TECHNICAL SUPPORT DOCUMENT
For
DRAFT/PROPOSED AIR EMISSION PERMIT NO. 16300003-019

This technical support document (TSD) is intended for all parties interested in the draft/proposed permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft/proposed permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code:2911)
Northern Tier Energy LLC PO Box 9 St. Paul Park, MN 55071	St. Paul Park Refining Co. LLC 301 St. Paul Park Road St. Paul Park, Washington County MN 55071
Contact: Kevin Kiemele 651-458-2762	

1.2 Facility Description

St. Paul Park Refining Co. (SPPRC) operates a petroleum refinery (refinery or facility) located in the cities of St. Paul Park and Newport, Washington County. The refinery processes foreign and domestic crude oil into various products. Principal products produced are propane, gasoline, diesel fuel, distillate oils, kerosene, fuel oils, jet fuel, asphalt, and industrial grade sulfur. Products leave the refinery through tanker trucks, barges, railcars and product pipelines.

1.3 Description of the Activities Allowed by this Permit Action

This amendment involves physical changes related to the installation of additional components in VOC service for Safety Instrumented Shutdown (SIS) Systems in the #2 Crude Vacuum (FS005) and Sat Gas/Dehexanizer Unit (FS010) and piping modifications in the Gas Con Unit (FS009), Foul Water System (FS019) and the Amine System (FS020). These modifications do not trigger the NSPS 50% cost threshold for reconstruction but constitute a modification of an existing facility under 40 CFR pt. 60, subp. GGGa due to an increase in VOC emissions. The five FS units are not subject to NSPS subp. GGG, thus their modification is triggering subp. GGGa. Changes to these five FS units require a major amendment since the changes constitute a modification of an existing facility under New Source Performance Standards (NSPS). Each of these FS units will be placed in GP033 in the permit.

1.4. Facility Emissions:

Table 2. Title I Emissions Increase Summary

Pollutant	Projected Actual Emissions* (tpy)	Baseline Actual Emissions** (tpy)	Excludable Emissions*** (tpy)	Emissions Increase (tpy)	NSR Significant Thresholds for major sources (tpy)	NSR Review Required? (Yes/No)
PM					25	
PM_{10}					15	
$PM_{2.5}$					10	
NO_x					40	
SO_2					40	
CO					100	
Ozone (VOC)	1.87	NA	NA	1.87	40	No
Lead					0.6	
CO_2e****	11.56	NA	NA	11.56	75,000	No

*Projected Actual Emissions as defined in 40 CFR § 52.21(b)(41).

**Baseline Actual Emissions as defined in 40 CFR § 52.21(b)(48).

***Emissions that can be excluded as detailed in 40 CFR § 52.21(b)(41(ii)(c).

****Carbon dioxide equivalents as defined in Minn. R. 7007.0100.

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor/Area	Minor/Area
PSD	X		
Part 70 Permit Program	X		
Part 63 NESHAP	X		

2. Regulatory and/or Statutory Basis

New Source Review

The facility is an existing major source under the New Source Review permit program. This permit action does not change that status.

Part 70 Permit Program

The facility is and will remain a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)

Numerous New Source Performance Standards are applicable to the operations at this facility.

NSPS subp. GGGa: Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced after November 7, 2006. The #2 Crude Vacuum (FS005), Gas Con Unit (FS009), Sat Gas/Dehexanizer Unit (FS010), Foul Water System (FS019) and Amine System (FS020) will become subject to NSPS subp. GGGa with this permit action. Each of these units is an existing unit and was not previously subject to NSPS subp. GGG.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Multiple NESHAPs (both pts. 61 and 63) apply to this facility but none are in the scope of this permit action.

Compliance Assurance Monitoring (CAM)

No additional CAM requirements are triggered by this permit action.

Environmental Review & AERA

Environmental review and AERA do not apply to this permit action.

Minnesota State Rules

This permit action does not involve changes to Minnesota Standards of Performance.

Table 4. Regulatory Overview of Units Affected by the Modification/Permit Amendment

Level*	Applicable Regulations	Comments:
GP033	40 CFR pt. 60, subp. GGGa	Modifications being made to FS005, 009, 010, 019 and 020 making them subject to NSPS subp. GGGa.

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3. Technical Information

SPPRC will install a Safety Instrumented System (SIS) for FS005 and FS010. Modifications will also be made to FS009, FS019 and FS020. Changes to all five (5) of these FS units will make them subject to the requirements of 40 CFR pt. 60, subp. GGGa. The changes constitute a modification to an existing facility under New Source Performance Standards (NSPS) and require a major amendment. The NSPS subp. GGGa requirements are located in GP033 of the permit and the five FS units will become associated items with this group.

Piping will be added to FS005 and FS010 as part of installation of the SIS for these units. Piping will be added to FS009 to provide backup ethanol storage while an existing ethanol storage tank is out of service for internal inspection. FS019 will undergo piping modifications related to Sour Gas KO drain revamp. FS020 will undergo piping modifications related to a safer means of draining oil from the rich amine flash drum (RAFD).

3.1 Emissions Increase Analysis