

PD-ABE-174

ARAB REPUBLIC OF EGYPT  
**NATIONAL ORGANIZATION FOR POTABLE WATER  
AND SANITARY DRAINAGE**

**PROVINCIAL CITIES DEVELOPMENT PROJECT  
WATER AND WASTEWATER IMPROVEMENTS**

UNITED STATES OF AMERICA  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
USAID/EGYPT

USAID GRANT NO. 263-0161.3

CONSTRUCTION MANAGER:

**MONTGOMERY-HARZA**

**JMM** James M. Montgomery  
Consulting Engineers Inc

**HARZA** ENGINEERING COMPANY

IN ASSOCIATION WITH:

ECTO/WARDANI ASSOCIATED CONSULTANTS

PD-ABE-174

ISA 77342

**MONTHLY REPORT NO. 34**

**MARCH, 1991**

MONTGOMERY-HARZA

United States Agency for  
International Development  
Cairo Center Bldg. Ninth Floor  
106 Kasr El Aini Street  
Cairo, Egypt

Ref. No. MH-AID-399

May 13, 1991

Attention: Mr. H. A. Feldt  
Project Officer

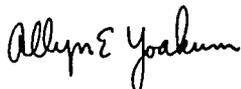
Subject: Provincial Cities Development Project  
Water and Wastewater Improvements  
USAID Project No. 263-0161.03  
C/M MONTHLY REPORT FOR MARCH 1991

Gentlemen:

Enclosed is the Construction Manager's Monthly Report for March 1991.

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

Very truly yours,



Allyn E. Yoakum  
Project Manager

AY/if

Distribution:

USAID-----10  
NOPWASD----5  
JMM  
Harza  
Claims Specialist  
WMA  
Beni Suef Site  
Fayoum Site  
Minia Site  
File 3.1.6 (w/o encl.)  
File 8.1.6

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## PROVINCIAL CITIES DEVELOPMENT PROJECT

### PREFACE TO MONTHLY REPORT

The Provincial Cities Development Project Water and Wastewater Improvements Program is the culmination of a major project begun in 1982, under a USAID grant, for the Egyptian Cities of Fayoum, Beni Suef and Minia. These three cities situated in the Nile Valley to the southwest of Cairo are approximately equal in size and have a combined population near 1,000,000.

Previous phases of the Provincial Cities Development Project focused on such improvements as laying sewer laterals, installing distribution mains, upgrading drainage facilities, and refurbishing existing water and wastewater treatment plants and pumping stations.

The current Water and Wastewater Improvement Program is being implemented by the Egyptian Government's National Organization for Potable Water and Sanitary Drainage (NOPWASD).

On May 30, 1988, NOPWASD awarded a contract to L\*A Water Treatment Corporation (L\*A WTC) of City of Industry, California, for design and construction of major facilities to increase available water supplies, and for upgrading operation and maintenance capabilities of the beneficiary cities.

USAID retained a joint venture of the U.S. firms of James M. Montgomery, Consulting Engineers, Inc. (JMM) of Pasadena, California, and Harza Engineering Company (Harza), of Chicago, Illinois, under a direct USAID Contract to provide Construction Management Services for the current phase of work. Montgomery-Harza's responsibilities include, among other things, review of designs, monitoring of construction, certification of payments, and general contract administration.

Similar improvement programs are being performed simultaneously in the three cities. The work in each case consists of the following major elements:

Water Treatment Plant	300 L/S (6.85 MGD)
Treated Water Reservoir	8,000 to 12,000 M <sup>3</sup> (2.11 to 3.17 MG)
Elevated Steel Tanks	Three one-million gallon (3,785 M <sup>3</sup> ) units each city
Raw Water Intake and Pumping Stations	330 L/S (5,230 GPM)
Wastewater Pump Stations	5 in Beni Suef, 6 in Fayoum, and 6 in Minia

## PREFACE TO MONTHLY REPORT (2 OF 4)

Water Transmission Main      2,500 to 3,000 M (8,200 to  
Extensions                      10,800 FT.)

In addition, the project includes the following elements for upgrading or rehabilitating existing facilities and institutional capabilities:

- Sewer System Rehabilitation
- Watermain Leak Detection
- Sewer Infiltration/Inflow Studies and Sewerage System Evaluation Studies
- Watermain Cleaning and Lining
- Operation and Maintenance of Completed Facilities and Existing Wastewater Treatment Plants by L\*A WTC for a Two-Year Period
- Training in Leak Detection, Water Main Cleaning and Lining, and General Operation and Maintenance
- Inventory Control System

L\*A WTC has awarded a subcontract to Stanley Consultants International, of Muscatine, Iowa. Stanley's duties include contractor quality control services at the construction site, prepare O & M Manuals, and provide an inventory control system. In addition, other subcontracts have been awarded, as follows:

- U.S.A.

Pittsburgh-Des Moines Steel Corp. (PDM): Design and Erection of Elevated Steel Water Tanks and Foundations

Raymond International: Watermain Cleaning and Lining

Pacific Sewer Maintenance Corporation (PSMC): Sewer System I/I and SSES

Heath Consultants: Watermain Leak Detection

- A.R.E.

Badran and Associates: Design of Civil, Mechanical and Electrical Works and Buildings

Dr. Abouleid: Evaluation of Subsurface Soil Conditions and Conceptual Design of Foundations

Dr. Abdel Warith: Design of Water Transmission Line Extensions and Design of Wastewater Pumping Stations

Dr. Hisham Hafez: Geotechnical Consultant Specialist

## PREFACE TO MONTHLY REPORT (3 OF 4)

Ardaman-Ace Company: Field Geotechnical Investigations and Laboratory Work

Orascom Construction Company: Construction of Civil Works and Buildings

Orascom Construction Company: Painting Elevated Tanks

Kolaly Construction Company: Construction of Electrical and Mechanical Works and Rehabilitation of Wastewater Pumping Stations

The Design/Build Contract is funded for the amount of US\$ 53,066,009 by USAID with a contribution of LE 13,000,000 by the Egyptian government. An additional contribution of LE 2,000,000 for the payment of social security has been funded by the Egyptian government. The start date for the contract has been established as July 3, 1988. Construction completion date per the contract is March 2, 1991. This includes the Startup Function and a four month period of Initial Operation. Final contract completion date is March 2, 1993. This includes a twenty-four month period of Continued Operational Assistance. The contract also includes a concurrent, post startup, twelve month maintenance period. The USAID Letter of Commitment (L/C) in the amount of USD 52,446,359 extends only up to the original Project Assistance Completion Date (PACD) of August 31, 1991. The difference between the L/C and the USD contract amount represents payments for Continued Operational Assistance after the original PACD of August 31, 1991.

## Description of Contract Bid Item Tasks:

<u>Task No.</u>			<u>Description of Work Under Tasks</u>
<u>Beni Suef</u>	<u>Fayoum</u>	<u>Minia</u>	
A1	A2	A3	New Water Treatment Plants
A4	A5	A6	New Treated Water Reservoirs & High Service Pump Stations
A7	A8	A9	Three new Elevated Storage Tanks in each city
A10	A11	A12	Raw Water Intake and Pump Station Renovations in Beni Suef and New Facilities in Fayoum and Minia
A13	A14	A15	Rehabilitation of 16 Wastewater Pump Stations

**PREFACE TO MONTHLY REPORT (4 OF 4)**

<b>A16</b>	<b>A17</b>	<b>A18</b>	<b>Six Months of Training in Waterline Cleaning and Unit Price Lining.</b>
<b>A19</b>	<b>A20</b>	<b>A21</b>	<b>Water Transmission Line Extensions</b>
<b>A22</b>	<b>A23</b>	<b>A24</b>	<b>Sewer System Rehabilitations</b>
<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>Waterline Leak Detection Surveys and Reports</b>
<b>B4</b>	<b>B5</b>	<b>B6</b>	<b>Sewer Infiltration Surveys</b>
<b>B7</b>	<b>B8</b>	<b>B9</b>	<b>Sewer System Evaluation Surveys</b>
<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>Operational Assistance for Wastewater Collection and Treatment Facilities</b>

## PROJECT OVERVIEW

Construction during the month of March continued at an unacceptably slow rate of progress, with activity only occurring at the new water treatment plants. Although the nine elevated water storage tanks are erected, the Contractor ran out of paint and cannot complete the task. No construction activity has started on the water transmission line extensions, on the rehabilitation of wastewater pump stations, or on the sanitary sewer evaluation survey, even though construction drawings and reports were completed many months ago for these tasks. There were no design/ construction invoices certified during the month. Since the start of 1991, construction performance has been monitored by the C/M on the basis of a standardized field estimate indicating percentage of task completion at the end of each month. This monitoring indicates that the Contractor is accomplishing between 1 and 2 percent overall progress each month. In our opinion, there is no evidence that any improvement is likely to occur any time soon to alleviate this situation. With approximately 37% of the Project still to be achieved, indications are the work could go on for two or more years.

The staffing levels of key personnel in the Contractor's local Fayoum office have been, and continue to be, far short of the levels we believe are required to efficiently and effectively perform their design/build contract. There is only one expatriate design/ coordination engineer to take care of a many faceted project in three cities. However, there is no evidence that anyone in the existing local Fayoum office organization has any past experience of managing a similar type project.

In addition to the inadequate local office staff, the Contractor quality control team is not adequately staffed for the current phase of mechanical and electrical work. We have recommended they employ at least one more local staff member at each field site, who is experienced in this type of activity. The subcontractors work force and work output has also decreased substantially this month during Ramadan.

The C/M has informed the Contractor during meetings that we consider their rate of progress unacceptable, and we are further informing them by correspondence. The C/M requests that meetings take place with the owner and funding agencies to determine possible additional courses of action. Several possible actions are: request meetings in Egypt with the Contractor's USA office top level management to determine if they will direct changes; request that the Contractor replace the Project Director with a Construction Manager who understands this type of project and can motivate the staff to complete the work; or as a last resort, request termination of the Contract on the basis that the Contractor has persistently or flagrantly neglected to carry out its obligations under the Contract.

Design activity is still not complete, with several outstanding issues to be resolved. These issues include the Minia structural design for the raw water intake jetty and the Fayoum structural design for the raw water intake structure. The Minia jetty was approved in concept at the 90% stage by the C/M last month, with a request that missing design data be properly furnished when resubmitting the drawings at the preliminary works stage. The Contractor informed the C/M that they will submit the drawings in April. At Fayoum, the raw water intake structure foundation design was determined by the C/M to be inadequate. The C/M approved the 90% drawings and calculations subject to agreed changes being made when resubmitting at the preliminary works stage. If the Contractor incorporates the changes, this will resolve the Fayoum intake structure problem. At Beni Suef, the Contractor indicated an unreasonably long time period to rehabilitate the existing jetty, work which was not in the original Contract, so the suction line work associated with the jetty was deleted from the D/B Contract and will be installed by an independent local contractor.

Procurement and freight activity for imported FAS material is reported by the Contractor to be nearly complete. They report that 88% of the FAS material is on-site, another 10% ordered or shipped, and only 2% remains to be ordered. The latter figure consists entirely of laboratory equipment, furnishings, and similar items. Procurement invoicing by the Contractor remains the same as last month at 82%.

It appears that all major FAS equipment is now on-site, but that some minor mechanical and other materials are not. The C/M resident engineers continue to monitor the mechanical work closely to determine where delays are taking place. In spite of correspondence on a periodic basis requesting that procurement schedules which meet the Contract requirements be submitted for review and comment, this required activity has not been complied with by the Contractor to date, except the submission of periodic Master Customs Lists which are not useful in relating to the procurement requirements. The Contractor has now indicated that locally manufactured asbestos-cement pipe and couplings which meet the pressure ratings for the waterline extensions may be difficult to obtain. The C/M visited the factory to determine its manufacturing standards, concluding there is not a problem.

The C/M completed its evaluation of the Contractor's Alternate Compensable Delay Claim for time extension. The results were transmitted to the Contractor on March 27, 1991, concluding that the Contractor failed to demonstrate it is entitled to receive additional time and compensation, except for \$41,085 in interest resulting from the late LE advance payment.

The C/M is concerned about delays by the City of Minia in furnishing electric power to the new water plant site. We have arranged special meetings with the Minia mayor and the electric utility to expedite installation before plant completion.

## PROJECT COMPLETION

Overall project status based on the C/M's estimate as of the end of March, thirty-three months into the project, is as follows:

## ♦ Beni Suef

<u>Component</u>	<u>% Complete</u>
Water Treatment Plant	63
Elevated Water Tanks	82
Waterline Extensions	10
Wastewater Pump Stations	10
Sewer Rehabilitation	20
Waterline Training & Lining	80
<b>Subtotal</b>	<b>61</b>

## ♦ Fayoum

<u>Component</u>	<u>% Complete</u>
Water Treatment Plant	57
Elevated Water Tanks	82
Waterline Extensions	10
Wastewater Pump Stations	10
Sewer Rehabilitation	20
Waterline Training & Lining	94
<b>Subtotal</b>	<b>58</b>

## ♦ Minia

<u>Component</u>	<u>% Complete</u>
Water Treatment Plant	76
Elevated Water Tanks	81
Waterline Extensions	10
Wastewater Pump Stations	10
Sewer Rehabilitation	20
Waterline Training & Lining	80
<b>Subtotal</b>	<b>70</b>

Total percentage of overall project completed to date is 63%.

## PROJECT COSTS

Project costs based on commercial invoices are being monitored on the basis of cash flow schedules presented by the Contractor in August 1988 and January 1990.

Monitoring of these Project costs indicates the overall Project is 69% complete based on US\$ invoices. FAS is 82% complete and construction/design is 67% complete based on US\$ invoices.

A comparison of the August 1988 and January 1990 cash flow schedules against certified commercial invoices to date indicates slippage in the work schedule of approximately 15 months. See Annex B for US\$ and LE graphs of monetary earning schedules.

Annex C provides a complete listing of all commercial invoices to date for the Project. The following is a summary of the Project costs earned and the the total amount paid:

Total Amount Earned w/C.O.:	\$36,875,886	LE 9,422,383
Total Amount Paid:	\$33,983,399	LE 9,200,694

### Comparison With Cash Flow Schedules

Scheduled payments through February 1991 should be compared to the total amount paid plus retainage less change order payments and US\$ and LE advances.

(a) Total amount paid to date	\$ 34,365,830	LE 7,517,809
(b) Schedule dated Aug. 1988	\$ 47,710,859	LE 10,400,000
(c) Schedule dated Jan. 1990	\$ 42,276,784	LE 9,050,976

The overall value of the work completed to date in US\$ is 72% of the August 1988 cash flow schedule and 81% of the January 1990 cash flow schedule. For LE, they are 72% and 83%, respectively.

### Status Summary Based on Invoices:

	<u>Percent Complete</u>		<u>Percent of Scheduled</u>			
	US\$	LE	<u>08/88 Sch.</u>		<u>01/90 Sch.</u>	
	US\$	LE	US\$	LE	US\$	LE
Project	69	72	72	72	81	83
FAS	82	--				
Freight	82	--				
Const./Design	67	72				

## PROJECT SCHEDULE

The bar-graph schedule submitted with the technical bid shows construction completion and four months continued operation taking place in 32 months and is still the only approved schedule for the Project.

A revised schedule update showing progress through September 25, 1989 was submitted on October 2, 1989. This update was approved by the Construction Manager with many exceptions. The Contractor has submitted subsequent updates.

The Contractor has submitted schedule updates for all three cities over the past three months. As these schedules are, in the Construction Manager's opinion, claim driven rather than resource driven, they are unacceptable.

As a result, the Project is now operating without a working schedule, and undoubtedly, the cash flow schedule submitted in January 1990 is also inappropriate.

In the opinion of the Construction Manager, the Project construction will take approximately 10 months to complete beyond this report period, 14 months behind schedule.

Completion of the water treatment plants and the water transmission line extensions would now appear to be equally critical with regard to timely implementation of the water supply augmentation.

1001 days out of the total 854 scheduled construction days have elapsed. This is 117% of the Contract time.

## PROJECT ACTIVITIES

### Construction Management Activities

The Construction Management principal office staff concentrated on resolving design issues and design reviews, technical correspondence, review of quality control issues, processing of invoices, resolution of contract change orders, schedule reviews, and attending Project and other technical and administrative meetings.

The Construction Management home office staff assisted the principal office staff by providing design drawing reviews for the structural and civil discipline. The home office staff also assisted in processing Contract change orders by providing reviews and comments.

### Document Reviews

Major review and action items addressed this month are as follows:

#### ◆ Contractor Quality Control:

1. Reviewed the submitted weekly CQC report summaries from the CQC Manager.
2. Reviewed various documentation packages for FAS equipment and approved shipping to Egypt.
3. Reviewed requests for the use of specific materials for incorporation in the works.

#### ◆ Meetings During the Month on Technical Matters:

1. A Project meeting was held in the Construction Manager's Fayoum site office on March 12, 1991.
2. Meetings were held with USAID on March 17 and 27 to discuss change orders and other technical matters.
3. A meeting was held with NOPWASD on March 17 to discuss deletion of suction lines from the Contractor's work in Beni Suef.
4. A Project Steering Committee meeting was held at the Minia Governorate Office on March 6, 1991.
5. The evaluation response presentation to the Contractors ACDC claim was held at the Ramsis Hilton Hotel on March 26, 1991.

◆ **Schedule:**

Schedule updates for all three cities have been received and are currently under review by the Construction Manager.

◆ **Water Distribution System Study:**

The Construction Manager completed their study of the water distribution system and preparation of change orders. The terms of the draft change orders for surge protection and for pressure reducing valve stations are being negotiated between the C/M and the Contractor.

◆ **Sewer System Infiltration Reports:**

The Contractor was authorized by the Construction Manager to mobilize for the Phase 2 Sanitary Sewer Evaluation Survey. A schedule for the Phase 2 study has been submitted and shows work to begin in Minia in April.

◆ **Change Orders and Potential Change Orders:**

No new potential change orders were initiated during the month of March.

PCO 22 - Contractor's Alternate Compensable Delay Claim. The Construction Manager and their subcontractor Wilson Management Associates of New York presented a formal response to the Contractor's claim analysis on March 26, 1991. This analysis concluded that the Contractor had not demonstrated entitlement to a contract time extension or delay damages, but did recommend the Contractor be paid interest on the late payment of it's LE advance.

PCO 31 - Leak Detection. C/M sent a letter to the Employer recommending the task be postponed until completion of the waterplants and waterlines.

PCO 45 - Raw Water Intake, Beni Suef. The Employer's deletion of the suction lines from the contract and the decision not to proceed with a jetty extension effectively cancels this PCO.

PCO 55 - Fayoum WWPS No. 5, Roof Replacement. This work has been informally withdrawn by the Employer.

**Staff Movements**

The following is a summary of arrivals and departures by key employees of both the Construction Manager and the Contractor during the month. A summary listing of all known arrivals and departures, from the date the Contract was signed through this report period, is maintained by the C/M and available for inspection.

### Construction Manager

Mr. D. Bird, Project Coordinator, arrived in Egypt on March 20, 1991 for ACDC response presentation and departed on March 29, 1991.

Mr. B. Anthony, Project Reviewer, arrived in Egypt on March 23, 1991 for ACDC response presentation and departed on March 29, 1991.

Mr. R. Swart, Chief Counsel, arrived in Egypt on March 20, 1991 for ACDC response presentation and departed on March 29, 1991.

Mr. D. Holman, Claims Analyst - WMA, arrived in Egypt on March 20, 1991 for ACDC response presentation and departed on March 29, 1991.

Mr. S. Dellers, Asst. Claims Analyst - WMA, arrived in Egypt on March 20, 1991 for ACDC response presentation and departed on March 29, 1991.

Mr. H. A. Dare, Contract Specialist, arrived in Egypt on March 21, 1991 to work on Change Order responses to the Contractor.

### Contractor

Mr. R. Flores, Mechanical Superintendent, arrived in Egypt on March 16, 1991.

Mr. G. Alexander, President of L\*A WTC, arrived in Egypt on March 25, 1991 for ACDC response presentation and departed on March 28, 1991.

Mr. P. Giacoletti, V.P. Operations L\*A WTC, arrived in Egypt on March 25, 1991 for ACDC response presentation and departed on March 28, 1991.

Mr. M. Rowe, President PWT, arrived in Egypt on March 25, 1991 for ACDC response presentation and departed on March 28, 1991.

Ms. J. Ravenscroft, Legal Counsel Thames Water, arrived in Egypt on March 25, 1991 for ACDC response presentation.

Mr. L. Brimson, Design Engineer PWT, arrived in Egypt on March 25, 1991 for ACDC response presentation and departed on March 28, 1991.

**BENI SUEF**

## Design - Beni Suef

### 1. Current Status

The status of the designs from the Contractor, the design reviews by the Construction Manager, and corrections or changes required are as follows:

#### o Tasks A1, A4, A10 - Water Treatment Plant

##### a. Mechanical and Electrical:

Final Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".

An exception is the raw water pump station Mechanical Drawings which have been reviewed and stamped "No Exceptions Taken" at the Preliminary Works level.

The raw water river intake suction lines have been deleted from the contract.

##### b. Architectural and Civil:

Preliminary Works Architectural and Civil Drawings have been reviewed and stamped "No Exceptions Taken".

Preliminary Works Sanitary and Site Works Drawings have been reviewed and stamped "No Exception Taken".

Preliminary Works Site External Works Drawings have been reviewed and stamped "No Exception Taken".

##### c. Structural:

Preliminary Works Structural Drawings and Calculations have been reviewed and stamped "No Exceptions Taken".

#### o Task A7 - Elevated Water Storage Tanks

##### a. Mechanical and Electrical:

Final Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".

##### b. Structural:

Final Works Structural Drawings have been reviewed and stamped "No Exceptions Taken".

- o **Tasks A13 - Wastewater Pump Station Rehabilitation**
  - a. **Mechanical and Electrical:**

Preliminary Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".
  - b. **Architectural and Civil:**

Preliminary Works Architectural and Civil Drawings have been reviewed and stamped "No Exceptions Taken".
  - c. **Structural:**

Preliminary Works Structural Drawings have been reviewed and stamped "No Exceptions Taken".
- o **Task A19 - Water Transmission Line Extension**
  - a. **Civil and Structural:**

Preliminary Works Drawings have been reviewed and stamped "No Exceptions Taken".
- 2. **Reviews This Period**

Preliminary Works Site External Works Drawings have been reviewed and stamped "No Exception Taken".

**Construction - Beni Suef****1. Current Status**

- o Tasks A1, A4, A10 - Water Treatment Plant:

Work progress to date on the elements of the water treatment plant is as follows:

<u>Element</u>	<u>% Completed</u>
Flocculator/Wastewater Tank	72
Sedimentation Basin	85
Rapid Gravity Filter	60
Administration Building	61
Chemical Building	69
Chlorine Building	54
Generator Station	70
Sludge Lagoons	90
Guard House	69
Treated Water Reservoir	79
High Service Pump Station	70
Intake Works	0
Raw Water Pump Station Rehabilitation	0
Site Utilities	0
Site External Works	10

The water treatment plant is approximately 63% complete.

- o Task A7 - Elevated Water Storage Tanks:

Erection of all three elevated water storage tanks is substantially complete. Ancillary activities such as painting, fencing and electric are ongoing.

The elevated water storage tanks are approximately 82% complete.

- o Task A13 - Wastewater Pump Station Rehabilitation:

Construction work has not begun.

- o Task A16 - Waterline Cleaning, Lining and Training:

Cleaning and training is complete. Lining has not begun and is the subject of a potential change order for deletion.

- o Task A19 - Water Transmission Line Extension:

Construction work has not begun.

- o Task A22 - Sewer System Rehabilitation:

Construction work has not begun.

## 2. Activities This Period

### o Tasks A1, A4, A10 - Water Treatment Plant:

Work continues on the flocculator/wastewater tanks. Concrete work continues on the baffle walls. Backfilling and compaction of the wastewater tank is ongoing.

Watertightness testing of the sedimentation basin is ongoing. Erection of handrails is proceeding.

Work is completed on the dwarf walls of the filter cells. Watertightness testing of the filter cells has begun. Blockwork and brickwork is ongoing. Mechanical installation has begun with installation of sluice valves. Installation of the roof finish is complete.

Work continues on the administration building. Installation of the roof finish is complete. Sanitary works have begun. The scratch coat to the interior face of walls and ceilings is complete.

Work continues on the chemical building. Installation of the roof finish is complete. The scratch coat to the interior face of walls and ceilings is complete and the undercoat is ongoing.

Work continues on the generator building and fuel storage tank facility. Installation of grounding rods is proceeding. Brickwork is ongoing. Concrete placed in part of ground slab.

Work continues on the chlorine building with concrete work on beams, walls and roof slab proceeding.

Construction of the sludge lagoons continues. Excavation of side slopes is ongoing. Rebar, formwork and concrete placement to chamber No. 3 is proceeding.

Work on the guard house is proceeding with installation of the roof finish ongoing.

Work continues on the treated water reservoir. Repair of damp spots in the dividing wall is ongoing. Inlet chamber construction is proceeding.

Work continues on the high service pump station with blockwork and brickwork and roof finish ongoing. Mechanical erection is continuing with installation of the gantry crane, high service and backwash pumps.

Work has begun on the site pipework and utilities with construction of the meter chambers, pullboxes, duct banks and overflow pipework underway.

o Task A7 - Elevated Water Storage Tanks:

Repair of paintwork to the interior wet surface of Tank No. 2 is completed and has begun at Tank No. 1.

Pressure testing of the inlet pipework at the three tanks is completed.

o Contractor Quality Control:

CQC tests of concrete aggregates and cube strengths continued throughout the month. All tests met the contract specifications. Activities included checking of rebar, checking formwork dimensions and alignments, casting concrete cubes, performing slump tests, performing sieve analyses of aggregates and density tests on compacted backfill, performing holiday tests on elevated storage tank painting.

o Non-Conformance Reports (NCRs):

There was one outstanding NCR at the end of the month.

1. Waterstop placement at flocculator washout channel. The effectiveness of the misplaced waterstop will be tested when the watertightness test is performed on the flocculator.

o Contractor/subcontractor man-days on site this month:

Supervisory and Overhead	950
Skilled and Unskilled Workers	<u>2,710</u>
Total . . . . .	3,660

o Visitors:

There were 15 visitors to the Beni Suef site office this month.

o Construction Equipment:

The following construction equipment was on the Beni Suef site at the end of the month:

Concrete Batch Plant-30m3	(1)	Electric Transformer	(1)
Concrete Mixer	(3)	Front End Loader	(1)
Concr Truck Mixer-5 m3	(2)	Welding machine	(1)
Rebar Bender, Electric	(1)	Concr Vibrator-4.3 HP	(3)
Concr Vibrator, Electric	(1)	Air Compressor	(2)
Pick-Up Truck	(2)	Dewatering Pumps	(5)
Tractor-50 HP	(1)	Submersible Pumps	(1)
Fuel Tanks-3.5 m3	(1)	Rebar Cutter	(1)
Portable Generator-300KVA	(1)	Plate Compactor	(2)
Crane	(1)		

o Training:

City of Beni Suef and NOPWASD engineers were on-the-job trained in inspection procedures and reporting of construction activities.

**FAYOUM**

**Design - Fayoum****1. Current Status**

The status of the designs from the Contractor, the design reviews by the Construction Manager, and corrections or changes required are as follows:

o **Tasks A2, A5, A11 - Water Treatment Plant**

a. **Mechanical and Electrical:**

Final Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".

b. **Architectural and Civil:**

Preliminary Works Architectural and Civil Drawings have been reviewed and stamped "No Exceptions Taken".

Preliminary Works Site Works Drawings have been reviewed and stamped "No Exceptions Taken" with comments.

Preliminary Works Sanitary Works Drawings have been reviewed and stamped "No Exceptions Taken" with comments.

Preliminary Works Site External Works Drawings have been reviewed and stamped "No Exception Taken".

90% Civil/Structural Drawings and Calculations, Task A10 - Raw Water Intake, are currently under review.

c. **Structural:**

Preliminary Works Structural Drawings and Calculations have been reviewed and stamped "No Exceptions Taken". An exception is the raw water canal intake structure, which is currently under review at the 90% level.

o **Task A8 - Elevated Water Storage Tanks**

a. **Mechanical and Electrical:**

Final Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".

b. **Structural:**

Final Works Structural Drawings have been reviewed and stamped "No Exceptions Taken".

- o **Tasks A14 - Wastewater Pump Station Rehabilitation**
    - a. **Mechanical and Electrical:**

Preliminary Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".
    - b. **Architectural and Civil:**

Preliminary Works Architectural and Civil Drawings been reviewed and stamped "No Exceptions Taken".
    - c. **Structural:**

Preliminary Works Structural Drawings have been reviewed and stamped "No Exceptions Taken".
  - o **Task A20 - Water Transmission Line Extension**
    - a. **Civil and Structural:**

Preliminary Works Drawings have been reviewed and stamped "No Exceptions Taken".
- 2. Reviews This Period**
- o **Architectural and Civil:**
    - a. 90% Civil/Structural Drawings and Calculations, Task A10 - Raw Water Intake, are currently under review.
    - b. Preliminary Works Site External Works Drawings have been reviewed and stamped "No Exception Taken".

**Construction - Fayoum****1. Current Status**

- o Tasks A2, A5, A11 - Water Treatment Plant:

Work progress to date on the elements of the water treatment plant is as follows:

<u>Element</u>	<u>% Completed</u>
Flocculator/Wastewater Tank	68
Sedimentation Basin	83
Rapid Gravity Filter	56
Administration Building	67
Chemical Building	64
Chlorine Building	65
Generator Station	58
Sludge Lagoons	50
Guard House	0
Treated Water Reservoir	75
High service Pump Station	54
Intake Works	0
Raw Water Pump Station	67
Site Utilities	0
Site External Works	0

The water treatment plant is approximately 57% complete.

- o Task A8 - Elevated Water Storage Tanks:

Erection of all three elevated water storage tanks is substantially complete. Painting of tanks is ongoing.

The elevated water storage tanks are approximately 82% complete.

- o Task A14 - Wastewater Pump Station Rehabilitation:

Construction work has not begun.

- o Task A17 - Waterline Cleaning, Lining and Training:

Cleaning, lining, and training is complete.

- o Task A20 - Water Transmission Line Extension:

Construction work has not begun.

- o Task A23 - Sewer System Rehabilitation:

Construction work has not begun.

## 2. Activities This Period

### o Tasks A2, A5, A11 - Water Treatment Plant:

Work continues on the flocculator/wastewater tanks. Formwork to the baffle walls has begun. Investigation of the floor slab structural integrity is continuing by the Contractor.

Watertightness testing of the sedimentation basin is ongoing. Installation of handrails is complete.

Work continues on the interior and exterior walls of the rapid gravity filters.

Work continues on the administration building. Interior and exterior masonry work, waterproofing and roof finishes are proceeding. Sanitary works have begun.

Work continues on the chemical building. Waterproofing and roof finishes are proceeding. Blockwork and brickwork have begun.

Work continues on the generator building and fuel storage tank facility. Concrete placements were made to the floor slab and fuel tank cover.

Work continues on the chlorine building with concrete work to the roof slab, floor slab and loading bay completed.

Construction of the sludge lagoons continues with concrete work to the walls, footings and inlet chambers.

Watertightness testing of the treated water reservoir is continuing. Repairs to the west cell are continuing. Backfilling around the reservoir has begun.

Work continues on the high service pump station with completion of concrete placements to the roof.

Work continues on the the raw water pump station with repairs completed to the interior wet surfaces. Mechanical installation work has commenced.

### o Task A8 - Elevated Water Storage Tanks:

Remedial work on the paint at Tank No. 2 is ongoing and has been completed at Tank No. 3. Painting of Tank No. 1 is proceeding with completion of priming coat and commencement of the finish coat.

o Contractor Quality Control:

CQC tests of concrete aggregates and cube strengths continued throughout the month. All tests met the contract specifications. Activities included checking of rebar, checking formwork dimensions and alignments, casting concrete cubes, performing slump tests, performing sieve analyses of aggregates and density tests on compacted backfill, taking cement samples for laboratory tests, performing holiday tests.

o Non-Conformance Reports (NCRs):

There were five outstanding NCRs at the end of the month.

1. Extensive honeycombing on the underside of the flocculation chamber floor slab. Contractor is currently investigating a correction for this deficient work.
2. Misaligned columns in administration building. Contractor is chipping and realigning the columns to effect a correction.
3. Embedded wood in concrete wall of the treated water reservoir. Contractor will remove the wood and patch the resulting hole.
4. Improper curing of Febhyseal application to the treated water reservoir walls. Reservoir is undergoing a watertightness test to determine if walls are properly sealed.
5. Eroded and wet excavation at the treated water reservoir. NCR will be completed when backfill is performed.

o Contractor/subcontractor man-days on site this month:

Supervisory and Overhead	1,438
Skilled and Unskilled Workers	<u>7,776</u>
Total	9,214

o Visitors:

There were 31 visitors to the Fayoum Site Office this month.

o **Construction Equipment:**

The following equipment was on the Fayoum site at the end of the month:

Concrete Batch Plant-30m3	(1)	Concr Truck Mixer-5 m3	(2)
Front End Loader	(1)	Welder, Lincoln 400 A	(1)
Generator 100 KVA	(1)	Dumper-3/4 m3	(1)
Sta. Conc. Pump	(1)	Concrete Pump 55 m3/hr	(1)
Air Compressors	(2)	Dewatering Pump 20 l/s	(4)
Mixer 1/2 m3	(2)	Dewatering Pump 80 l/s	(1)
Truck Crane-22T	(1)	Rebar Bender/cutter	(1)
Conc. Vibrators	(5)	Sandblaster	(2)
Spray Painter	(2)		

o **Training:**

City of Fayoum and NOPWASD engineers were on-the-job trained in inspection procedures and reporting of construction activities.

**MINIA**

**Design - Minia****1. Current Status**

The status of the designs from the Contractor, the design reviews by the Construction Manager, and corrections or changes required are as follows:

- o **Tasks A3, A6, A12 - Water Treatment Plant**
  - a. **Mechanical and Electrical:**

Final Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".
  - b. **Architectural and Civil:**

Preliminary Works Architectural and Civil Drawings have been reviewed and stamped "No Exceptions Taken".

Preliminary Works Site Development Drawings have been reviewed and stamped "No Exceptions Taken".

Preliminary Works Site External Works Civil Drawings have been reviewed and stamped "No Exceptions Taken".

90% Site External Works Design Calculations have been reviewed and stamped "No Exceptions Taken".

90% Sanitary and Site Works Drawings have been reviewed and Preliminary Works Drawings are now being prepared.

Preliminary Works Civil/Structural Drawings for the Raw Water Intake Jetty are under review.
  - c. **Structural:**

Preliminary Works Structural Drawings and Calculations have been reviewed and stamped "No Exceptions Taken". An exception is the raw water river intake jetty structure, which has been approved at the 90% level.
- o **Task A9 - Elevated Water Storage Tanks**
  - a. **Mechanical and Electrical:**

Final Works Mechanical and Electrical Drawings have been reviewed and stamped "No Exceptions Taken".
  - b. **Structural:**

Final Works Structural Drawings have been reviewed and stamped "No Exceptions Taken".

- o **Tasks A15 - Wastewater Pump Station Rehabilitation**
    - a. **Mechanical and Electrical:**

Preliminary Works Drawings have been reviewed and stamped "No Exceptions Taken". An exception is Pump Station No. 5 for which the Contractor is preparing Preliminary Works Drawings based on 90% Design Drawing review comments.
    - b. **Architectural and Civil:**

Preliminary Works Drawings have been reviewed and stamped "No Exceptions Taken". An exception is Pump Station No. 5 for which the Contractor is preparing Preliminary Works Drawings based on 90% Design Drawing review comments.
    - c. **Structural:**

Preliminary Works Drawings have been reviewed and stamped "No Exceptions Taken". An exception is Pump Station No. 5 for which the Contractor is preparing Preliminary Works Drawings based on 90% Design Drawing review comments.
  - o **Task A19 - Water Transmission Line Extension**
    - a. **Civil and Structural:**

Preliminary Works Drawings have been reviewed and stamped "No Exceptions Taken".
- 2. Reviews This Period**
- o **Architectural and Civil:**
    - a. **Preliminary Works Civil/Structural Drawings for the Raw Water Intake Jetty are under review.**

**Construction - Minia****1. Current Status**

- o **Tasks A3, A6, A12 - Water Treatment Plant:**

Work progress to date on the elements of the water treatment plant is as follows:

<u>Element</u>	<u>% Completed</u>
Flocculator/Wastewater Tank	90
Sedimentation Basin	96
Rapid Gravity Filter	75
Administration Building	86
Chemical Building	85
Chlorine Building	81
Generator Station	85
Workshop	85
Sludge Lagoons	68
Guard House	70
Treated Water Reservoir	93
High Service Pump Station	69
Intake Works	0
Raw Water Pump Station	55
Site Utilities	18
Site External Works	30

The water treatment plant is approximately 76% complete.

- o **Task A7 - Elevated Water Storage Tanks:**

Erection of all three elevated water storage tanks is substantially complete. Ancillary activities such as painting, fencing and electric are ongoing.

The elevated water storage tanks are approximately 81% complete.

- o **Task A13 - Wastewater Pump Station Rehabilitation:**

Construction work has not begun.

- o **Task A16 - Waterline Cleaning, Lining and Training:**

Cleaning and training is complete. Lining has not begun and is the subject of a potential change order for deletion.

- o **Task A19 - Water Transmission Line Extension:**

Construction work has not begun.

o Task A22 - Sewer System Rehabilitation:

Construction work has not begun.

2. Activities This Period

o Tasks A3, A6, A12 - Water Treatment Plant:

Work continues on the flocculator/wastewater tanks. Watertightness testing of the wastewater tanks is complete. Backfilling and compaction around the perimeter is continuing. Demolition of the baffle walls is complete and formwork for reconstruction has begun.

Work continues on the sedimentation basin with erection of the access stairway, handrails and inlet channel roof slabs. Watertightness testing is ongoing.

Work continues on the filter building with installation of the filter gallery pipework and sluice gates continuing. Plasterwork to the control room and machine room has begun.

Work continues on the administration building. Interior plasterwork is ongoing. Removal and replacement of the brickwork has begun.

Work continues on the chemical building. Interior plasterwork is ongoing.

Work continues on the generator building and fuel storage tank facility. Concrete finishwork to transformer pad and interior plasterwork are continuing. Installation of grounding system is complete. Fabrication of roof slab panels for the fuel storage vault is complete.

Work continues on the chlorine building with plasterwork of internal walls continuing. Installation of the monorail is ongoing.

Work continues on the workshop with plasterwork of interior surfaces and completion of roof finishes.

Construction of the sludge lagoons continues. Concrete work is complete except for inlet chamber No. 4. Excavation of lagoons is continuing.

Work continues on the treated water reservoir. Waterproofing of the roof slab is complete. Backfilling and compaction around the perimeter and construction of meter chambers is ongoing. Concrete placement to the inlet chamber is complete.

Work continues on the high service pump station. Erection of brickwork is ongoing. Installation of the high service pumps, backwash pumps and discharge manifolds is ongoing.

Work continues on the the raw water pump station. Installation of raw water pumps, sluice gates and handrails is ongoing. Finishwork to exterior and interior walls and columns is underway.

Work has commenced on the site utilities with concrete placement at the septic tank completed. Storm drain installation has begun.

Work has continuing on the site external works with erection of the river overflow channel, wastewater disposal channel, duct banks and storm drains ongoing.

o Task A9 - Elevated Water Storage Tanks:

Installation of power supply by the local power company is ongoing at all three elevated water storage tanks. Painting of Tank No. 2 is complete and is "on hold" at Tank No. 1 due to lack of paint supply. Painting work has commenced at Tank No. 3.

o Contractor Quality Control:

CQC tests of concrete aggregates and cube strengths continued throughout the month. All tests met the contract specifications. Activities included checking of rebar, checking formwork dimensions and alignments, casting concrete cubes, performing slump tests, performing sieve analyses of aggregates and density tests on compacted backfill, taking cement samples for laboratory tests and performing holiday tests. Soil compaction tests under and around the various structures met the specifications.

o Non-Conformance Reports (NCRs):

There were three outstanding NCRs at the end of the month.

1. Brickwork quality at the rapid gravity filter and the chemical building. Brick in defective sections is being replaced.
2. Brickwork quality at the administration building. Brick in defective sections is being replaced.
3. Brickwork quality at the high service pump station. Brick in defective sections is being replaced.

o Contractor/subcontractor man-days on site this month:

Supervisory and Overhead	984
Skilled and Unskilled Workers	<u>5,471</u>
Total . . . . .	6,455

o Visitors:

There were 38 visitors to the Minia Site Office this month.

o Construction Equipment:

The following construction equipment was on the Minia site at the end of the month:

Concrete Batch Plant-30m3	(1)	Concr Truck Mixer-6 m3	(2)
Air Compressor	(3)	Front End Loader	(1)
Rebar Bender, Electric	(1)	Generator 100 KVA	(1)
Generator 250 KVA	(1)	Rebar Cutter	(1)
Submersible Pump-20 HP	(8)	Set Concrete Vibrators	(5)
Disc Metal Cutter	(1)	Sump Pump 4-inch	(1)
Mixer 1/2 m3	(1)	Sandblaster	(1)
Sump Pump 3-inch	(2)	Water Pump	(2)
Roller compactor	(1)	Concrete pump	(1)
Dumper	(1)	Drill Press	(1)
Generator 300KVA	(1)	Crane 15-ton	(1)
Welders	(3)		

o Training:

City of Minia and NOPWASD engineers were on-the-job trained in inspection procedures and reporting of construction activities.

**ANNEXES**

- A - CONTRACT AMMENDMENTS AND CHANGE ORDERS**
- B - GRAPHS OF MONETARY EARNING SCHEDULES**
- C - COMMERCIAL INVOICE LISTING**
- D - PHOTOGRAPHS**

**ANNEX A**  
**CONTRACT AMENDMENTS AND CHANGE ORDERS**

## ANNEX A

## CONTRACT AMENDMENTS AND CHANGE ORDERS

Contract Amendments

<u>No.</u>	<u>Description</u>	<u>Status</u>
CA1	Total Value of Contract	Executed
CA2	Revise No. of Invoices	Executed
CA3	Provisional Sum	Executed
CA4	Additional Contract Time	Review/LA

Change Orders and Potential Change Orders

<u>CO</u>	<u>PCO</u>	<u>Description</u>	<u>Status</u>
CO1	1	Delete Reference To "Lining" In Art. III-9	Executed
CO2	2	Change EWST Paint From Vinyl To Alkyd	Executed
CO3	3	Revise TDH For The HS Pumps	Executed
CO4	4	Suspend Work On Water Line Leak Detection	Executed
CO5	5	Revise Scope Task A17 In Fayoum	Executed
	6	Resolution Of USPE In Egypt	Rejected
CO7	7	Revise Spec. To Permit Local Rebar	Executed
CO8	8	Add Change Order Proc. To Contr's Manual	Executed
CO6	9	Resolve USPE Requirement To Sign Dwgs	Rejected
CO11	10	A16, A17, A18 - Reallocate Pay Items	Executed
	11	A16, A17, and A18 - Revise Scope Of Work	Review/NO
	12	A1 - Police Camp Site Acquisition	Review/LA
CO18	13	Temperature Steel In EWST Foundation	Executed
	14	Extra Geotech Work At EWST in Minia	Review/LA
	15	Relocate EWST No. 3 In Fayoum	Draft/MH
	16	Design Changes For Alternative Proposals	Review/LA
	17	Revise Number Of Construction Photos	Cancelled
	18	Define 50% Effort For Draft O&M Manuals	Review/LA
	19	Extend Raw Water Intake In Minia	Review/LA
	20	Redesign Raw Water Intake in Fayoum	Review/LA
	21	Revise CPM Schedule As Required by USAID	Review/LA
	22	Time Resulting From Accumulated Delays	Review/LA
	23	Delete Air Entrainment In Concrete	Cancelled
	24	Revise WW Sump Pumps From 12 To 1.2 l/s	Cancelled
CO14	25	Increase WWPS Wetwell Ventilation	Executed
CO21	26	Site Office Telephone In Minia	Executed
	27	Increased Scope, SSES Studies, Delays	Draft/MH
	28	Revise Scope Of Water Line Extensions	Review/LA
CO10	29	Revise Spec. On Underground Fuel Tanks	Executed
	30	Construction Power At the Water Plant Sites	Review/LA
	31	Revise Scope Of Waterline Leak Detection	Review/NO
	32	Automatic Inlet Flow Control Valve	Draft/NO
CO15	33	Tasks A1, A2, A3 - Chlorine Leak Detectors	Executed
	34	LE Withholding On Subsidized Rebar	Review/LA
	35	Force Majeure Due To Capsized Barge	Review/LA

## ANNEX A (2 of 3)

<u>CO</u>	<u>PCO</u>	<u>Description</u>	<u>Status</u>
	36	Tasks A7, A8, A9 - USAID Signs	Cancelled
CO16	37	A1 - Relocation Of Admin/Chemical Bldg	Executed
	38	A2 - Domestic Waste Disposal, Admin Bldg	Review/LA
CO13	39	Additional Vehicle For C/M Staff	Executed
	40	Establish Contract Interest Clause	Rejected
	41	Additional Concrete Specification	Cancelled
	42	A11 - RW Pump House, Increased Depth	Review/LA
	43	Interest For Late US\$ Invoice Payments	Rejected
	44	Interest For Late LE Invoice Payments	Rejected
	45	Raw Water Intake Modif. At Beni Suef	Review/NO
	46	Additional Sulphate Resistant Cement	Review/LA
	47	A6 - TWR Flootation	Review/LA
	48	A1, A2, A3 - Add Alarms And Annunciators	Review/LA
	49	Concrete Credit at Generator Stations	Review/LA
	50	Additional O&M Requirements At Beni Suef	Review/LA
	51	A1, A2, A3 - Filter Backwash System	Review/NO
	52	A15 - Minia WWPS No. 5	Review/LA
	53	Water System Surge Protection	Review/NO
	54	Water System Pressure Reduction/Sustaining	Review/NO
	55	Fayoum WWPS No. 5 New Roof Slab	Review/LA
	56	Shipping Preemption Due To Gulf War	Review/LA
	57	Type V Cement	Cancelled
	58	LA Failure To Submit Monthly Reports	Review/NO
	59	Differing site Conditions At EWST	Review/LA

**ANNEX A (3 of 3)****LEGEND**

Change Orders and Contract Amendments are first prepared by the Construction Manager and issued for review and "Approval in Principle" by the Contractor, USAID and NOPWASD. These are designated "Draft". When approval in principle has been reached, the document is revised as necessary and issued by the Construction Manager for "Acceptance" by the Contractor and "Approval" by NOPWASD. These are designated "Final". Changes that are finally executed are designated "Executed".

The following legend can be used to determine the status of each document at the end of a given month:

1. Issued for "Approval-in Principle" and with the Contractor (Draft/LA), with NOPWASD (Draft/NO), and with USAID (Draft/AI).
2. Issued for final "Acceptance" with the Contractor (Final/LA) and for final "Approval" with NOPWASD (Final/NO).
3. The Contractor's request for a Change Order has been "rejected" (Rejected).
4. It has been mutually agreed by the parties that a change order is no longer necessary and it is deleted (Cancelled).

**ANNEX B**  
**GRAPHS OF MONETARY EARNING SCHEDULES**

## ANNEX B

## GRAPHS OF MONETARY EARNING SCHEDULES

- (1) U.S. DOLLAR (US\$) EARNINGS SCHEDULE      FIGURE 1  
 (2) EGYPTIAN POUND (LE) EARNINGS SCHEDULE      FIGURE 2

The Cash Flow Schedule submitted on August 30, 1988 totaled US \$50,055,809 and LE 10,400,000, which when added to the US \$3,010,200 Mobilization Advance and LE 2,600,000 Down Payment, totaled the Contract price. Those cumulative values were plotted on Figure 1 and Figure 2 to compare with the total of actual payments made, exclusive of the US\$ Mobilization and LE Down Payment.

The Cash Flow Schedule submitted on January 10, 1990 included the US\$ Mobilization and LE Down Payment. That schedule totaled the Contract bid price. Therefore, in order to provide a meaningful comparison with the August 30, 1988 schedule, each month's accumulative value was reduced by the US\$ Mobilization and LE Down Payment and plotted against time on Figure 1 and Figure 2.

Neither of the two schedules reflected contractual deductions such as retainage and repayment of the mobilization that impact the actual value of each invoice, and in that respect, should not be termed "Cash Flow Schedules".

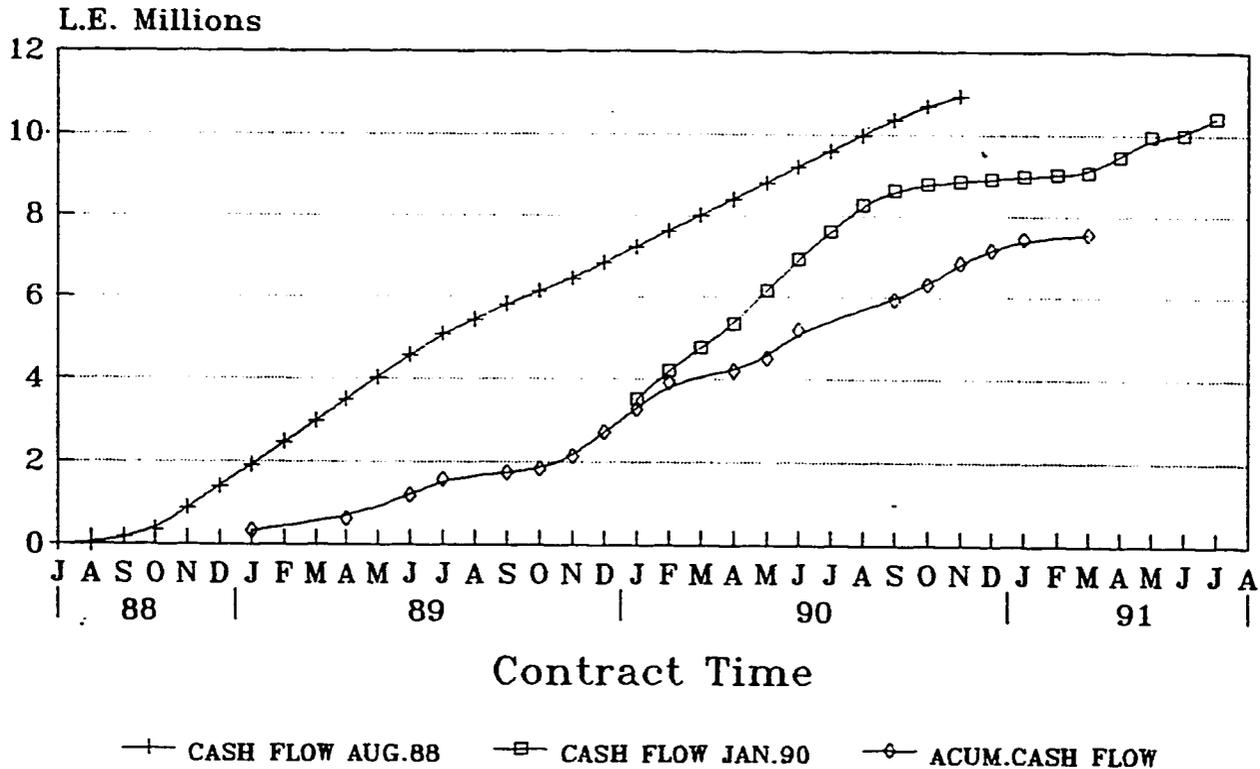
For clarity, the following deductions are typically made from the three types of invoices listed below:

<u>Type of Invoice</u>	<u>Percent of Retainage</u>	<u>Percent of Repayment</u>
FAS	10	10
Freight	0	0
US\$ Construction	10	0
LE Construction	10	20
Operation & Maintenance	0	0

In view of the foregoing, the accumulated amounts earned, as listed in Annex C, are decreased by the repayment value for comparison on Figures 1 and 2.

# L.E. CASH FLOW VS. TIME

42

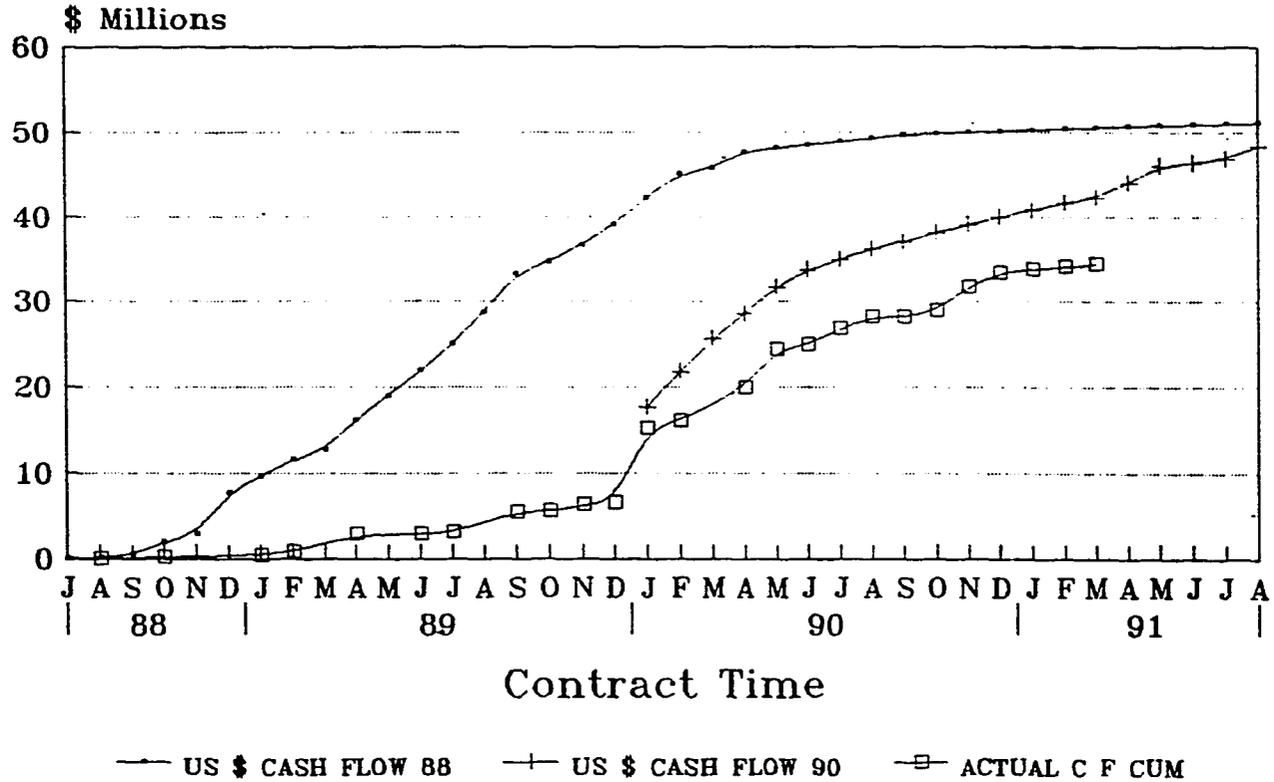


Slippage:

Aug 88 sch. 13 mts, Jan 90 sch. 8 mts

# US \$ CASH FLOW VS.TIME

43



Slippage:

Aug 88 sch. 17 mts, Jan 90 sch. 8 mts

**ANNEX C**  
**COMMERCIAL INVOICE LISTING**

## ANNEX C

## COMMERCIAL INVOICE LISTING

Invoice No.	Date Submitted	Date Certified	Amount Certified for Payment	
			US\$	LE
1.	06/30/88	07/05/88	3,010,200	---
2.	06/30/88	07/05/88	---	2,600,000
3.	08/22/88	09/06/88	15,607	---
4A	10/16/88	10/12/88	88,805	---
5.	12/12/88	01/11/89	233,985	---
6.	01/24/89	02/06/89	231,780	---
7.	01/24/89	02/06/89	---	401,807
8.	02/19/89	02/22/89	125,697	---
9.	03/15/89	04/13/89	*2,268,342	---
10.	04/23/89	06/01/89	30,572	---
11.	04/25/89	04/17/89	---	343,783
12A	06/20/89	07/11/89	210,391	---
13A	06/20/89	07/11/89	---	705,663
14A	07/31/89	08/07/89	---	497,596
15A	09/03/89	09/19/89	---	117,282
16A	09/09/89	09/19/89	296,989	---
17.	09/09/89	09/19/89	*2,260,972	---
18.	09/09/89	09/19/89	* 17,300	---
19.	09/09/89	09/19/89	* 20,055	---
20A	10/26/89	11/05/89	* 355,457	---
21A	09/26/89	10/01/89	* 18,600	---
22.	09/17/89	09/19/89	---	101,189
23.	09/26/89	10/01/89	90,886	---
24.	10/29/89	11/01/89	---	103,502
25.	11/01/89	-----	Returned	---
26B	11/28/89	12/04/89	79,104	---
27.	11/07/89	11/11/89	* 237,940	---
28.	11/07/89	11/13/89	* 148,923	---
29A	11/14/89	11/16/89	---	369,202
30A	11/20/89	12/10/89	292,901	---
31.	12/20/89	01/02/90	* 322,546	---
32.	12/21/89	01/02/90	---	747,725
33A	01/04/90	01/11/90	849,958	---
34.	01/15/90	01/22/90	---	714,048
35.	01/21/90	01/22/90	777,618	---
36.	01/24/90	01/28/90	*7,431,555	---
37.	02/06/90	02/10/90	---	275,938
38.	02/06/90	02/10/90	773,858	---
39.	02/15/90	02/17/90	---	499,954
40A	04/01/90	04/05/90	1,151,544	---
41A	04/01/90	04/05/90	*2,316,520	---
42.	04/17/90	04/28/90	---	363,518
43.	04/21/90	04/28/90	655,539	---
44.	05/07/90	05/10/90	*2,260,639	---
45.	05/14/90	05/16/90	---	387,219

## ANNEX C (2 of 4)

Invoice No.	Date Submitted	Date Certified	Amount Certified for Payment	
			US\$	LE
46.	05/14/90	05/16/90	686,823	---
47.	05/19/90	05/20/90	* 880,983	---
48.	05/19/90	05/22/90	*1,053,115	---
49.	06/04/90	06/06/90	---	425,246
50.	06/07/90	06/09/90	537,398	---
51.	06/27/90	06/28/90	---	439,634
52.	07/01/90	07/01/90	1,301,554	---
53.	07/01/90	07/01/90	* 708,495	---
55.	08/25/90	08/26/90	325,216	---
56.	08/25/90	08/26/90	*1,134,431	---
54A	09/15/90	09/17/90	---	414,564
57.	09/19/90	09/22/90	---	503,154
58.	09/27/90	10/03/90	496,174	---
59.	10/30/90	10/31/90	---	454,380
60.	10/31/90	10/31/90	284,303	---
61.	12/02/90	12/06/90	---	655,128
62.	12/02/90	12/06/90	693,841	---
63.	11/24/90	12/01/90	*1,812,415	---
64.	11/24/90	12/01/90	* 509,661	---
65.	12/20/90	01/05/91	---	395,759
65A	12/20/90	01/05/91	---	25,123
66.	12/20/90	01/06/91	409,534	---
67.	12/20/90	01/08/91	* 366,364	---
68.	12/22/90	01/08/91	* 411,833	---
69.	12/22/90	01/08/91	* 567,450	---
70A	01/27/91	02/11/91	---	339,441
71A	01/27/91	02/11/91	225,009	---
72.	01/12/91	01/26/91	* 95,967	---
73.	01/12/91	01/26/91	* 125,190	---
74.	01/12/91	01/26/91	* 321,097	---
75.	02/20/91	03/06/91	* 241,591	---
76.	02/20/91	03/06/91	* 21,932	---
77.	03/03/91	03/22/91	---	141,528
78.	03/03/91	03/22/91	70,094	---

\* denotes FAS payment

Total Amount Certified	\$ 39,886,086	LE 12,022,383
Less Change Order Payments	(102,607)	(25,123)
Less US\$ Mob. and LE Advance	<u>(3,010,200)</u>	<u>(2,600,000)</u>

** Total Amt. of Orig. Cont. Earned	36,773,279	9,397,260
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## ANNEX C (3 of 4)

Less Repayments	(2,407,449)	(1,879,451)
Less Retainage	(3,495,238)	(942,238)
Plus Change Order Payments	102,607	25,123
Plus US\$ Mob. and LE Advance	3,010,200	2,600,000
<b>Total Amt. Certified For Payment</b>	<b>\$ 33,983,399</b>	<b>LE 9,200,694</b>

\*\* This will total the original Contract amount of US\$ 53,066,009 and LE 13,000,000 when the work is complete.

The total earned US\$ 36,773,279 represents 69% of the total US\$ payment for the project. The total bid price was US\$ 53,066,009.

Invoices certified for payment under the entries marked with an \* are for FAS payment articles and total \$ 25,909,373. The certified payment value amounts to a total of \$ 24,074,513 for FAS and \$ 1,834,860 for Freight. The total bid value for FAS was \$ 29,222,963 and \$ 2,235,252. The certified payments to date represent 82% and 82% of the total US\$ value for that work, respectively.

Invoices certified for payment under the unmarked dollar entries are for design, construction, and O & M articles, and total \$ 10,854,909. The total bid value for US\$ design and construction was \$ 16,096,209. The certified payments to date represent 67% of the total US\$ value for that work.

Invoices certified for payment under the LE payment column are for design and construction, and total LE 9,255,732. The total bid value for LE design and construction was LE 13,000,000. The certified payments to date represent 72% of the total LE value for that work.

<u>Summary:</u>	<u>US\$</u>	<u>LE</u>
Percent Overall Project Complete	69%	72%
Percent FAS Complete	82%	-
Percent Freight Complete	82%	-
Percent Construction and Design Complete	67%	72%

## ANNEX C (4 of 4)

Comparison With Cash Flow Schedules

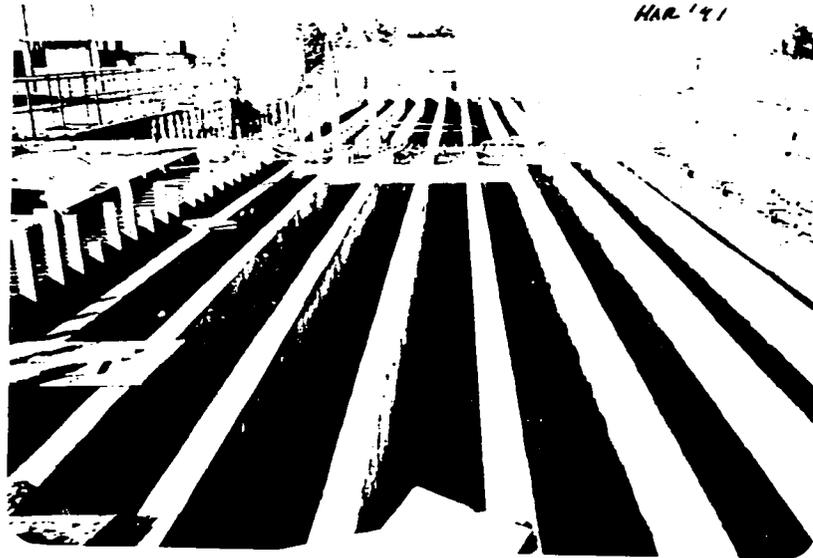
Scheduled payments through February 1991 should be compared to the total amount paid plus retainage less change order payments and US\$ and LE advances.

(a) Total amount paid to date	\$ 34,365,830	LE 7,517,809
(b) Schedule dated Aug. 1988	\$ 47,710,859	LE 10,400,000
(c) Schedule dated Jan. 1990	\$ 42,276,784	LE 9,050,976

The overall value of the work completed to date in US\$ is 72% of the August 1988 cash flow schedule and 81% of the January 1990 cash flow schedule. For LE, they are 72% and 83%, respectively.

**ANNEX D**  
**PHOTOGRAPHS**

BENI SUEF WATER TREATMENT PLANT



FLOCCULATOR BAFFLE  
WALLS



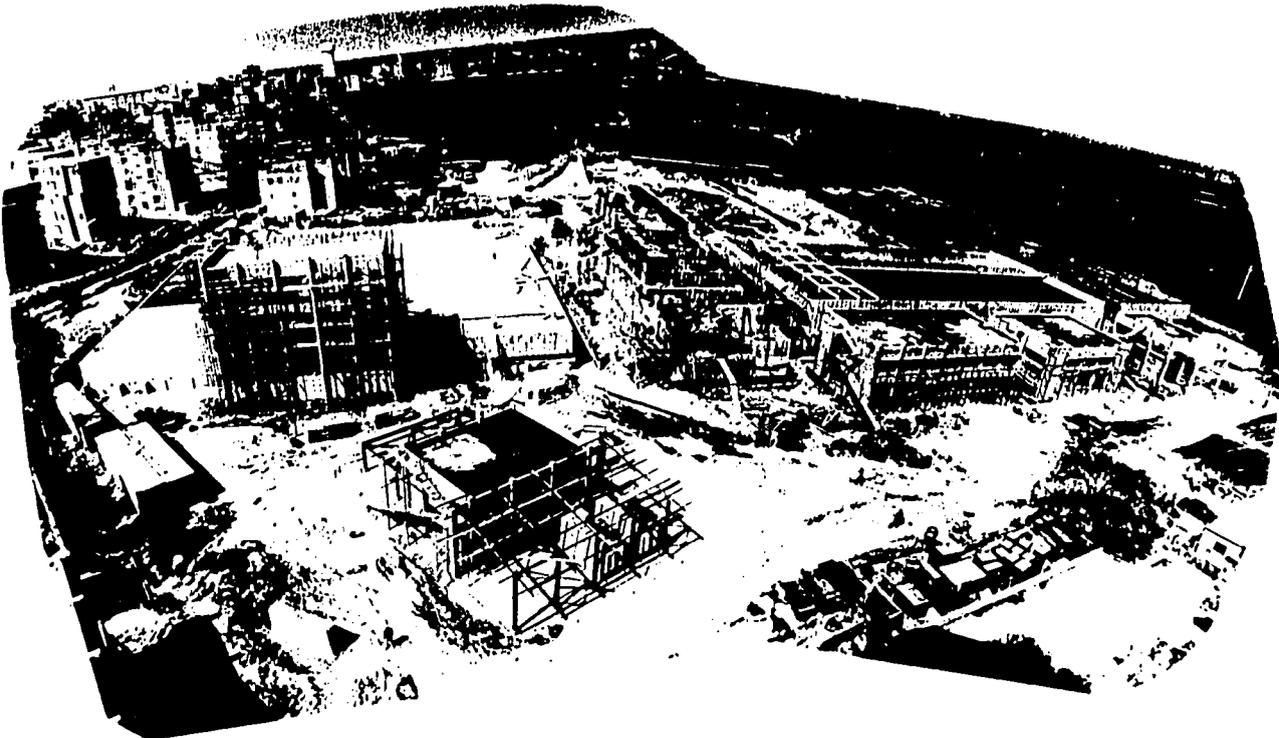
SLUDGE LAGOONS

MAR. '91

March 26, 1991  
Fayoum Raw Water Pump Station and Intake Site



March 26, 1991  
Fayoum Water Treatment Plant Site and Elevated Water Storage Tank 3

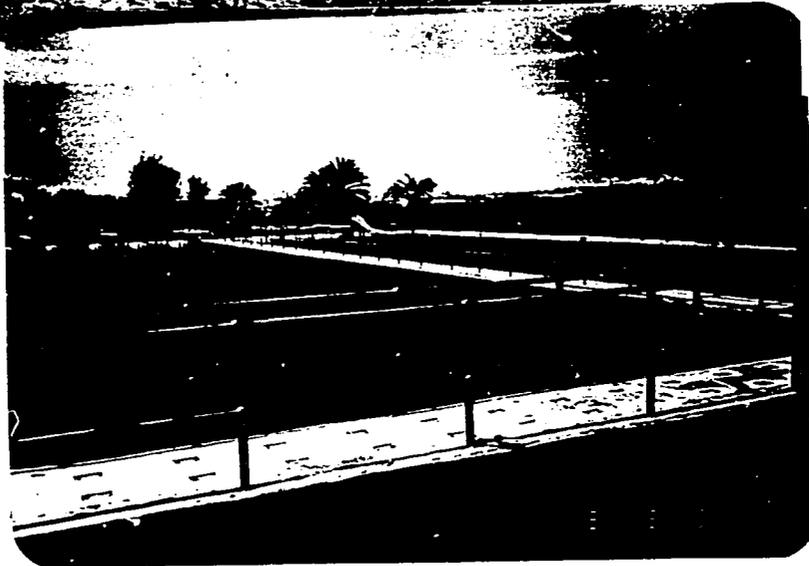


MINIA WATER TREATMENT PLANT



ERECTION OF  
PERIMETER FENCING

WATERTIGHTNESS TESTING  
OF SEDIMENTATION BASINS



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