



APPLICATION FOR A PERMIT (Form 1)

(REVISED 0915)

SEE INSTRUCTIONS ON BACK

1. We (applicant) Powhatan Salt Company LLC 2. OWNER NUMBER: 9811
 Address: 6295 Greenwood Plaza Blvd, Suite 100, Greenwood Village, CO 80111 Phone Number: (720) 318 - 9738
 hereby apply this date 3/6, 20 20 for a permit to:

Drill Vertical Well Revised Location Convert
 Drill Horizontally Plug Back Deepen
 Drill Directionally Plug and Abandon Reopen
 Reissue Temporary Inactive: @ 1st year @ 2nd year @ 3rd year _____th year

3. TYPE OF WELL: Oil & Gas Annular Disposal Saltwater Injection
 Stratigraphic Test Gas Storage Other (explain):
 Solution Mining* Enhanced Recovery* (*if checked, select appropriate box below)
 Input/Injection Water Supply Observation Production/Extraction

4. Is the well location or production facility(s) within an urbanized area as defined by ORC 1509.01 (Y)? Yes No

5. MAIL PERMIT TO:
 Powhatan Salt Company LLC
 6295 Greenwood Plaza Blvd, Suite 100
 Greenwood Village CO 80111

6. COUNTY: MONROE

7. CIVIL TOWNSHIP: Salem

8. SECTION: 15 9. LOT: _____

10. FRACTION: _____ 11. QTR TWP: _____

12. TRACT/ALLOT: 7

13. WELL NUMBER: Salt-1

14. LEASE NAME: Mountaineer NGL Storage LLC

15. PROPOSED TOTAL DEPTH: 7,000

16. PROPOSED GEOLOGICAL FORMATION(S):
Salina

17. DRILLING UNIT ACRES: 8.000

18. ATTACH LANDOWNER ROYALTY LISTING:

19. IF PERMITTED PREVIOUSLY:
 API Number: 34111248190000

20. TYPE OF TOOLS:
 Cable Rotary (@ Air @ Fluid)
 Cable/Rotary Service Rig

21. SOURCE(S) OF GROUND AND/OR SURFACE WATER USED IN PRODUCTION OPERATION:
Ohio River
 Watershed: Lake Erie Ohio River
 Estimated Withdrawal Rate (gal/day): 1,728,000
 Estimated Total Volume (gal): 380,200,000
 If Recycled Water - Estimated Total Volume (gal): _____

22. EMERGENCY TELEPHONE NUMBERS (closest to well site):
 Fire: (740) 458-1233
 Medical: (304) 455-2969

23. MEANS OF INGRESS AND EGRESS:
 Road: Ohio Highway 7

24. ROAD USE FOR HORIZONTAL WELL:
 Maintenance Agreement Attached
 Non-agreement Affidavit Attached
 State Route (Not Required)

25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF OHIO?
 Agency Name: No

26. FOR PLUGGING APPLICATIONS: Date of Last Production:
 Amount of Oil: _____ (bbl) Gas: _____ (mcf)

27. PROPOSED CASING AND CEMENTING PROGRAM

Type Casing	Borehole Diameter (in)	Borehole Depth (ft)	Casing Diameter (in)	Casing Depth (ft)	Cement Volume (sacks)	Formation	Zone Tested or Produced (✓ if Yes)	Hydraulic Fracturing (✓ if Yes)
Drive Pipe			40	100				
Conductor	38	270	36	260	75			
Mine String						Pittsburgh #8, not mined		
Surface	36	350	30	340	280			
1 st Intermediate	28	2000	20	2000	1990	Berea		
2 nd Intermediate	20	6050	16	6000	2300	Contingency at Marcellus		
Production	17.5	6650	13-3/8	6600	1325	Salina		
Liner	15	7000	10-3/4	6640	0 (suspended)	Salina		
Liner 2	15	7000	7	6750	0 (suspended)	Salina		

I, the undersigned, being first duly sworn, depose and state under penalties of law, that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the facts stated herein are true, correct, and complete, to the best of my knowledge.

I, the undersigned, further depose and state that I am the person who has the right to drill on the tract or drilling unit and to drill into and produce from a pool and to appropriate the oil or gas that I produce therefrom either for myself or others as described in this application. And furthermore, I the undersigned, being duly sworn, depose and state at this time that I am not liable for any final nonappealable order of a court for damage to streets, roads, highways, bridges, culverts, or drainage ways pursuant to Section 5577.12 of the Ohio Revised Code (ORC). I, the undersigned, further depose and state that all notices required by 1509.06 (A) (9) ORC for this application have been duly provided by me. If applying for a permit to plug and abandon a well, I hereby certify that the written notices, as required in Section 1509.13, ORC, have been given.

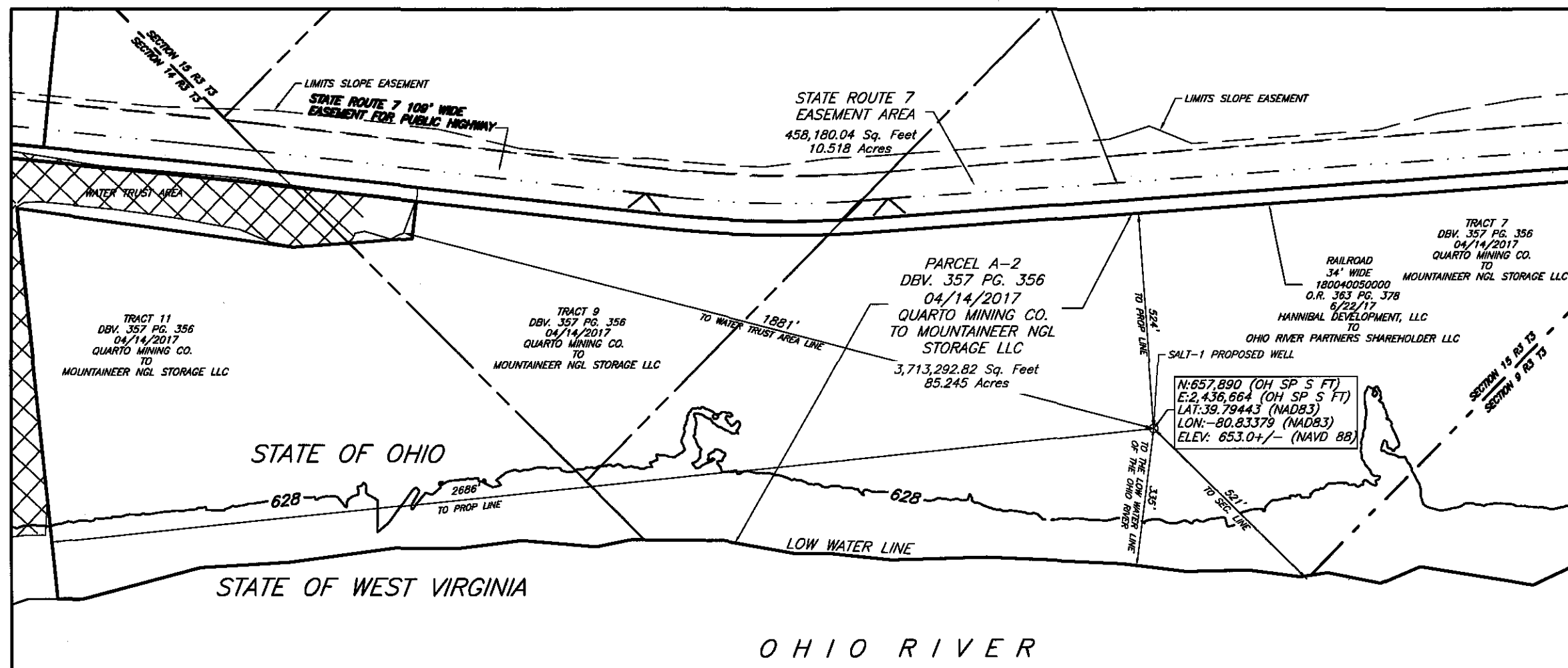
That I hereby agree to conform with all provisions of Chapter 1509, ORC and Chapter 1501, OAC, and all orders and conditions issued by the Chief, Division of Oil and Gas Resources Management.

Signature of Owner/Authorized Agent: David Hooker
 Name (Type or Print): David Hooker Title: President

_____ if signed by Authorized Agent, a certificate of appointment of agent must be on file.
 Sworn to and subscribed before me this the 5th day of March, 20 20.

AMY ESCOBEDO
 NOTARY PUBLIC
 STATE OF COLORADO
 NOTARY ID 20024031995
 MY COMMISSION EXPIRES FEBRUARY 14, 2022

Jimmy Escobedo
 (Notary Public)
2.14.22
 (Date Commission Expires)



STATE OF OHIO
STATE OF WEST VIRGINIA
OHIO RIVER



SURVEYOR'S CERTIFICATION

THIS WELL LOCATION MAP MEETS THE SPECIFICATIONS SET FORTH IN OHIO ADMINISTRATIVE CODE 1501:9-1. THIS PLAT IS NOT A BOUNDARY SURVEY AS SPECIFIED IN OHIO ADMINISTRATIVE CODE 4733-37 AND IS SUBJECT TO ALL FACTS REVEALED BY A TITLE EXAMINATION.

Stephen J. Halligan

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
STEPHEN J. HALLIGAN
PROFESSIONAL SURVEYOR NO. S-7251



UIC PLAT

STATE OF OHIO, COUNTY OF MONROE,
TOWNSHIP OF SALEM
TOWNSHIP 3, RANGE 3, SECTION 15
OLD SEVEN RANGES
USGS 7.5 MINUTE QUADRANGLE - POWHATAN, OHIO

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
1	12/2016	ODNR COMMENTS 11/28/2016
2	2/16/2020	REVISED FOR RE-ISSUE APPLICATION

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MAR 10 2020
DIVISION OF OIL & GAS

UIC PLAT
POWHATAN SALT COMPANY LLC
SALT - 1
Situates In
TOWNSHIP OF SALEM
MONROE COUNTY, OHIO
Made For
POWHATAN SALT COMPANY, LLC

DATE:	2/16/2020	SCALE:	AS NOTED	DRAWING NO.:
DRAWN BY:	DJS	CHECKED BY:	JRF	PLAT
PROJECT NO.:	153-016	APPROVED BY:	SJH	

I:\svr-pittsburgh\projects\2015\153-016\153-016-1-Survey\Drawings\153016-SV01-EXHIBIT.dwg[EX-2] LS:(02/16/2020 - dseaboston) - LP: 2/28/2020 11:30 AM

Supplemental Form 1

Supplemental 18. Landowner Royalties

- Landowner with Salt Rights and Salt Royalties:

Mountaineer NGL Storage LLC
6295 Greenwood Plaza Blvd, #1
Greenwood Village, Colorado 80111

- Mineral Rights and Mineral Royalties (excluding Salt, Oil & Gas):

CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive, Suite 100
Canonsburg, PA 15317-6506

- Oil & Gas Rights and Royalties:

CNX Resources Corporation
1000 CONSOL Energy Drive
Canonsburg, PA 15317

**SUPPLEMENT TO APPLICATION
PERMIT FOR A SOLUTION MINING PROJECT (Form 206)**

Ohio Department of Natural Resources, Division of Oil and Gas Resources Management
2045 Morse Road, Bldg F2
Columbus, OH 43229-6693

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AREA OF REVIEW. An application for a Solution mining project will be evaluated on the basis of an "area of review" surrounding the proposed well or project. For individual solution mining projects consisting of one well, the area of review shall be a fixed radius around the well or not less than one-quarter mile. For solution mining projects consisting of more than one well, the area of review shall be the project area plus a circumscribing area the width of which is not less than one-quarter mile.

31. PROPOSED INJECTION ZONE

Geological Formation: Salina (see attached Supplemental 31 for the response to fracture pressure for non-water bearing formation)
Injection Interval: From: 6600 feet to 7000

For new projects where the proposed injection zone is a water bearing formation, determine fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids. When the injection zone is not a water bearing formation, submit only the fracture pressure. Attach all calculations and analyses.

32. WELL CONSTRUCTION AND OPERATION

A. Description of the proposed casing and cement program for new wells, or of the casing, cementing or sealing with prepared clay for existing wells to be converted:
The proposed well schematic is attached as supplemental information.

B. Proposed method for testing the casing:
During drilling, the casing will be tested 24 to 96 hours after cementing by pressuring the well to 75% of calculated fracture pressure at the shoe, holding for one hour with less than 5% pressure loss. Before solution mining commences, the completed well will be pressured to 75% of lithostatic pressure at the test cemented casing shoe and held for 24 hours.

C. Description of the proposed method for completion, stimulation and operation of the injection/withdrawal well:
The well will be drilled into the Salina salt with the last cemented casing near the salt/anhydrite interface. The remainder of the bore hole will be left open hole. Mining will be done through two concentric strings, one for water injection, the other for brine production. The second annulus will also be used for a nitrogen blanket in the solution mining process to protect the eventual caverns salt roof integrity.

33. Describe any expected changes in pressure, native-fluid displacement and direction of movement of injection fluids:
The Salina formation is not water bearing. Operating pressures will increase slightly as the cavern is mined and the brine become more saturated. The Salina Formation is dry and impermeable, therefore there will be no movement of native fluids. Injection fluids will move up the injection string near the base of the salt formation and removed from the production string near the top of the salt formation.

34. Description of existing or proposed monument grids and surveying methods to be used in obtaining yearly measurement of second order accuracy for the detection of ground surface movement. Describe monument types, construction and emplacement:
A subsidence grid will be established using the salt wells, building foundations, and several planned water observation wells to be drilled by Powhatan Salt Company affiliate, Mountaineer NGL Storage LLC.

35. Describe plan for meeting the monitoring requirements of paragraph (B) of Rule 1501:9-7-09 of the Administrative Code:
Pressures, volumes and flow rates will be monitored continuously in a control room. At least twice daily, brine samples will be taken. Salinity of the collected brine will be measured. A composite of the daily samples will be analyzed for key constituents. A log of the measurements and samplings will be kept in the control room. (see attached Supplemental 35 for more details on monitoring requirements)

36. QUALITATIVE ANALYSIS OR RANGES IN CONCENTRATIONS. Attach documentation in accordance with paragraph (G)(4)(b)(iii) of Rule 1501:9-7-07 of the Administrative Code.

37. PROPOSED INJECTION VOLUMES: Indicate the estimated volume of fluid to be injected per project or per well per day (individual or project basis; circle one):
AVERAGE: 1,000,000 per well per day MAXIMUM: 1,928,000 per well per day

38. PROPOSED INJECTION PRESSURES: Indicate the estimated pressure to be used for injection of fluids into the proposed injection zone:
AVERAGE: 950 psig MAXIMUM: 1150 psig

39. PROPOSED CORRECTIVE ACTION: Explain any corrective action proposed for wells penetrating the injection formation or zone within the area of review:
There are no wells in the area of interest.

40. PROPOSED CONTINGENCY PLANS: Explain any contingency plans to cope with all well failures or shut-ins so as to prevent the migration of the contaminating fluids into underground sources of drinking water:
Wells will be tested for mechanical integrity every five years. In the event a well does leak, water injection will cease immediately. Stopping water injection will prevent pressure from exceeding hydrostatic pressure and stop leakage into subsurface aquifers. The well will then be inspected and repaired as needed.

41. MAP. Each application for a permit for a solution mining project shall be accompanied by a map or maps showing and containing the following information:
A. The subject tract of land on which the proposed solution mining project is to be located;
B. The location and designation of all injection, withdrawal and monitoring wells on the tract or tracts to be utilized in the project established by an Ohio registered surveyor showing the distances in feet from the proposed well sites to the boundary lines on the subject tracts as well as measurements from permanent land subdivisions;

(continued on Back page)

Form 206 Supplemental Responses

Brief Description of the Powhatan Salt Company Business:

Powhatan Salt Company LLC ("PSC") is in the business of subsurface solution mining salt in an effort to produce brine that will be exchanged with and used by the Westlake Chemical Corporation Eagle Sodium Chlor Alkali Plant ("Eagle Sodium"), an industrial manufacturing facility located in New Martinsville, West Virginia. PSC's proposed UIC Well #2 will be used for solution mining the Salina salt formation roughly 6,500 feet below ground, with produced brine transported to Eagle Sodium through a PSC permitted 10" pipeline (see the attached map with "Facilities Overview_Powhatan-to-Sodium").

Supplemental 31. Fracture Gradient for Powhatan Salt Company Injection Zone:

The hydraulic fracturing pressure for the Salina Formation at the Powhatan Salt Company facility was determined by in-situ stress testing conducted in Core Hole 1 (API 34-111-2-4666-00-00). The testing was supervised by Golder and Associates and RESPEC. Based on reopening pressure, the lithostatic pressure was determined to be about 6,490 psi at a depth of about 5,470 feet. The hydraulic fracturing pressure was determined to be in the range of 9,090 to 9,640 psi.

Supplemental 35. Plan for meeting the monitoring requirements of paragraph (B) of Rule 1501:9-7-09 of the Administrative Code:

The injection fluid will be sampled and analyzed quarterly. Brine production and water injection quantities, flow rates and pressures will be recorded continuously in the control room. Brine will be sampled twice a day for specific gravity measurement. The daily brine samples will be consolidated for detailed chemical analysis on a monthly basis. The date, locations and name of the sample collector or analyst will be recorded. Records will be kept for a minimum of three years.

Supplemental 36: QUALITATIVE ANALYSIS OR RANGES IN CONCENTRATIONS of injected fluids:

Water from the Ohio River will be used in the solution mining process. The following qualitative analysis on the Ohio River water reflects the following:

Component	Quantity	Units
ClO3	0.2	GPL
Sulfate	5	GPL
Total Organic Carbon	10	ppm
Total Nitrogen	1	ppm
Iodine	<1	ppm
Bromine	50	ppm
pH	6 - 8	ppm
TSS	100	ppm
Free Chlorine	2	ppm
Al	<1	ppm
As	100	ppm
B	5	ppm
Ba	<1	ppm
Fe	5	ppm
Mn	<1	ppm
Ni	<1	ppm
Sr	25	ppm
Ca	1250	ppm
Mg	75	ppm
Si	7	ppm
NaCl	290	GPL

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RESTORATION PLAN (Form 4)

Ohio Department of Natural Resources

Division of Oil and Gas Resources Management, 2045 Morse Road, Bldg. F-2, Columbus OH 43229-6693

MAR 10 2020

1. DATE OF APPLICATION:		3. API #:	
2. OWNER NAME, ADDRESS, & TELEPHONE NO.: Powhatan Salt Company LLC 6295 Greenwood Plaza Blvd, Greenwood Village, CO 80111 Phone: 720-318-9738		4. WELL #: SALT-1	
		5. LEASE NAME: Powhatan Salt Company LLC	
		6. PROPERTY OWNER: Mountaineer NGL Storage LLC	
		7. COUNTY: Monroe	
		8. CIVIL TOWNSHIP: Salem & Switzerland	
		9. SECTION: 10. LOT:	
11. CURRENT LAND USE: <input type="checkbox"/> Cropland <input type="checkbox"/> Commercial <input type="checkbox"/> Pasture <input type="checkbox"/> Idle Land <input type="checkbox"/> Wetlands <input type="checkbox"/> Recreational <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Unreclaimed strip mine <input type="checkbox"/> Woodland: <input checked="" type="checkbox"/> Broadleaf <input type="checkbox"/> Needlelike		17. TYPE OF WELL: <input type="checkbox"/> Oil <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other	
12. SLOPE GRADIENT & LENGTH DETERMINED FROM: <input type="checkbox"/> Ground Measurement <input checked="" type="checkbox"/> U.S. Geological Survey Topographical Maps <input type="checkbox"/> Other: (explain) _____		18. STEEPEST SLOPE GRADIENT CROSSING SITE: <input checked="" type="checkbox"/> 0 to 2% <input type="checkbox"/> 2.1 to 8% <input type="checkbox"/> 8.1 to 10% <input type="checkbox"/> 10.1 to 24% <input type="checkbox"/> greater than 24%	
13. TYPE OF FALL VEGETAL COVER: <input type="checkbox"/> Little or no vegetal cover <input type="checkbox"/> Short grasses <input checked="" type="checkbox"/> Tall weeds or short brush (1 to 2 ft.) <input checked="" type="checkbox"/> Brush or bushes (2 to 6 ft.) <input type="checkbox"/> Agricultural crops <input type="checkbox"/> Trees with sparse low brush <input type="checkbox"/> Trees with dense low brush		19. LENGTH OF STEEPEST SLOPE CROSSING SITE: <input type="checkbox"/> 1 to 100 ft. <input type="checkbox"/> 101 to 200 ft. <input type="checkbox"/> 201 to 400 ft. <input checked="" type="checkbox"/> greater than 400 ft.	
14. SOIL & RESOILING MATERIAL AT WELLSITE: <input type="checkbox"/> Stockpile and protect topsoil to be used when preparing seedbed <input type="checkbox"/> Use of soil additives (e.g., lime, fertilizer) <input checked="" type="checkbox"/> No resoiling planned <input type="checkbox"/> Proposed alternative _____		20. RESTORATION OF DRILLING PITS: ** <input type="checkbox"/> Haul drilling fluids and fill pits <input checked="" type="checkbox"/> Use steel circulating tanks <input type="checkbox"/> Proposed alternative _____	
15. DISPOSAL PLAN FOR TREES AND TREE STUMPS: <input checked="" type="checkbox"/> No trees disturbed <input type="checkbox"/> Haul to landfill <input type="checkbox"/> Cut into firewood <input type="checkbox"/> Sell to lumber company <input type="checkbox"/> Bury with landowner's approval <input type="checkbox"/> Mulch small trees and branches, erosion control <input type="checkbox"/> Use for wildlife habitat with landowner approval <input type="checkbox"/> Proposed alternative _____		21. BACKFILLING AND GRADING AT SITE: <input checked="" type="checkbox"/> Construct diversions channeled to naturally established drainage systems <input type="checkbox"/> Construct terraces across slopes <input type="checkbox"/> Grade to approximate original contour <input type="checkbox"/> Grade to minimize erosion & control offsite runoff <input type="checkbox"/> Proposed alternative _____	
16. SURFACE AND SUBSURFACE DRAINAGE FACILITIES: <input checked="" type="checkbox"/> No existing drainage facilities for removal of surface and/or subsurface water <input type="checkbox"/> Tile drainage system underlying land to be disturbed <input type="checkbox"/> Drain pipe(s) underlying land to be disturbed <input type="checkbox"/> Surface drainage facilities on land to be disturbed		22. VEGETATIVE COVER TO BE ESTABLISHED AT SITE: <input checked="" type="checkbox"/> Seeding plan <input checked="" type="checkbox"/> Sod <input type="checkbox"/> Agricultural crops <input type="checkbox"/> Trees and/or Bushes <input type="checkbox"/> Proposed alternative _____	
		23. ADDITIONAL HOLES: <input checked="" type="checkbox"/> Rat/Mouse, if used, will be plugged	
		24. PROPOSED OR CURRENT LENGTH OF ACCESS ROAD: <input type="checkbox"/> 100 ft. or less <input type="checkbox"/> 101 to 500 ft. <input checked="" type="checkbox"/> 501 to 1500 ft. <input type="checkbox"/> greater than 1500 ft.	
		25. CURRENT LAND USE OF PATH OF ACCESS ROAD: <input type="checkbox"/> Cropland <input type="checkbox"/> Pasture <input type="checkbox"/> Commercial <input type="checkbox"/> Idle land <input type="checkbox"/> Wetlands <input type="checkbox"/> Recreational <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Unreclaimed strip mine <input type="checkbox"/> Woodland: <input checked="" type="checkbox"/> Broadleaf <input type="checkbox"/> Needlelike	

**PITS MUST BE FILLED WITHIN TWO MONTHS AFTER COMMENCEMENT OF THE WELL AND WITHIN FOURTEEN DAYS AFTER COMMENCEMENT OF THE WELL IN AN URBANIZED AREA.

REQUIRED BY SECTION 1509.06 (A)(10), OHIO REVISED CODE -- FAILED TO SUBMIT MAY RESULT IN AN ASSESSMENT OF CRIMINAL FINES NOT LESS THAN \$100.00 NOR MORE THAN \$2,000.00 OR CIVIL PENALTIES NOT LESS THAN \$4,000.00.

Memorandum for Proposed Wells Sites Without Affected Mines

TO: Patty Nicklaus, Administrative Professional 3, Division of Oil and Gas Resources Management, Permitting Section

FROM: The Division of Mineral Resources Management, designated Affected Mine Review Committee (Howard Dyer, Brent Heavlin, Michael Kosek, Chris Freidhof, and Cassie Byelene)

Date: March 10, 2020

RE: Review of Oil and Gas Well Application: APATT034713

We have reviewed the aforementioned Oil and Gas Well permit application and find there are **NO** affected mines in the area referred to on the proposed well site map enclosed with the permit application.

Therefore, pursuant to 1509.08 of the Ohio Revised Code (ORC), we are recommending approval of the oil and gas permit for application number APATT034713.

C: Permit file