TECHNICAL REVIEW DOCUMENT OPERATING PERMIT 950PRB036

to be issued to:

Northwest Pipeline Corporation Rangely Compressor Station Rio Blanco County Source ID 1030021

Prepared by Geoffrey D. Drissel December 18, 1997

I. Purpose:

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. Information in this report is taken primarily from the original application and from additional information submitted on October 12, 1995 and February 14, 1996.

II. Source Description:

This source is classified as a natural gas compression facility defined under Standard Industrial Classification 4922. Gas is compressed to specification for transmission to sales pipelines using Internal Combustion Engines to power compressor units. A backup generator, having actual emissions below de minimis levels, also exists on site.

The facility is located in a rural area near the town of Rangely in Rio Blanco County, Colorado, in an area designated as attainment for all criteria pollutants. Utah is designated as an affected state located within a 50 mile radius of the facility. Dinosaur National Monument is a Colorado Category I designated area located within 100 kilometers of the plant. This facility has facility-wide potential and actual emissions as follows:

<u>Pollutant</u>	Potential to Emit (tpy)	Actual (tpy)
NOx	1366.4	704.3
VOC	43.0	21.5
CO	192.3	99.11

This source is considered to be a major stationary source in an attainment area (Potential to Emit > 250 Tons/Year) and is considered major for purposes of Prevention of Significant Deterioration (PSD) regulations. Modifications to this

facility have not yet triggered significance levels that would result in PSD review. Subsequent modifications to this facility that are in excess of significance levels as defined in Colorado Regulation No. 3, Part A, Section I, B.58, would result in the application of PSD regulations.

Potential emissions are taken from the additional information submittal of October 12, 1995 and are based on emission tests and the design fuel rate of the four engines. Actual emissions are taken from a revised APEN provided in the October 12, 1995 information submittal and are based on 1992 fuel usage data. The Division assumes that emissions from the facility have remained the same or decreased from the levels listed on these revised APENs.

The applicant certified that the facility was in compliance with all applicable requirements at the time of application submittal. The applicant also indicated that the facility is not subject to 112(r).

III. Emission Sources:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site:

- <u>Unit P001</u>- Clark Model TLA-6, Natural Gas Fired 2 Cycle Standard Lean Burn Internal Combustion Engine Nameplate Rated at 2,000 HP, Serial No. 73541
- Unit P002- Clark Model TLA-6, Natural Gas Fired 2 Cycle Standard Lean Burn Internal Combustion Engine Nameplate Rated at 2,000 HP, Serial No. 73540
- <u>Unit P003</u>- Clark Model TLA-6, Natural Gas Fired 2 Cycle Standard Lean Burn Internal Combustion Engine Nameplate Rated at 2,000 HP, Serial No. 73539
- Unit P004- Clark Model TLA-6, Natural Gas Fired 2 Cycle Standard Lean Burn Internal Combustion Engine Nameplate Rated at 2,000 HP, Serial No. 73542

Discussion:

1. Applicable Requirements- Each of these units was installed and began

operation in 1956, and each is therefore grandfathered from Colorado construction permitting requirements per Regulation No. 3, Part B, Section I.A. Consequently, the only specific applicable requirements for each engine are a 20% opacity limitation and APEN reporting in accordance with Regulation No. 3, Part A.II.

2. Emission Factors- Emissions from these reciprocating engines are produced during the combustion process, and are dependent upon the air to fuel ratio adjustment and specific properties of the natural gas being burned. The pollutants of concern are nitrogen oxides (NOx), carbon monoxide (CO) and volatile organic compounds (VOCs). Small quantities of Hazardous Air Pollutants (HAPs) are also emitted when combustion is incomplete. Approval of emission factors for this engine is necessary to the extent that accurate actual emission estimates are required to verify the need to submit revised APENs to update the Division emission inventory. In calculating actual emissions, the applicant proposes to use a combination of stack test results (for NOx and CO) and AP-42 Table 3.2-1 values for 2 cycle lean burn engines (for VOC). However, the revised APEN provided with an additional information submittal indicated that HAP emissions measured by stack tests exceeded estimated VOC emissions based on AP-42 factors. Since, in this case, VOC emissions must at least equal HAP emissions, the measured HAP emission factors will be used to estimate VOC emissions. The resulting emission factors are as follows:

<u>Pollutant</u>	Emission Factor	Source
NOx	5.4 lb/MMBtu	Stack test
CO	0.76 lb/MMBtu	Stack test
VOC	0.165 lb/MMBtu	Stack test

The emission factors shown above are higher than the AP-42 factors listed in Table 3.2-2. The Division has decided to accept these emission factors for the purpose of calculating annual emissions and fees.

3. Monitoring Plan- The applicant has proposed to calculate emissions for fee purposes based on fuel consumption and a fuel based emission factor. They will be required to conduct the emission calculation annually and submit a revised APEN to the Division if emissions increase by more than 5 tons/year or 50%, whichever is less, compared to the latest APEN on file with the Division. This plan is consistent with the Monitoring Grid for Internal

Combustion Engines developed by the Division (attached).

The opacity standard of 20% will be demonstrated by a certification that the engine has used pipeline-quality natural gas exclusively during the reporting period. The Division has determined, based on AP-42 emission factors and engineering judgement, that particulate emissions from this engine will be insignificant if the listed condition is met.

4. Compliance Status- A revised APEN reporting criteria emissions was provided with the additional information submittal of October 12, 1995. This submittal also included a HAP addendum form reporting HAP emissions from these engines. The applicant certified within the original application that natural gas has been used exclusively as the fuel for this unit. Therefore, this facility is currently in compliance with all applicable requirements.

IV. Insignificant Activities

Numerous insignificant activities were listed by the applicant as an addendum to form 102B. The majority of these activities consist of various storage tanks, a small boiler, and miscellaneous painting activities, all of which were deemed insignificant based on size or emission level. Other specific insignificant activities consist of the following:

Insignificant Activity	Basis
Backup Generator	less than de minimis emissions
Process Fugitives	less than de minimis emissions
Facility Blowdown	less than de minimis emissions

V. Alternative Operating Scenarios

There are no alternative operating scenarios associated with this facility.

VI. Permit Shield

The regulation citations identified as not applicable to this source in Section III of the Operating Permit are based on the requested Permit Shield citations provided in the additional information submittal of October 12, 1995.

One permit shield citation requested by the applicant was not granted. The applicant requested the shield from 5CCR 1001-4, describing this citation as a visibility requirement for temporary sources. However, 5CCR 1001-4 actually

describes the Colorado Regulation No. 2 Odor Emission Regulations. Consequently, the requested shield was not granted.