

PD-ABQ-379

Environmental Policy and Technology Project

Contract No CCN-003-Q-00-3165

USAID EPT PROGRAM REVIEW

EPT Project Summary

U S. Aral Sea Program Overview in Kazakstan

27 September 1996

Prepared for
Regional Mission for Central Asia
U S Agency for International Development

Prepared by
Regional EPT Office in Almaty, Kazakstan
Environmental Policy and Technology Project
For the New Independent States of the former Soviet Union

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

EPT PROGRAM REVIEW ATTENDEES
(27 September 1996)

Barry Primm, USAID General Development Officer

Ken McManara, USAID Environment Specialist

Ms Nina Kavetskaya, Project Management Assistant

James Westfield, EPT Program Director

Pervez Shaikh, EPT Engineering Coordinator

Ms Barbara Britton, EPT Policy Coordinator

Syed Mahmood, EPT Kazakstan Country Manager

Paul Dreyer, EPT Regional Director

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

EPT PROGRAM REVIEW AGENDA
(27 September 1996)

- 1 USAID Activities
 - USAID/Washington Objectives
 - Project Review Criteria
 - Logistical Arrangements
 - Core Cost Implications

- 2 Kazakstan Activities
 - Proposed Ambassador's Visit
 - Status of Wellfield Construction
 - Status of Pump Station Construction
 - GOK Support Activities
 - Liability Issues

- 3 Turkmenistan Activities
 - Delivery of Vehicles
 - Distribution Plan
 - Plant Operations Program
 - Training Program
 - GOT Support Activities
 - Additional Materials to be Provided

- 4 Uzbekistan Activities
 - Status of Facilities Implementation
 - CDC/EPT Field Activities
 - Water Policy Advisor
 - Muynak Activities
 - Fergana Valley Activities

- 5 Regional Cooperation Activities
 - Water Pricing Activities
 - Status of Partnerships
 - Status of Applied Demonstration Projects
 - Water Quality Conference in Kazakstan
 - Schedule of EPT Regional Cooperation Activities

- 6 Multilateral Aral Sea Programs
 - World Bank Coordination in Tashkent
 - World Bank Support to Turkmenistan
 - Pilot Water Supply Project in Kazakstan
 - JICA Water Programs in Uzbekistan

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

EPT PROGRAM REVIEW AGENDA

1 USAID Activities

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KAZAKSTAN ACTIVITIES

PROPOSED ITINERARY FOR SYED MAHMOOD AND JANELLE DAANE

- Sun , Sept 29, 1996 3 30 pm Depart Almaty by the afternoon train to Saksaulsk
- Mon , Sept 30, 1996 10 30 pm Arrival in Saksaulsk Drive to Kosaman
Midnight Arrival in Kosaman Light snacks/dinner and lodging at
Kosaman House
- Tue , Oct 1, 1996 9 00 am Breakfast at Kosaman House, overview of wellfield activities,
review of photographs of recent wellfield rehabilitation work
10 00 am Visit selected wells in the Kosaman wellfield and Pump Station 1
1 00 pm Lunch at Kosaman House
1 45 pm Drive to Berdykol wellfield Visit selected wells in Berdykol
wellfield and visit Pump Station 2
6 00 pm Drive to Aralsk Dinner and lodging at Aralsk Hotel
- Wed , Oct 2, 1996 7 30 am Breakfast at Aralsk Hotel
8 00 am Visit Pump Station 3 and the City of Aralsk pump station
9 30 am Drive to Novakazalinsk and visit Pump Stations 4, 5 and 7 on the
way
1 30 pm Drive to Kzyl Orda Box lunch on the way
6 30 pm Arrival in Kzyl Orda Dinner and lodging at Kzyl Orda Hotel
- Thu , Oct 3, 1996 8 30 Breakfast at Kzyl Orda Hotel
9 00 am to noon Meeting with Vitali Shek and Aldash at their office
12 30 lunch and free time
6 00 pm Drive to airport for departure to Almaty on the 7 30 pm flight
11 30 pm Arrival in Almaty

Friday, Oct 4

leave Friday midnight

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PROPOSED ITENERARY FOR FIELD TRIP TO TURKMENBASHI

Travelers

Ms Janelle Danne, USAID/WDC

Ms Nina Kavetskaya, USAID/A

Pervez Shaikh EPT/A

early

~~Saturday~~ ^{Saturday morning}
Sunday, October 05, 1996

Departure Almaty Flight # T5 5152 03 05 ^{a-m-} Arrival in Ashgabat at 04 10 ^{a-r}

Check in Grand Turkmen Hotel ^{4 00}

Departure Ashgabat 16 00 for Dashowz Arrival Dashowz at 17 00

Dashowz to Turkmenbashi by road Arrive Turkmenbashi 20 00

Night stay in Turkmenbashi

Sunday, October 06, 1996

Visit the RO Plant

Monday October 07, 1996

Another visit to the RO Plant and see its operation

Meetings with GOT officials in Dashowz

Depart Dashowz by air at 18 00 and arrive Ashgabat at 19 00

Check in Grand Turkmen Hotel

7 00 p.m.

Tuesday, October 08, 1996

Depart Ashgabat at 15 15 Arrive Tashkent at ????

Check in at Tata Hotel/Uzbekistan Hotel

Wednesday, October 09, 1996

Depart Tashkent at 19 20 Arrive Almaty ????

7 00

Thursday

10⁰⁰

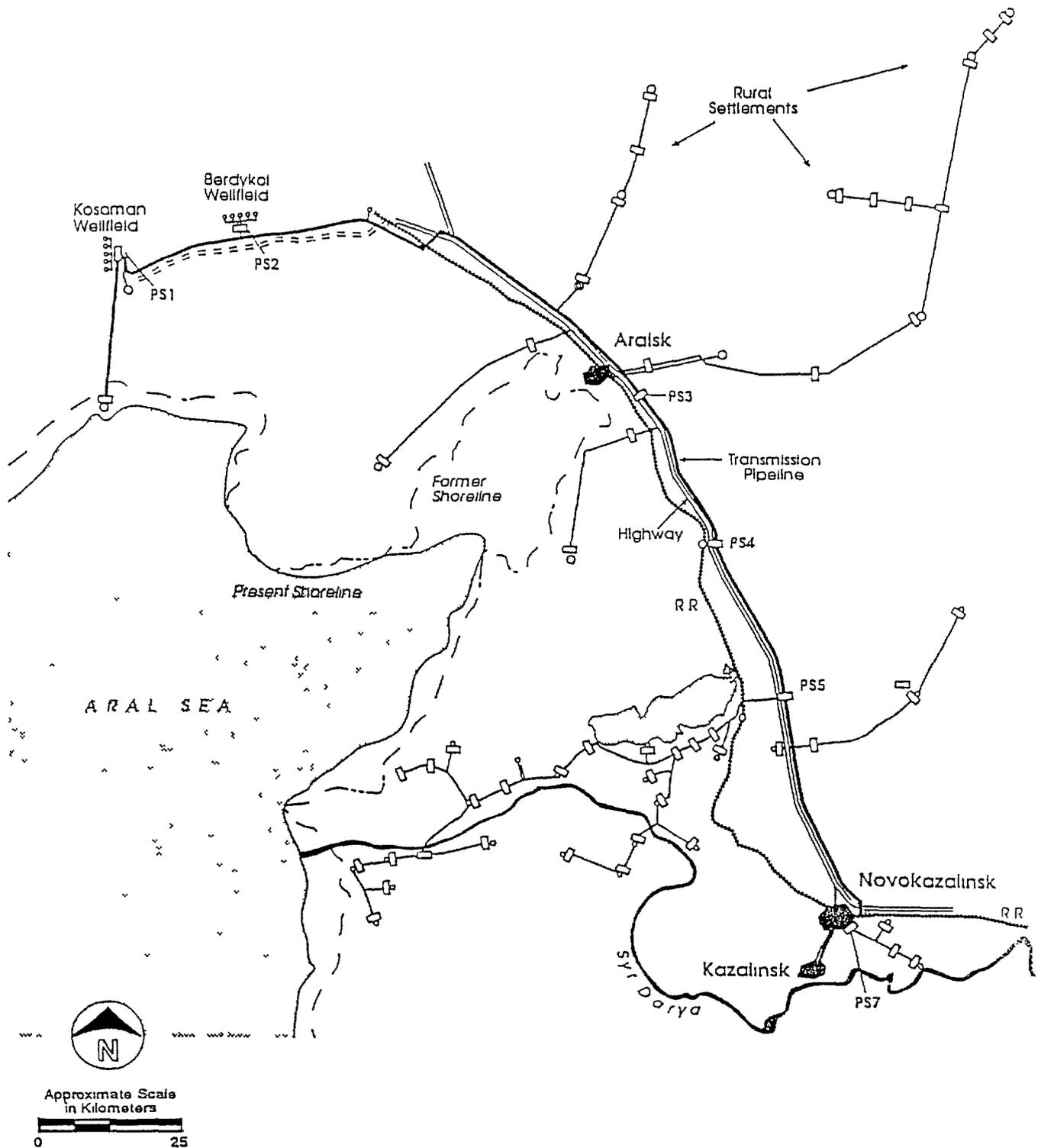
Friday

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Central Asian Regional Office

EPT PROGRAM REVIEW AGENDA

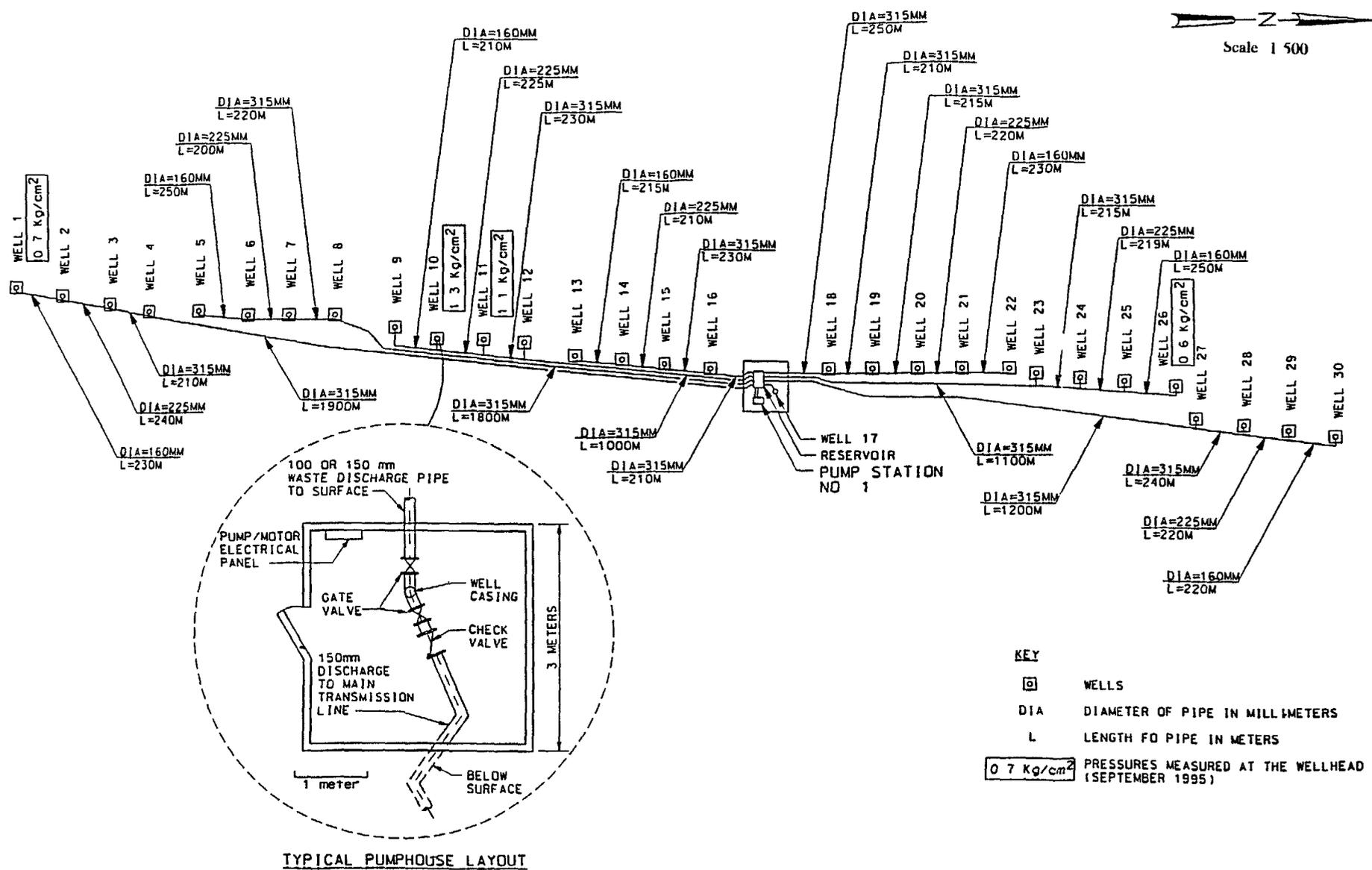
2 Kazakstan Activities

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office



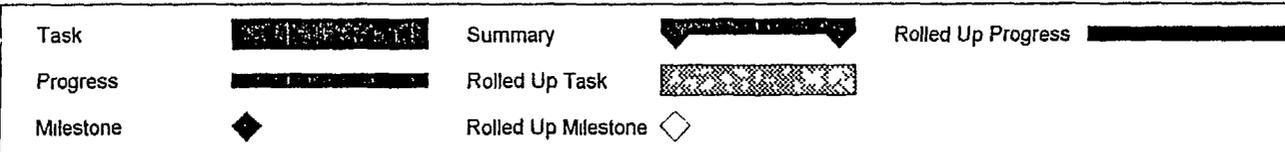
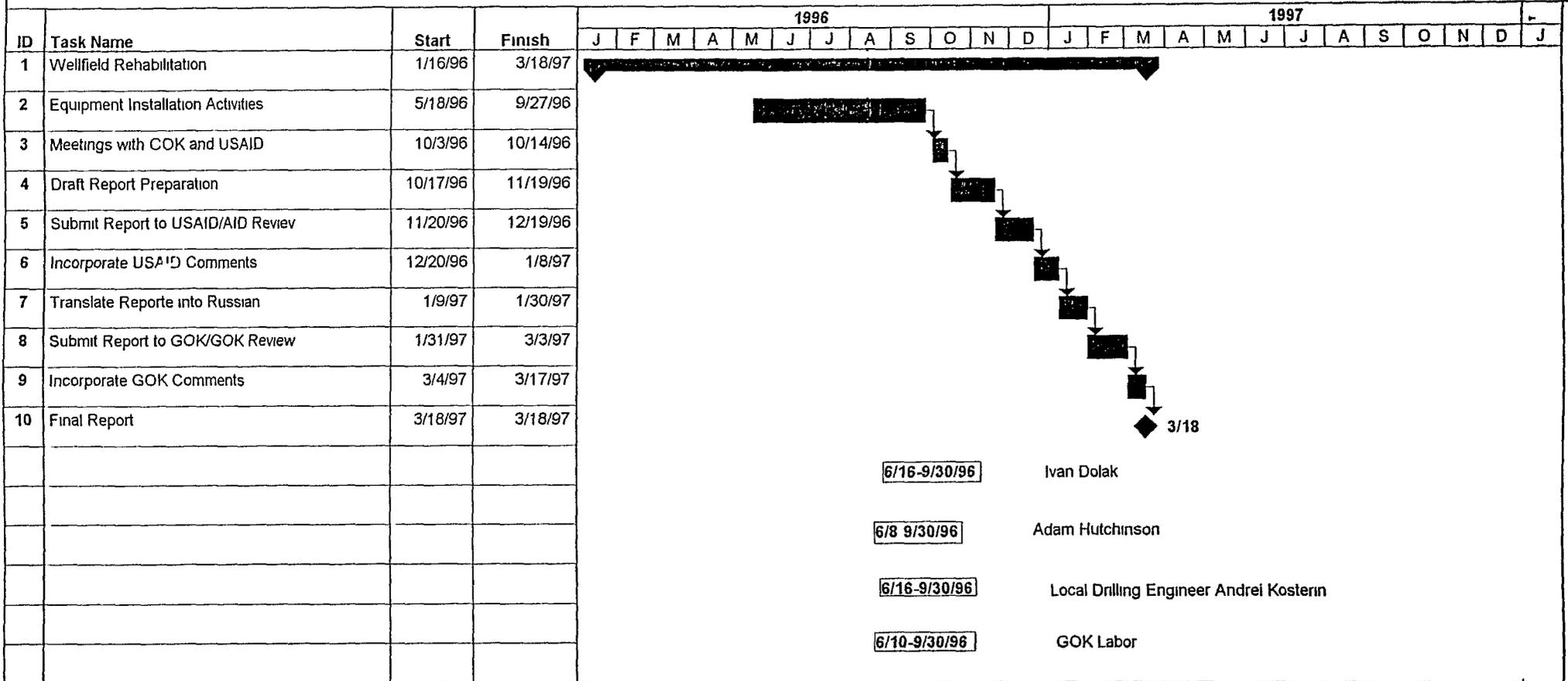
PUMP STATIONS AND TRANSMISSION SYSTEM
Republic of Kazakstan

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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KOZAMAN WELL FIELD IMPROVEMENTS
Layout of Individual Wells

Revised Schedule
 Delivery Order 12 Subtask 2A2 Wellfield Rehabilitation



ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office
Ulitsa Abai 4 Suite 112 Almaty 480024 Kazakstan
Tel (7-3272) 654-695 or 645-951 Fax 646-849

D R A F T

10 August 1996

Mr Tulegen T Sarsembekov
Chairman
State Committee on Water Resources
Ulitsa Zheltoksan 118
Almaty 480091 Kazakstan

U S Aral Sea Program
Kazakstan Activities

Dear Mr Sarsembekov,

As you are aware, CH2M Hill International Services Inc (the "Company") is currently providing services to the Government of the Republic Kazakstan (the "Government") under certain contracts (the "Contract") with the executed between the Company and the United States Agency for International Development (the "USAID") The Contracts have been issued pursuant to that certain Memorandum of Understanding (the "MOU") dated 19 March 1994 between the Republic of Kazakstan and the Government of the United States of America acting through USAID

Under the terms of the Contract, the Company is, *inter alia*, to undertake advisory and consulting services for the improvement of potable water systems in Kzyl Orda Oblast of the Republic of Kazakstan The Government has agreed to provide construction services, construction equipment and manpower to implement the advice of the Company During the course of the Contract the scope of the Company's effort has expanded, *to wit*, the Company will be acting as the general contractor for the construction activities undertaken to implement its advice There has been no amendment to the scope of the Contractor, to the best of the Contractor's knowledge, to include this additional effort

As a result of the additional work undertaken by the Company, and the risk related to the performance of such additional work the Company wishes to make known the following

- 1 To the extent that employees of the Government are utilized on the project they shall remain employees of the Government and the Company assumes no liability with respect to the wages benefits taxes, or health, life or other insurance with respect to such employees of the Government
- 2 The Company will perform its services with the degree of skill and diligence employed by professional engineers or consultants performing the same or similar services at the time the services are performed

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- 3 Should the Government become involved in any action, proceeding, claim, or demand relating to the services performed by the Company, it shall cooperate with, and assist the Government in such action. The Government agrees to reimburse reasonable expenses for ancillary witnesses as required.

The Government will select an attorney to defend any suit or claim for damages against the Company or the Government, and shall hire and pay said attorney and all litigation expenses incurred in the defense of the parties. The Government shall provide a reasonable and professional defense of the parties according to the prevailing local legal standards. The Company shall fully cooperate in the defense of any such suit or claim.

The Government will have the right to investigate, negotiate, and settle, with the Company's concurrence any suit or claim. If the Company does not concur in settlement, the Company shall have the right to assume defense of the case at its sole cost.

The Company's total liability to all claimants for all claims or suits of any kind, whether based on contract, tort (including negligence), warranty, strict liability, or otherwise, for any losses, damages, costs, or expenses of any kind whatsoever arising out of, resulting from, or related to the performance or breach of the Contract shall, under no circumstances, exceed US\$100,000 (one hundred thousand United States dollars). In no event shall the Company and its officers, directors, employees, agents, and independent professional consultants, under any circumstances, be liable for any losses, damages, costs, or expenses whatsoever. Any action against the Company out of, resulting from, or related to the performance or breach of the Contract shall be filed no later than one year after the cause of action has accrued.

Please acknowledge receipt of this letter and acceptance of its terms by signing one copy hereof and returning it to the undersigned.

CH2M Hill International
Services, Inc

Paul Dreyer
Regional Director
EPT/Almaty Office

Government of the Republic of Kazakstan

Tulegen T. Sarsembekov, Chairman
State Committee on Water Resources

F445A

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EPT PROGRAM REVIEW AGENDA

3 Turkmenistan Activities

Production and consumption for May 1996

Day	Production	Consumption	Hours Run
1	179 3	59 0	5 9
2	222 1	96 2	7 25
3	106 2	73 6	3 4
4	0	44 5	0
5	0	61 5	0
6	161 3	71 6	5 2
7	86 8	46 1	2 8
8	0	45 9	0
9	0	0	0
10	98 0	59 2	3 2
11	0	68 0	0
12	0	19 1	0
13	117 4	42 4	3 8
14	0	71 1	0
15	146	81 3	4 8
16	0	94 18	0
17	154 5	38 2	5 8
18	0	26 7	0
19	0	10 5	0
20	133 2	109 7	5 0
21	133 2	61 1	5 0
22	0	97 7	0
23	0	87 2	0
24	159 8	90 1	6 0
25	138 5	61 6	5 2
26	0	35 3	0
27	0	68 1	0
28	167 8	59 4	6 3
29	0	75 6	0
30	162 5	90 0	6 1
31	0	79 8	0
Total	2167 09	1869 68	75 75

Production and consumption for June 1996

Day	Production	Consumption	Hours Run
1	188 3	72 8	6
2	0	0	0
3	0	78 9	0
4	128 7	87 6	4 1
5	0	82 5	0
6	245	113 9	7 8
7	0	61 2	0
8	0	108 8	0
9	0	30 3	0
10	204	79 5	6 5
11	232 3	113 7	7 4
12	0	76 2	0
13	0	0	0
14	241 7	166 8	7 7
15	0	84 5	0
16	0	0	0
17	241 7	138 7	7 7
18	229 1	100 7	7 3
19	0	84 4	0
20	254 2	115 4	8 1
21	141 2	111 3	4 5
22	0	98 8	0
23	0	0	0
24	204	135 6	6 3
25	169 5	101 2	5 4
26	166 3	115 8	5 3
27	102 5	123 6	4 9
28	82 6	102 9	7 9
29	175 7	108 6	5 6
30	0	0	0
Total	3006 8	2493 7	102 7

Production and consumption for July 1996

Day	Production	Consumption	Hours Run
1	112 9	112 0	3 6
2	163 2	88 8	5 2
3	0	72 6	0
4	182 0	66 6	5 8
5	0	84 2	0
6	157 9	106 9	5 0
7	0	0	0
8	169 5	91 9	5 4
9	0	81 7	0
10	207 1	100 9	6 6
11	0	57 8	0
12	219 7	135 2	7 0
13	91 0	100 6	2 9
14	0	0	0
15	134 9	99 2	4 3
16	0	121 4	0
17	212 2	67 0	6 76
18	100 4	82 0	3 2
19	0	65 2	0
20	177 6	129 6	5 66
21	0	0	0
22	144 4	78 2	4 6
23	0	112 6	0
24	247 9	136 3	7 9
25	119 3	85 3	3 8
26	0	112 8	0
27	210 3	130 6	6 7
28	0	16 2	0
29	147 5	82 8	4 7
30	119 3	112 4	3 8
31	-	108 6	0
Total	2 917 1	2 639 4	92 92

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

TURKMENISTAN ACTIVITIES
REVERSE OSMOSIS TREATMENT PLANT TRAINING

COURSE OUTLINE

PART 1 - MANAGEMENT TRAINING

Location - Dashhovuz Velayat, Turkmenistan

Participants - 6 senior managers,
3 SES laboratory personnel, and
3 Health Center personnel

PROGRAM OVERVIEW

Day 1 - Water Utility Management

Case examples of similar facilities
Philosophy of GOT plant operations
Discussion of Objectives
Rate Structures and Cost Recovery
Recommendations for the Facility

Day 2 - Water Quality Guidelines

Review of Existing Water Quality Standards
Health Considerations
SES Responsibilities
Plant Laboratory Operations
SES Laboratory Operations
Plant Certification

Day 3 - Distribution System

Results of Container Evaluation by the GOT
Consideration of Storage Alternatives
Truck Distribution and Extent
Water Quality in the Distribution System
Responsibilities of the Collective Farms

Day 4 - Administrative Issues

Reporting Requirements
Chemical Source Replacement
Computer Requirements
Personnel Management
Summary of Plant Procedures

PART 2 - OPERATIONS TRAINING

Location - Turkmenbashi Plant Site, Turkmenistan

Participants - 3 GOT senior managers,
2 GOT health personnel, and
12 plant operators

PROGRAM OVERVIEW

Day 5, morning - Plant Administration Summary
Reports on Plant Operations
Computer and Personnel Training Schedules

Day 5, afternoon - Distribution System Summary
Container Loading Operations
Truck Loading Operations
Water Quality Variations
Laboratory Training

Day 6, morning - Treatment Operations
Physical Treatment of Water
Chemical Treatment of Water

Day 6, afternoon - Treatment Operations
Disinfection Requirements
Operations & Maintenance Procedures
Scheduled and Routine Maintenance

Day 7 morning - Administration Training
Principles of Operations
Chemical Treatment of Water

Day 7, afternoon - Training Summary
Summary of Plant Procedures

PART 3 - DETAILED TECHNICAL TRAINING

Location - Turkmenbashi Plant Site, Turkmenistan
Participants - 3 GOT Senior Managers and
12 plant operators

PROGRAM OVERVIEW

Day 8 - Detailed Training
Well Operations
Pump Station Operations

Day 9 - Detailed Training
Pretreatment Operations
Post Treatment Operations

Day 10 - Detailed Training
Storage Requirements
Safety Requirements

Day 11 - Detailed Training
Membrane Technology
Membrane Replacement

Day 12 - Detailed Training
Chemical Treatment
Laboratory Procedures

Note The AWWA participation is included in Part 1 and Part 2 only

August 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

EPT PROGRAM REVIEW AGENDA

4 Uzbekistan Activities

ID	Task Name	Start	Finish	Quarter																							
				3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter					
				J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M		
1	UZBEKISTAN ENGINEERING ACTIVITIES	6/12/95	4/25/97																								
2	DO 6 ENGINEERING ACTIVITIES	6/12/95	3/25/97																								
3	TASK 6 1A Water Plant Chlorination Systems	6/12/95	3/25/97	[Task Bar]																							
4	Install & Commission Chlorine Equip	6/12/95	11/2/95	[Task Bar] 11/2																							
5	Design & Procure Evaporator Equip	9/1/95	11/19/96	9/1 [Task Bar] 11/19																							
6	Install & Commission Evaporator Equip	9/25/96	3/25/97	[Task Bar] 9/25																							
7	TASK 6 1B Water Plant Clarification Systems	9/1/95	11/29/96	[Task Bar]																							
8	Design & Procure Filtration Equip	9/1/95	3/21/96	9/1 [Task Bar] 3/21																							
9	Install & Commission Filtration Equip	7/9/96	7/9/96	[Task Bar] 7/9 7/9																							
10	Design & Procure Coagulation Equip	9/1/95	8/30/96	9/1 [Task Bar] 8/30																							
11	Install & Commission Filtration Equip	6/17/96	11/29/96	[Task Bar] 6/17 11/29																							
12	TASK 6 2 Water Laboratory Improvements	8/15/95	6/27/96	[Task Bar]																							
13	Resupply Reagents & Followup Training	8/15/95	6/27/96	8/15 [Task Bar] 6/27																							
14	DO 12 2C ENGINEERING ACTIVITIES	9/1/95	4/25/97																								
15	TASK 12 2C2 Chlorine Booster Systems	9/1/95	12/12/96	[Task Bar]																							
16	Design & Procure Chlorine Booster Equip	9/1/95	7/11/96	9/1 [Task Bar] 7/11																							
17	Install & Commission Chlorine Booster Equip	7/15/96	12/12/96	[Task Bar] 7/15 12/12																							
18	TASK 12 2C3 Water Plant Ops Improvements	9/9/96	4/25/97	[Task Bar]																							
19	Conduct Onsite Training	9/9/96	9/20/96	[Task Bar] 9/9 9/20																							
20	Provide Operations Assistance	9/23/96	11/1/96	[Task Bar] 9/23 11/1																							
21	Provide Followup Assistance	12/2/96	4/25/97	[Task Bar] 12/2																							

Project
Date 5/24/96

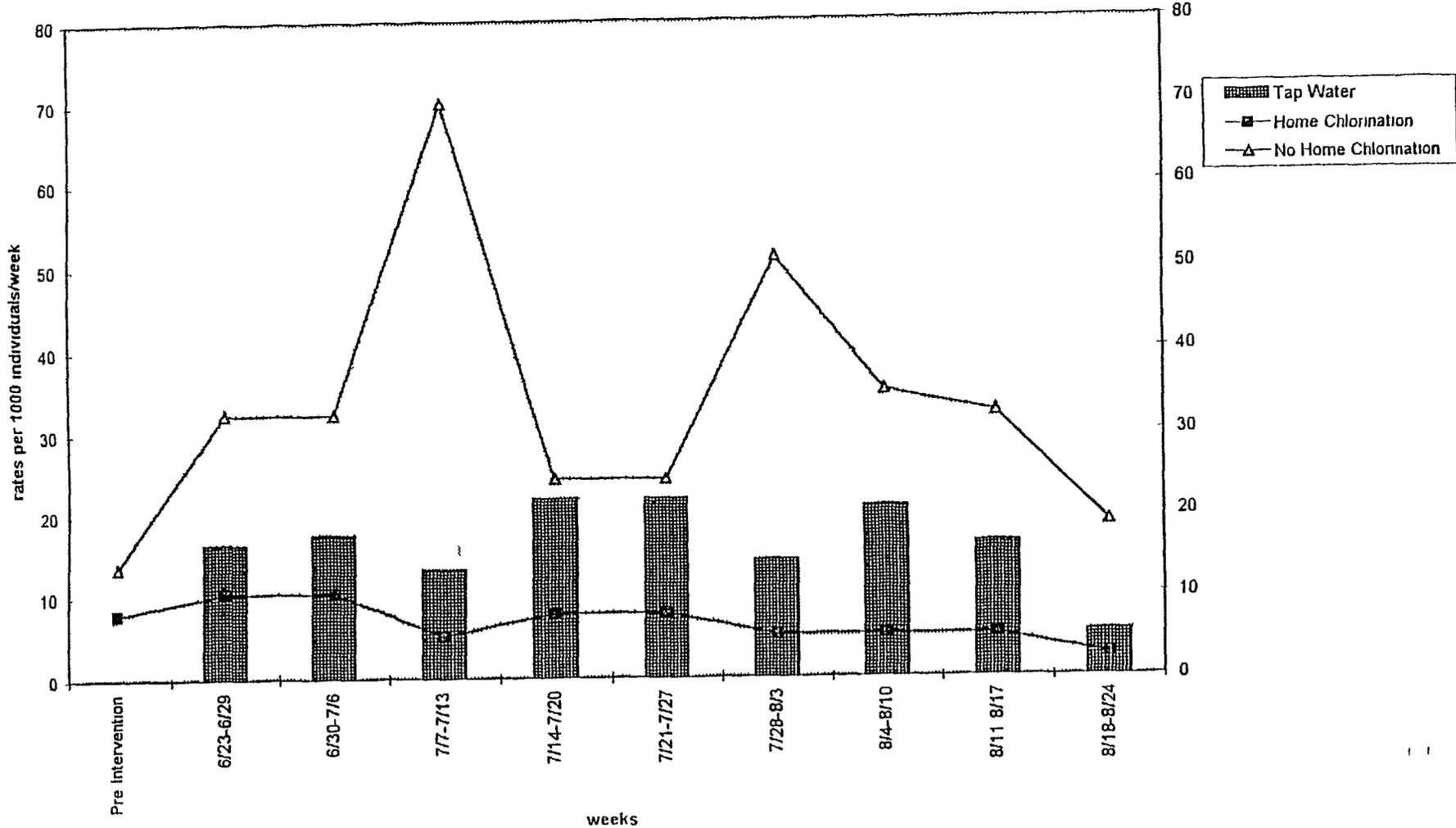
Task [Bar]
Progress [Bar]
Milestone ◆

Summary [Bar]
Rolled Up Task [Bar]
Rolled Up Milestone ◇

Rolled Up Progress [Bar]

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Diarrhea Surveillance in Nukus by Chlorination Status, June-August 1996



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DELIVERY ORDER 14 Water and Environmental Management Policy In Uzbekistan

A TITLE AND BACKGROUND

Environmental Policy and Technology Project, 110-0003, "Water and Environmental Management Policy In Uzbekistan "

B PURPOSE and OBJECTIVES

1 The purpose of this DO is to

- Provide direct consultative services to the Government of Uzbekistan in the area of water and environmental management policy
- Assist the Government of Uzbekistan in identifying the highest priority policy issues in the areas of water and environmental management and in developing an action plan for implementing needed policy initiatives
- Provide and/or facilitate the use of appropriate opportunities for training local counterparts from both the national and regional/local levels. Training opportunities may include, but should not be limited to, the sending of local counterparts to relevant short courses abroad, coordinating with other training programs in-country, or organizing local training seminars and workshops with either expatriate experts or with local consultant counterparts

2 The USAID Regional Mission in CAR has adopted a strategic plan for focusing the Agency's assistance efforts in the region. The activities under this DO are intended to support the Agency's Strategic Objective 3.3 (Reduced Environmental Risks to Public Health) and USAID/CAR Mission Objective 3.3 (Improved air, water and waste management practices adopted). In particular, the activities defined in this project will directly address key aspects of the indicators for Mission Objective (MO) 3.3

- implementation of water pricing at selected sites in the Aral Sea disaster zone
- reduction of pollution emissions at selected industry plant sites,
- implementation of reformed water management policies in the Aral Sea Basin and
- improved legal, regulatory and technical policy framework for pollution control and reduction

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

UZBEKISTAN ACTIVITIES
FERGHANA VALLEY WATER IMPROVEMENTS PROGRAM
PROPOSAL

GENERAL

Based on a request from Deputy Prime Minister Djurabekov during the execution of the amendment to the Memorandum of Understanding, Ambassador Escudero has requested planning information for a proposed program to improve water quality in the Ferghana Valley. The specific request was for technical assistance and provision of equipment similar to the present activities in the water system improvement element in the Aral Sea Program of Uzbekistan which could be included by amendment to an existing delivery order in the present EPT Project contract.

PROPOSED ACTIVITIES

Based on the experience of the EPT Project over the last two years in Uzbekistan and the other countries, a proposed program of activities is suggested for consideration, as follows:

Task 1 - conduct a reconnaissance field trip to identify a key water facility and a key laboratory for proposed improvements, review with USAID for concurrence and ensure collaboration with other USAID and donor programs,

Task 2 - provide laboratory equipment and reagents, and the related training, for water quality monitoring at one laboratory in the valley,

Task 3 - provide chlorination equipment, and the related training, at one water treatment plant in the valley

Task 4 - provide limited chemical feed equipment to improve finished water quality at the identified treatment plant,

Task 5 - conduct operations and maintenance training for improved water treatment and operational efficiencies at this identified facility,

Task 6 - conduct an overall assessment of the water transmission system from the identified water treatment plant

Task 7 - prepare policy, operational and financial recommendations for consideration to ensure the sustainability of the equipment provided to the identified facility, and

Task 8 - conduct a health education program on water and sanitation issues that affect the population in an area of the Ferghana Valley

SCHEDULE OF ACTIVITIES

Tasks 1 2 and 8 can be completed before the end of this year, if the notice to proceed is issued by 1 August. The overall schedule of activities can be expected to be completed within twelve months of the notice to proceed.

ESTIMATED COST OF ACTIVITIES

The estimated costs are developed based on the costs of similar activities included in Delivery Order 6 of the present EPT Project. The estimated cost of each task includes the labor and procurement of these items to be installed, and are as follows:

Task 1	\$50,000	to	\$60,000
Task 2	50,000	to	60,000
Task 3	180,000	to	250,000
Task 4	230,000	to	300,000
Task 5	100,000	to	150,000
Task 6	40,000	to	50,000
Task 7	50,000	to	70,000
Task 8	50,000	to	60,000

This results in an estimated project cost of US\$750,000 to \$1,000,000. However, the above tasks can be modified to complete the proposed work in accordance with the budget level available.

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

EPT PROGRAM REVIEW AGENDA

5 Regional Cooperation Activities

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

REGIONAL COOPERATION IN WATER MANAGEMENT

Regional Activities Update

Follow up on Water Pricing Activities (Consultants in CAR October and December)

- Environmental Damage Assessment
 - Objective to place dollar value on failure to act on Aral Sea problem
 - Basis for price to attribute to degradation in water quality
 - Target organization Sustainable Development Commission

- Develop options for Toktogul reservoir operating regime
 - Development of optimization model (McKinney)
 - Draft agreement (McCauley, possibly Keith)
 - Energy perspective (Browning)
 - Target Organization Interstate Council for Kazakstan, the Kyrgyz Republic, and possibly, the sustainable development commission

Status of Partnerships

- UT--Water Allocation Model for Amu Darya
 - McKinney here in August to load system/train
 - He met with the data collection specialist working on the EU/TACIS project and confirmed there is no duplication, but rather, compatibility between what UT is doing and what EU is doing
 - McKinney here in September to make presentation during AIH conference, attend Applied Demonstration Project Workshop

- RTI--River Emissions Decision Support System for the Syr Darya
 - Local counterparts are finalizing data collection
 - Attempting to finalize dates for RIMDESS workshop
 - Policy questions model will address
 - How water charges affect pollution levels
 - How water pricing can affect consumption
 - How salinity levels will increase in the absence of appropriate water management practices
 - Need to get COTR on counterparts--awaiting to receive RTI's input before submitting letter
 - Asked for a mid-term report by September 15
 - Target organization Sustainable Development Commission

Applied Demonstration Projects

- Appear to be going well
- Applied Demonstration Project meeting to present river basin management projects October 4-5
- Draft final reports are beginning to be submitted

Schedule of Activities

- American Institute of Hydrology Conference September 23-27, Tashkent Sponsoring working committee members attendance
Organizers have asked for additional assistance from us in sponsoring other local travel
State & support
- cable* -- October 1-9 Consultants to work with locals on workplan for Toktogul
- Nra* -- Support for locally sponsored workshop on water quality standards (organizer participated in NET training in US)
- October 1-30 Consultant to work on damage assessment
- October 4-5 Second applied demonstration project retreat (Almaty)
- RIMDESS counterpart meeting (not scheduled but must take place before November 10)
- ICAS meeting late September early October
- Working Committee early November (tentative)
- Consultants to return to work on Toktogul (December 1-23)
- Consultant to return to work on damage assessment (December 1-23)
- Executive Retreat with Sustainable Development Commission (approx December 20)

brb aid briefing 9/3/96

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

**REGIONAL COOPERATION IN WATER MANAGEMENT
PARTNERSHIPS AND APPLIED DEMONSTRATION PROJECTS**

The activities included in the Regional Cooperation in Water Management program are part of the U S Aral Sea program supported by the U S Agency for International Development (USAID) in Central Asia. The Environmental Policy and Technology (EPT) project is being implemented in the newly independent states by CH2M-Hill International Inc, which is the prime contractor for a team of fourteen subcontractors.

Regional Cooperation in Water Management encouraged proposals for projects to be conducted by individuals, institutions and organizations in the Central Asian Republics (CAR) and for partnerships between CAR organizations and U S organizations. Guidelines for proposals were prepared, and submittals were evaluated by how well the activity supports the technical assistance program of USAID in the need to share information and use it to develop practical solutions to water management problems in the Aral Sea Basin.

More than 50 proposals were received and evaluated by a group of peers based on a set of criteria including program relevance and scientific merit. The proposals for the applied demonstration projects recommended for funding by USAID are as follows:

Short-term Runoff Forecasting of the Amu Darya Dr S Myagkov, SANIGMI, Tashkent, Uzbekistan. This project addresses the need for automated forecasting models to optimize the operational management of water resources. Researchers will develop a computerized short term runoff forecasting model with a hydrological data base of the Amu Darya. As the computer program will be oriented to the needs of the Hydrological and Water Services of both Turkmenistan and Uzbekistan, the project has potential for facilitating regional cooperation between the two republics. Moreover, the model can later be adapted to the Syr Darya basin.

Creating an Optimal Water Quality Observation Network for the Aral Sea Dr R Toryanikova, SANIGMI, Tashkent, Uzbekistan, with counterparts in four other republics: E Pozdnyak, Kazakstan, M Bakanov, Kyrgyzstan, N Budnik, Tajikistan, Y Feodorov, Turkmenistan. The water quality monitoring systems currently in place for the region's surface waters do not adequately measure contaminants and their distribution within the water system. Moreover, monitoring methods and parameters are inconsistent across the region. This project will design a common Central Asian surface water quality monitoring system, including a structure for the network, a prioritized list of parameters and water bodies to be measured, the unification of existing programs, sampling and testing methods, and an information exchange process. This water quality monitoring network could aid in pollution control and water treatment and support effective policy and management decision-making.

Water Quality Monitoring at the Epicenter of the Aral Sea Ecological Disaster Area Dr Zholibekov, Laboratory of Soil Science and Biotechnology, Institute of Bioecology, Karakalpakstan, Uzbekistan. While it is recognized that water quality in the southern Aral Sea is potentially hazardous to human health, there are no reliable data on the quality of water in the

drinking water supply system. This project will evaluate water quality along the untreated drinking water supply system, assess the risks for human health and the need for water treatment equipment. The information gathered will be added to a growing data base of water quality in the region. The resulting information will be made available to state committees for nature protection, ministries of health, firms involved with water treatment and environmental protection, and the World Health Organization.

Assessment of the Impacts of Human Activity on the Upstream Syr Darya Basin L K Nekipelova, State Committee on Emergency Situations, Almaty, Kazakstan. The project will assess the influence of economic activity on river flows, providing important information for water resources planning and management policies along the Syr Darya Basin. This project interacts with the next two projects to provide a more complete understanding of the region's situation.

Evaluating the Influence of Falling Aral Sea Levels on the Moisture Content of Surrounding Territories Dr E Vlasenko, KazNIIMOSK, Kazgidromet, Almaty, Kazakstan. This project will analyze changes in water re-distribution over Kazakstan and develop forecasts for the future. This information will be used to develop management recommendations for the agricultural sector.

Forecasts of Aral Sea Levels Using Probability Analysis Dr S Shivarova, KazNIIMOSK, Kazgidromet. The investigators will use probability analysis to forecast the water balance of the Aral Sea basin, the analysis will enable water managers to modify operating rules for reservoirs and rivers. It may also provide an information base to enable policy makers to express the urgency of addressing the Aral Sea problem in the short term to avert longer term consequences.

Scientifically-Based Methods of Water Pricing Drs D Mamatkanov and K Shavva, Institute of Water Problems and Hydropower, Kyrgyzstan, with counterparts in the other four republics: A Kenshimov, Kazakstan, V Boltov, Tajikistan, O Niyazov, Turkmenistan, A Raffikov, Uzbekistan. Several factors have contributed to the "Aral Sea Crisis," including the removal of water from the contributing river systems for agricultural and other uses as well as water pollution. The regional nature of this problem requires that the different republics involved agree on an approach to water prices and tariffs. This project could be an important step in developing a regional consensus, investigators from all five republics will develop tariffs and prices for water use in agriculture as well as interstate tariffs for water supply. The project also provides an excellent opportunity for the involvement of U S counterparts.

Pricing Water During Transition to Paid Water Use in the Republics of Central Asia Dr V Dukhovny MKVK, and Dr M Pinkhasov, SPA SANIIRI, Uzbekistan, with counterparts from three other republics: I Umbetyayev, Kazakstan, M Sarkisov, Turkmenistan, and N Nosirov, Tajikistan. The objectives of this project are to formulate pricing models for different water uses, to establish tariffs for water supply services for irrigation and non-irrigation purposes, to establish tariffs for different levels of water use and for contamination of water bodies by waste water, and to introduce commercial law for water. The above measures will provide incentives for more efficient water use and potentially provide some much needed financial resources for operational water supply organizations.

Economic Damage Evaluation in Water Use Dr Sarkisov, Turkmenistan This project addresses the economic impact of cross-border water pollution The investigators will develop a scheme for assessing damage to agricultural, industrial, municipal and fishbreeding users, as well as to the environment On this basis, researchers will propose a bilateral, long-term agreement between Turkmenistan and Uzbekistan on water supply between the two countries

In addition, partnerships between local, regional and U S counterparts were encouraged to develop cooperation on water management issues Two such partnerships have received funding

Regional Water Allocation Model for the Amu Darya Dr A Karimov, IEI, Tashkent, Uzbekistan, and Dr McKinney, University of Texas, Austin, Texas Project counterparts will cooperate on the following activities comparison of the water management experiences and models of the CAR and Texas, development and implementation of the first phase (Amu Darya basin) of an Aral Sea Basin water allocation model, analysis of efficient water allocation alternatives for the Amu Darya basin, definition of sustainable allocation measures that are extendable to the other river basins in the Aral Sea region, training CAR personnel to maintain and extend the first phase model This model will be useful in comparing various water allocation scenarios in the CAR, based on different economic and hydrological development options

Integrated Data Management for the Syr Darya Basin Drs Bondelid and Brantley, Research Triangle Institute, North Carolina and counterparts in Kazakstan, Kyrgyzstan and Uzbekistan The investigators will identify and collaborate with Central Asian counterparts to adapt an existing emissions management and decision support system to the Syr Darya Basin RiMDESS (River Management Decision Support System) will evaluate water resource management issues such as hydrology, water quality, water allocation and water pricing This activity will promote cooperation and data sharing among counterpart institutions within and among countries, with the objective of demonstrating the value of sharing and integrating analyses across disciplines and geographic areas In support of the work on RiMDESS being completed under the RTI partnership, investigators from Kazakstan, Kyrgyzstan, Tajikistan and Uzbekistan will collect data on hydrology and water quality and will analyze existing water quality standards, in addition, an analysis of current regulations on water quality and pollution control in Kyrgyzstan and Uzbekistan will be completed CAR researchers include A Kenshimov, Kazakstan, D Mamatkanov and K Bozov, Kyrgyzstan, O Shodiev, Tajikistan, and E Chembarisov and L Piontkovskaya, Uzbekistan

The results of the applied demonstration projects and the partnerships will be presented at seminars in late 1996

April 1996

Proposed Policy and Technical Homes
Automated Decision Support System
Syr Darya Basin
Central Asia
 (* indicates currently included home)

Country	Policy Home	Technical Home
Kazakstan	Committee on Water Resources* (Kadaiburgenov, Deputy Minister/Member SDC) Ministry of Bioresources and Ecology (Baev, Minister/Member SDC)	Committee on Water Resources (same as policy)* Hydromet (Shamenov)-- leading researchers from institute are providing data
Kyrgyzstan	Ministry of Ecology* (Minister Bokenbaev, Member SDC)	Institute of Water Problems Academy of Sciences *(Mamatkanov)--coordinating data input of researchers from Kyrgyzstan, Tajikistan and Uzbekistan under ADP project
Tadjikistan	Ministry of Ecology (Davlatov, Minister, Member SDC) Ministry of Economy and Foreign Relations (Boltov, Deputy Minister/Member SDC)	
Turkmenistan	Ministry of Ecology (Kurbanov, Minister of Environment/Member SDC) Scientific Information Center for the Sustainable (Babaev, Director) (SDC) Development Commission of the Interstate Council for the Problems of the Aral Sea	
Uzbekistan	State Committee on Nature Protection* (Konjukov, First Deputy Chair/Minister member SDC) State Committee of Statistics and Forecasting (Mironenko, First Deputy Chair/Member SDC)	State Committee on Nature Protection* (Konjukov, First Deputy Chair--same as policy)

ADP STATUS
as of September 26, 1996
EPT Project Almaty Kazakstan

ADP No	Project	Country	Investigator	Contract Status	Project Total
Round I (11 contracts)					
1 0	Regional Water Allocation Model for the Amu Darya	Uzb	Akmal Karimov & Saidrakhman Mirzaev	approved	\$ 40 595
2 0	Short-Term Runoff Forecasting for Amu Darya	Uzb	Sergei V Myagkov	approved	13 900
3	Creating an Optimal Water Quality Observation Network for the Aral Sea Basin		<i>Toryanikova project leader</i>		
3 1	Uzbekistan Component	Uzb	Raisa V Toryanikova	approved	28 483
3 2	Turkmenistan Component	Tur	Yuri Feodorov	approved	5 867
3 3	Tajikistan Component	Taj	Nina Budnik	approved	5 867
3 4	Kyrgyzstan Component	Kyr	Muratbek Bakanov	approved	5 867
3 5	Kazakstan Component	Kaz	Eduard Ludvigovich Poznyak	approved	5 867
4 0	Assessment of Impacts of Human Activity on Upstream Syr Darya	Kaz	Ludmila Konstantinova Nekipelova, Leading Spec	approved	11 350
5 0	Evaluating the Influence of Falling Aral Sea Levels on the Moisture Content of Surrounding Territories	Kaz	Evgenia Feodorovna Vlasenko	approved	9 500
6 0	Forecasts of Aral Sea Levels Using Probability Analysis	Kaz	Svetlana Pavlovna Shivar'yova	approved	14 400
7 0	Water Quality Monitoring at the Epicenter of the Aral Sea Ecological Disaster	Uzb	Bakhtiar Zhollibekov	approved	9 880
Round II (15 contracts)					
8	<i>RIMDESS Support</i>				
8 1	Regulations and Pollution Sources of Syr Darya Basin in Uzbekistan	Uzb	Larisa Grigorevna Piontkovskaya	in D C	\$ 3 500
8 2	Development of Baseline Data for Analysis of Syr Darya River Basin in Kazakstan	Kaz	Amirkhan Kadirbekovich Kenshimov	in D C	\$ 3 500
8 3	Water Regulations in Kyrgyzstan	Kyr	Kadirbek Bozov	in D C	\$ 1 000

ADP STATUS
as of September 26, 1996
 EPT Project Almaty, Kazakstan

ADP No	Project	Country	Investigator	Contract Status	Project Total
9	Scientifically-Based Methods of Water Pricing		<i>Mamatkanov proj leader</i>		
9 1	Kyrgyzstan Component	Kyr	Dyushen Mamatkanov	approved	21 030
9 2	Uzbekistan Component	Uzb	Albert Abdullaevich Raffikov	approved	4 600
9 3	Kyrgyzstan Component	Kyr	Kuzma I Shavva	approved	7 470
9 4	Tajikistan Component	Taj	Victor Vasilyevich Boltov	approved	7 700
9 5	Turkmenistan Component	Tur	Omar N Niyazov	approved	4 700
9 6	Kazakstan Component	Kaz	Amirkhan Kadirbekovich Kenshimov	approved	4 700
10	Development of Baseline Data for Analysis of Syr Darya River Basin		<i>Mamatkanov, proj leader</i>		
10 1	Kyrgyzstan Component	Kyr	Dyushen Mamatkanov	in D C	11 000
10 2	Tajikistan Component	Taj	Odina Shodievich Shodiev	in D C	9 500
10 3	Uzbekistan Component	Uzb	Elmir Ismailovich Chembarisov	in D C	9 500
11 0	Pricing Water During Transition to Paid Water Use in the CAR		<i>Dukhovny, project leader</i>		
11 1	Uzbekistan Component	Uzb	Victor Abramovich Dukhovny	approved	12 100
11 2	Uzbekistan Component	Uzb	Mier Arieovich Pinkhasov	approved	10 100
11 3	Tajikistan Component	Taj	Nobi K Nosirov	approved	10 550
11 4	Kazakstan Component	Kaz	Ibadulla Umbetaev	approved	5 850
11 5	Turkmenistan Component	Tur	Moses Mikhailovich Sarkisov	approved	5 850
12 0	Economic Damage Evaluation in Water Use	Tur	Moses Mikhailovich Sarkisov	approved	10 000

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

Regional Activities Schedule

Activity	Date
American Institute of Hydrology Conference	September 23-27
Damage Assessment	US September CAR October 10-30
Planning for water sharing exercise--Toktogul	October 1-2
ADP Retreat	October 3-5
Support for locally sponsored workshop on water quality standards and monitoring	late October
RIMDESS Workshop/Working Committee	October 14-19
Regional ADPs to brief Working Committee on Project Results	December 2-3
Consultants for water sharing and damage assesment	December 1-23
Executive Retreat with Sustainable Development Commission	December 16-18
Toktogul agreement drafting session	December 19-20
Program Debriefing Washington, D C	mid-January 1997

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

EPT PROGRAM REVIEW AGENDA

6 Multilateral Aral Sea Programs

ARAL SEA BASIN PROGRAM - PHASE 1 PRELIMINARY ESTIMATED COST OF IMPLEMENTATION STAGE

NAME OF PROGRAM/PROJECT	ESTIMATED COST (AMOUNTS in US\$000)			DONOR INTEREST
	Total	Technical Assistance	Investment <1	
Program 1				
1 Regional Water Resources Management Strategy	9,000	8,000	1,000	GEF / EU / US / NL
2 Improving Efficiency and Operation of Dams	1 000	1 000		SWE
3 Sustainability of Dams and Reservoirs	1 000	1 000		SWE
SUB-TOTAL PROGRAM 1	11 000	10 000	1 000	
Program 2				
1 Hydrometeorological Services	19 500	2 000	17 500	SWISS
2 Regional Environmental Information Systems	8 000	3 000	5 000	GEF
SUB-TOTAL PROGRAM 2	27 500	5 000	22 500	
Program 3				
1 Water Quality Management				
a) Water Quality Assessment and Management	5,500	4,500	1 000	GEF / NL
b) Agricultural Water Quality	11 000	3 000	8 000	NL
2 Uzbekistan Drainage	125 000	5 000	120 000	BANK
SUB-TOTAL PROGRAM 3	141 500	12 500	129 000	
Program 4				
1 Wetland Restoration	33 000	3 700	29 300	GEF / NL
2 Restoration of Northern Part of the Aral Sea (see para 59)				BANK
3 Environmental Studies in the Aral Sea Basin				GEF
4 Syr Darya Control and Delta Development Project <2	50,000	3,000	47 000	
SUB-TOTAL PROGRAM 4	83 000	6 700	76 300	
Program 5				
1 Clean Water Sanitation/Health - Uzbekistan <3	90 000	5,000	85 000	BANK / KFAED / KiW / OECF
2 Clean Water Sanitation/Health - Turkmenistan <3	37 500	3 000	34 500	BANK
3 Clean Water Sanitation/Health Kazakhstan <3	37 500	3 000	34 500	BANK
4 Medium-term Water Supply	8 300	2 000	6 300	
SUB-TOTAL PROGRAM 5	173 300	13 000	160 300	
Program 6				
1 Integrated Land/Water Management in the Upper Watersheds	8,000	3,000	5,000	
Program 7				
1.2 Operational Water Resources Management for the Amu and Syr Darya Basins Management Information Systems	25 000			
- Communications	1,000	500	500	
- Data Collection and Monitoring	1 500	500	1,000	
Controls and Automation	21 000	—	21 000	
SUB-TOTAL PROGRAM 7	25 000	1 500	23 500	
Program 8				
Capacity Building				
PHASE 1 PROBABLE IMPLEMENTATION COSTS	469 300	51 700	417 600	

STAFF APPRAISAL REPORT
REPUBLIC OF KAZAKSTAN
PILOT WATER SUPPLY ENGINEERING PROJECT

III. THE PROJECT

A Background of the Proposed Pilot Engineering Project

32 A USAID funded project executed by the CH2M Hill currently underway, aims to rehabilitate two groups of wells in the Kosaman, and the Berdykol fields located 110km northwest from the city of Aralsk, and the six pumping stations (including chlorination equipment) along the Aralsk-Serbulak transmission pipeline. The activities also include water quality monitoring improvements (provision of laboratory equipment), water quality improvements (provision of chlorination equipment), and health education (public health training). Because of unexpected high costs of these activities, the last pumping station No 7a in Novokazalinsk cannot be covered by this USAID funded project. The timely completion of the USAID project has important implications for the proposed pilot water supply engineering project, and vice-versa. The full benefits of the USAID project will depend on the rehabilitation of the Aralsk-Serbulak pipeline, while water supply to the new pumping station No 7a will depend on the rehabilitation of the six pumping stations as proposed by USAID.

B Project Objectives

33 The main objectives of this project are to (i) make emergency physical improvements in the water supply system aiming to restore water supply services to the population depending on piped water supply; (ii) improve the design and implementation arrangements for the full-scale project through a "learning-by-doing" piloting approach, and (iii) speed up implementation of the full-scale project through early completion of detailed engineering design and preparation of bidding documents.

C. Project Description

34 The project consists of two components (i) a pilot investment component to finance water supply and distribution in the Aralsk and Kazalinsk Rayons of Kzyl-Orda Oblast, and (ii) a technical assistance component for the review of engineering designs, preparation of bid packages, supervision of pilot project implementation, and for detailed engineering design and preparation of bidding for the full-scale project.

(i) Pilot Water Supply Component

35 The water supply scheme as proposed under this pilot project will involve the rehabilitation of a part of the main pipeline from Aralsk to Novokazalinsk and the partial rehabilitation of the secondary distribution system in Aralsk and Novokazalinsk, as well as the completion of Pumping Station No 7a in Novokazalinsk. It will include the following sub-components

- (a) **Rehabilitation of the Aralsk-Surbulak Pipeline.** The reinforced concrete transmission pipeline that delivers water from the Kosaman and Berdykol well fields to Aralsk and Kazalinsk Rayons suffers from poor initial construction practices, especially the method of laying and covering pipes, which has resulted in a large number of leaks, with the largest number occurring between booster pumping stations No 2 and No 3. Some repair work has already been undertaken by local authorities, using steel and PCV pipes of smaller diameters than the concrete pipe. This rehabilitation program will include the replacement and rehabilitation of damaged concrete pressure pipes of approximately 10km in length and 800-1000 mm in diameter, at locations selected after the diagnostic study of the pipeline to be carried out by the feasibility consultants Gibbs/CES.
- (b) **Completion of the construction of the Pumping Station No 7a in Novokazalinsk.** Construction of the pumping station in Novokazalinsk started several years ago, but has not been completed because of a lack of financing. Questions have been raised as to the suitability of the pumping station location, because of seepage from the nearby irrigation canal and the frequent overtopping of the canal. It would, therefore, be necessary to line the canal over a section of some 500m along its boundary with the pumping station and to increase the wall height over this section to prevent overtopping. In addition, it would be necessary to purchase equipment and carry out works to complete the installation including finishing construction of the two storage reservoirs, and completion of construction and installation of equipment in the main pumping station, chlorination facility, warehouse/garage, power substation, and water control laboratory.
- (c) **Rehabilitation of the most corroded sections of distribution networks in the cities of Novokazalinsk and Aralsk.** Due to a lack of finance since the early 1990s, there has been limited work on replacement of corroded and badly leaking sections of the existing piped water distribution networks in the two cities. Under this component, the most deteriorated sections of the 60km and 70km networks in the cities of Novokazalinsk and Aralsk, respectively (about 6km in each city), will be replaced with new PCV piping ranging in diameter from 200 to 300mm. In addition, to allow more effective functioning of the Vodokanals' maintenance departments, it is proposed to provide emergency assistance to upgrade their maintenance equipment, which is in a bad state of disrepair.

(ii) **Technical Assistance Component**

36 The technical assistance component will finance the following sub-components

- (a) **Pilot Project Design and Supervision.** This sub-component will: (i) review, revise and improve as needed, and approve detailed engineering designs for the pilot water supply projects, (ii) prepare tender documents for the procurement of goods and works, (iii) arrange international tenders for the procurement of goods and works according to World Bank and GOK requirements, and assist in the selection of successful bidders and in negotiating contracts, (iv) provide overall supervision of pilot project implementation, (v) coordinate financing arrangements and approve payments to suppliers and contractors, supervise construction to ensure overall quality control, and

(vi) monitor and report on implementation progress. The Terms of Reference for this subcomponent is included in Annex F.

- (b) **Detailed Engineering Design and Supervision of Full-Scale Project.** This subcomponent will involve the preparation of the full-scale project engineering design and tender documents for equipment and works, including (i) establishing all design criteria for major project facilities, based on feasibility study results, (ii) preparing detailed engineering designs and construction drawings of the proposed facilities, (iii) preparing bills of quantities and dividing the procurement of civil works and equipment into an appropriate number of contract packages according to the requirements and procedures of the donors that will be financing these packages, (iv) preparing cost estimates for each package, (v) assisting the PIU to review tender documents for each contract package, (vi) preparing a detailed construction management plan for the project; (vii) supervision of full-scale project implementation, and (viii) preparing a detailed design report presenting the results achieved in the above tasks. A Terms of Reference for this assignment is given in Annex F, Part B.
- (c) **Project Implementation Unit.** An independent Project Implementation Unit (PIU) has been set up under the State Committee for Water Resources with initial financing from a Japanese PHRD grant until the feasibility study work has been completed. The PIU will be responsible for overall project management, approving disbursements, and for financial management of the project. A Terms of Reference for the operation of the PIU is given in Annex E.