

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

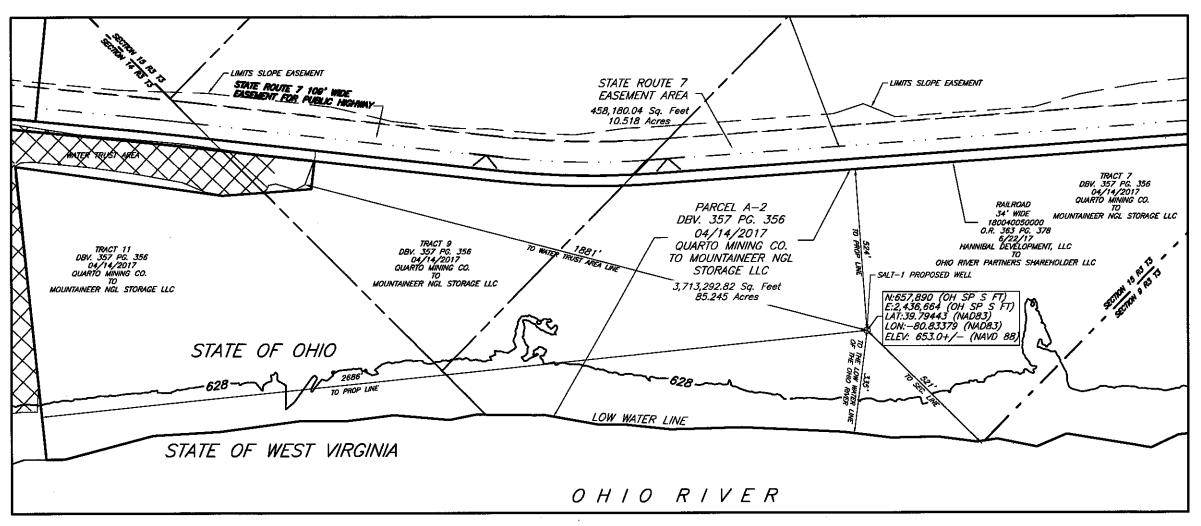
2045 MORSE RD., BLDG. F-2, COLUMBUS, OH 43229-6693 Phone: (614) 265-6922 • Fax: (614) 265-8910

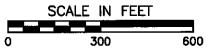


# APPLICATION FOR A PERMIT (Form 1)

18. ATTACH LANDOWNER ROYALTY LISTING:  19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (in) Pipe 40 40 100 100 100 100 100 100 100 100 1	County   Apply this date   36   20   20   0   or a permit to:	Publication	Profice Number: (720 ) 318   Profice Number: (720 ) 328   Profice Number	, A	Address Sons	Powhatan Salt (	zompany LLC		<del></del>		2 01411		
Professional   Prof	Convert   Conv	Publication	Professional   Prof	1 .	lodress: 0295	Greenwood Plaz	za Blvd, Suite	00, Greenwoo	d Village, CO 80	0111			
Drill Horizontally	Drill Horizontally	Drill Horizontally	Drill Indicationally	Į.	ereby apply th	is date <u>3/6</u>	- <u>-</u> -		· · · · · · · · · · · · · · · · · · ·		Phone Numb	per: (720 ) 3	18 _ 9
Pilug Back	Plug Back   Convert   Plug Back   Convert   Plug Back   Plug Bac	Drill Directionally	Pfug Back   Convert   Coepen   Resissue   Company   Coepen   Resissue   Company   Coepen   Resissue		☑ Drill Vertic	cal Well		☐ Revised I	_, 20 <u>~_ 0_</u> for	a permit to:			
Piliga and Abendon	Reissue	Plags and Abendon   Plag	Prig and Abandon		Drill Direct	ontally tionally	•	Plug Back	(				
3. TYPE OF WELL: ☐ Oil à Gas ☐ Stratigraphic Test ☐ Solution Mining ☐ Gas Storage ☐ Christone Mining ☐ Chris	3. TYPE OF WELL: OIL & Gas STATISTATION TO STA	3. TYPE OF WELL: ☐ Oil & Gas ☐ Stratugraphic Test	3. TYPE OF WELL: ☐ Oil & Gas ☐ Stratigraphic Test ☐ Shridgraphic Test ☐ Shridgraphic Test ☐ Shridgraphic Test ☐ Gas Storage ☐ Chere (explan): ☐ Shridgraphic Test ☐ Gas Storage ☐ Chere (explan): ☐ Chereked, select appropriate box below) ☐ Water Supply ☐ Observation ☐ Production/Extraction ☐ Water Supply ☐ Discover ☐ Production/Extraction ☐ Cable ☐ Discover ☐ Production/Extraction ☐ Cable ☐ Discover ☐ Production/Extraction ☐ Water Supply ☐ Discover ☐ Dis		☑ Reissue	ALONALLY	·	Plug and	Abandon				
Statistical Content of Case   Statistical Content of Case   Statistical Case   Statistical Case   Statistical Case   Statistical Case   Storage   Storage   Statistical Case   Storage   Storage   Statistical Case   Storage   Sto	Annular Disposal   Saltwater Injection   Gas Storage   Cher (explain):   Chernocomment   Chern	Annular Disposal   Satiwater Injection   Gas Storage   Other (expolar)*	Annular Disposal	2 -				Li remporar	/ Inactive: @ 1st	year ⊚ 2 <sup>nd</sup> year	© 3 <sup>rd</sup> year	th Voor	
	Gas Storage   Chief (explain)	Gas Storage	Gas Storage	J. 11			_	☐ Annular Di	sposal				
Street well location or production facility(s)	Pubut/hijection   Water Supply   Observation   O Production/Extraction	A. Is the well location or production facility(s)   Water Supply   Observation   O Water Supply   O Diservation   O Production/Extraction	Employment effectively   Colorary Life (Color Record)   Colorary   Colorar			Solution Mini	lest no*	☐ Gas Stora	ge	C 0	· ·		
4. Is the well location or production facility(s) within an urbanized area as defined by ORC   Cable	4. Is the well location or production facility(s) within an unbanized area as defined by ORC 1509.01 (Y?   Ves   Z  No   No   Cable/Rotary   Service Rig   Service Rig   Service Rig   Sevence Rig   Cable/Rotary   Service Rig	4. Is the well location or production facility(s) within an urbanized area as defined by ORC 1509.01 (Y)? □ yes □ No □ Cable Cable Cable (Cable Cable Protary □ Service Rig □ Cable Regard of Cable Regard Regar	4. Is the well location or production facility(s) within an urbanized area as defined by ORC   Cable   Cabl			© Input/Injec	tion	Unhanced     Water Sun	Recovery* (*if cl	hecked, select a	ppropriate box b	elow)	
within an urbanized area as defined by ORC   Cable/Rotary   Service Rig   Service Right Reproduction Right	within an urbanized area as defined by ORC   Cable	within an urbanized area as defined by ORC   Cable	within an urbanized area as defined by ORC 1509.01 (7)?	4. ls t	the well location	on production	facility			Observation	© Pro	oduction/Extra	ction
South   Company   Lic   South   Line	Cable/Rotary   Cabl	Section   Cable   C	1.00.9.01	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	unci ali urbaniz	ed area as defin	ed by ORC	20. TYP	E OF TOOLS:				
5. MAIL PERMIT TO: Powhshal Salt Company LLC 8295 Greenwood Plaza Bird. Suite 100 Greenwood Villade CO 80111	5. MAIL PERMIT TO:   Powhalan Sall Company LLC     6295 Greenwood Plaza Blvd. Suite 100     Greenwood Village	5. MAIL PERMITT CI: Powhstan Salt Company LLC 6295 Greenwood Pilaza Bivd, Suite 100 Greenwood Village CO 80111  6. COUNTY: MONROE  7. CIVIL TOWNSHIP: Sal=⊤  8. SECTION: 15 9. LOT: 10. FRACTION: 11. QTR TWP: 12. TRACT/ALLOT: 7  12. TRACT/ALLOT: 7  13. WELL NUMBER: Salt-1  14. LEASE NAME: Mountain=er NGL Storage LLC 15. PROPOSED TOTAL DEPTH: 7.000  16. PROPOSED GEOLOGICAL FORMATIONIS): Salina  17. DRILLING UNIT ACRES: 8.000  18. ATTACH LANDOWNER ROYALTY LISTING: 19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (n) (ft) (ft) (ft) (eacke) (ft) (eacke) 19. IF PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (n) (ft) (ft) (eacke) 19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (n) (ft) (ft) (eacke) 19. IF PISSE (ARC) (eache) 19. IF PISSE (ARC) (eache) 19. IF PISSE (eache) 19. IF ESTATE (eache) 19. IF ESTATE (eache) 19. IF ESTATE (eache) 19. I	MAIL PERMIT TO:   Powhstain Salt Company LLC     6: 295 Greenwood Plaza Bivd, Suite 100     6: COUNTY: MONROE      7: CIVIL TOWNSHIP: Saler     8: SECTION: 15   9. LOT:     10. FRACTION:   17. ORT TWP:     12. TRACTYALLOT: 7     13. WELL NUMBER: Salt-1     15. PROPOSED GEOLOGICAL FORMATION(S):     5. PROPOSED GEOLOGICAL FORMATION(S):     16. PROPOSED GEOLOGICAL FORMATION(S):     17. DRILLING UNIT ACRES: 8.000     18. ATTACH LANDOWNER ROYALTY LISTING:     19. IF PERMITTED PREVIOUSLY:     API Number: 3411124819000     27. PROPOSED CASING AND CEMENTING PROGRAM     28. PROPOSED CASING AND CEMENTING PROGRAM     29. PROPOSED CASING AND CEMENTING PROGRAM     20. PROPOSED CASING AND CEMENTING PROGRAM     20. PROPOSED GEOLOGICAL FORMATION PROGRAM     21. PROPOSED CASING AND CEMENTING PROGRAM     22. PROPOSED CASING AND CEMENTING PROGRAM     24. PROPOSED CASING AND CEMENTING PROGRAM     25. PROPOSED CASING AND CEMENTING PROGRAM     26. FOR PLUGGING APPLICATIONS: Date of Last Production:     27. PROPOSED CASING AND CEMENTING PROGRAM     28. PROPOSED CASING AND CEMENTING PROGRAM     29. PROPOSED CASING AND CEMENTING PROGRAM     20. PROPOSED CASING AND CEMENTING P	150	09.01 (Y)?					☑ Rotary (d	⊕Air ⊕ Fluid)		
CO SUNTY: MONROE	County: Monrol   County: Monrol   County: Monrol   County: Monrol   Estimated Withdrawal Rate (gal/day): 1,728,000   Estimated Withdrawal Rate (gal/day): 1,728,000   Estimated Total Volume (gal): 380,200,000   If Recycled Water - Estimated Total Volume (gal):	Matershed:   Lake Erie   Ohio River	COUNTY: MONROE   COUNTY: MONROE   Estimated Withdrawal Rate (gal/clay): 1,728,000	5. MAI	IL PERMIT TO:			<del></del>					
CO SUNTY: MONROE	County: Monrol   County: Monrol   County: Monrol   County: Monrol   Estimated Withdrawal Rate (gal/day): 1,728,000   Estimated Withdrawal Rate (gal/day): 1,728,000   Estimated Total Volume (gal): 380,200,000   If Recycled Water - Estimated Total Volume (gal):	Matershed:   Lake Erie   Ohio River	COUNTY: MONROE   COUNTY: MONROE   Estimated Withdrawal Rate (gal/clay): 1,728,000	629	Whatan Salt Co 95 Greenwood	ompany LLC		21. SOU	RCE(S) OF GROUN	ND AND/OR SURF	ACE WATER USED	IN PRODUCTIO	
GOUNTY: MONROE   Sale	6. COUNTY: MONROE  7. CIVIL TOWNSHIP: Sales  8. SECTION: 15  9. LOT:  11. QTR TWP:  12. TRACTIALLOT 7  13. WELL NUMBER: Salt-1  14. LEASE NAME: Mountainer NGL Storage LLC  15. PROPOSED GEOLOGICAL FORMATION(S):  16. PROPOSED GEOLOGICAL FORMATION(S):  17. DRILLING UNIT ACRES: 8.000  18. ATTACH LANDOWNER ROYALTY LISTING:  API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (in)  18. Quantum Proposed (in)  19. If PERMITTED PREVIOUSLY:  API Number: 34111248190000  Agency Name: No  10. Gessing Diameter (in)  10. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:  17. DRILLING UNIT ACRES: 8.000  28. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (in)  18. 270  38  270  38  270  38  270  38  280  380  380  380  380  380  380	COUNTY: MONROE     Casing	6. COUNTY: MONROE  7. CIVIL TOWNSHIP: Sale──  8. SECTION: 15 9. LOT: If Recycled Water – Estimated Virtual rounding (gal): 380,200,000  8. SECTION: 15 9. LOT: If Recycled Water – Estimated Total Volume (gal): 380,200,000  10. FRACTION: 11. QTR TWP: 22. EMERGENCY TELEPHONE NUMBERS (closest to well site): Fire: (740) 458-1233  13. WELL NUMBER: Salt-1 Medical: (304) 455-2969  14. LEASE NAME: Mountainer NGL Storage LLC  15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S): Salina  27. ROAD USE FOR HORIZONTAL WELL: Maintenance Agreement Affidavit Attached District North Required)  17. DRILLING UNIT ACRES: 8,000  18. ATTACH LANDOWNER ROYALTY LISTING: Agency Name: No  19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil: (bbl) Gas:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Districted (fig.)  Borehole Districted (fig.)  Pepth Dismeter (fig.)  Permitted (fig.)  Pepth Dismeter (fig.)  Permitted (fig.)  Permitted (fig.)  Permitted (fig.)  Permitted (fig.)  Permitted (fig.)	Gre	enwood Villag	rriaza Bivo, Suil Xe CO	e 100 80111	1			· · · · · · · · · · · · · · · · · · ·		N OPERAT
7. CIVIL TOWNSHIP: Sal=™         Estimated Withdrawal Rate (gal/day): 1,728,000           8. SECTION: 15         9. LOT:         If Recycled Water – Estimated Total Volume (gal):           10. FRACTION:         11. QTR TWP:         22. EMERGENCY TELEPHONE NUMBERS (closest to well site):           12. TRACT/ALLOT: 7         Fire: (740) 458-1233         Head: (304) 455-2969           14. LEASE NAME: MOUNTAINER FOR INTERPRETATION OF PROPOSED TOTAL DEPTH: 7,000         MEANS OF INGRESS AND EGRESS:           15. PROPOSED TOTAL DEPTH: 7,000         Road: Ohio Highway 7           16. PROPOSED GEOLOGICAL FORMATION(S):         24. ROAD USE FOR HORIZONTAL WELL:           I Maintenance Agreement Attached         INDRAGENEER HORIZONTAL WELL:           I Maintenance Agreement Attached	Estimated Withdrawal Rate (gal/day): 1,728,000	7. CIVIL TOWNSHIP: Saler         Estimated Withdrawal Rate (gal/day): 1728,000           8. SECTION: 15         8. LOT:         If Recycled Water = Estimated Total Volume (gal):           10. FRACTION:         11. QTR TWP:         22. EMERGENCY TELEPHONE NUMBERS (closest to well site):           12. TRACTIALLOT: 7         22. EMERGENCY TELEPHONE NUMBERS (closest to well site):           13. WELL NUMBER: Salt-1         Medica: (304) 455-2969           14. LEASE NAME: Mountalmeer NGL Storage LLC         23. MEANS OF INGRESS AND EGRESS:           15. PROPOSED TOTAL DEPTH: 7.000         24. ROAD USE FOR HORIZONTAL WELL:           1 Maintenance Agreement Affadiar Attached         1 Non-agreement Affadiar Attached           17. DRILLING UNIT ACRES: 8.000         25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF CHIO?           18. ATTACH LANDOWNER ROYALTY LISTING:         Agency Name: No           19. IF PERMITTED PREVIOUSLY:         26. FOR PLUGGING APPLICATIONS: Date of Last Production:           API Number: 34111248190000         25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF CHIO?           API Prippe         Borehole: Depth Popular (ri)         Casing Depth Volume (part Volume (part Virty Yes))         Formation         Zone pasted Hydrau (rift Yes)           Casing Diameter (rif)         Diameter (rift)         Depth Volume (part Virty Yes)         Pittsburgh #8, not mined         Image Plant Virty Yes)           Casing Diameter (rift)	## SECTION: 15   9. LOT:   11. QTR TWP:   22. EMERGENCY TELEPHONE NUMBERS (closest to well site):	6. cou	JNTY: MONROE				-		 ☑ Ohi	o River	
Estimated Total Volume (gal):  10. FRACTION: 11. QTR TWP: 22. EMERGENCY TELEPHONE NUMBERS (closest to well site): Fire: (740) 458-1233  13. WELL NUMBER: Salt-1	Section   15   9	Estimated Total Volume (gal): 380,200,000   If Recycled Water - Estimated Total Volume (gal): 11. QTR TWP: 11. QTR TWP: 22. EMERGENCY TELEPHONE NUMBERS (closest to well site): Fire: (740) 458-1233	Estimated Total Volume (gal): 380,200,000					Estim	nated Withdrawa	al Rate (gal/day):	1,728,000		
10. FRACTION:   11. QTR TWP:   22. EMERGENCY TELEPHONE NUMBERS (closest to well site):	10. FRACTION:	10. FRACTION: 11. QTR TWP: 22. EMERGENCY TELEPHONE NUMBERS (closest to well site): Fire: (740) 458-1233  13. WELL NUMBER: Salt-1 Medical: (304) 455-2969  14. LEASE NAME: Mountaineer NGL Storage LLC 23. MEANS OF INGRESS AND EGRESS: Road: Ohio Highway 7  16. PROPOSED TOTAL DEPTH: 7.000 ROAD USE FOR HORIZONTAL WELL:    Maintenance Agreement Attached   Non-agreement Attached   Non-agreement Attached   Non-agreement Attached   State Route (Not Required)  17. DRILLING UNIT ACRES: 8.000 25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF OHIO?  API Number: 34111248190000 Agency Natrie: No  27. PROPOSED CASING AND CEMENTING PROGRAM    Pipe	10. FRACTION: 11. QTR TWP: 22. EMERGENCY TELEPHONE NUMBERS (Glosest to well site): Fire: (740) 458-1233 Medical: (304) 455-2969  14. LEASE NAME: Mountaineer NGL Storage LLC 23. MEANS OF INGRESS AND EGRESS: Road: Ohio Highway 7  16. PROPOSED GEOLOGICAL FORMATION(S): 24. ROAD USE FOR HORIZONTAL WELL: Salima			·		Estim	ated Total Volun	ne (gal): 380,200	0,000		
12. TRACT/ALLOT: 7	12. TRACT/ALLOT: 7	12. TRACT/ALLOT: 7	12. TRACT/ALLOT: 7  13. WELL NUMBER: Sait-1  14. LEASE NAME: Mountaineer NGL Storage LLC  15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S): Salina  24. BOAD USE FOR HORIZONTAL WELL: □ Maintenance Agreement Affidavit Attached □ Non-agreement Affidavit Attached □ Non-agreemen					If Rec	ycled Water – E	stimated Total W	Olume (can-		
13. WELL NUMBER: Sait-1  Medical: (304) 455-2969  14. LEASE NAME: Mountaineer NGL Storage LLC  15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S): Salina  24. ROAD USE FOR HORIZONTAL WELL:   Maintenance Agreement Attached   Non-agreement Affidavir Attached   Non-agreement Affi	13. WELL NUMBER: Salt-1  14. LEASE NAME: Mountaineer NGL Storage LLC  15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S): Salina  24. ROAD USE FOR HORIZONTAL WELL:   Maintenance Agreement Affidavit Attached   Non-agreement Affidavit Attached   State Route (Not Required)  17. DRILLING UNIT ACRES: 8.000  18. ATTACH LANDOWNER ROYALTY LISTING: API Number: 34111248190000  25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF OHIO? Agency Name: No  19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil: (bbl) Gas:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borrehole Diameter (in):   Borrehole Diameter (in):	13. WELL NUMBER: Salt-1  Medical: (304) 455-2969  14. LEASE NAME: Mountaineer NGL Storage LLC  15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S): Salina  24. ROAD USE FOR HORIZONTAL WELL:   Maintenance Agreement Attached   Non-agreement Affidavit Attached   Non-agreement Affidavit Attached   State Route (Not Required)  17. DRILLING UNIT ACRES: 8,000  25. ARE THE SURFACE RICHITS OWNED BY THE STATE OF OHIO? Agency Name: No  19. If PERMITTED PREVIOUSLY: API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil: (bbl) Gas: (m)  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (n)  Pipe   Gepth Olepth (n)  Pipe   Gepth (	13. WELL NUMBER: Sait-1  Medical: (304) 455-2969  14. LEASE NAME: Mountaineer NGL Storage LLC  15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S):  Salina  24. ROAD USE FOR HORIZONTAL WELL:  Maintenance Agreement Attached  Non-agreement Attached  Non-			11. QTR TWP:		22. EMER	GENCY TELEPHO	NE NUMBERS (A	Deact to		
Medical: (304) 455-2969   Medical: (406) 400	14. LEASE NAME: Mountaineer NGL Storage LLC   23. MEANS OF INGRESS AND EGRESS:   15. PROPOSED TOTAL DEPTH: 7,000   Road: Ohio Highway 7     16. PROPOSED GEOLOGICAL FORMATION(S): Salina   Maintenance Agreement Attached   Non-agreement Affidavit Attached   Non-agreement Affidavit Attached   Indicate the state of the	Medical: (304) 455-2969   Means of ingress and Egress: Road: Ohio Highway 7   Medical: (304) 455-2969   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress: Road: Ohio Highway 7   Means of ingress and Egress and Egre	14. LEASE NAME: Mountaineer NGL Storage LLC   23. MEANS OF INGRESS AND EGRESS:   15. PROPOSED GEOLOGICAL FORMATION(S):					Fire: (	740) 458-1233		osest to well site	<del>:)</del> :	
15. PROPOSED GEOLOGICAL FORMATION(S):  Salina  24. ROAD USE FOR HORIZONTAL-WELL:    Maintenance Agreement Attached     Non-agreement Affidavit Attached     Non	15. PROPOSED TOTAL DEPTH: 7,000  16. PROPOSED GEOLOGICAL FORMATION(S):  Salina  24. ROAD USE FOR HORIZONTAL-WELL:    Maintenance Agreement Attached   Non-agreement Affidavit Attached   State Route (Not Required)  17. DRILLING UNIT ACRES: 8.000  18. ATTACH LANDOWNER ROYALTY LISTING:  19. IF PERMITTED PREVIOUSLY:  API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production:  Amount of Oil:  (bb)) Gas:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (in):  Borehole Diameter (in):  Per Pipe  40  100  100  100  Pittsburgh #8, not mined  Image: Saling (v. if Yes) (in) (in) (in) (in) (in) (in) (in) (in	15. PROPOSED TOTAL DEPTH: 7.000   Road: Ohio Highway 7	15. PROPOSED GOLOGICAL FORMATION(S):  16. PROPOSED GEOLOGICAL FORMATION(S):  24. ROAD USE FOR HORIZONTAL WELL:  ☐ Maintenance Agreement Attached ☐ Non-agreement Attached					Medic	al; (304) 455-29	969			
Road: Ohio Highway 7   Road: Ohio Highway 7	16. PROPOSED GEOLOGICAL FORMATION(S):  Salina  24. BOAD 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  19. IF PERMITTED PREVIOUSLY:  API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production:  Amount of Oil:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (in)  Borehole Diamet	16. PROPOSED GEOLOGICAL FORMATION(S):   24.   BOAD USE FOR HORIZONTAL WELL:	16. PROPOSED GEOLOGICAL FORMATION(S):  Salina  24. ROAD USE FOR HORIZONTAL WELL:  Maintenance Agreement Attached  Non-agreement Attached  Non-agreeme	14. LEASI	E NAME: Mour	taineer NGL Sto	rage LLC	23. MEANS	S OF INGRESS AN	ID FORES-			_
FADPOSED GEOLOGICAL FORMATION(S):  24. ROAD USE FOR HORIZONTAL WELL:    Maintenance Agreement Attached     Non-agreement Affidavit Attached     Non-agreement Affidavit Attached     State Route (Not Required)	Salina  24. ROAD USE FOR HORIZONTAL WELL:    Maintenance Agreement Attached     Non-agreement Affidavit Attached     Non-agreement Affidavit Attached     State Route (Not Required)     17. DRILLING UNIT ACRES: 8.000     18. ATTACH LANDOWNER ROYALTY LISTING:   Agency Name: Ne     19. IF PERMITTED PREVIOUSLY:   API Number: 34111248190000     26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:   (bbl) Gas:     27. PROPOSED CASING AND CEMENTING PROGRAM    Borehole Diameter (in)   Borehole Diameter (in)   Depth (ft)   Depth (ft)   Sacks)   Formation   Or Produced Fra (v. if Yes)     26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:   (bbl) Gas:     27. PROPOSED CASING AND CEMENTING PROGRAM    Borehole Diameter (in)   Depth (ft)   Casing Depth (volume (sacks))   Formation   Or Produced Fra (v. if Yes)     26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:   (bbl) Gas:     27. PROPOSED CASING AND CEMENTING PROGRAM    Borehole Diameter (in)   Depth (ft)   Sacks)   Formation   Or Produced Fra (v. if Yes)     26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:   (bbl) Gas:     27. PROPOSED CASING AND CEMENTING PROGRAM    Borehole Diameter (in)   Depth (ft)   Sacks)   Formation   Or Produced Fra (v. if Yes)     26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil:   (bbl) Gas:     27. PROPOSED CASING AND CEMENTING PROGRAM    Borehole Diameter (in)   Depth (ft)   Dept	24. ROAD USE FOR HORIZONTAL WELL:   Maintenance Agreement Attached   Non-agreement Affidavit Attached   Non-agreement A	24. ROAD USE FOR HORIZONTAL WELL:   Maintenance Agreement Attached   Non-agreement Affidavit Affacted   Non-agreement Affidavit Affacted   Non-agreement Affidavit Affacted   Non-agreement Affidavit Affacted   Non-agreement Affacted   Non-agreement Affacted					Road	Ohio Highway	7			
Lighter Agreement Attached In Non-agreement Affidavit Attached In Agreement Affidavit Attached In Non-agreement Affidavit Affidavit Attached In Non-agreement Affidavit Attached In Non-agreement Affidavit Affi	17. DRILLING UNIT ACRES: 8.000  18. ATTACH LANDOWNER ROYALTY LISTING:  Agency Name: No  19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000  26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil: (bbl) Gas:  27. PROPOSED CASING AND CEMENTING PROGRAM  Borehole Diameter (in): (ri): (sacks): Formation (/ if Yes): (vi fixes)  Borehole (in): (ri): (sacks): Formation (/ if Yes): (vi fixes)  Borehole Juliameter (in): (ri): (sacks): Formation (/ if Yes): (vi fixes)  Borehole Juliameter (vi fixes): (vi fix	17. DRILLING UNIT ACRES: 8.000 18. ATTACH LANDOWNER ROYALTY LISTING: 19. IF PERMITTED PREVIOUSLY: API Number: 34111248190000 26. FOR PLUGGING APPLICATIONS: Date of Last Production: Amount of Oil: (bbl) Gas: (mailting) Gasing Depth (in) (ift) (ift	17. DRILLING UNIT ACRES: 8.000   25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF OHIO?   Agency Name: No   Agency Nam	16. PROPe Salin	OSED GEOLOG	ICAL FORMATION	I(S):						
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Borehole   Diameter (in)	Borehole Diameter (in)	Casing   Borehole   Diameter	Borehole   Diameter (in)   Borehole   Diameter (in)   Casing Diameter (in)					Amount	of Oil:				
Casing         Diameter (in)         Depth (ff)         Casing Diameter (in)         Ca	De Casing Diameter (in) Depth (fft) Depth (in) Depth (fft) Depth (in) Depth (	Casing   Diameter (in)   Diameter (in)   Diameter (in)   Diameter (in)   Diameter (in)   Diameter (in)   Depth (in)   De	Depth   Dept			· 通信性 "不是一大大大大大大大大大大	ROGRAM						(m ====
Pipe   40   100   (rt)   (sacks)   Formation   20   ested or Produced   Fracturil (v. if Yes)   (v	Ve Pipe	Pipe	Ver Pipe   40   100   100   Formation   Ver Produced (*/ if Yes)   Formation   Ver Produced (*/ if Yes)   Fraction   Ver Produced (*/ if Yes)   Ver Produc	ne Casino	Diameter			Casing	Cement			Calebra Caresono	
40   100	Aductor 38 270 36 260 75	Muctor   38   270   36   260   75	Addition		(in)	<b>(ft)</b>						Zone Tested or Produced	Hydrau
String   270   36   260   75	e String	String   270   36   260   75	e String	<u>-</u>		<u> </u>	40	100			xmation .	(✓ if Yes)	(✓ if Ye
Pittsburgh #8, not mined Pittsburgh #8, not mi	Acce 36 350 30 340 280 Pittsburgh #8, not mined	Semediate   28   2000   20   2000   1990   Berea   Semediate   20   6050   16   6000   2300   Contingency at Marcellus   Selina	Access   36   350   30   340   280		_   38	270	36	260	75	<del>-</del>			
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15 7000 10-3/4 6640 0 (suspended) Salina Salina	tersigned, being first duly swom, depose and state under posettie.	arsigned, being first duly sworn, depose and state tinder pecetive of the	dersigned, being first duly sworm, 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 myself or others as described in this application that the facts stated herein are true, correct, and complete, to the best of my knowledge.	2		7000	7	6750		- I I	<u>.</u>	(	









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.

Steph 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

	SUE	BMITTAL & REVISION RECORD	
NO	DATE	DESCRIPTION	
$\overline{\mathbf{A}}$	12/2016	ODNR COMMENTS-11/28/2015	
2	2/16/2020	REVISED FOR RE-ISSUE APPLICATION TV	

USGS 7.5 MINUTE QUADRANGLE - POWHATAN, OHIO

MAR 1 0 2020

DIVISION OF OIL & GAS

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

DATE:	2/16/2020		AS NOTED		_		
DRAWN BY:		CHECKED BY:		P	L	A'	Т
PROJECT NO:	153-016	APPROVED BY:	SJH	SHEET	2	OF	2



## 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)

RECEIVED

MAR 1 0 2020

DIVISION OF OIL & GAS

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

AREA OF REVIEW. An application for a Solution mining project will be evaluated on the basis of an "area of review shall be a fixed radius around the well or not less than one-quarter mile. For solution mining projects consisting of one well, the area of review 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		ROPOSED INJECTION ZONE  cological Formation: Salina (see attached Supplemental 31 for the response to forth)
	In	ection Interval From: econ
	Fo	r new projects where the proposed initial feet to 7000
	pre	essure, and physical and chemical characteristics of the f
	be	aring formation, submit only the fracture pressure. Attach all calculations and analyses
32	<u>w</u>	ELL 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.
	В.	Proposed method for testing the casing:  During drilling, the casing will be tested 24 to 96 tours after correction to
		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 lest comented during shoe and held for 24 hours.
	C.	Description of the proposed method for completion, stimulation and operation of the injection/withdrawal well:
		strings, one for water injection, the other for brine production. The second annulus will also be used for a nitrogen blanket in the set will be set open hole. Mining will be done through two concentric
33.	Des The S	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.  aline formation is not water bearing. Operating pressures will increase slightly as the cavern is mined and the brine become more more more more production.
	there	alina 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 will be no movement of native fluids. Injection fluids will move up the injection string near the base of the sall formation.
		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,	Desc	cription of existing or proposed monument grids and surveying methods to be used in obtaining yearly measure-
	men	t of second order accuracy for the detection of ground surface movement. Describe monument types, construction
	and o	emplacement. Describe monument types construction
	A subs	idence 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.
		that observation wells to be drilled by Powhatan Salt Company affiliate, Mountaineer NGL Storage LLC.
35.	Desc	ribe plan for meeting the monitoring requirements of paragraph (B) of Rule 1501:9-7-09 of the Administrative Code:
	Pressu	res, volumes and flow rates will be monitored continuously in a control room. At least twice daily, bytes samples will be a control room and the samples will be a control room. At least twice daily, bytes samples will be a control room.
	sample	s will be analyzed for key constituents. A log of the measurements and samplines will be least in the daily
36.	QUA (G)(4	s 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)  LITATIVE ANALYSIS OR RANGES IN CONCENTRATIONS. Attach documentation in accordance with paragraph  (b)(iii) of Rule 1501:9-7-07 of the Administrative Code.
37.		POSED INJECTION VOLUMES: Indicate the estimated volume of fluid to be injected per project or per well per individual or project basis; circle one):
	, (.	AVERAGE: 1,000,000 per well per day
38.	PRO	
	propo	POSED INJECTION PRESSURES: Indicate the estimated pressure to be used for injection of fluids into the sed injection zone:
39.	PDO	AVERAGE: 950 psig MAXIMUM: 1150 psig
,	forma	POSED CORRECTIVE ACTION: Explain any corrective action proposed for wells penetrating the injection are no wells in the area of interest.
0.	PROP	OSED CONTINGENCY PLANS: Direction
	Wells will	COSED CONTINGENCY PLANS: Explain any contingency plans to cope with all well failures or shut-ins so as to the the migration of the contaminating fluids into underground sources of drinking water:  the the migration of the contaminating fluids into underground sources of drinking water:  the desired in the event a well does leak, water injection will cease immediately.
		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.
1.	<u>MAP</u> .	Each application for a permit for a solution mining project shall be accompanied by a map or maps g and containing the following information:
	Α.	The subject tract of land on which the proposed calleting
	ب.	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 surprises of the contract of tracts to be
	r	proposed well sites to the boundary lines on the subject tracts and the distances in feet from the
•	l	ું અંતે કરીઓ દી. કેંગ્રાંબા વારા લાગ્યાં છે.
٠		(continued on Back page)
		AND A VILLED TO BE AND THE

#### 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 Natrium Chlor Alkali Plant ("Eagle Natrium"), 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 Natrium through a PSC permitted 10" pipeline (see the attached map with "Facilities Overview\_Powhatan-to-Natrium").

## 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.

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

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.

# <u>Supplemental 36: QUALITATIVE ANALYSIS OR RANGES IN CONCENTRATIONS of injected fluids:</u>

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
lodine	<1	ppm
Bromine	50	ppm
рН	6 - 8	ppm
TSS	100	ppm
Free Chlorine	2	ppm
Ai	<1	ppm
As	100	ppm
В	5	ррт
Ва	<1	
Fe	5	ppm ppm
Mn	<1	ppm
Ni	<1	ppm
Sr	25	ррт
Ca	1250	ppm
Vlg	75	ppm
Si .	7	ppm
VaCl	290	GPL

## RESTORATION PLAN (Form 4)

RECEIVED

Ohio Depar	tmont of N	
	tment of Natural Resources	MAR 1 0 2020
DATE OF APPLICATION:	erit, 2045 Morse Road, Bldg. F-2, Colum	pus OH 43229-6693
2. OWNER NAME, ADDRESS, & TELEPHONE NO.:	<del>  </del>	
Powhatan Salt Company LLC	3. API#:	DIVISION OF OIL &
6295 Greenwood Plaza Blvd,	4. WELL#:	34-111-2-4819-00-00
Greenwood Village, CO 80111	5 LEACE NAME	SALT-1
Phone: 720-318-9738	6 PROPERTY OUT TO	Powhatan Salt Company LLC
1. 1010. 720-310-9738	7. COUNTY:	Nountaineer NGL Storage LLC
	8. CIVIL TOWNSHIP:	Monroe
11. CURRENT LAND USE:	9. SECTION:	Salem & Switzerland
Croplery [7]	17. TYPE OF WELL:	10. LOT:
Doctor		
Mottanda D luie Land	Oil G	as <sup>☑</sup> Other
Popidantial Recreational	18 STEEPEST SLODE OBARUS	<del></del> -
	18. STEEPEST SLOPE GRADIENT C	ROSSING SITE:
Unreclaimed strip mine	}	2.1 to 8%
Woodland: <u>Broadleaf</u> Needlelike	8.1 to 10%	
12. SLOPE GRADIENT & LENGTH DETERMINED FROM:	10.1 to 24%	greater than 24%
Ground Measurement	19. LENGTH OF STEEPEST SLOPE (	
U.S. Goologiest Com. —	OLDER CONTRACTOR	ROSSING SITE:
U.S. Geological Survey Topographical Maps	1 to 100 ft.	,
Other. (explain)	f 13	101 to 200 ft.
13. TYPE OF FALL VEGETAL COVER:	== 10 +00 ft,	greater than 400 ft.
Little or no venetal cover	20. RESTORATION OF DRILLING PITS	Ş· **
Short grasses	Haul drilling fluids and fill a	site
Tall weeds or short brush (4 to 0.8)	Use steel circulating tanks	100
Brush or bushes (2 to 6 ft.)	Proposed alternative	1
Agricultural crops		
Trees with an array	21. BACKFILLING AND GRADING AT S	
Trees with sparse low brush	Construct II	IIE:
Trees with dense low brush	Construct diversions chann	eled to naturally established
14. SOIL & RESOILING MATERIAL AT WELLSITE:	aminage systems	J
Stockpile and protect topsoil to be used when preparing	Construct terraces across s	lopes
	and to approximate bridge	al contour
Use of soil additives (e.g. lime force)	□ Grade to minimize erosion 8	Control offsite runoff
NO resolling planned	TOPUSED Allemative -	<del></del>
Proposed alternative	22. VEGETATIVE COVER TO BE ESTAB	I ISHED AT OUT
15. DISPOSAL PLAN FOR TREES AND TREE STUMPS:	J Oceuliu bian	
No trees disturbed	Agricultural crops	Sod
	Proposed alternative —	Trees and/or Bushes
Coll to liver	23. ADDITIONAL HOLES:	
Duly with landowner's approval	1 121	
iviuich small trees and hranches progion and the	Rat/Mouse, if used, will be pla	Jgged (
П Ose for windlife ларітат with landowner approved	JET. LINOPOSED OR CURRENT LENGTH	OF ACCESS ROAD
Proposed alternative	100 IL OFIESS 2 18	01 to 500 ft.
SURFACE AND CURCURE		reater than 1500 ft.
3. SURFACE AND SUBSURFACE DRAINAGE FACILITIES:	25 CUPPENT LAND HOT	
No existing drainage facilities for removal of surface and the	25. CURRENT LAND USE OF PATH OF A	CCESS ROAD:
or subsurface water	-n Cropiano - Pa	sture Commercial
I lie drainage system underlying land to be distant.	idle land ⊔ <sub>We</sub>	etlands Recreational
U Starr Pipe(s) underlying land to be dieturbed	Industrial □ Re	sidential
Surface drainage facilities on land to be disturbed	Unreclaimed strip mine	
The second of th	□ Moodl⊄hd. ¬	· •

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

REQUIRED BY SECTION 1509.06 (A)(10), OHIO REVISED CODE -- FAILURED TO SUBMIT MAY RESULT IN AN ASSESSMENT OF CRIMINAL FINES NOT LESS THAN \$1,000.00 NOR MORE THAN \$2,000.00 OR CIVIL PENALTIES NOT LESS THAN \$4,000.00.

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26. SURFACING MATERIAL FOR ACCESS ROAD:  ☐ Gravel ☐ Brick and/or tile waste ☐ Slag ☐ Crushed stone ☐ No surfacing material to be used ☐ Proposed alternative	29. STEEPEST SLOPE GRADIENT ON ACCESS ROAD:  0 to 5% 6 to 10% greater than 10%
27. PATH OF ACCESS ROAD TO BE DETERMINED BY:  Landowner □ Contractor  Existing access road □ Operator  28. GRADING AND EROSION CONTROL PRACTICE ON ROAD:  Diversions □ Filter strips  Drains □ Riprap  Open top culverts □ Water breaks  Outsloping of road  Pipe culverts  Proposed alternative	30. APPROXIMATE LENGTH OF STEEPEST SLOPE ON ROAD:  0 to 100 ft.  101 to 200 ft.  201 to 400 ft.  greater than 400 ft.  31. HAS LANDOWNER RECEIVED A COPY OF THIS RESTORATION PLAN?  Yes  No
The undersigned hereby agrees to implement all restoration operations ident the Ohio Revised Code, and to all Orders and rules issued by the Chief, Divis	tified on this form, and conform to all provisions of Section 1509.072 of sion of Oil and Gas Resources Management.
Signature of Owner/Authorized Agent  Name (Typed or Printed)  David Hooker	Date 3-Mar-20
RESTORATION PLAN MUST BE SUBMITTE	ED TO THE DIVISION IN DUPLICATE.

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## 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  $\underline{\text{NO}}$  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