

**Field Monitoring Summary Report of Past Tennessee Gas Pipeline Harms in
Vicinity or Along Same ROW Proposed for TGP Orion Pipeline Segment**



September 22, 2016

Summary:

The proposed TGP Orion Pipeline expansion if built would impact some of the same sensitive habitats and waterbodies impacted in 2011 by the TGP 300 Line Upgrade Project that have been summarized in this report. As the result of document reviews and limited field investigations during active construction of three sections of high pressure natural gas pipelines -- the Tennessee Gas Pipeline (TGP) 300 line upgrade constructed in 2011, the TGP Northeast Upgrade Project (NEUP) constructed in 2013, and Columbia 1278 pipeline constructed in 2011 -- in the Upper Delaware River Basin, the Delaware Riverkeeper Network documented:

- over 60 instances where best management practices (BMPs) were not present, inadequate or not functioning; or in need of repair, maintenance or reinforcement.
- 4 instances of fueling being conducted in wetlands or near waterbodies.
- dozens of instances of poor signage and staking and mapping errors which sometimes led to impacts off of the permitted Right of Way (ROW), loss of trees outside the ROW, and inaccurate mitigation calculations.
- thermal impacts, extreme (and unreversed) soil compaction, nutrient impacts, and benthic invertebrate changes from pipeline cuts, including streams with exceptional value, high quality and/or C-1 anti-degradation classifications.
- discrepancies between pipeline company monthly compliance reports and what specific activities to meet compliance and avoid pollution were actually occurring or not occurring on the ground. We also noted excessive lag time in the filing and/or public release of construction reports, making for difficult follow up in the field. We documented too few pipeline inspectors and a lack of oversight person-power assigned by FERC for these extensive linear projects that spanned many miles and where work was going on simultaneously along the routes with little independent oversight.

Based on first hand observations and monitoring, the Delaware Riverkeeper Network has concluded:

- Interstate natural gas pipeline projects result in a multitude of environmental impacts that inflict high levels of unnecessary ecological damage – this damage is not avoided,

nor properly mitigated, despite the resource reports that are drafted or the guidance provided by FERC or other federal or state agencies;

- Violations of environmental laws are common place and an accepted part of interstate pipeline construction – and compliance outweighs penalties and violations to the detriment of the environment and the public;
- Construction problems and potential violations are not properly responded to by the company, by FERC, or by other state or federal agencies and mitigation does not undo the harms inflicted -- as a result of both, pipelines inflict enduring and/or repetitive harms on natural resources; and
- Current or proposed guidance from FERC or other regulatory agencies do not prevent, avoid, or otherwise mitigate these ecological and public harms or the multitude of bad practices used by the pipeline companies.

The Delaware Riverkeeper Network generated the technical documents, reports and observations that are the basis of these conclusions during field monitoring along sections of projects where we had access to monitor, which was along limited areas of these pipeline projects during limited periods of time. Delaware Riverkeeper Network staff and volunteers logged over 240 hours in the field observing pipeline construction. For the purpose of this report, Delaware Riverkeeper Network provides some examples to support our conclusions regarding the impacts of pipeline construction, operation, and maintenance on waterways and environments as well as the failure and inability of federal and state agencies to properly regulate and oversee the compliance of pipeline construction projects with environmental and community protection laws. Please note that there are many more examples of errors that occurred during our limited pipeline construction monitoring efforts which resulted in pollution and degradation to some of the cleanest streams and wetlands in the region. Please also note that these field investigations were undertaken along the same areas of the route now being proposed for the TGP Orion Pipeline.

Violations of environmental laws are common place and an accepted part of pipeline construction. Violations are not properly responded to by the company, by FERC, or by other state or federal agencies and mitigation does not undo the harms inflicted. FERC and/or state-empowered agencies fail to undertake responses to violations that either minimize their impacts or provide a deterrent to repetition. As a result, pipelines inflict enduring and repetitive harms on natural resources.

Enduring Harms Remain Unaddressed by Regulatory Agencies During & After Pipeline Construction:

Nutrient impacts, thermal impacts to streams and wetlands, benthic impacts, sedimentation impacts, stormwater impacts, contaminated water wells, forest fragmentation, permanent groundwater hydrology changes and impacts, soil compaction and soil structure changes, soil erosion, off ROW impacts (such as mulching, tree stress/mortality, windthrow), are just some of the issues DRN documented in the field during construction of approved interstate natural gas pipeline projects. Direct field observations of these impacts are documented in the appendices and DRN expert reports included with this field report.ⁱ

An excerpt from a 2012 DRN Field Correspondence to agencies discusses the enduring impacts inflicted by pipeline construction despite supposed regulatory agency oversight. This field visit of the TGP 300 line was conducted one year after the pipeline was placed into operation and so one would expect all outstanding adverse impacts to have been identified and properly addressed:

Delaware Riverkeeper Network scientists walked a section of the 300 Line on Nov 4, Nov 11, and Nov 30th, 2012 that is accessible from DCNR lands of Schocopee Road (AR 9 and AR 9a). We include recent photos of site conditions at the Lackawaxen River 300 Line River Crossing off Rte 590 (Lackawaxen Township) where continued issues persist. It is important to note that the majority of places that DRN scientists had access to observe site conditions, signs of ineffective wetland restoration and E&S violations have persisted even into this late date (TGP 300 line installed and running gas as of November, 2011). There is much of the line that DRN does not have access to so we do not know the current conditions of those locations but Conservation District inspections for Pike and Wayne Counties and NOVs issued help indicate the systematic failure of TGP's project as documented in DRN letter correspondence shared prior with USACE.

Field observations along the TGP 300 Line and proposed NEUP line that could have a direct impact on the wetlands for the NEUP project and other questions and concerns we have noted from the TGP Wetland Delineation Report (March 2011) conducted by AECOM Environment are bulleted below and more details follow with photosⁱⁱ:

- *Compaction of soil will ultimately lead to differences in hydrology of the wetlands and streams. Soil samples were taken along the existing 300 Line on November 29, 2012 and simply attempting to dig along the ROW in comparison to digging in the nearby adjacent intact forest indicates severe compaction along the existing ROW. This soil compaction is further illustrated by the lack of vegetation that continues to persist adjacent and near wetlands and elsewhere along the TGP 300 Line. (Note – later lab analysis of these samples taken by consulting experts verified the extremeness of the compaction – showing compaction levels as high as 98%)ⁱⁱⁱ.*
- *Rough grading in the vicinity, adjacent to, and within the wetlands has led to poor contact with the soil in places where matting fabric is located due to the roughness of the soil underneath the*

matting and lack of raking. Lack of vegetation growth, still a year and half after construction, is noted in these areas which can lead to continued soil erosion that could enter adjacent wetlands.

- *From the AECOM Wetland Delineation Report (March 2011), it appears that when wetlands are located in temporary work spaces or additional temporary work spaces, TGP considers this to be “no impact” and as a result no acreages are included for these areas that are in fact a big impact. Since these work spaces are often located in mature forested areas and very close to streams and wetlands, the work spaces will require tree removal, soils will be compacted with heavy equipment, and shading will be reduced to nearby waterbodies. Forests will take generations to recover and grow back. These ATWS and TWS areas should be avoided and minimized and the footprint of the ROW should be reduced to the greatest extent possible.*
- *During DRN field recon of the non-colocated section of Loop 323 and other proposed NEUP path, we observed temporary work space (TWS) areas and additional temporary work space (ATWS) areas often located too close to streams and wetlands (less than 25 feet from these sensitive structures). This was observed by the three corner stakes in the field placed by TGP that are to delineate TWS and ATWS near the ROW. This placement adjacent these sensitive habitats will affect them negatively. There are also a large number of these work spaces delineated in the field and we question why so much extra space beyond the already very large ROW are needed since they are located in very sensitive wetland and stream areas.*
- *ATWS and TWS areas often seem to target very large and mature trees that are found throughout the non-colocated section of Loop 323. By clearing these large mature trees that fulfill a large dense canopy cover, thermal impacts and dissolved oxygen impacts will likely be a result to the surrounding waterbodies and wetlands.*
- *Along the 300 Line off DCNR lands, mulched tree debris is blown into areas of forest and wetland areas located adjacent to the ROW. Mulch can smother the roots of the surrounding trees and cause rodent damage in the winter months. TGP is also then affecting areas outside of the ROW.*
- *The majority of the proposed crossings of the NEUP include open cut trenching technique which will forever change the topography and the hydrology of these Exceptional Value and High Quality wetlands, streams, and habitats.*
- *In the field it is difficult to depict the complete boundaries of the proposed ROW based on limited flagging by TGP during DRN field visits, but DRN believes that less of an area should be*

needed for TGP to insert a 30 inch pipeline adjacent its existing 24 inch line. This point has also been raised by PCCD. Minimizing disturbance and ROW size and work spaces is needed.

- The characterization of the Savantine Wetland Complex (W038), an EV wetland that feeds a tributary to Savantine Creek, can be described currently more like a POW rather than its original wetland characterization of a PFO/PSS/PEM as it was classified before construction of TGP. Temperatures of this wetland indicate thermal impacts and the wetland appears to be acting as a heat sink due to its increased depth and lack of vegetation (water temperatures below in Table 1). Summer sampling documented temperatures in the wetland as high as 87.6 F which would not be indicative of other Exceptional Value forested wetlands in the region.

This wetland complex was cited multiple times by PCCD as having violations associated with construction practices. The lagging restoration, dewatering of the wetland, and potential fill piles within wetland boundaries occurred late in the season on May 13, 2012 when thousands of young amphibians were observed in the wetland after returning from their forested uplands in the spring. The pipeline was in operation in November 2011 and restoration lagged behind to impact amphibian species in this Exceptional Value wetland – occurring over 6 months after the pipeline was transporting gas. As a result, the wetland was impacted unnecessarily multiple times and during a critical time for breeding and young-of-the-year amphibian species. As noted by PCCD in NOVs, restoration could have occurred much sooner as the winter of 2011 was mild.

Many of the adverse impacts summarized in the report above were identified and reported to FERC and other regulatory agencies specifically during construction of the TGP 300 line. The fact that these degraded conditions persisted for one year after construction was complete is inexcusable. The above report resulted in no effective responsive action by FERC or any other regulatory agency to undo or mitigate for the harms inflicted.

Reported Violations of Environmental Laws Result in Inadequate Response by Agencies, Resulting in Repeated Offenses:

During construction of the TGP 300 line, the Columbia 1278 line, and the TGP NorthEast Upgrade Project, Delaware Riverkeeper Network reported over 60 instances of environmental violations and/or degradation. County Conservation Districts also submitted reports of violations.

Consistently, FERC failed to issue notices of violation, to issue stop work orders to require remedy

of the situation and/or mitigation, or to issue fines that would serve as a deterrent to future violations. Repeated correspondence with FERC on observed failing E&S controls, compromised or dilapidated E&S controls, lack of flagging and signage for all natural resource features, off ROW impacts, stormwater sediment laden runoff into nearby streams and wetlands, tree cutting or other impacts outside the ROW, and illegal mulching, were all documented by DRN.

In addition to Delaware Riverkeeper Network reports, during the Construction of the Project, TGP accumulated at least twenty separate Notices of Violation from the Pike County Conservation District alone. Upon information and belief, the Pike County Conservation District found violations on twenty of its twenty-two site visits between June of 2011 and June of 2012, an astonishing violation rate of over 90%. Additional Notices of Violation were issued by the Wayne County Conservation District in 14 of its 15 site visits. These Notices of Violation included violations for activities including, but not limited to: failures to maintain effective E&S BMPs; failures to provide temporary stabilization of earth disturbance site; and failures to implement effective E&S Best Management Practices. These failures resulted in situations where “sediment or other pollutant [was] discharged into waters of the Commonwealth” on numerous occasions. For example the following pollution events were described in various PCCD Notices of Violation:

-Sediment plumes in Swale Brook and pond due to failure to maintain BMPs (6/17/11 inspection). Sediment was observed as far as .75 miles downstream from the pipeline ROW.

-Sediment laden water observed flowing down ROW and flowing into wetlands (6/17/11 inspection)

- Sediment laden water entering Raymondskill Creek and Sawkill Creek (HQ and EV waterways) that passed through make shift earthen berms & through gaps on compost filter socks. (6/17/11 inspection)

-Sediment discharging into Waters of the Commonwealth (6/17/11 inspection)

- At Raymondskill Creek there was grass growth noted in wetlands (which is prohibited) (4/27/12 inspection report).

Additionally, according to an April 30, 2012 Notice of Violation, TGP and its environmental inspectors repeatedly did not address the prior violations or needs or actions to remediate the pollution problems that were documented by the Pike County Conservation District. Time and again remediation and corrective actions were promised by TGP to be put on punch lists and addressed, but according to the Pike County Conservation District, prior violation reports were many times ignored by TGP leading to ongoing problems, and continued pollution events leading to recurring and repeated harm to special protection streams, exceptional value wetlands, the Delaware State Forest, and public water supply sources.

Furthermore, monitors for the FERC funded Compliance Monitoring Program also found numerous violations as a result of construction activity from this project. Specifically, Program monitors found at least 65 instances where an activity “d[id] not meet the definition of acceptable” pursuant to FERC environmental conditions. The Program monitors also found at least six instances where construction activity directly lead to “damage to resources” and “place[d] sensitive resources at unnecessary risk.”

While FERC took no significant enforcement action that would have helped minimize and/or mitigate environmental damage as well as serve as a deterrent to the ongoing cavalier construction practices of TGP, for the TGP 300 pipeline project, PA DEP announced in Dec, 2014, \$800,000 in penalties.^{iv} (DRN includes many more examples of harms and impacts observed in the Appendices. Verifications by Conservation Districts are also included).

Compliance and weekly construction reports submitted by the pipeline companies consistently misrepresent conditions on the ground, FERC fails to exercise proper oversight or to take proper action to prevent repeat occurrences, and lag times on the public record means community monitors only receive information after the fact and that regulatory agencies that may be anticipating and/or relying upon FERC for ensuring environmental compliance are not securing compliance with regulatory mandates, or mitigation for harms inflicted:

The third party compliance monitoring program relied upon by regulators is inadequate with limited third-party compliance staff assigned to broad stretches of linear pipeline areas. For example, along a 40 mile stretch of one pipeline – one Spread located in Pennsylvania (Loops 317, 319, 321, and 323) and a second Spread located in New Jersey (Loops 323 and 325), only two FERC Third-Party Compliance Monitors were assigned to these large areas of pipeline that are segmented out along a large area^v.

The practice and timing of the Compliance Reports by the companies is also lacking in oversight. DRN on numerous occasions, as well as the Pike County Conservation District, conducted inspections of problem areas along a pipeline route only to find that often times, these issues were not addressed by pipeline maintenance crews, despite issues and events being noted as resolved or on the “punch list” by ground crews in the required monthly compliance reports by the pipeline operator.

Furthermore, the FERC weekly summary reports under the Monitoring Environmental Compliance Program and the private pipeline company weekly status reports could be provided to the public and to community monitoring groups in the field faster than the 4-5 day lag time that appears to be the normal lag time between the week of construction events and the reporting being issued on the FERC Docket. If reports were more timely or if there was another method of sharing this information in a faster fashion, some harms could possibly be avoided, especially in light of major pollution events and storm events where sediment pollution and failure of E&S structures could and do occur. For example, in the case of TGP, the weekly status report spanning construction updates occurring from August 12, 2013 through August 18, 2013 was only submitted to the FERC Docket on August 22 at 4:30pm – this lag time between conditions on the ground and the report on the FERC docket could be shortened to better communicate with the public and volunteer monitors and to better protect natural resources in a more timely fashion.

On multiple occasions, DRN found discrepancies between what was reported in weekly compliance reports by a pipeline company and what was actually occurring on the ground and observed by monitors (see Appendices). In the appendices you will note repeated mention of Erosion and Sediment Control problems and needs for improvement and violations by county conservation district staff in written NOVs as well as DRN correspondence stating similar issues

that were recurring and not addressed in a timely fashion to avoid harm nor were they addressed in weekly construction reports.

Problems with mapping of natural resources was also observed and not addressed despite repeated reports on problems. For example, a February 8, 2013 field visit by DRN in Montague, NJ (see Appendix B) documented in one section of the proposed TGP NEUP pipeline route a series of wetlands and springs (16 waterbodies and 7 wetlands ID'd) that failed to have adequate and detailed resource signage to protect this sensitive area, despite a TGP weekly report dated 1/28/13 to 2/3/13 that stated environmental signage was installed in this section of the proposed route. Some limited signs were present but in the case of such a sensitive area with C1 waterways, it's critical that the signage mark all wetlands and springs individually with the proper written wetland markers that outline each of the specific waterbodies. After reporting these discrepancies, DRN returned to the area on 2/17/13 after TGP personnel stated they reinstalled and adjusted signage in this area. The signage in place still lacked important information such as "foot markers" from the alignment sheet and used for placement of signage in the field. This also speaks to monitoring in the field as generic signs with no additional info noting the specific waterbody number, and makes it difficult for monitors, construction crews, and tree cutters to verify that all waterbodies are accounted for, and in this case they were grossly ignored. This area of the pipeline route was monitored multiple times and we reported problems regularly. There was little action taken by FERC to protect this important and sensitive area which was open trenched despite its unique forested and wetland features.

This specific stretch of the pipeline route also speaks to a problem with re-routes that are allowed by FERC. It would appear that landowners who find themselves along re-routes later in the FERC process do not receive the same notice and consideration as landowners involved along the initial pipeline route. And along those same lines, a re-route through a forested wetland and spring complex with over 23 water features and mature trees where FERC allowed open trenching, seems completely unacceptable especially when HDD and other methods could have been employed and there were multiple reports and documentation provided to FERC about these exceptional water resources.

After public pressure was exerted by DRN and others, one FERC Project Manager did begin to more quickly alert pipeline crew leaders to reports of environmental degradation and/or impending failures of management practices that were likely to result in environmental degradation, which helped to avoid potential sediment problems and E&S control failures for the TGP NEUP pipeline. That being said, it should not be on the public to ensure BMPs are being followed; the presence of only one or two FERC inspection officers in the field along an entire route is sorely inadequate and many more inspectors are needed and required for proper oversight of this industry.

FERC consistently overlooks violations of law and/or degradation of the environment during pipeline construction, and the gap is not well filled by state-empowered regulators, thereby resulting in frequent and persistent pollution events and environmental degradation:

It is the Delaware Riverkeeper Network's experience that FERC consistently ignores reported violations by either the public or Conservation District regulatory employees, demonstrating a cavalier disregard from the repeated harms being inflicted on environmental and public resources by the pipeline construction company. For example, FERC's compliance reports for the TGP 300 line and the Columbia 1278 line rarely listed non-compliance concerns that had been clearly documented, including with photo and/or video proof, by either County Conservation District employees or the public.

By way of contrast, for the TGP 300 line and the Columbia 1278 line in Pike County alone conservation district officials cited the following violations from their field visits:

From 7/26/11 to 6/21/13, there were 21 NOVs for the Tennessee Gas 300 Line Upgrade from PCCD which are identified below:

NOV IR 11-04; NOV IR 11-05; NOV IR 11-06; NOV IR 11-07; NOV IR 11-08; NOV IR 11-09; NOV IR 11-10; NOV IR 11-11; NOV IR 11-12; NOV IR 11-13; NOV IR 11-14; NOV IR 11-16; NOV IR 11-17; NOV IR 11-18; NOV IR 11-19; NOV IR 12-20; NOV IR 12-21; NOV IR 12-22; NOV IR 12-23; NOV IR 12-26; and NOV IR 13-29

Of these 21 NOVs, there were 14 violations for failure to maintain effective E&S BMPS; 14 violations for presenting a potential for pollution to waters of the Commonwealth; 14 violations for discharging sediment or other pollutants into waters; 17 violations for failure to implement effective E&S control BMPs; 2 violations for failure to provide temporary stabilization to earth disturbance; 2 violations for failure to provide permanent stabilization to earth disturbance; and 21 violations of the Clean Streams Law. Altogether, there were a total of 84 violations.

From 6/17/11 to 4/27/12, there were 15 NOVs for the Columbia Line 1278 K which are identified below:

NOV IR 11-04; NOV IR 11-06; NOV IR 11-08; NOV IR 11-10; NOV IR 11-11; NOV IR 11-12; NOV IR 11-13; NOV IR 11-15; NOV IR 11-16; NOV IR 11-17; NOV IR 11-18; NOV IR 11-19; NOV IR 11-20; NOV IR 12-21; and NOV IR 12-22

Of these 15 NOVs, there were 9 violations for failure to maintain effective E&S BMPS; 15 violations for presenting a potential for pollution to waters of the Commonwealth; 9 violations for discharging sediment or other pollutants into waters; 3 violations for failure to implement effective E&S control BMPs; 9 violations for failure to provide temporary stabilization to earth disturbance; 6 violations for failure to comply with permit conditions; 7 violations for failure to implement effective PCSM BMPs; and 15 violations of the Clean Streams Law. Altogether, there were a total of 73 violations.

These two pipelines had a combined total of 157 violations in one County alone. Please note that these numbers are conservative because there could be multiple instances of each violation.

The following is an example of a monitoring field report and subsequent correspondence of these failures and subsequent and repeated or ignored harms follow to further this assertion:

On June 25, 2013, DRN walked sections within High Point State Park and observed a dewatering structure constructed of hay bales and lined with plastic located near the wetland boundary that was not being utilized to reduce sediment and off ROW impacts. Instead, the pipeline company crew had two hoses from the open pipeline trench spanning across the ROW and running sediment laden water directly into the wetland on the opposite side of the equipment bridge – bypassing the BMP. DRN approached (with security following) to video tape and a contractor was observed frantically trying to cut holes in the bags to put the high pressure hoses into the BMP. To DRN's knowledge, no action was taken by FERC on this direct violation (See Appendix B).

On August 14, 2013, DRN accessed Cummins Creek and documented active construction work within the stream bed after the pipeline company had reported all the sediment discharged into Cummins Creek was addressed and cleaned up prior (See Appendix B). Consequently, this area was in a location with extremely steep slopes and time and time again in scoping and in comments the community and DRN stressed the inevitable pollution that would come from cutting mature trees down on such a steep slope to cut a pipeline path. To DRN's knowledge, no action or violation was taken by FERC related to this sediment pollution incident into an Exceptional Value stream.

During the TGP 300 line, violations documented by the Pike County Conservation District included major ongoing, continued, and multiple violations and ignored agency orders including like those listed on the 4/30/12 NOV report which cited major recurring violations including:

Failure to implement effective Post Construction Stormwater Management BMPs

Permanent slope breakers do not have permanent outlet structures installed as called out in plans and noted in prior PCCD correspondence and inspection reports.

Failure to provide temporary stabilization of earth disturbance sites

*a. Areas throughout ROW have sparse to minimal vegetative growth including on steep slopes
b. Seeps throughout ROW to Vandermaark Creek have caused erosion gullies and concentrated stormwater flows and runoff.*

c. Streambanks like that of Sloat Brook displayed bank erosion and sloughing

These examples and summaries of violations confirmed by county agencies helps show that violations of environmental laws are common place and an accepted part of pipeline construction. The pipeline companies often do not comply with past agency requests for remediation, leading to continued and repeated requests for action time and time again, which is not pursued by the pipeline crews.

FERC fails to identify and reflect these repeat and/or ongoing violations in its inspection reports, and additionally fails to follow up with actions that would remedy the harms being inflicted. It also fails to take steps that would deter future violations such as fines or stop work orders until problems are remedied and/or mitigation is implemented.

States often rely on FERC to ensure environmental compliance and definitely count on FERC regulatory mandates to ensure protection of water resources and the environment – in both instances this reliance is misplaced as is amply demonstrated by the Delaware Riverkeeper Network's observations and experiences.

Pipeline construction Causes Severe Harm to the Environment:

The adverse consequences of pipeline construction and maintenance are severe, enduring, and wide-ranging.

Along the TGP NEUP pipeline project, DRN conducted spot checks during or shortly after 13 rain events where we had access to observe conditions near the pipeline ROW. In almost every instance, DRN observed areas where sediment control structures were not ideal, overwhelmed, or where sediment was directly discharging off site into adjacent lands, off ROW, or into a nearby waterbody or drain that connects to a waterbody. All visits were conducted in areas of high quality or exceptional value waterways locations. Visits were conducted on 5/23/13, 5/28/13, 6/3/13, 6/8/13, 6/11/13, 6/14/13, 7/1/13, 7/28/13, 8/10/13, 8/11/13, 8/12/13, 8/14/13, and 10/7/13 (See Appendices).

March 13, 2013 DRN wrote the Army Corps of Engineers to say:

Delaware Riverkeeper Network is writing with photos and video documentation indicating sediment and suspended solids runoff discharging into Wetland038 (W038) from TGP's ROW after a rain event on 3/12/13 along the Tennessee Gas Pipeline's 300 upgrade project. This area of TGP's past project was installed and running gas through the new line as of November, 2011. As indicated in past letters to the Corps – one as recently as 3/12/13, W038, located on DCNR lands, has had persistent problems and negative changes to its structure and characteristics due to Tennessee Gas Pipeline construction and lagging restoration practices. This wetland is part of the Craft Brook Complex and is designated Exceptional Value under Chapter 93. This area of the pipeline is still under "temporary restoration status", over a year and four months after the pipeline was installed by TGP^{vi}.

Inaccurate mapping, measurements and lack of field flagging/signage and restoration of sensitive wetlands, waterbodies and mature forests:

When mapping is incorrect, larger areas of natural resources are harmed, soils are compacted and trees are. It would appear that there is little accounting for these larger impacts, variances (if there were any requested), or mitigation.

For example, measurements were taken by Delaware Riverkeeper Network on November 6, 2012 of the TGP pipeline ROW (see Appendix A, November 8, 2012 Report) that documented greater than a 200 foot section of disturbance and clearing, and in some sections, up to 325 feet in width of disturbance in creating the 300 Line ROW. Yet in the 1.8 land requirements section of the TGP 300 Environmental Assessment (CP11-161-000), it is stated, "*the 30 inch diameter natural gas pipeline loops would typically require a 100 foot wide construction ROW in upland areas, which would generally consist of 25 feet of existing, permanently maintained ROW, 25 feet of new permanent ROW, and 50 feet of temporary construction workspace. In wetlands, TGP would reduce the construction right-of-way to 75".*

In another communication to FERC, DRN documented inaccurate mapping, lack of field flagging of wetlands, and a failure to properly protect sensitive wetlands and waterways:

On March 24, 2013, DRN accessed TGP through land owner's property west of Vandermark Creek (S019) in Milford Township. Laurel Swamp Brook (S020) has three wetlands associated with it W043, W044 and W045 with only W043 listed as impacted.

In conclusion, DRN field reports and observations show the following discrepancies and issues with TGP practices or delineations that we feel indicate inadequate protection of these sensitive resources and impacted wetlands that TGP states are not impacted.

- 1) The tree felling at S059 does not meet the requirements of Section 4.1.1 of the Environmental Construction Plan (ECP).*
- 2) The isolated wetland located near TGP crossing of S059C remains unidentified and not delineated in the construction ROW.*
- 3) Three features associated with Deep Brook S045 (Exceptional Value stream) appear to be connected in a single crossing width of approximately 200' but much larger than the 61' combined for W090/W091 and S045/S045A with S045A having no resource signage in place.*
- 4) W093 is listed as "not impacted" but field observations document this sensitive resource crossing the pipeline ROW.*
- 5) Pink and black flagging used for wetland delineations was observed under felled trees near Crawford Branch but is not listed in the Pa. Bulletin as a wetland crossing at this location.*
- 6) Observations at Laurel Swamp Brook S020 (EV) and three wetlands W043/W044/W045 indicate that W044/W045 have a hydrologic connection with Laurel Swamp and are not "isolated". Resource signage for these wetlands indicates they continue into TGP's ROW and are and will be impacted.*

DRN is unclear how TGP can claim they are limiting disturbance and not impacting these sensitive resources if indeed DRN is documenting such discrepancies in the field^{vii}.

Temporary work spaces (TWS) and Additional Temporary Work Spaces (ATWS) inflict environmental degradation that is not accounted for and as a result is allowed to inflict harm:

The calculations used to determine areas that are considered "temporary" is often flawed as the types of areas impacted are not considered (see above and Appendices). As a result, the pipeline operator is held less accountable to restore these areas or to mitigate for the damage that is far from "temporary" in nature. For example, cutting of a mature forest adjacent a wetland to stack timbers or park equipment may be falsely characterized as temporary by the pipeline operator, but the impact of this practice is permanent due to the loss of mature trees and permanent change in soil structure. Furthermore, TWS or ATWS even in meadow areas or natural areas where trees

or shrubs have not been cut, soil structure is changed and this leads to often irreversible compaction.^{viii} An existing paved parking lot could be temporary if it were used to park equipment but certainly not a natural field or a forest.

In closing, violations of environmental laws are common place and an accepted part of pipeline construction. The combination of legal and illegal construction, operation practices, and maintenance practices associated with pipelines inflict an incredible, unavoidable, and unmitigatable level of harm.

Attachments:

Appendix A - DRN Field Reports for Tennessee Gas 300 Line (Restoration Phase) – Dated 10/1/12 to 3/12/2013 (59 pages)

Appendix B - DRN Field Reports for Tennessee Gas Northeast Upgrade Project Dated 7/18/12 to 5/23/13 (60 pages)

Appendix C - DRN Letters to FERC and other agencies Regarding Mapping, Pollution and Construction Concerns from the Field (Subset)

Appendix D -NOV summary table of Pike County Conservation District Inspections and Violations

Appendix E - Selected Expert Reports

ⁱ 2014 Field Observations of Tennessee Gas Pipeline, Northeast Upgrade Project By Delaware Riverkeeper Network, Preliminary Findings and Excerpt for Penn East Scoping Comments, Feb 27, 2015

ⁱⁱ DRN letter to Army Corps of Engineers, Dec 2, 2012, TGP pipeline impacts and threats NEUP could have based on past 300 line project

ⁱⁱⁱ Field Evaluation of Soil Compaction Within TGP 300 Line Upgrade Temporary Work Spaces, Meliora Environmental Design, February 19, 2013

^{iv} DEP: \$800,000 Settlement Against Tennessee Gas Pipeline For Violations In 4 Counties. Dec, 22, 2014

http://paenvironmentdaily.blogspot.com/2014/12/dep-800000-settlement-against-tennessee.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+PaEnvironmentDaily+%28PA+Environment+Daily+Blog%29.

^v Federal Energy Regulatory Commission Environmental Compliance Monitoring Program, Weekly Summary Report, Northeast Upgrade Project, Docket No.: CP11-161-000 For the Period: August 5 through August 10, 2013.

^{vi} DRN letter to Army Corps of Engineers, March 13, 2013, Re Sediment pollution into wetland complex – repeated harms

^{vii} DRN letter to FERC, April 5, 2013, Inadequate protections to Sensitive Waterbodies and Wetlands Listed as “Non-Impacted” by TGP

^{viii} Field Evaluation of Soil Compaction Within TGP 300 Line Upgrade Temporary Work Spaces, Meliora Environmental Design, February 19, 2013