



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Wednesday, April 05, 2017
WELL WORK PERMIT
Vertical / New Drill

EAGLE NATRIUM LLC (A)
POST OFFICE BOX 191

NEW MARTINSVILLE, WV 26155

Re: Permit approval for 14 BRINE WELL
47-051-01919-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin
Chief

Operator's Well Number: 14 BRINE WELL
Farm Name: EAGLE NATRIUM, LLC / AXIAL CORPORATION
U.S. WELL NUMBER: 47-051-01919-00-00
Vertical / New Drill
Date Issued: 4/5/2017

Promoting a healthy environment.

04/07/2017

PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW - 2B
(Rev. 8/10)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Eagle Natrium, LLC/ Axiall Corporation

39600	Marshall	Franklin	New Martinsville
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Operator ID County District Quadrangle

2) Operator's Well Number: 14 Brine Well 3) Elevation: 643 ft.

4) Well Type: (a) Oil _____ or Gas ^{Brine Prod. Well} _____
(b) If Gas: Production _____ / Underground Storage _____
Deep _____ / Shallow _____

ju 2/24/17

5) Proposed Target Formation(s): Salina Proposed Target Depth: 6700 - 6800 ft.

6) Proposed Total Depth: 10,000 - 11,000 Feet Formation at Proposed Total Depth: Salina

7) Approximate fresh water strata depths: 40 ft.

8) Approximate salt water depths: N/A

9) Approximate coal seam depths: 276-278 ft., 876-880 ft., 946-948 ft., 1026-1028 ft., 1048-1050 ft., 1122-1124 ft.

10) Approximate void depths, (coal, Karst, other): N/A

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Bore holes will be drilled, casing set per the casing/ tubing program, then No. 1/3 Brine Field will be intercepted.

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	26" XH	A53 Gr. B	169 lb/ft	90 ft.	90 ft.	175 CF
Fresh Water	20"	J55	94 lb/ft	300 ft.	300 ft.	300 CF
Coal						
Intermediate	13-3/8"	J55	54.5 lb/ft	2,080 ft.	2,080 ft.	1820 CF
Production	9-5/8"	HCL80	53.5 lb/ft	6,320 ft.	6,320 ft.	1500 CF
Tubing	7"	L80	32.0 lb/ft	1,600 ft.	1,600 ft.	N/A
Liners						

Packers: Kind: 7" x 32 lb/ft x 9-5/8" x 53.5 lb/ft, L-80 Top Packer with Seals and L-80 Hanger

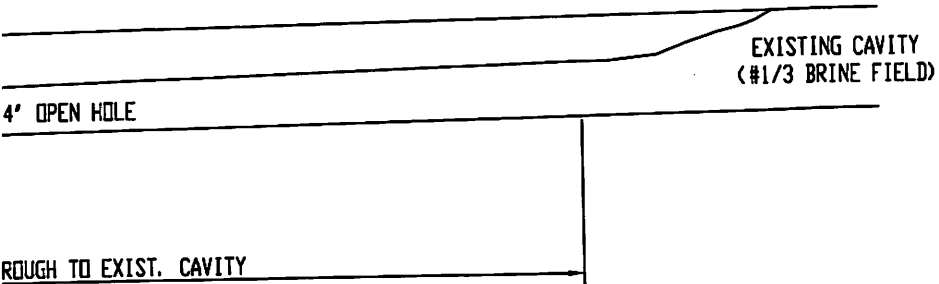
Sizes: (above)

Depths Set Approx. 5500 ft.

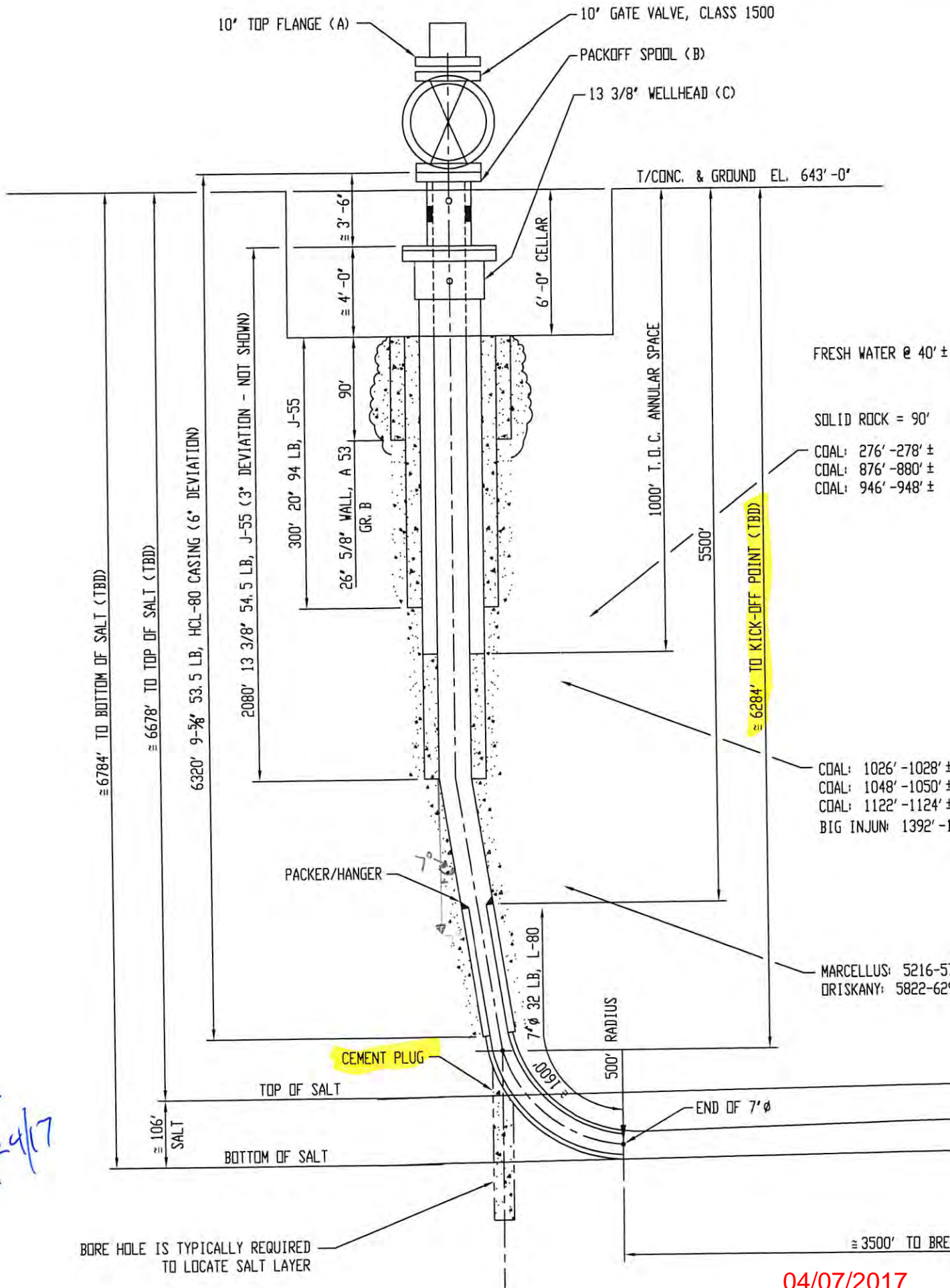
04/07/2017

- CONDUCTOR PIPE - 26' A53 GR. B CARBON STEEL, 169 LB/FT, 90', CEMENTED, ERW.
- FRESH WATER PIPE - 20' J-55, 94 LB/FT, 300.00' ERW, BTC, 6 RND.
RANGE 3, TACK WELD COUPLINGS.
- INTERMEDIATE - 13 3/8' J-55, 54.5 LB/FT, 2080.00' CEMENTED TO SURFACE, STC,
RANGE 3, ERW.
- PRODUCTION - 9 5/8' /HCL-80, 53.5 LB/FT, 6320.00', CEMENTED TO 1000',
8 ROUND - THREADED & LONG COUPLED, RANGE 3, SEAMLESS.
- LINER - 7' L-80, 32 LB/FT, 1600.00', NOT CEMENTED,
HYDRIL 521 THREADED, RANGE 3, SEAMLESS.
- VALVE - GATE VALVE, 10' DIA. (API 11 IN. x 5M), FULL PORT, RTJ,
EXPANDING GATE, ANSI CLASS 1500, ENP TRIM, VITON SEALS, WCC
BODY, GEAR OPERATED, AND FIRESAFE.
- NUTS & BOLTS - (24) 1 7/8" ϕ x 14 1/4" LG. STUD BOLT - ASTM A-193, GR. B-7
(FOR 10" VALVE) NUTS: ASTM A-194, CLASS 2H, ANSI B1.1
- OUTLET VALVE - 2" - 3000 LB. - THREADED BALL VALVE - 2 REQ' D.
- PACKER/HANGER - 7' 32 LB/FT x 9 5/8' 53.5 LB/FT, N-80, MODEL 'C' LINER TOP PACKER
W/ 7 1/2" O. DIA. x 6 FT. LONG TIE BACK RECEPTACLE
7' 32 LB/FT x 9 5/8' 53.5 LB, N-80, MODEL 'HSC' MECHANICALLY SET
LINER HANGER W/HYDRIL 521 PIN DOWN
- TOP FLANGE (A)- 10' DIA. x ANSI CLASS 1500 RTJ WELD NECK FLANGE
W/ SCH. 80 BORE, ANSI B 16.5/A105-4130
- PACKOFF SPOOL (B)- 13 5/8' x 3M x 11' x 5M W/2 EA. 2" x 5M VALVES.
ALSO INCLUDED: PACKOFF, PE ASSEMBLY AND
10 3/4' x 9 5/8' GBI W/HSN RUBBER.
- WELLHEAD (C)- CASING 13 3/8' x 9 5/8' W/HANGER SLIPS, TOP PACKING
(BRADEN HEAD) WITH (2 EACH) 2" DIA. LPO'S. HEAD TO BE WELDED
TO CASING.
- RING JOINT GASKET- R54 CAD PLATED RING GASKET FOR 10' x ANSI CLASS
1500, RTJ FLANGE (6 EACH).

F	DMW	02/23/17	REVISED NOTATIONS
E	DMW	02/16/17	REVISED NOTATIONS
D	DMW	01/12/17	REVISED NOTES
C	DMW	01/03/17	REVISED NOTES
B	DVS	12/20/16	REVISED NOTES
A	DMW	12/15/16	NEW #14 WELL
REV. BY	DATE	DESCRIPTION	



DEPT: 70 - BRINE	
TITLE: #14 BRINE WELL (API #47-051-XXXX)	
PROPOSED CONFIGURATION (SCHEMATIC)	
DRAWING TYPE: MECHANICAL PROCESS EQUIPMENT	MPE
EQUIPMENT No: 7000-115-57	
	DRAWN D. WAYT DATE 12/05/16
	CHECKED DATE
	APP' VD S. CLARK DATE -
	SCALE NONE ACAD YES
	JOB No P-2404/04/07/2017
DWG 70-2678	



JK
2/24/17

04/07/2017

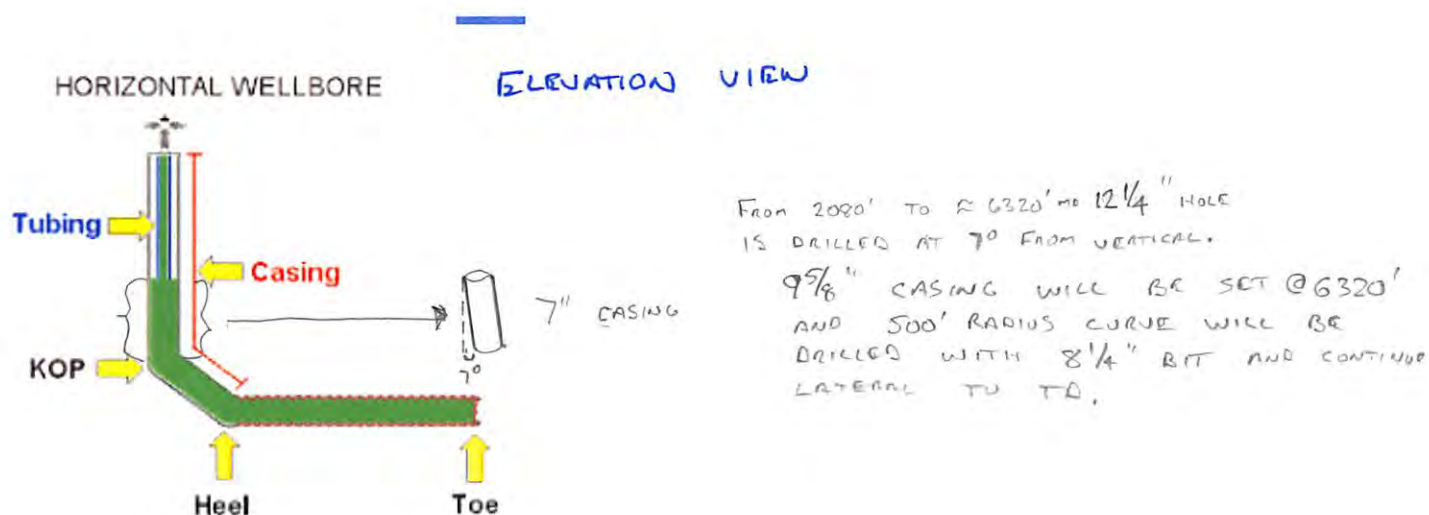
McLaughlin, Jeffrey W

From: Stephen Clark (Natrium) <Stephen.Clark@axiall.com>
Sent: Monday, April 03, 2017 9:35 AM
To: McLaughlin, Jeffrey W
Subject: RE: Axiall Corporation/ Eagle Natrium LLC #14 Brine Well -- API #47-051-1919 (Clarification)

I will send a plan view with the corresponding surface locations in my next email. To make sure I send you exactly what you need: I will furnish top hole, kick-off point, heel (land), and toe (target) locations. Was there anything else? As we discussed, these are proposed locations.

Thanks, STEVE

PS: I'm assuming NAD 27 Northings and Eastings are acceptable.



From 2020' TO ≈ 6320' @ 12 1/4" HOLE
 IS DRILLED AT 7° FROM VERTICAL.
 9 5/8" CASING WILL BE SET @ 6320'
 AND 500' RADIUS CURVE WILL BE
 DRILLED WITH 8 1/4" BIT AND CONTINUE
 LATERAL TO TD.

From: McLaughlin, Jeffrey W [mailto:Jeffrey.W.McLaughlin@wv.gov]
Sent: Thursday, March 30, 2017 2:49 PM
To: Stephen Clark (Natrium) <Stephen.Clark@axiall.com>
Subject: RE: Axiall Corporation/ Eagle Natrium LLC #14 Brine Well -- API #47-051-1919

Stephen,

I should finish my review tomorrow. Gene and Justin are OK with it, so if all goes well, you should have it the first part of next week.

Regards,

Regards,

Jeff McLaughlin, B. S. Petroleum Eng.
 Technical Analyst, Office of Oil & Gas
 WV Dept. of Environmental Protection

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WV Department of
 Environmental Protection

February 20, 2017
REV. 4/3/2017

PROPOSED LOCATIONS	NAD 83	
	NORTHING	EASTING
#14 BRINE WELL SURFACE	4,398,848.9	513,467.5
KICK-OFF POINT	4,398,884.2	513,465.3
LAND (HEEL)	4,398,950.6	513,480.3
TDE (TARGET)	4,399,519.7	513,188.9

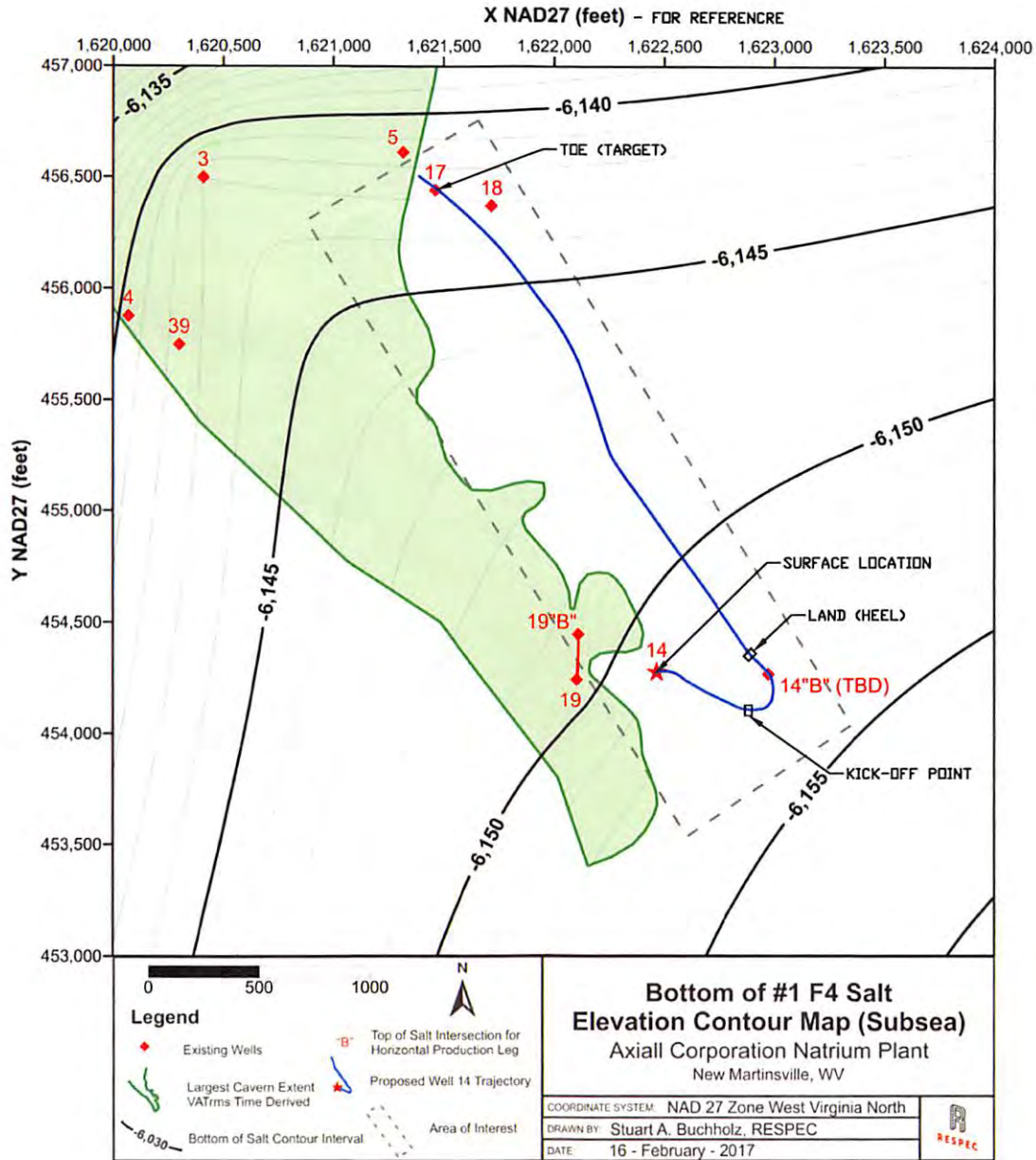


Figure 2. Contour Plot of the Subsea Elevations for the Bottom of the #1 F4 Salt

FA SALT.
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P.P.G. #19 BRINE WELLWELL LOG

(1992)

All depths measured from a K.B. elevation of 662.5'

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>REMARKS</u>
Substructure	0	20	
Gravel & Fill	20	22	
Sandy Clay	22	39	
Sand & Gravel	39	89	Fresh Water @ 39'
Yellow Clay	89	90	
Limestone & Shale	90	110	Solid Rock @ 90'
<u>Pennsylvanian</u>			
Monongahela	110	280	
Conemaugh	280	755	
Allegheny	755	1055	
Pottsville	1055	1147	
Shale	1147	1188	
<u>Mississippian</u>			
Maxton	1188	1227	276' - 278'
Mauch Chunk	1227	1310	876' - 880'
Greenbrier	1310	1392	946' - 948'
Mauch Chunk	1392	1520	1026' - 1028'
Pocono	1520	1617	1048' - 1050'
Shale	1617	1774	1122' - 1124'
Weir	1774	1809	
Sunbury	1809	1975	
Berea	1975	1984	
<u>Devonian</u>			
Conewango	1984	2063	
Catskill	2063	2934	
Riley	2934	2975	
Harrell Shale	2975	4881	
Hamilton	4881	5216	
Marcellus	5216	5738	
Onondaga	5738	5764	
Needmore	5764	5822	
Onondaga	5822	6299	
Helderberg	6299	6432	
<u>Silurian</u>			
Keyser	6432	6490	
Salina	6490	6896	
Syracuse Salt	6698	6804 ←	
Carbonate Rock	6804	6806	
Salt	6806	6812	
Carbonate Rock	6812	6832	
Salt	6832	6862	
Carbonate Rock	6862	6878	
Salt	6878	6880	
Carbonate Rock	6880	6896	
T.D.			

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FEB 27 2017
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04/07/2017

WW-2A
(Rev. 6-14)

1.) Date: February 22, 2016
2.) Operator's Well Number 14 Brine Well
State County Permit
3.) API Well No.: 47- 051 -

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE AND APPLICATION FOR A WELL WORK PERMIT**

4) Surface Owner(s) to be served:
(a) Name Eagle Natrium LLC/ Axiall Co.
Address P.O. Box 191
New Martinsville, WV 26155
(b) Name _____
Address _____
(c) Name _____
Address _____
5) (a) Coal Operator
Name N/A
Address _____
(b) Coal Owner(s) with Declaration
Name PPG Industries, Inc.
Address 1 PPG Place
Pittsburgh, PA 15222
Name Attn: James H. Fortney, Bus. Controller
Address _____
(c) Coal Lessee with Declaration
Name N/A
Address _____
6) Inspector Jim Nicholson
Address P.O. Box 44
Moundsville, WV 26041
Telephone 304-552-3874

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

 Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

OR
 x Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through on the above named parties by:

- Personal Service (Affidavit attached)
- X Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Well Operator Eagle Natrium, LLC/ Axiall Corporation
By: [Signature]
Its: Manager, Environmental Control
Address: P.O. Box 191
New Martinsville, WV 26155
Telephone: 304-455-2200
Email: Tom.Horan@axiall.com

Subscribed and sworn before me this 22nd day of February, 2017

[Signature] Notary Public
My Commission Expires April 13, 2021
Oil and Gas Privacy Notice

WW-2A Surface Waiver
(4/16)

SURFACE OWNER WAIVER

County 051 Operator N/A
Operator well number 14 Brine Well

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Comments must be in writing. Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation...".

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, WW-9, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

Signature

Date

Print Name

FOR EXECUTION BY A CORPORATION, ETC.

Company Name N/A
By _____
Its _____

Signature

Date

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Environmental Protection

04/07/2017

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County 051
Operator Eagle Natrium, LLC/Axiall Corp. Operator's Well Number 14 Brine Well

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator ____ / owner X / lessee ____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

	Date		Company Name	
Signature			By	PPG Industries, Inc.
			Its	James H. Fortney
				Business Controller February 17, 2017 Date
				<i>J.H. Fortney</i> 2/17/17
				Signature Date

WW-2A1
(Rev. 1/11)

Operator's Well Number 14 Brine Well

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Eagle Natrium, LLC/ Axiall Corporation owns all surface	rights for the location of #14 Brine Well		0351/0265
PPG Industries, Inc. leases mineral rights to Eagle	Natrium, LLC/ Axiall Corporation		0799/0387

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator:
By: Its:

Eagle Natrium, LLC/ Axiall Corporation

J. Thomas Horan
Manager, Environmental Control

04/07/2017

WW-2B1
(5-12)

Well No. 14 Brine Well (N/A)

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name N/A
Sampling Contractor _____

Well Operator Eagle Natrium, LLC/ Axiall Corporation
Address 16339 Energy Rd., Proctor, WV 26055
There are no water wells or springs within 1000 ft. of the new #14 Brine Well that are used for human consumption or domestic animals.
Telephone _____

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

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FEB 27 2017
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04/07/2017

WW-9
(5/16)

API Number 47 - 051 - _____
Operator's Well No. 14 Brine Well

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Eagle Natrium, LLC/ Axiall Corporation OP Code 39600

Watershed (HUC 10) Ohio River Quadrangle New Martinsville

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: Dewatering system.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air, Brine, Brine Mud

-If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used in drilling medium? _____

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? 4383 Short Creek Landfill/ Approval #4383-13-3063

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature J. Thomas Horan

Company Official (Typed Name) J. Thomas Horan

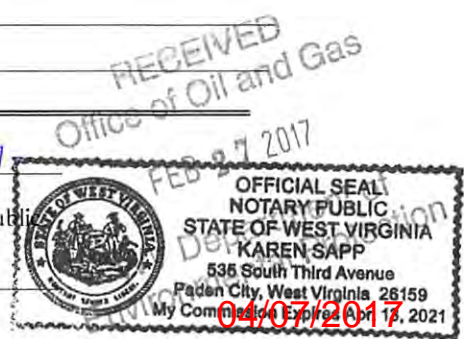
Company Official Title Manager, Environmental Control

Subscribed and sworn before me this 22nd day of February, 2017

Karen Sapp

Notary Public

My commission expires April 13, 2021



Proposed Revegetation Treatment: Acres Disturbed < 1 acre Prevegetation pH _____

Lime N/A Tons/acre or to correct to pH _____

Fertilizer type _____

Fertilizer amount N/A lbs/acre

Mulch N/A Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre

Seed Type lbs/acre

The disturbed soil will receive gravel
maintenance access.

upon completion of the well for future

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *[Signature]*

Comments: The following documents are enclosed with this application:

Well Plat (mylar)

Topography Map

Proposed Well Configuration (Dwg. #70-2678); As-built furnished upon completion

Proposed Well Bore Hole Trajectory (Fig. 2)

Well Pad Location & Access Road (no earthen pit required)

Adjacent No. 19 Brine Well Lithology Log (circa 1992)

Title: *Oil & Gas Inspector*

Date: *2/23/17*

Field Reviewed? Yes No

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
GROUNDWATER PROTECTION PLAN

Operator Name: Eagle Natrium, LLC/ Axiall Corporation
Watershed (HUC 10): Ohio River Quad: New Martinsville
Farm Name: Eagle Natrium, LLC/ Axiall Corporation

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

N/A; Closed loop system with containment to be utilized.

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

Closed loop system with containment to be utilized. An earthen berm around the perimeter of the well pad and secondary containment will be in place.

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

Ohio River (< 1/4th mile)

4. Summarize all activities at your facility that are already regulated for groundwater protection.

The Axiall Natrium Plant is a NPDES regulated facility for discharge into the Ohio River (Permit No. WV 0004359). The Plant is also covered by the WV AST Rule (Registration No. 2014-0002939).

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

The groundwater at the Axiall Natrium Plant is contaminated due to historical operations. The Plant is covered under a Corrective Action Permit (No. WVD 004336343).

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material will be used for deicing or fill material on the property.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

Axiall supervision will provide training to employees discussing the requirement to prevent groundwater contamination. Training to include spill containment requirements for all oils and fuels.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

24/7 supervision will be required during all drilling operation activities. On-going inspections will be performed to prevent groundwater contamination.

Signature: *Justin [unclear]*

Date: 2/29/17

RECEIVED
Office of Oil and Gas
FEB 27 2017
WV Department of
Environmental Protection
04/07/2017

BRINE WELL NO. 14

EAGLE NATRIUM, LLC

(PROPOSED WELL NO. 14)

SITUATE ON THE WATERSHED OF THE
FRANKLIN DISTRICT, MARSHALL COUNTY, WV

PROJECT INFORMATION

PROJECT NAME: BRINE WELL NO. 14
 TAX PARCEL:
 FRANKLIN DISTRICT
 MAP 28-12

SURFACE OWNER:
 EAGLE NATRIUM, LLC/AXIAL CORPORATION
 FRANKLIN DISTRICT
 MARSHALL COUNTY, WV
 TOTAL PROPERTY AREA: 403.636 ± ACRES

ROYALTY OWNER:
 EAGLE NATRIUM, LLC/AXIAL CORPORATION
 FRANKLIN DISTRICT
 MARSHALL COUNTY, WV

SITE LOCATION:
 THE BRINE WELL NO. 14 SITE IS LOCATED OFF WV RT. 2, APPROXIMATELY
 .75 MILES NORTH OF CO. RT. 2 AND WV RT 2 INTERSECTION.

LOCATION COORDINATES

BRINE WELL NO. 14 WELL PAD ENTRANCE
 LATITUDE: 39.738458 LONGITUDE: -80.840809 (NAD 83)

SITE INCLUSION COMPUTATIONS

WELL PAD AREA = 1.5 ± ACRES
 EXISTING ACCESS ROAD AREA = 0.3 ± ACRES
 NEW DISTURBANCE AREA = 0.1 ± ACRES
 TOTAL SITE INCLUSION AREA = 1.9 ± ACRES

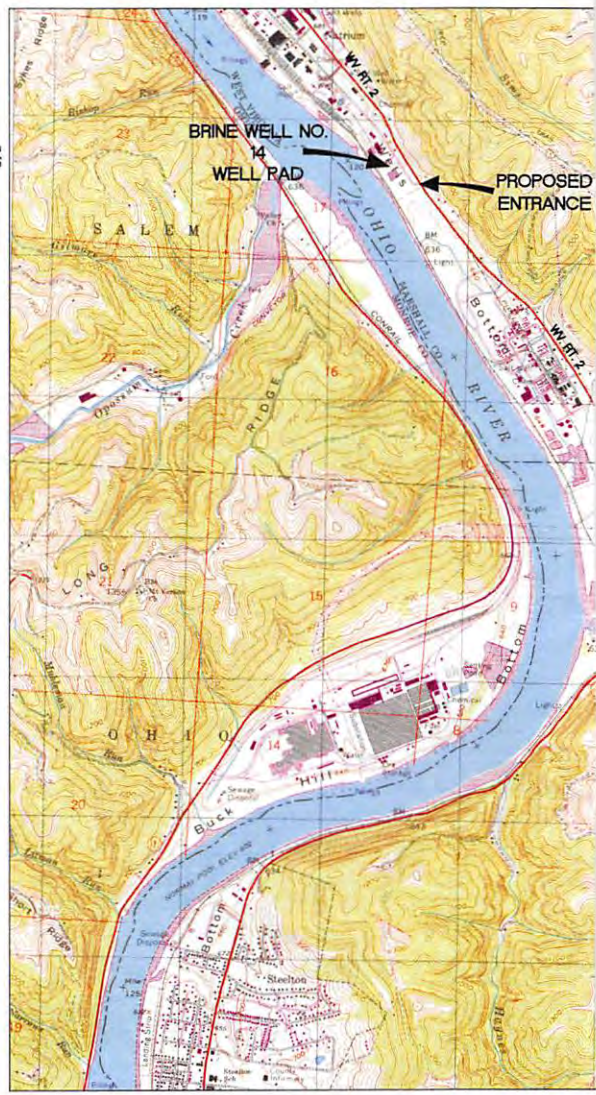
ENTRANCE PERMIT

EAGLE NATRIUM, LLC HAS OBTAINED AN ENCROACHMENT PERMIT (FORM MM-109) FROM
 THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS FOR THE
 PROPOSED CONSTRUCTION ACTIVITIES.

FLOODPLAIN NOTE

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT IS LOCATED IN PORTIONS
 OF FEMA FLOOD ZONE X AND ZONE AE, PER THE FLOOD INSURANCE RATE MAP (FIRM)
 NUMBER 54051C0205E, DATED SEPT. 25, 2009.

GRID NORTH AND ELEVATIONS
 SHOWN HEREON WERE
 ESTABLISHED BY SURVEY GRADE
 GPS



NEW MARTIN

MISS Utility of West Virginia
 1-800-245-4848
 West Virginia State Law
 (Section XIV: Chapter 24-C)
 Requires that you call two business
 days before you dig in the state of
 West Virginia.
 IT'S THE LAW!!

D. 14 SITE PLAN AXIALL CORPORATION

(BRINE WELL 14)

THE OHIO RIVER IN
COUNTY, WEST VIRGINIA.

LIST OF DRAWINGS

- 1 - COVER SHEET
- 2 - SITE PLAN
- 3 - CONSTRUCTION DETAILS



LEGEND			
EX. INDEX CONTOUR	--- 700 ---	PROP. INDEX CONTOUR	--- 700 ---
EX. INTERMEDIATE CONTOUR	--- 700 ---	PROP. INTERMEDIATE CONTOUR	--- 700 ---
EX. BOUNDARY LINE	---	PROP. GRADING LIMITS	---
EX. ROAD EDGE OF GRAVEL/DIRT	---	PROP. LIMITS OF DISTURBANCE	---
EX. ROAD EDGE OF PAVEMENT	---	PROP. WELL PAD	---
EX. ROAD CENTERLINE	---	PROP. BRINE WELL HEAD	---
EX. DITCHLINE	---	PROP. 4" PVC DRAIN PIPE	---
EX. CULVERT	---	PROP. SUMP DRAIN	---
EX. GUARDRAIL	---	PROP. CONTAINMENT BERM	---
EX. FENCELINE	---	PROP. PIT/IMPONDMENT CL	---
EX. GATE	---	PROP. PERIMETER SAFETY FENCE	---
EX. OVERHEAD UTILITY	---	PROP. ACCESS GATE WITH EMERGENCY LIFELINE	---
EX. OVERHEAD UTILITY R/W	---		
EX. POWER POLE	---		
EX. GUY WIRE	---		
EX. TELEPHONE LINE	---		
EX. GASLINE	---		
EX. GASLINE R/W	---	PROP. ROCK CONSTRUCTION ENTRANCE	---
EX. WATERLINE	---		
EX. WATER WELL	---	PROP. ROAD EDGE OF GRAVEL	---
EX. BRINE WELL	---	PROP. ROAD CENTERLINE	---
EX. TREELINE	---	PROP. V-DITCH W/ CHECK DAMS	---
EX. REFERENCE TREE	---	PROP. DITCH RELIEF CULVERT (DRC)	---
EX. DELINEATED STREAM	---	PROP. RIP-RAP OUTLET PROTECTION	---
EX. DELINEATED WETLAND	---	PROP. GUARDRAIL	---
EX. BUILDING	---	PROP. ROCK LEVEL SPREADER	---
EX. BRIDGE	---	PROP. EARTHEN DIVERSION BERM	---
		PROP. ORANGE SAFETY FENCE	---
		PROP. SUPER SILT FENCE	---SSF---SSF---
		PROP. REINFORCED SILT FENCE	---
		PROP. COMPOST SOCK DIVERSION	---
		PROP. GROUNDWATER DEWATERING TRENCH	---
		PROP. GROUNDWATER DEWATERING PIPE	---
		SECTION LINE	--- A --- A ---
		MATCHLINE	---
		X-SECTION GRID INDEX	---
		X-SECTION GRID INTERMEDIATE	---
		X-SECTION PROPOSED GRADE	---
		X-SECTION EXISTING GRADE	---
		X-SECTION WATER SURFACE	---
		SPOT ELEVATION	x 1000'



THIS DOCUMENT WAS PREPARED BY: SLS LAND AND ENERGY DEVELOPMENT FOR: EAGLE NATRIUM LLC/AXIALL CORPORATION

BRINE WELL #14
SITE PLAN
FRANKLIN DISTRICT
MARSHALL COUNTY, WV

DATE: 02-16-2017

SCALE: 1" = 2000"

DESIGNED BY: KLH

FILE NO. 7492

SHEET 1 OF 3

REV: 02-17-2017

OPERATOR

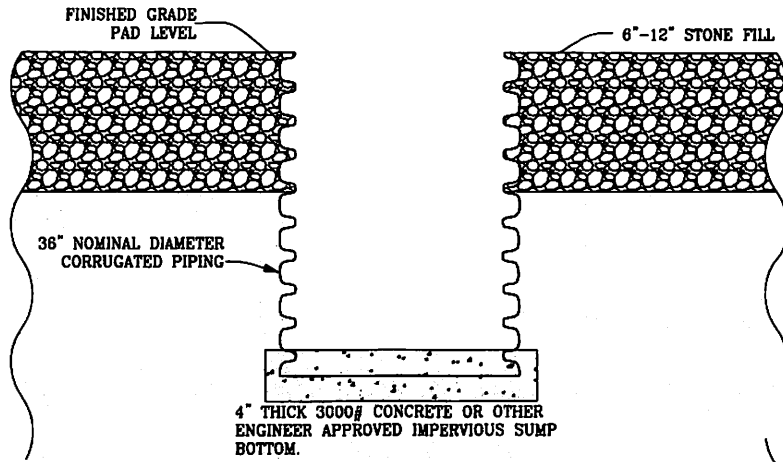
EAGLE NATRIUM LLC
WV STATE ROUTE 2
P.O. BOX 191
NEW MARTINSVILLE, WV 26155
PHONE: (304) 455-2200

ENGINEERS/SURVEYOR

SLS LAND AND ENERGY DEVELOPMENT
12 VAN HORN DRIVE
P.O. BOX 150
GLENVILLE, WV 26351
PHONE: (304) 462-5834

04/07/2017

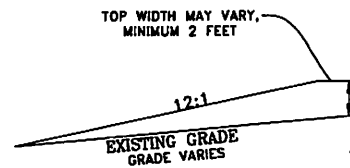
SUMP TYPICAL



1. CONTAINMENT SUMPS SHALL BE INSPECTED DAILY TO PREVENT OVERFLOWING.
2. SUMP AREAS SHALL BE LINED AS NECESSARY TO PREVENT FILTRATION THROUGH THE CONTAINMENT BERM.

MOUNTABLE
TYPICAL

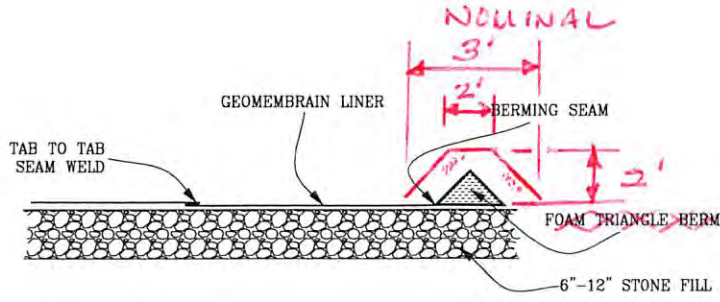
NOT TO SCALE



04/07/2017

EARTHEN

A BERM TYPICAL



1. TAB TO TAB SEAMING MUST BE DONE USING A SOLID WEDGE STYLE AUTOMATIC WELDER WITH A $\frac{1}{2}$ " OVERLAP.
2. BERMING SEAM MUST BE SEALED WITH SILAPRENE SOLID SEAL OR EQUIVALENT PRODUCT.



THIS DOCUMENT WAS PREPARED BY SLS LAND AND ENERGY DEVELOPMENT FOR EAGLE NATRUM LLC/AXIAL CORPORATION

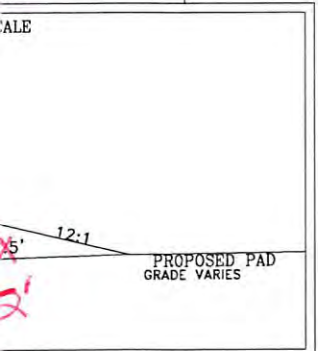
BRINE WELL 14
CONSTRUCTION DETAILS
 FRANKLIN DISTRICT
 MARSHALL COUNTY, WV

DATE: 1-06-2017
 SCALE: NA
 DESIGNED BY: KLH
 FILE NO. 7492
 SHEET 3 OF 3
 REV: 02-17-2017

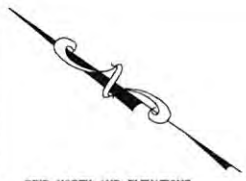
KLH
2/24/17

EARTHEN

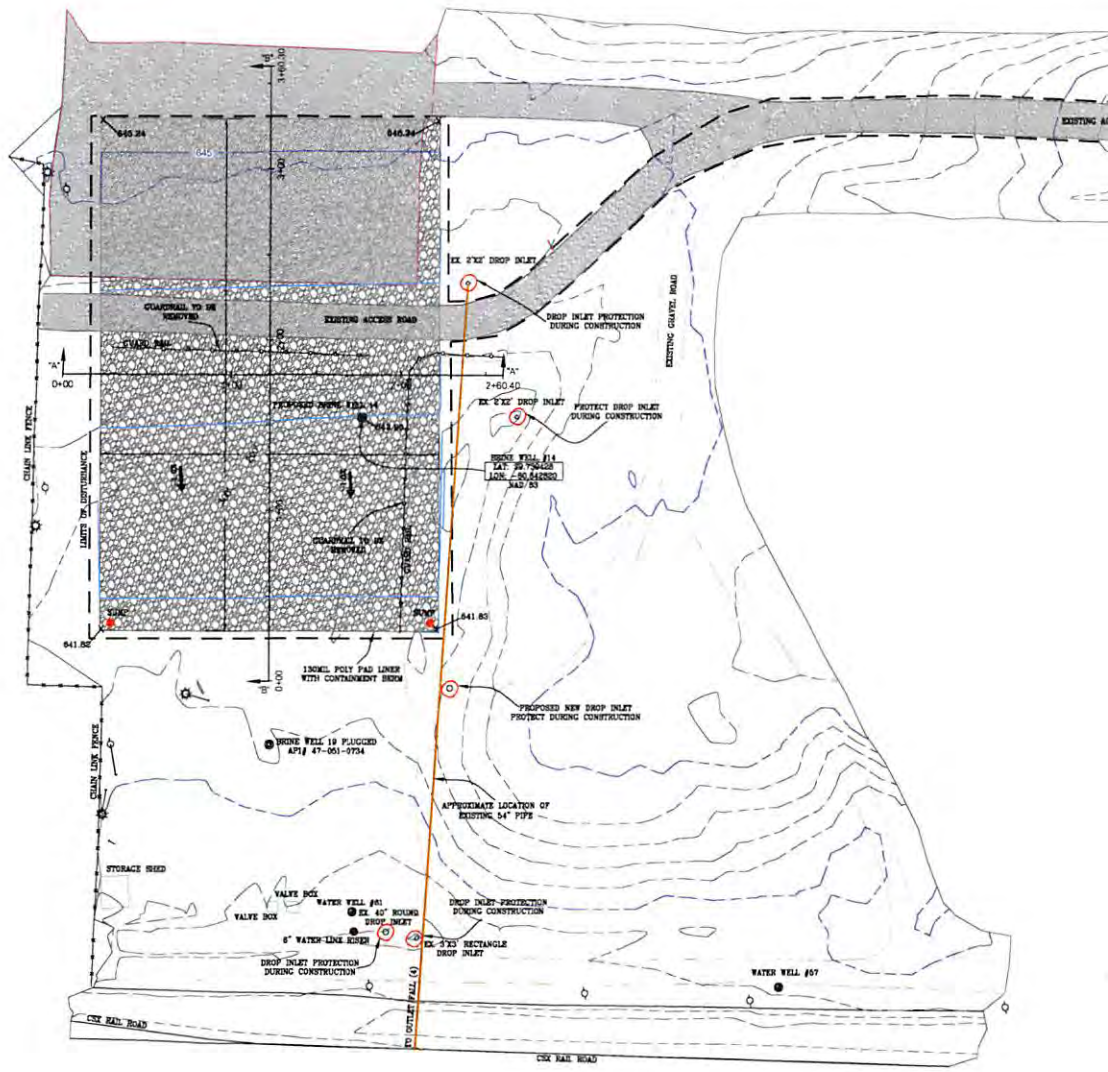
E BERM



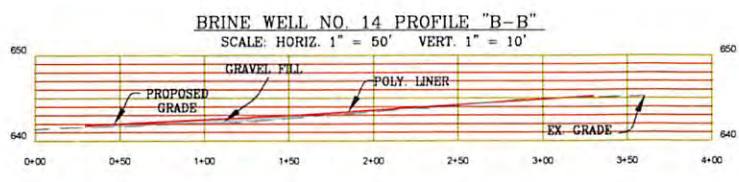
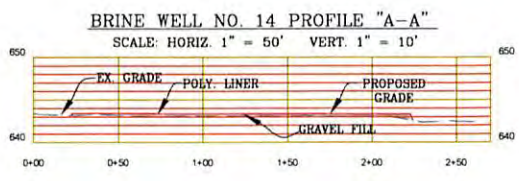
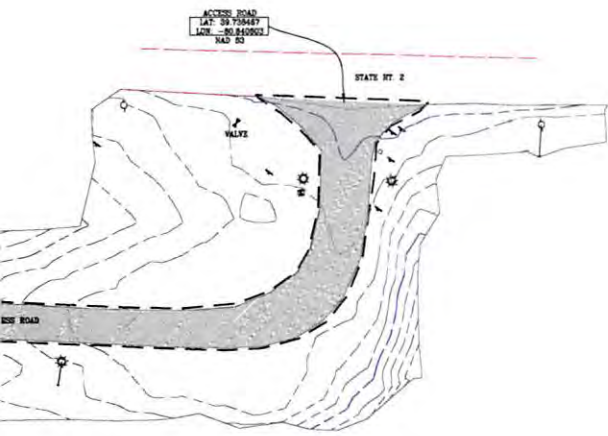
BRINE WELL SITE PLAN



GRID NORTH AND ELEVATIONS
SHOWN HEREON WERE ESTABLISHED
BY SURVEY GRADE GPS



14
V



TOTAL LIMITS OF INCLUSION (ACRES)	1.9
LIMITS OF NEW DISTURBANCE (ACRES)	0.1

REQUIRED WELL PAD STONE (TONS)	863
--------------------------------	-----



THIS DOCUMENT WAS PREPARED BY: SLS LAND AND ENERGY DEVELOPMENT FOR: EAGLE NATRUM LLC/AXIALL CORPORATION

BRINE WELL 14
SITE PLAN
FRANKLIN DISTRICT
MARSHALL COUNTY, WV

DATE: 1-06-2017
SCALE: 1" = 50'
DESIGNED BY: KJH
FILE NO. 7492
SHEET 2 OF 3
REV: 02-17-2017



04/07/2017

WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas
WELL LOCATION FORM: GPS

API: 47-051- WELL NO.: 14 Brine Well

FARM NAME: Eagle Natrium, LLC/ Axiall Corporation

RESPONSIBLE PARTY NAME: J. Thomas Horan

COUNTY: Marshall DISTRICT: Franklin

QUADRANGLE: New Martinsville

SURFACE OWNER: Eagle Natrium, LLC/ Axiall Corporation

ROYALTY OWNER: Eagle Natrium, LLC/ Axiall Corporation

UTM GPS NORTHING: ~~454,259.4~~ 4398848.9 N

UTM GPS EASTING: ~~1,590,901.2~~ 513467.5 E GPS ELEVATION: 643 ft.

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS : Post Processed Differential _____

Real-Time Differential _____

Mapping Grade GPS _____ : Post Processed Differential _____

Real-Time Differential _____

4. Letter size copy of the topography map showing the well location

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

J.T. Horan
Signature

Manager, Environmental Control
Title

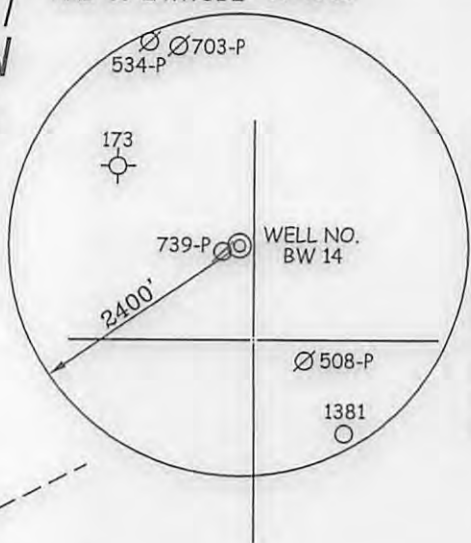
2/22/17
Date

RECEIVED
Office of Oil and Gas
FEB 27 2017
WV Department of Environmental Protection

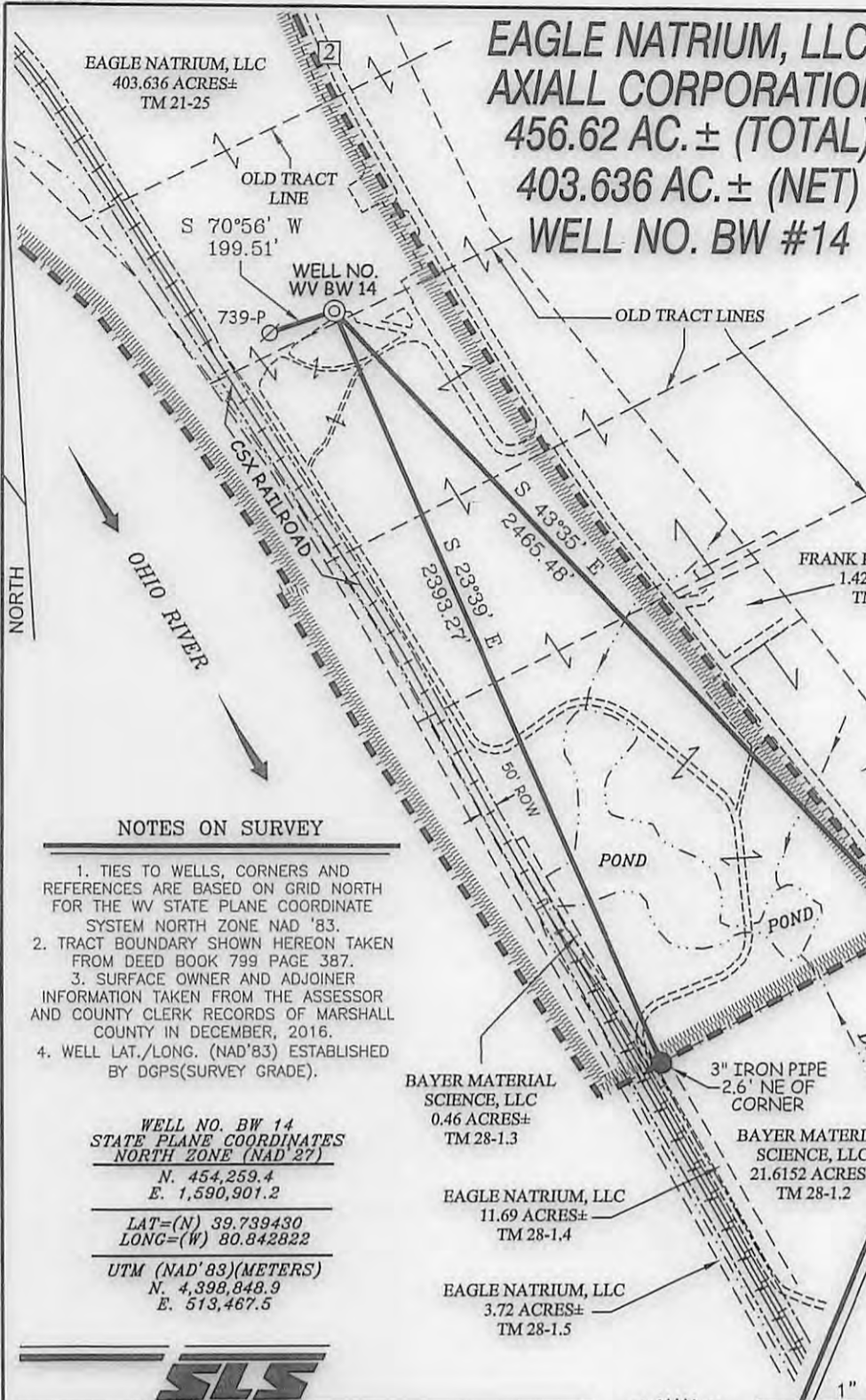
EAGLE NATRIUM, LLC / AXIALL CORPORATION

456.62 AC. ± (TOTAL)
403.636 AC. ± (NET)
WELL NO. BW #14

NAD '83 LATITUDE 39°45'00"



NAD '83 LONGITUDE 80°50'00"

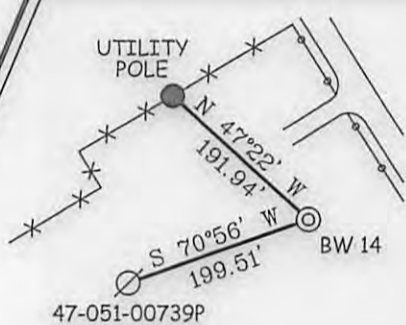


NOTES ON SURVEY

1. TIES TO WELLS, CORNERS AND REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '83.
2. TRACT BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 799 PAGE 387.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARSHALL COUNTY IN DECEMBER, 2016.
4. WELL LAT./LONG. (NAD'83) ESTABLISHED BY DGPS(SURVEY GRADE).

**WELL NO. BW 14
STATE PLANE COORDINATES
NORTH ZONE (NAD 27)**
N. 454,259.4
E. 1,590,901.2
LAT=(N) 39.739430
LONG=(W) 80.842822
UTM (NAD'83)(METERS)
N. 4,398,848.9
E. 513,467.5

REFERENCES



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. *C. Victor Moyers*
849



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JANUARY 27, 20 17
OPERATORS WELL NO. BW 14
API WELL NO. 47-051-01919B
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7492PBW14
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 500'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS



WELL TYPE: OIL GAS BRINE & LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 643' WATERSHED OHIO RIVER
DISTRICT FRANKLIN COUNTY MARSHALL QUADRANGLE NEW MARTINSVILLE 7.5'

SURFACE OWNER EAGLE NATRIUM, LLC / AXIALL CORPORATION ACREAGE 456.62± (TOTAL) 403.636± (NET)
ROYALTY OWNER EAGLE NATRIUM, LLC / AXIALL CORPORATION ACREAGE _____

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER _____

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION SALINA
ESTIMATED DEPTH 6,700' - 6,800'

WELL OPERATOR EAGLE NATRIUM, LLC / AXIALL CORPORATION DESIGNATED AGENT J. THOMAS HORAN
ADDRESS P.O. BOX 191 ADDRESS P.O. BOX 191
NEW MARTINSVILLE, WV 26155 NEW MARTINSVILLE, WV 26155

COUNTY NAME
PERMIT

04/07/2017



Axiall Corporation
Eagle Natrium LLC
15696 Energy Road
State Route 2
Proctor, WV 26055

J. Thomas Horan
Manager Environmental
Telephone: (304) 455-2200 ext. 3310
Fax: (304) 455-2422
Tom.Horan@axiall.com

5101919 B
CK 100026919
90000

February 24, 2017

Via Overnight Mail

James Martin, Chief
WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

Dear Mr. Martin:

**Subject: Permit Application for #14 Brine Well
UIC Permit No. UIC3S05101 AP**

Please find enclosed, completed forms required to obtain permission to drill and operate a new Brine Well #14 at the Axiall Corporation, Eagle Natrium LLC, Natrium Facility to produce sodium chloride brine using solution mining techniques for the manufacture of chlorine and caustic soda.

Form WR-37 will be submitted after completion and prior to operations as required by regulations. A check in the amount of \$900.00 is enclosed for the required filing fees.

If you should have any questions, please call Mr. Stephen Clark, P.E., Principal Project Engineer at (304) 455-2200 extension 3318.

Sincerely,

J. Thomas Horan
Environmental Manager

Attachments:

Cc: Mr. James Nicholson, Inspector
WV DEP, Office of Oil & Gas
P.O. Box 44
Moundsville, WV 26041

RECEIVED
Office of Oil and Gas
FEB 27 2017
WV Department of
Environmental Protection

04/07/2017