



**Federal Energy
Regulatory
Commission**

**Office of
Energy Projects**

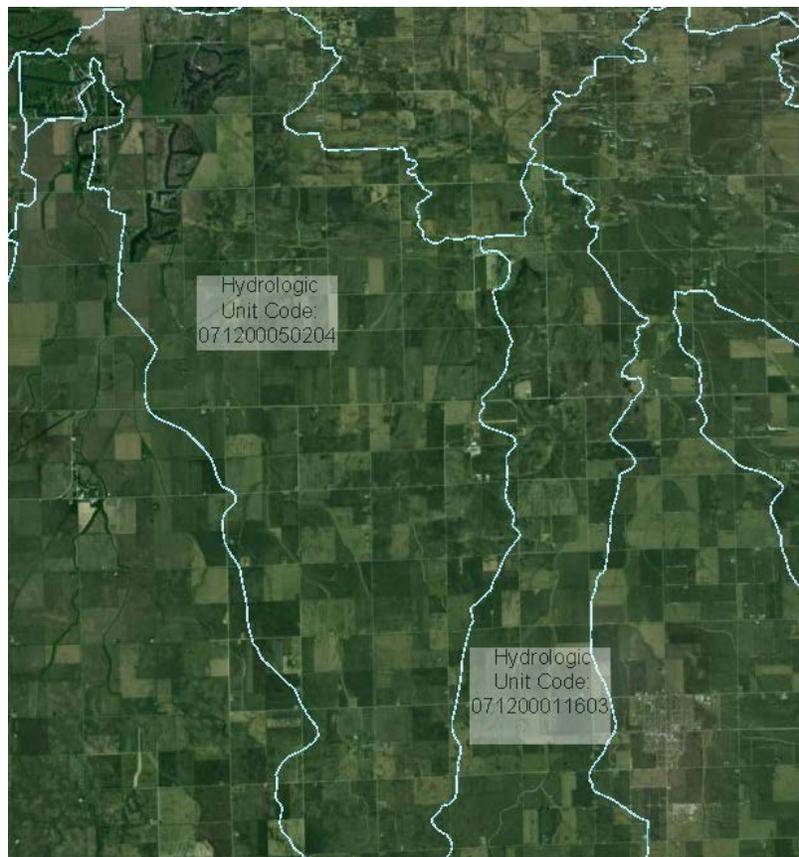
April 2018

Natural Gas Pipeline Company of America LLC

Docket No. CP18-12-000

Herscher Northwest Storage Field Abandonment Project

Environmental Assessment



Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:

OEP/DG2E/Gas 2

Natural Gas Pipeline Company of
America LLC

Herscher Northwest Storage Field
Abandonment Project

Docket No. CP18-12-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Herscher Northwest Storage Field Abandonment Project, proposed by Natural Gas Pipeline Company of America LLC (Natural) in the above-referenced docket. Natural requests authorization to abandon the Herscher Northwest Storage Field facilities with its certificated maximum inventory of 18.5 billion cubic feet (Bcf) located in Kankakee County, Illinois.

The EA assesses the potential environmental effects of the abandonment of the Herscher Northwest Storage Field Abandonment Project in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

Natural proposes to abandon:

- in place 19 injection/withdrawal wells by permanently plugging and capping;
- in place 16.15 miles of 4- to 16-inch-diameter associated pipeline laterals in the storage field by capping;
- in place 13 non-jurisdictional observation wells by plugging;
- in place one non-jurisdictional salt water disposal well by plugging;
- in place approximately 15.3 Bcf of non-recoverable cushion gas;
- by removal the 330-horsepower Compressor Station 202 including its building, compressor unit, concrete piers and concrete foundation; and
- by removal all aboveground and belowground storage field auxiliary surface facilities including but not limited to: well head piping, slug catchers, water gathering system and methanol distribution systems associated with the abandoned wells; seven tap valves; a pigging facility; and two corrosion monitors along with their associated rectifiers and ground beds.

Natural also proposes to convert the P. Cook No. 1 injection/withdrawal well to an observational well for its nearby Herscher Mount Simon Storage Field; and retain the P. Cook No. G-1 well as an observation well for its nearby Herscher Galesville Storage Field.

The FERC staff mailed copies of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the project area. In addition, the EA is available for public viewing on the FERC's website (www.ferc.gov) using the eLibrary link. A limited number of copies of the EA are available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street NE, Room 2A
Washington, DC 20426
(202) 502-8371

Any person wishing to comment on the EA may do so. Your comments should focus on the potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this project, it is important that we receive your comments in Washington, DC on or before **May 14, 2018**.

For your convenience, there are three methods you can use to file your comments to the Commission. In all instances, please reference the project docket number (CP18-12-000) with your submission. The Commission encourages electronic filing of comments and has expert staff available to assist you at (202) 502-8258 or FercOnlineSupport@ferc.gov.

- (1) You can file your comments electronically using the [eComment](#) feature on the Commission's website (www.ferc.gov) under the link to [Documents and Filings](#). This is an easy method for submitting brief, text-only comments on a project;
- (2) You can also file your comments electronically using the [eFiling](#) feature on the Commission's website (www.ferc.gov) under the link to [Documents and Filings](#). With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "[eRegister](#)." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

- (3) You can file a paper copy of your comments by mailing them to the following address:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214).¹ Only intervenors have the right to seek rehearing of the Commission's decision. The Commission grants affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP18-12). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

¹ See the previous discussion on the methods for filing comments.

TABLE OF CONTENTS

| | |
|--|----|
| Technical Acronyms and Abbreviations | ii |
| A. Proposed Action | 1 |
| 1. Purpose and Need, and Proposed Facilities | 1 |
| 2. Public Review and Comment | 2 |
| 3. Land Requirements | 3 |
| 4. Construction, Operation, and Maintenance | 3 |
| 5. Permits | 7 |
| B. Environmental Analysis | 8 |
| 1. Geology and Soils | 8 |
| 2. Groundwater, Surface Water, and Wetlands | 9 |
| 3. Vegetation and Wildlife | 14 |
| 4. Land Use..... | 17 |
| 5. Cultural Resources | 19 |
| 6. Air Quality and Noise | 19 |
| 7. Reliability and Safety | 22 |
| 8. Cumulative Impacts | 23 |
| C. Alternatives | 28 |
| 1. No-Action Alternative | 28 |
| D. Staff's Conclusions and Recommendations | 28 |
| E. References | 33 |
| F. List of Preparers | 35 |

LIST OF APPENDICES

Appendix A - Figures 1-2, Project Area Map
Appendix A - Figures 3-5, Well Sites in Aerial Photography

LIST OF TABLES

| | |
|---|----|
| Table 1 Workspace Dimensions and Land Use Requirements for the Herscher Northwest Storage Field Abandonment Project | 4 |
| Table 2 Phased Abandonment Schedule for the Herscher Northwest Storage Field Abandonment Project | 5 |
| Table 3 Environmental Permits, Approvals, and Consultations | 7 |
| Table 4 Construction Emissions Associated with the Project | 20 |
| Table 5 Geographic Scope of Cumulative Resource Impacts | 24 |
| Table 6 Cumulative Impacts - Recently Completed, Present, and Reasonably Foreseeable Projects in the Project Area | 26 |

TECHNICAL ACRONYMS AND ABBREVIATIONS

| | |
|------------------|---|
| APE | Area of Potential Effects |
| CAA | Clean Air Act |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CH ₄ | methane |
| CO | carbon monoxide |
| CO _{2e} | carbon dioxide equivalents |
| CO ₂ | carbon dioxide |
| Commission | Federal Energy Regulatory Commission |
| CWA | Clean Water Act |
| dB | decibels |
| dBA | decibels on the A-weighted scale |
| EA | Environmental Assessment |
| EI | Environmental Inspector |
| ESA | Endangered Species Act |
| FERC | Federal Energy Regulatory Commission |
| HAP | hazardous air pollutant |
| HUC | USGS Hydrologic Unit Code |
| IDNR | Illinois Department of Natural Resources |
| ISGS | Illinois State Geological Survey |
| ISWS | Illinois State Water Survey |
| IEPA | Illinois Environmental Protection Agency |
| L _{eq} | equivalent sound level |
| L _{dn} | day-night sound level |
| MBTA | Migratory Bird Treaty Act |
| NAAQS | National Ambient Air Quality Standards |
| Natural | Natural Gas Pipeline Company of America LLC |
| NEPA | National Environmental Policy Act of 1969 |
| NGA | Natural Gas Act |
| NHPA | National Historic Preservation Act |
| NO ₂ | nitrogen dioxide |
| NO _x | nitrogen oxides |
| NOI | <i>Notice of Intent to Prepare an Environmental Assessment for the Proposed Herscher Northwest Storage Field Abandonment Project and Request for Comments on Environmental Issues</i> |
| NPS | National Park Service |
| NSA | noise sensitive area |
| O ₃ | Ozone |
| OEP | Office of Energy Projects |
| PEM | palustrine emergent |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| Plan | <i>FERC Upland Erosion Control, Revegetation, and Maintenance Plan</i> |

| | |
|-------------------|--|
| PM _{2.5} | particulate matter less than 2.5 microns in aerodynamic diameter |
| PM ₁₀ | particulate matter less than 10 microns in aerodynamic diameter |
| Procedures | FERC <i>Wetland and Waterbody Construction and Mitigation Procedures</i> |
| Project | Herscher Northwest Storage Field Abandonment Project |
| Secretary | Secretary of the Commission |
| SHPO | State Historic Preservation Officer |
| SO ₂ | sulfur dioxide |
| SPRP | Spill Prevention and Response Procedures |
| tpy | tons per year |
| USACE | US Army Corps of Engineers |
| USDOT | US Department of Transportation |
| USEPA | US Environmental Protection Agency |
| USFWS | US Fish and Wildlife Service |
| USGS | US Geological Survey |
| VOC | volatile organic compounds |

A. PROPOSED ACTION

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this environmental assessment (EA) to assess the environmental impact of abandoning natural gas pipeline and compression facilities as proposed by Natural Gas Pipeline Company of America LLC (Natural) in Kankakee County, Illinois. The proposed project is known as the Herscher Northwest Storage Field Abandonment Project (Project). We¹ prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), (Title 40 Code of Federal Regulations [CFR], Parts 1500-1508), and the Commission's implementing regulations (18 CFR 380).

The FERC is the lead federal agency for the preparation of this EA. The assessment of environmental impacts is an important and integral part of the Commission's decision on whether to authorize Natural's proposed abandonment. The principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;
- identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize Project-related environmental impacts; and
- facilitate public involvement in the environmental review process.

1. Purpose and Need, and Proposed Facilities

As described in its October 31, 2017 application, Natural's stated purpose is to abandon its currently operating Herscher Northwest Storage Field in Kankakee County Illinois, west of Union Hill. Natural has operated this field since 1969. Natural has concluded that, in light of the marginal storage field performance over the years, uncertainty over the storage field's bedrock integrity, and new Pipeline and Hazardous Materials Safety Administration (PHMSA) Regulations requiring Natural to demonstrate containment assurance of stored gas in this field, it is no longer practicable to operate the storage field. Furthermore, Natural has determined that this small storage field is not needed to provide existing and future storage service to Natural's customers, nor is it needed for Natural's overall storage operations. Thus, the proposed abandonment of the storage field would not have an adverse impact on current shippers.

Section 7(b) of the Natural Gas Act (NGA) specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment will not negatively affect the present or future public convenience and necessity. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

¹ "We," "us," and "our" refer to environmental staff of the Office of Energy Projects.

Natural proposes to abandon:

- in place 19 injection/withdrawal wells by permanently plugging and capping;
- in place 16.15 miles of 4- to 16-inch-diameter associated pipeline laterals in the storage field by capping;
- in place 13 non-jurisdictional observation wells by plugging;
- in place one non-jurisdictional salt water disposal well by plugging;
- in place approximately 15.3 billion cubic feet (Bcf) of non-recoverable cushion gas;
- by removal the 330-horsepower Compressor Station 202 including its building, compressor unit, concrete piers and concrete foundation; and
- by removal all aboveground and belowground storage field auxiliary surface facilities including but not limited: to well head piping, slug catchers, water gathering system and methanol distribution systems associated with the abandoned wells; seven tap valves; a pigging facility; and two corrosion monitors along with their associated rectifiers and ground beds.

Natural also proposes to convert the P. Cook No. 1 injection/withdrawal well to an observational well for its nearby Herscher Mount Simon Storage Field; and retain the P. Cook No. G-1 well as an observation well for its nearby Herscher Galesville Storage Field.

Natural requests certification by May, 2018, and expects to perform its abandonment activities over a four-year period (2018-2021). Figures 1-5 in appendix A show more detailed location information on US Geological Survey (USGS) topographic maps.

As part of its decision, FERC considers all factors bearing on the public convenience and necessity. Occasionally, proposed projects have associated facilities known as non-jurisdictional facilities that do not come under the jurisdiction of the FERC. Such facilities can include electrical transmission lines, water pipelines, or facilities proposed by others. The Project does not involve the installation of non-jurisdictional facilities.

2. Public Review and Comment

On January 2, 2018 the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Herscher Northwest Storage Field Abandonment Project and Request for Comments on Environmental Issues* (NOI). The NOI was sent to affected landowners; federal, state, and local government agencies; elected officials; environmental and public interest groups; Native American tribes; other interested parties; and local libraries and newspapers. In response to the NOI, the Commission received comments from the US Environmental Protection Agency (USEPA). The primary issue raised by the USEPA was the potential for long-lasting impacts on groundwater from Natural's abandonment activities and cushion gas it proposes to abandon. This issue is addressed in section B.2.a of this EA.

3. Land Requirements

Abandonment of the proposed facilities would disturb a total of 53.6 acres of land: comprised of 13.7 acres of existing permanent right-of-way for the pipeline laterals, well pads, and compressor station; and 39.9 acres of temporary workspace. Natural would confine all excavation work and spoil storage for removal of aboveground facilities and capping the pipeline laterals to its existing permanent easement. Temporary workspace would be required at each aboveground facility for equipment staging and parking. Temporary workspace includes use of Compressor Station 202 for staging and equipment parking. The right-of-way would mostly occur in actively cultivated cropland. Natural would use a total of 4.1 miles of access roads, consisting of 3.1 miles of existing gravel access roads, 0.5 miles of existing pipeline right-of-way, and a 0.5-mile-long grassy lane leading to an observation well that traverses 100 feet of cropland.

While Natural would abandon in place approximately 16 miles of pipeline laterals, the Project would require virtually no disturbance of pipeline right-of-way. The workspaces would be distributed at each of the well sites, appurtenant facility sites, and Compressor Station 202 as shown in table 1. Following abandonment activities, all of the 39.9 acres of temporary workspace would be returned to previous conditions. Natural would continue to retain the 13.7 acres of permanent right-of-way in its existing easements with landowners.

4. Construction, Operation, and Maintenance

a. General Construction

Natural would abandon, maintain and convert the facilities in accordance with the U.S. Department of Transportation (USDOT) Minimum Federal Safety Standards in Title 49 CFR Part 192, as well as with those of all local and state regulations. Natural's proposed construction techniques and mitigation measures would be carried out according to the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) for upland portions of the Project, and the Commission's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) for its wetland crossing.

Natural would have at least one inspector who oversees environmental compliance and abandonment activities. Natural estimates that it would employ eight contracted personnel for well abandonment work and six contracted personnel for the removal of Compressor Station 202 and pipeline lateral work.

The abandonment of injection/withdrawal wells would be prioritized by first permanently plugging and abandoning the wells in close proximity to landowner dwellings and then abandoning the remaining injection/withdrawal wells. One drill rig would be used for the abandonment activities, with each well plugging and lateral severing from the wellhead taking approximately four days to complete. The drill rig would then progress to

Table 1 - Workspace Dimensions and Land Use Requirements (acres) for the Herscher Northwest Storage Field Abandonment Project

| Facility Type | Agricultural | | Developed / Open Space / Low Intensity | | Light Industrial | | Wetland | | Totals | |
|--|--------------|------|--|------|------------------|------|---------|------|--------|------|
| | Temp | Perm | Temp | Perm | Temp | Perm | Temp | Perm | Temp | Perm |
| Inject/Withd Wells Dimensions in feet Existing 105 x 205 Workspace 250 x 250 | 16.3 | 0 | 0.8 | 0 | 0 | 9.4 | 0.1 | 0 | 17.2 | 9.4 |
| Observation Wells Dimensions in feet Existing 35 x 55 Workspace 250 x 250 | 14.4 | 0 | 3.2 | 0 | 0 | 0.6 | 0 | 0 | 17.5 | 0.6 |
| Aboveground Facilities Dimensions in feet Existing 105 x 205 Workspace 250 x 250 | 3.7 | 0 | 0.2 | 0 | 0 | 2.7 | 0 | 0 | 3.9 | 2.7 |
| Compressor Station 202 Dimensions in feet Existing 150 x 300 Workspace 350 x 425 | 1.1 | 0 | 0.2 | 0 | 0 | 1.0 | 0 | 0 | 1.3 | 1.0 |
| PROJECT SUBTOTALS | 35.4 | 0 | 4.4 | 0 | 0 | 13.7 | 0.1 | 0 | 39.9 | 13.7 |
| PROJECT TOTALS | 35.4 | | 4.4 | | 13.7 | | 0.1 | | 53.6 | |

the next well location until all authorized abandonment work activities at all Project well locations is completed. Natural would perform its abandonment activities by working with landowners under the terms of its existing gas storage easements. Natural is proposing to complete the abandonment activities using a typical daily work schedule of 12 hours/day (7:00 am to 7:00 pm), six days a week (Monday through Saturday). Natural is planning to complete the abandonment activities over a phased 4-year period as shown in table 2.

While the pipeline laterals currently intersect two railroads, several well pad access roads, public roads, private driveways, and a private runway, no earth disturbing activities would occur at these crossings. Natural would obtain county highway permit or approval for work entrances prior to abandonment activities, use stabilized construction entrances at access roads as necessary, and restore graveled access roads following abandonment.

| Table 2 – Phased Abandonment Schedule for the Herscher Northwest Storage Field Abandonment Project | |
|---|---|
| Abandonment Work Stage | Anticipated Schedule |
| Injection/Withdrawal Wells | 2018 – 2019 (June – August each year) |
| Observation Wells | 2020 – 2021 (June – August each year) |
| Compressor Station Removal | June 2018 |
| Pipe Isolations and Tap Valve Removals | June – July 2019 |
| Restoration Activities | 2018 – 2021 (July – September each year) |

Pipeline Lateral Abandonment

Each segment of the pipeline gathering system would be cut and capped below ground level at an existing valve or well location using 4-foot-deep excavations. These excavations would occur primarily over portions of the pipeline laterals occupied by a well pad or valve pad. Once the pipeline segment is evacuated from all natural gases (down to 1 percent concentration), air is sealed in with welding caps or steel plates with a thickness of 0.25-inch. Natural would restore ground surfaces to their original states at all cut/cap locations and abandon the pipeline laterals in place. Natural would not require any additional disturbances along the pipeline laterals.

Compressor Station 202 Abandonment

At Compressor Station 202, Natural would remove the compressor unit, concrete footings and building. Facilities at this location include the Fee No. 2 saltwater disposal well, the P. Cook No. 1 injection/withdrawal well, and the P. Cook No. G- 1 observation well. Natural would plug and permanently abandon the Fee No. 2 well and remove its wellhead using the well abandonment procedure described below. Natural would convert the P. Cook No. 1 and P. Cook No. G-1 wells to observation wells in order to monitor the aquifer surrounding Natural’s nearby Herscher Mount Simon Storage Field. Natural would restore the Compressor Station 202 site to graveled conditions.

Injection/Withdrawal Well, Observation Well Abandonment

Natural would perform all well plugging and capping abandonment procedures in accordance with the Illinois Department of Natural Resources’ (IDNR) rules and regulations and witnessed by an IDNR state inspector. Natural’s abandonment activities would take place at depths up to 2,500 feet below the surface and would require an estimated 4 days per

well. Natural would perform three basic steps during each well abandonment and would keep a cement bond log to verify cement coverage behind the casing:

- 1) After filling the wellbore hole with water, Natural would run tubing into the wellbore to total depth and pump cement through the tubing to place a cement plug at the bottom of the wellbore. The tubing would be pulled up to a shallower depth in the wellbore, and the wellbore filled with 9-pound-per-gallon mud by pumping the mud through the tubing pursuant to the requirements of the IDNR. Natural would temporarily cease abandonment activities to allow time for the cement to cure;
- 2) After the cement has cured, Natural would lower the tubing into the wellbore to tag the cement plug in order to verify placement. The tubing would then be pulled out from the wellbore. A packer would be run into the wellbore on the bottom of tubing and set at a shallower depth pursuant to the requirements of the IDNR. A cement plug would be placed below the packer by pumping cement through the tubing. The tubing would be pulled up to a shallower depth in the wellbore, and Natural would temporarily cease abandonment activities to allow time for the cement to cure;
- 3) After the cement has cured, Natural would lower the tubing into the wellbore to tag the cement plug and packer in order to verify placement. The wellbore would then be filled with cement by pumping through the tubing per IDNR requirements. If required by the IDNR from the results of the cement bond log, Natural may be required to perforate the casing up-hole to squeeze cement behind the casing prior to setting the cement plugs and packer and placing the mud in the wellbore. All casing would be cut-off 4 feet below ground level and capped with a steel cap, as per IDNR requirements.

Natural would restore existing gravel at all well pads following abandonment activities unless the landowner requests permanent removal of gravel. All other workspaces would be restored to a gravel cover or graded/seeded cover as appropriate.

b. Operation and Maintenance

Natural would operate and maintain the proposed facilities in accordance with the applicable safety standards established by the USDOT in accordance with 49 CFR 192. The standards imposed are in accordance with Natural Gas Pipeline Safety Act of 1968, as amended.

Gas storage easements would remain in effect at each of the abandoned well locations as well as along its pipeline laterals and Compressor Station 202. In addition, Natural would maintain the right-of-way easements and its access roads at its abandoned wells, two remaining observation wells, and Compressor Station 202 sites, and along its pipeline

laterals. Finally, Natural would monitor and maintain access to the abandoned well sites and the two remaining observation wells, in accordance with PHMSA requirements.

5. Permits

Applicable permits and approvals for abandonment activities would be obtained by Natural prior to construction (see table 3).

| Table 3 - Environmental Permits, Approvals, and Consultations | | |
|--|---|---|
| Permit/Approval | Administering Agency | Status |
| Federal | | |
| NGA 7(b) Authorization | Federal Energy Regulatory Commission | Application submitted October 31, 2018. Pending |
| Clean Water Act (CWA), Section 404 | US Army Corps of Engineers (USACE), Chicago District | Determination made on January 6, 2017 of coverage under Nationwide Permit 12. Confirmation received from USACE on January 17, 2018. |
| Endangered Species Act | US Fish and Wildlife Service (USFWS), Midwest Region | Section 7(a)(2) self-determination made on July 18, 2017 of “species and critical habitat not present.” USFWS concurred on January 30, 2018. |
| Migratory Bird Treaty Act | USFWS, Rock Island Field Office, Illinois-Iowa Ecological Services Field Office | Submitted January 12, 2018. USFWS concurred on January 26, 2018. |
| State | | |
| State Threatened and Endangered Species Consultation and Clearance | Illinois Department of Natural Resources (IDNR) | Determination made on July 17, 2017 of no state-listed threatened and endangered species using Ecological Compliance Assessment Tool (EcoCAT). |
| Well Status Change Notification | IDNR Office of Oil and Gas Resource Management | The District Office must be notified at least 24 hours prior to commencing any plugging activities for each well. Upon completion of the work, the agency would be informed of the change in well status. |
| Section 106 National Historic Preservation Act (NHPA) Consultation | Illinois Historic Preservation Agency (IHPA) | Submitted July 28, 2017. Completed August 16, 2017 using memorandum of agreement. The IHPA concurred on August 16, 2017 that the proposed Project would not adversely affect cultural resources. |
| Local | | |
| Local municipal approval | Kankakee County, Illinois | Natural would coordinate with Kankakee County on local permitting requirements prior to work activities. |
| Section 106 NHPA Consultation | Tribal Historic Preservation Office | Letters inviting comments sent July 28, 2017. Three of the six tribes have responded. No concerns have been identified. |

B. ENVIRONMENTAL ANALYSIS

This analysis describes the condition of the existing natural and human environment and the potential impacts on it resulting from abandonment of the proposed facilities. In general, the modifications at the existing aboveground facilities would occur at Natural's existing well and pipeline lateral locations using its permanent right-of-way and temporary work spaces that extend into surrounding agricultural land.

1. Geology and Soils

The Project is generally located within the Kankakee Arch, a broad structural element separating the Michigan and Illinois Basins (Buschbach, 1964) exhibiting typically Devonian or Silurian-aged upper-most bedrock strata. Over the Herscher Northwest Storage Field, the Silurian and Devonian formations have been removed by glaciation, leaving the Ordovician Maquoketa shale as the uppermost bedrock strata. The unconsolidated, surficial material above the bedrock strata has been derived from the glacial drift of the Kankakee Plain of the Till Plains section (ISGS, 2017) and exists at a depth ranging from a few feet to more than 60 feet. The limestone beds and the calcareous shale beds in the Maquoketa Group generally contain varied fossilized fauna (Buschbach, 1964).

The Herscher Northwest Storage Field itself is located on an elongated, asymmetrical domal structure called the Mount Simon Sandstone formation that is associated with the Herscher Anticline in southwestern Kankakee County, Illinois. This formation is approximately 3 miles in length and 1.5 miles in width trending approximately north-northwest to south-southeast (Nelson, 1995) and is known to have an average top-structure depth of 2,200 feet in the Project area (Buschbach, 1964). Only the top approximately 225-foot depth of the formation is used for gas storage purposes.

Project abandonment activities would occur on the surface and within subsurface bedrock strata. Surface abandonment activities, including pipeline lateral and well bore capping, as well as post-abandonment rights-of-way management activities, would not affect geologic formations and would not be affected by geologic hazards such as landslides, earthquakes, or karst areas. Natural's use of well drilling equipment to plug its wells may occur in areas where loose sands occur near the surface, and thus may cause some minor amounts of liquefaction due to the weight of equipment in combination with equipment vibrations. Excavation would occur in previously disturbed areas and no high sand content soils were identified (Natural Resources Conservation Service, 2017). Soil liquefaction is not anticipated to be a concern as a result of proposed Project activities.

Natural's subsurface abandonment activities, including well plugging, would directly encounter bedrock to depths of up to 2,500 feet. Well plugging activities could impact geologic formations, and could expose wells to geologic hazards. Abandonment activities would not include any new drilling or any expansion of the well bores, and would be restricted to within the existing well bores. Natural's plugging activities would be designed

to stabilize the well bore holes and isolate them from any bedrock geologic formation encountered. Exposure of geologic formations and the existing wells to disturbance and geologic hazards would be restricted to short term periods of activity. Given the lack of potential for modification of the bedrock strata, and the IDNR-supervised well plugging procedures detailed in section A.4.a, we conclude that the Project would have no significant impacts on geologic resources or subject the existing or plugged wells to geologic hazards.

Given previous disturbance associated with construction of the storage field facilities within the Project area, we conclude that Natural's abandonment activities are not expected to impact sensitive paleontological resources. Natural would contact the Illinois State Geologic Survey in the event it makes discovery of a significant paleontological resource during the abandonment activities.

Soils within the Project work area are mainly poorly-drained to somewhat poorly-drained clay and silt loams and are considered to have severe compaction potential. Approximately 42 percent of the soils within the work area are predominantly hydric soils, and all soils are prime farmland soils. No conversion to industrial use would occur to any soils impacted.

The primary potential impacts of construction on soils are soil erosion, mixing of topsoil and subsoil, compaction and rutting in excessively wet soils. Natural's soil disturbance activities would be limited to spot locations within previously-disturbed rights-of-way along its pipelines where capping would take place. Natural's construction mitigation measures contained in the Plan and Procedures would reduce and minimize any erosion, compaction, and soil fertility impacts. Additionally, Natural's adherence to its Spill Prevention and Response Procedures (SPRP) would help to prevent and minimize contamination of soils. Following construction, Natural would employ restoration mitigation measures including: 1) installing permanent erosion control barriers as necessary; 2) revegetating the right-of-way as soon as possible following final grading, and 3) replacing existing gravel covers. We have determined that, with implementation of the Plan, Procedures, and SPRP, Natural would adequately minimize soil impacts during construction and restoration.

2. Groundwater, Surface Water, and Wetlands

a. Groundwater

The Project facilities are located entirely within the central lowlands physiographic province (ISGS, 2017). The main aquifers within the central lowlands reside in surficial Quaternary age unconsolidated sand and gravel deposits, and in Paleozoic sandstone, limestones, and dolomite bedrock units. In the area of the Project, four separate aquifers and two aquitards comprise the aquifer system. An aquitard acts as a barrier to water movement above and below it. The six layers are as follows:

- the surface aquifer is comprised of unconsolidated deposits lying 0 to 50 feet within the surface, discontinuous in the Project area, and provides drinking water;
- the Devonian-Silurian Aquifer is a bedrock aquifer located at a depth of 50 to 90 feet below the surface, is generally unconfined, extends through much of Kankakee County but is not continuous throughout the Project area, provides domestic and irrigation water widely across Kankakee County (USGS, 1995), and provides water quality that is generally adequate for, or can be treated and made adequate for, most uses (USGS, 2003);
- the Maquoketa Aquitard is a bedrock unit located at a depth of 90 feet to 290 feet below the surface;
- the Cambrian-Ordovician Aquifer System is a confined bedrock aquifer located at a depth of 290 feet to 1,940 feet below surface which does not receive recharging from layers above it and additionally contains some aquitards within itself;
- the Eau Claire Aquitard is a bedrock unit located at a depth of 1,940 feet to 2,380 feet below the surface and is the cap rock for the Herscher Northwest Storage Field; and
- the Deep Mount Simon Aquifer is a confined bedrock unit located at an average top depth of 2,200 feet and ranges to approximately 4,700 feet and deeper, and is generally identical to the Mount Simon Sandstone formation containing the Herscher Northwest Storage Field. Water quality is generally lower.

Sole source aquifers are defined by the USEPA as aquifers that supply at least 50 percent of the drinking water consumed in the area overlying the aquifer (USEPA, 2016). Such areas tend to have no alternative drinking water sources that could physically, legally, and/or economically supply those who depend upon the aquifer for drinking. According to USEPA Region 5, the Project area does not have sole source aquifers (USEPA, 2016). According to the Illinois State Water Survey (ISWS), no public water intakes, wellhead protection areas, or regulated recharge areas are located within 150 feet of the proposed Project work areas (ISWS, 2017). One private water well is located 25 feet north of the proposed temporary workspace for the E. Oberlin No. 7 well (ISWS, 2018). Natural agrees to prohibit refueling activities and storage of hazardous liquids within at least a 200-foot radius of this water well. There are no public water supply wells within a 400-foot radius of the proposed temporary work spaces associated with the Project (ISWS, 2018). According to the Illinois Environmental Protection Agency (IEPA), no known groundwater contamination to public water supplies within Kankakee County exists that exceeds Class I Groundwater Standards (IEPA, 2015).

The Kankakee County Board of Health issues permits for water well drilling. According to an existing agreement between Natural and the Kankakee County Board of Health, any landowner intending to perform water well drilling within the defined protective boundary of the Herscher Northwest Gas Storage Field would need to consult with Natural.

Ground disturbance activities, such as grading and excavation at or along the pipeline laterals, surface facilities, or compressor station site could result in some infiltration and

adverse impact to water quality for groundwater supplies in the Project area. These impacts could include increased turbidity, groundwater fluctuations, short-term disruptions of recharge, localized flow within bore holes, contamination from a spill or leak of hazardous substances, and decreased water yield. Dewatering of excavations could temporarily lower local groundwater levels. Equipment fuel and lubricant spills could introduce contamination into potable groundwater and surface water supplies during construction.

Well plugging procedures are designed to prevent contamination of groundwater resources by ensuring that adequate cement is present within the wellbore, behind the casing, and in direct contact with any freshwater strata and other strata that contain groundwater resources. During plugging activities, any fresh or potable water zones would be isolated from the well bores during plugging activities. Well bore plugging and capping would result in the isolation of any surficial or bedrock strata that are found to be not isolated from the wellbores. Following abandonment activities, plugged and capped wells would continue to prevent movement of any contamination from surface waters down into groundwater strata, and from inter-strata cross-flow within the groundwater strata.

Groundwater is generally confined below the depth of Natural's proposed pipeline lateral excavations. Therefore, it is unlikely that groundwater would infiltrate excavations during the abandonment activities. Natural would dewater any excavations in accordance with the dewatering measures identified in the Plan and Procedures. Project well abandonment activities would not create new wells or produce water needing to be disposed.

The USEPA expressed concern over the disposition of the cushion gas Natural plans to abandon in the storage field and whether or not this gas could migrate into the abandoned wells and/or eventually impact groundwater resources in the Project area. The vast majority of the cushion gas is permanently trapped within the pore space of the Mount Simon Sandstone formation containing the storage field. Natural considers recovery of this trapped gas as uneconomical and requiring large amounts of water. Thus there is little likelihood cushion gas left alone in the formation would expand out of the formation. Migration of gas between formations would be inhibited by multiple intervening bedrock layers and aquitards present above the trapped cushion gas. The Eau Claire Aquitard is an approximately 450-foot-thick bedrock unit serving as a natural boundary directly above the cushion gas strata that would isolate the cushion gas from groundwater resources located well above (approximately 800 feet) this unit. Finally, Natural's proposed well abandonment activities are specifically designed to create multiple barriers preventing the entry of any gas, including the cushion gas to be abandoned, into an abandoned well. This includes ensuring that adequate cement is present during the abandonment procedure. This barrier in turn would prevent gas from traveling amongst bedrock layers via the abandoned well bore.

The USEPA also inquired about the potential for a recharge zone to exist within the aquifers that could be subjected to pressure changes permitting lower down cushion gas to migrate vertically into that aquifer. A recharge zone is where water infiltrates the ground and replenishes an aquifer. Aquifers are replenished by the seepage of precipitation on the

land, but there are many geological, meteorological, topographical and human factors that determine the extent and rate to which aquifers are refilled with water. Water movement in aquifers ranges greatly depending on the permeability of the aquifer material. Within the vicinity of the Project, a recharge zone permitting vertical replenishing of the local aquifers is absent, and thus little opportunity exists for this particular mechanism to lead to gas migration.

The USEPA also inquired as to the exact description of federal and state abandonment requirements. Natural would follow all applicable federal, state and local regulations required for all abandonment work procedures. Natural would use plugging procedures consistent with those outlined in State of Illinois Oil & Gas Rules and Regulations, specifically, Subpart K: Plugging of Wells Section 204.1140 General Plugging Procedures and Requirements and 240.1150 Specific Plugging Procedures. All well plugging and abandoning procedures would be witnessed by an IDNR state inspector. Prior to abandoning each well, Natural would review its proposed procedures with the IDNR. Natural would obtain an initial cement bond log verifying the cement coverage behind well casings prior to abandonment activities. The IDNR would review Natural's proposed amount and type of cement used, depths that the cement plugs cover, and cement curing time to allow tagging to verify the location of the cement plugs.

The USEPA inquired what Natural's plans would be for monitoring groundwater following abandonment, and whether it would install groundwater and surface water monitoring stations. Natural would monitor all of the abandoned wells for water quality on a quarterly basis during the 4-year abandonment period, and on an annual basis following abandonment. As previously discussed, migration of cushion gas is not anticipated, given the structure of the geologic formation and the permanent plugging of wells in accordance with IDNR requirements. Thus, Natural does not anticipate migration to surface waters and is not proposing to install surface water monitoring stations. We conclude that the well plugging and abandonment procedures would adequately mitigate for potential gas migration to groundwater and, subsequently, surface waters.

The USEPA also expressed uncertainty over the disposition of easements and abandoned facility sites for the future, and how Natural would protect abandoned well sites from unauthorized use/disturbance/development. Natural would maintain abandonment signage that includes Natural's contact information at road and railroad crossings in the Project area. The gas storage easement map of the storage field is kept with the IDNR's records, and the Kankakee County government retains the individual gas storage easement agreements between Natural and the private landowners. In the course of its continued maintenance of facility locations and honoring of its easements with landowners, Natural would be able to control and adequately address any potential intended land uses of its abandoned facility sites.

The USEPA requested discussion of documentation of historical instances of gas migrating into nearby private and/or public drinking water supply wells or drinking water

supply aquifers. A review of available information on instances of water well contamination from natural gas storage fields found that one documented case of contamination (2017) is presently under investigation by the Illinois State's Attorney General. This case stems from a leaking natural gas storage well in the Manlove Field natural gas storage facility, 68 miles south of the Project in Champaign County, Illinois. This is a field under current operations owned by intra-state natural gas provider Peoples Gas. This case involves a single gas well tied into the same type of geologic unit used by Natural's Project facility (Mount Simon Sandstone) (D. Morse, 2003) observed to be leaking into local residential private well water supplies. Peoples Gas stopped the leak by capping at the well location, in a similar manner as proposed by Natural for the Project abandonment. In comparison, Natural's residual cushion gas would not be subjected to operational stress, is expected to remain trapped and immobile within its formation, and would not be expected to be able to travel through the wells Natural proposes to plug and cap for the Project.

Given the above-mentioned effects of abandonment activities within the aquifer strata, and soil and water quality protective measures for ground disturbance and restoration contained with the Plan, Procedures, and SPRP that Natural would implement, we believe its proposed abandonment activities would not adversely affect groundwater resources.

b. Surface Water

The Herscher Northwest Storage Field is located within the Crave Creek-Granary Creek and the West Branch Horse Creek watersheds. Two existing pipeline laterals (Lateral NW-7 and the Main Lateral) transect three waterbodies: the West Branch Horse Creek (perennial), Granary Creek (at two locations, both intermittent) and an unnamed tributary to Granary Creek (intermittent). All pipeline laterals would be abandoned in place; therefore, the Project would not impact these waterbodies. However, temporary workspace for the E. Oberlin No. 7 well is located about 25 feet from an unnamed tributary to Granary Creek. Natural reduced this workspace to avoid direct impacts on this waterbody and would use erosion and sediment controls (silt fence) in accordance with the Plan to prevent sedimentation and runoff into this waterbody. Additionally, Natural would implement its SPRP, which outlines measures for the prevention and clean-up of any spills of fuels and other materials from equipment during abandonment activities. No hydrostatic testing would be performed as part of this Project.

Given that no waterbodies are located within the areas of disturbance associated with the Project and that measures in the Plan and Natural's SPRP would be implemented to prevent impacts on nearby waterbodies, we conclude that the Project would not have a significant impact on surface waters.

c. Wetlands

One palustrine emergent (PEM) farmed wetland was identified at the J. King No. 1 well site. Approximately 0.09 acre of temporary workspace would be located within the

farmed wetland. Although wetlands within actively cultivated or rotated croplands are not subject to the requirements outlined for wetlands in the Procedures, Natural would minimize the potential for impacts on this wetland by using standard upland protective measures, including topsoil salvaging. Natural would use temporary timber matting during wet conditions and would install and maintain proper erosion and sediment controls prior to and during abandonment activities. In addition, Natural would implement its SPRP to prevent or clean-up any spills of fuels and other materials from equipment during abandonment activities. Wetlands would be allowed to revert to pre-existing conditions following abandonment, resulting in no permanent impacts on wetlands. Further, on January 17, 2018, Natural received authorization under Section 404 of the Clean Water Act (CWA) from the US Army Corps of Engineers (USACE) and would obtain authorization under Section 401 of the CWA from the IEPA prior to abandonment. Given Natural's proposed measures, we conclude that the Project would not significantly impact wetlands.

3. Vegetation and Wildlife

a. Vegetation

The Herscher Northwest Storage Field is within the Eastern Broadleaf Forest. Broadleaf deciduous forests dominate the province and due to lower precipitation, it also supports the oak-hickory association. About 53.6 acres would be temporarily impacted: 35.5 acres of agricultural land (including the agricultural wetland), 13.7 acres of industrial land, and 4.4 acres of developed/open space/low intensity land) – see table 1. Agricultural areas are dominated by crops produced annually, such as corn and soybeans. Industrial land is dominated by aboveground facilities and have little to no vegetation. Developed land, open space/low intensity, includes areas with a mixture of some constructed materials and vegetation mostly in the form of lawn grasses, and impervious surfaces account for up to 49 percent total cover. Access to two well locations (W. Schultz No. 2 and W. Schultz No. 3) may require selective tree trimming along the proposed temporary access road to allow safe passage of work vehicles. No vegetation communities of special concern were identified.

Project activities would take place on previously disturbed land and almost all of the existing facilities to be reclaimed during the abandonment activities are currently void of vegetation. Natural currently uses herbicides to prevent the spread of invasive species at its existing surface facilities. In addition, landowners also use herbicides to control weed infestations in areas of agricultural development. Natural would minimize the introduction of exotic and invasive plants by seeding disturbed areas and monitoring disturbed sites following abandonment to verify that revegetation of the areas has been successful and that invasive species have not become widely established. Following abandonment activities, all disturbed areas would be restored and revegetated in accordance with the Plan. Therefore, we conclude that the Project's impacts on vegetation would be temporary and minor.

b. Wildlife

Areas directly affected by the Project consist of land already used by Natural for operation of the storage field. These areas generally consist of graveled well pads and roads which provide poor wildlife habitat. However, several opportunistic species (e.g., raccoon, opossum, squirrel, American crow, American robin, European starling, common grackle, various sparrows, etc.) may use these limited habitats. Potential impacts on wildlife include the temporary displacement of individuals from construction areas and adjacent habitats and the direct mortality of small, less-mobile mammals, reptiles, and amphibians that are unable to leave the Project area. No habitat for fisheries would be disturbed or impacted by the Project. Abandonment activities could also impact nearby wildlife due to the increase in noise due to equipment and increased human activity. However, this impact would occur over the relatively short construction period (a maximum of 4 months each year over four years). There is an abundance of similar habitat for displaced wildlife to use during and after abandonment of the proposed facilities. Following abandonment activities, Natural would implement the restoration measures within the Plan to ensure that all disturbed areas are properly restored and revegetated. We conclude that the Project would not significantly impact wildlife.

Migratory Birds

Migratory birds are species that nest in the United States and Canada during the summer and then migrate to and from the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) and bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act. The MBTA, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Further, Executive Order 13186 was enacted in 2001 to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions on migratory birds. This Order directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and avoid or minimize adverse impacts on migratory birds through enhanced collaboration with US Fish and Wildlife Service (USFWS), and emphasizes species of concern, priority habitats, and key risk factors.

On March 30, 2011, the USFWS and FERC entered into a Memorandum of Understanding Between the Federal Energy Regulatory Commission and the U.S. Fish and Wildlife Service Regarding Implementation of Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds” that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between FERC and the USFWS by identifying areas of cooperation. This voluntary Memorandum of Understanding does not waive legal requirements under the MBTA, the Endangered Species Act (ESA), the Federal Power Act, the NGA, or any other statutes and does not authorize the take of migratory birds.

Natural has minimized impacts on migratory birds by proposing to excavate only within previously disturbed industrial locations, using agricultural fields as temporary workspaces instead of habitats with more diverse vegetation, and using primarily existing roads, pipeline easements, and agricultural fields for access roads. Access to two well locations (W. Schultz No. 2 and No. 3) may require selective tree trimming along the proposed temporary access road to allow safe passage of work vehicles to the proposed Project areas. However, these areas of tree trimming do not support significant wildlife habitats and would result in minimal temporary impacts. Additional protective measures include:

- coordinating with the USFWS to determine appropriate avoidance and minimization measures if a bird or nest is positively identified within the Project workspace during Project activities;
- staging abandonment work to limit disturbance during sensitive time periods (breeding and nesting);
- assigning environmental inspectors to monitor for specific species during periods of active abandonment work; and
- providing environmental training to inform workers of the importance of avoiding take of migratory birds and to review their responsibilities.

The USFWS reviewed the Project for impacts on migratory birds and, in its letter dated January 26, 2018, concluded that no impacts on migratory birds would occur if Natural's proposed measures are followed. We agree.

Special Status Species

Special status species are those species for which state or federal agencies provide an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the ESA or are considered as candidates for such listing by the USFWS, federal species of concern, those species that are state-listed as threatened or endangered, and state species of concern. In accordance with section 7 of the ESA, the FERC, in coordination with the USFWS, must ensure that any federal action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally listed threatened or endangered species or result in an adverse modification of the designated critical habitat of a federally listed species.

By letter dated January 26, 2018, the Rock Island Field Office of the USFWS indicated that because the Project consists of only agricultural and industrial areas, the USFWS does not believe that the Project site provides habitat for any listed species; therefore, the Project would have no effect on any listed species. We agree.

According to the results dated July 17, 2017 from a search of the IDNR's online Illinois Natural Heritage Database using the IDNR Ecological Compliance Assessment Tool, no state listed threatened and endangered species, Illinois Natural Area Inventory sites,

dedicated Illinois Nature Preserves, or registered Land and Water Reserves occur within or in the vicinity of the Project areas. Thus we do not expect this Project to adversely affect any state-listed species.

4. Land Use

The Project would be located within a predominantly agricultural setting in the vicinity of Union Hill on Natural's existing facility rights-of-ways. Natural's proposed facilities would be located on four types of land use: 1) agricultural (66 percent) - farmed cropland and associated facilities including farm buildings and Natural's pipeline lateral rights-of-ways; 2) light industrial right-of-ways (26 percent) - storage field-related facilities such as well pads, pumps, pipeline laterals and Compressor Station 202; 3) developed / open space / low-intensity land (8 percent) – lawns, open space lands not specifically designated for outdoor recreation, etc.; and 4) wetland (less than 1 percent).

The Project would not affect any public or private conservation land, special land use areas, national parks, national trails, national wild and scenic rivers, wilderness areas, national forests, wildlife refuges, or national natural landmarks (National Park Service (NPS), 2017a; NPS, 2017b; NPS, 2017c). The Project is not located within 0.25 mile of any landfills or hazardous waste sites. The Project would not be located within the Illinois Coastal Zone (IDNR, 2017).

Construction of the proposed facilities would affect about 53.6 acres of land, consisting of approximately 35.4 acres of agricultural right-of-way, 13.7 acres of light industrial land, 4.4 acres of developed / open space / low-intensity land, and 0.1 acre of wetland. Following construction, Natural would restore all agricultural, light industrial, developed / open space / low-intensity land, and wetland acreage to pre-construction land use conditions. No modifications to the currently leased and maintained private roads are expected during Project activities.

All the agricultural right-of-way land is classified as prime farmland. Prime farmland soils are defined as soils that are currently or potentially able to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods. Temporary construction-related impacts would result in a temporary reduction of agricultural production. Crop production may be lost within the construction workspace if construction takes place during the growing season. Natural's well locations are often adjacent to agricultural drainage ditches and thus potentially could impact drainage operations during and after abandonment activities.

Natural would follow mitigation and avoidance measures in our Plan and Procedures including but not limited to control of erosion during and after construction, topsoil conservation practices to preserve soil horizons, restoration of natural contours and drainage patterns, and trench mounding to compensate for trench settling. Natural would restore all agricultural right-of-way and permit it to return to agricultural use, following the

abandonment. Revegetation of agricultural areas would be performed when the landowner or tenant reintroduces crops. Natural would work with the impacted landowners to compensate them for any crop damage. Our Plan requires Natural to monitor drainage systems impacted by abandonment activities and correct problems with drainage systems until successfully restored.

There are no residences or commercial buildings within 50 feet of the Project workspace. Almost all residences in the Project area are operating farmsteads. One residence is located 80 feet from a well site, another is 170 feet from Compressor Station 202, two additional residences are within 500 feet of the Project limits, and all remaining residences are located 800 to several thousand feet from the Project limits. Natural did not identify any planned residential housing developments within one mile of the Project area.

Temporary construction impacts on residential areas could include inconvenience caused by noise, dust, and vibration generated by construction equipment and personnel. Due to the agricultural nature of the Project area, Natural would not disturb any residential landscaping, trees, shrubs, lawns, sheds, decks or residential driveways. Well plugging and capping activities are expected to last approximately four days at each well site. Natural would not perform its abandonment activities during the hours of 7:00 pm to 7:00 am. During and after the abandonment, Natural would continue to compensate landowners with annual payments for use of the access roads, and would work with landowners following abandonment to ensure that it addresses any access maintenance needs that arise. Given these factors and mitigating conditions, we conclude that the Project would not have any significant adverse impacts on nearby residences or to current or planned residential housing developments.

The temporary workspace associated with Northeast Tap Valve at 14000W and Southwest Tap Valve at 14000W is located immediately south of the eastern end of an existing private airplane runway (Federal Aviation Administration Identifier 5LL8). Natural would coordinate with the landowner to make sure they are aware of the abandonment work schedule at that location.

We did not identify any special, unique scenic features, or designated scenic areas or views in the affected area that would potentially undergo visual impacts during or after abandonment activities (Illinois Department of Transportation, 2017), 2017; NPS, 2017a).

We conclude that given the existing nature of agricultural and industrial sites where abandonment activities would take place, Natural's use of small areas of surface disturbance for short periods of time, and Natural's proposed soil and vegetative restoration measures contained within our Plan and Procedures, the Project would have short term and minor impacts on residential and other land uses.

5. Cultural Resources

Natural has a Memorandum of Understanding with the Illinois State Historic Preservation Officer (SHPO) that excludes cultural resources surveys when certain activities are occurring on existing previously disturbed right-of-way or existing facilities or surveys have been previously conducted in the specific area. This includes about 16.7 acres of the Project area. The remaining acreage, about 40 acres was reviewed for cultural resources. Natural provided this information to the SHPO in a letter dated July 28, 2017. The SHPO responded that the Project would have no effects on historic properties, in a letter dated August 16, 2017. We agree

Federally recognized tribes (Tribes) were sent information about the Project in letters dated July 28, 2017, and Natural requested comments on effects to resources of their concern. The Tribes were the Citizen Potawatomi Nation, Forest County Potawatomi Community, Hannahville Indian Community, Kickapoo Tribe of Oklahoma, Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas, and the Prairie Band of Potawatomi Nation. The Citizen Potawatomi Nation and responded on October 16, 2017, stating that no known Potawatomi sites would be impacted but wanted to be contacted in the event of an unanticipated discovery.

Natural filed an Unanticipated Discovery Plan for Cultural Resources and Human Remains, and we find the plan acceptable.

Natural consulted with the SHPO regarding the potential effects to cultural resources. The SHPO did not object to the area of potential affect and stated that the Project would have no effects on historic properties. Additionally no traditional cultural properties or properties of religious or cultural importance to Tribes have been identified by Natural, its consultants, the SHPO, or Tribes. The FERC staff and the SHPO agree that the Project would have no effects on historic properties.

6. Air Quality and Noise

a. Air Quality

The Project would result in minor temporary impacts on overall air quality from work equipment exhaust, daily work force commute vehicle exhaust, delivery vehicle exhaust, pipeline blowdown and fugitive dust generation from the abandonment activities of existing facilities, Compressor Station 202, and pipeline laterals.

Ambient air quality is protected by federal and state regulations. The Clean Air Act (CAA) and its amendments designate six pollutants as criteria pollutants for which the National Ambient Air Quality Standards (NAAQS) are promulgated. The NAAQS for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM), including PM less than 10 microns in aerodynamic diameter (PM₁₀) and PM less than 2.5 microns in aerodynamic

diameter (PM_{2.5}), carbon monoxide (CO), ozone, and lead were set by the USEPA to protect human health (primary standards) and public welfare (secondary standards). The current NAAQS for these criteria pollutants are available on the USEPA’s website.

Natural’s abandonment and removal of Compressor Station 202 would eliminate operational air emissions. In addition, all abandonment activities, except pipeline blowdown, would occur in Kankakee County, Illinois, which is currently designated as an attainment area for all criteria pollutants. Pipeline blowdown activities may occur at either Natural’s Compressor Station 201 in Kankakee County, Illinois or at the mainline valve in Will County, Illinois, which is classified as a moderate nonattainment area for ozone (O₃).

Fugitive dust may result from construction activities, land clearing, grading, and vehicle traffic on paved and unpaved roads. It is anticipated that large earth moving equipment and other mobile sources on the Project would be powered by diesel engines and would be sources of combustion-related emissions. The estimated emissions are presented in table 4 below.

| Table 4 - Construction Emissions Associated with the Project | | | | | | | | |
|--|----------------------------------|---------------------|---------------------------------|----------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| | NOx^a (tpy) | CO (tpy) | SO₂ (tpy) | VOC (tpy) | HAP^b (tpy) | PM₁₀ (tpy) | PM_{2.5} (tpy) | CO_{2e} (tpy) |
| 1. Construction Equipment Exhaust | 22.28 | 7.62 | 0.02 | 1.93 | 0.68 | 1.08 | 1.05 | 3,913 |
| 2. Haul Truck Exhaust | 0.19 | 0.05 | 3.58E-04 | 9.67E-03 | 1.39E-03 | 0.02 | 0.01 | 41.48 |
| 3. Worker Commute Exhaust | 0.11 | 0.24 | 3.92E-04 | 0.02 | 2.87E-03 | 4.43E-03 | 4.46E-03 | 45.89 |
| 4. Fugitive Dust from Travel on Paved Roads | -- | -- | -- | -- | -- | 0.42 | 0.10 | -- |
| 5. Fugitive Dust from Travel on Unpaved Roads | -- | -- | -- | -- | -- | 0.74 | 0.07 | -- |
| 6. Fugitive Emissions from Abandonment Activities | -- | -- | -- | -- | -- | 1.52 | 0.32 | |
| 7. Fugitive Emissions from Pipeline Blowdown | | | | 12.50 | | | | 328.51 |
| Total Kankakee County | 22.59 | 7.91 | 0.02 | 1.96 | 0.68 | 3.79 | 1.56 | 4,329 |
| Total Will County | | | | 12.50 | | | | 328.51 |
| ^a NOx = Nitrous oxides; ^b HAP = hazardous air pollutant | | | | | | | | |

Pipeline blowdown emissions consist primarily of methane (CH₄) and volatile organic compounds (VOCs). VOC is a regulated pollutant under the General Conformity Rule; however, CH₄ is not. Methane released during the pipeline blowdown is estimated to be 13.14 tons per year (tpy) and VOC is estimated at 12.50 tpy. As demonstrated in table 4 below, the total air emissions associated with abandonment activities would not exceed the General Conformity de minimis levels. As such, the Project would have minimal air quality impact and no further analysis is necessary.

We received a comment from the USEPA asking whether Natural would install air monitoring stations. Air monitoring stations would not be warranted as most of the emissions associated with the Project would be construction emissions which are short-term, intermittent, and below de minimis levels. Furthermore, abandonment and removal of Compressor Station 202 would eliminate operational air emissions.

b. Noise Impacts

Construction activities would cause temporary increases in noise levels in the immediate vicinity of the construction sites. On-site construction noise would occur mainly from heavy-duty construction equipment (e.g., trucks, backhoes, excavators, loaders, and cranes). Construction noise would be intermittent and for a short period of time. However, this would only be noticeable within a short distance of the Project area.

Two measurements used by some federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, in the calculation of the L_{dn} , late night to early morning (10:00 pm to 7:00 am) noise exposures are penalized +10 decibels (dB), to account for people's greater sensitivity to sound during the nighttime hours. The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is approximately 6.4 dB above the measured L_{eq} .

In 1974, the USEPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. This document provides information for state and local governments to use in developing their own ambient noise standards. The USEPA has indicated that an L_{dn} of 55 decibels on the A-weighted scale (dBA) protects the public from indoor and outdoor activity interference. FERC staff has adopted this criterion and use it to evaluate the potential noise impacts from the proposed Project at noise sensitive areas (NSAs), such as residences, schools, or hospitals. Due to the 10 dBA nighttime penalty added prior to calculation of the L_{dn} , for a

facility to meet the L_{dn} 55 dBA limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA L_{eq} at any NSA. Also, in general, a person's threshold of perception for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

The noise associated with the abandonment of facilities would occur during daytime hours only (7:00 am to 7:00 pm Mondays through Saturdays). The abandonment activities associated with the Project are anticipated to result in short-term, temporary increases in the ambient noise level. The closest residential structure is located approximately 170 feet northwest of the temporary workspace boundaries of Compressor Station 202. Another residential structure is located approximately 80 feet north of the temporary workspace at the K. Schneider No. 1 well. There are no residential structures that would be located within 50 feet of the proposed work areas. Natural would coordinate with these landowners if it is anticipated that work would occur on Saturdays. Natural would also consider only lower noise activities during the earlier morning hours or would conduct abandonment activities at more distant locations when possible. Natural would implement best management practices, including general work noise mitigation measures that would require the contractor to ensure all equipment is in good working order, adequately muffled, and maintained in accordance with the manufactures' recommendations. Noise levels would be one of the factors considered during equipment and contractor selection. Semi-permanent stationary equipment (generators, lights, etc.) may be available in "quiet" packages and should be stationed as far from sensitive areas as possible.

Due to the temporary nature of construction activities and the lack of operational noise, we conclude that the proposed Project would not have a significant impact on noise quality.

7. Reliability and Safety

The transportation and storage of natural gas by storage facilities involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major gas leak from the storage facilities. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The abandonment activities associated with the proposed Project must be conducted and maintained in accordance with USDOT standards, including the provisions for written emergency plans and emergency shutdowns. Natural's facilities to be abandoned would represent a minimum increase in risk to the public and we are confident that with the options available in the detailed design of Natural facilities, that they would be abandoned safely.

8. Cumulative Impacts

In accordance with NEPA, we identified other actions located in the vicinity of the proposed Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by the Council on Environmental Quality (CEQ), a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time.

This cumulative effects analysis generally follows a method set forth in relevant CEQ and USEPA guidance and focuses on potential impacts from the proposed Project on resource areas or issues where the incremental contribution would be potentially significant when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affect a resource potentially affected by the Project;
- cause this impact within all, or part of, the Project's impact area; and
- cause this impact within all, or part of, the time span for the potential impact from the Project.

Geographic Scope

Our cumulative impacts analysis considers actions that impact environmental resources affected by the proposed action, within all or part of the Project area affected by the proposed action (i.e., Project), and within all or part of the time span of the impacts. We use a geographic scope to determine which of the other actions could affect resources affected by the proposed action within all or part of the Project area. The geographic scope (table 5) is a series of resource-specific proximity criteria which we use in this cumulative impacts analysis to describe the general areas for which the Project could contribute to cumulative impacts.

The geographic scope for our analysis of cumulative impacts varies depending on the resources affected and the magnitude of impact, as described further below. For the most part, the geographic scope is limited to the area directly affected by the Project and, depending on the resources, in the adjacent areas. Based on the Project impacts identified and described in this EA and consistent with CEQ and USEPA guidance (CEQ, 1997; USEPA, 1999; USGS, 2013), we have determined that the following resource-specific geographic scopes are appropriate to assess potential cumulative impacts on the respective resources:

| Table 5 - Geographic Scope of Cumulative Resource Impacts | |
|---|---|
| Resource | Geographic Scope |
| Geologic Resources, Soils | Project construction workspace |
| Groundwater, Surface Water, Wetlands, Fisheries, Vegetation, Wildlife | Watershed boundary (Hydrologic Unit Code 12 [HUC-12]) |
| Land Use, Visually Resources | 1.0 mile |
| Air Quality | 0.25 mile |
| Noise Sensitive Areas | 0.50 mile |
| Cultural Resources | Area of Potential Effects (APE) |

- impacts on geologic resources: given that Project well abandonment and capping measures, as well as erosion control measures, are designed to confine impacts on geologic resources and minimize geologic hazards to the project workspaces, we assessed impacts within a geographic scope defined by the Project construction workspace;
- impacts on soils: given that Project abandonment and surface restoration measures, as well as erosion control measures, are designed to confine impacts on soils to the Project workspaces, we assessed impacts within a geographic scope defined by the Project construction workspace;
- impacts on groundwater, surface water, wetlands, vegetation and wildlife:² impacts on water resources and aquatic habitats could result from increased turbidity and disturbance to terrestrial and aquatic habitats. Given that impacts could be expected to extend outside of the Project limits according to processes such as drainage, seed dispersal and wildlife home ranges, but be confined to a topographically contiguous area such as a watershed which also constitutes a natural boundary, we assessed impacts within a within a geographic scope defined by the USGS Hydrologic Code (HUC- 12);
- impacts on land use and visually sensitive resources: given that land uses are by definition locally restricted, while visually sensitive resources can be impacted from relatively far away, we assessed impacts within a geographic scope defined by a 1.0 mile radius of the Project;
- impacts on air quality: given that abandonment activities may contribute dust and exhaust in the immediate vicinity of the Project's aboveground facility sites, and

² As stated in Section B.3.b, no fisheries were identified as being impacted by the Project.

no operational impacts would occur necessitating a larger scope, we assessed impacts within a geographic scope defined by a 0.25 mile radius of the Project workspace;

- impacts on noise sensitive areas: given that noise generated by abandonment activities would dissipate quickly with increasing distance, and no operational impacts would occur necessitating a larger scope, we assessed impacts within a geographic scope defined by a 0.25-mile radius of the Project's aboveground facility sites; and
- impacts on cultural resources: given that impacts on cultural resources are highly localized and generally confined to the historic property or resource that is affected, we assessed impacts, the geographic scope for cultural resource impacts is limited to overlapping effects on historic properties within the APE.

An evaluation was performed to identify past, present, and reasonably foreseeable future projects within the resource-specific geographic scopes for potential cumulative impacts in conjunction with the Project. Natural consulted information from the FERC, the Illinois Department of Transportation, the IDNR, the Kankakee County Planning Department, and the USACE. The projects identified as occurring within the resource-specific scopes are presented in table 6.

Projects Within the Geographic Scope

As described in section B of this EA, Project-related construction and operation would temporarily and permanently impact the environment by impacting geologic resources, soils, groundwater, surface water, wetlands, vegetation, wildlife, air quality, noise sensitive areas and cultural resources.

As indicated in table 6, there are no projects within the geographic scope of the Project for the following resources: soils, land use, visually sensitive resources, air quality, noise sensitive areas, or cultural resources. Therefore, we conclude that the impacts from this Project, when considered cumulatively with past, present, and reasonably foreseeable projects, would not contribute to significant cumulative impacts on these resources, and these resources will not be discussed further in this section. The only resources with potential for the Project to contribute to overall cumulative impacts are geologic resources, groundwater, surface water, wetlands, vegetation and wildlife, discussed below.

Geologic Resources

Construction related impacts on geologic resources resulting from the Project and past activity (i.e., historic installation and operation of the wells of the Herscher Northwest Storage Field beginning in 1969) would, on the one hand, be direct and concentrated on subsurface levels, and on the other hand, be temporary and minimal at the surface. Natural's plugging activities involves directly applying cement to fill the inside and outside spaces of

| Table 6 - Cumulative Impacts - Recently Completed, Present, and Reasonably Foreseeable Projects in the Project Area ^a | | | | |
|--|--|--|--|-----------------------------------|
| Project Name, Sponsor/Proponent and Location | Description | Distance / Direction from Project | Anticipated Impacts and Permits/Authorizations | Schedule / Status |
| Groundwater, Surface Water, Wetlands, Vegetation, Wildlife (Geographic Scope = Hydrologic Unit Code 12 (HUC-12 Watershed)) | | | | |
| Herscher Suction Line; NGPL; Kankakee County, Illinois | Excavate 30-inch Herscher Suction pipeline segment to remove casing from what is no longer a railroad crossing. No pipe replacement. | 3.5 miles south | Project is in an agricultural field. No water resources present. Temporary soil disturbance from excavation. FERC notification and local agency Coordination. | Construction: June 2017 Complete |
| Kankakee County Abandonment Project; NGPL; Kankakee County, Illinois | Abandonment of well tubing on the Saffer 3 injection / withdrawal well in the Herscher Mount Simon Storage Field. | 3.0 miles southeast | Project is at existing well pad. No water resources present. No impacts on resources. FERC notification and local agency Coordination | Construction: 2015 Complete |
| Kelly Creek Wind Farm; EDF Renewable Energy; Ford County, Illinois | Installation of 92 Vestas V100 wind turbines. | 8.0 miles south | Project is in agricultural fields. Permanent disturbance includes turbine pad and access road. Potential impacts on soil, water, and wildlife. NPDES SWPPP approval and local agency coordination. | Construction: 2015-2016 Complete |
| Pilot Hill Wind Farm; EDF Renewable Energy; Iroquois County, Illinois | Installation of 103 General Electric (GE) wind turbines. | 7.8 miles southeast | Project is in agricultural fields. Permanent disturbance includes turbine pad and access road. Potential impacts on soil, water, and wildlife. NPDES SWPPP approval and local agency coordination. | Construction: 2014- 2015 Complete |
| ^a No other projects occur within the geographic scopes for geologic resources, soils, land use, visually sensitive resources, air quality or noise sensitive areas. | | | | |

potentially deteriorating wells to various depths, and to applying cement caps near the surface at the well sites and pipeline capping sites. Abandonment activities would intrude into bedrock and aquifer formations and isolate vertical movement of groundwater amongst the various bedrock strata by successfully plugging each well bore at depths ranging from 2,200 to 2,500 feet.

Natural would conduct well plugging and capping abandonment procedures in accordance with the IDNR rules and regulations. Subsurface disturbances would be restricted to short term periods of activity and designed to isolate and stabilize well bores for the long-term. Natural would confine the Project's well capping and aboveground facility abandonment activities to surfaces within and directly adjacent to existing storage field

facility and rights-of-way. None of the areas of disturbance at the nearby projects would overlap those of the Project's construction limits. Therefore, we conclude that, in consideration with the existing operating storage field project and other nearby projects, the Project is not expected to significantly contribute to cumulative impacts on geologic resources.

Groundwater, Surface Water, Wetlands, Vegetation and Wildlife

Well plugging and capping, as well as excavations and capping of the pipeline laterals, may induce soil erosion and runoff from the Project work space limits which could impact groundwater, surface waters and wetlands. Two HUC watersheds in which the Project lies comprise the geographic region of influence for this analysis: the Upper Mississippi Region - Upper Illinois Basin Grave Creek-Granary Creek HUC (HUC-12 071200050204); and the West Branch Horse Creek HUC (HUC-12 071200011603). A total of four nearby projects included in this cumulative impacts analysis occur within these HUCs.

Groundwater impacts from the Project could potentially occur, but are expected to be minor to non-existent given the short duration and relatively shallow depth of soils disturbed by the well and pipeline lateral plugging and capping activities. Natural's implementation of erosion and sedimentation control measures in our Plan and Procedures should minimize sediment and contaminants carried by surface runoff entering the well bores at the surface. In addition, abandonment well bore plugging help protect groundwater resources by isolating groundwater in the various geologic strata from mixing with each other via the well bores in their current state. Groundwater impacts from other nearby surface projects would impact different strata within the overall groundwater systems that would be potentially disturbed or isolated from the Project's well abandonment procedures. Given the mitigation measures listed above for water resource impacts, the proposed Project is not expected to contribute cumulatively to impacts on groundwater.

A total of 0.09 acres of palustrine emergent farmed wetland would be temporarily disturbed, including the potential for a limited amount of sediment loading and alteration of wetland soils. Surface waters within the Project area would not be disturbed, and any runoff into the wetland or nearby surface waters would be minimal given the small size of the Project's well pads to be abandoned. Project related impacts would be lessened by Natural's implementation of protective construction and restoration measures which could serve to control sedimentation and excessive water runoff from the Project's abandonment sites. In addition, the wetland would be allowed to revert to previous conditions following abandonment activities. Given these considerations, we conclude that no cumulative impacts to wetlands or surface waters would occur from the Project in combination with other projects.

Vegetation and associated wildlife habitat is limited given the prominence of cultivated agriculture and gravel-covered aboveground facility sites within the Project

footprint. Considering the highly localized impacts associated with vegetation and wildlife habitat and wildlife, Natural's use of restoration and revegetation measures contained within our Plan and Procedures would confine these impacts to being highly localized, short-term, and effectively mitigated with mitigation measures. Given the distance from and completion of nearby Projects within the geographic scope, we conclude that the Project's abandonment activities, in combination with other projects, would not contribute to significant cumulative impacts on vegetation or wildlife resources.

C. ALTERNATIVES

In accordance with the NEPA and Commission policy, we identified and evaluated the no-action alternative to the proposed Project to determine whether they would be reasonable and environmentally preferable to the proposed action. The criteria used to evaluate the no-action alternative included:

- offers a significant environmental advantage over the proposed Project;
- is technically and/or economically feasible and practical; and
- meets Natural's stated Project purpose to abandon and close down its under-used storage field pipelines, wells, and compressor station.

Given the absence of any environmental advantage or technical feasibility for evaluating system alternatives or alternative site locations of aboveground or belowground facilities, we did not evaluate these types of alternatives.

1. No-Action Alternative

The abandonment activities are proposed in order to cease use of a storage system that has become functionally unreliable and difficult to remedy. Under the No Action Alternative, Natural would not abandon the facilities and the temporary environmental disturbances would be avoided. However, this alternative is not a viable option, because Natural would be forced to maintain its operations amidst continued unfavorable technical and economic conditions, which include new PHMSA rules for demonstrating storage cavern integrity. Therefore, we do not recommend this alternative and conclude that the proposed Project is the preferred alternative to meet the Project objectives.

D. STAFF'S CONCLUSIONS AND RECOMMENDATIONS

Based on the above environmental analysis and information in Natural's application and supplements, we have determined that approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that a finding of no significant impact be included in the Commission's order and the following mitigation measures be included as conditions to the authorization:

1. Natural shall follow the construction and abandonment procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Natural must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification.**

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of all environmental resources during abandonment activities associated with Project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project abandonment activities.

3. **Prior to any construction**, Natural shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized abandonment locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Natural shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved for abandonment by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Natural's exercise of eminent domain authority granted under Natural Gas Act (NGA) section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Natural's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural

gas pipeline and facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Natural shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Within 60 days of the acceptance of the authorization and before construction begins,** Natural shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Natural must file revisions to the plan as schedules change. The plan shall identify:
 - a. how Natural will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
 - b. how Natural will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;

- c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Natural will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);
 - f. the company personnel (if known) and specific portion of Natural's organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Natural will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the environmental compliance training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. Natural shall employ at least one EI for the Project. The EI shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - e. responsible for maintaining status reports.
8. Beginning with the filing of its Implementation Plan, Natural shall file updated status reports with the Secretary on a **monthly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Natural's efforts to obtain the necessary federal authorizations;

- b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of the corrective actions implemented in response to all instances of noncompliance;
 - e. the effectiveness of all corrective actions implemented;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Natural from other federal, state, or local permitting agencies concerning instances of noncompliance, and Natural's response.
9. Natural must receive written authorization from the Director of OEP **before commencing any Project construction or abandonment activities**. To obtain such authorization, Natural must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. **Within 30 days of completing Project abandonment**, Natural shall file an affirmative statement with the Secretary, certified by a senior company official:
- a. that the facilities have been abandoned in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions in the Order Natural has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

E. REFERENCES

Buschbach, T.C. 1964. Cambrian and Ordovician Strata of Northeastern Illinois: Report of Investigations No. 218. Urbana, IL: Illinois State Geological Survey.

<https://www.ideals.illinois.edu/handle/2142/43587>. Accessed July 2017.

Council on Environmental Quality (CEQ). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. 122 pp. Washington, D.C.: Council on Environmental Quality, Executive Office of the President.

Illinois Department of Natural Resources (IDNR). 2017. Coastal Management Program Boundaries. <http://www.dnr.illinois.gov/cmp/Pages/boundaries.aspx>. Accessed July 2017.

Illinois Department of Transportation. 2017. Illinois Scenic Byways Program.

<http://www.idot.illinois.gov/travel-information/tourism/scenic-byways/>. Accessed July 2017.

Illinois Environmental Protection Agency (IEPA). 2015. Drinking Water Information, Notices to Public Water Supply Users about Groundwater Contamination.

<http://www.epa.state.il.us/water/drinking-water-watch/pws-well-contamination/index.html>.

Accessed July 2017.

Illinois State Geological Survey (ISGS). 2017. Prairie Research Institute: Physiographic Divisions of Illinois. <http://isgs.illinois.edu/content/physiographic-divisions-illinois>.

Accessed July 2017.

Illinois State Water Survey (ISWS). 2017. Prairie Research Institute: Illinois Groundwater Resources Interactive Map. <http://www.isws.illinois.edu/gws/maps/gwresintmap.asp>.

Accessed July 2017.

Illinois State Water Survey (ISWS). 2018. Prairie Research Institute: Illinois Groundwater Resources Interactive Map. <http://www.isws.illinois.edu/gws/maps/gwresintmap.asp>.

Accessed January 2018.

Morse, David G. 2003. Reservoir Characterization & 3D Models of Mt. Simon Gas Storage Fields in the Illinois Basin, Annual Technical Progress Report: Illinois State Geological Survey.

National Park Service (NPS). 2017a. National Park Service Illinois Homepage.

<https://www.nps.gov/state/il/index.htm>. Accessed July 2017.

NPS. 2017b. National Trails System Map.

<https://www.nps.gov/subjects/nationaltrailssystem/maps.htm>. Accessed July 2017.

NPS. 2017c. Wild and Scenic Rivers Homepage. <http://www.rivers.gov/rivers/>. Accessed

July 2017.

Natural Resources Conservation Service. 2017. Soil Survey Geographic Database. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053627. Accessed July 2017.

Nelson, W.J. 1995. Structural Features in Illinois: Bulletin 100. Champaign, Illinois: Illinois State Geological Survey. <http://www.sciepub.com/reference/140775>.

Prairie State Conservation Coalition. 2017. I-View Interactive Map. <http://prairiestateconservation.org/i-view/>. Accessed July 2017.

United States Environmental Protection Agency (USEPA). 1999. Consideration of Cumulative Impacts in EPA Review of NEPA Documents. EPA 315-R-99-002/May 1999. <https://www.epa.gov/sites/production/files/2014-08/documents/cumulative.pdf>. Accessed July 2016.

USEPA. 2016. Sole Source Aquifer Protection Program, Region 5. <http://water.epa.gov/infrastructure/drinkingwater/sourcewater/protection/solesourceaquifer.cfm>. Accessed July 2017.

US Geological Survey (USGS). 1995. Ground Water Atlas of the United States: Illinois, Indiana, Kentucky, Ohio, Tennessee. HA 730-K. http://pubs.usgs.gov/ha/ha730/ch_k/index.html. Accessed July 2017.

USGS. 2003. Aquifers: Map of the Principal Aquifers of the United States. <https://water.usgs.gov/ogw/aquifer/map.html>. Accessed September 2017.

USGS. 2013. Federal Standards and Procedures for the National Watershed Boundary Dataset (WBD) Chapter 3 of Section A, Federal Standards Book 11, Collection and Delineation of Spatial Data.

F. LIST OF PREPARERS

Barakat, Kandilarya - Air Quality and Noise, Reliability and Safety

M.E., Environmental Engineering/Project Management, 2006, University of Maryland

B.S., Chemical Engineering, 2003, University of Maryland

Bowman, Kevin – Cumulative Impacts

B.S., Chemistry, 2010, McDaniel College

B.S., Environmental Science, 2009, McDaniel College

Howard, Eric - Cultural Resources

M.A., Anthropology, 1997, University of Tennessee

B.A., Anthropology, 1992, University of Tennessee

Mallory, Christine - Surface Water, Wetlands, Vegetation, Wildlife, Migratory Birds,
Fisheries, Special Status Species

M.S., Environmental Management, 2013, Samford University

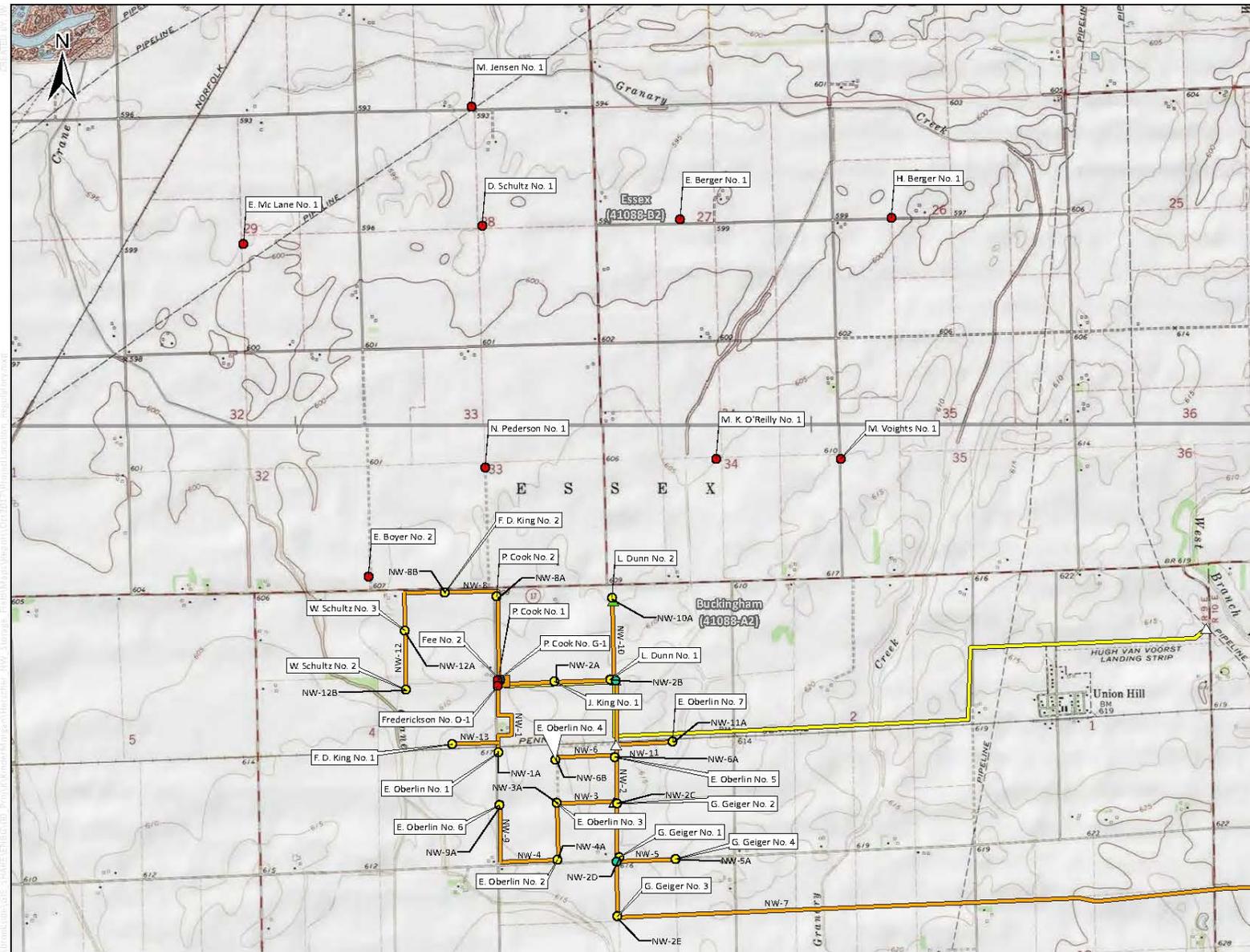
B.S., Biology, 2012, Stillman College

Polit, Juan, Project Manager - Proposed Action, Geology, Soils, Groundwater, Land Use,
Cumulative Impacts, Alternatives

M.S., Forest Ecology, 1992, University of Illinois

B.S., Forest Science, 1989, University of Illinois

Figures 1-5



DATE: 10/24/2017

- Compressor Station (CS 202)
- △ Valve
- ▲ Pig Facility
- Corrosion Monitor
- Main Lateral
- Lateral
- Well
- Injection/Withdraw
- Saltwater Disposal
- Observation

Scale: 1:25,000
 0 0.25 0.5 0.75 Miles

Figure 1
 Herscher Northwest Storage Field
 Abandonment Project
 Kankakee County, Illinois
 Natural Gas Pipeline Company
 of America LLC
 FERC Docket No. CP18-12-000

