



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL & GAS MANAGEMENT PROGRAM

DEP USE ONLY	
AUTH #	
Check # 4967	Amount \$ 300

150

PERMIT APPLICATION FOR DRILLING OR ALTERING A WELL

Notes		DEP USE ONLY	
OGO #	67770	Objection Date - Do not issue before:	Well Permit # 123-33914
Bond #	12768	10/5/11	Special Cond. A B C D E F
C:	G: 10/3/11	Date Approved:	Watershed Name:
INV:		12/21/12 Bob	Designation: HQ EV

Please read instructions before you begin filling in this form.

Applicant (Operator) Name	DEP Client ID#	Phone	FAX	Check if new address.
BEAR LAKE PROPERTIES, LLC	67770	724-444-7501	724-444-7502	<input type="checkbox"/>
Mailing Address (Street or PO Box)	City	State	Zip +4	Country (if not USA)
3000 VILLAGE RUN RD., UNIT 103, #223	WEXFORD	Pa.	15090	

(Well) Farm Name	Well #	Serial #	PERMIT TYPE	TYPE OF WELL	APPLICATION FEE
JOSEPH BITINGER	1		Check applicable.	Check one.	Check applicable.
County	Municipality	Project # (from DEP)	Application is to:	<input type="checkbox"/> Gas	<input type="checkbox"/> Marcellus Well: Non-Vertical
WARREN	COLUMBUS		<input type="checkbox"/> Drill a new well	<input type="checkbox"/> Oil	<input type="checkbox"/> Marcellus Well: Vertical
If you are applying for a permit to redrill, drill deeper, or alter a well that was previously permitted or registered, or for a well site that was previously permitted but not drilled, check this box <input checked="" type="checkbox"/> and enter the permit or registration number here:			<input type="checkbox"/> Deepen a well	<input type="checkbox"/> Comb. (gas & oil)	<input type="checkbox"/> Non-Marcellus Well: Non-Vertical
If applying for a permit to rework an existing well not registered or permitted, check this box <input type="checkbox"/> and enter date drilled, if known: _____ (see instructions)			<input type="checkbox"/> Redrill a well	<input type="checkbox"/> Injection, recovery	<input type="checkbox"/> Non-Marcellus Well: Vertical
PNDI Attached: <input type="checkbox"/> Any "hit" must include accepted mitigation plan from applicable agency.			<input checked="" type="checkbox"/> Alter a well	<input type="checkbox"/> Injection, disposal	<input type="checkbox"/> \$200 (Home Use Well)
			<input type="checkbox"/> E&S Control Module	<input type="checkbox"/> Coalbed Methane	<input type="checkbox"/> \$500 E&S Fee
			<input type="checkbox"/> Other (specify)	<input type="checkbox"/> Gas Storage	<input type="checkbox"/> \$ 0 (Rehab orphan)
			Change use	<input type="checkbox"/> Other (specify)	<input type="checkbox"/> Vertical: Length _____ ft.
					<input type="checkbox"/> Marcellus: Length _____ ft.
					<input type="checkbox"/> Non-Vertical: Length _____ ft.
					Total Application Fee \$ 100

COORDINATION WITH REGULATIONS AND OTHER PERMITS	Yes	No	DEP USE ONLY
1. Will the well be subject to the Oil and Gas Conservation Law? If "No," go to 2).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Date Stamps/Notes
a. If "Yes" to #1, is the well at least 330 feet from outside lease or unit boundary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Auth 827696
b. Does the location fall within an area covered by a spacing order?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Site 220609
2. Will the well penetrate a workable coal seam? If "No," include justification and supporting documentation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cint 283543
3. If the well will penetrate a workable coal seam, and the well is a "non-conservation" gas well, does the location comply with the distance requirements of Section 7 of the Coal and Gas Resource Coordination Act? (At least 1,000 feet from all existing wells).	<input type="checkbox"/>	<input type="checkbox"/>	APS 243237
a. If "No," is the required exception request attached? (Check here if re-working an existing well: <input type="checkbox"/> N/A)	<input type="checkbox"/>	<input type="checkbox"/>	Acct _____
4. Will the well be drilled at a location where the coal has been removed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DE 200586
5. Will the well be drilled through an active (operating or projected) coalmine, or within 1,000 feet of the boundary?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SF 178971
a. If "Yes," print the names of: Mine: _____ Operator: _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MA 245926
6. Will the well penetrate or be within 2,000 feet of an active gas storage reservoir boundary?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
a. If Yes, print the names of: Storage Field: _____ Operator: _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. Is the proposed well location within the permitted area of a landfill?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. Will the well site be within 100 feet (measured horizontally) of a stream, spring or body of water identified on the most current 7 1/2 topographic map?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
a. If "Yes," is a request for a waiver (form 5500-FM-OG0057), and E&S control plan attached?	<input type="checkbox"/>	<input type="checkbox"/>	
9. Will the well site be within 100 feet of a wetland or in a wetland?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
a. Is the well site within 100 feet of a wetland greater than one acre in size?	<input type="checkbox"/>	<input type="checkbox"/>	
If yes, is a waiver request (form 5500-FM-OG0057) and E&S control plan attached?	<input type="checkbox"/>	<input type="checkbox"/>	
10. Will the well be drilled within 200 feet (horizontally) from any existing building or an existing water supply?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
a. If "Yes," is written consent from the owner attached?	<input type="checkbox"/>	<input type="checkbox"/>	
b. If written consent is not attached, is a variance request (form 5500-FM-OG0058) attached?	<input type="checkbox"/>	<input type="checkbox"/>	
11. Will the well be located where it may impact a public resource as outlined in the "Coordination of a Well Location with Public Resources" form 5500-PM-OG0076? If yes, attach a completed copy of the form.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Is the well site in a Special Protection High Quality (HQ) or Exceptional Value (EV) watershed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13. Is this well part of a development where you need an Earth Disturbance Permit for Oil and Gas Activities disturbing more than 5 acres? If yes, attach a completed Erosion Sediment and Stormwater Control Module or list the number and date of the ESCGP-1 Approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Signature of Applicant	The person signing this form attests that they have the authority to submit this application on behalf of the applicant, and that the information, including all related submissions, is true and accurate to the best of their knowledge.		
Signature of Person Authorized to Submit Application	(Print or Type)	Name of Signer:	Date
<i>Karl Rimmich</i>	KARL RIMMICH	KARL RIMMICH PRESIDENT	8/15/2011
Application Preparer/Contact:	Phone:		
KARL RIMMICH	724 444-7501		



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL & GAS MANAGEMENT PROGRAM

Farm Name - Well #
Joseph Billings 1

Applicant Name
Coal Lake Properties LLC

DEP ID#

DEP USE ONLY
APS #

PERMIT APPLICATION FOR DRILLING OR ALTERING A WELL
Page 2 --- Record of Notification / Written Consent

Name:	Address:	Surface Landowner	Coal Owner	Coal Lessee	Coal Mine Operator	Gas Storage Operator	Within 1,000 feet				Notification				
							Surf Owner	Water Purveyor	Coal Mine Operator	Certified Mail Dates	Return Receipt	Address Affidavit	Written Consent		
<i>MILC3 SAMPSEL</i>	<i>8253 PANGLOSS RD. ERIE, PA. 16509</i>	<input checked="" type="checkbox"/>											<i>8/18/11</i>		
Name:	Address:														
Name:	Address:														
Name:	Address:														
Name:	Address:														
Name:	Address:														
Name:	Address:														

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Optional: Signature below indicates the party's approval of the well location, and waives the 15-day objection period. Check applicable box.

<input type="checkbox"/> Water Purveyor or <input type="checkbox"/> Landowner with water supply within 1,000 ft.	Date	<input type="checkbox"/> Coal <input type="checkbox"/> Operator, <input type="checkbox"/> Owner, or <input type="checkbox"/> Lessee	Date
<input type="checkbox"/> Water Purveyor or <input type="checkbox"/> Landowner with water supply within 1,000 ft.	Date	<input type="checkbox"/> Coal <input type="checkbox"/> Operator, <input type="checkbox"/> Owner, or <input type="checkbox"/> Lessee	Date
<input type="checkbox"/> Water Purveyor or <input type="checkbox"/> Landowner with water supply within 1,000 ft.	Date	<input type="checkbox"/> Coal <input type="checkbox"/> Operator, <input type="checkbox"/> Owner, or <input type="checkbox"/> Lessee	Date
<input type="checkbox"/> Water Purveyor or <input type="checkbox"/> Landowner with water supply within 1,000 ft.	Date	<input type="checkbox"/> Coal <input type="checkbox"/> Operator, <input type="checkbox"/> Owner, or <input type="checkbox"/> Lessee	Date
Surface Landowner at proposed location	Date	Coal Operator within 1,000 feet of proposed location	Date
Surface Landowner at proposed location	Date	Gas Storage Operator within 2,000 feet	Date

Signature below indicates written consent. Check applicable box.

Owner of: water supply, or building within 200 feet Date

Address (of above)

Owner of: water supply, or building within 200 feet Date

Address (of above)



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP Application Tracking #	G: 10/15/11
Permit #	C: 400
Project #	

Well is located on topo map 2189 feet south of latitude 42 ° 00 ' 00 "

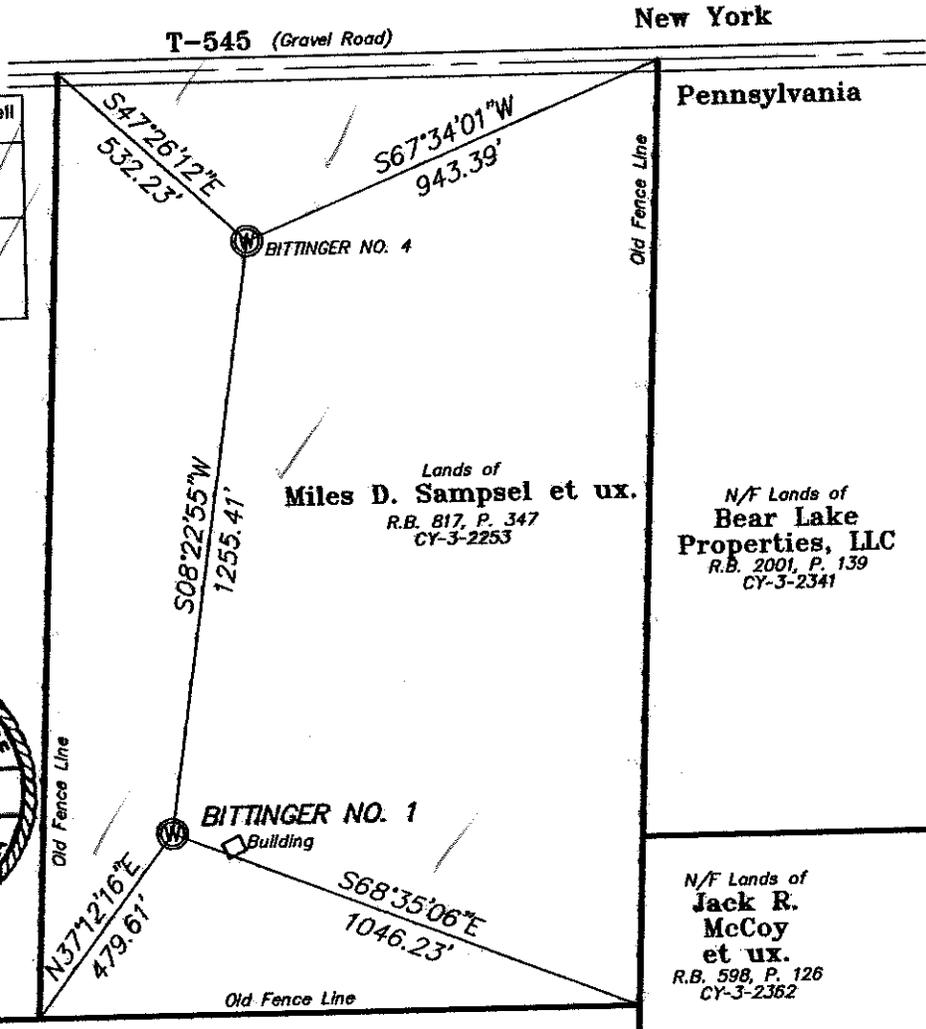
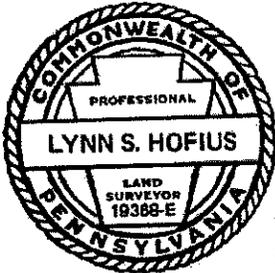
Denotes location of well on topo map.
True Latitude: NORTH 41° 59' 38.374"
True Longitude: WEST 79° 32' 30.123"

N/F Lands of
John R. Trisket et ux.
D.B. 441, P. 802
CY-3-2244

Lands of
Miles D. Sampsel et ux.
R.B. 817, P. 347
CY-3-2253

N/F Lands of
Bear Lake Properties, LLC et ux.
R.B. 2001, P. 139
CY-3-2341

N/F Lands of
Jack R. McCoy et ux.
R.B. 598, P. 126
CY-3-2362



Well is located on topo map 9 feet west of longitude 79 ° 32 ' 30 "

Surveyor or Engineer Lynn S. Hofius, PLS 19368-E	Phone # (814) 796-2053	Dwg. # CY-3-2253	Date 10/07/2011	Scale 1" = 400'	Tract Acreage 62 Acres
Lat. & Long Metadata Method GPS - Code Based Accuracy +/- 15 ft. Datum NAD 1927		Elevation Metadata Method TOPO Accuracy +/- 5' ft. Datum NGVD 1929		Survey Date 08/31/2011	
Applicant / Well Operator Name Lion Energy			Well (Farm) Name Bittinger	Well # 1	Serial #
Address 5636 N. Montour Road, Gibsonia, PA 15044			County - Code Warren Co. - 62	Municipality Columbus Township	Well Type
Surface Landowner / Lessor Miles D. Sampsel			USGS 7 1/2 Quadrangle Map Name Columbus, PA	1" = 400' Scale	Surface Elevation 1562 ft.
Target Formation(s)			Angle & Course of Deviation (Drilling)	Anticipated Total Depth TMD	
Surface Owner or Water Purveyor with a Water Supply within 1,000 ft.		Approximate Course and Distance to Water Supply		Name of Coal Seam Owned, Leased, or Operated	
NONE					

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1. PROJECT INFORMATION

Project Name: **Lion Energy**

Date of review: **3/14/2011 6:55:30 PM**

Project Category: **Energy Storage, Production, and Transfer, Energy Transfer, Pipeline (e.g., gas, oil) -- NEW (construction of new line in a new location)**

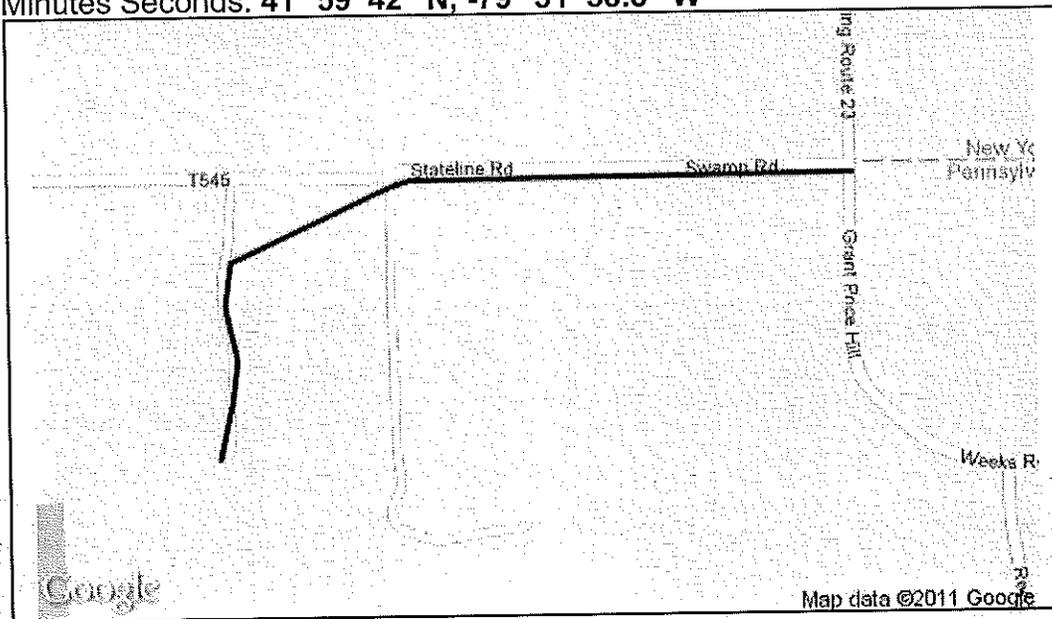
Project Length: **4886.3 feet**

County: **Warren Township/Municipality: Columbus**

Quadrangle Name: **COLUMBUS ~ ZIP Code: 16405**

Decimal Degrees: **41.994998 N, -79.532990 W**

Degrees Minutes Seconds: **41° 59' 42" N, -79° 31' 58.8" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

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NORTHWEST REGIONAL OFFICE

RESPONSE TO QUESTION(S) ASKED

Q1: "Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. ""Project"" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur . "

Your answer is: **"4. Someone qualified to identify and delineate wetlands has investigated the site, and determined that wetlands ARE located in or within 300 feet of the project area. (A written report from a wetland specialist, and detailed project maps should document this.) "**

Q2: "Will the entire project area (including any discharge), plus a 300 feet buffer around the project area, all occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, railroad bed, maintained (periodically mown) lawn, crop agriculture field or maintained orchard?"

Your answer is: **2. No**

Q3: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **2. No**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available

here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Epilobium strictum
Common Name: Downy Willow-herb
Current Status: Endangered
Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Special Concern Species*
Proposed Status: Endangered

Scientific Name: Viburnum trilobum
Common Name: Highbush-cranberry
Current Status: Special Concern Species*
Proposed Status: Threatened

PA Fish and Boat Commission

RESPONSE: No impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of Minimum Materials to be submitted:

- SIGNED** copy of this Project Environmental Review Receipt
- Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- Project location information (name of USGS Quadrangle, Township/Municipality, and County)

___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

___ The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.



BUREAU OF FORESTRY

September 2, 2011

PNDI Number: 20110314287990

Eric McCleary
Damariscotta
650 Merle Street, Suite C
Clarion, PA 16214
FAX: 814-225-5861 (Hard copy will not follow)

**Re: Lion Energy Company LLC. GP-5- wetland crossing/proposed water pipeline
Columbus Township, Warren County**

Dear Mr. McCleary,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **20110314287990** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated as per Survey

PNDI records indicate species or resources of concern are located in the vicinity of the project. DCNR has considered the nature of the project, the immediate location, our detailed resource information, and a **survey report prepared by Damariscotta**: DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project. Conservation measures for terrestrial invertebrates are provided in a document following this letter.

This response represents the most up-to-date summary of the PNDI data files and is valid for one (1) year from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on-site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map).

This finding applies to impacts to DCNR only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure the U.S. Fish and Wildlife Service, PA Game Commission, and the Pennsylvania Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,

Adam M. Hnatkovich, Environmental Review Specialist FOR Chris Firestone, Wild Plant Program Mgr.
Ph: 717-705-2822 Fax: 717-772-0271 Email: c-ahnatkov@state.pa.us

Conservation Measures for Terrestrial Invertebrate Species of Special Concern

*Information from PA Natural Heritage Program and
Butterflies and Skippers of Ohio (Iftner et al. 1992)*

***Euphydryas phaeton* (baltimore checkerspot):** Globally apparently secure (G4), State vulnerable (S3); *E. phaeton* prefers wet meadows, bogs, and marshes. Larval hostplants include turtlehead, hairy beardtongue, English plantain, and false foxglove (before hibernating), and arrowgood as a larval host after overwintering. Nectar sources include milkweed, viburnum, and wild rose. Disturbance to plant communities that contain larval hostplants and/or food sources should be minimized.

***Euphyes conspicuus* (Black dash):** Globally apparently secure (G4), State vulnerable (S3). Preferred habitat includes boggy marshes, wet meadows, and marshy streambanks. Larval host-plants include upright sedge and other narrow-leaved sedges (Iftner et al. 1992). Food sources include nectar from flowers of buttonbush, jewelweed, and swamp thistle. Other food-plants have been suggested by Iftner et al. (1992) which include common milkweed, swamp milkweed, wild bergamot, pickerel-weed, and vetchling. Avoiding disturbance to preferred habitats could benefit *E. conspicuus*. Any efforts to revegetate disturbed areas, should this be a procedure for your project, could incorporate flowering, native plant species, including those nectar sources listed above: this could create valuable food-sources for local populations of adult *E. conspicuus*. DCNR can provide information on native seed-mixes upon request.

***Poanes viator viator* (broad-winged skipper):** Globally secure, Taxon apparently secure (G5T4), State imperiled to vulnerable (S2S3). This skipper inhabits a variety of wetland habitats, including sedge meadows, fens, swamps, and scrubby marshes. In Ohio, *P. viator viator* is thought to use broad-leaved sedge species as hostplants. Adult nectar sources are thought to include certain milkweed species, alfalfa, wild bergamot, blazing star, and vetchling. In Pennsylvania, *P. viator viator* has been noted in wetlands having established sedge-communities. Preferred habitat and host information is not available for *P. viator viator* in Pennsylvania. However, minimizing disturbances to wetlands where large sedge communities are present could minimize habitat loss for *P. viator viator*. Also, minimizing disturbance to plant communities that harbor potential nectar sources (e.g. milkweeds, vetchling; see above) could benefit *P. viator viator*.

***Euphyes dion* (Dion skipper):** Globally apparently secure (G4), State imperiled (S2). This species prefers to inhabit swamps, open marshes, and bogs. Larval host-plants include various sedges, including woolgrass (*Scirpus cyperinus*), hairy sedge (*Carex lacustris*), and shoreline sedge (*C. hyalinolepis*). Adult food-sources include nectar from flowers of pickerelweed, sneezeweed, milkweeds, thistles, teasels, and buttonbush. Minimizing disturbances to wetlands where large sedge communities are present could minimize habitat loss for *E. dion*. Avoiding or minimizing disturbance to plant communities that are dominated by flowering plants, including nectar sources for *E. dion*, could benefit local populations of this species.

***Satyrodes eurydice* (eyed brown):** Globally apparently secure (G4), State vulnerable (S3). Preferred habitat for *S. Eurydice* includes open sedge meadows, freshwater marshes, slow-moving streams, and cord grass swales in tallgrass prairies. Larval host-plants include various sedge species (*Carex stricta*, *C. lupulina*, *C. bromoides*, and *C. trichocarpa*). Adult food-sources may include wild bergamot, and can be found perched on sedges. Avoiding disturbances to sedge meadows could benefit local populations of this species.

conserve

sustain

enjoy



Legend

- Bittering #1
- Water Well
- 1/4 Mile Radius
- 1 Mile Radius

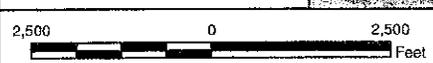


FIGURE 1
BITTINGER #1 WELL LOCATION
WITH WATER WELL LOCATIONS
BEAR LAKE PROPERTIES, LLC
WARREN COUNTY, PENNSYLVANIA

DRAWN BY S. PAXTON	SCALE AS NOTED
FIGURE NO	REV DATE 0 04/14/11

Groundwater Wells Within 1 Mile of Bittering #1 Well, Warren County, PA

WELL NAME	WELL ID	LATITUDE	LONGITUDE
Dave Beers Camp	N/A	41.999400	-79.549750
Dave Beers Sons Camp	N/A	42.002600	-79.545033
Dave Beers/Wozowicz Property	N/A	42.002433	-79.546867
David Bemis #2	N/A	41.999667	-79.527733
Mark Seetin	N/A	42.001283	-79.528433
Casper Goodrich	N/A	41.998850	-79.528217
Enos Miller	N/A	41.998267	-79.527367
Lion/Bear Lake Property	N/A	41.998367	-79.528617
Jack McCoy	N/A	41.992867	-79.534883
Ted Smith	N/A	41.994867	-79.527767
Ron Cracker	N/A	41.994767	-79.526617
Charlie Williams	N/A	41.993583	-79.526300
Jeff McRay	N/A	41.993650	-79.525033
Unknown	N/A	41.9980000	-79.5491667

Generalized Stratigraphic Column
 Bittinger No 1 and Bittinger No. 4 Area
 Warren County, PA

Age	Group	Formation	Predominant Rock Type	Total Depth to Base(feet)	Thickness Feet	Confining Zone
Glacial Units				18	18	
Upper Devonian	Venango		Shale/sandstone			
Upper Devonian		Chadakoin	Shale			
Upper Devonian	Bradford		Shale			
Upper Devonian	Elk		Shale	2741	2723	
Upper Devonian		Java	Shale			
Upper Devonian		West Falls	Shale			
Upper Devonian		Sonyea	Shale			
Upper Devonian		Genesee	Shale			
Upper Devonian		Tully Limestone	Limestone	2848	107	
Upper Devonian	Hamilton	Mahantango	Shale, some sandstone	3018	170	
Upper Devonian	Hamilton	Marcellus Shale	Shale			
Middle Devonian		Onondaga	Limestone	3182	164	
Lower Devonian		Bois Blanc/Oriskany Sandstone	Sandstone	3211	29	
Upper Silurian		Bass Islands	Dolomite	3547	336	
Upper Silurian		Salina	Evaporites/Dolomite	3896	349	
Upper Silurian		Lockport Dolomite	Dolomite	4067	171	
Lower Silurian	Clinton		Sandstone	4189	122	
Lower Silurian		Medina, including the Grimsby and Whirlpool Sandstones	Sandstone/Shale	4367	178	

Notes

-  = Black shading indicates that this unit is considered to be a confining zone
- = Diagonal shading indicates that this unit is a confining unit that also contains producing zones within it
- = No shading indicates that this unit is a producing zone and is not considered to be a confining unit