RATIONALE

State of Tennessee General NPDES Permit for Discharges of Hydrostatic Test Water

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1. Introduction

The purpose of this rationale sheet is to propose State of Tennessee and National Pollutant Discharge Elimination System (NPDES) discharge permit conditions and related general permit procedures for discharges of hydrostatic test water from new facilities, unused facilities, and from used facilities which have been used for the transportation or storage of natural gas, crude oil, or liquid or gaseous petroleum hydrocarbons. These facilities include, but are not limited to, pipelines, flowlines, and storage tanks.

2. Background

Since the issuance of the previous NPDES general permit for discharges of hydrostatic test water, the Division of Water Resources (the division) has received about 153 applications to discharge hydrostatic test water. These discharges are similar in several ways, they are primarily: 1) for one-time discharges; 2) from metallic vessels; and 3) the used vessels, as addressed in this general permit, have transported or contained petroleum or petroleum-derived gases or liquids.

As such, the discharges generally require the same effluent limitations and monitoring requirements. Since the permit requirements for all these discharges are similar and because of the number of discharges, it is the opinion of the division that this category of sources is controlled more appropriately under a NPDES general permit rather than under individual permits. General NPDES permits are issued by the division in accordance with the TN Rule 0400-40-10-.01 through .03.

The integrity of a section of new or used vessel is hydrostatically tested in the field for leaks over a several hour period. After this hydrostatic test, the water is pumped from the vessel to a treatment device

for ultimate release to ground and/or surface water. Federal Department of Transportation regulations specify the requirements for testing the vessel.

For pipe, tested sections vary in length and may be several miles long. The amount of water discharged from a test also varies and can range from several thousand gallons to several million gallons. Sections of pipeline that have been in service and have collected condensate and hydrocarbons at low lying points are sometimes cleaned with pigging devices prior to hydrostatic tests. This general permit does not authorize discharges resulting from cleaning operations.

3. Present Permit Conditions

The present NPDES General Permit for Discharges of Hydrostatic Test Water was issued on March 16, 2011, and it expires on March 15, 2016. The present permit protects the quality of waters of the state by regulating the quality of water discharged from hydrostatic testing activities. Pollutants regulated under the present permit include chlorine, solids, iron, oil and grease, hydrocarbons, and PCBs. Potential source(s) for these pollutants are as follows:

Pollutants	**Source(s)**
Chlorine	present in intake water if a municipal water supply is used
Solids	present in intake water; erosion of soil over which discharge is routed
Iron	present in intake water and from pipe
Oil and Grease	equipment used to conduct tests (valves, pumps, welders, vehicles); rust inhibitor in new pipe
Hydrocarbons	collected in condensate within the pipeline (only in used pipe)
PCBs	collected in condensate within the pipeline (only in used pipe) from PCB compressor lubricants used during the 1960's and 70's.

Under State and Federal laws and regulations, a discharge permit must establish effluent limitations equivalent to best available technology economically achievable (BAT). For some industry categories, such effluent limitations have already been established by the EPA. This is not the case with discharges of hydrostatic test water; thus, the division will use Best Professional Judgment (BPJ) to choose effluent limitations that meet technology based levels equivalent to BAT. Present permit limits are as follows:

Vessel Type	Parameter	Limit
New	Visible Oil	No distinctly visible floating oil contained on or in the wastewater discharge
Used natural gas	Visible Oil	No distinctly visible floating oil contained on or in the wastewater discharge
	Oil and Grease	15 mg/l as a daily maximum concentration
	pH	6.0 standard units as a minimum
		9.0 standard units as a maximum
	PCBs*	0.00064 µg/l as a daily maximum
Used petroleum product	Visible Oil	No distinctly visible floating oil contained on or in the wastewater discharge
	Oil and Grease	15 mg/l as a daily maximum concentration
	pH	6.0 standard units as a minimum
		9.0 standard units as a maximum
	BETX (total)	0.20 mg/l as a daily maximum
	Benzene**	5 µg/l as a daily maximum for water body segments classified for domestic water supply
		510 µg/l as a daily maximum for water body segments classified for recreation and not classified for domestic water supply

* If the discharger has certified in the NOI that compressors or other equipment that contained PCBs were never used on the pipeline and that the presence of PCBs in the pipeline has not been indicated, this limit does not apply.

** For discharges into water body segments designated for domestic water supply or if a domestic water intake is located within five miles downstream, a limit of 5 µg/l will apply. For discharges into water body segments not designated for domestic water supply a limit of 510 µg/l will apply.

The construction, transportation and storage of the vessels to be tested shall be done in such a way that prevents debris and materials from being deposited within the vessel where it may later be washed out by hydrostatic test water and released to surface or subsurface water.

The discharger shall use proper engineering practices and Best Management Practices (BMPs) to prevent contamination of hydrostatic test water by fuels, lubricants or waste materials. An example of such a BMP is use of pigging devices to force out liquid and solid materials from the pipe prior to filling the pipe with test water.

Hydrostatic test water shall be discharged in a manner to prevent erosion of soil or other materials into surface or subsurface water. BMPs preventing erosion include, but are not limited to splash pads, straw bales, silt fences, and vegetated buffer zones.

Hydrostatic test water shall be discharged in a manner so that chlorine will be dissipated prior to the discharge entering waters of the state.

There shall be no distinctly visible floating scum, oil or other matter contained on or in the wastewater discharge.

The wastewater discharge must result in no other materials in concentrations sufficient to be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

If the hydrostatic test water is discharged through an oil/water separator or other wastewater treatment process or device, the hydraulic and contaminant loading shall not exceed the capacity of the oil/water separator or other process or device.

Sludge or any other material removed by any treatment works must be disposed of in a manner which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, T.C.A. § 68-211-101 et seq. and the Tennessee Hazardous Waste Management Act, § T.C.A. 68-212-101 et seq.

The wastewater discharge must not cause an objectionable color contrast in the receiving stream.

4. New Permit Limits

The proposed technology based limits and rationale are as follows:

New Pipelines and Vessels. The division's Best Professional Judgment is that pollution prevention and Best Management Practices (BMPs) are equivalent to BAT for discharges of hydrostatic test water from new pipelines and other new vessels.

The permit will require the following:

- The manufacture, transportation, and storage of the vessels be done in such a way that prevents debris and toxic materials from being deposited within the tanks where it may later be entrained in the hydrostatic test water and released to surface water;
- The discharger shall use good engineering practices and BMPs to prevent contamination of the hydrostatic test water by fuels, lubricants, or waste materials on site;
- That the water be discharged in a manner to prevent erosion of soil or other materials into surface water; and
- That the water be discharged in a manner so that chlorine will be dissipated prior to the discharge entering waters of the State.

Compliance with these and the rest of the hydrostatic general permit conditions will ensure compliance with water quality standards and no degradation to waters of the state.

No chemical analyses of discharges from new vessels will be required. Visual monitoring for the presence of oil in the discharge will be required based on the current Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03, General Water Quality Criteria (commonly

referred to as Water Quality Standards, referred to as TN Rule 0400-40-03 from hereon), specifically Water Quality Criteria for Solids, Floating Materials and Deposits (0400-40-3-.03 (1) (e)).

Used Natural Gas Pipeline. The division's BPJ is that BMPs, including, if necessary, straw bale structure to provide detention, filtration, and adsorption are equivalent BAT for discharges of hydrostatic test water from used natural gas pipeline. Additionally, if a discharger cannot give proof that PCBs are not present in the pipe, then one must use reasonable efforts to clean the pipe prior to the hydrostatic test. A discharger must monitor for the presence of PCBs in their hydrostatic test water if they are unable to certify that PCBs are not present in the pipe.

The division proposes the following limitations for discharges from used natural gas pipelines.

Visible Oil	No distinctly visible floating oil contained on or in the wastewater discharge
Oil and Grease	15 mg/l as a daily maximum concentration
pH	6.0 standard units as a minimum
	9.0 standard units as a maximum
PCBs*	0.00064 µg/l as a daily maximum

*If the discharger can certify that compressors or other equipment that contained PCBs were never used on the pipeline, and the presence of PCBs has not been indicated in the line, neither monitoring nor a limit will be applied.

Visual monitoring for the presence of oil in the discharge will be required based on the department's current Water Quality Criteria for Solids, Floating Materials and Deposits (TN Rule 0400-40-03-.03 (1)(e), (2)(e), (3)(c), and (4)(c)).

The division has determined that the 15 mg/l limit for oil and grease can be easily achieved with a properly maintained oil-water separator, it is consistent with the oil and grease concentration imposed at other industrial sites, and it is protective of designated uses of all surface streams.

The discharge limits for pH were set between 6.0-9.0 to reflect the department's current Water Quality Criteria for pH (TN Rule 0400-40-03-.03 (3)(b)).

The discharge limit for compressors or other equipment that has contained PCBs was set at 0.00064 µg/l to reflect the department's current Water Quality Criteria (TN Rule 0400-40-03-.03 (4)(j)).

Used Petroleum Product Vessels. The division's BPJ-BAT is the same as that for used natural gas pipeline. The division proposes the following limitations for discharges from used petroleum product vessels.

Visible Oil	No distinctly visible floating oil contained on or in the wastewater discharge
Oil and Grease	15 mg/l as a daily maximum concentration
pH	6.0 standard units as a minimum
	9.0 standard units as a maximum
BETX (total)	0.20 mg/l as a daily maximum
Benzene*	5 µg/l as a daily maximum for water body segments classified for domestic water supply
	510 µg/l as a daily maximum for water body segments classified for recreation and not classified for domestic water supply

*For discharges into water body segments designated for domestic water supply or if a domestic water intake is located within five miles downstream, a limit of 5 µg/l will apply. For discharges into water body segments not designated for domestic water supply a limit of 510 µg/l will apply.

The rationale for the limits for visible oil, oil and grease, and pH is the same as that for Used Natural Gas Pipeline.

The daily maximum concentrations for Benzene, Ethylbenzene, Xylenes and Toluene (BETX) were based upon odor threshold values. These odor threshold values were taken from handbook of Environmental Data on Organic Chemicals, Second Edition, by Karel Vershueren (Van Nostrand Reinhold Company, New York, 1982). The previous permit limits were the most restrictive for each effluent characteristic when compared with the Water Quality criteria values, and were retained in the new permit. Monitoring frequencies from the previous permit were also retained in the new permit.

The discharge limits for benzene were set to reflect the department's current Water Quality Criteria (TN Rule 0400-40-03-.03 (1)(j) and (4)(j)).

The proposed water quality based limitations and conditions are as follows:

The discharge limit for PCBs was set at 0.00064 µg/l and the limits for pH were set at 6.0 to 9.0 to reflect the department's current Water Quality Criteria (TN Rule 0400-40-03-.03 (4)(j)).

The discharge limits for benzene were set as follows:

- 5 µg/l as a daily maximum for discharges into water body segments designated for domestic water supply
- 5 µg/l as a daily maximum if a domestic water intake is located within five miles downstream
- 510 µg/l as a daily maximum for discharges into water body segments not designated for domestic water supply.

These limits reflect the department's current Water Quality Criteria (TN Rule 0400-40-03-.03 (1)(j) and (4)(j)).

The following standard permit language will be included in the permit:

- The wastewater discharge must result in no other materials in concentrations sufficient to be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.
- Sludge or any other material removed by any treatment works must be disposed of in a manner which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, TCA § 68-31-101 et seq., and the Tennessee Hazardous Waste Management Act, TCA §68-46-101 et seq.

The monitoring and reporting requirements will be as follows:

Monitoring requirements will be set at once per discharge during the first 60 minutes of discharge.

For one-time discharges, reporting will be required once no later than 30 days after the date the samples are collected.

If a facility will be testing new vessels at one location for numerous times over several months or years, monitoring will be required once per discharge, except only one discharge per month need be sampled, and reports will be required once per month.

5. Waters with Unavailable Parameters

The phrase "*impaired waters*" was not used in the most recent and applicable Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03, General Water Quality Criteria (commonly referred to as Water Quality Standards, referred to as TN Rule 0400-40-03 from hereon). The regulatory approach of using "*impaired waters*" was replaced with "*waters with unavailable parameters*." A corresponding change was made in this proposed general permit.

Any reference to "*unavailable parameters*" is used in the context of discussing proposed or existing discharges to "*waters with unavailable parameters*." However, TN Rule 0400-40-03, does not have a definition for "*unavailable parameters*," but in the section 0400-40-03-.06 (Antidegradation Statement) states, in part:

"(2) Waters with unavailable parameters

Unavailable parameters exist where water quality is at, or fails to meet, the levels specified in water quality criteria in Rule 0400-40-03-.03. In the case of a criterion that is a single response variable or is derived from measurement of multiple responsible variables, the unavailable parameters shall be the agents causing water quality to be at or failing to meet the levels specified in criteria. For example, if the biological integrity criterion (derived from multiple response variables) is violated, the unavailable parameters shall be the pollutants causing the violation, not the response variables.

(a) In waters with unavailable parameters, new or increased discharges that would cause measurable degradation of the parameter that is unavailable shall not be authorized. Nor will discharges be

authorized in such waters if they cause additional loadings of unavailable parameters that are bioaccumulative or that have criteria below current method detection levels."

In summary, the proposed permit is aligned with the most current and applicable TN Rule 0400-40-03 and corresponding definitions. This change in regulatory language does not have any substantive bearing on the implementation of the Antidegradation Statement or potential compliance with TMDLs within this general permit. Compliance with the terms and conditions of this general permit will be considered compliance with the Antidegradation Statement.

6. General Permit Issuance Procedures

This general permit is drafted in accordance with applicable NPDES regulations (40 CFR 122, 123, 124 and 125), the Tennessee Water Quality Control Act (§ 69-3-101 et seq.), and the Department's permit issuance regulations (Rules of the Department 0400-40-1-.05 and 0400-40-10.01 through .03).

7. Permit Issuance and Public Notice Procedures

This general permit is drafted in accordance with applicable NPDES regulations (40 CFR 122, 123, 124, and 125), the Tennessee Water Quality Control Act (T.C.A. § 69-3-101, et.seq.), and the TDEC's permit issuance regulations in TN Rule 0400-40-05.

The applicable regulations for issuance of this general permit are found in 40 CFR 122.28 and 123.44, and the regulations for fact sheet requirements are found in 40 CFR 124.8 and 124.56.

The division will publish notice of its intent to issue the Hydrostatic Test Water permit and notice of a public hearing to receive comments on the draft permit. At least 30 days notice will be given for the public hearing. Comments will be received at least 10 ten days after the last hearing. Any interested person may request copies of the rationale (fact sheet) and draft permit and submit written comments on the draft permit.

The division will hold a public hearing in Nashville, Tennessee:

Place: 312 Rosa L. Parks Ave
Nashville, TN 37243

Date: April 22, 2011

Time: 1:30 p.m. CDT

For additional information contact:

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