ENGINEERING REPORT

PROJECT NO. 7146

UNIVERSAL SLABBING MILL

"CHART OF ACCOUNTS"

MIDDLETOWN WORKS

VOLUME II

APRIL 15, 1966

KAISER ENGINEERS, INC.

REPORT NO. 7146-2

PLAINTIFF'S EXHIBIT
ARO-187

INDEX OF CHART OF ACCOUNTS (Continued)

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BIG RED

AKE-003409

BIG RED

Armco Steel Corporation

LOCATION Middletown Works DATE April 15, 1966 SHEET 55 OF 63
PROJECT Universal Slabbing Mill PROJECT NO. 7146 BY
CONTRACTOR Kaiser Engineers, Inc. ESTIMATE NO. 46-2 NOTED ERD - BHS

COST ACCOUNT SECT.	COST ACCOUNT DET.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE L	UNIT PRICE EU	UNIT PRICE M	UNIT PRICE SC	LABOR MAN-HOURS	LABOR 00	BURDEN 10	EQUIPT. USAGE 20	MATERIAL 30	SUB-CONTRACT 50	ENGINEERED EQUIPMENT 60	TOTAL
700	—	PIPING (Continued)														
704	—	STEAM														
	461	Purchase - Pipe and Fittings	4560	LF	—	—	—	—	—		—	—	6500	—	—	6500
	462	Purchase - Valves, Strainers and Traps	257	EA	—	—	—	—	—		—	—	20500	—	—	20500
	464	Pipe Installation	—	—	—	—	—	—	3360	17700	2500	2100	500	—	—	22800
	465	Pipe Insulation	4560	LF	—	—	—	—	—		—	—	—	12500	—	12500
	466	Hangers and Supports	371	EA	—	—	—	—	100	500	100	100	1600	—	—	2300
		TOTAL - STEAM							3460	18200	2600	2200	29100	12500	—	64600
705	—	WELL WATER														
	414	Drinking Fountains	2	EA	—	—	—	—	10	100	—	—	300	—	—	400
	461	Purchase - Pipe and Fittings	2110	LF	—	—	—	—	—		—	—	1300	—	—	1300
	462	Purchase - Valves	43	EA	—	—	—	—	—		—	—	500	—	—	500
	464	Pipe Installation	—	—	—	—	—	—	740	3900	600	500	100	—	—	5100
	465	Pipe Insulation	1970	LF	—	—	—	—	—		—	—	—	2600	—	2600
	466	Hangers and Supports	230	EA	—	—	—	—	90	500	100	100	600	—	—	1300
		TOTAL - WELL WATER							840	4500	700	600	2800	2600	—	11200
706	—	CLARIFIED WATER														
	034	Ditching and Backfilling	2900	CY	0.75	1.20	—	—	630	2200	300	3500	—	—	—	6000
	451	Underground - Purchase - Pipe and Fittings	1460	LF	—	—	—	—	—		—	—	8900	—	—	8900
	452	Underground - Purchase - Valves	1	EA	—	—	—	—	—		—	—	700	—	—	700
	454	Underground - Pipe Installation	—	—	—	—	—	—	2280	12000	1700	1500	400	—	—	15600
	458	Underground - Coat and Wrap (Welds and Fittings)	108	EA	—	—	—	—	320	1700	200	200	500	—	—	2600
	461	Aboveground - Purchase - Pipe and Fittings	3370	LF	—	—	—	—	—		—	—	28900	—	—	28900
	462	Aboveground - Purchase - Valves	93	EA	—	—	—	—	—		—	—	31500	—	—	31500
	464	Aboveground - Pipe Installation	—	—	—	—	—	—	9780	51700	7300	6200	3000	—	—	68200
	466	Hangers and Supports	89	EA	—	—	—	—	620	3300	500	400	1700	—	—	5900
	519	Cathodic Protection	1750	LF	—	—	—	—	—		—	100	—	3000	—	3100
		TOTAL - CLARIFIED WATER							13630	70900	10000	11900	75600	3000	—	171400
		TOTAL														

AKE-003410

BIG RED

Armco Steel Corporation

LOCATION Middletown Works DATE April 15, 1966 SHEET 56 OF 63
PROJECT Universal Slabbing Mill PROJECT NO. 7146 BY
CONTRACTOR Kaiser Engineers, Inc. ESTIMATE NO. 46-2 NOTED RL-BHS

COST ACCOUNT SECT.	COST ACCOUNT DIV.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE L	UNIT PRICE EU	UNIT PRICE M	UNIT PRICE SC	LABOR MAN-HOURS	LABOR 00	BURDEN 10	EQUIPT. USAGE 20	MATERIAL 30	SUB-CONTRACT 50	ENGINEERED EQUIPMENT 60	TOTAL
700	—	PIPING (Continued)														
707	—	TREATED WATER														
	034	Ditching and Backfilling	—	—	—	—	—	—	—	—	—	—	—	—	—	INCLUDED IN P15-706
	451	Underground - Purchase - Pipe and Fittings	1080	LF	—	—	—	—	—	—	—	—	5400	—	—	5400
	452	Underground - Purchase - Valves	2	EA	—	—	—	—	—	—	—	—	2100	—	—	2100
	454	Underground - Pipe Installation	—	—	—	—	—	—	1680	8900	1300	1100	400	—	—	11700
	458	Underground - Coat and Wrap (Welds and Fittings)	82	EA	—	—	—	—	120	700	100	100	200	—	—	1100
	461	Aboveground - Purchase - Pipe and Fittings	2620	LF	—	—	—	—	—	—	—	—	10400	—	—	10400
	462	Aboveground - Purchase - Valves	89	EA	—	—	—	—	—	—	—	—	6200	—	—	6200
	464	Aboveground - Pipe Installation	—	—	—	—	—	—	5630	29700	4200	3600	1200	—	—	38700
	466	Hangers and Supports	37	EA	—	—	—	—	300	1600	200	200	800	—	—	2800
	519	Cathodic Protection	1040	LF	—	—	—	—	—	—	—	—	—	1700	—	1700
		TOTAL - TREATED WATER							7730	40900	5800	5000	26700	1700		80100
710	—	FIRE PROTECTION SYSTEM														
	460	Sprinkler System - Subcontract	—	—	—	—	—	—	—	—	—	—	—	50600	—	50600
	610	Purchase - Wall Mounts	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	620	Install - Wall Mounts	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		TOTAL - FIRE PROTECTION SYSTEMS							—	—	—	—	—	50600	—	50600
711	—	OIL FILL SYSTEM														
	461	Purchase Pipe and Fittings	2480	LF	—	—	—	—	—	—	—	—	3700	—	—	3700
	462	Purchase Valves	12	EA	—	—	—	—	—	—	—	—	1100	—	—	1100
	464	Pipe Installation	—	—	—	—	—	—	3000	15800	2200	1900	1800	—	—	21700
		TOTAL - OIL FILL SYSTEM							3000	15800	2200	1900	6600	—	—	26500
713	—	SANITARY SEWER														
	416	Purchase Sewer Pipe	1240	LF	—	—	—	—	—	—	—	—	2700	—	—	2700
	417	Install Sewer Pipe	—	—	—	—	—	—	350	1900	300	200	—	—	—	2400
		TOTAL - SANITARY SEWER							350	1900	300	200	2700	—	—	5100
		TOTAL														

H-6002 - REV. 8/65

AKE-003411

ENGINEERING REPORT

PROJECT NO. 7148

CONTINUOUS HOT STRIP MILL

"CHART OF ACCOUNTS"

MIDDLETOWN WORKS

VOLUME II

FEBRUARY 1, 1966

KAISER ENGINEERS, INC.

REPORT NO. 7148-3 BUDGET

BIG RED

AKE-003412

BIG RED

Armco Steel Corporation

LOCATION Middletown Works DATE February 1, 1966 SUMMARY SHEET 8 OF 94

PROJECT Continuous Hot Strip Mill PROJECT NO. 7148 BY

CONTRACTOR Kaiser Engineers, Inc. ESTIMATE NO. 63-3 Budget NOTED L C.P.

COST ACCOUNT SECT.	COST ACCOUNT DET.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE L	UNIT PRICE EU	UNIT PRICE M	UNIT PRICE SC	LABOR MAN-HOURS	LABOR 00	BURDEN 10	EQUIPT. USAGE 20	MATERIAL 30	SUB-CONTRACT 50	ENGINEERED EQUIPMENT 60	TOTAL	SUBCONTRACT MANHOURS	EQUIPMENT USAGE MANHOURS
		SUMMARY																
700		DISTRIBUTION PIPING																
701		COMPRESSED AIR PIPING							7580	39100	5500	3500	20500	–	–	68600	–	350
702		NATURAL GAS PIPING							31950	61700	8600	6200	29600	–	–	106100	–	620
703		OXYGEN PIPING							14810	76800	10800	1700	63600	5000	–	162900	300	170
704		STEAM PIPING							23300	119600	16700	17300	202600	42700	–	398900	2520	1700
706		WELL WATER PIPING							4600	23500	3300	2100	24300	13700	–	66900	820	320
708		FIRE PROTECTION SYSTEMS							400	2100	300	100	6700	60000	–	68700	3000	10
709		CHEMICAL PIPING							1280	6600	900	900	6500	–	–	15200	–	90
710		SANITARY SEWER PIPING							2740	11600	1700	2900	7300	1400	–	24500	170	290
711		OIL FILL PIPING							2140	11000	1600	1000	7400	–	–	21000	–	100
731		PAINTING, COLOR CODING AND TAGGING							1005	5200	700	500	5000	114000	–	125400	15600	50
732		STORM SEWER PIPING							7760	35900	5000	7000	15100	2500	–	65500	470	700
750		INSTRUMENTATION							29100	150200	21000	7500	197300	–	304500	780000	–	150
		TOTAL - DISTRIBUTION PIPING							106320	543300	76100	56200	586300	233400	304500	1805200	23330	5470
		TOTAL																

AKE-003413

PROJ. SECT.	CONSTR. DETAIL	
704	---	STEAM PIPING

This project section will include all the costs for the steam piping system within the structures of the Hot Strip Mill Facilities. This will include the main distribution lines and all take-off lines therefrom.

Also included here will be the costs for the steam lines to the Furnace Cooling and Clarified Water Pump Enclosure and Fuel Oil Pump House.

The costs for steam lines outside the structures will be included with Project No. 7104 - Steam.

034	Ditching and Backfill
461	Purchase - Pipe and Fittings
462	Purchase - Valves
464	Pipe Installation
465	Pipe Insulation
466	Hangers and Supports

BIG RED

AKE-003414