

NPDES PERMIT NO. TX0133993
STATEMENT OF BASIS

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

APPLICANT:

TransCanada Keystone Pipeline LP (Houston Lateral Oil Pipeline Project)
717 Texas Street, Suite 2400
Houston, TX 77002

ISSUING OFFICE:

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
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PREPARED BY:

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DATE PREPARED:

May 30, 2013

PERMIT ACTION

It is proposed that the facility be issued an NPDES permit for a 5-year term in accordance with regulations contained in 40 Code of Federal Regulations (CFR) 122.46(a).

40 CFR CITATIONS: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of May 17, 2013.

RECEIVING WATER – BASIN

Various

DOCUMENT ABBREVIATIONS

For brevity, Region 6 used acronyms and abbreviated terminology in this Statement of Basis document whenever possible. The following acronyms were used frequently in this document:

BAT	Best Available Technology Economically Achievable)
BOD ₅	Biochemical oxygen demand (five-day unless noted otherwise)
BPJ	Best professional judgment
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COD	Chemical oxygen demand
COE	United States Corp of Engineers
CWA	Clean Water Act
DMR	Discharge monitoring report
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
F&WS	United States Fish and Wildlife Service
GPD	Gallon per day
HT	Hydrostatic Testing
IP	Procedures to Implement the Texas Surface Water Quality Standards
µg/l	Micrograms per liter (one part per billion)
mg/l	Milligrams per liter (one part per million)
MGD	Million gallons per day
MSGP	Multi-Sector General Permit
NPDES	National Pollutant Discharge Elimination System
MQL	Minimum quantification level
O&G	Oil and grease
RRC	Railroad Commission of Texas
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TDS	Total dissolved solids
TMDL	Total maximum daily load
TOC	Total Organic Carbon
TRC	Total residual chlorine
TSS	Total suspended solids
TSWQS	Texas Surface Water Quality Standards
WET	Whole effluent toxicity
WQMP	Water Quality Management Plan
WQS	Water Quality Standards

I. PROPOSED CHANGES FROM CURRENT PERMIT

The facility is a new discharger.

II. APPLICANT LOCATION and ACTIVITY

The facility is planning to construct the Houston Lateral Oil Pipeline Project originating from its existing Keystone Pipeline near Moss Hill, Texas (Liberty County) to the Moore Junction Tank Terminal in the Houston Farms area north of Channelview, Texas (Harris County). The project will deliver crude oil via a new 48-mile long, 36-inch diameter steel pipeline.

Under the SIC code 4612, Crude Petroleum Pipelines, the applicant plans to operate a crude oil pipeline and related facilities. The proposed permit is for the hydrostatic testing of new 36-inch steel pipe, new above ground steel tanks and ancillary facilities.

III. DISCHARGE LOCATION

The discharge points showing Outfall number, discharge coordinates: latitude and longitude, county, average flow rate in millions gallons per day (MGD), receiving water, and the waterbody identification numbers are shown in the following table:

Outfall Reference Number	Discharge Coordinates Latitude Deg° Min' Sec" Longitude Deg° Min' Sec"	County	Average Flow MGD	Receiving Water	Segment #
001	29° 59' 44" N 94° 45' 22" W	Liberty	7.2	Private Lake	NA
002	29° 58' 41" N 94° 48' 37" W	Liberty	7.2	Trinity River	0801
003	29° 58' 27" N 94° 48' 40" W	Liberty	7.2	Trinity River	0801
004	29° 53' 49" N 94° 58' 10" W	Liberty	7.2	Cedar Bayou	0902
005	29° 52' 1" N 94° 58' 53" W	Harris	7.2	Cedar Bayou	0902
006	29° 52' 11" N 95° 3' 20" W	Harris	7.2	San Jacinto Canal- Man Made	NA
007	33° 20' 58.28" N 95° 30' 23.15" W	Harris	7.2	San Jacinto River	1001
008	29° 49' 30" N 95° 9' 24" W	Harris	7.2	Carpenters Bayou	1006B
009	29° 51' 11" N 95° 3' 20" W	Harris	7.2	San Jacinto Canal – Man Made	NA
010	29° 49' 30" N 95° 9' 24" W	Harris	7.2	Carpenters Bayou	1006B
011	29° 49' 30" N 95° 9' 24" W	Harris	7.2	Carpenters Bayou	1006B
012	29° 49' 38" N 95° 9' 12" W	Harris	7.2	Carpenters Bayou	1006B

IV. DISCHARGE DESCRIPTION

This will be a new facility and no discharge has occurred. Therefore, no effluent data are available. However, the proposed discharges from each outfall are described as follows:

Discharges from Outfall 001 are to Private Lake. There are no TCEQ designated uses for Private Lake.

Discharges from Outfalls 002 and 003 are to Trinity River in Segment No. 0801. The designated uses for Segment No. 0801, Trinity River Tidal in Trinity River Basin are contact recreation and high aquatic life.

Discharges from Outfalls 004 and 005 are to receiving water named Cedar Bayou in Segment No. 0902, Cedar Bayou above Tidal in Trinity-San Jacinto Coastal Basin. The designated uses of Cedar Bayou above Tidal, Segment No. 0902 are contact recreation, high aquatic life and public water supply.

Discharges from Outfalls 006 and 009 are to San-Jacinto Canal, which is man-made. San Jacinto Canal does not have TCEQ Water Body ID.

Discharges from Outfall 007 are to receiving water named San Jacinto River, Segment 1001, San Jacinto River Tidal of the San Jacinto River Basin. The designated uses of Segment 1001 are contact Recreation and high aquatic life.

Discharges from Outfall 008, 010, 011, 012 are to an unclassified waterbody, named Carpenters Bayou in Segment 1006B, Houston Ship Channel Tidal. The designated uses of Segment No. 1006 are N/IS i.e. Navigation/Industrial Water Supply.

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW of TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITION FOR PERMIT ISSUANCE

Regulations contained in 40 CFR §122.44 NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, on best professional judgment (BPJ) in the absence of guidelines, and/or requirements pursuant to 40 CFR 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated at 40 CFR §122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures.

There are no published ELG's for this type of activity. Permit limits are proposed based on BPJ. Since hydrostatic test water discharges are batch discharges of short term duration, limits in this Permit will be expressed in terms of daily maximum concentrations rather than in terms of mass

limitations, as allowed by 40 CFR 122.45(e) and (f). Limitations for Oil & Grease, TSS, and pH are proposed in the permit. The proposed limitations for TSS are 30 mg/l average, 45 mg/l maximum; and Oil & Grease is 15 mg/l maximum. Narrative standards for oil, grease, or related residue have been placed in the proposed permit. A technology-based limit of 15 mg/l for Oil and Grease should assure that the narrative criterion is maintained. Concentration limits will be protective of the stream uses.

C. WATER QUALITY BASED LIMITATIONS

1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

The general criteria and numerical criteria which make up the stream standards are provided in the 2000 EPA-approved Texas Water Quality Standards, Texas Administrative Code (TAC), 30 TAC Sections 307.1 - 307.9, effective August 24, 2012.

2. Reasonable Potential- Procedures

EPA develops draft permits to comply with State WQS, and for consistency, attempts to follow the IP where appropriate. However, EPA is bound by the State's WQS, not State guidance, including the IP, in determining permit decisions. EPA performs its own technical and legal review for permit issuance, to assure compliance with all applicable State and Federal requirements, including State WQS, and makes its determination based on that review. Waste load allocations (WLA's) are calculated using estimated effluent dilutions, criteria outlined in the TWQS, and partitioning coefficients for metals (when appropriate and designated in the implementation procedures). The WLA is the end-of-pipe effluent concentrations that can be discharged and still meet instream criteria after mixing with the receiving stream. From the WLA, a long term average (LTA) is calculated, for both chronic and acute toxicity, using a log normal probability distribution, a given coefficient of variation (0.6), and either a 90th or a 99th percentile confidence level. The 90th percentile confidence level is for discharges to rivers, freshwater streams and narrow tidal rivers with upstream flow data, and the 99th percentile confidence level is for the remainder of cases. For facilities that discharge into receiving streams that have human health standards, a separate LTA will be calculated. The implementation procedures for determining the human health LTA use a 99th percentile confidence level, along with a given coefficient of variation (0.6). The lowest of the calculated LTA; acute, chronic and/or human health, is used to calculate the daily average and daily maximum permit limits.

Procedures found in the IP for determining significant potential are to compare the reported analytical data either from the DMR history and/or the application information, against percentages of the calculated daily average water quality-based effluent limitation. If the average of the effluent data equals or exceeds 70% but is less than 85% of the calculated daily average limit, monitoring for the toxic pollutant will usually be included as a condition in the permit. If the average of the effluent data is equal to or greater than 85% of the calculated daily

average limit, the permit will generally contain effluent limits for the toxic pollutant. The permit may specify a compliance period to achieve this limit if necessary.

Procedures found in the IP require review of the immediate receiving stream and effected downstream receiving waters. Further, if the discharge reaches a perennial stream or an intermittent stream with perennial pools within three-miles, chronic toxicity criteria apply at that confluence.

For Outfalls 001, 002, 003, 004, 005,006, 007, 009, the hydrostatic test water will be drawn and discharged back into the same water body. As a result, intake credits are authorized for Outfalls 001 through 007 and 009, to account for in-situ waterbody conditions for only TSS. Outfalls 008, 010, 011 and 012 will be drawn from Private Lake/Canal/proposed water well and be discharged into another waterbody. Intake credits are not allowed for Outfalls 008, 010, 011 and 012.

3. Permit-Action - Water Quality-Based Limits

Regulations promulgated at 40 CFR §122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). State WQS that are more stringent than effluent limitation guidelines are as follows:

a. pH

The daily minimum and daily maximum permit limits of 6.0 standard units to 9.0 standard units on hydrostatic test general permits developed by other EPA Regions and States. TAC 307.10 states, "The pH criteria are listed as minimum and maximum values expressed in standard units at any site within the segment."

Wastewater discharges from the facility will flow into various receiving waterbody within various segment. pH shall be limited to the criteria listed for each Segment. For all Outfalls, pH shall be limited to 6.5 – 9.

b. Narrative Limitations

Narrative protection for aesthetic standards will propose that surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film or globules of grease on the surface or coat the banks or bottoms of the watercourse; or cause toxicity to man, aquatic life, or terrestrial life.

The following narrative limitations in the proposed permit represent protection of water quality for all Outfalls.

“The effluent shall contain no visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse.”

c. Toxics

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR §122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream

excursion above a water quality criteria, the permit must contain an effluent limit for that pollutant.

The applicant proposes to draw water from various Rivers, Private Lake, Canal and Water Well to conduct its hydrostatic testing. Hydrostatic test water will contact only new pipe, and no chemicals will be added. As a result, no contaminants are expected to be present in the hydrostatic test water discharge at amounts that would pose a reasonable potential to exceed State WQS.

Solids and Foam

The prohibition of the discharge of floating solids or visible foam in other than trace amounts is proposed in the draft permit. In addition, there shall be no discharge of visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). The monitoring frequencies are based on BPJ, taking into account the nature of the facility.

For ALL outfalls, monitoring for flow, TSS, Oil & Grease, and pH shall be daily by grab sample, when discharging.

E. WHOLE EFFLUENT TOXICITY LIMITATIONS

There are no chemical specific limitations in the draft permit and the applicant has stated that no chemical additives such as corrosion inhibitors are being added to the HT water. There does not appear that the discharge will have a potential for toxicity. The draft permit does not propose any biomonitoring of the HT water.

F. FINAL EFFLUENT LIMITATIONS

See the draft permit for limitations.

VI. FACILITY OPERATIONAL PRACTICES

A. WASTE WATER POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute programs directed towards pollution prevention. The permittee will institute programs to improve the operating efficiency and extend the useful life of the treatment system.

B. OPERATION AND REPORTING

The permittee must submit Discharge Monitoring Report's (DMR's) quarterly, beginning on the effective date of the permit, lasting through the expiration date of the permit or termination of the permit, to report on all limitations and monitoring requirements in the permit.

VII. IMPAIRED WATER - 303(d) LIST AND TMDL

According to the 2010 State of Texas 303(d) List for Assessed River/Stream Reaches requiring Total Maximum Daily Loads (TMDLs), the receiving stream for Outfalls 002, 003, Trinity River Tidal, Segment No. 0801C, in the Trinity River Basin is listed for bacteria and depressed dissolved oxygen. This impairment is under TCEQ's category 5b, which implies that a review of the water quality standards for this water body will be conducted before a TMDL is scheduled.

Outfall 007, San Jacinto River Tidal, Water Body Segment No 1001 is listed as impaired for dioxin and PCBs in tissue, under category 5a. Category 5a implies that a TMDL is underway, scheduled, or will be scheduled.

Outfalls 008, 010, 011, and 012, Carpenters Bayou, Water Body Segment No 1006B are listed for dioxin and PCBs in tissue, under TCEQ's category 5a.

Outfalls 003, 004, and 005, Cedar Bayou above Tidal, Water Body Segment No 0902 are not listed in the 2010 State of Texas 303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs).

The listed pollutants in all the segments above are bacteria, depressed dissolved oxygen, dioxin and PCBs in edible tissue. In light of the nature of the system, the discharger is not likely to contribute to bacteria, dioxin and PCBs in edible tissue. The discharge water will not be treated with biocides or other additives. Therefore, no additional requirements beyond the previously described technology-based or water quality-based effluent limitations and monitoring requirements, are established in the proposed permit.

VIII. ANTIDEGRADATION

The Texas Commission on Environmental Quality, Texas Surface Water Quality Standards, Antidegradation, Title 30, Part 1, Chapter 307, Rule §307.5 sets forth the requirements to protect designated uses through implementation of the State WQS. The limitations and monitoring requirements set forth in the proposed permit are developed from the State WQS and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements are protective of the assimilative capacity of the receiving waters, which is protective of the designated uses of that water.

IX. ENDANGERED SPECIES

The effects of EPA's permitting action are considered in the context of the environmental baseline. The environmental baseline is established by the past and present impacts of all Federal, State, or private actions and other human activities in an action area; the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early ESA §7 consultation; and the impact of State or private actions that are contemporaneous with the consultation in process (50 CFR §402.02). Hydrostatic test water discharges occur after a pipeline has already been put in place following earth disturbing activities that have had to have received appropriate federal, state, and local authorizations putting the construction of pipeline itself into the environmental baseline. The scope of the evaluation of the effects of the discharge authorized by this permit was therefore limited to the effects related to the authorized discharge.

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, http://www.fws.gov/southwest/es/ES_ListSpecies.cfm, Texas Prairie dawn flower is the only endangered species listed in Harris County; Red-Cockaded Woodpecker (*Picoides borealis*) is the only species listed as threatened or endangered in Liberty County.

The description of the species and its effect on the hydrostatic test discharge is described below.

TEXAS PRAIRIE DAWN FLOWER (*Hymenoxys texana*):

Texas Prairie Dawn is a delicate annual one to six inches tall flower. Its yellow flower heads, less than 1/2 inch in diameter, stand out brightly in the patches of dull gray barren sand in which the species is normally found.

Texas Prairie Dawn flowers in March - early April; disappear by mid-summer. It is known from about 50 sites, many within Addicks and Barker Reservoirs in western Harris County. However, habitat destruction by urban development continues to threaten this tiny plant. It grows in sparsely vegetated areas ("slick spots") at the base of mima mounds ("pimple mounds") or other nearly barren areas on slightly saline soils in coastal prairie grasslands. This wildflower is found in Fort Bend and Harris counties, southeast Texas. This species occurs within and on the outskirts of Houston.

Issuance of this permit is found to have no impact on the habitat of this species, since the discharge is not expected to lead to the destruction of habitat.

RED-COCKADED WOODPECKER (*Picoides Borealis*)

Red-cockaded woodpecker is about 8.5 inches long, with a wingspan of about 14 inches, and a weight of about 1.5 ounces. Its back is barred with black and white horizontal stripes. The Red-cockaded Woodpecker's most distinguishing feature is a black cap and nape that encircle large white cheek patches. The Red-cockaded Woodpecker feeds primarily on ants, beetles, cockroaches, caterpillars, wood-boring insects, and spiders, and occasionally fruit and berries. Red-cockaded Woodpeckers are a territorial, non-migratory, cooperative breeding species, frequently having the same mate for several years. The nesting season runs from April to June. The Red-cockaded Woodpecker makes its home in mature pine forests.

The Red-cockaded Woodpecker plays a vital role in the intricate web of life of the southern pine forests. A number of other birds and small mammals use the cavities excavated by Red-cockaded Woodpeckers, such as chickadees, bluebirds, titmice, and several other woodpecker species, including the Downy, Hairy, and Red-bellied Woodpeckers. Larger woodpeckers may take over a Red-cockaded Woodpecker cavity, sometimes enlarging the hole enough to allow Eastern Screech Owls, Wood Ducks, and even Raccoons to move in later. Its preference for longleaf pine and the destruction of that habitat have resulted in the woodpecker becoming an endangered species. The specificity of the bird's breeding habitat makes it extremely vulnerable to habitat loss. Red heart fungus was once common in trees at least 70 years old, but most pines are cut before they reach that age, resulting in a shortage of nesting sites. Fire prevention and suppression policies have also negatively impacted the species, allowing underbrush to clog the open forests it prefers. Consequently, conservation efforts have focused on the installation of artificial cavities for nesting and controlled burns.

The Environmental Protection Agency has evaluated the potential effects of issuance of this permit modification upon listed endangered or threatened species. After review, EPA has determined that this permit modification will have “*no effect*” on listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. No pollutants are identified by the permittee-submitted application at levels which might affect species habitat or prey species. Issuance of this permit is found to have no impact on the habitats of these species.
2. Based on information described above, EPA Region 6 has determined that discharges proposed to be authorized by the proposed permit will have no effect on the listed species in the listed Counties.

The standard reopener clause in the permit will allow EPA to reopen the permit and impose additional limitations if it is determined that changes in species or knowledge of the discharge would require different permit conditions.

Operators have an independent ESA obligation to ensure that any of their activities do not result in prohibited “take” of listed species. Section 9 of the ESA prohibits any person from “taking” a listed species, e.g., harassing or harming it, with limited exceptions. See ESA Sec 9; 16 U.S.C. §1538. This prohibition generally applies to “any person,” including private individuals, businesses and government entities. Operators who intend to undertake construction activities in areas that harbor endangered and threatened species may seek protection from potential “take” liability under ESA section 9 either by obtaining an ESA section 10 permit or by requesting coverage under an individual permit and participating in the section 7 consultation process with the appropriate FWS or NMFS office. Operators unsure of what is needed for such liability protection should confer with the appropriate Services.

X. CERTIFICATION

This permit is in the process of certification by the State agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service prior to the publication of that notice.

XI. FINAL DETERMINATION

The public notice describes the procedures for the formulation of final determinations.

XII. ADMINISTRATIVE RECORD

The following information was used to develop the modified permit:

A. APPLICATION

NPDES Application for Permit to Discharge, Form 1 & 2D, Permit Application received on March 7, 2013.

B. State of Texas References

The State of Texas Water Quality Inventory, 13th Edition, Publication No. SFR-50, Texas Commission on Environmental Quality, December 1996.

"Procedures to Implement the Texas Surface Water Quality Standards via Permitting," Texas Commission on Environmental Quality, January 2003.

Texas Surface Water Quality Standards, 30 TAC Sections 307.1 - 307.9, August 24, 2012.

C. Endangered Species References

<http://www.nature.org/animals/birds/animals/redcockaded.html>

<http://www.nature.org/animals/birds/animals/redcockaded.html>

http://www.fws.gov/southwest/es/ES_ListSpecies.cfm

D. 40 CFR CITATIONS

Sections 122, 124, 125, 133, and 136

E. MISCELLANEOUS CORRESPONDENCE

Letter from Dorothy Brown, EPA, to MS. Sandra Barnett, Manager, Environment, TransCanada Keystone Pipeline, LP, dated May 17, 2013, informing applicant that its NPDES permit is administratively complete.

E-mail from Jay Muschenheim, Environmental Program Manager, exp Energy Services, Inc. to Maria Okpala, EPA, dated May 1, 2013, on additional facility information.