STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT

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In re:	:	
The Matter of the Application of SWN Production Company, LLC for Unit Operation	:	Application Date: June 24, 2025
Rufener E-M Unit	:	

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UNITIZATION APPLICATION HEARING

- - - - -

Before Hearing Host Jeff Large
All Parties Appearing Remotely
August 20, 2025, 9:00 a.m.

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A P P E A R A N C E S

ON BEHALF OF OHIO DEPARTMENT OF NATURAL RESOURCES:

Ohio Department of Natural Resources
2045 Morse Road, Building F-3
Columbus, OH 43229
By Jennifer Barrett, Esq.
(Via videoconference)

ON BEHALF OF SWN PRODUCTION COMPANY, LLC:

Vorys, Sater, Seymour and Pease LLP
52 East Gay Street
Columbus, OH 43216
By Mark Hylton, Esq.
(Via videoconference)

ALSO PRESENT:

Cory Cosby (Via videoconference)
Cynthia Marshall (Via videoconference)
Gray Barghols (Via videoconference)
Charles Nicholson (Via videoconference)
Casey Valentine (Via videoconference)

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P R O C E E D I N G S

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MR. LARGE: All right. Good morning, everyone. Before we begin, I would like to go over some instructions for this video and telephone conference.

If you have joined online, please mute your microphone. If you have called in via phone, please use the "mute" feature of your phone. Once the hearing begins, everyone will be muted except for those presenting. If you have called in, you can unmute yourself by pressing "star 6."

Witnesses for the Applicant and anyone wishing to make comments, please wait to be individually called upon by your attorney or the Division before speaking. Please mute your microphones anytime you are not speaking and when you have finished presenting to avoid any feedback.

I am now asking anyone who would like to make comments, please state your name slowly and clearly for the Division. Please identify whether you are an unleased mineral owner, working

interest owner, or an owner with property in the Rufener E-M unit. I would also like this information from anyone who represents any of these persons. We will make note of your name and call upon you when it is time for comments.

So if you have joined us via WebEx, please unmute yourself now and tell us your name if you would like to make comments.

Hearing none.

If you have joined us via phone, please unmute yourself now by pressing "star 6" and tell us your name if you wish to make any comments.

Hearing none.

Thank you. With that, we will begin the hearing.

Ms. Barrett.

MS. BARRETT: Thank you and good morning. Today is Wednesday, August 20th, 2025. And we are here on the matter of the application of SWN Production Company, LLC, for unit operation of the Rufener E-M unit. This hearing before the Ohio Department of Natural Resources, Division of Oil and Gas Resources Management, is convened pursuant to Ohio Revised Code Section 1509.28.

My name is Jennifer Barrett. And I am an administrative officer for the Division. Also with me today is Program Administrator Jeff Large. We are conducting the hearing today and serve as the Chief's designees on this matter.

On June 24th, 2025, SWN filed with the Division an application for unit operations for a unit designated as the Rufener E-M unit. SWN filed subsequent revisions to the application. The unit is proposed to be located in Monroe County, Ohio. In its application, SWN claims to have the mineral rights through voluntary agreements to approximately 358.324 acres of the desired approximate 512.514-acre unit.

The purpose of today's hearing is to determine whether SWN's Rufener E-M unit application meets all the requirements of Revised Code Section 1509.28. Under that section, the Chief of the Division must issue an order if he determines that the Applicant has shown that, one, the unit is reasonably necessary to increase substantially the ultimate recovery of oil and gas; and two, the estimated additional recovery from the unit exceeds the additional cost.

Neither the Chief nor any of us here today have made any decisions on SWN's application. After today's hearing, we will review all of the information provided to us in order to make a determination. We have a court reporter present as well, and we will have a copy of the transcript of this hearing for review.

The Chief's decision will be issued through a Chief's Order, which will be posted on the Division's website. Pursuant to Revised Code Section 1509.36, any order may be appealed within 30 days after the date upon which the person to whom the order was issued received the order and for all other persons adversely affected by the order within 30 days after the date of the order complained of.

The hearing will proceed as follows: SWN will present its witnesses and exhibits and will answer questions posed by the Division staff. Then any unleased mineral owners, working interest owners, and those persons with property included in the proposed Rufener E-M unit will have the opportunity to present questions and concerns to Division staff. And then the Division staff may

take a break to determine if there are any additional questions for the Applicant.

To proceed in an orderly fashion, we ask that any interested party who speaks here today pose any questions to the Division, and we will then ask any questions to SWN. Additionally, anyone speaking today will be asked to provide their information to the court reporter. If you are uncomfortable speaking during the hearing, we will also accept written comments.

We will now ask the Applicant to make its introductions and begin its presentation.

MR. HYLTON: Thank you, Ms. Barrett.

Good morning, everybody. My name is Mark Hylton. And I'm an attorney with the law firm of Vorys, Sater, Seymour and Pease in its Columbus, Ohio office. And I'm here this morning on behalf of SWN Production Company, LLC, to ask the Division for a unit order authorizing SWN to operate the Rufener E-M unit according to the unit plan that was attached to its application.

SWN has acquired oil and gas leases covering just under 70 percent of the unit acreage and plans to develop the unit by drilling a well

approximately 25,453 feet in completed lateral length from a well pad near the northeast corner of the unit. SWN is requesting a unit order because there are tracts in the unit area that are owned in whole or in part by unleased mineral owners as well as tracts leased to non-consenting working interest owners.

Today you will hear testimony from three witnesses at SWN: First will be Landman Andrew Smith, second will be Geologist Kevin Wolfe, and third will be Reservoir Engineer Michelle Huddleston. Their testimony will establish that SWN meets each of the elements required for a unit order under Revised Code Section 1509.28.

We therefore ask the Division to approve the application and issue the requested unit order for the Rufener E-M unit.

I would like to call our first witness this morning, Andrew Smith.

MR. LARGE: Can we please swear in the witness.

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ANDREW SMITH

being first duly sworn, testifies and says as follows:

DIRECT EXAMINATION

MR. HYLTON:

Q. Hello, Mr. Smith. How are you today?

A. Good morning, Mark.

Q. Before we get into the substance of your testimony, would you first introduce yourself to the Division and share just a bit about your educational and professional background.

A. Sure. I'm Andrew Smith, a landman for SWN Production Company. I'm a 2020 graduate of the University of Oklahoma's Energy Management Program. I also hold a bachelor's degree from the business college. And I have been engaged in land work in the Appalachian Basin since 2021.

Q. Mr. Smith, do you belong to any professional associations?

A. Yes. I am a registered professional landman with the American Association of Professional Landmen, also known as the AAPL.

Q. And could you tell us a bit about what

you do as a landman?
A. Sure. My responsibilities include managing our leasing program here in the state of Ohio, overseeing the abstracting and title review, as well as negotiating the various contracts necessary to form horizontal drilling units.
Q. And are you in charge of overseeing the unitization and development of the Rufener E-M unit?
A. Yes.
Q. With reference to the exhibit that I'm sharing on the screen, could you please tell us a bit about the unit: its size, location, and the development plan?
A. Sure. The Rufener E-M unit is located here in Monroe County. It will contain one Marcellus well and span approximately 512 acres.
Q. How much of the total unit acreage has been leased to SWN?
A. SWN has nearly 70 percent of the acreage controlled.
Q. And have you attempted to enter into an oil and gas lease with the unleased mineral owners in the unit?

A. Yes.
Q. Have you also attempted to enter into an agreement with the two non-consenting working interest owners in the unit?
A. Yes, I have.
Q. Will you continue to attempt to negotiate with these parties after the hearing today?
A. Yes.
Q. And near the northeast corner of the unit there is a gray square, which represents the unit's well pad. Has that pad been built yet?
A. Yes. The Rufener pad has been built.
Q. What gave you the right to build the pad at that location?
A. We have an agreement in place with the surface owner of that pad parcel.
Q. If you were to receive the requested unit order, when do you currently intend to spud this well?
A. We intend to spud in the fourth quarter of this year, 2025.
Q. Thank you, Mr. Smith. Are you familiar with the provisions of the unit plan, including

the operating agreement that was attached as part of the application?

A. Yes, I am.

Q. Under the unit plan, how are the unit's production and expenses proposed to be allocated?

A. They are proposed to be allocated on a surface acre basis.

Q. Is that a typical allocation method in your experience?

A. Yes. That is what I have seen across this entire basin.

Q. And which parties in the unit are obligated to pay those expenses?

A. That would be the participating working interest parties.

Q. I know that the operating agreement has a non-consent penalty for any non-consenting working interest owners with interest in the unit. Could you tell us what that penalty is?

A. Sure. The penalty is 500 percent.

Q. Do you believe 500 percent is a reasonable non-consent penalty?

A. I do. That number is consistent with voluntary agreements in this area and that I have

seen across multiple areas in the Appalachian Basin.

Q. Thank you very much, Mr. Smith.

MR. HYLTON: I have no further questions for you at this time.

MR. LARGE: Thank you.

Could you tell me what efforts you have taken to identify unknown or undetermined mineral owners?

THE WITNESS: Sure. We utilize online resources to obtain last known addresses as well as phone numbers. And also search the county records here in Monroe and the surrounding counties to potentially reach these individuals.

MR. LARGE: Okay. And if you were to receive a unitization order, can you describe what happens to any payments that would be owed to unknown or undetermined mineral owners under that order?

THE WITNESS: Sure. Those payments would all be held in a suspense account, also known as an escrow account.

MR. LARGE: Thank you.

Ms. Barrett, do you have any questions?

MS. BARRETT: Yes, I do.

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CROSS-EXAMINATION

BY MS. BARRETT:

Q. When would you release the payments in the suspense account?

A. We would release those payments once the individuals establish record and marketable title.

Q. Okay. Could you please provide your current average outstanding offer to the unleased mineral owners in the proposed unit?

A. Sure. Our average outstanding offer is currently $2,000 per acre and 18 percent royalty.

Q. Is that average royalty based on a net or gross amount?

A. That is a mix that is typically negotiable.

Q. And do those offers include surface use?

A. That is a mix as well. Some outstanding do, and some outstanding do not.

Q. When do those offers expire?

A. We will have to expire these offers at

some point in the future, likely, once we need to establish the unit for production royalties and finances.

Q. Could you please provide the average offer accepted by the leased mineral owners in the proposed unit?

A. Sure. The average offer accepted in this unit here was $4,174 per acre and a 17.5 percent royalty.

Q. Can you please explain the difference between the current offer and the average offer that was accepted?

A. Sure. The average offer accepted was a little higher on the bonus and slightly lower on the royalty. And I think that the original terms accepted contained a longer lease term, and our current offer does not. It's typically a two-to-three-year term here once we have determined that drilling is imminent, and we don't need as much term to pay for.

Q. And do you believe your lease attempts have been reasonable?

A. Yes, I do.

Q. Can you explain why?

A. Sure. I think our contact log explains it more in depth. But there is, I believe, less than one-half of a percent of individuals in this -- interest in this unit that are unleased. So the vast majority of these owners have signed leases.

Q. Okay. And will you continue attempts to lease the unleased mineral owners even after a unitization order is issued, if one is issued?

A. Yes, absolutely.

Q. Thank you. Do you believe your attempts to commit the non-consenting working interest owners have been reasonable?

A. Yes, I do.

Q. And can you explain why?

A. Sure. We have, actually, a verbal agreement in place with one of the parties and are working with the other.

Q. Okay. Will you continue your attempts to commit the non-consenting working interest owners after today's hearing?

A. Yes.

Q. Okay. And do the leases in the unit authorize drilling into and producing from the

proposed unitized formations?
A. Yes, they do.
Q. To establish bonus and royalty amounts in leases, how are those generally determined?
A. It generally starts off with, you know, an economic analysis of the area. But it's ultimately determined by the free market and what the lessor and lessee are willing to agree to.
Q. Okay. And then I just wanted to add for purposes of the record, the Division received written comments from Joe Hughes and Edward Clyde Crouch III. These comments have been included as part of the record for the Rufener E-M unit application. Do you have any -- do you want to make any response to those comments that were filed?
A. Not at this time.
Q. Okay. Thank you.
MS. BARRETT: No further questions for me.
MR. LARGE: Thank you.
Mr. Hylton, please call your next witness.
MR. HYLTON: Thank you, Mr. Large.

Our next witness is Kevin Wolfe.

MR. LARGE: And can you please swear in the witness.

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KEVIN WOLFE

being first duly sworn, testifies and says as follows:

DIRECT EXAMINATION

BY MR. HYLTON:

Q. Good morning, Mr. Wolfe. How are you?

A. Good morning. I'm doing well. How about yourself?

Q. Great, thank you. Could you please introduce yourself to the panel and tell us about your educational and professional background.

A. Yeah. So my name is Kevin Wolfe. I'm a staff geologist with Expand Energy, representing SWN Production Company. I hold a bachelor's in geology from the College of Wooster and a master's in geology from the University of Illinois, Urbana-Champaign.

I have worked for oil and gas operators since 2008, primarily in the Appalachian Basin. But I also have experience in the Rockies,

Permian, and South Texas area.

Q. Are you a member of any professional associations?

A. I am a member of the American Association of Petroleum Geologists and the Houston Geological Society.

Q. Would you tell us about your role at SWN and some of your general day-to-day job responsibilities?

A. Yeah. So I'm responsible for evaluating and predicting the subsurface conditions for the horizontal portions of our wellbore, along with the formations that we are going to encounter on the way to our target formations. I do this through geologic mapping, looking at offsetting well logs, and evaluating core data and whatnot.

Q. And would you please tell us what subsurface depths are included in the proposed unitized formation for the Rufener E-M unit?

A. So we are proposing from the top of the Middlesex to the top of the Onondaga, which includes the Marcellus, Geneseo, and Middlesex formations.

Q. And how would you define the term "pool"?
A. It's a continuous accumulation of hydrocarbons within a reservoir.
Q. Mr. Wolfe, you completed a subsurface evaluation for the Rufener E-M unit in preparation for the application and the hearing today; is that correct?
A. Yes, I have.
Q. Would you walk us through, just at a high level, what sort of information was included in that evaluation?
A. Yeah. So I start off by reviewing offsetting vertical penetrations through the formations of interest, looking at the structure and lithologic changes. I then compare that to core data to create a petrophysical model to be able to propagate the reservoir properties throughout the area.

In addition, I look at the offsetting horizontal wells drilled within the same formation, just to give us a gauge as far as what we should expect while drilling these horizontals.
Q. Mr. Wolfe, the unitization application

includes two exhibits that are directly related to the geology underneath the Rufener E-M unit. And I would like to go through both of those, really just showing the exhibit on the screen and having you tell us what the exhibit is showing. So I would like to start first with Exhibit F, and I will turn things over to you.

A. Okay. Exhibit F displays a black rectangle, that is the Rufener E-M unit. It is displayed between two blue points that are labeled, that are the offsetting-type logs that I referenced in this evaluation. And then the line in between is indicating the cross-section that we are going to flip to in the next exhibit.

Q. Let's turn to that cross-section, and I will hand things back over to you to tell us what we are looking at here. And if you would also tell us what sort of conclusions you are able to draw from this information.

A. So displayed here is a subset of the logs from the wells on the previous exhibit. We are displaying three tracts that give us an indication of what to be expecting in the Rufener E-M unit.

On the far left in green is the gamma ray, which is the natural radioactivity of the rocks. We utilize that for indications of lithology and how that changes over the area. On the far right in black is porosity, which tells us how much space is contained within each of the given formations. And then in blue in the middle is resistivity, which is a proxy for hydrocarbons when there is porosity present.

In addition, I've highlighted in blue what I have picked as the top of the Middlesex. And then the gold line is indicating the top of the Geneseo. The red line is indicating the top of the Marcellus. And then, the purple line is the top of the Onondaga, which is the base of our proposed unit.

Q. Based on what you are seeing in these logs and really everything else you looked at during your subsurface evaluation, do you believe the proposed unitized formation underneath the Rufener E-M unit is a pool or part of a larger pool?

A. Yes.

Q. And do these subsurface characteristics

that you are seeing in your evaluation support the use of that surface acreage allocation of unit production and expenses that Mr. Smith talked about earlier?

A. Yes.

Q. And, Mr. Wolfe, do you believe the 500 percent non-consent penalty in the operating agreement is reasonable?

A. Yes, I do. And part of that is just because there is quite a bit of risk associated with the horizontal drilling of wells, particularly in the Marcellus, where you can encounter issues such as heaving shales, where large cuttings can enter the wellbore due to instability that occurs due to the natural fracturing of the Marcellus.

We do our best to try to mitigate those issues. But there is definitely a risk associated with drilling these wells. And we feel it is appropriate for the parties that are going to benefit financially as working interest partners to bear that risk equally.

Q. Thank you very much, Mr. Wolfe.

MR. HYLTON: Nothing further for me at

this time.

MR. LARGE: Thank you.

Ms. Barrett, do you have any questions?

MS. BARRETT: Yes, I do.

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CROSS-EXAMINATION

BY MS. BARRETT:

Q. What is the anticipated true vertical depth of the horizontal portion of the wellbore?

A. I'm estimating at the surface hole location, the target zone would be at 5,792 feet TVD.

Q. Okay. And what is the height of your target zone?

A. The actual portion that we try to keep our horizontal well in is about ten feet thick.

Q. Okay. Could you please provide the anticipated true vertical depth of the top of each of the formations displayed on Exhibit E, please?

A. Sure. So at the surface hole location, I anticipate encountering the Middlesex around 5,643 feet TVD; the Geneseo around 5,717 feet TVD; the Marcellus around 5,740 feet TVD; and then, while we will not encounter it, the Onondaga would

be anticipated around 5,802 feet TVD.
Q. And could you please list the formations that you expect production from?
A. I anticipate that we will produce hydrocarbons from the Middlesex, Geneseo, and Marcellus.
Q. Okay. Thank you.
MS. BARRETT: No further questions for me.
MR. LARGE: Thank you.
Mr. Hylton, please call your next witness.
MR. HYLTON: Thank you, Mr. Large.
Our last witness this morning is Michelle Huddleston.
MR. LARGE: And can we please swear in the witness.

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MICHELLE HUDDLESTON

being first duly sworn, testifies and says as follows:

DIRECT EXAMINATION

BY MR. HYLTON:
Q. Good morning, Ms. Huddleston. How are

you today?
A. Good morning. Good, thank you.
Q. Would you please introduce yourself to the Division and describe your educational and professional background.
A. Yes. My name is Michelle Huddleston. I'm a staff reservoir engineer at SWN Production Company. I received my bachelor's degree in petroleum engineering from Texas A&M University. I have 13 years of experience in oil and gas, all unconventional reservoirs, and 11 of those years in reservoir engineering.
Q. Are you a member of any professional associations?
A. Yes. The Society of Petroleum Engineers.
Q. What are some of the typical tasks that you do as a reservoir engineer?
A. I am responsible for the development planning and economic evaluations of Marcellus and Utica wells in Ohio state.

I evaluate ultimate recoveries of future wells and also maintain forecasts for existing producing wells.

Q. Did you forecast well performance for the well in the proposed Rufener E-M unit?
A. Yes.
Q. And was that for both a unitized operating scenario and a non-unitized operating scenario?
A. Yes.
Q. Could you tell us a little bit about that forecasting process?
A. Yes. I used production data from nearby wells to create a type curve for the area on a per lateral basis to estimate ultimate recoveries. And then used that type curve for each lateral length scenario in question.
Q. Ms. Huddleston, I would like to go into the details of your well forecast here. So I'm sharing the economics exhibit to the application. And I would like to start with the top box, which represents the unitized operating scenario. So could you please tell us what recovery you expect under the unitized operating scenario?
A. 20.6 BCFe.
Q. And going to the table below, how much recovery do you expect in that non-unitized

operating scenario?
A. Zero.
Q. So the difference in recovery then between the two operating scenarios is that 20.6 BCFe figure you mentioned?
A. That's right.
Q. And do you believe 20.6 BCFe is a substantial amount of production?
A. Yes, I do.
Q. Is the unit order then reasonably necessary to substantially increase the ultimate recovery from this unit?
A. Yes, it is.
Q. And you can look at either the top table or the bottom table; the information is the same. But could you tell us what the expected monetary value of that 20.6 BCFe is?
A. $17.8 million is the PV10 value.
Q. So with that rather large positive PV10 value, does the value of the additional recovery obtained due to the issuance of a unit order exceed the estimated additional cost needed to produce it?
A. Yes.

Q. Thank you, Ms. Huddleston. And my last question is, do you believe that the 500 percent non-consent penalty in the operating agreement is reasonable?

A. Yes. Adding to what Mr. Wolfe described about capital risks, other risks that the working interest parties must bear is a commodity price risk as well as a well performance risk.

Q. Thank you very much, Ms. Huddleston.

MR. HYLTON: Nothing further for me.

MR. LARGE: Hi. Could you let me know the estimated economic life of the well in years?

THE WITNESS: Yes. 68 years.

MR. LARGE: And what price was used in your economic calculations?

THE WITNESS: April 30th, 2025 strip pricing.

MR. LARGE: And could you tell me the estimated payout of the well at 1 times, 1.5 times, 2 times, and 3 times?

THE WITNESS: 1 time is 3 years; 1.5 times is 4.5 years; 2 times is 7 years; and 3 times is 16 years.

MR. LARGE: Okay. And how many total wells will be drilled from this pad?

THE WITNESS: Four wells on this trip. There are eight existing wells on the pad.

MR. LARGE: Okay.

Ms. Barrett, do you have any questions?

MS. BARRETT: Yes, I do.

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CROSS-EXAMINATION

BY MS. BARRETT:

Q. Were there any simultaneous operations costs factored into the existing wells?

A. No. Those costs would be -- shut-in costs would be applied to the existing wells on the pad.

Q. Okay. It sounded like the pad was built. Did you use actual pad costs in your calculations?

A. No. Since the pad was already built, those costs were burdened with the original for the -- on the original eight wells.

Q. Okay. So there were no pad costs included?

A. Correct.

Q. Okay. What amount was included for plugging and restoration costs in your calculations per well?
A. $250,000 per well.
Q. What is the estimated BCFe per 1,000 feet?
A. 0.81 BCFe per 1,000 feet.
Q. What is the estimated recovery factor in the area?
A. 30 to 35 percent.
Q. And how did you land on the 68-year economic life for the well?
A. Yeah. So the economic life is calculated when the revenue of the well no longer exceeds the cost to produce the well.
Q. Okay. Thank you.
MS. BARRETT: No further questions from me.
THE WITNESS: Thank you.
MR. LARGE: Thank you.
Once again, if you would like to make comments, I'm first going to take all of your names and note whether you are an unleased mineral owner, working interest owner, or an owner with

property in the unit.

Only one person may speak at a time to properly record the hearing. And please mute your microphone once you have delivered your comments or questions to avoid any feedback. Additionally, anyone speaking today will be asked to provide their information to the court reporter. If you are uncomfortable speaking during the hearing, we will also accept written comments.

So if you have joined us via WebEx, please unmute yourself now and state your name.

Hearing none.

If you have joined us via phone and would like to make comments, please unmute yourself by pressing "star 6" and state your name.

Hearing none.

Ms. Barrett, do you have any additional questions for the Applicant?

MS. BARRETT: No, I do not. Thank you.

MR. LARGE: And does the Applicant have any closing remarks?

MR. HYLTON: We do not. We appreciate your time this morning.

MR. LARGE: Thank you.

With that, the hearing is now concluded.

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Thereupon, the foregoing proceedings concluded at 9:33 a.m.

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State of Ohio : C E R T I F I C A T E
County of Franklin: SS

I, Bridget Mary Hoye, a Notary Public in and for the State of Ohio, do hereby certify that I transcribed or supervised the transcription of the audio recording of the aforementioned proceedings; that the foregoing is a true record of the proceedings.

I do further certify I am not a relative, employee or attorney of any of the parties hereto, and further I am not a relative or employee of any attorney or counsel employed by the parties hereto, or financially interested in the action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Columbus, Ohio, on September 10, 2025.



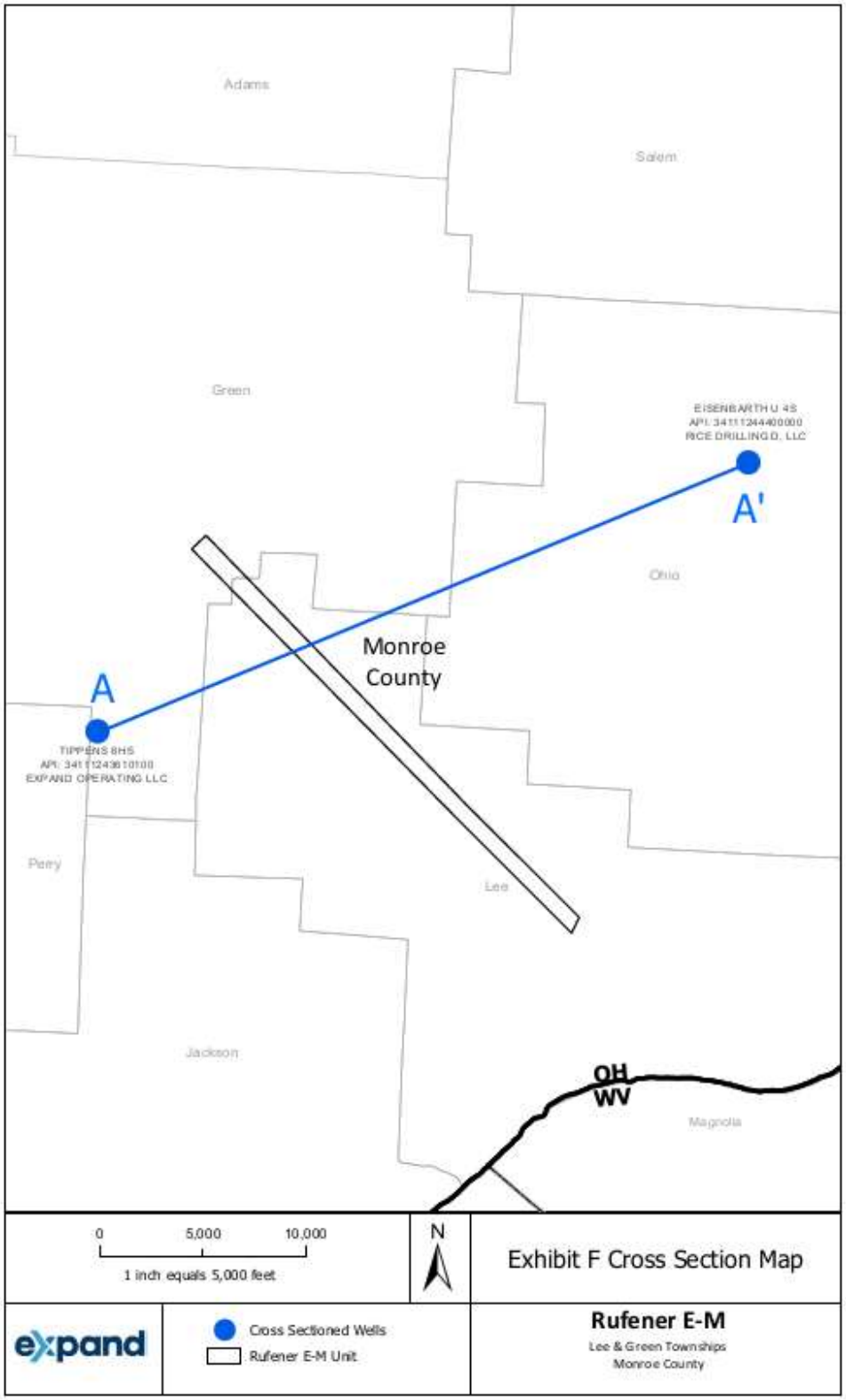
Bridget Mary Hoye, Notary Public - State of Ohio
My commission expires April 14, 2030.

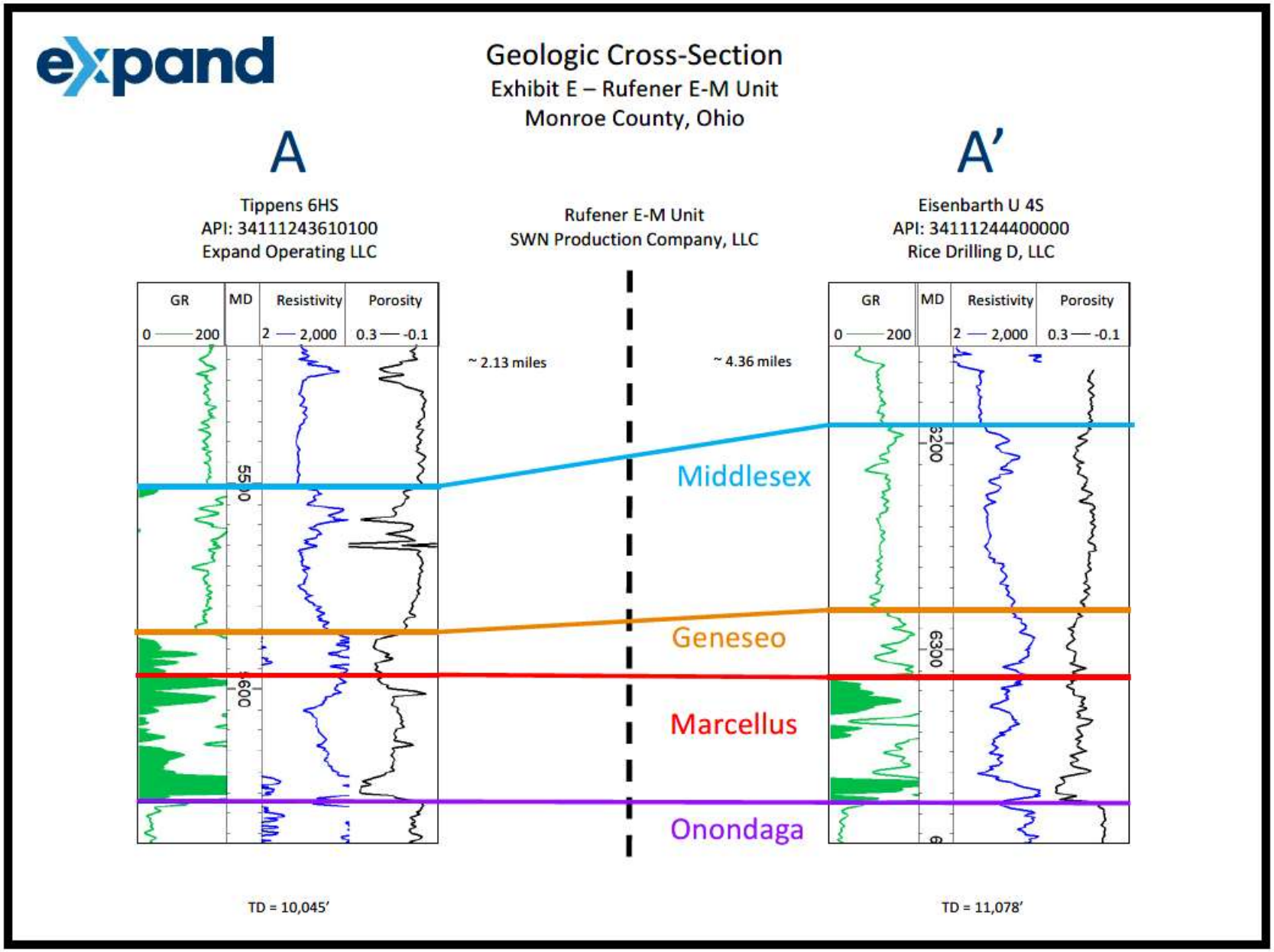
Vorys, Sater, Seymour and Pease LLP
Greg D. Russell, Mark A. Hylton, and Casey N. Valentine
Attorneys for Applicant

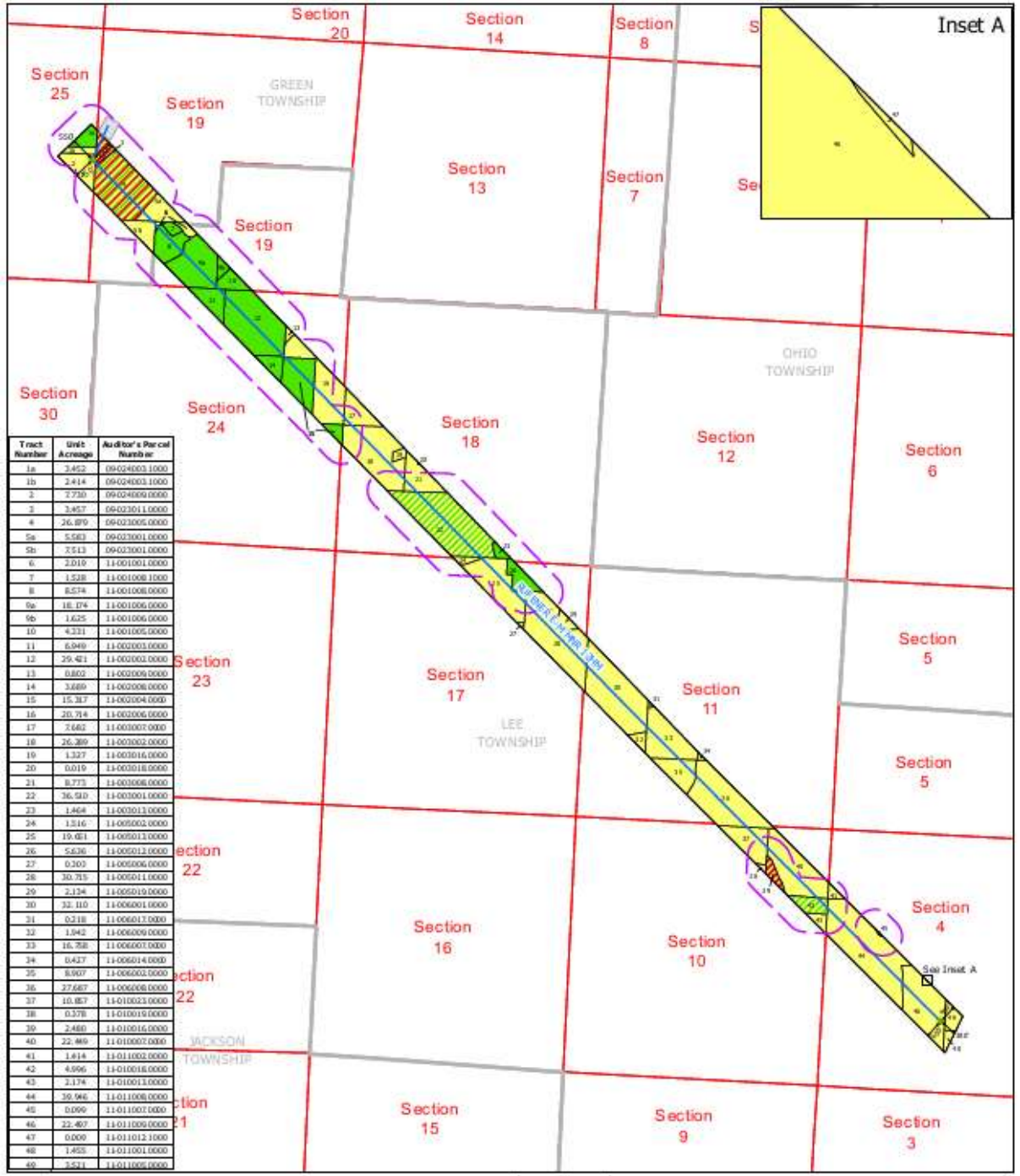
SWN PRODUCTION COMPANY, LLC

RUFENER E-M UNIT

Application for Unit Operations


Adams
Salem
Green
EISENBARTH U 4S
API: 34111244400000
RICE DRILLING D, LLC
A'
Ohio
Monroe
County
A
TIPPENS 8HS
API: 34111243610100
EXPAND OPERATING LLC
Perry
Lee
Jackson
OH
WV
Magnolia
0
5,000
10,000
1 inch equals 5,000 feet
N
Exhibit F Cross Section Map
Cross Sectioned Wells
Rufener E-M Unit
Rufener E-M
Lee & Green Townships
Monroe County


Geologic Cross-Section
Exhibit E – Rufener E-M Unit
Monroe County, Ohio
A
A'
Tippens 6HS
API: 34111243610100
Expand Operating LLC
Rufener E-M Unit
SWN Production Company, LLC
Eisenbarth U 4S
API: 34111244400000
Rice Drilling D, LLC
GR
MD
Resistivity
Porosity
0 — 200
2 — 2,000
0.3 — -0.1
~ 2.13 miles
~ 4.36 miles
5500
6200
6300
Middlesex
Geneseo
Marcellus
Onondaga
TD = 10,045'
TD = 11,078'



Tract Number	Unit Acreage	Auditor's Parcel Number
1a	3.452	09-024003.1000
1b	2.414	09-024003.1000
2	7.730	09-024009.0000
3	3.457	09-023011.0000
4	26.879	09-023005.0000
5a	5.583	09-023001.0000
5b	7.513	09-023001.0000
6	2.019	11-001001.0000
7	1.538	11-001008.1000
8	8.574	11-001008.0000
9a	16.174	11-001006.0000
9b	1.625	11-001006.0000
10	4.331	11-001005.0000
11	6.949	11-002003.0000
12	29.421	11-002002.0000
13	0.802	11-002009.0000
14	3.689	11-002008.0000
15	15.317	11-002004.0000
16	20.714	11-002006.0000
17	7.682	11-003007.0000
18	26.389	11-003002.0000
19	1.327	11-003016.0000
20	0.019	11-003018.0000
21	8.773	11-003008.0000
22	36.510	11-003001.0000
23	1.464	11-003013.0000
24	1.316	11-005002.0000
25	19.651	11-005013.0000
26	5.636	11-005012.0000
27	0.203	11-005006.0000
28	30.715	11-005011.0000
29	2.134	11-005019.0000
30	32.110	11-006001.0000
31	0.218	11-006017.0000
32	1.042	11-006009.0000
33	16.758	11-006007.0000
34	0.427	11-006014.0000
35	8.907	11-006002.0000
36	27.667	11-006008.0000
37	10.857	11-010023.0000
38	0.378	11-010019.0000
39	2.480	11-010016.0000
40	22.469	11-010007.0000
41	1.414	11-011002.0000
42	4.996	11-010018.0000
43	2.174	11-010013.0000
44	39.946	11-011008.0000
45	0.099	11-011007.0000
46	22.467	11-011009.0000
47	0.000	11-011012.1000
48	1.455	11-011001.0000
49	3.511	11-011005.0000

0 2,500 5,000 Feet 1 inch = 2,600 feet

- Wellbore
- Perforation
- 400 Ft Buffer
- Unit Boundary
- Well Pad
- Consenting
- Partial Consenting/Partial Non-Consenting
- Partial Consenting/Partial Unleased
- Partial Consenting/Partial Unleased/Partial Non-Consenting
- Non-Consenting

EXHIBIT D
Rufener E-M Unit
Unit Size: 512.514 Acres

Green and Lee Townships, Monroe County OH

Section 5. Economic Calculation Summaries *Required*

Unitized Scenario

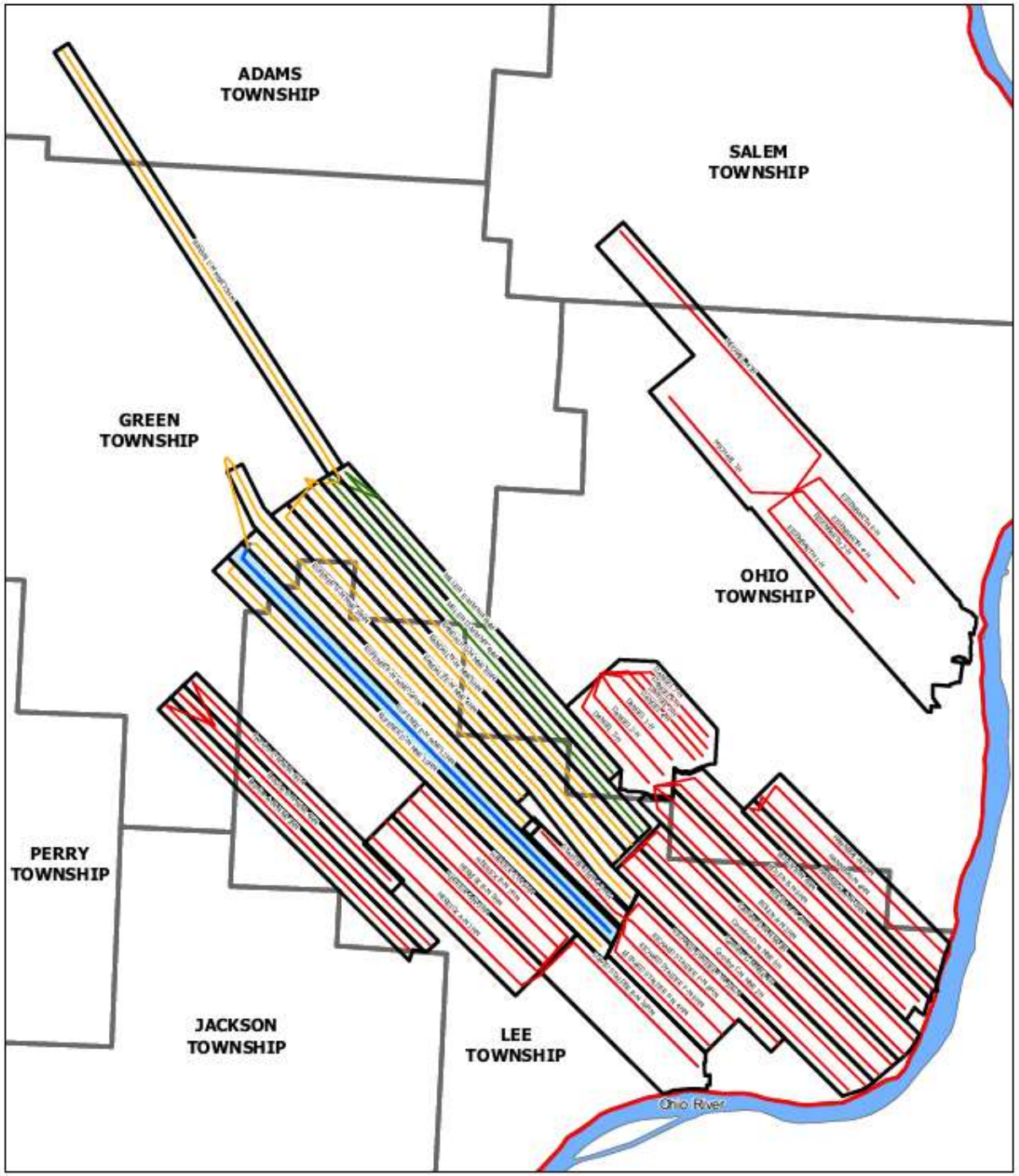
Well Name	Lateral Length (ft)	Measured Depth (ft)	Operating Costs (MM$)	Capital Costs (MM$)	Undiscounted Value of Estimated Recovery (MM$)	PV0 (MM$)	PV10 (MM$)	Estimated Gross Recovery (BCFe)
Rufener E-M MNR 12HM	25,453	31,723	$21.2	$17.5	$93.3	$53.2	$17.8	20.6
Total:	25,453	31,723	$21.2	$17.5	$93.3	$53.2	$17.8	20.6

Non-Unitized Scenario

Well Name	Lateral Length (ft)	Measured Depth (ft)	Operating Costs (MM$)	Capital Costs (MM$)	Undiscounted Value of Estimated Recovery (MM$)	PV0 (MM$)	PV10 (MM$)	Estimated Gross Recovery (BCFe)
Rufener E-M MNR 12HM	0	0	$0.0	$0.0	$0.0	$0.0	$0.0	0.0
Total:	0	0	$0.0	$0.0	$0.0	$0.0	$0.0	0.0

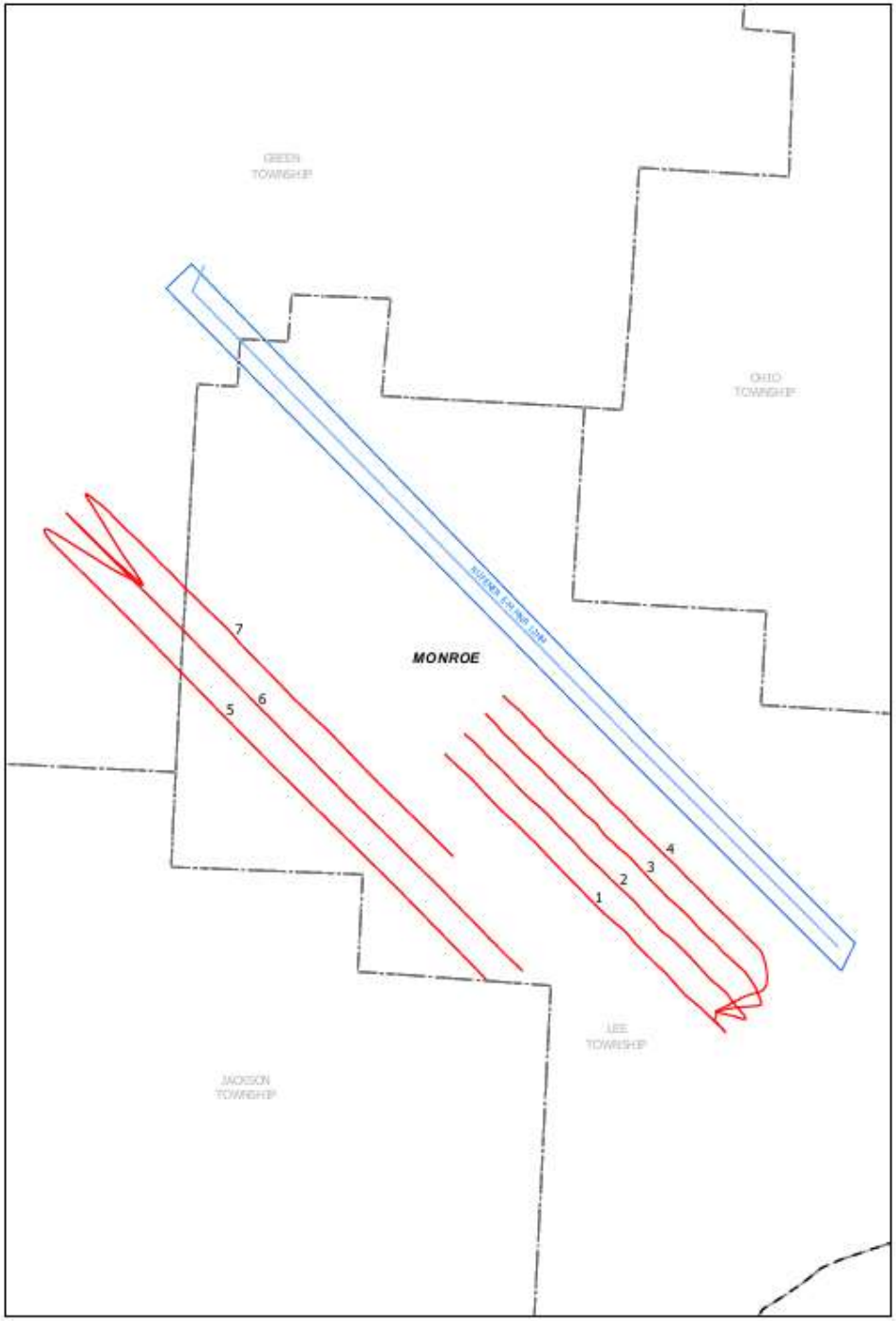
Difference

Well Name	Lateral Length (ft)	Measured Depth (ft)	Operating Costs (MM$)	Capital Costs (MM$)	Undiscounted Value of Estimated Recovery (MM$)	PV0 (MM$)	PV10 (MM$)	Estimated Gross Recovery (BCFe)
Rufener E-M MNR 12HM	25,453	31,723	$21.2	$17.5	$93.3	$53.2	$17.8	20.6
Total:	25,453	31,723	$21.2	$17.5	$93.3	$53.2	$17.8	20.6

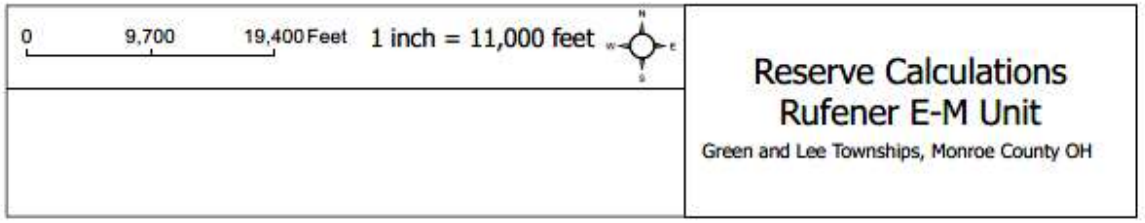


Adjacent Units Map
Rufener E-M Unit

Unit Size: 512.514 Acres
Green and Lee Townships, Monroe County OH


GREEN TOWNSHIP
OHIO TOWNSHIP
MONROE
LEE TOWNSHIP
JACKSON TOWNSHIP
7
6
5
4
3
2
1
0
2,700
5,400 Feet
1 inch = 3,000 feet
Township/District
Counties
Producing Wellbores
Planned Wellbores
Unit Boundary
Reserve Calculations
Rufener E-M Unit
Green and Lee Townships, Monroe County OH

Well Name	Well Identifier	API Number	First Production Date	DistanceFromUnit	Lateral Length
HERRICK AM MNR # 003HM	1	34111248590000	6/17/2019	4.686980 mi	10,003 ft
HERRICK BM MNR # 005HM	2	34111248600000	6/17/2019	4.684403 mi	9,986 ft
HERRICK BM MNR # 007HM	3	34111248570000	6/21/2019	4.682126 mi	9,999 ft
HERRICK CM MNR # 009HM	4	34111248580000	6/22/2019	4.679851 mi	9,904 ft
PEAVINE A-M MNR # 002HM	5	34111249970000	8/1/2024	1.684596 mi	16,475 ft
PEAVINE B-M MNR # 004HM	6	34111249980000	8/1/2024	1.682255 mi	16,924 ft
PEAVINE C-M MNR # 006HM	7	34111250020000	8/1/2024	1.680041 mi	13,328 ft



Reserve Calculations
Rufener E-M Unit
Green and Lee Townships, Monroe County OH