CHARLES F. HAYARD — MARTIN F. BETZEL

HAYWARD & BETZEL

GENERAL CONTRACTORS

1822 WYOMING STREET

EL PASO, TEXAS

April 30 1941

PLAINTIFF'S EXHIBIT

ASA-987

American Smelting & Refining Co
El Paso Smelting Works
El Paso, Texas

Gentlemen: Attention Mr. J. W. English
Plant Engineer

We are pleased to submit our bid for the erection of Blast Furnace Baghouse, covering excavation, placing of concrete foundations, reinforced concrete for beams, columns and panel walls for construction of baghouse including built-up Asbestos Roof, according to the plans and specifications submitted to us, in the amount of

Proposal (A), Purchaser to furnish sand and gravel,
Twenty Four Thousand Six Hundred Fifty Eight Dollars, ($24658.00).

Proposal (B), Contractor to furnish sand and gravel,
Twenty Five Thousand Seven Hundred Eighteen Dollars, ($25718.00).

Work to start at once after being given contract.

Time for completion of the work will be four months.

Respectfully submitted,

Hayward & Betzel.

By M. F. Betzel
M. F. Betzel.

LIST OF MATERIAL

AMERICAN SMELTING AND REFINING COMPANY

WESTERN DEPARTMENT—ENGINEERING OFFICE

DATE 3/4/41 — MADE BY H.L.Z. — CHECKED BY O.L.S. — JOB NO. P-1360

FOR El Paso PLANT

Blast Furnace and Ventilating Baghouse

REVISED 4/3/41

SHEET NO. 1

Subdivision Number	Drawing Number	Piece Mark or Patt. No.	Material From: Salvage	Material From: Stock	Material From: C. D. Req'n No.	Number of Pieces Req'd	Description	Work To Be Done By: Patt. Shop	Foundry	Mach. Shop	Punch	Roller	Pipe	Electric	Carpenter
	EP-3640				5047	8	7½ hp, 900 rpm, General Electric Motors with sliding bases.								
	"				5050	8	3 Groove, C-Belt, 10" P.D. V-Belt Sheaves.								
	"				"	24	C-105 V-Belts								
							SHAKER DRIVE COUNTERSHAFTS								
	EP-3639	3639B			5058	8	2-7/16" Diameter CRS Shafts 4'-3½" long.								
	"				"	8	" Safety Set Collars								
	"				5050	8	3 Groove C-Belt, 24" P.D. V-Belt Sheaves								
	"				"	8	14 T., RC-100 Steel Sprockets								
	"				"	8	Strands RC-100 Roller Chain								
	9581Z	G11810			5046	16	C.I. Bearing Bases, Style #3								
	"	G11811			"	16	" " Caps " "								
							CRANK SHAFTS								
	EP-3639	3639C			5058	8	Crank Shaft Assemblies (3 2-7/16" CRS Shafts each)								
	EP-3643	3643D			5046	8	Single C.I. Crank Discs.								
	"	3643E			"	8	Pairs " " "								
	"	3643F			"	8	" " " "								
	"	3643G			"	8	Single " " "								
	"	3643H			5058	16	Steel Wrist Pins								
	"	3643J			"	16	" Crank "								
	EP-3639				5050	8	60 T., RC-100 Steel Sprockets								
	9581Z	G11810			5046	48	C.I. Bearing Bases, Style #3								
	"	G-11811			"	48	" " Caps " "								

FORM 4 AR-57 10-23-39 IM

LIST OF MATERIAL

AMERICAN SMELTING AND REFINING COMPANY

WESTERN DEPARTMENT—ENGINEERING OFFICE

DATE 3/4/41

MADE BY H.L.Z.

CHECKED BY D.L.S.

JOB NO. P-1360

FOR El Paso PLANT

Blast Furnace and Ventilating Baghouse

REVISED 4/3/41

SHEET NO. 2

Subdivision Number	Drawing Number	Piece Mark or Patt. No.	Material From: Salvage	Stock	C. D. Req'n No.	Number of Pieces Req'd	Description	Work To Be Done By: Patt. Shop	Foundry	Mach. Shop	Fonte	Boiler	Pipe	Electric
							ROLLER ASSEMBLY							
EP-3639	3639D				5058	128	1-3/16" Diameter CRS Shafts							
"					"	512	" Safety Set Collars 2-1/4" long.							
EP-3643	S2551U				5046	256	5" C.I. Rollers							
"					"	256	Bronze Graphite Bushings 1-11/16" O.D., 1-3/16" I. x 4-1/2".							
							ROLLER ASSEMBLY							
EP3639	3639E				5058	32	1-3/16" Diameter CRS Shafts							
"					"	64	" Safety Set Collars 2-1/4" long.							
"					"	64	Pieces 1-1/4" Standard Pipe 2-1/8" long.							
EP-3643	LA3134R				5046	32	7" C.I. Rollers							
"					"	32	Bronze Graphite Bushings 1-11/16" O.D., 1-3/16" I.D x 4-1/2"							
							BAG SHAKER SHAFTS							
EP-3639	3639A					32	Bag Shaker Shafts - 2" Standard Pipe							
EP-3643	3643C				5058	640	Bag Hangers							
"	3643L				5057	32	Bag Shaker Shaft Connections C.S.							
"	3643K				"	32	Connecting Rods C.S.							

FORM GAR 587 10-23-39 1M

LIST OF MATERIAL

AMERICAN SMELTING AND REFINING COMPANY

WESTERN DEPARTMENT—ENGINEERING OFFICE

DATE 3/4/41

MADE BY H.L.Z.

CHECKED BY D.L.S.

JOB NO. P-1360

FOR El Paso PLANT

Blast Furnace and Ventilating Baghouse

REVISED 4/3/41

SHEET NO. 3

Subdivision Number	Drawing Number	Piece Mark or Patt. No.	Material From: Salvage	Stock	C. D. Req'n No.	Number of Pieces Req'd	Description	Work To Be Done By: Patt. Shop	Foundry	Mach. Shop	Forge	Boiler	Pipe	Electric
EP-3680		3680A			5046	640	Bag Hanger Thimbles							
EP-3643		3643B			"	640	Hanger Hooks							
EP-3640					--	640	18" x 30'-0" Wool Bags							
"					--	12800	Lineal Feet Bailing Wire for Bags (Springs may be used in place of wire)							
"					--	640	Pieces Short Section of Bag - Salvage							
EP-3627					5047	8	3" D. x 10" Stroke - No-Pak Air Cylinders.							
"					"	8	6" D. x 18" " " " "							
EP3638		S2544C			5058	9	C.I. Valve Plate Hubs.							
"		LA3135C			"	8	" " " "							
"		LA3135H			"	33	" " Stem Rollers							
"		G12795			"	1	" Hand Wheels							
"		S2544D			"	18	CI Valve Stem Thrust Collars							
"		S2544B			"	16	" " " Collars							
"		3638B			"	1	Damper Shaft - 2" Standard Pipe							
"		3638D			"	1	" Screw CRS							
"		3638H			"	16	Valve Stem Clevices - Forged Steel							
"		3638J			"	16	Connecting L[illegible] " "							
"		3638N			"	1	Brass Nut							
"		3638K			"	1	Welded Steel Bracket							
"		3638M			"	1	Steel Collar							
EP-3645					--	1	A.B. Cor., 102" Ser. 38, Type "E" Fan, 60,000 cfm at 355 rpm complete with 7 D-270 V-Belts, 36" fan sheave, 75 hp, 440 volt, 3 phase motor with base and sheave (ON HAND AT EL PASO PLANT)							
					--	1	Starting and Control Equipment for above motor.							

FORM CAR-587 10-23-39 1M

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MADE BY H.L.Z. — FOR El Paso PLANT — REVISED

CHECKED BY D.L.S. — Blast Furnace and Ventilating Baghouse — 4/3/41

JOB NO. P-1360 — SHEET NO. 4

Subdivision Number	Drawing Number	Piece Mark or Patt. No.	Material From: Salvage	Material From: Stock	Material From: C. D. Req'n No.	Number of Pieces Req'd	Description	Work To Be Done By: Patt. Shop	Foundry	Mach. Shop	Forge	Boiler	Pipe	Electric	Carpenter
EP-3646					5045	1	A.B. Cor., 102" Ser. 38, Type "E" Fan, 60,000 cfm. Duplicate of above.								
	"				"	1	G.E. Co., Type "K", Frame 546, 75 hp, 3 phase, 60 cycle, 440 volt, 900 rpm, Motor with Sliding Base.								
EP-3646					5045	1	Standard Type CR-7006 G.E. Magnetic Starter with Push Button Station.								
	"				"	8	D-270 Texropes								
	"				"	1	14.2" P.D., 8 D-Groove Motor Sheave								
	"				"	1	36" P.D., 8 D-Groove Fan Sheave.								
							MISCELLANEOUS								
EP-3644					--	4	Stacks - Wood Lining								
EP-3625					--	4	Roof Sections 3/16" Flexboard Lining.								
	"				--	All	T.& G. Floor for Roof								
	"				--	All	Built Up Roofing								
	"				--		Painting and Dust Chamber Treatment								
					--		Wiring for Power and Lights.								
					--		" " Automatic Control & Bag Shaking.								
					--		Air Piping for Valves								
					--		Starting Equipment (Not Listed)								

LIST OF MATERIAL

AMERICAN SMELTING AND REFINING COMPANY

DATE 3/4/41 — WESTERN DEPARTMENT—ENGINEERING OFFICE

MADE BY H.L.Z. — FOR El Paso PLANT — REVISED

CHECKED BY D.L.S. — Blast Furnace and Ventilating Baghouse — 4/3/41

JOB NO. P-1360 — SHEET NO 5

SUPDIVISION NUMBER	DRAWING NUMBER	PIECE MARK OR PATT. NO.	MATERIAL FROM: SALVAGE	MATERIAL FROM: STOCK	MATERIAL FROM: C. D. REG'D NO.	NUMBER OF PIECES REQ'D	DESCRIPTION	WORK TO BE DONE BY: PATT. SHOP	FOUNDRY	MACH. SHOP	FORGE	BOILER	PIPE	ELEC. SHOP
							CONCRETE WORK							
	EP-3628&31			--		1	Foundation for Baghouse, Flue & Stair Landing.							
	EP-3677			--		1	" " Ventilating Fan & Motor.							
	"			--		1	" " Blast Furnace Fan & Motor.							
	EP-3678			--		2	" " Double Stack							
	"			--		2	Footings for Flue Bents No. 2 & No. 3.							
	EP-3625			--		4	Sections Baghouse with Flue. See Drawings EP-3626, 3629, 3630, 3633, 3634, 3635, 3628, 3648, 3627 - Also							
	EP-3636			--		All	Reinforcing Steel Listed							
	EP-3635			--		All	Bolts and Threaded Rods to be placed in Concrete (See list of drawings)							
	EP-3677						Foundations for B.F. & Ventilating Fans.							
	EP-3678						" " Stacks & Flue Columns.							
							STEELWORK, FURNISHED BY A.S.& R.Co AND PLACED IN CONCRETE BY BUILDING CONTRACTOR.							
	EP-3637	3637K		--		8	Inlet Thimbles							
	"	3637M		--		1	Inlet Thimble							
	"	3637R		--		8	Pull Back Thimbles							
	"	3637U		--		9	Valve Sleeves							
	EP-3648	3648K		--		46	Hinge Straps							
	"	3648L		--		46	Door Anchors							
	"	3648M		--		46	" "							
	"	3648F		--		4	Stack Connection Thimbles.							
	EP-3625			--		All	8"[Purlins shown on drawing.							
	"			--		All	Bolts, Washers & 1/4" x 2" Flats for use with above purlins.							
	EP-3639	3639F		--		20	Wall Stuffing Boxes							
	"	3134T		5056		12	" " "							

FORM GAR-637 11-23-39 1M

LIST OF MATERIAL

AMERICAN SMELTING AND REFINING COMPANY

WESTERN DEPARTMENT—ENGINEERING OFFICE

DATE 3/4/41

MADE BY H.L.Z.

CHECKED BY D.L.S.

FOR El Paso PLANT

Blast Furnace and Ventilating Baghouse

REVISED 4/3/41

JOB NO. P-1360

SHEET NO. 6

Subdivision Number	Drawing Number	Piece Mark or Patt. No.	Material From: Salvage	Material From: Stock	Material From: C. D. Req'n No.	Number of Pieces Req'd	Description	Work To Be Done By: Patt. Shop	Foundry	Mach. Shop	Forge	Boiler	Pipe	Electric	Magnetic
							STEELWORK, ADDITIONAL TO LIST SHOWN PLACED IN CONCRETE.								
EP-3641							Structural Steel for 4 Sections Shaker Floor								
"							Floor Grating for " " " "								
"							Structural Steel for Shaker Platform and Bearing Support Beams.								
"		Det.X				24	12" I Beam Brackets for Shaker Floor,								
"		Det.Y				16	12" " " " " "								
"							Handrail for Outsides of Platform.								
EP-3632							3/16" Checkered Floor Plate for Shaker Platform.								
"							Machinery Handrail for Shaker Platform.								
"							Structural Steel for North & West Walkways.								
"							3/16" Checkered Floor Plate for North & West Walkways.								
"							Structural Steel for Stairs & Landings - Complete.								
"							Handrail for Outsides of North & West Walkways and Stairs.								
EP-3631							Structural Steel for Thimble Floor Platforms.								
"							3/16" Checkered Floor Plate for Thimble Platforms.								
"							Structural Steel for Stairs & Landing-Complete.								
"							Handrail for Thimble Floor Platforms & Stairs.								
EP-3642							Structural Steel, #10 Floor Plate and Thimbles for 4 Sections of Thimble Floor.								
EP-3640	3640A					8	Motor Covers								
"						8	" Bases								
"						8	V-Belt Guards								
"						8	Chain Guards								
EP-3637	3637A					8	Valve Stem Supports								
"	3637B					24	" " Pins								
"	3637C					8	" " Brace								
"	3637N					8	3" Cylinder Support								
"	-----					-	" " "								

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AMERICAN SMELTING AND REFINING COMPANY

DATE 3/4/41 WESTERN DEPARTMENT—ENGINEERING OFFICE

MADE BY H.L.Z. FOR El Paso PLANT REVISED

CHECKED BY D.L.S. Blast Furnace and Ventilating Baghouse 4/3/41

JOB NO. P-1380 SHEET NO. 7

Subdivision Number	Drawing Number	Piece Mark or Patt. No.	Material From: Salvage	Material From: Stock	Material From: C.D. Req'n No.	Number of Pieces Req'd	Description	Work To Be Done By: Patt. Shop	Foundry	Mach. Shop	Forge	Boiler	Pipe	Electric	Carpenter
		STEELWORK, ADDITIONAL TO LIST SHOWN PLACED IN CONCRETE													
	EP-3637	3637D				9	Valve Stem Supports								
	"	3637F				9	" " Pins								
	"	3637G				9	" Plates								
	"	3637H				8	" "								
	"	3637S				8	" Stems								
	"	3637T				8	" "								
	"	3637V			--	9	Asbestos Gaskets (Furnished & Erected by A.S.& R.Co								
	"	3637W				18	Washer Halves								
	EP-3648	3648A				18	Walkway Brackets								
	"	3648B				6	" "								
	"	3648C				3	" "								
	"	3648E				9	Shaker Platform Brackets								
	"	3648D				1	Cleanout Cover								
	"	3648G				12	Steel Doors								
	"	3648H				11	" "								
	"	3648N				24	Pipe Door Bars								
	"	3648P				22	" " "								
	EP-3644					4	Structural Steel Stack Frames								
	"					4	" Plate Breechings								
	"					2	Breeching Sheds Complete								
	EP-3645						Fan Inlet Box Evase Section & Lintel Framing.								
	EP-3681						Damper in Blast Furnace Fan Inlet								
	EP-3646						Evase Section, Full Back Piping, Fan Inlet Box								
	EP-3647						Ventilating Flue & Flue Bents & Supports.								
	EP-3675						Ventilating Flue and Branch Connections								
	EP-3676						and Supports.								
	EP-3716						Four Foot Steel Flue & Supports.								

BLAST FURNACE BAG HOUSE ADDITION
APPN E P 408

✓ A	CLEARING & PREPARING SITE
3392.84	Moving Pipe lines, Electric Lines, D&L #3 Fan etc. 3392.84
B	Addn to Bldg. 44 x 40'-6 x 54'-10" High at back & 62'-2" at front - Including Inlet 4'-6" x 10'-6" x 40'-6" - Roof Structure of Wood covered with built up roof of Asbestos felt & asphalt and lined inside with 3/16" Johns Manville flex board. 32026.57 + 9.44 = 32970.57
32970.57 ✓	
9000.00 D 2000.00 11000.00 280.19 + 11,280.19	2 - Stacks 6'x6' x 107'-6" high - Structural steel frames lined with ¼" J.M. flex board with Connections to Baghouse #11,000.00
✓	
12,202.08	Structural Steel platforms, Walkways shaker floor & thimble floors 12,202.08 doors etc.
✓	
Fan 8925.00 Fdn 1000.00 Setg 1000.00 ✓ 10,925.00	1 - American Blower Co Fan - Series 81 - #887 Shop Order 91695 - Sirocco Type [illegible]
Mtr 1829.12 Stat 1844.21 Inst 1000.00 Drive 1182.00 ✓ 9855.99	1 - 250 HP Burke Electric Co Motor 900 R.P.M. - 2300V - 3Ph - 60 Cyc. with wiring - Controls etc. Split 4220.00 & 11229.21
Ex 1508.20 Fdn 1000.00 Stl. 8455.52 10,961.72 4487.49 15,449.24 ✓	1 - Balloon Flue Steel 8'-0" x 18'-6" x 86' Long. Including Supports & plenum box at fan - Connecting Blast Furnace Flue & Fan above & Rectangular Flue, 5'x10' x 35' Long.

6523.98 =	4 Sets shaking Mechanisms, including
360.00	Motors, Sheaves, V Belts, Sprockets, chains,
6884.02	Shafting, bearings, Tallers & bag
	Hangers, starters & Wiring.
✓	4 Motors - Crocker wheeler - Type SC, 875 RPM
	440 V - 3 Ph - 60 Cyc - Model 1477-12.
	CFCH 324 - Serial No: ____ ____ ____
	With adjusting Bases
1991.75 =	4 - Bull's Eye Dampers for controlling gas
400.00	Inlet to cellars of sections from Flue.
2391.75	Complete with Dampers, Rods, Cylinders
✓	solenoid valves, air piping, supporting
	Steel etc. & wiring to Controls
9121.03	320 - 18" Dia x 30' Woolen Bags
✓	
1729.87	Concrete Floors at front of Bag Hse
✓	for Dust Handling. Inc Excavation
	grading, fill, etc.
2224.23 =	3 - 20" Dia x Steel flues to
✓	Connect Stag Pot Hoods to Blast
	Furnace Flue at Furnaces 1-2 & 3.