Broad Street Energy LLC, Cook #102, Permit # 4658
SWIW #26
Morgan Co. Marion Twp.
Berea SS

APPLICATION CHECKLIST

	Date	Initials
Enter on Agenda	1/11/12	
Completeness Review	1/11/12	
Date – Time Stamp	1/11/12	
Area of Review	1/11/12	
Site Evaluation		
Permitting Section	1/11/12	
Memo to Inspector	7-25-12	
Public Notice	08-01-2012	
Letter 8-1-12		
Date Run		
15 Days		
Review Public Notice		
Affidavit of Notification	02/03/12	
Objections Received Yes ____ No ____		
Public Hearing Date		
Chief's Order, if Required		
Schematic		
Plot on Map	1/31/12	
Review by Geologist		
Permit Conditions (Same date as permit)		
Enter on Computer (Same or later date than Chief's Order)		
Enter on Master List	1/31/12	
EPA Form	1/31/12	
Mail Permit		
Update Agenda		
File		

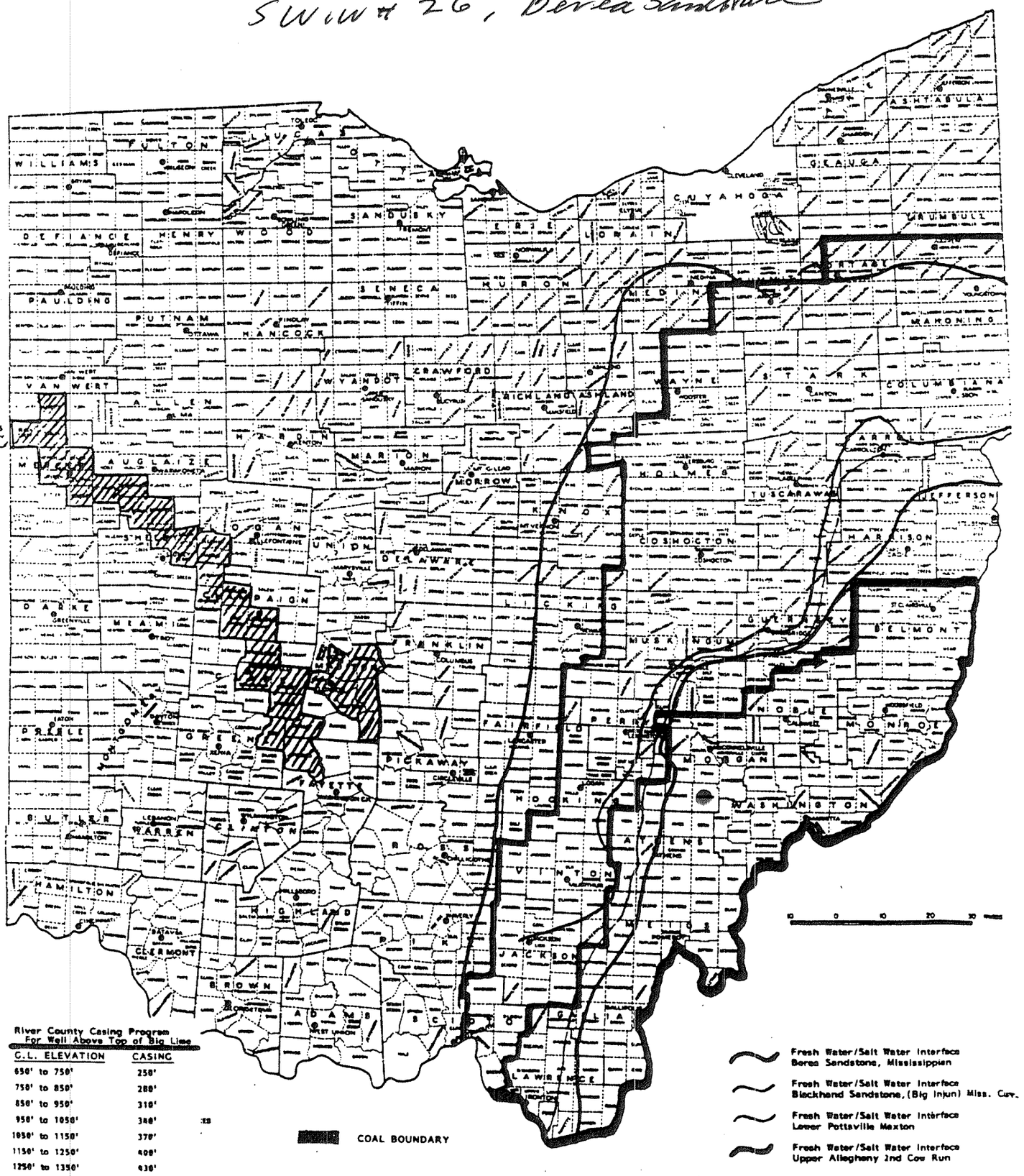
RECORD OF CONVERSATION

1/11/12 - Incomplete applicatn - need supplement, diagram, restoration signed, SWIW affidavit

2/3/12 - Received supplement, restoration and affidavit OK

Will use existing facility @ 2A - 7-27-12 AH

Morgan County, Permit # 4658
SW wl # 26, Berea Sandstone



River County Casing Program
For Well Above Top of Big Lime

G.L. ELEVATION	CASING
650' to 750'	250'
750' to 850'	288'
850' to 950'	318'
950' to 1050'	348'
1050' to 1150'	378'
1150' to 1250'	408'
1250' to 1350'	438'
OVER 1350'	500'

COAL BOUNDARY

Fresh Water/Salt Water Interface
Berea Sandstone, Mississippian

Fresh Water/Salt Water Interface
Blackhand Sandstone, (Big Injun) Miss. Cuy.

Fresh Water/Salt Water Interface
Lower Pottsville Maxton

Fresh Water/Salt Water Interface
Upper Allegheny 2nd Cow Run

Proof Sheet

APPL NUMBER	aPATT020347	**URBANIZED AREA ?**	☐
OWNER NUMBER	8312	**NAME**	
OWNER NAME	BROAD STREET SERV LLC		
EXISTING WELL	-1		
API PERMIT NO	34115246580000	**DISPOSAL PLAN 1**	ND
APPL TYPE	CO	**DISPOSAL PLAN 2**	
TYPE OF WELL	SWD	**DISPOSAL PLAN 3**	
VARIANCE REQUEST		**DISPOSAL PLAN 4**	
WELL NAME	COOK (SWIW #26)	**DISPOSAL PLAN 5**	
WELL NUMBER	102	**MP Check #**	0
PREV/PROPOSED TD	1784		
DRILL UNIT ACRES	10		
TYPE OF TOOL	CT	**PROPOSED FORMATIONS**	
WELL CLASS	SWIW	2ND BEREA	
FIRE PHONE	( ) - 911		
MEDICAL PHONE	( ) - 911		
COUNTY CODE	115		
COUNTY NAME	MORGAN		
COAL (Y=-1/N=0)	-1		
CIVIL TOWNSHIP	MARION	**TARG CIVIL TWP**	
SURF QUAD	AMESVILLE	**TARG QUAD**	
Nad 27 SURF ORIG X	2,171,070	**Nad 27 TARG ORIG X**	
Nad 27 SURF ORIG Y	531,165	**Nad 27 TARG ORIG Y**	
GROUND ELEVATION	840	**TARG ELEV**	0
SURF SEC	19	**TARG SECTION**	
SURF LOT		**TARG LOT**	
SURF QTR TWP		**TARG QTR TWP**	
SURF ALLOT		**TARG ALLOT**	
SURF TRACT		**TARG TRACT**	
SURF FRACTION		**TARG FRACTION**	

DAILY ROUTE SLIP Marion

APPLICATION NO. aPATT020347 TYPE: Convert

CONAME BROAD STREET SERV LLC API 34115246580000

WELL NAME /NO. COOK 102

COUNTY 115 MORGAN

	INITIALS	DATE
DATE APPLICATION REC'D	PN	1/11/2012
PERMIT FEE AND CHECK NO.	$1,000.00	3435
RUSH AMOUNT RUSH CHECK NO.	$0.00	0
APPLICATION ENTERED	PN	1/11/12
APPLICATIONS AND PLATS SENT FOR MINE APPROVAL	—	—
COAL APPROVAL RECEIVED		NA
OIL/GAS AFFIDAVIT REC'D		NA
URBANIZED AREA NOTIFICATION SENT		NA
URBANIZED AREA NOTIFICATION SENT TO INSPECTOR/REC'D BACK		NA
URBAN MAP REVIEW		NA
SAMPLES: YES____/SPECIAL AREAS		NA
GEOLOGIST APPROVAL		
DATA ENTRY /ISSUED		
PERMIT: TAKEN_____ MAILED_____		
FAX TO:		
FINAL MAP CHECK		

COMMENTS: Form 4- Not Signed

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Richard J. Simmers, Chief
Division of Oil and Gas Resources Management
2045 Morse Road, Bldg. F-2
Columbus, OH 43229-6693
Phone (614) 265-6922 Fax (614) 265-6910

August 1, 2012

Mr. Geoffrey W. Arthur
Broad Street Energy, LLC
37 West Broad Street Suite 1100
Columbus OH 43215

RE: Public Notification for SWIW application for Morgan County, Marion Twp., Permit #4658, Broad Street Energy, LLC, Cook #102 injection well.

Dear **Mr. Arthur**:

As outlined in Rule 1501: 9-3-06 (H) (1) of the Ohio Administrative Code, please consider this letter as notification from the Division for you to proceed with the public notice. Enclosed, please find a copy of the notice you will need to have run in the newspaper of general circulation in the area of the proposed injection well. **The public notice must be run for no less than five consecutive days. After running this notice in the newspaper, please send me the original proof-of-publication from the newspaper as soon as possible.**

If you have any questions regarding this matter, please feel free to contact me at (614) 265-1032.

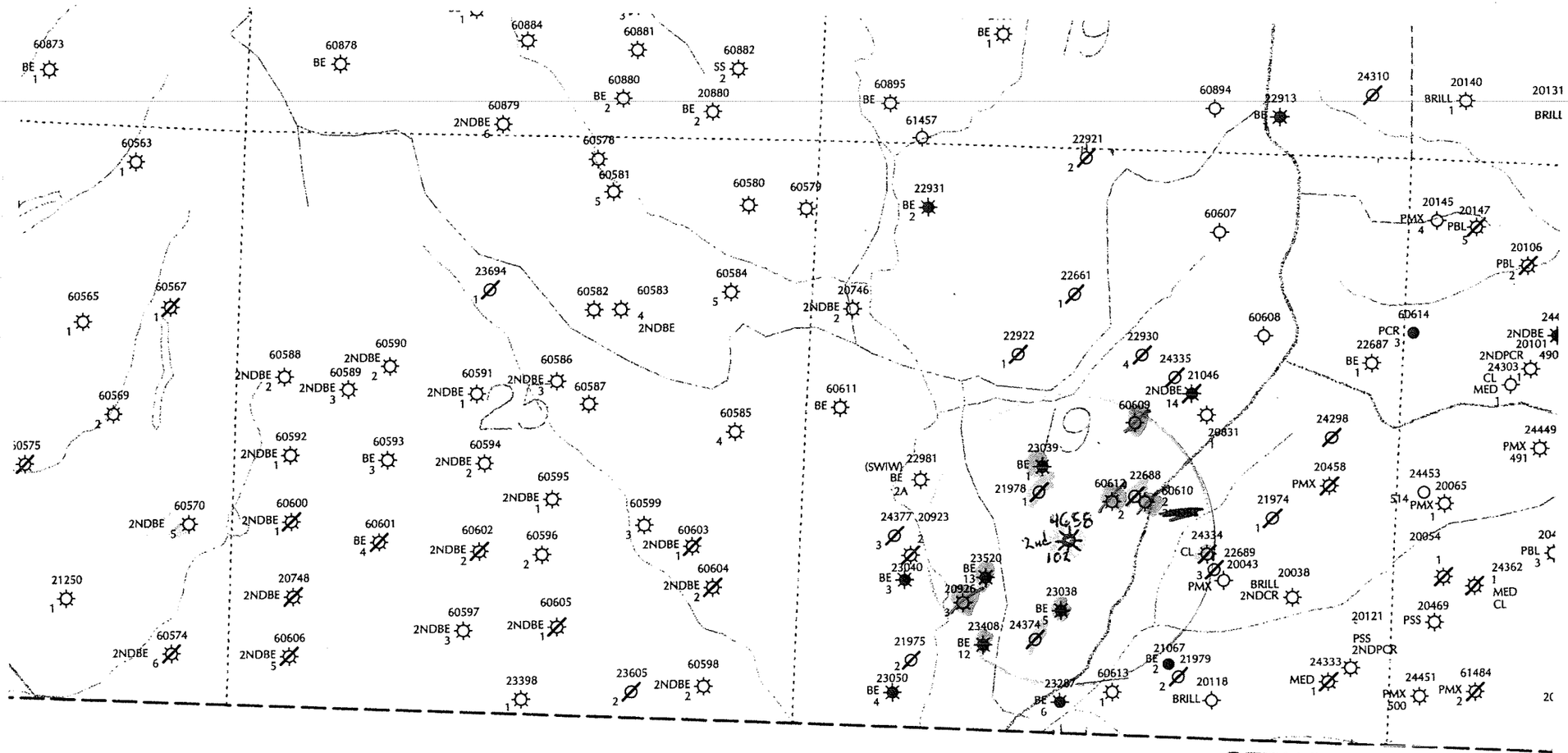
Sincerely,

Tom Tomastik, Geologist
UIC Section
Division of Oil and Gas Resources Management
2045 Morse Road, F-2
Columbus, Ohio 43229-6693

Cc: File

PUBLIC NOTICE

Broad Street Energy, LLC, 37 West Broad Street, Suite 1100 Columbus Ohio (614) 228-0326 is applying to permit a well for the injection of brine water produced in association with oil and natural gas. The location of the proposed injection well is SWIW#26 well, Permit #4658, Section 19, Marion Township, Morgan County, Ohio. The proposed well will inject into 2nd Berea Sandstone at depths of 1568 to 1574 feet. The average injection is estimated to be 400 barrels per day. The maximum injection pressure is estimated to be 360 psi. Further information can be obtained by contacting Broad Street Energy, LLC or the Division of Oil and Gas Resources Management. The address of the Division is: Ohio Department of Natural Resources, Division of Oil and Gas Resources Management, 2045 Morse Road, Building F-2, Columbus, Ohio 43229-6693, (614) 265-6633. For full consideration, all comments and objections must be received by the Division, in writing, within fifteen calendar days of the last date of this published legal notice.



BERN TWP ATHENS CO

- Proposed Bea SWW
- Not drilled
- Berea wells
- P+A Clinton well
- Shallow wells

MARIO
MORGA
115

TBN

DIVISION OF GEOLOGICAL SURVEY

OHIO DEPARTMENT OF

OPERATOR Broad Street Energy LLC COUNTY Morgan

TOWNSHIP Marion

P & A	FM	Permit Number	Casing/Cement Program	Well Log and/or Method of Plug
☐	BE	4658	7"-339'-cemented to surface 4½"-1735'-cemented w/ 70 sacks - Perfs = 1568'-157 Calculated Ref-up = 688' - TOC = 1047'	
☐	BE	3408	7"-285'-cemented w/ 90 sacks 4½"-1529'-cemented w/ 45 sacks	
☐	BE	3038	7"-300'-cemented w/ 65 SKS. 4½"-1706'-cemented w/ 45 sacks	
☐	BE	3520	7"-254'-cemented to surface 4½"-1560'-cemented w/ 45 SACKS	
☐	BE	3039	7"-347'-cemented w/ 65 sacks 4½"-1700'-cemented w/ 45 sacks	
☐	CL	4374	Not drilled	
☐	BE	1978	Not drilled	
☐	BE	2688	Not drilled	
☐	___	60612	Shallow well	
☐	___	60610	Shallow well	
☐	___	926	Shallow well	

NOTE: Proposed injection well should be circumscribed with appropriate radius and all wells clearly labeled and identified. A legend depicting color code is requires.

Geologic Review for Class II Wells

Application No. aPATT020347
SWIW: (Salt Water Injection Well)
Proposed Well Depth: 1,784 feet
Proposed Injection Zone: Second Berea Convert
Morgan County, Marion Twp
Study area investigated ~ 15 mile radius centered on the proposed well location for all maps except gravity and magnetic maps, which used a 30 mile radius

Gravity Bouguer Anomaly

- The proposed well location sits on a relatively low gravity zone. There are no major trends that appear just a gradational increase in gravity from the Southeast towards the Northwest.

Gravity Free Air

- The free air gravity shows the well permit on a relatively low gravity zone with the gradual increase in gravity from the Southeast towards the Northwest.

Magnetic First Derivative

- The first magnetic derivative shows the well permit located on a local lower magnetic zone. The only trend that can be seen is a minor Northeast-Southwest Low magnetic trend that is about 7 miles to the southeast. This trend extends from Meigs County, Orange twp through to Noble county Jefferson twp.

Magnetic Second Derivative

- The well location is located again on a relatively low magnetic zone and the same minor Northeast-Southwest Low magnetic trend that is about 7 miles to the southeast is present.

Magnetic Reduce Dipole

- The magnetic reduce dipole map shows the proposed location on a large magnetic high zone. Again the same trend can be seen 7 miles to the southeast, but it stands out much better as a lower magnetic trend.

Precambrian Structure from PG-23

- Nothing of note.

Knox Structure

- Nothing of note.

Trenton Structure

- Nothing of note.

EGSP Onondaga Structure

- The EGSP Onondaga surface shows slight structural deviations in the area, the closest being a Northwest-Southeast trend about a mile to the southwest.

MRCSP Onondaga Structure

- Nothing of note.

EGSP Berea Structure

- The EGSP Berea surface also shows slight Northwest-Southeast structural deviations in the area, the closest again is about a mile to the southwest. Others parallel this deviation and range from 4 miles – 10 miles away.

Mississippian/Pennsylvanian Unconformity Surface

- Nothing of note.

Middle Kittanning Coal Structure

- The Middle Kittanning coal surface shows some a Northwest-Southeast trending change in strike, but no major structural features.

Upper Freeport Coal Structure

- Nothing of note.

Pittsburgh Coal Structure

- Nothing of note.

Bedrock Geology

- The well location is on the Monongahela Group of the Upper Pennsylvanian. There is a lower stream channel cut to the west but no major trends are seen in this area

Bedrock Topography

- The bedrock topography map shows a river valley to the west of the proposed well location but no other major surface trends are seen in this area.

EGSP Aerial Photo Lineament

- Numerous lineaments generally less than 1 mile in length have been interpreted from aerial photos by Gray and others (1982) over and in the immediate vicinity of the permit application with 2 dominant directions oriented northwest-southeast and northeast-southwest.

EGSP LANDSAT Lineament

- There are a few lineaments in the area most of which are just over a mile in length. There are no major lineaments in the immediate vicinity of the proposed well location.

Mason Lineament

- The Mason lineament map shows 5 surface lineaments in the mapping area however the closest is a Northwest-Southeast trending lineament that terminates about 8 miles to the Northeast.

Oil and Gas fields

- The proposed well is located on a large Berea gas field knows as the Chesire Consolidated field. There are also other Pennsylvanian and Mississippian oil and gas fields within 4 miles.

Earthquakes

- There are 5 earthquakes that have occurred in the larger mapping area the closest being about 14 miles from the proposed well site. This 3.9 magnitude earthquake occurred in 1952. The next closest occurred in Athens county about 20 miles away in 1886 and this earthquake had a magnitude of 3.8. The most recent earthquake in this region occurred in 2010 and 2011 and had magnitudes of 2.8 and 3.1 respectively. Both of these earthquakes are over 25 miles from the proposed well location.

Injection Wells

- There are 18 injection wells in the area 1 is an enhanced oil recovery well, 2 are inactive enhanced oil recovery wells, 6 inactive salt water injection wells, and 9 active salt water injection wells. The closest well is well under a mile from the proposed location and is an active water injection well. This is another 2nd Berea injection well by the same company.

To summarize, there are some slight structural features in some areas of this permit, but nothing that points to a known fault or major lineament. There have been some historic and recent earthquakes in the area but nothing closer than 14 miles. Also there are multiple active injection wells in the area; one of which is extremely close just off to the southwest.

Tomastik, Tom

From: Baker, Mike [Mike.Baker@epa.state.oh.us]
Sent: Friday, March 09, 2012 2:02 PM
To: Tugend, Thomas
Cc: Tomastik, Tom; Eggert, Michael; Lowe, Chuck
Subject: Class II Permiot Reviews
Attachments: ODNR Permit Review Summary 2.docx

Ohio EPA Division of Drinking and Ground Waters has completed its review of nine (9) Class II underground injection well permits.

Our review of the Class II permits focused on well construction relative to the protection of underground sources of drinking water (USDW) and the location of the surface facilities relative to public water system source water protection areas and other sensitive hydrogeologic settings.

None of the reviewed Class II permits are within 2,000 feet of a public water system well or within a source water protection area. However, we do have a couple overarching comments concerning the surface casing of the well construction. More specifically, our review assessed the placement of surface casing and cement relative to the lowest most USDW. Ohio EPA would recommend that a class A cement with appropriate additives be specified as well as the use of centralizers to assure an adequate bond.

Attachment A is a summary of our comments concerning each permit application. Please contact Chuck Lowe of my staff at 614-644-2752 if you have questions on the specific comments.

Attachment A: ODNR Permit Review Summary

9 permits reviewed, including:

- 6 new drills; and,
- 3 conversions of existing wells.

None of the Class II SWDWs reviewed are within 2,000 feet of a PWS well or within a protection area.

New Wells

1. Muskingum Co., Jackson Twp. OOGC #1 Black Run Disposal Well
    - Surface casing depth and amount of cement appear adequate. The type of cement, and number and location of centralizers used on the surface casing should to be specified. Lack of this information limits our review.
    - The injection zone is the Knox through the Mt. Simon; however, completion schematic shows only the Mt. Simon as perforated. The injection zone perforations should be corrected to reflect the revised injection zone.
    - Well surface construction appears sufficient.
2. Mahoning Co., Springfield Twp. D&L #7 Mohawk Printup
    - Surface casing depth and amount of cement appear adequate. The permit to drill specifies 350 sacks of superlite cement – Ohio EPA recommends that Class A be used instead. The number of centralizers and their location should be specified. The lack of this information limits our review.
    - The well is located outside of the Youngstown area of concern.
    - Well surface construction appears sufficient.
3. Mahoning Co., Youngstown Twp. D&L #8 Mohawk Meenchan
    - Well construction comments are the same as for the #7 Mohawk Printup well.
    - The #8 Mohawk Meechan well is within the AOR that has experienced seismic activity. This should be evaluated in siting, construction and injection requirements.
4. Muskingum Co., Union Twp. 1960 Well Services #1 C. Goff
    - Surface casing and amount of cement appears adequate. The type of cement, and number and location of centralizers used on the surface casing should to be specified. Lack of this information limits our review.
    - The plat map shows two small wetland areas that are adjacent to the well and offloading pad. The permittee should be made aware of associated regulatory requirements.
    - Well surface construction appears sufficient.
5. Trumbull Co., Weathersfield Twp. American Water Mgt. #1 AWM
    - Both surface and injection casing depths and cement appear adequate. The type of cement, and number and location of centralizers used on the surface casing should to be specified. Lack of this information limits our review.
    - Open hole disposal into the "Newburg". There are sixteen existing "Clinton" wells within the AOR that are likely un-cemented above the "Clinton" cement top and the base of the surface casing. These well bores could act as a conduit for fluid migration (i.e. either brine or brine displacing formation waters).

6. Trumbull Co., Weathersfield Twp. American Water Mgt. #2 AWM
    - Surface casing depth appears adequate and cemented to surface. The type of cement, and number and location of centralizers used on the surface casing should to be specified. Lack of this information limits our review.
    - The injection casing cement top is shown to surface on the diagram, but states the cement top is at 4000 feet. This should be clarified because the plat map show 112 feet between the two disposal wells (same concerns as outlined in #5).

Converted Wells

1. Athens Co., Rome Twp., D.T. Atha #1 M. Frost
    - Surface casing depth appears adequate; however, no inspectors report to verify cement to surface (315 sacks used on completion report). The surface cement should be verified.
    - Operator proposes to squeeze off the existing perfs in the Berea and Ohio Shale, but doesn't show the proposed injection zone perfs.
    - Injection casing and tubing construction depths don't agree with the well schematic diagram. This should be resolved.
2. Knox Co., Morgan Twp., Knox Energy #2 Harstine Trust
    - Surface casing and cement job appear adequate.
3. Morgan Co., Marion Twp., Broad Street Energy #102 Cook
    - Surface casing and cement volume (90 sacks) appear adequate.
    - Well surface construction appears adequate.

SALTWATER INJECTION WELL – AFFIDAVIT

Ohio Department of Natural Resources
Division of Mineral Resources Management
2045 Morse Road, Columbus, Ohio 43229-6693

State of Ohio, Morgan County, ss

Geffrey W. Arthur being first duly sworn says that as principal, or authorized agent, for Broad Street Energy, LLC; he or she has made application for a saltwater injection well in the State of Ohio Morgan, County, Marion Township, section/lot number 19; and further certifies that notice of application has been delivered to each individual entitled to personal notification in accordance with paragraph (E) of Rule 1501:9-3-.06 of the Ohio Administrative Code. And further affiant saith not.

Affiant Signature

Sworn to before me and subscribed in my presence this 31st day of January, 20 12.

Notary Public
Sheri Dewalt
My Commission Expires: 10/29/2016

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FEB 13 2012
Division of Oil and Gas
Resources Management

DNR-744-1003
Revised 11/2011

RESTORATION PLAN

Ohio Department of Natural Resources

Division of Mineral Resources Management, 2045 Morse Road, Bldg. H-3, Columbus OH 43229-6693

FORM 4: Revised 04/05/mm

1. DATE OF APPLICATION:

2. OWNER NAME, ADDRESS, & TELEPHONE NO.:
Broad Street Energy LLC.
37. W. Broad Street (suite 1100)
Columbus OH 43215
Phone: 614-228-0326

3. API #: 3 4 _ _ _ _ _ _ _ _ _ * * 1 4 _ _

4. WELL #: 102

5. LEASE NAME: COOK

6. PROPERTY OWNER: D. BEARD

7. COUNTY: MORGAN

8. CIVIL TOWNSHIP: MARION

9. SECTION: 19 10. LOT:

11. CURRENT LAND USE:
___ Cropland ___ Commercial
___ Pasture _X_ Idle Land
___ Wetlands ___ Recreational
___ Residential ___ Industrial
___ Unreclaimed strip mine
_X_ Woodland: (Circle Broad-leaved or Needlelike)

12. SLOPE GRADIENT & LENGTH DETERMINED FROM:
___ Ground Measurement
_X_ U.S. Geological Survey Topographical Maps
___ Other (explain) _____

13. TYPE OF FALL VEGETAL COVER:
___ Little or no vegetal cover
___ Short grasses
___ Tall weeds or short brush (1 to 2 ft.)
_X_ Brush or bushes (2 to 6 ft.)
___ Agricultural crops
___ Trees with sparse low brush
___ Trees with dense low brush

14. SOIL & RESOILING MATERIAL AT WELLSITE:
_X_ Stockpile and protect topsoil to be used when preparing seedbed
___ Use of soil additives (e.g., lime, fertilizer)
___ No resoiling planned
___ Proposed alternative _____

15. DISPOSAL PLAN FOR TREES AND TREE STUMPS:
___ No trees disturbed ___ Haul to landfill
___ Cut into firewood ___ Sell to lumber company
___ Bury with landowner's approval
___ Mulch small trees and branches, erosion control
_X_ Use for wildlife habitat with landowner approval
___ Proposed alternative _____

16. SURFACE AND SUBSURFACE DRAINAGE FACILITIES:
_X_ No existing drainage facilities for removal of surface and/or subsurface water
___ Tile drainage system underlying land to be disturbed
___ Drain pipe(s) underlying land to be disturbed
___ Surface drainage facilities on land to be disturbed

17. TYPE OF WELL:
_X_ Oil _X_ Gas ___ Other

18. STEEPEST SLOPE GRADIENT CROSSING SITE:
___ 0 to 2% _X_ 2.1 to 8% ___ 8.1 to 10%
___ 10.1 to 24% ___ greater than 24%

19. LENGTH OF STEEPEST SLOPE CROSSING SITE:
___ 1 to 100 ft. _X_ 101 to 200 ft.
___ 201 to 400 ft. ___ greater than 400 ft.

20. RESTORATION OF DRILLING PITS: **
_X_ Haul drilling fluids and fill pits
___ Use steel circulating tanks
___ Proposed alternative _____

21. BACKFILLING AND GRADING AT SITE:
___ Construct diversions channels to naturally established drainage systems
___ Construct terraces across slopes
_X_ Grade to approximate original contour
___ Grade to minimize erosion & control sedimentation
___ Proposed alternative _____

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FEB 3 2012
Division of Oil and Gas
Resources Management

22. VEGETATIVE COVER TO BE ESTABLISHED AT SITE:
_X_ Seeding plan ___ Sod
___ Agricultural crops ___ Trees and/or Bushes
___ Proposed alternative _____

23. ADDITIONAL HOLES:
_X_ Rat/Mouse, if used, will be plugged

24. PROPOSED OR CURRENT LENGTH OF ACCESS ROAD:
___ 100 ft. or less _X_ 101 to 500 ft.
___ 501 to 1500 ft. ___ greater than 1500 ft.

25. CURRENT LAND USE OF PATH OF ACCESS ROAD:
_X_ Cropland ___ Pasture ___ Commercial
___ Idle land ___ Wetlands ___ Recreational
___ Industrial ___ Residential
___ Unreclaimed strip mine
___ Woodland: (Circle Broad-leaved or Needlelike)

REQUIRED BY SECTION 1509.06 (L), OHIO REVISED CODE - FAILURE 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. **PITS MUST BE FILLED WITHIN FIVE MONTHS AFTER COMMENCEMENT OF THE WELL.

INTER-OFFICE MEMO

TO: Dave Ball, Mineral Resources Inspector
FROM: Andrew Adgate, Geologist *AA*
SUBJECT: Application and Site Evaluation for a SWIW permit
DATE: July 25, 2012

The Division of Oil and Gas Resources Management has received an application for the proposed saltwater injection well as described below:

OPERATOR: Broad Street Energy, LLC.
WELL NAME & NUMBER: Cook #102
PERMIT NUMBER: Conversion of existing well, SWIW #26
LOCATION: 930' NL & 235' EL of SW QTR., SEC 19, Marion Twp., Morgan County
PROPOSED INJECTION ZONE: Berea sandstone
DATE RECEIVED: January 11, 2012

Please inspect proposed site and evaluate for any potential water wells or surface bodies of water within close proximity that would require any additional permit conditions for the construction of the SWIW surface facilities. Please e-mail me a copy of the site inspection report with any recommendations.

APPLICATION FOR A PERMIT (Form 1)

#3435
1,600.00

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT
2045 Morse Road, Building H-3
COLUMBUS, OHIO 43229-6693
(614) 265-6633

SEE INSTRUCTIONS ON PAGE 2 (BACK)

API 20347

1. I, We (applicant) BROAD STREET ENERGY, LLC
(address) 37 WEST BROAD STREET, SUITE 1100 COLUMBUS, OH 43215
hereby apply this date _____, 20 _____ for a permit to:

2. Owner #: 8312
Phone #: 614-228-0326

- [x] Reissue (check appropriate blank)
- [ ] Drill New Well
- [ ] Drill Directionally
- [ ] Drill Horizontally
- [ ] Revised Location
- [ ] Plug Back
- [ ] Plug and Abandon
- [ ] Orphan Well Program
- [x] Convert
- [ ] Deepen
- [ ] Reopen
- [ ] Temporary Inactive

3. TYPE OF WELL:
- [ ] Oil & Gas
- [ ] Stratigraphic Test
- [ ] Annular Disposal
- [ ] Gas Storage
- [x] Saltwater Injection
- [ ] Other *(explain):*
- [ ] Solution Mining*
- [ ] Input/Injection
- [ ] Enhanced Recovery*
- [ ] Water Supply

*(* if checked, select appropriate box below)*
- [ ] Observation
- [ ] Production/Extraction

4. MAIL PERMIT TO:
BROAD STREET ENERGY, LLC.
37 WEST BROAD STREET (SUITE 1100)
COLUMBUS ,OH 43215

20. TYPE OF TOOLS:
- [x] Cable
- [ ] Cable / Air Rotary
- [ ] Cable / Fluid Rotary
- [ ] Cable / Air / Fluid Rotary
- [ ] Air Rotary
- [ ] Air / Fluid Rotary
- [ ] Fluid Rotary
- [ ] Service Rig

5. COUNTY: MORGAN
6. CIVIL TOWNSHIP: MARION
7. SECTION: 19 8. LOT:
9. FRACTION: 10. QTR TWP:
11. TRACT / ALLOT:
12. WELL #: 102
13. LEASE NAME: COOK
14. PROPOSED TOTAL DEPTH: 1784'
15. PROPOSED GEOLOGICAL FORMATION: 2nd BEREA
16. DRILLING UNIT IN ACRES (must be same as acres indicated on plat): 10

21. PROPOSED CASING PROGRAM:
7" @ 339'
4 1/2" @ 1735'

22. FIRE AND MEDICAL DEPARTMENT TELEPHONE NUMBERS: (closest to well site)
Fire: 911
Medical: 911

17. **IF PERMITTED PREVIOUSLY:**
API #: 34-115-2-4658-00-00
OWNER: BROAD STREET ENERGY LLC
WELL #: 102
LEASE NAME: COOK
TOTAL DEPTH: 1784'
GEOLOGICAL FORMATION: 2nd BEREA

23. MEANS OF INGRESS & EGRESS:
Township Road:
County Road:
Municipal Road:
State Highway: EXISTING DRIVE OFF SR 377

18. IF SURFACE RIGHTS ARE OWNED BY THE OHIO DEPARTMENT OF NATURAL RESOURCES
Division Name:
Division Phone:

24. IS THE WELL LOCATION OR PRODUCTION FACILITIES WITHIN AN URBANIZED AREA AS DEFINED BY 1509.01(Y) ?
- [ ] Yes
- [x] No

RECEIVED
JAN 13 2012

19. LANDOWNER ROYALTY INTEREST:
Is There An Attached List? [x] Yes [ ] No
Name:
Address:
Name:
Address:
Name:
Address:

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 _____

Name (Type or Print) GEOFFREY W. ARTHUR 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 10th day of January, 20 12

_____ (Notary Public)
SHERI DEBOLD
10-29-2016
(Date Commission Expires)

DNR 5619 (Rev. 10/2011)

SUPPLEMENT TO APPLICATION
PERMIT FOR A SALTWATER INJECTION WELL (Form 210)

Ohio Department of Natural Resources, Division of Oil and Gas Resources Management
2045 Morse Road, Bldg H3
Columbus, OH 43229-6693

AREA OF REVIEW. An application for a saltwater injection well (SWIW) will be evaluated on the basis of an "area of review" surrounding the proposed well. The area of review for wells in which injection of greater than two hundred barrels per day is proposed shall be the area circumscribed by a circle with the center point at the location of the injection well and a radius of one-half mile. The area of review for wells in which a maximum injection of two hundred barrels per day or les is proposed shall be the area circumscribed by a circle with the center point at the location of the injection well and a radius of one-quarter mile.

31. **PROPOSED INJECTION ZONE**
Geological Formation: 2nd Berea
Injection Interval: From: 1588' feet to 1574'
Geologic description of injection zone: Sand stone

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:
7" set to 339' cemented with 90 sacks
4 1/2" set to 1735' cemented with 70 sacks

B. Proposed method for testing the casing:
Hydraulic pressure of tubing casing annulus

C. Description of the proposed method for completion and operation of the injection well:
Perforated in the second Berea
Acidize with 300 gal
Fracture stimulate with 200 sacks of sand

D. Description of the proposed unloading, surface storage, and spill containment facilities:
Same as existing SWIW Cook 2A PN 34-115-2-2981

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33. **PROPOSED INJECTION VOLUMES**

A. Indicate the estimated amount of saltwater to be injected into the proposed injection well per day:
AVERAGE: 200 MAXIMUM: 400

B. Indicate the method to be used to measure the actual amount of saltwater injected into the well:
Boiler Water tickets and flow meter

34. **PROPOSED INJECTION PRESSURES**

A. Indicate the estimated pressure to be used for injection of saltwater into the proposed injection well:
AVERAGE: 400 MAXIMUM: ~~460~~ 360 psi AA

B. Indicate the method to be used to measure the actual daily injection pressure:
Chart recorder

35. **PROPOSED CORRECTIVE ACTION**
Explain any corrective action proposed for wells penetrating the proposed injection formation or zone within the area of review:
Plug perforation with adequate cement for the formation.