

PLAINTIFF'S EXHIBIT

CHV-710

PLAINTIFF'S, SELECTION

San Francisco, California
November 5, 1969

Preliminary Materials Selection
El Paso Crude Unit

MEMBERS: J. H. LYLE
B. W. MEZO

The attachment is a materials selection for the conversion of the Moudry Fractionator to a Crude Topping Still at El Paso. Selection of material is based on the Preliminary process shown on CRC preliminary Dag. - RA 695110 dated 8-1-69. Both new and existing equipment are incorporated in our materials selection.

A review of the recommended material is required when Final PFD's are issued.

Our selection is based on the understanding that YATES Crude will be blended with North Snyder Crude, which will yield an oil low in naphthenic acid content. Also with the low temp. level of the Crude Feed Heater, the liberation of H_2S will be nominal. Subsequently, the severity of corrosion in the crude heater and Fractional Column will be only moderate.

The selection of Admiralty tubes, zinc sprayed channels and floating heads and monel build up on channel and floating head gasket surface is based on El Paso's preferred materials on the water side of heat exchangers; also, all reboilers having a steam supply pressure of 110 psig are shown having an admiralty bundle for the same reason.

Original copy in file 701.14.

F. W. ALME

FWA:ff
Attach.

cc: Mr. J. G. Kerr - Richmond Materials Lab. w/1

EDS w/1

FWA w/2

JHL w/1

BWB w/1

PRELIMINARY MATERIALS SELECTION
EL PASO CRUDE UNIT

Nov. 5, 1969
Page 1

COLUMNS:

C-401 Fractionator Crude Column

Above Flash Zone - Shell & Tophead c.s. w/ 1/8" c.a.
(Tray 1 to Top Head) Tray & Internals c.s. w/ 3/16" c.a.
Caps C.I. Std.

Flash Zone

(below tray 1 to Shell c.s. w/ 1/8" c.a.
below tray S-4, line or Clad w/ 410 or 405 S.S.
see note) Trays & Internals 12 Cr w/ 1/16" c.a.
Caps 12 Cr

Below Flash Zone Shell & Head c.s. w/ .20 c.a.
(below tray S-4 Tray & Internals c.s. w/ 3/16" c.a.
to Bottom Head) Caps Cast Iron

C-402, C-403 Side Cut Strippers) Shell & Heads -
C-503 Rerun Column) c.s. w/ 1/8" c.a.
C-3503 Stabilizer) Trays - c.s. w/ 3/16" c.a.
Caps - Cast Iron

Note: Either roll cladding or undiluted weld overlay permissible.
Corrosion based on an anticipated 20 mpy rate w/o 12 cr liner.

DRUMS:

D-401 Ov'hd Reflux Drum #1)
D-403 Re-run Ov'hd Reflux Drum) Shell & Heads
D-404 Stabilizer Ov'hd Reflux Drum) c.s. w/ 3/16" c.a.
D-1501&2 Desalters)

D-402 Ov'hd Reflux Drum #2 - Shell & Heads
c.s. w/ 3/16" c.a.
Water leg
c.s. w/ 1/4" c.a.

EXCHANGERS:

E - 1A & B Crude Feed Fractionator)
Ovh'd Exchanger)
E-- 2 Crude Feed Stripper)
Side Cut Exchanger)
E - 3A & B) Crude Feed Fractionator) Shell, channels, shell
& channel covers -
E - 5A & B) Bottoms Exchanger) c.s. w/ 1/8" c.a.
E - 4 Crude Feed Stripper) Tubesheets - c.s. w/ 3/16" c.a.
Bottoms Exchanger) Tubes - 14 ga. c.s.
E - 6 Crude Feed Fractionator) Baffles - c.s. w/ 1/8" c.a.
Side-cut Exchanger)
E - 8 Re Run Feed Bottoms)
Exchanger)
E - 9 Re Run Feed Steam)
Heater)
E -11) Stabilizer Feed)
E-307) Bottoms Exchanger)

PRELIMINARY MATERIALS SELECTION
EL PASO CRUDE UNIT

Nov. 5, 1969
Page 2

EXCHANGERS - Continued

E - 7A & B	Crude Feed Fractionator	
	Bottoms Exchanger	
	Shell & Channel -	c.s. w/ 1/8" c.a.
	Tubesheets	c.s. w/ 3/16" c.a.
	Tubes	c.s. 12 ga.
	Baffles	c.s. w/ 1/8" c.a.
E - 18	Fractionator Ov'hd Cooler	) Shells, channels, shell
E - 409	Stripper Bottoms Cooler	) & channel covers -
E - 411	Stripper Side Cut Cooler	) c.s. w/ 1/8" c.a.
E - 518	Re Run Ov'hd Cooler	) Tubesheet - NRB w/ 1/16" c.a.
E - 3503	Re Run Bottoms Cooler	) Floating Head - c.s. w/ 3/16" c.a.
E - 17	Stabilizer Ov'h'd Cooler	) Tubes - 16 ga. admiralty
E - 3508	Stabilizer Bottoms Cooler	) Baffles - c.s. w/ 1/8" c.a.

Steel channels and floating heads with monel build-up at gasket seating surfaces against NRB sheets; then zinc spray channel & floating heads per E & M Instr. EP-2026E.

E - 402 A&B	Fractionator Ov'h'd	)	
	Air Coolers	)	
E - 412	Stripper Sidecut	)	
	Air Cooler	)	Headers - c.s. w/ 3/16" c.a.
E - 413	Stripper Bottoms	)	Tubes - c.s. w/ 1/16" c.a.
	Air Cooler	)	
E - 13,	Re Run Overhead	)	
E - 513	Air Cooler	)	
E - 6	Crude Unit Product	)	
	Air Cooler	)	
E - 10	Re Run Column Reboiler	)	Shell & Channels -
E - 12	Stabilizer Column Reboiler	)	c.s. w/ 1/8" c.a.
	See Note 1		Tubes - 16 ga. Admiralty
			Tubesheets - NRB w/ 1/16" c.a.
			Baffles - c.s. w/ 1/8" c.a.
			Floating Heads - c.s. w/ 3/16" c

Note 1. Connections for venting CO₂ should be provided at the highest point on reboiler shell prior to initial construction.

PRELIMINARY MATERIALS SELECTION
EL PASO CRUDE UNIT

Nov. 5, 1969
Page 3

FURNACE:

F-301 Fractionator Crude Heater

Note: If the tubes are in satisfactory condition no change is required, as the furnace is presently over alloyed. However, if a change is warranted the following criteria shall hold.

Convection Section Tubes - c.s.

Radiation Section Tubes - c.s. w/ 1/8" c.a. except for the 20 outlet tubes to be 5 Cr w/ .05" c.a.

Headers - selected to match tube material

Tube Support Castings - Up to 1000°F Cast Iron
1000°F - 1200°F Cr - Ni Cast Iron

Note: Carbon Steel and Chrome Steel tubes are based on the following corrosion allowances for operating Stock Temperatures:

	Stock Temp. °F	c.a. in inches
Carbon Steel	500	0.1
	550	0.32
5% Chrome Stl	500	0.05
	550	0.15

Note: If furnace fuel will contain Vanadium, design for a maximum 1200°F tube support temp.
Corrosion allowance based on an anticipated life of 10 years.

PUMPS:

	Mat'l's Class
P-1 Crude Feed Pump (Before Desalters)	B-1
P-2 Crude Feed Booster (After Desalters)	B-1
P-3 Fractionator Ov'h'd Reflux Pump #1	B-5
P-401 Fractionator Ov'h'd Reflux Pump #2	B-5
P-403 Stripper side-cut pump	B-1
P-404 Fractionator Side Cut Pump	B-2
P-405 Stripper Bottoms Pump	B-2
P-406 Diesel Side-Cut Pump	B-2
P-407 Fractionator Bottoms Pump	B-3
P-507 Re Run Bottoms Pump	B-1
P-3505 Stabilizer Ov'hd Reflux Pump	B-5
P-5230 Re Run Ov'hd Reflux Pump	B-5

Materials Classifications per Std. Dwg. GA-6-99876-3

PIPING:

All piping will be c.s. with the conventional 1/16" c.a. w/ 12 Cr valve trim except for the top transfer line from F-301 to C-401 and the bottoms line from C-401 to E - 7A & B which shall be carbon steel plus 1/8" corrosion allowance.

