



**FACILITY PERMIT TO OPERATE
AIR PROD & CHEM INC**

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

The operator shall comply with the terms and conditions set forth below:

Proposed deletions are show in ~~strikeouts~~. Proposed additions are in **bold and underlined**.

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
Process 1: HYDROGEN PRODUCTION					
System 1: HYDROGEN PLANT - <u>96 MMSCFD MAXIMUM RATED CAPACITY</u>					S2.1, S2.x , <u>S2.v</u> , S13.1
VESEL, V-101, FEED GAS SEPARATOR, HEIGHT: 10 FEET; DIAMETER: 4 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D4				E71.1
FILTER, F-200A/B, FEED COMPRESSOR INLET A/N: 337978 Permit to Construct Issued: 09/11/98	D5				
COMPRESSOR, C-200A/B, FEED, SINGLE STAGE, CAPACITY: 1,302,065 DSCFH, 12,000 HP EACH A/N: 337978 Permit to Construct Issued: 09/11/98	D6				
HEAT EXCHANGER, E-201A/B, FEED COMPRESSOR DISCHARGE COOLER, SHELL AND TUBE TYPE, 5.33 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D7				
VESEL, K-201A/B, FEED COMPRESSOR DISCHARGE COALESCER, CAPACITY: 1.302 MMSCFH, WITH PRESSURE RELIEF VALVE VENTED TO FLARE A/N: 337978 Permit to Construct Issued: 09/11/98	D8	C33			
HEAT EXCHANGER, E-103, PROCESS GAS BOILER, SHELL AND TUBE TYPE, 198.26 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D9				
REACTOR, V-109, HIGH TEMPERATURE SHIFT, HEIGHT: 16 FT 6 IN; DIAMETER: 12 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D10				
HEAT EXCHANGER, E-104, FEED PREHEATER, SHELL AND TUBE TYPE, 28.44 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D11				



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Process 1: HYDROGEN PRODUCTION					
VESSEL, V-104, HYDROGENATOR, HEIGHT: 11 FT; DIAMETER: 8 FT 6 IN A/N: 337978 Permit to Construct Issued: 09/11/98	D12				
VESSEL, V-105, FEED DESULFURIZER, WITH ZINC OXIDE CATALYST, HEIGHT: 11 FT 6 IN; DIAMETER: 9 FT 6 IN A/N: 337978 Permit to Construct Issued: 09/11/98	D13				
VESSEL, V-103, PRE-REFORMER, WITH PRE-REFORMER CATALYST, HEIGHT: 15 FT; DIAMETER: 7 FT 6 IN A/N: 337978 Permit to Construct Issued: 09/11/98	D14				
HEAT EXCHANGER, E-106, BFW PREHEATER, SHELL AND TUBE TYPE, 89.63 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D15				
HEAT EXCHANGER, E-108, DEAERATOR WATER HEATER, SHELL AND TUBE TYPE, 43.53 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D16				
HEAT EXCHANGER, E-109, PROCESS GAS AIR COOLER, FAN TYPE, 100.43 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D17				
HEAT EXCHANGER, E-110, PROCESS TRIM COOLER, SHELL AND TUBE TYPE, 8.71 MMBTU/HR A/N: 337978 Permit to Construct Issued: 09/11/98	D18				
VESSEL, V-112, PROCESS CONDENSATE SEPARATOR, WITH PRV VENTED TO FLARE, HEIGHT: 21 FT; DIAMETER: 7 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D19	C33			
ADSORBER, V8000 A THROUGH J, PSA, 10 IDENTICAL UNITS, HEIGHT: 29 FT; DIAMETER: 12 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D20				E336.1, H23.1



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Process 1: HYDROGEN PRODUCTION					
VESEL, V-113A/B, PSA SURGE DRUM, WITH PRV VENTED TO FLARE, HEIGHT: 90 FT; DIAMETER: 12 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D21	C33			
VESEL, V-107, CONTINUOUS BLOWDOWN DRUM, HEIGHT: 9 FT; DIAMETER: 2 FT 6 IN A/N: 337978 Permit to Construct Issued: 09/11/98	D22				
VESEL, V-108, STEAM DRUM, LENGTH: 30 FT 4 IN; DIAMETER: 9 FT A/N: 337978	Dxxx				C1.x, C1.y
VESEL, V-129, INTERMITTENT BLOWDOWN DRUM, VENTED TO ATMOSPHERE, HEIGHT: 10 FT; DIAMETER: 5 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D23				H23.1
VESEL, V-114, DEAERATOR, VENTED TO THE TUNNELS OF THE HEATER FIREBOX, WITH PRV VENTED TO ATMOSPHERE, HEIGHT: 23 FT 11 IN; DIAMETER: 10 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D24	D30			E57.1, H23.1
COMPRESSOR, C-251A/B, 1ST STAGE PRODUCT HYDROGEN, CAPACITY: 3.333 MMSCFH A/N: 337978 Permit to Construct Issued: 09/11/98	D25				
VESEL, K-251A/B, 1ST STAGE COMPRESSOR COALESCER, CAPACITY: 2.708 MMSCFH A/N: 337978 Permit to Construct Issued: 09/11/98	D26				
COMPRESSOR, C-252A/B, 2ND STAGE HYDROGEN PRODUCT, CAPACITY: 2.708 MMSCFH A/N: 337978 Permit to Construct Issued: 09/11/98	D27				
VESEL, K-252A/B, 2ND STAGE COMPRESSOR COALESCER, CAPACITY: 2.708 MMSCFH A/N: 337978 Permit to Construct Issued: 09/11/98	D28				



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Process 1: HYDROGEN PRODUCTION					
VESSEL, V-133, OIL BLOWDOWN DRUM, VENTED TO FLARE, HEIGHT: 7 FT, DIAMETER: 3 FT A/N: 337978 Permit to Construct Issued: 09/11/98	D29	C33			
FILTER, F-250A/B, PRODUCT HYDROGEN COMPRESSOR SUCTION A/N: 337978	Dyvy				

CONDITIONS:

System Conditions:

S2.1 The operator shall limit emissions from this system as follows

CONTAMINANT	EMISSION LIMIT
VOC	Less than 2.5 lbs/mmscf of hydrogen produced

A totalizing flow meter shall be installed and maintained to accurately indicate and record the flow rate of hydrogen produced.

[RULE 1189, 1-21-2000]

[Systems subject to this condition: Process 1, System 1]

S2.x The operator shall limit emissions from this system as follows

CONTAMINANT	EMISSIONS LIMIT
VOC	<u>Less than or equal to 17.5 LBS IN ANY ONE DAY</u>

[RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: Process 1, System 1]

S2.y The operator shall limit emissions from this system as follows

CONTAMINANT	EMISSIONS LIMIT
VOC	<u>Less than 0.06 lb/Klbs of steam vented at the kickback valve</u>



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The operator shall comply with the terms and conditions set forth below:

The operator shall demonstrate compliance with this condition by conducting source test annually by sampling steam from the export steam line to Tesoro.

A totalizing flow meter shall be installed and maintained at the steam kickback vent to accurately indicate and record the amount of steam vented no later than January 31, 2018.

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

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Systems subject to this condition: Process 1, System 1]

S13.1 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1189

[RULE 1189, 1-21-2000]

[Systems subject to this condition: Process 1, System 1]

Device Conditions:

C1.x The operator shall limit the venting rate to no more than 16,418 lb(s) in any one day.

For the purpose of this condition, venting rate shall be defined as total steam vented to atmosphere through silencer X-105 via steam kickback vent valve PV-55 (or via steam kickback vent valves PV-55A/B should a dual-metering solution be incorporated).

The operator shall also install and maintain a device to continuously record the parameter being measured at the next turnaround but no later than January 31, 2018. Until then, the operator shall use District approved correlation equation(s) to calculate the venting rate.

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

[Rule 1303(a)(1)-BACT, 5-10-1996; RULE 1313(g), 12-7-1995]



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[Devices subject to this condition: Dxxx]

C1.y The operator shall limit the venting rate to no more than 497,512 lb(s) in any one month.

For the purpose of this condition, venting rate shall be defined as total steam vented to atmosphere through silencer X-105 via steam kickback vent valve PV-55 (or via steam kickback vent valves PV-55A/B should a dual-metering solution be incorporated).

The operator shall also install and maintain a device to continuously record the parameter being measured at the next turnaround but no later than January 31, 2018. Until then, the operator shall use District approved correlation equation(s) to calculate the venting rate.

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 1313(g), 12-7-1995]

[Devices subject to this condition: Dxxx]

E57.1 The operator shall vent this equipment to the tunnels of the fire-box of the reformer heater whenever the hydrogen plant is in operation, except during startup, shutdown, or emergency.

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

[Devices subject to this condition: D24]

E71.1 The operator shall not use this equipment to process any feed gas except commercial pipe-line quality natural gas.

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

[Devices subject to this condition: D4]

E336.1 The operator shall vent the vent gases from this equipment as follows:

All PSA purge gases shall be directed to the reformer heater, except during startup, shutdown, or emergency. Atmospheric venting of product hydrogen and carbon monoxide shall be permitted only during periods of emergency, startup, shutdown, or unforeseen turndown of hydrogen demand; provided that such discharges do not endanger the health and safety of any person or the public, or cause damage to business or property.



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

[Devices subject to this condition: D28]

**Note that this equipment is subject to Rule 1303 dated 5-10-1996, which was the current version at the time A/N 337978 was deemed complete. Tagging of the 12-6-02 amendment was mistakenly added during the issuance of AP's Initial TV permit (only the 5-10-96 tagging appeared prior to that). See Reg 13 evaluation below.*

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
CO	District Rule	407

This rule applies during normal operation, startup, shutdown, and unforeseen turndown of hydrogen demand.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 407, 4-2-1982]

[Devices subject to this condition: D20, D23, D24, D30, C32, C33]

