

Appendix A: Environmental Assessment

< Introduction and Background

The Office of Pipeline Safety (OPS) is conducting a Risk Management Demonstration Program with pipeline operators to determine how risk management might be used to complement and improve the existing Federal pipeline safety regulatory process. OPS selected Duke Energy Corporation (Duke) as a candidate for participation in the Demonstration Program; subsequently, OPS and Duke held discussions as part of a consultation process. During the consultation, Duke identified twenty-one pipeline segments in its system where it proposed to perform a set of risk control activities as an alternative to certain regulatory requirements relating to class location changes. Discussions between OPS and Duke regarding the proposed risk management project have been largely completed, and it is expected that Duke will be admitted into the Risk Management Demonstration Program. In the meantime, Duke submitted a request to OPS to temporarily waive the requirements of 49 CFR 192.611(a)(3)(ii) for fifteen of the segments under discussion (the “waiver segments”). Duke’s waiver request proposes that Duke will increase its operating pressure along the waiver segments, and that it will carry out the proposed alternative risk control activities (the “Activities”) in lieu of compliance with these regulatory requirements.

OPS is considering granting a waiver to allow Duke to increase the operating pressure and implement the Activities in lieu of compliance with 49 CFR § 192.611.

This Environmental Assessment summarizes OPS's safety and environmental review of the alternative risk control Activities Duke has proposed for the waiver segments. This document is prepared in accordance with section 102(2)(c) of the National Environmental Policy Act (42 U.S.C. Section 4332), the Council on Environmental Quality regulations (40 CFR Sections 1500-1508), and Department of Transportation (DOT) Order 5610.1c, Procedures for Considering Environmental Impacts. It was prepared to assist in the agency's planning and decision-making. This document describes OPS's proposed action of granting a waiver to allow implementation of the Duke Activities, the environment affected by this action, each of the alternative approaches considered, the consequences to the environment of each of the alternatives, and a list of the agencies and organizations consulted. This Environmental Assessment provides sufficient evidence to determine that granting a waiver to allow implementation of Duke's Activities will have no significant impact on the environment.

protection comparable to compliance with 49 CFR § 192.611. The waiver segments are described in Section D of this environmental assessment.

This section describes the specific Activities Duke proposes to perform on the waiver segments to achieve a comparable margin of safety and environmental protection. These activities are being proposed in lieu of compliance with pipeline safety requirements that address population density increases which have occurred in the vicinity of the pipeline.

B.1 Current Regulatory Requirements

This section describes the current regulatory requirements in 49 CFR § 192.611 governing actions that must be taken by a pipeline operator when population density increases along a pipeline.

OPS categorizes all locations along natural gas pipelines according to the population densities near the pipelines (see 49 CFR § 192.5). Locations with the lowest population density (10 or fewer buildings intended for human occupancy within an area that extends 220 yards on either side of the centerline of any continuous one mile length pipeline) are designated as Class 1. As

recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12 month period. Class 4 locations are any class location unit where buildings with four or more stories above ground are prevalent (e.g. large office buildings).

All fifteen of the Duke waiver segments (described in Section D) have changed from Class 1 to Class 2.

Pipeline safety regulations impose more stringent design and operational requirements as the class location increases. When a class location changes to a higher class (e.g., from class 1 to class 2), the operator must reduce the operating pressure on the pipeline to provide an additional margin of safety. The operator may be able to avoid a pressure reduction, in some cases, if a pressure test on the pipe has confirmed that a prescribed safety margin exists. In these cases, if a previous pressure test has not confirmed the prescribed safety margin, then the operator must test the pipe to confirm the margin. In other cases, the operator must reduce the pressure or replace the pipe with new pipe. Duke has previously reduced the operating pressure in the waiver segments from 1000 psig to 936 psig as its means of complying with 49 CFR § 192.611.

fifteen waiver segments. By replacing the existing pipe with new pipe that has the prescribed design factor, Duke could eliminate the possibility that defects in the original materials and construction, as well as corrosion that may have occurred since installation, would result in a failure.

B.2 Duke's Proposed Risk Control Activities

For each waiver segment, Duke defined and proposes to perform the following risk control Activities:

- Internally inspect the waiver segments using geometry and magnetic flux leakage in-line inspection tools, which are not required under current regulations. These tools identify indications of wall loss (e.g. corrosion), as well as dents and gouges from initial construction damage or third party excavators working along the pipeline right-of-way. These internal inspections have been performed and the OPS Southern Region has reviewed the inspection results.

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- Internally inspect approximately 166 miles of additional pipe on the three parallel lines in the Mt. Pleasant Discharge. These internal inspections have been performed and the OPS Southern Region has reviewed the inspection results.
- Repair indications of corrosion, existing construction damage, and existing outside force damage identified by the internal inspection, using conservative investigation and repair criteria. The criteria used by Duke calls for investigation and repairs of small dents and anomalies that are well below the threshold where pipeline integrity might be compromised.
- Perform hydrostatic tests of the portions of Line 10 which have not previously been tested to 100 percent (SMYS). This includes two of the waiver segments, 2.5 miles northwest of Rally Hill in Maury County and 3.5 miles east-northeast of Arrington in Williamson County. These hydrostatic tests have been completed.

- Perform enhanced damage prevention activities including implementing selected recommendations from a recent study of one-call systems and damage prevention programs best practice, “Common Ground”. Duke will also install, for a test period, a TransWave monitoring system covering all of the waiver segments. This system will be tested to determine its reliability and usefulness at detecting third-party encroachments (construction, excavation, etc.) in the pipeline right-of-way.

Duke has compared the expected risk reduction produced by increasing the operating pressure and implementing the Activities to that which would be achieved by compliance with current regulations. OPS has reviewed this evaluation and concluded that the Activities will likely achieve a margin of safety and environmental protection comparable to the margin which would be achieved by compliance with 49 CFR § 192.611. Furthermore, because of the resources saved by not having to replace pipe in these locations, Duke was able to assess the integrity of additional portions of its system.

OPS is considering granting a waiver to exempt Duke from the requirements of 49 CFR §

C. Alternatives Considered

The two alternatives considered by OPS are:

1. Grant the waiver and authorize Duke to increase operating pressure and implement the Activities (described in Section B.2 above) along the waiver segments. In this case, Duke will be exempted from the requalification testing and pipe replacement requirements of 49 CFR § 192.611 (see Section B.1) on the fifteen waiver segments.
2. Deny of the waiver and enforce the requalification testing and pipe replacement requirements of 49 CFR § 192.611 on the four waiver segments (see Section B.1). In this case, OPS believes that rejection of the Activities will result in a lost opportunity to provide superior safety and environmental protection for the communities living along the waiver segments, a lost opportunity for superior safety and protection along the extended segments, and a lost opportunity to evaluate the effectiveness of the TransWave monitoring system.

potentially ignite causing fires or explosions, loss of life, and/or damage to property or the environment. Industry experience demonstrates that pipeline rupture-initiated fires almost always result in only localized damage to the vegetation and animal life, localized human health impacts (deaths and injuries), and localized damage to property. It is possible that a rupture occurring in a forested area in the dry summer season could result in a forest fire, which would have a more extensive impact on wildlife and vegetation. Similarly, such conditions could possibly result in spreading fires that have human health and property impacts beyond the area immediately adjacent to the site of the pipeline leak or rupture. However, the likelihood of a such an occurrence is believed to be very low. Other than localized impacts on humans, property, vegetation, or animals in the event of a fire or explosion, there are no significant environmental impacts from natural gas pipeline leaks or ruptures.

Even though the environmental impacts from natural gas pipeline failures are minimal, Duke and OPS have surveyed the environment along the waiver segments to understand the resources which could be affected by pipeline failures on those segments. The remainder of this section summarizes the key environmental features in the locations impacted by the Activities (i.e., the waiver segments and extended segments).

predominantly agriculture/pasture and mixed forest, with some agricultural, and residential development. There are no known parks, natural and scenic areas or other public lands or special use areas crossed by these pipeline segments. The parallel pipelines cross the J. Percy Priest Wildlife Management Area downstream of the waiver segments. The vegetative cover along the agriculture/pasture areas traversed and adjacent to the lines is comprised predominantly of monoculture crop species or grasses such as bluestem, panicum, purpletop and Kentucky fescue. Forested areas are dominated by broadleaf deciduous and needle-leaf evergreen trees such as loblolly pine, shortleaf pine, oak, hickory, sweetgum, red maple, and dogwood. There are some areas where no vegetation is present on the right-of-way.

The pipeline crosses an estimated 18.2 miles of forested area, 40.4 miles of agriculture/pasture land, and 5 miles that are considered residential, commercial or industrial lands. With the exception of the heavily developed area crossed by this section of the pipeline near Smyrna, Tennessee, the majority of the residential areas along the pipeline have low population densities in which scattered houses and trailer homes are located. Much of the right-of-way along this segment of the Duke system is accessible by public roads.

right-of-way. Major river, creek, and lake crossings include Harpeth River, Duck River, Suggs Creek, North Creek, Rock Springs Creek, Olive Branch Creek, Nelson Creek, Rutherford Creek, and J. Percy Priest Lake.

Within this section of pipeline between the Mount Pleasant and Gladeville Compressor Stations are five segments ranging in length from 0.33 mile to 0.88 miles where OPS is considering alternatives to the requirements of 49 CFR 192.611. These locations and the specific environmental features along each segment are described below:

- **1.2 miles southwest of Hollywood, Tennessee, in Maury County:** This 0.88-mile segment is changing from Class 1 to Class 2 (See section B.1.1 for definition of class locations). This segment contains seven houses and four trailers, including new construction. These structures are concentrated primarily along the northeastern half of the class location change area. Within this segment are one creek crossing and one palustrine forested wetland crossing.
- **One-half mile north of Hollywood, Tennessee, in Maury County:** This 0.58-

houses (including new construction), the majority of which are near the center of the segment. Homes are sparse toward both ends of the 0.58-mile segment. Two creeks, including Hopewell Branch and a primary tributary of Hopewell Branch, cross this segment. No wetlands are located along this segment.

- **1 mile east of Union Grove, Tennessee, in Maury County:** This 0.50-mile segment is changing from Class 1 to Class 2. The segment contains 26 structures, including new construction, with 12 of them consisting of trailer homes concentrated at the southwest end of the segment. Thirteen houses and one business are dispersed along the northeast end of the segment. This segment crosses two creeks, including Smith Branch and a primary tributary of Smith Branch, and two ponds.
- **2.5 miles northwest of Rally Hill, Tennessee, Maury County:** This 0.34-mile segment is changing from Class 1 to Class 2. There are one trailer and two houses toward the center of this class location change segment. This segment crosses Kincaid Branch at the southern end of the segment, but appears to cross no

houses, nine of which are relatively evenly distributed at the northeast end of the class change area, and one trailer. Although no creeks are crossed, this class change segment crosses three ponds.

There are no threatened or endangered species or critical habitat of such species in the vicinity of any of the class location change segments². There are no known cultural or paleontological resources in any of the class location change areas³.

OPS has determined that Duke's Activities will not jeopardize the continued existence of any endangered or threatened species nor result in the destruction or adverse modification of designated critical habitat. OPS believes that the level of disturbance that will be caused by completion of the Activities is unlikely to have adverse impacts on species or habitat and that compliance with current regulations would likely result in a greater impact on the environment.

E. Environmental Consequences of Proposed Action and Alternatives

² Information regarding threatened and endangered species in Tennessee was

This section describes the environmental impacts of the two alternatives described in this Environmental Assessment: approval or denial of the waiver request. As stated in the previous section, the environmental impacts of natural gas pipeline failures are minimal, restricted to the immediate vicinity of the failure location that may burn if a fire or explosion occurs.

E.1 Environmental Impact of Approving Waiver

OPS's preferred alternative is to approve the waiver request, allowing a pressure increase and the proposed Activities described in Section B. OPS believes that the Activities will provide a margin of safety and environmental protection that is comparable to current regulations. This margin of safety and environmental protection is achieved by implementing the Activities over the full 63.6 miles comprising the waiver and extended segments. The Activities address causes of failure that have historically contributed to natural gas pipeline leaks or ruptures:

- Internal inspection and repair of the pipeline and repair of anomalies produces additional protection from corrosion, construction and material defects, and prior outside force damage.

- Enhanced communications with stakeholders and temporary installation of the TransWave monitoring system reduces the likelihood of third-party impacts which could damage the pipeline.

If OPS were to deny the waiver and require compliance with current regulations, Duke would be required to replace pipe along the waiver segments. Pipe replacement introduces some adverse environmental impacts that are avoided if the waiver request is approved. Pipe replacement involves excavation of the right-of-way to replace the pipe segment. Excavation activities would result in disturbance of the vegetation and wildlife in the immediate vicinity of the pipeline.

For these reasons, OPS is satisfied that granting the proposed waiver will provide a comparable margin of safety and protection for the environment near the waiver segments. Although the waiver is expected to provide net environmental benefits, these beneficial impacts are not expected to be significant, because of the minimal environmental impact associated with gas pipeline failures.

E.2 Environmental Impact of Denying Waiver

proposed action. Denying the waiver request would likely require Duke to replace pipe along the waiver segments, thereby causing environmental disruption due to excavation activity.

F. Environmental Justice Considerations

In accordance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations), OPS has considered the effects of the Activities on minority and low-income populations. As explained above, approval of the proposed waiver is expected to provide equivalent safety and environmental protection to compliance with 49 CFR § 192.611. Residents near the affected pipelines will have an equivalent level of protection to the level they presently have, regardless of the residents' income level or minority status. Therefore, the proposed waiver does not have any disproportionately high or adverse health or environmental effects on any minority or low-income populations near the affected segments.

G. Listing of the Agencies and Persons Consulted, Including Any Consultants

Persons/Agencies Directly Involved in Evaluation of Alternatives

Fred Joyner, OPS/U.S. Department of Transportation Southern Region

Dallas Rea, OPS/U.S. Department of Transportation Southern Region

Paul Wood, Cycla Corporation (consultant)

Roger Huston, Cycla Corporation (consultant)

I. Conclusion

Based on the above-described analysis of the proposed waiver, OPS has determined that there are no significant environmental impacts associated with this action.