



وزارة البيئة

Hashemite Kingdom of Jordan

Groundwater Treatment and Desalination in the South East Jordanian Badia Project Agreement of First, March 2012

Progress Report

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Ministry of Environment

Badia Restoration Program (BRP)

1. Introduction

Improving water quality for ranchers and livestock watering in the Badia is a fundamental element of Community Action Plan (CAP) adopted by the Ministry of Environment /Badia Restoration Program. This can be done by two ways; firstly, utilization of polluted ground water wells by installation of treatment units and distribution system in the areas that do not have drinking water supply system. Secondly, drilling new wells to increase supplied water quantities. For ranchers communities, the availability of clean and safe water is important for human health and well-being, economic production, and sustainable development. Failure to ensure the safety of drinking water may expose the community to the risk of outbreaks of waterborne and infectious diseases. In addition, the availability of water is expected to reduce the cost of raising livestock because the livestock owners will stop driving long distance costing them a lot of money to bring water to their animals. Reducing the traffic movements, in turn, will have indirect influence on the rangeland areas. As a result, the Ministry of Environment/Badia Restoration Program signed the first year agreements in March, 2012 with the Ministry of Water and Irrigation/ Water Authority of Jordan (WAJ) to improve water quality and quantity in two locations. These includes Daba'an and Jaber balad wells where treatment units would be installed and all relevant infrastructures to transport treated water to the consumers including storage units, pumps, buildings, network and transport pipelines. The duration of this agreement is one year starting from the date of signing.

2. Project Scope of Work

This agreement includes two projects located in the Northern Governorate. Northern Governorate water administration is directed by Yarmouk Water Company (YWC). Scope of work of each project can be seen in tables (1) and (2). Both projects would be implemented by private sector. The awarded contractors can be seen in these tables as well. These contractors have been selected through competitive tendering procedures. The relevant contracts are now in the implementation phase.

Table 1 Scope of work for Dab'an Project*

Contract no.	Contractor	Contract Duration	Scope of work
63/2012/ Procurement	Irshaidat co. for trading and contracting	150 days + Four months test operation Contract started from 25/4/2013	<ul style="list-style-type: none"> • Procurement of a desalination unit installed inside 40ft container with total production (10m³/h) • Test operation for four months • 5um bag filters (6 units) • 25um bag filters (6 units)
M/35/2012/ Works	Hmood Construction	150 days Started from 29/4/2013	<ul style="list-style-type: none"> • Product water tank (200m³) • Raw water tank (100m³) • Pumps building (94m²) • Operators office (29m²) • Infrastructure: Pavements, lights, sidewalks, septic tank, Fence and gate, Well arrangement and Supervision office • Water distribution system
	Electric Distribution company (EDCO)		<ul style="list-style-type: none"> • Providing Electrical Transformer and cables to connect the plant with the national electrical network

*** Notes:**

1. Scope of work of this project has been changed. For example, type of treatment units, production capacity, buildings areas and function and storage capacity of the raw and product water. In addition, new items have been added e.g. infrastructure works and well arrangements. This is for lack of information at the time of signing the agreement.

After signing the agreement WAJ technical staff performed site visits and collected more data such as new water quality, number of customers, spatial and hydraulic calculations. As a result, new scope of work has been achieved.

2. Feed pipe for filling mobile tanks+ fittings for livestock and ranchers would be implemented by Yarmouk Water Company in a later stage.

Table 2 Scope of work for Jaber Balad project

Contract no.	Contractor	Contract duration	Scope of work
41/2012/ Procurement	Munir Sukhtian Group Trading Ltd.	Five months implementation + four months Test operation Contract started in 5/12/2013	<ul style="list-style-type: none"> • Procurement of treatment units for Arsenic and Ammonia removal with production (40m³/h) including backwash and aeration system • Concrete slab and shade • Metal tank (50m³/h) for filters backwash • Test operation for four months • Chemicals; HCl, FeSO₄.7H₂O
M/17/2012/ Works *	N/A	N/A	<p>By BRP</p> <ul style="list-style-type: none"> • Product water tank (1000m³) • Operators building + storage room • Feed pipe for filling mobile tanks+ fittings for livestock • Feed pipe for filling mobile tanks+ fittings for Ranchers <p>By WAJ</p> <ul style="list-style-type: none"> • Transport pipelines • Pump building • Electromechanical works for pumping units • Retaining Walls • Supervision transportation • Outside works: pavements and sidewalks

* Notes:

1. This contract has been cancelled due to high prices in financial offers of bidders and WAJ failed to allocate the required budget. In addition, the works of this contract cannot be partitioned.
2. The Existing old facility in Jaber Balad location can be used to operate the treatment plant successfully.
3. WAJ will find other sources of funding for cancelled works.

4. Project Progress

The implementation stages of this agreement and the progress of each stage can be seen in tables (3) and (4)

Table 3 Progress percentage of each stage for Daba'an project

Stage no.	Contract no.	% Progress	Notes
(I) Preliminary studies	N/A	100	Performed by WAJ staff
(II) Preparation of tender documents	N/A	100	Performed by WAJ staff
(III) Tendering process	N/A	100	Performed by WAJ staff
(IV) Implementation	Contract 63/2012/ Procurement	Technically 80 Financially 75	<ul style="list-style-type: none"> • The implementation of the desalination units is 100% finished. • The desalination units is now in operation for testing. • Produced water from the desalination units is authorized by the ministry of health to be used for drinking purposes. • Testing operation duration is four months started from date of pumping water to the tank in 23/11/2014. • The contract handover process started
	Contract M/35/2012/ Works	95	<ul style="list-style-type: none"> • The project is now in operation with minor shortcomings • The project handover process started.
	Connection the plant with the national electrical network	100	<ul style="list-style-type: none"> • Implementation is performed

Table 4 Progress percentage of each stage for Jaber project

Stage no.	Contract no.	% Progress	Notes
(I) Preliminary studies	N/A	100	Performed by WAJ staff + Aqua Delft consultant
(II) Preparation of tender documents	N/A	100	Performed by WAJ staff
(III) Tendering process	N/A	100	Performed by WAJ staff
(IV) Implementation	Contract 41/2012/ Procurement	Technically 95 Financially 80	<ul style="list-style-type: none"> • Testing operation started in 24/8/2014 and finished in 24/12/2014 • The project now is under handing over process • The first letter of handing over of the project has been released with shortcomings. • It is expected that the contractor shall finalize these shortcomings in the next few weeks. • When the handover letter is issued without comments the final payment would be released

5. Modified time schedule of the project and reasons for project time extension

Modified time schedule for this project can be seen in tables (5) and (6). These tables show the reasons for that modification for each stage as well.

Table 5 Modified time schedule for Daba'an project

Stage no.	Start date	End Date	Notes
I & II	21/3/2012	12/11/2012	<ul style="list-style-type: none"> • The duration of this stage was extended because water quality of the well was very old and new pump test was performed • Complications in coordination between the different related departments
III	12/11/2012	29/4/2013	The duration of this stage was extended because the tender department obliged to have negotiations with the lowest price contractor for the chlorinator
IV	29/4/2013	23/3/2015 end of test operation	<p>The duration of this stage was extended due to</p> <ul style="list-style-type: none"> • The contractor for M/35/2012/ Works contract is not active. WAJ notified him many times. There is a delay in the mechanical and electric works construction. • The specification of the pumps was revised again to adapt the final design of the network and transport pipelines • Authorization of the product water by Ministry of health took more than two months • Both contracts (M/35/2012/ Works and 63/2012/ Procurement) are now in the handover process

Table 6 Modified time schedule for Jaber project

Stage no.	Start date	End Date	Notes
I & II	21/3/2012	9/7/2012	Complications in coordination between the different related departments and with the consultant abroad
III	9/7/2012	5/12/2013	<p>The duration of this stage was extended because of:</p> <ul style="list-style-type: none"> • High prices of tender no. M/17/2012/ Works. WAJ efforts failed to allocate budget for this tender. As a result WAJ decided to cancel it • Tender no. 41/2012/ Procurement have been retendered twice to obtain conforming technical proposals • Layout approval by YWC took long time due to change in to the future plans in the plant site
IV	5/12/2013	<p>26/6/2014 End of plant construction & start up</p> <p>24/12/2014 end of test operation</p>	<p>The project is in the handover process:</p> <ul style="list-style-type: none"> • The first letter of handing over of the project has been released with shortcomings. • It is expected that the contractor shall finalize these shortcomings in the next few weeks. • When the handover letter is issued without comments the final payment would be released