



April 7, 2014

**Via Electronic Filing**

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

**Re: Comments on Draft Environmental Impact Statement for Constitution Pipeline and Wright Interconnect Projects, Docket Nos. CP13-499-000; CP13-502-000; PF12-9**

Dear Secretary Bose:

On behalf of intervenors Catskill Mountainkeeper, Clean Air Council, Delaware-Otsego Audubon Society, Delaware Riverkeeper Network, Riverkeeper, Inc., and Sierra Club ("Intervenors"), we respectfully submit these comments on the Draft Environmental Impact Statement ("Draft EIS") for the Constitution Pipeline and Wright Interconnect Projects, issued February 12, 2014 by the Federal Energy Regulatory Commission ("Commission"). These comments augment the technical and scientific comments prepared by Marc Henderson and Kevin Heatley, which are incorporated by reference and attached hereto as Exhibits A and B, respectively. For the reasons explained in those reports and herein, the Draft EIS falls short of what is required under the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4331 *et seq.*

Because many of the Draft EIS's deficiencies can be cured only with the submission and analysis of new studies that should be subject to public scrutiny, we urge the Commission to collect the missing information, perform the new analyses, and issue a revised draft EIS for another round of public review and comment before it issues a final EIS for these Projects. Until all of the relevant data has been released and examined, the Commission lacks any legitimate basis for a decision under NEPA or a public interest determination under the Natural Gas Act.

**I. Project Background**

On June 13, 2013, the Constitution Pipeline Company, LLC ("Constitution") and Iroquois Gas Transmission System, L.P. ("Iroquois") each filed an application with the

Commission for a certificate of public convenience and necessity (“Certificate”).<sup>1</sup> Constitution seeks approval to construct and operate a 124-mile interstate natural gas transmission pipeline along with various associated facilities (“Pipeline Project” or “Project”). Iroquois seeks to construct and operate pipeline connection and compression facilities (“Wright Interconnect Project”) and to lease the incremental pipeline capacity associated with such facilities, located at the eastern terminus of the Pipeline Project in Wright, New York, to Constitution.

If approved, the Pipeline Project will cut through Broome, Chenango, Delaware, and Schoharie Counties in New York and Susquehanna County in Pennsylvania, disturbing more than 1,862 acres of land and leaving at least 748 acres permanently altered. The Project is largely greenfield construction, with a mere nine percent of the proposed 124-mile route co-located with existing rights-of-way. Project construction will result in the clear-cutting of hundreds of thousands of trees in the 1,024.5 acres of forest land that will be disturbed by the Project, including 439.7 acres of interior forest.<sup>2</sup> The permanent conversion of forest to open land will fragment important habitat, will result in increased stormwater runoff, and will compromise the area’s resilience to flooding in the face of increased precipitation and more frequent and intense storm events. The Pipeline Project will cross multiple public drinking water supply sources, three watersheds, at least 91.8 acres of wetlands, and 277 waterbodies, including designated high quality streams, trout streams, and at least 99 protected streams.

Along with 124 miles of pipeline and seventeen miles of access roads that will cut across forests and water resources, the Pipeline Project will be served by two compressor stations: Iroquois’ proposed 21,800-horsepower Wright Interconnect Project and Williams’ 17,970-horsepower Central Compressor Station, located in Brooklyn Township, Pennsylvania. These sources, together with construction equipment and other operational facilities, will emit harmful air pollution, including criteria pollutants such as nitrogen oxides (“NOx”), and hazardous air pollutants such as volatile organic compounds (“VOCs”), which also are ozone precursors. The Pipeline Project also will result in the direct emission of climate-change-causing greenhouse gases (“GHGs”): carbon dioxide (“CO<sub>2</sub>”) and nitrous oxide (“N<sub>2</sub>O”) from compressor engines, line heaters, and generators; fugitive methane emissions from compressors and the pipeline; and black carbon emissions from diesel vehicles and equipment.

In addition to the direct impacts to natural resources located in the immediate vicinity of the Projects, the availability of the infrastructure necessary to bring gas to market through a region underlain by the Marcellus Shale formation is likely to induce the development of additional gas wells, including those developed utilizing the extraction technique of high volume hydraulic fracturing. Such development brings with it water, air, and land pollution and could transform dozens of quiet, rural communities—presently consisting primarily of forest and farm lands—into industrial zones, plagued by constant truck traffic, the disappearance of scenic vistas, and noise and light pollution, among other impacts. The Pipeline Project also will induce

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<sup>1</sup> Constitution Pipeline Company, LLC, Application for Certificate of Public Convenience and Necessity, FERC Docket No. CP13-499-000 (filed June 13, 2013); Iroquois Gas Transmission System, LP, Application for Certificate of Public Convenience and Necessity, FERC Docket No. CP13-502-000 (filed June 13, 2013).

<sup>2</sup> As discussed below, the projection of impacts to forests presented in the Draft EIS seriously underestimates the total area of interior forest that will be affected by the Project. See Section II.C, *infra*.

construction and operation of a new distribution system for transportation of gas from the pipeline to delivery points along the five-county route, causing additional impacts to the environment surrounding the Project area.

Intervenors filed comments on Constitution's application on July 17, 2014, identifying various resource areas of concern and calling on the Commission to conduct a comprehensive review of all potential significant adverse environmental effects of the Pipeline Project, in accordance with the requirements of NEPA, including the Project's potential to cause degradation of water resources, impairment of ecosystem services, diminished air quality, forest fragmentation, harm to wildlife and botanical species of concern, permanent landscape alteration, disruption of community character, and threats to community safety.<sup>3</sup>

On February 12, 2014, the Commission issued the Draft EIS. As discussed in detail below, the Draft EIS identifies a number of studies, analyses, and other plans that remain outstanding, it fails to assess the full scope of impacts to water, forest, and air resources, and it ignores the indirect and cumulative impacts of the Projects. Until the Commission addresses these major deficiencies in a revised draft EIS, released for public review and comment, it cannot satisfy the requirements of NEPA.

## **II. The Draft EIS Fails to Take the Requisite “Hard Look” at the Environmental Impacts of the Proposed Action and at the Potential Ways to Avoid or Mitigate Those Impacts.**

NEPA is our “basic national charter for protection of the environment.” 40 C.F.R. § 1500.1(a). As such, it makes environmental protection a part of the mandate of every federal agency. *See* 42 U.S.C. § 4332(1). NEPA requires that federal agencies take environmental considerations into account in their decision-making “to the fullest extent possible.” 42 U.S.C. § 4332. To this end, federal agencies must consider environmental harms and the means of preventing them in a “detailed statement” before approving any “major federal action significantly affecting the quality of the human environment.” *Id.* § 4332(2)(C). When preparing an EIS, an agency must take a detailed, “hard look” at the environmental impact of and alternatives to the proposed action. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). This required analysis serves to ensure that “the agency will not act on incomplete information, only to regret its decision after it is too late to correct.” *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 371 (1979).

NEPA also “guarantees that the relevant information [concerning environmental impacts] will be made available to the larger audience,” including the public, “that may also play a role in the decisionmaking process and the implementation of the decision.” *Robertson*, 490 U.S. at 349. As NEPA’s implementing regulations explicitly provide, “public scrutiny [is] essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). The opportunity for public participation guaranteed by NEPA ensures that agencies will not take final action until after their analysis of the environmental impacts of their proposed actions has been subject to public scrutiny. *See N.*

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<sup>3</sup> Catskill Mountainkeeper, *et al.*, Comments on Application of Constitution Pipeline Company, LLC for Certificate of Public Convenience and Necessity, FERC Docket No. CP13-499-000 (filed July 17, 2013) (“Application Comments”) (incorporated fully by reference herein).

*Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011) (noting that where “data is not available during the EIS process and is not available to the public for comment,” the process “cannot serve its larger informational role, and the public is deprived of their opportunity to play a role in the decision-making process”) (quoting *Robertson*, 490 U.S. at 349).

An EIS must fully assess and disclose the complete range of environmental consequences of the proposed action, including “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, [and] cultural” impacts, “whether direct, indirect, or cumulative.” 40 C.F.R. §§ 1502.16(a), (b); 1508.8. Direct effects are “caused by the action and occur at the same time and place.” 40 C.F.R. § 1508.8(a). Indirect effects are those impacts that are caused by the action, but occur “later in time or farther removed in distance, but are still reasonably foreseeable,” and may include “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” 40 C.F.R. § 1508.8. Cumulative impacts are “impact[s] on the environment which result[] from the incremental impact of the action *when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.*” 40 C.F.R. § 1508.7 (emphasis added). As the regulations make clear, “[c]umulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” *Id.* In addition, NEPA requires FERC to take a hard look at the ways to avoid or mitigate the Projects’ impacts.

NEPA is an “environmental full disclosure law.” *Monroe Cnty. Conservation Council, Inc. v. Volpe*, 472 F.2d 693, 697 (2d Cir. 1972). It requires that an agency obtain and consider detailed information concerning environmental impacts, and it “ensures that an agency will not act on incomplete information, at least in part, by ensuring that the public will be able to analyze and comment on an action’s environmental implications.” *Ohio Valley Envtl. Coal. v. U.S. Army Corps of Eng’rs*, 674 F. Supp. 2d 783, 792 (S.D. W. Va. 2009) (internal quotation marks and citations omitted). The information provided to the public “must be of high quality” because “[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). The potential adverse effects of the Pipeline Project cannot be adequately analyzed without complete data on all affected resources.

#### **A. The Draft EIS Is Based on Incomplete Information.**

Although Constitution has been submitting information relating to the environmental impacts of the Pipeline Project since May 2012, it has yet to file a number of expressly requested studies, analyses, and other plans that are essential to the public review and governmental decision-making required under NEPA. Until Constitution provides the Commission with complete information regarding the full suite of environmental impacts caused by the Project, the Commission is in no position to reach any conclusion about the significance of such impacts.

The Draft EIS suggests that the Commission intends to proceed without even collecting much needed data and information about the potential environmental impacts of the Projects. At

the very least, the Commission should insist that Constitution file the following admittedly missing information, which then should be presented to the public in a revised draft EIS:

- geotechnical feasibility studies for all trenchless crossing locations, Draft EIS at 4-4;
- analysis of slope stability at milepost 30.3, *id.* at 4-14;
- identification of all water wells and springs within 150 feet of the proposed pipeline and contractor yards, *id.* at 4-38;
- surveys for all proposed contractor yards concerning water wells, waterbodies, and wetlands, *id.* at 4-40;
- site-specific plans for the permanent access road crossings of wetlands and waterbodies, including site-specific justification for the use of permanent fill, *id.* at 4-45;
- waterbody-specific description of impacts cause by workspaces and proposed impact avoidance, minimization, and mitigation measures, *id.* at 4-52;
- description of proposed access roads leading to meter stations, including maps, of impacts on vegetation, and of any proposed mitigation, *id.* at 4-69;
- upland forest mitigation plan, *id.* at 4-71;
- results of invasive plant surveys and planned locations of weed wash stations, *id.* at 4-72;
- site-specific blasting plans that include protocols for in-water blasting and the protection of aquatic resources and habitats, *id.* at 4-92;
- information regarding water withdrawals for hydrostatic testing, including timing restrictions, *id.* at 4-93;
- impact avoidance or effective impact minimization or mitigation measures for dwarf wedgemussels, *id.* at 4-97;
- surveys for Northern monkshood, *id.* at 4-98;
- impact avoidance or effective impact minimization or mitigation measures for Northern monkshood, *id.*;
- bald eagle survey results, *id.* at 4-101;
- bald eagle mitigation plan, *id.*;
- impact avoidance or effective impact minimization or mitigation measures for bat species, *id.* at 4-102;
- survey results for state-listed species and mitigation measures, *id.* at 4-104;
- classification of unsurveyed residential structures, *id.* at 4-118;
- residential crossing plan, *id.* at 4-120;
- impact avoidance or effective impact minimization or mitigation measures for specialty crops, *id.* at 4-126;
- construction emissions plan, including mitigation measures, *id.* at 4-166;
- noise mitigation measures, *id.* at 4-183; and
- information regarding the Leatherstocking interconnection/distribution plan, *id.* at 4-217.

The Commission also should require production of the additional studies described in the discussion below of particular categories of impacts as well as all outstanding responses to requests for information by the Commission and other agencies.

NEPA does not permit agencies to “act first and study later.” *Nat’l Parks & Conservation Ass’n v. Babbitt*, 241 F.3d 722, 734 (9th Cir. 2001). The missing information listed above “is precisely the information and understanding that is required *before* a decision that may have a significant adverse impact on the environment is made.” *Id.* at 733 (emphasis in original). Granting Constitution’s application, even with conditions requiring submission of the missing information before construction begins, defeats NEPA’s purpose. Instead, the Commission must revise the Draft EIS to provide accurate, consistent and complete data and analyses by which it and other agencies relying on its information can take a hard look at the potential impacts of the proposed Projects.

## **B. Analysis of Impacts to Water Resources Is Inadequate.**

Marc Henderson, a water resources engineer at Meliora Environmental Design, LLC, has prepared a report (“Meliora Report”) (annexed as Exhibit A) that identifies a number of serious problems in the Draft EIS. As the Meliora Report explains, the Draft EIS dramatically underestimates the extent to which Project construction activities will cause compaction of soils, fails to adequately analyze the impacts to water quality associated with construction activities in areas with steep slopes and highly erodible soils, fails to evaluate individual stream crossings and the impact associated with the crossing method proposed for each stream, and fails to evaluate the need for temporary workspace disturbances on a site-specific basis. The report recommends that feasibility studies for stream-crossing methods other than open cut crossings be performed for all proposed crossings and that open cut crossings should be minimized wherever possible. The report also recommends that soil testing be required to determine if decompaction is necessary prior to revegetation of areas disturbed by construction in order to protect groundwater resources and that the need to site temporary workspaces within wetlands be evaluated on a site-specific basis. The following discussion augments the observations and conclusions contained in the Meliora Report.

### ***Soil Compaction***

The Draft EIS acknowledges that shallow aquifers could be affected by “changes in overland water flow and recharge caused by clearing, grading, and trenching of the right-of-way” and that “near-surface soil compaction caused by heavy construction vehicles could reduce the soil’s ability to absorb water in these isolated areas.” Draft EIS at 4-40. Nevertheless, the Draft EIS contemplates soil compaction testing only in certain agricultural and residential areas—a mere 1.6 percent of the total area of disturbance. *Id.* at 4-31. According to the Draft EIS, “Constitution would restore the ground surface as closely as practicable to original contours and revegetate any exposed soils to ensure restoration of pre-construction overland flow and recharge patterns.” *Id.* at 4-40. Restoration of ground surface alone, without soil decompaction measures, including tilling of compacted subsurface soils, is not sufficient to protect against the adverse impacts that construction-related soil compaction will have on groundwater resources. The

scope of soil compaction testing should be expanded, and, based on the results of such testing, subsurface soil decompaction should be required.

### ***Stream and Wetlands Crossings***

Pipeline Project construction would entail the crossing of hundreds of streams and wetlands.<sup>4</sup> Draft EIS, Apps. K and L. Constitution is proposing trenchless crossing methods for only 37 of them. Draft EIS, Table 4.1.1-3. Trenchless crossing techniques do not disturb the streambed or impact water flow, nor do they directly increase turbidity, thus minimizing adverse environmental impacts compared to open trench methods. These techniques are recommended by both New York State Department of Environmental Conservation (“NYSDEC”)<sup>5</sup> and the U.S. Fish and Wildlife Service (“U.S. FWS”).<sup>6</sup> However, according to the Draft EIS, the vast majority of streams and wetlands along the pipeline route would be subject to open cut crossing for pipeline trench excavation.

In its application, Constitution noted that it was investigating waterbody crossings to “determine the feasibility of using trenchless construction methods.”<sup>7</sup> The Commission requested that Constitution evaluate the feasibility of using trenchless crossing methods for all sensitive or high quality waterbodies.<sup>8</sup> Constitution has since concluded that, for 254 of the 277 proposed stream crossings, trenchless crossings would be impractical. Draft EIS at 4-4, 4-49. However, the company has not completed or submitted site-specific feasibility studies in support of this conclusion. *Id.* at 4-4.

The submission of geotechnical feasibility studies for Constitution’s proposed trenchless crossings after the close of the public comment period, as the Draft EIS suggests, Draft EIS at 4-4, cannot satisfy NEPA’s requirements. The very purpose of NEPA is to ensure that the full impact of an agency action is understood *before* a decision is made whether or not to take that action. Granting the Certificate without first evaluating the feasibility of less environmentally destructive construction methods would defeat this purpose. The requested studies should be

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<sup>4</sup> The Draft EIS fails to provide a total number of waterbodies and wetlands crossed. Last month, the U.S. Army Corps of Engineers estimated that the Project would cross 359 waterbodies and 1,709 wetlands (totaling 147 acres). U.S. Army Corps of Eng’rs, Public Notice, Announcement of Public Hearings and Request for Comment on Application by Constitution Pipeline Company, LLC for Section 404 Permit 8 (March 4, 2014), *available at* <http://www.nan.usace.army.mil/Portals/37/docs/regulatory/publicnotices/2014/Mar14/Signed%20Public%20Notice%202012-00449.pdf>; *see also* U.S. Army Corps of Eng’rs, Comments on Draft EIS for Constitution Pipeline Project, FERC Docket No. CP13-499-000 (filed Apr. 7, 2014) (noting inconsistencies in identification of wetland and stream crossings).

<sup>5</sup> NYSDEC, Preliminary Comments on Notice of Application for Constitution Pipeline Company, LLC (Project) 3, FERC Docket No. CP13-499-000 (filed July 17, 2013); NYSDEC, Comments on the Scope of Environmental Impact Statement for the Constitution Pipeline Project 3, FERC Docket No. PF12-9-000 (filed Nov. 7, 2012).

<sup>6</sup> U.S. FWS, Comments on Notice of Intent to Prepare Environmental Statement for the Planned Constitution Pipeline Project 2–3, FERC Docket No. PF12-9-00 (filed Oct. 5, 2012).

<sup>7</sup> Constitution, Environmental Report, Resource Report 2: Water Use and Quality 2-55, FERC Docket No. CP13-499-000 (filed November 2013).

<sup>8</sup> FERC, Environmental Information Request for the Constitution Pipeline and Wright Interconnect Projects 3, FERC Docket No. CP13-499-000 (filed Aug. 29, 2013).

provided as soon as possible, and the public should be afforded the opportunity to review and submit comments on them before the Commission issues a final EIS or makes any determinations with respect to Constitution's application.

The Draft EIS identifies additional outstanding information regarding the Project's impact on water resources and calls on Constitution to provide the results of surveys for all proposed contractor yards not previously submitted concerning water wells, waterbodies, and wetlands, as well as the status of any required agency consultations. Draft EIS at 4-40. The Draft EIS also recommends that Constitution file with the Commission site-specific plans for the proposed permanent access road crossings of waterbodies and wetlands, site-specific justifications for the use of permanent fill, and agency consultations regarding these plans. *Id.* at 4-45. Once these results and plans are filed, the public should be afforded the opportunity to review and comment on them.

Moreover, in order to satisfy NEPA's requirements, the Commission must conduct independent evaluations of the feasibility of trenchless stream crossings and of the impacts of contractor yards and access roads on waterbodies and wetlands. Absent such analyses, the Commission is not in a position to draw conclusions about the significance of the impacts to water resources associated with Project construction through hundreds of waterbodies and wetlands.

Finally, Intervenors<sup>9</sup> and U.S. FWS<sup>10</sup> both recommended that surface water quality testing be conducted prior to any waterbody crossing in order to obtain a baseline against which post-construction water quality conditions could be measured. The Draft EIS ignores this recommendation. Absent collection of water quality data before construction, it will be impossible to judge the efficacy of measures employed to mitigate adverse impacts to water quality or to hold Constitution responsible for restoring resources to pre-construction conditions.

### ***In-Stream Blasting***

In their Application Comments, Intervenors voiced their opposition to Constitution's proposed use of in-stream blasting, an extreme excavation technique that maximizes, rather than minimizes, adverse environmental impacts. While the Draft EIS notes that in-stream blasting is not anticipated, it provides for the possibility that it could be used during Project construction to facilitate crossings of waterbodies with a shallow depth to bedrock. Draft EIS at 4-92. In the event that in-stream blasting were to be proposed, Constitution would be required to develop and submit to the Commission an in-stream blasting plan. Constitution's failure to make any final determination on the need for blasting until the time of construction and only at that point to develop site-specific blasting plans effectively removes such plans and the potential impacts of the activity from public review and comment. Moreover, it circumvents the purpose of environmental review, which is to help the Commission determine the Project's likely

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<sup>9</sup> Application Comments at 9.

<sup>10</sup> U.S. FWS, Comments on Notice of Intent to Prepare Environmental Statement for the Planned Constitution Pipeline Project 2, FERC Docket No. PF12-9-00 (filed Oct. 5, 2012).

environmental impacts. The Commission cannot evaluate the significance of the potential impacts of in-stream blasting absent the provision of site-specific information.

Given the purpose of NEPA to provide information about the impacts of agency action *before* such action is taken, Constitution should prepare an in-stream blasting plan as soon as possible, and the public should be afforded an opportunity to review and comment on the adequacy of the plan prior to the issuance of a final EIS. The Commission's recommendation that a blasting plan be provided only prior to the blasting itself and with no opportunity for public participation cannot ensure the adequate protection of the streambeds, aquatic ecosystems, and water quality that are put at risk by such activities.

If Constitution demonstrates that it would be infeasible to determine whether in-stream blasting will be utilized before the commencement of construction, then it should provide an analysis of impacts to streams that would be caused if blasting was employed at every proposed stream crossing within the 45.5 miles of shallow depth to bedrock. The Commission, in turn, should base its analysis of impacts to streams on an assumption of the worst-case scenario whereby in-stream blasting at every crossing in areas of shallow depth to bedrock is assumed.

### ***Wetlands***

The Draft EIS identifies 91.8 acres of wetlands that will be affected by Project construction activities.<sup>11</sup> Of these, 75.5 acres of impacts to wetlands will be caused by construction in temporary workspaces. Draft EIS at 4-62. Constitution has not justified its intention to site so much temporary workspace in wetlands. In order to be able to evaluate whether impacts to wetlands will be avoided to the greatest extent possible or adequately mitigated, the Commission should require Constitution to provide site-specific analysis for each proposed temporary workspace. Absent such analyses, the Commission's review of the Project's impacts to wetlands remains incomplete.

The Draft EIS's review of impacts to wetlands also is incomplete because not all wetlands within the Project area have been delineated. The U.S. Army Corps' Public Notice for Constitution's application for a permit under Section 404 of the Clean Water Act authorizing discharge of fill into wetlands identifies 21 percent of the pipeline as unsurveyed. Intervenors, along with the Corps, had previously requested that the Commission defer any decision on the Project until all outstanding wetlands delineation surveys are complete. Constitution has requested that the Corps authorize its proposed filling of wetlands prior to the completion of such surveys. This request should be rejected. A full delineation of all wetlands that could be affected by the Project must be completed and made available for public review and comment before any Project authorizations are granted.

In addition, the Draft EIS contemplates allowing Constitution to determine the method of pipeline construction through wetlands at the time of construction. This approach flies in the face of NEPA's mandate to assess impacts before committing to a particular path. Absent an

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<sup>11</sup> The U.S. Army Corp has identified 152 acres of affected wetlands (128.35 acres of temporary impacts and 24.54 acres of permanent impacts). U.S. Army Corps of Eng'rs, Comments on Draft EIS for Constitution Pipeline Project, FERC Docket No. CP13-499-000 (filed Apr. 7, 2014).

analysis of construction methods for wetlands crossings, a meaningful review of the Project's impacts is not possible. If Constitution demonstrates that determining the appropriate construction method in advance of actual construction is infeasible, then the Commission should base its analysis of significance of impacts to wetlands on an assumption of the worst-case scenario whereby construction methods with the greatest level of impact are assumed. As discussed above, the Commission also should evaluate the feasibility of trenchless crossing methods for each proposed wetland crossing rather than simply defaulting to open cut trench crossing methods. NYSDEC has recommended that the trenchless crossing technique horizontal directional drilling be utilized for all wetland crossings.<sup>12</sup> Intervenor agree.

The Draft EIS assumes that impacts to wetlands would be minor and temporary because the majority of these impacts would occur within temporary workspaces and would "therefore return to pre-construction conditions following construction." Draft EIS at 4-62. This conclusion is unsupported by the information presented by Constitution and included in the Draft EIS. As discussed above, the assumption that construction areas outside of the permanent right-of-way will return to pre-construction conditions ignores the reality that the heavy-duty construction activities utilized to install a pipeline of this scale, even if short-lived, can cause long-term impacts. Before determining whether the Project will cause significant adverse effects to wetlands and wetland buffers, the Commission must evaluate site-specific impacts and impact avoidance, minimization, or mitigation measures.<sup>13</sup> The public must be given the opportunity to review and comment on such evaluations.

### ***Groundwater Contamination***

As discussed in Intervenor's Application Comments, the Project presents the risk that construction activities could intersect the water table, thereby threatening ground and surface drinking water resources. While the Draft EIS recognizes this possibility, the concomitant impacts are dismissed as "minor" and "temporary." Draft EIS at 4-40. The measures identified to mitigate impacts to groundwater resources do not address the possibility of local aquifer contamination or drawdown of local water table elevations.

In addition, while the Draft EIS identifies restrictions on herbicide use within a certain distance of waterbodies and wetlands, it affords no protection to groundwater resources from potential herbicide contamination during construction and pipeline maintenance. Intervenor also had requested that the Commission's analysis include a complete list of all potentially impacted private wells; Constitution has yet to identify all potentially impacted wells.

Of particular concern, the Pipeline Project would cross approximately four miles of the Clinton Street Ballpark Aquifer, a sole source aquifer and drinking water supply for approximately 111,000 people in Broome County, New York.<sup>14</sup> In addition, the Project would

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<sup>12</sup> NYSDEC, Preliminary Comments on Notice of Application for Constitution Pipeline Company, LLC (Project) 3, FERC Docket No. CP13-499-000 (filed July 17, 2013).

<sup>13</sup> This evaluation must include quantification of impacts to 100-foot wetland buffer areas, which are largely ignored in the Draft EIS.

<sup>14</sup> U.S. EPA, Clinton Street Ballpark Aquifer System, <http://www.epa.gov/region2/water/aquifer/clinton/clinton.htm#I18> (last visited Apr. 4, 2014).

cross surface waterbodies within the recharge area for the aquifer, Draft EIS at 4-37, and, according to the U.S. Environmental Protection Agency (“EPA”), the aquifer is “susceptible to contamination through several mechanisms.”<sup>15</sup> Nevertheless, the Draft EIS includes no meaningful analysis of the Project’s effect on this important resource. The Draft EIS states that “EPA indicated that [it] would not require a detailed review of potential impacts on the Clinton Street Ballpark [Aquifer] for the projects because no federal funding would be involved.” *Id.* at 4-42. The presence or absence of funding for a particular resource does not bear on the necessity for analysis under NEPA. Moreover, reliance on a generic discussion of impacts to water resources and on non-site-specific best management practices is insufficient. The Draft EIS must include an assessment of the specific threats to the Clinton Street Ballpark Aquifer and of measures to avoid, minimize, or mitigate those threats.

### ***Erosion and Sedimentation***

While the Draft EIS identifies the increase in sediment mobilization that can be expected to result from Project construction activities, it dismisses these impacts as merely temporary, thus discounting their significance. Draft EIS at 4-54–4-58. The Draft EIS ignores the potential for lasting erosion and sedimentation impacts to be caused by the conversion of hundreds of acres of forests to open land.

As discussed in the Meliora Report, temporary erosion controls cannot protect against accelerated erosion that will continue after the completion of construction due to the exposure of soils to direct rainfall following vegetation clearing and the reduction of compacted soils’ ability to absorb rainwater—both of which cause an increase in stormwater runoff volumes and velocities. Areas with steep slopes, miles of which are crossed by the Pipeline Project, Draft EIS at 4-14, are especially vulnerable to accelerated erosion as a result of construction. Following “temporary” disturbances in Project workspaces, areas that have been cleared of vegetation to accommodate heavy-duty construction equipment and that have suffered soil compaction by such equipment will not return to pre-construction conditions overnight. Right-of-way cleared through forested steep slope areas will permanently alter stormwater flow.

The Draft EIS includes no meaningful evaluation of the effect of stormwater runoff caused by the Project. The Draft EIS notes that the best management practices (“BMPs”) identified in Constitution’s Environmental Construction Plans (“ECPs”) will protect against increased erosion and sedimentation, but fails to conduct an analysis of the adequacy of the individual BMPs or to recommend additional stormwater mitigation measures. Constitution’s attempt to have its ECPs serve as the Stormwater Pollution Prevention Plan (“SWPPP”) for the Project should be rejected. Construction plans are no substitute for a SWPPP, which focuses specifically on detailed stormwater evaluation and control measures.<sup>16</sup> In order to protect against the water quality degradation that results from erosion and sedimentation, the Commission must

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<sup>15</sup> *Id.*

<sup>16</sup> Indeed, NYSDEC called for the inclusion of a SWPPP “as an appendix to the draft EIS, describing the proposed erosion and sediment control practices and, where required, post-construction stormwater management practices, that will be used and constructed to reduce the pollutants in stormwater discharges.” NYSDEC, Comments on the Scope of Environmental Impact Statement for the Constitution Pipeline Project 2–3 (Nov. 7, 2012), FERC Docket No. PF12-9-000.

include a full analysis of potential stormwater impacts and attach a complete SWPPP in a revised draft EIS. This analysis should describe how the pipeline construction schedule will be phased to coordinate with control measures contained in the SWPPP and should consider alternative construction practices that can be used to avoid or reverse soil compaction and thereby prevent runoff volume.

### **C. Analysis of Forest Ecosystem Impacts Is Inadequate.**

Kevin Heatley, a restoration ecologist with expertise in invasive species management, has submitted a report (“Heatley Report”) (annexed as Exhibit B hereto) that identifies a number of serious problems in the Draft EIS, based on his over 20 years of experience in natural resources management. As his report explains, the Draft EIS dramatically underestimates the scope of the Project’s impact on interior forest and on the species that rely on interior forest habitat for their survival. The Heatley Report also identifies crucial information that is missing from the Draft EIS, points out shortcomings of the Invasive Species Management Plan, and questions the failure of the Draft EIS to analyze the ecosystem-level impacts of the Project when construction activities along the entire length of the Project and disturbances to individual tracts of land are considered cumulatively. These errors and omissions raise serious questions about the adequacy of the Draft EIS.

#### ***Loss of Interior Forest Habitat***

The Draft EIS calculates the scope of impacts on interior forests by simply measuring the area of interior forest in which Constitution has proposed to conduct construction activities. This methodology ignores the fact that by creating corridors through once-intact forest blocks, areas of the forest adjacent to those corridors (300 feet on either side) in which no construction activities are proposed will, nevertheless, be affected by the construction because they will be converted from interior forest to edge habitat. These areas of once-interior forest should be included in the Commission’s calculation of acreage affected by construction and operation of the proposed Projects.

In addition to the significant underestimation of impacts to interior forests, the Draft EIS lacks any real evaluation of ways that these impacts could be avoided, minimized, or mitigated. Instead, the Commission has requested that Constitution provide a draft Upland Forest Mitigation Plan before the close of the Draft EIS comment period. Draft EIS at 4-71. Even using Constitution’s too-low calculation of interior forest impacts, the Draft EIS states that impacts on the habitat and the migratory birds and other wildlife that use this habitat still account for 42.9 percent of the total forest impacts and 23.6 percent of the total Project impacts. Barring the public from weighing in on the plan that determines the level of harm to which birds and wildlife will be subject flies in the face of NEPA’s public participation goal. In order to satisfy NEPA’s mandates, the Commission must issue a revised draft EIS that analyzes the Upland Forest Mitigation Plan, along with the other various outstanding materials and analyses, and should provide the public with the opportunity to review and comment on the revised draft EIS and the underlying information analyzed therein.

## ***Soil Compaction***

As discussed above, the Draft EIS contemplates soil compaction testing in only 1.6 percent of the total area of Project disturbance. Absent soil testing in all previously forested areas that are cleared for use as “temporary” workspaces, the restoration of the cleared areas to pre-construction conditions cannot be guaranteed. The heavy-duty earth-moving equipment used to dig the pipeline trench and install the pipe itself will compact soils in these areas, thus reducing the soils’ ability to support vegetation.

The Heatley Report echoes the recommendations contained in the Meliora Report relating to soil compaction testing and mitigation. Namely, in order for Constitution to restore soils affected by construction and to revegetate lands that were cleared to allow for construction, it must expand the scope of its proposed soil compaction testing and evaluate the need for subsurface soil decompaction measures along the entire length of the pipeline.

## ***Bats***

As discussed in Intervenors’ comments on the Application, tree-clearing associated with Project construction and the resulting forest fragmentation causes negative impacts to wildlife. As the Draft EIS recognizes, 23 species that are state-listed as threatened, endangered, or of special concern were identified as potentially present in the Pipeline Project area. Draft EIS at 4-98. Four of these species are also federally listed. *Id.* Constitution has yet to complete the required surveys for all of these species or to submit all of the necessary mitigation plans. Draft EIS at 4-102. Nevertheless, the Draft EIS concludes that the Project will not cause any adverse impacts on any of these species. *Id.* at 4-105.

With respect to the federally-listed Indiana bat, Constitution’s consultants conducted surveys for Indiana bats and other target bat species along portions of the proposed route in Susquehanna County, Pennsylvania. While surveyors commissioned by Constitution did not capture any Indiana bats within the immediate Project area, the failure to detect individual animals of an endangered species that is facing the additional stress of white-nose syndrome is unsurprising and does not support a finding that the Project will not adversely impact this already imperiled species. No surveys for any bat species were conducted along the 99.2 miles of proposed pipeline route in New York State.

In addition to the Project’s impact on Indiana bats and their habitat, other bat species could be affected by Project construction activities. According to the Draft EIS, three special-status bat species are present with this proposed Project area—namely, the small-footed bat (*Myotis leibii*), listed as threatened in Pennsylvania and as a species of special concern in New York; the Northern (long-eared) myotis bat (*Myotis septentrionalis*), proposed for federal listing as endangered and listed as a Pennsylvania species of special concern; and the silver-haired bat (*Lasionycteris noctivagans*), listed as a Pennsylvania species of special concern. Constitution’s mist netting surveys in Pennsylvania resulted in the capture of Northern myotis and silver-haired bats. In addition, the little brown bat (*Myotis lucifugus*), currently under review by U.S. FWS for potential listing, was captured. Nevertheless, the Draft EIS failed to evaluate the impact of the Project on those species of concern. Instead, the Commission has recommended only that

Constitution develop impact avoidance, minimization, or mitigation measures prior to construction.

Despite the fact that the small-footed bat is a New York species of concern and the Northern myotis bat has been proposed for federal listing as endangered, Constitution did not conduct any bat surveys along the 99.2-mile portion of the Pipeline Project in New York State. The cursory look at the potential impacts on vulnerable bat populations contained in the Draft EIS is insufficient to satisfy NEPA's requirement. The Commission should require bat surveys for the entire length of the proposed Project route and for each alternative route. Only once the Commission gathers the information necessary to determine whether these species are likely to be present in the Project area can it begin to evaluate the impacts of Project construction and operation activities on those species.

If any of the special status bat species are found in the vicinity of the Project, mitigation measures to protect these already stressed populations from further harm must be developed and required as a condition of the Certificate. For example, Indiana bats and Northern long-eared bats are known to roost in trees during certain months;<sup>17</sup> tree clearing during those months, therefore, should be prohibited. Small-footed bats, on the other hand, are known to utilize rocky outcroppings as their spring and summer habitat. If surveys detect members of this species in the vicinity of the Project, potential habitat sites along the construction right-of-way should be identified and construction restrictions put in place to avoid disturbance of such areas. The Draft EIS includes no analysis of such mitigation measures and, instead, suggests that they will be included in Constitution's Upland Forest Mitigation Plan. As discussed above, the Commission must revise its Draft EIS to analyze the mitigation plan and must allow for public review and comment on the revised draft.

### ***Migratory and Resident Birds***

As discussed in more detail in the Heatley Report and in the comments submitted by the Delaware-Otsego Audubon Society,<sup>18</sup> the fragmentation of blocks of intact forest habitat will cause major negative impacts on nesting forest bird species, the populations of which are already in decline. Indeed, the Draft EIS recognizes that “[t]he loss of interior forest habitat could result in mobile species permanently populating adjacent habitats which could increase competition and stress on a long-term basis.” Draft EIS at 4-83. However, rather than analyzing the harm caused by such long-term stress, the Draft EIS, instead, offers the conflicting conclusion that “[o]verall construction impacts on migratory birds would be short-term as birds would move into adjacent undisturbed habitats.” *Id.* The Draft EIS presents no support for this statement. Similarly, the attempted comparison between negative impacts to certain species and positive impacts to others—“the creation of additional edge habitat could benefit certain species by providing travel corridors and additional forage habitat,” *id.*—does nothing to further the

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<sup>17</sup> U.S. FWS, Indiana bat (*Myotis sodalis*) Draft Recovery Plan: First Revision (April 2007), available at [http://ecos.fws.gov/docs/recovery\\_plan/070416.pdf](http://ecos.fws.gov/docs/recovery_plan/070416.pdf); U.S. FWS, 12-Month Finding on a Petition to List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species, 78 Fed. Reg. 61,046 (Oct. 2, 2013).

<sup>18</sup> Delaware-Otsego Audubon Society, Comments on Draft Environmental Impact Statement for Constitution Pipeline and Wright Interconnect Projects, FERC Docket No. CP13-499-000 (filed Mar. 27, 2014).

understanding of the real impacts that will be suffered by those species that rely on interior forest habitat. In order to evaluate the significance of the adverse impacts to resident and migratory bird species, the Commission must revise its calculations and consider the full scope of the Project's elimination of interior forest habitat.

The only mitigation measure that the Commission has suggested that would be protective of interior-dwelling bird species is the co-location of the Project along existing rights-of-way. *Id.* Unfortunately, the proposed Project route parallels existing right-of-way for only nine percent of its total length. Draft EIS at 4-84. (Alternative M proposes an additional 30.4 miles of co-location, for an approximate total of twenty-three percent of the pipeline's length. Draft EIS at 3-34–3-38.) The Draft EIS suggests that mitigation measures for birds will be included in the forthcoming Upland Forest Mitigation Plan. As discussed above, these mitigation measures should be evaluated in a revised draft EIS that is issued for additional public review and comment.

#### **D. Analysis of Air Quality and Climate Change Impacts Is Inadequate.**

As discussed below, the Draft EIS dramatically underestimates the extent to which Project construction and operation will emit air pollutants and fails to present a comprehensive analysis of the direct, indirect, and cumulative effects of the Project on air quality.

##### ***Direct and Indirect Air Impacts***

The Draft EIS acknowledges that construction and operation of the proposed projects will result in significant emissions of various air pollutants, including NO<sub>x</sub>, VOCs, carbon monoxide, particulate matter, sulfur dioxide, and GHGs, particularly methane. These pollutants affect air quality—and therefore human health—in a variety of ways. NO<sub>x</sub> is a precursor of both ozone and fine particulate matter (“PM<sub>2.5</sub>”).<sup>19</sup> VOCs are also an ozone precursor.<sup>20</sup> Fine particulate matter is linked to increased heart attacks, aggravated asthma and decreased lung function, and for people with heart or lung diseases, premature death.<sup>21</sup> Ozone exposure can lead to coughing, chest pain, and throat irritation.<sup>22</sup> It also worsens bronchitis, emphysema, and asthma, and can reduce lung function.<sup>23</sup> The most common hazardous air pollutants associated with natural gas development are n-hexane and the “BTEX compounds” benzene, toluene, ethylbenzene, and xylenes.<sup>24</sup> Benzene is a known human carcinogen, and formaldehyde, which is also emitted from natural gas operations, is a probable human carcinogen.<sup>25</sup> Methane is a

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<sup>19</sup> U.S. EPA, *Nitrogen Dioxide*, available at <http://www.epa.gov/air/nitrogenoxides/> (last visited Apr. 4, 2014).

<sup>20</sup> U.S. EPA, *Ozone – Good Up High Bad Nearby*, available at <http://www.epa.gov/oar/oaqps/gooduphigh/bad.html> (last visited Apr. 4, 2014).

<sup>21</sup> U.S. EPA, *Particulate Matter (PM)*, available at <http://www.epa.gov/pm/health.html> (last visited Apr. 4, 2014).

<sup>22</sup> U.S. EPA, *Ozone – Good Up High Bad Nearby*.

<sup>23</sup> *Id.*

<sup>24</sup> Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 76 Fed. Reg. 52,738, 52,745 (Aug. 23, 2011).

<sup>25</sup> *Id.* at 52,791.

potent GHG, which the Intergovernmental Panel on Climate Change (“IPCC”) estimates to have 34 times the global warming potential (“GWP”) of carbon dioxide (“CO<sub>2</sub>”) over a 100-year period.<sup>26</sup>

The Commission largely dismisses the impacts of air pollution generated by the construction and operation of the Pipeline Project and of the Wright Interconnect Project because “emissions during construction would be temporary and would be minimized by mitigation measures . . . .” Draft EIS at 4-168. This approach ignores the fact that the estimated emissions from construction substantially exceed the tons-per-year threshold for major sources for multiple of the pollutants emitted, including NO<sub>x</sub>, VOCs, CO, and PM. *Id.* Moreover, the Draft EIS includes no analysis of the potential health effects to workers and members of the community who live nearby and who may be at risk of exposure to harmful air pollutants.

FERC’s failure to undertake a meaningful analysis of the effects of emissions from Project construction and operation is particularly concerning, given that Pennsylvania and New York are located in the Northeast Ozone Transport Region (“OTR”) and the proposed construction would result in significant emissions of NO<sub>x</sub> and VOCs. Draft EIS at 4-168. The Project area is already a moderate ozone nonattainment area for VOCs and NO<sub>x</sub> for New Source Review permitting purposes. Draft EIS at 4-160. With the exception of a brief section exploring whether this non-attainment status for VOCs and NO<sub>x</sub> triggers a general conformity requirement, *id.* at 4-165, the Draft EIS does not undertake any analysis of the potential impacts on workers and residents of emissions of ozone-generating pollutants in an area which is already considered non-attainment for those pollutants.<sup>27</sup>

In addition, the Draft EIS fails to adequately address fugitive emissions from the proposed Projects. The Commission asserts that fugitive emissions from the operation of the proposed pipeline are “considered negligible,” Draft EIS at 4-168, but fails to provide any basis for this conclusion. In particular, the Commission provides no analysis of potential malfunctions of either pipeline or compressors that could lead to unintended emissions of various pollutants. This is a significant oversight, given that the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (“PHMSA”) reports 291 significant pipeline incidents in 2013 alone.<sup>28</sup> These data make clear that spills, explosions, and other unintentional releases of pollutants from pipelines occur with a measurable and predictable frequency. The resulting—and equally predictable—emissions should be taken into account as part of the Commission’s assessment of the impacts of the proposed Projects.

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<sup>26</sup> Working Group I Contribution to the IPCC Fifth Assessment Report, Climate Change 2013: The Physical Science Basis 8-58 (June 7, 2013), *available at* [http://www.climatechange2013.org/images/uploads/WGIAR5\\_WGI-12Doc2b\\_FinalDraft\\_All.pdf](http://www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_All.pdf).

<sup>27</sup> Intervenors note that Table 4.11.1-6 appears to contain an error with respect to the NO<sub>x</sub> emissions resulting from the operation of the proposed Wright Compressor Station. The table indicates that the facility’s existing Solar Taurus 60 Turbines emit 551.6 tpy of NO<sub>x</sub>.

<sup>28</sup> U.S. DOT, PHMSA, Significant Pipeline Incidents, <http://primis.phmsa.dot.gov/comm/reports/safety/sigpsi.html> (last visited Apr. 4, 2014). Significant pipeline incidents are defined as those that involve a fatality or injury, \$50,000 or more in total costs, highly volatile liquid releases of five barrels or more or other liquid releases of fifty barrels or more, or liquid releases resulting in an unintentional fire or explosion.

The Draft EIS fails to undertake a meaningful analysis of the climate change impacts of the GHG emissions, including fugitive emissions of GHGs, which would result from the construction and operation of the proposed projects. The Commission acknowledges that emissions of GHGs from the operation of the Wright Compressor Station after the proposed modifications take place will be significant enough to make the station a major source of GHGs requiring a Title V permit. Draft EIS at 4-173. For other pollutants that the Projects' operation will generate, the Commission appears to have relied on the fact that major source thresholds would not be exceeded as a basis for finding that there would be no significant air impacts. Draft EIS at 4-168. Yet, inexplicably, with respect to GHGs, the Commission gives no weight to the fact that the Wright Compressor Station would become a major source. Instead, the Commission compares the estimated GHG emissions from the construction and operation of the proposed projects to the entire GHG inventory for the United States and simply dismisses the emissions as unimportant. Under this methodology, the more GHGs contributed by Commission-jurisdictional projects over time, the less likely the Commission is to consider new emissions significant—until we reach a catastrophic tipping point, when it will be too late to avoid or mitigate impacts. Such an outcome is precisely what NEPA is intended to prevent.

The Draft EIS concludes, without pointing to any evidence in support of its conclusion, that there would be negligible emissions of GHGs from pipeline operation. Draft EIS at 4-170. As discussed above, this conclusion fails to take into account the statistical likelihood of a significant incident with the pipeline, resulting in a spill, leak, explosion or other unintended emission. In order to satisfy its obligations under NEPA, the Commission must consider the possibility of such unintended emissions of a highly potent GHG.

Intervenors note that, while the Draft EIS does appear to take some account of fugitive GHG emissions that are and will be generated by the operation of the Wright Compressor Station, the figures it uses are so low that they seem unlikely to be accurate. The Draft EIS uses 66 tons per year of CO<sub>2</sub> equivalent (“CO<sub>2</sub>e”) as its value for existing and projected future fugitive GHG emissions from the compressor station. Draft EIS Table 4.11.1-6. Other analyses of fugitive emissions from natural gas operations, and from compressor stations in particular, have found much higher levels of fugitive emissions. For example, a recent University of Texas study of fugitive methane emissions generated by the natural gas industry found that compressor stations emitted 106 to 212 tonnes of fugitive methane emissions per year, which equates to somewhere between 2,200 and 4,452 tons of CO<sub>2</sub>e per year.<sup>29</sup> Even taking into account the margins of error associated with those results, 66 tpy of CO<sub>2</sub>e is dramatically lower than what has typically been seen in the industry. In order to satisfy NEPA's hard look standard, the Commission must reexamine the estimates for fugitive emissions and ensure an accurate reflection of the current and future real-world operating conditions of the facility. In particular, the Draft EIS appears only to look at fugitive emissions from dry seals. Draft EIS Table 4.11.1-6. The Draft EIS fails to discuss whether there are any wet seals or blowdown vent lines that are or will be operating at the compressor station, since these have been found generally to create significantly more fugitive emissions than dry seals.<sup>30</sup>

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<sup>29</sup> Natural Gas Industry Methane Emission Factor Improvement Study Final Report, prepared by researchers at University of Texas at Austin and URS Corporation for Lisa Hanle, U.S. EPA, at 12 (December 2011), *available at* [http://www.utexas.edu/research/ceer/GHG/files/FReports/XA\\_83376101\\_Final\\_Report.pdf](http://www.utexas.edu/research/ceer/GHG/files/FReports/XA_83376101_Final_Report.pdf).

<sup>30</sup> *See, e.g. id.* at 14, 37.

### ***Cumulative Impacts on Air Quality***

The Draft EIS’s analysis of the cumulative impacts of the proposed Projects on air quality, when added to the impacts of other past, present, and reasonably foreseeable future projects, is insufficient and amounts to little more than a regurgitation of its insufficient analysis of direct and indirect air quality impacts. Draft EIS at 4-229–4-230. The Draft EIS contains none of the required analysis of what the *cumulative* impact of the Projects would be *together* with the impacts of other projects. Indeed, the Draft EIS notes that the analysis contained therein is focused on the question whether the proposed Projects by themselves “would add significantly to the long-term cumulative impact of other projects.” *Id.* at 4-229. This statement reflects a misunderstanding of the legal standard—namely, whether the proposed Projects *together with* other projects will *cumulatively* have a significant impact.

The Draft EIS fails to include in its cumulative impacts analysis any meaningful consideration of the impacts of several ongoing or planned projects that will emit air pollution at the same time and in the same geographic areas as the Constitution pipeline. These projects are: (1) the expansion of the William Field Services Co. Central Compressor Station; (2) the Williams Miller Compressor Station; (3) the Williams Reynolds Pipeline; (4) the Williams White Road M&R station; and (5) the Southwestern, Sutton Road M&R Facility and Lateral. Draft EIS at 4-215. Although it is somewhat unclear exactly to what extent the Commission has calculated the potential emissions from these projects and included them in its cumulative impacts analysis, the Draft EIS discounts the impacts of these projects. For example, the Commission attempts to justify its decision not to evaluate the impacts of the Williams Central Compressor Station with the assertion that the facility “would be completed whether or not the proposed projects are constructed.” Draft EIS at 4-216. This reasoning ignores the very purpose of a cumulative impacts analysis. In this case, even if it is true that these other projects, which the Draft EIS refers to as “non-jurisdictional project-related facilities,” are not causally related to the proposed Projects, their impacts must be evaluated as part of a cumulative impacts analysis.

#### **E. Analysis of Indirect Impacts Is Inadequate.**

While the Draft EIS discusses—albeit inadequately—direct impacts on a range of resources crossed by the Project or within its construction footprint, it includes no analysis of the Project’s indirect impacts, especially induced industrial growth—*e.g.*, those impacts to the environment that will result from new gas development caused by the Project and from the installation and operation of a new gas distribution system that will be caused by the Project.

As compared to direct effects, which are those “caused by the action and occur at the same time and place,” indirect effects are those impacts that are caused by the action, but occur “later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8. Indirect impacts may include “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” *Id.*

The inducement of future gas development along the pipeline route is an indirect effect of the pipeline’s construction and operation that must be evaluated in the Commission’s environmental review of the Project. Such development is fairly understood as being indirectly

caused by the availability of infrastructure to transport the gas to market. *See, e.g., City of Davis v. Coleman*, 521 F.2d 661, 677 (9th Cir. 1975) (EIS for highway project needed to analyze impact of induced development despite uncertainty about pace and direction of development); *Natural Res. Def. Council, Inc. v. Fed. Aviation Admin.*, 564 F.3d 549 (2d Cir. 2009) (agency properly considered indirect and cumulative impacts of induced growth caused by construction of new airport); *Border Power Plant Working Grp. v. Dep't of Energy*, 260 F. Supp. 2d 997, 1012–18 (S.D. Cal. 2003) (NEPA required agency review of air emission impacts from Mexican power plants as part of EIS for transmission line project in California that indirectly caused such emissions).

Such development is reasonably foreseeable given the demand for gas drilling in the Marcellus shale region, the proposal to permit high-volume hydraulic fracturing (“HVHF”) of gas wells in New York, and the likelihood that HVHF wells will be required to connect to existing infrastructure to ensure green completions. *See, e.g., Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992) (future impacts are reasonably foreseeable if they are “sufficiently likely to occur that a person of ordinary prudence would take them into account when reaching a decision.”); *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520 (8th Cir. 2003) (environmental effects of increased coal consumption due to construction of a new rail line to reach coal mines was reasonably foreseeable and required evaluation under NEPA); *Native Village of Point Hope v. Salazar*, 730 F. Supp. 2d 1009, 1017 (D. Alaska 2010) (requiring consideration of induced development of natural gas drilling in EIS for offshore oil and gas lease sale that caused the gas development).

As Intervenors pointed out in their comments on Constitution’s application, the review by NYSDEC of the environmental impacts of extracting gas from the Marcellus shale via HVHF has generated information regarding future gas development that can be used to project development patterns. NYSDEC’s revised draft supplemental generic EIS for its gas development regulatory program contemplates green completions of new well development. If required, gathering lines would need to be constructed first so that subsequently drilled wells can connect immediately to a pipeline system instead of resorting to venting or flaring.<sup>31</sup> EPA has likewise indicated that it soon will require green completions for gas development.<sup>32</sup> Thus, drillers would have an incentive to construct wells as close to existing pipelines as possible. Even without a green completion requirement, significant cost savings are associated with siting well pads as close as possible to transmission pipeline receipt points. The Nature Conservancy (“TNC”) also concluded that distance to pipelines had predictive value when modeling potential well locations for an analysis of gas development impacts on high priority conservation areas across Pennsylvania.<sup>33</sup>

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<sup>31</sup> NYSDEC, Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Reservoirs 7-112–7-113 (Sept. 2011), *available at* [http://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/rdsgeisch70911.pdf](http://www.dec.ny.gov/docs/materials_minerals_pdf/rdsgeisch70911.pdf).

<sup>32</sup> U.S. EPA, Oil and Natural Gas Sector: New Source Performance Standards and National Emissions Standards for Hazardous Air Pollutants Reviews, 77 Fed. Reg. 49,490, 49,492 (Aug. 16, 2012).

<sup>33</sup> The Nature Conservancy, Natural Gas Pipelines: Excerpt from Report 2 of Pennsylvania Energy Impacts Assessment (Dec. 16, 2010), *available at* <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/pennsylvania/ng-pipelines.pdf>.

In addition, NYSDEC has projected the number of wells that are likely to be drilled in three of the counties crossed by the Project,<sup>34</sup> thereby facilitating an examination of the environmental impacts that will result from gas development that is induced in those areas. Indeed, TNC used NYSDEC's projections to conduct just this sort of an examination of impacts.<sup>35</sup> As part of its assessment, TNC conducted a spatial analysis of projected gas well pad development in Tioga County, New York<sup>36</sup> and of the collective impact on forests that would be caused under various build-out scenarios.<sup>37</sup> Knowledge of the exact extent of induced development or the precise location of future wells is not necessary in order to conduct an analysis of indirect effects. *See Mid States*, 345 F.3d at 566. In order to satisfy its NEPA obligations, the Commission must issue a revised draft EIS that takes a hard look at the possibility that the Project indirectly will cause the development of gas wells in the counties crossed by the pipeline route and at the impacts to the environment that could result.

Similarly, the indirect effects of the construction and operation of the Leatherstocking distribution system must be considered in a revised draft EIS for the Project. The Draft EIS identifies providing gas supply to towns along the Pipeline route as one of the purposes of the Project, but fails to analyze the impacts of the construction and operation of a new gas distribution system and relegates its mention of the proposal to a mere two paragraphs. That one of the stated purposes of the Project is to provide gas to municipalities along the route, some of which have already granted Leatherstocking approval to deliver gas, makes clear that the Project is the cause of that distribution system. Moreover, the impacts of that system are reasonably foreseeable. Leatherstocking and Constitution have entered into a memorandum of understanding allowing for interconnection to the pipeline at several delivery points. Draft EIS at 1-2. Leatherstocking has stated that it "intends to construct facilities to serve the Village and Town of Sidney and is considering expansion to other potential service areas."<sup>38</sup> This is enough to warrant NEPA review. The distribution plan need not be fully developed in order for the Commission to take the requisite hard look at the impacts that will be caused by the construction of a distribution pipeline system, including additional land clearing and habitat disturbance, as well as emissions from the local distribution network. In addition, Constitution should identify for the Commission and the public all potential service areas along the Project route, and an environmental impact analysis should be completed for all of them.

In order to satisfy NEPA's requirement that agencies take a hard look at the indirect effects of a proposed action, the Commission must issue a revised draft EIS that analyzes the

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<sup>34</sup> Ecology and Env't, Inc., Economic Assessment Report for the Supplemental Generic Environmental Impact Statement on New York State's Oil, Gas, and Solution Mining Regulatory Program (Aug. 2011), *available at* [http://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/rdsgeisecon0811.pdf](http://www.dec.ny.gov/docs/materials_minerals_pdf/rdsgeisecon0811.pdf).

<sup>35</sup> The Nature Conservancy, An Assessment of the Potential Impacts of High Volume Hydraulic Fracturing (HVHF) on Forest Resources (Dec. 19, 2011), *available at* <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/newyork/ny-hydrofracking-impacts-20111220pdfnull.pdf> ("TNC Tioga Assessment").

<sup>36</sup> Broome County, through which the Project cuts, is adjacent to Tioga County.

<sup>37</sup> TNC Tioga Assessment.

<sup>38</sup> Answer of Leatherstocking Gas Company LLC in opposition to Motion for Extension of Time, FERC Docket No. CP13-499-000 (filed Mar. 31, 2014).

adverse environmental impacts that will result from upstream gas well development and downstream distribution of gas along the pipeline route.

#### **F. Analysis of Cumulative Impacts Is Inadequate.**

While the Draft EIS includes a subsection purporting to discuss the cumulative impacts of the Project and recites the proper standard by which those impacts should be identified and considered, Draft EIS at 4-202, it fails to develop any meaningful analysis of cumulative impacts and, instead, offers a litany of conclusory assurances that no cumulative impacts will occur: “the cumulative effect of the projects on geological resources and soils would be temporary and minor,” *id.* at 4-220; “we anticipate that the proposed projects would only contribute to minor and temporary cumulative impacts on groundwater” *id.* at 4-221; “cumulative effect on wetland and waterbody resources would be temporary and minor,” *id.* at 4-223; “[t]he incremental and cumulative effect to vegetation would be minor,” *id.* at 4-223; “cumulative impacts are expected to be negligible for any individual wildlife species relative to the population in the region of influence,” *id.* at 4-224; “[t]he ensuing operations of the proposed pipeline would not result in any additional impacts unless maintenance activities occur in or near streams,” *id.* at 4-225.

This treatment of cumulative impacts falls short of what is required by NEPA—namely, a comprehensive analysis of the incremental impacts of the Project when considered in addition to other past, present, and reasonably foreseeable future actions. *See* 40 C.F.R. § 1508.7; *see also Oregon Natural Res. Council Fund v. Brong*, 492 F.3d 1120, 1132–33 (9th Cir. 2007) (“One of the specific requirements under NEPA is that an agency must consider the effects of the proposed action in the context of all relevant circumstances, such that where ‘several actions have a cumulative . . . environmental effect, this consequence must be considered . . . .’”) (quoting *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1378 (9th Cir. 1998)). Assessing the impacts of a proposed action within the context of existing and foreseeable effects in the same area yields “a realistic evaluation of the total impacts” and ensures that an EIS does not impermissibly “isolate a proposed project, viewing it in a vacuum.” *Grand Canyon Trust v. Fed. Aviation Admin.*, 290 F.3d 339, 342 (D.C. Cir. 2002).

A cumulative impact analysis cannot satisfy NEPA’s hard look standard unless the effects of the proposed action are viewed against the backdrop of past and present activities. The statute requires analysis of “the cumulative harm that results from [the proposed action’s] contribution to *existing adverse conditions or uses* in the area . . . . [E]ven a slight increase in adverse conditions that form an existing environmental milieu may sometimes threaten harm that is significant. One more factory . . . may represent the straw that breaks the back of the environmental camel.” *Grand Canyon Trust*, 290 F.3d at 343 (quoting *Hanly v. Kleindienst*, 471 F.2d 823, 831 (2d Cir. 1972)) (emphasis added). Moreover, NEPA requires some level of specificity in analyzing past projects. *See Brong*, 492 F.3d at 1133 n. 19 (“[An agency] cannot fulfill its responsibility to conduct a cumulative effects *analysis* by merely reciting what effects have occurred, no matter how many pages it fills by doing so . . . . [T]he time, type, place, and scale of past activities must be included.”).

Here, the Draft EIS purports to assess the impacts of other past, present, or reasonably foreseeable projects in the Project area, but fails to provide any detailed or quantified data to

support the analysis. Without an accurate account of either the baseline impacts of other actions or the incremental impact of the Project, the Commission cannot assess “the overall impact that can be expected if the individual impacts are allowed to accumulate”—the very essence of the cumulative impact analysis. See *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 994–996 (9th Cir. 2004) (“Sometimes the total impact from a set of actions may be greater than the sum of the parts.”). Furthermore, the Draft EIS impermissibly relies entirely on presumed compliance with permitting requirements to justify its conclusion that no cumulative impacts will result from the Project. These inadequacies render the cumulative impacts analysis legally insufficient.

For example, the Draft EIS identifies the development of gas wells and gathering systems in the Marcellus shale region as projects the effects of which warrant inclusion in an analysis of cumulative impacts, but it fails to include the required analysis with respect to the incremental impact of the Project’s effects *when added* to the to the impacts caused by those Marcellus shale development activities. The Commission justifies its failure to conduct the requisite cumulative impacts analysis on the false assumption that the proposed Projects would not have an adverse impact on the environment. This reasoning ignores the very purpose of a cumulative impacts analysis.

As discussed in Section II.E, *supra*, the Draft EIS fails to make any attempt to evaluate the extent to which the construction and operation of the Pipeline Project will induce additional development of gas wells or will influence the location of gas well development. Regardless of whether the Pipeline Project induces gas drilling, however, future development is foreseeable and the types of impacts from such development are known and must be considered as part of a cumulative impacts analysis. Only once the baseline of impacts caused by the past, present, and future development of shale gas formations in the region is understood can any conclusions about the incremental impact of the Project be drawn.

Neither Constitution nor the Commission can dispute the fact that the Project, as proposed, would result in the fragmentation of forests and the loss of hundreds of acres of habitat. Even if the Commission concludes that the amount of habitat lost because of Project construction does not constitute a significant adverse impact, the additive impact of this habitat loss along with the destruction of habitat caused by past, present, or reasonably foreseeable gas development activities and other development activities in the region *could* constitute an adverse impact. This is precisely the analysis that NEPA requires agencies to undertake. Similarly, the Draft EIS fails to take the requisite hard look at the cumulative air quality impacts of the Project when considered in conjunction with other air pollution sources, including the Williams Central Compressor Station, and numerous compressors proposed for other projects.

In any event, the assumption that the Project will not cause significant adverse environmental impacts is unsupported by the facts presented in the Draft EIS. For example, the Commission has identified various materials regarding the potential impacts to water resources that Constitution has yet to provide.<sup>39</sup> Without a complete picture of the effects of the Project provided by information in the outstanding materials, the Commission is not in a position to

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<sup>39</sup> See Section II.A, *supra*.

conclude that adverse impacts on water resources will not occur. The same is true for the Commission's analysis of Project impacts on forests, migratory birds, bats, other wildlife, visual resources, community character, and air quality, deficiencies in which foreclose any similar conclusion with respect to these resources.

The Draft EIS also improperly assumes that proposed construction practices and conditions on the permits issued for various aspects of the Projects will avoid, minimize, or sufficiently mitigate any potential impacts. This conclusion finds no support in the facts. Indeed, other FERC-authorized pipeline projects for which state permits were granted have resulted in adverse impacts to water resources, as evidenced by the numerous notices of violation issued.<sup>40</sup> In addition, Cabot Oil & Gas Corp., the supplier of the majority of the gas proposed for transport along the pipeline and an affiliate of one of the co-owners of Constitution, has a record of permit violations in Pennsylvania; since the beginning of 2010, Cabot has been cited with 393 violations at unconventional well sites (accounting for over 10 percent of total violations in the state).<sup>41</sup> Williams Fields Services Company, the operator of one of the two compressor stations that will power the flow of gas through the pipeline and an affiliate of one of the co-owners of Constitution, also has a history of violations at its facilities, including those associated with a fire at the Williams Central Compressor Station last May<sup>42</sup> and resulting in \$388,694 in fines for 2013 alone.<sup>43</sup> Rather than blindly accepting Constitution's promises of regulatory compliance, the Commission must take into account the high likelihood that permit conditions will be violated and that BMPs will not be implemented effectively.

Finally, the Draft EIS improperly concludes that the Project will not have significant cumulative impacts because its construction schedule will not overlap with that of any other projects in the area. Draft EIS at 4-216–4-220. This conclusion ignores the fact that the Project will continue to cause adverse environmental effects after construction activities have been completed and highlights the Commission's failure, as discussed above, to give due consideration to long-term impacts that will occur outside of the permanent right-of-way. In order for an adequate cumulative impacts analysis to be conducted the full scope of the Project's effects must first be understood.

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<sup>40</sup> See, e.g., Tennessee Gas Pipeline Co., LLC, Monthly Status Report, Northeast Upgrade Project 3, FERC Docket No. CP11-161-000 (filed Apr. 2, 2014) (listing problems with BMPs and instances of non-compliance with permit conditions); Beth Brelje, DEP, *Tennessee Gas continue talks about fines*, Pocono Record, Nov. 27, 2012, <http://www.poconorecord.com/apps/pbcs.dll/article?AID=/20121127/NEWS/211270320/-1/rss01> (reporting hundreds of violations).

<sup>41</sup> PADEP, Oil & Gas Reports, [http://www.portal.state.pa.us/portal/server.pt/community/oil\\_and\\_gas\\_reports/20297](http://www.portal.state.pa.us/portal/server.pt/community/oil_and_gas_reports/20297). Total violations were calculated by clicking "Oil and Gas Compliance Report," selecting the inspection period between 1/1/2010 and 3/1/2014, setting "OPERATOR" to "CABOT OIL & GAS CORP (43513)," and setting "UNCONVENTIONAL ONLY (PF INPSECTIONS)" to "Yes."

<sup>42</sup> Joseph Kohut, *Fire, possible explosion at Susquehanna gas compressor station thought to be accidental*, THE TIMES TRIBUNE, May 16, 2013, <http://thetimes-tribune.com/news/fire-possible-explosion-at-susquehanna-gas-compressor-station-thought-to-be-accidental-1.1489789>.

<sup>43</sup> Laura Legere, *DEP fined oil and gas companies \$2.5 million last year*, StateImpact Pennsylvania, Feb. 27, 2014, <http://stateimpact.npr.org/pennsylvania/2014/02/27/dep-fined-oil-and-gas-companies-2-5-million-last-year/>. See also NY Friends of Clean Air and Water, *Williams Compressor Station, Windsor NY is (again) on Fire*, <http://nyfriendsofcleanairandwater.blogspot.com/2014/01/williams-compressor-station-windsor-ny.html> (listing incident at Williams facilities).

U.S. EPA, U.S. FWS, U.S. Army Corps of Engineers, NYSDEC, and Intervenors have all called for the comprehensive analysis of the Project’s cumulative impacts that NEPA requires.<sup>44</sup> The Draft EIS does not include the comprehensive analysis required, and Intervenors, therefore, request that the commission prepare a revised draft EIS that does.

**G. Analysis of Impacts of the William Central Compressor Station Is Inadequate.**

When conducting a review of the environmental impacts of a proposed action under NEPA, the Commission has recognized that it “must also give some environmental consideration to nonjurisdictional facilities built in conjunction with jurisdictional facilities if the entire project would constitute a major federal action.” *Algonquin Gas Transmission Co.*, 59 FERC ¶ 61,255, 61,933 (June 2, 1992). Four factors are to be considered when determining whether to include nonjurisdictional facilities as part of the environmental review of a project—namely, “(A) Whether or not the regulated activity comprises ‘merely a link’ in a corridor type project (e.g., a transportation or utility transmission project). (B) Whether there are aspects of the nonjurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity. (C) The extent to which the entire project will be within the Commission’s jurisdiction. (D) The extent of cumulative Federal control and responsibility.” 18 C.F.R. § 380.12(c)(2)(ii).

In its Draft EIS, the Commission again recognizes the requirement to consider certain non-jurisdictional facilities, stating “FERC is required to consider, as part of its decision to authorize interstate natural gas facilities, all factors bearing on the public convenience and necessity. Occasionally proposed projects have associated facilities that do not come under the jurisdiction of the Commission.” Draft EIS at 1-11. The Draft EIS goes on to list two metering and regulating (“M&R”) stations (the White Road M&R Station and the Sutton Road M&R Station) in Susquehanna County as associated with the Project and, thus, warranting review under NEPA, because they will make possible the input of gas into the pipeline. By this reasoning, the Williams Central Compressor Station, which will provide the compression necessary to transport the input gas through the pipeline and which is also located in Susquehanna County, adjacent to the White Road M&R Station, also warrants review under NEPA.

Without the Williams Central Compressor Station (owned and operated by Williams Field Services Co.)—which was expanded just months after Constitution (a joint venture owned in part by a Williams Field Services Co. affiliate) submitted its application for a Certificate for the Pipeline Project—the White Road M&R Station (owned and operated by Williams Field

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<sup>44</sup> U.S. EPA, Comments re the Notice to Prepare an Environmental Impact Statement for the Constitution Pipeline Project, FERC Docket No. PF12-9 (filed Oct. 16, 2012); U.S. FWS, Comments on Notice of Intent to Prepare Environmental Statement for the Planned Constitution Pipeline Project 2–3, FERC Docket No. PF12-9-00 (filed Oct. 5, 2012); U.S. Army Corps of Eng’rs, Comments Regarding the Preparation of an Environmental Impact Statement for the Proposed Constitution Pipeline Project, FERC Docket No. PF12-9 (filed Oct. 9, 2012); NYSDEC, Preliminary Comments on Notice of Application for Constitution Pipeline Company, LLC (Project), FERC Docket No. CP13-499-000 (filed July 17, 2013).

Services Co.) would serve no purpose and Cabot Oil & Gas Corp. (also affiliated with the Constitution joint venture) would not be able to transport its gas to market via the Pipeline.

The Draft EIS lists the Williams Central Compressor Station as a “non-jurisdictional *Project-related facility*,” Draft EIS at 4-211 (emphasis added), but includes no analysis of the environmental impacts of the facility or any justification for its failure to include that analysis. Williams’ compressor station is not, as Constitution has argued, “merely a link” in a larger transmission project; without it, operation of the part-Williams-owned Constitution Pipeline would not be possible. Despite Constitution’s attempts to downplay the connection between the Pipeline and the Williams’ compressor station, the company has acknowledged that the location of Pipeline Project facilities were chosen based on the location of the compressor station.<sup>45</sup> The impacts associated with the operation of this facility—in particular, the air quality impacts discussed above—must be evaluated in a revised draft EIS. Even if the Commission rejects the conclusion that the impacts of this facility must be considered as part of the Project’s impacts, it must include those impacts as part of its analysis of cumulative impacts. It has not done so.

## **II. The Draft EIS Fails to Properly Consider Purpose and Need and Reasonable Alternatives.**

The alternatives analysis presented in the Draft EIS does not satisfy the requirements of NEPA. An agency preparing an EIS must “[r]igorously explore and objectively evaluate all reasonable alternatives” to a proposed action. 40 C.F.R. § 1502.14(a). Consideration of alternatives is “the heart of the environmental impact statement,” because it compels agencies to “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.” *Id.* Fundamentally, an agency must “to the *fullest* extent possible . . . consider alternatives to its action which would reduce environmental damage.” *Calvert Cliffs’ Coordinating Comm., Inc. v. U.S. Atomic Energy Comm’n*, 449 F.2d 1109, 1128 (D.C. Cir. 1971) (emphasis in original). Absent this comparative analysis, decisionmakers and the public can neither assess environmental trade-offs nor avoid environmental harms. *See id.* at 1114 (NEPA’s alternatives requirement “seeks to ensure that each agency decision maker has before him and takes into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance” and “allows those removed from the initial process to evaluate and balance the factors on their own”).

The alternatives must include “reasonable alternatives not within the jurisdiction of the lead agency,” as well as “appropriate mitigation measures not already included in the proposed action or alternatives.” 40 C.F.R. § 1502.14. Because alternatives are so central to decisionmaking and mitigation, “the existence of a viable but unexamined alternative renders an environmental impact statement inadequate.” *Oregon Natural Desert Ass’n v. Bureau of Land Mgmt.*, 625 F.3d 1092, 1100 (9th Cir. 2010) (internal alterations and citations omitted).

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<sup>45</sup> Constitution Pipeline Co., Resource Report No. 1: General Project Description, 1-64, FERC Docket No. CP13-499-000 (filed June 2013).

An alternatives analysis must include the agency's evaluation of a "no action" alternative. 40 C.F.R. § 1502.14(d). This "provides the standard by which the reader may compare the other alternatives' beneficial and adverse impacts related to the applicant doing nothing." *Kilroy v. Ruckelshuas*, 738 F.2d 1448, 1453 (9th Cir. 1984). To fulfill this requirement, the Commission must "compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo." *Custer Cnty. Action Ass'n v. Garvey*, 256 F.3d 1024, 1040 (10th Cir. 2001). The Draft EIS contains no such comparison. Instead, the no action alternative section simply describes a number of options for meeting energy demand, but rejects each as impractical. Draft EIS at 3-2-3-12. In order to satisfy NEPA's requirements, the no action alternative discussion must present an evaluation of maintaining the status quo against which other proposed alternatives can be compared.<sup>46</sup>

With respect to co-locating the Pipeline Project with existing pipeline systems or other rights-of-way, the Commission rejected a number of viable options absent a hard look at all of the impacts associated with those alternatives. For example, certain co-location options were rejected because they would require slightly longer total project routes. Draft EIS at 3-19-3-24. This reasoning rings hollow, given the ease with which the Commission discounts the impacts to forests and water resources associated with the construction and maintenance of the right-of-way for the proposed Project. Indeed, the Commission rightly rejected Constitution's "Alternative K," even though it would have been *shorter* than the preferred route, because it would have crossed the New York City Water Supply Watershed. *Id.* at 2-25-2-30. Intervenors agree that Alternative K is not a viable alternative and support an analysis that prioritizes the need to protect important natural resources. A similar analysis should apply to alternatives for co-location along existing pipelines, even if such alternatives would entail slightly longer routes.

The alternatives analysis also fails to take a hard look at the possibility of co-locating all or substantial portions of the Pipeline Project with Interstate (I)-88. This alternative—"Alternative M"—would result in far fewer impacts to interior forest habitat than the preferred route. Indeed, the Commission's comparison of Alternative M with the proposed route illustrates its underestimation of impacts to interior forest habitat. Because interior forests are defined as "forested areas greater than 300 feet from the influence of forest edges or open habitat," Draft EIS at 4-70, any portion of the Alternative M route that is closer than 300 feet to highway I-88, by definition, will not impact interior forests. More analysis of this viable alternative is warranted.<sup>47</sup>

In addition to major system or route alternatives, the Draft EIS fails to take a hard look at less dramatic Project alternatives that could avoid or minimize the expected environmental impacts of the Projects. For example, the Draft EIS provides no assessment of the benefits or feasibility of wetland creation, 20-1 tree replacement, long-term monitoring of stormwater impacts or invasive species proliferation, alternative construction techniques, equipment options, or fuel sources, or the purchase of carbon offsets to mitigate the projects' climate impacts.

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<sup>46</sup> See also Otsego 2000, Comments on Draft EIS for Constitution Pipeline, FERC Docket No. CP13-499-000 (filed Apr. 4, 2014) (incorporated fully by reference herein).

<sup>47</sup> See U.S. Army Corps of Eng'rs, Comments on Draft EIS for Constitution Pipeline Project, FERC Docket No. CP13-499-000 (filed Apr. 7, 2014) (noting Army Corps' concerns regarding analysis of Alternative M).

### **III. The Project Will Not Serve the Public Interest or Public Convenience and Necessity.**

Section 7 of the NGA, 15 U.S.C. §717f, and FERC’s Statement of Policy for Certification of New Interstate Natural Gas Pipeline Facilities, 88 FERC ¶ 61,227 (1999), clarified, 90 FERC ¶ 61,128 (2000), further clarified, 92 FERC ¶ 61,094 (2000) (“Certificate Policy Statement”), require the Commission to determine whether the Project facilities are “in the public interest” and whether the proposed pipeline is “required by the public convenience and necessity.” Specifically, the Certificate Policy requires the Commission to balance the alleged need for a project against the adverse impacts on affected landowners and the surrounding communities. 88 FERC ¶ 61,747. Stated simply, the Commission cannot approve a project unless it concludes that the project’s benefits outweigh its adverse impacts.

As explained above, the Draft EIS fails to demonstrate that impacts on landowners and the surrounding community have been mitigated or are outweighed by any alleged public benefits of the Projects. Absent the comprehensive assessment of adverse impacts to landowners and surrounding communities that NEPA requires, the Commission is not in a position to draw a conclusion as to whether the Projects’ potential public benefits outweigh the potential adverse effects. Moreover, and as discussed in detail in the Report on the Need for the Proposed Constitution Pipeline, incorporated fully by reference herein,<sup>48</sup> the Commission’s assumptions that the Projects will fulfill a market need in New York City and New England are misplaced.

### **IV. Conclusion**

For the reasons set forth above, the Draft EIS contains a significant number of crucial deficiencies that require that the Commission conduct additional analysis of the Project and its environmental impact and issue a revised draft EIS for public review and comment prior to proceeding with a decision on Constitution’s and Iroquois’ applications for Certificates of Public Convenience and Necessity.

Respectfully submitted,



Bridget M. Lee

*On behalf of Catskill Mountainkeeper,  
Clean Air Council, Delaware-Otsego  
Audubon Society, Delaware Riverkeeper Network,  
Riverkeeper, Inc., and Sierra Club*

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<sup>48</sup> Anne Marie Garti, Report on the Need for the Proposed Constitution Pipeline, FERC Docket No. CP13-499-000 (filed Apr. 7, 2014).

Exhibit A

Meliora Report

**Professional Review & Comment**  
**on**  
**Draft Environmental Impact Statement for**  
**Constitution Pipeline Project (February 2014),**  
**FERC Docket No. CP13-499-000**

**April 7, 2014**

**Prepared for:**

**Earthjustice**

**Prepared by:**

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## **EXECUTIVE SUMMARY**

Due to previous experience reviewing gas pipeline projects in the Mid-Atlantic, Meliora Environmental Design, LLC (Meliora Design) was asked to provide professional review and comment on the Draft Environmental Impact Statement for Constitution Pipeline Project (February 2014). In general, the comments address issues directly related to surface soils, steep slopes, stream and wetland crossings, and to a lesser extent, karst and shallow bedrock, as they relate to and impact surface water quality and quantity.

While the Draft Environmental Impact Statement and supporting documentation contain information related to soils, steep slopes, stream and wetland crossings, and other sensitive natural features whose disturbance may adversely affect water quality, our primary findings are that:

1. This information is often limited or insufficient. For example, limited information and no site-specific testing is required for soils conditions outside of agricultural or residential areas. As a result, the information on existing soils conditions, and the measures necessary to evaluate potential impacts, prevent those adverse impacts, or successfully achieve soil restoration, is lacking from the Draft Environmental Impact Statement (“Draft EIS”). Without such information the Draft EIS is incomplete and inadequate.

2. Most importantly, there is no consideration or process to identify and evaluate specific locations that include one or more of these or other sensitive natural features. For example, an area of highly erodible soils on steep slopes adjacent to a high quality stream is likely to experience greater impacts due to site disturbance, and to have a much higher likelihood of subsequent conditions after disturbance (i.e., erosion, lack of vegetation establishment, etc.) that could adversely impact water quality. However, there is no process to identify areas of multiple sensitive features, or to consider the potential impacts that could be caused when multiple sensitive features are disrupted at a single location. As a result, the likelihood of potential adverse water quality impacts cannot be accurately assessed. Without a process to identify areas of multiple sensitive features and evaluate potential impacts, the Draft EIS is incomplete and inadequate.
  
3. There is no consideration of the cumulative impacts and effects within a given watershed or sub-watershed, and whether these impacts are few and limited, or extensive and likely to impact water quality. There also is no consideration as to the nature of the waterbody and whether these impacts may be large and significant. A small headwater tributary, with a limited drainage area and baseflow, may experience greater impacts than a larger waterbody. Multiple stream crossings are likely to have a higher impact on water quality than a single stream crossing. However, the documents do not provide a process for identifying these conditions. As a result, the cumulative impacts on water quality cannot be assessed, and the Draft EIS is incomplete and inadequate.

Given the availability of information in a geographic information system database (GIS) format, there is no basis for failing to undertake this comprehensive analysis related to both multiple sensitive site conditions and cumulative impacts. This analysis is a standard practice in the use of GIS data to develop sensitivity indexes and should be a component of the Draft EIS. The documents must include both comprehensive data, and an analysis of the data to identify and evaluate potential adverse water quality impacts due to the presence of multiple sensitive environmental conditions and/or cumulative impacts. A GIS-based approach of data analysis could be used to identify sensitive features that have not been deemed relevant enough to protect individually, but are significant when aggregated.

4. The construction of the pipeline will involve large amounts of land disturbance that will adversely impact the surface soils' ability to regrow vegetation or naturally infiltrate rainfall. Once rainfall is not infiltrated and vegetation cover is decreased or inhibited, runoff volume and rate will increase. With these increases, accelerated erosion and sediment transport can occur more frequently and in larger amounts, causing irreparable damage to local wetlands, streams, and other waterbodies. Many land use types, existing land uses, soil types, or topography are more sensitive to land disturbance and should be thoroughly evaluated for unnecessary and excessive impacts during construction. Appropriate construction practices to avoid or reduce disturbance, or restoration measures to mitigate impacts to sensitive land uses, cannot be implemented unless these areas are identified and

evaluated. The Draft EIS lacks adequate information on soils conditions, but also lacks consideration of the impacts of soil disturbance, and recommendations to prevent or mitigate these impacts, including recommendations to limit disturbance in sensitive areas. As a result, the Draft EIS is inadequate.

5. The fact that stream crossings only consider borings as a crossing option when a modest-sized stream is located next to a roadway implies that avoidance of roadway disturbance has a higher priority than avoidance of stream channel disturbance. Similarly, the lack of soil testing requirements in public lands implies that these lands are less important than residential or agricultural lands.

As a result of these deficiencies, it is our opinion that significant adverse impacts are likely to occur to water quality within many of the streams and wetlands impacted by this project. Without complete data and comprehensive evaluation of the data, the areas of significant impact cannot be adequately identified, and measures to prevent or mitigate adverse impacts cannot be implemented.

Specific deficiencies within the Draft EIS are documented below.

Documents reviewed include:

- a. FERC's Draft Environmental Impact Statement for the Constitution Pipeline and Wright Interconnect Projects, February 2014 (Executive Summary; Sections 1-5; Appendices A-R)
2. Constitution's Resource Report 1: General Project Description, November 2013 (Environmental Report, Vol. I)
3. Constitution's Resource Report 2: Water Use and Quality, November 2013 (Environmental Report, Vol. I)
4. Constitution's Resource Report 7: Soils, November 2013 (Environmental Report, Vol. I)
5. Constitution's Soil Erosion & Sediment Control Narrative & Environmental Construction Plan, Construction Activities in Pennsylvania, November 2013 (Environmental Report, Vol. II, Appx. I)
6. Constitution's Environmental Construction Plan, Construction Activities in New York, November 2013 (Environmental Report, Vol. II, Appx. J)
7. Constitution's Wetland Delineation Report, November 2013 (Environmental Report, Vol. II, Appx. L)
8. Constitution's Site Specific Major Waterbody Crossing Plan, November 2013 (Environmental Report, Vol. II, Appx. M)
9. Constitution's Trenchless Feasibility Study, November 2013 (Environmental Report, Vol. II, Appx. N)

## **DISCUSSION**

### **1. Outstanding Information Regarding Project Impacts**

Constitution desires construction to begin 2<sup>nd</sup> and 3<sup>rd</sup> quarter of 2014. FERC has requested more documentation on various components of the project that should be publicly reviewed prior to approval. A revised draft EIS that incorporates the outstanding documentation should be published for public comment before any Project approvals are granted. Additional information requested by FERC include:

- a. Formal slope stability analysis at MP 30.3.
- b. Geotechnical feasibility study for all trenchless crossing locations.
- c. Identification of all water wells within 150 ft. of the proposed pipeline.
- d. Description of impacts of workspace on waterbodies affected by construction on a waterbody specific basis to describe impacts, impact avoidance, impact minimization, and impact mitigation.
- e. Site-specific plans for impacts to wetlands by permanent access roads.
- f. Upland Forest Mitigation Plan.
- g. Site-specific blasting plans for in-water blasting.
- h. Timing restrictions for water withdrawals.

Finalized documentation should be provided by Constitution to FERC prior to Draft EIS finalization. Many instances of FERC only having partial studies or evaluations were noted in the documents. FERC should be waiting to do their evaluation until all information is provided.

## **2. Surface Impacts to Soils**

FERC concludes that surface impacts to soils are only temporary and relies on best management practices of other regulatory agencies to provide additional guidelines to help prevent irreversible damage to surface soils during construction. However, these guidelines are limited in nature and do not prevent soil compaction. The guidelines do not require restoration practices that sufficiently mitigate soil compaction due to construction impacts. With the exception of agricultural and residential lands, FERC does not require testing to identify soils highly susceptible to damage from construction.

Previous field investigations performed by Meliora Design on behalf of Delaware Riverkeeper Network in temporary right-of-way (ROW) locations along the Tennessee Gas Pipeline's 300 Line Upgrade Project in Milford, Pennsylvania, showed increased soil compaction as reflected in increased soil bulk density measurements when the temporary ROW locations were compared to undisturbed natural areas adjacent to the pipeline ROW. Severe compaction was noted within the former temporary ROW. Based on literature values, measured bulk densities were high enough to inhibit plant growth and infiltration. By limiting plant growth and infiltration, runoff volume and rate will be increased. The conditions were considered stabilized and restored even though they had less than 70% vegetative cover (potentially inhibited by measured compaction). Absent more stringent requirements, construction activities for the Constitution Pipeline Project likely will

result in severely compact soils that are incapable for supporting plant growth or for allowing natural infiltration of rainfall.

- a. Compaction from temporary work space will be difficult to restore by regrading to pre-existing contours, retilling at the surface, and reseeded the area. Heavy equipment used in the construction of the pipeline will inherently compact work areas to depths deeper than conventional surface tilling will reach. Lasting impacts identified by FERC include increased runoff to streams and wetlands due to a reduction in infiltration capacity and difficulty in reestablishing vegetation. Infiltration capacity becomes limited when soils lose their porosity and soil structure, resulting in increased runoff volumes to streams. Excessive runoff changes stream geomorphology due to an increase in both volume and velocity. Streambanks and riparian areas are impacted by changes to the stream channel due to the increases in peak flow volume and rate. Streams with more flow also have higher energy. More energy means more in-stream erosion and sediment transport. Compaction creates conditions where bulk densities of soils are so high that the soils inhibit the germination of plants and plant root growth. The establishment of vegetative cover within the pipeline ROW will be more difficult once surface soils are compacted. If vegetation regrowth is limited within both the temporary and permanent ROW, the likelihood of accelerated erosion will be increased. Avoidance of compaction can be achieved by limiting ROW widths to prevent compaction before it takes place. To determine if compaction is

present, soil testing needs to be conducted. By limiting the testing of bulk densities outside of agricultural and residential areas, there is no mechanism for identifying soils that have been compacted along the majority of the project length. Procedures that limit compaction deep into the soils such as limiting rutting depths, limiting ROW widths, using timber mats in wet areas with a likelihood of compaction, and restoring soil structure following impacts, should be required more widely than only in agricultural and residential areas.

- b. Because compaction along the pipeline is a potential impact, FERC calls for penetrometer testing of soils within agricultural and residential areas to make sure soils are decompacted following construction. When testing indicates compaction in these areas, Constitution will be asked to implement decompaction procedures according to the *Soil Protection and Subsoil Decompaction Plan*. This plan is not implemented in other land uses and therefore no compaction will be mitigated following construction in wetlands, interior forests, or other sensitive areas. Natural land uses such as interior forests and wetlands rely on vegetative cover to prevent the movement of soils during rain events by intercepting rainfall, stabilizing soils with their roots, and protecting surface soils with leaf litter and detritus. They also require soil with bulk densities low enough to allow for germination and root penetration, infiltration of rainfall, and the movement of nutrients from the surface down into the root zone. The Draft EIS does not

explain why agricultural and residential should receive greater protections than natural lands. All land uses will experience more sediment laden runoff from their surfaces, limited regrowth of plants and vegetation, and exposed soil surfaces after compaction. The same considerations to prevent or restore compacted soils should be implemented for both actively used lands as passively used lands. Accelerated erosion is probably the largest concern resulting from soil compaction. When runoff cannot infiltrate, isn't slowed at the surface by vegetation, and has a direct connection to exposed soils, sediments are more likely to be transported to downhill streams and wetlands.

- c. FERC recommends avoidance of rutting below 4" in agricultural areas to avoid compaction. These recommendations should be implemented throughout the project area.
  
- d. The Draft EIS only identifies soils in agricultural and residential areas that contain specific fine textures and high water tables as being highly susceptible to compaction. Without identifying similar areas in interior forests, wetlands, or close to streams, no determination of potential impacts can be made due to a lack of information being provided. Extensive areas being crossed by the pipeline may fall into the category of susceptible to compaction.

- e. The ECPs call for wetlands to be decompacted as necessary if mats are not utilized. No quantification is given and no testing is called for to determine allowable compaction limits or thresholds to decompact wetlands. Wet soils are especially susceptible to impacts from construction activity.
  
- f. The Draft EIS discounts the impacts to resources located outside of the permanent ROW, asserting that “most impacts on soil will be temporary and short-term.” This conclusion is not supported by the information contained in the Draft EIS. Once a soil’s structure is disturbed with heavy equipment, compaction, and removal of surface vegetation, it is very difficult to regain structure that allows for infiltration of surface water or the regrowth of healthy vegetation following construction. The only way to avoid permanent compaction of soils is to prevent the compaction from taking place in the first place (by limiting ROW widths) and to employ soil disturbance techniques that preserve soil structure.
  
- g. FERC notes that pipeline activities such as “clearing, grading, trenching, and backfilling, could adversely affect soil resources by causing accelerated erosion, compaction, and introduction of rock or fill material to the surface.” FERC relies upon environmental construction plans that focus on temporary erosion and sedimentation controls to address soil impacts. While temporary erosion and sedimentation measures may help to limit the transport of eroded soils, they cannot fully eliminate the acceleration of

erosion or soil compaction caused by construction. Once sediment reaches a stream or wetland, changes to the habitat of plants, fish, and insects can take place. Typically, healthy streams have gravel bottoms and cobble bars free of mud and sediment. This allows for spawning areas for fish and habitat for insects and plants. Sediment from accelerated erosion smothers fish eggs and covers spawning areas with fine sediments, thus inhibiting fish reproduction. Increased turbidity in streams and wetlands prevents light penetration into the water column and increases water temperatures. Decreased light penetration can retard plant growth in streams, wetlands, and lakes. Sediment in the water column also physically impacts fish by interfering with their ability to remove oxygen from the water. Downstream lakes and reservoirs can also begin to fill in due to sediment accumulation.

### **3. Impacts to Steep Slopes**

Steep slopes are found consistently throughout the length of the pipeline. When combined with erodible soils, the ability for construction crews to manage runoff and sediment discharge from the construction site becomes more difficult. Many of these areas are directly adjacent to wetland or stream crossings where additional disturbance will take place. More study needs to be done to identify areas of cumulative impact due to slope, soils, proposed disturbance, and proximity to water resources such as wetlands or high value streams. Steep slopes alone do not necessarily cause accelerated erosion. The exposure of soils to direct rainfall from vegetation clearing, the disturbance of the soil structure from excavation, and the

reduction of infiltration following compaction all increase runoff volumes. Increased runoff volumes and rates increase sediment transport into streams and wetlands. When higher runoff volumes travel down steep slopes, erosive flow conditions increase, thus causing accelerated erosion. Temporary erosion controls can help to slow down runoff and limit downstream sedimentation. But once temporary erosion control is removed, it is up to the stabilizing vegetation and any permanent erosion control to reduce runoff velocities. Because construction practices can compact soils and inhibit vegetation regrowth, areas of steep slopes can become a large source of sediment-laden runoff to nearby streams and wetlands.

- a. Numerous areas were identified as potential landslide areas. The likelihood for these soils to become unstable during or after construction is high. Multiple features also contain seepage or drainage features which can provide for greater accelerated erosion potential or exacerbate the likelihood of a landslide. Pipeline activity such as trenching along slopes and equipment on unstable surfaces will potentially increase the risk of landslides. Slope failure in combination to poorly managed stormwater runoff can increase the likelihood of sedimentation of nearby streams and wetlands. The Draft EIS recommends measures to minimize landslide potential including compaction of fill, installation of trench breakers, and minimization of stockpiling on slopes. However, Constitution has not indicated that it intends to adopt any site-specific mitigation measures.

These and other mitigation measures identified by FERC should be required as conditions of FERC's approval of the Project.

- b. Clearing vegetation from steep slopes will increase the likelihood of sediment-laden runoff reaching downslope water resources. Vegetation cover on slopes is the only feature that provides stability to slopes and intercepts rainfall. With it removed or maintained as herbaceous within ROWs, the ability for the existing soils to resist accelerated erosion becomes diminished. Accelerated erosion will lead to sediment impacts in nearby streams and wetlands. Two steep slope areas were directly related to stream crossing and were noted as having potential channel migration.
- c. Constitution has proposed to utilize 110-foot ROWs in areas of steep slopes (as opposed to 100-foot ROW in other forested areas and 75-foot ROW in wetlands). The difference between the 110-foot ROW and the 100-foot ROW represents 12.2 acres of interior forest. This additional area of disturbance will cause greater water quality impacts resulting mainly from erosion and sedimentation. As discussed above, increase compaction and reduced vegetative cover increase runoff volume and rate creating conditions that accelerate erosion, especially on steep slopes. Within sensitive areas such as steep slopes, construction practices that reduce (rather than widen) proposed ROW widths should be identified and implemented.

#### **4. Karst Features**

Constitution's one-page karst Mitigation Plan identifies karst features as prevalent between mileposts 118.3 and 124.2. Potential avoidance of these areas should be considered. Exposing subsurface karst features to disturbed surface conditions could allow sediment and eroded material to enter subsurface water sources. The mitigation plan calls for monitoring of accelerated erosion, certain unidentified stormwater measures, and silt fence near caves and sink holes. Maintaining waterbody features and limiting the removal of riparian vegetation is suggested but not required or quantified. The mitigation plan identifies notification and investigative procedures if karst features are exposed during construction. However, once the Project is approved and construction has commenced, route changes to avoid larger karst features may not be possible. A revised draft EIS should include a greater investigation of currently identified karst terrain and identification of any caves, sinkholes, or other karst features that have the potential to allow surface contaminants and sediment to enter groundwater sources.

#### **5. Stream Crossings**

The crossing methods need to be evaluated and documented for each stream crossing. While a dry open cut is more protective than a wet open cut, environmental impacts to the stream or wetland to be crossed and their downstream waterbodies can still occur under many circumstances. Sediment transport downstream can occur in a dry crossing either as construction is taking place or following the completion of the cut across the stream or wetland.

Destabilization of streambank and streambed due to excavation can increase the likelihood of sediment transport within the stream. The construction activities disturbing the streambed bottom can increase the likelihood of scour, which can eventually damage the gas pipe. The only way to avoid impacts to the streambed, sideslopes, and downstream ecology is to not disturb the surface of the stream with a trench cut for the pipeline. Alternative trenchless technologies allow for a crossing that does not disturb the surface of the streambed or its side slopes. This eliminates changes to the interface between the stream substrate and its flow of water. During construction, there is also the potential for unexpectedly large flows to enter bypass structures such as flumes or pumps. Unless these measures are sized for the largest possible flows, the potential exists for streamflows to enter the trench cut and move sediment downstream.

- a. An individual feasibility study was not performed at each crossing. Many intermediate streams fit into width categories appropriate for conventional bore but were only proposed to be crossed by open cut crossing. If a conventional boring is feasible from a geotechnical standpoint, it should be considered as the preferred stream crossing method.
- b. Crossing multiple adjacent streams at once with a trenchless technology could prevent a cumulative impact. While these streams or adjacent wetlands may not be feasible on an individual basis, the adjacent nature of features that could be avoided by use of trenchless technology could make

the extra effort worthwhile if in-stream disturbance was avoided. An evaluation of this type has not been performed, but should be considered.

- c. Only where road crossing were adjacent to streams or wetlands or where the crossing was too large were trenchless technologies proposed. This implies that road disturbance (and the cost of road disturbance and/or restoration) is of higher priority than stream disturbance. More weight should be given to avoidance of high value streams or wetlands that can be crossed by borings and trenchless techniques without surface excavation. While Constitution proposes to avoid impacts by attempting all crossings as dry crossing, disturbance will take place at the surface and sediment transport downstream will become more likely. High value streams and wetlands will be more sensitive to minor sediment impacts and should be considered for trenchless crossing.
  
- d. As proposed, the pipeline would cross Exceptional Value wetlands in Pennsylvania between mileposts 22.5 and 22.7. An alternative crossing method should be evaluated to limit the impact on these wetlands. Wetlands adjacent to streams should also be identified so that a cumulative impact can be avoided if possible.

## **6. Temporary Workspaces**

Temporary workspaces make up a large portion of the disturbance of the pipeline construction. Effort should be made to reduce the need for temporary workspace and minimize the width of disturbance where possible. 75.5 acres of a total of 91.8 acres of wetland impacts are caused by construction activities in temporary workspaces. The need for these disturbances should be evaluated on a site-specific basis. Construction impacts to wetlands can occur when the soils and vegetation are disturbed by heavy machinery used to excavate trenches and move sections of pipe into place. Surface and subsurface flow patterns can become altered by construction disturbances that alter soils and vegetation by altering how water moves from below ground to above or vice versa. The movement of water within a wetland is critical to the type of habitat that is present and any alteration of topography by changing soil elevations or grade can alter water elevations negatively. Clearing of wetland vegetation can limit a wetland's ability to mitigate flood flows and control localized erosion. Wetland vegetation can play an important role in trapping and accumulating sediment. Vegetation and flow patterns are the primary ways wetlands trap sediment from surface waters. This benefit to local ecology can be disturbed by altering a wetland's vegetative or hydraulic patterns. Compaction and rutting of wetland soils can alter hydrologic patterns as well as inhibit plant germination.

## 7. Shallow Bedrock

The length of pipeline proposed in shallow bedrock is quite large (45.5 miles).

Although Constitution says they have not needed to blast in similar locations, the fact that it is not certain prior to the draft EIS is troubling. If blasting is required, subsequent environmental analyses should be required, including development of a supporting plan to mitigate blasting impacts. The requirements for subsequent analyses and planning should be documented in the Draft Environmental Impact Statement.

## RECOMMENDATIONS

The following data collection, data analysis, and construction mitigation measures are recommended for consideration in the Draft Environmental Impact Statement:

- **Baseline Monitoring of Soil Conditions:** baseline monitoring should be required for all soils, not just agricultural and residential soils.
- **Comprehensive impact analysis of sensitive features and areas:** Indexes mapping should be conducted for areas with multiple sensitive features (i.e., highly erodible soils, steep slopes, proximity to wetlands and streams, etc.). By assigning a numerical value for the presence of sensitive features (e.g. one point for each sensitive feature present at a given location), highly susceptible areas can readily be identified, and appropriate alternatives considered and recommendations developed.
- **Cumulative Impact Analyses:** In conjunction with a comprehensive analysis, a cumulative impact analysis should be conducted to identify the number of stream

crossings per tributary, sub-watershed, and larger stream segments. The number of stream crossings per upstream drainage area should be developed as a me

- **Narrower ROW.**

## **CONCLUSION**

Based on all the documents reviewed, FERC has identified many of the impacts likely to occur during construction of the pipeline and the continued maintenance of the permanent ROW by Constitution. These impacts can be mitigated with existing technologies but the proposed construction practices and technologies are not the most advanced nor the most effective in preventing accelerated erosion and sediment transport from uplands into nearby streams and wetlands. When considering the number of stream and wetland crossings by both access roads, construction areas, and the pipeline itself, more care should be taken at each of these impacts to minimize permanent disturbance on a site by site basis. A more thorough evaluation of the cumulative impacts of the varying topography, soil characteristics, stream locations, and sensitive resources needs to be completed so that FERC and other agencies can fully evaluate the entirety of the impacts this pipeline construction will have on soil and water quality in both Pennsylvania and New York.

# Exhibit B

## Heatley Report

**Professional Review & Comment**  
**on**  
**Draft Environmental Impact Statement for**  
**Constitution Pipeline Project (February 2014),**  
**FERC Docket No. CP13-499-000**

**April 7, 2014**

**Prepared for:**

**Earthjustice**

**Prepared by:**

**Kevin Heatley, M.EPC LEED AP**

**Restoration Ecologist**

## **EXECUTIVE SUMMARY**

This review of the Draft Environmental Impact Statement (Draft EIS) for the proposed Constitution Pipeline project along with the environmental submittals and documentation provided to the Federal Energy Regulatory Commission (FERC) by the Constitution Pipeline Company, LLC (Constitution) was prepared in response to a request by Earthjustice to provide expert opinion on issues of terrestrial and restoration ecology. The construction and maintenance of the proposed 124-mile linear infrastructure will have significant, long term impacts upon the ecological systems both within, and adjacent to, the proposed right-of-way. Avoidance, minimization, or mitigation of land disturbance impacts, such as those associated with the conversion of forested systems to non-forest systems, is critical to ecological sustainability.

Materials reviewed include:

- 1) FERC's Draft Environmental Impact Statement for the Constitution Pipeline and Wright Interconnect Projects, February 2014
- 2) Constitution's Environmental Construction Plan, Construction Activities in New York, November 2013 (Environmental Report, Vol. II, Appx. J)
- 3) Constitution's New York Invasive Species Management Plan, November 2013 (Environmental Report, Vol. II, Appx. J, Attachment 11)
- 4) Constitution's Soil Erosion & Sediment Control Narrative & Environmental Construction Plan, Construction Activities in Pennsylvania, November 2013 (Environmental Report, Vol. II, Appx. I)

5) Constitution's Pennsylvania Invasive Species Management Plan, November 2013  
(Environmental Report, Vol. II, Appx. I, Attachment 11)

These materials identify many of the well-documented negative ecological consequences of forest fragmentation, edge habitat creation, and invasive species proliferation, but the mitigation measures proposed fail to fully account for, and address, the impacts that the construction and maintenance of this infrastructure will have with respect to these ecological disruptions.

In particular, the mitigation measures proposed fail to:

- Properly account for the geographic extent and temporal frame of forest edge impacts;
- Fully quantify and mitigate against the loss of interior forest habitat and associated structural and functional values ;
- Recognize the landscape-level dynamics and mitigate against the ecological cascades associated with invasive species and biological invasion;
- Address forest restoration in the significant areas to be deforested as a result of temporary workspace creation;
- Account for the full cumulative impacts associated with the development of this linear corridor.

The landscape-level changes associated with the construction of this corridor are likely to result in an undesirable diminution of the ecosystem benefits and services currently

provided by the biotic communities along this route. Cascading ecological effects are probable and will require costly management interventions of significant spatial and temporal scale in order to achieve system restoration.

Given the failure of the FERC Draft EIS to properly analyze and address the full cumulative impacts of the proposed pipeline, in particular with respect to forest resources and subsequent watershed integrity, a revised draft should be developed and resubmitted for public comment. Should the proposed pipeline project proceed as currently described in the Draft EIS, significant long term negative changes in ecological integrity along the right-of-way corridor are probable.

## **DISCUSSION**

A careful review and analysis of the Draft EIS and the materials submitted by Constitution reveals a number of areas of concern with respect to the maintenance of the ecological integrity of terrestrial ecosystems and the corresponding impacts upon aquatic resources. In particular, these plans do not adequately provide for the protection and sustainable regeneration of forest systems along the proposed pipeline route. The canopy cover provided by the forested lands through which the proposed pipeline would cut is of extreme importance to both the quality and quantity of water that flows within the regional drainages.

## **Background**

Forests filter contaminants, moderate stream temperatures and buffer flow volumes associated with precipitation events. They are the structural foundation upon which the ecological integrity and health of this region's biological resources are built. The link between percent forest cover and water quality is clearly established in the scientific literature. As an example, reductions in forest cover are directly correlated with negative changes in water chemistry, such as increases in nitrogen, phosphorus, sodium, chlorides, and sulfates, and with reductions in stream macroinvertebrate diversity (Jackson and Sweeny 2010).

Forest fragmentation as a result of anthropogenic landscape modification is well recognized within biogeographic theory and conservation biology as a leading cause of local species extinctions (extirpation). It can also cause dramatic shifts in the floral and faunal composition of woodland communities. Sub-lethal impacts to floral and faunal populations (population isolation, reduced genetic fitness and diversity) have also been associated with disruptions to forest connectivity (Clark, et al. 2010). Recent modeling work performed by the Pennsylvania Chapter of The Nature Conservancy indicates that approximately two thirds of the Marcellus well pads to be built in Pennsylvania will be located in what is currently forested habitat (TNC 2010). The USGS has also documented a disproportionate level of interior forest loss (two to three times greater than overall forest loss) over the last several years from natural gas infrastructure construction in areas such as Susquehanna County, PA (Slonecker 2013). Pipeline collection and transmission corridors have proven to be the primary contributing factor in the loss of interior forest.

Fragmentation creates an increase in the amount of forest edge (the interface between forest and non-forest). This transitional zone or “ecotone” is fundamentally different in structure and functionality from an interior forest system. Edge habitat is characterized by increased light levels on the forest floor, reduced soil moisture, and a high degree of biological invasion from non-native invasive organisms. Dramatic changes can occur in the soil chemistry and associated micro biota. The top layer of the soil profile, the rich organic duff, begins to dry out and the primary decomposition community begins to shift from fungal to bacterial. Typically extending up to 300 feet into the forest, edge impacts are more than mere esoteric considerations of interest to the scientific community; these changes have direct economic implications to both landowners and society. Invasive species, for instance, have been estimated to cost the U.S. economy approximately \$120 billion dollars per year (Pimintel et al. 2004).

Invasive organisms within terrestrial forest environments tend to be early successional species that respond favorably to site disturbance. Disruption of native plant cover and the exposure of the forest floor to sunlight provide an opportunity for these organisms to establish satellite populations. These populations eventually radiate out into the adjacent forest, displacing native species and retarding desirable tree regeneration (Bennet et al. 2011). Dispersal (vectoring) mechanisms and/or corridors are required in order for these non-native species to colonize new locations and the access roads, pipelines, and vehicular traffic associated with natural gas extraction is ideally configured to serve this function. Far beyond the point where wells are decommissioned, the landscape legacy of forest edge from pipeline corridors, access roads and well pads will continue to disrupt ecosystem

functioning as non-native organisms repeatedly colonize exposed areas and impede desirable tree regeneration.

Invasive species suppression and the eventual restoration of these disturbed sites to forested systems will require resources of a significant financial and temporal scale. While published information is scarce, it is in the professional experience of restoration practitioners in this region that the reasonable reconstruction of forest canopy and understory diversity can cost between \$4,000 and \$10,000 per acre. The suppression of invasive plant species is also a major, recurring expense with the initial years' treatment often costing between \$1,000 and \$2,500 per acre. Invasive treatment in subsequent years typically drops in cost by approximately 50% per year over the first three years.

As the effects of forest fragmentation may not immediately manifest themselves following the disturbance, monitoring is often suggested as a methodology to balance and modify the level of fragmenting activity in accordance with the conservation of forest-related ecosystem services. Unfortunately, these effects may not be linear in nature and thus are not always amendable to an adaptive management approach. Biological systems may possess thresholds that provide little indication of impending adverse impacts until sudden system collapse.

It is from within this conceptual framework that a review of the Constitution Pipeline submissions was undertaken and the following concerns identified.

## Shortcomings in the Draft EIS

### VEGETATION

- **Section 4.5.1 – Existing Vegetation Conditions**

FERC correctly identifies that the majority vegetation cover type to be impacted by the pipeline project and associate workspaces will be upland forest. However, it grossly underestimates the area of impact as it arbitrarily assumes the “impact” to be restricted to the area where soil is moved or vegetation cleared (983 acres). This completely disregards the science of conservation biology with respect to forest fragmentation and edge impacts. At a minimum, where infrastructure traverses or disrupts forest cover, the impact area should include a zone extending 300 feet into the adjacent forest. FERC already recognizes this impact zone in its definition of interior forest (Draft EIS at 4-70). It is logically inconsistent to fail to include this area when calculating areas of impact.

In order to properly determine the area of forest impact, FERC must conduct a spatial analysis whereby the vegetative cover zones along each segment of the proposed pipeline route would be examined and the size of the forest polygons that the route crosses calculated—not just the area of forest cleared during construction.

- **Section 4.5.2 – Vegetation Communities of Special Concern or Value**

FERC makes the claim that a 9% reduction in the width of the construction right-of-way within two areas containing NYSDEC significant natural communities (a Limestone Wooded Community and a Calcareous Talus Slope Woodland – both in Schoharie County, NY) will “...*minimize impacts on these areas to the extent practicable.*” As the construction right-of-way will still be 100 feet across, there is a reasonable probability from an ecological standpoint that the increased light penetration and soil moisture changes associated with this newly created forest edge will result in changes to the vegetative community. FERC has offered no scientific justification for concluding that the 9% reduction will have any substantive positive impact.

- **Section 4.5.3 – Interior Forest Habitat**

FERC correctly adopts the definition of interior forests as “...*forested areas greater than 300 feet from the influence of forest edges or open habitat.*” This indicates that FERC does indeed recognize and acknowledge the science behind edge impacts and their effect on forest systems. Yet FERC, within the Draft EIS, repeatedly grossly underestimates the acreage of forest disturbance by refusing to account for the adjacent edge-impacted forest areas. For example, FERC repeats Constitution’s claim that the Project only will permanently eliminate 217.9 acres of interior forest.

FERC repeats Constitution's misleading estimate of interior forest disturbance: "*Constitution would bisect 129 interior forest blocks greater than 35 acres, creating 55 forested blocks less than 35 acres in size.*" This information is of little value in understanding the level of interior forest loss that will occur should the project be built. The number of interior forest blocks is not the issue, the total acreage of interior forest lost both to clearing and the 300-foot penetration of edge effects is the metric of concern. FERC should require the complete disclosure of, and a comparative analysis demonstrating, the total acreage change in interior forest habitat that is being proposed. This analysis should include full spatial data detailing the extent of interior forest resources along the entire proposed pipeline route, along with connecting forest and riparian corridors. Once the full scope of impacts to interior forests is determined, FERC should also require the preparation of a complete analysis of the disruption in forest connectivity and landscape-level wildlife corridors that will occur and of any avoidance, minimization, or mitigation measures available.

In addition, FERC has based its analysis of interior forest value solely upon avian species and has neglected to discuss the documented changes in vegetation and soil dynamics associated with forest edge creation. Loss of interior forest will impact populations of terrestrial organisms such as certain amphibians which can be effectively isolated, and cut off from, historic breeding locations by linear infrastructure.

- **Section 4.5.4 – Noxious Weeds and Other Invasive Plant Species**

FERC erroneously states that Constitution will be “...*discharging hydrostatic test waters within the source watershed*”. What Constitution actually states is, “*Once the testing is completed, the hydrostatic test water will be returned to the same watershed(s) from which they were collected, where possible*”.

(Constitution’s New York Invasive Species Management Plan, section 3.3.1).

The use of untreated surface water in massive quantities for hydrostatic testing (16,592,520 gallons estimated for the New York section of the pipeline) creates a large risk of vectoring invasive species. It is unrealistic that these volumes of water could be discharged onto the ground and, given the topography of the region, not have overland transport into drainage pathways. The unintentional introduction of an invasive organism (such as *Didymosphenia geminata* or “rock snot”) from one subwatershed into another could have devastating long term economic and ecological consequences. As an example, non-indigenous species that have been introduced to the New York State Canal and Hudson River system have caused estimated annual losses of \$500, the majority of which involved harm to commercial and sport fishing industries.

FERC also is not accounting for latent seed back germination or for the long term vectoring of invasive species that will occur throughout the service life of the right-of-way due to forest fragmentation and edge creation. As such,

the conclusion that “...the potential spread of noxious or invasive weeds would be effectively minimized or mitigated” is unsupported.

## **WILDLIFE AND AQUATIC RESOURCES**

- **Section 4.6.1.3 – Migratory Birds**

FERC correctly recognizes that the fragmentation of large forested tracts during construction and operation of the project could create long-term impacts on Birds of Conservation Concern, yet the only specific recommendation offered to reduce these chronic impacts to interior forest bird species is a minor reduction of the right-of-way width, where possible, by 9%. As stated previously, there is no scientific justification to demonstrate that this will have any significant, measurable impact on reducing the level of habitat loss.

The loss of interior forest habitat will permanently remove suitable breeding habitat from these species as there is no forest restoration plan included in the FERC analysis. Additional disruption of nesting success from brown-headed cowbird parasitism is likely due to the proliferation of forest edge and the corresponding diminution of interior forest. Without a cumulative analysis of the total interior forest acreage lost, the Draft EIS cannot properly assess the impact to migratory wildlife.

- **Section 4.6.1.3 – Migratory Birds**

Misleading statements are made with respect to the value of early successional habitat. For example, *“the creation of additional edge habitat could benefit certain species by providing travel corridors and additional forage habitat”*. This conveniently ignores the declining levels of interior forest habitat and the corresponding explosion of edge conditions across the eastern United States. Edge is ubiquitous and can be created overnight. Interior forest requires decades of accrued equity in tree growth. To equate the two is highly simplistic and misleading. Missing is a discussion of the threat that these corridors pose with respect to vectoring corridors for biological invasion and the ubiquitous nature of edge habitat across the eastern United States.

- **Section 4.6.1.5 – Conclusion (Wildlife and Aquatic Resources)**

FERC states that *“Overall, wildlife resources are not expected to be significantly impacted due to construction and operation of the projects based on the amount of similar adjacent habitat available for use, the proposed clearing window for avoidance of the migratory bird nesting season, and our recommendation to develop an Upland Forest Mitigation Plan, which would further minimize impacts on wildlife due to forest clearing.”* This statement is wholly unsupportable as FERC has not properly estimated the level of lost interior forest, nor has it addressed the chronic impacts associated with the creation of forest edge for the entire service life of the right-of-way. Neither

FERC nor Constitution has produced any spatial or population data to justify the contention that there is adequate adjacent habitat to support specific wildlife species likely to be impacted by the project. As the recommended Upland Forest Mitigation Plan has neither been written nor reviewed, it is also premature to utilize it as further justification for the conclusion that wildlife impacts will be minimized.

- **Section 4.7.3 – State Listed Species**

With respect to the small-footed bat, the northern myotis, and the silver-haired bat, FERC reaches the conclusion that the project would not result in adverse impacts on these sensitive species. However, FERC utilizes the Upland Forest Mitigation Plan recommendation, a plan that has neither been written nor reviewed yet, as part of the justification for this conclusion. This is premature.

FERC comes to a similar premature conclusion with respect to the Timber Rattlesnake, listed as threatened in New York. The Commission points to unwritten and unspecified “mitigation measures” as justification for a population level conclusion on the viability of a sensitive species.

- **Section 4.13 and 5.1.13 – Cumulative Impacts**

FERC reaches the unsubstantiated conclusion that the cumulative impacts associated with Marcellus Shale development and the proposed project

would not contribute in any significant way to adverse effects on water resources. To justify this conclusion, FERC defers to the regulations and associated Best Management Practices of both the Pennsylvania Department of Environmental Protection and the Susquehanna River Basin Commission. However, this presupposes that the regulations promulgated by these two agencies are, in themselves, adequate.

FERC fails to include any analysis of the landscape-level disruption to watershed hydrology that occurs when vegetative cover types are changed.

FERC also fails to present any spatial analysis of the cumulative impacts to interior forest resources associated with forest fragmentation and forest edge creation. Interior forest functioning is predicated upon the spatial orientation and configuration of each forest block in relation to adjacent forests and other land cover types. Disruption of connective corridors, edge effects penetration, and a reduction in edge complexity (straight, linear edge as opposed to sinuous, gradual edge) will have ecological consequences that cannot be understood with a quantification of these disruptions.

FERC has failed to provide any plan for the restoration of forest resources associated with this proposed project. While FERC recognizes that, "The greatest impact on vegetation would be on forested areas because of the time required for tree regrowth back to pre-construction condition," it ignores the

need to manage the reforestation effort and assumes natural regeneration will return the system to “pre-construction condition.” This statement is unjustified as FERC is assuming the forest trajectory will follow historic patterns of regeneration. As riparian tree cover will not be allowed within the majority of the permanent right-of-way (within 15 feet of either side of the pipeline in wetland environments), stream shading will be reduced permanently, not “temporarily,” as claimed in this section. Loss of tree cover can lead to elevated water temperatures, reduced dissolved oxygen levels and, ultimately, to reduced fish survival and fitness. Without a planting and/or restoration plan, and given the permanent linear edge created along the maintained right-of-way, reforestation of temporary workspace is likely to be delayed for decades as undesirable, early successional vegetation becomes established in the disturbed areas. Planning and management will be required to assure full restoration of the original forest structure and function.

With respect to fisheries, FERC’s analysis is limited to individual waterbody crossings and disturbances and fails to address the likely changes in subwatershed water quality and flow quantity associated with vegetative cover changes.

## **Environmental Construction Plan – Construction Activities in New York<sup>1</sup>**

While the Environmental Construction Plan for New York (“ECP-NY”) primarily focuses upon sedimentation and erosion control in relation to surface water quality, it fails to detail or account for changes in vegetative cover type that will disrupt both surface and subsurface hydrologic regimes. Conversion of cover type from forested to non-forested will impact both groundwater recharge and surface run-off coefficients within ecological planning units such as the subwatershed. Forested land has a greater capacity for the interception and retention of precipitation than either grassland or developed soils. A conversion and dispersed disruption of this cover type will result in reduced groundwater recharge, heavier plug flows in streams during storm events, and reduced base flows of streams during dry periods.

The ECP-NY misleadingly states that, “*The existing [rights-of-way] provide corridors that will be utilized by several species to move between habitats.*” However, the ECP-NY fails to identify the corresponding suite of interior species that are effectively blocked from movement across these same corridors. Edge habitat, along with the generalist species that are listed in this section as utilizing these right-of-way corridors, is ubiquitous across the eastern United States. The interior forest habitat disrupted by these corridors is a rapidly diminishing resource. In addition to providing habitat for a range of species intolerant of edge conditions, interior forests are structurally and functionally different from edge systems. It is important not to equate the two. For instance, soil moisture and organic matter levels are typically higher, and forest floor light levels lower, in interior forest. As a

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<sup>1</sup> Due to the high degree of commonality between the ECP-NY and ECP-PA plans, the concerns detailed here are applicable to both documents.

result, the decomposition community is primarily driven by fungal organisms as opposed to bacterial. This has profound implications for both nutrient recycling and plant growth.

Interior forests are also critical to watershed integrity as they have higher rates of stormwater retention and filtration. In addition, these systems are important carbon sinks due to their long term stability. Interior forest represents decades of accrued equity in tree growth and cannot be reproduced without a significant time investment.

- **Section 5.3 – Clearing**

The ECP-NY indicates that trees to be saved will be marked before clearing begins. Unfortunately, no clear tree preservation strategies are provided. Violation of the integrity of the critical root zone (the area around each plant encompassing the majority of the fine, feeder roots) will result in eventual tree loss due to soil compaction. It is vital that, at a minimum, details be provided regarding the methodology for determining both the size of the critical root zone and the protective measures to be employed.

- **Section 5.3 – Clearing**

The Draft EIS does not provide any detail with respect to the removal of cleared-tree debris. In order to minimize negative impacts caused by tree clearing, the ECP-NY should prohibit the stockpiling or discharge of woodchips into adjacent woodlands or within the critical root zones of trees targeted for retention.

- **Section 5.5.7 – Restoration and Revegetation**

This section confuses “restoration”; a process that reproduces the original structural and functional attributes of the disturbed ecosystem, with “reclamation”; the minimization of erosion and sediment movement. None of the submitted plans addresses “restoration”.

In order to maximize the opportunities for maintaining ecological relationships, native species should be required as the dominant vegetative cover in plantings conducted outside of developed and agricultural landscapes.

Testing for, and mitigation of, soil compaction should not be limited to agricultural areas, particularly with respect to temporary work spaces that, pre-disturbance, contained forest cover. Soil compaction is a major inhibitor of desirable tree regeneration and establishment. Restoration of the forest system and the associated economic value along these temporary work spaces will require protection of soil structure.

No allowance has been made for the reforestation of denuded areas of forest within the proposed 50 to 60 feet of temporary workspace that is described in section 4.1.1 (Right-of-Way and Staging Areas). At a minimum, these areas will require either supplemental tree planting or an approved reforestation plan utilizing adjacent seed sources if true restoration is to occur.

- **Section 4.6.1.3 – Migratory Birds**

Misleading statements are made with respect to the value of early successional habitat. For example, *“the creation of additional edge habitat could benefit certain species by providing travel corridors and additional forage habitat”*. This conveniently ignores the declining levels of interior forest habitat and the corresponding explosion of edge conditions across the eastern United States. Edge is ubiquitous and can be created overnight. Interior forest requires decades of accrued equity in tree growth. To equate the two is highly simplistic and misleading. Missing is a discussion of the threat that these corridors pose with respect to vectoring corridors for biological invasion and the ubiquitous nature of edge habitat across the eastern United States.

## **Invasive Species Management Plans<sup>2</sup>**

- **Section 1.0 – Introduction**

The Invasive Species Management Plan (ISMP) states that Constitution’s overall goal is to, *“...control the invasive species to the extent that wetlands and uplands are not dominated by the invasive species to the point where the functions and values of the systems/habitats are adversely compromised”*. However, there are no measurable metrics indicated in the document that would allow for quantitative assessment of progress towards that goal. It is common practice in invasive control contracts for the land management entity to require a certain

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<sup>2</sup> Due to the high degree of commonality between both the New York and Pennsylvania Invasive Species Management Plans submitted by Constitution Pipeline Company LLC, the concerns and recommendations detailed here apply to both plans.

percentage of invasive cover reduction be achieved after a given time frame. This provides a clear benchmark whereby project success can be measured. Constitution's Plan lacks such a requirement.

While the plan identifies the difficulty in achieving eradication of invasive species due to issues such as seed drift and/or colonization from off-site locations, it fails to mention two critical vectoring mechanisms that are of extreme importance when dealing with a right-of-way construction: (1) the latent seed bank residing in the soil, and (2) the chronic encouragement of invasive colonization due to the expansion of edge habitat. Depending upon the species, invasive seeds and propagules can survive in the soil for years. Japanese stiltgrass (*Microstegium vimineum*), for instance, has a seed viability that exceeds seven years. Movement of soil from one section of the project to another can easily disperse these organisms across the entire location.

The nature of edge habitat – disturbed areas of high light penetration, creates ideal conditions for biological invasion. One of the primary transport mechanisms for invasive plants are birds that preferentially roost at the forest edge and subsequently defecate invasive seeds into the understory. It is important to recognize that, until such time that the forest canopy closes over the right-of-way, the edge habitat that has been created will be highly susceptible to invasive colonization. Once established, small populations can

expand into off-right-of-way properties and disrupt forest regeneration, soil chemistry, habitat, hydrology, and ultimately land value.

Recognizing the chronic nature of the biological invasion threat that is promoted by the creation and perpetuation of edge habitat, it is obvious that a treatment timeframe that only lasts for three years is wholly inadequate.

- **Section 2.0 Existing Conditions**

The ISMP incorrectly characterizes invasive plant species as “*nutrient-poor-soil-loving species*”. In actuality, invasive plant species are more likely to become established and outcompete native plants in soils that are nitrogen rich. Supplemental fertilization should be avoided in areas where invasive activity is occurring.

- **Section 3.1 – Measures to Prevent or Control the Transport of Invasive Plant Species**

The ISMP indicates that sediment and erosion control devices will be used to help prevent the dispersal of seeds and root masses from invasive plant species into “...*wetlands currently unaffected by invasive species*”. As upland systems are also susceptible to biological invasion this strategy should be expanded to protect upland habitats. There is no sound scientific reason to focus only upon wetland protection.

The ISMP states that vehicles, equipment and materials will be cleaned of remnant soils, vegetation, and debris before they are brought to the project area or moved to “...another wetland: within the construction [right-of-way]”. Again, this myopic focus upon protecting wetlands from biological invasion and not uplands has no scientific basis. It is advised that the same strategy be applied to upland areas.

The ISMP states that washing of construction vehicles on an elevated wash rack station will occur in sites “only where both” the construction equipment exits near a wetland identified in the ISMP as containing invasives *and* when the construction equipment is to enter an adjacent upland or another wetland within the next 1,000 linear feet along the construction right-of-way that are free of invasive species. Again, this should occur regardless of whether the system is a wetland or an upland.

The ISMP indicates that, if surface water is used for dust control, the equipment will be disinfected afterwards. While helpful, it would be of much greater value not to broadcast untreated surface water for dust control if there is a threat of invasive propagule contamination. This is a potential vectoring mechanism for invasives if the runoff collects, for instance, in a drainage ditch and ultimately reaches a new water body.

The ISMP clearly states that Constitution “*will not*” treat areas outside its proposed construction right-of-way for invasive species. This is highly problematic given that the edge habitat created by the Constitution project will encourage biological invasion in the adjacent forest lands for the entire service life of the right-of-way. Suppression costs will eventually fall upon the adjacent property owner should an infestation become established.

The ISMP language regarding the movement of soils, gravel, rock and other fill materials infested with invasive plants, “*will be avoided*” and “*to the extent practicable*” is grossly inadequate. This language should be changed to “shall be avoided” and to the “maximum extent technically feasible”.

- **Section 3.3.1 – Hydrostatic Pressure Testing**

The use of untreated surface water in massive quantities (16,592,520 gallons estimated for the New York section of the pipeline) for hydrostatic testing creates a large risk of vectoring invasive species. Untreated surface waters should be treated before release or returned and discharged within the same subwatershed from which they were collected. It is unrealistic to expect to discharge these volumes of water onto the surface and, given the topography of the region, not have overland transport into drainage pathways.

- **Section 3.4 – General Management Activities**

A three-year monitoring timeframe is inadequate to address latent seedbank germination and chronic edge effects. Invasive monitoring and treatment should constitute a routine maintenance activity for the entire life span of the right-of-way.

- **Section 4.0 – Summary/Conclusions**

The statement that, *“The proposed management activities outlined within this plan will prevent the inadvertent spread of existing populations of invasive plant species and will promote the establishment of native plant populations”*, is not accurate. The proposed strategies are not adequate for invasive suppression given the scale and nature of the landscape disturbance that is proposed by Constitution.

## **SUMMARY**

The documentation and proposed mitigation strategies submitted by Constitution do not provide an adequate assessment of the probable impacts associated with the rapid conversion of forested ecosystems to natural gas pipeline right-of-way. They also fail to recommend potential mitigation strategies and options that would offset and reduce the “significant” impacts anticipated for native terrestrial ecosystems. Protection of these terrestrial ecosystems is critical to the continued health of the regions’ aquatic resources. Inadequate attention has been given to the following vital considerations: forest edge creation, forest fragmentation, interior forest loss, invasive species proliferation, ecological

restoration of temporary working spaces, and cumulative impacts. In addition, the Draft EIS fails to fully address a range of fundamental impacts associated with the project proposal.

Should the Certificate of Public Convenience and Necessity be issued by FERC without substantial changes to these construction and management plans, widespread disruption of forest ecosystems and local watershed resources will occur. Restoration of these systems following the eventual cessation of natural gas extraction will be a monumental cost incurred by both the taxpaying public and adjacent private property owners.

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