UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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JUN 13 2016

REPLY TO THE ATTENTION OF
E-19J

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

ORIGINAL

Re: FERC Draft Environmental Impact Statement (DEIS) for the Columbia Gas Transmission – Leach Xpress Pipeline Project and Columbia Gulf Transmission – Rayne Xpress Expansion Project, (FERC Docket Nos. CP15-514-000, CP15-539-000, Respectively) (CEQ No. 20160089)

Dear Ms. Bose:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) regulations for implementing NEPA, the United States Environmental Protection Agency (EPA) has completed its review of the Federal Energy Regulatory Commission's (FERC) draft environmental impact statement (DEIS) for the Leach Xpress Pipeline (LX) and Rayne Xpress Expansion (RXE) Projects (Projects), proposed by Columbia Gas Transmission (Columbia Gas) and Columbia Gulf Transmission (Columbia Gulf) (Projects Proponents), respectively.

Projects Proponents request FERC authorization to construct, abandon in-place, replace, and/or operate certain interstate natural gas pipeline facilities in Ohio, Pennsylvania, West Virginia, and Kentucky. Columbia Gas proposes to transport/deliver "about" 1.5 million dekatherms (Dth/d) of natural gas per day of firm transportation service to natural gas consumers served by Columbia Gas pipeline systems. Columbia Gulf requests authorization to add new compression and provide 621 dekatherms per day of firm transportation on Columbia Gulf's system.

EPA has rated the DEIS EC-2 Environmental Concerns, Insufficient Information. The EC-2 rating indicates that we have concerns that the document does not contain enough information to fully assess the environmental impacts that should be avoided in order to fully protect the environment. EPA has identified several potential reasonably available alternatives which might reduce the environmental impacts of the action. See the enclosed Summary of Rating Definitions for a detailed explanations of EPA's ratings.

EPA concerns are primarily due to insufficient information regarding: 1) identification and evaluation of alternatives, 2) avoidance of and minimization of impacts to streams and wetlands, 3) impacts to upland forest, core forest and associated wildlife, 3) identification of environmental justice populations, 4) potential noise impacts on noise-sensitive areas (NSAs), such as residences, 5) greenhouse gas emissions and climate change, and 6) mitigation. In addition, the

DEIS does not include: 1) a wetland/stream mitigation plan, 2) upland/core forest mitigation plan, nor 3) Columbia Gas's and Columbia Gulf's emergency response plans. Enclosed are our detailed comments, which include recommendations for additional information to include in the Final EIS (FEIS). These comments are consolidated from reviews done by EPA regional offices that cover the affected states.

When FERC submits the FEIS to EPA headquarters, also send paper copies and CDs of the Final EIS to EPA Regional Offices as follows:

- EPA Region 5 (Chicago): one (1) paper copy and three (3) sets of CDs,
- EPA Region 4 (Atlanta): one (1) set of CDs, and
- EPA Region 3 (Philadelphia): one (1) set of CDs.

If you or your staff have any questions or concerns, I can be reached at 312-886-2910, or contact Virginia Laszewski of my staff at laszewski.virginia@epa.gov or 312-886-7501.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosures: Summary of Rating Definitions
EPA Detailed Comments

Cc (email): Federal Energy Regulatory Commission, Juan Polit, Environmental Project Manager, juan.polit@ferc.gov

U.S. Army Corps of Engineers, Michael Hatten, Chief, Energy Resources, Huntington District, Michael.E.Hatten@usace.army.mil

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SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment

U. S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE LEACH XPRESS PIPELINE (LX) PROJECT AND RAYNE EXPRESS EXPANSION (RXE) PROJECT, MICHIGAN, OHIO, PENNSYLVANIA, WEST VIRGINA, KENTUCKY, APRIL 6, 2016 (CEQ NO. 20160089)

Columbia Gas Transmission (Columbia Gas and Columbia Gulf Transmission (Columbia Gulf) (Projects Proponents) propose to construct and operate the following natural gas facilities/components (Projects):

- Columbia Gas – Leach XPress Pipeline (LX): 133 miles of new 30- and 36-inch-diameter natural gas pipeline, 27 miles of 36-inch-diameter looping pipeline, 28 miles of 20-inch-diameter pipeline to be abandoned in place, 3 new compressor stations, and appurtenant facilities including 3 existing compressor station modifications, 4 new and 1 modified regulator stations, 13 pig launcher and receiver facilities, 9 mainline valves and 4 odorization facilities in Ohio, West Virginia and Pennsylvania; and

- Columbia Gulf – Rayne Xpress Expansion (RXE): two new compressor stations, and modify an existing measurement and regulation station in Kentucky.

The majority of the following comments follow the numbered topic order as presented in the Draft Environmental Impact Statement (DEIS).

Executive Summary
Proposed Action (Page ES-1)

Recommendation: EPA recommends the Executive Summary include a more detailed description of the Leach Xpress Pipeline (LX) Project. We recommend the summary include the lengths of pipeline construction and abandonment.

Vegetation, Wildlife, Fisheries, and Federally Listed and State-Sensitive Species (Pages ES-6 and ES-7)
The DEIS (Page ES-7) states: *"WVDEP recommended that water withdrawn from the Ohio River either be discharged back into the Ohio River or be treated with a WVDEP-recommended biocide prior to discharge."* Water discharged from hydrostatic testing should not be treated with certain biocides and could impact fish and aquatic vegetation.

Recommendation: We recommend the FEIS clarify whether a biocide will be used for hydrostatic testing. If a biocide will be used, then further describe it in Section 2.3.1.7, in the Hydrostatic Testing process.

1.0 Introduction
1.1 Project Purpose and Need (Page 1.2)
The description of the project purpose is based on the information provided by the Project Proponents, Columbia Gas and Columbia Gulf. The purpose is to transport natural gas to meet market demand. Specific dekatherm capacities are provided, although it is unclear how these

units were determined or generated. In the absence of this type of supporting documentation, it is unclear if the stated purpose and need is too narrow, thereby limiting the available range of alternatives.

Recommendation: EPA suggests that a broader purpose and need statement be developed which would allow for a broader range of alternatives to be considered in the EIS.

Binding precedent agreements support the LX Project and Rayne Express Expansion (RXE) Project, which are able to be terminated if certain conditions are not met, including regulatory approvals.

Recommendation: Please clarify if these agreements are duplicative of other agreements entered into by the Project Proponents for other pipeline projects in this region.

1.2 Purpose and Scope of the EIS (Pages 1-2 and 1-3)
The purpose and scope of the EIS includes describing and evaluating reasonable alternatives that would avoid or have substantially less adverse effects on the environment while still meeting project objectives.

Recommendation: EPA recommends expanding the alternatives analysis and consider our recommendations regarding alternatives below under "Alternatives."

1.4 Non-Jurisdictional Facilities (Pages 1-11 - 1-13)
The DEIS (Page 1-11) states: *"Non-jurisdictional facilities necessary to operate the LX Project are anticipated to include two new Point of Receipt (POR) facilities located near Majorsville, West Virginia and Clarington, Ohio, as well as the addition of new power supplies and other utilities at the new compressor stations [CS] and new regulator stations (RS). . . . Non-jurisdictional facilities necessary to operate the RXE Project are limited to the addition of new power and water supply at the Grayson CS and Means CS."*

The DEIS (Page 1-13) states: *"Though construction of the non-jurisdictional electrical facilities may overlap with the construction of the projects, construction of these facilities would result in negligible environmental impacts due to sufficient extension of the existing power service to the proposed facilities; therefore, these facilities are not included in the cumulative impacts analysis in section 4.13."* The DEIS does not include the supporting analysis and documentation that demonstrates these facilities would result in negligible environmental impacts.

Recommendations: EPA recommends the impacts associated with the construction and operation of the new electrical facilities necessary to supply power to operate the LX and RXE Projects be evaluated in the EIS. Explain how connection locations and sources were determined. At a minimum, EPA suggests that these impacts be evaluated under the cumulative impact analysis.

1.5 Permits, Approvals, Consultations, and Regulatory Review (Pages 1-13 – 117)
Table 1.5-2 (Page1-17), covers applicable major permits, licenses, authorizations, and clearances for the RXE Project. For the Kentucky area, the Clean Water Act Section 401 Water Quality

Certification, the status column shows the anticipated submittal as August 2015. We were unable to locate the certification or any information that such permit has been pursued.

Recommendation: EPA highly recommends that the Project Proponents contact Quality Certification Section of the Kentucky Division of Water prior to the submission of the application. The State of Kentucky has guidelines for stream relocation/mitigation.

2.0 Projects Description
2.1 Proposed Facilities
2.1.2.1 New Aboveground Facilities (Pages 2-5 to 2.10)

Table 2.1.2-1 Above Ground Facilities for the LX Project, and

Table 2.1.2-2 Above Ground Facilities for the RXE Project

Recommendation: Include acres associated with each aboveground facility in Tables 2.1.2-1 and Table 2.1.2-2.

2.3.2 Special Construction Techniques (Pages 2-23 – 2-30)
2.3.2.6 Road Crossings (Page 2-29)

Recommendation: We recommend Section 2.3.2.6 of the FEIS discuss the number of roads that will be crossed, the amount of material that will be waste, how waste will be shipped out, and if any of the road material will be recycled.

2.6 Operation, Maintenance, and Safety Controls (Pages 2-34 – 2-35)
2.6.1 Permanent Safety Controls (Page 2-34)

Recommendation: We recommend Section 2.6.1 of the FEIS discuss how long the permanent erosion controls will be maintained and the frequency of maintenance. Sedimentation from erosion has a large impact on surface water; these controls have the ability to reduce these long term impacts.

3.0 Alternatives (Pages 3-1 – 3-18)
The DEIS (Page 3-1) states: *"It is important to note that not all conceivable alternatives are technically feasible or practical. Some alternatives may be incapable of being implemented due to limits on existing technologies, constraints of system capacities, or logistical considerations, while others may be impractical because sites are unavailable or cannot be developed for the proposed use."* EPA agrees; however, it is still necessary for the alternatives analysis to present the alternatives considered as well as the rationale for each alternative's dismissal from further consideration.

Recommendation: Please include the various alternatives to the proposed action that may have been considered but were dismissed from further consideration, including alternatives that were considered but dismissed during FERC's pre-filing process. Provide the rationale for those alternatives dismissed from further consideration.

The DEIS (Page 3-1) continues: *"Additionally, it is necessary to recognize the environmental advantages and disadvantages of the proposed action in order to focus the analysis on reasonable alternatives with the potential to provide a significant environmental advantage over the LX and RXE Projects."*

Recommendations:

- Clarify how the potential to provide a significant environmental advantage is determined and if this determination is made within the context of the NEPA document.
- State/explain why it is assumed that significant environmental advantages over the proposed action do not occur.
- Present the differences in impacts between alternatives, particularly for alternatives that may have similar impacts, alongside those of the applicant's proposed/preferred alternative's impacts.
- Include, if applicable, an expanded alternatives analysis of additional alternatives that may have been prematurely dismissed from consideration.
- We suggest that the distinction be made between route modifications made during the FERS's pre-filing process and alternatives which go beyond modifications at the landowner level and may be at the landscape scale or system scale.
- Please clarify how the start and end point locations for the proposed project were determined. Consider if system alternatives that utilize different start or end points may meet the project purpose and need.
- If screening criteria were used in evaluating the system alternatives present, please detail those in the FEIS.
- If different screening criteria were used to evaluate different system alternatives, please clarify these discrepancies.

3.2 System Alternatives (Pages 3-2 - 3-6)
3.2.1.2 Expansion of Existing Pipeline System (Pages 3-3 – 3-5)
An expansion of Columbia's existing T- and SM-80 systems is mentioned in Section 3.2.1.2. It appears to be the only system alternative identified. It is not clear why the T- and SM-80 systems were specifically identified for possible expansion.

Recommendations: We recommend the FEIS clarify how and why the T- and SM-80 systems were identified for consideration as a possible LX system alternative. We also recommend the FEIS identify whether other systems were also considered. Please provide a map that clearly shows the location of the T- and SM-80 systems, Line BM-111 and the R-System. Describe the existing diameter, lengths, etc. of these lines/systems.

DEIS Page 3-5 notes that additional compression would be required for the T- and SM-80 expansion alternative, including 12,600 horsepower (hp) expansion of the Smithfield Compressor Station (CS), 20,200 hp at the Clendenin CS, an unspecified amount at the Crawford CS, and 14,100 of new compression along the R-System.

Recommendation: Please include the amount of compression needed at the Crawford CS.

The DEIS (Page 3-5) states that the T- and SM-80 expansion system alternative would be 148.5 miles longer than the proposed route and increase land disturbance. However, expansions of existing facilities may require less additional land disturbance to add hp, and other associated connecting infrastructure than the proposed project.

Recommendations: Please clarify the length of pipeline looping that is included in the T- and SM-80 expansion alternative, as well as the percentage of the route that is greenfield, percentage collocated, and percentage that occurs on/within existing pipeline right of way. Clarify whether these estimates are based on efforts to avoid and minimize adverse impacts, as was done for the proposed/preferred alternative.

Potential Additional Viable Alternatives

There may be viable alternatives to the applicant's proposed/preferred alternative that have not been considered, evaluated or presented in the LX and RXE DEIS. For example, the applicant has other pipeline projects in the same area that are under FERC consideration. One of these projects is the Mountaineer Xpress Pipeline (MXP), which connects to LX. The recently released final Resource Reports for MXP include several systems and legacy alternatives.

Recommendations: Include relevant portions of the analysis presented in MXP Resource Report 10 Alternatives (RR10) in the LX alternatives analysis. Identify, consider and include other similar legacy alternatives specific to LX.

The MXP RR10 also presents an LX alternative and a MXP without LX alternative. It appears that if LX was not constructed, only 26 miles and 25,000 hp would need to be constructed in addition to the proposed MXP. It is unclear why or if the applicant has dismissed this alternative as unviable. All viable alternatives should be evaluated, particularly if there is the potential to drastically reduce the combined adverse impacts of MXP and LX.

Recommendations: These additional alternatives should also be included and presented in the EIS for LX. In particular, the MXP without LX alternative should be further evaluated in the EIS.

3.3 Major Route Alternatives and Minor Route Alternatives (Pages 3-6 – 3-10)
3.3.1 Major Route Alternatives
3.3.1.1 Alternative 1, and 3.3.1.2 Alternative 2 (Pages 3-8 – 3-10)

Recommendations: We recommend that the FEIS include maps that depict the route alternatives, including the proposed alternative, in relation to the resources impacted. This will help the reader better understand the impacts and why the proposed/preferred alternative was chosen.

3.4 Above-ground Facility Alternatives (Pages 3-17 – 3-18)

Recommendations:

- Identify the siting criteria used for aboveground facilities, including compressor stations.
- Include a map of the alternate aboveground facility locations that were considered.
- Explain how the evaluation of aerial photography, mapping, and field work mentioned on Page 3-17 informed the above-ground facility alternative analysis.
- Please provide additional information on the alternatives evaluation process.
- Identify and consider alternate locations for compressor stations beyond those included in the proposed action.
- Provide the rationale for each alternative site dismissed from further consideration.
- Explain how the amount of horsepower needed at each compressor station was determined, as well as how the spacing and distribution of stations along the proposed route was determined.

The DEIS (Page 3-18) discloses that the locations of the Lone Oak and Summerfield CSs and other associated infrastructure are environmentally preferable based on the conclusion that they would not result in any significant environmental impact and due to the lack of comments requesting for the stations to be relocated.

Recommendation: The lack of comments or concerns about station locations during FERC's pre-filing process does not eliminate the separate need for a fair alternatives analysis for above-ground facilities to take place. We recommend that an alternatives analysis for above-ground facilities, including compressor stations, be conducted and included in the FEIS.

Limited environmental information is presented in the brief discussion on the Oak Hill CS and alternative locations. It is unclear if alternate locations are viable alternatives. In addition, it is not clear why the Oak Hill CS locations were dismissed from consideration. It is stated that the alternative sites do not offer a significant environmental advantage.

Recommendations: Based on the information presented, we recommend that further consideration of the compressor station locations be evaluated and included in the FEIS. Please provide a map of the compressor station alternative locations that were considered for the Oak Hill CS.

4.0 Environmental Impact Analysis (Pages 4-1 – 4-208)
4.1 Geology
4.1.1 Existing Resources
4.1.1.1 Geologic Setting
The DEIS (Page 4-1) states: *"The USDA Soil Conservation Survey (SCS) County soil survey information indicates there are restrictive layers (potentially shallow bedrock) within the upper five feet of the ground surface at both CS locations (USDA SCS, 1974 and 1983)."*

Recommendation: EPA recommends the FEIS identify the specific construction measures that will be taken when shallow bedrock is encountered. For example, special consideration

should be given when discharging water or rerouting runoff due to the reduction of infiltration by this type of bedrock.

4.1.1.2 Mineral Resources (Page 4-3)
There is no description or evidence in the body of the DEIS that document the conclusions on mining and impacts stated in the report. It will help the reader better understand the conclusions if there were graphs and descriptions of how close the mines (past, present and future) are or will be located to the above ground facilities (e.g., compressor stations) and the pipelines of the Projects.

Recommendation: EPA recommends the FEIS provide a short description of the types of mines in the LX and RXE project areas that addresses how: 1) construction of the two Projects will affect the mines in close proximity, and 2) how the mines in close proximity will be affected by project construction.

4.1.1.3 Geologic Hazards (Page 4-5 – 4-9)
Seismicity (Pages 4-5 – 4-6)
The DEIS does not describe how certain seismic quakes will impact the Projects.

Recommendation: We recommend the FEIS: 1) discuss the hazardous scale for earthquakes, 2) identify the scale number that will impact the pipeline and/or above ground facilities, 3) identify the earthquakes (within the scale of impact) that have occurred in the last two decades in the Projects' area, and 4) identify the pipelines in the area that have been impacted by earthquakes.

Landslides (Pages 4-6 – 4-8)
The DEIS does not disclose the amount of acres or linear feet the Projects intersect with areas identified on the USGS Landslide Overview Maps.

Recommendation: EPA recommends the FEIS disclose the amount of acres and linear feet (or miles, if applicable) of the proposed Projects that are located within the areas identified by the USGS Landslide Overview Maps. Include a map in the FEIS that depicts the location of the proposed Projects in relation to the steep slopes in the landslide hazard areas, and identify the specific mitigation for each landslide area.

4.1.2 General Impacts and Mitigation (Pages 4-9 – 4-12)
4.1.2.2 Blasting and Rock Removal (Page 4-11)
The DEIS briefly discusses mitigation measures and operating procedures of potential blasting for the project. A better level of detail into the blasting plan for the Projects is warranted.

Recommendation: We recommend the Projects' blasting plan be included in an FEIS appendix. We recommend the blasting plan provide maps, give details regarding potential locations for blasting, and identify all the safety measures that will be undertaken.

4.2 Soils (Pages 4-13 – 4-20)
4.2.1.1 Erosion (Page 4-13)

The DEIS (page 4-13) states: *"The majority of lands within each project areas has low or moderate erosion potential."* However, the DEIS does not provide supporting documentation to support this statement.

Recommendation: EPA recommends the FEIS include additional information to support the above statement. Suggested information would include map overlays of the project and the Natural Resources Conservation Service (NRCS) maps, field surveys, and maps showing where steep slopes are in the project area.

4.2.1.5 Prime Farmland

Recommendation: We recommend this section of the FEIS mention if state agricultural agency information was included in calculating the number of historic farms or farms of statewide importance. Also, present the number of historic farms or farms of statewide importance affected by the project for each state (by county).

4.2.1.6 Contaminated Soils (Page 4-15)
The DEIS (Page 4-15) states: *"Areas of contamination, including polychlorinated biphenyl (PCB), hydrocarbon, mercury, and heavy metals, were previously identified within the Ceredo CS, Crawford CS, Benton CS, and Sugar Grove Office Area (partially located within the LX Project area near LEX milepost 128.3 in Fairfield County, Ohio). Columbia Gas performed a comprehensive site-wide assessment and soil remediation to remove or contain the sources of contamination at the Benton CS and the Sugar Grove Office Area in 2002, as well as at the Ceredo CS (May through October 2012) and the Crawford CS (February through September 2012). Although response actions have been conducted to remove PCB contamination at these compressor station sites, some sources of PCBs have been encapsulated and left in-situ in accordance with the Toxic Substances Control Act (TSCA) of 1976."*

Recommendations: Actions by the Projects' proponents concerning PCBs should be included in the appendix of the FEIS. This should include a discussion/description of what the Projects' proponents have done to clean-up PCB's and provide the details of any remedy. Correspondence with regulatory agencies regarding these remediations should also be included. For the existing compressor stations that would be upgraded as part of the proposed Project, the FEIS should explain how the proposed upgrades will or won't impact the in-situ portions of PCBs.

Additionally, the DEIS (Page 4-14) states: *"In addition to the leaking underground storage tanks, an existing source of contamination was identified as the Rhall Transportation site. This source is located 0.8 mile from MP 0.8 on the BM-111 Loop, and was evaluated in 2009 for the presence of volatile organic compounds, semi-volatile organic compounds, metals and other contaminants (WVDEP, 2014; Ohio Department of Commerce, 2014, PADEP, 2015; EPA, 2015; EPA, 2014). Although no remediation activities have been completed at this site, it is also not located within the LX Project area."*

Recommendation: EPA recommends the FEIS provide information (or citation) that confirms the LX Project will not be affected by the contaminated Rhall Transportation

site. Provide a better description of type/s and location/s of contamination at the site, identify whether the contamination is downgradient of the proposed Project, and identify what the current actions for removal of the contamination are. Correspondence with regulatory agencies regarding these remediations should also be included.

4.3 Water Resources
4.3.1.5 Contaminated Groundwater (Pages 4-26 – 4-27)
DEIS (Page 4-26) discloses there is one remaining leaking underground storage tank (LUST) site within the project area located within the workspace of Pipe Yard 36.

Recommendation: We recommend the FEIS describe this LUST site in more detail. Identify the mile post number closest to the LUST site, the state and county it is located in, and if any communication with the state environmental agencies or the landowner has been made.

4.3.2 Surface Water Resources (Pages 4-29 – 4-45)
4.3.2.1 Existing Surface Water Resources
The DEIS (Page 4-29) refers the reader to Appendix K-1 to garner information regarding the 1,083 waterbodies that would be crossed by the LX Project.

Recommendations: We recommend the FEIS include a discussion in Section 4.3.2.1 of the key information in Appendix K regarding the existing conditions of surface water in the Projects area. Also identify the specific measures that will be taken to protect surface water quality and quantity during project construction and operation. Identify whether or not a stream compensation plan is proposed for stream impacts that cannot be avoided or further minimized by using construction stream crossing best management practices (BMPs).

The DEIS is not clear if LX or RXE would require stream relocations.

Recommendations: We recommend the FEIS specifically identify whether there will be any stream relocations associated with construction of LX or RXE. If applicable, identify any areas that may no longer receive a stream's waters, discuss the consequences to resources in those areas and identify proposed mitigation, if applicable.

4.3.2 Surface Water Resources (Pages 4-29 – 4-45)
4.3.2.2 Public Watersheds (Page 4-33)
DEIS Section 4.3.2.2 addresses public water supplies, not watersheds.

Recommendations: We recommend Section 4.3.2.2 be re-titled to better identify the subject of discussion (i.e., public water supply). Add a section titled: "Watersheds" and provide figures/maps that clearly depict the major watersheds and the 8-digit hydrologic unit code (HUC) watershed and the proposed locations for the components of the LX and RXE Projects.

Table 4.3.3-1 Watersheds Crossed by the LX Project (Pages 4-30 – 4-31)

Table 4.3.2-2 Waterbodies Affected by the RXE Project (Page 4-32)

Recommendation: Watershed information for RXE is not included in either of the above tables. EPA recommends either Table 4.3.3-1 be re-titled and include watershed information for the RXE project, or Table 4.3.2-2 be re-titled and include RXE watershed information as well as the waterbodies information.

In addition, it appears that the DEIS does not include the source of the waterbody identification numbers (IDs) listed in Table 4.3.2-2. We were unsuccessful on locating/matching the stream waterbody IDs used by KY DEP or the USGS against the IDs used in the DEIS in order to attest stream classification.

Recommendation: We recommend the FEIS identify the source of the stream identification numbers in Table 4.3.2-2. Also, consider including the stream ID source information as a footnote in Table 4.3.2-2.

4.3.2.4 Sensitive Waterbodies
Flood Hazard Zones (Pages 4-38 – 4-39)
Table 4.3.2-5 – Areas Within the 100-year Floodplain Crossed by the LX Project (Page 4-39)

Recommendations: In order to get a better understanding of the amount and location of flood areas that the LX and RXE Projects will be located in, we recommend Table 4.3.2-5 be modified to include the number of acres within each designated area/segment as identified in the table by beginning and ending mile post numbers (MPs).

The increase of impervious area during construction and operation of the project will increase flooding potentially impacting areas surrounding the project.

Recommendation: EPA recommends the FEIS discuss how LX and RXE will reduce the potential for flooding areas surrounding the projects.

DEIS (Page 4-38) ***states:*** *"The Grayson CS associated with the RXE Project occurs within the 100-year floodplain, and the Means CS does not. Columbia Gas' and Columbia Gulf's ECSs outline measures to protect from flooding during construction, and all structures would be constructed in accordance with federal and state building codes."*

Recommendation: The DEIS is not clear if flood proofing measures, such as elevation or dry flood-proofing, were considered for the Grayson compressor station's long term operation. We recommend the FEIS identify whether such measures are being considered. FEMA offers excellent resources regarding flood mitigation at: http://www.fema.gov.

4.3.2.6 Hydrostatic Testing (Pages 4-40 – 4-42)
"Columbia Gas proposes to withdraw approximately 42 million gallons of test water from four local surface waters for pipeline facilities and approximately 1 million gallons of test water from municipal and possible existing water sources for aboveground facilities, as depicted in table 4.3.2-6 and table 4.3.2-7. The RXE Project would use municipal sources for water withdrawals.

Columbia Gas and Columbia Gulf would be required to obtain permits from the municipalities for water use prior to withdrawing the water. These permits would confirm that the municipalities have required capacity to supply Columbia Gas with hydrostatic test waters." (Page 4-40)

> **Recommendation:** We recommend the FEIS mention why hydrostatic testing is the preferred method of testing pressure and why other, non-resource intensive methods are not being proposed, such as pneumatic pressure testing.

The DEIS does not disclose whether the pipes need to be cleaned prior to (pre-cleaning) hydrostatic testing.

> **Recommendation:** We recommend the FEIS identify whether pre-cleaning will take place and what it entails. How much water does it use? Is this in addition to the amount of water used for the actual hydrostatic test? What chemicals, if any, are used in the pre-cleaning process?

> **Recommendation:** We recommend that the Final EIS explain what happens inside the pipe after hydrostatic test water has been discharged. Is the pipe dried? If so, are any chemicals used in the pipe drying process? How will pre-cleaning and hydrostatic test waters be treated, if necessary, prior to discharge?

Table 4.3.2-6 Proposed Hydrostatic Test Water Source and Discharge Locations for Pipeline Facilities (Page 4-41)

Table 4.3.2-7 Proposed Hydrostatic Test Water Source and Discharge Locations for Above-ground Facilities (Page 4-42)

> **Recommendations:** We recommend *Table 4.3.2-6* and *Table 4.3.2-7* include additional categories to identify: 1) daily water flow amounts for each water intake, 2) where water will be recycled from one segment to another, and 3) the amount of water that will be recycled in each segment. Include the water source and discharge locations for the Grayson and Means Compressor Stations hydrostatic test. Also, in the footnotes to *Table 4.3.2-7* explain what is meant by *"Various"* when used under the column headings titled: *"Source"* and *"On-Site Discharge Location (MP)."*

The DEIS does not provide evidence confirming that the water use capacity requirements can be met by the municipalities during hydrostatic testing activities.

> **Recommendation:** Where project proponents propose to use municipal sources of water, we recommend the FEIS provide documentation that each municipality identified as potential water providers has the capacity to furnish the amounts proposed.

The DEIS (Page 4-45) states: *"As per recommendations from WVDEP, water withdrawn from the Ohio River would either discharge back into the Ohio River or undergo treatment with a*

WVDEP-recommended biocide prior to discharge. Excluding potential WVDEP-recommended biocides, additives would not be added to the hydrostatic test water."

Recommendation: EPA recommends the FEIS explain the type and concentrations of biocides that may be used in hydrostatic testing water discharge.

The DEIS does not address the specific requirements for the disposal of test water associated with the various components of the proposed Projects.

Recommendation: We recommend the FEIS address specific requirements for the disposal of all test waters.

Recommendation: EPA also recommends the FEIS identify all BMPs that will be used for: 1) water withdrawal in hydrostatic testing to prevent the entrainment of fish and other aquatic organisms, and 2) to dissipate waters after testing to prevent/minimize erosion and sediment movement.

4.3.2.7 General Impacts and Mitigation (Pages 4-42 – 4-45)
Section 4.3.2.7 of the DEIS identifies BMPs proposed by Columbia Gas, under stream bank erosion, turbidity and sedimentation; it is not clear if these practices also apply to Columbia Gulf's RXE Project.

Recommendation: EPA recommends the FEIS identify if RXE will be covered by the Columbia Gas practices or any other BMPs. If not, the FEIS should discuss why these practices do not pertain to RXE and identify those practices that pertain to RXE.

4.4 Wetlands
4.4.2 Wetland Construction Procedures
Section 4.4.2 (Page 4-47) states: *"A total of 301wetlands would be affected by the LX Project, described in appendix L. In Ohio, the LX Project, including aboveground facilities, access roads, and contractor yards, would cross 257 wetlands, including 20 forested, 21 scrub-shrub, and 216 emergent wetlands. In West Virginia, the LX Project would cross 32 wetlands, including 6 forested, 1 scrub-shrub, and 32 emergent wetlands. The LX Project would cross five emergent wetlands in Pennsylvania. In the RXE Project area, Columbia Gulf delineated one emergent wetland within the 64-acre survey area at the Means CS site . . . no wetlands were delineated at the Grayson CS site."*

Recommendation: The above DEIS text identifies the total number of wetland crossing in West Virginia as 32; however, the number of crossings of the various types of wetlands in West Virginia add up to 39. We recommend the FEIS clarify this discrepancy.

4.4.3 General Impacts and Mitigation
Section 4.4.3 (Page 4-48) discloses that construction of LX would affect a total of 15.2 acres of wetlands. This includes about 1.4 acres of forested wetlands, 0.8 acre of scrub-shrub wetlands, and 12.9 acres of emergent wetlands. No wetland impacts are expected for the RXE Project.

DEIS **Section 1.2.3 U.S. Army Corps of Engineers Purpose and Role** (Page 1-4) identifies that Columbia Gas believes the proposed project meets the criteria of the Nationwide General Permit 12 (NWP 12) under Section 404 of the Clean Water Act (CWA). It is correctly stated that the nationwide permit cannot authorize more than minimal adverse impacts to aquatic resources. It may be inappropriate at this time to make this determination.

> **Recommendation:** We recommend the FEIS include supporting materials documenting that NWP 12 criteria are met. Please document the avoidance and minimization measures that have been taken in the context of the Clean Water Act Section 404 to reduce adverse impacts to aquatic resources. Any correspondence with the Corps on Section 404 permitting should be included in the FEIS.

The DEIS (Page 1-4) also discloses that the preconstruction notification for impacts to waters of the United States were submitted to the Corps in July 2015 for LX and in August 2015 for RXE.

> **Recommendation:** EPA recommends completing the NEPA process in advance of obtaining permits. NEPA is meant to inform the decision making process, not to justify a decision that has already been made. We recommend moving through the NEPA process in a fair, equal and transparent manner with regard to project analysis and decision making.

4.4.1 Existing Wetland Resources (Pages 4-46)
There is little information in the DEIS regarding the existing conditions (quality) of the wetlands that would be impacted by the Projects. The DEIS (Page 4-46) states: *"Additional information on the existing conditions of wetlands surveyed is available in Resource Reports and permitting conducted with cooperating agencies in FERC Docket No. CP15-514-000."*

> **Recommendation:** EPA recommends that existing conditions (quality) of the wetlands in the project area be disclosed and discussed in the body of the FEIS. Also include the Resource Report that identifies the existing wetland conditions in an FEIS appendix and/or provide the web address as a direct link to the wetlands Resource Report.

Additionally, the DEIS mentions (Page 4-46) that portions of the project routes were not reviewed.

> **Recommendations:** We recommend the FEIS describe when field reviews were done and how much of the project was field-reviewed. Include any additional field review information since the DEIS. If this information is in the DEIS and/or located on a website, provide a citation and/or the direct link to the website to help the reader easily locate this information.

4.4.4 Alternative Measures (Pages 4-52 – 4-53)
TABLE 4.4.4-1 Areas Where Columbia Gas Requested Additional Extra Workspace in Relation to Wetlands for the LX Project. Table 4.4.4-1 shows that some additional temporary workspace (ATWS) areas where additional extra workspace is requested will impact wetlands.

> **Recommendation:** Avoidance of wetlands is almost always preferred over compensation mitigation for impacts. EPA recommends that Section 4.4.4 identify how ATWS locations

were chosen to first avoid wetland impacts and then minimize those impacts that cannot be avoided for the ATWS locations in Table 4.4.4-1 that will impact wetlands.

4.4.5 Compensatory Mitigation (Page 4-53)
DEIS Chapter 5 states that prior to construction, Columbia Gas shall provide its final wetland compensation plan. EPA is interested in reviewing this plan before it is finalized.

Recommendation: EPA recommends the FEIS include the proposed wetland compensation mitigation plan for the LX and RXE Projects. Provide an update on the status of plan reviews and approvals by the Corps and the state permitting agency.

4.5 Vegetation
4.5.4 Interior Forest Habitat (Pages 4-57 4-59)
The DEIS (Page 4-57) states: *"The LX Project would affect 1,380.6 acres of upland forests and 1.1 acres of wetland forest during construction. . . . The acres of impacted interior forest blocks were calculated; we determined that approximately 1,142.9 acres of interior forest block habitat would be impacted by the proposed LX Project."*

Recommendation: We recommend Section 4.5.4 reference the wildlife section(s) describing interior forest species and list potential species that would be affected by the reduction of forest acres. Also, identify if there are any endangered species habitat that would be impacted by the reduction of interior forests.

In addition to providing valuable wildlife habitat and protecting water quality and quantity in the watershed, forests also have a role in carbon capture/sequestration to help ameliorate global warming/climate change.

Recommendation: We recommend the FEIS identify and discuss the role forests play in carbon capture/sequestration to help ameliorate global warming/climate change. Please estimate how much carbon capture will be lost due to the removal of forest for construction/operation of LX/RXE. Identify any compensatory mitigation the Project Proponents intend to undertake for the loss of forest due to their proposal.

4.5.5 Noxious Weeds and Other Invasive Plant Species (Page 4-59)

Recommendation: We recommend the FEIS include the project proponents Invasive Species Management Plans for LX and RXE Projects.

4.5.6 General Impacts and Mitigation (Page 4-59)

Recommendation: We recommend the FEIS identify in section 4.5.6 the length of time it takes for a mature forest to develop. Also mention how long the project will be monitored for successful regrowth of forests to pre-construction conditions.

Recommendation: We recommend the FEIS include documentation that demonstrates that the project proponents commit to applying seed mixes that contain native pollinator plant species so as to benefit pollinating insect, bird and bat species (page 4-63).

4.6.2 Aquatic Resources

4.6.2.1 Existing Aquatic Resources (Pages 4-77 – 4-79)

Kentucky

The DEIS mentions five stream to be impacted by the RXE project. Table 4.3.2-2 identifies these five streams and some characteristics. Regarding these impacts, the DEIS mentions:

"...waterbodies will be crossed by means of temporary bridges or culverts. Permanent culverts or bridges may be installed to allow for permanent access to the facilities over S014/S013 at the Means CS. At the Grayson CS, Columbia Gulf is proposing to relocate S041, an ephemeral channel, permanently to the south to accommodate design restrictions." (Page 4-79)

Recommendation: We recommend the FEIS clarify information regarding the "flow regime" of each stream. The DEIS (see above insert) mentions the proposed relocation of stream S041 (ID) and classified it as ephemeral channel/stream. However, Table 4.3.2-2 has the classification of stream S041 as intermittent. Recommend this information be rectified in the FEIS.

4.9 Socioeconomics

4.9.7 Environmental Justice (Pages 4-143 – 4-146)

The DEIS focused Environmental Justice (EJ) analysis primarily on low-income populations. But, *"Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies"(EPA website).*

Recommendation: EJ is more than the income factor. The EJ analysis should discuss all factors, not solely income. EPA developed a free tool to help users to identify areas with EJ population: https://www.epa.gov/ejscreen. Additionally please refer to this document for EJ analysis in NEPA reviews: https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews.

An important reason for identifying communities with environmental justice (EJ) concerns in the EIS is to use this information to communicate the impacts of the project.

Regarding the LX and RXE Projects the DEIS (page 4-145) states: *"Many of the counties crossed by the LX and RXE Projects have poverty rates higher than the national average. Six counties have poverty rates that are meaningfully greater (i.e., over 20 percent higher) than rates for their respective states: Jackson, Morgan, Perry and Vinton Counties in Ohio and Menifee and Montgomery Counties in Kentucky. In addition several places have very high poverty rates: Sugar Grove Village, Rockbridge CDP, Oak Hill Village and McArthur Village. Several of these counties and places would have the pipeline and/or pipeline facilities (such as regulator stations and compressor facilities)."*

The DEIS lacks information that demonstrates specific efforts FERC and Project Proponents made to further identify/locate and contact communities with environmental justice concerns regarding the Proposed Projects. The DEIS does not demonstrate that proposed locations for the LX pipeline, LX facilities and/or the RXE facilities would not have disproportionate adverse effects, such as noise, on these populations. The DEIS does not identify opportunities there may be for training and hiring low-income populations for Projects' construction and/or operation and maintenance.

Recommendations: EPA recommends the FEIS:

1) Identify the areas where noise will be an impact to communities of concern. Further, include a plan that identifies how FERC and the Projects Proponents will communicate with the identified communities concerning the environmental (noise) concerns.

2) Identify the number/percentage of low-income/minority individuals/populations in relation to the general population that live (own/rent/reside) within or near the Projects' areas that would be at risk of injury due to unexpected pipeline and/or associated facilities failure;

3) Identify the specific efforts FERC and Projects Proponents made and will make to further identify/locate and contact communities with EJ concerns regarding the proposed Projects.

4) Identify and discuss any opportunities there may be to train and employ low-income individuals for Projects' construction and/or operation and maintenance.

5) Demonstrate how construction or operational impacts in these communities are not disproportionately high compared to impacts to other communities.

6) Incorporate new/additional EJ information and analysis into the FEIS cumulative impacts analysis, if applicable.

4.11 Air Quality and Noise
4.11.1 Air Quality
4.11.1.2 Air Regulatory Requirements
The DEIS (page 4-158) states: *"Table 4.11.1-6 identifies the nonattainment and maintenance areas for the LX and RXE Projects and the associated construction emissions compared to the applicability threshold levels. Detailed emission calculations for the construction activities identified in table 4.11.1-6 were filed on the record on October 2015. As presented in table 4.11.1-6, emissions during construction of the LX and RXE Projects would not exceed General Conformity applicability thresholds for any nonattainment or maintenance area, and a general conformity determination is not required."*

Recommendation: We recommend the FEIS provide a direct link to the detailed emission calculations in the file on record for the construction activities identified in *Table 4.11.1-6 - Comparison of Construction Emissions to General Conformity De Minimis Thresholds.*

Greenhouse Gas Emissions

The Draft EIS (Pages 4-154 through 4-164) includes a helpful discussion of the greenhouse gas (GHG) emissions associated with construction of the LX and RXE Projects, and annual emissions from the operation of the compressor stations, but did not include estimates of the GHG emissions associated with the production, leakage, and combustion of the natural gas transported by this proposal. Because of the causal relationship between this project and the emissions, it is appropriate and consistent with NEPA and CEQ regulations to consider and disclose the emissions levels in NEPA analyses.

Recommendations: We recommend that the FEIS include estimates of emissions from production, leakage, and combustion of the natural gas transported by the proposal.

In the DEIS, Table 4.11.1-8 (Page 4-164), FERC includes comparisons of project-level greenhouse gas emissions to State-wide emissions. We do not recommend comparing GHG emissions from a proposed action to global emissions, total state, or U.S. emissions, as these comparisons obscure rather than illuminate consideration of GHG emissions under NEPA.

Recommendation: We recommend that FERC remove comparisons of the proposed project's estimated emissions to aggregate emissions.

Methane Leakage

The DEIS does not contain estimates of methane leakage from the proposed expansion. EPA has compiled useful information on technologies and practices that can help reduce methane emissions from natural gas systems, including specific information regarding emission reduction options for natural gas transmission operations. This information may be found at http://www3.epa.gov/gasstar/mehtaneemissions/index.html.

Recommendations: We recommend that FERC estimate expected GHG emissions from leakage and consider potential BMPs to reduce leakage of methane associated with operation of the expansion facilities.

The DEIS does not describe measures to avoid, reduce, or compensate for GHG emissions from operation of the proposed pipeline expansions.

Recommendation: EPA recommends that the FEIS describe measures to reduce GHG emissions associated with the proposal including reasonable alternatives and other practicable mitigation opportunities, and disclose the estimated GHG reductions. For example, the FEIS could include consideration of more efficient compressor stations or purchase of renewable energy to power the stations. The EPA further recommends that the FEIS and Record of Decision (ROD) commit to implementation of reasonable mitigation measures that would reduce project-related GHG emissions. (Also see additional comments under **4.13.5.11 Climate Change.)**

4.11.2 Noise (Pages 4-167 – 4-176)

Table 4.11.2-3 Calculated Operational Noise Levels for New and Existing Compressor Stations (DEIS Pages 4-171 and 4-172)

Compressor Stations

Some of the distances in the figures/maps used in the *Appendixes Q Noise Sensitive Areas (NSAs) Associated with the Projects* are different from those on Table 4.11.2-3. Specifically, Appendix Q-4 identifies NSA #1 as 400 feet from the Crawford Compressor Station and the table states that it is 250 feet. Additionally, the table shows that there is no potential increase above ambient noise levels. This does not seem correct considering how close the nearest NSA is to the station.

> **Recommendation:** We recommend FERC review the NSA distance information on Table 4.11.2-3 and the information provided in Appendix Q, and rectify any discrepancies accordingly in the FEIS documentation. In addition, we recommend the FEIS Table 4.11.2-3 include corrected potential noise increases above ambient levels as applicable.

For the Oakhill Compressor Station, though Table 4.11.2-3 shows noise levels under the 55 dB threshold, there is an increase greater than 10 dB shown for NSA 1 and NSA 2.

> **Recommendation:** We recommend that the increase in noise levels greater than 10 dB shown for NSA 1 and NSA 2 be recognized in the text of the DEIS. In addition, we suggest that some public outreach be done to communicate with the public regarding this increase and potential mitigation.

Blowdown Events – Compressor Stations and Pipelines

The DEIS (Page 4-173) states: *"In addition to the operational noise discussed above, blowdown events would also generate noise impacts. The duration of a blowdown depends on factors such as the extent of the maintenance activity and the gas pressure, and would generally last between 20 minutes and 2 hours."*

> **Recommendations:** In the description for blowdown events, we recommend the FEIS explain the frequency of maintenance activities that cause the blowdown events. Also, provide the expected frequency (number of times per/day, month and/or years) that unplanned pipeline blowdown events typically occur.

Regulator Stations

Table 4.11.2-4 – Calculated Operation Noise Levels for New and Existing Regulator Stations (Page 4-174)

Table 4.11.2-4 shows the increase in ambient levels are not above 55 dB for the McArthur Regulator Station; however, it does show an increase greater than 10 dB for NSA 1 above ambient noise levels.

Recommendation: We recommend as suggested earlier that the community be informed of this increase in noise and potential mitigation.

Odorization Stations
Table 4.11.2-5 Calculated Operation Noise Levels for New Odorization Stations (Page 4-176): The increase in ambient levels for the R-130 Odorization Station, though not above 55 dB threshold, has a significant increase.

Recommendation: The significant increase in noise should be recognized and further explained of its impact in the body of the document. It is suggested that the community/NSA be informed of the increase in noise and potential mitigation.

4.12 Reliability and Safety
4.12.1 Safety Standards (Pages 4-176 – 4-181)
The DEIS (Page 4-181) states: *"Columbia Gas would prepare an emergency response plan that would provide procedures to be followed in the event of an emergency that would meet the requirements of 49 CFR 192.615. The plan would include the procedures for communicating with emergency services departments, prompt responses for each type of emergency, logistics, emergency shut down and pressure reduction, emergency service department notification, and service restoration."*

Recommendation: We recommend the FEIS include Columbia Gas' emergency response plan for LX and Columbia Gulf's emergency response plan for RXE, if available. At a minimum include the drafts of the emergency response plans in the FEIS.

4.12.2 Pipeline Accident Data (Pages 4-181 – 4-183)
As mentioned in Section 4.12.2, the highest risk to pipeline safety is equipment failure, with corrosion being the leading cause of pipeline failure.

Recommendation: We recommend the FEIS discuss how the Projects will reduce the incident rate of failure. Though the number of fatalities from pipeline failures are few, explain the safety mechanisms used to reduce failures/fatalities and how it will do so for the life of the project.

4.13 Cumulative Impacts (Pages 4-148 - 4-208)
EPA is concerned that the temporal and geographic scope of the study is narrow, which has led to a limited analysis of cumulative impacts. Defining the geographic and temporal framework is the starting point of a cumulative impacts analysis. Establishing appropriate spatial and temporal boundaries is at the very core of the study. Selection of inappropriate boundaries subsequently leads to a fundamentally flawed analysis and documentation. It is critical to assess past and future impacts.

The DEIS analysis appears to only consider impacts that occur during construction of LX and RXE as the temporal boundary (approximately 1 ½ years). However cumulative impacts can occur to resources even if impacts do not occur concurrently. Though construction impacts can be short-termed, there are likely prolonged impacts for instance associated with forest

fragmentation, invasive species, etc. Even projects that do not overlap geographically can contribute to cumulative impacts to streams, wetlands, forests, habitat and other resources.

For example, as large forested blocks are bisected by LXP and RXE, the interior forest habitat for those blocks is decreased. The remaining blocks in combination with other actions, including other pipeline projects, are further reduced. The interior forest habitat is greatly reduced for wildlife and forest interior dwelling species. These types of long-term cumulative impacts on wildlife and habitat should be considered.

Cumulative impacts temporal boundaries are often set a few decades into the past and future to include appropriate trend and facility life expectancy. It is typical to use a baseline time frame of 30 to 50 years past, prior to sprawl and extensive highway networks. It is important to analyze the trends in resources, to identify if there have been repeated impacts or degradation of the resources. A thorough analysis of impacts could help guide the selection or placement of appropriate mitigation for LX impacts or highlight areas where additional avoidance and minimization may be warranted. EPA would be interested in discussing the selection of a more appropriate and inclusive boundary with FERC.

> **Recommendations:** EPA recommends FERC consider expanding the cumulative impacts study beyond what is currently considered in the DEIS. Consider projects that do not necessarily overlap directly with LX and RXE construction boundaries. Include a map(s) to show the various spatial/geographic boundaries used for the cumulative impact assessment.

EPA is concerned about cumulative impacts to aquatic resources, groundwater, and water quality.

> **Recommendations:** We recommend that the cumulative impact analysis of surface and groundwater be expanded, including cumulative impacts to water quality, headwater streams, high quality and/or sensitive aquatic resources. Aquatic resources have the potential to be cumulatively impacted by many factors, including waterbody crossings, change in recharge patterns, clearing, blasting, and water withdraws for hydrostatic testing. It may be prudent to consider these impacts in combination with other past, present and reasonably foreseeable actions at the watershed scale.
>
> We recommend that FERC's cumulative impact analysis present potential cumulative impacts regardless of the various prepared or required plans to be implemented by LX, any implementation of construction, restoration or mitigation plans from other actions, or permits or regulatory thresholds. While it may be appropriate to recognize or consider the relation to these, please keep in mind that this is not sufficient to determine potential effects of past, current and reasonably foreseeable future activities to resources or if/ how project impacts can be mitigated.

4.13.5.11 Climate Change (Pages 4-206 – 4-208)
DEIS (Pages 4-206 and 4-207), discusses the U.S. Global Change Research Program's (USGCRP) May 2014 report *Climate Change Impacts in the United States* and lists eleven observations of environmental impacts with a high or very high level of confidence that may be

attributed to climate change in the Midwest region. One observation listed is: *"annual precipitation has increased by about 20 percent over the past century, particularly from increased high intensity rainfall events, and this trend is projected to continue."*

Recommendation: EPA recommends the FEIS discuss the Projects Proponents' and FERC's consideration of the Projects' susceptibility to impacts associated with climate change and identify mitigation measures. For example, discuss the risk of the Projects' pipelines being exposed due to increases in flooding, scouring, and/or upland erosion due to expected heavy precipitation events associated with climate change. (Also see our comments regarding Greenhouse Gas Emissions and Methane Leakage above under **4.11.1.2 Air Regulatory Requirements.)**

5.0 Conclusions and Recommendations

The DEIS Page 5-1) states: *"The conclusions and recommendations presented in this section are those of FERC environmental staff. Our conclusions and recommendations were developed with input from the EPA, COE, FWS, OEPA, PADEP, PADCNR, WVDEP, WVDNR, and KYDEP as cooperating agencies."*

Recommendation: This chapter of the FEIS will need to be updated after consideration of additional input provided by the cooperating agencies/resources agencies and others since FERC's release of the DEIS for public and agency review and comment.

Additional EPA Recommendations:

- For those facilities that will be equipped with emergency generator(s). EPA wants to make you aware that there are two specific rules for new source engines. One of these rules would apply to generators at the facilities. In order to learn and comply with these rules please visit: http://www.epa.gov/region1/rice/.

- EPA has issued three final rules that together will curb emissions of methane, smog-forming volatile organic compounds (VOCs) and toxic air pollutants such as benzene from new, reconstructed and modified oil and **gas** sources, while providing greater certainty about Clean Air Act permitting requirements for the industry. To comply with these rules please go to: https://www3.epa.gov/airquality/oilandgas/actions.html

- EPA recommends that for new equipment utilize contract specifications requiring advanced pollution controls and clean fuels: http://www.northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf and http://www.epa.gov/cleandiesel/technologies/index.htm
  Implement diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil movement, or other construction activities, including:

  - ✓ Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and

- ✓ Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.

For more information on diesel emission controls in construction projects, please see: http://www.northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf

- EPA recommends the use of low maintenance trees (reduces pollutants emissions from maintenance activities) and the construction of Rain Gardens for erosion and runoff mitigation while decreasing impervious surfaces to improve ground water quality. By adopting these low-cost easy to achieve suggestions, extra enhancements will be achieved such as noise reduction and aesthetics improvement.

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