

Professional Review & Comment
on
Surface Water Impacts on the Nesbitt Property
Atlantic Sunrise Project
Proposed 30" Central Penn Line North

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Prepared for Incarus Ecological Services, Inc.

On behalf of Geraldine Nesbitt

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EXECUTIVE SUMMARY

The property owned by Geraldine Nesbitt in Wyoming and Luzerne Counties, Pennsylvania, is a large, contiguous and unique expanse of land. The property has over 3000 acres of unfragmented forest. To date, over 27 individual springs have been identified on the property. Unlike many other large tracts, the Nesbitt Property has not been parceled out for development over time. Other than a house and some associated structures, the property remains undeveloped.

The Atlantic Sunrise Project Proposed 30" Central Penn Line North will cross the Nesbitt Property, for a distance of slightly over four miles. The ESCGP2 Project Area Limit of Disturbance is approximately 80 acres, and the average width of the proposed pipeline right-of-way clearing is a minimum of 100 feet (90 feet plus 5 foot on each side), with additional project disturbance areas as wide as 138 feet. The total area of permanent right-of-way, which will no longer function as forest, is approximately 55 acres.

Within the Nesbitt property, the proposed pipeline will cross four (4) streams and their associated wetlands, including two unnamed tributaries of Leonard Creek (a HQ-CWF stream) that drain into Lake Catalpa on the Nesbitt Property. The pipeline traverses a stream system and wetlands located between Lake Catalpa and an upstream pond for a length of nearly 1,000 feet, providing multiple opportunities for water quality impacts to the Lake and its associated wetlands. All streams to be crossed are designated as Wild Trout Waters. Importantly, there appear to be inconsistencies within the Pennsylvania permitting application documents regarding stream identification information and numbering, and it appears that important tables that provide critical information such as stream crossing methods and whether blasting may be required have not been updated to reflect the current pipeline alignment. The pipeline route through the Nesbitt Property was altered and rerouted sometime between the permit application documents that were submitted in late 2015, and additional permit application documents dated March and April of 2016. Not all permit application documents available at PaDEP are consistent to reflect the current proposed pipeline alignment.

The proposed construction methods for stream and wetland crossings and the excessively wide disturbance for the right-of-way in areas of stream and wetland crossings will result in both short- and longterm adverse water quality impacts related to the stream and wetland areas through which the pipeline is to be constructed. The permit application documents do not provide adequate construction methods with sufficient detail to minimize the adverse impacts from these waterbody crossings,

Additionally, there will be permanent longterm water quality impacts due to an increase in the rate, volume, and frequency of stormwater runoff. The Nesbitt property is currently heavily forested. The proposed pipeline construction practices and longterm maintenance

of the right-of-way in a non-forested condition will alter the land surface conditions and result in greater stormwater impacts. The parcel will be altered from a forest canopy with varied micro-topography, absorbent soils and understory materials, to a wide, sparsely vegetated pipeline right-of-way with compacted soils and little organic matter. The current forested conditions generate little surface runoff and facilitate groundwater recharge to support baseflow to streams and wetlands. The proposed pipeline conditions will significantly reduce the land surface's ability to retain rainfall and facilitate infiltration. As a result, there will be both short- and longterm increases in stormwater runoff with associated pollutants. There will be a decrease in infiltration. There are no proposed measures within the plans and documents submitted to the regulatory agencies to mitigate the adverse water quality impacts from the increased volumes, rates, and frequencies of stormwater runoff, including increased surface erosion and sediment transport to High Quality water bodies. There are no proposed measures to mitigate the decrease in infiltration that supports baseflow to headwater streams and wetlands. Both short- and longterm adverse water quality impacts will occur.

The Nesbitt Property forests also include significant areas of steep slopes and highly erodible soils, compounding the stormwater impacts by increasing the likelihood that erosion and sediment transport will occur. Of the approximate 80 acres within the ESCGP2 Project Area Limit of Disturbance, more than half are located on erodible or highly erodible soils, and many of these areas are located on both steep slopes and highly erodible soils, increasing the likelihood of longterm erosion and sediment discharges to streams and wetlands.

The comments included in this document address issues directly related to stream and wetland crossings, surface soils, steep slopes, and stormwater runoff as they relate to and impact surface water quality and quantity.

Documents reviewed:

1. Plan Set: Transcontinental Gas Pipeline Company LLC Soil Erosion & Sediment Control Plan/Site Restoration Plan, Atlantic Sunrise Project Proposed 30" Central Penn Line North; Fairmount, Ross, Lake, Lehman, Harvey's Lake & Dallas Townships, Luzerne County, Pennsylvania. Dated 11/14, last revised 4/4/2016.
2. Plan Set: Transcontinental Gas Pipeline Company LLC Soil Erosion & Sediment Control Plan/Site Restoration Plan, Atlantic Sunrise Project Proposed 30" Central Penn Line North; Northmoreland, Eaton, Falls, Overfield, Clinton & Nicholson Townships, Wyoming County, Pennsylvania. Dated 11/14, last revised 3/26/2016.
3. Plan Set: Transcontinental Gas Pipeline Company LLC Soil Erosion & Sediment Control and Layout Plans for Access Roads, Atlantic Sunrise Project Proposed 30" Central Penn Line North; Monroe, Northmoreland, Eaton, Falls, Overfield, Clinton & Nicholson Townships, Wyoming County, Pennsylvania. Dated 7/15, last revised .

4. Plan Set: Transcontinental Gas Pipeline Company, LLC Atlantic Sunrise Project Proposed 30" Central Penn Line North; Best Management Practices and Quantities Plan Set Monroe, Northmoreland, Eaton, Falls, Overfield, Clinton & Nicholson Townships, Wyoming County. Issued 7/8/15, last revised 3/26/2016 (identical plan set for Luzerne County including dates).
5. Plan Set: Transcontinental Gas Pipeline Company, LLC Atlantic Sunrise Project Proposed 30" Central Penn Line North; Best Management Practices and Quantities Plan Set Monroe, Fairmount, Ross, Lake, Lehman, Dallas, Harvey's Lake & Jenkins Townships, Luzerne County. Issued 8/28/15, last revised 3/26/2016.
6. Williams Transcontinental Gas Pipeline Company, LLC Pennsylvania Department of Environmental Protection Erosion and Sediment Control General Permit 2 Notice of Intent, Phase 1 and Phase 2 CPL North, CPL South, and Associated Facilities, Atlantic Sunrise Project, Columbia, Lancaster, Lehigh, Luzerne, Northumberland, Schuylkill, Susquehanna, and Wyoming Counties. August 2015, Revised March 28, 2016.
7. Williams Transcontinental Gas Pipeline Company, LLC, Environmental Construction Plan, Erosion and Sediment Control Narrative for Pennsylvania, Atlantic Sunrise Project, July 2015, last revised December 2015.
8. Erosion and Sediment Control Plan Narrative, Atlantic Sunrise Project Proposed Central Penn Line North, Fairmount, Ross, Lake, Lehman, Harvey's Lake & Dallas Townships, Luzerne County, Pennsylvania. Dated 11/14, last revised 4/4/2016.
9. Erosion and Sediment Control Plan Narrative, Atlantic Sunrise Project Proposed Central Penn Line North; Monroe, Northmoreland, Eaton, Falls, Overfield, Clinton & Nicholson Townships, Wyoming County, Pennsylvania. Dated August 2015, last revised March 2016.
10. Erosion & Sediment Control Plan and Post-Construction Stormwater Management/Site Restoration Narrative, Atlantic Sunrise Project, Temporary and Permanent Access Roads, Northmoreland, Eaton, Falls, Overfield, Clinton & Nicholson Townships, Wyoming County, Pennsylvania. Dated August 2015, last revised March 2016.
11. Williams Transcontinental Gas Pipeline Company, LLC FERC Alignment Sheets Issued for PaDEP 105 Permit Atlantic Sunrise Project Proposed 30" Central Penn Line North, Issued 08-19-2015¹.

DISCUSSION

Regulations administered by the Pennsylvania Department of Environmental Protection (PaDEP) under 25 Pa Code Chapter 105 are intended to "*Protect the natural resources, environmental rights and values secured by PA.CONST. art. I, § 27 and conserve and protect the water quality, natural regime, and carrying capacity of watercourses*" (105.2(4)).

¹ Updated PaDEP 105 permit application documents reflecting the revised pipeline alignment were not available for review at PaDEP.

Regulations administered by PaDEP under 25 Pa Code Chapter 102 “*require persons proposing or conducting earth disturbance activities to develop, implement, and maintain BMPs to minimize the potential for accelerated erosion and sedimentation and to manage post-construction stormwater*”. The materials submitted to PaDEP for this application are deficient in meeting these requirements in a number of areas as discussed below.

1. Stream Crossings

The plan sets submitted to PaDEP indicate four (4) permanent stream crossing areas on the Nesbitt property². Two of these stream crossings are in Luzerne County and involve unnamed tributaries to Leonard Creek, an HQ-CWF stream that is noted as Wild Trout Waters. Both of these tributaries drain into Lake Catalpa. An additional two stream crossings are located in Wyoming County and involve tributaries to Whitelock Creek, a CWF Wild Trout supporting stream.

First, there appears to be stream information inconsistencies between the various documents submitted as part of the Chapter 102 and 105 permit applications and other supporting material. The plan sheets referenced above and last updated in March or April 2016 reflect the adjusted alignment of the pipeline through the Nesbitt Property sometime after December 2015. These plan sheets indicate different numbering and information than Table 3 labeled “Waterbodies Crossed by CPLN Pipeline In Wyoming County (as contained in the *Best Management Practices and Quantities Plan Set*, last updated 12/2015), and the corresponding Table 3A labeled “Waterbodies Crossed by CPLN Pipeline In Luzerne County (as contained in the *Best Management Practices and Quantities Plan Set*, last updated 12/2015). This is important because Table 3 and Table 3A contain information that is not found on the plan sheets regarding stream Crossing Methods, Crossing Windows, etc. This information is critically important for both PaDEP in their review process, and for the Contractor during construction. It is impossible to know if the information on the *Best Management Practices and Quantities Plan Sets* is correct and consistent with the current pipeline. It appears that all information has not been adequately coordinated, updated, and submitted to PaDEP for review. Different stream sections and wetland sections are now proposed to be

² *Plan Set: Transcontinental Gas Pipeline Company LLC Soil Erosion & Sediment Control Plan/Site Restoration Plan, Atlantic Sunrise Project Proposed 30” Central Penn Line North; Fairmount, Ross, Lake, Lehman, Harvey’s Lake & Dallas Townships, Luzerne County, Pennsylvania. Dated 11/14, last revised 4/4/2016, and Plan Set: Transcontinental Gas Pipeline Company LLC Soil Erosion & Sediment Control Plan/Site Restoration Plan, Atlantic Sunrise Project Proposed 30” Central Penn Line North; Northmoreland, Eaton, Falls, Overfield, Clinton & Nicholson Townships, Wyoming County, Pennsylvania. Dated 11/14, last revised 3/26/2016*

impacted as compared to the original pipeline alignment, and all documents and supporting information are not correct.

The Environmental Construction Plan, Erosion and Sediment Control Narrative for Pennsylvania, Atlantic Sunrise Project, July 2015, last revised December 2015 includes discussion regarding site specific practices regarding water body crossings. In Table 10.6 in this document, there is a section regarding the practice of blasting in waterbodies for pipeline construction. The unnamed tributaries (UNTs) to Leonard Creek are noted as having shallow depth to bedrock with “moderately difficult” rippability and the potential need for in-stream blasting. This Table 10.6 does not appear to have been updated to reflect the current pipeline route and impacted stream sections for permit application information and review. Attachment 10 “Blasting Plan” of this document indicates that “Transco will apply for in-stream blasting permits from the Pennsylvania Fish and Boat Commission.” The potential for instream blasting on the Nesbitt property in HQ streams increases the opportunities for water quality impacts and the discharge of pollutants. The inconsistencies between the permit application documents indicate that the potential stream crossing and blasting impacts have not been properly considered and addressed. Furthermore, the potential for instream blasting in HQ-CWF waters designated as Wild Trout Waters requires far more detailed design documentation than is provided. Without this detailed documentation, PaDEP cannot properly assess the permit application for compliance with state regulations and water quality requirements. The project Contractor will not have sufficient information to prevent adverse impacts during construction. The Nesbitt Property owner does not have sufficient information to determine potential impacts to their property and waterbodies. The permit application should not be considered complete without correct information reflected in all project documents.

Both stream crossings in Luzerne County (and their associated wetlands) involve tributaries that discharge into Catalpa Lake on the Nesbitt property. The pipeline crosses the wetlands and a stream (labeled WW RS T56-18002 on the Soil Erosion & Sediment Control Plan/Site Restoration Plan Sheets from April 2016) located directly between a smaller pond just upstream of the Lake, and flowing into the Lake. The proximity of the stream and wetland crossing to the larger Lake is of concern. The pipeline construction in this area is not adequately documented and addressed with practices and information sufficient to protect water quality in this sensitive area draining into the Lake. The information is not sufficient to protect water quality for permit application and review purposes, nor is it sufficient for construction practices.

In this same area, the pipeline parallels a stream (WW-RS-T56-18001) that also flows into the Lake, with the construction right-of-way immediately adjacent to the stream.

The *Environmental Construction Plan* narrative (and supporting diagrams) indicate that spoils will be placed adjacent to the stream and that “Transco will attempt to maintain a minimum 15 feet of undisturbed vegetation, which includes spoil pile placement, between the waterbody and the construction workspace where the workspace parallels a waterbody.” This does not provide adequate direction and assurance that water quality will be maintained in this area, and implies that the spoils will be placed in the 15-foot setback. Again, this project area warrants a site specific construction plan for protection of water quality related to stream and wetland crossings.

There are an additional two (2) stream crossings on the Nesbitt Property in Wyoming County, both of which appear to be small headwater streams in proximity to steep slopes that will be disturbed by the pipeline. Again, there is further lack of clarity in submitted information in Table 3 of the Best Management Practices and Quantities Set, and information appears to be incorrect or inconsistent. The Table indicates that the second stream crossed by the pipeline (labeled Rs-T56-18004) drains to Whitelock Creek, but the plan sheets indicate it drains into the Lake. The information does not appear correct and does not appear to reflect the current pipeline alignment.

Tables 3A and 3 indicate that the stream crossings will be “Dam and Pump” construction, but again, these tables do not appear to be updated. The crossing methods should be evaluated and documented for each stream crossing to determine to project specific needs at each crossing to protect water quality. A dry open cut is more protective than a wet open cut, but very difficult to implement in an area surrounded by wetlands, as the first stream crossing near Lake Catalpa in Luzerne County appears to be. Environmental impacts to the stream or wetland to be crossed and their downstream waterbodies can 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 potential need for blasting further creates opportunities for sediment discharge.

Based on the information submitted to PaDEP for the permit applications, it appears that basic stream crossing information is not complete for the pipeline crossings on the Nesbitt Property, sufficient consideration of appropriate methods for the conditions at each stream crossing has not been provided, and documentation is inadequate to protect water quality during stream crossings.

In Section 3.2 of the *Environmental Construction Plan*, Transco outlines the responsibilities of the Environmental Inspectors (EIs) that will be responsible for ensuring that Contractors implement and maintain compliance during construction. This includes verifying the location of dewatering activities and dewatering structures. It appears from this language and the lack of detailed stream crossing information for each location that compliance with Chapter 105 and Pennsylvania water quality requirements will be largely dependent on field decisions implemented by the Contractor and EI. This is insufficient to protect the water quality, including the HQ streams to Leonard Creek, and insufficient for PaDEP to conduct permit application review.

2. Stormwater Runoff and Water Quality

The assumption is made within the application documents submitted to Pennsylvania DEP that, after pipeline construction, the project disturbance area will hydrologically function equivalent to the existing forested conditions. However, the application documents do not provide construction guidance to support this assumption, as soil compaction and permanent land use cover changes will result from the pipeline construction. The soil compaction and land use cover will alter the surface hydrological response, increasing runoff and decreasing infiltration. There will be a corresponding decrease in infiltration to support stream and wetland baseflow.

Specifically, the “*Erosion and Sediment Control Plan Narrative, Atlantic Sunrise Project*” submission for both Luzerne and Wyoming Counties state:

“1.4 Project Site Runoff Construction of the CPL North pipeline proposes no permanent change or net increase in rate, volume, and concentration of pollutants in water quality. Disturbed areas will be restored to existing conditions after construction. Therefore, the volume and rate of runoff from the CPL North pipeline project area and its upstream watershed areas will not be increased”.

The narratives also states:

“1.4.1 Off-site Discharge Analysis The approximate original contours of the CPL North pipeline will be restored to pre-existing condition, which will maintain the pre-construction drainage patterns. With the exception of permanent access roads, all disturbed areas will be revegetated or otherwise stabilized with pervious material. An increase in stormwater runoff rate and volume is not anticipated to occur as a result of the CPL North pipeline”.

However, the hydrologic response of the current forested conditions on the Nesbitt Property is very different from the hydrologic response of the pipeline right-of-way after

construction. This is a result of both soil compaction and altered surface land use conditions (from current forested conditions to sparse perennial and annual grass and weed vegetation). Natural land uses such as interior forests and wetlands rely on vegetative cover to prevent the movement of soils (and discharge of sediment) during rain events by intercepting rainfall, stabilizing soils with their roots, and protecting surface soils with leaf litter and detritus. Vegetation establishment requires soils that are uncompacted 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 construction practices for pipeline installation include the use of heavy equipment with no topsoil segregation and no soil restoration unless parcels are residential or agricultural. This results in a soil profile that is highly compacted, lacking organic material, lacking macropores, and extremely reduced in its ability to retain and slow rainfall. As a result, there will be an increase in stormwater runoff, erosion, and pollutants, and a decrease in recharge to baseflow.

Previous field investigations performed by Meliora Design in temporary right-of-way (ROW) locations along the Tennessee Gas Pipeline's 300 Line Upgrade Project in Milford, Pennsylvania, demonstrated increased bulk density measurements when the ROW locations were compared to undisturbed natural areas adjacent to the pipeline ROW. Bulk density is a measure of the compaction of the soils. Severe compaction was noted within the construction ROW. Based on literature values, measured bulk densities were high enough to inhibit plant growth and infiltration.

The Federal Energy Regulatory Commission (FERC) Guidance Manual for Environmental Report Preparation (August 2002), as well as the FERC Upland Erosion Control, Revegetation, and Maintenance Plan (May 2013) both include guidance and information for soil restoration on gas pipeline projects, and compaction mitigation requirements. However, these practices are only required for agricultural and residential areas disturbed by construction activities. These requirements include segregating topsoil from other excavation materials, testing topsoil and subsoil for compaction at regular intervals, plowing severely compacted agricultural areas, including plowing the subsoil before replacing segregated topsoil, and performing appropriate soil compaction mitigation in severely compacted residential areas. The fact that FERC guidance requires soil decompaction, restoration, and testing in agricultural areas confirms that pipeline construction methods adversely impact soil conditions, including the soil's ability to support vegetation.

FERC relies on the best management practices of other regulatory agencies to provide additional guidelines to help prevent irreversible damage to surface soils during construction, and the corresponding increase in runoff and pollutants. However, Transco

does not provide additional guidelines or require soil restoration beyond FERC requirements, and assumes that reclamation regrading is sufficient for the Nesbitt Property. Transco assumes that there is no difference between the hydrologic response of a forested woodland and the compacted, post-construction pipeline right-of-way. No stormwater management is provided for this altered land surface. The permit application materials submitted for the Atlantic NE Pipeline will not protect water quality from stormwater impacts on the Nesbitt Property either during construction or post-construction.

The combination of compacted soils and limited plant growth reduces infiltration and increases runoff rates, volumes, and frequencies. Absent more stringent construction and restoration requirements, construction activities for the Atlantic NE Pipeline through the Nesbitt Property will result in severely compacted soils that are incapable for supporting plant growth or for allowing natural infiltration of rainfall. Additionally, the land use will be permanently altered as the area will no longer be forested. As described in Section 14.2 of the Environmental Construction Plan, Routine Right-of-Way Maintenance, “the full ROW will be maintained in a herbaceous state not more than once every 3 years. Trees will be cut, trimmed and/or removed from within the permanent ROW down to their stumps”. As a result, forested conditions will not return to the ROW under post-construction conditions, even if soil conditions permitted forest regrowth.

Compaction in construction work spaces will not be restored by simply regrading to pre-existing contours, retilling at the surface, and reseeded the area as currently outlined in the permit application materials. Heavy equipment used in the construction of the pipeline will inherently compact work areas to depths deeper than conventional surface tilling can reach. Compaction creates conditions that inhibit the germination of plants and plant root growth. Existing topsoil will not be segregated and restored, but will be lost in the construction process. The establishment of vegetative cover within the pipeline ROW will be more difficult once surface soils are compacted, and forested woodland will not be restored.

When vegetation regrowth is limited, the likelihood of accelerated erosion is increased. When runoff cannot infiltrate, is not slowed at the surface by vegetation, and has direct contact with exposed soils, sediments are much more likely to be transported to downhill streams and wetlands. This is of specific concern on the Nesbitt Property, where soils to be disturbed by pipeline construction are classified as erodible or highly erodible in the state soils classification database, and especially prone to erosion and transport to waterbodies.

Steep slopes are also found along the length of the pipeline on the Nesbitt Property. The pipeline both transverses steep slopes and is located along steep slopes (requiring significant earth movement for construction). When combined with erodible soils, the ability for construction crews to manage runoff and sediment discharge from the

construction site becomes more difficult. Several of these steep slope and erodible soil areas are directly adjacent to wetland or stream crossings, increasing the potential for sediment and runoff discharge to waterbodies.

Temporary erosion controls can help to slow down runoff and limit downstream sedimentation during construction, however, these measures do not address the Post-construction increases in runoff rates, volumes, and frequencies of discharge. Post-construction stormwater management measures are required to prevent impacts to water quality, especially in HQ-CWF tributaries.

More specific information must be provided to identify areas of cumulative impact due to steep slopes, erodible soils, extent of proposed disturbance, and proximity to water resources such as wetlands or high value streams. Based on this information, site specific stormwater management practices must be implemented to address the increase in post-construction stormwater runoff and its associated adverse water quality impacts. The current permit application materials are insufficient, and their assumption that “*An increase in stormwater runoff rate and volume is not anticipated to occur as a result of the CPL North pipeline*” is incorrect.

CONCLUSION

Based on the documents reviewed, the permit application materials submitted to PaDEP do not reflect complete or correct information for the pipeline route through the Nesbitt Property. Adequate guidance and documentation to protect water quality during stream and wetland crossings is not provided. Both short- and longterm adverse impacts to water quality are anticipated due to the lack of sufficient and correct information for stream and wetland crossings, and the lack of post-construction stormwater management practices. The proposed construction practices and technologies are not sufficient to prevent increased rates, volumes, and frequencies of runoff, and accelerated erosion and sediment transport from the pipeline right-of-way into nearby streams and wetlands is anticipated both during construction and post-construction.