

PD-AAJ-578  
ISN 1082

3501 = Howard Humphrey  
& Sons

3502 = Burns &  
McDonnell

3503 = Trans-Asia

497-0262  
/53



REPUBLIC OF INDONESIA  
MINISTRY OF PUBLIC WORKS  
DIRECTORATE GENERAL CIPTA KARYA  
DIRECTORATE OF SANITARY ENGINEERING

CONTRACT FOR CONSULTANT SERVICES  
FOR  
SURAKARTA WATER SYSTEM  
NO. 01/WS-S/1/AID/78  
AID LOAN 497-U-044

MONTHLY PROGRESS

REPORT NO. 35  
AUGUST 1981

BURNS & McDONNELL ENGINEERING COMPANY  
AND  
TRANS-ASIA ENGINEERING ASSOCIATES, INC.  
A JOINT VENTURE



REPUBLIC OF INDONESIA  
MINISTRY OF PUBLIC WORKS  
DIRECTORATE GENERAL CIPTA KARYA  
DIRECTORATE OF SANITARY ENGINEERING

CONTRACT FOR CONSULTANT SERVICES  
FOR  
SURAKARTA WATER SYSTEM  
NO. 01/WS-S/I/AID/78  
AID LOAN 497-U-044

MONTHLY PROGRESS

REPORT NO. 35  
AUGUST 1981

BURNS & McDONNELL ENGINEERING COMPANY  
AND  
TRANS-ASIA ENGINEERING ASSOCIATES, INC.  
A JOINT VENTURE

Architect - Engineers	<b>A JOINT VENTURE</b>	Consultants - Planners
-----------------------	------------------------	------------------------

Please Reply to: Kotak Pos 105  
Surakarta

180/BM/TAE/SKA/81  
01 September 1981

Mr. Soesanto Mertodiningrat, Director  
Directorate of Sanitary Engineering  
Directorate General Cipta Karya  
Jl. Pattimura No. 20  
Kebayoran Baru  
Jakarta Selatan

Subject : Contract for the Consultant Services for  
Surakarta Water System No. 01/WS-S/I/AID/78  
dated 28 October 1978 as Amended 23 July 1981

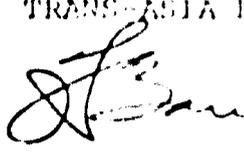
Dear Sir :

In accordance with Section 4.12 and Appendix I of the subject Contract, we are pleased to submit fifteen copies of the Monthly Report No. 35 for the month of August 1981.

We trust that this report will meet with your approval.

Very truly yours,

BURNS & MCDONNELL ENGINEERING CO.  
TRANS-ASIA ENGINEERING ASSOC., INC.

  
J.F. BACON  
ACTING CHIEF ENGINEER



cc : CWSAP  
USAID  
BM/TAE  
Burns & McDonnell  
CWSAP-1  
SWE  
Mayor of Surakarta  
File

Semarang	(10 copies)
Jakarta	* ( 5 copies)
Jakarta	( 2 copies)
Kansas City	( 1 copy )
Surakarta	( 1 copy )
Surakarta	( 1 copy )
Surakarta	( 1 copy )

\* per USAID instruction 11 Aug. 1981

Encl.

JFB/yp.

## TABLE OF CONTENTS

SECTION	TITLE	PAGE
<b>I</b>	<b>GENERAL</b>	<b>1</b>
	<b>I-A NARRATIVE SUMMARY</b>	<b>1</b>
	<b>I-B PROBLEMS AND PROPOSED SOLUTIONS</b>	<b>3</b>
<b>II</b>	<b>ADMINISTRATION</b>	<b>4</b>
	<b>II-A SUBMISSIONS/APPROVALS</b>	<b>4</b>
	<b>II-B CONTRACT STATUS</b>	<b>4</b>
	<b>II-C PERSONNEL</b>	<b>4</b>
<b>III</b>	<b>ENGINEERING AND MANAGEMENT</b>	<b>7</b>
	<b>III-A OFF-SHORE PURCHASED MATERIALS</b>	<b>7</b>
	<b>III-B CONSTRUCTION SUPERVISION</b>	<b>8</b>
	<b>III-C GROUNDWATER EXPLORATION AND WELL DEVELOPMENT PROGRAM</b>	<b>9</b>
	<b>III-D MANAGEMENT ASSISTANCE PROGRAM</b>	<b>9</b>
	<b>III-E O &amp; M TRAINING AND ASSISTANCE PROGRAM</b>	<b>9</b>
	<b>III-F METER REPAIR TRAINING PROGRAM</b>	<b>10</b>
	<b>III-G NEW WATER DISTRIBUTION NETWORK DESIGN</b>	<b>10</b>
	<b>III-H CONFERENCES</b>	<b>10</b>
	<b>III-J ACTIVITIES PLANNED FOR NEXT MONTH</b>	<b>11</b>

**TABLE OF CONTENTS**

**(CONTINUED)**

<b>SECTION</b>	<b>TITLE</b>	<b>PAGE</b>
<b>IV</b>	<b>APPENDICES</b>	
<b>I</b>	<b>REPORT OF MAN-MONTHS EXPENDED BY THE CONSULTANT</b>	
<b>II</b>	<b>REPORT ON ENGINEERING COSTS</b>	
<b>III</b>	<b>CHART-TECHNICAL WORK APPROACH</b>	

SECTION 1

G E N E R A L

I-A NARRATIVE SUMMARY .

Most of the month of August 1981 was utilized for the preparation of facilities to be used in the inauguration of the Surakarta Water Supply Project. Ceremonies were conducted on 22 August 1981 in a Joint effort with the KIP Project. A bath house identified as 3-6 on the construction drawings in Kelurahan Serengan was constructed for the occasion along with a special public hydrant.

The guest list for the ceremonies was headed up by the Minister of Public Works and his Secretary General, the Director General of Cipta Karya, the Governor of Central Java, the American Ambassador to Indonesia and the acting Director of U.S.A.I.D. The hosts from Cipta Karya and the Mayor's office in Surakarta were most proficient in the preparation of and carrying out the entire days activities. All who took part share in the knowledge that the professionalism shown was appreciated by the people at large who came to witness events.

The two contractors as recommended by the Consultant were awarded the construction contracts for the first two phases of distribution piping installation the last of July by CJWSP. Notice to proceed will be based upon delivery of the PVC and CI materials, including the gate valves which were still in the Port of Semarang August 31st. The PVC pipe and fitting supplier is due to build the sun protection sheds starting the first week in September with delivery

following shortly thereafter. The cast iron fitting supplier has indicated he is around 40% complete with the order he received from the PVC supplier but it was noted by the Consultant there were some  $\phi$  500 mm tees not ordered, having been overlooked by the PVC supplier. All of the AC pipe has now been delivered and the cast iron fittings related to that supply contract is about 50% finished.

Public latrine restoration drawings were returned to the Consultant the last week of August by DPU and they are being reviewed for final corrections prior to their being supplied to prospective contractors for tender. Bath house drawings are also being updated to incorporate some changes which developed as a result of the actual construction experienced in Serengan. It is planned to provide these for contractor proposals during the month of September 1981.

The Consultant provided the Head of PAB-I information concerning work to be done in their fiscal year 1982 - 1983. That planned originally for Phase III (the same FY) which would have extended the  $\phi$  150 mm line north toward Perumnas was packaged as a possible Change Order to the Phase I construction contractor. The funds were made available by the 18.9 millions as mentioned in the last report. In turn, Phase III was supplemented by incorporating the previously designed loop identified as Lines "N" and "O" on the 1975 drawings of the distribution system.

The Fire Department of Surakarta has requested high priority be placed on the installation of the pro-

posed new fire hydrants in a meeting 28 August 1981. All but four of the hydrant locations identified are already in Phases I and II. It was suggested the balance be given to the Phase II contractor as a Change Order and removed from the Phase III.

The postponement of the intensive leak survey carried over to the 27th of August because of the involvement of holidays and preparation for the dedication of the Surakarta Water Project. It was necessary to start from the beginning again and rewrite all work orders. The Surakarta Water Enterprise continues to deploy personnel other than as planned and agreed to for the leak survey. Meetings continue to be held to promote the need of staying with the planned activity, which, it turn, will ultimately benefit the Water Enterprise.

#### I-B PROBLEMS AND PROPOSED SOLUTIONS

Basically, the same three items mentioned in last report remain unchanged, except as may have been noted hereinabove.

The Consultant surveyed the old wells within the City of Surakarta which have been used for some time. Now that there is sufficient water in the distribution system it was noted the water was being wasted by flowing through the pumps back into the wells. The Consultant recommended that the Surakarta Water Enterprise install check valves to eliminate such waste.

SECTION II  
ADMINISTRATION

II-A SUBMISSIONS/APPROVALS.

Consultant's Invoice No. 35 for July 1981 U.S. Dollar reimbursible expenses was submitted to Cipta Karya on 10 August 1981 and was approved by Cipta Karya on 26 August 1981.

Consultant's Rupiah Invoice No. 18 submitted to Cipta Karya on 24 July 1981 was approved on the same date. Third payment of Rupiah Invoice 17 and partial payment of Rupiah Invoice No. 18 was received on 20 August 1981.

These submittals are in accordance with the Contract Appendix II, page II-15.

II-B CONTRACT STATUS.

Appendix I shows the continuation of Consultant's effort in man-months from the beginning of the Contract.

Appendix II shows the billings of approved expenditures to date.

II-C PERSONNEL.

The Surakarta Office personnel in August were as follows :

## **E x p a t r i a t e s**

- **James F. Baucom, Acting Chief Engineer**  
arrived 26 September 1979
- **Albert G. Ringler, O & M Specialist**  
arrived 09 May 1980

### **Indonesian Professional and Technical :**

- **Mohamad Khalil, Material Coordinator**  
arrived 09 October 1978
- **Mohamad Syarif Lembah, Construction Supervisor**  
arrived 01 May 1979
- **Gatot Bramono, Inspector**  
arrived 19 November 1979
- **Soewanto, Inspector**  
arrived 11 March 1980
- **Abdul Rasyid, Inspector**  
arrived 11 June 1981
- **Susena, Draftsman**  
arrived 20 October 1980

Administrative :

- Dradjat Alwardjo, Office Manager  
arrived 02 October 1978
  
- Haryani Pudyastuti, Secretary  
hired 17 November 1980
  
- Rubiyo, Clerk  
hired 01 November 1979
  
- Pamudji Pwardjo, Driver  
hired 02 October 1978
  
- Sutrisno, Driver  
hired 02 April 1979
  
- Puranto, Driver  
hired 17 October 1980
  
- Tukino, Office Boy/Labor  
hired 10 November 1980

SECTION III

ENGINEERING AND MANAGEMENT

III-A OFF-SHORE PURCHASED MATERIALS	US.\$ COMMITTED	% PAID (ASSUMED)	US. \$ BAL. DUE
III-A-1 Direct Cipta Karya Procurement Contract			
III-A-1-1 American Cast Iron Pipe Co. Ductile Iron Pipe & Fittings Contract certified complete 01/02/80	2,595,511.60	100	- o -
III-A-1-2 Colcorindo Raya Flow Metering Equipment Contract certified complete 07/04/80	3,462.00	100	- o -
III-A-1-3 Rehan Corporation Water Meters, Repairs Parts- Tools & Equipment Contract certified complete 06/07/81	663,712.83	100	- o -
III-A-1-4 Clow Corporation Casting, Auto Air Vents & Valves. Contract certified complete 15/05/81	125,912.00	100	- o -
III-A-1-5 Ford Meter Box Company Brass Valves Parts & Acces- sories. Contract certified complete 12/02/81	390,775.15	100	- o -
Sub Total	3,784,373.58	100	- o -



No further work was done on any section of the new transmission main. The Section C contractor is still awaiting authority to proceed with the two railroad crossings. Until that and other miscellaneous items are done, Section C will remain at 94% complete.

The contractor for Phase I distribution system expansion has requested permission to start work from the City of Surakarta. He should be able to do so during the month of September pending receipt of materials.

Except for the electrical work and construction of a septic tank, bath house No. 3 - 6 has been completed. With it a special public hydrant and a standard public hydrant were constructed.

III-C GROUNDWATER EXPLORATION AND WELL DEVELOPMENT PROGRAM

Completed.

III-D MANAGEMENT ASSISTANCE PROGRAM

Completed.

III-E O & M TRAINING AND ASSISTANCE PROGRAM

Most of the old lists for tools and equipment have been reviewed in light of the latest requirements and will be forwarded for approval to obtain new supply quotations during the month of September. It is expected the work within the O & M facilities is to be done relatively soon by the successful piping contractor.

After a month delay because of holidays, ceremonies and State visits, the intensive leak survey was started again. Repair crews are still not sufficient to

handle the work orders generated by the survey as quickly as they should and could be. It was agreed that a crew would stand by for emergency repairs at the Enterprise office - or would be utilized by them to make normal repairs in the absence of emergencies as the management of the Enterprise may elect. The balance of personnel assigned to maintenance of the system to have their first priority being repair or replacement as called for on the work orders from the survey. Such has not been the case and efforts are being made to correct the situation by re-deploying the personnel if it is at all possible.

The operation of the system has been enhanced lately by utilizing the evening hours when there is less demand for water in Surakarta to store water in the reservoir at Kartasura. Each morning the valve to the new transmission is reopened to allow additional water flow to the City by utilizing the stored and incoming water from the springs of Cokrotulung. The period before noon has been determined to be the highest use time.

### III-F METEP REPAIR TRAINING PROGRAM

Completed.

### III-G NEW WATER DISTRIBUTION NETWORK DESIGN

Completed.

### III-H CONFERENCES

On 12 August 1981, the Head of PAB-I and the Consultant met with P.T. Eslon Jaya Corporation at the latter's offices in Jakarta. The discussion concerned correction of shop drawing submittals and delivery of PVC products.

The meeting provided an agreement that the supplier could ship pipe prior to having the entire order completed and could receive partial payment which would be computed based upon the percentage of the fittings also delivered with the pipe. In that way it is assumed the pressure will be placed upon the manufacturer to supply all fittings in a timely fashion. Following the meeting a visit to the factory was made and a hydrostatic test on a random rubber ring joint  $\phi$  100 mm size was satisfactorily made. We were advised the  $\phi$  75 and 100 mm pipe had been produced, the  $\phi$  150 mm was in production at that time and the  $\phi$  200 mm pipe would be manufactured next.

As previously mentioned herein, a meeting was held 28 August wherein the Surakarta Fire Chief expressed his need for the new fire hydrants to get top priority in being installed. The Head of DPU offered, if necessary, to prefinance the work in order to get it done. It was indicated the preconstruction conference to be held with the new construction contractors for distribution piping installation Phases I and II would be the appropriate time to provide the priorities to them. The small number set aside to be installed in FY 1982/1983 (Phase III) could also be issued to the Phase II contractor as a change to his Contract.

### III-J ACTIVITIES PLANNED FOR NEXT MONTH

Commence construction of Phases I and II distribution system expansion. Invite proposals to construct the balance of the new bath houses and restoration of the existing public latrines within Surakarta. Prepare for the receipt of PVC and cast iron pipe, fittings and valves. Continue with the intensive leak survey and OJT in the field of repair techniques.

APPIA

**SURAKARTA WATER PROJECT**  
**REPORT OF MAN-MONTHS EXPENDED BY CONSULTANT**  
**BURNS & McDONNELL / TRANS-ASIA ENGINEERING ASSOCIATES**

CONTRACT NUMBER OI/WS-S/AID/78 AID LOAN 497-U-044	MAN - MONTHS				
	FOR AUGUST 1981	CUMULATIVE THROUGH AUGUST 1981	TOTAL IN CONTRACT SCHEDULE	% OF TOTAL USED PER SCHEDULE	BALANCE
<b>EXPATRIATES</b>					
PROCUREMENT ENG. CHIEF ENGINEER	0 0	6.5 26.2	14.5 30	44.8 87.3	8 3.8
CONSTRUCTION SPECIALIST LIAISON OFFICER	1 0.16	23.1 4.03	36 7.5	64.1 53.7	12.9 3.47
PRINCIPAL	0	0.71	2	35.8	1.3
HYDROGEOLOGIST DRILLING SPECIALIST	0 0	8.1 10.5	12 12	67.5 87.5	3.0 1.5
O & M SPECIALIST METER SPECIALIST	1 0	30.4 8	41.5 8	73.2 100	11.1 0
MANAGEMENT SPECIALIST SPECIALIST	0 0	20.2 0	21 3	96.1 0	0.8 3
DESIGN SPECIALIST	0	12	12	100	0

EXPATRIATE TOTAL	2.16	151.65	199.5	47.8	47.8
INDONESIAN PROFESSIONAL & TECHNICAL					
COUNTERPART CHIEF ENG.	0	20.6	33	86	44
CONSTRUCTION SUPERVISOR	1	13.9	36	38.6	22.1
HYDROGEOLOGIST	0	20.7	26	79.6	53
MATERIALS COORDINATOR	1	35	48	72.9	13
INSPECTORS	3	104	146	71.2	42
DRAFTSMAN	1	46	66	69.7	20
ACCOUNTANT	0	34	32	106.2	121
TECHNICAL TRANSLATOR	0	17.8	18	98.8	0.2
DESIGN ENGINEER	0	6	8	75	2
SPEC. / COST ESTIMATOR	0	4.6	3	153.3	(1.6)
SR. SURVEYOR / PLOTTER	0	5.4	5	108	(0.4)
SURVEYOR	0	5	5	100	0
INSTRUMENTMAN	0	6.3	5	126	(1.3)
INDON. PROF. & TECH.	6	327.3	431	75.9	103.7
INDONESIAN ADMINISTRATIVE					
OFFICE MANAGER	1	35	48	72.3	13
SECRETARY (BI-LINGUAL)	1	33.6	54	62.2	20.4
TYPIST	0	27.2	51	53.3	23.8
CLERKS	1	96.6	88	109.7	(8.6)
DRIVERS	3	145.3	223	65.1	77.7
LABORERS	1	162.2	258	62.8	95.8
ROOMEN / CHAINMEN	0	13.8	10	138.0	(3.8)
ADMINISTRATIVE TOTAL	7	519.7	732	70.9	212.3

APP. II A

SURAKAF  
REPORT OF  
BURNS & McDONNELL/

CONTRACT NO. OI/WS-S/AID/78 SIGNED 26 OCT. 1978 START 1 JAN. 1978 END 30 SEP. 1982	COSTS FOR	CUMULATIVE COSTS THROUGH	
	AUGUST 1981	AMOUNT	% OF TOTAL BUDGET ESTIMATE
REIMBURSABLE EXPENDITURES			
U:			
Salaries and Related Costs	25,616.32	924,193.68	81.6
Transportation	-	67,967.77	81.5
Equipment	-	12,456.36	77.8
Miscellaneous	13,932.00	63,563.48	109.4
Contingencies	-	53,470.70	85.5
<b>TOTAL DOLLARS</b>	<b>27,527.66</b>	<b>1,109,630.28</b>	<b>82.0</b>
INDO			
Salaries	11,188,000	151,986,469	67.9
Transportation	3,842,181	66,306,608	78.9
Housing	-	50,775,000	80.6
Vehicle Costs	7,903,000	45,109,472	84.0
Equipment Costs	-	24,610,860	101.4
Miscellaneous	6,806,775	62,723,260	68.3
Contingencies	1,185,030	20,601,590	61.9
<b>TOTAL RUPIAH</b>	<b>30,924,986</b>	<b>*420,476,134</b>	<b>73.3</b>

\* as per Rp. Invoice  
\*\* Payment on Rp. Invoice

ARTA WATER PROJECT  
OF ENGINEERING COSTS  
/TRANS-ASIA ENGINEERING ASSOC.

DATE	CUMULATIVE PAYMENTS THROUGH			TOTAL BUDGET ESTIMATE FOR CONTRACT
	AMOUNT RECEIVED IN AUGUST 1981	TOTAL AMOUNT RECEIVED THROUGH AUGUST 1981	% OF TOTAL BUDGET ESTIMATE	
US DOLLARS				
	14,850.37	898,577.36	79.36	1,132,179
	2,069.23	67,957.72	79.0	83,343
	35.48	12,456.36	77.6	16,000
	72.00	49,631.48	85.3	58,063
	-	53,470.70	64.5	63,271
	17,027.08	1,082,102.62	78.7	1,352,856
ONESIAN RUPIAH				
	11,188,000	151,986,469	67.9	223,759,250
	3,842,181	66,306,608	78.9	83,952,600
	-	50,775,000	80.6	62,975,000
	7,901,000	45,109,472	84.0	53,675,000
	-	24,610,860	101.4	24,253,000
	6,806,775	62,723,260	68.3	91,810,000
	1,185,030	20,601,990	61.9	33,236,460
	12,000,000**	420,476,134	73.3	573,661,310

Invoice No. 18

Invoice No. 17 and partial payment on Rp. Invoice No. 18









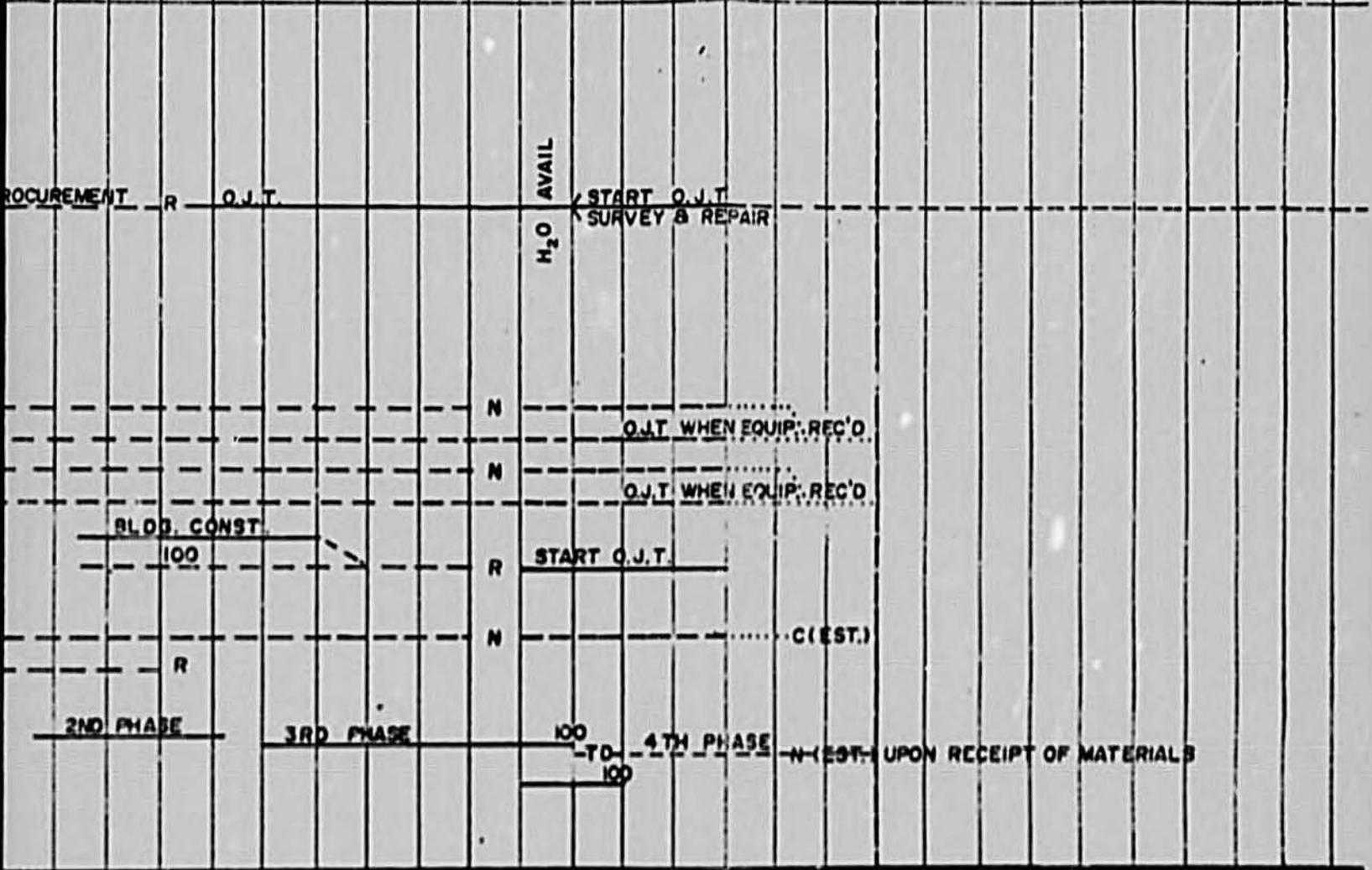


# WATER PROJECT WORK APPROACH

AMENDMENT NO. 1 AMENDMENT NO. 2

1980 1981 1982

JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP



OPERATIONAL AREAS	ORIGINAL CONTRACT																				
	1978			1979																	
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1. <b>WATER DISTRIBUTION SYSTEM FOR UP TO 20 VILLAGES of SURAKARTA</b>																					
1.1 <b>TRIBUTION NETWORK</b>																					
(a) Investigation, Coordination & Recommended Implementation																					
(b) Design F.Y. 81/82 Tertiary Lines (3 Complete & 5 Part of Kelurahan)																					
(1) SURVEY																					
(2) DESIGN & PREPARE DWGS																					
(c) Design Ph. I Piping Mains (7 Complete & Bal. of 1 Partial Kel.)																					
(1) SURVEY																					
(2) DESIGN & PREPARE DWGS																					
(3) PREPARE SPECIFICATIONS																					
(d) Design Ph. II Piping Mains (1 Complete & Bal. of 1 Partial Kel.)																					
(1) SURVEY																					
(2) DESIGN & PREPARE DWGS																					
(3) PREPARE SPECIFICATIONS																					
(e) Design Ph. III Piping Mains (3 Complete & Bal. of 1 Partial Kel.)																					
(1) SURVEY																					
(2) DESIGN & PREPARE DWGS																					
(3) PREPARE SPECIFICATIONS																					
2. <b>DESIGN 4 WELLS</b>																					
(a) DESIGN PUMP HOUSE																					
(b) SURVEY																					
(c) DESIGN DISCHARGE PIPING																					
3. <b>WELSH PROGRAM FOR 200 ADDITIONAL WATER SERVICES</b>																					
(a) Recommended Implementation																					
(b) Design Standard Water Service																					
4. <b>Study and Design 10 New BATH HOUSES</b>																					
(a) Obtain Site Locations																					
(b) SURVEY																					
(c) DESIGN & DRAFTING																					
(d) PREPARE SPECIFICATIONS																					
5. <b>Study &amp; Design 200 Public AND PIPES</b>																					
(a) Obtain Site Loc. & Recorn. Implementation Program																					
(b) SURVEY																					
(c) DESIGN & DRAFTING																					
6. <b>IMPLEMENT PROGRAM - Upgrade Up to 147 Public Latrines</b>																					
(a) Investigation & Recommended Implementation																					
(b) SURVEY																					
(c) DESIGN & DRAFTING																					
(d) PREPARE SPECIFICATIONS																					
7. <b>HYDRAULIC REANALYSIS</b>																					
(a) DISTRIBUTION NETWORK																					

← KIP → (19)

CJWSP (15)  
FY 1979/1980

← KIP → (40)

← KIP → (1)

# WATER PROJECT WORK APPROACH

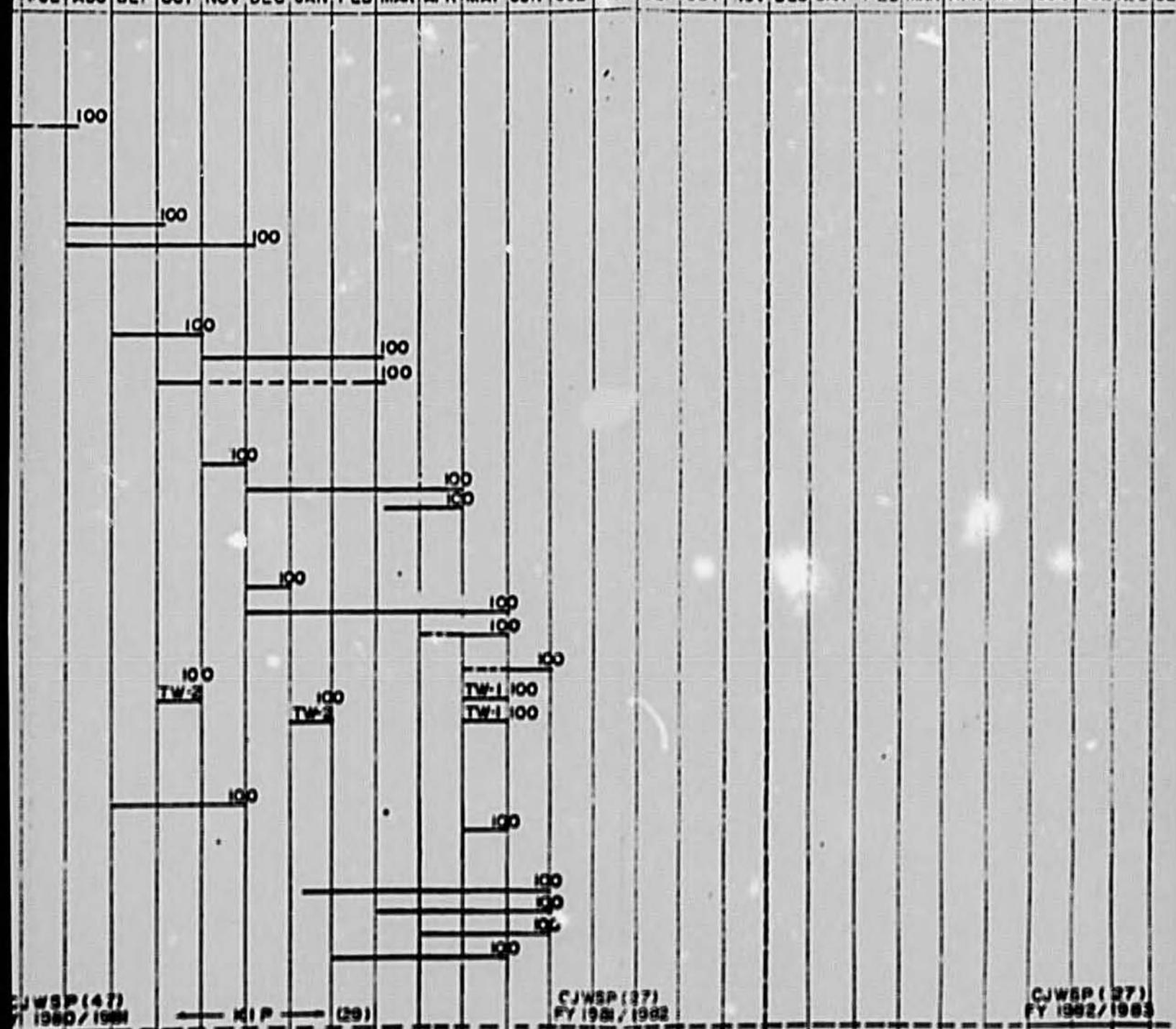
APPENDIX III

PAGE 4 OF 4

AMENDMENT NO. 1

AMENDMENT NO. 2

1980 1981 1982  
 JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SE



END OF CONTRACT →

- LEGEND :**
- A : SUBMITTAL DATA APPROVAL
  - C : COMPLETE/CERTIFIED
  - N : NOTICE TO PROCEED
  - P : PORT ARRIVAL
  - Q : QUOTATION REVISED
  - R : RECEIVED AT JOBSITE
  - S : SHIPPED (S' NO. SHIPMENT SAME SOURCE)
  - FI : FINAL INSPECTION
  - TD : TENDER DOCUMENTS
  - 0-100 : PERCENTAGE CONSIDERED COMPLETE