

APPENDIX IP-18
CROP PRODUCTIVITY MONITORING PLAN

INTENTIONAL BLANK PAGE



NEXUS Gas Transmission, LLC

Crop Productivity Monitoring Plan

April 2017

INTENTIONAL BLANK PAGE

NEXUS CROP PRODUCTIVITY MONITORING PLAN

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	PROJECT OVERVIEW	1
3.0	BACKGROUND	1
4.0	MONITORING OBJECTIVES.....	3
5.0	METHODS.....	3
5.1	IDENTIFYING AND TRACKING CROPLAND RESTORATION/PRODUCTIVITY CONCERNS.....	3
5.2	COMMUNICATIONS WITH LANDOWNERS/TENANT FARMERS.....	3
5.3	DEVELOPING CORRECTIVE ACTIONS.....	4
5.4	ON-ROW/OFF-ROW COMPARATIVE ANALYSIS.....	4
6.0	NEXUS COMPLAINT RESOLUTION PROCEDURE.....	5
7.0	REPORTING	6

INTENTIONAL BLANK PAGE

1.0 INTRODUCTION

NEXUS Gas Transmission, LLC (“NEXUS”) has developed this post-construction Crop Productivity Monitoring Plan (“CPMP”) for the NEXUS Gas Transmission Project (“Project or NEXUS Project”) in response to Recommendation 18 presented in the Final Environmental Impact Statement (“FEIS”) issued for the Project by the Federal Energy Regulatory Commission (“FERC”) in November 2016.

2.0 PROJECT OVERVIEW

The NEXUS Project consists of construction and operation of approximately 256 miles of new, 36-inch diameter, natural gas pipeline, including approximately 209 miles of new pipeline in Columbiana, Stark, Summit, Wayne, Medina, Lorain, Huron, Erie, Sandusky, Wood, Lucas, Henry, and Fulton Counties, Ohio; and approximately 47 miles of new pipeline in Lenawee, Monroe, and Washtenaw Counties, Michigan (*see* Figure 1). The Project also includes construction of four (4) new compressor stations, six (6) new metering and regulating (M&R) stations and other appurtenant facilities. NEXUS is planning to commence construction of the Project in 2017.

3.0 BACKGROUND

On November 20, 2015, NEXUS filed an application with the FERC in Docket No. CP16-22-000 pursuant to Section 7(c) of the Natural Gas Act (“NGA”) requesting a Certificate of Public Convenience and Necessity (“Certificate”) to construct, own, and operate the NEXUS Project. The FERC evaluated the potential adverse and beneficial environmental impacts of the Project in a draft Environmental Impact Statement (DEIS) that was published in July of 2016. The FERC also held public informational meetings in Swanton, Fremont, Elyria, Wadsworth, and Uniontown, Ohio; and Tecumseh, Michigan between August 10, 2016 and August 18, 2016 to provide agencies, stakeholders, and the general public the opportunity to comment on the DEIS. The FERC addressed public and agency comments in its FEIS published in November 2016, which included the following as Recommendation 18:

Prior to Construction, NEXUS shall file with the Secretary a 5-year post-construction monitoring program to evaluate crop productivity in areas impacted by the construction of the Project. NEXUS shall include in the program a commitment to file with the Secretary quarterly reports for a period of 5 years following construction documenting any crop-related problems and describing any corrective action taken to remedy those problems. The program shall stipulate that if any landowner agrees that revegetation and crop productivity are successful prior to the 5-year requirement, NEXUS shall provide documentation in its quarterly reports indicating which landowners have agreed that monitoring is no longer necessary. This documentation shall include the landowner name, tract number, and the date of agreement.¹

In response to FEIS Recommendation 18, NEXUS has prepared this CPMP that details how NEXUS will implement its compliance with this FERC request.

¹ Office of Energy Projects, *Final Environmental Impact Statement – NEXUS Gas Transmission Project and Texas Eastern Appalachian Lease Project*, FERC/FEIS-270F, Nov. 30 2016, at Section 4.2.2.



4.0 MONITORING OBJECTIVES

The objectives of this CPMP are to monitor and document construction-related cropland productivity problems for a period of five years following construction and to facilitate cropland restoration. If construction-related crop productivity problems are identified during monitoring, NEXUS will work with landowners/tenant farmers to determine appropriate corrective actions to alleviate the problems. NEXUS will file quarterly reports submitted to the FERC containing monitoring results, a summary of landowner communications, corrective actions taken or proposed to address problems, and confirmations from agricultural landowners/tenant farmers that restoration of cropland is successful and that monitoring is no longer required.

5.0 METHODS

The following sections summarize the methods NEXUS would use to identify a potential construction related adverse effect on crop productivity. The agricultural lands within the scope of this CPMP may include lands used for the production of crops for harvest. Crops include row crops, hay crops, close grown crops, fruits, vegetables, and horticultural plants or crops. Lands used for pasture, or land enrolled in conservation grassland programs, conservation reserve programs or other non-harvestable cover crops are not included under the scope of this monitoring plan.

5.1 IDENTIFYING AND TRACKING CROPLAND RESTORATION/PRODUCTIVITY CONCERNS

During the five year monitoring program, a qualified local agronomist along with a NEXUS representative will collect, record, and respond to, as necessary, site specific concerns associated with crop productivity as reported by landowners/tenant farmers. The agronomist will coordinate with a NEXUS representative prior to undertaking these activities, to ensure that landowner and access coordination occurs.

During the first three years following construction, in addition to responding to specifically expressed landowner concerns associated with crop productivity, a qualified local agronomist will drive accessible areas along the entire pipeline route during the growing season and make visual observations of crop productivity, comparing on and off the ROW conditions. Such a general screening will allow NEXUS to proactively address potential emerging crop productivity issues and transmit to FERC a broad-scale assessment of NEXUS impacts to cropland. This initial three year period of post-construction monitoring will allow cropland affected by construction to adjust to the effects of climatic cycles such as frost action, precipitation and growing seasons. The objective during this time period will be to assess and evaluate site specific conditions and to mitigate the potential causes of diminished crop productivity as reported by landowners.

NEXUS will also track complaints related to crop productivity received on the NEXUS landowner hotline and will include the status of NEXUS communications with landowners in a weekly report filed with the FERC during construction and restoration phases of the Project and in quarterly reports following restoration, as described in more detail below in Section 6 of this report. This reporting will continue for five years following construction in accordance with FERC FEIS Recommendation 18, provided in Section 3.0 of this report.

5.2 COMMUNICATIONS WITH LANDOWNERS/TENANT FARMERS

NEXUS representatives will contact landowners/tenant farmers with an identified cropland restoration or productivity concern based on the data collected during ROW restoration, reported through NEXUS land agents, and through the landowner compliant resolution hotline described in Section 6.0 of this report. NEXUS will work with landowners/tenant farmers to understand the details of the cropland restoration/productivity concern and will provide landowners with the option of discussing recommendations for NEXUS implemented correction actions or discussing compensation

for self-implementing corrective actions. NEXUS will continue working with landowners until cropland restoration/productivity is restored. The status of these communications will be filed with the FERC in accordance with reporting described in Section 7.0.

5.3 DEVELOPING CORRECTIVE ACTIONS

The objectives of the crop productivity monitoring program will be to assist with developing recommendations for corrective actions intended to restore the portion of the cropland disturbed by construction of the NEXUS Project to its pre-construction conditions and productivity. Specifics of the corrective action plan will take into account site specific conditions and characteristics, landowner/tenant farmer preferences, goals, and management level and style.

5.4 ON-ROW/OFF-ROW COMPARATIVE ANALYSIS

If a landowner/tenant farmer requests a crop productivity analysis, NEXUS will document the request, investigate the area to determine whether conducting the analysis is warranted to develop an effective corrective action plan, and will work with the landowner/tenant farmer to identify concerns and corrective actions. If it is determined that a crop productivity comparative analysis is required to develop an effective corrective action plan, specific criteria will be used to identify plot sample locations. The plot sample locations will be reviewed and approved by the subject landowner/tenant farmer, prior to the start of field work.

Each sample site will be comprised of a four (4) point straight line transect perpendicular to the constructed NEXUS pipeline ROW. Two of the four (4) observation points along this straight line transect will be on-ROW and two will be off-ROW. The two off-ROW observation points will be 50 feet outside each outer edge of the construction workspace. The two on-ROW observation points will be sited based on site specific conditions and in areas of observed reduced crop productivity, if present. On-site monitoring of all four points shall be conducted during the growing season. All points would be geo-referenced and located on maps for the purpose of inclusion in the monitoring report that will be submitted to FERC.

In order to make valid comparisons, all four points should have the same landowner/tenant farmer (i.e. operator), crop and crop management/production methods and treatments (e.g. tillage, fertilization, pest control, etc.). The final step in crop productivity monitoring ("CPM") site selection will be landowner approval for site access.

Each of the four observation points along the straight line transect at a CPM plot will be observed for the following plant characteristics:

- Crop height
- Crop density
- Crop color
- Crop vigor
- Crop plant population and spacing
- Crop growth irregularities
- Crop pest pressure
- Crop species composition

Because soil health is a primary determinant of crop productivity, each of the four points along the straight line transect at a CPM site will be observed for the following soil characteristics:

Soil type (map unit, per SSURGO² data)

- Uncharacteristic wetness or ponding
- Surface residue and rock content
- Surface crusting and cracking
- Surface erosion - gully and rill
- Subsidence and sinkholes from soil surface and/or drain tile anomalies
- Topsoil color
- Topsoil depth
- Penetration resistance of topsoil

Using the previously referenced indicators of crop productivity, a Crop Productivity Index will be developed and utilized to facilitate quantification and comparative analysis of the on-ROW and off-ROW datasets.

6.0 NEXUS COMPLAINT RESOLUTION PROCEDURE

NEXUS has developed a landowner Complaint Resolution Procedure (CRP) that will be implemented during the construction and restoration phases of the Project. The NEXUS CRP will include a 24-hour landowner complaint resolution hotline that landowners can call to report concerns associated with crop restoration or productivity. Following construction and restoration activities, once the pipeline is in operation, all landowners will be provided a point of contact and a 24 hour hotline for reporting concerns associated with easements. In addition, if landowners are not satisfied with the NEXUS response to their concerns or complaints, the NEXUS CRP includes both a telephone number and email address for contacting the FERC to voice concerns. NEXUS hotline operators will keep records of all calls related to cropland restoration or productivity and will provide this information to local NEXUS lands agents within 24 hours of receipt of the call. This will start the process of working with cropland owners to evaluate concerns and develop corrective actions.

Prior to the start of construction, the NEXUS CRP will be submitted to the FERC with the Project Implementation Plan and a letter containing the details of the CRP will be sent to all landowners with property crossed by the Project. The CRP will include the NEXUS Project hotline number 1(844) 589-3655; the FERC Landowner's Helpline number 1 (877) 337-2237; and the FERC landowner help email address LandownerHelp@ferc.gov.

² The SSURGO database is maintained by the Natural Resources Conservation Service, and contains information about soils collected by the National Cooperative Soil Survey over the course of a century. Examples of information available from the database includes available water capacity, soil reaction, electrical conductivity, and frequency of flooding; yields for cropland, woodland, rangeland, and pastureland; and limitations affecting recreational development, building site development, and other engineering uses.

7.0 REPORTING

NEXUS will include a summary report of crop productivity related landowner communications in quarterly reports to be filed with FERC for a period of five (5) years following construction in accordance with FERC's FEIS Recommendation 18. Summary reports will include the following information:

- monitoring results including results of visual assessments
- a summary of corrective actions proposed or taken on properties where crop productivity was determined to have been adversely affected by construction of the Project. The summary will include both NEXUS and landowner implemented corrective actions; and
- Documentation indicating which landowners have agreed that restoration of crop productivity or revegetation is successful and monitoring is no longer necessary. Documentation will include landowner name, tract number, and the date of agreement.