



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

MONTHLY PROGRESS

REPORT NO. 26
NOVEMBER 1980

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



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BURNS & McDONNELL Engineering Co.

Architect - Engineers

A JOINT VENTURE

Consultants - Planners

TRANS-ASIA Engineering Associates, Inc.

Kotak Pos 105
Please Reply to: Surakarta, Indonesia.

011/BM/TAE/SKA/81
05 December 1980

Mr. Soesanto Mertodiningrat, Director,
Directorate of Sanitary Engineering
Directorate General Cipta Karya
Jl. Pattimura 20
Jakarta Selatan.

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

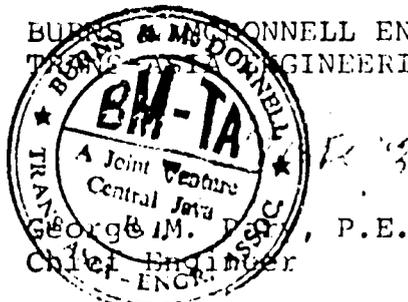
Dear Sir:

In accordance with Section 4.12 and Appendix 1 of the
subject Contract, we are pleased to submit fifteen
copies of the Monthly Report No. 26 for the month of
November 1980.

We hope, that this report will meet with your approval.

Very truly yours,

BURNS & McDONNELL ENGINEERING CO./
TRANS-ASIA ENGINEERING ASSOC. INC.



cc: CJWSP	Semarang	(10 copies)
USAID	Jakarta	(8 ")
BM/TAE	Jakarta	(2 ")
Burns & McDonnell	Kansas City	(1 copy)
CJWSP-1	Surakarta	(1 ")
SWE	Surakarta	(1 ")
Mayor of Surakarta	Surakarta	(1 ")
File.		

Encl.
GMP/rd

TABLE OF CONTENTS

SECTION	TITLE	PAGE
I	GENERAL	1
I-A	NARRATIVE SUMMARY	1
I-B	PROBLEMS AND PROPOSED SOLUTIONS	3
II	ADMINISTRATION	4
II-A	SUBMISSIONS/APPROVALS	4
II-B	CONTRACT STATUS	4
II-C	PERSONNEL	5
III	ENGINEERING AND MANAGEMENT	10
III-A	OFF-SHORE PURCHASED MATERIALS	10
III-B	CONSTRUCTION OF TRANSMISSION PIPELINE	11
III-C	GROUNDWATER EXPLORATION AND WELL DEVELOPMENT PROGRAM	12
III-D	MANAGEMENT ASSISTANCE PROGRAM	12
III-E	O & M ASSISTANCE PROGRAM	13
III-F	METER REPAIR TRAINING PROGRAM	13
III-G	NEW WATER DISTRIBUTION NET DESIGN	13
III-H	DISTRIBUTION SYSTEM CONSTRUCTION	14
III-J	HYDROGEOLOGY REPORT	15
III-K	CONFERENCES	15
III-L	ACTIVITIES PLANNED FOR NEXT MONTH	15

Cont'd

TABLE OF CONTENTS

(continued)

SECTION	TITLE	PAGE
IV	APPENDICES	
I	REPORT OF MAN-MONTHS EXPENDED BY THE CONSULTANT	
II	REPORT ON ENGINEERING COSTS	
III	SCHEDULE OF ACTIVITIES	
IV	EXPATRIATES DEPLOYMENT SCHEDULE	
V	REPORT OF CONSTRUCTION SPECIALIST - TRANSMISSION MAIN	
VI	REPORT OF WELL DRILLING SPECIALIST	
VII	REPORT OF O & M SPECIALIST	
VIII	REPORT OF DISTRIBUTION NET DESIGN ENGINEER	
IX	REPORT OF CONSTRUCTION SPECIALIST - DISTRIBUTION SYSTEM	
X	REPORT OF HYDROGEOLOGIST	
XI	REPORTS ON CONFERENCES	
XII	REPORT OF MANAGEMENT SPECIALIST	

SECTION I
G E N E R A L

I-A NARRATIVE SUMMARY

November 1980 was the month of the lowest achievement in field to date. Total completion of the transmission pipeline is 95.45 percent or 0.75 percent over the last month's 94.7 percent.

Well drilling fell further behind schedule because of several mishaps due mostly to the contractor's rejection of the advice of the Drilling Specialist. Several deadlines set by the contractor himself have passed without result.

Completion of the wells is estimated at:
Well No. 1 - 70% (8% during the month)
Well No. 2 - 77% (15% during the month)

Management Assistance Specialist has continued his review of the implementation of the Management Manual and held several conferences with the Management of SWE.

The casing, which was wedged in the well TW-1 has been removed only as of 30 November. Well TW-2 was cleaned again and the screen was set and gravel packed as of November 23rd. At that time all work on this well has stopped and has not restarted as of this writing. The contract is already more than a month behind the original schedule.

2

The Overhaul and Maintenance Specialist has been helping out with the processing of applications for new connections. The problem is, that more than half of the applicants are located outside the area to be served by the present project.

Work has been started on the water testing laboratory, but nothing has been done as yet regarding storage space, or O & M facilities. Other problems are discussed in Part III of this report and in the monthly report of the O & M Specialist.

Survey and design of the secondary and tertiary water distribution system are progressing on schedule. As far as public bath houses are concerned, the Consultant is contacting the Design Department of Cipta Karya to obtain a standard design. If no standards are available, a special design will have to be prepared. Plans for the rehabilitation of public latrines are in progress.

Distribution system paid in full by the Cipta Karya continues under construction.

To date 8,466 meters of pipe were laid, however only 384 meters were tested. Late testing may prove to be a problem in the near future.

Several meetings on the well construction were held during the month. Full reports are attached in Appendix XI of this report.

7

The interpreter position at SWE still vacant and the Consultant must use part time the Material Coordinator as interpreter in order to achieve progress in O & M department.

The problem which has now developed is the poor condition of the looping distribution main built two years ago. Considerable repairs and insertion of fittings are required, before the pipe can be put in service. CJWSP has promised to commence the repairs on priority basis, however to date no work has been started.

Well drilling is falling farther behind schedule. Several delays have been caused due to the contractor's ignoring the recommendations of the Well Drilling Specialist. The contractor's Management in Jakarta has been contacted and a promise of full cooperation in the future was obtained. Considering poor results to date the Consultant will wait for positive results before commenting.

SECTION II
ADMINISTRATION

II-A SUBMISSIONS/APPROVALS

Consultant's Invoice No. 25 November 1980 U.S. Dollar reimbursible expenses was submitted to Cipta Karya on 22 November 1980 and was approved by CK on 29 November 1980. Consultant's Rupiah Invoice No. 10, submitted to Cipta Karya on 19 May 1980 was approved on 19 June 1980 and was paid on 7 July 1980.

These submittals are in accordance with the Contract Appendix II, page II-15. Contract Addendum No. 1 has been signed on 8th November and the Consultant submitted an invoice for Rp. 51,000,000 for mobilization expenses.

II-B CONTRACT STATUS

The month of October was the sixth month of the new extension to the Consultant's contract. The extension proposal has been submitted to Cipta Karya, and formal approval for extension of the services has been granted. The Consultant has been working from their own funds, on the basis of the letter of intent and the instruction to continue as originally planned. Therefore no interruption in the work was suffered.

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

5

Appendix II shows the billings of approved expenditures to date.

II-C PERSONNEL

The Surakarta office personnel in September were as follows:

Expatriates

- George M. Pary, P.E., Chief Engineer
arrived 17 August 1979
- James F. Baucom, Pipeline Engineer
arrived 26 September 1979
- Albert G. Ringler, O&M Specialist
arrived 9 May 1980
- Jerry E. Bragdon, Water Distribution Engineer
arrived 8 June 1980
- William L. Lee, Well Drilling Specialist
arrived 8 June 1980
- Bernardo B. Bayongan, Management Specialist
arrived 25 September 1980
- David Tillson,
arrived 8 October 1980

Indonesian Professional and Technical :

- A.F. Dengah, Counterpart Chief Engineer
arrived 8 November 1978
- Sutjipto, Hydrogeologist Counterpart
arrived 1 October 1980

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- 6.
- Mohamad Khalil, Materials Coordinator
arrived 9 October 1978
 - Mohamad Syarif Lembah, Chief Inspector
arrived 1 May 1979
 - Gatot Bramono, Inspector
arrived 19 November 1979
 - Soewanto, Inspector
arrived 11 March 1980
 - Slamet Riyanto, Inspector,
transferred to Design - 15 November 1980
arrived 7 July 1980
 - Suyono, Inspector
arrived 17 November 1980
 - Susena, Draftsman
arrived 20 October 1980
 - Sumardi, Translator
hired 24 November 1980
 - Jonathan Jowie, Accountant
arrived 2 December 1978

Administrative :

- Dradjat Atmardjo, Office Manager
arrived 2 October 1978
- Haryani Pudiastuti, Secretary
hired 17 November 1980
- Sri Rejeki, Typist
laid off 30 November 1980
- Endang Tri Siwi, Typist
hired 1 December 1980

- Rubiyo, Clerk
hired 1 November 1979
- Ermita Taher, Supply Clerk
hired 19 March 1979
- Chaiz Hidayati, Administrative Clerk
hired 8 October 1979
- Pramudji Rahardjo, Driver
hired 2 October 1978
- Soedarno, Driver
hired 1 December 1979
- Sutrisno, Driver
hired 2 April 1979
- Heru Soewarto, Driver
hired 22 May 1980
- Suharman, Driver
hired 8 September 1980
- Puranto, Driver
hired 17 October 1980
- Djumhan Hardi, Expeditor/Labor
hired 2 January 1979
- Endang Tri Siwi, D.M., Receptionist/Labor
hired 1 October 1979
- Suwarno Hadi, Office Boy/Labor
hired 1 November 1978
- Mulyatmono, Watchman/Labor
hired 9 October 1978
- E.M. Suprpto, Field Assistance/Labor
hired 23 November 1979

- Memed Barmawi, Copy Machine Operator/Labor
hired 23 June 1980

- Tukino, Office Boy/Labor
hired 10 November 1980

SURVEY AND DESIGN

Professional and Technical :

- Abdul Kadir, Design Engineer
arrived 1 August 1980

- Budiman Sinaga, Sr., Surveyor
hired 2 August 1980

- Slamet Riyanto, Cost Estimator
hired 17 November 1980

- Harry Triyanto, Surveyor
hired 1 August 1980

- Sutyono, Instrumentman
hired 22 August 1980,
resigned 31 August 1980

- Hadi Harsanto, Instrumentman
hired 1 August 1980

- Wardoyo, Draftsman
hired 1 August 1980

- Marry Suyatno, Draftsman
hired 1 August 1980

Local Support :

- Hermani Guntur, Secretary
hired 1 August 1980
- Endang Widiastuti, Typist
hired 2 August 1980
- Budi D. Putranto, Driver
hired 1 August 1980
resigned 31 August 1980
- Sundaru Nindyatmoko, Driver
hired 1 November 1980
- Suhadi, Driver
hired 1 November 1980
- Soehar, Driver
hired 1 November 1980
- Darwin Sudibyso, Rodman/Chainman
hired 6 August 1980
- Bb. Eddy Harsono, Rodman/Chainman
hired 2 August 1980
- Sutedjo, Rodman/Chainman
hired 4 November 1980
- Ciepta S., Clerk
hired 6 August 1980
- Suharman, Office Boy
hired 1 August 1980
- Nanang Sukaryuki, Labor
hired 6 November 1980

10

SECTION III
ENGINEERING AND MANAGEMENT

III-A OFF-SHORE PURCHASED MATERIALS

III-A-1 American Cast Iron Pipe Company.

The Consultant certified fulfillment of the contract on 1 February 1980.

III-A-2 Colcorindo Raya.

The Consultant certified fulfillment of the contract on 7 April 1980.

III-A-3 Rohan Company.

Missing and damaged materials from previous shipments have been shipped from Rohan on 8 August 1980. They arrived in Semarang, however the formal documents are still being processed by Bank Indonesia.

III-A-4 Clow Corporation.

The package with missing and damaged materials has been shipped on the 20th of June. This shipment arrived in Semarang on 1 September. Formal documents have been received only this month and transmitted to the Importer for processing.

III-A-5 Ford Meter Box Company.

First major sea shipment of brass goods has arrived in Surakarta in October. The remaining two shipments have already left the factory.

III-B CONSTRUCTION OF TRANSMISSION PIPELINE

III-B-1 General.

Little was achieved during the month of November.

III-B-2 Work in Progress.

- A. Only a little repair work around Kartasura Reservoir was performed during the month. No other work from the punch list was even attempted.
- B. This section was completed in October 1980.
- C. All section of the pipe have been joined and flushing and testing of pipe has started. Some restoration work on structures damaged during construction is proceeding. This section is considered to be 90% completed.
- D. The contractor has completed the installation of miscellaneous items at Jebres reservoir and initiated flushing the pipe. Corrective work was required and is continuing. This section is 94.7% completed.

The total completion of the transmission pipeline at the end of October was 95.4% or only 0.9% for the whole month.

The full report of the Pipeline Construction Specialist will be found in Appendix V of this report.

III C GROUNDWATER EXPLORATION AND WELL DEVELOPMENT PROGRAM

Little progress was made in well drilling and the project is falling further behind schedule. This is due mostly to the fact, that in several instances the recommendations of Well Drilling Specialist were ignored and as a result, the contractor had to do the same work twice, or even three times, thereby wasting time.

Further problems have developed due to disregarding the advice of the Well Drilling Specialist and as of this writing all work on both wells has been suspended by the contractor.

Well completion is considered to be 70% for TW-1 and 77% for TW-2, which progress (8% and 15% respectively) represents about a week of normal work under Indonesian conditions.

Full report of the Well Drilling Specialist will be found in Appendix VI of this report.

III-D MANAGEMENT ASSISTANCE PROGRAM

The Management Assistance Specialist proceeded with implementation of the recommendations given during the previous month. In addition he assisted with the preparation of the budget of the Surakarta Water Enterprise for the fiscal year 1981.

Procedures were set up for the handling of the new service connections. The down payment of Rp. 10,000 was retained, however the remainder may be paid now over two year period.

A new financial projection for the years 1981-1987 has been prepared in two alternatives. Both will allow the repayment of Surakarta Water Enterprise's loan.

Full report of the Management Specialist will be found in Appendix XII of this report.

III-E O&M ASSISTANCE PROGRAM

The O&M Specialist has been helping with the processing of new customer applications. Further, he set up, together with the Management Specialist revised job descriptions for the Technical Division of Surakarta Water Enterprise.

Several problems are still not resolved. There has been no progress on O&M facilities, transfer of materials from the Consultant to SWE has not been accomplished and no connection between 450 mm transmission line and 300 mm line A has been constructed, despite availability of all necessary materials. Also, Line A has not been repaired at Sta. 32+85.

Full report of the O & M Specialist will be found in Appendix VII of this report.

III-F METER REPAIR TRAINING PROGRAM

No action this month.

III-G NEW WATER DISTRIBUTION NET DESIGN

Construction drawings for the 12 Km. of distribution lines now under construction have been completed.

Specifications and quantities of valves required for secondary and tertiary distribution have been submitted to Cipta Karya and the Consultant is awaiting approval.

The design of the four phases of distribution lines is proceeding on schedule. It is expected that Phase I construction drawings will be completed before 1 January 1981.

Specifications for pipe and fittings, to be procured locally have been submitted to Cipta Karya and the Consultant is awaiting approval.

Full report of the Design Specialist will be found in Appendix VIII of this report.

III-H DISTRIBUTION SYSTEM CONSTRUCTION

The contractor for the 12,000 meters of distribution system has laid approximately 8,500 meters of pipe, however only 384 meters of line were tested. Although SWE repeated their offer to make the necessary connections to the mains to help the contractor, the offer was not accepted for the time being.

Lack of fittings, which the contractor has on order, but which have not yet been delivered, has contributed to the contractor's falling behind in testing.

The house connection and public hydrant contractor continues work on the hydrants, but the house connections have hardly been started.

Full report of the Construction Specialist will be found in Appendix IX of this report.

15
III-J HYDROGEOLOGY REPORT

The hydrologist continued his investigations of the geological substrata, as well as old well records in the Surakarta area.

Preliminary result of the investigations indicates, that both wells should be well capable of delivering a minimum of 60 liters per second each.

Finalization of the Ground Water Investigation Report necessitates actual pumping tests of the two wells. It is hoped, that the contractor will be able to conduct the tests early in December.

III-K CONFERENCES

Two conferences on well drilling and a conference on the installation of house services and public hydrants were held during the month. Reports on these conferences will be found in Appendix XI of this report.

III-L ACTIVITIES PLANNED FOR NEXT MONTH

Complete the transmission pipeline and start up the water flow.

Complete drilling both wells and install screen and casing. Start up pumping.

Continue the O&M program and start actual repairs.

Complete survey and continue final planning of the water distribution net.

Finalize preliminary list of construction materials for tertiary distribution system and obtain prices for a preliminary cost estimate.

Complete the review of the financial status and accounting and management systems at the Suramarta Water Enterprise.

Complete research on hydrogeology of the area and prepare recommendations on the exploitation of the new wells.

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

CONTRACT NUMBER CI/WS-S/AID/78 AID LOAN 497-U-044	MAN - MONTHS			
	F O B November 1980	CUMULATIVE THROUGH November 1980	% OF TOTAL SCHEDULE	TOTAL IN CONTRACT SCHEDULE
EXPATRIATES				
PROCUREMENT ENG	0	6.5	44.8	14.5
CHIEF ENGINEER	1	22.5	75	30
PIPELINE ENG. (TRANS)	1	14.1	64	22
LIAISON OFFICER	0.09	3.15	57.2	5.5
PRINCIPAL	0	0.45	22.5	2
HYDROGEOLOGIST	1	7.5	62.5	12
DRILLING SPECIALIST	1	8.5	70.8	12
O & M SPECIALIST	1	22.4	81.4	27.5
METER SPECIALIST	0	8	100	8
MANAGEMENT SPECIALIST	1	18.2	86.6	21
SPECIALIST	0	0	0	3
PIPELINE ENG. (DIST.)	1	5.7	47.5	12
EXPATRIATE TOTAL	7.09	116.31	68.6	169.5
INDONESIAN PROFESSIONAL & TECHNICAL				
COUNTERPART CHIEF ENGINEER	1	24.6	74.5	33
CONSTRUCTION SUPERVISOR	0	5.9	42.1	14
HYDROGEOLOGIST	1	16.8	64.6	26
MATERIALS COORDINATOR	1	26	76.4	34
INSPECTORS	4	74.4	103.3	72
DRAFTSMAN	1	21.6	63.5	34
ACCOUNTANT	1	24	75	32
TECHNICAL TRANSLATOR	0.3	12	66.6	18
INDON. PROF. & TECH.	9.3	205.3	78	263

ACCOUNTANT	1	24	75	
TECHNICAL TRANSLATOR	0.3	12	66.6	18
INDON. PROF. & TECH.	9.3	205.3	78	263
INDONESIAN ADMINISTRATIVE				
OFFICE MANAGER	1	26	76.4	34
SECRETARY	0.6	24.6	72.3	34
TYPIST	1	15.3	39.2	39
CLERKS	4	79	106.7	74
DRIVER	6	91.3	57	160
LABORERS	9	129.2	52.9	244
ADMINISTRATIVE TOTAL	21.6	365.4	62.4	585
INDONESIAN STAFF FOR DISTR. SYSTEM DESIGN AND SUPERVISION				
INDONESIAN PROFESSIONAL & TECHNICAL				
DESIGN ENGINEER	1	4	50	8
SPEC./COST ESTIMATOR	0.5	0.5	16.6	3
CONSTRUCTION SUPV.	0	0	0	8
SR. SURVEYOR/PLOTTER	1	3.4	68	5
SURVEYOR	1	4	80	5
INSTRUMENTMAN	1	4.3	86	5
INSPECTORS	0	0	0	32
DRAFTSMEN	2	9.4	52.2	18
INDON. PROF. & TECH.				84
INDONESIAN ADMINISTRATIVE				
SECRETARY (BI-LINGUAL)	1	4	66.6	6
TYPIST	1	4	33.3	12
DRIVER	3	6.8	26.1	26
RODMEN/CHAINMEN	3	10.8	108	10
ADMINISTRATIVE TOTAL	8	25.6	47.4	54

SURAKARTA WA
 REPORT OF ENGINEER
 BURNS & McDONNELL/TRANS-

CONTRACT NO. O1/WS-S/AID/78 SIGNED 26 OCT. 1978 START 1 JAN. 1978 END 31 JAN. 1981	COSTS FOR	CUMULATIVE COSTS THROUGH	
	NOVEMBER-1980	AMOUNT	% OF TOTAL BUDGET ESTIMATE
REIMBURSABLE EXPENDITURES			
US DOLLARS			
Salaries and Related Costs	41,476.03	688,974.36	73.5
Transportation	-	46,513.21	43.0
Equipment	-	1,559.60	0.2
Miscellaneous	-	48,378.32	83.2
Training	-	-	-
Contingencies	-	5,569.10	3.1
TOTAL DOLLARS	41,476.03	790,994.59	40.8
INDONESIAN RUPIAH			
Salaries	9,095,833	109,621,299	63.0
Transportation	4,161,044	48,507,332	69.0
Housing	-	50,025,000	102.1
Vehicle Costs	930,000	33,651,472	78.0
Equipment Costs	245,425	23,110,860	95.2
Miscellaneous	173,110	63,658,685	88.7
Contingencies	-	19,416,960	44.9
TOTAL RUPIAH	14,605,412	347,991,608	73.1

WATER PROJECT
ENGINEERING COSTS
S-ASIA ENGINEERING ASSOC.

CUMULATIVE PAYMENTS THROUGH			TOTAL BUDGET ESTIMATE FOR CONTRACT
AMOUNT RECEIVED IN NOVEMBER - 1980	TOTAL AMOUNT RECEIVED THROUGH NOVEMBER - 1980	% OF TOTAL BUDGET ESTIMATE	
DOLLARS			
42,757.96	629,768.54	67.1	937,533
5,810.50	46,513.21	43.0	108,108
1,559.60	1,559.60	0.2	641,500
-	48,378.32	83.2	58,131
-	-	-	14,544
5,569.10	5,569.10	3.1	175,982
55,697.16	731,788.77	37.8	1,935,798
INDONESIAN RUPIAH			
-	64,530,966	37.0	174,029,000
-	25,803,206	36.7	70,257,600
-	33,000,000	67.3	48,975,000
-	28,956,472	67.1	43,140,000
-	18,233,935	75.1	24,253,000
-	23,640,935	32.9	71,710,000
-	19,416,960	44.9	43,236,460
-	213,582,474	44.9	475,601,060

ER PROJECT
ACTIVITIES
ND OF NOVEMBER 1980

EXTENSION & ADDITIONS TO CONTRACT

1980

1981

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

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

SURAKARTA WATER EXPATRIATE STAFF

ORIGINAL CONTRACT

	1978			1979													
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	
	LIAISON OFFICER *	[Hatched bar]															
PRINCIPAL *	[Hatched bar]																
OFF-SHORE PROCUREMENT ENGR. *	[Hatched bar]																
CHIEF ENGINEER	[Hatched bar]																
PIPELINE CONSTR. SPECIALIST																	[Hatched bar]
O & M SPECIALIST																	[Hatched bar]
DISTRIBUTION DESIGN ENGR.																	
HYDROGEOLOGIST																	
WELL DRILLING SPECIALIST																	
METER SPECIALIST																	
MANAGEMENT SPECIALIST																	
SPECIALIST																	

PHASE I

* NOT A FULL-TIME ENGAGEMENT-AVAILABILITY AS REQUIRED

SURAKARTA WATER PROJECT
TRANSMISSION MAIN
MONTHLY PROGRESS REPORT NO. 14
01 DECEMBER 1980

Very little additional new construction was done by the contractors during the month of November. Their time was mainly devoted to testing and making required adjustments and/or repairs resulting therefrom. Section C did pour the walls of their three air valve vaults and made a successful hydrostatic test on approximately two kilometers of the pipeline. The Public Work Department of Surakarta has now accepted street repairs made by the contractors except for the two distribution main crossings yet to be made in Section C at station 194+82 and 197+85. Some repair or replacement of existing structures damaged during construction was done in Section C and around the Kartasura reservoir parking lot which is a component part of Section A. No other items were worked upon by the Section A contractor regarding the final inspection list of deficiencies (punch list). The total transmission main construction at the end of this reporting period stands at 95.45% complete. The contractors have stated they should be ready to inaugurate use of the transmission main by 10 December 1980. Based upon the length of untested piping and required time to flush for cleanliness, this writer doubts the contractors will be able to meet such a date.

WELL DRILLING
MONTHLY PROGRESS REPORT
NOVEMBER 1980

I. TASKS ACCOMPLISHED :

- A. Daily Inspection of Drilling Progress.
- B. Attended Project Meetings.

II. COMMENTS :

A. Well TW-1 :

The tower of the drilling machine collapsed under a load of 8200 Kg. on 21 October 1980 while setting casing. After repair to the tower was completed on 24 October 1980 the contractor attempted to pull the casing again, but the machine would not lift the load. On 1 November 1980 the drilling crew received permission to wash the sand, as recommended by the Drilling Specialist. The sand had caved in around the casing, from the borehole. The borehole was washed free of sand on 4 November 1980. On 10 November 1980 the first attempt to jack out the casing was made. The jacks were not uniform in capacity and the rigging was unsatisfactory. The rigging failed and all work stopped until new jacks and rigging could be obtained. The contractor was advised to keep drilling fluid circulating in the borehole to prevent caving but rejected the advice. Jacks and rigging were again set-up on 13 November 1980 and the contractor began

circulating native clays as drilling fluid against advice of the Consultant. The casing was now free in the hole but the machine can not lift 114 meters of casing and screen (8200 Kg.), so jacking out of casing continued until 18 meters of casing was removed could lift the casing and the casing was out of the hole on 21 November 1980. The contractor at this time decided to ream the hole to 20 inches so that casing would be easier to install. Reaming to 20 inches began on 23 November 1980 and was completed on 30 November 1980.

B. Well TW-2 :

TW-2 was drilled to a depth of 107 meters on 25 October 1980 and E-Logged on that date. Work stopped on this well after the E-Log while waiting for the casing to arrive. The casing arrived on 2 November 1980 and the crew started cleaning the hole on 3 November 1980. The hole had caved back to 70 meters. On 18 November 1980 the hole was clean to 106 meters and the crew had started setting casing. The contractor had used the wrong measurements and the 50 meters of installed screen and casing had to be pulled and replaced at the correct positions. 105 meters of screen and casing were set in TW-2 on 20 November 1980. Caving prevented the setting of the full 106 meters but the Drilling Specialist allowed the 105 meters to be sufficient as all aquifers were sufficiently screened. Gravel packing began immediately after the casing and screen was seated and was

completed on 23 November 1980. At this time all work stopped on TW-2 and has not re-started as of 30 November 1980.

C. PROJECT MEETINGS :

On 6 November 1980 the Drilling Specialist attended a meeting with Mr. Hari (CJWSP-I) and Mr. Su (City Cipta). The meeting was for City Cipta to provide a schedule.

Mr. Su gave a completion date of 12 November 1980 for TW-2 and approximately 21 November 1980 for completion of TW-1. On 8 November 1980 there was another meeting with the Project. Mr. Hari (CJWSP-I), Mr. Su (City Cipta), Mr. Iksan (City Cipta), Mr. Pary (BM/TAE), Mr. Lee (BM/TAE), Mr. Tillson (BM/TAE), Mr. J Engah (BM/TAE), Mr. Budi (CJWSP) and Mr. Watoyo (CJWSP).

As this meeting City Cipta gave a completion date for TW-2 as 25 November 1980 and stated he would submit a completion date for TW-1 at a later date.

On 20 November 1980 the third meeting was held on this months progress and the meeting was attended by Mr. Hari (CJWSP-I), Mr. Lee (BM/TAE), Mr. Tillson (BM/TAE), Mr. Dengah (BM/TAE) and Mr. Su (City Cipta). At this meeting the contractors answers became more incomprehensible and no dates of completion were given. The contractor at this meeting under strong recommendation from both, Mr. Hari (CJWSP-I) and Mr. Lee, Drilling Specialist, agreed to use a crane to set the casing and screen in well TW-1.

III. RECOMMENDATIONS :

It is recommended that the contractor be required to complete the construction of wells by 10 December 1980. If an extension of time is an absolute requirement it should be held to a minimum.

IV. PERCENT OF WELL COMPLETION :

TW-1 = 70%

TW - 2 = 77%.

V. SCHEDULE REVISION :

A revised Well Drilling Schedule is submitted with this report as "Appendix VI-A".

The revision is necessary because the contractor has finally received his contract with a starting date of 26 September 1980. This starting date negates all previous quoted and agreed upon schedules and with a stipulated 75 days for completion of both wells.

The completion date is now 10 December 1980.

Note: The contractor has been on the construction site for 141 days as of 30 November 1980.

WELL DRILLING CJWSP PROJECT

(REVISED 1 NO

WELL NO.	ACTIVITY	JULY	AUGUST
1 2	MOVE ON SITE	2 DAY	
		1 DAY	
1 2	SITE PREPARATION	3 DAY	
		3 DAY	
1 2	DRILLING	35 DAY	
		35 DAY	
1 2	LOGGING	1 DAY	
		1 DAY	
1 2	SCREEN & CASING	4 DAY	
		4 DAY	
1 2	GRAVEL PACK	1 DAY	
		1 DAY	
1 2	DEVELOPMENT	3 DAY	
		3 DAY	
1 2	DRAWDOWN TEST	2 DAY	
		2 DAY	
1 2	PRODUCTION TEST	2 DAY	
		2 DAY	
1 2	CEMENTING	1 DAY	
		1 DAY	
1 2	CAPPING WELL	1 DAY	
		1 DAY	
1 2	MOVE OF SITE	2 DAY	
		2 DAY	
1 2	DRAFT FINAL REPORT	18 DAY	
		18 DAY	

SURAKARTA WATER SUPPLY SYSTEM
O & M ASSISTANCE
MONTHLY PROGRESS REPORT
NOVEMBER 1980

The new customer applications are being processed. We are finding about 60% of the applicants are not close to distribution lines. Mr. Hari has made available about 600 meters of 3 inch P.V.C. pipe, to facilitate the connections where it will serve the most people, there is presently + 850 applicants. It has been observed that the Water Enterprise has installed two new customer services, but installation does not meet construction specifications. Material used is galvanized pipe and the service line was laid on top of the ground without meter boxes.

Work has started on the interior of the laboratory at S.W.E. and should be completed in another week. Face lifting of existing exterior facilities was started, but nothing is being done to increase storage space.

Mr. Bayongan and myself spent two days rewriting job descriptions for the technical division of the Organization Structure of the Water Enterprise.

I was unable to obtain price quotes for the tools required for the automotive shop, from suppliers in Solo or Semarang. We will try in Jakarta.

I have made a list of materials needed by S.W.E. for the operation and maintenance program, it will be submitted early in December.

Existing problems.

1. S.W.E. has no fittings to complete lines presently installed and no pipe for additional rehabilitation work.
2. S.W.E. has not submitted to the Consultant work schedules for new construction, rehabilitation of connections being made.
3. There has been no progress on O & M facilities.
4. No transfer of materials presently retained by the Consultant.
5. S.W.E. has not hired an interpreter yet.
6. The project has not started the construction of the connection between the 450 mm existing transmission line and the existing 300 mm line A at the intersection of Jl. Slamet Riyadi and Jl. Sidomulyo. They were informed by letter on 24 October 1980 of the available material required for this connection.
7. Line A (300 mm installed by contractor Tukadmas) has not been repaired at Station 32+85.

WATER DISTRIBUTION NETWORK
MONTHLY PROGRESS REPORT NO.6
NOVEMBER 1980

I. GENERAL :

Construction drawings for the contract "11820 meters of 3" and 2" Tertiary Water Distribution Mains" is essentially completed. Some minor revisions are expected. These revisions are due to changes in location of proposed public hydrants in three locations and some possible deletion of proposed mains so construction costs will not exceed the contract price.

A meeting was held in Semarang on November 14, 1980, with representatives of P.T. Palagan, CJWSP and the Consultant to review the contract for "1100 House Connections and 47 Public Hydrants". It was determined that P.T. Palagan could proceed on construction of the Standard Public Hydrant, and would be granted an extension of the contract time schedule.

It was also decided at the meeting that since many of the water service applicants in Surakarta were beyond the area of the 22 Kelurahan scheduled for water main construction, CJWSP would design water mains to supply some of these applicants and SWE would construct these mains.

The Consultant is awaiting approval by Cipta Karya for the valve order submitted in October and material order submitted in November. These orders are required for the construction of tertiary water mains scheduled in three phases in 1981.

The field survey has been completed for all seven Kelurahan in Phase I. Phase I includes all of Kelurahan Manahan, Gilingan, Jagalan, and Kampung Sewu and portions of Jebres, Semanggi and Keprabon. Approximately 22.5 kilometers of distribution mains are proposed in Phase I. Field survey was also completed in Kelurahan Danukusuman and Serengan.

It is planned to have construction drawings completed before January 1, 1981 for Phase I.

II. TOPOGRAPHICAL SURVEY & PREPARATION OF PLANS :

A. Tertiary Distribution System.

As stated previously, the field survey has been completed in Phase I. Plans have been prepared for Phase I except Kelurahan Jebres which is approximately 50% completed.

B. Public Hydrants, Yard Hydrants & Water Services.

Locations of proposed Public Hydrants were revised in several locations. One public hydrant was deleted from Kelurahan Setabelan and Jebres leaving the number to be constructed in these kelurahan at 20 and 5 respectively. One public hydrant was relocated in Kelurahan Kemlayan and Jebres because the property owner at the original site rescinded the use of the property. One public hydrant remains to be relocated in Kemlayan and a location is being sought. Two public hydrants were added to Kelurahan Keprabon where previously none had been proposed.

C. Rehabilitation of 147 Public Latrines.

The field survey of public latrines has been temporarily suspended until the survey for tertiary mains is completed.

D. Design of 10 Public Bath Houses.

Potential sites for public bath houses have been considered. The Consultant is waiting for receipt of construction drawings of a "typical bath house" to determine the suitability of these sites.

E. Design for Well Distribution Piping.

The field survey of Well TW-2 was completed in October. Well TW-1 is proposed to supply the Perumnas Housing Project. Any excess water will be distributed to Surakarta.

Information regarding proposed water system in Perumnas is required before the survey can proceed.

III. DESIGN OF DISTRIBUTION NETWORK :

A. Tertiary Distribution System.

Design and construction drawings have been completed for the contract "11820 meters of 3 and 2" Tertiary Water Distribution Mains" presently being constructed by Sarana Alam. Design in Phase I is partially completed.

B. Public Hydrants Yard Hydrants and Water Services.

Design for public hydrants, yard hydrants and water services has been completed in October.

C. Rehabilitation of Public Latrines.

No progress has been made this month.

D. Design of 10 Public Bath Houses.

No progress has been made this month.

E. Design for Well Distribution Mains.

No progress has been made this month.

IV. PROCUREMENT OF MATERIALS :

A. Tertiary Distribution Network.

Contract documents including specifications and list of materials for pipe and fittings has been submitted to Cipta Karya for approval. It is expected that bids will be received in early January. The materials will be used in construction of tertiary water mains & supply 17 kelurahans.

Material specifications and a list of materials for valves to be purchased via Off-Shore procurement was submitted for approval in October.

The Consultant is awaiting approval from Cipta Karya for the value and pipe orders.

B. Public Hydrants, Yard Hydrants & Water Services.
All materials have been acquired.

C. Rehabilitation of 147 Public Latrines.

Materials required for this project are proposed to be furnished by the contractor rehabilitating the public latrines.

D. Design of 10 Public Bath Houses.

Materials required for this project are proposed to be furnished by the contractor constructing the bath houses.

E. Design of Well Distribution Piping.

The materials required for the TW-2 well south west of Kartosuro Reservoir will be ordered when the well has been tested. The Well test is tentatively scheduled for early December.

V. CONSTRUCTION SPECIFICATIONS :

A. Tertiary Distribution System.

A set of standard contract documents has been prepared for construction of distribution mains in the remaining kelurahans. Contract distribution drawings for Phase I, approximately 22.5 kilometers of tertiary distribution mains, will be submitted to Cipta Karya early in January.

B. Public Hydrants, Yard Hydrants and Water Services.

All specifications for Public Hydrants, Yard Hydrants and Water Services are completed.

C. Rehabilitation of 147 Public Latrines.

No progress has been made on preparation of specifications for rehabilitation of public latrines.

D. Design of 10 Public Bath Houses.

No progress has been made on preparation of specifications for construction of bath houses.

D. Design of Well Distribution Piping.

No progress has been made this month.

VI. ACTIVITIES PLANNED FOR NEXT MONTH :

A. Tertiary Distribution System.

Construction drawings for Phase I should be completed by the end of December. Contract documents should be ready for submittal to Cipta Karya for approval.

Field Survey for all 22 Kelurahans should be completed.

Construction drawings for "11820 Meters of 3" and 2" Tertiary Water Distribution Mains" contract will be finalized.

- B. Public Hydrants, Yard Hydrants and Water Services.
Determination of a new location for one public hydrant in Kemlayan should be made.
- C. Rehabilitation of 147 Public Latrines.
The field survey for the remaining 79 public latrines should be under way.
- D. Design of 10 Public Bath Houses.
The Consultant is awaiting determination of the specific bath house to be constructed before recommendation of sites will be made.
- E. Design of Well Distribution Piping.
Design and Materials list for Well TW-2 should be completed if the well testing proceeds as planned.

VII. COMMENTS OF THE WATER DISTRIBUTION SPECIALIST :

The Public Works Department in Surakarta has issued a requirement that water mains be installed on each side of streets where practical to reduce the number of street cuts made for future house connections.

The CJWSP was offered several alternatives to reduce the occasion of street removal and replacement. Hopefully the duplication of service can be eliminated.

A meeting will be held in December with officials of Surakarta to determine improvements for fire protection in the Kelurahan scheduled for water distribution main construction.

Merry Christmas and Happy New Year to all.

DISTRIBUTION SYSTEM AND CONSTRUCTION SCHEDULE

APPENDIX VIII.B

AS OF NOVEMBER 1980

													REMARKS			
FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN '82	FEB	MAR			
																BY CONTRACTOR FY 1980-1981 BUDGET
																BY CONTRACTOR FY 1980-1981 BUDGET
																FY 1981-1982 BUDGET
																EXCLUDING PERUMNAS FY 1981-1982 BUDGET
																FY 1981-1982 BUDGET

SURAKARTA WATER SUPPLY PROJECT
DISTRIBUTION SYSTEM
CONSTRUCTION PROGRESS REPORT NO. 3
01 DECEMBER 1980

I. GENERAL :

Installation has now expanded to six Kalurahans plus some house services have been started. Very little has been tested for the reasons stated in the last report. Shortage of water supply to the city is also affecting the contractor's ability to fill the new piping for test and flushing operations.

II. WORK IN PROGRESS :

A. P.T. Sarana Alam has on order special fittings to make some of the connections of his new work to the existing distribution network. Delivery seems to be taking a considerable amount of time therefore the Consultant has recommended the Contractor to investigate all tie-in locations for actual size and configuration. It is believed the Contractor will gain some time in the future by ordering ahead of the piping installation. Out of over eight kilometers of piping installed to date only 4,5% has been tested. Completion status of this Contractor's Construction is as follows:

<u>KELURAHAN</u>	<u>LM INSTALLED</u>	<u>LM TESTED</u>	<u>PERCENT DONE</u>
1. Setabelan	1,122	- 0 -	71,99
2. Joyosuran	3,693	- 0 -	66,57
3. Kemlayan	886	- 0 -	61,87
4. Jebres	1,106	384	45,35
5. Pasar Kliwon	1,018	- 0 -	74,49
6. Semanggi	641	- 0 -	68,87
TOTAL TO DATE	8,466	384	54,01

B. P.T. Palagan continues to work public hydrants with no regard for testing. He lacks making connections to water mains which will certainly delay following operations. Status of public hydrant installations is as follows:

<u>KELURAHAN</u>	<u>LM STARTED</u>	<u>PH COMPLETED</u>	<u>PERCENT DONE</u>
1. Setabelan	7	- 0 -	15,00
2. Kemlayan	7	- 0 -	18,75
3. Pasar Kliwon	1	- 0 -	6,25
4. Semanggi	3	- 0 -	18,75
5. Jebres	3	- 0 -	12,50
TOTAL TO DATE	21	- 0 -	14,89

III. PROBLEMS :

The anticipated delay in processing applicant for water services is proving out. It is difficult for the contractor to keep his crew lined up with work in an orderly manner under the present situation. Lack of fittings to make tie-in to mains both for the new mains and public hydrants is delaying completion.

IV. PLANNED :

The Surakarta Water Supply Project intends to expedite the processing of service applications by forming a joint committee to handle matters on the spot. Testing will be expanded to catch up with work installed to date.

SURAKARTA WATER SUPPLY PROJECT
GROUND WATER AND WELL DEVELOPMENT PROGRAM
MONTHLY PROGRESS REPORT NO.2
NOVEMBER 1980

Data collected during October was evaluated and a draft final report including graphics was completed during November.

A follow up trip was made to Bandung to review Geological Survey of Indonesia filed original field notes from 80 to 90 year old Dutch installed Surakarta Wells. The serarch focused on water quality analysis and well construction information plus clarification of meaning of pumping test data.

Quality information obtained was very informative, indicating an increase in Chlorides and Dissolved Solids, among other contituents with depth which will limit the use of the otherwise very good aquifer.

Finalization of the Ground WATER Investigation report is dependent on results of TW-1 and TW-2 pumping tests which are scheduled for and may take place during December 1980.

Tentative conclusions of the ground water investigation indicates two geologic formations, the Kabuh and the Younger Volcanics, have aquifes capable of supporting municipal wells.

These formations are about equal in ground water potential and can be treated as a unit when evaluating. Maximum thickness of the formations is approximately 250 to 300 meters along an east-west axis through Surakarta and Kartosura. The formations thin both to the north and

south. These aquifer formations are underlain by Tertiary marine formations with conate water.

Quality information from the old Dutch installed Surakarta artesian wells indicate Chlorides and Dissolved Solids generally increase with depth of ground water and proximity to the underlying saline marine formations. Wells drilled into this formation indicate Chlorides to 7840 mg/l and Dissolved Solids to 14,500 mg/l are characteristic.

It appears wise to limit well depths to the upper half of the aquifer thickness until the geohydraulic nature of the underlying conate water is understood. In view of this an east-west Prime Aquifer area 7 to 8 kilometers wide and some 30 kilometers in length centered on Surakarta - Kartosura where 150 meter deep wells can be placed has been defined and will be recommended for placing production wells. Wells less than 150 meters deep are still possible outside this Prime Aquifer area however.

Test - Production Wells TW-1 and TW-2 are within this Prime Aquifer area. Pumping test results from these two wells, along with the plentiful existing well data will determine average expected well capacities. Tentatively a 150 meter deep well will have an approximate two liters per second per meter of drawdown Specific Capacity and produce a conservatively estimated 60 liters per second.

MEMORANDUM OF MEETING

Subject : WELL DRILLING CONTRACT
 Date ; November 8, 1980
 Time ; 10.00 - 11.45 am
 Place : BM/TAE Office, Surakarta

Attended by: 1. Mr. Hari Wahyuadi SWSP
 2. Mr. Budi Rahardjo CJWSP
 3. Mr. Watoyc CJWSP
 4. Mr. George M. Pary BMTAE
 5. Mr. David S. Tillson BMTAE
 6. Mr. William L. Lee BMTAE
 7. Mr. A.F. Dengah BMTAE
 8. Mr. Su Chiang Jang City Cipta
 9. Mr. Iksan M. Amir City Cipta

Results :

A. T.W. - II:

1. City Cipta to submit in writing a time schedule and method to complete the well.
 Contractors' estimate:

Nov. 9, 1980 - Nov.11, 1980:	redrilling
Nov.12, 1980 - Nov.13, 1980:	lowering casing & screen & packing
Nov.14, 1980 - Nov.19, 1980:	well development
Nov.20, 1980 - Nov.25, 1980:	pump test

2. - Consultant concerned about reducing the yield of the well due to possible sealing off of aquifers by caved in clays. Expected yield= 90 l/sec from 200 M aquifer.
 - Contractor expects only top layers being caved in (40-60 M from grade). Yield of well expected to be high enough. Contractor estimated an expected yield of 30 l/sec, because Bandung area has a better aquifer (appr. 50 M thick) and has a maximum yield of 30 l/sec.
 - Project recommended Contractor to continue the work as Contractor proposed and complete TW-II.

3. Equipment:
 - Contractor to make sure all needed equipment are on site in time.
 - For testing Contractor to use Contractor's own submersible pump with capacity 40 l/sec with 60 M total head. Pump should be able to conduct test continuously with a constant

and uniform rate of discharge. Valve to be used to throttle down to 10 l/sec (without burning out the pump), column flanged, $\varnothing \frac{1}{2}$ guide pipe to measure the depth to water. Measuring of discharge by an orifice (not a V - notch weir).

Consultant to have full control over method of the test and the measuring.

4. Material:

- Casing and screens ready on site.
- Gravel (4 truckloads on site) not enough.

B. T.W.-I :

1. Contractor's proposed to finish the well accepted:

- drill the bottom shield plate out
- use drilling mud and seal off the top of the casing, not to use air compressor
- use two (2) jacks of 50 ton capacity for initial movement
- pull out casing and screens by engine
- ream out bore-hole to 20", using a new bit of 12" - 18" - 20", tiered cones
- finish the well

2. Contractor is fully responsible to complete the well as proposed without any delay and failure.

3. Material:

- 15 bags of Bentonite to be on site.
- gravel supplied to be added.

4. Equipment: Same as A.3.

Contractor is convinced that equipment are capable to perform as expected.

5. Contractor to submit in writing a time schedule and method to complete the well (TW - I)

C. GENERAL :

1. Time to complete:

- Before end of November 1980, Consultant must have data from both wells to enable USAID to purchase pumps and engines.
- Complete date according to the Contract is December 10, 1980.
- If Contractor is not able to finish it on time, the Contractor should request in writing for extension.
- Maximum delay of time: 50 days (with a fine for each delayed day : 1% of the Contract Sum).

2. Holidays and Sundays are included in the Contract as working days. Contractor to work continuously, without stopping.
Start Sunday - Nov. 9, 1980.
3. Supervisor (responsible person) should be on site daily to enable to solve problems immediately.
Mr. Su Chiang Yung not to leave Surakarta before wells are finished.
4. Consultant to submit to the Project a report with exact data why the drilling at TW-I has to stop at 107 M.
5. Consultant to send memorandum of this meeting as soon as possible to:
 - Surakarta Water Supply Project
 - Central Java Water Supply Project
 - Contractor: City Cipta.

MEMORANDUM OR MEETING

Subject : WELL DRILLING CONTRACT
 Date : November 20, 1980
 Time ; 0.310 pm - 04.00 pm
 Place : BM/TAE Office Surakarta

Attended by : 1. Mr. Hari Wahyuadi CJWSP
 2. Mr. William Lee BMTAE
 3. Mr. David Tillson BMTAE
 4. Mr. A.F. Dengah BMTAE
 5. Mr. Su Chiang Jung CITY CIPTA

Result :

- I. T.W.-I :
1. Lifting up of Casing & Screen :
 - a. Approx. 80 m remains to be lifted up
 - b. Completed by Nov. 21, 1980
 2. Reaming out to 20" :
 - a. 12" - 18" - 20" Bit not yet prepared
 After approval from owner, bit to be prepared on site by Adding a 20" bit "on-top" of used 12" - 18" BIT.
 Consultant's Drilling Specialist to check bit before commencing with reaming the hole.
 - b. Start reaming out the hole not later than - Nov. 23, 1980.
 - c. Time to ream out: four (4) days.
 - d. Bentonite on site: fifteen (15) bags.
 3. Resetting of Casing & Screens :
 - a. By Crane (at least 15 tons capacity within eight (8) hours.
 Project will contact:
 - Bengawan Solo Project
 - Semarang Port Authority.
 - b. When ream out reached specified depth, Drill - Pipe to be kept rolling slowly to keep the mud flowing up in the hole, until crane - arrives.
 4. Gravel for packing not sufficient (need 15 to 16 cumt).

- II. T.W.-II :
1. Gravel Packing :
To be completed Nov. 20, 1980 evening.
 2. Well Development :
 - a. To be started Nov. 21, 1980 for approx. three (3) days.
 - b. Bottom of hole not to be drilled through - screens.
Bottoms of casing temporarily kept on 105 m depth, will possibly sink down slowly a few centimeters during development of well, if not, there will be no adverse effects.
 3. Testing :
 - a. Test Pump to be on site before Nov. 25, 1980.
 - b. Two (2) alternatives of Pumps (for TW-II):
 - Submersible Pump, 40 L/sec capacity with 60 m pipe.
 - Multistage engine driven vertical shaft - turbine pump 40 L/sec capacity with 40 m pipe.
 - c. Test to start Nov. 25, 1980.
 - d. Guide pipe 1/2" & orifice weir to be prepared.

MEMORANDUM OF MEETING

Subject : Cost Alterations to Contract of "House Connections & Public Hydrants".
 Date : November 14, 1980
 Time : 10.30 am - 02.00 pm
 Place : CJWSP Office, Semarang

Attended by:	1. Mr. Krisno Darusman	CJWSP
	2. Mrs. Sumaryati	CJWSP
	3. Mr. Watoyo	CJWSP
	4. Mr. Hari Wahyuadi	SWSP
	5. Mr. Soedarto	SWE
	6. Mr. Soelarno	SWE
	7. Mr. George M. Pary	BMTAE
	8. Mr. Jerry G. Bragdon	BMTAE
	9. Mr. A.F. Dengah	BMTAE
	10. Mr. Slamet Riyanto	BMTAE
	11. Mr. Haryono	Palagan
	12. Mr. Bambang Agoestiono	Palagan

RESULTS :

1. Changes in design not to exceed Original Contract Sum.
2. If Original Contract Sum is exceeded, Surakarta Water Enterprise to prefinance the exceeded amount to be reimbursed by CJWSP after availability of funds (1981-1982 by budget).
3. Existing unit prices in contract to be maintained.
4. Non existing unit prices of "New" items to be determined on acceptable basis.
5. Quantities of items not able to be determined before completion to be fixed as in Original Contract; later to be calculated the additional/deductable work (e.g. Masonry work, Plaster finish).
6. Agreement has been reached to alter cost as listed in attachment.
7. Agreed Quantities & Unit Prices as listed in attachment to be used as basic calculation for further change orders
8. Contractors to furnish material, after approval of submitted samples, as per agreed list.
9. Plug valve "Fuji" as shown by contractor at this meeting approved.

10. Contractor to speed up work, target up to date: 60%, actual accomplished only 6%.
11. Extension of time can be approved until Febr. 15, 1981.
12. CJWSP to furnish material for additional distribution lines to areas outside 22 kelurahans by consultant, to increase customers designed by project, installed by SWE.
13. After additional water is flowing, old cut off customers to be reconnected.
14. 1100 new customers connections to be completed by February 15, 1981.

SURAKARTA WATER SUPPLY PROJECT
REVIEW OF IMPLEMENTATION OF
MANAGEMENT SYSTEMS AND PROCEDURES

MONTHLY REPORT
NOVEMBER 1980

A. Management Systems and Procedures:

1. Management reports as recommended have been prepared. However, they are prepared late. Reasons for the delay in the preparation of the reports were analyzed and proper recommendations submitted to the Director of SWE. Currently following up the status of implementation of the recommendations. Some of the recommendations have been implemented already. The details of the findings and recommendations are included in the October 1980 progress report.

2. Charts of Accounts.

The new chart of accounts as recommended is already in use.

3. Accounting Records.

Kept and maintained as recommended.

4. Systems and Procedures.

a. Collection from swimming pool not remitted daily to the Cashier.

- b. Separate report for penalty charges still being prepared although it is already included in the summary of water bills.
- c. Penalty charges are imposed on customers who pay on the next working day after a holiday or a Sunday.
- d. Late posting to Customer Subsidiary Ledger (BPPL) because of non-compliance with procedure. BPPL is now being updated.
- e. Payroll Register includes birthday of employee.
- f. Various forms are used in issuing inventory from the warehouse, instead of a standardized form.
- g. Approval to Petty Cash Fund still done by the Director.
Should be delegated to subordinate.

Recommendations to improve the above situation were submitted to the Director and most have been implemented already.

B. 1981 Budget of S.W.E.

Assistance in the preparation of the 1981 budget of S.W.E. Preparation of the budget is in progress.

- C. Helped design procedures for new service connections. Connection charges are collected as follows:**
Rp. 10,000 down payment, balance payable in 10 installments. Suggested to the Director to issue announcement to the public that the connection charges can be paid in installement within two years. The Director informed us that he will make such announcement immediately. There are already 870 applicants for new service connections as of November 30.

- D. The financial audit of the SWE was already started on November 25, 1980, by Drs. S. Musanto, Drs. S. Soewargadi & Co. acting on behalf of the State auditors.
- E. Prepared revised financial projection for 1980-1987. Highlights are as follows:

1. Average rate:

	<u>Alternative 1</u>	<u>Alternative 2</u>
1981	Rp. 72	Rp. 51
1982	164	94
1983	138	138
1984	128	133
1985 - 1987	123	131

Average rate at present is Rp.63 per cubic meter.

2. Water rate charged to the lowest rated residential customers:

	<u>Alternative 1</u>	<u>Alternative 2</u>
1981	Rp. 28	Rp. 28
1981 May	46	
1982	98	56
1983	86	86
1984	83	86
1985 - 1987	81	86

Water rate at present is Rp. 28 per cubic meter.

In Alternative 1 the water rate was designed considering the desired rate of return of 1% in 1980; 2% in 1981; 4% in 1982; and 6% starting 1983.

Under this alternative water rate has to be increased by 64% in May 1981 (one year after the laterst increase), and 113% in January 1982, eight months later.

In Alternative 2 the desired rate of return can be met only in 1983. The present water rate will be maintained until 1981. Then an increase of 100% will be effected in January 1982 and 53% in 1983.

Under both alternatives the people to be served from the public hydrant will not pay more than Rp. 285 per month.

3. Thirty-four percent of the population is projected to be served by the system in 1984.
 4. The SWE can generate enough cash needed for its operation, loan repayments, and improvement of the system.
- F. In coordination with the O & M Specialist made some modification in the organization structure of the SWE (Technic Division) as submitted in June 1979 as follows:
1. Transfer of Swimming Pool Section from the Operations and Maintenance Department to the Production Department.
 2. Creation of Valve Crew Section.
 3. Segregation between Distribution System, Correction and Metering Section as follows:
 - a. Distribution System Section which remains under the O & M Department.
 - b. Meter Service and Installation Section under the Meter Shop Department.

4. Creation of the Meter Shop Department composed of Meter Repair Section and Meter Service and Installation Section.
5. Creation of Machine Shop Section under the Plant, Shop, and Building Department.
6. The Meter Shop Section and the Repair Shop Section are abolished. The functions of those sections are absorbed by the Meter Repair Section.

Also prepared job descriptions of the newly created sections.

- G. Determined personnel requirements in the Finance and Administration Division until 1981. At least two additional staff are needed in the Customers Services Section.

Recommended the replacement of the Chief of the Finance Department. The replacement has been hired already and will report for work on December 1, 1980. Initially he will work as a staff member of the Chief of the Finance and Administration Division. Also recommended the replacement of the Chief of the Financial Planning and Budgeting Section.