

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE DIVISION	APPL. NO. 518622	DATE 5/5/11	PAGE 1 of 6
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PERMIT TO CONSTRUCT

SUMMARY

A/N 518622 is an application for a permit to construct for a new 6,667-gallon storage tank with a caustic sparger to be used in hydrochloric acid (HCl) service.

COMPANY INFORMATION

Company Name: Paramount Petroleum Corp., Facility ID No. 800183
Mailing Address: 14700 Downey Avenue, Paramount, CA 90723
Equipment Location: 14700 Downey Avenue, Paramount, CA 90723
Contact Person: June Christman, (562) 748-4704

EQUIPMENT DESCRIPTION

Table 1 shows the proposed Section H permit description for the new storage tank. Additions to the description are noted in underlines and deletions are noted in ~~strikeouts~~.

Table 1. Permit Equipment Description
SECTION H: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

Equipment	ID No.	Conn To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 10 : STORAGE TANKS					
System 1 : STORAGE TANKS, OTHER					
<u>STORAGE TANK, FIXED ROOF, NO. T-207,</u> <u>HYDROCHLORIC ACID, 6667 GALLONS,</u> <u>DIAMETER: 10 FT 2 IN; HEIGHT: 14 FT 4 IN</u> <u>WITH</u> <u>A/N : 518622</u> <u>Permit to Construct Issued: TBD</u>	<u>Dxxx</u>				<u>C1.xx,</u> <u>E161.x</u>
<u>VESSEL, SODIUM HYDROXIDE, 712</u> <u>GALLON CAPACITY, WITH A SPARGER</u>					

COMPLIANCE RECORD REVIEW

A query of the AQMD Compliance Database for the last two years (5/1/09-5/5/11) identified 15 NOV's that were issued to Paramount Petroleum (Facility ID 800183). None of these NOV's are related to existing HCl tanks, and the proposed HCl tank has not yet been constructed or installed. The compliance database indicates that the facility is currently in compliance with applicable rules and regulations.

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FEE EVALUATION

The BCAT/CCAT for the HCl storage tank is 253907 (Storage Tank w/ Sparger Hydrochloric Acid), Schedule A. The applicable Schedule A fee is \$2094.60. Expedited permit processing fees were also submitted in the amount of \$1047.30, for a total fee submittal of \$3141.90. No expediting was conducted for this application, so the expedite fee will be refunded. No additional fees are due at this time.

BACKGROUND/PROCESS DESCRIPTION

Hydrochloric acid is mixed with asphalt stock in the emulsion plant to make asphalt emulsion. The new HCl tank is constructed of High Density Polyethylene (HDPE) and is double-contained. The outer containment portion of the tank is 10 feet 2 inches in diameter. The tank height is 14 feet 4 inches, and the capacity is 6,667 gallons. The tank is vented to a 712-gallon sodium hydroxide vessel with a sparger for emission control. The sparger is located 1 ft 11 in from the bottom of the tank. The sparger design requires that the sparger be located a minimum of 10 in below the liquid surface. This corresponds to a liquid level of 2 ft 9 in (with a 5 ft 1 in diameter, this is equivalent to 55.8 ft³= 417 gallons of caustic). The caustic must be maintained a pH above 8 to achieve proper operation.

EMISSIONS

The storage tank T-207 will be used to store a solution of Hydrogen chloride (HCl, Hydrochloric Acid, CAS # 7647-01-0). The HCl solution used is 20°Baume (31.45 wt% HCl). The pure component molecular weight is 36.5 lb/lb-mol. The tank capacity is 6667 gal (891.2 ft³), and the annual throughput is 360,000 gal/yr (8571.4 bbl/yr). The maximum monthly throughput of 30,000 gal/month is equivalent to 54 turnovers per year.

HCl is an inorganic gas; thus, no VOCs are emitted from this tank. However, HCl is a precursor to PM10, and is thus identified as a non-attainment pollutant that is subject to BACT, as described in Chapter 3 of the Best Available Control Technology Guidelines (7/14/06 revision). For emission estimation and BACT evaluation purposes, emissions from this tank are assumed to be equivalent to PM10 emissions.

Emissions were calculated using the EPA's TANKS 4.0.9d program. A summary of the results is provided in **Table 2**. The TANKS program calculates both working and breathing losses from tanks. Working losses occur when the tank is emptied or filled, while breathing losses (aka storage or standing losses) occur when the liquid expands and contracts due to changes in ambient temperature or barometric pressure [User's Guide to Tanks, 1999]. The 20° Baume HCl solution was manually added to the chemical database. The uncontrolled emissions calculated for the proposed HCl storage tank are 96.07 lb/yr HCl (including 85.98 lb/yr working losses and 10.09 lb/yr breathing losses). For 54 turnovers, the working losses are approximately 1.6 lb/turnover. The maximum potential emissions are calculated using one turnover in a single day, resulting in uncontrolled emissions of 1.6 lb/day.

The facility is installing a caustic tank with a sparger for emission control. 95% control efficiency is estimated for this type of control, reducing the maximum daily emissions from 1.6 lbs to 0.08 lbs. For uncontrolled annual emissions of 96.07 lb/yr, the controlled emissions are 4.8 lb/yr (0.4 lb/month, 0.013 lb/day and 0.00055 lb/hr). This amount of emissions does not qualify as a significant increase, but will be categorized as a de minimis increase.

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**Table 2. Summary of HCl Storage Tank Emissions Calculated Using TANKS 4.0.9d
TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals**

Emissions Report for: Annual

**HCl tank - Vertical Fixed Roof Tank
Paramount, California**

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
HCl 31.45 wt% 20 baume	85.98	10.09	96.07

RULES EVALUATION

PART 1: SCAQMD REGULATIONS

Rule 212 Standards for Approving and Issuing Public Notice (Amended 11/14/97)

Rule 212 requires public notice for any new or modified permit unit, RECLAIM source or Title V equipment that increases emissions of toxic air contaminants and increases health risk as specified in Rule 212(c)(1) - (c)(3). This new permit unit will be located within 1000 feet from the outer boundary of a school and it may emit air contaminants, meeting the definition in Rule 212(c)(1). Thus, it is required that distribution of public notice shall be to the parents or legal guardians of children in any school within ¼ mile of the facility and to each address within a radius of 1000 feet from the outer property line of the proposed new facility[212(d)].

This project does not include an emission increase that exceeds any of the daily maximums in Rule 212(g), so the criteria in 212(c)(2) are not met. The emission increase also does not result in MICR over the thresholds in Rule 212(c)(3)(A) and is not likely to pose a potential risk of nuisance per 212(c)(3)(B). The project does not require notice per Rule 212(c)(2) and (c)(3). Only a Rule 212(c)(1) notice is required. The facility is expected to comply with this requirement.

Rule 401 Visible Emissions (Amended 11/09/01)

Operation of this permit unit is not expected to result in visible emissions. Therefore, compliance with this rule is expected.

Rule 402 Nuisance (Adopted 05/07/76)

Operation of this permit unit is not expected to result in a public nuisance. Therefore, compliance with this rule is expected.

Rule 405 Solid Particulate Matter - Weight (Amended 02/07/86)

Rule 405 limits PM emissions based on process weight. For 220 lbs/hr or less, the maximum discharge rate allowed for solid particulate matter is 0.99 lbs/hr. This HCl storage tank is estimated to emit less than that amount on a daily basis, thus compliance with this rule is expected.

Rule 463 Organic Liquid Storage (Amended 05/06/05)

Rule 463 requirements do not apply to this permit unit because HCl is not an organic liquid [463(a)].

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Rule 1149 Storage Tank Cleaning and Degassing (Amended 05/02/08)

Table 1 of Rule 1149 specifies that tanks with a capacity between 500 and 26,420 gallons, such as Tank T-207, are required to control emissions if the vapor pressure is greater than or equal to 2.6 psia. The vapor pressure of HCl solution is less than 1 psia, so the control requirements of Rule 1149 do not apply to this tank.

Rule 1178 Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (Amended 04/07/06)

Storage tank T-207 is not subject to Rule 1178 requirements because its 6,650 gallon capacity is less than the 19,815-gallon applicability threshold [1178(b)].

Reg XIII New Source Review (Amended 12/06/02)

Rule 1303 Requirements (Amended 12/06/02) New Source Review requirements apply to new, modified or relocated sources. The HCl tank is new equipment that will result in a net emission increase of PM10 (HCl is a precursor of PM10). New Source Review requirements include an evaluation of the need for BACT, offsets, and modeling, based on estimated emissions. Annual working and breathing losses were calculated for this new HCl storage tank using the EPA's TANKS 4.0.9.d program. Emissions of 96.07 lb/yr were calculated (8 lb/month).

Rule 1306 Emission Calculations (Amended 12/06/02) The emissions calculations for determining new equipment BACT applicability is described in Rule 1306(b) [1306(d)(1)]. BACT applicability is based on a pound per day basis per 1306(b)(1). For the HCl tank, emissions are based on the permit condition limiting monthly throughput, as well as the maximum daily operation. HCl is considered a non-attainment pollutant because it is a precursor to PM10 emissions. For BACT evaluation purposes, it is assumed that the HCl emissions are equivalent to PM10 emissions. (See Chapter 3 of the 7/14/06 revision of the Best Available Control Technology Guidelines).

Working losses originate from vapor displacement during tank filling. The maximum potential daily emissions occur when an empty tank is filled in one day. The 30,000 gallon monthly throughput is equivalent to 4.6 turnovers per month. If the tank is filled completely in a single day, the calculated monthly working loss emissions (7.2 lb/month) can be divided into approximately 4.5 days. This results in maximum potential emissions > 1 lb/day (1.6 lb/turnover), so BACT is required. BACT for this HCl tank is a caustic tank with a sparger. This control device results in >95% control efficiency, reducing emissions to less than ½ lb/day. Thus, BACT requires the use of a caustic tank with sparger as a control device, which is being proposed.

The evaluation of emissions for offset requirements is based on calendar monthly emissions divided by 30. Since BACT is being installed, and emissions are reduced to less than ½ lb/day (0.01 lb/day calculated), offsets are not required.

Table A-1 of Rule 1303 lists allowable PM10 emissions for noncombustion sources as 0.41 lbs/hr. The controlled emissions of 0.001 lbs/hr is significantly below that level. Thus, modeling is not required for HCl emissions, which are a PM10 precursor, because emissions are below the PM10 threshold for modeling.

NSR requirements also include the compliance of the facility with all applicable rules and regulations [1303(b)(4)]. Sensitive Zone requirements [1303(b)(3)] do not apply since offset credits are not required for this application, and the Major Polluting Facilities requirements [1303(b)(5)] apply only to new major facilities or major modifications at existing facilities.

The facility is expected to comply with NSR requirements for BACT, modeling and offset requirements, as well as other applicable NSR requirements..

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Reg XIV Toxics and Other Non-Criteria Pollutants

Rule 1401: New Source Review of Toxic Air Contaminants (Amended 03/07/08)

Rule 1401 applies to new, modified or relocated permit units that emit Toxic Air Contaminants (TAC). HCl is listed as a TAC, so a Tier 1 evaluation was performed to see if emissions exceed health risk limits. **Table 3** shows that using a Tier 1 analysis with a conservative 25 meter receptor distance, the proposed HCl tank passed the Tier 1 screening with a cancer/chronic pollutant screening index of 1.61×10^{-2} and an acute pollutant screening index of 5.24×10^{-4} (both values are much less than the screening threshold of 1.0).

Table 3. Tier 1 Screening Risk Assessment Report for Proposed HCl Tank
TIER 1 SCREENING RISK ASSESSMENT REPORT

Receptor Distance (actual)	25	Tier 1 Results	
Receptor Distance (for X/Q LOOKUP)	25	Cancer/ Chronic ASI 1.61E-02 PASSED	Acute ASI 5.24E-04 PASSED

APPLICATION SCREENING INDEX CALCULATION

Code	Compound	Average Annual Emission Rate (lbs/yr)	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index (PSI)	Acute Pollutant Screening Index (PSI)
H11	Hydrogen chloride (hydrochloric acid)	4.80E+00	5.50E-04	2.98E+02	1.05E+00	1.61E-02	5.24E-04

Hydrogen Chloride does not pose a cancer risk, as shown in Table 8A of the 9/10/10 Risk Assessment Procedures (Package "L"). Thus, this project does not impact the MICR or cancer burden [1401(d)(1)]. The Table 3 screening results demonstrate that the chronic and acute hazard indices will not exceed 1.0 at any receptor location [1401(d)(2), (3)] and that the risk per year shall not exceed 1/70th of the maximum allowable chronic risk [1401(d)(4)]. No permit conditions are being imposed pursuant to Rule 1401, although hydrogen chloride is currently listed in Rule 1401 as a toxic air contaminant [1401(d)(5)]. The facility is not a major stationary source of HAPs; thus, the requirements of 1401(d)(6) do not apply. Compliance with this rule is expected.

Reg XXX Title V Permits

Rule 3000 General (Amended 11/05/10)

Paramount was issued an initial Title V operating permit on 2/27/09. This application is classified as a de minimis significant permit revision as defined in 3000(b)(7). Cumulative PM-10 and HAP emissions are less than the 30 lb/day daily maximum threshold from Rule 3000, Table 1.

Rule 3003 Applications (Amended 11/05/10)

Per 3003(j)(1)(A), de minimis significant permit revisions are required to be submitted to the EPA for review.

Rule 3006 Public Participation (Amended 11/05/10)

Per Rule 3006(b), de minimis significant permit revisions are exempt from the public participation requirements of this rule. No requirements apply.

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PART II: STATE REGULATIONS

CEQA California Environmental Quality Act (Amended 01/01/05)

This project does not trigger CEQA and is exempt from further CEQA action since it does not have the potential to generate significant adverse environmental impacts.

PART III: FEDERAL REGULATIONS

40CFR60 Subpart Kb Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984

Storage tank T-207 is exempt from Subpart Kb requirements because its 6,500-gallon capacity is less than 40 cubic meters (10,567 gallons).

40CFR63 Subpart CC National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries (Amended 06/23/03)

The proposed new storage tank will not contain or contact any of the hazardous air pollutants in Table 1 of Subpart CC [§63.640(a)(2)]. Thus, this new storage tank is not subject to Subpart CC requirements. In addition, the facility is currently classified as an area source of HAPs and only Major Sources of HAPs are subject to Subpart CC requirements.

RECOMMENDATIONS

Based on the above evaluation, it is recommended that the Permit to Construct be issued with the following conditions.

CONDITIONS

C1.xx The operator shall limit the throughput to no more than 30000 gallon(s) per month.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[**RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002**]

[Devices subject to this condition : Dxxx]

E161.x The operator shall not operate this tank unless the vent gases are sparged at least 10 inches below the liquid surface of a trap containing a minimum of 455 gallons of caustic solution maintained at pH 8 or higher.

To comply with this condition, the operator shall monitor the pH of the scrubbing solution after each filling operation, and shall keep records, in a manner approved by the District, of the pH of the caustic solution monitored according to this condition.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997**]

[Devices subject to this condition : Dxxx]