

BEFORE  
THE OHIO POWER SITING BOARD

In the matter of the Application of )  
North Coast Transmission, LLC for ) Case No. 14-1754-GA-BLN  
A Letter of Notification to Construct. )  
Operate, and Maintain the Oregon )  
Lateral to be located in Wood and )  
Lucas Counties, Ohio )

**TO BE TREATED AS A SUPPLEMENT TO APPLICATION OF REHEARING  
ORIGINAL OBJECTION/APPLICATION FOR REHEARING ACCEPTED ON 2-3-2015**

**MICHAEL J. TILLER'S SUPPLEMENT TO HIS OBJECTION TO PROPOSED  
OREGON LATERAL GAS PIPELINE: REQUEST FOR REHEARING ON OREGON  
LATERAL GAS PIPELINE. (RC 4609 ET SEQ) NOTICE OF POTENTIAL TAKING IN  
VIOLATION OF CONSTITUTIONAL RIGHT TO JUST COMPENSATION.**

TABLE OF CONTENTS

APPLICATION FOR REHEARING

Exhibit 1.....Affidavit of Michael J. Tiller Regarding Standing

MEMORANDUM IN SUPPORT

|                                                    |   |
|----------------------------------------------------|---|
| I. Introduction .....                              | 1 |
| II. The Standards Applicable to Board Orders ..... | 2 |

- A. NCGT's October 7, 2014 Letter Of Notification (LON) Does Not Provide Evidence Satisfying The Criteria In R.C. 4906.10.
- B. NCGT's Proposed Gas Pipeline Was Not Eligible For Accelerated Review Because It Is An Integral And Necessary Part Of The Oregon Clean Energy Center, Ohio Power Siting Board Case Number 12-2959-EL-BGN.
- C. NCGT's LON Does Not Demonstrate The Pipeline Will Comply With Revised Code Chapters 3704, 3734, And 6111, And All Rules And Standards Adopted Under Those Chapters.

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- D. NCGT's Letter of Notification Does Not Demonstrate The Pipeline Represents The Minimum Adverse Environmental Impact, Considering The State Of Available Technology And The Nature And Economics Of The Various Alternatives, And Other Pertinent Considerations.
- E. NCGT's Letter Of Notification Does Not Address The Possibility Of Locating The Proposed Pipeline To Supply OCEC Within NCGT's Existing Easement For Its Major Utility Natural Gas Pipeline That Runs From The BP Oil Refinery In Oregon To Fostoria, Or By Enlarging NCGT's Existing 10-Inch Oregon To Fostoria Natural Gas Pipeline.
- F. NCGT Apparent Failure To Obtain A Certificate From OPSB To Convert, Operate And Maintain A 37.5 Mile Long, 10-Inch Diameter Pipeline, Running From Oregon To Fostoria, Which NCGT Acquired In 2006 For Use As A Major Utility Natural Gas Pipeline, Demonstrates NCGT's Inability To Serve The Public Interest, Convenience, And Necessity.
- G. The NCGT Pipeline Route Does Not Demonstrate The Pipeline Represents The Minimum Adverse Environmental Impact, Considering The State Of Available Technology And The Nature And Economics Of The Various Alternatives, Because The Letter Of Notification Does Not Set Forth Any Facts To Support Locating The Pipeline Within 100 Feet Of Over 20 Homes Located Between Curtice Road And Seaman Road.
- H. NCGT Has Neglected Or Ignored The Reasonable Requests Of Impacted Property Owners Regarding Adjustments To The Pipeline Route To More Closely Follow Property Boundaries, And To Preserve Commercial Development Potential And Agricultural Productivity, And To Provide Engineering Data, Technical Data Regarding Trenching, And Horizontal Directional Drilling For The Proposed Pipeline, To Enable Owners To Consult With Professionals In Farm And Field Drainage Management For The Purpose Of Identifying Likely Impacts On Soil Compaction And Lost Productivity.

III. Conclusion.....

BEFORE  
THE OHIO POWER SITING BOARD

|                                        |   |                         |
|----------------------------------------|---|-------------------------|
| In the matter of the Application of    | ) |                         |
| North Coast Transmission, LLC for      | ) | Case No. 14-1754-GA-BLN |
| A Letter of Notification to Construct, | ) |                         |
| Operate, and Maintain the Oregon       | ) |                         |
| Lateral to be located in Wood and      | ) |                         |
| Lucas Counties, Ohio                   | ) |                         |

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**AFFIDAVIT OF MICHAEL TILLER REGARDING LACK OF NOTICE OF THE HEARING JANUARY 6, 2015 IN  
CASE NUMBER 14-1754-GA-BLN BEFORE THE OHIO POWER SITING BOARD**

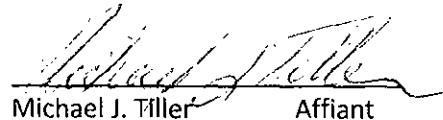
1. THAT my name is Michael J. Tiller.
2. THAT I live at 7559 Summerfield Road, Lambertville, Michigan 48144.
3. THAT I own parcel number P57-300-350000026001 which is an 11.92 acre parcel located in Perrysburg Township at 8252 Avenue Road, Perrysburg, Ohio 43551 and is in the projected path of the Oregon Lateral Gas Transmission Line approved by the Ohio Power Siting Board on January 6, 2015 at a hearing.
4. THAT Parcel No. P57-300-350000026001 located at 8252 Avenue Road, Perrysburg, Ohio 43551 was identified in North Coast Gas Transmission LLC Letter of Notification in the above encaptioned case filed on October 7, 2014.
5. THAT my wife and I check the mail at 7559 Summerfield Road, Lambertville. Michigan 48144 daily and there was no notice of a hearing on the Oregon Lateral Gas Pipeline sent to that address.
6. THAT the street address for the property subject to the Oregon Lateral Gas Transmission line is 8252 Avenue Road, Perrysburg, Ohio 43551.
7. THAT my wife and I check the mail at 8252 Avenue Road daily and there was no notice of a hearing on the Oregon Lateral Gas Pipeline sent to that address.
8. THAT the listed address with Perrysburg Township and Wood County for the tax bills on P57-300-350000026001 (8252 Avenue Road) are sent to 14729 Lake Diane, Camden, Michigan 49232.
9. THAT my wife and I check the mail at Lake Diane daily and there was no notice of a hearing on the Oregon Lateral Gas Pipeline sent to 14729 Lake Diane, Camden, Michigan 49232.
10. THAT I had no notice, oral or written, of the hearing on January 6, 2015 regarding the submits the Ohio Power Siting Board's January 6, 2015 Approval, Order, and Certificate issued to North Coast Gas Transmission LLC ("NCGT") letter of notification dated October 7, 2014.
11. THAT on June 13, 2014 we received a letter from North Coast Gas Transmission that they may enter our property to make a study and survey our underground utilities. At this point I had no idea what was going on and no notice of a pipeline. (See attached letter at page 3)

12. THAT on September 17, 2014 I received a letter from West Erie Realty Solutions stating that Oregon Clean Energy Center project might utilize a "small portion" my real property. That letter is attached hereto at page 4)
13. THAT on or about January 22, 2015 I received an E-Mail from Scott Bernhard of West Erie Realty to the effect that I missed a public hearing the previous Tuesday where re-routing the pipeline was discussed. I did not know about that hearing or where it was. Scott Bernhard's communication was deliberately after the fact as I had no idea nor was I informed of any meetings concerning the Oregon Lateral Gas Pipeline Project.
14. THAT on or about January 31, 2015 I became aware that the Oregon Lateral Gas Pipeline was approved because my Wife and I searched on the internet for information on North Coast Gas Transmission and the Oregon Lateral Gas Pipeline and found the Ohio Power Siting Board website where I saw the approval and the case file on this matter.
15. I immediately objected and requested a rehearing because I had only a few days before 30 days expired within which to request a rehearing.
16. THAT I was completely taken aback by the approval of the pipeline and was led to believe by West Erie Realty that the path of the pipeline was still being scrutinized and was not yet approved.
17. THAT I believe this was deliberate on the North Coast Gas Transmission LLC and West Erie Realty (their agents in fact) to fail to inform me of the hearing so that no objections could be logged against the Oregon Lateral Gas Pipeline.
18. THAT the approved/proposed pipeline cuts through the middle of my underground utilities, my fire suppression system, water lines, drainage system and most importantly, my site plan which was approved by Perrysburg township and calls for nine more storage buildings.
19. THAT the potential depreciation of my property as a result of the pipeline could exceed one million dollars.
20. THAT I hereby supplement and incorporate my request for rehearing with an application for rehearing and a memorandum in support thereof as set forth below.
21. THAT I will further supplement this pleading with an appraisal of my property with the pipeline considered and without the pipeline considered when such an appraisal can be completed by a qualified appraiser.

### VERIFICATION

I, MICHAEL J. TILLER HEREBY CERTIFY THAT THE FOREGOING 20 PARAGRAPH ARE IS TRUE AND CORRECT AND IF CALLED ON TO TESTIFY TO THESE FACTS I WILL DO SO UNDER OATH AND UNDER PENALTY OF PERJURY PURSUANT TO THE LAWS IN THE STATE OF OHIO.

Dated: February 20, 2015

  
Michael J. Tiller Affiant

Subscribed in my presence this 20<sup>th</sup> day of February 2015  
by Michael James Tiller.

  
  
TERESA GRADY  
Notary Public, State of Ohio  
My Commission Expires 04-23-2019



## NORTH COAST GAS TRANSMISSION, LLC.

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445 Hutchinson Ave.  
Suite 830  
Columbus, OH 43235

Phone: (614) 505-7210  
Fax: (614) 505-7212

June 13, 2014

Michael J. Tiller  
8252 Avenue Road  
Perrysburg, OH 43551

Dear Michael J. Tiller,

We would like to keep you informed regarding continued work that is being conducted in your area. You may recall receiving a similar notice from us in March to notify you of some studies being performed on or near your property. We appreciate your cooperation as we complete our initial work. North Coast Gas Transmission, LLC is an underground pipeline company that operates under the authority of the Public Utilities Commission of Ohio and has been safely and reliably delivering natural gas to your community for many years.

Under Ohio law, North Coast is required to inform you that over the next few weeks, our personnel and/or representatives may be entering your yard/property located at 8252 Avenue Road, Perrysburg, OH 43551 to conduct several surveys, identify property boundaries, and mark existing underground utilities. We kindly ask that you excuse us as we preform our work in your area. North Coast is proud to service your community and will remediate or repair any damage caused to your property by our presence.

If you have any questions or concerns, please do not hesitate to contact us at (614) 505-7210.

Regards,

North Coast Gas Transmission

Reference Parcel: P57-300-350000026001

September 17, 2014

Michael J. Tiller  
14729 W Diane Drive  
Camden, MI 49232

Project: North Coast Gas Transmission  
Parcel(s): 94  
Property Address: 8252 Avenue Road, Perrysburg, OH 43551

Dear Michael J. Tiller:

This letter is to advise you of an upcoming natural gas pipeline project designed to support the Oregon Clean Energy Center project. This proposed project may involve a small portion of your real property. In the very near future, a representative of West Erie Realty Solutions, Ltd. will be contacting you to explain the exact nature of the area impacted and the amount of compensation involved.

We sincerely appreciate your time in this important matter and we look forward to further discussing this in the very near future. If you have any questions, please do not hesitate to contact our office.

Respectfully,



Greg Vriezelaar, Project Manager  
West Erie Realty Solutions, LTD

c: File

Subject **NCGT Oregon Lateral**  
From Scott Bernhard <scottb@WestErieRealty.com>  
To toolman47@bex.net <toolman47@bex.net>  
Date 2015-01-22 13:43

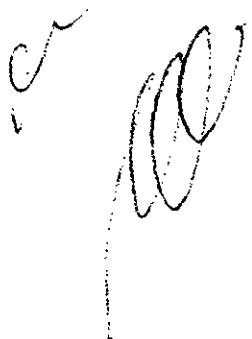
Dear Mr. & Mrs. Tiller:

I did not see you at the public informational meeting on Tuesday night, but do know that you have rejected the proposed pipeline and current route. Much of the discussion at the meeting revolved around parcels that were in your area and the procedure for re-routing consideration. The procedure involves suggested locations for pipeline re-routing and what amount the owners would be willing to accept for the different right of way required for the re-route. North Coast will consider the cost to re-route and compare it to the damage done to properties as currently proposed. Many owners have demanded a re-route without saying what they would accept for the re-routed easement. North Coast will not consider a plan change unless they know if the owners will agree to the necessary easement and at what cost.

I have not seen a diagram or plan of your proposed property development, therefore, if you have one, could you please send it to me. This would help me greatly in discussing proposed alternatives. I know you have said that you would donate the easement if it could be re-routed along your easterly property line, however, we should discuss a counter-offer if that cannot be done because of the overpass abutments. Thank you for your patience.

Sincerely,

Scott Bernhard  
West Erie Realty  
419-214-3747 office  
419-367-8178 cell  
[scottb@westerierealty.com](mailto:scottb@westerierealty.com)



**MICHAEL J. TILLER'S SUPPLEMENT TO HIS OBJECTION TO PROPOSED OREGON LATERAL GAS PIPELINE: REQUEST FOR REHEARING ON OREGON LATERAL GAS PIPELINE. (RC 4609 ET SEQ) NOTICE OF POTENTIAL TAKING IN VIOLATION OF CONSTITUTIONAL RIGHT TO JUST COMPENSATION.**

Pursuant to Revised Code § 4903.10 and Ohio Administrative Code § 4906-7-17(D), Michael J. Tiller hereinafter referred to as "Mr. Tiller" applies for rehearing in this matter. As its grounds for rehearing, Mr. Tiller submits the Board's January 6, 2015 Approval, Order, and Certificate issued to North Coast Gas Transmission LLC ("NCGT") (attached as Exhibit A), the December 29, 2014 OPSB Staff Report and Recommendation (attached as Exhibit B), and the January 5, 2015 Revisions to OPSB Staff Report of Investigation (attached as Exhibit C), are manifestly against the weight of the evidence, and so clearly unsupported by the record as to show misapprehension, mistake, or willful disregard of duty, fail to show in sufficient detail the facts in the record upon which the Order is based and the reasoning followed in reaching its conclusion, and are unlawful and unreasonable for the following reasons:

- A. NCGT's October 7, 2014 Letter of Notification (LON) does not provide evidence satisfying the criteria in R.C. 4906.10 for approval of a certificate for the construction, operation, and maintenance of a major natural gas utility facility. Specifically, the LON does not include a verification statement from NCGT's chief executive officer verifying the statements contained in the LON as true and accurate. The LON does not contain evidence concerning alternative routes that were considered. Finally, the LON does not contain evidence to support a finding concerning the probable environmental impact of the proposed pipeline, the proposed route represents the minimum adverse environmental impact, or other criteria in R.C. 4906.10. Therefore, the Board's approval of NCGT's LON was unlawful and unreasonable.
- B. NCGT's proposed gas pipeline is a necessary, integral component of the Oregon Clean Energy Center (OCEC), Ohio Power Siting Board Case Number 12-2959-EL-BGN. The record in Case No. 12-2959-EL-BGN confirms that as early as the third quarter of 2012, OCEC arranged for natural gas to be supplied to OCEC via the NCGT's pipeline at issue herein (Case No. 14-1754-GA-BLN). The agreement between OCEC and NCGT is virtually a joint venture arrangement for a single integrated energy project. Therefore, it was unlawful for the Board to approve the NCGT pipeline as an accelerated letter of notification under R.C. 4906.03(E) rather than reviewing the NCGT's compliance with the requirements



for a certificate under R.C. 4906.10 under the same hearing process that was used for the OCEC project. Therefore the Board's approval of NCGT's LON was unlawful and unreasonable.

- C. NCGT's LON does not demonstrate the pipeline will comply with Revised Code Chapters 3704, 3734, and 6111, and all corresponding rules and standards. Specifically, the pipeline will, or is likely to, cause the Evergreen Sanitary Landfill ("Landfill") to be located in an unstable area, violating Ohio Admin. Code 3745-27-20(A)(3)(e) and (C)(5). Further, NCGT's use of the Landfill facility for ingress and egress, and as construction staging area, as well as NCGT's proposed construction of the pipeline in close proximity to the Landfill, presents an unreasonable risk of disrupting and compromising the integrity of the Landfill's Ohio EPA-approved groundwater monitoring network and/or explosive gas monitoring network, and violates the Landfill's Ohio-EPA installation and operating permit and the requirements of Ohio Admins Code 3745-27-19. NCGT's LON does not address possible impacts and/or the need for additional measures to protect public health and safety due to the pipeline's close proximity to the Evergreen Landfill. Therefore, the Board's approval of NCGT's LON was unlawful and unreasonable.
- D. NCGT's LON does not demonstrate the pipeline represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations. Specifically, NCGT's LON refers to several alternative routes that NCGT considered for the pipeline, but were rejected by NCGT in favor of the proposed route, without setting forth any facts regarding the impacts, economics, and other considerations to support a determination that the proposed route represents minimum adverse environmental impacts under R.C. 4906.10 versus alternative routes. Therefore, the Board's approval of NCGT's LON was unlawful and unreasonable.
- E. NCGT's LON does not address the possibility of locating the proposed pipeline to supply OCEC within NCGT's existing easement for its major utility natural gas pipeline that runs from the BP Oil refinery in Oregon to Fostoria, or by enlarging NCGT's existing 10-inch Oregon to Fostoria gas pipeline. The existing NCGT pipeline and easement runs within approximately ¼ mile or less from the OCEC facility. NCGT's LON does not contain any facts regarding the impacts, economics, and other considerations support the determination that the proposed route represents minimum adverse environmental impacts under R.C. 4906.10 versus an alternative route using NCGT's existing pipeline easement or enlargement of the existing 10-inch pipeline. Therefore, the Board's approval of NCGT's LON was unlawful and unreasonable.
- F. Upon information and belief, NCGT failed to obtain a certificate from the Board to convert, operate and maintain the 37.5 mile, 10-inch Oregon to Fostoria pipeline which NCGT acquired in 2006 for use as a major utility natural gas

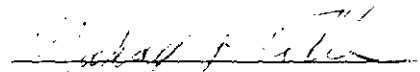
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pipeline. Failure to obtain this certificate prior to converting and operating a natural gas major utility facility violates R.C. 4906.04. Such noncompliance by NCGT, if established, demonstrates NCGT's inability to serve the public interest, convenience, and necessity. Therefore the Board's approval of NCGT's LON was unlawful and unreasonable.

- G. The NCGT pipeline route does not demonstrate the pipeline represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, because the LON does not set forth any facts to support locating pipeline within 100 feet of over 20 homes located between Curtice Road and Seaman Road. Information provided by NCGT to the OPSB's staff shows the pipeline location within the existing Toledo Edison easement was selected primarily for the convenience of Toledo Edison, and there are no specific facts in the LON to support locating the pipeline so close to so many homes for safety reasons. Therefore the Board's approval of NCGT's LON was unlawful and unreasonable.
- H. NCGT has neglected or ignored the reasonable requests of impacted property owners to provide engineering data and technical data regarding trenching and horizontal directional drilling for the proposed pipeline, to enable owners to consult with professionals in farm and field drainage management for the purpose of identifying likely impacts on soil compaction and lost productivity. Further, NCGT has neglected or ignored responding to reasonable proposals from property owners regarding adjustments to the pipeline route to more closely follow property boundaries, and to preserve commercial development potential and agricultural productivity. Therefore NCGT has failed to demonstrate minimum environmental adverse impacts and the Board's approval of NCGT's LON was unlawful and unreasonable.

The basis for this Application for Rehearing and more detailed descriptions of the Board's errors are set forth in more detail in the attached Memorandum in Support which is incorporated in its entirety as part of this Application.

Respectfully submitted,

  
Michael Tiller  
7559 Summerfield Road  
Lambertville, Michigan 48144  
(419) 466-6296  
Telephone: (419) 466-6296  
E-mail: toolman47@bex.net

BEFORE  
THE OHIO POWER SITING BOARD

|                                                                                                                                                                                                                                     |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| In the matter of the Application of )<br>North Coast Gas Transmission, LLC for )<br>a Letter of Notification to Construct, )<br>Operate, and Maintain the Oregon )<br>Lateral to be Located in Wood and )<br>Lucas Counties, Ohio ) | Case No. 14-1754-GA-BLN |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|

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**MEMORANDUM OF MICHAEL J. TILLER'S APPLICATION FOR REHEARING & SUPPLEMENT TO HIS OBJECTION TO PROPOSED OREGON LATERAL GAS PIPELINE: REQUEST FOR REHEARING ON OREGON LATERAL GAS PIPELINE. (RC 4609 ET SEQ) NOTICE OF POTENTIAL TAKING IN VIOLATION OF CONSTITUTIONAL RIGHT TO JUST COMPENSATION.**

**IN SUPPORT OF APPLICATION FOR REHEARING**

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**I. INTRODUCTION**

The proposed 22-mile, 24-inch Oregon Lateral gas pipeline is probably the largest pipeline project that has ever been approved by the Ohio Power Siting Board under the accelerated Letter of Notification (LON) review process. The intent of accelerated LON review under R.C. 4906.03(F) is clear: relatively short pipelines that serve a very small or single customer base are likely to have limited adverse impacts on the environment, citizens, and communities, and therefore can be thoroughly reviewed under a shorter and less burdensome review process. The proposed Oregon Lateral pipeline is an exception in terms of length, size, and impact that requires a greater level of review.

The Oregon Lateral pipeline is proposed to run through densely populated municipalities of Oregon, Northwood, Walbridge, Rossford, Perrysburg, and Maumee. The pipeline will be in close proximity to St. Luke's Hospital, Northwood Elementary School, Perrysburg Local School district, the Evergreen Sanitary Landfill, a church, and a city water tower. In addition, the December 29, 2014 OPSB Staff Report confirms the centerline of the proposed pipeline is less than 100 feet from 46 homes, and less than 50 feet from 5 homes. Numerous additional homes will be located within 300 feet of the pipeline.

)

As discussed below, North Coast Gas Transmission (“NCGT”) began working with Oregon Clean Energy Center on the proposed pipeline in late 2012, and the pipeline route was chosen by early 2013. However, NCGT did not file its LON for the pipeline until October 7, 2014. (Letter of Notification for: Oregon Lateral 24” Natural Gas Pipeline Wood and Lucas Counties) (attached as Exhibit D). As the public comments submitted to OPSB in this case demonstrate, many adversely affected property owners did not learn about the proposed pipeline until late November or December. Some property owners, including citizens whose homes are within 100 feet of the pipeline, are still unaware of the pipeline proposal because no OPSB rule requires NCGT to provide direct notice to affected owners whose property does not lie within the easement area. These adversely affected owners have not had a legitimate, reasonable opportunity to investigate and object to the proposed pipeline route.

OPSB statutes and rules provide that the Board, or its executive director, or the administrative law judge, may suspend the LON to require the applicant to submit further information and may also set the LON for a full hearing. Ohio Admin. Code 4906-5-02-(A)(3). The applicants herein, Oregon Lateral Citizens Coalition et al., submit that North Coast Gas Transmission’s LON, is so devoid of information and evidence to support a determination the pipeline meets the criteria in R.C. 4906.10 that a certificate cannot be granted for LON. The applicants further submit that the pipeline route, on its face, presents such significant adverse environmental impacts on residents, property owners and community institutions, that failure to conduct a full hearing on the LON constitutes an abuse of discretion by the Board. A full hearing also will provide affected property owners a reasonable opportunity to investigate and object to the proposed pipeline route.

## **II. STANDARDS APPLICABLE TO BOARD ORDERS**

An application for a construction certificate under a Letter of Notification (“LON”), is subject to the approval criteria set forth in R.C. 4906.10 which, in pertinent part, provides:

The board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the board, unless it finds and determines all of the following:

- )
- (1) The basis of the need for the facility if the facility is an electric transmission line or gas pipeline;
  - (2) The nature of the probable environmental impact;
  - (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations; ...
  - (5) That the facility will comply with Chapters 3704, 3734, and 6111 of the Revised Code ...; and
  - (6) That the facility will serve the public interest, convenience, and necessity ...

R.C. 4906.12 provides that OPSB orders are subject to the procedures provided by certain statutes governing Public Utilities Commission proceedings, including R.C. 4903.13. R.C. 4903.13 provides that an OPSB order may not be unlawful or unreasonable. The Board's factual determination must not be manifestly against the weight of the evidence or so clearly unsupported by the record as to show misapprehension, mistake, or willful disregard of duty. *Chester Tp. v. Power Siting Comm.* (1977), 49 Ohio St.2d 231, 361 N.E.2d 436. Furthermore, an order must show, "in sufficient detail, the facts in the record upon which the order is based, and the reasoning followed \* \* \* in reaching its conclusion." *Indus. Energy Users-Ohio v. Pub. Util. Comm.*, 117 Ohio St.3d 486, 2008-Ohio-990, 885 N.E.2d 195, ¶30 (referring to its review of a PUCO order under the same statute). A "legion of cases" establishes that the Board "abuses its discretion if it renders an opinion on an issue without record support." *Id.*

For the reasons explained throughout this Memorandum, the Board's Order is manifestly against the weight of the evidence, is so clearly unsupported by the record as to show misapprehension; mistake; or willful disregard of duty, fails to show in sufficient detail the facts in the record upon which the order is based and the reasoning followed in reaching its conclusion, and is unlawful and unreasonable. Consequently, the Board should reconsider the approval of NCGT's LON, and set the matter for a hearing, or alternatively deny and/or amend the certificate it has issued.

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A. NCGT'S October 7, 2014 LON Does Not Provide Evidence Satisfying The Criteria In R.C. 4906.10.

All OPSB certificate approvals to construct a major utility natural gas pipeline, including approvals granted under an accelerated review process, must be supported by evidence in the record satisfying the criteria in R.C. 4906.10. When a certificate is granted without a hearing based on a LON, then the evidence required to satisfy R.C. 4906.10 must be contained in the LON itself.

In this case, the October 7, 2014 LON submitted by North Coast Gas Transmission (NCGT) does not include a verification statement from NCGT's chief executive officer verifying the statements contained in the LON as true and accurate, as required by Ohio Admin. Code 4906.1-10(B). Consequently, none of the information contained in NCGT's LON constitutes evidence to support granting its certificate application. Therefore the Board's approval of NCGT's letter of notification was unlawful and unreasonable.

The LON also does not contain evidence concerning alternative routes that were considered by NCGT for the pipeline. Without such evidence, presented in sufficient detail to enable the OPSB staff and adversely affected parties to test the validity of NCGT's assertion that the proposed route is the one that presents the minimum adverse environmental impacts, the OPSB lacks the required evidentiary basis to find the criteria of R.C. 4906.10 are met. The OPSB Staff Report simply accepts NCGT's unsupported conclusory statements that there are no viable alternative pipeline routes. But the LON does not include any details about the alternative routes that were considered. Where were the alternative routes located? What residential, commercial and community properties were adversely affected by the alternative routes? What are the costs associated with the alternative routes that were considered, and how do they compare to NCGT's preferred route? None of this information is contained in the LON, as it should be under Ohio Admin. Code 4901-11-01(B)(4). Consequently, adversely affected parties and the general public, as well as the OPSB Staff, are left in the dark as to whether there are viable alternative routes for the pipeline, and whether such alternative routes present less adverse environmental impacts than NCGT's preferred route, such as: reducing the number of residences located within close proximity to the pipeline, reducing the instances where prime agricultural land is bisected (and at odd angles), and avoiding locating the pipeline in close proximity to

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schools and hospitals. Because NCGT's LON does not include this information, the Board's approval of NCGT's letter of notification was unlawful and unreasonable.

Finally, NCGT's LON lacks any discussion or analysis of the proposed pipeline's Potential Impact Radius (PIR). PIR is defined by U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, in 49 CFR 192.903, as the radius of a circle within which the potential failure of a natural gas pipeline **could have significant impact on people or property** (Stephens, 2000 and DOT, 2011b).

For the proposed Oregon Lateral pipeline, **the PIR is 507 feet.**<sup>1</sup> Because the proposed Oregon Lateral pipeline has a PIR of 507 feet, NCGT's Letter of Notification, and OPSB Staff's report, is incomplete and inadequate to meet the requirements R.C. 4906.10 unless they identify the residences, businesses and other occupied structures that are within the PIR. It is also critical for NCGT and OPSB Staff to identify the existence of "high consequence areas" within the pipeline's PIR, which includes churches, playgrounds, recreational facilities, stadiums, offices, community centers, general stores, as well as facilities occupied by persons who are confined, have impaired mobility, or would be difficult to evacuate in an emergency, such as hospitals, prisons, schools, day-care facilities, retirement facilities or assisted-living facilities. See 49 CFR 192.903. With respect to the proposed Oregon Lateral pipeline, St. Luke's Hospital, Northwood Elementary School, Perrysburg Schools, at least one church, Hirzel's Canning (which is very crowded during canning season), and the Evergreen Landfill, are within the pipeline's 507 foot PIR. Because NCGT's failed to identify and address adverse environmental impacts on people, occupied structures, and improved properties within the proposed pipeline's 507 foot PIR, the Board's approval of NCGT's LON was unlawful and unreasonable.

- B. NCGT's LON Does Not Demonstrate The Pipeline Will Comply With Revised Code Chapters 3704, 3734, And 6111, And All Rules And Standards Adopted Under Those Chapters.

NCGT's proposed pipeline route locates the pipeline immediately adjacent to the Ohio EPA-permitted Evergreen Sanitary Landfill, located on the south side of Wales Road between East Broadway and Drouillard Roads. Under Ohio Admin. Code 3745-27-20(A)(3)(e) and

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<sup>1</sup> As the pipeline has a diameter of 24 inches, and a Maximum Allowable Operating Pressure of 937 psi (see NCGT LON, p. 7), the PIR is 507 feet. ( $PIR = 0.69 * \sqrt{(pd^2)}$  where p=psi and d=diameter).

)  
(C)(5), an operating sanitary landfill cannot be located in an "unstable area." Ohio Admin. Code 3745-27-01(U) (2) defines "unstable area" as

a location that is susceptible to natural or human induced events or forces capable of impairing the integrity of some or all of the structural components of a landfill that are responsible for preventing releases from the landfill and can include areas where on-site or local soil conditions result in significant differential settling; areas where the downslope movement of soil or rock due to gravitational influence occurs; or areas where the lowering or collapse of the land surface occurs either locally or over broad regional areas.

NCGT's LON does not address whether the risk of a catastrophic explosion of the pipeline near the Landfill constitutes an "unstable area" in violation of Ohio EPA's site restrictions for municipal solid waste landfills. Nor does NCGT's LON address whether construction activities associated with installation of the pipeline next to the landfill may create an "unstable area" in violation of Ohio EPA landfill rules.

A municipal solid waste landfill such as the Evergreen Sanitary Landfill, is an environmentally sensitive site. The Landfill has a history of accepting hazardous waste for disposal, including heavy metal sludge, wastewater sludge from electro-plating operations, and air pollution control sludge and dust. J. DeRoche and K. Breen, *Hydrogeology and Water Quality at a Solid and Hazardous Waste Landfill, Northwood Ohio*, (1988), p. 4 (attached as Exhibit E<sup>2</sup>). The Landfill contains liquid leachate that is contaminated with various hazardous and non-hazardous contaminants. The Landfill is required to implement measures to prevent leachate from escaping. Ohio Admin. Code 3745-27-08. The Landfill must control surface water runoff from the landfill, and monitor groundwater at and near the landfill, to determine whether contamination from the Landfill is impacting human health or the environment. *Id.*; Ohio Admin. Code 3745-27-10.

Decomposition of solid waste within the Landfill produces explosive gas. The Landfill must implement measures to control the explosive gas and prevent it from harming the landfill or the environment. Ohio Admin. Code 3745-27-12. Locating a large natural gas pipeline immediately adjacent to an operating sanitary landfill poses an unnecessary and unacceptable

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<sup>2</sup> Due to the length of the document, only the relevant portion of the Report is included. The full Report may be accessed at <http://pubs.usgs.gov/wri/1988/4093/report.pdf> (last accessed February 4, 2015).



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risk that a catastrophic pipeline explosion will compromise the structure and integrity of the Landfill, resulting in the release of contaminants and exposing Walbridge residents who live near the Evergreen Landfill to those contaminants. As discussed on page 9, *supra*, **the Potential Impact Radius of the proposed pipeline is 507 feet.** Similarly, if the Landfill's gas ignited and exploded, it could cause an adjacent gas pipeline to combust. Solid waste landfills are highly combustible. See Subsurface Heating Events at Solid Waste and Construction and Best Practices, Ohio EPA, 2011, (attached as Exhibit F). Locating a major gas pipeline immediately adjacent to a solid waste landfill presents a substantial risk of harm to public health and safety.

In addition, Ohio Admin. Code 3745-27-12(D)(2)(a)(v) recognizes that pipelines located within 1,000 feet of a landfill are potential explosive gas migration pathways that pose a risk to public health and safety. As such, the pipeline must be included in the Landfill's explosive gas monitoring plan, and the Landfill must implement measures to monitor and control the migration of landfill gas within the pathway. Ohio Admin. Code 3745-27-12(D)(5)(c). NCGT's LON does not address what additional measures NCGT will implement to ensure pipeline construction, operation, and maintenance activities will not impact, disrupt, or compromise the integrity of the Landfill's groundwater monitoring wells, some of which located outside the Landfill's boundaries, or the Landfill's explosive gas monitoring network.

At a January 20, 2015 information session conducted by NCGT in Perrysburg, NCGT represented it will use the Evergreen Landfill to move construction equipment, pipe, material, supplies, and construction personnel onto several landlocked parcels that are located adjacent to the Landfill west of Drouillard Road. The Landfill is required to restrict access to the Landfill to authorized personnel. Ohio Admin. Code 3745-27-19(E)(2). In this case, where there is a confirmed history that the Landfill was used for the disposal of hazardous waste, it is unreasonably risky for workers, and the public at large, for NCGT to operate heavy trucks hauling pipeline, backfill and other materials and supplies, as well as heavy construction equipment, across the Evergreen Landfill. Such activity has the potential to cause dispersal of hazardous-contaminant-carrying fugitive dust, and the movement of landfill materials resulting in leachate outbreaks and surface water ponding.

Based on communications with Ohio EPA Northwest District Office solid waste division, none of the foregoing issues has been brought to the attention of Ohio EPA in connection with NCGT's LON. The potential adverse impact of locating the pipeline immediately adjacent to the

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Landfill was not addressed in NCGT's LON. For the reasons stated above, NCGT's LON fails to demonstrate minimum adverse environmental impacts, or compliance with R.C. Chapter 3734. Therefore, the Board's approval of NCGT's LON was unlawful and unreasonable.

C. NCGT's Proposed Gas Pipeline Was Not Eligible For Accelerated Review Because It Is An Integral And Necessary Part Of The Oregon Clean Energy Center, Ohio Power Siting Board Case Number 12-2959-EL-BGN.

The record in Case No. 12-2959-EL-BGN confirms that as early as the third quarter of 2012, OCEC arranged for natural gas to be supplied to OCEC via the NCGT's pipeline at issue herein (Case No. 14-1754-GA-BLN) (Energy Tolling Agreement, attached as Exhibit G). OCEC and NCGT's agreement is virtually a joint venture arrangement for a single integrated energy project. Although OCEC and its supply gas pipeline represent a single integrated project, NCGT has been allowed to bifurcate approval of the project into an electrical component and a gas component, and thereby avoid OPSB's regular review and hearing procedure for a major utility facility for the pipeline component of the project. Ironically, the pipeline component represents far greater adverse impacts on far more property owners and residents than does the OCEC electrical component of the project, yet the electrical component underwent full OPSB review and hearing, while the pipeline component went through an accelerated review that was less rigorous and without hearing.

Support for the proposition that NCGT's pipeline should have been subject to a full review and hearing in conjunction with OCEC, or separately under the Board's authority under Ohio Admin. Code 4901-5-02(A)(3)(c), lies in the fact that the pipeline and NCGT's role was established in a previous case. OCEC's Case No. 12-2959-EL-BGN called for the construction of the 25 mile, 24-inch gas pipeline from Oregon to Maumee - which is at issue herein, identified NCGT as the pipeline company, and discussed the consideration of other pipeline alternatives that were rejected in favor of NCGT's pipeline. *See* Case No. 12-2959-EL-BGN, March 13, 2013 Energy Tolling Agreement (attached as Exhibit G), March 6, 2013 letter re: NCGT Regulatory Status (attached as Exhibit H), and Jan. 17, 2013 OCEC Application Complete Narrative, pg. 21, (attached as Exhibit I<sup>3</sup>). In other words, the decisions regarding the preferred

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<sup>3</sup> Due to the Length of the document, only "Section A" was included. The full document may be accessed through the Ohio Docketing Information System in: Case No: 12-2959-EL-BGN ("Summary: Application Complete Narrative electronically filed by Teresa Orahod on behalf of Oregon Clean Energy, LLC").

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pipeline route and minimizing adverse environmental impacts, were made in conjunction with the OCEC review process, but residents and property owners affected by the pipeline were not given timely notice of these decisions so they could participate in the OCEC review and hearing regarding the gas supply and pipeline. For these reasons, NCGT's proposed pipeline cannot be reviewed under the accelerated review process, and should instead be subjected to a full *application and hearing process for major utility gas pipelines*.

An additional reason why the proposed Oregon Lateral pipeline is not eligible for accelerated review under 4906.03((F)(3)) is because it appears to be substantially oversized for its stated purpose of supplying the Oregon Clean Energy Center. The planned 799MW OCEC project will use two Siemens SGT6-8000H gas turbine generators (See Exhibit G, pp. 1 and 10). A virtually identical facility, the Patriot Generation Station, is being built in Clinton Township, Lycoming County, Pennsylvania. See <http://www.power-technology.com/projects/patriot-generating-station-pennsylvania/> <last visited Feb. 4, 2015>. The Patriot facility will produce 829MW using two Siemens SGT6-8000H generators identical to the generators planned for OCEC. *Id.* Notably, natural gas will be supplied to the Patriot power station via an eight mile long, 12-inch diameter coated steel high-pressure pipeline. *Id.* The gas supply pipeline proposed by NCGT to supply the virtually identical OCEC power plant is 24-inches in diameter. The NCGT pipeline therefore appears to be dramatically larger, by double or triple, than the size required to provide the gas supply required for OCEC. It is reasonable to conclude that NCGT has oversized the proposed Oregon Lateral in order to provide gas supply to users other than the planned OCEC power plant at some point in the future. Therefore, the pipeline cannot and should not be considered a single user for purposes of accelerated review under R.C. 4906.03. It is unlawful and unreasonable for the Board to approve NCGT's LON under the accelerated review process pursuant to R.C. 4906.03.

- D. NCGT's Letter of Notification Does Not Demonstrate The Pipeline Represents The Minimum Adverse Environmental Impact, Considering The State Of Available Technology And The Nature And Economics Of The Various Alternatives, And Other Pertinent Considerations.

NCGT's letter of notification refers to several alternative routes that NCGT considered for the pipeline, but were rejected by NCGT in favor of the proposed route. However, NCGT's

LON does not set forth facts regarding the specific alternative routes, the environmental impacts of such routes, the costs and other economic aspects of those alternative routes, or any other considerations that caused the alternative routes to be rejected. NCGT expects OPSB Staff and members of the public to simply assume that NCGT's preferred route is the one that represents the minimum adverse environmental impact. However, a certificate for the construction, operation, and maintenance of a major utility natural gas facility can only be granted based on evidence – not assumptions – that each of the criteria in R.C. 4906.10 is satisfied.

The statutes and rules that govern OPSB's process for granting certificates are designed to allow adversely affected property owners and members of the public to participate in reviewing, commenting on, and objecting to an application for a certificate or letter of notification. The record of public comments in this case confirms the public's significant concerns about NCGT's proposal, and in particular, the absence of specific facts and information regarding alternative routes considered for the pipeline. The failure of NCGT to specifically identify alternative pipeline routes in its LON, and the environmental impacts, costs and other relevant considerations regarding such routes, makes approval of NCGT's LON unlawful and unreasonable under R.C. 4906.10.

- E. NCGT's letter of notification does not address the possibility of locating the proposed pipeline to supply OCEC within NCGT's existing easement for its major utility natural gas pipeline that runs from the BP Oil refinery in Oregon to Fostoria, or by enlarging NCGT's existing 10-inch Oregon to Fostoria natural gas pipeline.

Publicly available information from North Coast Gas Transmission LLC shows that NCGT operates a natural gas transmission pipeline running from Toledo to Fostoria, Ohio (Exhibit J). A press release from NCGT in 2006 announced that NCGT acquired a petroleum pipeline running from Toledo to Fostoria, which NCGT converted to a natural gas transmission pipeline to serve as laterals serving customers in Toledo and Marion. (Exhibit K). MR. TILLER believes the pipeline that NCGT acquired and converted to natural gas transmission is a 37.5 mile, 10-inch pipeline constructed by Inland Corporation in the 1950s and running from the Sohio (now BP Oil) Refinery in Oregon Ohio to Fostoria, Ohio. This pipeline, now owned and operated as a natural gas transmission line by NCGT, the applicant in this case, runs within approximately ¼ mile from the OCEC facility.

Enlarging the old Inland pipeline, or running a parallel new pipeline within the existing easement for the former Inland pipeline, appears to be an alternative route that was not considered by NCGT for the pipeline proposed herein. Utilizing the existing Inland pipeline easement to run the proposed 24-inch pipeline to supply OCEC south to approximately State Route 163, and then west to the Maumee River, would utilize the existing pipeline easement for approximately 40% of the length of the proposed pipeline, with the remaining 60% of the length running west through areas that are substantially less populated and less developed than the properties impacted by the current proposed route. Such an alternative route also would not substantially add to the length of the proposed pipeline. NCGT's letter of notification does not contain any facts regarding the impacts, economics, and other considerations supporting a determination that the preferred route represents minimum adverse environmental impacts under R.C. 4906.10 versus an alternative route that uses NCGT's existing pipeline easement for its existing 10-inch pipeline. Therefore, the Board's approval of NCGT's letter of notification was unlawful and unreasonable.

- F. NCGT's apparent failure to obtain a certificate from OPSB to convert a 37.5 mile long, 10-inch diameter pipeline, running from Oregon to Fostoria, which NCGT acquired in 2006 to operate and use as a major utility natural gas pipeline, demonstrates NCGT's inability to serve the public interest, convenience, and necessity.

After much investigation and research, and multiple inquiries to the OPSB, counsel for Oregon Lateral Citizens Coalition has been unable to confirm that OPSB granted a certificate to NCGT to convert, operate and maintain, the 37.5 mile long, 10-inch diameter pipeline, running from Oregon to Fostoria, which NCGT acquired in 2006. NCGT presumably made necessary changes to valves, meters, compressors, regulators, tanks and other transmission items, and equipment (all of which are defined as "associated facilities" under Ohio Admin. Code 4906-1-01(P)), to convert the existing petroleum pipeline to a natural gas transmission pipeline to serve NCGT gas customers in Toledo and Marion (Exhibits J and K). Such changes constitute "construction" of a "major utility facility." R.C. 4906.01(B)(1)(c). Pursuant to R.C. 4906.04, NCGT was required to obtain a certificate from OPSB prior to converting and operating the former petroleum pipeline as a natural gas major utility facility. If NCGT failed to comply with this requirement, it demonstrates NCGT's inability to serve the public interest, convenience, and

necessity as R.C. 4906.10 requires. Therefore the Board's approval of NCGT's letter of notification was unlawful and unreasonable.

- G. The NCGT pipeline route does not demonstrate the pipeline represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, because the Letter of Notification does not set forth any facts to support locating pipeline within 100 feet of over 20 homes located between Curtice Road and Seaman Road.

On December 16, 2014, North Coast Gas Transmission filed its Responses to Staff's First Set of Data Requests Issued in Case No. 14-1754-GA-BLN (attached as Exhibit L), which stated as follows:

18. The centerline of the proposed route runs within 100-feet of over twenty homes between Curtice Road and Seaman Road. Please explain why the route generally runs along the property line in these areas, resulting in a closer proximity to residences, as opposed to generally paralleling the electric transmission lines nearer the center of the utility corridor.

Response 18. The alignment of the pipeline in this particular area was largely to accommodate FirstEnergy's desire to have the pipeline as far away from the electric transmission line as possible in areas where it was feasible to do so. FirstEnergy owns many of the properties along this section and the pipeline was routed along the eastern property lines in order to accommodate FirstEnergy's request. The additional distance between the electric transmission line and proposed pipeline in this area also reduces the hazards associated with constructing a pipeline in close proximity to an electric transmission line and also reduces the amount of AC current that can be induced onto the pipeline (emphasis added).

NCGT's response to the OPSB Staff's questions shows the pipeline location in the existing Toledo Edison easement was selected for the convenience of Toledo Edison. The unspecified construction hazards undoubtedly can be mitigated by following appropriate safety precautions and using proper protective clothing and equipment. Regarding the issue of induced electrical current, NCGT's responses are unacceptably vague and unresponsive. There are accepted methodologies for calculating the amount of induced current that may affect a pipeline.

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See e.g., Dabkowski, J., Taflove, A., "Mutual Design Considerations for Overhead A.C. Transmission Lines and Gas Transmission Pipelines, Volume I: Engineering Analysis." Final Report on EPRI Contract RP742-1 and PRC/AGA Contract PR132-80 by IIT Research Institute, Chicago, Illinois, September 1978. In addition, several organizations and companies have developed software to model complex right-of-way conditions related to induced AC voltages, including the Pipeline Research Council International, and Safe Engineering Services & Technologies. It is NCGT's obligation to quantify the risk of induced AC current if the pipeline is located nearer to Edison's high voltage towers as compared to its preferred pipeline location immediately behind 20 occupied residences. NCGT also fails to discuss measures that it can take to minimize induced AC current even if the pipeline is located further from the residences and nearer to Edison's towers. Such measures include, but are not limited to: installing polarization cells to ground, installing semiconductor devices to ground, using bare copper cables, or zinc ribbon as grounds with DC decoupling devices (capacitors, polarization cells, ISPs), etc.

Finally, and most tellingly, NCGT's preferred route between Curtice Road and Seaman Road does not consistently maintain significant distance between the pipeline location and the Edison high voltage lines. For example, on Parcel No. 44-25811, also known as 3862 Pickle Road, Oregon Ohio, which is owned by Gladieux Family Limited Partnership, NCGT's preferred pipeline route runs directly under Edison's electrical towers, adjacent to three residential parcels, for approximately 600 linear feet, and then abruptly shifts east to run the pipeline along the east property line immediately behind several occupied residences (see Exhibit M). In other words, it appears that induced AC current does not absolutely require the pipeline to be moved away from Edison's lines. If it were otherwise, then the pipeline should not be able to be located directly under Edison's towers next to residential parcels on the north 600 feet of 3862 Pickle Road.

In summary, there are no specific facts in NCGT's LON or its December 16, 2014 response to support locating the pipeline so close to so many homes for safety reasons. Therefore the Board's approval of NCGT's letter of notification was unlawful and unreasonable.

- H. NCGT Has Neglected Or Ignored The Reasonable Requests Of Impacted Property Owners Regarding Adjustments To The Pipeline Route To More Closely Follow Property Boundaries, And To Preserve Commercial Development Potential And Agricultural Productivity, And To Provide Engineering Data, Technical Data Regarding Trenching, And Horizontal Directional Drilling For The Proposed

Pipeline, To Enable Owners To Consult With Professionals In Farm And Field Drainage Management For The Purpose Of Identifying Likely Impacts On Soil Compaction And Lost Productivity.

On December 16, 2014, NCGT filed its Responses to Staff's First Set of Data Requests Issued in Case No. 14-1754-GA-BLN (attached as Exhibit L), which stated as follows:

15. Please explain why the proposed route jogs south immediately east of Drouillard Road, bringing it closer to the residence at 30930 Drouillard Road.

Response 15. The location of the utility tower on the west side of the railroad tracks determined the location of the pipeline as it heads eastward and crosses Drouillard Road. Where feasible, the pipeline was sited near parcel boundaries to reduce impacts for future development. (emphasis added)

NCGT's response here is notable for asserting that NCGT desires to site the pipeline near parcel boundaries to reduce impacts on future development, where it is feasible to do so. Several of the property owners joining in MR. TILLER's application for rehearing, submitted comments to OPSB in Case No. 14-1754-GA-BLN requesting the pipeline route be adjusted to more closely follow property boundaries to preserve future development opportunities. These owners include Mr. Cox, Mr. and Mrs. Henry, and Mr. Swartz. NCGT has not addressed their requests, nor has it explained why NCGT can jog its pipeline to accommodate the electric company and utility towers, but cannot jog its pipeline for regular people who are trying to preserve multi-generation family farms. OPSB Staff Revised Report on January 5, 2015, imposed Condition No. 27, on NCGT as follows:

27. The Applicant shall continue to be open and responsive to the concerns of the affected landowners, and consider adjusting the route within parcels to address affected landowners' concerns without increasing overall impacts. The Applicant shall keep Staff informed regarding such communications with the affected landowners.

Even the addition of Condition No. 27 has not caused NCGT to address the requests of Applicants herein to re-route the pipeline owners near parcel boundaries to reduce impacts for future development.



NCGT has similarly neglected or ignored the written request of Mr. Steve Cox to consider a specific proposed alternative route that would eliminate adverse impacts for several property owners without creating new impacts for other property owners. (Exhibit M). Mr. Cox also requested engineering and technical data concerning the construction of the pipeline across drainage tiles of his agricultural property. Mr. Cox explained he wanted the information in order to consult with field and drainage experts on the likely damages to his crop production, as well as possible mitigation strategies. Mr. Cox's request is eminently reasonable.

NCGT's failure to address property owners' requests for information and to make reasonable adjustments to the proposed pipeline route reinforces the conclusion that NCGT's LON does not represent minimum adverse environmental impacts. Therefore, the Board's approval of NCGT's letter of notification was unlawful and unreasonable.

### **III. CONCLUSION**

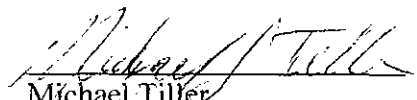
For all of the above reasons, the Oregon Lateral pipeline project, as proposed in the NCGT's Letter of Notification and automatically approved by the Board, does not represent the minimum environmental adverse environmental impact under R.C. § 4906.10(A)(3), considering the state of available technology and the nature and economics of the various alternatives. Nor does it comply with the requirements of R.C. Chapter 3734, and rules and permits issued by Ohio EPA thereunder, as required by R.C. 4906.10(A)(5). Further, the absence of any evidentiary facts in the LON, precludes finding that the Oregon Lateral pipeline project, as proposed in the LON, will serve the public interest, convenience, and necessity under R.C. § 4906.10(A)(6). The significant adverse impacts of this project on the dozens of occupied residences, two schools, a community hospital, and an operating sanitary landfill, clearly call for moving the pipeline to a less harmful location.

The Oregon Lateral Citizens' Coalition does not oppose the Oregon Clean Energy Facility, or the need for a gas supply pipeline for the facility. But there clearly are feasible alternative routes for the pipeline that NCGT has neglected or refused to consider, which would mitigate most of the adverse impacts presented by the current proposal. For the reasons described in this Application for and Memorandum in Support of Rehearing, the Board's automatic approval of the certificate for NCGT's Letter of Notification is unlawful and

unreasonable. Consequently, the Oregon Lateral Citizens Coalition, and each of its members, respectfully requests the Board to take the following actions:

- a. Deny the North Coast Gas Transmission LLC's Letter of Notification;
- b. Require North Coast Gas Transmission LLC to submit an amended Letter of Notification that sets forth verified facts regarding the pipeline project, including specific details regarding the location, impacts, costs and other relevant considerations concerning the preferred pipeline route and alternative pipeline routes;
- c. Set the issue of approval of the Letter of Notification for a full hearing by the Board; or alternatively;
- d. Modify or amend the approval of the Letter of Notification to require the pipeline to be located at least 60 feet from the rear lot lines of residences located between Curtice Road and Seaman Road; and
- e. Modify or amend the approval of the Letter of Notification to require the pipeline route to be sited near parcel boundaries where feasible to reduce impacts on field drainage and crop productivity, and to reduce impacts for future development, and requiring NCGT to specifically explain why such relocation is not feasible for those properties where NCGT maintains that relocation is not feasible; and
- f. Modify or amend the approval of the Letter of Notification to require a minimum separation distance of at least 500 feet between the pipeline and the limits of waste placement in the Evergreen Landfill.

Respectfully submitted,

  
Michael Tiller  
7559 Summerfield Road  
Lambertville, Michigan 48144  
(419) 466-6296

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing *Application for Rehearing* was served upon the following persons by mailing a copy, postage prepaid, on February 21, 2015 addressed to:

Stephen M. Howard  
Gretchen L. Petrucci  
Michael J. Settineri  
Vorys, Sater, Seymour and Pease LLP  
52 East Gay St., P.O. Box 1008  
Columbus, OH 43216-1008

Michael E. Calderone  
North Coast Gas Transmission LLC  
445 Hutchinson Ave., Ste. 830  
Columbus, OH 43235-8614

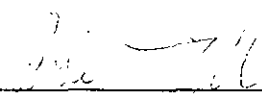
Robert J. Schmidt  
L. Bradfield Hughes  
Porter Wright Morris & Arthur  
41 South High St.  
Columbus, OH 43215

Anne Rericha  
FirstEnergy Service Company  
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Akron, OH 44308

American Transmission Systems Inc.  
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William R. Ridmann  
Toledo Edison  
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Yvonne W. Cooper  
Matt Butler  
Vesta Miller  
Grant T. Zeto  
Donielle M. Hunter  
Public Utilities Commission of Ohio  
180 East Broad St.  
Columbus, OH 43215

  
\_\_\_\_\_  
Carrie Tiller

Like 0

# 14-1754-GA-BLN: North Coast Oregon

## Lateral Pipeline

Case No.: 14-1754-GA-BLN

Project: Oregon Lateral Pipeline

Company: North Coast Gas Transmission

Location: Wood and Lucas counties

Status: Approved

North Coast Gas Transmission proposes to build a 22-mile long, 24-inch diameter pipeline in Wood and Lucas counties. The proposed pipeline would tie into two existing pipelines in the city of Maumee to provide natural gas to the Oregon Clean Energy Facility, located in the city of Oregon.

As a pipeline primarily needed to meet the requirements of a specific customer, this project was subject to the Board's accelerated Letter of Notification process. The application was filed on Oct. 7, 2014 and approved on Jan. 6, 2015.

Letter of Notification application text

Map of proposed route

Staff Report of Investigation and Revisions to Staff Report

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BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

**In the Matter of the Letter of Notification Application by  
North Coast Gas Transmission, LLC for a Certificate of  
Environmental Compatibility and Public Need for the  
Oregon Lateral 24 inch Natural Gas Pipeline.**

) Case Number  
) 14-1754-GA-BLN  
)

Members of the Board:

|                                           |                               |
|-------------------------------------------|-------------------------------|
| Chairman, Public Utilities Commission     | Ohio House of Representatives |
| Director, Development Services Agency     | Ohio Senate                   |
| Director, Department of Health            |                               |
| Director, Department of Agriculture       |                               |
| Director, Environmental Protection Agency |                               |
| Director, Department of Natural Resources |                               |
| Public Member                             |                               |

To the Honorable Power Siting Board:

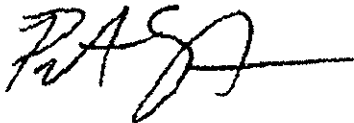
Please review the attached Staff Report of Investigation, which has been filed in accordance with the Board's rules. The accelerated certificate application in this case is subject to an automatic approval process as required by Section 4906.03 of the Ohio Revised Code.

The application will be automatically approved on 1/6/2015, unless suspended by the Board's chairperson, the Executive Director, or an administrative law judge. If suspended, the Board must render a decision on the application within 90 days from the date of suspension.

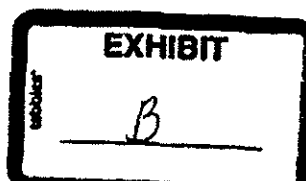
The Staff Report includes recommended conditions of the certificate. Prior to the automatic approval date, the applicant must file a supplement to its application that adopts these conditions. Absent such supplement, Staff will recommend that the case be suspended.

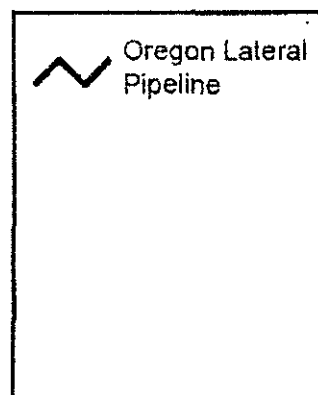
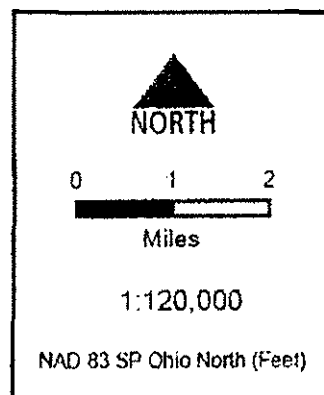
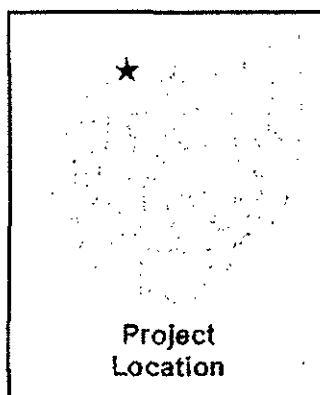
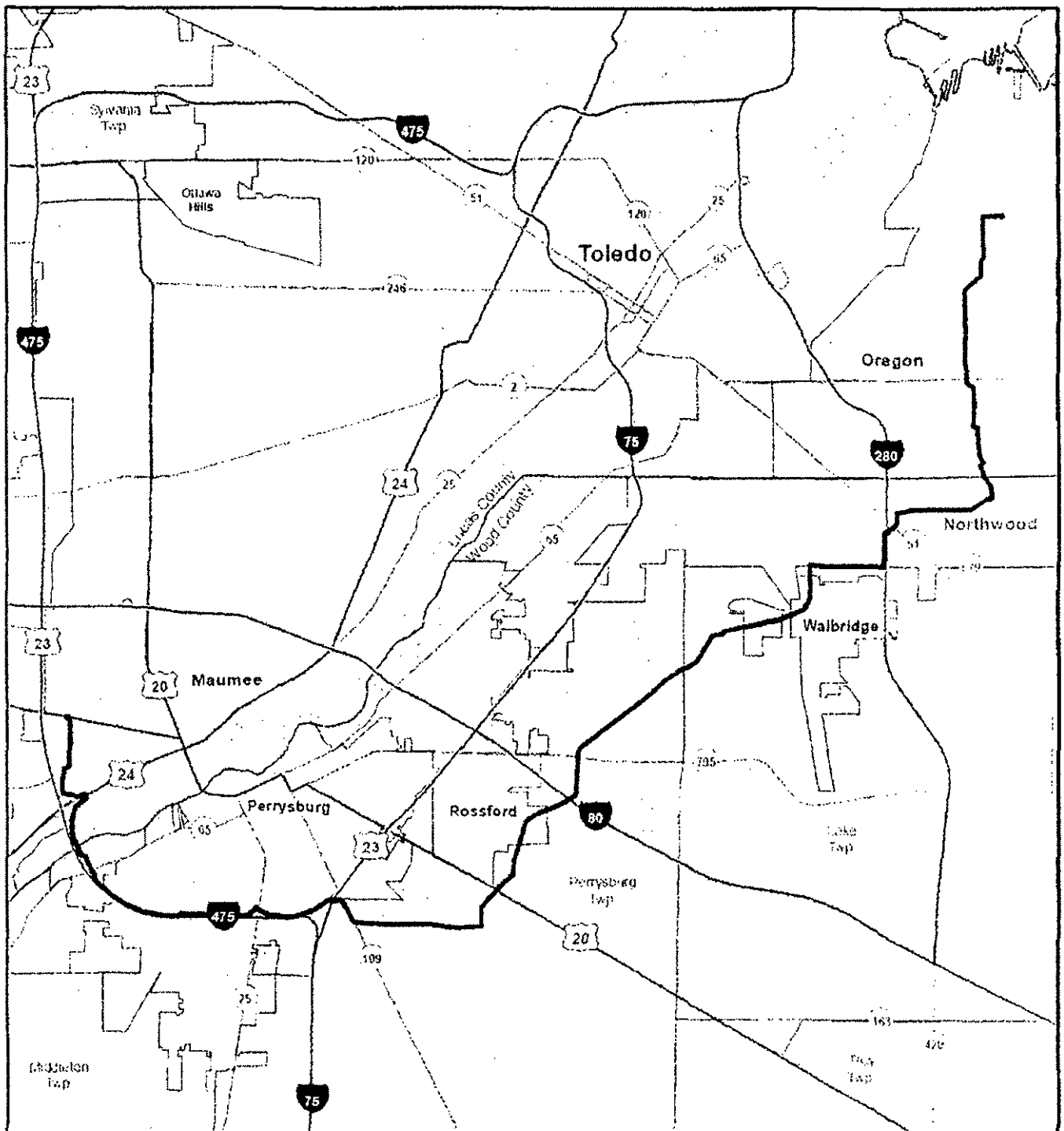
Please present any concerns you or your designee may have with this case to my office at least four business days prior to 1/6/2015, which is the automatic approval date.

Sincerely,



Patrick Donlon  
Interim Executive Director  
Ohio Power Siting Board  
(614) 466-6692  
Contact OPSB@puc.state.oh.us





**Overview Map**

**14-1754-GA-BLN**

**Oregon Lateral  
24" Natural Gas  
Pipeline**

Maps are presented solely for the purpose of providing a visual representation of the project in the draft report and are not intended to modify the project as presented by the Applicant in its certificate application and supplemental materials.

## OPSB STAFF REPORT OF INVESTIGATION

**Case Number:** 14-1754-GA-BLN  
**Project Name:** Oregon Lateral 24 inch Natural Gas Pipeline  
**Project Location:** Lucas and Wood Counties, Ohio  
**Applicant:** North Coast Gas Transmission, LLC  
**Application Filing Date:** October 7, 2014  
**Filing Type:** Letter of Notification  
**Inspection Date:** November 17 & 18, 2014  
**Report Date:** December 29, 2014  
**Automatic Approval Date:** January 6, 2015  
**Applicant's Waiver Requests:** none  
**Staff Assigned:** G. Zeto, A. Holderbaum, M. Fancher, S. Irwin, J. Pawley

### Summary of Staff Recommendations (see discussion below):

Application: ☐ Approval ☐ Disapproval ☒ Approval with Conditions  
Waiver: ☐ Approval ☐ Disapproval ☒ Not Applicable

### Project Description

The Applicant proposes to construct a 22-mile long 24-inch diameter natural gas transmission line in Lucas and Wood counties, Ohio. The proposed pipeline would tie into two existing pipelines in the city of Maumee to provide natural gas to the Oregon Clean Energy Center, located in the city of Oregon. The entire pipeline would be underground; however, above-ground structures would also be required for operation. Three above-ground measuring and regulating stations would be constructed adjacent to existing pipeline or industrial infrastructure. The first would be located at the beginning of the route in Maumee where the line ties into an existing pipeline owned by Panhandle Eastern Pipe Line Company. The second would be located about a half mile south of the first station where the line ties into an existing pipeline owned by ANR Pipeline Company. The final measuring and regulating station would be located on the property of the Oregon Clean Energy Center. The line would also include several small above-ground valve stations along the right-of-way. The pipeline would be installed using a combination of open cut and conventional boring. Construction of the line would generally occur within a 75 foot easement, which includes 25 feet of temporary and 50 feet of permanent easement. Construction would be expected to begin in March 2015, with an anticipated in-service date of July 2016.

## Site Description

The 50 foot permanent right-of-way would begin in the city of Maumee. The line then runs south until it crosses the Maumee River and turns east through the city of Perrysburg and Perrysburg Township. From Perrysburg Township, the line continues generally northeast through Lake Township, the city of Rossford, the city of Walbridge, the city of Northwood, and ends in the city of Oregon.

## Need

The pipeline is needed to provide natural gas supply to the Oregon Clean Energy Center.

## Nature of Impacts

### *Socioeconomic*

Socioeconomic impacts of the project are related to the use of the land along the proposed route. The 2011 National Land Cover Dataset (NLCD) characterizes 49 percent of the land within 1,000-feet of the project centerline as developed, 42 percent as agricultural, about 5 percent as forest or grassland, and less than 4 percent as other categories. Concerns related to these uses include temporary construction disturbance, the proximity of the route to private residences, the removal of vegetation within the pipeline easements, impacts to agricultural production, bisection of individual parcels, and the temporary loss of use of public lands.

Construction of the project would result in some temporary disturbance to residents, businesses, and visitors along the proposed route. Potential impacts include increased noise from the operation of machinery and heavy equipment, traffic hazards from construction vehicles entering and exiting roadways, road closures, reduced air quality resulting from fugitive dust, and diminished privacy at residences neighboring the route.

The primary areas of concern related to construction disturbance are where the proposed route is close to institutions, businesses, and residences. Potentially impacted institutions include St. Luke's Hospital located at 5901 Monclova Road, Maumee, Ohio; Oak Bend Church located at 11275 Eckel Junction Road, Perrysburg, Ohio; and Northwood Local Middle and Onley Elementary Schools located at 600 Lemoyne Road, Northwood, Ohio. Potentially impacted businesses include, but are not limited to, Spartan Chemical, located at 1110 Spartan Drive, Maumee, Ohio; and Taylor Hyundai, located at 12681 Eckel Junction Road, Perrysburg, Ohio. Potentially impacted private residences are discussed separately below.

The proximity of the project to residences is a potential socioeconomic impact. The centerline of the proposed pipeline is less than 100-feet from 46 homes, and less than 50 feet from 5 homes. There is a residential structure at 1500 Old Trail Road, Maumee, Ohio that is directly on top of the proposed pipeline route. The Applicant stated the structure would have to be removed or relocated. The next closest home to the proposed pipeline, located at 604 Cambridge Drive, Oregon, Ohio, would be about 34-feet from the route centerline.

The majority of the homes in close proximity to the proposed pipeline are either in the City of Perrysburg, along I-475, or in the City of Oregon, along an electrical transmission corridor.



)

There is limited potential for the Applicant to shift the pipeline away from the homes backing to I-475, because of the highway. Staff questioned the Applicant regarding the potential to move the pipeline away from the homes along the electric transmission right-of-way by shifting it towards the interior of the transmission corridor. The Applicant's response stated the proposed route is designed to accommodate the electric transmission right-of-way owner's desire to locate the pipeline as far from the electrical transmission lines as possible. The Applicant also stated the proposed route maximizes the distance from the electric lines, reducing both the construction hazard and the potential for induced current on the pipeline, which could create a greater risk for leaks.

Project construction would involve the removal of vegetation within a 25-foot temporary and 50-foot permanent easement. Following construction, the 50-foot permanent easement would require periodic maintenance to keep the pipeline right-of-way clear of significant vegetation. Potential socioeconomic impacts of this activity include the loss of mature trees, established landscaping, privacy screening, and screening from unsightly features.

The primary areas of concern related to the socioeconomic impact of vegetation removal include, but are not limited to, St. Luke's Hospital, where some mature trees and established landscaping could be lost; the north side of Old Trail Lane in Maumee, Ohio, where vegetation screening residences from US-24 could be lost; 1500 Old Trail Lane, Maumee, Ohio, where vegetation screening a residence from the I-457/US-24 interchange could be lost; Goldenrod Lane and Catawba Drive in Perrysburg, Ohio, where some vegetation screening residential parcels from I-475 could be lost; Rivercrest Park in Perrysburg, Ohio, where vegetation screening the park from I-475 and some mature trees could be lost; and several residences on Neiderhouse Road in Perrysburg, Ohio, where some privacy screening could be lost.

Project construction would impact production on agricultural fields it intersects. The 2011 NLCD characterizes 52 percent of the land within the Applicant's proposed easements as row crop. The Applicant stated 57 parcels along the proposed route are zoned for agriculture, 40 of which are designated agricultural districts. At least five of the agricultural district properties appear to be eligible for scrutiny by the Director of the Ohio Department of Agriculture if eminent domain proceedings were brought against them.

Farmers would be compensated for crops lost during construction, but installation of the pipeline could also result in reduced crop yields over a longer term. Trench excavation could sever field drain tiles and aggregate top and sub soils. Construction vehicles and heavy equipment could compact soils. These impacts have the potential to individually and cumulatively reduce crop yields both within and beyond the pipeline easements.

The bisection of individual parcels by the proposed pipeline is a potential socioeconomic impact. Routing the pipeline through the center of a parcel, as opposed to along its perimeter, can impose certain limits on current and future uses. The proposed route would intersect about 180 individual parcels, 53 of which are significantly bisected. Significantly bisected, in this context, means greater than 20 percent of the parcel would be separated by the pipeline from the remainder of the property. The majority of the bisected parcels are in Perrysburg and Lake townships, or within the incorporated city limits of Rossford, Walbridge, and Northwood, as the proposed route traverses NE from I-75 to Curtice Road. Agricultural and low-density residential parcels would be bisected the most frequently.

Project construction could result in some temporary loss of use of certain public lands, specifically portions of Side Cut Metropark in Maumee, and Rivercrest Park and the Route 199 Fields in Perrysburg. A segment of the Fallen Timbers Trail in Side Cut Metropark would likely require closure or rerouting during construction to accommodate pipeline installation and a bore receiving pit. Should the project proceed on schedule, there is also potential for construction to coincide with the spring walleye run on the Maumee River. The walleye run is a popular event bringing thousands of visitors to the Lucas County and significant traffic to Side Cut Metropark. A segment of a bike/walking trail would require temporary closure or rerouting at Rivercrest Park, and pipeline installation could temporarily restrict the use of athletic facilities at the Route 199 Fields.

Staff has recommended conditions to address concerns outlined in this section.

### *Cultural Resources*

The Applicant had a literature review conducted for the area within a two kilometer buffer around the proposed 22 mile pipeline right-of-way (referred to in the application as the Area of Potential Effect). Subsequent Phase I archaeological field work was performed for the route between September and October, 2014, and also in December 2014. Continued coordination of the survey results and recommendations is ongoing with the State Historic Preservation Office (SHPO).

The literature review of previously recorded cultural resources identified one National Historic Landmark (NHL); five individual properties and three historic districts listed on the National Register of Historic Places (NRHP); 132 properties listed on the Ohio Historic Inventory (OHI); 11 historic cemeteries; and 145 archaeological sites within the study area. Of these resources, 12 archaeological sites, two historic cemeteries, and one OHI property are located within or adjacent to the Area of Potential Effect. The two historic cemeteries and OHI property were not relocated during follow-up field investigations. Only one of the previously identified archaeological sites was relocated by the Applicant's representatives. It was determined that this site would not be impacted by the project. Additionally, 12 new archaeological sites were recorded in the project corridor.

Subsequently, the Applicant's initial Phase I field survey report recommended that two of the 12 archaeological sites were potentially eligible for the NRHP (sites 33WO0549 and 33WO0550), and that these sites should be further evaluated (Phase II testing) if they cannot be avoided by the pipeline project. On December 29, 2014, Staff received a follow-up Phase I report that recommended that these two sites are not eligible for the NRHP. Staff is reviewing this additional report and conclusion and recommends continued coordination between the Applicant, Staff and the SHPO to ensure impacts from this project on cultural resources would be minimized.

The pipeline route also crosses the Side Cut Farm property (1500 Old Trail Road, Maumee, OH) and it appears that a residential structure on this property may need to be removed for construction and operation of the pipeline. A sign at the entrance of this property indicates the farm dates to circa 1850. Staff could not find reference to this property in the cultural resources literature review nor the Phase I cultural resources study performed by the Applicant. The Applicant submitted a memo regarding this property on December 29, 2014, which Staff is

reviewing. It remains unclear to Staff as to whether this property and any structures that might be removed as a result of this project might be historically significant, therefore Staff recommends continued coordination between the Applicant, Staff, and SHPO to ensure minimal impacts to historic resources as a result of this project.

### *Surface Waters*

The gas transmission line would cross 28 streams and ditches, including the Maumee State Scenic River. Horizontal directional drilling would be used for all perennial stream crossings. The right-of-way also contains 15 wetlands. Seven of these wetlands would be impacted for a total impacted area of 0.51 acres. One wetland was scored as high quality (Category 3), but would not be impacted by the project.

Because the Applicant is proposing to use HDD to install the line, a frac-out plan has been developed for this project and would be reviewed by Staff. The Applicant would utilize best management practices (BMPs) to minimize impacts to surface waters. The proposed BMPs would be outlined in the Stormwater Pollution Prevention Plan and a copy will be provided to the Board's Staff. Staff also recommends that the Applicant be required to provide a construction access plan for review prior to the preconstruction conference. The plan would consider the location of streams, wetlands, wooded areas, and park lands, and explain how impacts to sensitive resources would be avoided or minimized during construction, operation, and maintenance.

The Applicant anticipates submitting applications for the following surface water permits:

- Ohio EPA, General National Pollutant Discharge Elimination System (NPDES)
- Ohio EPA, General Isolated Wetland Permit (Level I)
- Ohio EPA, General Permit for Discharges of Hydrostatic Test Water
- U.S. Army Corps of Engineers, Section 10 Permit
- U.S. Army Corps of Engineers, Nation Wide Permit 12
- City of Perrysburg and city of Maumee Floodplain Construction Permits
- Lucas and Wood county Stormwater Pollution Prevention requirements

The Applicant has sited the route and proposed best management practices to avoid impacts to surface water resources to the greatest extent practical. By Applying for all the applicable surface water permits, the Applicant would be bound to restrictions specified by the permits. These steps would assure that impacts to surface water resources would be minimized.

### *Threatened and Endangered Species*

The federal and state listed species and/or their suitable habitat that could be impacted by the project include: the state and federal endangered Indiana bat (*Myotis sodalis*), the state endangered loggerhead shrike (*Lanius ludovicianus*), state and federal endangered Kirkland's

Warbler (*Setophaga kirtlandi*), the state endangered lark sparrow (*Chondestes grammacus*), the state endangered upland sandpiper (*Bartramia longicauda*), and the state threatened Blanding's Turtle (*Emydoidea blandingii*).

In order to reduce or avoid impacts to the Indiana bat, the Applicant has committed to adherence to seasonal tree cutting dates of October 1 to March 31 for the clearing of the riparian foraging habitat and potential roost trees.

The Applicant identified potential loggerhead shrike habitat consisting of areas containing potential prairie habitat along the project corridor. In order to avoid impacts, construction must be avoided in these habitats between April 1 and August 1.

The Applicant identified Kirkland's warbler habitat consisting of scrub/shrub area within three miles of the Lake Erie shoreline along the project corridor. This habitat could be utilized as stopover habitat during migration. In order to avoid impacts, clearing of this habitat must not occur from April 22 to June 1 or from August 15 to October 15.

Lark sparrow habitat includes scattered shrub layers, disturbed open areas, as well as patches of bare soil. The Applicant identified areas containing potential prairie habitat along the project corridor. Construction must be avoided in these habitats between May 1 and June 30.

Upland sandpiper habitat such as dry grasslands, grazed and ungrazed pasture, hayfields and grasslands established through the Conservation Reserve Program could potentially exist in the project area. Construction must be avoided in these habitats between April 15 and July 31.

The ODNR recommends that a habitat suitability survey be conducted to determine if suitable Blanding's turtle habitat is present along the project route. The habitat suitability survey shall be conducted by an ODNR approved herpetologist. If suitable habitat is present along the project route, it is recommended that a presence/absence survey be conducted. The results of any habitat suitability survey and any subsequent presence/absence survey can be submitted to the ODNR Division of Wildlife Compliance Coordinator.

Through coordination with wildlife agencies, the Applicant, the agencies, and staff have determined that the species listed above could be impacted by the project. With the specified precautions, adverse impacts would not be expected. In order to provide additional assurance that impacts to listed species would not occur staff recommends that the Applicant have an environmental specialist on site when working in potential listed species habitats. Staff also recommends that the Applicant ensure that construction personnel are able to identify listed species if encountered, and cease construction activities immediately to assure that individuals are not impacted.

### Public Comments

The Board received public comments from multiple individuals regarding this project. Staff has reviewed these public comments and recommends that the Applicant be required to make a filing addressing concerns raised in the comments prior to approval of this case.

## **Comments and Intervention**

Staff reviewed all comments and requests for intervention filed on the record in this case. Toledo Edison Company and American Transmission Systems, Incorporated applied for intervention in this case, raising concerns about facilities, parcels, and easements they own along portions of the proposed route. The Applicant is currently in negotiations with these entities.

## **Conclusion**

The Applicant's continued coordination with land managers and area residents will ensure that the project is constructed with minimal disturbance to residents and resources. Staff recommends automatic approval of this case on **January 6, 2015**, provided that the following conditions are satisfied.

## **Conditions**

1. Prior to construction, the Applicant shall obtain and comply with all applicable permits and authorizations as required by Federal and State entities for any activities where such permit or authorization is required. Copies of such permits and authorizations, including all supporting documentation shall be provided to Staff;
2. Prior to construction, the Applicant shall coordinate with the local park administrators to develop a plan that adequately addresses restrictions on park access, construction equipment security, and operational safety;
3. The Applicant shall have a construction access plan based on final plans for the access roads, and types of equipment to be used, that addresses the concerns outlined in this Staff Report of Investigation. Prior to commencement of construction, the Applicant shall submit the plan to Staff, for review and confirmation that it complies with this condition.
4. General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving and hoe ram operations, rock drilling, and blasting operations, if required, shall be limited in areas within 1,000 feet of a commercial, residential, or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other places of public assembly) to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants, within the meaning of Ohio Adm. Code 4906-5-08(C)(3), of upcoming construction activities, including potential for nighttime construction activities.
5. The Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas, as mutually agreed upon between the Applicant and Staff, and as shown on the Applicant's final approved construction plan. Sensitive areas include, but are not limited to, areas of vegetation clearing, designated wetlands and streams, and locations of threatened or endangered species or their identified habitat. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction.

6. The Applicant shall contact Staff, ODNR, and the USFWS within 24 hours if state or federal species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and ODNR in coordination with the USFWS. Nothing in this condition shall preclude agencies having jurisdiction over the facility with respect to wildlife from exercising their legal authority over the facility consistent with law. The Applicant shall provide a reference of listed species described by USFWS and ODNR in coordination letters that shall be available on site and provided to all construction personnel. The reference shall include pictures, along with descriptions of identifying characteristics.
7. Prior to construction, the Applicant shall retain an ODNR approved herpetologist to conduct a habitat suitability survey to determine if suitable Blanding's turtle habitat is present along the project route. If suitable habitat is present along the project route, a presence/absence survey shall be conducted. The results of any habitat suitability survey and any subsequent presence/absence survey shall be submitted to the ODNR Division of Wildlife Compliance Coordinator and Staff to determine if further action is necessary.
8. The Applicant shall adhere to seasonal cutting dates of October 1 through March 31 for removal of suitable Indiana bat habitat trees, unless coordination efforts with the ODNR and the USFWS reflects a different course of action;
9. Construction in upland sandpiper preferred nesting habitat types shall be avoided during the species' nesting period of April 15 through July 31;
10. Construction in loggerhead shrike habitat shall be avoided between April 15 through August 1;
11. Clearing of Kirkland's warbler migration stopover habitat shall not occur from April 22 through June 1 or from August 15 through October 15;
12. Construction in lark sparrow habitat shall be avoided from May 1 through June 30;
13. That the Applicant shall conduct a pre-construction conference(s) prior to the start of any project work (including any vegetation clearing), which the Staff shall attend, to discuss how environmental concerns will be satisfactorily addressed;
14. The Applicant shall coordinate all traffic related issues with the appropriate entities to ensure that traffic will be maintained along public roadways and private drives during construction;
15. The Applicant shall institute a public information program that informs affected property owners of the nature of the project, specific contact information for Applicant personnel who are familiar with the project, the proposed timeframe for project construction, and a schedule for restoration activities. Notification to property owners shall be given at least thirty (30) days prior to work on the affected property.
16. The Applicant shall avoid, where possible, or minimize to the maximum extent practicable, any damage to field tile drainage systems, septic systems, wells, and soils resulting from construction, operation, and/or maintenance of the facility in agricultural

areas. A log of all in-ground infrastructure damaged by construction, operation, and/or maintenance of the facility shall be maintained with coordinates of each location. Damaged infrastructure shall be promptly repaired to at least original conditions at the Applicant's expense. If applicable, excavated topsoil shall be segregated and restored in accordance with the Applicant's lease agreement with the landowner. Compacted soils shall be plowed or otherwise de-compacted, if necessary, to restore them to original conditions unless otherwise agreed to by the landowner.

17. Where it would not interfere with operation and maintenance of the pipeline, the Applicant shall work with affected landowners to replace screening trees which were removed for the project between homes and highways. The Applicant shall also coordinate with land owners to replace private landscaping removed for the project. If vegetation cannot be replaced, the land owner shall be compensated.
18. The Applicant shall continue to coordinate with Staff and the State Historic Preservation Office (SHPO) to determine if sites 33WO0549 and 33WO0550 will be negatively impacted by this project. Staff recommends avoidance of these sites, but if avoidance of these sites is not possible, Staff requests a concurrence letter from SHPO that these two sites are not considered eligible for the NRHP and that the pipeline work will result in minimal adverse impacts of these sites;
19. The Applicant shall continue to coordinate with Staff and the State Historic Preservation Office (SHPO) to determine the historical significance (or not) regarding the Side Cut Farm property (1500 Old Trail Road, Maumee, OH), and provide details about potential impacts this project may have on this property so that Staff may ensure minimal impacts to historical resources;
20. The Applicant shall not construct the pipeline under any habitable structures;
21. No later than close of business on January 2, 2015, the Applicant shall file in the docket a discussion of steps it has taken to address affected landowner concerns that have been filed in the Public Comments section of the docket as of the date of the issuance of this Staff Report. The Applicant shall include discussion about its efforts to work with affected landowners, its consideration of adjusting the route within parcels to address affected landowner concerns without increasing overall impacts, or explain how affected landowner concerns would otherwise be resolved. If route adjustments are not practical or would result in increased impacts, the Applicant's discussion shall include an explanation for why the route cannot be adjusted.
22. The Applicant shall maintain, to the maximum extent possible, ingress and egress to residences, businesses, institutions, and public facilities during construction of the project;
23. Unless given permission by the Side Cut Metropark management, the Applicant shall avoid all construction activities in and around Side Cut Metropark from March 1 to April 30 during the spring walleye run;
24. Unless given permission by the Rivercrest Park management, the Applicant shall avoid all construction activities in and around Rivercrest Park during scheduled park events;

- )
25. The Applicant shall coordinate with the Northwood Local School District to minimize *construction-related disturbance to activities and operations at the Northwood Middle and Olney Elementary Schools*. Unless given permission by the Northwood Local School District, the Applicant shall avoid all construction activities on and around Northwood Local School District property while classes are in session;
  26. Unless given permission by the managers of the State Route 199 fields, the Applicant shall avoid all construction activities at the State Route 199 fields during scheduled events.



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in

Case No(s). 14-1754-GA-BLN

Summary: Staff Report of Investigation electronically filed by Mr. Grant T Zeto on behalf of  
Staff of the Ohio Power Siting Board

BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

In the Matter of the Letter of Notification Application by  
North Coast Gas Transmission, LLC for a Certificate of  
Environmental Compatibility and Public Need for the  
Oregon Lateral 24 inch Natural Gas Pipeline.

) Case Number  
) 14-1754-GA-BLN

Members of the Board:

|                                           |                               |
|-------------------------------------------|-------------------------------|
| Chairman, Public Utilities Commission     | Ohio House of Representatives |
| Director, Development Services Agency     | Ohio Senate                   |
| Director, Department of Health            |                               |
| Director, Department of Agriculture       |                               |
| Director, Environmental Protection Agency |                               |
| Director, Department of Natural Resources |                               |
| Public Member                             |                               |

To the Honorable Power Siting Board:

Please review the attached Revisions to the Staff Report of Investigation, which have been filed in accordance with the Board's rules. The accelerated certificate application in this case is subject to an automatic approval process as required by Section 4906.03 of the Ohio Revised Code.

The application will be automatically approved on **January 6, 2015**, unless suspended by the Board's chairperson, the Executive Director, or an administrative law judge. If suspended, the Board must render a decision on the application within 90 days from the date of suspension.

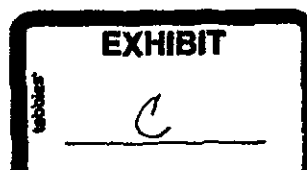
The Applicant has filed a supplement agreeing to the conditions of the Staff Report of Investigation with revisions to conditions 4 and 17. The Applicant has had detailed discussions with Staff as to why these conditions should be revised. The Applicant's revisions are consistent with past precedent in similar cases and Staff finds the revisions to be reasonable and necessary.

Please present any concerns you or your designee may have with this case to my office by 5:00 p.m. on January 5, 2015. Upon filing the revised report, Staff will contact the Board members to provide awareness of the proposed revisions.

Sincerely,



Patrick Donlon  
Executive Director  
Ohio Power Siting Board  
(614) 466-6692  
[ContactOPSB@puc.state.oh.us](mailto:ContactOPSB@puc.state.oh.us)



## REVISIONS TO OPSB STAFF REPORT OF INVESTIGATION

The following revised conditions supersede and replace conditions 4 and 17 set forth in the Staff Report filed on December 29, 2014:

4. General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving and hoe ram operations, rock drilling, and blasting operations, if required, shall be limited in areas within 1,000 feet of a commercial, residential, or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other places of public assembly) to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors and horizontal directional drilling activities are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants, within the meaning of Ohio Adm. Code 4906-5-08(C)(3), of upcoming construction activities, including potential for nighttime construction activities.

4a. For HDD activities that will occur outside of daylight hours, the Applicant shall provide a noise study to Staff no less than ten days prior to the commencement of the activity that confirms that noise from HDD activity would not increase ambient local traffic and community noise at the nearest residence or occupied structure by more than 5 dBA. The noise study shall include a baseline establishment of the actual local ambient noise levels and information on the decibel levels associated with the operation of each type of HDD equipment to be used for the project. The noise study shall also provide mitigation details (including but not limited to: mufflers, shielding and/or enclosing drilling, etc.) for the HDD equipment. During construction the Applicant shall monitor noise levels during HDD operations. The data from that monitoring shall be provided to Staff.

17. Where it would not interfere with operation and maintenance of the pipeline, the Applicant shall work with affected landowners to replace screening trees which were removed for the project between homes and highways. The Applicant shall also coordinate with land owners to replace private landscaping removed for the project where possible. If landscaping cannot be replaced, the Applicant shall propose alternative mitigation measures in consultation with Staff.

In addition, upon review of the Applicant's January 2, 2015 filing in response to condition 21 set forth in the Staff Report filed on December 29, 2014, Staff recommends that the following condition be included:

27. The Applicant shall continue to be open and responsive to the concerns of the affected landowners, and consider adjusting the route within parcels to address affected landowners' concerns without increasing overall impacts. The Applicant shall keep Staff informed regarding such communications with the affected landowners.

Therefore, with the conditions set forth in the December 29, 2014 Staff Report, as revised by the revisions set forth herein, Staff recommends automatic approval of this case on January 6, 2015. If the Applicant fails to comply with any of the established conditions, the Board may take appropriate action in the future to ensure compliance.

)  
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**in**

**Case No(s). 14-1754-GA-BLN**

**Summary: Staff Report of Investigation electronically filed by Mrs. Yvonne W Cooper on behalf of Staff of OPSB**

**Letter of Notification for:**

**Oregon Lateral 24" Natural Gas Pipeline**

**Wood and Lucas Counties**

**Ohio Power Siting Board**

**Case No. 14-1754-GA-BLN**

**Submitted By:**

**North Coast Gas Transmission**

**October 7, 2014**

**EXHIBIT**

**D.**

**BEFORE THE OHIO POWER SITING BOARD  
LETTER OF NOTIFICATION**

**TABLE OF CONTENTS**

|                                                                                                                        | <u>Page No.</u> |
|------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>LIST OF FIGURES.....</b>                                                                                            | <b>iii</b>      |
| <b>LIST OF TABLES .....</b>                                                                                            | <b>iii</b>      |
| <b>LIST OF ATTACHMENTS .....</b>                                                                                       | <b>iv</b>       |
| <b>GLOSSARY.....</b>                                                                                                   | <b>v</b>        |
| <b>4906-11-01(B) GENERAL INFORMATION.....</b>                                                                          | <b>1</b>        |
| (1) Name and Reference Number, Brief Description of Project, Why the Project<br>Meets the Requirements for an LON..... | 1               |
| (2) Statement of Need for the Proposed Facility .....                                                                  | 2               |
| (3) Location of the Project.....                                                                                       | 2               |
| (4) Alternatives Considered.....                                                                                       | 3               |
| (5) Anticipated Construction Schedule and Proposed In-Service Date.....                                                | 5               |
| (6) Project Area Map and Directions.....                                                                               | 5               |
| (7) Property Owner List.....                                                                                           | 7               |
| <b>4906-11-01(C) TECHNICAL FEATURES OF THE PROJECT .....</b>                                                           | <b>7</b>        |
| (1) Operating Characteristics, Required Structures, and Right-of-Way and/or Land<br>Requirements .....                 | 7               |
| (2) Electric and Magnetic Fields .....                                                                                 | 8               |
| (3) Estimated Capital Costs.....                                                                                       | 8               |
| <b>4906-11-01(D) SOCIOECONOMIC DATA .....</b>                                                                          | <b>9</b>        |
| (1) Land Use.....                                                                                                      | 9               |
| (2) Agricultural Land.....                                                                                             | 10              |
| (3) Cultural Resources.....                                                                                            | 13              |
| (4) Documentation of Letter of Notification Transmittal to Public Officials and Public<br>Information Program.....     | 14              |
| (5) Current and Pending Litigation.....                                                                                | 14              |
| (6) Local, State and Federal Permits and Requirements .....                                                            | 15              |
| <b>4906-11-01(E) ENVIRONMENTAL DATA.....</b>                                                                           | <b>16</b>       |
| (1) Species of Concern .....                                                                                           | 16              |
| (2) Areas of Ecological Concern .....                                                                                  | 17              |

|                                                                                                                  |    |
|------------------------------------------------------------------------------------------------------------------|----|
| (i) National/State Forests, Parks, Nature Preserves, and Wilderness Areas .....                                  | 18 |
| (ii) Wetlands, Scenic Rivers, Waters of the U.S. and Water of the State .....                                    | 18 |
| (iii) Floodplains .....                                                                                          | 22 |
| (3) Any known Unusual Conditions Resulting in Significant Environmental, Social, Health, or Safety Impacts ..... | 22 |

#### LIST OF FIGURES

|                              |                 |
|------------------------------|-----------------|
|                              | <u>Page No.</u> |
| Figure 1: Project Area ..... | 6               |
| Figure 2: Directions .....   | 6               |

#### LIST OF TABLES

|                                                           |                 |
|-----------------------------------------------------------|-----------------|
|                                                           | <u>Page No.</u> |
| Table 1: Oregon Lateral Pipeline Location .....           | 3               |
| Table 2: Population Estimate, 2010 U.S. Census Data ..... | 9               |
| Table 3: Study Area Census Population Estimates .....     | 10              |
| Table 4: Agricultural Land .....                          | 11              |
| Table 5: Delineated Wetlands .....                        | 19              |
| Table 6: Oregon Lateral Stream/Ditch Crossings .....      | 20              |

**LIST OF ATTACHMENTS**

Exhibit A. Location/Overview of Oregon Lateral

Exhibit B. Property Owner List

Exhibit C. Cultural / Environmental / Ecological Project Map

Exhibit D. Public Official Contact Information and Letter

Exhibit E. Public Notice

Exhibit F. USFWS and ODNr Threatened and Endangered Species List

Exhibit G. Ecological Resources Report



## **GLOSSARY**

LON: Letter of Notification

MAOP: Maximum Allowable Operating Pressure

MSG: Mannik and Smith Group, Inc.

NCGT: North Coast Gas Transmission

NRHP: National Register of Historic Places

OCEC: Oregon Clean Energy Center

ODNR: Ohio Department of Natural Resources

ODOT: Ohio Department of Transportation

PSI: Pounds per Square Inch

ROW: Right-of-Way

SFHA: Special Flood Hazard Areas

USFWS: United States Fish and Wildlife Service

UTI: Utility Technologies International Corporation

**4906-11-01 Letter of Notification Requirements**

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**4906-11-01(B) GENERAL INFORMATION****(1) Name and Reference Number, Brief Description of Project, Why the Project Meets the Requirements for an LON**

North Coast Gas Transmission, LLC (NCGT) is applying for a Letter of Notification (LON) for a new pipeline project located in Lucas and Wood Counties, Ohio. The name of the new pipeline project is the Oregon Lateral and has no applicant reference number. The Oregon Lateral is approximately 22-miles long and would provide natural gas from Maumee to Oregon for the operation of the Oregon Clean Energy Center (OCEC), certificated on May 12, 2013 (OPSB Case No. 12-2959-EL-BGN). The proposed route for the Oregon Lateral enables it to provide natural gas from two different sources in Maumee, Ohio, Panhandle Eastern Pipe Line Company and ANR Pipeline Company, to the OCEC.

The majority of the 24-inch natural gas pipeline will be installed by open cutting construction methods. Conventional or directional boring methods will be used on the majority of the road crossings, all river and railroad crossings, and several environmentally sensitive areas.

The Oregon Lateral will be owned and operated by NCGT, which is not affiliated with any interstate pipeline. OCEC will purchase gas for transportation to the Oregon Lateral by two interstate pipelines. The gas will be delivered to the Oregon Lateral in Ohio for delivery to OCEC. The Oregon Lateral and all transportation thereon will occur

in the State of Ohio and the gas will be consumed in Ohio. Therefore, the Oregon Lateral falls under the jurisdiction of the Ohio Power Siting Board.

The proposed pipeline project falls under the jurisdiction of the Ohio Power Siting Board as a LON because it fits the criteria of Ohio Revised Code Section 4906.03(F)(3) which provides that a pipeline may be constructed upon an accelerated review and approval of an application by the Board if it is primarily needed to meet the requirements of a specific customer or specific customers. The Oregon Lateral is primarily needed to meet the requirements of a specific customer, OCEC, and the purpose of this pipeline is to transport natural gas to the OCEC.

**(2) Statement of Need for the Proposed Facility**

The Oregon Lateral will transport natural gas to the OCEC's planned 799 megawatt natural gas-fired combined cycle generating facility. A reliable supply of natural gas is critical for the OCEC to help meet the energy demand in the region with the planned retirement of existing coal-fired power generating facilities that serve the areas of Bay Shore and Avon Lake, Ohio and J.R. Whiting, Michigan. The Oregon Lateral will transport natural gas from two different pipeline entities and utilize three existing pipelines to ensure a reliable fuel source for the facility to operate.

**(3) Location of the Project**

The Oregon Lateral Pipeline will be located in Lucas and Wood Counties in Ohio. The pipeline will traverse through portions of the cities of Maumee, Perrysburg, Rossford, and Northwood, the Village of Walbridge, and Lake and Perrysburg Townships. Distances and anticipated impacted areas in these locations are provided in

Table 1. The location of the pipeline is illustrated in Exhibit A. NCGT is an intrastate transmission pipeline operator and is not subject to submit long term forecasting reports to the Public Utility Commission of Ohio.

**TABLE 1: OREGON LATERAL PIPELINE LOCATION**

| Location             | Approximate<br>Linear Distance<br>(feet) | County |
|----------------------|------------------------------------------|--------|
| City of Maumee       | 11,705                                   | Lucas  |
| City of Perrysburg   | 17,370                                   | Wood   |
| Perrysburg Township  | 35,985                                   | Wood   |
| City of Rossford     | 3,445                                    | Wood   |
| Lake Township        | 6,680                                    | Wood   |
| Village of Walbridge | 6,485                                    | Wood   |
| City of Northwood    | 17,395                                   | Wood   |
| City of Oregon       | 20,880                                   | Lucas  |

**(4) Alternatives Considered**

In order to ensure an adequate supply of natural gas is available at all times for the OCEC, the Oregon Lateral would tie-in with the closest existing natural gas pipelines with the capacity to support the OCEC's demand. The closest available pipelines that have the capacity to support the OCEC's demand are located in Maumee, Ohio. The Oregon Lateral will tie-in with two different pipelines, Panhandle and ANR. The flow of gas to the OCEC will be controlled and measured at each of these tie-in locations and will include regulation stations on each pipeline. The facilities at Panhandle would also have the capability to add odorant into the line. These two tie-in locations in Maumee, along with the location of the OCEC in Oregon, determined the beginning and ending points for the Oregon Lateral Pipeline Project.

The pipeline route for the Oregon Lateral is constrained by a multitude of different parameters that influenced the final design of the pipeline presented in this

LON. A few of the notable constraints include the cities of Toledo (U.S. Census 2010 population: 287,208), Maumee (U.S. Census 2010 population: 14,286), Perrysburg (U.S. Census 2010 population: 20,805), Rossford (U.S. Census 2010 population: 6,293), Northwood (U.S. Census 2010 population: 19,207), Oregon (U.S. Census 2010 population: 20,291), and the Village of Walbridge (U.S. Census 2010 population: 3,019).

Utility Technologies International (UTI) assisted NCGT with the evaluation of potential routes for the Oregon Lateral. UTI and NCGT evaluated several alternatives for the construction of the Oregon Lateral pipeline, some of which included routing the pipeline through some of the populated areas listed above. However, the complexity of issues associated with these routes (neighborhoods, shopping centers, parks, existing underground utilities, road crossings, etc.) made them impracticable due to public safety concerns, increased traffic congestion and higher construction costs. Other alternatives included routing the pipeline further to the south of these population centers. However, these added extensively to the cost of the construction of the pipeline, making the Oregon Lateral no longer feasible. Additionally, an alternative was considered to route the pipeline further to the east, away from the Cities of Oregon, Northwood and the Village of Walbridge. However, this option would have increased the environmental impacts associated with the construction of the pipeline through Pearson Metro Park or added extensively to the cost of construction to avoid said environmental impacts.

The route presented with this LON minimizes the impacts on the ecology, sensitive land uses, and cultural features to the greatest extent practical as well as increases public safety by routing the pipeline away from the high populated areas while

maintaining economic and technical feasibility to construct the pipeline and transport fuel for the generation of clean low cost energy by the OCEC.

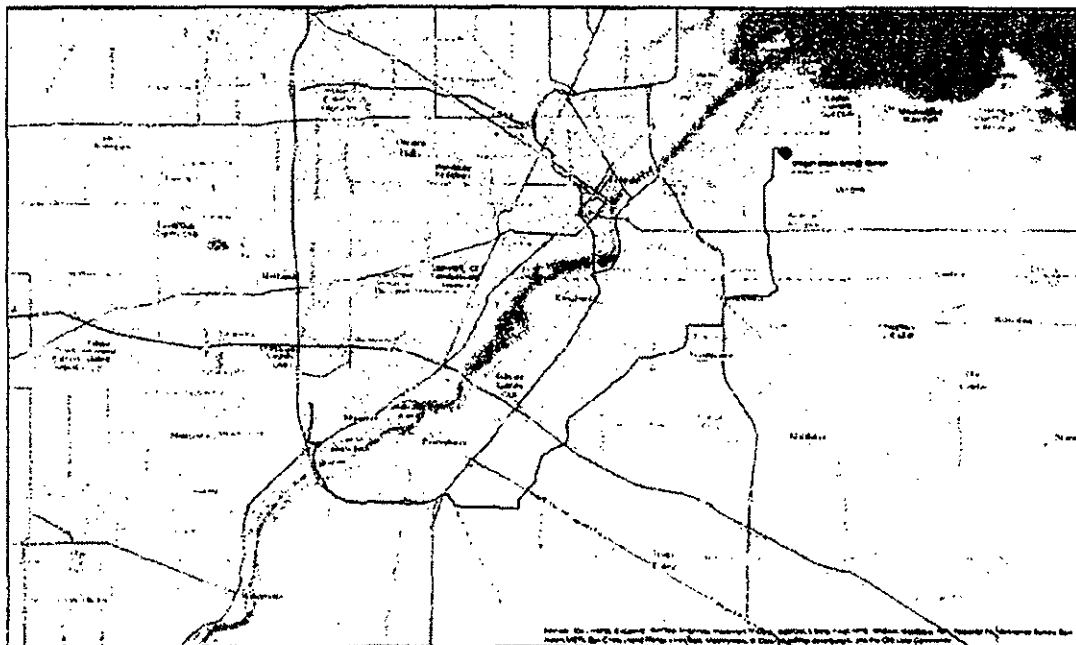
**(5) Anticipated Construction Schedule and Proposed In-Service Date**

The construction on the project has been tentatively scheduled to start in March 2015, with all tree clearing activities occurring between October 1, 2014 and March 31, 2015 when the Indiana and the Northern Long Eared bats are in winter hibernacula. The new pipeline is expected to be in service by July, 2016.

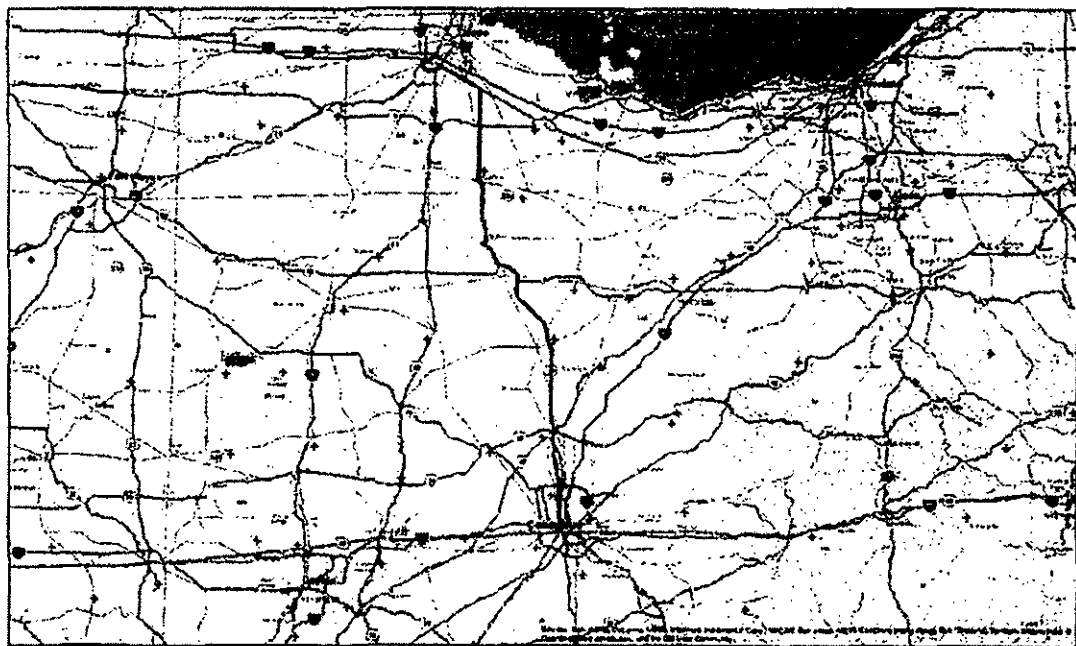
**(6) Project Area Map and Directions**

Figure 1 shows a high-level view of the project area whereas Exhibit A contains an overview of the project at a scale of 1:24,000 with the centerline of the pipe, roads, highways, and municipalities. Figure 2 shows directions from Columbus, Ohio to the start of the project site in Maumee. Beginning in Columbus, start by taking OH-315 N to US-23 N, continue onto OH-15 W, keep right at the fork, and follow signs for Interstate 75N/Ohio 15/Toledo and merge onto I-75. Take exit 192 on the left to merge onto I-475 N/US-23 N toward Maumee/Ann Arbor. Take exit 4 for US-24 toward Napoleon/Maumee. Take exit 4A to merge onto US-24 E/Anthony Wayne Trail toward Maumee. Turn left onto Ford Street and then left onto Illinois Avenue. The beginning of the pipeline route will be on the right at 960 Illinois Avenue.

**FIGURE 1: PROJECT AREA**



**FIGURE 2: DIRECTIONS**



(7) **Property Owner List**

The list of property owners along the Oregon Lateral Pipeline Route and the status of the easement agreement have been provided in Exhibit B.

4906-11-01(C) **TECHNICAL FEATURES OF THE PROJECT**

(1) **Operating Characteristics, Required Structures, and Right-of-Way and/or Land Requirements**

- **Pipeline MAOP:** The proposed pipeline will have an established MAOP of 937.
- **Pipe Material:** A majority of the proposed 24-inch steel pipeline will have a wall thickness of 0.375-inch and a minimum yield strength of 60,000 PSI. The pipeline will be externally coated with 14-16 Mils of Fusion Bonded Epoxy coating and cathodically protected by a rectifier(s). An additional 20 to 40 Mils of Abrasive Resistant Overcoating will be applied at areas where the pipeline will be installed using drilling methods. Up to 10,000 linear feet of the 24-inch pipe will have a wall thickness of 0.500-inch and have a minimum yield strength of 60,000 PSI. This pipe will be used on some of the road crossings and areas within the Ohio Department of Transportation (ODOT) rights of way.
- **Structures:** Three structures will be constructed as part of the proposed pipeline to measure and regulate the natural gas. The first station will be located off Illinois Avenue where the pipeline will tie in with the two existing pipelines from the Eastern Panhandle. In addition to measuring and regulating the flow of the gas, this station will also add Methyl Mercaptan odorant to the natural gas flowing through the system. The second station will be located approximately one-half mile south of the first station, where the proposed pipeline ties in with the exiting



ANR pipeline. This station will measure and regulate the gas flow to the OCEC and will regulate the pressure from each pipeline. Gas from the ANR pipeline will be odorized by ANR. The third station will be located at the OCEC site. This station will measure the gas flow.

Several above ground valve stations will also be installed with the Oregon Lateral. The locations of these stations will be shown on the construction drawings for the pipeline. Compressor stations are not required for the transportation of the natural gas along the 22-mile route.

- ***Right-of-Way (ROW) and/or Land Requirement:*** Construction of the Oregon Lateral Pipeline will generally occur within a 75-foot wide easement (50-foot wide permanent easement with a 25-foot temporary easement). Additionally, roughly 15 acres of temporary easements are needed for stock piles, staging, additional construction and pipe pullback areas, and temporary access roads for the construction site.

**(2) Electric and Magnetic Fields**

This section does not apply.

**(3) Estimated Capital Costs**

The capital cost of this project is estimated to be approximately [REDACTED].

4906-11-01(D) **SOCIOECONOMIC DATA****(1) Land Use**

The Oregon Lateral will be located within the City of Maumee and the City of Oregon in Wood County and the City of Perrysburg, Perrysburg Township, the City of Rossford, Lake Township, the Village of Walbridge, and the City of Northwood in Lucas County. The land use associated with the project area consists of moderate to heavily populated, industrial, undeveloped fields, lawns, and agricultural fields. Population density per square mile for the locations listed above has been provided in Table 2.

**TABLE 2: POPULATION ESTIMATE, 2010 U.S. CENSUS DATA**

| Location             | Population Density per Square Mile |
|----------------------|------------------------------------|
| Lucas County         | 1,296.2                            |
| Wood County          | 203.3                              |
| City of Maumee       | 1,445.1                            |
| City of Perrysburg   | 1,791.1                            |
| Perrysburg Township  | 346.4                              |
| City of Rossford     | 1,253.8                            |
| Lake Township        | 320                                |
| Village of Walbridge | 1,378.5                            |
| City of Northwood    | 617.7                              |
| City of Oregon       | 676.9                              |

Population density estimates for land were calculated using a 200-foot wide study corridor. They were calculated by direct estimation based on study corridor size, number of residences identified in the corridor, and the average number of persons per household. Based on review of the parcel data and available aerial photography, 62 homes were identified within the 200-foot study corridor with an estimated population of 152. Table 3 provides the data generated for the population estimate along the proposed pipeline route. The estimates provided are limited by available statistics and generalizations across the locations listed. The study did not take into consideration any planned

residential developments within the study corridor. It is not expected that the Project will significantly impact existing or planned land use within the vicinity of the Project, as there are existing utility right-of-way along much of the route. Any Project construction impacts will be temporary in nature.

**TABLE 3: STUDY AREA CENSUS POPULATION ESTIMATES**

| Location             | Average Household Size | # of Houses Identified within 200' corridor | Total Estimated Population within 200' corridor |
|----------------------|------------------------|---------------------------------------------|-------------------------------------------------|
| City of Maumee       | 2.46                   | 0                                           | 0                                               |
| City of Perrysburg   | 2.40                   | 19                                          | 46                                              |
| Perrysburg Township  | 2.58                   | 19                                          | 49                                              |
| City of Rossford     | 2.40                   | 1                                           | 2                                               |
| Lake Township        | 2.41                   | 2                                           | 5                                               |
| Village of Walbridge | 2.68                   | 0                                           | 0                                               |
| City of Northwood    | 2.45                   | 3                                           | 7                                               |
| City of Oregon       | 2.39                   | 18                                          | 43                                              |
| Grand Total          |                        | 62                                          | 152                                             |

## (2) Agricultural Land

The proposed construction of the pipeline is located within fifty-seven parcels zoned for agricultural use, forty of which were classified as agricultural districts. Most of the agricultural land is used for row crop propagation such as soybeans, corn, wheat and oats. However, a few fields were being utilized for hay production. Construction of the natural gas pipeline will not have any long-term impact on crop production. Fair compensation for crop loss during the installation of the pipeline will be determined between NCGT and the landowner at the time of the ROW negotiations. Care will be taken to segregate soils during trenching activities and to backfill around the installed pipeline to the original condition. Table 4 lists the parcels that are zoned for agriculture along the proposed pipeline route including, the owner, total parcel size, the approximate

length of pipeline crossing the property, the anticipated area of temporary disturbance, and if it is part of an agricultural district.

**TABLE 4: AGRICULTURAL LAND**

| Parcel #             | Owner                                                    | Parcel Size (acres) | County | Length of Pipeline Through Parcel (ft) | Area of Temporary Impacts (acres) | Agricultural District (Y / N) |
|----------------------|----------------------------------------------------------|---------------------|--------|----------------------------------------|-----------------------------------|-------------------------------|
| 35-00057             | Thomas P. Ashe                                           | 3.92                | Lucas  | 220                                    | 0.4                               | No                            |
| 36-80543             | James R. and Beverly L. Patrick                          | 7.89                | Lucas  | 611                                    | 1.0                               | No                            |
| P60-100-601000023001 | Williams Farms INC                                       | 9.3                 | Wood   | 697                                    | 1.3                               | Yes                           |
| P60-100-601000013000 | Williams Farms INC                                       | 78.89               | Wood   | 2,520                                  | 5.3                               | Yes                           |
| Q61-100-601000043000 | EJS Enterprises<br>(Edward J. Schroeder)                 | 54.11               | Wood   | 1,396                                  | 3.1                               | Yes                           |
| Q61-100-130000004000 | Robert Farley Trustee                                    | 32.36               | Wood   | 1,375                                  | 3.1                               | Yes                           |
| P60-400-170000022000 | Perrysburg Exempted Village<br>School Board of Education | 6.5                 | Wood   | 391                                    | 0.6                               | Yes                           |
| P60-400-160000026000 | Roland R. and Sandra K.<br>Neiderhouse                   | 40.71               | Wood   | 1,340                                  | 2.3                               | Yes                           |
| P60-400-160000046000 | William J. and Antoinette Wolf                           | 41.88               | Wood   | 1,348                                  | 2.4                               | Yes                           |
| P57-400-066000007000 | Bayer Park LLC                                           | 40.89               | Wood   | 604                                    | 1.1                               | Yes                           |
| P57-400-066000006000 | James Howard Sherman Trustee                             | 26.55               | Wood   | 1,620                                  | 2.8                               | Yes                           |
| P57-400-066000005000 | James Howard Sherman Trustee                             | 36                  | Wood   | 676                                    | 1.2                               | Yes                           |
| P57-400-066000004000 | Michael A. Kazmaier and Mitchell<br>J. Kazmaier          | 98.49               | Wood   | 784                                    | 1.5                               | Yes                           |
| P57-400-100000030000 | Ronald Henry Properties                                  | 36.3                | Wood   | 1,009                                  | 1.6                               | Yes                           |
| P57-400-100000005000 | Ronald Henry Properties                                  | 35.21               | Wood   | 1,267                                  | 2.3                               | Yes                           |
| P57-400-100000003000 | Ronald Henry Properties                                  | 40                  | Wood   | 1,410                                  | 2.4                               | Yes                           |
| T68-400-100000002000 | William J. Wolf                                          | 39                  | Wood   | 1,337                                  | 2.3                               | Yes                           |
| T68-400-030000038000 | William J. Wolf                                          | 27.68               | Wood   | 426                                    | 0.8                               | Yes                           |
| T68-400-020000044000 | William J. Wolf                                          | 20                  | Wood   | 407                                    | 0.8                               | Yes                           |
| T68-400-020000043000 | William J. Wolf                                          | 20                  | Wood   | 1,163                                  | 1.9                               | Yes                           |
| P57-400-020000021000 | Michael G. and Elouise S.<br>Alexander Trustees          | 38.42               | Wood   | 407                                    | 0.8                               | Yes                           |
| P57-400-020000022000 | Betty L. Wolf and Brenda Cox and<br>Regina Taylor        | 30.08               | Wood   | 994                                    | 1.7                               | Yes                           |
| P57-300-360000016000 | Nancy Kerwin                                             | 34.63               | Wood   | 866                                    | 1.7                               | Yes                           |
| P57-300-360000015000 | Paul R. Swartz                                           | 36.57               | Wood   | 1,245                                  | 2.3                               | Yes                           |
| P57-300-360000014000 | Willis Day Warehousing Co                                | 16.13               | Wood   | 520                                    | 0.9                               | Yes                           |
| P57-300-360000013000 | Louisville Title Agency for NW<br>Ohio INC Trustee       | 41.77               | Wood   | 727                                    | 1.4                               | No                            |
| P57-300-360000008000 | Paul R. Swartz                                           | 38.16               | Wood   | 1,669                                  | 2.9                               | Yes                           |

| Parcel #             | Owner                                            | Parcel Size (acres) | County | Length of Pipeline Through Parcel (ft) | Area of Temporary Impacts (acres) | Agricultural District (Y / N) |
|----------------------|--------------------------------------------------|---------------------|--------|----------------------------------------|-----------------------------------|-------------------------------|
| P57-300-250002007000 | Lucille Robinson Sprough and Alice Robinson Yant | 40                  | Wood   | 1,166                                  | 2.1                               | No                            |
| P57-300-250002006000 | Lucille Robinson Sprough and Alice Robinson Yant | 8.75                | Wood   | 444                                    | 0.9                               | No                            |
| H28-712-070000003000 | B J Liwo and J V Long                            | 25.67               | Wood   | 838                                    | 1.4                               | Yes                           |
| H28-712-060000011000 | Northwood Realty Limited Partnership             | 26.53               | Wood   | 877                                    | 1.6                               | Yes                           |
| H31-712-050000010000 | Village of Walbridge                             | 53                  | Wood   | 1,497                                  | 2.5                               | Yes                           |
| M50-812-320000041000 | Martha J. and Ronald E. Bielski Trustees         | 2.44                | Wood   | 177                                    | 0.3                               | Yes                           |
| M50-812-330000009000 | Martha J. and Ronald E. Bielski Trustees         | 100.07              | Wood   | 3,149                                  | 5.5                               | Yes                           |
| H28-712-040201003000 | Woodcreek Investors, LLC                         | 15.16               | Wood   | 0                                      | <0.1                              | No                            |
| M50-812-330000006000 | Simon Family Limited Partnership                 | 99.85               | Wood   | 3,275                                  | 7.0                               | Yes                           |
| M50-812-340101046000 | Northwood Realty Limited Partnership             | 30.45               | Wood   | 848                                    | 1.6                               | Yes                           |
| M50-812-340101044000 | Hirzel Canning Company                           | 10                  | Wood   | 457                                    | 0.7                               | Yes                           |
| M50-812-340101045000 | Northwood Realty Limited Partnership             | 10                  | Wood   | 1,330                                  | 2.5                               | Yes                           |
| M50-812-340000008000 | Hirzel Canning Company                           | 40.3                | Wood   | 301                                    | 0.5                               | Yes                           |
| M50-812-340000007000 | Hirzel Canning Company                           | 9.88                | Wood   | 325                                    | 0.6                               | Yes                           |
| M50-812-340000001000 | Louisville Title Agency for NW Ohio INC Trustee  | 49.47               | Wood   | 1,391                                  | 2.4                               | Yes                           |
| M50-812-350000025000 | Louisville Title Agency for NW Ohio INC Trustee  | 20                  | Wood   | 410                                    | 0.7                               | Yes                           |
| 44-31991             | Jack Carstensen                                  | 9.37                | Lucas  | 1,141                                  | 1.9                               | No                            |
| 44-31987             | Jack D. and Barbara K. Carstensen                | 9.57                | Lucas  | 0                                      | <0.1                              | No                            |
| 44-25867             | Billie J. and Joan P. Harner                     | 5                   | Lucas  | 1,255                                  | 1.9                               | No                            |
| 44-25811             | Gladioux Family Limited Partnership              | 12.47               | Lucas  | 1,582                                  | 2.8                               | No                            |
| 44-80964             | Kenneth L. Fouty                                 | 1                   | Lucas  | 0                                      | <0.1                              | No                            |
| 44-92451             | Louisville Title Agency for NW Ohio INC Trustee  | 2.86                | Lucas  | 280                                    | 0.5                               | No                            |
| 44-18861             | Dennis R. and Susan Kay Bihn                     | 1.22                | Lucas  | 1,012                                  | 1.8                               | No                            |
| 44-18901             | Ronald E. and Rebecca A. Buehrer                 | 0.5                 | Lucas  | 0                                      | <0.1                              | No                            |
| 44-18361             | Oregon Board of Education                        | 6.62                | Lucas  | 1,267                                  | 2.2                               | Yes                           |
| 44-08884             | Carmen J. and Kim M Amenta                       | 0.86                | Lucas  | 0                                      | <0.1                              | No                            |
| 44-08893             | Jeremiah T. Curran Trustee                       | 14                  | Lucas  | 553                                    | 1.0                               | No                            |
| 44-08231             | Bolan Muchewicz ETAL                             | 18.75               | Lucas  | 422                                    | 0.7                               | Yes                           |
| 44-08224             | Gary Johnlin Et Al                               | 4.1                 | Lucas  | 943                                    | 1.7                               | Yes                           |
| 44-05507             | John Gradel and Sons Farms                       | 13                  | Lucas  | 329                                    | 0.6                               | No                            |

**(3) Cultural Resources**

Mannik and Smith Group, Inc. (MSG) an environmental and engineering firm, was contracted by NCGT to conduct a literature review and Phase I cultural resources survey of the proposed Oregon Lateral pipeline. A literature review for the proposed pipeline was conducted by MSG in August of 2014 and encompassed a two kilometer study area around the proposed pipeline route. 145 Ohio Archeological Inventory sites, 132 Ohio Historic Inventory sites, 6 National Register of Historic Places (NRHP) listings, 3 NRHP District sites, 1 NRHP Landmark site, 11 cemeteries, and 47 previously surveyed areas were identified within this study area. The location of these sites in respect to the proposed pipeline route has been included with the ecological and environmental data in Exhibit C. Details of these sites will be included with the Phase I report for the project. This report was not completed at the time of the filing of the LON due to several portions along the pipeline route where crops need to be harvested before the field surveys can occur. The Phase I report will be filed separately for this project once the crops have been removed and the study has been completed. The Phase I survey consists of the area of potential effects for the project, which consists of land directly impacted by construction activities, equipment access and storage within the project limits. A waiver has been requested to allow for the delayed submittal of the Phase I survey. Any associated correspondence with the Ohio Historic Preservation Office will be included as well.

**(4) Documentation of Letter of Notification Transmittal to Public Officials and Public Information Program**

A copy of this LON and a transmittal letter is being provided concurrently to the public officials and public information programs provided in Exhibit D. In addition, in September 2014, NCGT's right of way acquisition agent mailed letters to all property owners along the anticipated pipeline route providing a brief summary of the project and communicating NCGT's desire to purchase right of way for an upcoming pipeline project. Additionally, NCGT has contacted and/or met with numerous public officials serving the various municipalities impacted by the project. Formally and informally, NCGT has discussed the upcoming project to serve the OCEC with multiple City/Village Mayors, Administrators, and Township Trustees. During these meetings, NCGT representatives discussed the company's operating history and presented an overview of the project as well as a map of the contemplated route. NCGT will also schedule formal public information meetings as requested by the municipalities, notification of the dates and locations will be provided to the OPSB as arranged.

In accordance with the Second Finding and Order dated December 17, 2012 in Case No. 12-1981-GE-BRO, Finding No. 5(c), NCGT will publish notification of the project in *The Blade*, a newspaper of general circulation in the Toledo area, within seven (7) days of the filing of this LON. A copy of the proposed Public Notice is attached as Exhibit E.

**(5) Current and Pending Litigation**

To the best of NCGT's knowledge, there is no current or pending litigation involving the project.

**(6) Local, State and Federal Permits and Requirements**

In addition to submitting this LON to the Ohio Power Siting Board, the Project is subject to the following governmental agency reviews, permits, licenses, and notifications:

- United States Army Corps of Engineers Rivers and Harbors Act Section 10 Permit and Nation Wide Permit 12 for Utility Line Activities.
- Ohio Environmental Protection Agency, Division of Surface Water General Isolated Wetland Permit (Level One)
- United States Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR) agency reviews of threatened and endangered species habitat assessments.
- Lucas and Wood County Stormwater Pollution Prevention requirements
- Section 106 of the National Historic Preservation Act compliance through the Ohio Historic Preservation Office.
- General Permit for Discharges of Hydrostatic Test Water (OHH000002) through the Ohio Environmental Protection Agency.
- Floodplain construction permits in the City of Maumee, City of Perrysburg, City of Oregon, the Village of Walbridge, and Perrysburg Township.
- Road crossing permits in the City of Maumee, City of Perrysburg, City of Rossford, City of Northwood, City of Oregon, the Village of Walbridge, Perrysburg Township, Lake Township, ODOT, and the Ohio Turnpike Commission.



- Road ingress/egress permits in the City of Maumee, City of Perrysburg, City of Rossford, City of Northwood, City of Oregon, the Village of Walbridge, Perrysburg Township, Lake Township, and the ODOT.
- License to cross Interstate 80 from the Ohio Turn Pike Commission.
- Licenses to cross rail roads from CSX, B&O, and Norfolk/Southern
- Notification to the Pipeline and Hazardous Materials Safety Administration through the National Registry of Pipeline and LNG Operators for the construction of a gas pipeline 10 or more miles in length.
- Notification to the Gas Pipeline Safety Division of the Public Utilities Commission of Ohio for the construction of the pipeline.

There are no other known local, state, or federal requirements that must be met prior to the construction of the proposed pipeline project.

#### 4906-11-01(E) ENVIRONMENTAL DATA

##### (1) Species of Concern

A list of the species identified by the USFWS and the ODNR is provided in Exhibit F. MSG conducted a survey along the entire pipeline route for potential habitat for these species in July and August 2014, Exhibit G. Potential habitat was identified by MSG along the project corridor for Kirtland's warbler (*Setophaga kirtlandi*), the Lark sparrow (*Chondestes grammacus*), the Loggerhead shrike (*Lanius ludovicianus*), the Indiana bat (*Myotis sodalis*), and the Northern long-eared bat (*Myotis septentrionalis*). Comments and plans to avoid or reduce impacts to these species have been included with Exhibit F along with a summarization of the other species identified by the USFWS and

ODNR that are unlikely to be impacted by this project. Correspondence with these agencies regarding the potential impacts to the species listed above was not completed at the time of the filing of this LON and will be provided once completed.

**(2) Areas of Ecological Concern**

As part of the preparation of this Application, an ecological survey was conducted for the proposed route for the Oregon Lateral, including a field reconnaissance to document the occurrence of the endemic vegetation and wildlife within the proposed project area. MSG conducted field reconnaissance of the route in July and August 2014 that included a pedestrian survey of the proposed route. Results of this survey are presented in the Ecological Resources Report in Exhibit G.

Maps showing the areas of ecological concern and the proposed pipeline have been provided in Exhibit C. The information was supplemented with available aerial imagery obtained from the United States Department of Agriculture (USDA) Farm Service Agency, United States Geologic 7.5-minute topographic maps, National Wetlands Inventory and Ohio Wetland Inventory data, United States Environmental Protection Agency's Office of Water assessed water data, ODOT data, ODNR data, and USDA Natural Resource Conservation Service soil survey data for Lucas and Wood Counties using ArcGIS. Additional information regarding endemic vegetation and wildlife was obtained from the ODNR-Division of Natural Areas and Preserves and the USFWS through literature reviews.

**(i) National/State Forests, Parks, Nature Preserves, and Wilderness Areas**

The Ohio Department of Natural Resources identified three parks within the study area provided for it to review. Two of these parks have been avoided with the proposed alignment of the pipeline, Fallen Timbers Battlefield located in Maumee is 780-feet west of the proposed route and Pearson Metro Park in Oregon is located approximately 2,460-feet east of the pipeline. The proposed route will traverse roughly 1,650-feet through Side Cut Metro Park, located in Maumee on the north side of the Maumee River, which parallels other utility easements going through the metro park across the Maumee River. These areas are indicated on the Exhibit C maps.

**(ii) Wetlands, Scenic Rivers, Waters of the U.S. and Water of the State**

An investigation of the surface waters along the proposed route was conducted by MSG in July and August, 2014. Fifteen wetlands and eighteen stream crossings were identified along the project corridor in their Ecological Report, Exhibit G. The route was adjusted to avoid as many impacts as possible along the pipeline. However, due to infrastructure and existing utilities and pipelines, seven of the wetlands could not be avoided. Table 5 lists the wetlands identified along the project corridor and the temporary impacts associated with the installation of the pipeline. Perennial streams will be avoided by using drilling methods to cross, whereas the intermittent and ephemeral streams, along with road side ditches, will be crossed using either open-trench or drilling methods.

Table 6 lists the streams and ditches that will be crossed with the construction of the pipeline and the proposed method for crossing the waterway or ditch.

**TABLE 5: DELINEATED WETLANDS**

| ID           | Delineated Acreage within Study Area | ORAM Score | Impact | Area of Temporary Impact (acres) | Length of Temporary Impact (lf) |
|--------------|--------------------------------------|------------|--------|----------------------------------|---------------------------------|
| Wetland A    | 0.526*                               | 74         | No     | 0                                | 0                               |
| Wetland B    | 0.211                                | 44.5       | Yes    | 0.02                             | 20                              |
| Wetland C    | 0.087                                | 44.5       | Yes    | 0.03                             | 28                              |
| Wetland D    | 0.042                                | 31         | Yes    | 0.06                             | 68                              |
| Wetland E    | 0.154                                | 28         | No     | 0                                | 0                               |
| Wetland F    | 0.057*                               | 28         | Yes    | 0.06                             | 59                              |
| Wetland G    | 0.004*                               | 28         | No     | 0                                | 0                               |
| Wetland H    | 0.017*                               | 28         | No     | 0                                | 0                               |
| Wetland I    | 0.023*                               | 40         | Yes    | 0.24                             | 276                             |
| Wetland J    | 0.017                                | 23         | Yes    | 0.02                             | 52                              |
| Wetland K    | 0.064                                | 14         | No     | 0                                | 0                               |
| Wetland L    | 0.099                                | 14         | No     | 0                                | 0                               |
| Wetland M    | 0.126                                | 26         | No     | 0                                | 0                               |
| Wetland N    | 0.072                                | 26         | No     | 0                                | 0                               |
| Wetland O    | 0.044*                               | 20.5       | Yes    | 0.02                             | 13                              |
| <b>Total</b> | <b>1.54</b>                          |            |        | <b>0.45</b>                      | <b>516</b>                      |

\* Wetland extends outside of delineated body

**TABLE 6: OREGON LATERAL STREAM/DITCH CROSSINGS**

| Crossing # | Name (MSG Id#)                            | Proposed Crossing Method     |
|------------|-------------------------------------------|------------------------------|
| 1          | Unnamed Tributary to Maumee River (SC-11) | Open-Trench                  |
| 2          | Maumee River                              | Horizontal Directional Drill |
| 3          | Road Side Ditch                           | Bore*                        |
| 4          | Grassy Creek (SC-18)                      | Open-Trench                  |
| 5          | Grassy Creek (SC-1)                       | Open-Trench                  |
| 6          | Road Side Ditch                           | Bore*                        |
| 7          | Road Side Ditch                           | Bore*                        |
| 8          | Unnamed Tributary 1 (SC-2)                | Open-Trench                  |
| 9          | Unnamed Tributary 1 to Dry Creek (SC-3)   | Open-Trench                  |
| 10         | Road Side Ditch                           | Bore*                        |
| 11         | Road Side Ditch                           | Bore*                        |
| 12         | Road Side Ditch                           | Bore*                        |
| 13         | Dry Creek (SC-4)                          | Bore*                        |
| 14         | Unnamed Tributary 2 to Dry Creek (SC-5)   | Open-Trench                  |
| 15         | Dry Creek (Regulated Floodway) (SC-6)     | Bore*                        |
| 16         | Road Side Ditch                           | Bore*                        |
| 17         | Road Side Ditch                           | Bore*                        |
| 18         | Dry Creek (Regulated Floodway) (SC-7)     | Bore*                        |
| 19         | Unnamed Tributary 3 to Dry Creek (SC-8)   | Bore*                        |
| 20         | Drainage Swale                            | Open-Trench                  |
| 21         | Dry Creek (Regulated Floodway) (SC-9)     | Bore*                        |
| 22         | Unnamed Tributary 4 to Dry Creek (SC-10)  | Open-Trench                  |
| 23         | Dry Creek (Regulated Floodway) (SC-12)    | Bore*                        |
| 24         | Unnamed Tributary (SC-13)                 | Open-Trench                  |
| 25         | Berger Ditch (SC-14)                      | Bore*                        |
| 26         | Berger Ditch (SC-15)                      | Bore*                        |
| 27         | Amlosch Ditch (SC-16)                     | Bore*                        |
| 28         | Amlosch Ditch (SC-17)                     | Bore*                        |

\*Method used to cross (horizontal directional drill, conventional bore, combination drill, etc.) will vary depending on location, length, and environmental factors associated with each crossing.

The Maumee River has been classified by the United States Army Corps of Engineers as a Section 10 Navigable Waterway and will require a permit for the pipeline to be horizontally directionally drilled to cross. As mentioned above, the Maumee, along

**(iii) Floodplains**

The pipeline route intersects several special flood hazard areas (SFHA) identified by the Federal Emergency Management Agency. SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of base flood or 100-year flood. In addition to the floodplains there is one regulated floodway (Dry Creek) that will be crossed by the pipeline, crossing numbers 15, 18, 21 and 23. Construction methods and temporary stream crossings in these areas will be designed, installed and maintained to ensure that the flow in these channels is not impeded. The regulated floodway will be crossed using drilling methods on all four crossings listed above and as shown in Table 6. These areas are shown on the maps in Exhibit C.

**(3) Any known Unusual Conditions Resulting in Significant Environmental, Social, Health, or Safety Impacts**

A portion of the Oregon Lateral pipeline crosses areas that have been identified with shallow bedrock. Dynamiting or blasting activities are not anticipated for the construction and installation of the pipeline. However, noise levels through these areas are expected to increase over the normal construction limits with the use of additional equipment and rock hammers. All noise generated from the construction of the pipeline will be in compliance with Occupational Safety and Health Administration standards. As a result, the noise impact on nearby sensitive areas will be controlled to the greatest extent practicable and is anticipated to be minimal. Construction at any location near a given residential, commercial and other noise sensitive area is expected to require much less than a month duration. It is anticipated that noise sensitive areas will not be significantly affected by the construction of the pipeline.

Standard construction techniques will be used and equipment operation will be confined to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Some instances may require working later to complete critical tasks (e.g. tie-ins and crossings) and to accommodate daytime business access. These instances are expected to be few and irregular and will be monitored and mediated as necessary. NCGT will notify property owners or tenants of the upcoming construction activities for the pipeline, including the potential for the after hour activities.

There are no other known unusual conditions with the construction of the Oregon Lateral.

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# HYDROGEOLOGY AND WATER QUALITY NEAR A SOLID- AND HAZARDOUS-WASTE LANDFILL, NORTHWOOD, OHIO

By Jeffrey T. de Roche and Kevin J. Breen

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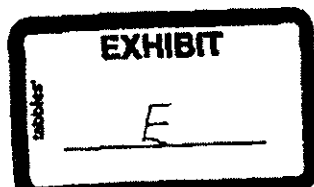
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## CONTENTS

|                                         |    |
|-----------------------------------------|----|
| Abstract                                | 1  |
| Introduction                            | 2  |
| Purpose and scope                       | 2  |
| Location and setting                    | 2  |
| Description of the landfill             | 4  |
| Previous investigations                 | 5  |
| Methods of study                        | 5  |
| Acknowledgments                         | 9  |
| Hydrogeology                            | 9  |
| Unconsolidated deposits                 | 9  |
| Bedrock                                 | 12 |
| Ground-water levels and flow            | 14 |
| Water quality                           | 25 |
| Ground water                            | 25 |
| Chemical reactions in grouted wells     | 31 |
| Controls on native ground-water quality | 34 |
| Water quality and landfill leachate     | 40 |
| Oxygen and hydrogen stable isotopes     | 44 |
| Surface water                           | 51 |
| Summary and conclusions                 | 56 |
| References cited                        | 58 |

## ILLUSTRATIONS

|        |                                                                                                                                                                        |    |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Figure | 1. Map showing location of study area                                                                                                                                  | 3  |
|        | 2. Map showing data-collection network and location of geologic section X-X'                                                                                           | 6  |
|        | 3. Generalized geologic section X-X'                                                                                                                                   | 10 |
|        | 4. Map showing altitude and configuration of bedrock surface                                                                                                           | 13 |
|        | 5. Potentiometric surface in the dolomite aquifer, February 27-28, 1985                                                                                                | 16 |
|        | 6. Maps showing ground-water-level changes in the study area:                                                                                                          |    |
|        | (A) Rise of ground-water levels from December 1984 through February 1985                                                                                               | 17 |
|        | (B) Decline of ground-water levels from February 1985 through March 1985                                                                                               | 18 |
|        | 7. Hydrographs showing relation between water levels in wells WO-113 (till), WO-121 (carbonate), and HY-2 (carbonate), and daily precipitation for the 1985 water year | 19 |
|        | 8. Graph showing effect of atmospheric-pressure fluctuation on water levels in well WO-121                                                                             | 22 |

## ILLUSTRATIONS—Continued

- Figure 9. Hydrogeologic section X-X' showing head relations between the landfill, till, and dolomite aquifer 24
10. Map showing location of sites where water-quality samples were collected 26
11. Trilinear diagram showing chemical character and cation/anion groupings of ground water at Northwood, Ohio 30
12. Map showing distribution of boron in ground water, surface water, and leachate in the study area 41
13. Map showing distribution of total dissolved solids in ground water and leachate in the study area 43
14. Map showing hydrogen and oxygen isotope composition of ground water, surface water, and leachate in the study area 46
15. Graph showing local water line and oxygen and hydrogen isotope content of leachate, ground water, and surface water in the study area 47
16. Graph showing the concept of end-member reservoirs and mixing line as shown by the relation between oxygen and hydrogen isotope ratios 50
17. Map showing surface-water sites at which stream water-quality and sediment samples were collected 52
18. Hydrograph showing stage fluctuation and time of water-quality sampling for Otter Creek tributary at Wales Road, March 28, 1985 55

## TABLES

- Table 1. Records of selected wells near Northwood, Ohio 7
2. Water-quality analyses of ground water near Northwood, Ohio 64
3. Statistical summary of ground-water-quality data for wells in the dolomite aquifer 27
4. Organic compounds analyzed for in water from selected wells and stream sites near Northwood, Ohio 28
5. Chemical changes and plausible reactions in a grouted well at Northwood, Ohio 32
6. Chemical analyses of samples of Greenfield and Lockport Dolomites reported in the literature for selected sites in northwestern Ohio 35
7. Logarithms of  $p\text{CO}_2$  and saturation indices for selected mineral phases in well waters at Northwood, Ohio 36
8. Minerals and solubility control of selected constituent concentrations in well waters at Northwood, Ohio 38
9. Calcium:magnesium mole ratios in selected carbonate rocks in northwestern Ohio and in ground waters at Northwood, Ohio 39
10. Analyses of surface-water quality and sediments near Northwood, Ohio 70

## CONVERSION FACTORS AND ABBREVIATIONS

For the convenience of readers who may prefer to use metric (International System) units rather than the inch-pound units used in this report, values may be converted by using the following factors:

| <u>Multiply inch-pound unit</u>            | <u>By</u> | <u>To obtain metric unit</u>                       |
|--------------------------------------------|-----------|----------------------------------------------------|
| inch (in.)                                 | 25.4      | millimeter (mm)                                    |
| foot (ft)                                  | 0.3048    | meter (m)                                          |
| foot of water (ft of water)                | 22.4      | millimeter of mercury (mm Hg)                      |
| foot per day (ft/d)                        | 0.3048    | meter per day (m/d)                                |
| foot per day (ft/d)                        | 0.000353  | centimeter per second (cm/s)                       |
| mile (mi)                                  | 1.609     | kilometer (km)                                     |
| foot per mile (ft/mi)                      | 0.1894    | meter per kilometer (m/km)                         |
| foot squared per day (ft <sup>2</sup> /d)  | 0.0929    | meter squared per day (m <sup>2</sup> /d)          |
| foot squared per day (ft <sup>2</sup> /d)  | 0.01075   | centimeter squared per second (cm <sup>2</sup> /s) |
| square mile (mi <sup>2</sup> )             | 2.590     | square kilometer (km <sup>2</sup> )                |
| cubic foot per second (ft <sup>3</sup> /s) | 28.32     | liter per second (L/s)                             |
| gallon per minute per foot                 | 40.74     | liter per minute per meter                         |
| per foot ((gal/min)/ft)/ft)                |           | per meter ((L/min)/m)/m)                           |

Concentrations of chemical constituents and temperatures of air and waters are given in metric units. Concentration is given in milligrams per liter (mg/L) or micrograms per liter (µg/L). Milligrams per liter is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit volume (liter) of solution (water). One thousand micrograms per liter is equivalent to one milligram per liter. For concentrations of dissolved solids less than 7,000 mg/L, the numerical value is, for practical purposes, the same as for concentrations in parts per million.

Water and air temperature is given in degrees Celsius (°C), which can be converted to degrees Fahrenheit (°F) by the following equation:

$$^{\circ}\text{F} = 1.8(^{\circ}\text{C}) + 32$$

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Sea Level Datum of 1929."

# HYDROGEOLOGY AND WATER QUALITY NEAR A SOLID- AND HAZARDOUS-WASTE LANDFILL, NORTHWOOD, OHIO

By Jeffrey T. de Roche and Kevin J. Breen

## ABSTRACT

Hydrogeology and water quality of ground water and selected streams were evaluated near a landfill in northwestern Ohio. The landfill is used for codisposal of solid and hazardous waste. Water-level and geologic data were collected from 36 wells and 3 surface-water sites during the period November 1983 to November 1985. Water-quality samples were collected from 18 wells and 3 surface-water sites during this same period.

The primary aquifers in the area are the Greenfield Dolomite and underlying Lockport Dolomite of Silurian age. These bedrock carbonates are overlain by two clay tills of Wisconsinan age. The tills are capped by a glacial lake clay. The tills generally are saturated, but do not yield sufficient water to be considered an aquifer. Two wells in the study area yield water, in part, from discontinuous deposits of outwash sand and gravel at the lower till-bedrock interface.

Regional ground-water flow is from southwest to northeast; local flow is influenced by a ground-water mound centered under the northernmost cells of the landfill. Water levels in wells penetrating refuse within the landfill and the presence of leachate seeps indicate that the refuse is saturated. Head relations among the landfill, till, and dolomite aquifer indicate a vertical component of flow downward from the landfill to the dolomite aquifer. Water levels near the landfill fluctuate as much as 14 feet per year, in contrast to fluctuations of less than 3 feet per year in wells upgradient of the landfill.

Ground waters from wells completed in the dolomite aquifer and glacial till were found to have major-ion concentrations controlled, in large part, by reaction with calcite, dolomite, and other minerals in the aquifers. Only minor departures from equilibrium mineral saturation were noted for ground water, except in wells affected by cement/grout contamination. Molal ratios of calcium:magnesium in ground water suggest a similar chemical evolution of waters throughout the dolomite aquifer in the study area. Stable-isotope ratios of oxygen and hydrogen indicate the source of water in the till unit and dolomite aquifer is atmospheric precipitation.

Elevated levels of total dissolved solids, boron, ammonia, and iron in the leachate and in wells downgradient of the landfill may indicate mixing of ground water with leachate. Oxygen and hydrogen stable-isotope ratios were used to differentiate waters from the glacial till and dolomite aquifer. Isotope ratios also show a shift off the local

)

mixing line for leachate and for a well just downgradient from the landfill. This shift to heavier values of  $\delta D$  in the well water may be indicative of leachate mixing with ground water.

The effect of this mixing denoted by hydrologic, isotopic, and chemical-quality data is limited mostly to elevated levels of the common ions. Analysis did not indicate significant levels of toxic metals or organic contaminants except phenol, which was present at concentrations of from 1 to 5 micrograms per liter in six wells. Analysis of water-quality data from nearby streams suggests that surface leaching from the landfill does not significantly affect stream-water quality, but may contribute to higher levels of trace metals in the streambed sediments.

## INTRODUCTION

Ground water is an important resource for rural residents near Northwood, Ohio. The presence of a solid- and hazardous-waste landfill near Northwood and a lack of current ground-water data for the surrounding area created a need for a study of the hydrogeology and water quality. This study was conducted in cooperation with the City of Northwood, Ohio, and presents findings from data collected from November 1983 through November 1985.

### Purpose and Scope

The purpose of this report is to describe the hydrogeology and the chemical quality of ground water and surface water near the landfill. The evaluation was made by (1) review of available hydrogeologic and chemical-quality data; (2) mapping of the glacial overburden and underlying dolomite aquifer from well logs and geologic borings; (3) measurement of hydraulic head in the glacial overburden and dolomite aquifer; (4) collection and analysis of water-quality data from the landfill, glacial overburden, and dolomite aquifer; and (5) collection and analysis of water- and sediment-quality data from local streams.

### Location and Setting

The project area (fig. 1) is located in Wood County in northwestern Ohio and encompasses an area of approximately 10 mi<sup>2</sup> (square miles). The area includes parts of the City of Northwood (population 6,000) and the Village of Walbridge (population 3,000). Land use in the area is a mixture of light and heavy industry, transportation, housing, and open areas used for agriculture.

The climate is temperate. Average annual temperature for the 1951-80 period was 10.8 °C (51.5 °F). For the same period, monthly average precipitation ranged from a

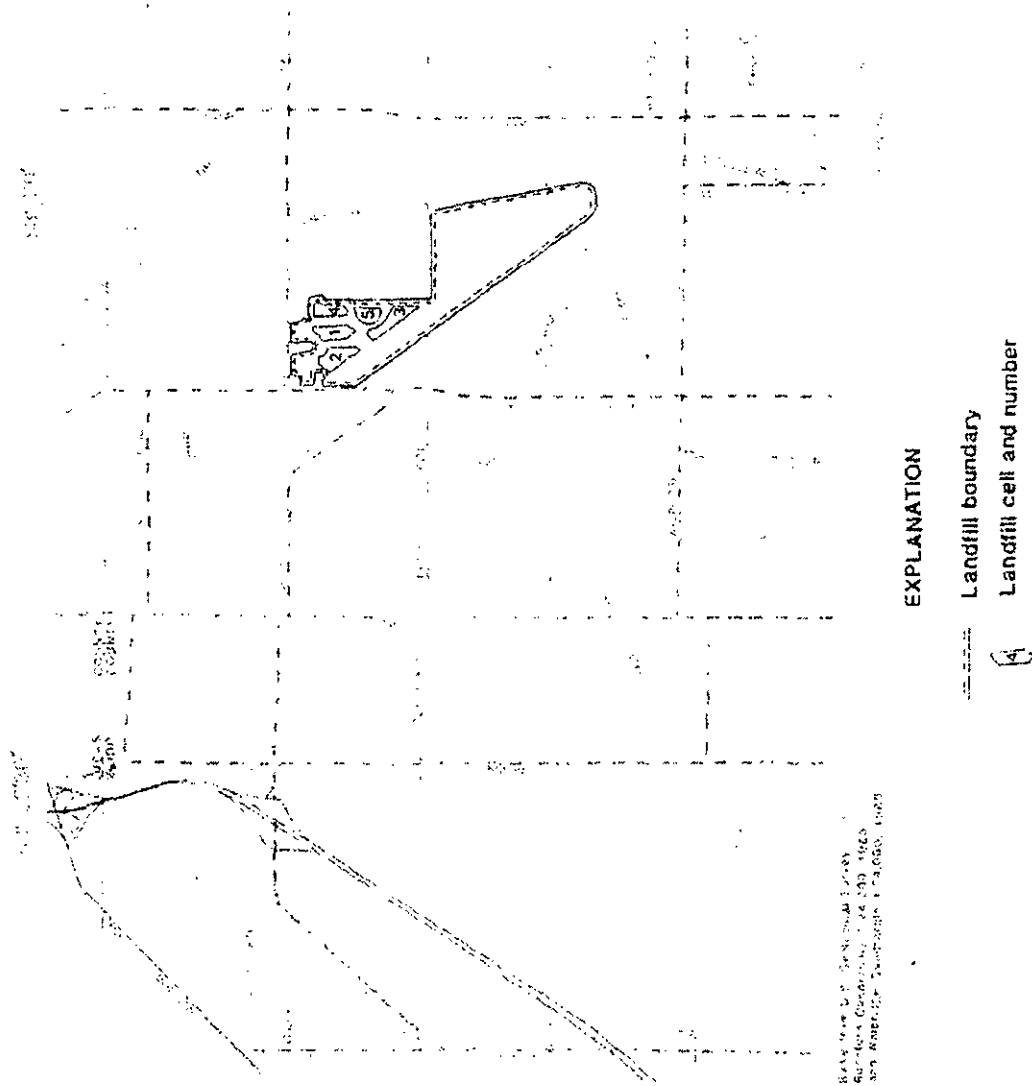


Figure 1.--Location of study area.



high of 3.50 in. (inches) for June to a low of 1.81 in. for February. The 30-year average annual precipitation was 32.29 in. (National Oceanic and Atmospheric Administration, 1982).

Topography in the area is flat and nearly featureless. Drainage is provided by roadside ditches, Otter Creek, and Dry Creek. Most soils belong to the Toledo soil association (U.S. Department of Agriculture, 1966) and are developed in lake-deposited silts and clays.

### Description of the Landfill

The landfill site (fig. 1) covers approximately 160 acres and is primarily used for disposal of municipal and commercial refuse. The northern part of the landfill is divided into five separate excavations, or cells. Before construction of the landfill, a railroad switching station known as Outer Yard occupied much of the site. Most of the track has been removed since landfilling started on the original 20-acre site in 1972.

Records indicate that cells 1 through 4 use the local natural clay deposit as liner material and contain primarily municipal and commercial refuse (Waste Management, Inc., written commun., no date). However, a Resource Conservation and Recovery Act (RCRA), Part B application indicates that past landfilling included disposal of wastes now defined as hazardous (Dames and Moore, 1983). The excavation depth below grade for pits 1 through 4 is reported to be 35 to 40 feet (John Barbush, Waste Management, Inc., oral commun., 1984).

Cell 5, which was permitted to receive hazardous waste, also uses the local clay till as a liner. Depth of fill below grade is 35 feet. Site delivery records for 1982 and 1983 indicate the hazardous-waste cell contains primarily heavy-metal sludges, wastewater-treatment sludges from electroplating operations, and air-pollution-control sludges or dust. Records also show soluble cyanide salts, DDT, toluene, 1,1,1,- trichloroethane, and 2,4-D were deposited in the hazardous-waste cell.

Cells 1 through 5 have all been filled and completed and are covered with clay caps. Cells 1, 2, and 4 are equipped with methane-venting wells that may be used for leachate observation. Cell 5 is equipped with a leachate collection and monitoring system.

Landfilling of solid waste expanded into the southern section of the site during the early 1980's. Currently, disposal in the southern section is limited to solid waste; no hazardous wastes are permitted. The investigation centers primarily on the northern section of the site because cells have been in place longer and because of the nature of the waste in cell 5.

### Previous Investigations

Most publications on the hydrogeology of Wood County are regional or countywide in scope and provide minimal information on water quality. The regional subsurface geology has been investigated and summarized by Kahle and Floyd (1972) and Janssens (1977). Reports relating geology to land-use planning for Wood County have been done by Forsyth (1968) and Nielsen (1977).

Studies by the Ohio Department of Natural Resources (1970), Norris and Fidler (1969, 1971a, 1971b), and Norris (1974) discuss the regional hydrogeology of northwestern Ohio. A report by Glaze (1972) provides information on the hydrogeology of northern Wood County, and a subsequent study by Paulson (1981) reviews the ground-water resources of Wood County. A recent synopsis of ground-water resources in northwestern Ohio and southern Michigan by the Toledo Metropolitan Area Council of Governments (1982) provides information on the hydrogeology of selected northwestern Ohio counties.

Site-specific reports on the landfill area have been prepared by Bowser-Morner Testing Laboratories (1980) and Dames and Moore (1983, 1984). These reports address the area's geology and ground-water occurrence but provide only minimal information on ground-water quality.

### Methods of Study

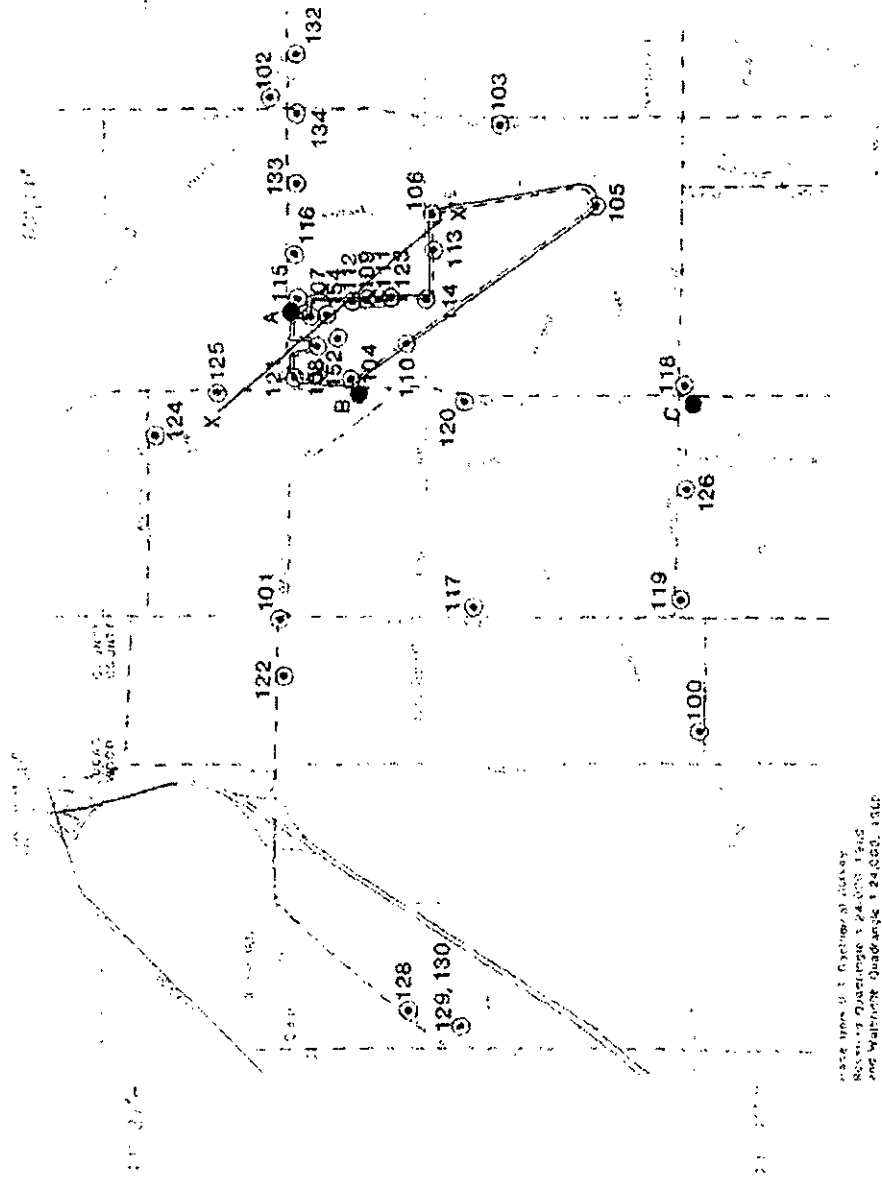
The data-collection network (fig. 2, table 1) consisted of 36 wells and 3 surface-water sites. Two wells were equipped with hourly water-level recorders, and a continuous precipitation recorder was installed on site. Water-level measurements were obtained bimonthly from the well network. Additional hydrologic and geologic information was obtained from logs and laboratory tests of 27 borings (Bowser-Morner Testing Laboratories, 1980; Dames and Moore, 1983, 1984).

Of the 36 wells, 22 are domestic or commercial wells that are cased into bedrock and are open hole below. Ten are specially constructed monitoring wells cased into bedrock, screened and sandpacked in the upper zones of bedrock, and grouted with a cement or cement/bentonite mixture. Two piezometers (113 and 123)<sup>1</sup> are cased, grouted, and screened and sandpacked in the overlying till, and two wells (152 and 154) are finished within the northern cells of the solid-waste landfill to vent methane gas.

Chemical-quality data were collected from April 4, 1984, through July 11, 1985, from three surface-water sites and 17 ground-water wells. Water samples were analyzed

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<sup>1</sup>For the sake of simplicity, the county prefix "WO-" has been omitted from local well numbers in the text and many of the illustrations in this report. Local numbers are given in full in the tables.



# EXPLANATION

- Surface-water site :
- Observation well
- Landfill boundary
- X-X' Location of geologic section
- A Otter Creek tributary at Wales Road
- B Otter Creek tributary at Whitmore Yard
- C Dry Creek at East Broadway

Figure 2.--Data-collection network and location of geologic section X-X' (the county-code prefix "WQ-" has been omitted from well numbers).

Table 1.—Records of selected wells near Northwood, Ohio

(Producing zone: D, dolomite; T, till. Casing type: S, steel; P, PVC. Dashes indicate data not available or not applicable.)

| Well number         | Latitude  | Longitude | Producing zone | Year completed | Casing type | Casing diameter (inches) | Elevation of land surface (feet) | Depth of well (feet) |
|---------------------|-----------|-----------|----------------|----------------|-------------|--------------------------|----------------------------------|----------------------|
| WO-100              | 41°35'12" | 83°32'09" | D              | 1977           | S           | 4.25                     | 621                              | 139                  |
| WO-101              | 41°36'31" | 83°31'42" | D              | —              | S           | 6.00                     | 617                              | 250                  |
| WO-102              | 41°36'35" | 83°29'34" | D              | 1977           | S           | 6.00                     | 614                              | 149                  |
| WO-103              | 41°35'51" | 83°29'39" | D              | 1972           | S           | 6.25                     | 615                              | 250                  |
| WO-104              | 41°36'20" | 83°30'41" | D              | 1983           | S           | 7.00                     | 617                              | 155                  |
| WO-105              | 41°35'32" | 83°29'58" | D              | 1983           | P           | 4.00                     | 618                              | 100                  |
| WO-106              | 41°36'04" | 83°30'01" | D              | 1983           | P           | 4.00                     | 616                              | 94                   |
| WO-107              | 41°36'26" | 83°30'29" | D              | 1983           | P           | 4.00                     | 619                              | 127                  |
| WO-108              | 41°36'25" | 83°30'35" | D              | 1983           | P           | 4.00                     | 610                              | 100                  |
| WO-109              | 41°36'16" | 83°30'23" | D              | 1983           | P           | 4.00                     | 619                              | 105                  |
| WO-110              | 41°36'08" | 83°30'34" | D              | 1983           | P           | 4.00                     | 618                              | 120                  |
| WO-111              | 41°36'14" | 83°30'23" | D              | 1983           | P           | 4.00                     | 617                              | 110                  |
| WO-112              | 41°36'18" | 83°30'23" | D              | 1983           | P           | 4.00                     | 613                              | 105                  |
| WO-113              | 41°36'03" | 83°30'10" | T              | 1980           | P           | 1.25                     | 616                              | 49                   |
| WO-114              | 41°36'05" | 83°30'23" | D              | 1974           | S           | 4.25                     | 617                              | 200                  |
| WO-115              | 41°36'30" | 83°30'23" | D              | 1983           | P           | 2.00                     | 613                              | 83                   |
| WO-116              | 41°36'30" | 83°30'12" | D              | 1983           | P           | 2.00                     | 615                              | 90                   |
| WO-117              | 41°36'35  | 83°31'39" | DT             | 1946           | S           | 4.50                     | 619                              | 102                  |
| WO-118              | 41°35'15" | 83°30'43" | D              | 1974           | S           | 6.00                     | 618                              | 160                  |
| WO-119              | 41°35'15" | 83°31'37" | DT             | 1958           | S           | 4.25                     | 621                              | 132                  |
| WO-120              | 41°35'57" | 83°30'47" | D              | 1946           | S           | 4.00                     | 616                              | 84                   |
| WO-121              | 41°36'29" | 83°30'44" | D              | —              | S           | 6.00                     | 616                              | 188                  |
| WO-122              | 41°36'31" | 83°31'58" | D              | —              | S           | 8.00                     | 617                              | 130                  |
| WO-123              | 41°36'11" | 83°30'22" | T              | 1984           | P           | 2.00                     | 616                              | 52                   |
| WO-124              | 41°36'55" | 83°30'58" | D              | —              | S           | 5.50                     | 616                              | —                    |
| WO-125              | 41°36'44" | 83°30'46" | D              | —              | S           | 5.50                     | 616                              | 150                  |
| WO-126              | 41°35'15" | 83°31'09" | D              | —              | S           | 4.00                     | 622                              | 130                  |
| WO-128              | 41°36'06" | 83°33'21" | D              | —              | S           | 6.00                     | 615                              | 132                  |
| WO-129              | 41°35'56" | 83°33'24" | D              | —              | S           | 6.25                     | 615                              | 130                  |
| WO-130              | 41°35'56" | 83°33'24" | D              | —              | S           | 4.50                     | 615                              | 9                    |
| WO-131              | 41°35'40" | 83°32'22" | D              | —              | S           | 8.00                     | 620                              | 620                  |
| WO-132              | 41°36'29" | 83°29'22" | D              | —              | S           | 6.00                     | 613                              | 208                  |
| WO-133              | 41°36'29" | 83°29'54" | D              | 1958           | S           | 4.00                     | 615                              | 149                  |
| WO-134              | 41°36'29" | 83°29'37" | D              | —              | S           | 6.00                     | 615                              | 102                  |
| WO-152 <sup>1</sup> | 41°36'23" | 83°30'30" | —              | 1983           | P           | 8.00                     | 655                              | 45                   |
| WO-154 <sup>1</sup> | 41°36'23" | 83°30'30" | —              | 1983           | P           | 8.00                     | 655                              | 49                   |

<sup>1</sup>Methane-venting wells

for water characteristics, major ions, trace constituents, nutrients, base/ neutral- and acid-extractable organic compounds, volatile organic compounds, and stable isotopes of oxygen and hydrogen. In addition, streambed materials were analyzed for trace metals and base/neutral- and acid-extractable organic compounds. Blanks, spikes, and duplicate samples were submitted to the laboratory for quality assurance and quality control. Water and sediment samples were analyzed by U.S. Geological Survey National Water Quality Laboratory. Isotope samples were analyzed by the U.S. Geological Survey's Isotope Fractionation group in Reston, Va.

Sampling procedures for observation wells were designed to obtain a representative sample from the aquifer and to minimize the introduction of any foreign substance that might affect ambient or native water quality. All observation wells were pumped until a minimum of three casing volumes was purged from the well. Domestic wells were pumped until the volume of the pressure tank plus three casing volumes had been purged. During purging, pH, conductance, temperature, and dissolved oxygen were monitored by use of a flow chamber. After purging the wells, samples were collected when readings became stable.

Most of the monitoring wells within the landfill perimeter were installed by the landfill's contractor and are of PVC construction equipped with dedicated submersible pumps and PVC lift lines. Wells outside of the landfill generally were domestic wells cased with steel and open hole into the dolomite aquifer. In wells not equipped with a dedicated pump, a Johnson-Keck<sup>2</sup> SP-81 submersible pump with interchangeable EPDM and Viton stators was used for sampling. When sampling for inorganic constituents, 10 percent acetone solution and distilled water were used to clean the pump. The acetone solution was pumped through the pump and sample lines, and was followed by distilled water to flush the acetone. The power line, pump housing, and exterior of the sample line also were cleaned before being lowered into the well.

When sampling for base/neutral- and acid-extractable organic compounds, a solution of 75 percent hexane and 25 percent alcohol was used to clean the interior and exterior parts of the sampling pump. Pump materials for organic sampling were limited to Teflon, Viton, and stainless steel. For all observation-well sampling, the pump was cleaned before it was lowered into the well and immediately after it was removed. For sampling of volatile organic compounds, a Teflon bladder pump was used. A detergent wash and distilled-water rinse were used to clean the pump before and after use.

Bed material was obtained from local streams and analyzed for organic constituents and trace metals. To increase the recovery of fine sediments, pools and low-velocity reaches of the streams were chosen as sampling sites. Streambed penetration during sampling was generally 4 in. or less.

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<sup>2</sup>Use of firm, brand, or trade names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

Bed-material samples for trace-metal analysis were collected with a U.S. Geological Survey RBM80 sampler or a plastic scoop. All sampling equipment and containers were cleaned with a 10 percent nitric acid solution, followed by distilled water, and then by a native-water rinse. Samples were separated after freeze drying, and the less-than-25- $\mu\text{m}$  (micrometer) fraction was analyzed.

Bed-material samples for organic constituents were collected with an RBM80 sampler, a stainless-steel scoop, and stainless-steel sieves. All sampling equipment was cleaned with a 75 percent hexane and 25 percent alcohol solution, followed by distilled water and native-water rinses. Samples were wet sieved in the field through 90- and 63- $\mu\text{m}$  sieves, and the less-than-63- $\mu\text{m}$  fraction (medium silts and smaller) was analyzed.

Analysis of organic constituents in water and sediments was done by gas chromatography/mass spectrometry. Samples were analyzed quantitatively for base/neutral- and acid-extractable organic compounds and qualitatively for all other methylene-chloride-extractable organics. All samples were analyzed at the U.S. Geological Survey National Water-Quality Laboratory.

#### Acknowledgments

The authors are grateful for the information and assistance provided by Wood County Health Department, Toledo Metropolitan Area Council of Governments, the City of Northwood, and Waste Management, Inc. Appreciation is expressed also to Bihn Well Drilling and to the private landowners and homeowners who offered their wells for water-level measurement and chemical-quality sampling. In the interpretation of isotopic results, the assistance of Carol Kendall, U.S. Geological Survey, Reston, Va., also is gratefully acknowledged.

### HYDROGEOLOGY

#### Unconsolidated Deposits

The unconsolidated deposits in the study area (fig. 3) consist of a glacial-lake clay deposit underlain by two tills of Wisconsinan age. The upper till, into which the landfill cells are excavated, is rich in clay, whereas the lower till contains a relatively high percentage of sand and pebbles (Forsyth, 1968). Underlying the lower till is a detrital or broken-rock zone composed of sand, gravel, boulders, rock fragments, and clay. This characteristic layering of the unconsolidated deposits has been correlated over much of northern Ohio by Forsyth (1960).



## ***Subsurface Heating Events at Solid Waste and Construction and Demolition Debris Landfills: Best Management Practices***

Landfill subsurface heating events can cause risks to human health, safety, and the environment; increase costs to landfill operators and local governmental entities; and create nuisance conditions for the local community. Examples of impacts from a landfill subsurface heating event are:

- odors;
- smoke;
- toxic emissions;
- liner or cap damage;
- gas and leachate management structure damage;
- slope failure;
- ground water and/or surface water contamination; and
- disruption of landfill operations.

### **Purpose and Use of this Document**

This document summarizes information gathered by Ohio EPA and from other sources regarding the prevention, detection, investigation, and suppression of landfill subsurface heating events at solid waste and construction and demolition debris (C&DD) landfills. Each landfill is unique and can experience different manifestations of a subsurface heating event. The information contained in this document is presented as a survey of information and best management practices related to landfill subsurface heating events and are not intended to address any given set of site-specific conditions.

### **Point of Contact**

For more information about this document, please contact the appropriate DSIWM supervisor listed below or the Central Office Compliance Assistance and Inspection Support Unit at (614) 644-2621.

Central District Office  
(614) 728-3778  
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### **DISCLAIMER**

The information presented in this document is intended solely for informational purposes and is not intended to function as site specific guidance or to address any set of site specific conditions. This document is not intended to and cannot be relied upon to create rights, substantive or procedural, enforceable by any party against Ohio EPA. While this document is not legally binding, all statutes and rules referenced herein are binding and enforceable. Ohio EPA reserves the right to vary the content of this document or to change it at any time without public notice and also reserves the right to deviate from the contents of this document on a case-by-case basis.

## **Background**

Subsurface heating events are described by many terms, such as subsurface fire, smoldering fire, slow pyrolysis, glowing combustion, subsurface oxidation, and reaction. For the purposes of this document, a subsurface heating event encompasses all of these types of events.

A subsurface heating event may occur at any given solid waste or C&DD landfill. Examples of some of the causes of subsurface heating events include:

- Aerobic microbiological decomposition of waste (cause is often associated with an operational failure such as poor cover or the over application of vacuum on a gas extraction well)
- Chemical reaction (e.g. oxidation) in the waste material. Examples are:
  - Spontaneous combustion, which can occur in such common household wastes as oily rags, paints, solvents, batteries, and pool chemicals.
  - Exothermic reaction when water is combined with certain wastes, such as aluminum production waste (see the aluminum production waste advisories at [http://www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum\\_advisory.pdf](http://www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum_advisory.pdf) and [http://www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum\\_advisory\\_2.pdf](http://www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum_advisory_2.pdf)), municipal solid waste ash, lime, iron waste, steel mill waste, and other metal wastes. These reactions can result in the emission of toxic, flammable, or potentially explosive gases such as hydrogen, ammonia, carbon monoxide, and acetylene.
  - Oxidation of cellulose and plastics to form peroxides which have a low ignition temperature.
- "Hot loads," such as cooking charcoals, ashes, or smoking materials that are buried but not extinguished.

### **Subsurface Fire Indicators**

The FEMA document *Landfill Fires Their Magnitude, Characteristics, and Mitigation* (May 2002) ([www.usfa.dhs.gov/downloads/pdf/publications/fa-225.pdf](http://www.usfa.dhs.gov/downloads/pdf/publications/fa-225.pdf)) and the California Integrated Waste Management Board *Landfill Fires Guidance Document* (January 2007) ([www.calrecycle.ca.gov/SWFacilities/Fires/LFFiresGuide/default.htm](http://www.calrecycle.ca.gov/SWFacilities/Fires/LFFiresGuide/default.htm)) identify six indicators that generally confirm a subsurface fire. These are:

- Substantial settlement over a short period of time.
- Smoke or smoldering odor emanating from the gas extraction system or landfill.
- Elevated levels of CO in excess of 1,000 parts per million (ppm).
- Combustion residue in extraction wells or headers.
- Increase in gas temperature in the extraction system (above 140°F).
- Temperatures in excess of 170°F.

Not all of these indicators need to be present to indicate a subsurface heating event.

Once waste temperatures begin to rise and are sustained, the heating "front" may move further into the landfill. Factors affecting propagation include oxygen (air) intrusion, moisture, waste type/size, and void space.



### **Preventing Subsurface Heating Events**

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Many landfill operational activities effective in preventing or reducing the risk of a subsurface heating event are already required by rule in Ohio (e.g. cover, good compaction, prohibition of cliffing, diversion of surface water, management of hot loads). Therefore, it is important that owners and operators properly operate and manage their landfills in accordance with applicable regulations and authorizing documents.

When designing the landfill, the engineer should consider how each individual element interacts with others in the landfill's systems from the perspective of preventing subsurface heating events in addition to other purposes. A design decision for one element can have an unintended impact on the effectiveness of another element in preventing or minimizing the propagation of a subsurface heating event or decreasing the protection of the integrity of an engineered component. For example, during a subsurface heating event, an FML cover may be employed to deal with odors from an exothermic reaction, which could result in condensate being generated and infiltrating back into the disposed material, potentially exacerbating the exothermic reaction.

### **Oxygen Management**

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Minimizing oxygen (air) intrusion into the landfill is effective in preventing the overheating of waste due to aerobic microbiological decomposition and in minimizing the propagation of the heating front through the disposed material. The owner or operator can minimize oxygen levels in the disposed material by employing some or all of the following:

- Identify where oxygen intrusion can occur and take steps to minimize or eliminate the intrusion. The location of air intrusion can be some distance from the area affected by the subsurface heating event. Means of intrusion can be through the following:
  - Landfill components, such as leachate collection system (LCS) sideslope risers, can introduce air into the disposed material.
  - Configuration of the landfill, such as steep side slopes, can be conducive to creating a chimney effect.
  - Environmental factors, such as weather (e.g. wind, temperature, and barometric pressure) can have an impact on air intrusion in the landfill.
  - Type and condition of daily, intermediate, and final cover. FML and low permeability cohesive soil is more effective as a barrier than a porous soil. Eliminate air intrusion pathways by repairing cracks in soil cover or holes and tears in FML components. Ensure the FML is anchored deep enough so air cannot infiltrate under the edges.
- Good compaction of waste to minimize and reduce void spaces in the disposed material.
- Actively manage and maintain the landfill gas collection and control system (GCCS) by doing the following:
  - Effective and proper tuning of the GCCS. Although the New Source Performance Standards (NSPS) limit for a normal operating landfill is 5.0% oxygen, a lower target, such as 1.5% oxygen level in interior gas extraction wells, can prompt a tuning of the gas well before levels exceed regulatory limits. Wells at the perimeter may tend to show more oxygen due to boundary conditions.
  - Do not over apply vacuum on a gas extraction well.
  - Maintain gas lines and well head seals and boots. Repair holes and tears.
  - Constantly assess GCCS effectiveness and add more extraction wells as necessary.
  - Inform all personnel (e.g. employees, contractors, and regulators) on gas system operational status. If higher operating values (HOVs) are encountered, make all efforts to adjust the system to lower the value. See also Ohio EPA's guidance on Higher

Operating Value (HOV) Demonstrations.

{<http://epa.ohio.gov/LinkClick.aspx?fileticket=kOn3aOhbQOo%3d&tabid=4489>}

- Utilize redundancy in landfill design features. Configure the GCCS header line to be a loop. A loop configuration allows vacuum to be applied to a well from another direction if a segment of the line needs to be isolated for maintenance or repair, thus removing the incentive to over apply vacuum to surrounding wells to compensate for the loss of the well.
- Install horizontal gas collectors in deep cells (>150 to 200 feet) to reduce the need to over apply vacuum to draw from deep vertical wells.
- Incorporate a soil or FML layer in the cap system or intermediate cover for the purpose of preventing or excluding oxygen from entering the disposed material.

Waste Acceptance

Waste acceptance protocols and screening can help reduce the risk of a subsurface heating event. The following criteria can be incorporated into a landfill's waste acceptance plan:

- Work with generators for a more complete characterization of the waste profile.
  - Identify if wastes are incompatible (e.g. extreme pH, oxidizers, water).
  - Include protocols for identifying wastes which may exhibit an exothermic reaction. See suggested tests in the box below.
- Place municipal solid waste ash, industrial sludges, dusts, FGD sludges, etc. on a "watch list."
- Log receipt and disposal location for "watch list" wastes in the landfill and keep records for future reference.
- Monitor for and manage hot loads in compliance with applicable operational rules, including OAC 3745-27-19(E)(7)(d) or 3745-400-11(F)(4).
- Monitor moisture content of incoming waste; meter and monitor solidification volumes. Divert disposal of wet wastes away from areas where "watch list" wastes were deposited.
- Avoid co-disposal of incompatible wastes.
- Restrict disposal of wastes exhibiting exothermic properties to a monocell or monofill.
- Limit the depth of the disposed material where waste exhibiting exothermic properties is disposed.

Exothermic reactions have been observed to occur at depths of 150 feet. A theory is that the weight of the disposed material and resulting overburden pressure may be a contributing factor.

**Suggested tests**

- UN/DOT Test for Class 4.3 Waste Substances which in contact with water emit flammable gases (aka Dangerous When Wet Materials)  
{[www.unece.org/trans/danger/publi/manual/Rev4/ManRev4-files\\_e.html](http://www.unece.org/trans/danger/publi/manual/Rev4/ManRev4-files_e.html)}.  
Note: This is a general waste characterization test and is not applicable for RCRA reactive characterization testing.
- Tests found in U.S. EPA's Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) ({[www.epa.gov/osw/hazard/testmethods/sw846/online](http://www.epa.gov/osw/hazard/testmethods/sw846/online)}).
- Flashpoint.
- Ignitability of Solids.
- pH.

### **Liquid Management**

Minimizing liquids in the landfill can help reduce the potential for subsurface heating events due to aerobic microbial decomposition or due to exothermic reactions in certain wastes that occur in the presence of water. Managing liquids in the landfill and limiting the infiltration or addition of other liquids into the disposed material can be achieved by performing some or all of the following activities:

- Minimize or avoid introducing additional liquids into the landfill, including solidification of liquids and leachate recirculation.
- Divert condensate and leachate recirculation away from areas where "watch list" wastes were deposited.
- Minimize perched zones.
- Maintain effective daily, intermediate, and final cover.
  - Eliminate ponding.
  - Eliminate infiltration pathways by repairing cracks in soil cover or holes and tears in FML components.
- Eliminate ground water infiltration.
- Employ best management practices for storm water. Avoid run-on of surface water onto or into the disposed material.
- Install final/transitional cover as soon as possible.
- Underneath temporary FML cover, install dual horizontal collectors. Placement of dual horizontal collectors, with a gas collector on top of a leachate collector and spaced periodically up the slope, helps control pillowing of leachate at the toe and at benches. Sub-cap liquid collectors can also be installed in shallow trenches to intercept and collect condensate which accumulates under the FML and divert it into the leachate collection system.
- Dewater gas extraction wells in such a way so as not to create aerobic conditions for biological decomposition.
- Use dual-extraction gas wells to enable dewatering of the gas well. Such wells can also be used to pump in gas or liquid to cool down the disposed material.

### **Limiting movement of the heating front and protecting engineered components**

Should a subsurface heating event begin, the owner or operator can take steps to limit the movement of the heating front and to protect engineered components. Most of the suggestions below would need to be instituted at the landfill design stage, and not after the onset of a subsurface heating event.

#### **Limiting movement of the heating front**

- Fire breaks.  
Place soil (or other nonflammable material that provides a barrier to heat movement) between cells or phases. Such a barrier should be designed to not inhibit liquid movement, unless liquids are to be diverted from monocells where "watch list" wastes were disposed.
- Gas extraction barrier.  
Install gas extraction wells around the perimeter of an area affected by a subsurface heating event to relieve subsurface pressure, heat, gases, and/or liquids moving from the subsurface heating event. Such wells may also serve as a means to inject gases or liquids to cool or isolate the affected area and prevent the spread of the subsurface heating event.

**Protecting engineered components**

Employ buffer layers to protect engineered components and any temporary covers composed of geosynthetics (prone to damage from excess temperatures). The buffer layer can be used as a means to inject a cooling agent, or as a thermal barrier through which hot gas and liquid cannot travel.

- Design redundancy.  
Employ natural materials to be redundant with geosynthetics (prone to damage from excess temperatures). For example, using both geonet and aggregate as the leachate collection drainage layer.
- Use temperature and chemical resistant materials.
  - Use CPVC, stainless steel, or fiberglass instead of PVC in the GCCS.
  - Use more durable gaskets, valves (i.e. stainless steel), flexible tubing (metal vs. kanaflex), pumps, floats, and drains in the leachate management system.
- Rely on gravity conveyance rather than mechanical systems for diverting liquids.
- To monitor risk to the engineered components, place temperature monitoring devices into landfill systems as part of normal construction activities.

**Investigating subsurface heating events**

Visual confirmation or other analytical evidence can be used to determine if a subsurface heating event exists.

**Landfill Inspection**

One of the best investigative tools for subsurface heating events is visual inspection. Investigations could begin with a focus on what is normal for that particular landfill as a baseline, and then look for changes that are unusual or unexpected. The following are features or events that could indicate a subsurface heating event:

- Unusual or rapid settlement.
  - Incidents of equipment falling through voids.
  - Development of sink holes.
- Stressed vegetative cover (although there may be other causes of stressed vegetation).
- Smoke and steam (visible water vapor). Smoke and steam are not necessarily distinguishable in the field based solely on visual appearance.
  - Smoke and steam may be observed in the gas system or escaping from cracks in the cover.
  - The absence of smoke is not confirmation that a subsurface heating event is not occurring. The disposed material can filter the visible particulate matter from the smoke.
  - An exothermic reaction in waste may produce steam at the landfill surface or within the disposed material (e.g., rising from a boring). Be aware of ambient temperatures and steam – warm gas on a cold morning may 'steam.'
- Combustion residue (char) in gas extraction wells and in flame arresters at flares. Some subsurface heating events do not exhibit char; however, if it is there, there are no known alternative sources other than a subsurface heating event. To distinguish from condensate residue, visual observation may not be conclusive so a lab analysis may need to be conducted.
- Patchy snow melt (heating event would be closer to surface to observe this effect, although can occur with very deep heating events if hot gas or the heating front is migrating to surface).

## *Subsurface Heating Events at Solid Waste and Construction and Demolition Debris Landfills*

Guidance Document #XXXX

- Odors may be an indicator of a subsurface heating event.
  - New odors, particularly odors that smell "hot" or "burning" or of volatile fatty acids or sulfur compounds such as mercaptans.
  - Ammonia odor.
  - Chemical or metallic odor.
- Excessive liquid generation may be an early indicator of a subsurface heating event.
  - Gas extraction wells full of liquid. Liquid in a gas extraction well is normal, so look for excessive amounts; it is presumably from moisture being driven out by heat condensing in the well. It could also be due to leachate outbreaks.
  - Leachate rapidly recharging the sump after the liquid level is pumped down.
  - When excessive liquid cannot be attributed to seasonal variability or operation/construction staging, it could be from a chemical reaction or from moisture being driven out by the heat, condensing elsewhere, and migrating to the leachate collection system.

### Landfill Gas Analysis

Gas quality could be an early indicator of a subsurface heating event. Certain chemical constituents are indicative of combusting waste, and if a subsurface heating event is suspected, analysis of the landfill gas from the gas extraction system (or other observation ports imbedded in the disposed material) is recommended. It is critical for the owner or operator to constantly review data from the GCCS to identify changes in the landfill's normal gas composition, pressure, and temperature.

Gas extraction wells that exhibit characteristics indicative of poor methane generation, excessive oxygen or nitrogen levels, positive pressure, or erratic performance should be monitored more frequently for wellhead temperature, pressure, and the following gases: methane ( $\text{CH}_4$ ), nitrogen ( $\text{N}_2$ ), oxygen ( $\text{O}_2$ ), hydrogen ( $\text{H}_2$ ), carbon dioxide ( $\text{CO}_2$ ), and carbon monoxide ( $\text{CO}$ ). See also Ohio EPA's guidance on Higher Operating Value (HOV) Demonstrations (<http://epa.ohio.gov/LinkClick.aspx?fileticket=kOn3aOhbQOo%3d&tabid=4489>).

- Carbon monoxide ( $\text{CO}$ ) and Carbon dioxide ( $\text{CO}_2$ )
  - Different types of combustion (gas-phase/flaming combustion, smoldering, and glowing combustion) produce  $\text{CO}$  and  $\text{CO}_2$  in different amounts.
  - To confirm a subsurface heating event by using  $\text{CO}$ , the results should be acquired through quantitative laboratory analysis.
    - Most field equipment only has qualitative abilities and is susceptible to cross-sensitivity with high temperatures, humidity, and other constituents of landfill gas (e.g. volatile organic compounds, hydrogen sulfide). As a result, landfill gas readings may show artificially high carbon monoxide readings when using portable monitors.
  - $\text{CO}$  levels in excess of 1,000 ppm are viewed as a positive indication of an active subsurface heating event.
  - $\text{CO}$  levels between 100 and 1,000 ppm are viewed as suspicious and further air and temperature monitoring is needed for confirmation.
- Volatile organic compounds (VOCs).
- Semi-volatile organic compounds (SVOCs).
- Polycyclic aromatic hydrocarbons (PAHs).
- Polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs).

- Methane (CH<sub>4</sub>)
  - CH<sub>4</sub> production often decreases during a subsurface heating event as methane-producing microorganisms are inhibited by high temperatures. The level of CH<sub>4</sub> detected during a subsurface heating event is generally below 45%.
  - If there is more CO<sub>2</sub> than CH<sub>4</sub>, biological activity is being inhibited for some reason, possibly due to a subsurface heating event.
- Air
  - Presence of O<sub>2</sub> greater than 5% or N<sub>2</sub> above 20% may indicate over application of vacuum on the GCCS.
  - Presence of balance gas greater than 8.5% may indicate over application of vacuum on the GCCS, or that a subsurface heating event is generating gases other than CH<sub>4</sub>, CO<sub>2</sub>, or O<sub>2</sub> (e.g. CO, H<sub>2</sub>).
- Hydrogen (H<sub>2</sub>)
  - H<sub>2</sub> Levels above 5%. H<sub>2</sub> is a result of many processes, so some presence does not necessarily mean a subsurface heating event is occurring.

#### Landfill Gas Pressure

Excessive landfill gas pressure is a lagging indicator of a subsurface heating event. Some positive pressure is normal; therefore the owner or operator should look for excessive pressures, such as:

- Observation of fumaroles, geysers, or staining of soil around a crack or hole in the cover. Bubbles on the surface of thick cover after a rain event are a common phenomenon; however, it could also be an indication of excessive pressure, especially at a landfill with a GCCS.
- Pump switch transducers giving false liquid level indication, which can also cause pump burn-out.
- Evidence of gas at the anchor trench (using the leachate drainage layer as a pathway).
- Gas extraction system requiring pressure adjustment beyond normal tuning.
- Excessive pressures measured at wellheads.

#### Temperature Survey

A heating event is characterized as an increase in temperature. The threshold temperature for pursuing further investigations and initiating suppression measures is dependent upon the medium being measured.

- Gas
  - Any time a wellhead temperature equals or exceeds the New Source Performance Standards (NSPS) operating temperature of 131° Fahrenheit, a subsurface heating event investigation should be considered. See also Ohio EPA's guidance on Higher Operating Value (HOV) Demonstrations (<http://epa.ohio.gov/LinkClick.aspx?fileticket=kOn3aOhbQOo%3d&tabid=4489>).
  - Anaerobic methanogenesis ceases at temperatures above 140° Fahrenheit; therefore wellhead temperatures above 140° Fahrenheit can create additional concern related to the rate of decomposition of the waste or viability of recovering CH<sub>4</sub> as an energy source.
  - If a landfill is experiencing a rapid temperature change, even if the temperatures are below the levels of concern, further investigation is warranted.
  - Inter-well and intra-well gas temperature monitoring is useful for determining the vertical and horizontal extent of the heating front.

- Leachate
  - If above-typical leachate temperatures are observed, a subsurface heating event investigation may be warranted. Leachate temperatures above 100° Fahrenheit are cause for concern. Note: If the heated leachate is diluted by unaffected leachate, the temperature increase may not be detected.
  - Hot leachate and proximity of a subsurface heating event to the leachate collection system and liner raise concerns of potential impact on the integrity of engineered components.
    - A temperature monitoring program using temperature monitoring devices (thermocouples) within the leachate drainage system can be instituted to monitor risk of damage to the engineered components.
    - Inter-well leachate temperature monitoring can also be conducted for this purpose; however, it would not provide the same degree of confidence as using temperature monitoring devices in the leachate drainage system.
- Waste
  - Temperatures in the disposed material will likely be much higher than the gas temperatures measured at the well head. Waste temperatures above 170° Fahrenheit are positive indication of a subsurface heating event.

|                           |
|---------------------------|
| <b>Waste Temperatures</b> |
|---------------------------|

|                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Waste temperature can also be obtained with hand-held scanning devices when waste is brought to the surface during borehole drilling or sampling. |
|---------------------------------------------------------------------------------------------------------------------------------------------------|

- Infrared photography provides an overview of near surface temperature conditions at the landfill.
  - While infrared photography alone is not conclusive to determine the presence of a subsurface heating event, when coupled with other investigative techniques it can prove useful.
  - Infrared photography, with the proper resolution and benchmark surface temperature points, can identify the warmest areas near the landfill surface. This can help direct a temperature survey, gas analysis, and other investigations to the area most likely experiencing a subsurface heating event.
  - In some subsurface heating events, hot gases may use "wormholes," or small passages as pathways away from the heating event, that can lead to secondary heating events. These preferential pathways form a spider-web appearance in an infrared photo, which are otherwise difficult to detect.

Leachate Chemical Analysis

A change in leachate quality, or the presence of certain chemicals in the leachate, can be an early indicator of a subsurface heating event. However, leachate quality is normally assessed on an annual basis thus lessening its ability to be an early indicator. If a subsurface heating event is suspected, the owner or operator should monitor and evaluate leachate quality for changes.

### **Suppression of Subsurface Heating Events**

If measures to prevent subsurface heating events were inadequate and an incident occurs, affected parties can institute measures to minimize its propagation. It is important to act quickly to prevent or limit such negative impacts as toxic air emissions, smoke, and damage to engineered components. The following is a list of common techniques used to suppress a subsurface heating event or propagation of the heating front. Selection of a technique should be based on the specific nature of the incident and the structure of the landfill. Measures taken to decrease temperatures may work more rapidly to suppress the subsurface heating event than measures taken to exclude oxygen.

- Apply cover.
  - Soil. A thick layer of low permeability soil is often successful.
  - Waste is not recommended because it may combust, resulting in a surface fire.
  - FML could be effective if it will not be subject to high temperatures (could melt the FML) or differential settlement (could tear the FML). If damaged, FML is not as easy to repair as soil cover. FML can also mask settlement, slope failure indicators, and leachate outbreaks.
  - Shotcrete can be used on vertical faces where soil cannot be applied.
- Inject cooling agents or suppressants.
  - Foam. It is important to make sure the appropriate type of foam is used, one that will suppress, and not accelerate, the subsurface heating event. Reaching the subsurface heating event is difficult, and even if reachable, complete suppression may be unlikely.
  - Liquid. Dousing the landfill surface or injecting liquid into the landfill can overwhelm the leachate collection system, run-off can contaminate surface water, increased pore water pressure in the disposed material or engineered components can lead to a slope failure, and an exothermic chemical reaction can be exacerbated or initiated. Reaching the subsurface heating event is often difficult. To protect engineered components, a cool liquid could be flushed into the leachate collection system of a hot zone to keep temperatures down; however, reaching the area at risk could be difficult, and excessive depth of leachate on the liner could develop.
  - Gas. An inert gas can be injected, or the GCCS can be manipulated to reverse the flow of oxygen or redistribute cool gas to hot spots. Injection of inert gas can be expensive and distribution to all the hot spots may be difficult.
- Excavation of the hot waste is also a potential suppression method. However, with excavation comes the threat of flare ups from the introduction of oxygen. Foam, water, or other suppression methods may need to be used in conjunction with excavation. Excavation may not be a viable option if the subsurface heating event is very deep, extensive, or propagating too rapidly.
- Fire break. Excavation of waste ahead of the heating front.
- Gas collection and control system (GCCS) management.
  - Shutting down the extraction well and instituting a staged return to active use. This might only be effective if the subsurface heating event is caused by increased aerobic microbial activity due to over application of vacuum on the well, and if the heating event is addressed before the heating front propagates away from the well.
  - Shutting down extraction wells surrounding the impacted area and instituting a staged return to active use.



### Suggested Reading

Ohio EPA aluminum production waste advisories

[www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum\\_advisory.pdf](http://www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum_advisory.pdf) and

[www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum\\_advisory\\_2.pdf](http://www.epa.ohio.gov/portals/34/document/newsPDFs/aluminum_advisory_2.pdf)

Ohio EPA Higher Operating Value (HOV) Demonstrations guidance

<http://epa.ohio.gov/LinkClick.aspx?fileticket=kOn3aOhbQOo%3d&tabid=4489>

Landfill Fires Their Magnitude, Characteristics, and Mitigation —FEMA (May 2002)

[www.usfa.dhs.gov/downloads/pdf/publications/fa-225.pdf](http://www.usfa.dhs.gov/downloads/pdf/publications/fa-225.pdf)

Guidelines for Public Health Actions in Response to Landfill Fires, Appendix B in Landfill Gas Primer —  
Agency for Toxic Substances and Disease Registry (ATSDR)

[www.atsdr.cdc.gov/hac/landfill/html/appb.html](http://www.atsdr.cdc.gov/hac/landfill/html/appb.html)

Ignition Handbook, by Vytenis Babrauskas, PhD. Published by Fire Science Publishers, Issaquah WA, USA.  
Co-published by the Society of Fire Protection Engineers

Smouldering Combustion Phenomena in Science and Technology, by Guillermo Rein, published in *International Review of Chemical Engineering*, Vol 1, pp 3-18, January 2009

[www.era.lib.ed.ac.uk/handle/1842/2678](http://www.era.lib.ed.ac.uk/handle/1842/2678)

Understanding landfill fires, by Patrick Foss-Smith, published in *Waste Management World*, Volume 11, Issue 4, August 2010

Ignition and Suppression of Smouldering Coal Fires in Small-Scale Experiments, by R. Hadden and G. Rein, 6th Mediterranean Combustion Symposium, Ajaccio, June 2009

[www.see.ed.ac.uk/~grein/rein\\_papers/Hadden\\_SuppressingCoalfires\\_2009.pdf](http://www.see.ed.ac.uk/~grein/rein_papers/Hadden_SuppressingCoalfires_2009.pdf)

Investigation on the spontaneous combustion of refuse-derived fuels during storage using a chemiluminescence technique, by Atsushi Matunaga et al., published in *Waste Management & Research*; 2008; 26: 539-545

Self-Heating in Yard Trimmings: Conditions Leading to Spontaneous Combustion, by Richard Buggeln and Robert Rynk, published in *Compost Science and Utilization* (2002), Vol. 10, No. 2, 162-182

[www.cis.tennessee.edu/library/pdf/self\\_heating\\_yard\\_trimmings.pdf](http://www.cis.tennessee.edu/library/pdf/self_heating_yard_trimmings.pdf)

Geophysical-geochemical investigation of fire-prone landfills, by Vladimir Frid, Dmitri Doudkinski, et al., published on-line in *Environmental Earth Science* on 02 July 2009

<http://www.springerlink.com/content/h06172586500x677/>

Gas generation in incinerator ash, by Maria Arm and Johanna Lindeberg

[www.energiaskor.se/pdf-dokument/presentationer%202006/](http://www.energiaskor.se/pdf-dokument/presentationer%202006/arm_lindeberg_gas_generation_paper.pdf)

[arm\\_lindeberg\\_gas\\_generation\\_paper.pdf](http://www.energiaskor.se/pdf-dokument/presentationer%202006/arm_lindeberg_gas_generation_paper.pdf)

Physical, biological and chemical processes during storage and spontaneous combustion of waste fuel, by William Hoagland and Marcia Marques, published in *Resources Conservation & Recycling* 40(2003) 53-69

Effect of an uncontrolled fire and the subsequent fire fight on the chemical composition of landfill leachate, by Joar Karsten Oygard et al., published in *Waste Management*, 25(2005) 712-718

Treating Subsurface Landfill Fires, by Robert C. Stearns and Gaalen S. Petoyan, published in *Waste Age*, March 1984

Fighting a Landfill Fire, by Tony Sperling, *Waste Age*, Jan 2001

[http://wasteage.com/mag/waste\\_fighting\\_landfill\\_fire/](http://wasteage.com/mag/waste_fighting_landfill_fire/)

BEFORE  
THE OHIO POWER SITING BOARD

In the Matter of the Application of OREGON  
CLEAN ENRGY, LLC for a Certificate of )  
Environmental Compatibility and Public Need for ) Case No. 12-2959-EL-BGN  
an Electric Generating Facility in Oregon, Ohio. )  
Lucas County )

---

SUPPLEMENT TO APPLICATION

---

Applicant, Oregon Clean Energy, LLC ("OCE" or "Applicant"), filed its application in the above entitled matter on January 17, 2013. Applicant would like to supplement the information that it provided in the application concerning how natural gas will be supplied and transported to the Oregon Clean Energy Center (the "Center"). This information will supplement the information set forth in Section 4906-13-02 (A)(4).

- **Mechanics of Energy Tolling Agreement**

The Oregon Clean Energy Center (the "Center") is employing a commercial strategy for the sale of electric energy which is based on entering into Energy Tolling Agreements with selected counterparties. An Energy Tolling Agreement is a commercial power agreement in which the contractual counterparty (the "Buyer") pays a monthly fixed tolling payment to the Center in exchange for the right to convert natural gas fuel into electric energy subject to the operating characteristics of the Center. The general responsibilities and obligations of both the Buyer and the Center under an Energy Tolling Agreement are described below:

**Buyer Responsibilities:**

- Natural Gas Fuel Supply – Buyer has sole responsibility for delivering all natural gas fuel necessary to generate electric energy scheduled to be generated by the Center on behalf of Buyer. This obligation by Buyer includes the procurement of natural gas commodity and transportation required to deliver the required volumes of natural gas to the Center's meter station. In the event Buyer does not deliver natural gas sufficient to generate scheduled energy the Center has no obligation to generate energy scheduled by Buyer. In the case of the Center, which will have two physical tap-in locations, Buyer will be delivering natural gas from the ANR interstate pipeline system or the Pauhandle interstate pipeline system via the Center Lateral (discussed below) to the Center's meter station.
- Electric Transmission – Buyer has the sole responsibility for arranging for electric transmission service to deliver the scheduled energy to its ultimate point of sale. In the case of the Center, Buyer will be arranging for and procuring transmission on the PJM Transmission System.
- ISO Interface – Buyer will have primary responsibility for managing the day-to-day interactions with PJM related to the scheduling of energy deliveries from the Center and arranging financial settlements for the sale of energy to PJM or PJM Interconnected counterparties.
- Payments – Buyer will be responsible for paying to the Center a Fixed Monthly Tolling Payment and any applicable variable costs for items such as operations and maintenance expense, emissions allowance reimbursement, etc., that the Center incurs from converting Buyer's natural gas fuel into electric energy subject to the terms of the Energy Tolling Agreement.

- Scheduling – Buyer will be responsible for scheduling, on a daily basis, the delivery of natural gas fuel to the Center and the corresponding delivery of electric energy from the Center subject to the terms of the Energy Tolling Agreement.
- Center Responsibilities:
  - Permits – The Center is responsible for maintaining all permits necessary to lawfully operate an electric generating facility in the State of Ohio in a way which is in full compliance with such permits.
  - Facility Operation – The Center is responsible for operating and maintaining the facility in a commercially prudent manner such that the facility is available to generate electric energy scheduled by Buyer under the term of the Energy Tolling Agreement.
  - Generation of Electric Energy – The Center is responsible for generating electric energy scheduled by Buyer in the quantity requested by Buyer. In the event, Buyer fails to provide sufficient natural gas fuel to generate the schedule energy the Center is relieved of its obligation to deliver the quantity of electric energy requested by Buyer. In the event the Center is not physically capable of generating electric energy scheduled by Buyer due to a forced outage or force majeure event, Buyer will be entitled to receive damages, if any, pursuant to the terms of the Energy Tolling Agreement.
- **Commercial Strategy based on Energy Tolling Agreements**

As previously stated, OCE is employing a commercial strategy for the sale of electric energy which is based on entering into Energy Tolling Agreements with selected counterparties. OCE has retained NTE Solutions, LLC to coordinate and manage the execution of Energy Tolling Agreements on behalf of the Center. NTE Solutions, LLC

began the process of working with a number of potential counterparties during the third quarter of 2012 and has received viable proposals from a number of credible counterparties. The particulars of this process are described below:

- Procurement Process: – NTE Solutions, LLC, on behalf of OCE, began the procurement process related to Energy Tolling Agreements during the third quarter of 2012. NTE Solutions, LLC developed a detailed set of terms of conditions for an Energy Tolling Agreement, as described in the Mechanics of Energy Tolling Agreements, and distributed those terms and conditions to a wide variety of energy industry counterparties in order to obtain bids for the purchase of energy tolling rights from these counterparties. In response to this solicitation, NTE Solutions, LLC has received a number of viable proposals which provide significant financial benefit to the Center.
- Counterparty Requirements and Evaluation: - NTE Solutions, LLC, in conjunction with OCE, evaluated the Energy Tolling Agreement bids from each counterparty based on a number of critical components.
  - (i) Price – Overall economic value to the Center.
  - (ii) Commercial Capability – Commercial capabilities of the counterparty to perform in accordance with the responsibilities and terms of the Energy Tolling Agreements. This includes the ability to deliver required natural gas fuel to the Center and schedule delivery of resulting electric energy from the Center. Counterparties who were deemed not commercially capable were eliminated from consideration.

(iii) **Credit Worthiness** – Counterparties who do not have a credit rating sufficient to support financing of the Center were eliminated from consideration.

- **Contracting Process:** NTE Solutions, LLC and OCE are currently beginning preliminary negotiations with a number of the selected counterparties. OCE expects to enter into binding Energy Tolling Agreements with one or more of these counterparties to support financial close for the Center in the coming months.

- **Mechanics of Natural Gas Fuel Delivery (Interstate and the Center Lateral)**

As previously discussed, the Center is employing a commercial strategy for the sale of electric energy which is based on entering into Energy Tolling Agreements with selected counterparties under which the Buyer takes responsibility for providing natural gas fuel to Center. These Buyers will be required to use Interstate Natural Gas Transportation to deliver natural gas fuel to the Center Lateral and then will ultimately delivery natural gas fuel to the Center's meter station using transportation on the Center Lateral. Each component of this process, and the availability of transportation, is described below:

- **Natural Gas Requirement** – The Center will require 135 MMcf/d of natural gas fuel to operate at full output for one 24 hour period.
- **Interstate Natural Gas Transportation (Applicable Pipelines)** – Buyers will utilize some combination of firm, released firm, or interruptible transportation service on either the ANR interstate pipeline system or the Panhandle interstate pipeline system to deliver natural gas fuel to the Center Lateral.
- **Center Lateral** – OCE is currently in negotiations with an intrastate transportation provider for the construction and operation of the Center Lateral.

- (i) The Center Lateral will be a 24-inch natural gas lateral extending approximately 25 miles from its interconnection points with the ANR interstate pipeline system and the Panhandle interstate pipeline system near the Maumee Hub in northern Ohio to the Center meter station in Oregon, Ohio.
- (ii) The Center Lateral will have a 135 MMcf/d receipt point on the ANR interstate pipeline system.
- (iii) The Center Lateral will also have a 135 MMcf/d receipt point on the Panhandle interstate pipeline system.
- (iv) These dual interconnects provide Buyers with the capability to deliver natural gas fuel from both interstate pipeline systems to ensure fuel reliability to the Center and minimize impact to other natural gas customers.

- **Regional Availability of Natural Gas Fuel**

The northern Ohio area, and particularly the area around the Maumee Hub and Oregon, Ohio, provides Buyers with a variety of interstate pipeline options for the delivery of natural gas fuel to the Center. The Buyers with whom OCE is negotiating Energy Tolling Agreements, currently hold some combination of energy management agreements, firm transportation, variable transportation, and released capacity or secondary firm contracts with ANR pipeline system and/or Panhandle pipeline system. This transportation capacity, currently held by the Buyers, will be utilized to deliver natural gas fuel to the Center and does not represent the same firm or displace the firm interstate transportation held by the entities who serve residential, commercial, and industrial customers in Ohio.

In addition, natural gas suppliers who serve residential, commercial, and industrial customers in Ohio hold their own firm transportation capacity on ANR interstate pipeline system and/or Panhandle interstate pipeline system that is solely dedicated to serving the natural gas requirements of their customers. The combined firm transportation requirements for the Center and the residential, commercial, and industrial customers in Ohio can adequately and reliably be served by the current capacity on the ANR interstate pipeline system and/or the Panhandle interstate pipeline system. For example, in recent years, the total obligation of ANR for all its customers (both firm and non-firm) during the winter months was at or near the ANR Lines #511 and 515's maximum capacity. ANR has informed OCE that due to decreased natural gas requirements and customers releasing firm transportation beginning in the winter of 2012/2013, ANR alone will have 270 MMcf/d of excess firm summer time capacity and over 200 MMcf/d for the winter period beginning 2014/2015. This amount is nearly twice the quantity of natural gas required by the Center, which is 135 MMcf/d. Therefore, once the needs of current pipeline customers and the Center are met, the ANR pipeline system will still have nearly 100 MMcf/d of unused pipeline capacity available.

The Energy Tolling Agreements that the Center has, or will enter into, with the prospective Buyers that already hold firm transportation capacity on ANR interstate pipeline system and/or Panhandle interstate pipeline system, will be served from the current firm contracts that each of them already has with ANR and/or Panhandle. The Buyers will serve the Center from the up-to-now unused firm capacity that they are paying ANR and/or Panhandle for and which is already "counted" as part of the firm requirements on the ANR and/or Panhandle interstate



pipeline systems. Thus, there will be no additional firm capacity requirements placed upon ANR and/or Panhandle on account of the Center's agreements with ANR and/or Panhandle's existing transportation customers. The quantity of excess firm transportation capacity, between 200-270 MMcf/d on the ANR pipeline alone, is more than ample to supply the Center's maximum requirement of 135 MMcf/d without having any adverse impact on the residential, commercial, or industrial natural gas customers in Ohio.

Respectfully submitted on behalf of  
OREGON CLEAN ENERGY, LLC

*Sally W. Bloomfield*

---

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**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**3/13/2013 12:29:01 PM**

**in**

**Case No(s). 12-2959-EL-BGN**

**Summary: Text Oregon Clean Energy, LLC Supplement to Application electronically filed by  
Teresa Orahod on behalf of Sally Bloomfield**



**Bricker & Eckler**  
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March 6, 2013

Via Electronic Filing

Ms. Barcy McNeal  
Administration/Docketing  
Public Utilities Commission of Ohio  
180 East Broad Street, 11<sup>th</sup> Floor  
Columbus, Ohio 43215-3793

Re: **Oregon Clean Energy, LLC**  
Case No. 12-2959-EL-BGN

Dear Ms. McNeal:

Oregon Clean Energy, LLC, submits for the public record the attached letters regarding the regulatory status of North Coast Gas Transmission, LLC, the pipeline that would be transmitting the natural gas to the Oregon Clean Energy Center.

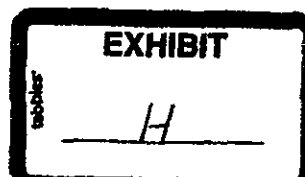
Please do not hesitate to contact me if you have any questions.

Sincerely,

Sally W. Bloomfield

Attachment

Cc: Chris Cunningham (w/Attachment)



# PIERCE ATWOOD

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March 6, 2013

William J. Martin  
Managing Partner  
Oregon Clean Energy, LLC  
20 Park Plaza, Suite #400  
Boston MA. 02116

RE: North Coast Gas Transmission, LLC

Dear Mr. Martin:

At your request, we have reviewed the attached letter from Vorys, Sater, Seymour and Pease LLP, counsel to North Coast Gas Transmission, LLC ("North Coast"), regarding the jurisdictional status of North Coast's natural gas pipeline facilities. Based on the representations in the letter, we agree with the letter's conclusions.

North Coast appears to qualify for the "Hinshaw exemption" under Section 1(c) of the Natural Gas Act and, as such, is not subject to Federal Energy Regulatory Commission jurisdiction. According to the letter, it receives gas within or at the border of Ohio, the gas it transports ultimately is consumed within the state, and its rates and services are subject to regulation by the Public Utilities Commission of Ohio. This would apply to the facilities North Coast would construct and utilize to provide natural gas service to the Oregon Clean Energy project as well.

It should be noted that our views are based solely on the representations in the attached letter and any changes in those representation may affect our conclusion.

Please contact us if you have any questions or if we can be of further assistance.

Very truly yours,  
Pierce Atwood, LLP



Randall S. Rich

Page 2  
March 6, 2013

Attachment

cc: John W. Gulliver  
Pierce Atwood LLP  
(With Attachment)

# VORYS

Vorys, Sater, Seymour and Pease LLP  
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March 6, 2013

Randall S. Rich  
Pierce Atwood LLP  
900 17th Street, N.W., Suite 350  
Washington DC 20006

Re: Regulatory Status of North Coast Gas Transmission, LLC

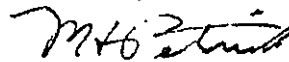
Dear Mr. Rich:

You have inquired as to the regulatory status of North Coast Gas Transmission, LLC ("North Coast"), an Ohio Intrastate Gas Pipeline. North Coast applied for a certificate to operate as a pipeline company in the state of Ohio on February 27, 2004. See *Public Utilities Commission of Ohio Case No. 04-265-PL-ATA*. Tariffs were filed on behalf of North Coast on March 30, 2004 and they were approved on October 29, 2004. Since that time North Coast has been operating as an intrastate pipeline company regulated by the Public Utilities Commission of Ohio.

A review of the service maps and service territory of North Coast indicates that all customers of North Coast are located in the state of Ohio and that once natural gas enters the North Coast system it physically cannot leave the state of Ohio. Further, the proposed service line to provide natural gas to the Oregon Clean Energy Project would also be within the state of Ohio, and if constructed and owned by North Coast subject to price, service term and safety regulation by the Public Utilities Commission of Ohio. Thus under Section 1(c) of the Natural Gas Act, jurisdiction over the North Coast system rests with the Public Utilities Commission of Ohio and not the Federal Energy Regulatory Commission.

If you have any other questions concerning this inquiry, please contact me.

Sincerely,



M. Howard Petricoff

MHP/jaw

cc: Lee Lochtefeld  
Michael Calderone  
Jerry Westerfield

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3/6/2013 3:53:24 PM

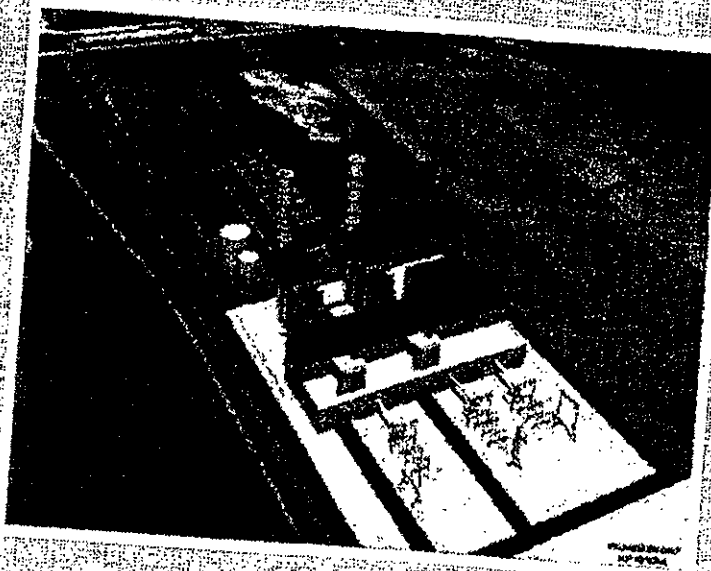
in

Case No(s). 12-2959-EL-BGN

Summary: Correspondence Regarding Regulatory Status of North Coast Gas Transmission electronically filed by Teresa Orahoad on behalf of Sally Bloomfield for Oregon Clean Energy, LLC

# Oregon Clean Energy Center

Application to the  
Ohio Power Siting Board  
For a Certificate of Environmental  
Compatibility and Public Need



Submitted by:  
Oregon Clean Energy, LLC

CASE NO. 12-2959-EL-BGN

January 2013



Oregon Clean Energy, LLC  
Natural Gas Energy for Ohio's Future





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January 17, 2013

Ms. Betty McCauly  
Administration/Docketing  
Ohio Power Siting Board  
180 East Broad Street, 11<sup>th</sup> Floor  
Columbus, Ohio 43215-3793

Re: **Oregon Clean Energy, LLC**  
**Case No. 12-2959-EL-BGN**

Dear Ms. McCauly:

Enclosed, please find an original and four copies of the Application of Oregon Clean Energy, LLC, a limited liability company, for a Certificate of Environmental Compatibility and Public Need for an Electric Generating Facility in Oregon, Ohio, Lucas County under Chapter 4906-13 of the Ohio Administrative Code (OAC). Pursuant to OAC Rule 4906-5-03(A)(3), the applicant makes the following declarations:

|                                                 |                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of Applicant:</b>                       | Oregon Clean Energy, LLC<br>whose member and manager is<br>William J. Martin<br>20 Park Plaza, Suite #400<br>Boston, MA 02116                                                                                                                                                                     |
| <b>Name/Location of<br/>Proposed Facility:</b>  | Oregon Clean Energy Center<br>Municipality of Oregon, Ohio                                                                                                                                                                                                                                        |
| <b>Authorized Representative<br/>Technical:</b> | William J. Martin<br>Oregon Clean Energy, LLC<br>20 Park Plaza, Suite #400<br>Boston, Massachusetts<br>Telephone: (617) 948-2165<br>E-mail: <a href="mailto:wmartin@cme-energy.com">wmartin@cme-energy.com</a> or<br><a href="mailto:wmartin2@vzw.blackberry.net">wmartin2@vzw.blackberry.net</a> |

Bricker & Eckler  
ATTORNEYS AT LAW

Ms. Betty McCauly  
January 17, 2013  
Page 2 of 2

**Authorized Representative**  
**Legal:**

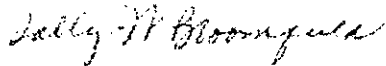
Sally W. Bloomfield  
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Since the pre application was filed, there have been no revisions that appear in the application.

**Notarized Statement:**

See Attached Affidavit of William J. Martin,  
on behalf of Oregon Clean Energy, LLC

Sincerely on behalf of  
OREGON CLEAN ENERGY, LLC



---

Sally W. Bloomfield

Attachment

In the Matter of the Application of **OREGON  
CLEAN ENERGY, LLC** for a Certificate of  
Environmental Compatibility and Public Need for  
an Electric Generating Facility in Oregon, Ohio,  
Lucas County )  
 )  
 ) Case No. 12-2959-EL-BGN  
 )

STATE OF MASSACHUSETTS :  
COUNTY OF MIDDLESEX: : ss.

1. I am executing this affidavit on behalf of Oregon Clean Energy, LLC as a member and manager.

3. To the best of my knowledge, information and belief, the information and materials contained in the above-referenced Application are true and accurate.

William J. Martin

Kathryn J. Jongo  
Notary Public

 **KATHRYN J. LONGO**  
Notary Public  
COMMONWEALTH OF MASSACHUSETTS  
My Commission Expires  
February 15, 2019

## Table of Contents

|                                                                           |             |
|---------------------------------------------------------------------------|-------------|
| <b>List of Acronyms and Abbreviations</b>                                 | <b>xiii</b> |
| <b>4906-13-01 Project Summary and Facility Overview</b>                   | <b>1</b>    |
| (A) PROJECT SUMMARY AND OVERVIEW                                          | 1           |
| (1) General Purpose of the Facility                                       | 1           |
| (2) Description of the Facility                                           | 1           |
| (3) Site Selection Process                                                | 3           |
| (4) Principal Environmental and Socioeconomic Considerations              | 4           |
| (a) <i>Potential Construction Impacts</i>                                 | 4           |
| (b) <i>Potential Operational Impacts</i>                                  | 7           |
| (5) Project Schedule                                                      | 8           |
| <b>4906-13-02 Project Description and Schedule</b>                        | <b>10</b>   |
| (A) DETAILED DESCRIPTION OF PROPOSED GENERATION AND ASSOCIATED FACILITIES | 10          |
| (1) Project Details                                                       | 10          |
| (a) <i>Generating Units</i>                                               | 10          |
| (b) <i>Land Area Requirements</i>                                         | 11          |
| (c) <i>Fuel Quantity and Quality</i>                                      | 11          |
| (d) <i>Plant Emissions</i>                                                | 12          |
| (e) <i>Water Requirements</i>                                             | 13          |
| (2) Description of Major Equipment                                        | 15          |
| (3) Transmission Line Interconnect                                        | 20          |
| (4) New Gas Transmission Line                                             | 21          |
| (B) DETAILED PROJECT SCHEDULE                                             | 22          |
| (1) Schedule                                                              | 22          |

## Table of Contents

|                                                             |           |
|-------------------------------------------------------------|-----------|
| (2) Delays                                                  | 22        |
| <b>4906-13-03 Site Alternatives Analysis</b>                | <b>23</b> |
| (A) SITE SELECTION STUDY                                    | 23        |
| (1) Site Selection Process                                  | 23        |
| (a) <i>Description of Study Area</i>                        | 23        |
| (b) <i>Study Area and Site Map</i>                          | 23        |
| (c) <i>Siting Criteria</i>                                  | 24        |
| (d) <i>Process for Identifying the Proposed Site</i>        | 24        |
| (e) <i>Factors in Selecting the Proposed Site</i>           | 26        |
| (2) Constraint Map                                          | 28        |
| (B) SUMMARY TABLE OF EVALUATED SITES                        | 28        |
| (C) ADDITIONAL SITE SELECTION STUDIES                       | 28        |
| <b>4906-13-04 Technical Data</b>                            | <b>29</b> |
| (A) SITE                                                    | 29        |
| (1) Geography and Topography                                | 29        |
| (2) Aerial Photograph                                       | 31        |
| (3) Site Mapping                                            | 31        |
| (4) Geology and Seismology                                  | 32        |
| (a) <i>Geological Issues</i>                                | 32        |
| (b) <i>Soils and Soil Suitability</i>                       | 35        |
| (5) Hydrology and Wind                                      | 41        |
| (a) <i>Characteristics of Directly Affected Waterbodies</i> | 41        |
| (b) <i>Potential for Flooding or High Wind Conditions</i>   | 43        |

## Table of Contents

|                                               |    |
|-----------------------------------------------|----|
| (c) <i>Aquifer Mapping</i>                    | 43 |
| (B) LAYOUT AND CONSTRUCTION                   | 44 |
| (1) Site Activities                           | 45 |
| (a) <i>Test Borings</i>                       | 45 |
| (b) <i>Removal of Vegetation</i>              | 45 |
| (c) <i>Grading and Drainage</i>               | 45 |
| (d) <i>Access Roads</i>                       | 45 |
| (e) <i>Removal and Disposal of Debris</i>     | 46 |
| (f) <i>Post-Construction Reclamation</i>      | 47 |
| (2) Layout                                    | 47 |
| (3) Structures                                | 47 |
| (a) <i>Dimensions</i>                         | 47 |
| (b) <i>Construction Materials</i>             | 48 |
| (c) <i>Color and Texture</i>                  | 48 |
| (d) <i>Pictorial Sketches</i>                 | 48 |
| (e) <i>Unusual Features</i>                   | 48 |
| (4) Plans for Construction                    | 48 |
| (5) Future Plans                              | 49 |
| (C) EQUIPMENT                                 | 49 |
| (1) Description of Major Generating Equipment | 49 |
| (a) <i>Combustion Turbine Generators</i>      | 49 |
| (b) <i>Steam Turbine Generator</i>            | 50 |
| (c) <i>Heat Recovery Steam Generators</i>     | 50 |

## Table of Contents

|     |                                                       |    |
|-----|-------------------------------------------------------|----|
| (d) | <i>Fuel Gas System</i>                                | 50 |
| (e) | <i>Steam System</i>                                   | 51 |
| (f) | <i>Condensate System</i>                              | 51 |
| (g) | <i>Feedwater System</i>                               | 51 |
| (h) | <i>Cooling Water System/Steam Condensing</i>          | 52 |
| (i) | <i>Closed Loop Auxiliary/Cooling Water System</i>     | 52 |
| (j) | <i>Fire Protection System</i>                         | 52 |
| (k) | <i>Water System</i>                                   | 53 |
| (l) | <i>Demineralizer</i>                                  | 53 |
| (m) | <i>Wastewater System</i>                              | 54 |
| (n) | <i>Backup Generation</i>                              | 54 |
| (o) | <i>Transformers</i>                                   | 54 |
| (2) | <b>Emissions Control and Safety Equipment</b>         | 55 |
| (a) | <i>Flue Gas Emissions Control</i>                     | 55 |
| (b) | <i>Equipment Reliability and Efficiency Reduction</i> | 56 |
| (c) | <i>Effluent Control Equipment</i>                     | 56 |
| (d) | <i>Public Safety Equipment</i>                        | 57 |
| (3) | <b>Other Major Equipment</b>                          | 57 |
| (a) | <i>Combustion Turbine Air Inlet Coolers</i>           | 57 |
| (b) | <i>Auxiliary Boiler</i>                               | 58 |
| (c) | <i>Fuel Gas Preheaters</i>                            | 58 |
| (d) | <i>Fire Water Pump – Diesel Engine Driven</i>         | 58 |
| (e) | <i>Oil/Water Separator</i>                            | 58 |

## Table of Contents

|                                                                          |           |
|--------------------------------------------------------------------------|-----------|
| <b>4906-13-05 Financial Data</b>                                         | <b>59</b> |
| (A) OWNERSHIP                                                            | 59        |
| (B) CAPITAL AND INTANGIBLE COSTS                                         | 59        |
| (1) Estimated Capital and Intangible Costs                               | 59        |
| (2) Capital Cost Comparison                                              | 59        |
| (3) Present Worth and Annualized Capital Costs                           | 60        |
| (C) OPERATION AND MAINTENANCE EXPENSES                                   | 60        |
| (1) Estimated Annual Operation and Maintenance Expenses                  | 60        |
| (2) Operation and Maintenance Expenses Comparison                        | 61        |
| (3) Present Worth and Annualized Operation and Maintenance Expenses      | 61        |
| (D) DELAYS                                                               | 61        |
| <b>4906-13-06 Environmental Data</b>                                     | <b>64</b> |
| (A) GENERAL                                                              | 64        |
| (B) AIR                                                                  | 64        |
| (1) Preconstruction                                                      | 64        |
| (a) <i>Description of Ambient Air Quality</i>                            | 64        |
| (b) <i>Description of Pollution Control Equipment</i>                    | 69        |
| (c) <i>Description of Regulatory Applicability</i>                       | 73        |
| (d) <i>Required Permits to Install and Operate Air Pollution Sources</i> | 82        |
| (e) <i>Air Monitoring Stations and Major Source Mapping</i>              | 83        |
| (f) <i>Demonstration of Regulatory Compliance</i>                        | 83        |
| (2) Construction                                                         | 84        |
| (3) Operation                                                            | 84        |



## Table of Contents

|     |                                                             |    |
|-----|-------------------------------------------------------------|----|
| (a) | <i>Description of Air Monitoring Plans</i>                  | 84 |
| (b) | <i>Estimated Air Concentration Isopleths</i>                | 84 |
| (c) | <i>Potential Failure of Air Pollution Control Equipment</i> | 86 |
| (C) | <b>WATER</b>                                                | 87 |
| (1) | <b>Preconstruction</b>                                      | 88 |
| (a) | <i>List of Permits</i>                                      | 88 |
| (b) | <i>Location of Survey Data Sources</i>                      | 88 |
| (c) | <i>Description of Data Sampling Stations</i>                | 88 |
| (d) | <i>Water Quality of Receiving Stream</i>                    | 88 |
| (e) | <i>Water Discharge Permit Information</i>                   | 89 |
| (2) | <b>Construction</b>                                         | 89 |
| (3) | <b>Operation</b>                                            | 90 |
| (D) | <b>SOLID WASTE</b>                                          | 92 |
| (1) | <b>Preconstruction</b>                                      | 92 |
| (2) | <b>Construction</b>                                         | 93 |
| (3) | <b>Operation</b>                                            | 93 |
| (4) | <b>Licenses and Permits</b>                                 | 94 |
|     | <b>4906-13-07 Social and Ecological Data</b>                | 95 |
| (A) | <b>HEALTH AND SAFETY</b>                                    | 95 |
| (1) | <b>Demographic Characteristics</b>                          | 95 |
| (2) | <b>Atmospheric Emissions</b>                                | 96 |
| (3) | <b>Noise</b>                                                | 96 |

## Table of Contents

|     |                                                                                           |     |
|-----|-------------------------------------------------------------------------------------------|-----|
| (a) | <i>Construction Noise Levels</i>                                                          | 103 |
| (b) | <i>Operational Noise Levels</i>                                                           | 107 |
| (c) | <i>Identification of Noise-Sensitive Areas</i>                                            | 108 |
| (d) | <i>Description of Equipment and Noise Mitigation Measures</i>                             | 108 |
| (4) | Water                                                                                     | 110 |
| (a) | <i>Construction and Operation Impacts to Public and Private Water Supplies</i>            | 110 |
| (b) | <i>Impact of Pollution Control Equipment Failure on Public and Private Water Supplies</i> | 111 |
| (B) | ECOLOGICAL IMPACT                                                                         | 112 |
| (1) | Site Information                                                                          | 112 |
| (a) | <i>Mapping</i>                                                                            | 112 |
| (b) | <i>Vegetation Survey</i>                                                                  | 113 |
| (c) | <i>Species Survey</i>                                                                     | 116 |
| (d) | <i>Ecological Study</i>                                                                   | 117 |
| (e) | <i>List of Major Species</i>                                                              | 119 |
| (2) | Construction                                                                              | 120 |
| (a) | <i>Impact of Construction on Undeveloped Areas</i>                                        | 120 |
| (b) | <i>Impact of Construction on Major Species</i>                                            | 121 |
| (c) | <i>Mitigation for Short-Term and Long-Term Construction Impacts</i>                       | 121 |
| (3) | Operation                                                                                 | 122 |
| (a) | <i>Impact of Operation on Undeveloped Areas</i>                                           | 122 |
| (b) | <i>Impact of Operation on Major Species</i>                                               | 123 |

## Table of Contents

|     |                                                                                |     |
|-----|--------------------------------------------------------------------------------|-----|
| (C) | ECONOMICS, LAND USE AND COMMUNITY DEVELOPMENT                                  | 123 |
| (1) | Land Use                                                                       | 123 |
| (a) | <i>Land Use Mapping</i>                                                        | 123 |
| (b) | <i>Residential Structures</i>                                                  | 124 |
| (c) | <i>Land Use Impact</i>                                                         | 124 |
| (d) | <i>Structures to be Removed or Relocated</i>                                   | 126 |
| (e) | <i>Formally Adopted Plans for Future Use of the Site and Surrounding Lands</i> | 126 |
| (f) | <i>Applicant Plans for Concurrent or Secondary Uses of the Site</i>            | 127 |
| (2) | Economics                                                                      | 127 |
| (a) | <i>Annual Total and Present Worth of Construction and Operation Payroll</i>    | 127 |
| (b) | <i>Construction and Operation Employment</i>                                   | 128 |
| (c) | <i>Increase in Local Revenue</i>                                               | 128 |
| (d) | <i>Economic Impact on Local Commercial and Industrial Activities</i>           | 128 |
| (3) | Public Services and Facilities                                                 | 130 |
| (4) | Impact on Regional Development                                                 | 132 |
| (a) | <i>Impact on Regional Development</i>                                          | 132 |
| (b) | <i>Compatibility with Regional Plans</i>                                       | 133 |
| (D) | CULTURAL IMPACT                                                                | 133 |
| (1) | Cultural Resource Mapping                                                      | 134 |
| (2) | Cultural Resource Impacts                                                      | 134 |
| (3) | Cultural Resource Landmarks                                                    | 134 |
| (4) | Land and Water Recreation Areas                                                | 136 |

## Table of Contents

|                                                                      |     |
|----------------------------------------------------------------------|-----|
| (5) Recreational Areas and Potential Impacts                         | 136 |
| (6) Measures to Minimize Visual Impacts                              | 136 |
| (E) PUBLIC RESPONSIBILITY                                            | 136 |
| (1) Public Interaction Program                                       | 136 |
| (2) Liability Compensation Plans                                     | 138 |
| (F) AGRICULTURAL DISTRICT IMPACT                                     | 138 |
| (1) Agricultural Land Mapping                                        | 138 |
| (2) Potential Impact to Agricultural Lands                           | 138 |
| (a) <i>Potential Constructoin, Operation and Maintenance Impacts</i> | 138 |
| (b) <i>Agricultural Mitigation Practices</i>                         | 139 |
| (3) Potential Impact on Agricultural Viability                       | 139 |

## Tables

|                                                                       |    |
|-----------------------------------------------------------------------|----|
| Table 01-1 Proposed Site Characteristics                              | 3  |
| Table 02-1 Fuel Characteristics                                       | 12 |
| Table 04-1 Soil Properties and Characteristics                        | 36 |
| Table 04-2 General Boring Information                                 | 37 |
| Table 05-1 Estimated Capital and Intangible Costs (\$1,000)           | 59 |
| Table 06-1 Background Air Quality Monitoring Stations                 | 65 |
| Table 06-2 Background Air Quality Data                                | 66 |
| Table 06-3 Maximum Calculated Project Impacts for Criteria Pollutants | 85 |
| Table 06-4 Project Consistency with POTW Standards                    | 91 |
| Table 07-1 Existing and Projected Populations                         | 95 |
| Table 07-2 City of Oregon Fixed Source Noise Threshold Limits         | 98 |

## Table of Contents

|                                                                                   |     |
|-----------------------------------------------------------------------------------|-----|
| Table 07-3 Existing Ambient Noise Levels at Measurement Location 1 – October 2012 |     |
| Noise Monitoring Data Summary                                                     | 100 |
| Table 07-4 Existing Ambient Noise Levels at Measurement Location 2 – October 2012 |     |
| Noise Monitoring Data Summary                                                     | 101 |
| Table 07-5 Measured Existing 15-minute Noise Levels at Sensitive Receptors on     |     |
| October 16 <sup>th</sup> , 2012                                                   | 103 |
| Table 07-6 Proposed Construction Equipment Sound Levels                           | 104 |
| Table 07-7 Oregon Clean Energy Construction Noise Impacts                         | 106 |
| Table 07-8 Vegetation Recorded On and Adjacent to the Site                        | 113 |
| Table 07-9 Land Use within a One-Mile Radius of the Site                          | 125 |

## List of Figures

### Section 4906-13-01 – Project Summary and Facility Overview

- Figure 01-1 – Project Location

### Section 4906-13-02 – Project Description and Schedule

- Figures 02-1A through 02-1G – Project Area within Five Miles
- Figure 02-2A – Proposed Project and Vicinity (Mitsubishi) and B (Siemens)
- Figures 02-3A and 02-3B – Plot Plan
- Figure 02-4A through 02-4C –Rendering
- Figure 02-5 – Preliminary Water Balance
- Figure 02-6 – Location of Water Treatment Facility Relative to the Site
- Figure 02-7 – Overall Electrical One-Line Diagram
- Figure 02-8 – Project Schedule

### Section 13-03 – Site Alternatives Analysis

- Figure 03-1 – Site Selection Constraint Map

### Section 13-04 – Technical Data

- Figure 04-1 – Site Survey Map
- Figure 04-2 – Soils and Floodplain Map

## Table of Contents

- Figure 04-3– Soil Boring Locations
- Figure 04-4 – Geological Cross-Section
- Figure 04-5 – Wind Rose
- Figure 04-6 – Aquifers, Water Wells, Oil and Gas Wells and Drinking Water Source Protection Areas

### Section 13-05 – Financial Data

- No figures

### Section 13-06 – Environmental Data

- Figure 06-1 – Air Monitoring Stations and Major Source Mapping
- Figure 06-2 – Air Modeling Isopleths: Annual  $\text{NO}_2$
- Figure 06-3 – Air Modeling Isopleths: 1-hour  $\text{NO}_2$
- Figure 06-4 – Air Modeling Isopleths: 8-hour CO
- Figure 06-5 – Air Modeling Isopleths: 1-hour CO
- Figure 06-6 – Air Modeling Isopleths: Annual  $\text{PM}_{2.5}$
- Figure 06-7 – Air Modeling Isopleths: 24-hour  $\text{PM}_{2.5}$
- Figure 06-8 – Air Modeling Isopleths: Annual  $\text{PM}_{10}$
- Figure 06-9 – Air Modeling Isopleths: 24-hour  $\text{PM}_{10}$
- Figure 06-10 – Air Transportation Facilities

### Section 13-07 – Social and Ecological Data

- Figure 07-1 – Ambient Noise Monitoring Locations
- Figure 07-2 – Mitsubishi Layout Mitigated Noise Impact Contours
- Figure 07-3 – Siemens Layout Mitigated Noise Impact Contours
- Figure 07-4 – Natural Resource Characteristics of the Site and Surroundings
- Figure 07-5 – Delineated Surface Water Resources
- Figure 07-6 – Surrounding Land Use
- Figure 07-7 – City of Oregon Zoning
- Figure 07-8 – City of Oregon Planned Land Use
- Figure 07-9 – Cultural and Recreational Areas
- Figure 07-10 – Agricultural Land

## **Table of Contents**

### **List of Appendices**

- Appendix A: Stormwater Analysis
- Appendix B: Geotechnical Report
- Appendix C: Noise Report
- Appendix D: Wetland and Surface Water Report
- Appendix E: Economic and Fiscal Impact Report
- Appendix F: Cultural Resource Report

## LIST OF ACRONYMS AND ABBREVIATIONS

|                   |                                                         |
|-------------------|---------------------------------------------------------|
| %                 | percent                                                 |
| °F                | degrees Fahrenheit                                      |
| AERMOD            | A USEPA steady-state air quality dispersion plume model |
| AMP               | American Municipal Power                                |
| ANSI              | American National Standards Institute                   |
| ASTM              | American Society for Testing and Materials              |
| ATV               | all-terrain vehicle                                     |
| BACT              | Best Available Control Technology                       |
| BAT               | Best Available Technology                               |
| BMP               | Best Management Practice                                |
| BP                | British Petroleum                                       |
| Btu               | British thermal units                                   |
| CAIR              | Clean Air Interstate Rule                               |
| CEMS              | Continuous Emissions Monitoring System                  |
| CFR               | Code of Federal Regulations                             |
| CH <sub>2</sub> O | formaldehyde                                            |
| CI                | compression ignition                                    |
| C-I Zone          | Commercial-Industrial Zone                              |
| CO                | carbon monoxide                                         |
| CSAPR             | Cross-State Air Pollution Rule                          |
| CTG               | combustion turbine generator                            |
| dB                | decibel                                                 |
| dBA               | A-weighted decibel                                      |
| DLN               | dry low NO <sub>x</sub>                                 |
| EIF               | Energy Investors Fund                                   |
| FAA               | Federal Aviation Administration                         |
| the Facility      | Oregon Clean Energy Center                              |
| FERC              | Federal Energy Regulatory Commission                    |
| FuA               | Fulton silty clay loam                                  |
| GAAP              | Generally Accepted Accounting Principles                |



|                                |                                                                    |
|--------------------------------|--------------------------------------------------------------------|
| g/hp-hr                        | grams per horsepower-hour                                          |
| g/kW-hr                        | grams per kilowatt-hour                                            |
| gpd                            | gallons per day                                                    |
| gpm                            | gallons per minute                                                 |
| HAP                            | hazardous air pollutant                                            |
| HHV                            | higher heating value                                               |
| HRSG                           | heat recovery steam generator                                      |
| H <sub>2</sub> SO <sub>4</sub> | sulfuric acid mist                                                 |
| Hz                             | Hertz                                                              |
| IPP                            | Independent Power Project                                          |
| ISO                            | International Standards Organization                               |
| kV                             | kilovolt                                                           |
| kW                             | kilowatt                                                           |
| kWh                            | kilowatt-hour                                                      |
| lb/MMBtu                       | pounds per million British thermal units                           |
| lb/MW-hr                       | pounds per megawatt-hour                                           |
| Lc                             | Latty silty clay                                                   |
| L <sub>eq</sub>                | Equivalent steady sound level of a noise energy-averaged over time |
| MACT                           | Maximum Achievable Control Technology                              |
| mgd                            | million gallons per day                                            |
| MMBtu/hr                       | million British thermal units per hour                             |
| mph                            | miles per hour                                                     |
| MW                             | megawatts                                                          |
| MWh                            | megawatt-hour                                                      |
| NAAQS                          | National Ambient Air Quality Standards                             |
| NAVD88                         | North American Vertical Datum of 1988                              |
| NESHAP                         | National Emission Standards for Hazardous Air Pollutants           |
| NFPA                           | National Fire Protection Association                               |
| ng/J                           | nanograms per Joule                                                |
| NH <sub>3</sub>                | ammonia                                                            |
| NO                             | nitric oxide                                                       |

|                   |                                                                      |
|-------------------|----------------------------------------------------------------------|
| NO <sub>2</sub>   | nitrogen dioxide                                                     |
| NO <sub>x</sub>   | nitrogen oxides                                                      |
| NPDES             | National Pollutant Discharge Elimination System                      |
| NRHP              | National Register of Historic Places                                 |
| NSPS              | New Source Performance Standards                                     |
| NSR               | New Source Review                                                    |
| O <sub>3</sub>    | ozone                                                                |
| OAC               | Ohio Administrative Code                                             |
| OCE               | Oregon Clean Energy, LLC                                             |
| ODOT              | Ohio Department of Transportation                                    |
| ODNR              | Ohio Department of Natural Resources                                 |
| Ohio EPA          | Ohio Environmental Protection Agency                                 |
| OHPO              | Ohio Historic Preservation Office                                    |
| O&M               | Operations & Maintenance                                             |
| OPSB              | Ohio Power Siting Board                                              |
| OSHA              | Occupational Safety and Health Administration                        |
| Pb                | lead                                                                 |
| PJM               | the regional electric transmission Independent System Operator       |
| PM                | particulate matter                                                   |
| PM <sub>10</sub>  | particulate matter with a diameter less than or equal to 10 microns  |
| PM <sub>2.5</sub> | particulate matter with a diameter less than or equal to 2.5 microns |
| POTW              | publicly owned treatment works                                       |
| ppmv              | parts per million by volume                                          |
| ppmvd             | parts per million volume dry basis                                   |
| the Project       | Oregon Clean Energy Center                                           |
| PSD               | Prevention of Significant Deterioration                              |
| PTI               | Permit to Install                                                    |
| RICE              | Reciprocating Internal Combustion Engine                             |
| RQD               | Rock Quality Designation                                             |

|                 |                                               |
|-----------------|-----------------------------------------------|
| scf             | standard cubic feet                           |
| SCR             | selective catalytic reduction                 |
| SIL             | Significant Impact Level                      |
| SO <sub>2</sub> | sulfur dioxide                                |
| SO <sub>x</sub> | sulfur oxides                                 |
| STG             | steam turbine generator                       |
| tpy             | tons per year                                 |
| TTL             | TTL Associates, Inc.                          |
| UL              | Underwriters' Laboratory                      |
| U.S.            | United States                                 |
| USACE           | United States Army Corps of Engineers         |
| USEPA           | United States Environmental Protection Agency |
| USFWS           | United States Fish and Wildlife Service       |
| USGS            | United States Geological Survey               |
| VOC             | volatile organic compounds                    |

## **4906-13-01 Project Summary and Facility Overview**

---

### **(A) PROJECT SUMMARY AND OVERVIEW**

Oregon Clean Energy, LLC (OCE) is proposing to develop, finance, build, own and operate the Oregon Clean Energy Center (the Project or Facility), a new natural gas-fired combined-cycle generating facility located in Lucas County, Ohio (Figure 01-1).

#### **(1) General Purpose of the Facility**

The Oregon Clean Energy Center will help meet energy demand in the region, particularly in light of the planned retirement of 1,611 megawatts (MW) of existing coal-fired generating assets currently serving that need (Bay Shore, Ohio; Avon Lake, Ohio; and J. R. Whiting, Michigan). The Oregon Clean Energy Center will help meet this need by providing additional base load and peaking capability via its natural gas-fired combined-cycle technology.

#### **(2) Description of the Facility**

The Oregon Clean Energy Center is identified in its PJM interconnection application as a nominal 799 net MW (unfired International Standards Organization [ISO] conditions) energy facility and will utilize advanced gas turbine/steam turbine, combined-cycle technology to generate electricity. When the two gas turbines are fired at their maximum capability and the heat recovery steam generators (HRSGs) are operated using auxiliary firing, the maximum net plant output will remain at approximately 799 MW, even under summer operating conditions. Because a final combustion turbine vendor has not yet been selected, layouts based on both Mitsubishi and Siemens technology have been provided in this application. Although differences in layout details

)

exist and are shown, the environmental impacts are similar between the two options; where impacts differ, it will be noted in the application narrative.

The Project is designed to operate solely on natural gas. The Project will not be capable of operating on fuel oil. OCE has determined that, due to the high level of reliable natural gas delivery to the Project, a back-up fuel such as fuel oil is not required. Gas turbine and steam turbine power generating equipment will be located indoors, making the Project visually pleasing and a quiet neighbor.

The proposed location for the Oregon Clean Energy Center consists of an irregularly shaped parcel of land, totaling approximately 30 acres, located entirely within Lucas County on North Lallendorf Road in the City of Oregon, Ohio (the Site). Located approximately 4.25 miles northeast of Interstate 280 and 2 miles north of Route 2, access to the Site is good. Its setting is within a mixed industrial, commercial and agricultural area that is located east of North Lallendorf Road, west of farmland located at 4632 Cedar Point Road, north of the Norfolk Southern Railroad, and south of the John Gradel and Sons' Farms. The Site is commercially/industrially zoned within the Cedar Point Development Park, a designated Foreign Trade Zone. First Energy-owned 345 kilovolt (kV) transmission lines extend in an east-west direction just to the north of the Site. The eastern edge of the Site is transected by Johlin Ditch, while Driftmeyer Ditch extends across the western portion of the Site. Both ditches flow north to Maumee Bay of Lake Erie, located less than 2 miles north of the Site. Existing Site elevation is approximately 588 feet (NAVD88).

Pearson Park is located approximately 1.5 miles south of the Site, Collins Park is 1.5 miles west-southwest of the Site, and East Shore Veterans Park and Maumee Bay

State Park are approximately 2 miles east-northeast of the Site. Further east-northeast, along the shore of Lake Erie, are the Mallard Club Wilderness Area and Cedar Point National Wildlife Refuge.

### (3) Site Selection Process

The Site selection process is described in greater detail in Section 4906-13-03. As outlined in that section, OCE's market knowledge identified this region of Ohio as one where the planned shutdown of existing coal-fired capacity will create the need for clean, efficient power generation. The City of Oregon and the proposed Site were selected based on consideration of a range of key characteristics for a successful Project. Upon identification of this Site, additional scrutiny of a range of issues was undertaken prior to initiating the engineering and environmental activities necessary for completion of the Ohio Power Siting Board (OPSB) application.

Key characteristics of the proposed Site that makes it suitable for Project development are outlined in Table 01-1.

**TABLE 01-1**  
**Proposed Site Characteristics**

| <b>Key Attribute</b>                                | <b>Site Conditions</b>                                                                                                                                                                                                                   |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adequate Size                                       | Adequate space for Facility layout exists within the 30-acre Site. An additional 30.5-acre adjacent parcel, controlled by OCE, is available for potential construction laydown use and the proposed electrical interconnection corridor. |
| Compatible Zoning and Land Use                      | The Site is within a Commercial-Industrial zone intended for the type of use proposed and is surrounded by mixed uses, including several industrial facilities.                                                                          |
| Natural Gas Alternatives                            | At least five strong alternatives exist for providing natural gas to the Project site, to be permitted by others.                                                                                                                        |
| Short Distance to Robust Electrical Interconnection | An approximately 550-foot interconnection corridor will extend on the adjacent parcel, controlled by OCE, to reach the existing First Energy 345 kV transmission lines. Dual connection is planned, allowing power to access need.       |

| Key Attribute                                 | Site Conditions                                                                                                                                                                                                                                                          |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adequate Water Supply                         | Raw water is to be provided by the City. Adequate water is available to the City such that community water use will not be affected. Potable water connection is available from the City to meet the Project's low domestic and internal steam cycle water requirements. |
| Feasible Wastewater Discharge                 | The Project can discharge to existing City infrastructure, meeting existing industrial discharge requirements.                                                                                                                                                           |
| Strong Transportation Network                 | The adjacent rail line provides opportunity for heavy equipment deliveries during construction. Port access and a roadway infrastructure with significant loading capacity are also beneficial.                                                                          |
| Lack of Significant Environmental Constraints | The Site is located within an air quality attainment area, and has limited ecological constraints. The Project can be accommodated with limited environmental impact.                                                                                                    |

#### (4) Principal Environmental and Socioeconomic Considerations

OCE has evaluated the impacts of the proposed Project's construction and operation on the environment and on the community. Topics evaluated include: air quality, water resources, solid waste, demographics, noise, ecology, land use, economics (including employment), cultural resources and agricultural districts.

##### (a) Potential Construction Impacts

Construction impacts have been minimized through the selection of a Site that is relatively flat, requires no significant tree clearing, and has wetlands/waterways limited to within the banks of the two on-site ditches. Floodplain is also restricted to within the banks of Driftmeyer Ditch and does not extend further onto the Site. Utility infrastructure and natural gas interconnection routes (provided by others) are anticipated to be available that will minimize the need for clearing and the potential for other environmental resource impacts. The electric transmission interconnection will extend a short distance north to an

existing transmission corridor over property similar in character to the Project Site.

Although the Site is in active agricultural use, it is not within a designated agricultural district; no impact to such area is, therefore, anticipated to occur as a result of the Project. No impacts to cultural resources are anticipated. An on-site archaeological investigation has been completed for the Site to confirm that there are no significant on-site artifacts. The report of this investigation is pending acceptance by the Ohio Historic Preservation Office (OHPO), and will be updated to include consideration of any off-Site parcels, as applicable, as potential impact areas are confirmed.

A number of park, recreation and open space areas are present around the Site vicinity but no negative impact is anticipated. Just beyond a mile northeast of the site is the Eagles Landing Golf Club, an 18-hole public golf course. About 2.5 miles northeast of the site is Maumee Bay State Park, a 1,336-acre park that offers camping, hiking, fishing, boating and swimming. Maumee Bay Golf Course is an 18-hole public golf course inside Maumee Bay State Park.

About 5 miles northeast of the Site is the 402-acre Mallard Club Marsh Wildlife Area, which supports hunting, fishing and trapping. The wildlife area consists of six marshlands separated by dikes and is managed to provide wetland vegetation that sustains a variety of wildlife. A portion of the marsh borders Maumee Bay on Lake Erie. Just east of the wildlife area is Cedar Point National Wildlife Refuge. Cedar Point National Wildlife Refuge was donated to the United States Fish and Wildlife Service (USFWS) in 1964 by the owners of the



Cedar Point Shooting Club. Currently, the refuge consists of 2,445 acres of three marshes, including the largest contiguous marsh in Ohio's Lake Erie marshes. Most of the refuge is closed to the public; however, a fishing area is open from June through August.

Approximately 1 mile south of the Site is Pearson Metropark, part of the Toledo Area Metropark system. Pearson Metropark is one of the last remaining stands of the Great Black Swamp that once covered much of northwest Ohio. The thick woods and location close to Lake Erie make Pearson an important stopover for migrating birds. The park includes buildings, shelters, bridges, ponds and a garden with a waterfall. A wetland mitigation bank, part of a 300-acre addition to Pearson Metropark, is located north of Starr Avenue. This area will continue to be developed with a range of wetland types to offset unavoidable impacts to similar wetland resources.

Approximately 1.5 miles west of the Site is Collins Park, a 9-hole public golf course. About 2.5 miles southwest of the Site is Ravine Park and Hecklinger Pond.

During construction, air quality impacts will be limited to relatively minor emissions from the construction equipment required for Site preparation and from fugitive dust emissions. Impacts to water quality will also be extremely limited, with no direct impacts to wetlands or surface waters proposed. The Project will obtain general permit coverage for construction under the National Pollutant Discharge Elimination System (NPDES) and will implement Best Management Practices (BMPs) to maintain water quality standards and minimize erosion and

sediment control. Solid waste generated by Project construction will be minimized and removed from the Site by licensed haulers and disposed of at local or regional approved facilities. Traffic will increase during the 32 to 36-month construction period. In order to minimize potential effect on the community, OCE will coordinate with local officials to ensure that shift times and travel routes are optimized to the extent possible.

*(b) Potential Operational Impacts*

Following construction, impacts will also be minimal. Operational impacts on air quality will be minimized through the use of efficient new gas turbine technology, and incorporating dry-low nitrogen oxide (DLN) combustors, oxidation catalysts and selective catalytic reduction (SCR). The Project will not be equipped to burn liquid fuel, thereby ensuring low emission rates throughout its operating life. All air quality impacts will be below United States Environmental Protection Agency (USEPA) significant impact levels (SILs) (see Table 06-3). Noise impacts associated with the Project will comply with the City's Commercial-Industrial zone requirement of 75 A-weighted decibels (dBA) at the Project property line. Sound-generating equipment will be at least 970 feet from the nearest residential property, which is a non-conforming use within the Commercial-Industrial zone. All solid waste generated during Project operation will be minimized and removed from the Site by licensed haulers and disposed of at local or regional approved facilities. Project-related traffic will be minimal once the Facility is operational, with only approximately 25 employees and Facility-related deliveries traveling to and from the Site on a regular basis.

The Project is expected to have a significant positive impact on the local economy since it will pay for local services utilized, as well as contribute to the local tax base. The Project will utilize municipal raw water supplies available from the City of Oregon, eliminating the need for a new surface water intake structure or groundwater well. The Project will purchase a lesser amount of potable water from the City for use in the Project's internal steam cycle as well as for sanitary purposes. Process wastewaters generated by the Project will be directly discharged to the City of Oregon's wastewater collection system and Publicly Owned Treatment Works (POTW) and will comply with existing POTW pretreatment requirements protective of water quality.

#### **(5) Project Schedule**

The Oregon Clean Energy Center schedule is based on the submission of this Application in January 2013, the issuance of the OPSB certificate by June 2013, and the commencement of commercial operation by May 2016. It is crucial that the Oregon Clean Energy Center be in operation by May 2016 in order to meet the anticipated summer peak load demands within the PJM marketplace.

Any delay in the issuance of the OPSB certificate would have a significant negative commercial impact on the Project's planned summer 2016 operations and would jeopardize the Project's ability to meet contractual PJM needs, as well as lowering the available capacity during critical summertime.

OCE intends to bid into PJM's Capacity Auction in May 2013, for delivery of Facility capacity in summer 2016 – 17. As part of this bid process, OCE will be making guarantees to PJM that the Project will be operational by May 2016. If development delays occur, including issuance of permits, OCE will

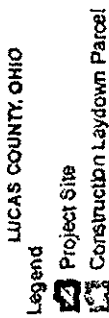
be subject to substantial financial penalties by PJM, since PJM would be relying upon capacity not operational when needed the most.

OCE is confident that this schedule is achievable and that the Oregon Clean Energy Center will be producing electricity on May 1, 2016 when the State of Ohio needs new electricity resources.

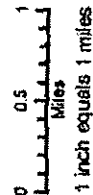
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**Figure – Section 4906-13-01**

- Figure 01-1 – Project Location



Topographic Base Image Source: ArcGIS Online  
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# ARCADIS

**OREGON CLEAN  
ENERGY CENTER**

**FIGURE 01-1**

PROJECT LOCATION

## **4906-13-02 Project Description and Schedule**

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### **(A) DETAILED DESCRIPTION OF PROPOSED GENERATION AND ASSOCIATED FACILITIES**

Figure 02-1A through 02-1G identifies the proposed Facility; major population centers and administrative boundaries; major transportation routes and utility corridors; named rivers, streams and other bodies of water; and major institutions, parks, and recreational areas within a 5-mile radius of the Site. As discussed in Section 4906-13-01, Project configurations reflecting two potential turbine vendors (Mitsubishi and Siemens) are under consideration. Figures 02-2A and 02-2B illustrate the proposed Project and vicinity on an aerial photograph overlay for the Mitsubishi and Siemens technology, respectively, showing surrounding road names and major features of the proposed Project. Additional detail is provided in Figures 02-3A and 03B, plot plans which focus on the primary Facility footprint and label the various Facility components for the Mitsubishi and Siemens layouts, respectively. A computer generated color rendering of the Project is included as Figure 02-4.

#### **(1) Project Details**

##### ***(a) Generating Units***

The Oregon Clean Energy Center is designed to be a net 799 MW (unfired at ISO conditions) power plant and will consist of two Siemens SGT6-8000H or Mitsubishi 501GAC combustion turbine generators each capable of generating a nominal approximately 270 MW. The Oregon Clean Energy Center will be capable of operating up to 8,760 hours per year, although its actual hours of operation will be dependent upon energy needs in the region and will incorporate downtime for planned and unplanned maintenance events. Based on power

market data for northwestern Ohio, it is anticipated that the Project will initially operate at least 70 – 75 percent of the year. The Project will also include one three-pressure HRSG with auxiliary duct burners for each of the two combustion turbines and one reheat, condensing steam turbine generator utilized by both HRSGs. The Project will be designed to operate in combined-cycle mode only. The maximum net output of the Project can be maintained at 799 MW at a 95°F ambient temperature due to two factors: power augmentation of the two gas turbines and auxiliary firing of the two HRSGs using natural gas.

***(b) Land Area Requirements***

The Oregon Clean Energy Center will be located on a 30-acre Site, of which approximately 16.5 acres is needed for the Facility itself. An additional 30.5-acre parcel, controlled by OCE, is located immediately east of the Project Site, which can be used for temporary construction laydown and will likely be the location of the Project's electrical interconnection corridor.

***(c) Fuel Quantity and Quality***

The fuel will be natural gas supplied at an approximate pressure of 535 pounds per square inch gauge (psig). The natural gas provider will deliver fuel to the Oregon Clean Energy Center metering station to be located onsite. A liquids removal, preheating system (as required), and gas compression system will be installed as a part of the natural gas fuel system. Table 02-1 is a summary of the natural gas characteristics.



**TABLE 02-1**  
**Fuel Characteristics**

| Characteristic                                                                | Natural Gas |
|-------------------------------------------------------------------------------|-------------|
| Ash (%)                                                                       | --          |
| Sulfur Content (grains per 100 dry standard cubic feet)                       | 0.5         |
| British thermal unit (Btu) Value (Btu/cubic foot, higher heating value [HHV]) | 1,006       |

*(d) Plant Emissions*

Construction impacts on air quality will consist mainly of relatively minor emissions from the construction equipment required for site preparation and from fugitive dust emissions. General construction vehicles (both gasoline- and diesel-powered) and other diesel-powered engines will emit insignificant amounts of volatile organic compounds (VOC), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM). These emissions are not expected to cause any significant adverse impacts onsite or beyond the Site boundary.

Atmospheric dispersion modeling has been performed to predict maximum concentrations for a range of Project operating conditions, and has confirmed that Project impacts will be below SILs. The model accounts for emission rates, stack height, exhaust parameters, meteorological data (wind speed, direction, atmospheric stability, and temperature), and the topography around the Project site. The Project stacks will be no taller than 240 feet. The following is a

list of the federal criteria pollutants that will be emitted from the Facility: SO<sub>2</sub>, particulate matter with a diameter of less than 10 microns (PM<sub>10</sub>), particulate matter with a diameter of less than 2.5 microns (PM<sub>2.5</sub>), NO<sub>x</sub>, CO and VOCs. Several non-criteria pollutants will be emitted, including sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>), ammonia (NH<sub>3</sub>), and formaldehyde (CH<sub>2</sub>O).

The air pollution controls proposed for this Project are proven technologies. The primary control devices include both low-NO<sub>x</sub> burners in each of the two gas turbines and SCR systems and oxidation catalysts in each of the two HRSGs. The SCRs and oxidation catalysts reduce emissions of both NO<sub>x</sub> and CO to 2 parts per million by volume (ppm<sub>v</sub>). In addition, emissions from the Project will be continuously tracked using a Continuous Emissions Monitoring System (CEMS). In the unlikely event of a control equipment failure, it would be immediately detected by the distributed control system and corrective actions would be initiated. It is unlikely that any unforeseen outage of pollution control systems would result in a significant impact before corrective actions could be taken.

*(e) Water Requirements*

The Project has selected a closed loop cooling system employing a wet cooling tower. This system has been identified as an appropriate water use option that maintains the economic viability of the Project and balances other resource issues. Comparable generation using once-through cooling would likely require around 250 million gallons per day (mgd) compared to the Project's estimated

maximum withdrawal of around 6.7 mgd. Detailed water balances for the Project are provided in Figure 02-5.

Cooling and fire protection water for the Project will utilize raw water from the City of Oregon that is withdrawn from Lake Erie under the City's existing permit. The raw water will be diverted from the headworks of the City's water treatment plant located at 935 North Curtice Road in Oregon (Figure 02-6). The City will construct the appropriate equipment and piping to redirect raw water to the Project site, located approximately 3.5 miles west of the City's water treatment plant. The City will be responsible for identifying and securing the needed rights-of-way to construct the new City-owned raw water pipe that will transport water from the City's water treatment plant to the Project site. The City's new raw water line will deliver water to the eastern boundary of the Project Site. The Project's infrastructure (piping, valves, meter and tanks) will be connected to the City's pipeline at that location. Commercial arrangements between OCE and the City are currently being developed; the Project intends to reimburse the City for design, construction and start-up costs. Once the Project is operational, OCE will purchase raw water from the City.

The Project's raw water needs will range from a high of approximately 6.7 mgd in the summer to a low of approximately 2.6 mgd in the winter. Raw water will be required when the Project is operational, which is initially expected to be approximately 70 to 75 percent of the year. The City has confirmed that supplying this raw water need to the Project will not adversely affect its ability to serve other water needs in the community.

The City of Oregon will also supply potable water to the Project from its existing infrastructure located in North Lallendorf Road. Potable water demand will seasonally range from 70,000 gallons per day (gpd) to 152,000 gpd, and will be used for sanitary purposes as well as HRSG and auxiliary boiler make-up.

Wastewater discharge will also vary seasonally, from approximately 0.6 to 1.7 mgd. Discharge of Project wastewaters will utilize existing municipal sewer piping located in North Lallendorf Road; wastewater flows will discharge to the existing Oregon POTW in accordance with pretreatment and City requirements.

Stormwater flows from the developed Site will be controlled through the use of two detention ponds and other features. Discharge from the detention ponds intends to maintain subwatershed flows to both Driftmeyer and Johlin Ditch. Stormwater features are shown in Figures 02-2A and 02-2B, and detailed calculations are provided in Appendix A.

## **(2) Description of Major Equipment**

The Project will include two combustion turbine generators (CTGs) with natural gas as the fuel; evaporative coolers for inlet air cooling; two three-pressure-level HRSGs; two duct burners; and one reheat, condensing steam turbine generator (STG). Additionally, the Project will utilize a multiple-cell cooling tower and a steam-surface condenser. An auxiliary steam boiler will be used for heating steam to accommodate a faster Facility startup. The Project will also include three approximately 20 to 345 kV step-up transformers, one for each generator. The gas turbines, steam turbine, and condenser will be located within a building.

Significant plant equipment not addressed above is described below.

- *Gas Fuel Handling* – Natural gas supplied to the Site will require additional compression for use in the CTGs. Electrically powered gas compressors will be used to increase natural gas pressure. A knock-out drum will be provided to remove any liquids that may be present in the gas. Filter/separators will further treat the fuel gas by removing any debris or liquids prior to entering the turbines. The auxiliary steam boiler will use low pressure natural gas.
- *Steam System* – The steam system will consist of steam drums, superheaters and economizers; steam piping to and from the steam turbine; steam turbine bypass piping; steam piping to gland seal and steam jet air ejector systems; and solids and chemistry control. No export steam will be produced at this Facility. Steam generated by the auxiliary boiler will be used for heating and start-up purposes.
- *Condensate System* – The condensate system will be designed to provide water sufficiently deaerated and with the proper water chemistry to meet HRSG and steam turbine requirements. The system will provide sufficient capacity for operation over the entire ambient range and supply water to the auxiliary boiler.
- *Feedwater System* – Boiler feedwater will be supplied by a three-element feedwater control system for each section of the HRSG. Chemical treatment of the boiler feedwater will be accomplished using chemical feed equipment. Although the particular treatment program for this

Facility has not yet been determined, a typical program would include corrosion inhibitor injected to the HRSG steam drums; oxygen scavenger injected into the HRSG; and pH control amine injected into the boiler feedwater pump suction piping.

- *Cooling Water System/Steam Condensing* – The circulating water cooling system will provide cooling for condensing the steam turbine exhaust and the Facility closed loop cooling system. The system will consist of a 16-cell cooling tower constructed of fiberglass or wood and a steam surface condenser with an air ejector/vacuum system. The cooling tower will include high efficiency drift eliminators for particulate reduction capable of achieving a 0.0005 percent cooling tower drift rate. Chemical treatment of the cooling tower water will be accomplished utilizing chemical feed equipment. Although the particular treatment program for this Facility has not yet been determined, a typical program could include pH control (acid); scale inhibitor; biocide; dispersant; and chlorine/hypochlorite.
- *Closed Loop Auxiliary/Cooling Water System* – The closed loop auxiliary cooling water system provides cooling for auxiliary equipment. The system will utilize demineralized water with corrosion inhibitor.
- *Fire Protection System* – A complete fire protection/detection system will be provided for the Facility. The system will include fixed water fire suppression systems, fire hose stations, hydrants, portable fire extinguishers, detection and control systems. The system will include a

motor driven fire pump and an ultra-low sulfur diesel engine driven fire water pump (an approximately 50-gallon double containment oil storage tank will be integrated into the unit). It will be designed and installed in accordance with National Fire Protection Association (NFPA) standards and insurer's recommendations. All fire protection equipment and systems will be Underwriters' Laboratory (UL) approved and comply with the City's fire protection authority's and OCE's insurance carrier's requirements.

- *Stand-by Diesel Generator* – A 2,250-kilowatt (kW) diesel engine driven generator will be provided and designed to safely shut the Facility down in the event of a disruption of power delivery. The generator will provide power to essential services necessary to protect the equipment. Ultra-low sulfur fuel will be utilized, stored in an approximately 500-gallon double containment tank integrated into the equipment skid.
- *Water System* – Raw water for the Project will be supplied by the City of Oregon. Water will be used in the cooling tower for makeup to replace water loss due to evaporation. OCE will also purchase potable water from the City for the demineralizer system and other Facility uses. Water balances depicting the Facility uses and volumetric flows are shown in Figure 02-5.
- *Demineralizer* – Demineralized water will be created by on-site treatment of the City's potable water. Demineralized water will be used in the evaporative cooler and as makeup water to the steam cycle. Water will be

)

processed by the demineralizer system, which will remove the dissolved solids to the level required by the HRSG and steam turbine manufacturer's requirements. The effluent from the demineralized system will be sent to the demineralized water storage tank. The demineralized water storage tank will provide demineralized water for condenser hot-well makeup and be of sufficient size so as to allow normal Facility operations without excessive cycling of the demineralized water system. Demineralizer regeneration waste will be equalized and neutralized in a fiberglass tank before being discharged to the wastewater system.

- *Wastewater System* – A regeneration waste neutralization system will receive the regeneration wastes from the demineralized waste system and the chemical waste sump. This system will equalize and adjust the pH through the addition of acid or caustic to comply with discharge limits. Process wastewater from equipment drains will be routed through an oil/water separator, then recycled through the cooling tower. Any oils remaining in the oil/water separator will be removed by qualified contractors. Boiler blowdown will also be recycled through the cooling tower. Sanitary waste and the cooling tower blowdown will be piped to the Oregon municipal wastewater system for treatment and disposal. Stormwater will be routed to onsite detention basins to control runoff from the Site.



### **(3) Transmission Line Interconnect**

The Project will interconnect with the existing 345-kV transmission lines that are located just north of the Site. A new substation that will be built by OCE and ultimately owned by First Energy is shown in Figure 02-2, although the final location and configuration will be determined by First Energy. The electric transmission line interconnection is anticipated to extend from the new substation north to the existing transmission corridor; Figure 02-2 illustrates the electric transmission interconnect extending to the east to the adjacent parcel controlled by OCE (that will also be used for construction laydown), then north along that property's western boundary. The Project will interconnect at two points along the 345-kV line, allowing power to be supplied to multiple distribution systems. An electrical one-line diagram is provided as Figure 02-7.

Electrical power will be generated by the Project at an approximate voltage level of 20 kV and then stepped-up to a voltage level of 345 kV by newly installed transformers to be located adjacent to the power block. The power will then move through available transmission paths to wholesale electric customers.

System Interconnection Studies have been initiated with PJM. The PJM Feasibility Study was completed in July 2012, with the System Impact Study initiated in August 2012. As a result, the Oregon Clean Energy Center was assigned queue position Y1-069. Completion of the System Impact Study is anticipated in late January 2013. This information will be provided to OPSB staff once available.

#### (4) New Gas Transmission Line

The Project has several gas transportation options that are currently being evaluated. These include a range of options, from direct connection to an existing gas lateral located within North Lallendorf Road adjacent to the site (owned by Columbia Gas) to a newly constructed gas lateral to connect to high pressure gas laterals that are located south of the Site. OCE has met with representatives of Columbia/TCO/NiSource, ANR, TCPL, Dominion East Ohio, Panhandle Eastern, and NEXUS, as well as several intrastate firms including Twin Eagle, Somerset Gas and Net Midstream Gas. Multiple connections are available for consideration by the Project, offering considerable fuel flexibility that supports a low-cost Project.

The appropriate natural gas interconnection strategy is anticipated to be identified by February 2013. Depending upon the configuration of the selected option and on whether the interconnection will be supplied by OCE or by others, applicable approvals from the OPSB and/or Federal Energy Regulatory Commission (FERC) will be sought.

The new lateral to the Project will be designed to be 24 inches in diameter so there will be little pressure drop from the interstate source lines and to provide an ample gas supply capability should the Project at some point in the future expand. Gas compression, that will use electric-driven motors, will be required at the Site to accommodate the range of potential gas supply options.



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*News Release*

FOR IMMEDIATE RELEASE  
May 18, 2006

Contact: Penny Martin, Paul Werth Associates, 614-224-8114, [pmartin@paulwerth.com](mailto:pmartin@paulwerth.com)

**NORTH COAST GAS TRANSMISSION ANNOUNCES  
ACQUISITION OF NORTHERN OHIO PIPELINES**

COLUMBUS, Ohio - North Coast Gas Transmission, LLC announced today that the company has executed a definitive agreement to acquire pipeline assets in northern Ohio that will interconnect with its existing pipeline and extend its direct market access from Fostoria to Toledo and Marion. North Coast Gas Transmission will seek interconnects with markets along these routes in an effort to provide access to lower cost mid-continent gas supplies.

This acquisition is another advance in North Coast's effort to provide Ohio with more diverse and reliable sources of natural gas and access to lower cost mid-continent sources, thereby reducing the state's dependence on Gulf Coast sources.

"This acquisition continues North Coast's commitment to provide Ohio's natural gas distribution companies and businesses with affordable and diverse natural gas supply options," said Andy Lang, president of North Coast Gas Transmission, LLC. "Not only do these assets allow us to provide near term opportunities for lower cost supply to new markets, but it also enhances market access for our northern Ohio expansion."

On March 16, North Coast announced an expansion of its current northern Ohio pipeline that will run from Defiance to near Parma, then to gas storage facilities in the Canton area. It will be constructed using existing utility corridors. The newly acquired pipelines will serve as laterals to reach markets in the Toledo and Marion areas. Previously used for petroleum products, the pipelines will be converted to natural gas service in time for the start of the 2006 heating season.

**EXHIBIT**

J

**North Coast Gas**

May 18, 2006

Page 2

In addition, North Coast has acquired an idle pipeline that will provide critical right-of-way access from its existing line south of Cleveland allowing connection to Dominion East Ohio's Chippewa storage in Summit County. Both acquisitions demonstrate North Coast's commitment to bringing Ohio's businesses and residents competitive natural gas sources.

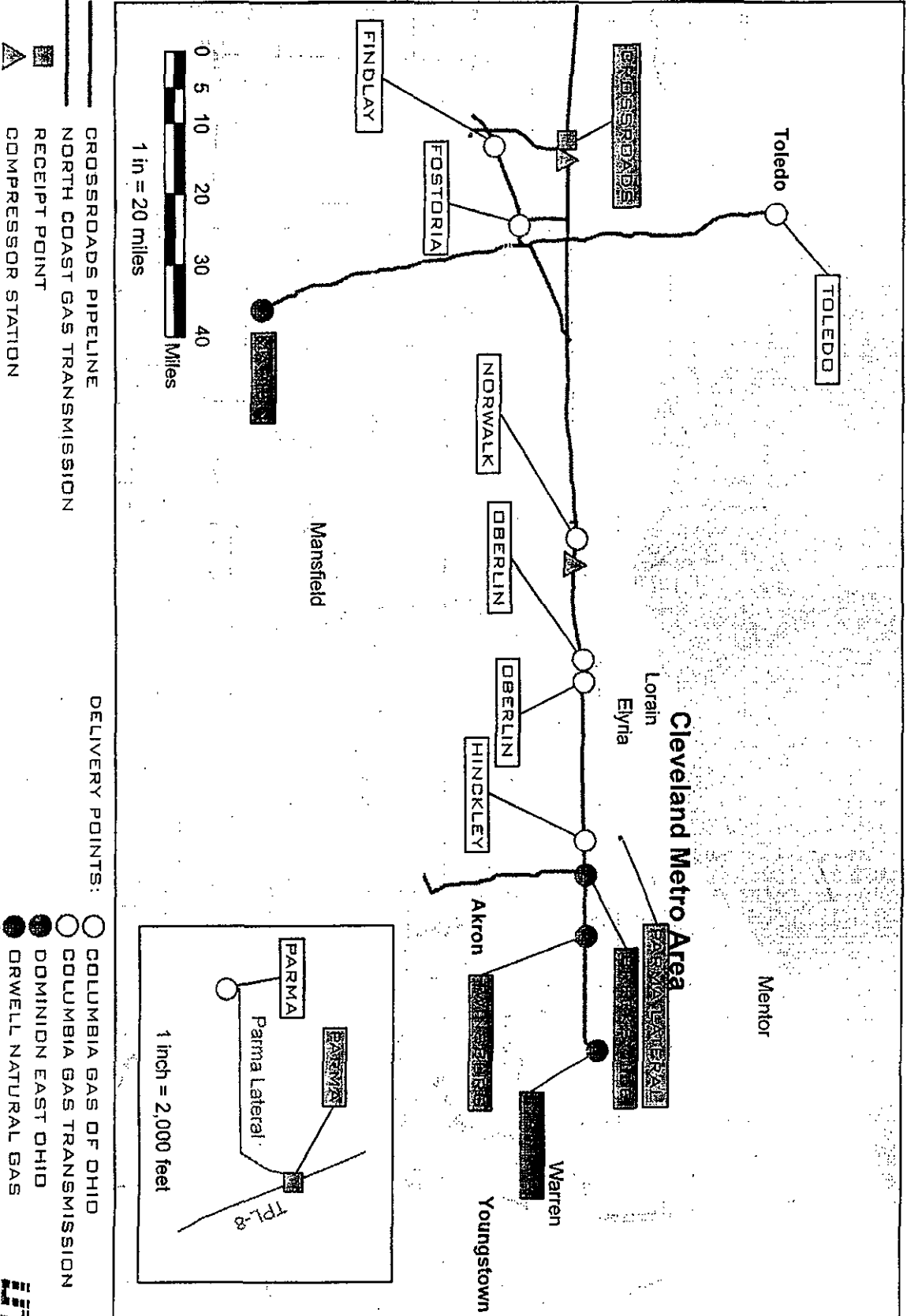
**About North Coast Gas Transmission LLC**

North Coast Gas Transmission LLC is a subsidiary of Somerset Gas Transmission Company LLC and began operating its Ohio pipeline in September 1998, in an effort to provide reliable and diverse options for natural gas from the Chicago Hub. Currently, it provides natural gas transportation service for a diverse group of local distribution companies, end-users, and market aggregators in northern Ohio. Veterans of the energy industry, the management team has extensive industry experience in gas transportation, supply and marketing, and regulatory issues. North Coast Gas is headquartered in Columbus, Ohio. More information about the company can be found at [somersetgas.com](http://somersetgas.com).

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# SOMERSET GAS TRANSMISSION AND NORTH COAST GAS TRANSMISSION OHIO PIPELINE METER STATIONS



EXHIBIT

K

**North Coast Gas Transmission LLC's Responses to Staff's First Set of Data Requests  
Issued in Case No. 14-1754-GA-BLN**

1. Would construction impact any hayfields or Conservation Reserve Program properties?

**Response 1.** The agricultural areas that would be temporarily impacted from the construction of the Oregon Lateral were discussed on page 10 of the LON, submitted on October 7, 2014. The area of temporary impacts on these parcels was provided in Table 4 in the LON. However, the table did not specify the agricultural use on each parcel because of the various crop rotation schedules that are utilized by the farmers to maintain crop yields on these fields. The USDA and NRCS have been contacted for information regarding all of the properties that will be utilized for the construction of the pipeline and if they are under any sponsored programs with these agencies. NCGT will comply with any contractual agreements, if applicable, made between the landowners and these agencies.

2. Has the Applicant coordinated with the managers of Side Cut Metro Park and Rivercrest Park? What has been the result of this coordination?

**Response 2.** NCGT has been in contact with the Director of Natural Resources for the Toledo Metro Parks and provided portions of the Ecological Report that were applicable for the Side Cut Metro Park. West Erie Realty Solutions has been contracted by NCGT to negotiate the acquisition of the easements for the construction of the pipeline. Coordination is underway for all of the properties affected by the construction of the pipeline. No other information is available at this time to report on coordination with representatives of the Side Cut Metro Park or the Rivercrest Park.

3. Please provide a shapefile of the all areas which will be bored including the bore set up area, if these locations have been determined.

**Response 3.** These areas are currently being designed and have not been determined. The bore set up areas will be indicated on the construction drawings for the pipeline project and submitted to the staff prior to the construction of the pipeline. A shape-file for the limits of disturbance (easements) for the project was provided to the staff on October 9, 2014 the bore set up areas will not extend outside of this defined area.

4. Has the Applicant provided the information regarding the Indiana bat requested by the USFWS? If yes, what is the status of this coordination?

**Response 4.** Yes, see Exhibit G in the LON, Table 3.5 and see the attached correspondence from the USFWS.



5. Has the Applicant completed habitat assessments for the prairie fringed orchid in accordance with the USFWS's recommendation? If yes, what is the status of this coordination?

**Response 5.** Yes, see Exhibit G in the LON, Table 3.4 and see the attached response from the USFWS.

6. Has the Applicant completed habitat assessments for the eastern massasauga rattlesnake in accordance with the USFWS's recommendation? If yes, what is the status of this coordination?

**Response 6.** Yes, see Exhibit G in the LON, Table 3.4 and see the attached response from the USFWS.

7. Has the Applicant completed habitat suitability surveys for the Blanding's Turtle in accordance with the ODNR's recommendation? If yes, what is the status of this coordination?

**Response 7.** Yes, see Exhibit G in the LON, Table 3.4. The Ecological Report for the project did not identify any specimens or suitable habitat for the Blanding's Turtle. A response from ODNR on the findings of the Ecological Report is expected mid-December.

8. Has the Applicant completed surveys for the *Muhlenbergia cuspidata* and *Sphenopholis obtusata* var. *obtusata* in accordance with the ODNR's recommendation? If yes, what is the status of this coordination?

**Response 8.** Neither of these species were observed within the project area. The LON at Exhibit F included email correspondence dated September 20, 2014 from Mr. Karr with the Mannik Smith Group addressing this issue. A response from ODNR on the findings of the Ecological Report is expected in mid-December.

9. Aside from the species listed above, is there any other ongoing coordination with USFWS or ODNR at this time?

**Response 9.** Aside from the response from ODNR that is expected in mid-December on the Ecological Report, the only ongoing coordination for the project is between the USFWS and the USACE for a section 7 consultation with the crossing on the Maumee River and the Section 10 Permit through the USACE.

10. The Applicant indicated that they intend to purchase the house crossed by the pipeline at the end of Old Trail Road. What is the status of this negotiation? Is this house currently occupied? If the owner is not willing to sell, is there an alternative location the line could be moved to?

**Response 10.** There were a number of constraints in trying to route the pipeline through this area, including the location of the ODOT Limited Access, multiple existing pipelines in the immediate area, numerous mature trees, and the location of multiple existing structures on the property. Alternative routes for the pipeline are extremely limited and in NCGT's opinion would cause more disruption than the option of purchasing and removing (or moving) one of the existing structure on the property. The structure is a small, older home that appears to be unoccupied. NCGT has contracted with West Erie Realty Solutions to negotiate the easement agreements for the Oregon Lateral. No other information is available to report at this time on this particular property.

11. Will all construction activity behind the parcels on Goldenrod Lane and Prairie Rose Drive be limited to the transportation right-of-way? If not, please describe any impact to private property, including the loss of vegetation screening the parcels from 475/23.

**Response 11.** The slope of the bank toward I-475/US-23 makes utilizing the transportation right-of-way impracticable. The construction of the pipeline crosses through 12 parcels, most of which are vacant, along this portion of the I-475/US-23 corridor. Vegetation within the construction rights-of-way will be removed as necessary for the installation of the pipeline and safety of the construction workers on-site. Vegetation will be restored as dictated by the easement agreements.

12. Will all construction activity behind the residences on Catawba Drive be limited to the transportation right-of-way? If not, please describe any impact to private property, including the loss of vegetation screening the parcels from 475/23.

**Response 12.** The construction activities will occur in both the transportation right-of-way and along the back sides of the private properties along this portion of the I-47/US-23 corridor. The Oregon Lateral's right-of-way will cross through 8 parcels. The width of the easement across these properties is forty-feet wide (twenty-foot permanent and twenty-foot temporary). NCGT has an agreement to use a ten-foot wide work space within the transportation right-of-way that enabled NCGT to minimize the impacts to the landowners and the mature trees along this portion of the corridor. The vegetation within the construction right-of-way will need to be removed for the installation of the pipeline and safety of the construction workers on-site. Vegetation will be restored as dictated by easement agreements.



13. Will all construction activity behind Taylor Hyundai, the businesses on Southpoint Road, and the businesses on Flagship Drive be limited to the transportation right-of-way? If not, please describe any impact to private property.

**Response 13.** Construction activities will be limited to the transportation right-of-way in this particular area. There are no anticipated impacts to the properties along this section of the route.

14. Will all construction activity behind the residences on Bridgeview Drive be limited to the transportation right-of-way? If not, please describe any impact to private property, including the loss of vegetation screening the parcels from 475/23.

**Response 14.** Construction activities will be limited to the transportation right-of-way in this particular area. It is not necessary to remove the vegetative screening between the parcels and I-475/US-23 for the installation of the pipeline.

15. Please explain why the proposed route jogs south immediately east of Drouillard Road, bringing it closer to the residence at 30930 Drouillard Road.

**Response 15.** The location of the utility tower on the west side of the railroad tracks determined the location of the pipeline as it heads eastward and crosses Drouillard Road. Where feasible, the pipeline was sited near parcel boundaries to reduce impacts for future development.

16. Has the Applicant coordinated with the managers of the State Route 199 Fields? If yes, please describe the result of the coordination thus far.

**Response 16.** NCGT has contracted with West Erie Realty Solutions to negotiate the acquisition of the easements for the construction of the pipeline. Coordination is underway for all of the properties affected by the construction of the pipeline. No information is available at this time regarding coordination with representatives of the State Route 199 Fields.

17. Has the Applicant coordinated with the Northwood Local School District regarding potential impacts or disruption to the elementary and middle schools on Lemoyne Road? If yes, please describe the result of the coordination thus far.

**Response 17.** NCGT has contracted with West Erie Realty Solutions to negotiate the acquisition of the easements for the construction of the pipeline. Coordination is underway for all of the properties affected by the construction of the pipeline. No information is available at this time regarding coordination with representatives of the Northwood Local School District.

18. The centerline of the proposed route runs within 100-feet of over twenty homes between Curtice Road and Seaman Road. Please explain why the route generally runs along the property line in these areas, resulting in a closer proximity to residences, as opposed to generally paralleling the electric transmission lines nearer the center of the utility corridor.

**Response 18.** The alignment of the pipeline in this particular area was largely to accommodate FirstEnergy's desire to have the pipeline as far away from the electric transmission line as possible in areas where it was feasible to do so. FirstEnergy owns many of the properties along this section and the pipeline was routed along the eastern property lines in order to accommodate FirstEnergy's request. The additional distance between the electric transmission line and proposed pipeline in this area also reduces the hazards associated with constructing a pipeline in close proximity to an electric transmission line and also reduces the amount of AC current that can be induced onto the pipeline.

19. What is the depth of the rock in the area of the pipeline installation?

**Response 19.** NCGT utilized bedrock data from the Ohio Division of Natural Resource's Division of Geological Survey's "Shaded Bedrock Topography Map of Ohio" and then performed an independent geotechnical investigation along the pipeline route to establish the anticipated depth and volume of rock. Boring data from 38 holes in NCGT's geotechnical investigation showed that rock will be encountered when drilling under the Maumee River at approximately (10 feet deep), the Ohio Turnpike (at approximately 12.5 feet deep), and Route 20/23 (i.e. Fremont Pike, at approximately 12.5 feet deep). The only rock that is anticipated during the installation of the pipe is in the area between Fremont Pike and Deimling Road, which showed approximately 4,500 lineal feet of rock between two and five feet below the surface.

20. Would any blasting be required during construction? If yes, please provide a shapefile of all areas that would require blasting.

**Response 20.** Dynamiting or blasting activities are not anticipated for the construction and installation of the pipeline (page 22 of the LON).

**North Coast Gas Transmission LLC's Responses to Staff's Second Set of Data Requests  
Issued in Case No. 14-1754-GA-BLN Relating to 10440 Neiderhouse Road**

1. Would the right of way require tree clearing?

**Response 1.** Yes, the trees and vegetation within the construction right-of-way would need to be cleared for the installation of the pipeline.

2. Would the trees and prairie grass habitat be able to be restored within the right of way?

**Response 2.** The right-of-way will be restored to as close to pre-existing conditions as possible once construction has been completed in the area, including the planting of any special grasses, as agreed upon within the easement acquisition. However, trees will not be permitted within the permanent right-of-way. Trees within the right-of-way can block access to the site in the event of an emergency on the pipeline, creating safety issues for the property owners and the emergency responders. Additionally, tree roots have the potential to wrap around pipelines damaging the coating on the pipeline, which can result in corrosion that can weaken and damage the pipeline. The Arbor Day Foundation recommends spacing for medium sized trees to be between 30-40' and 40-50' for larger trees, which could be planted on either side of the easement without issue.

3. Would the property be able to remain certified by the National Wildlife Federation and maintain its designation from Perrysburg Township as a natural area?

**Response 3.** The installation of the pipeline will have no effect on the certification by the National Wildlife Federation or the designation from Perrysburg Township. Several studies have been conducted on rights-of-ways and indicate that they offer several benefits to nature and wildlife. One example is from the Wildlife Habitat Council, in a cooperative effort with the USDA Natural Resources Conservation Service, where they conducted research on utility rights-of-ways and found that the corridors increase habitat diversity, are used by wildlife as travel lanes, and increase the amount of early successional habitat available to species. Several rights-of-way are certified by the Wildlife Habitat Council.

4. Would any structures on the property need to be removed?

**Response 4.** The removal of structures depends on their location, type, and use. Options regarding structures identified within the right-of-way are discussed with the landowner during the easement negotiations. NCGT has contracted with West Erie Realty Solutions to conduct the negotiations of easements for the construction of the Oregon Lateral Pipeline. However, to date the landowner has declined to meet with West Erie Realty Solutions.

5. Would the property owner's geothermal energy infrastructure be damaged?

**Response 5.** In the absence of discussing this issue with the landowner, in the event that the geothermal system is encountered and would need to be crossed by the pipeline, it would be repaired or relocated at no cost to the property owner.

6. Are there any alternatives to avoid or minimize impacts on this property?

**Response 6.** Some alternatives may be available to reduce impacts on this property; however, the landowner has declined to meet with West Erie Realty Solutions regarding the property. West Erie Realty Solutions will continue its outreach efforts to this landowner.

7. Has the Applicant considered boring under this property?

**Response 7.** Boring is reserved for areas where the benefits are greater than impacts of conventional construction methods, such as reducing impacts to surface waters (e.g., streams and high quality wetlands) and in areas where public or worker safety is a concern (e.g., railroads, interstates, and roadways). Additionally, boring under this property would not alleviate the fact that a right-of-way would still cross through this parcel and the trees would still need to be removed, as discussed in Response 2.

8. If the property cannot be avoided, how would impacts be resolved?

**Response 8.** The impacts can only be resolved through communications between the landowner and NCGT's representative West Erie Realty Solutions. To date, the landowner has declined to meet with West Erie Realty Solutions regarding this property. West Erie Realty Solutions and NCGT will continue outreach efforts to this landowner.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/16/2014 10:59:19 AM

in

Case No(s). 14-1754-GA-BLN

Summary: Response electronically filed by Mrs. Yvonne W Cooper on behalf of Staff of OPSB

**Utility Technologies Intl.  
Corporation**

### Total Capabilities in the Flooring Industry

9708 MacArthur Oaks Lane  
Groveport, OH 43125  
P: 614-482-8600  
F: 614-482-8070  
www.aaf-corp.com

**EXHIBIT B**

**GLADIEUX FAMILY  
LIMITED PARTNERSHIP  
PARCEL #44-25811**

CITY OF OREGON, LUCAS COUNTY, OHIO



0-120521322@erisw@05-Encasement)154 Gradient Factor | Printed Parameter: 44-2581 | Date: 09/12/2014 @ 11:43:57 am ~ © Liberty Technologies International

### LEGEND



PROPOSED 24" PIPELINE



PERMANENT EASEMENT



## TEMPORARY EASEMENT

### GRAPHIC SCALE



$1^\circ \approx 200 \text{ \AA}$

**EXHIBIT**

M

From: Puco ContactOPSB  
To: "stephen.cox"  
Cc: Jim.Podiak; gardner@ohiosenate.com; tim.brown@ohiohouse.gov; michael.sheehy@ohiohouse.gov  
Subject: RE: Suggested Modification to Oregon Lateral Pipeline Route -Case # 14-1754  
Date: Thursday, December 18, 2014 1:18:36 PM  
Attachments: image001.png

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Mr. Cox,

Thank you for again contacting the Ohio Power Siting Board (OPSB) regarding North Coast Gas Transmission's proposed Oregon Lateral Pipeline. Your comments in this and the subsequent two emails will be added to the record for case number 14-1754-GA-BLN for the Board and its staff to review.

Sincerely,

**Matt Butler**

Public Outreach Manager  
Ohio Power Siting Board  
Public Utilities Commission of Ohio  
614-644-7670  
[OPSB.ohio.gov](http://OPSB.ohio.gov)



*This message and any response to it may constitute a public record and thus may be publicly available to anyone who requests it.*

From: stephen.cox [mailto:stevefc64@gmail.com]  
Sent: Thursday, December 18, 2014 8:14 AM  
To: Puco ContactOPSB  
Cc: Jim.Podiak; gardner@ohiosenate.com; tim.brown@ohiohouse.gov; michael.sheehy@ohiohouse.gov  
Subject: Suggested Modification to Oregon Lateral Pipeline Route -Case # 14-1754

OPSB  
Case # 14-1754-GA-BLN

The total length of this suggested route modification is 12 miles, which is comparable to the portion of the proposed NCGT route it would replace.

I certainly hope that serious consideration of this route modification be looked into.

Due to document size - it will be sent in a series of emails.

Stephen Cox  
27811 Glenwood Rd.  
Perrysburg, Ohio 43551  
home 419-661-1205  
Cell 419-270-0872



From: [stephen.cox](#)  
To: [Paco Contact OPSB](#); [Jim Podiatz](#); [gardner@ohiosenate.com](#); [tim.brown@ohiohouse.gov](#); [michael.sheehy@ohiohouse.gov](#)  
Subject: Suggested Modification to Oregon Lateral Pipeline - Case 14-1754 submission 2  
Date: Thursday, December 18, 2014 8:22:34 AM  
Attachments: [OPSB Case 14-1754 page three.doc](#)  
[OPSB Case 14-1754 page four.doc](#)

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OPSB  
Case # 14-1754-GA-BLN

The total length of this suggested route modification is 12 miles, which is comparable to the portion of the proposed NCGT route it would replace.  
I certainly hope that serious consideration of this route modification be looked into.  
Due to document size - (5 pages) it will be sent in a series of e-mails.

Stephen Cox  
27811 Glenwood Rd.  
Perrysburg, Ohio 43551  
home 419-661-1205  
Cell 419-270-0872



From: [stephen.cox](mailto:stephen.cox)  
To: [Puco.Contact@OPSB](mailto:Puco.Contact@OPSB); [Jim.Podlask](mailto:Jim.Podlask); [gardner@ohiosenate.com](mailto:gardner@ohiosenate.com); [tim.brown@ohiohouse.gov](mailto:tim.brown@ohiohouse.gov);  
[michael.sheehy@ohiohouse.gov](mailto:michael.sheehy@ohiohouse.gov)  
Subject: Suggested Modification to Oregon Lateral Pipeline - Case 14-1754 submission 3  
Date: Thursday, December 18, 2014 8:27:33 AM  
Attachments: [OPSB Case 14-1754 page five.doc](#)

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OPSB  
Case # 14-1754-GA-BLN

The total length of this suggested route modification is 12 miles, which is comparable to the portion of the proposed NCGT route it would replace.  
I certainly hope that serious consideration of this route modification be looked into.  
Due to document size - it has been sent in 3 separate e-mails  
with this being the last required.

Stephen Cox  
27811 Glenwood Rd.  
Perrysburg, Ohio 43551  
home 419-661-1205  
Cell 419-270-0872

12/18/2014 8:08 AM

Page 1

OPSB Case # 14-1754-GA-BLN

### Suggested Modification to NCGT Oregon Lateral Pipeline Route

Prepared by: Stephen F. Cox, property owner

Parcel # - P57-400-020000022001  
27811 Glenwood Rd, Perrysburg, Ohio 43551  
Parcel # - P57-400-020000022000  
27865 Glenwood Rd, Perrysburg, Ohio 43551

#### OPSB

I propose here that the Oregon Lateral Pipeline be routed along Interstate I-75, Route 795 and I-280. This suggested route will be depicted in the way of four (4) individual segments, to enable optimal clarity in this document.

The suggested route I am proposing for consideration, will be indicated by a yellow line, and the proposed NCGT (North Coast Gas Transmission, LLC) route will be shown in red, as referenced in Case # 14-1754-GA-BLN documentation.

Suggested Pipeline Route from Maumee Hub area, to Oregon area as follows:

Segment #1 – Route 199 intersecting with Interstate I75  
Interstate I75 / Route 795 Inter-change  
From Interstate I75 to Glenwood Road

Segment #2 – Continue east-bound on Route 795 from  
Glenwood Road to East Broadway Road.

Segment #3 – Continues east-bound on Route 795 from  
East Broadway to Route 280 Interchange.  
Northbound in the Route 280 corridor.

Segment #4 – Continues northbound in 280 corridor  
Stops when reaching Northwood City limits  
Aligns there with NCGT proposed route.

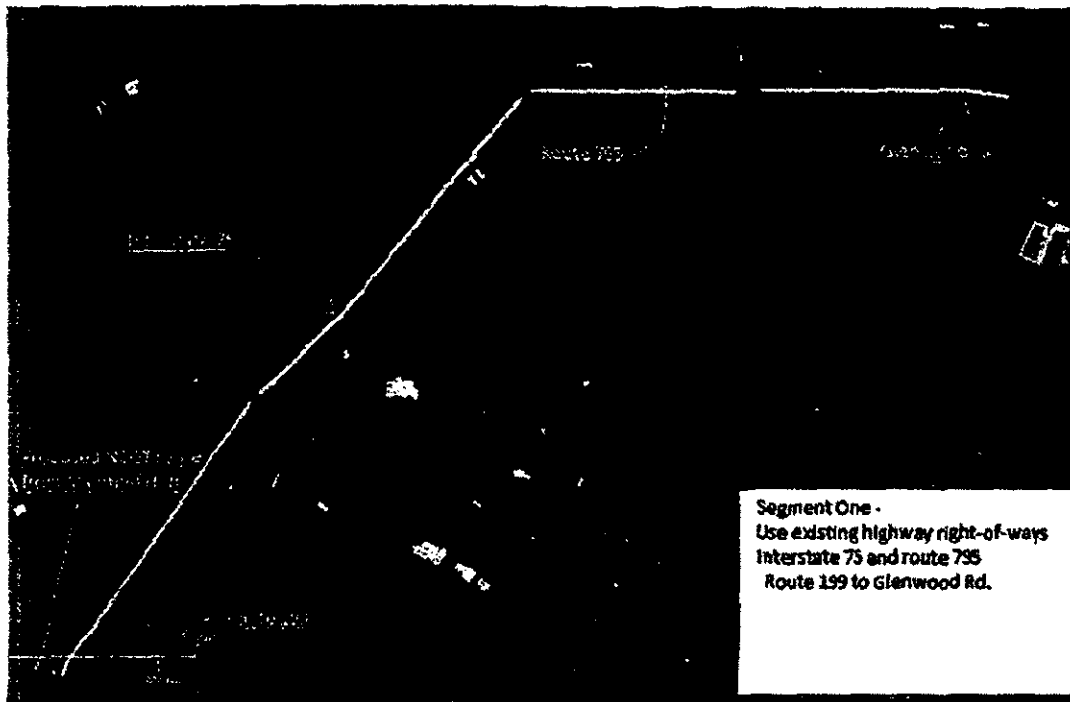
The total length of this suggested route is 12 miles, which is comparable to the portion of the proposed NCGT route it would replace. I am not a civil engineer and am sure I have over-looked some details related to construction techniques or other issues there-of.

I certainly hope that serious consideration of this route modification be looked into.

Page 2

OPSB Case # 14-1754-GA-BLN

**Suggested Modification to NCGT Oregon Lateral Pipeline Route**

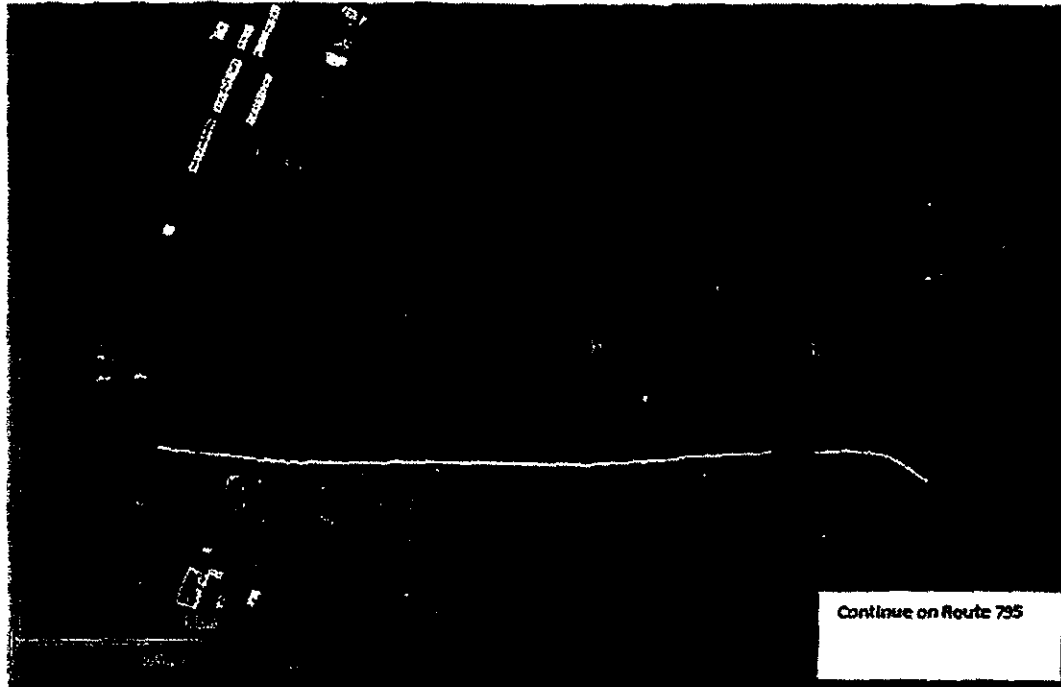


Segment #1 begins near the intersection of Rt. 199 and Interstate I75. It then goes north along the northbound right-of-way, until reaching the Rt. 795 interchange. There it would turn to the east and remain in the eastbound portion of the 795 corridor. As shown in the map, it would be routed beneath the Ohio Turnpike. I anticipate the effort to achieve this task, should not be anymore costly in time and material, then the current NCGT proposed turn-pike crossing, considering depth, and length of bore required at that location.

Page 3

OPSB Case # 14-1754-GA-BLN

Suggested Modification to NCGT Oregon Lateral Pipeline Route

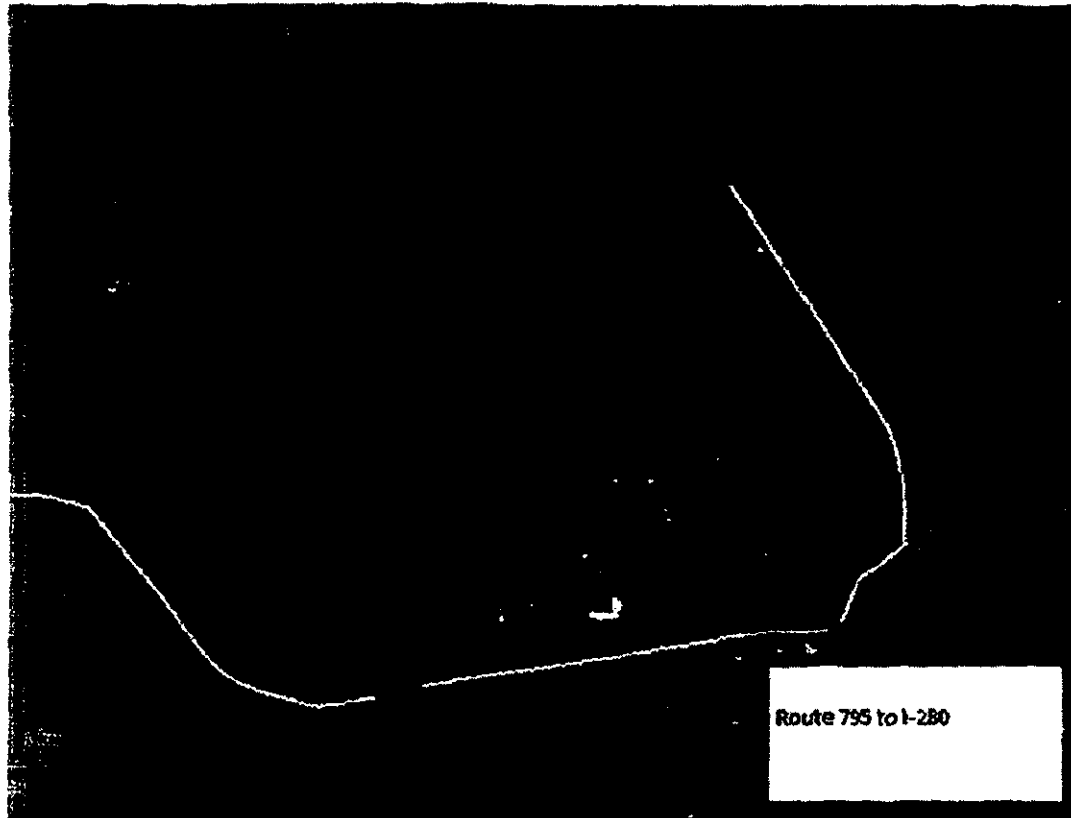


Segment #2 shows the pipeline continuing East along the Route 795 in the eastbound corridor. Shown to a point approximately 1/4 mile east of the East Broadway overpass.

Page 4

OPSB Case # 14-1754-GA-BLN

Suggested Modification to NCGT Oregon Lateral Pipeline Route

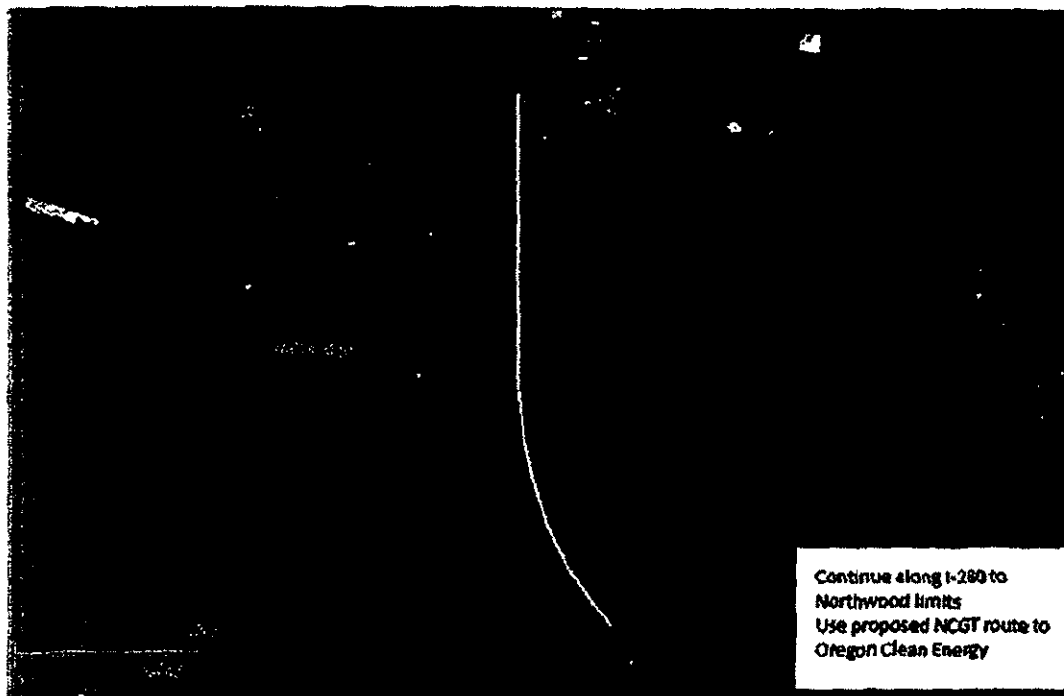


Segment #3 pipeline continues east along Route 795 to the I-280 interchange. The pipeline would turn to a NNW direction as part of the boring operation required to accommodate the railway crossing. The pipeline then proceeds north along the southbound portion of the I-280 corridor.

Page 5

## OPSB Case # 14-1754-GA-BLN

### Suggested Modification to NCGT Oregon Lateral Pipeline Route



Segment #4 pipeline continues North along the Southbound corridor. Upon reaching the Northwood City limit location, it would line up with the propose NCGT pipeline route.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**12/18/2014 1:46:45 PM**

**in**

**Case No(s). 14-1754-GA-BLN**

**Summary: Public Comment of Stephen Cox and response electronically filed by Mr. Matt  
Butler on behalf of Staff of OPSB**