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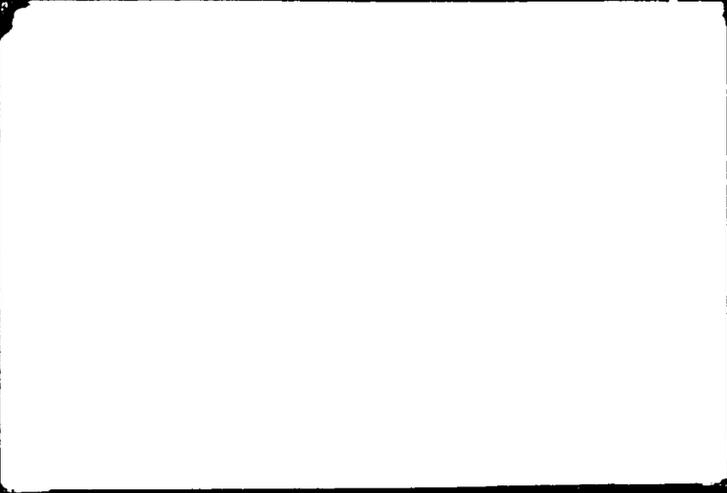
PERUSAHAAN

UMUM

LISTRIK

NEGARA

JAKARTA-INDONESIA



MAIN
Engineers



CHAS. T. MAIN INTERNATIONAL, INC.

BOSTON • BANDUNG • JAKARTA • SEMARANG

PERUSAHAAN UMUM LISTRIK NEGARA
JAKARTA , INDONESIA

WEST JAVA
ELECTRIC TRANSMISSION PROJECTS

QUARTERLY REPORT
OCTOBER -- DECEMBER 1980

WEST JAVA I AND II PROJECTS
CONTRACTS
Pj. 013/PST/74 and Pj. 023/PST/75
AID LOANS 497-H-028 & 497-W-032



CHAS. T. MAIN INTERNATIONAL, INC.

BOSTON MASSACHUSETTS U.S.A.
BANDUNG , INDONESIA

MAIN
Engineers

PERUSAHAAN UMUM LISTRIK NEGARA CONSULTANT
CHAS. T. MAIN INTERNATIONAL, INC.

BANDUNG - TROMOLPOS 60. TEL. 86069 J.L. PROGO 32
JAKARTA - P.O. BOX 100. KBT KEBAYORAN TIMUR. TEL. 776925 J.L. WIJAYA 1/61
SEMARANG - P.O. BOX 26, TEL. 311702 J.L. SLAMET 1

2 February 1981

Letter No. B - 3992

Ir. R. Semiawan
Perusahaan Umum Listrik Negara
Proyek Induk Jaringan Jawa Barat & Jakarta Raya
Jl. Cililitan Besar 1
Jakarta.

Subject : West Java I and II Projects
Quarterly Report

Dear Ir. Semiawan :

In accordance with Article 7.1 of the West Java I Contract No.
Pj.013/PST/74 and Appendix V of the West Java II Contract No.
Pj.023/PST/75, enclosed are three (3) copies of Engineer's
Quarterly Report for the period 1 October 1980 through 31 December 1980.

Very truly yours,
CHAS. T. MAIN INTERNATIONAL INC.

R.W. Malchow

R.W. Malchow
Project Manager

RMM/ns.-

cc. : DIRBANG - PLN Pusat (1)
USAID - JKT (4) ✓
MAIN - BSN (1)

WEST JAVA ELECTRIC TRANSMISSION PROJECTS

QUARTERLY PROGRESS REPORT

FOR THE QUARTER 1 OCTOBER 1980 - 31 DECEMBER 1980

SECTION I

GENERAL INFORMATION

A. Objectives of the Projects

The West Java Electric Transmission Projects were established to provide a reliable and economical electric power system from Tegal to Bandung (West Java I Project) and from Bandung to Jakarta (West Java II Project). The objectives of the Projects include establishing the basic engineering criteria, standards and specifications by which future extensions of the system can be readily coordinated with the newly constructed system. Also included is the training of Perusahaan Umum Listrik Negara (PLN) personnel so that they may continue performance in engineering design and construction management for future extensions of the system. The Projects are closely associated with other electric power projects currently being implemented in West Java.

B. Description of the Projects

The Projects cover the engineering design, material and equipment procurement, construction and construction supervision, technical and managerial assistance and training required in connection with :

1. New 150 KV double circuit transmission lines.

- a. West Java I Project - 187 Km connecting Tegal, Cirebon and Bandung.
- b. West Java II Project - 170 Km connecting Bandung, Bogor and Jakarta.

2. New 150/70/20 KV Substations.
 - a. West Java I Project - Ujungberung (Bandung) and switching facilities at Tegal.
 - b. West Java II Project - Bandung North (Bandung) and Pogor.
3. Installation of adequate system protection for all transmission lines and substations.
4. Provision of vehicles, tools and service equipment for system operation and maintenance.
5. Furnish PLN with a library of technical books and periodicals related to the electric power industry.

C. Funding of the Projects

To finance the reasonable foreign exchange cost of imported capital equipment, related engineering, construction and training services, the United States Agency for International Development (USAID) entered into the following Loan Agreements with the Government of Indonesia for relending to PLN.

1. West Java I Project - USAID Loan No. 497-H-028 US \$ 17,200,000.
2. West Java II Project - USAID Loan No. 497-W-032 US \$ 19,700,000.

To meet local currency expenditures, the Government of Indonesia agreed to provide Rupiah in the estimated equivalent of US \$ 5,800,000 for the West Java I Project and US \$ 3,900,000 for the West Java II Project. This total of US \$ 9,700,000 has since been increased to some US \$ 22,700,000 equivalent.

D. Consulting Services

In accordance with the above Loan Agreement and with USAID concurrence, PLN and Chas. T. Main International, Inc. (MAIN), Boston, Massachusetts, USA, entered into the following Contracts :

1. West Java I Project - Contract No. Pj. 013/PST/74, dated 16 February 1974. Duration of Contract, as amended 19 June 1974 to 30 June 1982.
2. West Java II Project - Contract No. Pj. 023/PST/75, dated 27 January 1975. Duration of Contract, as amended, 29 August 1975 to 30 June 1982.

E. Scope of Services

The Scope of Services to be provided by MAIN under the Contracts include but are not limited to the following items

1. General Services
2. Engineering and Design Services
3. Procurement Services
4. Construction Planning and Pre-contracting Services
5. Engineering Supervision and Inspection Services
6. Construction Project Management and Supervision Services
7. Initial Operation and Testing
8. Training.

F. Project Block Diagram

The following page is the Block Diagram for the West Java I and II Projects. The Diagram shows the major parts of the system being installed and the pertinent parameters. Also included are the supply and construction contractors.

SECTION II
FINANCE AND ADMINISTRATION

A. FINANCE INFORMATION

1. US Dollar Costs

Invoices in the amount of US \$ 3,732,156.65 (WJ I) and US \$ 2,509,792.89 (WJ II) have been submitted to PLN Pusat. Appended as Exhibit IA and IIA are Financial Plans and Cash Flow by Project Quarters. Categories by Work Item and Cash Flow by Project Quarters are based on the revised Scope of Work embodied in the latest Amendments to the Contracts. These data will be updated as necessary. Statistical data in chart form for the Progress Schedules are appended as Exhibits IB and IIB.

2. Indonesian Rupiah Costs

Invoices in the amount of Rp. 277.202.195,40 (WJ I) and Rp. 244.917.275,25 (WJ II) for local costs incurred have been submitted to PLN. Exhibits IC and IIC, Financial Plans and Cash Flow, and Exhibits ID and IID, Progress Schedules, are appended. These data are also based on the latest Amendments to the Contracts and will be updated as necessary.

3. US Dollar Costs to be paid in Rupiah

Additional invoices in the amount of US \$ 59,668.45 (WJ I) and US \$ 117,437.02 (WJ II) have also been submitted. As authorized in Amendments Number 4 to the PLN/MAIN Engineering Services Contracts, these are costs incurred in US Dollars but payable by PLN in Indonesian Rupiah.

4. Invoices Submitted and Payments Received

These data are appended as Exhibit G.

B. ADMINISTRATIVE INFORMATION

1. Amendment Number 3 to the PLN/Irby West Java I Transmission Supply Contract was signed on 8 October 1980. This Amendment provides for additional costs because of increased tower steel quantities and weights.
2. Amendment Number 4 to the PLN/Irby West Java II Transmission Supply and Erect Contract was signed on 23 October 1980. This Amendment provides for additional costs because of increased material prices, increased tower steel quantities and increased steel weights.
3. Amendment Number 2 to the PLN/Motorola Radio Equipment Contract was signed on 21 November 1980. This Amendment provides for additional needed equipment by using credits obtained from the difference between the actual air freight costs and the air freight costs estimated in the Contract.
4. Amendment Number 2 to the PLN/Irby Substation Equipment Contract is being reviewed by PLN/Projects. This Amendment provides for the purchase of additional control cable, watt-hour meters, tools and spare parts.
5. Amendment Number 2 to the PLN/Tension Stringing Equipment Contract is being reviewed by PLN/Projects. This Amendment provides for certain changes, additions and deletions to the Schedule of Tools and Equipment to be furnished. Some items could not be obtained in time to meet the required delivery dates and their deletion will not effect Project completion. Other items are specified as replacement for tools and equipment originally ordered.

6. Amendment Number 3 to the PLN/Southwire Conductor Contract is being reviewed by PLN/Projects. This Amendment adjusts the Contract amount to reflect the actual costs of Marine Freight and Insurance.
7. Certificates of Performance to permit payment of some retainage money to four (4) US suppliers were completed by PLN during the period. Other retainage funds are being held to ensure full contract compliance by each supplier.
8. Expiration date extensions for two (2) Letters of Commitment and increases in amounts for two (2) other Letters of Commitment are in process by USAID.

C. WEST JAVA I CONTRACT DATA

| | | | |
|----|--------------------|-----------------|--------------------|
| 1. | No. Pj. 013/PST/74 | 16 February '74 | US \$ 1,336,452.00 |
| | | | Rp. 81.308.525,- |
| | Amendment No. 1 | 2 Sept. '75 | US \$ - |
| | | | Rp. 14.575.975,- |
| | Amendment No. 2 | 12 March '77 | US \$ 1,589,996.00 |
| | | | Rp. 49.916.408,- |
| | Amendment No. 3 | 10 Jan. '79 | US \$ 867.561.00 |
| | | | Rp. 92.358.466,- |
| | Amendment No. 4 | 29 Aug. '80 | US \$ - |
| | | | Rp. 316.936.745,- |

C.T. Main-Engineering Services

| | | | |
|----|--------------------|--------------|--------------------|
| 2. | No. Pj. 153/PST/77 | 5 Sept. '77 | US \$ 2,531,335.58 |
| | Amendment No. 1 | 10 July '78 | - |
| | Amendment No. 2 | 17 Sept. '79 | US \$ 202,682.67 |
| | Amendment No. 3 | 8 Oct. '80 | US \$ 168,927.78 |

Irby Construction Company

Tower Steel, Insulators and Accessories

| | | | | | |
|----|--|----------|-----|-------|--------------|
| 3. | No. Pj. 202/PST/77 | 28 Nov. | '77 | US \$ | 284,289.50 |
| | Amendment No. 1 | 30 Nov. | '78 | US \$ | 10,449.56 |
| | ; Copperweld Industries Shieldwire | | | | |
| 4. | No. Pj. 203/PST/77 | 28 Nov. | '77 | US \$ | 1,906,391.70 |
| | Amendment No. 1 | 10 July | '78 | US \$ | 54,615.55 |
| | Amendment No. 2 | 30 March | '79 | US \$ | 30,914.45 |
| | Southwire Company Conductor | | | | |
| 5. | No. Pj. 050/PST/78 | 10 March | '78 | US \$ | 369,473.98 |
| | Amendment No. 1 | 13 Dec. | '78 | US \$ | 33,446.88 |
| | Tension Stringing Equipment Co. Wire Stringing Equipment | | | | |
| 6. | No. Pj. 051/PST/78 | 10 March | '78 | US \$ | 87,852.00 |
| | Ohio Brass Company Lightning Arresters | | | | |
| 7. | No. Pj. 052/PST/78 | 11 March | '78 | US \$ | 4,499,800.74 |
| | Amendment No. 1 | 17 Sept. | '79 | US \$ | 47,613.72 |
| | Irby Construction Company Substation Equipment Maintenance Tools and Equipment | | | | |
| 8. | No. Pj. 053/PST/78 | 11 March | '78 | US \$ | 2,452,391.40 |
| | Amendment No. 1 | 7 Jan. | '80 | US \$ | 80,409.19 |
| | General Electric Company Substation Equipment | | | | |
| 9. | No. Pj. 087/PST/78 | 11 May | '78 | US \$ | 395,819.20 |
| | Amendment No. 1 | 22 Dec. | '79 | | - |
| | Amendment No. 2 | 21 Nov. | '80 | | - |
| | Motorola Radio Equipment | | | | |

- | | | | | |
|-----|---------------------------------------|----------|-----|-------------------|
| 10. | No. Spj.022/PLN/PI RING/77 | 22 Oct. | '77 | Rp. 199.278.000,- |
| | P.T. Tikon Abadi | | | |
| | Foundations - Section I | | | |
| 11. | No. Spj.023/PLN/PI RING/77 | 27 Oct. | '77 | Rp. 153.445.000,- |
| | P.T. Gunung Kencana | | | |
| | Foundations - Section IIA | | | |
| 12. | No. Spj.024/PLN/PI RING/77 | 27 Oct. | '77 | Rp. 164.789.000,- |
| | P.T. Dharma Niaga | | | |
| | Foundations - Section IIB | | | |
| 13. | No. Spj.010/PLN/PI RING/78-79 | 8 Dec. | '78 | Rp. 132.894.300,- |
| | P.T. Perfect Circle | | | |
| | Tower Erection | | | |
| 14. | No. Spj.065A/SPP/PI RING JATENG/78-79 | | | Rp. 50.278.000,- |
| | P.T. Santraco Raya | 21 April | '79 | |
| | Tegal Substation Civil Work | | | |
| 15. | No. Spj.072/SPP/PI RING JATENG/78-79 | | | Rp. 25.966.000,- |
| | P.T. Sigma Tirta | 17 Oct. | '79 | |
| | Tegal Substation Structure Erection | | | |
| 16. | No. Spj.017/PLN/PI RING/79-80 | | | Rp. 127.790.850,- |
| | P.T. Silkar National | 22 Jan. | '80 | |
| | Conductor Stringing - Section I | | | |
| 17. | No. Spj.019/PLN/PI RING/79-80 | | | Rp. 164.364.000,- |
| | P.T. Citac Ltd. | 2 Feb. | '80 | |
| | Conductor Stringing - Section III | | | |
| 18. | No. Spj.001/PLN/PI RING/80-81 | | | Rp. 464.500.000,- |
| | P.T. Erses | 3 Apr. | '80 | |
| | Ujungberung Substation Civil Work | | | |

- | | | | | | |
|-----|--|--------|-----|-----|---------------|
| 19. | No. Spj.002/PLN/PI RING/80-81 | | | Rp. | 199.989.000,- |
| | P.T. Erses | 3 Apr. | '80 | | |
| | Ujungberung Substation Control House | | | | |
| 20. | No. Spj.013/PLN/PI RING/80-81 | | | Rp. | 18.860.000,- |
| | P.T. Dharma Niaga | 6 July | '80 | | |
| | Ujungberung Substation Temporary 150 KV Transmission Line By-Pass | | | | |

D. WEST JAVA II CONTRACT DATA

- | | | | | | |
|----|---|----------|-----|-------|---------------|
| 1. | No. Pj. 025/PST/75 | 25 Jan. | '75 | US \$ | 1,541,729.00 |
| | | | | Rp. | 90.589.149,- |
| | Amendment No. 1 | 12 May | '75 | US \$ | - |
| | | | | Rp. | - |
| | Amendment No. 2 | 12 March | '77 | US \$ | 856,064.00 |
| | | | | Rp. | 15.239.504,- |
| | Amendment No. 3 | 10 Jan. | '79 | US \$ | 112,000.00 |
| | | | | Rp. | 97.708.072,- |
| | Amendment No. 4 | 29 Aug. | '80 | US \$ | - |
| | | | | Rp. | 515.307.310,- |
| | C.T. Main Engineering Services | | | | |
| 2. | No. Pj. 152/PST/77 | 5 Sept. | '77 | Rp. | 452.526.908,- |
| | | | | US \$ | 7,744,165.78 |
| | Amendments No. 1&2 | 10 July | '78 | Rp. | 13.137.605,- |
| | | | | US \$ | 311,400.72 |
| | Amendment No. 3 | 17 Sept. | '79 | Rp. | 3.560.229,- |
| | | | | US \$ | 110,881.33 |
| | Amendment No. 4 | 23 Oct. | '80 | Rp. | 176.242.175,- |
| | | | | US \$ | 2,659.54 |
| | Irby Construction Company Transmission Line Construction | | | | |

- | | | | |
|-----|--|------------------------------|--|
| 3. | No. Pj. 051/PST/78 Ohio Brass Company Lightning Arresters | 10 March '78 | US \$ 87,852.00 |
| 4. | No. Pj. 052/PST/78 Amendment No. 1 Irby Construction Company Substation Equipment | 11 March '78 17 Sept. '79 | US \$ 4,981,321.52 Funded under Loan 497-H-028 West Java I |
| 5. | No. Pj. 053/PST/78 Amendment No. 1 General Electric Company Substation Equipment | 11 March '78 7 Jan. '80 | US \$ 3,974,100.16 Funded under Loan 497-H-028 West Java I |
| 6. | No. Spj.001/PLN/PI RING/77-78 P.T. Citac Ltd. Foundations - Sections II and III | 5 June '78 | Rp. 329.553.000,- |
| 7. | No. Spj.002/PLN/PI RING/78-79 P.T. Citac Ltd. Foundations - Ujungberung - Cigereleng | 9 Aug. '79 | Rp. 175.128.000,- |
| 8. | No. Spj.022/PLN/PI RING/79-80 P.T. Sahabat Agung Cibinong - Gandul Stub Angles | 4 Dec. '79 | Rp. 10.618.000,- |
| 9. | No. Spj.009/PLN/PI RING/79-80 P.T. Citac Ltd. Foundations - Section IV A | 30 Nov. '79 | Rp. 62.441.000,- |
| 10. | No. Spj.010/PLN/PI RING/79-80 P.T. Citac Ltd. Foundations - Section IV C | 30 Nov. '79 | Rp. 36.029.000,- |

- | | | |
|-----|---|----------------------|
| 11. | No. Spj.018/PLN/PI RING/79-80 P.T. Amarta Karya 24 Jan. '80 Foundations - Section IV B | Rp. 64.630.000,- |
| 12. | No. Spj.008/PLN/PI RING/80-81 P.T. Pembangunan Perumahan 5 June '80 Bandung Utara Substation Civil Work | Rp. 334.619.000,- |
| 13. | No. Spj.006/PLN/PI RING/80-81 P.T. Perfect Circle 31 May '80 Bandung Utara Substation Control House | Rp. 230.501.000,- |
| 14. | No. Spj.009/PLN/PI RING/80-81 P.T. Perfect Circle 31 May '80 Bogor Substation Civil Work | Rp. 475.428.000,- |
| 15. | No. Spj.007/PLN/PI RING/80-81 P.T. Perfect Circle 31 May '80 Bogor Substation Control House | Rp. 212.915.000,- |
| 16. | No. Spj.020/PLN/PI RING/79-80 P.T. Hutama Karya 16 Feb. '80 Bandung Utara Substation Access Road | Rp. 31.967.000,- |
| 17. | No. Spj. /PLN/PI RING/ Contract not yet signed Bogor Substation Access Road | Rp. 64.700.000,- |
| 18. | No. Spj.013/PLN/PI RING/80-81 P.T. Dharma Niaga 6 July '80 Bogor Substation Temporary 150 KV Transmission Line By-Pass | Rp. 10.608.000,- |

E. WEST JAVA I AND II CONTRACT DATA

- | | | | | | |
|----|----------------------------|---------|-----|-----|--------------|
| 1. | No. Spj.016/PLN/PI RING/77 | | | Rp. | 54.245.000,- |
| | P.T. Sumber Jaya | 4 Jul | '77 | | |
| | Grounding Material | | | | |
| 2. | No. Spj.017/PLN/PI RING/77 | | | Rp. | 40.100.000,- |
| | P.T. Arcon | 13 Aug. | '77 | | |
| | Stub Angles | | | | |

SECTION III
GENERAL INFORMATION

A. CONFERENCES AND EVENTS

1. Twenty-nine (29) Construction Meetings were held during the period.

B. PROBLEM AREAS AND TENTATIVE SOLUTIONS

1. PLN has not as yet received a permit from the Forestry Department to clear the ROW between Towers 38 and 39 on the Ujungberung - Bandung Utara Transmission Line Section but is expected to clear this section during January or February. Scheduled completion of the Project will not be affected.
2. Towers No. 317 and No. 319 on the Cirebon - Ujungberung Transmission Line Section have moved downhill 337 mm and 80 mm, respectively since 26 April 1980. The tower sites were investigated by a Civil Engineer from MAIN's Charlotte Office. It is expected that the towers will be relocated but a final decision is awaiting review by the Charlotte Office. Scheduled completion of the Project will not be affected.
3. The Ujungberung Switchyard and Control House remains several months behind schedule. A meeting was held with PLN and the Contractor to determine the new completion date for the Switchyard work. The Contractor advised that the new date will be February 28, 1981. This date has not been accepted by PLN. Due to the work procedure by the Contractor it is not possible to determine when the Contractor will complete work on the Switchyard and Control House. The Contractor has been requested to obtain additional material and personnel to complete the work on schedule.

4. The installation and erection of equipment and structure by PLN crews is being delayed by the Civil Work problems mentioned above at Ujungberung Substation.
5. The Bandung Utara Switchyard Contractor is behind schedule and will delay the erection of Switchyard equipment and structures unless changes are made very soon. The Contractor has been requested to add additional personnel.
6. The Bandung Utara Control House Contractor is behind schedule but has added additional personnel to correct the behind schedule problems.
7. There are still problems with obtaining the land for the permanent access road to Bandung Utara Substation. Negotiations with the landowners are underway.
8. The land for the permanent access road to Bogor Substation has been purchased and PLN is making the required drawings for the Construction to be let for bids. Bogor Substation Switchyard and Control House work is behind schedule but the Contractor is taking action to correct this problem.

SECTION IV

PERSONNEL

A. ENGINEER

1. Mr. D.A. Dowling arrived in Indonesia to replace Mr. J.W. Brower as Projects Director.
2. Mr. R.W. Malchow, Project Manager, departed from Indonesia on 20 November for Home Leave.
3. Mr. J.E. Freeman, Civil/Structural Engineer from MAIN's Charlotte Office, arrived in Indonesia on 26 November. Mr. Freeman is on temporary assignment with regard to Substation foundations. Some time was spent on the Rural Electrification Project in Central Java.
4. End of the period strength was as follows:

| <u>NAME</u> | <u>TITLE</u> | <u>ARRIVAL DATE</u> |
|---------------------------|-----------------------------------|---------------------|
| <u>West Java I and II</u> | | |
| R.W. Malchow | Project Manager | 24 Oct. 1978 |
| C.J. Whitby | Manager of Administration | 10 Sep. 1974 |
| J.C. Harkey | Substation Engineer | 15 Oct. 1977 |
| C.L. Crume | Substation Constr. Eng | 3 Jun. 1979 |
| H. Gunawan | Administrative Assistant | 13 Aug. 1979 |
| P.V. Wilson | Stores Specialist | 15 Dec. 1978 |
| Zainal Saur | Surveyor | 16 Mar. 1978 |
| J.E. Freeman | Civil/Structural Eng. (Temporary) | 26 Nov. 1980 |
| <u>West Java II</u> | | |
| D.L. Hawks | Substation Inspector | 29 Feb. 1980 |

B. PLN

1. End of the period strength was as follows :

| <u>JOB TITLE</u> | <u>NUMBER</u> |
|------------------------|---------------|
| Logistics Coordinator | 1 |
| Secretaries | 3 |
| Draftsmen | 6 |
| Accounting Clerks | 2 |
| Reproduction Personnel | 2 |
| Drivers | 14 |

2. In addition to the above Staff, approximately 100 PLN Counterpart and field personnel were assigned to the Projects throughout the period.

C. PERSONNEL MANMONTHS

1. MAIN and PLN Personnel Manmonths expended on the Projects to date are shown on the appended Exhibit H.

BUDGET

1. Comparison of Budget vs. Actual Manmonths and Salaries expended on the Projects to date are appended as Exhibits IE, IF, IIE and IIF.

SECTION V
DESIGN AND FIELD PROGRESS

A. WEST JAVA I TRANSMISSION

1. Tower Site Procurement
 - a. All tower sites have been procured.
2. Foundation Constriction
 - a. All foundations have been installed.
3. Tower Erection
 - a. All towers have been erected and accepted.
4. ROW Procurement and Clearing
 - a. PLN still has not received permission from the Forestry Department to do the clearing between Towers 38 and 39 on the Ujungberung - Bandung Utara Line Section. It is expected that PLN will clear this final section during January or February.
5. Conductor and Shieldwire Stringing
 - a. Some 2 Km of line remain to be strung on the Ujungberung - Bandung Utara Line Section. This section will be strung as soon as the ROW is procured and cleared.
6. Material Supply
 - a. Some locally fabricated steel is still to be provided for the spare towers.
 - b. The final three (3) reels of Conductor were received.

7. Energization

The second circuit between Sunyaragi and Cigereleng was energized during October.

B. WEST JAVA II TRANSMISSION

1. Tower Site Procurement

a. All tower sites have been procured.

2. Foundation Construction

a. All foundations have been installed.

3. Tower Erection

a. All towers have been erected and accepted.

4. ROW Procurement and Clearing

a. ALL ROW Procurement and clearing are complete.

5. Conductor and Shieldwire Stringing

a. Phase conductor between Towers No. 1 and 2 of the Cibinong Line was cut down again during the period and subsequently replaced by PLN personnel. All phase conductor and shieldwire was complete at the end of the period.

6. By-Pass Towers

a. The Cibinong Substation By-Pass was completed.

b. Foundations for the Bogor Substation By-Pass were completed and the tower is being erected. Completion is expected in January.

7. Material Supply

a. A few items of line hardware and conductor accessories to be used as spares are missing and are in transit.

C. SUBSTATIONS

1. Tegal Substation.
 - a. The line and station have been energized.

2. Ujungberung Substation
 - a. Civil Work.

The Contractor did not completed the required work by the guarantee date of 29 November 1980 and it is not known at this time when the Contractor will complete the required work. The Contractor is continuing work on the foundations, fence, culverts, cable trench and drain pipe installation but the work is not consistent due to insufficient material. At the present rate of Construction it will be many more months before his work is completed.

- b. Control House.

The Contractor is substantially behind schedule. Pouring of the second half of the ground floor roof was completed. At the present rate of construction, it will be many more months before the Control House is completed.

- c. Erection.

PLN crews continued work on the 150 KV Switchyard during the period, but due to the slow progress by the Switchyard Contractor the work by the PLN erection crews has been hampered extensively. Unless the Contractor changes his rate of progress for the Switchyard and Control House construction it will not be possible to complete all work required to energize the Substation by December 1981.

3. Bandung Utara Substation.

a. Switchyard.

The Contractor is continuing work on the foundations, cable trench, fence and road culverts. Work has started on the Oil Circuit Breaker and Transformer foundations. Due to the Contractor not having sufficient personnel the work by the Contractor is getting further behind schedule. Unless the Contractor adds additional personnel immediately it will not be possible for him to complete the required work by the guarantee date of February 28, 1981.

b. Control House.

The Contractor has completed work on the first section of the vertical columns (above ground). The Contractor has started the form work for the roof beams and slab. The Contractor is approximately six weeks behind schedule.

c. Access Road.

The Contractor has been unable to continue work on the Access Road due to the fact that all of the right-of-way has not been obtained.

d. Erection.

PLN crews have not started the erection. The erection is now scheduled to start in February 1981. This starting date will depend on the completion of required work by the Switchyard Civil Contractor.

4. Bogor Substation.

a. Switchyard Civil Work.

The work by the Contractor has dropped behind schedule during the period. This is mainly due to the Contractor not adding additional personnel when they were needed. The Contractor has completed the pouring of the piles during the period. Driving of the piles for the Oil Circuit Breakers and Transformers will begin in January.

b. Control House.

The Contractor during the period completed a large portion of the concrete work and started installation of the form work for the roof and floor beams. The Contractor will pour the roof and floor during the month of January. The Contractor should complete the Control House work on schedule if he continues to work at the rate achieved during the months of November and December 1980.

c. Access Road.

Payment to property owners for the permanent access road was completed during the period. PLN is now making construction drawings to be let for bids.

d. Erection.

PLN crews have not started the erection. The erection is now scheduled to start in February 1981. This starting date will depend on the completion of required work by the Switchyard Civil Contractor.

5. Material Supply

- a. Most material is presently in Indonesia. There should be no delays due to material shortages.

D. MOBILE RADIO

1. The duplexer at the Puncak Repeater Station needs tuning. The local Motorola agent has still not made adjustments.
2. The fixed station at Bandung Utara will be installed when electric power is installed at the Sunyaragi Substation.

E. OTHER

1. Permanent licenses were obtained for all flatbed and derrick trucks.

F. MATERIAL SHIPMENTS

1. The status of Material Shipments through 31 December 1980 is shown on the following page.

Status of Material Shipments

| <u>Contract Number</u> | <u>Contractor/ Supplier</u> | <u>Total Material</u> | <u>US \$ Value of Material Received through 31 Dec.'80</u> | <u>Percent of Total</u> |
|----------------------------|---------------------------------|---------------------------|--|-----------------------------|
| Pj.152/PST/77 | Irby | 6,461,849.51 | 6,461,836.51 | 100 % |
| Pj.153/PST/77 | Irby | 2,734,018.25 | 2,734,018.25 | 100 % |
| Pj.202/PST/77 | Copperweld | 294,739.06 | 294,732.90 | 100 % |
| Pj.203/PST/77 | Southwire | 1,991,843.83 | 1,991,843.83 | 100 % |
| Pj.050/PST/78 | Tension Stringing | 400,636.37 | 400,636.37 | 100 % |
| Pj.051/PST/78 | Ohio Brass | 175,704.00 | 175,704.00 | 100 % |
| Pj.052/PST/78 | Irby | 9,528,735.98 | 9,065,832.20 | 95 % |
| Pj.053/PST/78 | General Electric | 6,467,900.75 | 6,467,900.75 | 100 % |
| Pj.087/PST/78 | Motorola | 369,186.55 | 353,103.68 | 96 % |

SECTION IV
TRAINING ACTIVITIES

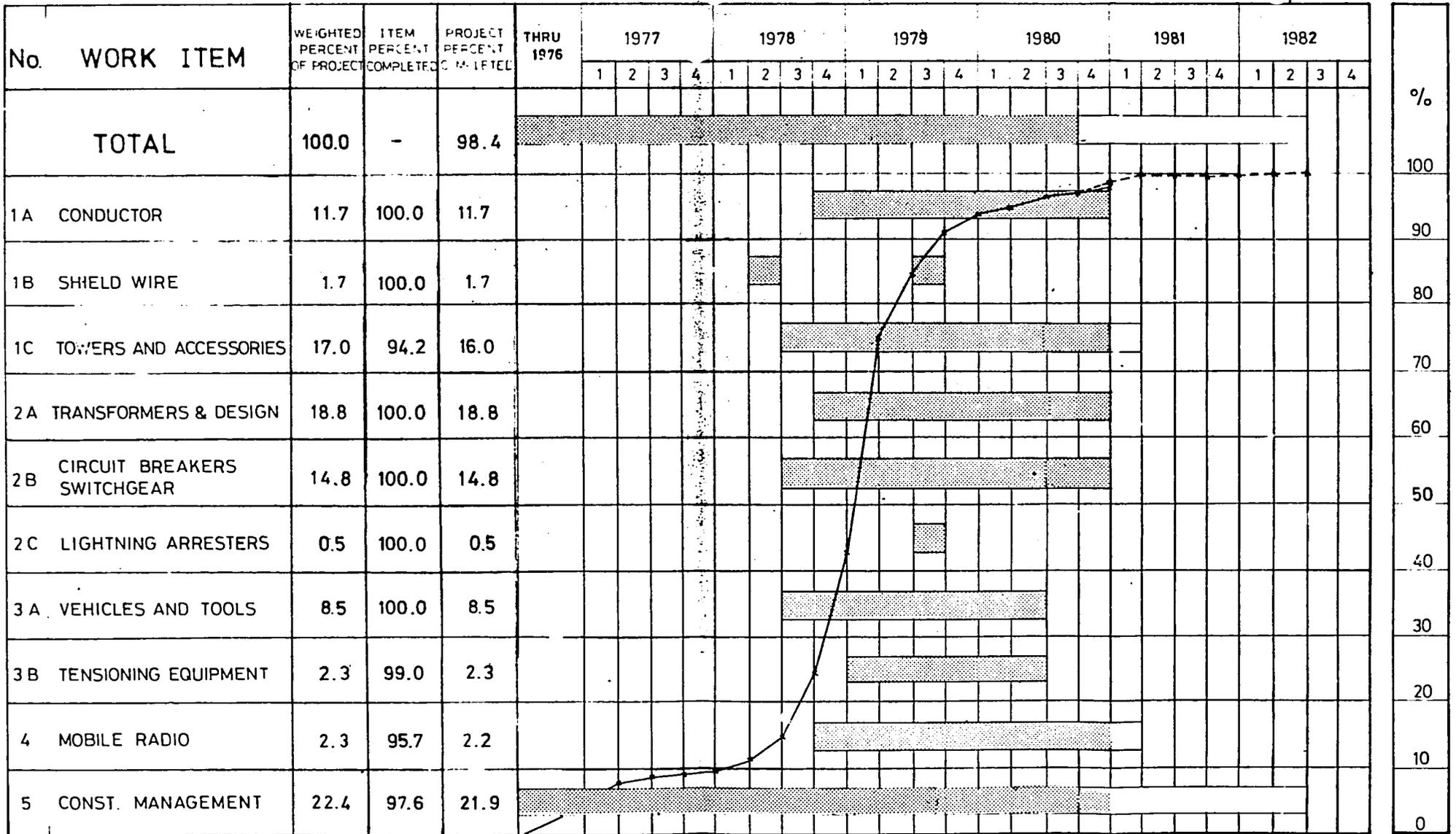
1. PLN Substation personnel continue to be trained in the installation and adjustment of substation electrical equipment.

WEST JAVA I PROJECT FINANCIAL PLAN AND CASH FLOW U.S. DOLLARS (000)

| NO. | WORK ITEM | (A) ALLOCATION OF FUNDS | FUNDS REQUIRED TO COMPLETE PROJECT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---------------------------------|----------------------------------|------------------------------------|------|-----|-----|-----|------|------|------|------|------|------|-----|-----|------|-----|-----|-----|------|---|---|----|------|---|---|---|---|--|--|
| | | | THRU 1976 | 1977 | | | | 1978 | | | | 1979 | | | | 1980 | | | | 1981 | | | | 1982 | | | | | | |
| | | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | | |
| | TOTAL | 17,198 | 1089 | 127 | 130 | 128 | 214 | 202 | 553 | 1661 | 3165 | 5450 | 1700 | 919 | 437 | 362 | 175 | 225 | 370 | 236 | - | - | 27 | 20 | - | - | - | - | | |
| 1 | 150 KV TRANSMISSION SUPPLY | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1A | CONDUCTOR | 2,004 | | | | | | | | | 506 | 1005 | 394 | | | 88 | | | 11 | | | | | | | | | | | |
| 1B | SHIELD WIRE | 297 | | | | | | | 282 | | | | | 15 | | | | | | | | | | | | | | | | |
| 1C | TOWERS AND ACCESSORIES | 2,920 | | | | | | | 1081 | 417 | 992 | 57 | 172 | | 15 | 16 | | | 170 | | | | | | | | | | | |
| 2 | 150 KV SUBSTATION SUPPLY | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2A | TRANSFORMERS AND DESIGN | 3,229 | | | | | | | | | 588 | 1390 | 828 | 100 | | | 23 | 50 | 250 | | | | | | | | | | | |
| 2B | CIRCUIT BREAKERS AND SWITCHGEAR | 2,541 | | | | | | | 72 | 1144 | 1197 | | | | | 40 | 54 | 34 | | | | | | | | | | | | |
| 2C | LIGHTNING ARRESTERS | 88 | | | | | | | | | | | 88 | | | | | | | | | | | | | | | | | |
| 3 | TOOLS AND EQUIPMENT SUPPLY | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3A | VEHICLES AND TOOLS | 1,474 | | | | | | | | 243 | | 299 | 244 | 350 | 235 | 93 | 10 | | | | | | | | | | | | | |
| 3B | TENSIONING EQUIPMENT | 402 | | | | | | | | | 317 | | | 53 | 28 | | | | 4 | | | | | | | | | | | |
| 4 | MOBILE RADIO SUPPLY | 397 | | | | | | | | | 288 | 63 | | 24 | | | 5 | | | 17 | | | | | | | | | | |
| 5 | CONST. MANAGEMENT SERVICES | 3,846 | 1089 | 127 | 130 | 128 | 214 | 202 | 271 | 265 | 222 | 187 | 185 | 170 | 149 | 138 | 81 | 121 | 75 | 45 | | | 27 | 20 | | | | | | |

| | | | | |
|---|--------------|------------------|------------------|------------------|
| (A) INCLUDES FUNDS COMMITTED, IN PROCESS OF BEING COMMITTED and | BANK CHARGES | \$ 17,198 | SPENT TO DATE | \$ 16,915 |
| | UNCOMMITTED | 2 | NEED TO COMPLETE | 263 |
| | TOTAL LOAN | <u>\$ 17,200</u> | UNCOMMITTED | 2 |
| | | | TOTAL LOAN | <u>\$ 17,200</u> |

WEST JAVA I PROJECT PROGRESS SCHEDULE US DOLLARS

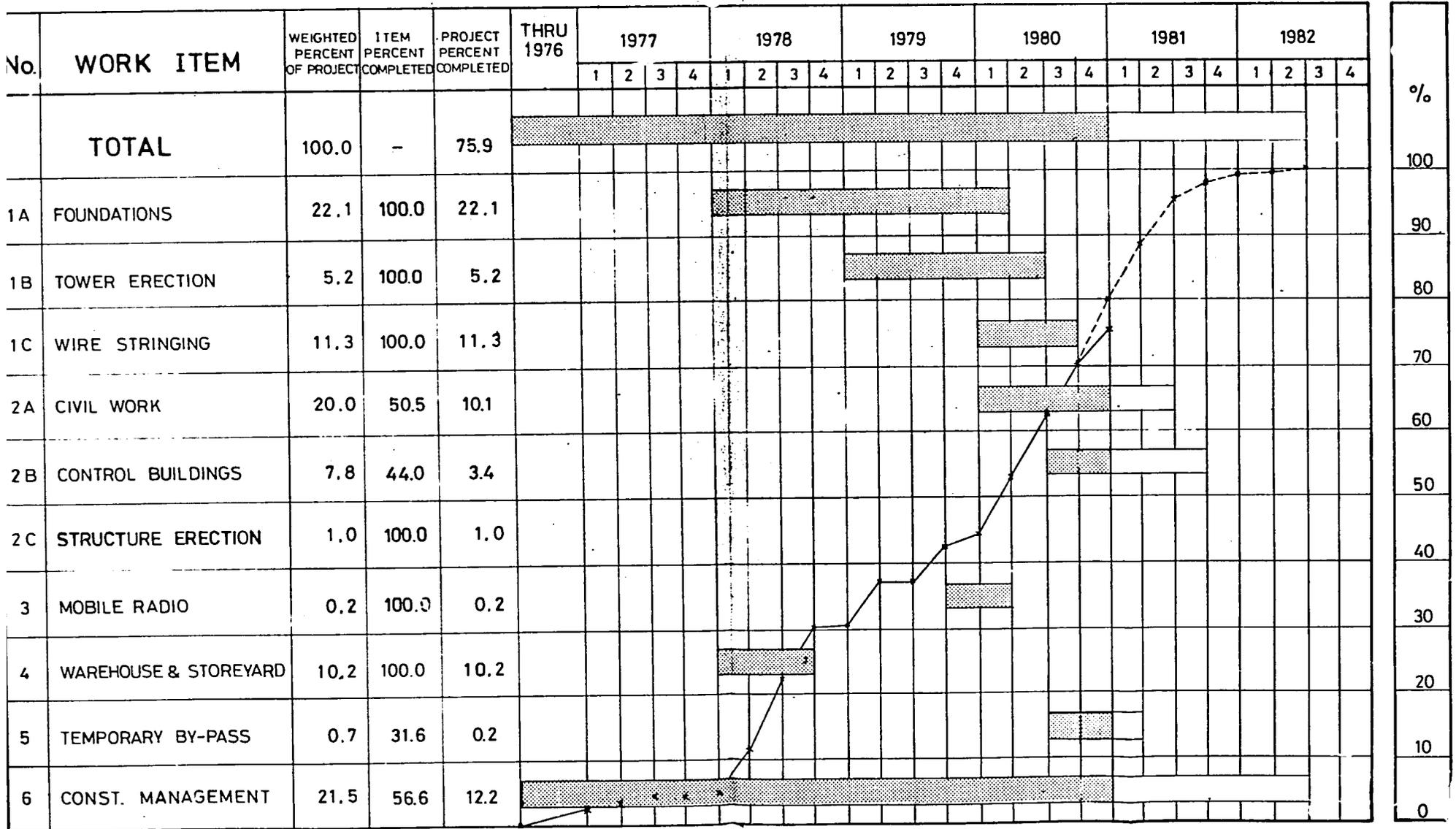


SCHEDULED
 ACTUAL
 SCHEDULED
 ACTUAL

**WEST JAVA PROJECT
FINANCIAL PLAN AND CASH FLOW
INDONESIAN RUPIAH (000.000)**

| NO. | WORK ITEM | ALLOCATION OF FUNDS | FUNDS REQUIRED TO COMPLETE PROJECT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|----------------------------|---------------------|------------------------------------|------|----|---|---|------|-----|-----|----|------|----|-----|----|------|-----|-----|-----|------|-----|----|----|------|----|---|---|--|--|--|--|--|
| | | | THRU 1976 | 1977 | | | | 1978 | | | | 1979 | | | | 1980 | | | | 1981 | | | | 1982 | | | | | | | | |
| | | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | |
| | TOTAL | 2.577 | 78 | 7 | 10 | 9 | 9 | 206 | 237 | 207 | 16 | 171 | 13 | 126 | 42 | 232 | 227 | 209 | 162 | 263 | 198 | 86 | 41 | 16 | 17 | | | | | | | |
| 1 | 150 KV TRANSMISSION | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1A | FOUNDATIONS | 570 | | | | | | 127 | 121 | 101 | - | 103 | - | 65 | 12 | 41 | | | | | | | | | | | | | | | | |
| 1B | TOWER ERECTION | 133 | | | | | | | | | | 53 | - | 50 | 3 | 15 | 12 | | | | | | | | | | | | | | | |
| 1C | WIRE STRINGING | 292 | | | | | | | | | | | | | | 105 | 145 | 42 | | | | | | | | | | | | | | |
| 2 | 150 KV SUBSTATIONS | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2A | CIVIL WORK | 515 | | | | | | | | | | | | | | 50 | 50 | 49 | 111 | 155 | 100 | | | | | | | | | | | |
| 2B | CONTROL BUILDINGS | 200 | | | | | | | | | | | | | | | | 64 | 24 | 40 | 36 | 36 | | | | | | | | | | |
| 2C | STRUCTURE ERECTION | 26 | | | | | | | | | | | | | | 13 | 12 | 1 | | | | | | | | | | | | | | |
| 3 | MOBILE RADIO | 5 | | | | | | | | | | | | | | 2 | 3 | | | | | | | | | | | | | | | |
| 4 | WAREHOUSE AND STOREYARD | 262 | | | | | | 62 | 100 | 100 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | TEMPORARY - BY PASS | 19 | | | | | | | | | | | | | | | | 6 | | 13 | | | | | | | | | | | | |
| 6 | CONSTRUCTION MGT. SERVICES | 555 | 78 | 7 | 10 | 9 | 9 | 17 | 16 | 6 | 16 | 15 | 13 | 11 | 12 | 6 | 14 | 48 | 27 | 55 | 62 | 50 | 41 | 16 | 17 | | | | | | | |

WEST JAVA I PROJECT PROGRESS SCHEDULE INDONESIAN RUPIAH



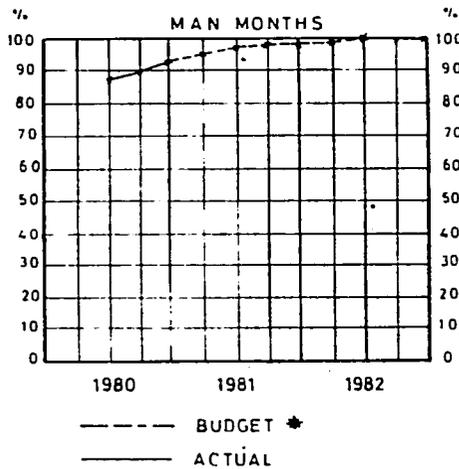
- - - - - SCHEDULED
 ———— ACTUAL

WEST JAVA I FIELD STAFF MAN MONTHS & SALARIES BUDGET VS ACTUAL

EXHIBIT IE

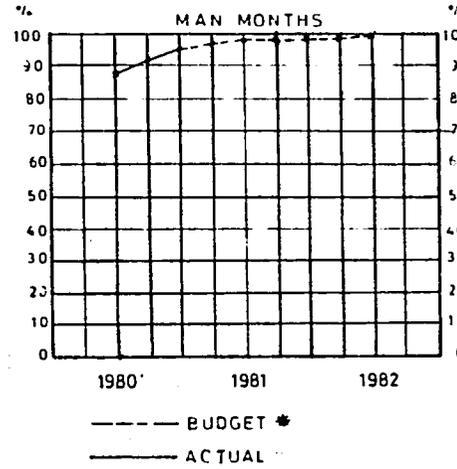
AS OF 4 DECEMBER 1980

TOTAL FIELD STAFF



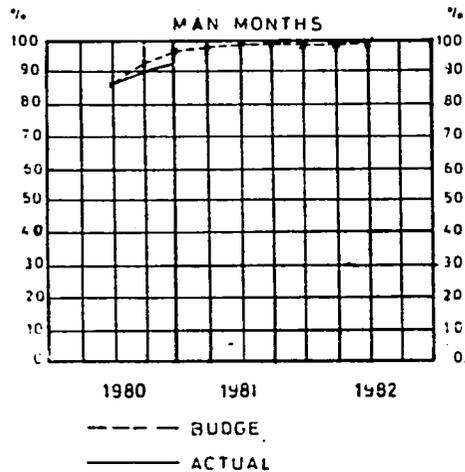
| | MAN MONTHS | | | SALARIES (000.) | | |
|----------------|------------|-----|----|-----------------|-----|----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 433 | 431 | 99 | 946 | 939 | 99 |
| THIS PERIOD | 15 | 11 | 73 | 40 | 25 | 63 |
| TOTAL TO DATE | 448 | 442 | 99 | 985 | 964 | 98 |
| TOTAL CONTRACT | 480 | 442 | 92 | 1083 | 964 | 89 |

CONSTRUCTION ONLY



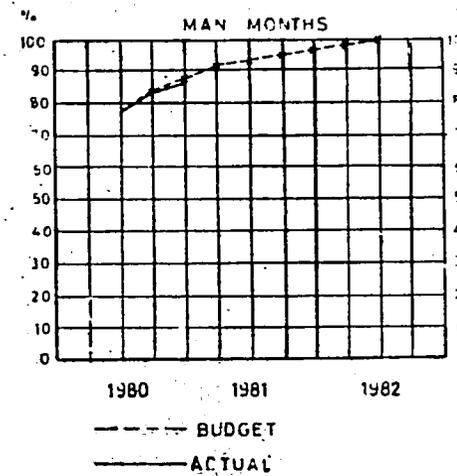
| | MAN MONTHS | | | SALARIES (000.) | | |
|----------------|------------|-----|-----|-----------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 240 | 241 | 100 | 480 | 484 | 101 |
| THIS PERIOD | 7 | 6 | 86 | 16 | 12 | 75 |
| TOTAL TO DATE | 247 | 247 | 100 | 496 | 496 | 100 |
| TOTAL CONTRACT | 261 | 247 | 95 | 535 | 496 | 93 |

ENGINEERING ONLY



| | MAN MONTHS | | | SALARIES (000.) | | |
|----------------|------------|-----|----|-----------------|-----|----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 108 | 106 | 98 | 238 | 233 | 98 |
| THIS PERIOD | 4 | 2 | 50 | 11 | 5 | 45 |
| TOTAL TO DATE | 112 | 108 | 96 | 249 | 238 | 96 |
| TOTAL CONTRACT | 116 | 108 | 92 | 269 | 238 | 88 |

ADMINISTRATION ONLY



| | MAN MONTHS | | | SALARIES (000.) | | |
|----------------|------------|-----|----|-----------------|-----|----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 85 | 84 | 99 | 228 | 222 | 97 |
| THIS PERIOD | 4 | 3 | 75 | 13 | 8 | 62 |
| TOTAL TO DATE | 89 | 87 | 98 | 241 | 230 | 95 |
| TOTAL CONTRACT | 101 | 87 | 86 | 279 | 230 | 82 |

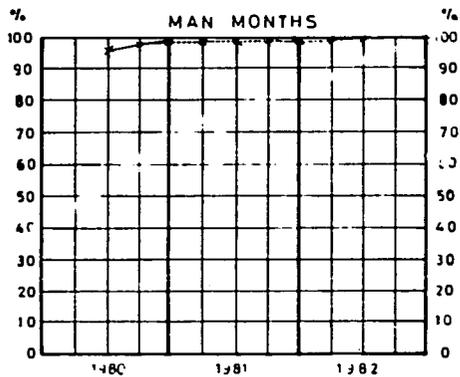
* BUDGET DATA REVISED JULY 1, 1980

WEST JAVA I HOME OFFICE MAN MONTHS & SALARIES BUDGET VS ACTUAL

EXHIBIT I F

AS OF 4 DECEMBER -1980

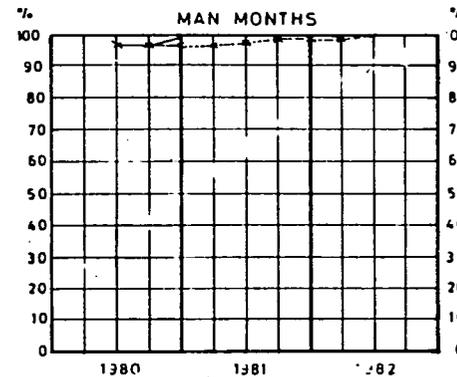
TOTAL HOME OFFICE



| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 276 | 278 | 101 | 462 | 467 | 101 |
| THIS PERIOD | 2 | 3 | 150 | 5 | 6 | 120 |
| TOTAL TO DATE | 278 | 281 | 101 | 467 | 473 | 101 |
| TOTAL CONTRACT | 283 | 281 | 99 | 479 | 473 | 99 |

-----BUDGET *
—————ACTUAL

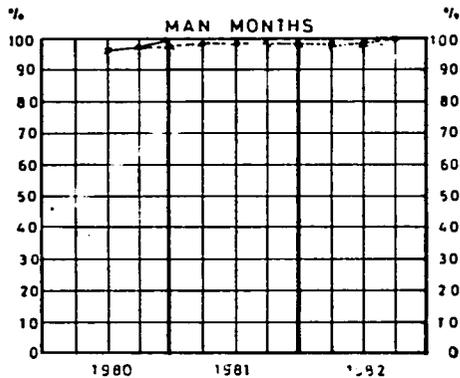
SUPERVISOR ONLY



| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 31 | 31 | 100 | 66 | 66 | 100 |
| THIS PERIOD | - | 1 | - | - | 2 | - |
| TOTAL TO DATE | 31 | 32 | 103 | 66 | 68 | 103 |
| TOTAL CONTRACT | 32 | 32 | 100 | 69 | 68 | 99 |

-----BUDGET *
—————ACTUAL

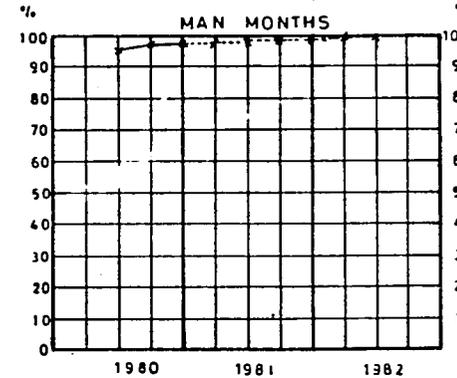
ENGINEERING ONLY



| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 139 | 140 | 101 | 256 | 259 | 101 |
| THIS PERIOD | 1 | 1 | 100 | 3 | 3 | 100 |
| TOTAL TO DATE | 140 | 141 | 101 | 259 | 261 | 101 |
| TOTAL CONTRACT | 141 | 141 | 100 | 261 | 261 | 100 |

-----BUDGET *
—————ACTUAL

ADMINISTRATIVE ONLY



| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 106 | 107 | 101 | 140 | 143 | 102 |
| THIS PERIOD | 1 | 1 | 100 | 2 | 1 | 50 |
| TOTAL TO DATE | 107 | 108 | 101 | 142 | 144 | 101 |
| TOTAL CONTRACT | 110 | 108 | 98 | 149 | 144 | 97 |

-----BUDGET *
—————ACTUAL

* BUDGET DATA REVISED JULY 1, 1980

INVOICES SUBMITTED AND
PAYMENTS RECEIVED

QUARTER ENDED : 31 DECEMBER 1980

| | WEST JAVA I | | WEST JAVA II | |
|---------------|---|------------------------------------|--------------------------------------|------------------------------------|
| | U. S. D O L L A R S | | | |
| | INVOICES SUBMITTED | PAYMENTS RECEIVED | INVOICES SUBMITTED | PAYMENTS RECEIVED |
| PREVIOUS | \$ 3,656,721.71 | \$ 3,595,314.55 | \$ 2,509,792.89 | \$ 2,444,027.80 |
| REPORT PERIOD | 75,434.94 | 61,407.16 | — | 65,765.09 |
| TOTAL | \$ 3,732,156.65 | \$ 3,656,721.71 | \$ 2,509,792.89 | \$ 2,509,792.89 |
| | I N D O N E S I A N R U P I A H | | | |
| | INVOICES SUBMITTED | PAYMENTS RECEIVED | INVOICES SUBMITTED | PAYMENTS RECEIVED |
| PREVIOUS | Rp. 249.790.845 | Rp. 248.618.668 | Rp. 209.694.473 | Rp. 207.854.211 |
| REPORT PERIOD | 27.411.350 | 21.588.622 | 35.222.802 | 11.659.674 |
| TOTAL | Rp. 277.202.195 | Rp. 270.207.290 | Rp. 244.917.275 | Rp. 219.513.885 |
| | I N V O I C E D I N U S D O L L A R S — P A Y M E N T S I N R U P I A H | | | |
| | I N V O I C E D S U B M I T T E D | P A Y M E N T S R E C E I V E D | I N V O I C E S S U B M I T T E D | P A Y M E N T S R E C E I V E D |
| PREVIOUS | \$ 59,668.45 | \$ — | \$ 41,838.34 | \$ — |
| REPORT PERIOD | — | \$ 59,668.45 | 75,598.68 | \$ 65,338.43 |
| TOTAL | \$ 59,668.45 | \$ 59,668.45 | \$ 117,437.02 | \$ 65,338.43 |

PERSONNEL MAN MONTHS
AS OF 4 DECEMBER 1980

WEST JAVA I PROJECT

| COMPANY | U S | INDONESIAN | THIRD COUNTRY |
|-------------|-------|------------|------------------|
| CHAS.T.MAIN | 664.0 | 25.1 | 33.7 |
| P L N | — | 7,609.0 | — |
| OTHER | — | — | — |
| TOTAL | 664.0 | 7,634.1 | 33.7 |

WEST JAVA II PROJECT

| | | | |
|-------------|-------|---------|------|
| CHAS.T.MAIN | 407.5 | 25.5 | 15.4 |
| P L N | — | 5,460.0 | — |
| OTHER | — | — | — |
| TOTAL | 407.5 | 5,485.5 | 15.4 |

CHAS.T.MAIN INTERNATIONAL, INC.

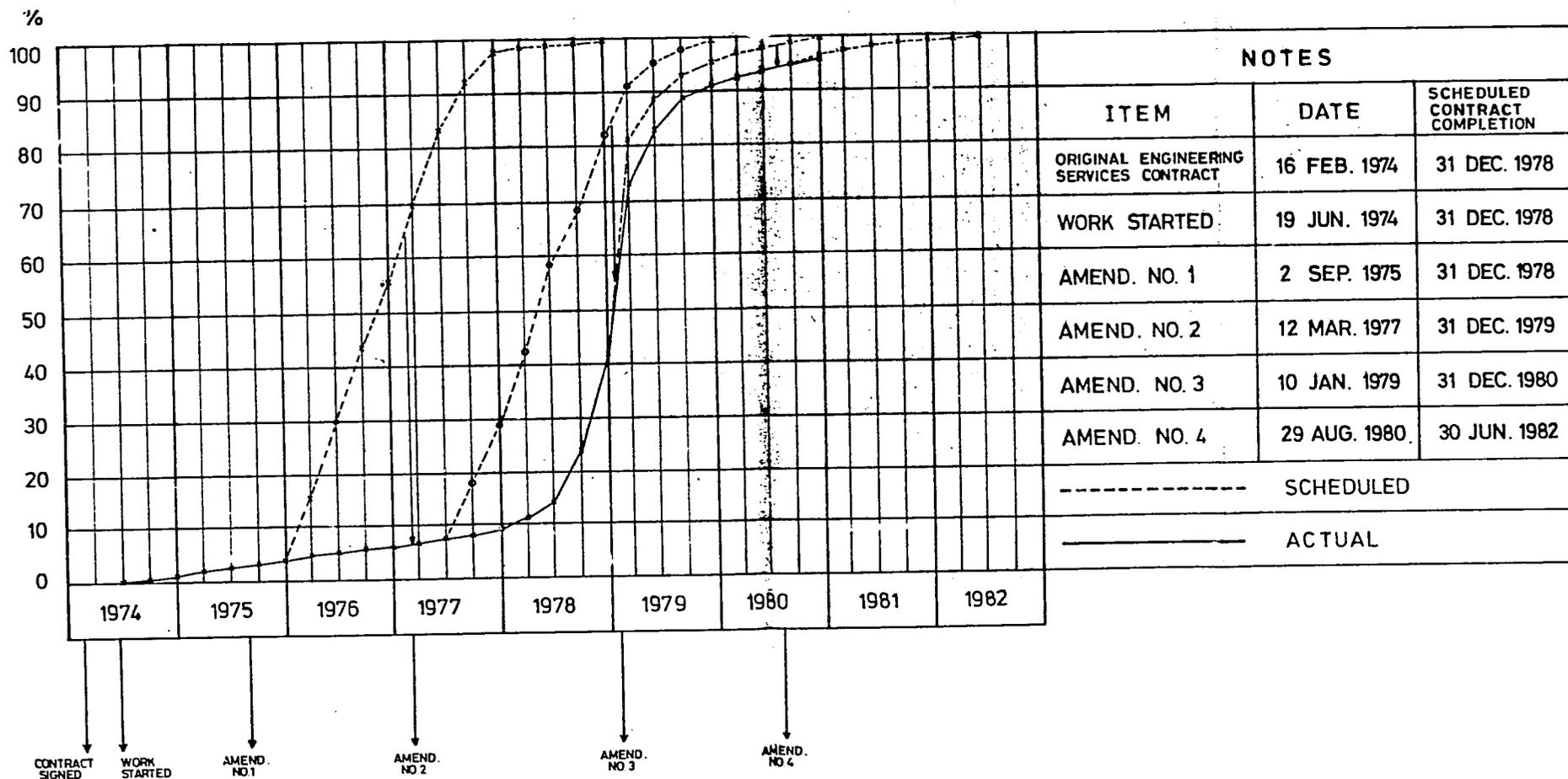
WEST JAVA I TRANSMISSION AND SUBSTATION PROJECT

U.S \$ CASH FLOW

(TOTAL LOAN FUNDS)

SCHEDULED VS. ACTUAL

CUMULATIVE PERCENTAGE BY QUARTER



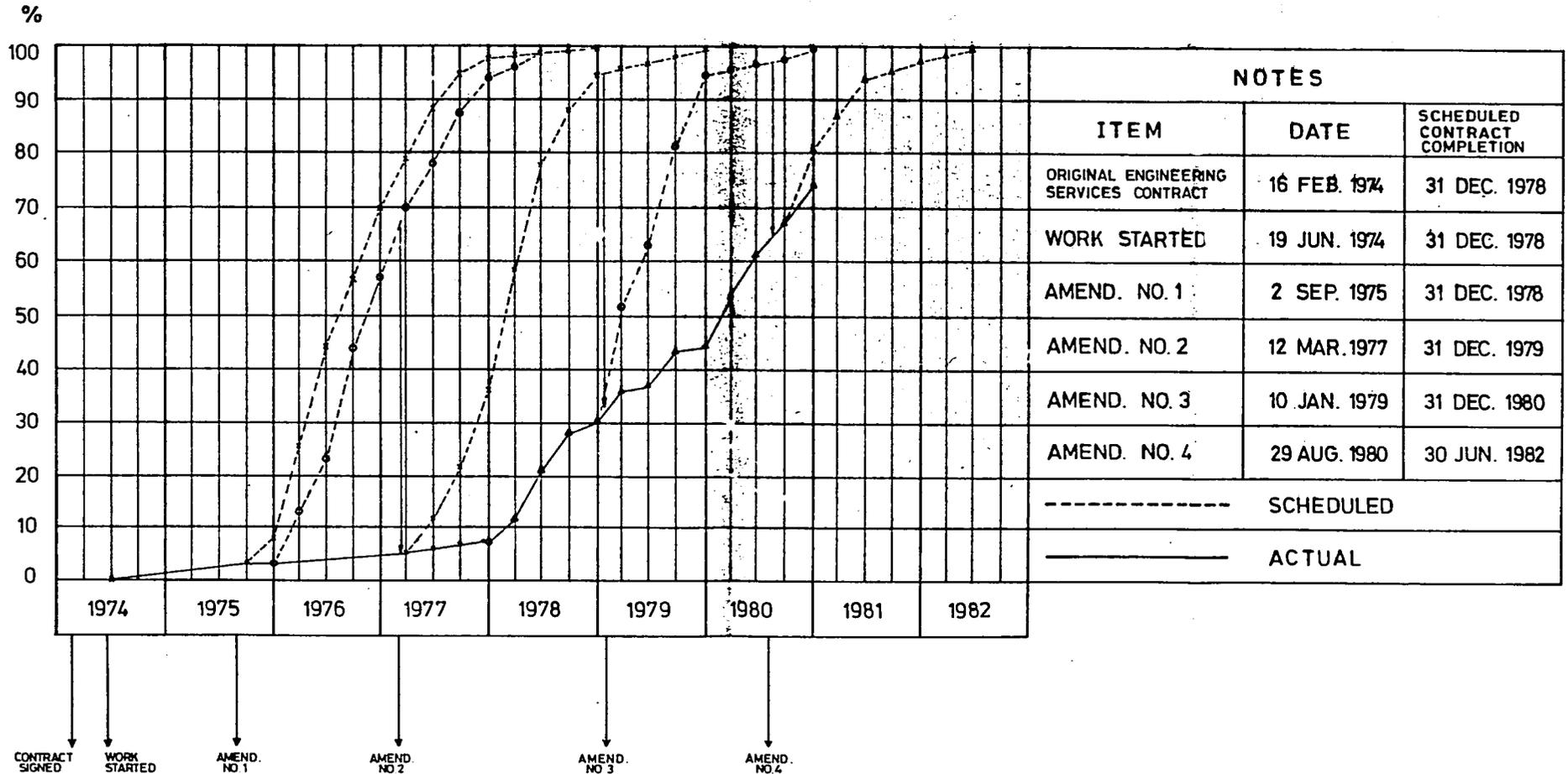
WEST JAVA I TRANSMISSION AND SUBSTATION PROJECT

RUPIAH CASH FLOW

TOTAL PROJECT RUPIAH EXPENDITURES)

SCHEDULED VS. ACTUAL

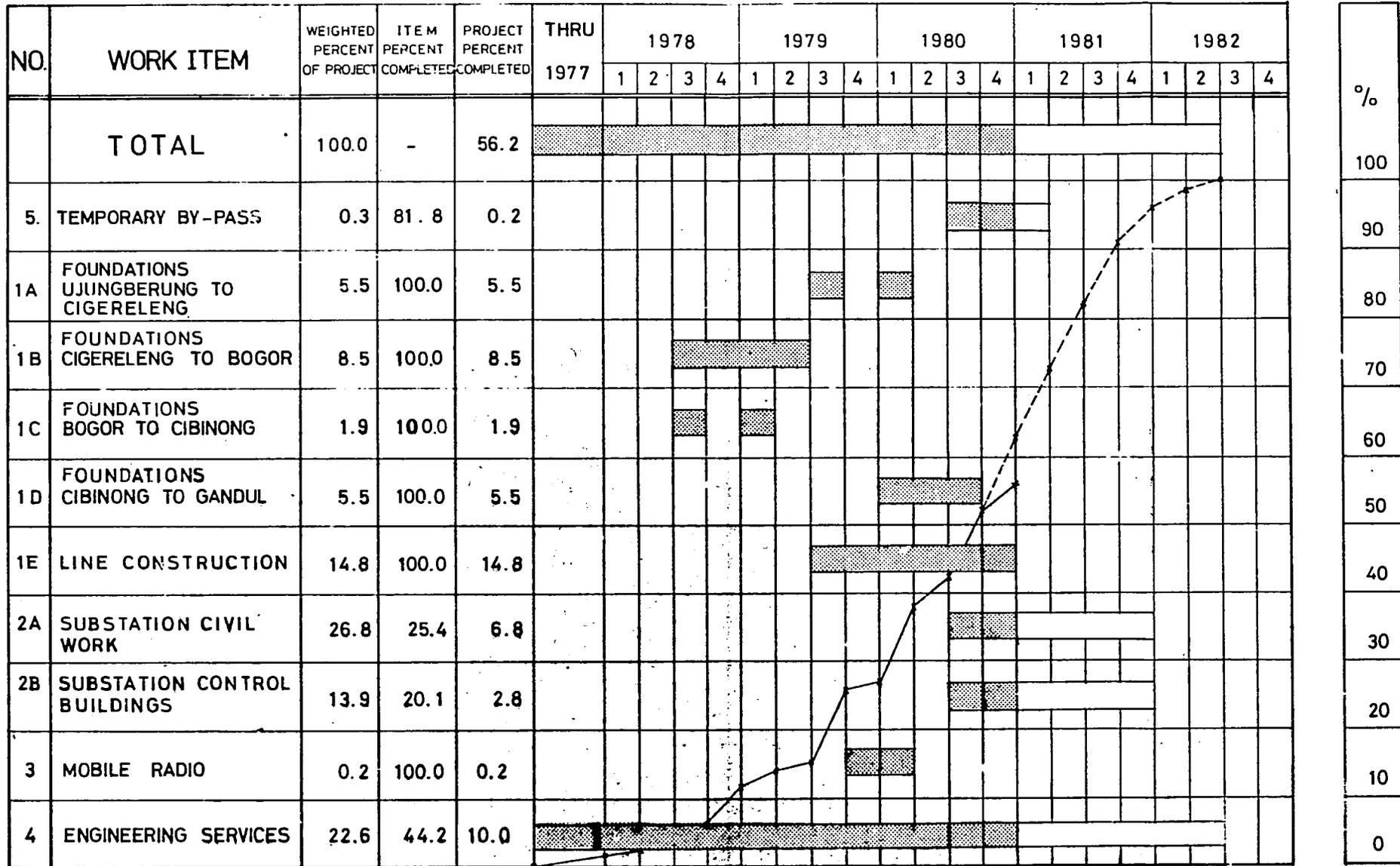
CUMULATIVE PERCENTAGE BY QUARTER



**WEST JAVA II PROJECT
FINANCIAL PLAN AND CASH FLOW
INDONESIAN RUPIAH (000,000)**

| NO. | WORK ITEM | ALLOCATION OF FUNDS | FUNDS REQUIRED TO COMPLETE PROJECT | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---|---------------------------|------------------------------------|------|----|-----|-----|------|----|-----|----|------|-----|-----|-----|------|-----|-----|-----|------|----|---|---|--|--|--|
| | | | THRU | 1978 | | | | 1979 | | | | 1980 | | | | 1981 | | | | 1982 | | | | | | |
| | | | 1977 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | |
| | TOTAL | 3,177 | 63 | 13 | 13 | 133 | 178 | 47 | 30 | 347 | 60 | 319 | 118 | 326 | 137 | 390 | 375 | 304 | 213 | 58 | 53 | | | | | |
| 1 | 150 KV TRANSMISSION | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1A | FOUNDATIONS UJUNG BERUNG TO CIGERELENG | 175 | | | | | | | | 166 | - | 9 | | | | | | | | | | | | | | |
| 1B | FOUNDATIONS CIGERELENG TO BOGOR | 269 | | | | 72 | 169 | 12 | 16 | | | | | | | | | | | | | | | | | |
| 1C | FOUNDATIONS BOGOR TO CIBINONG | 60 | | | | 33 | - | 27 | | | | | | | | | | | | | | | | | | |
| 1D | FOUNDATIONS CIBINONG TO GANDUL | 174 | | | | | | | | | | 139 | 24 | 11 | | | | | | | | | | | | |
| 1E | LINE CONSTRUCTION | 469 | | | | | | | | 164 | 49 | 153 | 84 | 16 | 3 | | | | | | | | | | | |
| 2 | 150 KV SUBSTATIONS | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 2A | CIVIL WORK | 852 | | | | | | | | | | | | 164 | 52 | 193 | 193 | 150 | 100 | | | | | | | |
| 2B | CONTROL BUILDINGS | 443 | | | | | | | | | | | | 89 | - | 110 | 110 | 90 | 44 | | | | | | | |
| 3 | MOBILE RADIO | 5 | | | | | | | | | | 2 | 3 | | | | | | | | | | | | | |
| 4 | ENGINEERING SERVICES | 719 | 63 | 13 | 13 | 28 | 9 | 8 | 14 | 17 | 9 | 15 | 10 | 37 | 82 | 85 | 72 | 64 | 69 | 58 | 53 | | | | | |
| 5 | TEMPORARY BY-PASS | 11 | | | | | | | | | | | | 9 | | 2 | | | | | | | | | | |

WEST JAVA II PROJECT PROGRESS SCHEDULE INDONESIAN RUPIAH



--- SCHEDULED
— ACTUAL

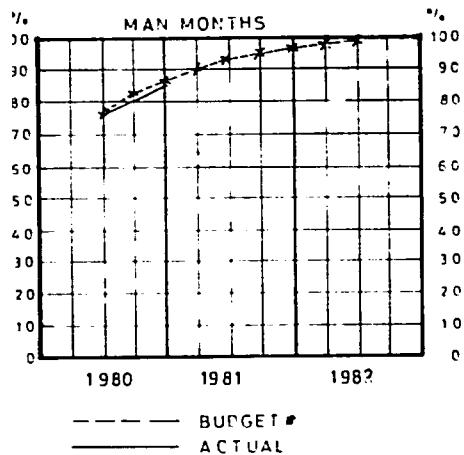
← SCHEDULED →

WEST JAVA II FIELD STAFF MAN MONTHS & SALARIES BUDGET VS ACTUAL

EXHIBIT II E

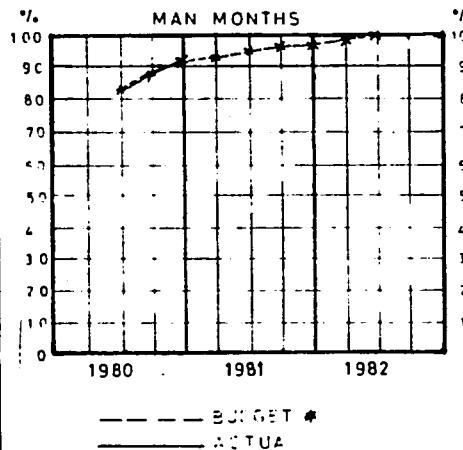
AS OF 4 DECEMBER 1980

TOTAL FIELD STAFF



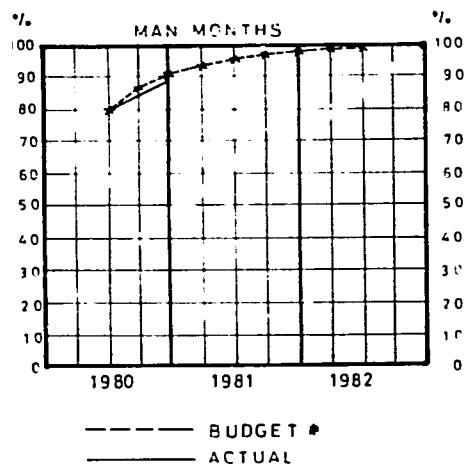
| | MAN MONTHS | | | SALARIES (000) | | |
|----------------|------------|-----|-----|----------------|-----|----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 284 | 276 | 97 | 651 | 625 | 96 |
| THIS PERIOD | 12 | 12 | 100 | 33 | 27 | 82 |
| TOTAL TO DATE | 296 | 288 | 97 | 684 | 652 | 95 |
| TOTAL CONTRACT | 335 | 288 | 86 | 801 | 652 | 81 |

CONSTRUCTION ONLY



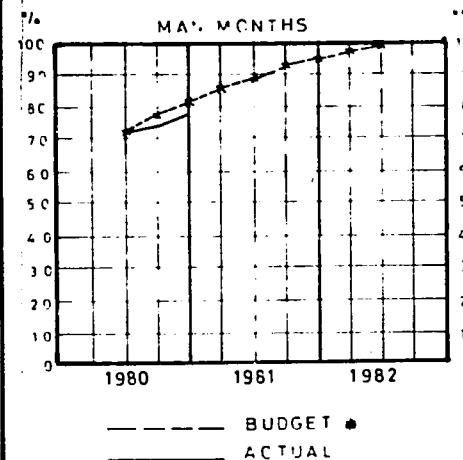
| | MAN MONTHS | | | SALARIES (000) | | |
|----------------|------------|-----|-----|----------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 141 | 140 | 99 | 296 | 293 | 99 |
| THIS PERIOD | 5 | 6 | 120 | 12 | 14 | 117 |
| TOTAL TO DATE | 146 | 146 | 100 | 308 | 307 | 100 |
| TOTAL CONTRACT | 160 | 146 | 91 | 346 | 307 | 89 |

ENGINEERING ONLY



| | MAN MONTHS | | | SALARIES (000) | | |
|----------------|------------|-----|-----|----------------|-----|----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 65 | 62 | 95 | 153 | 144 | 94 |
| THIS PERIOD | 3 | 3 | 100 | 9 | 6 | 67 |
| TOTAL TO DATE | 68 | 65 | 96 | 162 | 150 | 93 |
| TOTAL CONTRACT | 75 | 65 | 87 | 183 | 150 | 82 |

ADMINISTRATION ONLY



| | MAN MONTHS | | | SALARIES (000) | | |
|----------------|------------|-----|----|----------------|-----|----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 78 | 74 | 95 | 202 | 188 | 93 |
| THIS PERIOD | 4 | 3 | 75 | 12 | 7 | 58 |
| TOTAL TO DATE | 82 | 77 | 94 | 214 | 195 | 91 |
| TOTAL CONTRACT | 100 | 77 | 77 | 272 | 195 | 72 |

* Budget Data revised 1 July 1980

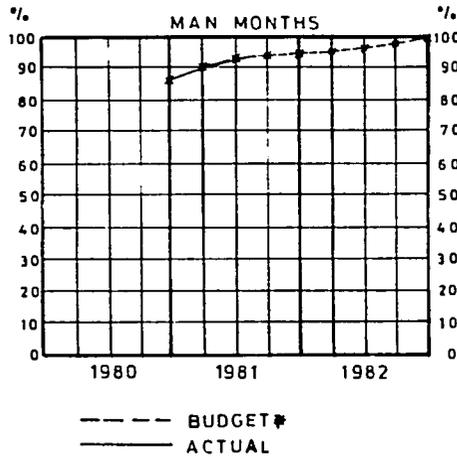
CHAS T MAIN INTERNATIONAL INC.

WEST JAVA II HOME OFFICE MAN MONTHS & SALARIES BUDGET VS ACTUAL

EXHIBIT II F

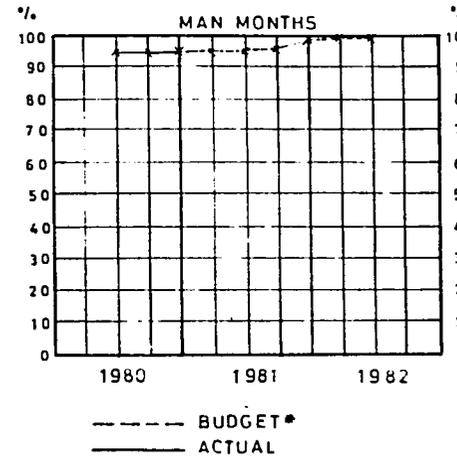
AS OF 4 DECEMBER 1980.

TOTAL HOME OFFICE



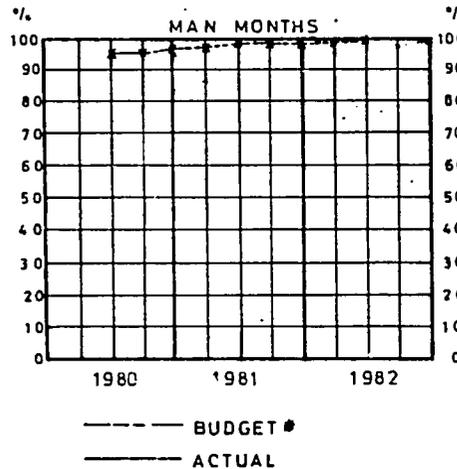
| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 160 | 160 | 100 | 290 | 290 | 100 |
| THIS PERIOD | 2 | 1 | 50 | 4 | 3 | 75 |
| TOTAL TO DATE | 162 | 161 | 99 | 294 | 293 | 99 |
| TOTAL CONTRACT | 170 | 161 | 95 | 317 | 293 | 92 |

SUPERVISION ONLY



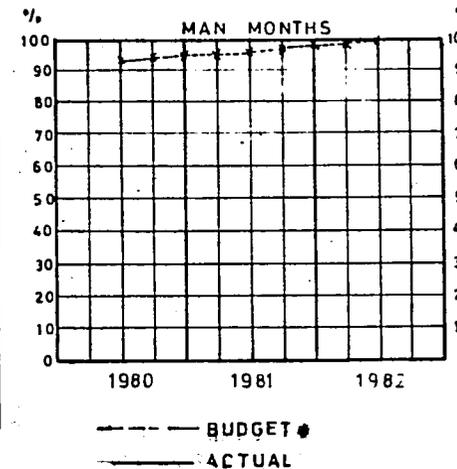
| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 21 | 21 | 100 | 54 | 54 | 100 |
| THIS PERIOD | - | - | - | - | - | - |
| TOTAL TO DATE | 21 | 21 | 100 | 54 | 54 | 100 |
| TOTAL CONTRACT | 22 | 21 | 95 | 54 | 54 | 95 |

ENGINEERING ONLY



| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 73 | 73 | 100 | 155 | 155 | 100 |
| THIS PERIOD | 1 | - | - | 2 | - | - |
| TOTAL TO DATE | 74 | 73 | 99 | 157 | 155 | 99 |
| TOTAL CONTRACT | 77 | 73 | 95 | 165 | 155 | 94 |

ADMINISTRATION ONLY



| | MAN MONTHS | | | SALARIES(000) | | |
|----------------|------------|-----|-----|---------------|-----|-----|
| | BUD | ACT | % | BUD | ACT | % |
| PREVIOUS | 66 | 66 | 100 | 81 | 81 | 100 |
| THIS PERIOD | 1 | 1 | 100 | 2 | 3 | 150 |
| TOTAL TO DATE | 67 | 67 | 100 | 83 | 84 | 101 |
| TOTAL CONTRACT | 71 | 67 | 94 | 95 | 84 | 88 |

* Budget Data revised 1 July 1980

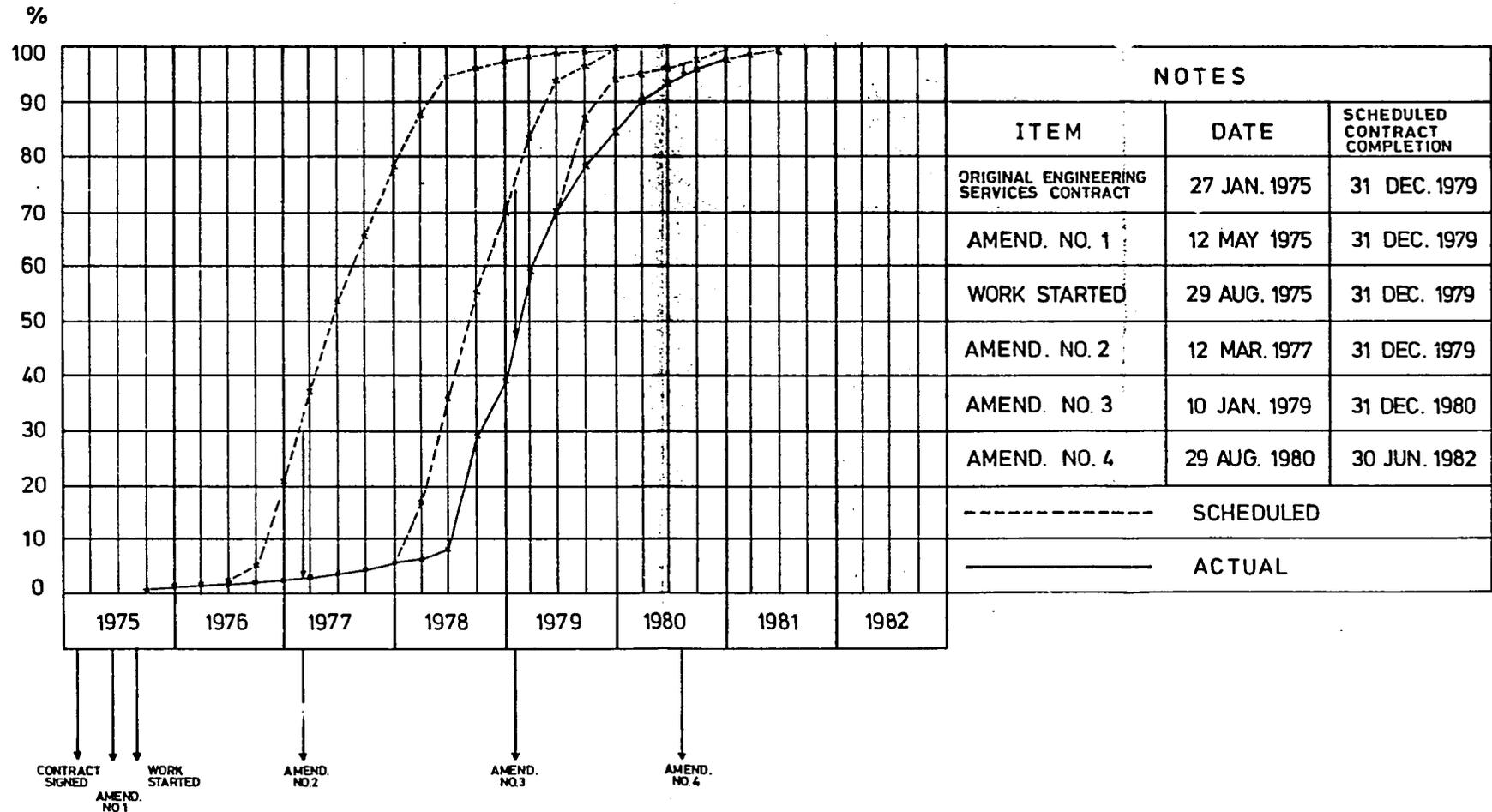
MISSING PAGE

NO. Exhibits

II-G, II-H

WEST JAVA II TRANSMISSION AND SUBSTATION PROJECT
U.S. \$ CASH FLOW
 (TOTAL LOAN FUNDS)
SCHEDULED VS. ACTUAL

CUMULATIVE PERCENTAGE BY QUARTER



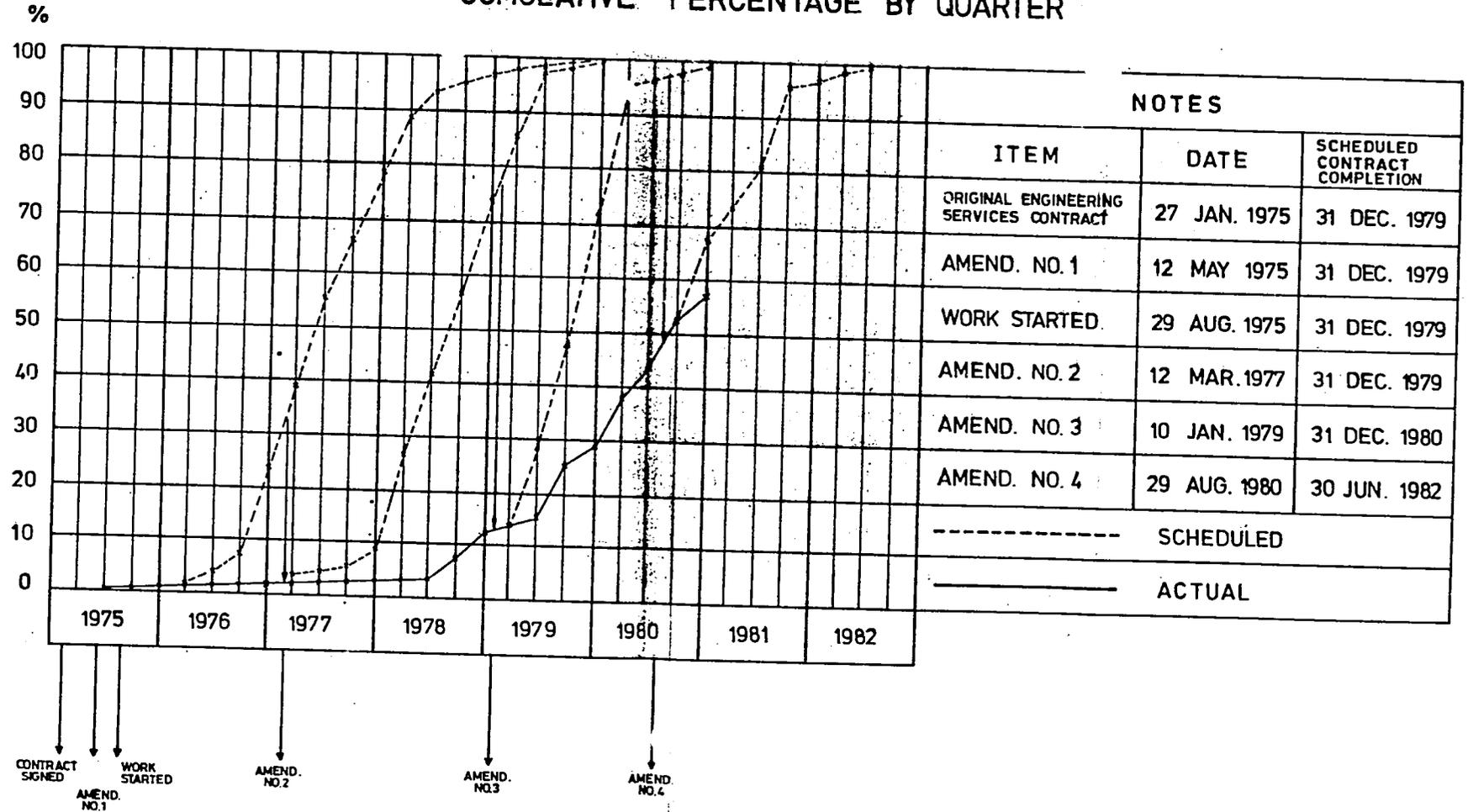
WEST JAVA II TRANSMISSION AND SUBSTATION PROJECT

RUPIAH CASH FLOW

TOTAL PROJECT RUPIAH EXPENDITURES)

SCHEDULED VS. ACTUAL

CUMULATIVE PERCENTAGE BY QUARTER



| NOTES | | |
|--|--------------|-------------------------------|
| ITEM | DATE | SCHEDULED CONTRACT COMPLETION |
| ORIGINAL ENGINEERING SERVICES CONTRACT | 27 JAN. 1975 | 31 DEC. 1979 |
| AMEND. NO. 1 | 12 MAY 1975 | 31 DEC. 1979 |
| WORK STARTED | 29 AUG. 1975 | 31 DEC. 1979 |
| AMEND. NO. 2 | 12 MAR. 1977 | 31 DEC. 1979 |
| AMEND. NO. 3 | 10 JAN. 1979 | 31 DEC. 1980 |
| AMEND. NO. 4 | 29 AUG. 1980 | 30 JUN. 1982 |
| ----- | SCHEDULED | |
| ————— | ACTUAL | |