

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY  
 OREGON TITLE V OPERATING PERMIT  
 REVIEW REPORT

Paramount Petroleum Corporation  
 Willbridge Asphalt Refinery  
 5501 N.W. Front Avenue  
 Portland, OR 97210

Unassigned emissions	
Emission credits	
Source test	X
COMS	
CEMS	
CAM	
Ambient monitoring	
Compliance schedule	

Special conditions	
Annual report	X
Semi-annual report	X
Quarterly report	X
Monthly report	
Excess emissions report	
NSPS	X

NESHAP	
NSR	
PSD	
RACT	X
Size	TV
Major HAP source	
Federal major source	X

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## LIST OF ABBREVIATIONS

AIA	Aggregate insignificant activities	Mlb	1000 pounds
AQMA	Air Quality Management Area	MM	million
ASTM	American Society of Testing and Materials	NA	not applicable
BDT	bone dry ton	NCG	Non-condensable Gas
CEMS	continuous emissions monitoring system	NESHAP	National Emission Standard for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO <sub>x</sub>	oxides of nitrogen
CMS	continuous monitoring system	NSPS	New Source Performance Standard
CO	carbon monoxide	NSR	New Source Review
COMS	continuous opacity monitoring system	O <sub>2</sub>	Oxygen
DEQ	Oregon Department of Environmental Quality	OAR	Oregon Administrative Rules
dscf	dry standard cubic feet	ORS	Oregon Revised Statutes
EF	emission factor	O&M	operation and maintenance
EPA	United State Environmental Protection Agency	Pb	lead
EU	emissions unit	PCD	pollution control device
FCAA	Federal Clean Air Act	PM	particulate matter
gr/dscf	grains per dry standard cubic feet	PM <sub>10</sub>	particulate matter less than 10 microns in size
HAP	hazardous air pollutant	PSD	Prevention of Significant Deterioration
H <sub>2</sub> S	hydrogen sulfide	PSEL	Plant Site Emission Limit
ID	identification code	SO <sub>2</sub>	sulfur dioxide
I&M	inspection and maintenance	ST	source test
MB	material balance	VE	visible emissions
		VMT	vehicle mile traveled
		VOC	volatile organic compound

## INTRODUCTION

1. PERMIT ACTION SUMMARY: The proposed permit action is a renewal of the existing Title V Permit 26-2025. The allowable PSEL in the proposed renewal remain the same as in the existing permit.
2. In accordance with OAR 340-218-0120(1)(f), this review report is intended to provide the legal and factual basis for the draft permit conditions. In most cases, the legal basis for a permit condition is included in the permit by citing the applicable regulation. In addition, the factual basis for the requirement may be the same as the legal basis. However, when the regulation is not specific and only provides general requirements, this review report is used to provide a more thorough explanation of the factual basis for the draft permit conditions.
3. The off-permit changes, 502(b)(10) changes, administrative amendments, and minor modifications that occurred during the current permit term include the following:

Date	Permit revision or notification	Brief explanation
12/21/2004	Off-permit change	Notice to expand the railcar loading facilities Approved by NOA 021260
03/01/2005	Change of ownership & Name Change	Paramount Petroleum Corporation purchased the refinery from Chevron Products Company.
Current	Updated baseline PSEL and emissions factors in the permit PSEL monitoring section	Use the 2002 ST data for FIB, current AP42 factors, and EPA estimate – “EPA-456/R-95-017” available to recalculate the baseline emissions

4. The following permit conditions are updated and renumbered/reorganized:

New No.	Old No.	Description of change	Reason for change
3.c	3.c	Tank No.175 was removed and 25 additional tanks are added to the FIXTANK list	Re-identification of fixed roof tanks that were grouped under AIA
3.i	--	Identification of process units	Identification purpose
--	19 & 20	Deleted conditions	Residual fuel oil no longer used
18 to 42	18 to 43	Renumbering	Renumbering
22	23	Quarterly reporting changed to Semi-annual	Federal Rule change
32 to 34	33 to 35	Monitoring requirements	40 CFR 60 subpart GGG
43 to 52	44 to 53	Renumbering	Renumbering
53 to 58	54 to 59	Reorganization of PSEL Monitoring Section	Reorganization & Renumbering
56	57	Updated SO <sub>2</sub> and H <sub>2</sub> S EFs	Use of the 2002 ST data for FIB
56	57	Updated EFs for fuel-burning equipment	Used of the most current AP42
57.e	58.e	Updated EFs for FGTVOG components	EPA estimate – “EPA-456/R-95-017”
59 to 78	60 to 79	Renumbering	Renumbering

## PERMITTEE IDENTIFICATION

5. Paramount Petroleum Corporation owns and operates an asphalt refinery in Portland, Oregon. The Portland "Willbridge" refinery occupies approximately 38 acres of property located at 5501 NW Front Avenue. Asphalt production is one of the many processes grouped under "Petroleum Refining", classified under the Standard Industrial Code (SIC) 2911. Mr. Steven LeRoy is the NW Region Manager, and he is currently identified as the primary responsible official for the permitted activities.

## FACILITY DESCRIPTION

6. The raw materials (feedstocks) used in asphalt production are various grades of petroleum crude oils. The refinery receives feedstocks via either railcars or a marine loading dock at the neighboring Chevron bulk gasoline terminal. The process furnace heats the feedstock. Then the heated feedstock is fed into a distillation column, where feedstock is separated into light, intermediate, and the bottom products by the fractionation process (aka stage distillation with reflux). Light products (i.e., distillates) drawn from the top of the column include naphtha, kerosene, and fuel oils. The intermediate products include diesel, fuel oils and vacuum gas oil (VGO). The heavy products (i.e., residuals) drawn from the bottom of the column are the base materials that refinery use to make various grades of asphalt products.

The boilers produce steam required to heat/boil and separate the feedstock in the distillation column. The furnaces provide heat for the hot oil loop that keeps the materials viscous. The boiler-steam and hot oil loop also provide heat to various refinery equipment including pipeline and storage tanks that handle heavier-viscous products. Both "John Zink" thermal oxidizer (F3) and F4 with a recovery boiler B6 (F4/B6) controls air still fumes from the air blowing process.

7. The Willbridge refinery can process up to 20,000 barrels of feedstocks per day (bbl/day), which is the distillation column's capacity. The feedstocks vary from "charge stocks" that yields 90% base asphalt and 10% light products, to "heavy crude" that yields about 75% base asphalt and 25% of lighter products, to "a mixture of light and heavy crude" that yield approximately 50% base asphalt and 50% lighter products. Distillation of light crude generates about 1.5% NCG, while heavier crude generate about 0.1 % NCG. A combination of heavy and light crude oils would be used to maintain the maximum 20,000 bbl/day feed, and at the same time not overload the NCG piping from the distillation column.

## EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION

8. Emissions units identified in this permit are grouped primarily with respect to the common applicable requirements and the associated monitoring protocols:

EXTANK (External Floating Roof Storage Tanks ): This emissions unit represents all external floating roof storage tanks existing at the refinery. As identified in the permit, there are three (3) external floating roof tanks at the facility with the storage capacity ranging from 189 thousand to 6.3 million gallons. EXTANK No. 105 was installed in 1975 and it is subject to the NSPS

requirements of 40 CFR Part 60, Subpart K. EXTANK No. 106 was installed in 1980 and it is subject to the NSPS requirements of 40 CFR Part 60, Subpart Ka. EXTANK No. 105 and 106 have been retrofitted with secondary seals in 1998 and 1996 respectively. While the external floating roof tank 120 is not directly subject to the NSPS requirements of 40 CFR Part 60, subparts K and Ka, the categorical RACT standards of OAR 340-232-0150 adopted requirements of subparts K and Ka by reference. Therefore, the same (NSPS) requirements apply to all EXTANK regardless of their installation date.

INTANK (Internal Floating Roof Storage Tanks): This emissions unit represents all the internal floating roof storage tanks existing at the permitted facility. An internal floating roof tank has both a permanent fixed cone roof and a floating deck inside, which is free to move vertically as the liquid level rises and falls, and either floats on the liquid surface or rests on pontoons several inches above the liquid surface. There are six (6) internal floating roof tanks at the facility with the storage capacity ranging from 0.4 to 5.6 million gallons, and all were installed before June of 1973. Regardless, they are subject to the RACT requirements (subparts K and Ka) specified in OAR 340-232-0150.

INTANK No.71 was installed in 1951 as the external floating roof tank, and it was converted to an internal floating roof tank in early 1996. INTANK No.71 is subject to the NSPS requirements of 40 CFR Part 60, subpart Kb.

FIXTANK (Fixed Roof Storage Tanks): This emissions unit represents all of the fixed roof storage tanks existing at the permitted facility. This type of tank generally consists of a cylindrical steel shell with a permanently affixed roof, which may vary in design from cone or dome-shaped to flat. There are 60 fixed roof storage tanks of various shapes and sizes, of which 13 have the capacity greater than 1-million gallons.

The VOC emissions from storage tanks are the sum of breathing losses and working losses, which depend on chemical properties of materials being stored as well as the physical properties of the tank that stores the materials.

TRACK (Tanker Truck/Trailer Loading Racks): This emissions unit represents the tank truck loading racks used to distribute various asphalt and petroleum products. Displaced VOC vapors during the loading operations are vented directly to atmosphere.

FGTVOC (Fugitive VOC emitting sources): The emissions unit FGTVOG represents fugitive VOC emissions associated with VOC product handling. The pipe transport system contains numerous valves, flanges, pumps, sampling ports, and other components through which the VOC vapors may escape. The permittee has identified two sets of FGTVOG components: One set of components is associated with the refinery portion, and the second set is associated with the non-refinery (product storage) portion of the facility. A refinery portion of the emissions unit FGTVOG is subject to the RACT standards applicable to petroleum refinery, as adopted under OAR 340-232-0130 and 340-232-0140. The RACT equipment leak standards are designed to reduce VOC (& HAPs) emissions that occur from the components grouped under emissions unit FGTVOG.

OIL/W (Oil & Water separators): The emissions unit OIL/W represents VOC emissions occurring during the oily wastewater treatment processes. The Willbridge refinery has a wastewater treatment system that includes an oil/water separator and an induced air floatation

unit. The OIL/W processes oily water collected from process water, tank draws, storm-water runoff, and cleaning water. The oil separated from the wastewater is reused in the process.

FW (Facility-wide emissions): This emissions unit addresses facility-wide VOC emissions from such source as the solvent degreasing pans, and from the use of thinners, lubricating oils, and other miscellaneous chemical products. The FW VOC emissions are estimated using a material balance, assuming the 100% volatilization of all VOC used.

BOILER: This emissions unit includes two boilers B4 and B5, and these boilers are subject to the NSPS requirements of 40 CFR Part 60, Subpart Dc - "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units". Due to the relatively small size of the boilers and the types of fuels burned, only the NSPS Subpart Dc requirements associated with the fuel sulfur limits are applicable to boilers. The opacity and PM standards specified in 40 CFR 60.43c are not applicable to boilers because neither boiler has the capacity greater than  $17 \times 10^6$  Btu/hr and both boilers burn N.G. and oil.

The applicability of 40 CFR Part 60, subpart J - "Standards of Performance for Petroleum Refineries", were also reviewed but determined to be not applicable to any of the BOILER. The boilers B4 and B5 were installed after 6/11/73 but neither burns the refinery waste gases (NCG), and they are fueled by natural gas and use fuel oil as back up.

FURNACE: The Willbridge refinery currently has five furnaces F1, F1B, F2, F3, and F4. The process furnaces F1 and F1B provide heat to the crude oil feedstocks. Furnace F2 provides heat to a closed hot oil loop system to keep materials viscous throughout the refinery. John Zink thermal oxidizer F3 controls air still fumes generated from the air still blowing operation, as does the F4 thermal oxidizer with a waste-heat recovery boiler (B6). The furnaces primarily burn natural gas (NG) and use fuel oil as a backup. The F1B furnace also controls non-condensable gases (NCG) exhausted from the distillation column. Furnaces F1B that burns refinery NCG was installed before 6/11/73 and it has not been modified since, and therefore it is excluded from the requirements of 40 CFR Part 60, subpart J.

Batch Air Stills #2, #3, and #4 are used to oxidize asphalts by bubbling/blowing air through the liquid-asphalt (flux) at elevated temperature. Thermal oxidizers F3 and F4 control emissions (e.g., air still fumes) from Batch Air Stills.

9. Categorically insignificant activities include the following:

- Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under Divisions 20 through 32 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year
- Evaporative and tailpipe emissions from on-site motor vehicle operation
- Distillate oil, kerosene, and gasoline fuel burning equipment rated at less than or equal to 0.4 million Btu/hr
- Natural gas and propane burning equipment rated at less than or equal to 2.0 million Btu/hr
- Office activities
- Janitorial activities
- Grounds keeping activities including, but not limited to building painting, road, and parking lot maintenance

- On-site recreation facilities
- Instrument calibration
- Maintenance and repair shop
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities
- Temporary construction activities
- Warehouse activities
- Air vents from air compressors
- Electric charging stations
- Instrument air dryers and distribution
- Process raw water filtration systems
- Routine maintenance, repair, and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking
- Electric motors
- Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment
- Pressurized tanks containing gaseous compounds
- Emissions from wastewater discharges to publicly owned treatment works (POTW) provided the source is authorized to discharge to the POTW, not including on-site wastewater treatment and/or holding facilities
- Paved roads and paved parking lots within an urban growth boundary
- Hazardous air pollutant emissions of fugitive dust from paved and unpaved roads except for those sources that have processes or activities that contribute to the deposition and entrainment of hazardous air pollutants from surface soils
- Health, safety, and emergency response activities
- Emergency generators and pumps used only during loss of primary equipment or utility service
- Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems
- Non-contact steam condensate flash tanks
- Non-contact steam vents on condensate receivers, deaerators and similar equipment
- Boiler blowdown tanks
- Industrial cooling towers that do not use chromium-based water treatment chemicals
- Combustion source flame safety purging on startup

**EMISSION LIMITS AND STANDARDS, TESTING, MONITORING, AND RECORDKEEPING**

10. Oregon Administrative Rules with specific requirements (e.g., emission limits or standards) that have been determined to be applicable to the Paramount facility are identified in this section. The applicable requirements along with the associated monitoring, recordkeeping, and reporting that are necessary to determine compliance with the aforementioned applicable requirements are incorporated in this Title-V permit.
11. Facility-wide applicable requirements
  - 11.a. Storage tank specifications, state-only enforceable, OAR 340-208-0560;
  - 11.b. Odor/nuisance control requirements, state-only enforceable, OAR 340-208-0300; and
  - 11.c. SERP requirements of OAR 340-206-0050.
12. Emissions Unit specific Standards
  - 12.a. The 20% opacity standard applicable to the boilers and furnaces, OAR 340-208-0110;
  - 12.b. The 0.1 or 0.2 gr/scf grain-loading limits applicable to boilers and furnaces, OAR 340-228-0210;
  - 12.c. The distillate fuel oil sulfur content specified in OAR 340-228-0110;
  - 12.d. The NSPS subpart Dc requirements applicable to Boilers;
  - 12.e. The petroleum refinery (RACT) standards of OAR 340-232-0130 applicable to OIL/W and selected fuel burning equipment (F4, F1B, F3) that burn refinery wastages;
  - 12.f. The fugitive leak (RACT) standards of OAR 340-232-0140 applicable to FGTVOC;
  - 12.g. Primary and secondary seal requirements and other equipment specifications applicable to external floating roof storage tanks, EXTANK, as outlined in OAR 340-232-0150;
  - 12.h. The seal requirements applicable to internal floating roof storage tanks, INTANK, as outlined in OAR 340-232-0150;
  - 12.i. The NSPS subparts K and Ka requirements applicable to EXTANK ID No. 105 and 106;
  - 12.j. The NSPS subpart Kb requirements applicable to INTANK ID No. 71;
  - 12.k. The NSPS subpart GGG requirements applicable to FGTVOC components; and
  - 12.l. Vapor pressure limits applicable to products stored in fixed roof storage tank, FIXTANK, with a capacity greater than 39,000 gallons, OAR 340-232-0150(1).
13. Emissions limits applicable to Insignificant Activities: This facility has insignificant emissions units (IEUs) that include categorically insignificant activities and aggregate insignificant emissions, as defined in OAR 340-200-0020. For the most part, the standards that apply to IEUs are for opacity (20% limit) and particulate matter (0.1 gr/dscf limit). The Department does not consider it likely that IEUs could exceed an applicable emissions limit or standard because IEUs are generally equipment or activities that do not have any emission controls (e.g., small natural gas fired space heaters) and do not typically have visible emissions. Since there are no controls, no visible emissions, and the emissions are less than one ton per year, the Department does not believe that monitoring, recordkeeping, or reporting is necessary for assuring compliance with the standards.
14. General Monitoring Requirements: Section 70.6(a)(3)(i) requires that all monitoring and analysis procedures or test methods required under applicable requirements be contained in Title V permits. In addition, where the applicable requirement does not require periodic testing or

monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirement to include in a permit testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. Where compliance with the underlying applicable requirement for an insignificant emission unit is not threatened by a lack of a regular program of monitoring and where periodic testing or monitoring is not otherwise required by the applicable requirement, then in this instance, the status quo (i.e., **no monitoring**) will meet section 70.6(a)(3)(i).

The monitoring frequency (i.e., daily, weekly, monthly, or yearly) specified in the monitoring condition is the time elapsed between two subsequent monitoring performed by the permittee. It may not be practical to interpret the frequency specified in the permit as being exact calendar time frame. For example, the permittee is required to monitor their production and fuel usage on a monthly basis to show compliance with the PSEL set forth in the permit. The term “monthly” is not meant to be strictly limited to interpretation as a “calendar month” as the production cycle may either end before or extend beyond the last day of a calendar month. Within reason (common sense), the permittee is allowed to use the alternative monitoring frequency such as an “accounting month” following their production cycle. This “accounting” period similarly applies to all monitoring frequencies specified in the permit.

15. PSEL monitoring: Emission factors and empirical formulas used to estimate the plant site emissions for purpose of determining compliance with the PSEL are not, by themselves, enforceable limits. These emissions factors and formulas need to be reviewed on an on-going basis, and they are updated if emissions data that are more accurate become available. For example, the permit contains source test requirements to verify the accuracy of emission factors used to calculate the emissions from the glass melting furnaces. Pending source test results, the permit EF and/or PSEL may be modified.
16. Test Methods and Procedures section of the permit provides the permittee and Department exact test methods to be used to measure pollutant emissions in the event that testing is conducted for any reason. This section does not by itself require the permittee to conduct any more testing than those do specified in the permit. Although the permit may not require testing because other routine monitoring is used to determine compliance, the Department and EPA always have the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may volunteer to conduct testing to confirm the compliance status. In any case, the methods to be used for testing in the event that testing is conducted are included in the permit.
17. Recordkeeping and Reporting requirements in this permit are drafted pursuant to OAR 340-218-0050(3)(b) and (c). The records of all monitoring specified in the Oregon Title-V Operating Permit must be kept at the plant site for at least 5 years, unless longer period is specified (for certain NSPS data). All records necessary to determine compliance with any permit condition shall be made available to the DEQ/EPA inspectors upon request.

**PLANT SITE EMISSION LIMITS**

18. Provided below is a summary of the baseline emissions rate, netting basis, plant site emission limits, and emissions capacity.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limit (PSEL)			Capacity (tons/yr)
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)	
PM <sub>10</sub>	1	1	1	14	14	0	14
SO <sub>2</sub>	42	42	42	81	81	0	81
NO <sub>x</sub>	38	38	38	86	77	0	77
CO	32	32	32	99	99	0	99
VOC	179	179	179	162	179	0	179
H <sub>2</sub> S	< 1	< 1	< 1	15	9	0	9

- 18.a. Baseline Emission Rate is an estimate of actual pollutant emissions that occurred during the baseline period of 1978, as discussed in detail in item 20.
- 18.b. Netting Basis equals the baseline emission rate adjusted down with respect to any emission reductions required by rules or through voluntary measures, plus any emission increases approved through New Source Review. For Paramount, there have been no regulatory or (permanent) voluntary reductions of PSEL and there have been no PSEL increases approved through NSR. The generic-level PSEL is used for PM<sub>10</sub> and CO for PTE for these pollutants are less than their respective SER. The netting basis for PM<sub>10</sub> and CO remains the same as their baseline emissions rate.
- 18.c. PSEL for PM<sub>10</sub> and CO is set at their respective generic level in accordance with OAR 340-222-0040. The generic PSEL equals Significant Emission Rate (SER) for that pollutant minus 1 ton.
- 18.d. PSEL for VOC remains the same as the baseline emission rate. Both the baseline and current VOC PSEL have been recalculated using the better emissions data in accordance with OAR 340-222-0043(2)(a). The proposed VOC PSEL has been corrected to 179 tons/yr; the previous level of 162 tons was based on inaccurate data.
- 18.e. PSEL for SO<sub>2</sub> and NO<sub>x</sub>: The increases in SO<sub>2</sub> and NO<sub>x</sub> PSEL have been approved in the permit previously issued by the Department. No increase is being proposed in this permit renewal. The NO<sub>x</sub> PSEL has been recalculated using the most recent AP42 emissions factor in accordance with OAR 340-222-0043(2)(a).
- 18.f. PSEL for H<sub>2</sub>S: The increase in Hydrogen Sulfide PSEL has been approved in the permit previously issued by the Department. However, recalculated baseline emissions for H<sub>2</sub>S, using the 2002 source test data are much less than originally estimated. Therefore, the H<sub>2</sub>S PSEL is set equal to its generic level.

19. **SIGNIFICANT EMISSION RATE:** The proposed PSEL for all regulated pollutants is not greater than the previous netting basis as shown below.

Pollutant	SER	Requested increase over previous netting basis	Increase due to utilizing capacity that existed in the baseline period	Increase due to physical changes or changes in the method of operation
PM <sub>10</sub>	15	13	13	0
SO <sub>2</sub>	40	39	39	0
NO <sub>x</sub>	40	39	39	0
CO	100	67	67	0
VOC	40	0	0	0
H <sub>2</sub> S	10	9	9	0

FOR ALL REGULATED POLLUTANTS, THE CUMULATIVE PSEL INCREASES SINCE THE BASELINE YEAR IS LESS THAN THE SIGNIFICANT EMISSION RATE (SER) AS DEFINED IN OAR 340-200-0020.

20. **Baseline Emissions Data**

- 20.a. The combined fuel usage, including the distillation column process gas (29.1 x 10<sup>6</sup> scf NCG/yr) generated, during the baseline year for BOILER and FURNACE:

	Max. Daily Rate	Baseline Usage	Unit
Natural Gas	3.3	720	10 <sup>6</sup> scf
Residual Oil	24,768	13,860	gallons
Air Still Fumes	114	1,730	10 <sup>6</sup> scf
Distillate Column Process Gas / NCG*	0.24	29.1	10 <sup>6</sup> scf

\* H<sub>2</sub>S generated in the distillation column is combusted with NCG in F1B, which yield the combustion by-products H<sub>2</sub>O and SO<sub>2</sub>. Due to the low combustion temperature in F1B, Chevron (previous permit holder) used the 80% conversion rate of H<sub>2</sub>S to SO<sub>2</sub>, and added 38.71 tons SO<sub>2</sub> (and 5.15 tons H<sub>2</sub>S) to the baseline PSEL.

The following combustion by-products were generated during the baseline year:

Baseline Emissions (tons/yr) from B1, B2, B3, F1, F1A, F1B, F2, and F3					
PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	H <sub>2</sub> S
1	42	38	31.5	11	0.02

- 20.b. The baseline VOC emissions from storage tanks EXTANK, INTANK, and FIXTANK are estimated by applying the AP42 empirical equations using the products throughputs during the baseline year:

Emissions Unit	Type of products	Emissions
EXTANK & INTANK	Crude oil	0.7
	Distillates	0.1
FIXTANK	Crude oil	56.0
	Charge stock	11.7
	Lube oil	0.6
	Asphalt	7.7
	Emulsions	26.4
	Fuel oil	3.3
	Distillates	0.4
	Naphtha	3.7
TANKs Total:		110.6 tons/yr

20.c. The VOC emissions from loading operations during the baseline year include the following:

Emissions Unit	Material throughput	Baseline Emissions (tpy)
Marine Loading	Naphtha: 140,000 bbl/yr	2.7
	Fuel oil: 450,000 bbl/yr	0.1
TRACK	Asphalt: 1,900,000 bbl/yr	0.1
	Emulsions: 230,000 bbl/yr	3.5
	Naphtha: 10,000 bbl/yr	0.6
Rail Car Loading	Asphalt: 460,000 bbl/yr	0.1
TOTAL:		7.1

20.d. Fugitive emissions from material handling equipment (FGTVOC) during the baseline year are estimated to be about 40 tons/yr. The original permit holder (Chevron) took an inventory of the number of components of emissions unit FGTVOC. The baseline emissions are based on original component-inventory (by Chevron) and emission factors provided in the EPA document – “Protocol for Equipment Leak Emissions Estimates,” EPA456/R-95-017:

Component ("i") Type	Average Emission Factor, EF <sub>i</sub> (kg/hr per component)	
	Leaking	Non-Leaking
Valves - HL	0.00023	0.00023
Valves - LL	0.0017	0.0852
Valves - G	0.0006	0.2626
Pump Seals - HL	0.0135	0.3885
Pump Seals - LL	0.012	0.437
Pressure Relief Valves - G	0.0447	1.691
Connectors - All	0.00006	0.0375
Open-ended Lines - All	0.0015	0.01195

HL=Heavy Liquid Service

LL=Light Liquid Service

G=Gaseous Service

(Chevron Inventory) Component "i"	Refinery Service Component "i"	Non-refinery Service Component
Number of Valves	1502	751
Number of Flanges	2554	1277
Number of Pump seals	68	34

20.e. Emissions from other refinery activities during the baseline year include the following:

Emissions Unit	Operating Parameters	Baseline (tpy)
OIL/W	115.07 x 10 <sup>3</sup> gal/day, 365 days/yr AP42 EF = 0.2 lbs VOC/10 <sup>3</sup> gal	4.2
FW	Material Balance	6.3

The baseline OIL/W throughput was not available. The original permit holder Chevron used the 1994 throughput plus 10 million gallons to adjust for the pre-water conservation steps they made at that time, in addition to taking into account other process changes made at the facility. There are two AP42 EFs available for OIL/W, "5 lbs VOC/10<sup>3</sup> gal" and "0.2 lbs VOC/10<sup>3</sup> gal". The lower 0.2 figure was used to set the baseline emission because the OIL/W must be controlled (cover, seals, etc.).

## 21. PSEL Data and History

21.a. Approximately the same amount (as in baseline) of VOC emissions from FGTVOC, OIL/W, and FW are occurring at the Paramount facility:

EMISSIONS UNIT	Operating Parameters	Requested PSEL (tons/yr)
FGTVOC	Component counts	40
OIL/W	42 x 10 <sup>6</sup> gal/yr	4.2
FW	Mass Balance estimate	6.3

21.b. The current PSEL basis for the remaining emissions units is different from the baseline year, reflecting changes in type of material or fuel used at the site, production rate, and the additional equipment installed:

EMISSIONS UNIT	Annual Operating Parameters	Requested PSEL (tons/yr)
FIXTANK EXTANK INTANK	Except for Tanks 63, 68, 69, 71, 74, 93, throughputs based on max. operating scenario of one turnover every 2 weeks.	38.9 VOC
TRACK	10,000 bbl/day base asphalt 10,000 bbl/day light products: 30% naphtha, 25% kerosene, and 45% VGO.	40.5 VOC
BOILER & FURNACE	1,146 x 10 <sup>6</sup> scf NG 60,000 gallons fuel oil 1,630 x 10 <sup>6</sup> scf Air Still Fumes	1.5 PM <sub>10</sub> 79.2 SO <sub>2</sub> 60.2 NO <sub>x</sub>

	57.75 x 10 <sup>6</sup> scf Dist. Col. gas	50.6 CO 11.9 VOC 0.03 H <sub>2</sub> S
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## HAZARDOUS AIR POLLUTANTS

22. The facility is a minor source of hazardous air pollutants (HAPs) as the estimated emissions of all individual HAP are within the 10 tons/yr threshold, and aggregate HAPs total less than 25 tons/yr. Appendix A lists the estimated HAP emissions from the permitted facility.
23. Toxic and Flammable Substance used at the facility and their estimated usage are summarized in Appendix A.
24. Stratospheric Ozone-Depleting Substances: The permittee does not use any of the class I or class II ozone depleting chemicals at the plant site, and therefore they are not subject to meet the requirements of 40 CFR Part 82, Subpart E; The Labeling of Products Using Ozone-depleting Products. The permittee does not perform service on motor (fleet) vehicles that involves the refrigerant in the motor vehicle air conditioner (MVAC), and therefore the requirements of 40 CFR Part 82, Subpart B; Servicing of Motor Vehicle Air Conditioners, do not apply.

## GENERAL BACKGROUND INFORMATION

25. Other permits issued or required by the Department of Environmental Quality for this source include the NPDES General permit 0100-J for non-contact cooling water discharge, and the NPDES permit 1200-H for stormwater discharge.
26. A Land Use Compatibility Statement signed by the City of Portland on 4/19/95 granted unconditional approval of the facility operations.
27. The source is located in a maintenance area for ozone and Carbon Monoxide (CO). The facility is a major (> 100 tons/yr) source of Volatile Organic Compounds (ozone precursor), but is a minor source of CO. The area is in attainment for all other criteria pollutants.
28. Aggregate Insignificant Activities: The permit does not limit "aggregate insignificant activities" to only those identified in this permit review, as they tend to be a moving target. The AIA limits established in the permit simply reflect the rule limits as defined in OAR 340-200-0020. The permittee may add (or reduce) more insignificant activities to the existing list, provided total aggregate emissions of any individual (regulated) pollutant do not exceed the aggregate insignificant limit for that pollutant. While insignificant activities, including categorically insignificant activities (CIA) identified in item 9 of this review report, are subject to applicable requirements such as the visible opacity standard, emissions from insignificant activities does not need to be included in the PSEL calculations. In addition, no routine monitoring is specified for requirements applicable to insignificant activities.

## COMPLIANCE HISTORY

29. The facility was last inspected on 08/02/2006 and found to be in compliance with the permit conditions. The Department has no record of any public complaints filed against this source.

The Department issued a Notice of Non-compliance (AQ-NWR-02-100) on December 13, 2002 for the Class-II violations. Chevron Products Company was the permit holder then and they took all the necessary steps to correct the noted problems. The permittee has been in compliance with all permit terms since.

## PUBLIC NOTICE

30. Pursuant to OAR 340-218-0210, the proposed permit requires a category III permit actions and public notice is required. The proposed draft-permit will be placed on public notice from [March XX, 2007] to [April XX, 2007] to allow any interested public to submit written comments. The Department will hold a public hearing if requested by ten or more individuals or one person representing a group of ten or more individuals. After the comment period, and the hearing if deemed appropriate, the Department will review all comments received and revise the (draft) permit as necessary. A proposed permit will then be sent to EPA for a 45-day review period. The Department may request EPA to expedite their review to 5 days if no substantive or adverse comments were received during the comment period. In any event, the public will have 105 days (45 day EPA review period plus 60 days) from the date the proposed permit is sent to EPA to appeal the permit with EPA. The permit will be issued following EPA's review. No PSEL increase is requested in this permit addendum

## EMISSIONS DETAIL SHEETS

See Attached Excel Spread-sheets A1 – A3