

PDABG 282

ARAB REPUBLIC OF EGYPT
NATIONAL ORGANIZATION FOR
POTABLE WATER AND
SANITARY DRAINAGE
(NOPWASD)

**CANAL CITIES
WATER AND WASTEWATER
PHASE II PROJECT
USAID CONTRACT 263-0174**

ANNUAL PROGRESS REPORT NO. 3

CANAL CITIES - PHASE II PROJECT

JUNE 1991



BLACK & VEATCH INTERNATIONAL
ENGINEERS-ARCHITECTS

JMM James M. Montgomery
Consulting Engineers Inc



in association with
SABBOUR ASSOCIATES



In association with
Sabbour Associates



June 28, 1991

United States Agency for
International Development
Cairo Center Building
106 Kasr El Aini Street
Garden City, Cairo

Attention: Mr. Herbert Feldt, Project Officer

Subject: Annual Progress Report No. 3

Reference: Canal Cities
Water and Wastewater - Phase II Project
USAID Contract 263-0174

Gentlemen:

Submitted herewith are five (5) copies of our Annual Progress Report No. 3 for the period of June 1990 through May 1991 for the Canal Cities Water and Wastewater - Phase II Project.

If you have any comments or questions, please do not hesitate to contact us.

Very truly yours,

BLACK & VEATCH INTERNATIONAL/JAMES M. MONTGOMERY

George L. Harris
David W. Williams *for DW Williams*
Field Project Coordinator

jch

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SECTION 1. PROJECT OVERVIEW

CANAL CITIES WATER AND WASTEWATER

PHASE II PROJECT

PROJECT OVERVIEW

- PROJECT NUMBER** : USAID Project 263-0174-C-00-8077-00
- TOTAL PROJECT COST** : US \$500.0 Million
- SOURCE OF FUNDS** : USAID = \$380 Million (Grant)
GOE = \$120 Million
- IMPLEMENTING AGENCIES** : National Organization for Potable Water and Sanitary Drainage (NOPWASD)
Suez Canal Authority (SCA)
- BENEFICIARIES** : Two millions residents of the three Canal Cities
- PROJECT OBJECTIVES** : To improve and upgrade the existing water and wastewater facilities of the three Canal Cities by providing urgently needed infrastructures.
- PROJECT DESCRIPTION** : The Phase II project is primarily designed to eliminate the adverse environmental impact and health risks of untreated wastewater which is presently polluting surface water bodies adjacent to the three Canal Cities. The project provides for the design and construction of treatment facilities to meet the requirements of Law 48 of the Government of Arab Republic of Egypt in Port Said (190,000 m³/day), Ismailia (90,000 m³/day), and Suez (130,000 m³/day). It also includes the design and construction of a 170,000 m³/day raw water pumping station at Qantara for Port Said, and an Institutional Development program aimed at strengthening the capacity of the wastewater departments of the three Governorates and the water training division in the Suez Canal Authority.
- CONSTRUCTION MANAGEMENT CONSULTANTS (CMC)** : Black & Veatch International and James M. Montgomery in association with Sabbour Associates. Notice to Proceed was issued to the CMC on July 28, 1988. Contract duration is five years. (Revised Scope of Work presently under review.)

SECTION 2. GENERAL

CMC ANNUAL PROGRESS REPORT NO. 3

General

GENERAL

This Annual Report No. 3 consists of one volume and covers the highlights of the CMC's activities for the period June 1, 1990 to May 31, 1991.

The topics addressed in this section include:

1. Project Administration
2. Costs
3. Schedule
4. Problems

Discussions of the progress of the five major elements of the project are found in the succeeding sections.

PROJECT ADMINISTRATION

Major project administration activities during the reporting period were as follows:

- Amendment No. 2 for the Dames & Moore subcontract was submitted in June 1990 with further documentation being provided to USAID in August 1990 and January 1991. In February 1991 authorization was provided for final execution with an effective date of December 13, 1990.
- Completed and submitted Annual Report No. 2 in June 1990 to USAID, NOPWASD, and SCA.
- New project vehicles were imported from the U.S. in June 1990 for use by the CMC project team.
- Discussions continued regarding the revision to each joint venture member's provisional overhead rate. Initial request was sent to USAID in October 1990.
- Discussions continued regarding the CMC's contract amendment. A first draft was submitted in March 1991 with an updated second draft being submitted in April 1991.

- **The Canal Cities Project Implementation Schedule (CPM) was updated monthly. Major revisions to the PIS were made for the June 30, 1990, December 31, 1990 and March 31, 1991, PIS updates. The revised PIS plotted in Pure Logic Diagram (PLD) format were forwarded to the CMC office in Cairo for submittal to USAID respectively on July 13, 1990, February 19, 1991 and April 22, 1991. Effective April 30, 1991, monthly submittal of the computer generated PLD with manually drawn-on project progress status lines resumed.**
- **Discussions continued regarding the issue of salary differentials for expatriate employees. A letter was submitted to USAID in April 1991.**
- **The CMC Annual Report on nonexpendable property for the years 1988 through 1990 was forwarded to USAID in April 1991.**
- **Discussions continued regarding the issue of the FS-1 salary limitations. A letter was submitted to USAID in April 1991.**
- **Mr. Herbert Feldt replaced Mr. John Saccheri as the Project Officer for the Canal Cities II Project.**
- **Long-term expatriate professional staff assigned to the field office during the period are as follows:**
 - Mr. D. W. Williams - Field Project Coordinator**
 - Mr. G. L. Harris - Office Engineer**
 - Mr. S. G. Singh - Office Engineer**
- **Egyptian professional staff assigned to the field office during the period are as follows:**
 - Gen. Omar El Farouk**
 - Eng. Ahmed Sharaf**
 - Eng. Abdel Fatah Mahmoud**
 - Eng. Maged El Laithy**
 - Eng. Mohamed Mostafa**

- Home office principal staff members during the period are as follows:

Mr. W. D. Skinner - BVI Partner-In-Charge, Quality Management
Mr. T. Heinsoo - JMM Principal-In-Charge, Quality Management
Mr. J. L. Sonderegger - BVI Home Office Project Manager
Mr. E. Arguelles - JMM Home Office Project Manager
Mr. W. G. Ernst - BVI Home Office Project Engineer
Ms. P. A. Koester - JMM Home Office Project Engineer
Mr. M. Kundu - JMM Home Office Project Engineer
Mr. K. S. Dong - JMM Home Office Project Engineer
Mr. B. W. Bickel - Institutional Development Specialist

Other staff members are assigned on a full time basis and additional assignments are made on an as-needed basis. Appendix B contains a complete listing of all home office and field office expatriate professional personnel assigned to the project during the reporting period. Organization charts for the overall CMC and for home office personnel during the Preliminary Engineering Stage of the Canal Cities Project are shown in Exhibits D and E.

- Staff movements both long-term and TDY, are tabulated in Appendix C.

MEETINGS

The following meetings were held between members of the CMC, USAID, NOPWASD and/or representatives of affected agencies at various times during the report period.

- Joint venture progress meetings to discuss administrative and design issues, status of work completed to date, project schedules and other project related issues.
 - September 6, 1991, in Kansas City.
 - October 18, 1991, in Kansas City.
 - January 8 and 9, 1991, in Pasadena.
 - May 22 and 23, 1991, in Kansas City.
- Criteria Committee meeting to review technical concepts and issues for Ismailia and Port Said.
 - December 18, 1991, in Pasadena.
- Technical Training Trip meetings to discuss outstanding technical issues with NOPWASD representatives.
 - December 2-13, 1991, in Kansas City and Pasadena.

- **Periodic workshops held by NOPWASD.**
 - June 4, 1990
 - August 14, 1990
 - November 5, 1990
 - January 24, 1991
- **Environmental scoping meeting to discuss the proposed Port Said Raw Water Supply facilities.**
 - June 19, 1990, in Port Said.
- **Miscellaneous informal project progress meetings between representatives of the CMC/Cairo and either USAID, NOPWASD, or both.**

COSTS

A cost summary of the invoiced amount of the entire Canal Cities Project is shown on Exhibit A. This cost summary includes actual costs invoiced to date versus the projected contract disbursements for the first, second and third project years and for the 5-year contract period.

The projected engineering and construction cost disbursement schedule for each element of the Canal Cities Project by calendar year for the period 1988-1994 is shown on Exhibit B. The quarterly disbursement schedule for the calendar years 1988 through 1997 is shown on Exhibit C.

A graphical representation of the projected and actual manmonth expenditures from inception through May 1991 is shown on Exhibits F and G.

The nature of the type of contract between USAID and the CMC does not easily yield a meaningful comparison of actual expenditures versus value of work completed. However, to communicate to USAID the best information available on the work's progress, the CMC is providing the following tabulations. The percentages are based on financial data from project inception. It does not breakout "other task" items that are not included in the original five year budget. It also does not take into account that the original scope of work was based on a seven year project. Therefore, the financial percentages presented use the contract base amounts as shown on Page 9 of USAID's Contract No. 263-0174-C-00-8077-00 for calculating the percent complete.

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<u>Item No.</u>	<u>Description</u>	<u>Financial Percent Complete</u>
1	BVI/JMM Labor	83.91
2	Travel Cost	53.24
3	Shipping Cost	2.58
4	Office Cost	74.60
5	Arrival Cost	6.66
6	Subcontract (Dames & Moore)	94.00
7	Subcontract (Sabbour)	43.44
8	Subcontract (Sheladia)	0.00
	TOTAL PROJECT	71.88

The above percentages are based on figures through May 17, 1991 for BVI and May 25, 1991, for JMM and reflect the revisions as affected by Modification No. 01.

The contract contains a list of 13 separate tasks to be completed by the CMC during the preliminary engineering phase and a provision for the inclusion of "other tasks" not specifically addressed in the Scope of Work. The estimated percent of completion of each of the 13 tasks and eight "other tasks" for which the CMC has been issued a task order is listed on the next page.

<u>Specified Tasks</u>	<u>Percent Complete</u>
1. Site Selection	95
2. Topographic Surveys	100
3. Soils Investigations	80
4. Environmental Assessments	80
5. Subcontract (Sheladia)	0
6. Institutional Development	100
7. Prequalification of Design/Build Contractors	100
8. Basis of Design Reports	90
9. Preparation of Contract Documents	80
10. Equipment Procurement for SCA	100
11. Development of Cost Estimates	50
12. Tender Reviews	0
13. Project Implementation Scheduling	75
<u>Other Tasks, Unbudgeted</u>	<u>Percent Complete</u>
T.O. 2 - Law 48 Treatment Costs	100
T.O. 9 - Alternative Treatment Study	100
T.O. 13 - Second D/B Contractor Prequalification	100
T.O. 15 - O & M Cost Study	100
T.O. 16 - Port Fouad Facilities Assessment	100
T.O. 20 - Port Said Co-Composting	85
T.O. 19 - Technical Training Trip	100
T.O. 21 - Port Said Raw Water Supply	20

A tabulation of manhours expended to date for both the home office and the field office expatriate staffs is also shown in Appendix B.

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SCHEDULE

Three major revisions were made to the Canal Cities Project Implementation Schedule based on Critical Path Method (PIS-CPM). The first revision was done on June 30, 1990, at which time the order of priority for the project implementation was reversed from Port Said/Ismailia/Suez to Suez/Ismailia/Port Said. Schedule target dates for key activities were set to agree with USAID desired target dates. The second major revision was done for the December 31, 1990 PIS-CPM run. New target dates were set, based on an extension of the prequalification period. A third major revision was done for the March 31, 1991, PIS-CPM update. Again, new target dates were set based on a second extension of the prequalification period.

Other minor revisions to the PIS-CPM were done throughout the reporting period. They included the addition of new tasks such as: Assessment of Port Fouad Facilities (July 1990), Damietta Co-Composting Demonstration Project (January 1991), Design of Qantara Pumping Station (January 1991), and new activities such as: Demolition/Removal of Construction Site Obstruction at Suez, Locate/Acquire new site for Influent Pumping Station and sludge storage at Port Said, Supplemental Environmental Assessment of newly acquired sites (Port Said), and Soils Investigations at newly acquired sites (Port Said), etc. The update of the PIS-CPM for the Institutional Development Task was suspended effective March 31, 1991, due to completion of the CMC involvement in that particular task.

The updated PIS-CPM as of June 30, 1990, December 31, 1990, and March 31, 1991 were plotted in the Pure Logic Diagram (PLD) format and submitted to USAID respectively on July 13, 1990, February 19, 1991, and April 22, 1991. Effective April 1991, acting on verbal instructions from USAID, monthly submittal of the computer generated PLD with manually drawn-on project progress status lines (i.e. scheduled versus actual) resumed. The April 30, 1991, PLD of the PIS-CPM update with project progress status lines was sent to the CMC office in Cairo for submittal to USAID on May 22, 1991. Monthly updates of the PIS-CPM were carried out throughout the reporting period for internal project progress control.

Below are target dates of key activities at the beginning and end of the reporting period.

Key Activity	Suez	Ismailia	Port Said
Target dates at beginning of reporting period			
Invitation for Bids	Sept. 30, 1990	Dec. 31, 1990	March 31, 1991
Notice to Proceed	Sept. 1, 1991	Dec. 1, 1991	March 1, 1991
Completion of Construction	Sept. 1, 1994	Dec. 1, 1994	March 1, 1995
Completion of Project	Sept. 1, 1996	Dec. 1, 1996	March 1, 1997
Target dates at beginning of reporting period			
Invitation for Bids	March 10, 1991	June 9, 1991	Sept. 8, 1991
Notice to Proceed	Jan. 19, 1992	April 12, 1992	July 12, 1992
Completion of Construction	Jan. 19, 1995	April 12, 1995	July 12, 1995
Completion of Project	Jan. 19, 1997	April 12, 1997	July 12, 1997

Slippage of the target dates was mainly due to the extension of the prequalification period. The first extension took place in August 1990 and the second one in January 1991.

PROBLEMS

Problem areas noted in Annual Report Nos. 1 and 2 have all been resolved with the exception of the commitment of a sludge storage site at Port Said. For additional details, please refer to the previous respective reports.

In this Annual Report No. 3, the CMC would like to point out, as was done in Annual Report No. 1, that many of the CMC's tasks are to be accomplished in series rather than in parallel. With reference back to the original 13 tasks, it is noted that until some of the earlier tasks are completed, such as final sludge storage site commitment, environmental assessment approvals, Basis of Design Report reviews, and IFB document reviews, evaluation of technical and commercial bids and ultimately construction contract execution cannot be implemented.

Long reviews by NOPWASD on the EA, BODR, and IFB documents, continued discussions on unresolved technical issues, additional concerns on previously solved issues, unanswered questions on the EA, BODR, and IFB documents, and delayed approvals have forced the project schedule to be delayed and subsequently extended. Future delays cannot be incurred if the present project schedule is to be adhered to.

Major problem areas encountered during this reporting period are as follows:

- Issuance of the Suez IFB documents initially waited on the written approval of the prequalification recommendations. Review of the CMC's recommendation in the February report took approximately one month. This was a review of the same recommendation presented in the CMC's November report.
- Delayed reviews of the Suez IFB documents included extensive technical comments by NOPWASD. This led to a late receipt of the review comments causing a rush effort on the "Bid Issue" documents, requiring future addenda. Addendum Nos. 1 and 2 to the Suez IFB documents represent a delay in the Suez project which could lead to delays at Ismailia and Port Said in order to maintain the staggered tendering schedule.
- Delayed responses on outstanding issues for the Ismailia and Suez BODR including additional concerns and discussions on previously solved issues and additional meetings between NOPWASD, USAID, and the CMC to resolve these outstanding issues. Presently the CMC is awaiting instructions from NOPWASD on the resolution of these items.
- Completion of the final Environmental Assessments are being held up based on the review and approval by USAID. Those presently under review are the supplemental EA for Suez and Ismailia and the final EA for the Port Said WWTP and the Raw Water Supply facilities.
- The Port Said BODR has been delayed due to travel restrictions and site commitments for the offsite pump station and a formal decree for the sludge storage site for the wastewater treatment facilities and for the raw water pump station site and pipeline route.
- The CMC is waiting for a response from NOPWASD on information which was requested to coordinate the design of the Port Said raw water pumping station with the pipeline design. Delays in the pipeline project will affect the scheduled completion of the conceptual design of the pumping station.
- Delayed issuance of the Ismailia IFB documents is due to the delayed receipt of the review comments and the inclusion of chlorination facilities which originally had not been planned for.

SECTION 3. WASTEWATER FACILITIES - THREE CITIES

CMC ANNUAL PROGRESS REPORT NO. 3

Wastewater Treatment Facilities - Three Cities

TECHNICAL ACTIVITIES

Major technical activities during the reporting period for the three project cities included:

- **Geotechnical Investigations**
 - Geotechnical field work was completed on all of the sites.
 - Draft copies of the Design Parameters Report and the Geotechnical Investigation and Recommendation reports at Suez were completed in June and July 1990, respectively. Final copies of the geotechnical reports were completed in September 1990 and were incorporated as part of the "Bid Issue" IFB documents.
 - Draft copies of the Design Parameters Report and the Geotechnical Investigation and Recommendation reports at Ismailia were completed in September 1990 and January 1991, respectively. Work continued on the final copies of the geotechnical reports which will be incorporated as part of the "Bid Issue" IFB documents.
 - Continued work on the sheet pile feasibility analysis at Port Said.
 - Continued home and field office support in review, evaluation and response to information received from the subcontractor, Dames & Moore.
- **Environmental Assessments (EA)**
 - Draft Environmental Assessment for Ismailia was submitted for review in June 1990.
 - Scoping report for Port Said Raw Water Environmental Assessment submitted in July 1990.
 - Environmental Assessments for Suez and Ismailia were accepted in November 1990.
 - Supplements to the Environmental Assessments for Suez and Ismailia were submitted in December 1990 and March 1991, respectively.

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- Final Environmental Assessments for the Wastewater Treatment Plant and the Raw Water Supply Facilities at Port Said were submitted in April 1991.
- Basis of Design Reports (BODR)
 - Draft final report for Suez was completed and submitted in July 1990 and the final report was completed and submitted in November 1990.
 - Representatives of the CMC travelled to Cairo to present the Suez BODR in August 1990. Discussions were also held regarding the aerated lagoon design, prequalification, and the Port Fouad Facilities Assessment.
 - Prepared and submitted Addendum No. 1 to the Suez BODR.
 - Draft report for Ismailia was completed and submitted in January 1991, the draft final report in February 1991 and the final report in May 1991.
 - Commenced work on the Port Said BODR including the area of the sludge storage site. A draft final report was completed and submitted in May 1991.
- Bidding Documents (IFB)
 - Preliminary copies of Volume 1, IFB Tendering Documents, for Suez were submitted for review in August 1990.
 - Discussions were held with Mr. H. A. Dare, the CMC, and USAID to determine the possible use of a consulting service to optimize quality control efforts on the IFB documents. This option was later dismissed.
 - Final review documents, specifications and drawings for Suez were completed and submitted in December 1990 and the "Bid Issue" documents were published in March 1991.
 - An Opinion of Probable Construction Costs for Suez was completed and submitted in January 1991.
 - Work commenced on Addendum No. 1 for the Suez IFB documents and a review copy was submitted in May 1991.
 - Final draft copies of the Ismailia IFB documents were submitted in March 1991 for review.

- **Design/Build Contractor Prequalification**
 - **Distribution of the second prequalification application was completed and a draft Prequalification Evaluation and Recommendation report was completed and submitted in August 1990. A debriefing of the contractors who did not return an application was also completed and submitted.**
 - **USAID recommended an extension of the submission deadline. A new CBD Notice was published in September 1990 and Addendum No. 1 to the September 1990 prequalification issue was submitted in October 1990.**
 - **A second draft evaluation report was submitted in November 1990 for review.**
 - **Addendum No. 2 to the September 1990 document was issued in December 1990.**
 - **The final Evaluation of Prequalification Applications report was completed and submitted in February 1991.**
 - **In March 1991, two single entity firms and two joint ventures were notified of their prequalification and one single entity firm and three joint ventures were notified of their nonprequalification.**
- **Port Fouad Facilities Assessment**
 - **Task Order No. 16 was approved in September 1990.**
 - **Work commenced in June 1990 in order to derive a recommendation for force main routes from Port Fouad to the Port Said WWTP including pipe sizes, pump station requirements and the Suez Canal crossing. A letter report was completed and presented in August 1990. USAID has elected not to pursue the Port Fouad work.**
- **Co-Composting of Solid Waste and Sludge**
 - **A Scope of Work was completed and submitted in November 1990 for a Technical Input Report on Co-Composting at Port Said.**
 - **Task Order No. 20 was approved in February 1991.**
 - **A draft report on co-composting technologies was submitted in February 1991 with updates for the demonstration study in April 1991.**

- **Additional Project Work**
 - **Home Office Organizational Chart** was developed for Annual Report No. 2 which was completed and submitted in June 1990. This chart indicated the technical support staff for each joint venture member.
 - **Survey of Suez Bay** was completed in July 1990.
 - **A memorandum** was prepared in November 1990 containing the CMC's recommendation for the rehabilitation and utilization of the Abu Atwa Pump Station and a gravity pipeline for the plant effluent.

ACTIVITIES FOR THE NEXT REPORTING PERIOD

- **Complete soil investigations** at Port Said and prepare report.
- **Receive approval** on Supplemental Environmental Assessments for Suez and Ismailia.
- **Receive approval** on Final Environmental Assessment for Port Said Wastewater Treatment Plant.
- **Receive a formal decree** for the Port Said sludge disposal site.
- **Receive review comments** on Port Said Basis of Design Report, revise accordingly, and submit final copy.
- **Complete cost estimates** for Ismailia and Port Said based on IFB documents.
- **Submit Addendum Nos. 1 and 2** for Suez IFB documents to document holders.
- **Complete draft IFB documents** for Port Said, submit for review and approval, and revise accordingly.
- **Issue final IFB documents** for Ismailia and Port Said to prequalified Design/Build Contractors and request technical bids for each city.
- **Receive technical bids**, review, evaluate, and prepare report for all three cities.
- **Request commercial bids** for all three cities. Review, evaluate, and prepare report on commercial bids for Suez and Ismailia.
- **Issue Notice to Proceed** to the Contractor on the Suez contract.

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SECTION 4. INSTITUTIONAL DEVELOPMENT

CMC ANNUAL PROGRESS REPORT NO. 3

Institutional Development

TECHNICAL ACTIVITIES

Major technical activities during the reporting period include:

- The collection of O & M cost data commenced and was completed during June and July 1990. A sensitivity analysis was also completed in July 1990 to determine the impact on coverage of O & M costs from incremental increases in water tariffs and wastewater surcharges.
- Draft copies of the O & M Cost Study report were submitted in August 1990.
- Final copies of the O & M Cost Study report were submitted in May 1991 following incorporation of review comments and an additional analysis in January 1991 of O & M costs using alternative assumptions regarding tariff increases and power costs.
- Task Order No. 18 was approved in October 1990; Revision No. 1 to T.O. 18, Evaluation of RFPs for Institutional Development, was submitted in November 1990 but was not approved. Task Order No. 18 was canceled in January 1991.
- As of the end of this reporting period, all tasks for this project element has been completed.

ACTIVITIES FOR THE NEXT REPORTING PERIOD

- No activities planned, all tasks for this project element have been completed.

SECTION 5. PORT SAID - RAW WATER

CMC ANNUAL PROGRESS REPORT NO. 3

Port Said-Raw Water

GENERAL

The facilities for the supply of raw water to Port Said include:

- A pumping station near Qantara.
- A single 1500 mm diameter pipeline from the new pumping station to the downstream end of the Sweetwater Canal at Port Said.
- The existing Sweetwater Canal.
- The initial capacity of raw water supply to Port Said will be 320,000 m³/day, 150,000 m³/day of which will be provided by the existing canal and the remaining 170,000 m³/day to be provided by the pumping station through the proposed 1500 mm diameter pipeline.
- The new pumping station and pipeline facilities will be designed and appropriate right-of-way will be reserved such that the initial capacity of 170,000 m³/day may be expanded to 400,000 m³/day in the future.

The design drawings and specifications for the pipeline facilities will be prepared by Mokhtar Ibrahim. The preliminary design documents for the pumping station facilities will be prepared by the CMC and these documents will be included as part of the IFB for the Port Said Wastewater Treatment Facilities.

TECHNICAL ACTIVITIES

Task Order No. 21 for the design of the pumping station was approved by USAID on March 19, 1991. A Basis of Design Report was prepared and incorporated into the Port Said Wastewater Basis of Design Report. The latter was submitted to USAID and NOPWASD for review on May 3, 1991.

Work continued on the preparation of the contract documents which will include the conceptual drawings and detailed technical specifications of the equipment and materials to be used in the construction and furnishing of the pumping station and appurtenant structures.

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As at the end of the reporting period, the drawings were approximately 50 percent complete and the technical specifications 20 percent complete. An Environmental Assessment for the Port Said Raw Water Facilities has been completed and submitted to USAID and NOPWASD for review. Approval of the report was received on February 17, 1991. The final Environmental Assessment report was submitted on February 25, 1991. Preparation is underway to have the soils investigation of the pumping site carried out by the CMC subcontractor, Dames & Moore International, during the coming month.

ACTIVITIES FOR THE NEXT REPORTING PERIOD

- Complete the contract documents.
- Complete the soils investigation of the site.

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EXHIBITS

- A. COST SUMMARY OF INVOICED AMOUNTS
- B. ENGINEERING AND CONSTRUCTION COSTS
DISBURSEMENT - 1988/94
- C. CASH FLOW PROJECTION - 1988/97
- D. ORGANIZATION CHART - PRELIMINARY
ENGINEERING STAGE
- E. BVI/JMM HOME OFFICE ORGANIZATION CHART -
PRELIMINARY ENGINEERING PHASE
- F. SCHEDULED VS ACTUAL COMPLETION BY MANMONTH
FORMAT
- G. SCHEDULED VS ACTUAL COMPLETION BY BARCHART
FORMAT
- H. CONDENSED IMPLEMENTATION SCHEDULE - SUEZ
- I. CONDENSED IMPLEMENTATION SCHEDULE - ISMAILIA
- J. CONDENSED IMPLEMENTATION SCHEDULE - PORT SAID

**CANAL CITIES
WATER AND WASTEWATER PHASE II PROJECT
COST SUMMARY OF INVOICED AMOUNTS
(US DOLLARS)**

**EXHIBIT A
AID PROJECT 263-0174**

Description	Amount this Invoice*	Total to Date**	Total for Year 1, 2 and 3	Total Contract
1. Labor Costs	\$276,689	\$6,234,363	\$4,679,000	\$7,748,000
2. Travel Costs	1,495	286,277	385,000	541,000
3. Shipping Costs	0	19,215	434,000	744,000
4. Office Costs	37,256	688,617	655,000	999,000
5. Arrival Costs	0	20,441	165,000	307,000
6. Subcontract - Dames & Moore	17,114	1,882,137	1,188,000	1,228,000
7. Subcontract - Sabbour	13,962	582,566	895,000	1,373,000
8. Subcontract - Sheladia	0	0	350,000	350,000
Subtotal	346,517	9,750,875	8,751,000	13,290,000
Fee	34,652	975,087	875,000	1,329,000
Total	381,169	10,725,962	9,626,000	14,619,000

* Billing Period: April 1991 (Invoice No. 33)

** Total to Date: Amounts are through April 1991 and reflect a billing adjustment of (\$1,112,665)

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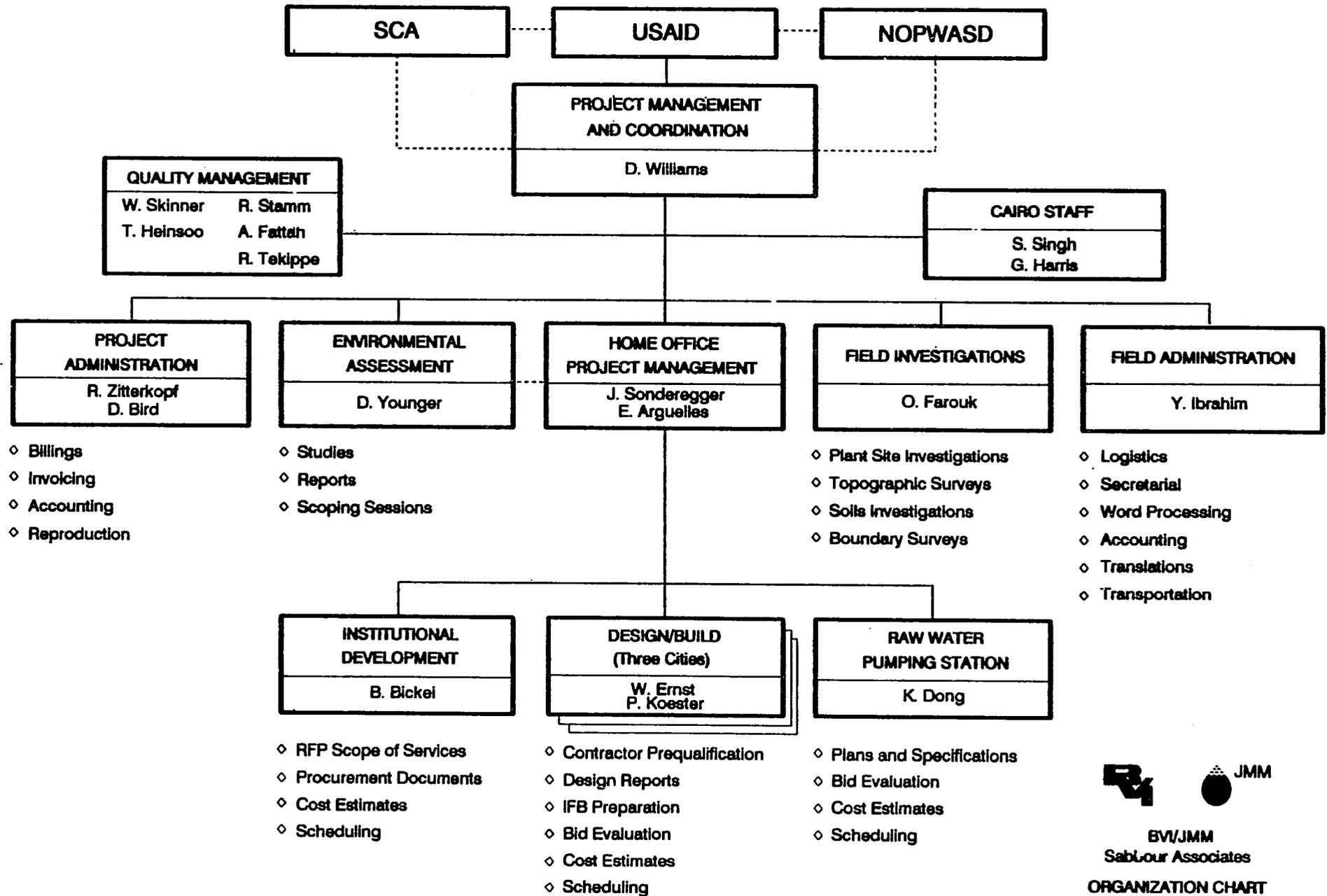
**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
ENGINEERING AND CONSTRUCTION COSTS DISBURSEMENT
(US \$1,000,000)**

**EXHIBIT B
AID Project 263-0174**

Description	CALENDAR YEAR										TOTALS	
	1988	1989	1990	1991	1992	1993	1994	1995	1996	Without Contingency	With Contingency	
A. Capital Costs												
• Port Said Wastewater AID					32.92	64.3	20.77	2.16	2.16	122.31		
• Port Said Wastewater GOE					0.88	1.83	0.60	0.04	0.04	3.39		
• Ismailia Wastewater AID				4.00	20.19	36.84	16.57	0.80	0.80	79.20		
• Ismailia Wastewater GOE				1.40	7.13	11.87	6.50	0.40	0.40	27.70		
• Suez Wastewater AID				9.40	41.36	29.3	13.53	1.00	1.20	95.79		
• Suez Wastewater GOE				3.00	13.20	9.05	3.86	0.60	0.60	30.31		
• Port Said Raw Water AID					8.30	2.80				11.10		
• Port Said Raw Water GOE					12.50	30.30	4.50			47.30		
B. Technical Assistance												
• CMC AID	3.35	3.34	5.96	1.99	1.40	1.00	0.71	0.40	0.40	18.55		
• Institutional Development AID			1.50	3.40	4.00	3.70	2.65			15.25		
C. Audit and Evaluation AID			0.10	0.15	0.15	0.15	0.15	0.15	0.45	1.30		
D. Contingency												
• AID				1.20	3.50	12.50	12.50	5.40	1.40		36.50	
• GOE				1.00	2.30	2.30	2.30	2.30	1.10		11.30	
Totals AID	3.35	3.34	7.56	20.14	111.82	150.59	66.88	9.91	6.41	343.50	380.00	
Totals GOE	0.00	0.00	0.00	5.40	36.01	55.35	17.76	3.34	2.14	108.70	120.00	
TOTALS	3.35	3.34	7.56	25.54	147.83	205.94	84.64	13.25	8.56	452.20	500.00	

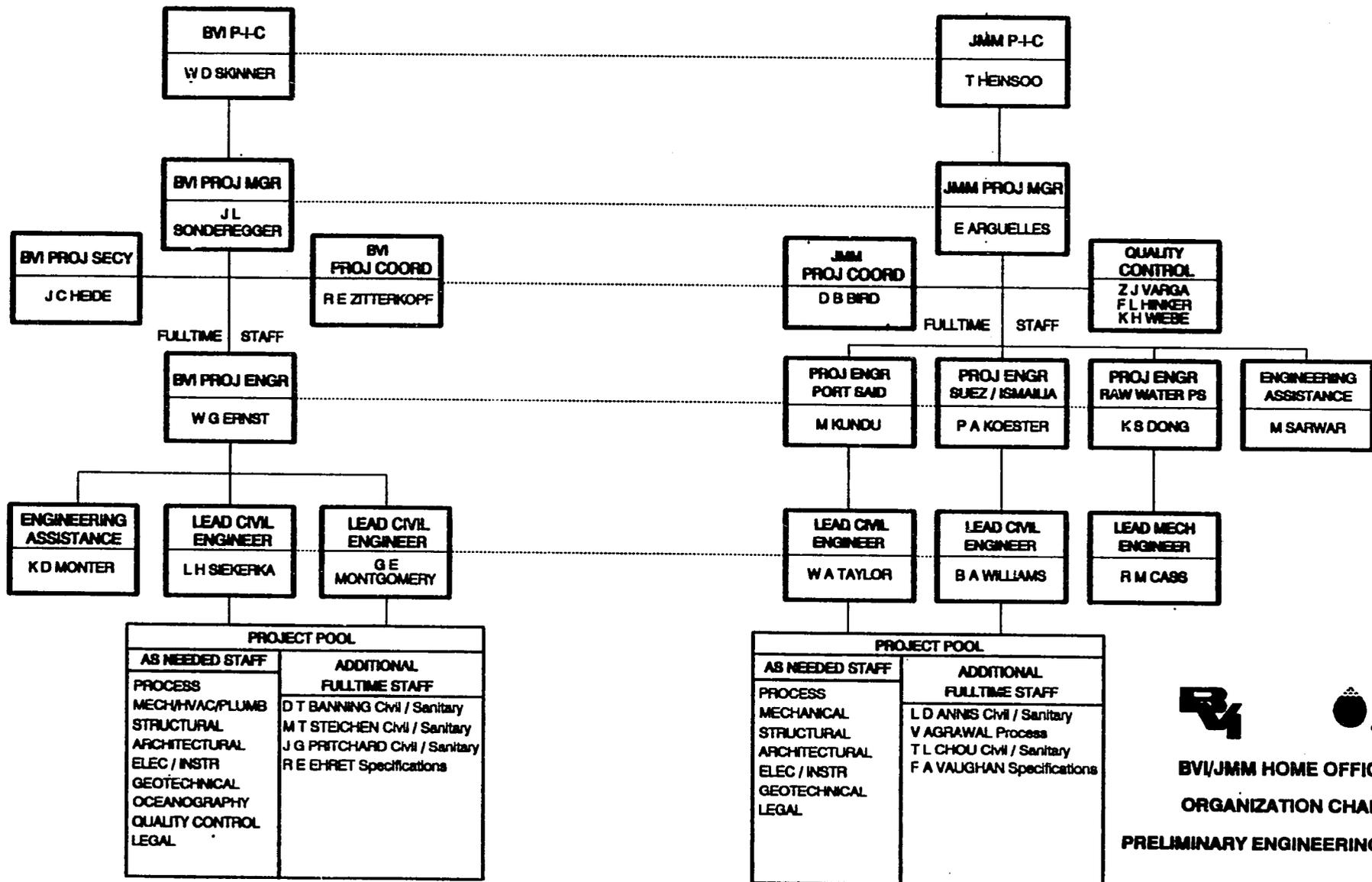
1. Disbursements from 1 September 1988 through 23 April 1991 are based on invoice amounts.
2. Disbursements are expressed in million USD.

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ORGANIZATION CHART
PRELIMINARY ENGINEERING PHASE
Canal Cities Water and Wastewater
Phase II Project

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BVI/JMM HOME OFFICE
ORGANIZATION CHART
PRELIMINARY ENGINEERING PHASE

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EXHIBIT F

SCHEDULED vs. ACTUAL COMPLETION

By Mammoth Format

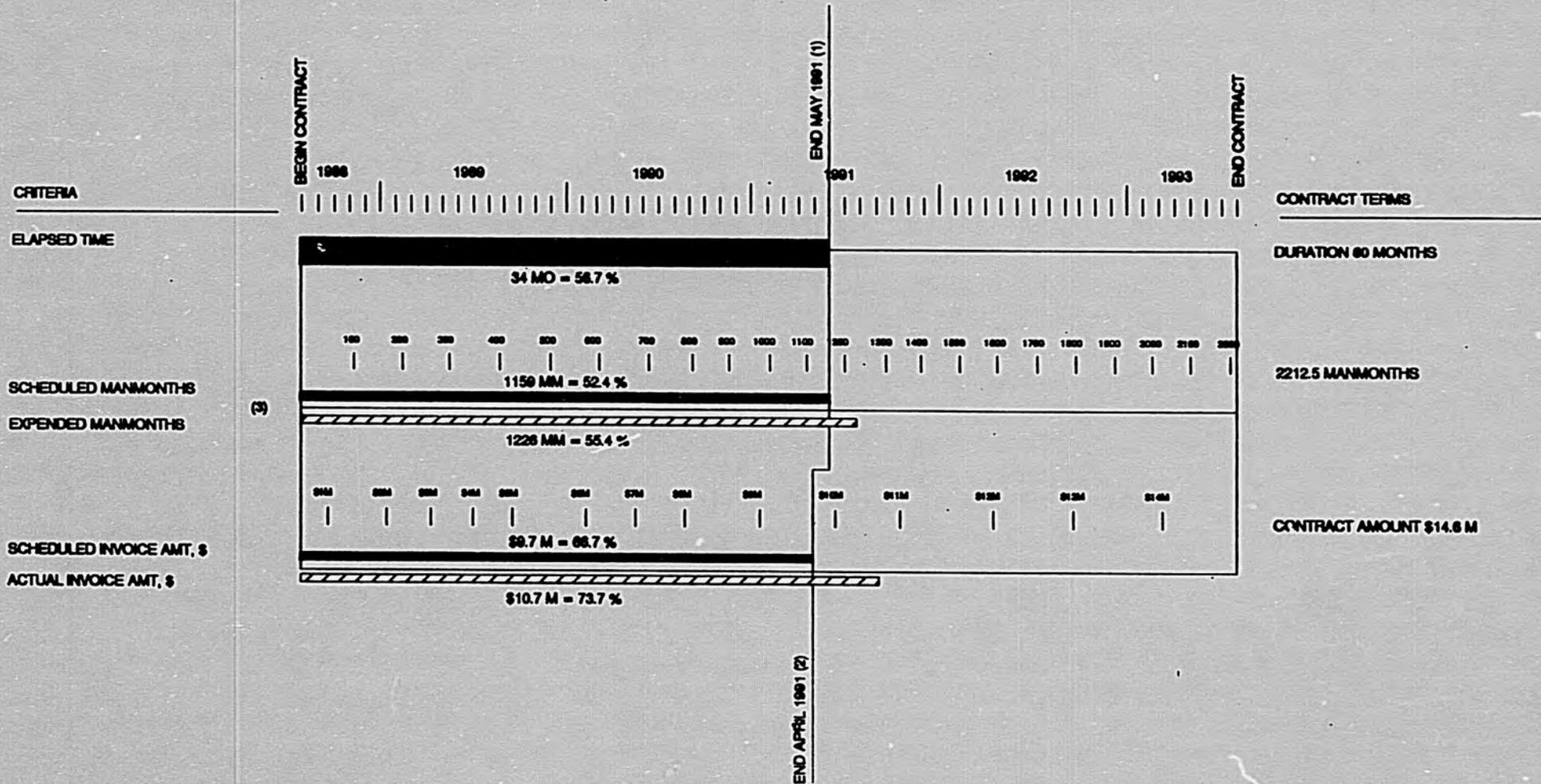
TASK NO.	ORIGINAL TASK DESCRIPTION	BVI/JMM BUDGETED MANMONTHS(1)	BVI/JMM MANMONTHS REVISED BY T.O.	BVI/JMM MANMONTHS EXPENDED(2)	TASK APPROXIMATE PERCENT COMPLETE
1	Site Selection (3)	5.00	5.00	32.29	95
2	Topographic Surveys	1.00	1.00	0.43	100
3	Soils Investigation (4)	0.50	0.50	2.52	80
4	Environmental Assessment	7.50	7.50	1.76	80
5	Subcontract (Sibeladia)	27.00	27.00	0.00	0
6	Institutional Development	7.00	7.00	7.68	100
7	Contractor Prequalification	5.00	5.00	4.73	100
8	Design Report (5)	65.00	76.00	93.86	90
9	IFB Preparation (6)	65.00	185.00	251.34	80
10	SCA Procurement (7)(8)	9.00	11.00	0.31	100
11	Cost Estimates (19)	6.50	6.50	6.06	50
12	Tender Reviews	28.50	28.50	0.00	0
13	Scheduling (9)	5.00	5.00	11.85	75
14	Quality Assurance	<u>8.00</u>	<u>8.00</u>	<u>3.96</u>	50
	Subtotal	240.00	373.00	416.78	
OTHER TASKS, UNBUDGETED					
	- Law 48 Treatment Costs(10)	0.00	3.00	0.66	100
	- Alternative Treatment Study(11)	0.00	27.00	72.48	100
	- Second Prequalification(12) (15)	0.00	7.00	10.05	100
	- O & M Cost Study(13)	0.00	2.00	3.22	100
	- Port Fouad Facilities Assessment(14)	0.00	2.40	1.40	100
	- Port Said Composting(16)	0.00	1.20	2.61	85
	- Technical Training Trip(17)	0.00	0.00	2.58	100
	- Port Said Raw Water Supply (18)	<u>0.00</u>	<u>11.00</u>	<u>3.90</u>	20
	Subtotal	<u>0.00</u>	<u>53.60</u>	<u>96.90</u>	
	TOTAL	<u><u>240.00</u></u>	<u><u>426.60</u></u>	<u><u>513.68</u></u>	

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EXHIBIT F (Continued)

- (1) BVI and JMM home office manmonths agreed to by USAID on 15 June 1988. Previous reports incorrectly included 11 manmonths assigned to Dames & Moore.
- (2) BVI manmonths expended through 10 May 1991, JMM through 25 May 1991.
- (3) During the first 6 months on the project, much additional time was spent on an evaluation of the efficacy of the Rapid Infiltration System, the Deep Shaft Treatment Process, and the inability of the proposed sites to support such processes. The manmonths for these investigations were charged to the closest applicable contract task: Site Selection. Site selection procedures are not complete in Port Said.
- (4) As part of the evaluation of the Deep Shaft Process, it was necessary to conduct deep soil borings at each site to examine the construction techniques to be used for excavating the shafts. Although this was an unbudgeted item, it was charged to the closest applicable contract task: Soils investigation.
- (5) T.O. 12.1, 12.2 and 12.3 signed by USAID on 26 Dec 1989.
- (6) T.O. 14.1, 14.2, and 14.3 signed by USAID on 8 Mar 1990.
- (7) T.O. 3 signed by USAID ON 30 Aug 1988.
- (8) Manmonths expended is only for the work authorized by T.O. 3 and that portion is 100 percent complete.
- (9) The budgeted manmonths agreed to on 15 June 1988 were sufficient for the CMC to schedule its work using conventional CPM techniques. Additional time has been required.
- (10) T.O. 2 signed by USAID on 28 July 1988.
- (11) T.O. 9 signed by USAID on 6 Feb 1989 and the level of effort agreed to was 27 manmonths. In August 1989, the final draft of the report was delivered. After USAID's review and analysis, the CMC was requested to further revise the report to include complete project cost, a more detailed sludge handling section, and the effects on receiving water bodies of both primary treatment and Law 46 treatment. The final report was delivered in October 1989. The level of effort required to complete the report in the manner requested was approximately 73 manmonths. Previous reports incorrectly included approximately 9 manmonths of professional manpower assigned on a long-term basis to the Cairo project office.
- (12) T.O. 13 signed by USAID on 21 Jan 1990.
- (13) T.O. 15 signed by USAID on 30 May 1990.
- (14) T.O. 16 signed by USAID on 16 September 1990.
- (15) T.O. 13.1 signed by USAID on 13 September 1990.
- (16) T.O. 20 signed by USAID on 12 February 1991.
- (17) T.O. 19 (Rev. 1) signed by USAID on 13 November 1990.
- (18) T.O. 21 signed by USAID on 19 March 1991.
- (19) T.O. 17.3 signed by USAID on 13 September 1990 and T.O. 17.2 signed by USAID on 16 May 1991.

SCHEDULED vs. ACTUAL COMPLETION
By Bar Chart Format



(1) Manmonths expended thru 5-10-91 for BVI and 5-25-91 for JMM.

(2) Invoiced amounts as of Canal No. 33 (latest invoice).

(3) Manmonths include BVI, JMM, D&M, and Babbour; home office and expat

EXHIBIT G

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APPENDICES

- A. SUMMARY OF TASK ORDERS ISSUED
- B. PROJECT PERSONNEL SUMMARY
- C. STAFF MOVEMENTS

**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
SUMMARY OF TASK ORDERS ISSUED**

**Appendix A
AID Project 263-0174**

T.O. No.	Date Issued	Purpose	Name	Candidate Position	Duration Cal. days	Estimated Total MM
1	28 JUL 88	- Notice to Proceed - Mobilization - Finalize Wastewater Treatment Sites	M. Moore	Field Office Coordinator	Indef.	--
2	29 JUL 88	Prepare estimates for treatment process to comply with Law 48	--	--	--	3 MM
3	30 AUG 88	- Prepare estimate to review raw water transmission design - Prepare purchase specifications for pipe	--	--	--	2 MM
4	15 SEP 88	Procurement of Technical Assistance for Institutional Development	J. Brown	Institutional Develop Expert	--	2 MM
5	16 OCT 88	- Determination of Flows - Determine Site Suitability	E. Arguelles J. Kirby R. Turnbull, Jr.	Project Engineer Project Engineer Hydrogeologist	30 days 30 days 17 days	2.75 MM

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**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
SUMMARY OF TASK ORDERS ISSUED**

**Appendix A
AID Project 263-0174**

T.O. No.	Date Issued	Purpose	Name	Candidate Position	Duration Cal. days	Estimated Total MM
6.1	10 JAN 89	Topographic survey of treatment site, force main and pump station at Port Said	--	Surveyors	69 days	0.5 MM
6.2	10 JAN 89	Topographic survey of treatment site, force main and pump station at Ismailia	--	Surveyors	94 days	0.5 MM
6.3	10 JAN 89	Topographic survey of treatment site, force main and pump station at Suez	--	Surveyors	72 days	0.5 MM
7.1	10 JAN 89	Environmental assessment of proposed site at Port Said	--	a) Chief Environmentalist b) Environmentalist	175 days	5 MM
7.2	10 JAN 89	Environmental assessment of proposed site at Ismailia	--	a) Chief Environmentalist b) Environmentalist	231 days	5 MM
7.3	10 JAN 89	Environmental assessment of proposed site at Suez	--	Chief Environmentalist	281 days	5 MM

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**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
SUMMARY OF TASK ORDERS ISSUED**

**Appendix A
AID Project 263-0174**

T.O. No.	Date Issued	Purpose	Name	Candidate Position	Duration Cal. days	Estimated Total MM
8.1	10 JAN 89	Soils investigation at at Port Said	--	a) Prin. Geotech. Eng. b) Staff Geotech Eng.	200 days	6 MM
8.2	10 JAN 89	Soils investigation at station at Ismailia	--	a) Prin. Geotech. Eng. b) Staff Geotech. Eng.	207 days	6 MM
8.3	10 JAN 89	Soils investigation at Suez	--	Prin. Geotech. Eng.	174 days	6 MM
9	06 FEB 89	Comparison of alternative wastewater tretament schemes for Port Said, Ismailia and . Suez	--	--	142 days	25 MM
10	26 MAR 89	Preparation of paper on environmental impact of wastewater in Port Said	--	--	--	2 MM
11	23 MAY 89	Numerical modeling study. Port Said wastewater discharge into Lake Manzala	--	--	--	2 MM

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**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
SUMMARY OF TASK ORDERS ISSUED**

**Appendix A
AID Project 263-0174**

T.O. No.	Date Issued	Purpose	Name	<u>Candidate</u> Position	Duration Cal. days	Estimated Total MM
12.1	26 DEC 89	Basis of Design Report for facilities at Port Said	--	--	--	27 MM
12.2	26 DEC 89	Basis of Design Report for facilities at Ismailia	--	--	--	22 MM
12.3	26 DEC 89	Basis of Design Report for facilities at Suez	--	--	--	27 MM
13	21 JAN 90	Revision of Prequalification Documents	--	--	168 days	5 MM
13.1	13 SEP 90	Extension of Prequalification Period Until 10 October 1990	--	--	45 days	2 MM
14.1	08 MAR 90	Preparation of Contract Documents for Port Said	--	--	--	65 MM

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**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
SUMMARY OF TASK ORDERS ISSUED**

**Appendix A
AID Project 263-0174**

T.O. No.	Date Issued	Purpose	Name	Candidate Position	Duration Cal. days	Estimated Total MM
14.2	08 MAR 90	Preparation of Contract Documents for Ismailia	--	--	--	60 MM
14.3	08 MAR 90	Preparation of Contract Documents for Suez	--	--	--	60 MM
15	30 MAY 90	Preparation of Operation and Maintenance Cost Study	--	--	84 days	4.8 MM
16	16 SEP 90	Port Fouad Facilities Assessment	--	--	33 days	2.4 MM
17.2	16 MAY 91	Ismailia Cost Estimates	--	--	60 days	2 MM
17.3	13 SEP 90	Suez Cost Estimates	--	--	60 days	2 MM
18	30 OCT 90	Evaluation of Institutional Development Proposals	--	--	Cancelled	

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**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
SUMMARY OF TASK ORDERS ISSUED**

**Appendix A
AID Project 263-0174**

T.O. No.	Date Issued	Purpose	Name	<u>Candidate</u> Position	Duration Cal. days	Estimated Total MM
19	13 NOV 90	Technology Transfer Trip to USA	--	--	12 days	--
20	12 FEB 91	Co-composting Demonstration Project	--	--	56 to 140 days	--
21	19 MAR 91	Port Said Raw Water Pumping Station	Khiem Dong	Project Manager	150 days	11 MM

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**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
PROJECT PERSONNEL SUMMARY**

**Appendix B
AID Project 263-0174**

BVI/JMM Field Office - Cairo

<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Field Project Coordinator D.W. Williams	1,784
Office Engineer G.L. Harris S.G. Singh	1,832 1,668
Field Engineer J.W. Allen W.T. Chu	8 <u>40</u>
Subtotal - BVI/JMM Field Office - Cairo	5,332

BVI Home Office - Kansas City

<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
BVI Project Manager J.L. Sonderegger	1,491
BVI Project Engineer W.G. Ernst	1,826
Quality Management L.T. Schaper W.D. Skinner R. Stamm	7 280 38
Institutional Development Specialist B.W. Bickel T.L. Roberts	153 226

<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Project Coordination	
D.M. Clark	88
D.H. Swift	24
R.E. Zitterkopf	166
Legal Staff	
M.A. Carroll	6
P.A. Lynch	3
Agricultural Engineer	
S.I. McMillan	84
Architect	
M.A. Jorgensen	204
N.G. Martin	4
D.J. McCarthy	7
K.O. Nease	20
D.A. Yearout	1
Civil Engineer	
D.T. Banning	2,038
R.C. Brockway	1
J.W. Burnett	128
M.D. Bushouse	3
B.S. Casey	108
K.A. Cash	882
L.W. Chapple	1,392
K.R. Connor	110
J.D. Conzett	6
P.L. Cook	2
J.L. Guthrie	11
K.J. Harder	136
J.S. Harmon	14
E.E. Jenkins	64
T.D. Knox	2
H.E. Lutz	26
G.L. Miller	1
K.D. Monter	1,915
G.E. Montgomery	1,659
J.G. Pritchard	340

<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Civil Engineer (cont.)	
R.G. Reeves	4
R.A. Rinne	52
J.A. Roy	14
L.H. Siekerka	2,074
F.T. Smith	53
P.L. Spitzer	52
M.T. Steichen	2,066
T.J. Stolinski	28
J.E. Touslee	22
Electrical Engineer	
T.E. Davis	61
H.D. Fiddick	6
L.C. Johnson	6
M.A. Pool	508
Environmental Engineer	
K.S. Hunt	3
Geotechnical Engineer	
K.M. Blevins - McCosh	2
D.P. Gupta	119
R.M. Vaeth	956
Industrial Engineer	
B.C. Schubert	22
Mechanical Engineer	
D.E. Fulcher	5
J.V. Gass	50
J.T. Klamm	15
L.D. Pittman	245
J.R. Treece	10
J.E. Welp	116
Oceanographer	
G.R. Miller, Jr.	10

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<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Process Engineer	
J.S. Carr	7
M.L. Harding	18
G.L. Hunter	10
T.L. Johnson	11
E.A. Kobylinski	221
R.Shams-Khorzani	8
M.S. Stein	13
C.L. Wallis-Lage	28
Residuals Management	
R.D. Kuchenrither	9
J.W. Novacek	8
Specification Writer	
J.B. Ardahl	491
R.E. Ehret	2,147
A.D. Kliewer	75
H.E. Spindler	44
Structural Engineer	
L.J. Almaleh	9
M.W. Kaufman	14
P.H. Lind	14
M.M. Moussa	48
R.N. Starcke	175
D.L. Wiseman	4
Cost Estimator	
G.D. Laffoon	51
C.R. Stegman	159
Financial Analyst	
B.L. Anstine	6
J.L. Walters	121

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<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Fiscal Management	
K.D. Carr	49
D.S. Conyers	40
L.R. Khan	31
M.W. Robe	38
R.D. Willis	225
Purchasing Agent	
D.A. Richardson	1
Subprofessionals	
33 individuals	2,467
Administration	
54 individuals	<u>4,844.75</u>
Subtotal - BVI Home Office	31,351.75

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JMM Home Office - Pasadena

<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
JMM Project Manager	
E. Arguelles	1,226
R.D. Westervelt	411.5
JMM Project Engineer	
K.S. Dong	1,333
P.A. Koester	1,758
Quality Management	
T. Heinsoo	126
Project Coordination	
D.B. Bird	283
Quality Control	
J.L. Chao	3
K.G. Ferguson	2
F.L. Hinker	48.5
W.F. Langer	9
H.V. Mayang	408
J.C. Strassle	2
Design Services Manager	
A.S. Rashidi	460
Chief of Construction Management	
J.H. Creager	9.5
Architect	
W.H. Brumm	26
A.O. Elhadary	166.5

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<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Civil Engineer	
L.D. Annis	441
S.C. Atkinson	1
H.Y. Babikian	294.5
W.C. Bellaman	107
R.M. Cass	120
T.L. Chou	596
J.R. Frisby	46
C.M. Gujral	1
A. Hasan	68
L.J. Karns	80
R.E. Kirkman	6
G.H. Lewer	52.5
W.K. Liu	20
R.R. Mann	2
R.A. Moeller	6
E.G. Paulson	14
E.A. Priestly	29
J.L. Ris	78
M. Sarwar	1,379
J.R. Sproat	830
R.V. Stokes	2
W.A. Taylor	244.5
F.L. Vaughan	645
B.A. Williams	1,293.5
Cost Estimator	
M. Ansari	56
J.M. Bolin	79
W.B. Burkholder	239
W.T. McGivney	232
D. Yanez	113
Electrical Engineer	
R.E. Abordo	4
M.R. Santos	16
Environmental Engineer	
J.L. Fahey	119

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<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Hydrogeologist	
J.E. Bosamko	3
V.E. Harris	2
S.J. Varela	3
K.H. Wiebe	121
Instrumentation Engineer	
C.T. Day	11.5
Mechanical Engineer	
S.A. Douara	76
S.T. Krueger	97
T.S. Loh	4
R.J. Sacro	150
C.C. Tey	8
D. Yang	23
Process Engineer	
V. Agrawal	612.4
A.J. Condren	187
Y. Jalali-Yazdi	147
M. Kundu	442
G.B. Sprouse	32.2
C.H. Thoy	12
Z.J. Varga	338
R.W.R. Warner	7
J.A. Wojslaw	4
Software Engineer	
P.J. Kolsky	11.5
Specifications Writer	
D.B. Peters	19
C.L. Whittaker	25.5
Structural Engineer	
M.O.E. Abdel-Aal	76
L.E. Fairbanks	6
C.H. Lee	28
H.T. Ma	100
S.T. Mouawad	164.5

<u>Position and Assigned Personnel</u>	<u>Manhours Charged During Reporting Period</u>
Subprofessionals 35 individuals	2,285
Administration 46 individuals	<u>1,464</u>
Subtotal - JMM Home Office	<u>19,945.60</u>
Total Manhours - Reporting Period (BVI - May 12, 1990 thru May 10, 1991) (JMM - May 27, 1990 thru May 25, 1991)	56,629.35
Total Manhours - Annual Report No. 1 (July 28, 1988 thru August 26, 1989)	20,453.00
Total Manhours - Annual Report No. 2 (BVI - August 27, 1989 thru May 11, 1990) (JMM - August 27, 1989 thru May 26, 1990)	22,834.00
Grand Total Manhours - Project	<u>99,916.35</u>

**CANAL CITIES
WATER AND WASTEWATER - PHASE II PROJECT
STAFF MOVEMENTS**

**Appendix C
AID Project 263-0174**

STAFF MOVEMENTS - TDY PERSONNEL

<u>Personnel</u>	<u>From</u>	<u>To</u>
E. Arguelles	4/17/91	4/26/91
B. W. Bickel	7/7/90	7/13/90
L. W. Chapple	7/29/90	8/6/90
W.G. Ernst	7/29/90 4/15/91	8/16/90 4/26/91
P. A. Koester	8/1/90	8/16/90
T. L. Roberts	6/15/90	7/13/90
J. L. Sonderegger	7/29/90 4/15/91	8/17/90 4/26/91