

CHEVRON U.S.A. INC.
ENGINEERING DEPARTMENT - EL PASO, TEXAS
CONTRACT NO. C-15-070-80
SPECIFICATION NO. EP-407-N
October 7, 1980
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PLAINTIFF'S EXHIBIT

CHV-686

SPECIFICATION NO. EP-407-N
INSTALLATION AND REPAIR OF INSULATION
OF VARIOUS PIPES
EL PASO REFINERY

1.0 Scope

- 1.1 CONTRACTOR shall furnish all necessary labor and equipment to repair insulation and/or to insulate various lines in the El Paso Refinery.
- 1.2 This specification supplements the Contract Terms and Conditions (Form GO-279). In the event any discrepancy exists between this document and said Terms and Conditions, the provisions of the latter shall be controlling.

2.0 General

- 2.1 CONTRACTOR shall abide by the rules and regulations as set forth in Refinery Instruction No. 1404, "General Instructions to Contractors Working Within the Refinery," revised 8/80, which will be part of the contract.
- 2.2 A COMPANY representative will be assigned to administer the details of the contract for a given area of the refinery. He will be the sole contact between the CONTRACTOR and the COMPANY for that area.
- 2.3 CONTRACTOR shall expedite the work as much as possible, executing it in a neat, orderly, workmanlike manner. CONTRACTOR will leave all work areas neat and clean.
- 2.4 All work will be initiated by COMPANY on Authorization to Perform Work, MFG-2649.
- 2.5 Work will be located throughout the refinery and shall be performed over an extended period of time. The exact extent and design of the work will be specified by COMPANY before work shall begin. CONTRACTOR shall be paid piece rate for work performed according to bid price schedule.
- 2.6 Any equipment requirement, service, or additional instruction to CONTRACTOR that does constitute a contract change must be transmitted on a "Change" Form GO-283. The "Change" may be initiated by the COMPANY representative but requires a signature of approval at the appropriate level of authority before the agreement may be commenced. Example: A "Change" would be required for the COMPANY to authorize a change in piece rate prices.

2.7 Scaffolding

Scaffolding, when required, will normally be erected by the COMPANY. COMPANY may elect to have required scaffolding erected by CONTRACTOR. In this event, COMPANY will supply scaffolding and CONTRACTOR shall be reimbursed at an hourly rate to be bid on Contractor's Bid Sheet, Exhibit A. All scaffolding erected by CONTRACTOR will be inspected and approved before work shall commence. Scaffolding must meet OSHA requirements.

3.0 Details of Work

- 3.1 Insulation shall be 1 1/2" thick Hydrous Calcium Silicate (Kaylo, Thermobestos, Kaythem, Caltemp, or equivalent) with .016 inch thick aluminum waterproof jacketing for lines 8 inches in diameter or larger.
- 3.2 Insulation shall be 1 inch thick Hydrous Calcium Silicate with .016 inch thick aluminum waterproof jacketing (Kaylo, Thermobestos, Keythem, Caltemp, or equivalent) for lines 6 inches in diameter or smaller.
- 3.3 All insulation repairs shall restore pipe insulation to original specifications or better
- 3.4 All insulation on previously uninsulated pipe shall be single layer and match or exceed Specifications 3.1 and 3.2.
- 3.5 Insulation shall be installed per Specification 6A-N99783-4 "Standard Insulation for Hot Piping Below 650 F", which is included in this specification.

4.0 Contract Price

- 4.1 COMPANY agrees to compensate CONTRACTOR for service and equipment as outlined in Contractor's Bid Sheet Exhibit A, which will be part of this contract. Bid prices are to include all profits, taxes, and overhead and shall be for the duration of the contract.
- 4.2 In the event of any increase or decrease in any service rate or equipment rate prior to the termination of this contract, CONTRACTOR shall notify COMPANY of the changes by submitting new rate proposals, in writing, for approval. Acceptance by COMPANY may be in whole, or in part, and single service rates or equipment rates, as well as the entire proposal, may be subject to negotiation and compromise prior to acceptance of a modification or contract by COMPANY. No change will be considered approved until a duly authorized Contract Change Form (GO-283) is processed. It is the COMPANY'S intent that all

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CONTRACTOR equipment rates and service rates be competitively bid for the duration of the contract and not subject to negotiation unless there are unusual circumstances.

5.0 Accounting of Contract Costs

5.1 CONTRACTOR shall keep an accounting of all services furnished to COMPANY and shall submit, upon request, information as required by COMPANY.

5.2 Invoicing Instructions

- 5.21 COMPANY agrees to compensate CONTRACTOR for service and equipment as outlined in Contractor's Bid Sheet, Exhibit A.
- 5.22 CONTRACTOR agrees to the fixed unit bid price, as quoted in Contractor's Bid Sheet, Exhibit A, for installation and repair of insulation, which shall be for the duration of the contract.
- 5.23 In the event of an increase or decrease in any service rate or equipment rate prior to the termination of this contract, CONTRACTOR shall follow procedures as outlined in 4.2.
- 5.24 CONTRACTOR shall provide, at COMPANY'S request, a list of insulation repairs and/or installation completed or in progress by CONTRACTOR.
- 5.25 CONTRACTOR shall, for COMPANY'S accounting purposes, furnish invoices in accordance with Paragraph 2.41 of the Contract Terms and Conditions, Form GO-279-GEN.
- 5.26 CONTRACTOR shall furnish four copies of each invoice when submitting a bill to COMPANY for payment.

6.0 Informatives

6.1 The following blank COMPANY forms are included with this specification for CONTRACTOR'S information.

6.11 Authorization to Perform Work, Form MFG-2649.

6.12 Contract Change, Form GO-283.

CONTRACTORS BID SHEET EXHIBIT A

Line Size - (all distances, number of elbows, tees, valves approximate)	Std. Pipe Approx. Ft.	\$/Foot	No. of 90° Elbows	\$/Elbow	No. of Tee Sections	\$/Tee	Valves No. \$/Valve	Blinds No. \$/Blind
1 1/2" (4 separate sections)	30		3		1		1	0
3/4" (10 separate sections)	80		8		4		6	0
1" (7 separate sections)	40		4		2		1	1
1 1/2" (10 separate sections)	75		6		3		5	2
2" (28 separate sections)	350		35		10		10	8
3" (22 separate sections)	140		10		10		12	6
4" (22 separate sections)	224		20		11		7	7
6" (20 separate sections)	190		10		5		8	7
8" (9 separate sections)	549		20		15		15	10
12" (1 section)	3		0		0		1	0
15" (2 separate sections)	45		4		1		2	1
18" (2 separate sections)	4		0		0		2	0
10" (3 separate sections)	6		1		0		3	1

Miscellaneous Items

Approximately 12 sq. ft. on C-502 Total Price C-502 \$

Hourly rates for scaffolding erection \$

PLANT NO. 1-4 STILL

Symbols: MI - Missing

IC - Covers

DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
1	DI	East pipe trench 15# steam line	14"	8"
2	MI	East pipe trench 110 line (where line was cut going to old Perco Area)	3'	6"
3.		1½" line 110# going to G 3204 pump	39'	1½"
4.	MI	East pipeway on 15# (where line was cut going to Perco Area.	14"	6"
5.	IC	15# Valve west of reflux crude stripper MG 3203-E		3"
6	IC	110 Valve west of reflux crude stripper MG 3203 E		6"
7.	DI	Stabilizer reboiler condensate out	6"	8"
8.	MI	Northwest of furnace 2541 where snuffing steam connects to 110# steam line	2½"	6"
9.	MI	Northwest of furnace 2541 (pipeway) #15 line	2'	6"
10.	MI	Northwest of #4 feed pumps (pipeway) 15# line	2½'	6"
11.	DI	Steam valve going to E-3201 and line connected to it, northwest of F-3201	2'	2"
12.	IC	Inlet steam valve to #4 Kero Stripper		2"
13.		Tar going to storage from exchangers on #2 and #3 crude units is not insulated all the way to C pipeway. Yet at C pipeway it becomes insulated again. Lots of heat loss.	lots	4 + 6"

PLANT NO. 141 RHENIFORMER

Symbols: MI - Missing IC - Covers DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
141-1	IC	West side of E-4131 B, one foot above grade, Recycle Feed E-4131 B		10"
141-2	MI	West side of E-4131 D 1' above grade. Recycle feed to E-4131 D	2'	10"
141-3	DI	East side of E-4131 D 1' above grade. Effluent out of E-4131-D	2'	10"
141-4	DI	10' north of PRC-138, 20' above grade. 110# steam to G-4133 Mechanical Seals.		
141-5	DI	One foot north of K-4134-A filter, recycle H ₂ suction to MK-4131 steam tracing.	3'	2"
141-6	DI	Three feet west of D-4136, 20' above grade, steam tracing to recycle H ₂ suction.	2'	3/4"
141-7	DI	Plant boundary 20' above grade. 110# steam from D-4197.	2'	3"

PLANT 142 RHENIFORMER
Feed Treating

142-1	DI	Plant Boundary 110# steam line under walkway	3'	6"
142-2	DI	8' north of G-4199, 110# steam leads to FR-480	4'	
142-3	IC	South side of TG-4156, 110# steam inlet valve to APS		2"
142-4	MI	East of TG-4156 20' above grade. 110# steam to TG-4156	4'	3"
142-5	MI	K-4150 compressor 1st deck, above E-4155 110# steam to vacuum jets	10'	1"

PLANT NO. 142 RHENIFORMER
Feed Treating

Symbols: MI- Missing

IC - Covers

DI - Damaged

			Estimated Length	Line Size
142-6	IC	Northwest side of K-4150, bypass steam valve to K-4150 400# steam.		6"
142-7	MI	K-4150 Turbine head.		
142-8	DI	South of surface condenser cooling water valves cooling H ₂ O to PI-404		1"
142-9	DI	South side of TG-4152, 100# steam to TG-4152	3'	1½"
142-10	DI	East of C-4190, TRC-415 A&B	4'	18"
142-11	DI	South of D-4193, gage glass on D-4193	3'	
142-12	DI	Bottom of D-4197, condensate to boilers	4'	2"

PLANT NO 116 NO 6 CRUDE UNIT

Symbols: MI - Missing  IC - Covers DI - Damaged

			Estimated Length	Line Size
116-1	DI	15' east of D-1620 No. 6 Plant boundary about 10' above grade. Debut reboiler condensate.	8'	3"
116-2	DI	15' east of D-1020 No. 6 Plant boundary about 10' above grade. FCC C.O. to V.F. Bottoms	15'	2"
116-3	DI	Same location as above. Vac Col. btms to F.O.	2'	6"
116-4	DI	Same location as above. Condensate to D-1020	3'	4"
116-5	DI	10' west of MG-1616-A, 3' above grade, 110# steam to E-1635 and Deprop. Btms to a from E-1635	18'	2"
116-7	DI	North side of E-1625 15' above grade. 110# steam to Deprop Reboiler.	10'	6"
116-8	DI	North side of E-1625 10' above grade. 110# steam to Deprop Reboiler deck.	12'	1"
116-9	MI	Bottom of E-1625 5' above grade. Deprop Reboiler bottoms line.	2'	10"
116-10	DI	On top of E-1625. Deprop Reboiler top circulating line.	2'	18-20"
116-11	DI	8' north of D-1681 15' above grade. Condensate line to D-1020.	3'	2"
116-12	DI	15' above grade in the middle of pipeway. Same as line above.	3'	2"
116-13	DI	3' above D-1681 and go south. 110# condensate	45'	2"
116-14	MI	On top of E-1622. Debut Reboiler	2'	18-20"
116-15	MI	Bottom of E-1622. Debut Reboiler	3'	12"

PLANT NO. 116 No. 6 CRUDE UNIT

Symbols: MI - Missing  IC - Covers  DI - Damaged 

			Estimated Length	Line Size
116-16	MI	South of E-1622 about 10' above grade. Condensate from Debut Reboiler	12'	3"
116-17	DI	7' above grade and proceeds east of D-1604 water leg. Foul H ₂ O.	46'	1½"
116-18	DI	2' north of MG-1615A and 15' above grade. Debut Reboiler condensate.	20'	3"
116-19	DI	10' SE of PRC-16-129 about 15' above grade. 400# steam line.	2'	6"
116-20	DI	25' east of north door of old No. 6 control house and 15' above grade. G.O. to V.F. bottoms line.	1'	2"
116-21	DI	Same location as above. Vacuum Flasher bottoms line	1"	6"
116-22	MI	3' south of furnace shuffling steam header. 3' on both sides of steam trap. 110# condensate.		2"
116-23	DI	25' west of G-1602 about 15' above grade. V.F. top reflux line.	4'	4"
116-24	DI	On F-1602 burner deck, east side, about rail high level. 110# steam to steam station.	3'	2"
116-25	DI	10' SE of back pressure gas controller to F-1601 and 15' above grade. Atmos bottoms line.	2'	4"
116-26	DI	Same location as above. Vacuum Flasher bottoms recirculating line.	6'	4"
116-27	DI	Under F-1602, fuel oil and steam lines to burners	16'	3/4"
116-28	DI	Between F-1601 and F-1602 about 12' above grade Superheated steam to vent.	15'	4"

PLANT NO. 116 No. 6 CRUDE UNIT

Symbols: MI - Missing  IC - Covers  DI - Damaged 

			Estimated Length	Line Size
116-29	DI	Between F-1601 and F-1602 about 12' above grade 400# steam to passes.	2'	3"
116-30	DI	Same location as above. F.O. Circ. line	2'	2"
116-31	DI	Bottom of C-1603 about 10' above grade. Super- heated steam header.	2'	3"
116-32	DI	Bottom of C-1601 west side, C-1605 bottoms FR	20'	2"
116-33	DI	8' NW of D-1602 first deck, NH ₃ header.	5'	3"
116-34	MI	Top deck of C-1603, FRC-141. Feeds C-1603	6'	3"
116-35	DI	6' SW of E-1607 A&B, FRC-106 inter reflux	2'	6"
116-36	DI	South of E-1603. Steam tracing	5'	1/2"
116-37	DI	SE and top of E-1604. VF heavy gas oil, shell side	2'	6"
116-38	DI	20' SW of E-1601 A&B on atmospheric column. Level col. by overflow feed.	5'	3"
116-39	DI	SW side of C-1602 top deck. V.F. top reflux line	30'	4'
116-40	DI	SW side of C-1602, Inter reflux at column	8"	4"
116-41	DI	SW side of C-1602 20' north of E-1616, V.F. over flash	8'	4"
116-42	DI	South of E-1616 and south of E-1617, 110# steam to jets.	36'	2"
116-43	DI	Discharge of MG-1680 A, HSR	3'	3"
116-44	DI	Northeast side of C-1603, level column	3'	3"

Specification No. EP-407-N
Pipe Insulation
Chevron U.S.A. Inc.

PLANT NO 116 No. 6 CRUDE UNIT

Symbols: MI - Missing

IC - Covers

DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
116-45	DI	North side of C-1603. Level Gage Glass	2'	
116-46	DI	20' Northeast side of C-1603. 110# steam to G-1638 seal.	3'	1"
116-47	MI	Under E-1611, blowdown condensate	26'	2"
116-48	DI	Turbine side of TG-1602. 110# steam APS bypass	2'	2"
116-49	MI	Under E 1613. Blowdown condensate	8'	2"
116-50	DI	20' west of vacuum bottoms screens and 15' above grade. 110# steam tracing	2'	1/2" copper
116-51	DI	North side of E-1631. FCC feed.	2'	4"
116-52	DI	5' west of E-1620. TRC 137 vapor line.	2'	3"
116-53	MI	10' east of Deprop feed meter, 15' above grade (1605 bottoms)	30'	3"
116-54	MI	Same location as above (atmos. overflash)	4'	3"
116-55	MI	Middle of walkway plant boundary. F.O. return loop; jumpover V.C. bottoms to fuel oil.	45'	2"

Specification No. EP-407-N
Pipe Insulation
Chevron U.S.A. Inc

PLANT NO. BOILERS

Symbols: MI - Missing IC - Covers DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
130-1	DI	TG 902 1" Valve underneath steam reg to turbine	1'	1"
130-2	MI	TG 1003 Inlet steam valve to turbine	2'	3"
130-3	DI	TG 1004 Inlet steam valve and line	4'	4"
130-4	MI DI MI	TG 1004 Cond return line	4'	1"
130-5	DI MI	High pressure FW makeup to low pressure FW	7'	1½"
130-6	MI DI	Boiler blowdown line north of big tall cement stack	5'	2" & 4"
130-7	IC	E-1004 north of big tall stack steam line coming in from pipeway, needed for valve and flange		3"
130-8	MI	Steam going out of E-1004 line	6'	1½"
130-9	MI	Blowdown line coming from #1 boiler NW of tall cement stack	4'	2"
130-10	DI MI	#1 boiler cont. blowdown northeast corner	12'	1½"
130-11	DI MI	Fuel gas line north of #1 boiler	Lots	6"
130-12	DI	Compressor house outside north on 15 lb steam line		1½" & 1"
130-13	IC	Valve above #1 boiler blower turbine		4"
130-14	DI	Various steam lines on top of #1 boiler	10'-20'	½" & 3/4"
130-15	DI	#1 boiler #400 header, east side middle	1½'	8"
130-16	MI DI	Steam hog K1203 3/4 lines on north side	4'	3/4"
130-17	IC	K1203 valve on exhaust to 15 lb		6"
130-18	MI	Inside house above K1203, 15 lb line (same as #12)	40'	1½"

PLANT NO. BOILERS

Symbols: MI - Missing IC- Covers DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
130-19	IC DI	Oily cond. D1009 manifold on south side line going into it	15'	various sizes
130-20	DI	2 lines above D1026 ploc filter	4'	4"
130-21	MI	120 lb air dryers heater manifolds		various sizes
130-22	MI	40 lb air dryers new piping		3"
130-23	DI	Exchangers E1001-A and E1001-B	--	--
130-24	IC	Discharge fuel oil tank		8"
130-25	DI	110 lb steam line to fuel oil pumps TG302, TG3001	10'	2"
130-26	MI	Control valve TRC 10-114 400 lb steam to heaters	2½'	1½"
130-27	DI	Discharge oil valves on all 3 fuel oil pumps	10'	3"
130-28	DI	Suction oil valves on all 3 fuel oil pumps	6'	4"
130-29	DI	Steam line coming to No. 10 FD fan at top of pipeway	4'	3"
130-30	DI	Valve on line at top pipeway, west of west side burners on No. 10 boiler	1'	4"
130-31	DI	Various size lines on top of pipe way west of 10 lb boiler	30'	various sizes
130-32	DI	Top of pipe way between 10 and 11 boilers. Continuous blowdown line from both connecting to main header	10'	4"
130-33	DI	Line from exhaust on #10 FD fan going to heater on east side of #10 boiler	7'	4"
130-34	DI	Top of deareator small manifold, 3 lines coming off	8'	1" & 3"
130-35	DI MI	Feed water line coming into #11 boiler steam drum	6'	4"
130-36	DI MI	Feed water line coming into #10 boiler steam drum	5'	4"

PLANT NO. BOILERS

Symbol: MI - Missing

IC - Covers

DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
130-37	IC	Valves on continuous blowdown reg on both boilers	4 valves	2"
130-38	DI	Fuel oil regulators to both boilers located between both boilers piping	5'	1½"
130-39	DI	110 lb steam line regulators going to both boilers located between both boilers piping	6'	1"
130-40	DI	110 lb steam line going to regulators for burners on side of door between boilers	3'each	2"
130-41	DI	Oil and steam line to NW burner on #10 boiler	2'	3/4"
130-42	DI MI	Both manual blowdown lines to boilers bottom floor	14'	2"
130-43	DI	Steam and fuel oil to east burners on #11 boiler	4	3/4"
130-44	MI	Lascade pumps MG1019 and TG 1018A suction from D 1027	45'	6" & 4"
130-45	IC	3 valves feed water to boilers located inside pump House south wall		4"

PLANT NO. 36 ASPHALT PLANT

Symbols: MI - Missing

IC - Covers

DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
36-1	DI	Line going from mixer on 3607 TK to mixer on 3609 Tank stream	5'	3/4"
36-2	DI	Suction and pump up valves on TK 3609	2' ea.	8"
36-3	DI	Oil heater line going into TK D-3613 (elbow)	1 1/2"	1 1/2"
36-4	DI	Pump up valve at TK-3624	2'	6"
36-5	DI	Oil for heaters, in and out valves on TK-3608	1' ea.	1 1/2"
36-6	IC	Heater oil valves going into TK3606		2"
36-7	DI	3/4" line south side of 3606 (steam line going to mixer)	4'	3/4"
36-8	IC	Heater oil valves going into TK 3625		2"
36-9	DI	Steam tracing off of pipeway where it makes a 90° going into TK-3601	6'	3/4"
36-10	DI	Heater oil valves going into TK 3601	2 1/2' ea.	3"
36-11	IC	Heater oil valves going into TK-3602		3"
36-12	DI	3" line in pipeway north of TK-3627	5'	3"
36-13	DI	Pump up line going into TK-3670 where it makes 90° turn	8'	1 1/2 & 3"
36-14	DI	Suction line out of TK-3671 where it makes a 90° turn (safety hazard)	4'	6"
36-15		3 and 4 stills need new insulation all over (per Erwin)		
36-16	DI MI	Casing and discharge line on pump MG-3601 north of No. 3 still.		3"
36-17	IC	Six valves on north side of E-3601		3 & 4"
36-18	DI	Line east of D-3631		3"

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Pipe Insulation
Chevron U.S.A. Inc.

PLANT NO. 36 - ASPHALT PLANT

Symbols: MI - Missing

IC - Covers

DI - Damaged

			<u>Estimated Length</u>	<u>Line Size</u>
36-19	MI	Steam tracing to middle north spout at Tank Car loading rack.	30'	3/4"
36-20	DI	Steam tracing south east spout at TK/car rack	2'	3/4"