

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 CONCLUSIONS OF THE ENVIRONMENTAL ANALYSIS**

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. The federal cooperating agencies may adopt the EIS per 40 CFR 1506.3 if, after an independent review of the document, they conclude that their permitting requirements and/or regulatory responsibilities have been satisfied. However, these agencies would present their own conclusions and recommendations in their respective and applicable records of decision. Otherwise, they may elect to conduct their own supplemental environmental analysis, if necessary.

We determined that construction and operation of Columbia Gas' LX Project would result in some adverse environmental impacts. These impacts would occur during both construction and operation of the Project on vegetation, aquatic resources, wetlands, and wildlife as discussed in Section 4. However, if the proposed Project is constructed and operated in accordance with applicable laws and regulations, the mitigating measures discussed in this draft EIS, and our recommendations, these impacts would be reduced to acceptable levels. This determination is based on a review of the information provided by Columbia Gas and further developed from data requests; field investigations; scoping; literature research; alternatives analyses; and contacts with federal, state, and local agencies as well as individual members of the public. As part of our review, we developed specific mitigation measures that we determined would appropriately and reasonably reduce the environmental impacts resulting from construction and operation of the Projects. We are therefore recommending that our mitigation measures be attached as conditions to any authorizations issued by the Commission. A summary of the anticipated impacts, our conclusions, and our recommended mitigation measures is provided below, by resource area.

#### **Geology and Paleontological Resources**

The primary effect of the proposed LX and RXE Projects on geologic resources would be the disturbance to steep topographic features, the excavation of consolidated or shallow bedrock during the construction of the pipeline and aboveground facilities, and the establishment of temporary contractor yards and access roads, affecting the local geologic resource within discrete areas of the project footprints.

The LX Project would be located within 0.2 miles of 11 active oil and gas wells and 51 inactive oil and gas wells. As part of the RXE Project, the Means CS and Grayson CS would not be located within 1 mile of any active or inactive oil and gas wells. If an oil or gas well is encountered, Columbia Gas would determine an appropriate buffer and construction procedure around the well based on site-specific conditions and coordination with the owners of the well. If an oil or gas well is unexpectedly impacted during construction, Columbia Gas would stop work immediately, contain any spilled product, secure the area, and notify FERC as well as the appropriate state and/or local agency. Due to the presence of active and inactive oil and gas well within the LX Project area, we are recommending conducting civil surveys identifying the location of any conventional or unconventional oil and gas well locations (including permitted, drilled, producing and abandoned oil and gas wells) within the LX Project footprint, as well as identify measures to minimize hazards for any wells located within 100 feet of the proposed LX Project pipelines.

No mine spoil areas are located within 0.5 mile of the Projects and no active quarries are located within 0.2 mile of the Projects. During the post-filing process, Columbia Gas redesigned the Lone Oak CS footprint on the proposed site to address and avoid future conflict with longwall mining activities.

Approximately 45 percent of the LX Project is characterized by shallow bedrock. Columbia Gas would adhere to blasting procedures and safety measures outlined in their Blasting Plan. The RXE Project does not cross areas of shallow bedrock.

We do not anticipate that construction of the LX and RXE Projects would uncover significant paleontological resources, and no known paleontological sites have been identified. However, there is the potential for an unanticipated discovery of fossils along the LEX pipeline route, especially if unanticipated areas of shallow bedrock occur along the trenchline or where bedrock removal is necessary. We do not anticipate any significant discoveries of paleontological resources during construction of the Means CS or the Grayson CS, as part of the RXE Project in Kentucky. Columbia Gas filed the “Unanticipated Discoveries and Emergency Procedures” and Columbia Gulf filed a “Procedure Guiding the Discovery of Unanticipated Cultural Resources and Human Remains”, which FERC staff finds the plans acceptable. Given these measures, we conclude that potential impacts on paleontological resources would be adequately minimized.

Based on the avoidance, minimization, and mitigation measures developed by Columbia Gas and Columbia Gulf, including measures outlined in the ECS, Longwall Mining Plan, and Blasting Plan, we conclude that construction and operation of the LX and RXE Projects would not have any significant adverse effects on geologic resources.

## **Soils**

Construction activities such as clearing, grading, trench excavation, backfilling, and the movement of construction equipment would affect soil resources during the construction of the pipeline, and aboveground facilities, and the establishment of temporary contractor yards and access roads. Clearing removes protective cover and exposes the soil to the effects of wind and rain, which increases the potential for erosion and sedimentation of sensitive areas. Grading, spoil storage, and equipment traffic can compact soil, reducing porosity and increasing runoff potential. Excess rock or fill material brought to the surface during trenching activities could hinder restoration of the right-of-way.

To minimize or avoid impacts on soils during construction and operation of the LX and RXE Projects, Columbia Gas and Columbia Gulf would implement soil mitigation procedures outlined in their project-specific ECSs, which adopts and incorporates the FERC Plan and Procedures, and guidance provided by WVDEP, PADEP, PADCNr, and ODNr.

Columbia Gas and Columbia Gulf would minimize adverse impacts on land, including agricultural, prime farmland and residential areas, by implementing the BMPs identified in their ECSs. Columbia Gas and Columbia Gulf would coordinate with the applicable agencies and landowners in these areas to ensure the proper restoration of any impacted agricultural or residential areas, including replacement of segregated topsoil, stone removal, and to ensure compliance with reseeding recommendations. Columbia Gas and Columbia Gulf would protect active pastureland during construction through the installation of temporary fencing, the use of alternative locations for livestock to cross the construction corridor, and/or developing grazing deferment plans, as negotiated with the landowner.

In consideration of the above, we conclude that construction and operation of the LX and RXE Project facilities proposed by Columbia Gas and Columbia Gulf would not have any significant adverse effects on soil resources.

## **Water Resources**

### **Groundwater**

Groundwater resources in the area of the Projects come from Pennsylvanian and Mississippian principal aquifers. Neither Project would cross, or come within close proximity of, any designated SSAs, and no state-designated aquifers have been identified in the Projects' area(s). Columbia Gas identified 15 DWSPAs for public water systems associated with groundwater sources located within 0.5 mile of the LX Project. Five of these DWSPAs occur within the LX Project workspace including Sugar Grove Village, Wellston, Bremen Village, Lancaster City, and McArthur Village. No WHPAs were identified within the RXE Project area.

Permanent impacts on groundwater are not expected as a result of construction and operation. Disturbances resulting from construction or operation of the LX and RXE Project would be shallow, temporary and localized excavation. Columbia Gas and Columbia Gulf would employ erosion controls, restore the natural ground contours, and revegetate the right-of-way. Implementation of the Projects' ECSs, SPCC Plan, and the appropriate measure of the FERC Plan and Procedures would further reduce impacts on groundwater resources. Temporary, minor, and localized impacts could result during trenching activities in areas of shallow groundwater (less than 10 feet below the ground surface) crossed by the LX Project pipeline. The potential for hazardous waste spills poses the greatest impact on groundwater resources in the project area. Columbia Gas' and Columbia Gulf's measures to prevent spills are summarized in the SPCC Plan included in their ECSs. With the implementation of the measures discussed above, the depth of the aquifers, and the relatively shallow nature of construction, we have concluded that construction and operation of the Projects would not significantly impact aquifers and groundwater resources.

### **Surface Water**

No long-term impacts are anticipated on waterbodies as a result of construction of the Projects. Columbia Gas and Columbia Gulf would not permanently affect the designated water uses, would bury the pipeline beneath the bed of all waterbodies, they would implement erosion and sedimentation controls, and would restore streambanks and streambed contours as close as practical to pre-construction conditions. Additional measures outlined in the ECSs would aid in the effective avoidance or minimization of impacts on surface waterbodies. To further minimize potential impacts to surface water bodies, we are recommending that Columbia Gas construct through waterbodies using the time windows in section V.B.1. of the FERC Procedures, unless expressly permitted in writing by the appropriate state agency that alternate time windows are granted. Impacts associated with hydrostatic testing on public and municipal water supplies would be minimized through control measures established by Columbia Gas and Columbia Gulf in accordance with state recommendations. To verify the availability of water supply for hydrostatic testing, we are recommending that Columbia Gas shall provide evidence confirming that the water use capacity requirements can be met by the municipality during hydrostatic testing activities. Accidental spills during construction and operation would be avoided through implementation of the SPCC Plan. Due to the measures discussed above, we conclude impacts on waterbodies would be adequately minimized during construction of the Projects.

Operation of the LX and RXE Projects would likely result in minimal impacts on waterbodies. Streams would be restored to pre-construction conditions. Columbia Gas and Columbia Gulf would also minimize impacts of permanent easement maintenance by working cooperatively with appropriate agencies. Therefore, we conclude that operation of the Projects would have minimal impacts on waterbodies.

Based on the avoidance and minimization measures developed by Columbia Gas and Columbia Gulf, including measures outlined in their project-specific ECSs, as well as our recommendations, we conclude that construction and operation of the LX and RXE Projects would not have any significant impacts on surface water resources.

### **Surface Water Uses during Construction**

Columbia Gas and Columbia Gulf are proposing to use both surface water and municipal water sources for hydrostatic testing. All water used for hydrostatic testing for the LX Project would be obtained from local surface waters and municipal sources. The RXE Project would withdraw water from municipal sources. Columbia Gas and Columbia Gulf would require 42 million gallons of test water for pipeline facilities and 1 million gallons of test water for aboveground facilities.

Impacts associated with the withdrawal and discharge of water would be effectively minimized by the implementation of the mitigation measures outlined in Columbia Gas' and Columbia Gulf's ECSs and FERC's Procedures. In addition, Columbia Gas would obtain appropriate NPDES discharge permits prior to conducting hydrostatic testing. Accidental spills during construction and operations would be prevented or adequately minimized through implementation of Columbia Gas's SPCC Plan. To verify the availability of water supply for hydrostatic testing, we are recommending that Columbia Gas shall provide evidence confirming that the water use capacity requirements can be met by the municipality during hydrostatic testing activities.

Based on the avoidance and minimization measures developed by Columbia Gas and Columbia Gulf, including measures outlined in their project-specific ECSs, we conclude that the Projects would not have adverse impacts on surface water resources.

### **Wetlands**

Construction of the LX Project would affect a total of 15.2 acres of wetlands. This includes 1.4 acres of forested wetlands, 0.8 acre of scrub-shrub wetlands, and 13.9 acres of emergent wetlands. Columbia Gas would maintain a 10-foot-wide corridor in wetlands and would also selectively remove trees and shrubs within a 30-foot-wide corridor where trees exist that could affect the integrity of the pipeline in scrub-shrub and forested wetland areas. Environmental wetland surveys are complete except where landowner permission had not been acquired. About 1.1 acre of forested wetlands would be converted permanently to emergent or scrub-shrub wetlands for the operation of the LX Project. We do not anticipate temporary or permanent impacts on wetlands during construction or operation of the aboveground facilities associated with the RXE Project.

Columbia Gas requested alternative measures from FERC's Procedures in several areas where it concluded that site-specific conditions do not allow for a 50-foot setback of extra workspace from wetlands. Based on our review, we have determined that the requested modifications are justified.

Given the current information Columbia Gas and Columbia Gulf have provided at the time of this draft EIS and our own research, we conclude that impacts on wetlands would be minor and would be further offset by the implementation of any compensatory mitigation developed in consultation with the agencies. Therefore, we are recommending that Columbia Gas provide its final wetland compensation plan, developed in consultation with the appropriate agencies. While limited long-term impacts on wetlands would occur, with Columbia Gas' and Columbia Gulf's implementation of the mitigation, and adherence to state agency and COE permit requirements, we conclude the impacts would be reduced to less than significant levels.

## Vegetation

Construction of the LX Project, including the construction right-of-way, extra workspace, aboveground facilities, contractor yards, and access roads would result in impacts on 3,161.6 acres of vegetated lands. This total includes 1,380.6 acres of upland forest. During operations, Columbia Gas would mow no more than once every 3 years, and maintain a 50-foot-wide permanent right-of-way; however, a 10-foot-wide corridor centered on the pipeline may be mowed more frequently to facilitate routine patrols and emergency access to the pipeline centerline. Operation of the LX Project would result in impacts on 987.7 acres of vegetated lands, including 515.6 acres of upland forest. The area of impacted interior forest blocks was calculated and we determined that approximately 1,142.9 acres of interior forest block habitat would be impacted by the proposed LX Project. We determined that approximately 13.1 miles of new edge habitat would be created as a result of construction of the proposed LX Project.

Columbia Gas would use temporary access roads during construction activities and permanent access roads during construction and operation. The access roads would impact 77.9 acres of vegetated lands during construction and 8.2 acre of vegetated lands during operation.

The greatest impact on vegetation would be on forested areas because of the time required for tree regrowth back to pre-construction conditions. Construction in forest lands would remove the tree canopy over the width of the construction right-of-way, which would change the structure and local setting of the forest area. The regrowth of trees outside the permanent right-of-way would take years and possibly decades. Moreover, the forest land on the permanent right-of-way would be permanently impacted by ongoing vegetation maintenance during operations, which would preclude the re-establishment of trees on the right-of-way.

Interior forest has a higher habitat value for some wildlife species, may take decades to establish, and is generally considered more rare in the environment compared to edge forest. These habitats provide protection from disturbance and predation, food resources, and brooding habitat for wildlife. Although Columbia Gas has attempted to route the LX Project adjacent to existing disturbance and outside of forested areas, impacts on interior forest areas would still occur and measures proposed to reduce impacts and offset temporary and permanent impacts through conservation measures. Most impacts on agricultural lands would be temporary to short-term because these areas are disturbed annually to produce crops and would typically return to their previous condition shortly following construction, cleanup, and restoration. Impacts on agricultural lands would be minimized through adherence to the ECS. No restoration activities would occur in agricultural lands between the beginning of the spring thaw through May 15, unless otherwise requested by the landowner. Restoration would be coordinated with the landowner's planting schedule.

Temporary and minor impacts would result due to construction of the Projects. Based on our review of the potential impacts on vegetation as described above, we conclude that the primary impact from construction and operation of the LX Project would be on forested lands and the RXE Project would primarily affect agricultural land. Forested impacts from the construction of the LX Project would be significant; however, due to the prevalence of forested habitats within the LX Project area and eventual regrowth of prior forested areas outside of the permanent right-of-way, in addition to Columbia Gas' mitigation and routing, we conclude that the permanent conversion of forested lands would be reduced to less than significant levels. Additional measures outlined in the Columbia Gas' and Columbia Gulf's corresponding ECSs would further minimize impacts to forested lands and other vegetation types. We have also recommended that Columbia Gas provide FERC with a revised project-specific ECS that accommodates the agencies requests to apply seed mixes that contain native pollinator plant species so as to benefit pollinating insect, bird, and bat species.

## **Wildlife and Aquatic Resources**

The overall impact of the Projects on most wildlife resources would not be significant due to the temporary nature of the effects, the amount of similar adjacent habitat available for use, and implementation of the ECS, Plan, and Procedures, although some forested species may experience a higher level of impacts. Columbia Gas and Columbia Gulf would minimize impacts on wildlife through route planning, and a reduced construction right-of-way through wetlands and forests. Impacts on vegetation and wildlife within the RXE Project are not expected to be adverse, because the sites are in predominantly agricultural areas and adjacent to an existing pipeline right-of-way. Forested species may be subject to greater impacts than non-forested species, but we recognize that these would be less than significant impacts given the availability of undisturbed forested habitat adjacent to project workspaces and the ability for individual mobile species to seek refuge in these undisturbed areas. Therefore, overall impacts on wildlife from the Projects would be minor and temporary. Additionally, we are recommending that Columbia Gas provide documentation of its correspondence with ODNR and any avoidance or mitigation measures developed to cross the Sunfish Creek State Forest.

A variety of migratory bird species, including BCCs, are associated with the habitats that would be affected by the LX Project pipeline. The clearing of vegetation during the nesting season could have direct impacts on individual migratory birds. Therefore, we are recommending that Columbia Gas consult with the FWS and complete a Final Migratory Bird Conservation Plan that details impacts on upland forest habitat and measures proposed to reduce impacts and offset temporary and permanent impacts through conservation. A final plan developed in coordination with the applicable agencies prior to construction would identify compensatory mitigation for forest habitat loss. Additionally, we are recommending that Columbia Gas and Columbia Gulf each file their Final Migratory Bird Conservation Plan, developed in consultation with the FWS, including the FWS recommended vegetation restriction.

Given the impact avoidance, minimization, and mitigation measures proposed by Columbia Gas and Columbia Gulf, as well as our recommendations, we conclude that the LX and RXE Projects would not have a significant adverse effect on wildlife overall, although some forested species may experience a higher level of impact due to the long-term loss of forested habitat.

Consultations with state agencies identified that the LX Project would cross several waterbodies in Ohio that could contain suitable habitat for special status species and one Approved Trout Water. Temporary and minor impacts on fisheries and aquatic resources could occur as a result of the LX Project. To further minimize impacts on fisheries, Columbia Gas would follow measures outlined in the ECS, which specify time windows for construction, appropriate additional temporary workspace setbacks, spoil setbacks, equipment bridges, erosion and sedimentation control requirements, and restoration requirements. Additionally, Columbia Gas would minimize the effects of its LX Project on aquatic resources at waterbody crossings through the use of Horizontal Directional Drill (HDD) technology, where practicable.

Waterbodies would not be affected by the construction or operation of the aboveground facilities at the Means CS, other than what is required for temporary access during construction, and the waterbodies would 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. No permanent fill would occur in the waterbody resources, and the stream relocation would occur to avoid any impacts to downstream uses. In accordance with Columbia Gulf's ECS, erosion and sediment controls would be placed on the downslope side of the construction workspace to minimize sedimentation into surface waters. With the exception of the stream relocation, all impacts on waterbodies located within the RXE Project footprint would be temporary.

Based on our review of potential impacts on aquatic resources as described above, we conclude that the LX Project would result in some temporary impacts on aquatic resources, but that these impacts would be adequately mitigated through adherence to the measures described in Columbia Gas' ECS, agency recommendations regarding the timing of construction activities, and our recommendations regarding sensitive waterbody crossings.

### Special Status Species<sup>34</sup>

To comply with Section 7 of the ESA, we consulted either directly or indirectly (through the applicants' informal consultation) with the FWS and state resource agencies regarding the presence of federally listed, proposed for listing, or state-listed species in the Projects' area. In compliance with Section 7, we are requesting that the FWS consider the EIS, along with various survey reports prepared by Columbia Gas and Columbia Gulf, as the Biological Assessment for the Projects.

Columbia Gas and Columbia Gulf began implementing the MSHCP in January 2014 and would implement the appropriate avoidance and minimization measures per the MSHCP, such as clearing or cutting trees in the winter. We determined that construction and operation of the Projects for covered lands is *not likely to adversely affect* the gray bat, the Indiana bat, the Virginia big-eared bat or the northern long-eared bat and would have *no effect* on the eastern small-footed myotis or Rafinesque's big-eared bat.

Based on Columbia Gas and Columbia Gulf's consultations with FWS and our review of existing records, 19 federally listed threatened or endangered species are potentially present in the project areas. We have determined that construction and operation of the Projects in accordance with Columbia Gas and Columbia Gulf's proposed measures and our recommendations would not likely adversely affect the Indiana bat, northern long-eared bat, Gray bat, Virginia big-eared bat, eastern massasauga, fanshell, pink mucket, rabbitsfoot, sheepnose, snuffbox, or white-haired goldenrod. We have determined that the proposed projects would have no effect on the American burying beetle or the northern monkshood. Effects on the running buffalo clover and small whorled pogonia are pending species surveys. In addition, we are recommending that Columbia Gas and Columbia Gulf not begin construction until all remaining surveys and consultations with the applicable federal and state agencies are complete, and it has received written notification from the Director of OEP.

Endangered or threatened mussels could potentially occur in the LX Project area. Columbia Gas is conducting mussel surveys and consulting with the agencies. We are recommending Columbia Gas continue consultations with the agencies regarding mussels and identify any additional measures for state-protected species in addition to providing the results of consultations and outstanding surveys.

Columbia Gas and Columbia Gulf continue consultations with FWS and state agencies for special status species to evaluate potential impacts and mitigation measures. Species specific surveys for 19 species are on-going. Therefore, concurrence from FWS has not yet been received. However, through desktop analysis and field habitat assessments, we have determined that after implementation of the MSHCP and any additional impact minimization measures specified by the FWS, RXE would have no effect or is not likely to adversely affect any of the federal- and state-listed species identified as potentially occurring in Carter, Menifee, and Montgomery Counties in Kentucky. We are recommending Columbia Gas and Columbia Gulf provide results from all outstanding surveys, correspondence, and mitigation measures prior to construction of the Projects.

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A Supplemental Filing was made just prior to going to print in which Columbia Gas expanded the LX Project area. Due to the lateness of the filing, our review of this information is incomplete and the analyses presented in this section may not always be reflective of these changes.

## **Land Use, Recreation, Special Interest Areas, and Visual Resources**

Construction of the LX Project would affect a total of 3,161.6 acres, and operation of the LX Project would affect approximately 987.7 acres. The new pipeline would require a 50-foot-wide permanent right-of-way. To facilitate pipeline inspection, operation, and maintenance, the entire permanent right-of-way in upland areas, except at HDD crossings, would be maintained in an herbaceous/scrub-shrub vegetated state. This maintained right-of-way would be mowed no more than once every 3 years, but a 10-foot-wide corridor centered over the pipeline may be mowed annually to facilitate operational surveys. Construction of the RXE Project would affect a total of 34.4 acres during construction. Operation of the RXE Project would permanently affect approximately 16.8 acres.

Columbia Gas's construction work area for the LX Project would be within 50 feet of 43 residential structures, 5 businesses, and 69 other structures. Of these structures, 23 residences, 5 businesses, and 40 other structures are within 25 feet of the construction work area. Columbia Gas has prepared site-specific plans for all residences within 50 feet of construction work areas. Additionally, we are recommending that Columbia Gas submit for the review and written approval of the Director of OEP, evidence of landowner concurrence with the site-specific residential construction plans for all locations identified by MP in table 4.8.3-1 of the EIS where LX Project construction work areas would be within 10 feet of a residence. Three residences and six other structures occupy the site of the Grayson CS, and Columbia Gulf intends to acquire and remove these structures. No other residential, commercial, or industrial structures are within 50 feet of the proposed work areas for the RXE Project. Columbia Gas and Columbia Gulf would notify affected residents a minimum of two weeks in advance of construction activities.

No planned developments were identified within 0.5 mile of the LX or RXE Project areas.

In general, impacts on recreational and special interest areas would be temporary and limited to the period of active construction, which typically would last only several days to several weeks in any one area. These impacts would be minimized by implementation of Columbia Gas's and Columbia Gulf's ECSs.

The LX Project would not cross or come within 0.2 mile of any National Park System unit (including National Wild, Scenic, and/or Recreational Rivers), Indian Reservation, National Forest, National Wildlife Refuge, National Wilderness Area, or National Landmark. The LX Project also does not cross any rivers in the National Wild and Scenic Rivers System.

The LX Project would directly cross one state forest, three recreational trails, one wildlife management area, and one outdoor recreation area. The LX Project would also be within 0.2 mile of one nature preserve and its two associated components, an additional nature preserve, one public park, one conservation preserve, and two state parks. The LX Project would cross state and privately owned lands, including less than one mile of state forest. The LX Project would also cross one National Scenic Byway, but would not cross any federal lands, or national or state designated wild or scenic rivers. The RXE Project would not cross any of these types of resources.

Visual resources along the pipeline route are a function of geology, climate, and historical processes, and include topographic relief, vegetation, water, wildlife, land use, and human uses and development. Approximately 40 percent of the new LX Project pipelines would be installed within or parallel to existing pipeline and/or utility rights-of-way. As a result, the visual resources along this portion of the LX Project have been previously affected by other similar activities.

The Projects' aboveground facilities would be installed at locations with aesthetics and topography similar to that described for the pipeline. Aboveground new facilities for both the LX and



RXE Project components would primarily affect areas characterized as agricultural, industrial, open land, and forest. Since plans are still being developed, we are recommending that Columbia Gas and Columbia Gulf not begin construction of facilities and/or use of (all) staging, storage, or temporary work areas and new or to-be improved access roads in Ohio, West Virginia, Pennsylvania, or Kentucky until their plans are filed and approved by the Secretary. MLVs along the LX Project operational right-of-way would be enclosed by an approximate 50-foot by 50-foot fenced gravel area. Columbia Gas would construct 10 of 13 launchers and receivers within the boundaries of existing aboveground facilities, thereby minimizing impacts on visual resources.

Based on our review of potential impacts, the primary land use affected from construction and operation of the Projects would be on forested land. In accordance with the FERC Plan and Columbia Gas' and Columbia Gulf's ECSs, permanent impacts would be minimized in these areas. Visual impacts resulting from the Projects would also be minor and localized within the project areas. We conclude that significant impacts on specific land use types and visual resources as a result of project construction and operation would be adequately minimized and similar to those discussed above for vegetative impacts.

### **Socioeconomics**

Construction of the Projects would not have a significant adverse impact on local populations, housing, employment, or the provision of community services. There would be short-term increases in traffic levels due to the commuting of the construction workforce to the area of the Projects as well as the movement of construction vehicles and delivery of equipment and materials to the construction right-of-way. To address traffic impacts related to construction across and within roadways and railroads, Columbia Gas has developed an acceptable Traffic Control Plan.

Based on our research and analysis, there is no evidence that the Projects would result in disproportionately high and adverse health or environmental effects on minority or low-income communities. The long-term socioeconomic effect of the LX and RXE Projects is likely to be beneficial, based on the increase in tax revenues that would accrue in the counties affected by the LX and RXE Projects. Based on the analysis presented, and our recommendations regarding other resources, we conclude there would not be a significant adverse effect on the socioeconomic conditions within the Projects' area.

### **Cultural Resources**

Columbia Gas and Columbia Gulf conducted archival research and surveys for the proposed Projects to identify cultural resources and locations for additional subsurface testing in areas with potential for prehistoric and historic archaeological sites.

In West Virginia, Columbia Gas identified two archaeological sites and three historic cemeteries. All five sites are of undetermined eligibility. Four sites would be avoided by reroutes, workspace modifications, and/or HDD. Columbia Gas has committed to measures to mitigate impacts to the remaining site; however, these measures have not been filed. As of March 2016, this section of the LX Project includes 1.6 miles of pipeline, 0.1 mile of access roads, 1.2 acres of workspace at the Lone Oak CS and 4.0 acres of pipe yards that have yet to be surveyed for archaeological sites.

In Pennsylvania, no archaeological sites were identified. In a letters dated July 8, 2015 and September 9, 2015, the Pennsylvania SHPO confirmed that the LX Project would not affect historic aboveground resources.

In Ohio, Columbia Gas identified 100 archeological sites, of which 76 had either been determined or were recommended not eligible for listing in the NRHP. Twenty-one sites were of undetermined

eligibility, but 19 would be avoided by reroutes. The remaining 3 sites have been determined eligible for listing in the NRHP and Columbia Gas has committed to measures to mitigate impacts; however, these mitigation plans have not been filed. As of March 2016, this section of the LX Project includes 2.6 miles of pipeline, 3.1 acres of temporary workspaces, and 2.1 miles of access roads that have yet to be surveyed for archaeological sites.

In Kentucky, Columbia Gulf identified no previously recorded and two new archaeological sites within the construction footprint for the Grayson CS. Both sites were recommended not eligible for listing in the NRHP. The archaeological survey of the proposed Means CS identified three previously recorded and no new archaeological sites in the direct APE. One of the sites has been recommended not eligible for listing in the NRHP. The other two sites have been recommended as undetermined. Avoidance or Phase II archaeological evaluations have been recommended for these two sites. No historic architectural resources were identified within the indirect APE of the proposed Grayson CS or the proposed Means CS.

FERC staff, Columbia Gas, and Columbia Gulf contacted federally recognized Native American tribes (25 associated with the LX Project and 5 associated with the RXE Project) to provide them an opportunity to comment on the proposed Projects. The letters were sent to inform each tribe about the proposed Projects and to request that they communicate any potential concerns they might have with respect to cultural resources, including traditional cultural properties. The Delaware Tribe of Indians responded to the LX Project notification letters with a letter dated June 27, 2014. They requested that they continue to participate as a consulting party. The Catawba Indian Nation responded with a letter dated July 22, 2015 that they have no immediate concerns within the boundaries of the LX Project area, but requested that they be notified if any unanticipated discovery is encountered during construction. As of October 2015, no responses had been filed from the remaining tribes within the LX Project area. As of July 2015, no responses had been filed for tribes within the RXE Project area.

Compliance with Section 106 of the NHPA has not been completed for the proposed Projects. To ensure that our responsibilities under Section 106 of the NHPA are met, we are recommending that construction should not begin until Columbia Gas and Columbia Gulf have filed all outstanding cultural resources surveys and SHPO comments, and any necessary site-specific plans. The studies and impact avoidance, minimization, and measures proposed by Columbia Gas and Columbia Gulf, and our recommendation, would ensure that any adverse effects on cultural resources would be appropriately mitigated.

## **Air Quality and Noise**

### **Air Quality**

Air quality impacts associated with construction of the Projects would include emissions from fossil-fueled construction equipment and fugitive dust. Such impacts would generally be temporary and localized and are not expected to cause or contribute to a violation of applicable air quality standards. Once construction activities in an area are completed, fugitive dust and construction equipment emissions would subside and the impact on air quality due to construction would go away completely. Further, construction emissions do not exceed the General Conformity thresholds in areas of degraded air quality. We are recommending that Columbia Gas prepare a Construction Emission Plan identifying how Columbia Gas would track its construction schedule for each component of the LX Project within the Wheeling, OH-WV PM<sub>2.5</sub> Maintenance Area and ensure construction emissions of NO<sub>x</sub> would remain under the General Conformity applicability threshold. Therefore, we conclude that the Projects' construction-related impacts would not result in a significant impact on local or regional air quality.

The LX Project would include the construction and operation of three new compressor stations and four new regulator stations, as well as modifications at two existing compressor stations and one existing regulator station. The LX Project would also require the installation of 13 bi-directional launcher and/or receiver facilities. The RXE Project includes the installation of two compressor stations on the existing transmission system for delivery of gas. The majority of emissions from the LX and RXE Projects would result from operation of the compressor stations.

Emissions generated during operation of the pipeline portion of the LX Project would be minimal, limited to emissions from maintenance vehicles and equipment and fugitive emissions (considered negligible for the pipeline). The LX and RXE Projects are located in maintenance and nonattainment areas for PM<sub>2.5</sub>. Columbia Gas has developed a Fugitive Dust Control Plan which includes mitigation measure that would be employed during construction activities to prevent and control fugitive dust PM emissions. Columbia Gas and Columbia Gulf submitted applications for construction and operation of each compressor station to the WVDEP, OEPA, and KYDEP. The Lone Oak CS, Ceredo CS, and Oak Hill CS would require Title V permits for operation. The Means CS and Grayson CS would require an Origin Operating Permit for operation. Columbia Gas and Columbia Gulf would ensure that emissions from combustion sources would be minimized by engine maintenance, use of pipeline-quality natural gas, and that annual performance tests would be conducted. The modeled ground-level concentrations associated with the Lone Oak CS, Summerfield CS, Oak Hill CS, Grayson CS, and Means CS, plus the corresponding background concentrations are below the NAAQS for each pollutant and averaging period. As with pipeline operations, any emissions resulting from operation of Columbia Gas' and Columbia Gulf's compressor stations would not have significant impacts on local or regional air quality.

## **Noise**

Construction equipment for Columbia Gas' and Columbia Gulf's Projects would be operated on an as-needed basis and receptors near construction areas may experience an increase in perceptible noise. However, the effect would be temporary and local. The most prevalent noise-generating equipment during construction of aboveground facilities and pipelines would be construction equipment engines operating during site earth work. Controlled blasting during pipeline construction activities would be conducted in accordance with the measures outlined in the project-specific Blasting Plan. Columbia Gas and Columbia Gulf would limit construction to daylight hours to prevent nighttime noise impacts, with the exception of HDD activity. Therefore, we are recommending that Columbia Gas file with the Secretary, for review and written approval by the Director of OEP, a revised HDD noise mitigation analysis for the Ohio River #2 Entry location. The revised plan would identify additional mitigation measures that Columbia Gas commits to implementing and the resulting projected noise level at the NSAs with implementation of the mitigation measures. Additionally, we are recommending that Columbia Gas file weekly construction status reports for each HDD entry and exit site that document the noise measurements from the nearest NSA for each drill entry/exit site; the noise mitigation that Columbia Gas implements at the start of drilling operations; and any additional mitigation measures that Columbia Gas will implement if the initial noise measurements exceeded an L<sub>dn</sub> of 55 dBA at the nearest NSA and/or increased noise is over ambient conditions greater than 10 decibels. Based on modeled noise levels, Columbia Gas' and Columbia Gulf's proposed mitigation measures, and our recommendation, we conclude that Columbia Gas' and Columbia Gulf's Projects would not result in significant noise impacts on residents and the surrounding communities for HDD activity or any other construction activity.

Operation of Columbia Gas' and Columbia Gulf's new and modified compressor stations and regulator stations, as well as the new odorization stations, would not result in a perceptible noise increase or exceed our noise level criteria. Noise from planned or unplanned blowdown events could exceed our noise criteria, but would be infrequent and of relative short duration. Therefore, we are recommending

Columbia Gas and Columbia Gulf file noise surveys with the Secretary no later than 60 days after placing Lone Oak, Summerfield, Oak Hill, Grayson, and Means Compressor Stations in service while at full load conditions. Based on the analyses conducted, mitigation measures proposed, and our recommendations, we conclude that operation of Columbia Gas' and Columbia Gulf's Projects would not result in significant noise impacts on residents and surrounding communities. In addition, the operation of the Projects are not expected to result in a perceptible increase in vibration at any NSA, as gas turbines and electric-driven motors do not produce as high of levels of vibration as compared to reciprocating engines.

### **Reliability and Safety**

The pipeline and aboveground facilities associated with the Projects would be designed, constructed, operated, and maintained to meet the DOT Minimum Federal Safety Standards in 49 CFR 192 and other applicable federal and state regulations. These regulations include specifications for material selection and qualification; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion. The DOT rules require regular inspection and maintenance, including repairs as necessary, to ensure the pipeline has adequate strength to transport the natural gas safely.

Columbia Gas would implement its own management plan for its pipeline facilities which would be clearly marked at line-of-sight intervals and at other key points to indicate the presence of the pipeline. The pipeline system would be inspected to observe right-of-way conditions and identify soil erosion that may expose the pipe, dead vegetation that may indicate a leak in the pipeline, conditions of the vegetation cover and erosion control measures, unauthorized encroachment on the right-of-way such as buildings and other structures, and other conditions that could present a safety hazard or require preventive maintenance or repairs. Columbia Gas and Columbia Gulf would employ the use of a SCADA system that would allow for continuous monitoring and control of the Projects.

We conclude that Columbia Gas's and Columbia Gulf's implementation of the above measures would protect public safety and the integrity of the proposed facilities.

### **Cumulative Impacts**

Three types of projects (past, present, and reasonably foreseeable projects) could potentially contribute to a cumulative impact when considered with the proposed Projects. These projects include Marcellus and Utica Shale development (wells and gathering systems), natural gas facilities that are not under the Commission's jurisdiction, other FERC-jurisdictional natural gas pipelines, and unrelated actions such as electric generation and transmission projects, transportation projects, and residential or commercial development projects. The region of influence for cumulative impacts varies depending on the resource being discussed. Specifically, we included:

- projects within the proposed Projects' boundaries of the eight-digit hydrologic unit code watersheds affecting water resources and aquatic resources;
- projects located within 0.5 mile of the proposed Projects' areas that may impact wildlife, vegetation, and land use;
- counties within the proposed Projects' construction areas and where non-local workers are expected to reside during construction and operations personnel are expected to reside permanently and an additional 10 to 15 miles into the adjacent counties for portions of the proposed Projects near a county border;
- the proposed footprint for geological resources within each of the Projects';

- projects within 0.5 miles of the proposed Projects' workspace for construction related short-term air emissions;
- projects within 2.5 miles of the proposed Projects' aboveground facilities that may affect long-term air quality; and
- projects occurring 0.5 mile or less from facilities creating operational noise associated with the proposed Projects.

Our cumulative impacts assessment also considers cumulative impacts related to 12 planned, proposed, or existing FERC-jurisdictional natural gas transmission projects that have portions within 25 miles of the proposed LX and RXE Projects. Of these projects, the Rover Pipeline, the Appalachian Lease Project, the Ohio Valley Connector Project, the SM-80 MAOP Restoration Project, the Mountaineer XPress Project, the Gibraltar Pipeline Project, and the Gulf XPress Project would be the closest to the LX and RXE Projects. All of the FERC-jurisdictional projects would be constructed and maintained in accordance with our approved procedures and other construction, operation, and mitigation measures that may be required by federal, state, or local permitting authorities, further reducing the potential for cumulative impacts.

Impacts associated with the proposed Projects in combination with other projects such as residential developments, electric generation, and transportation projects, would be relatively minor overall. It is anticipated that any adverse impacts on sensitive resources resulting from each of the other projects considered in our analysis would be regulated through project design, BMPs, and agency permitting. Therefore, we conclude that the cumulative impacts associated with the Projects, when combined with other known or reasonably foreseeable projects, would be effectively limited.

## **Alternatives**

As an alternative to the proposed action, we evaluated the no-action alternative, system alternatives, route alternatives, and aboveground facility site alternatives. While the no-action alternative would eliminate the short- and long-term environmental impacts identified in the EIS, the stated objectives of Columbia Gas's and Columbia Gulf's proposals would not be met.

Our analysis of system alternatives included an evaluation of whether existing or proposed natural gas pipeline systems could meet the Projects' objectives while offering an environmental advantage. There is no available and suitably located capacity for existing pipeline systems to transport the required volumes of natural gas, nor are they connected to the LX Project's gas supply area in the Marcellus and Utica Shale regions of West Virginia, Pennsylvania, and Ohio. No existing pipeline system with the capacity to transport the contracted load connects the Marcellus and Utica Shale regions to serve the Project markets. Therefore, we do not consider use of existing pipeline systems as feasible alternatives for the proposed Projects.

We evaluated two major route alternatives for the LX Project LEX Pipeline segment. Due to increased impacts on environmental resources and residential areas, in addition to the potential for greater impacts on forested areas, other wildlife habitat, and protected public resources, we have removed these major alternative routes from consideration.

We did not consider route alternatives to the R-801 Loop or BM-111 Loop. Construction of the proposed R-801 Loop would provide optimal discharge pressure required for a system design to accommodate additional capacity created by the proposed LX Project through construction of one new relay compressor station near Oak Hill in Jackson County, Ohio. Construction of the BM-111 Loop would expand the capacity of the existing Line BM-111 near the existing Burlington Meter Station in Lawrence County, Ohio, which serves as a point of connection for lines R-500, R-601, and R-701 lines,

as required to accommodate the new capacity associated with the proposed Project. Additionally, the use of co-location with the R-801 loop and the BM-111 loop further minimizes environmental impacts in addition to construction costs. Therefore, no route alternatives to the R-801 Loop and the BM-111 Loop were evaluated.

Based on consultations with landowners, resource agencies, municipal governments, field review, and impact assessment, Columbia Gas is evaluating 12 landowner requested variations, 2 agency requested variations, and 1 minor route alternative into the proposed LX Project to avoid site-specific features such as topography, landowner concerns, sensitive habitat, or structures. Since the landowner requested variations are still in development, we are recommending that Columbia Gas further assess the minor route evaluations for the tracts identified in table 3.3.3-1 of the draft EIS in coordination with the landowners and either incorporate a route that avoids the resources of concern, or otherwise explain how potential impacts on resources have been effectively avoided, minimized, or mitigated. We evaluated one additional minor route alternative through areas in which two foreign FERC-regulated pipeline projects (the Rover Pipeline Project and the Appalachian Lease Project) have proposed routes similar to that of the LX Project. Implementation of this route alternative would require construction through more difficult terrain, such as vertical side slopes and less defined ridge lines, and reduce the length of co-location within existing pipeline corridors. This would result in increased forest fragmentation and environmental impacts compared to the proposed route. Therefore, this alternative was not recommended.

No alternatives to the Lone Oak CS were evaluated. However, Columbia Gas redesigned the Lone Oak CS site after consulting with the Murray Energy Corporation to avoid potential conflicts with future longwall mining activities. Two alternatives to the proposed Oak Hill CS site were evaluated. No environmental issues were identified to warrant alternative analysis for the Crawford CS or the Ceredo CS. We evaluated one site alternative to the proposed K-260 RS and two sites close to Columbia's existing R-501, R-601, and R-701 lines, one alternative to the Benton RS, and one alternative for the McArthur RS. Proposed modification on the existing RS-1286 did not require an alternative analysis. As part of the proposed LX Project, five odorization stations would be constructed. These sites were chosen based on their existing locations along Columbia Gas' pipeline system and are required to maintain compliance with the DOT Minimum Federal Safety Standards (49 CFR 192). No environmental concerns were identified to warrant alternative analysis for the odorization stations.

We evaluated various locations for the Grayson CS and Means CS. Three alternative sites were considered for the Grayson CS and two alternative sites were considered for the Means CS. No alternative sites were recommended.

## **5.2 FERC STAFF'S RECOMMENDED MITIGATION**

If the Commission authorizes the LX and RXE Projects, we recommend that the following measures be included as specific conditions in the Commission's Order. We conclude that these measures would further mitigate the environmental impact associated with construction and operation of the proposed Projects. We have included several recommendations that require Columbia Gas and Columbia Gulf to provide updated information and/or documents prior to the end of the draft EIS comment period. We do not expect that Columbia Gas' and/or Columbia Gulf's responses would materially change any of the conclusions presented in this draft EIS; instead the information requested is primarily related to ensuring that our final EIS is complete and to provide up to date information on Columbia Gas' and Columbia Gulf's ongoing efforts to minimize the impacts of their Projects and comply with FERC regulations.

1. Columbia Gas and Columbia Gulf shall each follow the construction procedures and mitigation measures described in its application and supplements, including responses to staff data requests and as identified in the EIS, unless modified by the Order. Columbia Gas and Columbia Gulf must:
  - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission;
  - 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 OEP **before using that modification.**
2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the Projects. This authority shall allow:
  - a. the modification of conditions of the Order; and
  - b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to ensure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from construction and operation of the Projects.
3. **Prior to any construction**, Columbia Gas and Columbia Gulf shall each 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 EIs' 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 facility locations shall be as shown in the final EIS, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Columbia Gas and Columbia Gulf shall file any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved 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.

Columbia Gas' exercise of eminent domain authority granted under NGA Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Columbia Gas' right of eminent domain granted under NGA Section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Columbia Gas and Columbia Gulf shall file 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, contractor 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, and 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 Columbia Gas's and Columbia Gulf's Plans 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 Certificate and before construction begins**, Columbia Gas and Columbia Gulf shall file their respective Implementation Plans for review and written approval by the Director of OEP. Columbia Gas and Columbia Gulf must file revisions to their plans as schedules change. The plans shall identify:
- a. how Columbia Gas and Columbia Gulf will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EIS, and required by the Order;
  - b. how Columbia Gas and Columbia Gulf 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 Columbia Gas and Columbia Gulf will give to all personnel involved with construction and restoration (initial and refresher training as the Projects progress and personnel change) with the opportunity for OEP staff to participate in the training sessions;
  - f. the company personnel (if known) and specific portion of Columbia Gas's and Columbia Gulf's organization having responsibility for compliance;
  - g. the procedures (including use of contract penalties) Columbia Gas and Columbia Gulf will follow if noncompliance occurs; and
  - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
    - i. the completion of all required surveys and reports;
    - ii. the environmental compliance training of onsite personnel;
    - iii. the start of construction; and
    - iv. the start and completion of restoration.
7. **Columbia Gas** shall employ at least one EI per construction spread and Columbia Gulf shall employ one EI for the RXE Project. The EIs 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. a full-time position, separate from all other activity inspectors;
  - e. 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
  - f. responsible for maintaining status reports.
8. Beginning with the filing of its Implementation Plan, Columbia Gas shall file updated status reports with the Secretary on a **weekly basis until all construction and restoration activities are complete**. Columbia Gulf shall file updated status reports with the Secretary on a **monthly basis until 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 efforts to obtain the necessary federal authorizations;
  - b. the construction status of the their respective Project facilities, 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 EIs 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 corrective actions implemented in response to all instances of noncompliance, and their cost;
  - e. the effectiveness of all corrective actions implemented;
  - f. a description of any landowner/resident complaints that 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 Columbia Gas and Columbia Gulf from other federal, state, or local permitting agencies concerning instances of noncompliance, and Columbia Gas's and Columbia Gulf's responses.
9. Prior to receiving written authorization from the Director of OEP to commence construction of their respective Project facilities, Columbia Gas and Columbia Gulf shall file documentation that they have received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. Columbia Gas and Columbia Gulf must receive written authorization from the Director of OEP **before placing their respective projects into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of areas affected by the Projects are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Columbia Gas and Columbia Gulf shall file an affirmative statement with the Secretary, certified by a senior company official:
  - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
  - b. identifying which of the Certificate conditions Columbia Gas and/or Columbia Gulf has complied or will comply with. This statement shall also identify any areas affected by their respective Projects where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
12. **Prior to the end of the draft EIS comment period**, Columbia Gas shall further assess the minor route evaluations for the tracts identified in table 3.3.3-1 of the draft EIS in coordination with the landowners and either incorporate a route that avoids the resources of concern, or otherwise explain how potential impacts on resources have been effectively avoided, minimized, or mitigated. (*section 3.3.3.1*)
13. **Prior to construction**, Columbia Gas shall file with the Secretary the results of civil surveys identifying the location of any conventional or unconventional oil and gas well locations (including permitted, drilled, producing and abandoned oil and gas wells) within the LX Project footprint, as well as identify measures to minimize hazards for any wells located within 100 feet of the proposed LX Project pipelines. (*section 4.1.1.2*)
14. **Prior to construction**, Columbia Gas shall construct through project waterbodies using the time windows in section V.B.1. of the FERC Procedures, unless expressly permitted in writing by the appropriate state agency that alternate time windows are granted. (*section 4.3.2.4*)
15. **Prior to the end of the draft EIS comment period**, Columbia Gas shall provide evidence confirming that the water use capacity requirements can be met by the municipality during hydrostatic testing activities. (*section 4.3.2.6*)
16. **Prior to construction**, Columbia Gas shall provide its final wetland compensation plan, developed in consultation with the appropriate agencies. (*section 4.4.5*)
17. **Prior to construction**, Columbia Gas shall file with the Secretary, for review and written approval of the Director of OEP, a revised project specific ECS that accommodates the agencies requests to apply seed mixes that contain native pollinator plant species so as to benefit pollinating insect, bird, and bat species. (*section 4.5.6.1*)
18. **Prior to construction**, Columbia Gas shall file with the Secretary documentation of its correspondence with ODNR and any avoidance or mitigations measures developed to cross the Sunfish Creek State Forest. (*section 4.6.1.2*)
19. **Prior to construction**, Columbia Gas and Columbia Gulf shall each file with the Secretary its Final Migratory Bird Conservation Plan, developed in consultation with the FWS, including the FWS recommended vegetation restriction. (*section 4.6.1.3*)
20. Columbia Gas shall not begin construction of the LX Project **until**:
  - a. FERC staff completes any necessary ESA Section 7 consultation with the FWS; and
  - b. Columbia Gas has received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin. (*section 4.7.2.1*)
21. Columbia Gas shall not begin construction of the LX Project in Ohio **until**:
  - a. surveys for running buffalo clover have been completed;

- b. FERC staff completes any necessary ESA Section 7 consultation with the FWS; and
  - c. Columbia Gas has received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin. (*section 4.7.2.2*)
22. Columbia Gas shall not begin construction of the LX Project in Ohio **until**:
- a. surveys for small whorled pogonia have been completed;
  - b. FERC staff completes any necessary ESA Section 7 consultation with the FWS; and
  - c. Columbia Gas has received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin. (*section 4.7.2.2*)
23. **Prior to constructing in water in Ohio and West Virginia**, Columbia Gas shall continue consultations with the applicable state agencies to identify any additional mitigation measures for state-protected mussel species and the need for additional surveys in Ohio and West Virginia. The results of such consultations and any state recommended mitigation measures shall be filed with the Secretary. (*section 4.7.3.4*)
24. **Prior to construction in Pennsylvania**, Columbia Gas shall file with the Secretary survey results and any mitigation measures developed in consultation with the PADCNR for single-headed pussytoes. (*section 4.7.6.3*)
25. **Prior to the end of the draft EIS comment period**, Columbia Gas shall file with the Secretary further justification for the additional workspace along the proposed access roads and the addition of a second permanent access road at the K-260 RS site. (*section 4.8.1.5*)
26. **Prior to construction**, Columbia Gas shall file with the Secretary, for the review and written approval of the Director of OEP, evidence of landowner concurrence with the site-specific residential construction plans for all locations identified by MP in table 4.8.3-1 of the EIS where LX Project construction work areas would be within 10 feet of a residence. (*section 4.8.3.1*)
27. **Prior to construction**, Columbia Gulf shall file with the Secretary a visual screening plan for the proposed Means Compressor Station for review and written approval by the Director of OEP. (*section 4.8.6.2*)
28. Columbia Gas and Columbia Gulf shall not begin construction of facilities and/or use of (all) staging, storage, or temporary work areas and new or to-be improved access roads in Ohio, West Virginia, Pennsylvania, or Kentucky **until**:
- a. Columbia Gas and Columbia Gulf file with the Secretary:
    - i. Cultural resource identification survey reports for any previously unreported areas in Ohio, Pennsylvania, and West Virginia;
    - ii. Evaluation studies, as necessary, to provide NRHP-eligibility recommendations for historic aboveground resources Site 103, Site 136, and Site 140 in Ohio and archaeological sites 15MF490 and 15MF492 in Kentucky;
    - iii. Any other reports, evaluation studies, or plans (monitoring, avoidance, etc.) not yet submitted; and
    - iv. Comments on survey reports, UDPs, and any other studies or plans from the Ohio, West Virginia, Pennsylvania, and Kentucky SHPOs and any other consulting parties;
  - b. The ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and

- c. FERC staff reviews and the Director of OEP approves the cultural resources reports and plans, and notifies Columbia Gas and Columbia Gulf in writing that treatment plans/mitigation measures may be implemented and/or construction may proceed.

All material filed with the Commission containing location, character, and ownership information about cultural resources must have a cover and any relevant pages therein clearly labeled with the following in bold lettering: "**CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE.**" (*section 4.10.6*)

29. **Prior to construction**, Columbia Gas shall file with the Secretary, for review and written approval by the Director of OEP, a Construction Emission Plan identifying how Columbia Gas would track its construction schedule for each component of the LX Project within the Wheeling, OH-WV PM<sub>2.5</sub> Maintenance Area and ensure construction emissions of NO<sub>x</sub> would remain under the General Conformity applicability threshold. If a change in the construction schedule or project results in emissions of NO<sub>x</sub> greater than the General Conformity applicability threshold of 100 tpy, Columbia Gas should provide and document all mitigation measures under 40 CFR 93.158 it would implement to comply with the General Conformity Regulations. (*section 4.11.1.2*)
30. **Prior to the end of the draft EIS comment period**, Columbia Gas shall file with the Secretary, for review and written approval by the Director of OEP, a revised HDD noise mitigation analysis for the Ohio River #2 Entry location. The revised plan shall identify additional mitigation measures that Columbia Gas commits to implementing and the resulting projected noise level at the NSAs with implementation of the mitigation measures. (*section 4.11.2.3*)
31. Columbia Gas shall file in the **weekly construction status reports** the following for each HDD entry and exit site:
  - a. the noise measurements from the nearest NSA for each drill entry/exit site, obtained at the start of drilling operations;
  - b. the noise mitigation that Columbia Gas implements at the start of drilling operations; and
  - c. any additional mitigation measures that Columbia Gas will implement if the initial noise measurements exceeded an L<sub>dn</sub> of 55 dBA at the nearest NSA and/or increased noise is over ambient conditions greater than 10 decibels. (*section 4.11.2.3*)
32. Columbia Gas and Columbia Gulf shall file a noise survey with the Secretary **no later than 60 days** after placing Lone Oak, Summerfield, Oak Hill, Grayson, and Means Compressor Stations in service. If a full load condition noise survey of the entire station is not possible, Columbia Gas and Columbia Gulf shall instead file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at any compressor station under interim or full horsepower load conditions exceeds 55 dBA L<sub>dn</sub> at any nearby NSAs, Columbia Gas and Columbia Gulf shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Columbia Gas and Columbia Gulf shall confirm compliance with the 55 dBA L<sub>dn</sub> requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)
33. Columbia Gas shall file noise surveys with the Secretary **no later than 60 days** after placing the authorized units at the Crawford and Ceredo Compressor Stations in service. If a full load condition noise survey of the entire station is not possible, Columbia Gas shall file an interim survey at the maximum possible horsepower load and file the full load surveys **within 6 months**. If the noise attributable to the operation of the modified compressor station at full or interim power load conditions exceeds existing noise levels at any nearby NSAs that are currently at or above an L<sub>dn</sub> of 55 dBA, or exceeds 55 dBA L<sub>dn</sub> at any nearby NSAs that are currently below 55 dBA L<sub>dn</sub>, Columbia

Gas should file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Columbia Gas shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)

