

Section I: AQMD BACT Determinations

Application No.: 411357

Equipment Category – Process Heater, Other Process

1. GENERAL INFORMATION		DATE: 5/19/2004
A. MANUFACTURER: Haldor Topsoe		
B. TYPE: Steam/Methane Reformer Furnace	C. MODEL:	
D. STYLE: Tubular		
E. APPLICABLE AQMD RULES: 1123, 1173, 1189		
F. COST: \$ (NA)	SOURCE OF COST DATA:	
G. OPERATING SCHEDULE:	24 HRS/DAY	7 DAYS/WK
		52 WKS/YR

2. EQUIPMENT INFORMATION		APP. NO.: 411357
A. FUNCTION: Feedstocks are pentane, refinery gas, ammonia and/or natural gas. Steam plus feedstock flows through tubes in the furnace. Tubes contain catalyst, which promotes conversion of feedstock and steam to H ₂ and CO/CO ₂ . Product gas from reformer is purified in downstream equipment, including pressure-swing adsorber (PSA), yielding H ₂ gas with minimum 99% H ₂ . PSA reject gas contains CO and other fuel values, and is recycled to furnace burners. Flue gas from furnace flows through a heat recovery steam generator, which produces approximately 227,000 lb/hr steam for refinery. Furnace design was based on 383F air preheat and assumed 10% excess air to burners.		
B. MAXIMUM HEAT INPUT: 780 MMBtu/hr	C. MAXIMUM THROUGHPUT: 90 MMSCFD H ₂	
D. BURNER INFORMATION: NO.: 360	TYPE: Low-NO _x (Callidus)	
E. PRIMARY FUEL: Refinery Gas and PSA Gas	F. OTHER FUEL: Natural Gas	
G. OPERATING CONDITIONS: Continuous, Steady Load		

3. COMPANY INFORMATION		APP. NO.: 411357
A. NAME: Chevron Products Co.	B. SIC CODE: 2911	
C. ADDRESS: 324 W. El Segundo Blvd.		
CITY: El Segundo	STATE: CA	ZIP: 90245
D. CONTACT PERSON: Neal Truong	E. PHONE NO.: 310-651-5669	

4. PERMIT INFORMATION		APP. NO.: 411357
A. AGENCY: SCAQMD	B. APPLICATION TYPE: new construction	
C. AGENCY CONTACT PERSON: Emmanuel Ruivivar	D. PHONE NO.: 909-396-2509	
E. PERMIT TO CONSTRUCT/OPERATE INFORMATION:	P/C NO.: 411357	ISSUANCE DATE: 7/22/2003
<input type="checkbox"/> CHECK IF NO P/C	P/O NO.:	ISSUANCE DATE:
F. START-UP DATE: Abatement order requires unit to be operating before 12/31/2004 (see Part 6 below, Comments).		

5. EMISSION INFORMATION

APP. NO.: 411357

A. PERMIT

A1. PERMIT LIMIT: RECLAIM NO_x Major Source. PPMVD@3%O₂ (3-hr avg.): NO_x-5, CO-10, NH₃-5. CEMS for NO_x, CO and ammonia. Heat input 780 MMBtu/hr (224.6 MMBtu/hr as refinery gas). Mass emissions (lb/mo.): VOC-3399, PM10-3642, CO-3843. Sulfur in fuel: 40 ppm as H₂S.

A2. BACT/LAER DETERMINATION: PPMVD@3%O₂: NO_x-5, CO-10, NH₃-5.

A3. BASIS OF THE BACT/LAER DETERMINATION: Part B of AQMD BACT Guidelines, Section I: Heater-Other Process, Praxair, A/N 389926 and Heater-Refinery, Air Products, A/N 337979.

B. CONTROL TECHNOLOGY

B1. MANUFACTURER/SUPPLIER: Low-NO_x burners-Callidus, SCR system-Peerless, SCR catalyst-Haldor Topsoe (DNX-930)

B2. TYPE:

B3. DESCRIPTION: SCR system consists of aqueous ammonia storage and injection system and catalyst bed. Injection system utilizes plant air to atomize and inject ammonia into flue gas upstream of catalyst bed. Catalyst promotes reaction of ammonia with NO_x to form N₂ and H₂O. Catalyst volume is 644 cu. ft, and temperature range for SCR reaction to take place is 562-622F.

B4. CONTROL EQUIPMENT PERMIT APPLICATION DATA: P/C NO.: 411358 ISSUANCE DATE: 7/22/2003
P/O NO.: ISSUANCE DATE:

B5. WASTE AIR FLOW TO CONTROL EQUIPMENT: FLOW RATE: 700,000 scfh
ACTUAL CONTAMINANT LOADING: 40 ppmvd NO_x @ 3% O₂ BLOWER HP:

B6. WARRANTY: Furnace manufacturer guaranteed 40 NO_x and 10 CO, and SCR manufacturer guaranteed 5 NO_x and 5 NH₃, all as ppmvd@3%O₂.

B7. PRIMARY POLLUTANTS: NO_x, CO, VOC, SO_x, PM10

B8. SECONDARY POLLUTANTS: NH₃

B9. SPACE REQUIREMENT: 25'W x 11'H x 16'L

B10. LIMITATIONS:

B11. UNUSED

B12. OPERATING HISTORY:

B13. UNUSED

B14. UNUSED

C. CONTROL EQUIPMENT COSTS

C1. CAPITAL COST: CHECK IF INSTALLATION COST IS INCLUDED IN EQUIPMENT COST

EQUIPMENT: \$ INSTALLATION: \$ (NA) SOURCE OF COST DATA:

C2. ANNUAL OPERATING COST: \$ (NA) SOURCE OF COST DATA:

D. DEMONSTRATION OF COMPLIANCE

D1. STAFF PERFORMING FIELD EVALUATION:

ENGINEER'S NAME: INSPECTOR'S NAME: DATE:

D2. COMPLIANCE DEMONSTRATION:

D3. VARIANCE: NO. OF VARIANCES: DATES:
CAUSES:

5. EMISSION INFORMATION

APP. NO.: 411357

D4. VIOLATION:	NO. OF VIOLATIONS:	DATES:
CAUSES:		
D5. MAINTENANCE REQUIREMENTS:	D6. UNUSED	
D7. SOURCE TEST/PERFORMANCE DATA RESULTS AND ANALYSIS:		
DATE OF SOURCE TEST: To be source tested within 90 days after startup		CAPTURE EFFICIENCY:
DESTRUCTION EFFICIENCY:		OVERALL EFFICIENCY:
SOURCE TEST/PERFORMANCE DATA:		
OPERATING CONDITIONS:		
TEST METHODS:		

6. COMMENTS

APP. NO.: 411357

This reformer is part of a new hydrogen plant replacing an existing hydrogen plant, which could not comply with the Rule 1189(c) requirement that VOC emissions be reduced to 2.5 lb/MMSCF H₂ effective 1-1-03. The existing plant is now operating under a variance pending completion of the new plant.

The ammonia CEMS is not required to be certified because a suitable protocol has not yet been developed. It is, however, required to be calibrated periodically on a schedule to be developed and to meet 20% relative accuracy.