permit, IM-340, effective April 27, 1997 (signed April 29, 1997) (21 pages)
Appellee's Exhibit 4	Surface Mine Renewal Permit, IMR-0340-3, effective April 25, 2007 (signed February 28, 2008) (26 pages)
Appellee's Exhibit 5	Surface Mine Permit Amendment A-340-1; effective July 13, 2017 (10 pages)
Appellee's Exhibit 6	Letter from David M. Crow, Deputy Division Chief to Thomas A. Hale, Zoning Administrator; dated March 22, 2017 (2 pages)
Appellee's Exhibit 7	Memorandum of Understanding between Division of Water and Division of Mineral Resource [sic] Management; dated November 7, 2006 (2 pages)

Appellee's Exhibit 8	Request to Modify IMM-340-1; approved August 22, 2005 (6 pages)
Appellee's Exhibit 9	Request to Modify IMM-340-4; approved July 13, 2017 (7 pages)
Appellee's Exhibit 10	Checklist to Submit a Ground-Water Modeling Report for ODNR to Review (8 pages)
Appellee's Exhibit 11	Checklist to Submit a Ground-Water Modeling Report for ODNR to Review, completed for permit IM-340 (8 pages)
Appellee's Exhibit 12	Division's Internal Timeline Sheet (1 page)
Appellee's Exhibit 13	Evaluation of Groundwater Impacts, Dewatering of Proposed Enon Quarry; prepared for Enon Sand & Gravel by Eagon & Associates, Inc; dated October 2016 (42 pages)
Appellee's Exhibit 14	Letter from Kelly Barrett (Division) to Cory Kiser (Melvin Stone Company); dated November 8, 2016 (1 page)
Appellee's Exhibit 15	Letter from Stephen J. Champa (Eagon & Associates, Inc.) to Kelly Barrett (Division); dated November 16, 2016 (3 pages)
Appellee's Exhibit 16	Letter from Kelly Barrett (Division) to Cory Kiser (Melvin Stone Company); dated November 21, 2016 (1 page)
Appellee's Exhibit 17	Letter from Charles A. Patterson (Clark County Health Commissioner) to Karl Hildebrand (Division); dated March 1, 2017 (2 pages)
Appellee's Exhibit 18	Slideshow, Enon Sand & Gravel (7 pages)
Appellee's Exhibit 19	E-Mail Communications between Stephen Champa (Eagon & Associates, Inc.) and Kelly Barrett (Division), dated May 30, 2017 (1 page)
Appellee's Exhibit 20	Letter from Brent E. Huntsman (Terran Corporation) to Division Chief Lanny E. Erdos; dated May 15, 2017 (12 pages)
Appellee's Exhibit 21	Letter from Stephen Champa (Eagon & Associates, Inc.) to Brent E. Huntsman (Terran Corporation); dated June 19, 2017 (14 pages)

Appellee's Exhibit 22	Evaluation of Groundwater Impacts, Dewatering of Proposed Enon Quarry, Clark County Ohio; prepared for Enon Sand & Gravel by Eagon & Associates, Inc.; dated October 2016 (53 pages)
Appellee's Exhibit 23	*Curriculum Vitae*, Brent E. Huntsman, President & Principal Hydrogeologist Terran Corporation (29 pages)
Appellee's Exhibit 24	Letter & Expert Report by Brent E. Huntsman (Terran Corporation) to Appellants' Attorney James Yskamp; dated February 1, 2018 (23 pages)
Appellee's Exhibit 25	Division Inspection Reports from February 27, 2017, October 27, 2016, June 13, 2016, March 16, 2016, January 6, 2016 and June 4, 2015, permit IM-340 (8 pages)
Appellee's Exhibit 26	Surface Mine Permit IM-375; issued June 6, 1977 (4 pages)
Appellee's Exhibit 27	Surface Mine Permit IM-340; issued April 27, 1977 (13 pages)
Appellee's Exhibit 28	Surface Mine Permit Modification IMM-0340-3; approved July 30, 2009 (41 pages)
Appellee's Exhibit 29	Map, Operations Plan; dated March 2009 (1 page)
Appellee's Exhibit 30	Division Field Evaluation Checklist, A-340-1; dated January 10, 2017 (14 pages)
Appellee's Exhibit 31	Division's Additional Checklist, directed to Cory Kiser (Enon Sand & Gravel); dated November 29, 2016 (2 pages)
Appellee's Exhibit 32	Industrial Minerals Checklist, Application A-340-1, with provided dates (1 page)
Appellee's Exhibit 33	Hydric Rating by Map Unit - Clark County Ohio with Legend and Description; dated November 2, 2016 (6 pages)
Appellee's Exhibit 34	National Wetlands Inventory Map, for A-340 (1 page)

Appellee's Exhibit 35	Division's Notification to Applicant Enon Sand & Gravel, LLC and Governmental Agencies regarding Application A-340-1, from Karl Hildebrand (Division); dated November 4, 2016 (3 pages)
Appellee's Exhibit 36	Division's Notification to Applicant Enon Sand & Gravel, LLC from Karl Hildebrand (Division); dated November 4, 2016 (1 page)
Appellee's Exhibit 37	Letter from Department of the Army Corps of Engineers to Applicant Enon Sand & Gravel, LLC; dated November 10, 2016 (3 pages)
Appellee's Exhibit 38	Letter from Craig Smith (OEPA) to Karl Hildebrand (Division), regarding Application A-0340-1; dated November 23, 2016 (2 pages)
Appellee's Exhibit 39	Division's Notification to Applicant Enon Sand & Gravel, LLC and Governmental Agencies regarding Modification Application IMM-340-4 from Karl Hildebrand (Division); dated February 7, 2017 (3 pages)
Appellee's Exhibit 40	Letter from Craig Smith (OEPA) to Karl Hildebrand (Division), regarding Modification Application IMM-0340-4; dated March 9, 2017 (5 pages)
Appellee's Exhibit 41	E-Mail Communications between Michael Mann (Division) and Mike Mitchell (Division); dated May 10, 2017 (1 page)
Appellee's Exhibit 42	Request to Modify IMM-340-5; approved July 13, 2017 (5 pages)
Appellee's Exhibit 43	Division Fact Sheet, Blasting in Ohio's Quarries and Surface Coal Mines; revised July 2017 (2 pages)
Appellee's Exhibit 44	Division's Blast Warning & All-Clear Signals and Sign; revised April 22, 2003 (1 page)
Appellee's Exhibit 45	Graph Showing Frequency-Dependent Limits for Ohio Industrial Minerals Permits (1 page)
Appellee's Exhibit 46	Well Log and Drilling Report 871190; completion date August 7, 1998 (1 page)

Intervenor's Exhibits:

Intervenor's Exhibit I	OPEN
Intervenor's Exhibit II	*Curriculum Vitae*, Stephen J. Champa (Eagon & Associates, Inc.) (2 pages)
Intervenor's Exhibit III	OPEN
Intervenor's Exhibit IV	OPEN
Intervenor's Exhibit V	OPEN
Intervenor's Exhibit VI	OPEN
Intervenor's Exhibit VII	OPEN
Intervenor's Exhibit VIII	E-Mail Communications between Michael Mann (Division) and Cory Kiser (Enon Sand & Gravel, LLC); dated between May 10, 2017 and May 11, 2017 (1 page)
Intervenor's Exhibit IX	E-Mail Communications between Kelly Barrett (Division) and Wayne Jones (Division of Water Resources); dated between November 18, 2016 and November 21, 2016 (1 page)
Intervenor's Exhibit X	Surface Mine Permit Transfer from Demmy Construction Inc. to Enon Sand & Gravel, LLC; permit IM-340; approved December 14, 2015 (9 pages)
Intervenor's Exhibit XI	Surface Mine Renewal Permit; permit IM-375, Application IMR-0375-3; approved June, 6, 2008 (41 pages)
Intervenor's Exhibit XII	Surface Mine Permit Transfer from Demmy Sand & Gravel to Enon Sand & Gravel, LLC; permit IM-375; approved December 14, 2015 (26 pages)
Intervenor's Exhibit XIII	Aerial Photograph, Culbertson Well 871190; dated April 17, 2018 (1 page)
Intervenor's Exhibit XIV	Diagram, elevations regarding Culbertson Well and Enon quarry (1 page)

Intervenor's Exhibit XV	Photograph, local surface geology (1 oversized page)
Intervenor's Exhibit XVI	Photograph, local surface geology (1 oversized page)
Intervenor's Exhibit XVII	Cones of Influence Developed in the Silurian-Devonian Aquifer, Maumee River Basin, Ohio (7 pages)
Intervenor's Exhibit XVIII	Appendix A; Water-Well Logs Used on Cross Sections (40 pages)
Intervenor's Exhibit XIX	Appendix C; Copies of ODNR Well Logs (300 pages)