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For EA/ENGR

PD-ABF-257
ISN

7.5 T/D NYLON EXPANSION PROJECT

AID Loan No. 489-H-036

MONTHLY PROGRESS REPORT

Number (5)

For

November 1967

PREPARED BY

KOREA NYLON COMPANY

FOR
KOREAN GOVERNMENT
AND
UNITED STATES
DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT

A.I.D.
Reference Center
Room 1656 MF

C O N T E N T S

	Page
Summary	1
CHAPTER I Engineering Activities	2
CHAPTER II Construction Activities	9
CHAPTER III Financial Data	14
CHAPTER IV Personnel	18
CHAPTER V Procurement Activities	20
ATTACHMENT; Photographs	

SUMMARY

In general, whole expansion works have been proceeded with steadiness; Construction work of main plant building has been expedited during the report period and the actual progress rate has been remarkably accessed to the scheduled. Other auxiliary building construction works have also been progressed smoothly. Local fabrication and installation works have been working without any serious problems.

Chemtex has exerted its best efforts to deliver loan materials in time for Kolon's planned start-up of the 7.5 M/T nylon expansion plant, however, due to vendor's delivery delay of loan equipment and unexpected small-scaled strikes in the field of transportation and manufacturing in the States, scheduled start-up of polymerization area in mid December and textile area in mid January are forced to be postponed by the early February, 1968.

Loan equipment and materials delivered to the job site amount to US\$2,678,307.93 and US\$3,963,489.86 of AID Loan were disbursed as of the end of November 1967.

Bong Shik Cho, vice president of Kolon, returned to the office on 5th of November after successful trip to U. S. A.

Mr. Finkel, Chemtex personnel, visited Kolon during the report period.

CHAPTER I. ENGINEERING ACTIVITIES

No problems have been taken place in the field of engineering activities concerning 7.5 M/T Expansion Project. Installation works of loan equipment and local fabrication works with the loan materials are now progressing smoothly. Details are described in Chapter II Construction Activities. Various Drawings and Designs pertaining to Arrangement and Layout, Foundation, Pippings, Tank, Electrical, Spare parts and Equipment which Chemtex has furnished to Kolon during the report period are as follows.

DRAWING LIST

ARRANGEMENT & LAYOUT

<u>DATE</u>	<u>DWG. NO.</u>	<u>DESCRIPTION</u>
11/21/67	53122-o	Chip Transfer 1st Floor Plan & Section "A-A"
"	53123-o	Air Circulation & Chip Transfer Plan 3rd Floor & Section "C-C"
"	53124-o	Air Circulation Chip Transfer Sections "G-G" & "H-H"
"	53125-o	Chip Transfer & Drying Sections "B-B" & "D-D"
"	53167-o	Air Circulation & Chip Transfer Plan 4th Floor & Section "E-E"

<u>DATE</u>	<u>DWG. NO</u>	<u>DESCRIPTION</u>
11/21/67	53168-a	Chip Transfer Section "J-J"
11/24/67	53120-b	Arrangement of Equipment Power House - Roof Plan & Stack
"	53121-a	Arrangement of Equipment Burn-out Room
11/27/67	53123-a	Air Circulation & Chip Transfer Plan 3rd Floor & Section "C-C"
"	52953-a	Textile Area Arrangement of Equipment

FOUNDATION

11/16/67	42052-b	Chip Drying & Wash Foundation - 4th Floor
"	52965-b	Textile Area - Ground Floor Foundation
"	52968-c	Polymer Prep. - Air Quench, 2nd Floor Foundation
"	52972-c	Chip Feed Area - 3rd Floor Foundation
11/18/67	42140-a	Burn-out Room Foundation
"	52968-d	Polymer Prep. - Air Quench, 2nd Floor Foundation
11/21/67	31193-a	Arrangement of Anchor Bolts for MG Set
"	31194-a	Arrangement of Anchor Bolts for MG Set
"	42077-a	" " "

<u>DATE</u>	<u>DWG. NO.</u>	<u>DESCRIPTION</u>
11/21/67	52968-d	Polymer Prep. Air Quench - 2nd Floor Foundation
<u>PIPINGS</u>		
11/6/67	52981-a	Textile Area Air Cond. - Plan, Sections
"	52986-a	Main Distribution Header - Ground Floor
"	53144-a	Power House Plan
"	53148-a	Power House Sections
11/7/67	53150-o	Chip Drying
11/17/67	52983-a	Piping Plan - Monomer Extraction
"	52984-a	Piping Sections - " "
"	52985-a	Piping Sections - Details Monomer Extraction
"	52987-b	Main Distribution Headers Piping Arrangement Ground Floor
"	53141-b	Main Distribution Headers Piping Arrangement Sections
11/18/67	53140-b	Main Distribution Headers Piping Arrangement Outside Lines
"	53152-o	Piping Arrangement Ground Floor - Spinning

<u>DATE</u>	<u>DWG. NO.</u>	<u>DESCRIPTION</u>
11/21/67	42141-a	Piping Arrangement Delusterant Preparation Room
"	52982-b	Piping Arrangement Textile Area Air Cond. Plans - 2nd Floor Sections
"	52986-b	Main Distribution Headers Piping Arrangement Ground Floor
"	52992-a	Polymerization Piping - 1st Floor Plan & Sections
"	53141-c	Main Distribution - Headers Piping Arrangement Sections

TANKS

11/6/67	42084-o	TiO ₂ Storage Tank Platform
"	53036-d	Monomer Extraction Tank
"	53037-c	Final Dryers
11/7/67	42176-a	Polymerizer Tower Details
"	53035-b	Wet Chip Storage Tank
"	53047-a	Polymerizer Tower Details
11/16/67	SK 2293-a	Modification of Existing Inter- mediate Settling Tank
"	22256-o	Finish Storage Tank Pipe Coil
"	42079-o	Wet Chip Transfer Extraction Tank Discharge Ass'y

<u>DATE</u>	<u>DWG. NO.</u>	<u>DESCRIPTION</u>
11/16/67	42080-o	Wet Chip Transfer Extraction Discharge Details
"	42082-o	Polymerization Chip Chute
"	42093-c	Prepolymerizer
"	31178-a	Finish Storage Tank
"	53031-e	Polymerizer Tower
"	53083-b	Polymerizer Ass'y
11/17/67	53036-e	Monomer Extraction Tank
"	SK 2293-o	Modif. of Existing Intermediate Settling Tank
"	53046-o	Chilled Water Circulation Tank
11/27/67	42089-a	Monomer Charge Hopper

ELECTRICAL

11/16/67	52998	One Line Diagram Primary Power Distribution (Sheet #1)
"	52999	" " (Sheet #2)
"	53022	Electrical-Power Layout - 3rd & 4th Floors
"	53175-o	Lighting Layout Mezzanine - Elev. 29'-0"
"	53174-o	Lighting Layout - 2nd Floor - Elev. 20'-0"

SPARE PARTS & EQUIPMENT

<u>DATE</u>	<u>DWG. NO.</u>	<u>DESCRIPTION</u>
11/7/67	42192-a	Polymerizer Pump Block
"	42042-a	2" Extruder Base Frame
11/16/67	20748-a	Quench Chamber Screen Latch
"	22278-a	Inter-Floor Tube Bracket
"	22302-o	Quench Chamber Hinge Bracket
"	42158-b	Polymer Extrusion Head Heating Jacket Insulation Details
"	42161-a	Quench Chamber Interfloor Tubing
"	31163-a	Quench Chamber Interfloor Tube-Flange
"	31189-o	Polymerization Pulsine Support Modifi- cation
"	31191-o	Chip Drying Fan Support
"	31192-o	Drawtwister Air Supply Fan Support
"	31195-o	Chip Transfer-Support for Slide Valve
"	53160-b	Polymer Extrusion Head Heating Jacket
"	53164-b	" " " - Insulation Details
"	53227-a	Quench Chamber Ass'y
"	52942-b	" " Air Duct
11/17/67	53108-a	Spinning Unit Ass'y - Elevation
"	53111-b	Polymer Extrusion Head
"	53045-o	Cooling Tower Basin
11/21/67	42216-o	Bobbin Transfer Cart

<u>DATE</u>	<u>DWG. NO.</u>	<u>DESCRIPTION</u>
11/21/67	42218-o	Pirn Transfer Cart
11/24/67	31121-a	Interfloor Tube-Support

CHAPTER II. CONSTRUCTION ACTIVITIES

The construction work of main plant building has been remarkably progressed 17.73% during the report period and total progress status as of the end of November has marked 91.04% (please refer to progress Chart No. 1)

During the report period construction work of spare parts warehouse was completed and other auxiliary construction works have been progressed as follows.

Construction Status of Auxiliary Works

(As of the end of November 1967)

<u>Name of Work</u>	<u>Contract Date</u>	<u>Name of Contractor</u>	<u>Progress Rate</u>
Power House	6/18/67	Sam Hwan Enterp. Co.	91%
Spare Parts Warehouse	8/22/67	Hwa Sung Ind. Co.	95%
Pirns & Cartons Warehouse	"	"	90%
Men's Dormitory	9/7/67	Sam Hwan Enterp. Co.	53.87%
Women's Dormitory	"	"	53.87%
Bachelor's Dormitory	"	"	12.07%
Mess Hall	"	"	41.63%
Guard House	"	"	88%
Machine Shop	"	Hwa Sung Ind. Co.	46.9%

CONSTRUCTION PROGRESS CHART (MAIN BUILDING)

As of October 31, 1967

Chart No. 1

Name of Works	Progress Rate	4	5	6	7	8	9	10	11	12	
Temporary Work	8.47	0	3.13	15	22.95	33.47	48.52	68.46	79.40	89.54	100

Reinforced Concrete Work	35.28	0	5	30	50	75	100				

Water Proofing Work	10.40						0	60	100		

Plaster's Work	15.22			01	3	10	40	70	95	100	

Other Works	36.63		4.46	12.55	14.97	19.55	36.41	68.00	75.28	89.41	100

Total	100	0	3.40	16.27	24.89	36.30	52.63	74.26	86.13	94.95	100

							47.34	59.41	73.31	91.04	

Fabrication and Installation works of loan equipment and materials are now progressing and the details by areas are as follows.

(1) Polymerization Area

Caprolactam melting tank was completed and monomer charge hopper, scale tank, blending tank, delusterant storage tank and settling tank are now fabricating. Scheduled to be completed whole works in this Area by the end of January 1968.

(2) Polymer Chip Formation Area

Quench circulation tank and wet chip storage tank are now fabricating. Scheduled to be completed by the end of January 1968.

(3) Monomer Extraction Area

Wash water storage tank are now fabricating and circulating pumps and transfer pump were installed. Shells and Bottoms of extraction system are now fabricating. Scheduled to be completed by the end of January 1968.

(4) Chip Drying Area

Vessels of pre-drying and final-drying are now fabricating and service works for blower base are progressing. Scheduled to be completed by the end of January 1968.

(5) Polymer Spinning Area

Feed Hopper Cone Plates and 10 quench chambers are now fabricating. Scheduled to be completed by the end of January 1968.

(6) Yarn Wind-Up Area

One frame of yarn wind-up machine was installed scheduled to be completed by the end of January 1968.

(7) Textile Area

12 frame of Drawtwisters were installed. 3 more Drawtwisters are now installing. Scheduled to be completed by the end of January, 1968.

(8) Water Distribution Area

Water basin and by pass of soft water are now installing and piping works between demineralizing system and storage tank are now progressing. Scheduled to be completed by 20th of January 1968.

(9) Steam Generation Area

Boiler stack, and Deaerator support and Accessories are now fabricating. Scheduled to be completed by 10th of January 1968.

(10) Air Conditioning and Ventilation Area

Ducts for drawtwister area are now fabricating. Scheduled to be completed by the end of January, 1968.

(11) Power Distribution Area

Equipments concerned are not yet arrived. Scheduled to be completed by the end of January 1968.

(12) Lighting System Area

Scheduled to start works on 20th of December 1967 and to be completed by the end of January 1968.

(13) Nitrogen Generation System Area

N₂ compressors were installed and other accessories are now settling. Scheduled to be completed by the 15th of January 1968.

(14) Dowtherm System Area

Scheduled to start works on 20th of December 1967 and to be completed around the 20th of January 1968.

(15) Piping Area

Piping works of Textile area, water distribution area and out-door area are now progressing. Scheduled to be completed by the end of January 1968.

CHAPTER III. FINANCIAL DATA

Disbursement of AID Loan Fund incurred during the report period amounts to US\$974,030.21, and the total amount disbursed as of the end of November is US\$3,963,489.86. On the other hand, local expenditures incurred during the report period totaled 60,436,917 Won and cumulative total as of the end of November 1967 is 252,843,007.27 Won.

Following tables show the details of AID Loan Drawing status and of local currency for 7.5 M/T expansion project.

AID Loan Drawing Status

(As of the end of November 1967)

Unit: US Dollar

<u>Invoice No.</u>	<u>Drawn Date</u>	<u>Description</u>	<u>Amount</u>
2950-24	11/6/67	Extruder, Y-Branch Valves, Pipes etc.	71,294. <u>17</u>
2955-26	11/10/67	Controllers, Heaters	3,985. <u>65</u>
2966-27	11/15/67	Controllers, Transmitter	3,072. <u>82</u>
2969-28	"	Aquameter, Meters	3,543. <u>32</u>
2970-29	"	Steel Tubes, Transformers	230,351. <u>56</u>
2973-30	"	Steel Pipe, N ₂ Generator etc.	48,135. <u>07</u>
2978-31	11/21/67	Extruder, D/T Parts etc.	375,268. <u>33</u>
2980-32	11/22/67	Screw Conveyor	2,675. <u>62</u>
2982-33	"	Vaporizers - Exchangers etc.	157,196. <u>90</u>

<u>Invoice No.</u>	<u>Drawn Date</u>	<u>Description</u>	<u>Amount</u>
2988-34	11/22/67	Asbestos cloth	1,800. <u>33</u>
2989-35	"	Control Cabinet, Recorder Cabinet	76,706. <u>04</u>
Amounts in this report period			974,030. <u>21</u>
Amounts in previous report periods			2,989,459. <u>65</u>
Cumulative total through this report periods			3,963,489. <u>86</u>

Expenditures on 7.5 M/T Expansion Project

(Local Currency)

Unit: Won

<u>Items</u>	<u>Balance Carried-over</u>	<u>1967 November</u>	<u>Total</u>
(1) Bldgs. Construction Works	144,117,833	44,869,987	188,987,820
(2) Structures	5,765,323	2,270,461	8,035,784
(3) Preliminary Works (including fabrication and installation works)	8,451,865	2,928,371	11,380,236
(4) Tools & Fixtures	-	4,432,759	4,432,759
(5) Temporary Works	626,582	86,045	712,627
(6) Land	672,000	-	672,000
<u>Sub-Total</u>	<u>159,633,603</u>	<u>54,587,623</u>	<u>214,221,226</u>
(7) Salaries & Wages	4,083,602	1,368,841	5,452,443
(8) Office Exp.	722,063	59,957	782,020
(9) Office Exp.	1,214,690	69,723	1,284,413

<u>Items</u>	<u>Balance Carried-over</u>	<u>1967 November</u>	<u>Total</u>
(10) Travel Exp.	537,472	57,340	594,812
(11) Communication Exp.	89,162	-	89,162
(12) Consumables	217,549	411,960	629,509
(13) Engineering Stay Exp.	480,567	81,500	562,067
(14) L/C Open Charge	3,921,055	-	3,921,055
(15) Entertainment Exp.	9,054,626	244,002	9,298,628
(16) Other Exp.	986,360	48,080	1,034,440
(17) Interest on AID Loan (7.5 M/T)	8,044,999.27	-	8,044,999.27
(18) Loan Equipment Delivery Exp. including Custom Clearance	3,420,342	3,507,891	6,928,233
<u>Sub-Total</u>	<u>32,772,487.27</u>	<u>5,849,294</u>	<u>38,621,781.27</u>
<u>Grand Total</u>	<u>192,406,090.27</u>	<u>60,436,917</u>	<u>252,843,007.27</u>

RECORD SHEET

KOREA NYLON CO., LTD.

CODE NO.

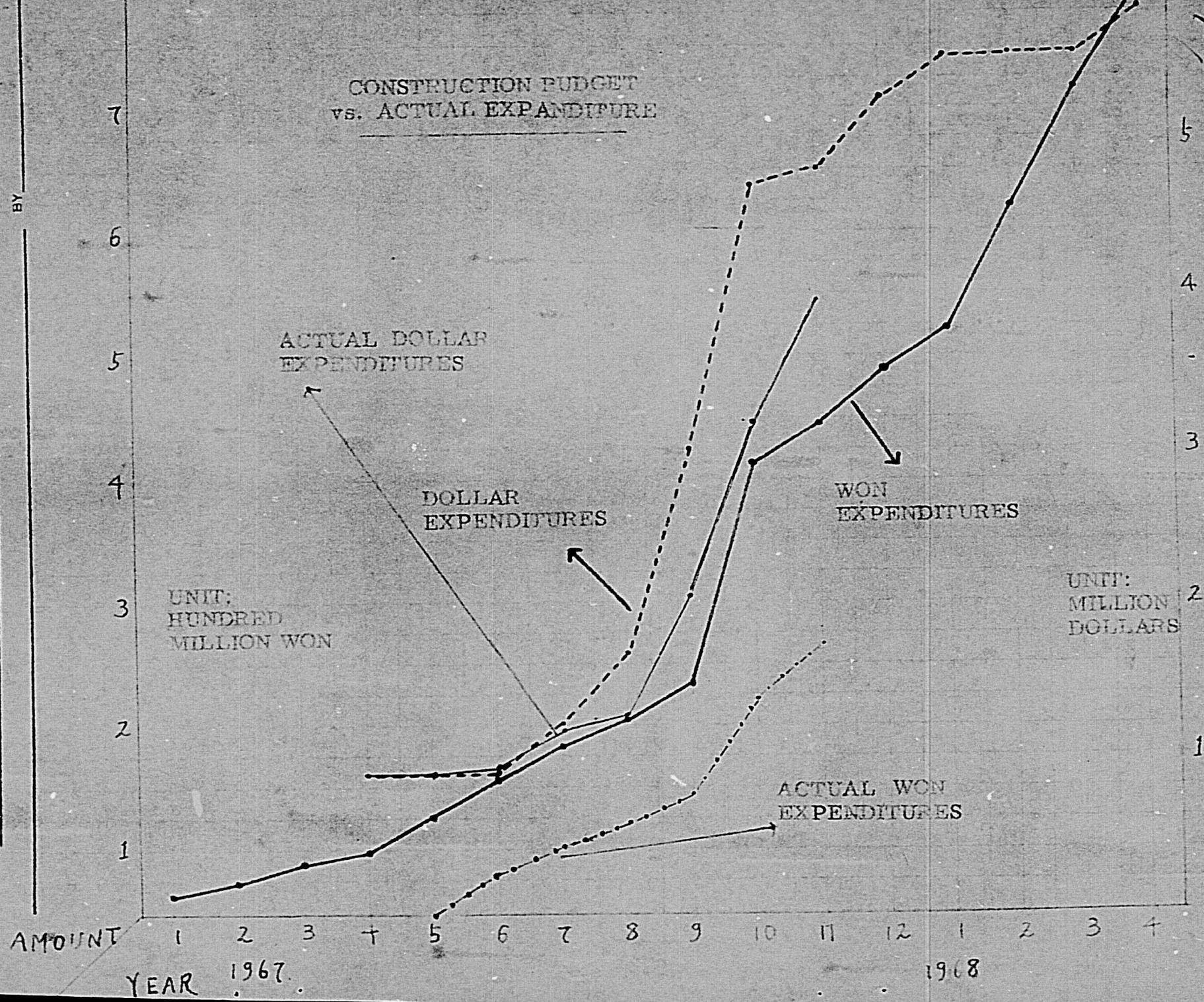
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DATE

BY

SUBJECT

CONSTRUCTION BUDGET vs. ACTUAL EXPENDITURE

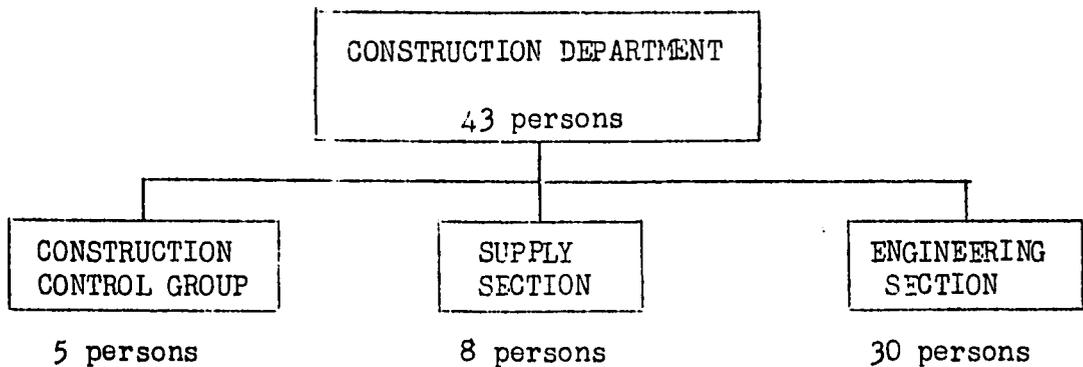


21

CHAPTER IV. PERSONNEL

During the report period, 10 persons have been disposed to the Engineering Section from Maintenance Section of existing 2.5 M/T plant, and 1 person has transferred to the Construction Control Group from Production Section of existing plant.

Total membership of Construction Department has been increased by 43 persons.



(Excluding 2 temporary duty persons)

Total labor force put into 7.5 M/T Expansion works until the end of November 1967 is as shown below:

Unit: Man/Day

<u>Name of Work</u>	<u>Contractor</u>	<u>Kolon</u>	<u>Temporary Hire by Kolon</u>	<u>Total</u>
Main Plant Bldg.	28,084	468	-	28,552
Power House	3,035	108	-	3,143
Other Const. Works	32,056	1,136	626	33,818
<u>Total</u>	<u>63,175</u>	<u>1,712</u>	<u>626</u>	<u>65,513</u>

Labor Force Employed by Month

Unit: Man/Day

<u>Name of Work</u>	<u>Until July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Total</u>
Main Plant Bldg.	13,865	4,434	3,407	3,014	3,832	28,552
Power House	593	663	333	544	1,010	3,143
Other Const. Works	2,391	1,195	2,990	6,898	20,344	33,818
<u>Total</u>	<u>16,849</u>	<u>6,292</u>	<u>6,730</u>	<u>10,456</u>	<u>25,186</u>	<u>65,513</u>

CHAPTER V. PROCUREMENT

Loan equipment and materials shipped per 11 U.S. Liner vessels and 3 Northwest Orient Airlines were carried in to the job site during the report period.

Total amounts of carried-in loan equipments has marked US\$2,678,307.93 or 52.9% out of total as of the end of November 1967.

To expedite delivery of loan equipments, Chemtex agreed to ship sizable quantities by air for Kolon's scheduled start-up of 7.5 M/T plant in February 1968.

Mr. Finkel, Chemtex personnel, came to Kolon on 22nd of November to discuss about shipping documents and delivery status of loan equipments.

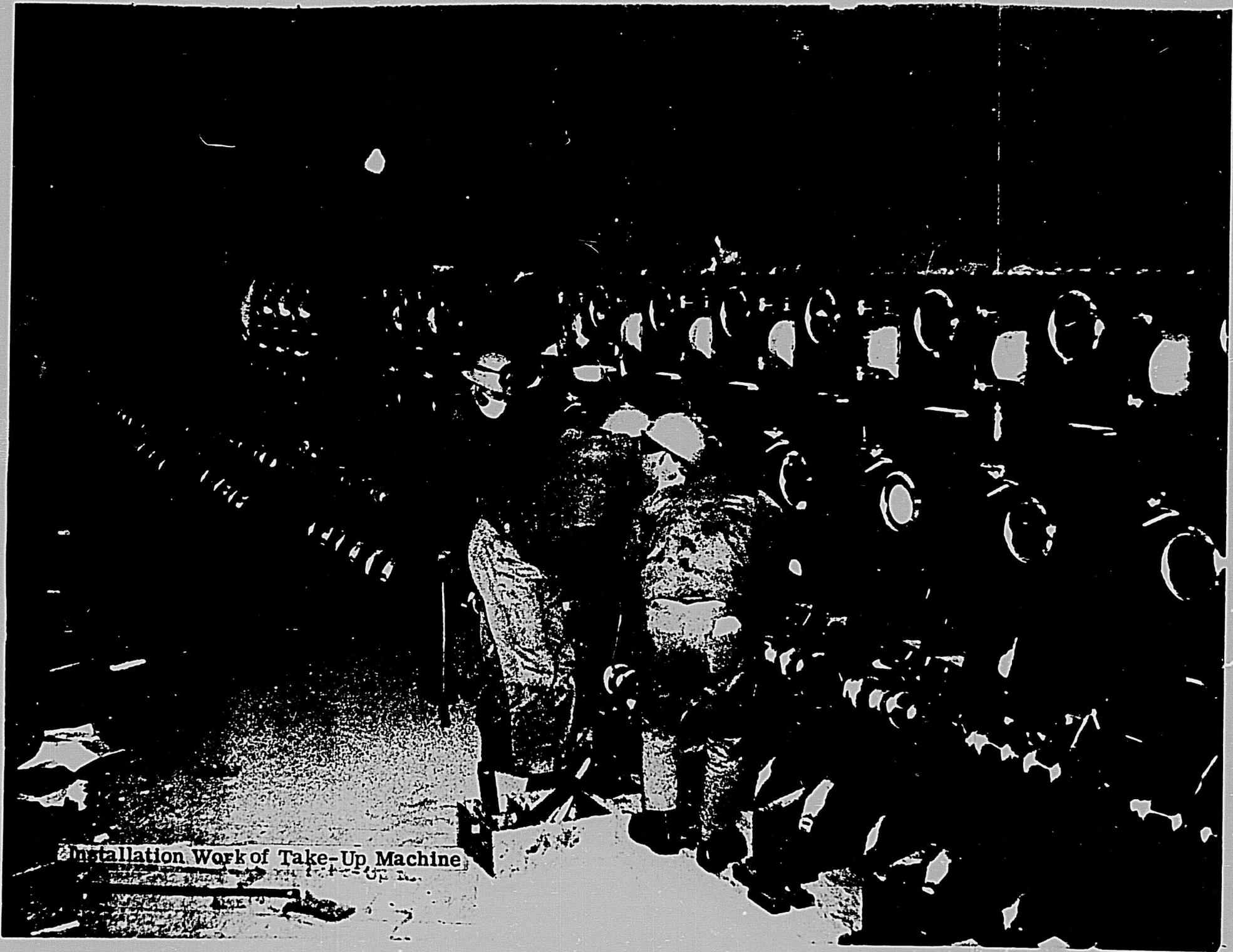
The followings show detailed items delivered to the plant site during the report period.

<u>P.O. No.</u>	<u>Item Description</u>	<u>Carried-in Date</u>	<u>Amount (US\$)</u>
CT132-4	D/T Parts	11/7	171,854.99
CT132-12	Flow Controller		
CT132-42	Water Chiller M/C		
CT132-51	Welding Machine Parts		
CT132-62	Copper Cables		
CT132-68	Transfer Heater		

<u>P.O. No.</u>	<u>Item Description</u>	<u>Carried-in Date</u>	<u>Total (US\$)</u>
CT132-4	D/T Parts	11/9	125,233. <u>64</u>
CT132-5	Flanges, Elbows		
CT132-98	Globe Valve		
CT132-107	S/S Sheets		
CT132-129	Structural Steel Beams		
CT132-4	D/T Parts	11/11	262,964. <u>33</u>
CT132-69	Syncro Gear		
CT132-98	Valves		
CT132-36	Steel Tubes		
CT132-12	Chart Recorder & Temperature etc.		
CT132-89	Heaters (Partial)	11/15	9,839. <u>38</u>
CT132-4	D/T Parts (Partial)		
CT132-12	Polymerization Panel & Air Flow Controller		
CT132-37	Timer Panels		
CT132-50	Float Switches		
CT132-99	Level Indicating Controllers	11/20	3,615. <u>08</u>
CT132-12	Flow Controller		
CT132-13	Boiler Accessories		
CT132-21	Fork Lift Truck		
CT132-51	Welding Machine		
CT132-56	Rivet Gun Accessories	11/21	36,861. <u>59</u>
CT132-6	Control Receiver		

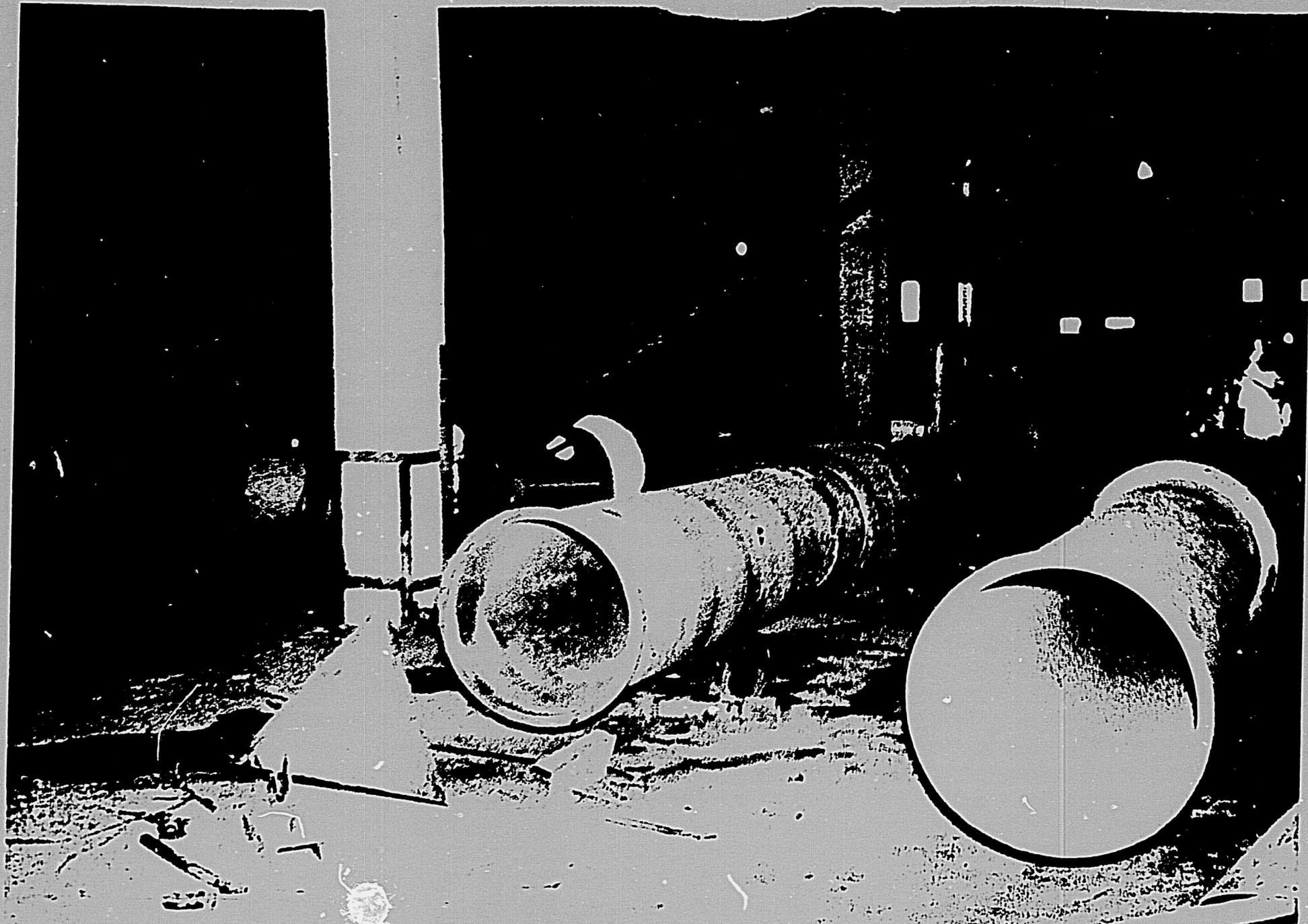
<u>P.O. No.</u>	<u>Item Description</u>	<u>Carried-in Date</u>	<u>Total (US\$)</u>
CT132-4	D/T Parts & Take-up M/C (Partial)	11/19-26	408,946.99
CT132-8	Pump Blocks (Partial)		
CT132-33	Spinning Blocks		
CT132-39	Transformers (Partial)		
CT132-42	Starters		
CT132-70	Gauges, Pointers (Partial)		
CT132-74	Valves		
CT132-76	Pumps		
CT132-94	Valves (Partial)		
CT132-101	Valves (Partial)		
CT132-105	Pump Block Parts		
CT132-107	C.R. S/S Sheets		
CT132-121	Valves (Partial)		
CT132-122	Pump Block Assy. (Partial)		
CT132-129	Details		
CT132-140	Hardware (Partial)		
CT132-160	Raschig Rings		
CT132-163	S/S Plates		
CT132-63	Shaft Assemblies		
CT132-3.155	Current Transformers		
CT132-5	Pipe Fittings		
CT132-11	Dry Vapor Nitrogen Plant		

<u>P.O. No.</u>	<u>Item Description</u>	<u>Carried-in Date</u>	<u>Total</u>
CT132-32	Extruder Y-Branch)		
)		
CT132-101	Regulators & Valves)		
	(Partial))		
)		
CT132-107	Aluminum Pipe (Partial))	11/29-30	178,286. <u>51</u>
CT132-132	Gaskets & Neoprene Sheets)		
)		
CT132-84	KF 3 Aquameter)		
)		
CT132-12	Extruder Control Cabinet,)		
	Recorder Cabinets &)		
	Level Transmitters)		
	Amounts in this report period		1,451,679. <u>90</u>
	Amounts in previous report periods		1,226,628. <u>03</u>
	Cumulative total through this report period		2,678,307. <u>93</u>



Installation Work of Take-Up Machine

44



Fabrication Work of Polymerization Finishing Tower

25
122



The Front View of Main Plant Building now verging on Completion.

26