

KIRKUK TO BAIJI PIPELINE  
PROJECT

**SIGIR PA-06-063**  
**PA-05-013**  
**PA-05-014**

**JULY 31, 2006**



## SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

July 31, 2006

MEMORANDUM FOR COMMANDING GENERAL, MULTI-NATIONAL FORCES -  
IRAQ  
COMMANDER, GULF REGION DIVISION-PROJECT AND  
CONTRACTING OFFICE, U.S. ARMY CORPS OF  
ENGINEERS  
DIRECTOR, IRAQ RECONSTRUCTION MANAGEMENT  
OFFICE

SUBJECT: Report on Project Assessment of the Kirkuk to Baiji Pipeline Project and the  
Kirkuk Oil Pipeline Canal Crossings 2 and 3, at Riyadh and Zegeton, Iraq  
(Report Numbers SIGIR-PA-06-063, PA-05-013, and PA-05-014)

We are providing this project assessment report for your review and comment. We assessed the in-process construction work being performed for the Kirkuk to Baiji Pipeline Project and the Kirkuk Oil Pipeline Canal Crossings 2 and 3, at Riyadh and Zegeton, Iraq to determine their status and whether intended objectives will be achieved. These assessments were made to provide you and other interested parties with real-time information on relief and reconstruction projects underway and in order to enable appropriate action to be taken. The assessment team included an engineer and an auditor.

The comments received from the Commander, Gulf Region Division-Project and Contracting Office, U.S. Army Corps of Engineers, in response to a draft of this report concurred with our recommendations for corrective actions and while not fully responsive to three of the four recommendations, we believe that the comments constitute a basis for dialogue to implement responsive corrective actions. We will continue to work with GRD-PCO to resolve areas of disagreement. As a result, comments on this final report are required from the Commanding General, Gulf Region Division-Project and Contracting Office, U.S. Army Corps of Engineers.

We appreciate the courtesies extended to our staff. This letter does not require a formal response. If you have any questions please contact Mr. Brian Flynn at (703) 604-0969 or [brian.flynn@sigir.mil](mailto:brian.flynn@sigir.mil) or Mr. Andrew Griffith, P.E., at (703) 343-9149 or [andrew.griffith@iraq.centcom.mil](mailto:andrew.griffith@iraq.centcom.mil).

Stuart W. Bowen, Jr.  
Inspector General

## Special Inspector General for Iraq Reconstruction

SIGIR PA-06-063  
SIGIR PA-05-013  
SIGIR PA-05-014

July 31, 2006

### Kirkuk to Baiji Pipeline Project and the Kirkuk Oil Pipeline Canal Crossings 2 and 3, at Riyadh and Zegeton, Iraq

#### Synopsis

**Introduction.** This project assessment was initiated as part of our continuing assessments of selected sector reconstruction activities for Electricity, Oil, and Public Works and Water. The overall objectives were to determine whether selected sector reconstruction contractors complied with the terms of their contracts or task orders and to evaluate the effectiveness of the monitoring and controls exercised by administrative quality assurance and contract officers. This project assessment was conducted in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer and an auditor.

**Project Assessment Objectives.** The objective of the Kirkuk Oil Pipeline Canal Crossings 2 and 3 project assessments were to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, the objectives of these assessments were to determine whether:

1. Project results were consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. Contractor's Quality Control plan and the U.S. Government's Quality Assurance program were adequate; and
5. Project sustainability was addressed.

The Kirkuk to Baiji pipeline project assessment was performed to determine the status of the project. Specifically, the objectives of this assessment were to determine:

1. The original and any revised objectives of the pipeline;
2. Individual projects originally planned and any growth in the number or cost of projects;
3. The original completion schedule and reasons for slippages;
4. The current status of the projects involved and the affect of insurgent activity;
5. Whether sustainability is addressed in the contract or task order for the project; and
6. If project results will be consistent with original objectives.

**Scope Limitation.** Originally, the Kirkuk Oil Pipeline Canal Crossings 2 and 3 projects were to be a separate report from the Kirkuk to Baiji Pipeline project. Our intention was to visit both Canal Crossings 2 and 3 and issue a report based upon our site visits. However, due to security issues at both sites and a written request from the Deputy Director of the Iraq Reconstruction Management Office not to visit either site, we were not able to conduct an on-site assessment. Instead we were flown along the Al Fatah to Kirkuk pipeline, circling over Canal Crossing 3 (Zegeton). In order to avoid the potential of repetitive findings and recommendations between the Canal Crossings and Pipeline

projects, we combined the projects into this single report. The Kirkuk to Baiji Pipeline project will be addressed in the main text of this report; while the Canal Crossings 2 and 3 will be addressed in Appendix A.

**Conclusions.** The assessment determined that:

1. The original objective of the 50 kilometer replacement of the 40 inch Kirkuk to Baiji pipeline project was to increase the flow rate from approximately 500,000 to approximately 800,000 barrels per day, an increase of 300,000 barrels per day. The existing 40 inch pipeline is approximately 15 years old and has reached the end of its design life. Along this pipeline are three critical canal crossings (Kirkuk Irrigation Canal, Riyadh Canal, and Zegeton Canal), which were originally to be completed by Kellogg, Brown, and Root (KBR); however, the U.S. Government terminated KBR's contract and the Project and Contracting Office (PCO) awarded the three canal crossings to Parsons Iraq Joint Venture.
2. There is no reasonable assurance that project construction will meet the standards of the design because the U.S. Government's processes to independently verify project completeness and quality were ineffective at the Riyadh and Zegeton Canal Crossings. As a result, the U.S. Government will have an insufficient amount of reliable evidence to verify that the work performed will actually meet the design standards.
3. The contractor's quality control program and the U.S. Government's Quality Assurance Program for the Riyadh and Zegeton Canal Crossings project has not been effective and the entire pipeline project lacked any significant monitoring of construction practices. With regards to the two canal crossings, the prime contractor, the subcontractor, nor the U.S. Government implemented effective Quality Management programs. In addition, project monitoring has been very limited and sporadic. As a result, conformity with the design standards and overall construction quality and completion has not been properly validated. For the overall pipeline project, KBR was tasked to "...monitor pipeline construction and the State Company for Oil Projects<sup>1</sup> (SCOP) quality assurance program to assure compatibility..." However, KBR did not perform a traditional quality assurance program. KBR viewed its role as "advisors" and "consultants" rather than performing daily verification of the quality of the SCOP's construction. Even though its quality assurance program was limited, KBR identified that approximately 25% of SCOP's welds were flawed. In June 2004, in an effort to save money, the U.S. Government deleted KBR's limited quality assurance work for the pipeline project. Since KBR did not perform traditional quality assurance, daily quality assurance reports were not done to identify the condition of the overall pipeline construction. When the U.S. Government deleted the limited quality assurance program, it lost oversight of the remainder of SCOP's construction of the pipeline. Consequently, the U.S. Government does not have any reliable data on the quantity and quality of the overall pipeline project.
4. Sustainability was addressed for the three canal crossings. Specifically, the U.S. Government does not plan to maintain or operate the pipeline after commissioning. The pipeline operations will be turned over to the Iraqi Ministry of Oil (MoO) and the Northern Oil Company (NOC). Upon project completion,

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<sup>1</sup> The State Company for Construction Projects is the Iraqi Ministry of Oil in-house design and construction firm.

as-built drawings of the pipeline will be provided to the MoO and the NOC. In addition, Parsons Iraq Joint Venture will provide a plan for cathodic<sup>2</sup> protection of the pipeline at turnover.

5. The original completion date for the entire 50 kilometer pipeline project, including the three canal crossings, was 31 March 2004. The U.S. Army Corps of Engineers (USACE), Southwestern Division (SWD), allowed SCOP to construct the 50 kilometer pipeline project, except for horizontal directional drilling (HDD) for the Al Fatah river crossing and the three canal crossings, which was awarded to KBR. The Coalition Provisional Authority Oil Sector and the MoO wanted SCOP to construct the pipeline project because the Coalition's strategy for "...fixing the oil infrastructure was to help the Iraqis fix their own infrastructure, not to do it for them." The USACE SWD wanted KBR to complete HDD at Al Fatah before starting work on the three canal crossings. This decision resulted in the period of performance expanding from 4 months to 12 months.

The U.S. Government terminated KBR in August 2004 because, for the Al Fatah HDD River Crossing project, \$75.7 million allocated to the project was exhausted while only 28% of the drilling scope was completed. Since HDD of the canal crossings was to begin after the completion of the Al Fatah project, KBR was terminated for the canal crossings. The Project and Contracting Office awarded the three canal crossings to Parsons Iraq Joint Venture in November 2004. The three canal crossings were scheduled to be completed by November 2005 under the Parsons Iraq Joint Venture contract. The Kirkuk Irrigation Canal Crossing was completed in April 2006. Currently, the Riyadh and Zegeton Canal Crossings have not been completed. The status of both sites is reported differently by the PCO Oil Sector and the USACE Resident Management System. The PCO Oil Sector believes the sites are 80% complete; while the Resident Management System lists the canal crossings as 40% and 38% complete, respectively. However, the USACE Kirkuk Area Office recently visited the Zegeton Canal Crossing and estimated the canal crossing at approximately 10% complete.

6. As a result, revenue potential of approximately \$14.8 billion has been lost to the Iraqi Government due to the unavailability of increased capacity for moving oil. Such cash resources are essential to improve and stimulate the Iraqi economy in the short term while enhancing the potential long term stability of the Iraqi Government. These projects are critical elements to repair the Iraqi oil infrastructure and to re-establish continuous pipeline operations.

**Recommendations.** We recommend that the Commanding General, Gulf Region Division:

1. Implement a specific and immediate plan to complete the Riyadh and Zegeton Canal Crossing projects.
2. Implement a case specific process to ensure effective and reliable U.S. Government oversight pertaining to project quality and completion status.
3. Investigate and resolve the significant differences between the Project and Contracting Office Oil Sector and the U.S. Army Corps of Engineers' Resident

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<sup>2</sup> Any one of several methods for protecting underground tanks and pipelines from corrosion. Corrosion results from an electric current which is caused by contact between metal surfaces, water, and the chemicals present in soils and water; cathodic protection counteracts this current.

Management System completion percentages for the Riyadh and Zegeton Canal Crossings.

4. Follow the established procedure to review contractor invoices prior to payment.

**Management Comments.** The Commanding General, Gulf Region Division did not agree with all of the draft report conclusions. He suggested significant editing of the report to “...accurately represent the effectiveness and efficiency of the execution of the three canal crossing projects being performed by Parsons Iraq Joint Venture, Gulf Region Division-PCO, and USACE.” However, the Commanding General did concur with our report’s recommendations.

**Evaluation of Management Comments.** We believe our report presents an accurate picture of the execution of the three canal crossings and the entire 50 km pipeline project. The Gulf Region Division comments, while lengthy, were contradictory; often not supported by documentation provided and statements made to us by officials from various organizations during the course of our assessment or by practices in the field; and did not adequately address the significant issues raised in the draft report, such as the discrepancy over completion percentage for the Zegeton and Riyadh Canal Crossings.

However, the comments concurred with our recommendations for corrective actions and while not fully responsive to three of the four recommendations, we believe that the comments constitute a basis for dialogue to implement responsive corrective actions. We will continue to work with GRD-PCO to resolve areas of disagreement.

The complete text of the comments is provided in Appendix D. Detailed responses to comments from the Gulf Region Division are provided in the Evaluation of Management Comments section of the report.

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## Introduction

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Iraq has the world's second largest proven oil reserves. The Iraqi oilfields have proven reserves of approximately 100 billion barrels, with the potential of as high as 200 billion barrels. The Iraqi oilfields account for approximately 16% of all Middle East oil reserves. With the world's second largest crude oil reserves, the Iraq oil industry is perhaps the most critical link to re-establishing the country as a major economy in the Arabian Gulf. Currently oil exports provide over 95% of the country's revenue and are critical to the successful funding of the Iraqi government. Iraq's oilfields are divided into two distinct production areas: the southern fields and the northern fields (Figure 1). The northern oil fields are dominated by the Kirkuk fields, with production capacity of approximately 900,000 barrels per day (bpd). The Kirkuk oil fields provide all crude oil for the Baiji Refinery, 40 to 45% of the crude oil for the Doura Refinery and export of crude oil to Turkey.

Along with providing constant revenue to the Iraqi government, oil and gas fuel are used to operate electrical generation facilities, which in turn support oil, water, telecommunications, and other key essential services. In short, Iraq's entire infrastructure and governance is dependent on the constant and sustainable production of oil.

Several pipelines from the Kirkuk oilfields to the Baiji Refinery carry crude oil, liquid petroleum gas, diesel, benzene, and kerosene. Crude oil from the Kirkuk oilfields is delivered to the Baiji refinery through two pipelines – 26 inch and 40 inch. The current 40 inch crude pipeline is approximately 15 years old and has reached the end of its design life. Because of corrosion it has been down rated and can only transfer oil at low flow rates (reduced pressure). In October 1999, Iraq's Northern Oil Company (NOC) performed an intelligent pig<sup>3</sup> inspection<sup>4</sup> of the operating 40 inch Iraq to Turkey (IT) Pipeline. This inspection revealed extensive and severe external corrosion from the IT-1 Pump Station southwest to the Tigris River, approximately 75 kilometers (km). Site Photo 1 shows an example of external oxidation of the existing pipeline (and resulting oil leakage).

The Iraqi Ministry of Oil (MoO) in-house design and construction firm, the State Company for Construction Projects (SCOP) began replacing the crude pipeline from Kirkuk to the Tigris River. Initial funding limitations and then the war interrupted progress and only 25 km was constructed. The NOC had purchased the remaining 50 km of pipe, which was stored at the IT pipe yard and ready for installation. In late May/early June 2003, there were three major fires on the pipeline caused by leaks.

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<sup>3</sup> A pig acts like a free moving piston inside the pipeline, sealing against the inside wall with a number of sealing elements. Pigs can perform a number of tasks including cleaning debris from the line, the removal of residual product in, and gauging the internal bore of, the pipeline.

<sup>4</sup> The purpose of intelligent pigging is to assess the condition of a metallic pipeline. There is a selection of pigs available to determine different aspects of pipe condition. The loss of wall thickness can be determined, lamination can be detected, as can damage to a pipeline.

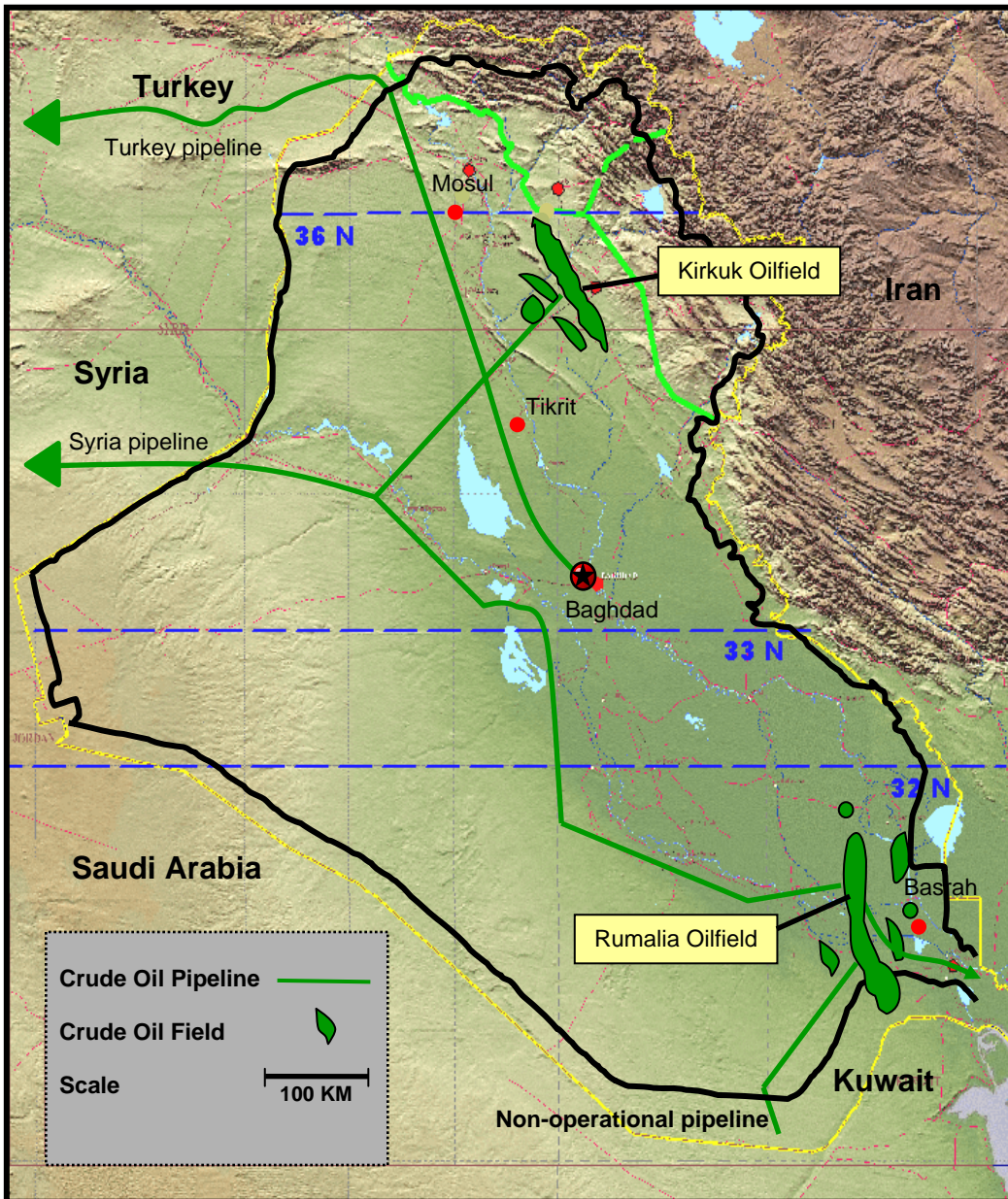


Figure 1. Map of Iraqi northern and southern oil fields



**Site Photo 1. Example of severe external oxidation of existing pipeline and oil leakage**

## **Task Force - Restore Iraqi Oil**

The U.S. Army Corps of Engineers (USACE) was assigned the responsibility to repair and restore the oil infrastructure by the Department of Defense. The mission, called Task Force – Restore Iraqi Oil (TF-RIO) was assigned to the USACE Southwestern Division (SWD), located in Dallas, TX. TF-RIO was constituted prior to the beginning of Operation Iraqi Freedom. The mission included the following:

- Extinguishing oil well fires following hostilities
- Safe shut down of oil facilities during the initial stages of the war
- Provide environmental restoration for both marine and land-based oil spills
- Repair and restoration of facilities damaged as a result of the war
- Assist the Oil Ministry in the restart, operation, maintenance, and distribution of the oil system

To support the mission, TF-RIO awarded contract #DAACA63-03-D-0005, a non-competitive cost-plus award fee indefinite delivery/indefinite quantity (IDIQ) contract to Kellogg, Brown, and Root (KBR), a subsidiary of Halliburton. KBR was selected from three qualified contractors, based on the infrastructure it already had available in country on the Logistics Civil Augmentation Program contract, which provided a base from which they could best respond to the urgency of the situation.

In July 2003, more than 100 technical experts and managers from the TF-RIO, KBR, U.S. Agency for International Development (USAID), Bechtel, Inc., and 14 Iraqi oil companies under the MoO met at a workshop in Baghdad to prepare a detailed oil plan for the country. The resulting plan included 226 prioritized projects at an estimated cost of \$1.14 billion to be completed by 31 March 2004, when the TF-RIO mission would expire. Representatives from various oil segments (production, transportation, refining,

etc.) organized into breakout groups and developed prioritized project lists that were considered necessary to bring the infrastructure for their respective areas back to pre-war levels by March 2004. The groups responsible for the Northern oil fields developed a prioritized list of 16 projects with one of the priorities being the restoration of the remaining 50 km of the 40 inch pipeline from Kirkuk to Al Fatah.

Project lists presented by each breakout group to the general conference membership were consolidated into a draft work plan which was modified and approved by the Coalition Provisional Authority (CPA) Senior Oil Advisor, the Iraqi Minister of Oil (MoO) and the TF-RIO Commander on 23 July 2003.

The 50 km Kirkuk to Al Fatah<sup>5</sup> pipeline was considered a top priority on the approved consolidated list of oil reconstruction projects. The justification was that, "...in order to keep the oil flowing in the Iraq Turkey pipeline, the replacement of this line is required. If it is not replaced, there will be frequent shutdowns of the line to repair the leaking pipes and certainly, there will be additional fires on the pipeline." The total pipeline length from the Kirkuk oil fields to Al Fatah is approximately 75 kilometers.

## **Management of the 50 Kilometer Pipeline Project**

As of the date of this assessment, the 50 km replacement of the 40 inch Kirkuk to Al Fatah Pipeline project, originally planned for completion by 31 March 2004, has not been completed. CPA, TF-RIO/USACE SWD, PCO/GRD, GRN, and the MoO officials did not properly coordinate, plan, and execute the pipeline project. Specifically,

- TF-RIO allowed an inexperienced Iraqi company to attempt to construct the pipeline project instead of awarding it to an established company capable of completing the project in a timely manner.
- TF-RIO only awarded a fraction of the allocated funding to complete the project.
- USACE SWD did not attempt to complete the project expeditiously.
- USACE SWD, when it terminated the project with KBR, did not provide PCO/GRD with a status of the pipeline project.
- PCO/GRD allowed continued slippage of the time schedule by PIJV.
- PCO/GRD and GRN disagree as to the current status of the project.

These conditions occurred because the officials responsible for the restoration of the Iraqi oil infrastructure did not:

- Agree on who would perform the construction work for the pipeline. USACE intended for a foreign company to construct the entire pipeline; while the CPA and MoO officials wanted to use the Development Fund for Iraq (DFI) money to employ the Iraqi State Company for Oil Projects (SCOP).
- Use clear contract TO language to specifically identify who had overall responsibility for the construction of the 50 km pipeline replacement. Even though USACE allowed the SCOP to do a majority of the routine construction for the pipeline, the horizontal directional drilling (HDD) of three canal crossings along the pipeline was awarded to KBR.
- Agree on and enforce specific completion dates.
- Plan to start the HDD of three critical canal crossings necessary to complete the entire pipeline project until after the completion of the HDD at Al Fatah. Further,

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<sup>5</sup> Our assessment was originally announced to be of the Kirkuk to Baiji Pipeline Project. However, during the course of the assessment, we learned that the intent of the pipeline project was, in fact, only from Kirkuk to Al Fatah. Therefore, we modified our scope accordingly.

- once the decision was made not to perform HDD on the three canal crossings, USACE SWD did not direct KBR to immediately start on the canal crossings.
- Provide relevant documentation to successor organizations such as PCO/GRD or IRMO officials regarding the status of the project.
  - Become actively involved in the execution of the remaining canal crossings by PIJV.
  - Agree on the current status of the 2 remaining canal crossings.

As a result, the 50 km replacement pipeline has not been completed; approximately \$700,000 of DFI funds<sup>6</sup> and more than \$2.5 million in IRRF funds have been paid to KBR and PIJV, respectively, which has resulted in lost revenue potential of approximately \$14.8 billion<sup>7</sup> for the Iraqi Government. In addition, the existing 40 inch pipeline is leaking, adding to a previously known environmental hazard.

## **Funding and Contracting with KBR for the Pipeline Project**

### **Program Review Board**

On 1 July 2003, the TF-RIO submitted a Funding Request Form for Iraqi Oil Infrastructure to the CPA's Program Review Board (PRB) in the amount of \$300 million for the following projects:

• Pipeline Crossing of Tigris River	\$90,000,000
• 50 km of New Strategic Pipeline	\$82,000,000
• Back up Generating Capacity	\$50,000,000
• MoO Capital Projects	\$78,000,000

The TF-RIO rationale for the 50 km pipeline was this pipeline "...provides the main crude supply to the Baiji refinery and connects to the main pipeline used to export crude from Iraq to Turkey." Initially, the TF-RIO wanted only the remaining 50 km of existing pipeline to be repaired. However, it was determined that replacing the existing pipeline was more cost effective for the following reasons:

- The cost of continuing to repair breaks is high.
- The existing pipeline is exposed and subject to looting and sabotage.
- Flow rates through the pipeline are limited to 500,000 bpd at the maximum, and probably are not sustainable at these pressures. By replacing the pipe, it was projected that the flow rate could be increased from approximately 500,000 bpd to approximately 800,000 bpd, an increase of 300,000 bpd. The TF-RIO projected additional revenue for the Iraqi Government of approximately \$7.5 million per day.<sup>8</sup>
- In addition, there would be the security benefit as the new pipeline would be underground.

On 29 July 2003, the PRB approved the TF-RIO's \$300 million request for Oil Infrastructure and allocated \$82 million in DFI funding to complete the 50 km pipeline project. Since the project provided the opportunity for both monetary and security

<sup>6</sup> The USACE SWD has been unable to provide the exact amount of DFI funding paid to KBR specifically for the 50 km pipeline project (TO #6).

<sup>7</sup> Revenue was calculated as follows: the original completion date for the 50 km pipeline project was 31 March 2004, which was to result in an additional 300,000 bpd. Currently it has been 821 days since the completion date passed multiplied by 300,000 bpd equals 246,300,000 barrels of oil. We multiplied the number of barrels of oil not produced by an estimated average cost of \$60 per barrel for the time period of April 2004 to the present.

<sup>8</sup> At the time of the request, July 2003, the price of crude oil was \$25 per barrel.

benefits, the TF-RIO wanted a completion deadline of 4 months and stated it was “...likely that a contract will be developed with incentives for completing on time.”

On 12 November 2003, the CPA’s Chief Financial Officer informed the Commander, TF-RIO that \$222 million was available for the execution of three oil infrastructure projects. Apparently, the \$78 million originally allocated by the PRB for MoO Capital Projects was not included.

### **Contractor Determination**

According to USACE TF-RIO personnel, the original concept was to let KBR do the construction of the 50 km pipeline under its pre-existing contract. KBR planned to subcontract the “...pipeline laying” portion of the project to a foreign firm. The rationale was that this foreign subcontractor had a completely automated process of digging the trench, laying the pipeline, and the capability of automated welding. The USACE personnel were confident this subcontractor could construct the entire 50 km pipeline within the strict time frame identified in the PRB decision. The subcontractor did not have HDD capability, so the three canal crossings would still revert to KBR for completion. On 22 September 2003, KBR submitted a Project Scope and Status Report (PSSR) to the USACE SWD. This document provided a project cost estimate in the amount of \$56,273,400, for the completion of the entire 50 km pipeline project. However, the MoO officials wanted to utilize SCOP for this project.

Soon after the Coalition Force’s liberation of Iraq, the CPA was promoting using local Iraqi labor to reduce unemployment and also allow Iraqis to help rebuild their own infrastructure. In addition, the construction of this pipeline was being funded by Iraqi oil money; therefore, there was pressure to let the Iraqi company, SCOP, construct the pipeline. However, according to USACE TF-RIO personnel, it took SCOP 2 years to complete the initial 25 km of this pipeline (completed pre-war). SCOP officials stated they could complete the remaining 50 km of the pipeline within the required time frame. USACE TF-RIO and NOC personnel made the argument that, in their opinion, it would take SCOP approximately 4 years to complete the project. An internal TF-RIO memorandum, dated 17 September 2003, discussed options for completing the pipeline project in a timely manner. The options available were:

- SCOP use of a KBR subcontractor to assist SCOP
- SCOP and KBR subcontractor work together
- KBR’s subcontractor construct the pipeline
- KBR hire of a subcontractor to supplement equipment and personnel needed to complete the project

Nevertheless, the CPA and MoO officials decided to give SCOP the opportunity to complete the project. Even though the TF-RIO memorandum stated TF-RIO was “...responsible for executing and completion of the 50 km” project, the CPA’s Chief Financial Officer informed TF-RIO that it was “...under the operational control of the Ministry of Oil.” Apparently this dichotomy, and the fact that the project was being financed with Iraqi oil money, allowed the MoO to make the decision to allow SCOP to construct the pipeline.

### **Horizontal Directional Drilling of the Canal Crossings**

The existing 40 inch crude oil pipeline sits above ground on cradles at Riyadh and Zegeton and under a culvert at the Kirkuk Irrigation Canal; however, the decision was made to bore under each canal crossing using HDD technology for the new pipeline. This single decision had a major impact upon the pipeline project’s schedule and costs.

For example, the decision to use HDD technology for the three canal crossings resulted in the USACE SWD requiring KBR to complete the Al Fatah HDD work prior to even starting the three canal crossings. Consequently, completing the canal crossings prior to 31 March 2004 became impossible. In addition, the costs associated with HDD technology are significantly more expensive than using the traditional approach. For instance, the majority of the \$10,313,000 the USACE SWD budgeted for KBR's 50 km pipeline project was for the HDD of the three canal crossings.

We have not been able to definitively determine who was responsible for the decision to require HDD of the three canal crossings. An internal TF-RIO email stated that it was the Director General of NOC who preferred the "...canal crossing be bored versus my belief to install the crossings with above ground of cradles like all thier [sic] other crossings." However, we could not determine whether ultimately it was the NOC or TF-RIO's decision to require the use of HDD for the three canal crossings. However, TF-RIO/USACE SWD was responsible for the execution and completion of this project.

### **Contract Task Order #6**

On 8 December 2004, the USACE awarded Task Order (TO) #6 to KBR under IDIQ services contract DAACA63-03-D-0005, Reconstruct Iraqi Oil (RIO). The TO lists the following statement of work:

- a. Construction of a pipeline crossing of the Tigris River in the vicinity of the Al Fatah Bridge
- b. Installation of 50 kilometers of pipeline from Kirkuk to the Tigris River
- c. Install emergency back-up generation capability at various locations

The language in the resulting TO was vague and confusing as to who was to perform the installation of the 50 km of pipeline from Kirkuk to the Tigris River. For example, the TO stated that KBR was to "...plan, procure, and install 50 kilometers of 40-inch pipeline from Kirkuk to the Tigris River as required." However, according to USACE SWD officials, the "...use of the term 'as required' allowed the ACO (Administrative Contracting Officer) to direct KBRS<sup>9</sup> to install the pipelines, however, the ACO never directed KBRS to install the pipeline." The USACE SWD said the CPA and MoO officials made the "...decision to give that responsibility to SCOP." If this were the case, then SCOP would be responsible for the construction of the entire pipeline project; however, the TO also required the "...design and construction of three horizontal, directionally drilled crossings at the Kirkuk Irrigation Canal, the Riad<sup>10</sup> Access Road and Irrigation Canal and the Zegeton River crossing<sup>11</sup>." [Figure 2 shows the location of the three canal crossings] These three critical canal crossings are located along the pipeline between Kirkuk and Al Fatah; the completion of the pipeline project will require the laying of 50 km of pipeline and the three canal crossings. Finally, the TO required KBR to "...monitor pipeline construction and SCOP quality assurance program."

### **Completion Dates**

The 50 km pipeline project was identified by the CPA, USACE SWD, and MoO as a "...critical" project, since it had significant financial impact upon the Iraqi economy. The

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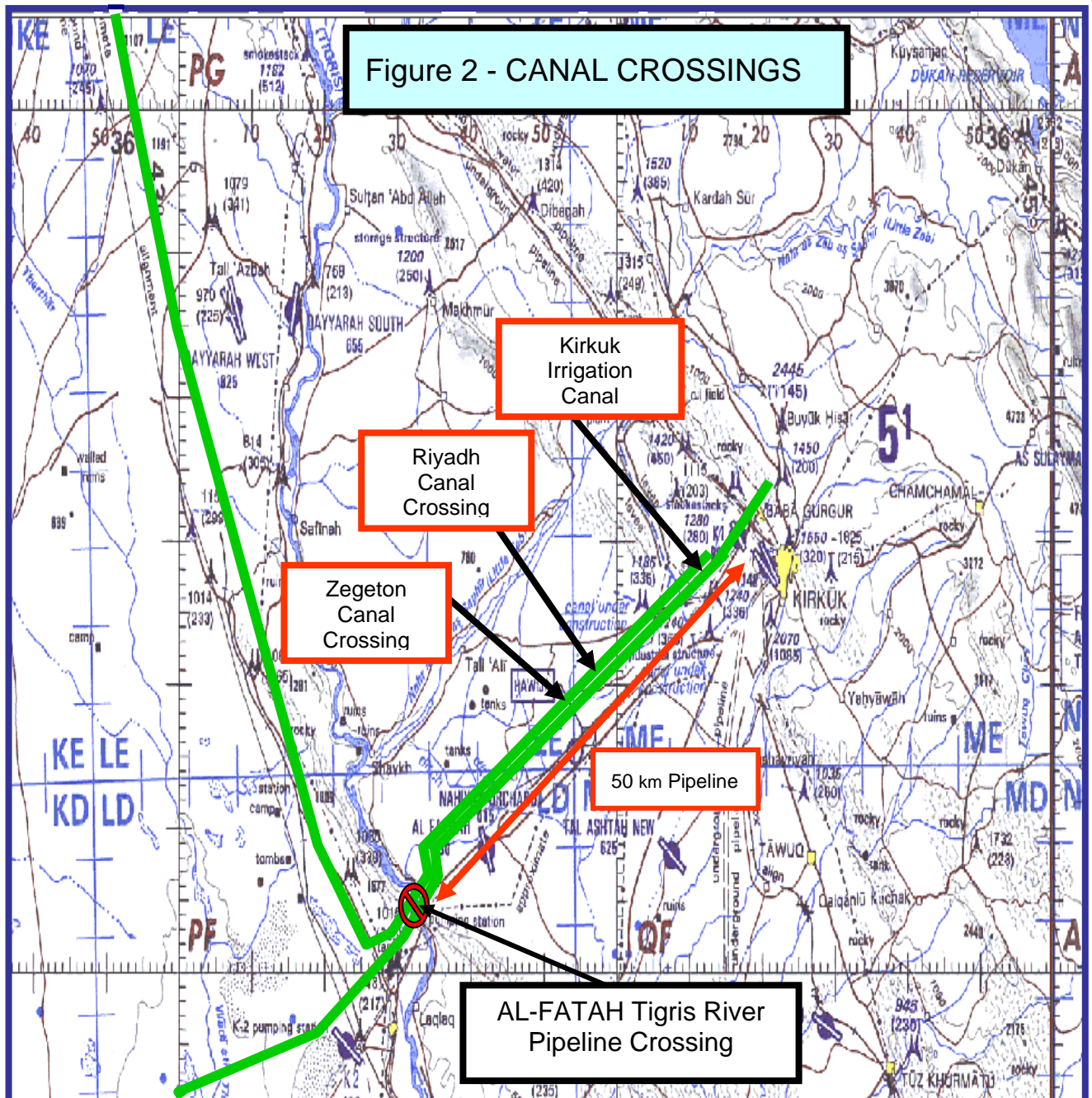
<sup>9</sup> KBRS is Kellogg, Brown and Root Services, which in this quote, was used synonymously with KBR.

<sup>10</sup> For the rest of this report, the Riad Access Road will be referred to by more commonly used reference of the Riyadh Canal Crossing.

<sup>11</sup> For the rest of this report, the Zegeton River Crossing will be referred to by more commonly and accurately used reference of the Zegeton Canal Crossing.

TF-RIO's language in the PRB funding request stated that the project had a "...deadline to complete..." of 4 months.

Even though the Final Work Plan agreed to by the CPA Senior Oil Advisor, the Iraqi Minister of Oil, and the TF-RIO had a completion date set of 31 March 2004, the USACE's TO provided KBR with a period of performance of one year; consequently, the completion date was delayed until 8 December 2004. In addition, the USACE SWD directed KBR to start the HDD on the three canal crossings after the HDD at Al Fatah was completed, further delaying the completion of the entire 50 km pipeline project. Further, when it was decided to use SCOP to construct the pipeline, the USACE SWD lost control of the project because the USACE SWD had no authority over SCOP.





## **Execution of the Pipeline Project**

### **KBR's Role in the Pipeline Project**

The 50 km pipeline project was to be accomplished under TO #6 which was awarded in December 2003. However, a USACE document from June 2004 identified this project with a start date of September 2003 and project value of \$10,313,000. The description of the project called for KBR to "...provide technical and QC support to the State Company for Oil Projects (SCOP) for welding, wrapping, and laying new pipe." In addition, KBR was also to "...construct three canal crossings for the pipeline using Horizontal Directional Drilling (HDD) methods." The document stated that as of 7 June 2004:

*"...SCOP had completed 3,169 out of 4,200 total welds. 49 kilometers of pipe had been strung, 32 kilometers of trench excavated and 5 kilometers of pipe lowered. Government has directed KBR to stop QC support activities. The HDD canal crossings are being considered for deletion to provide for funding to complete the Tigris River crossing." With regards to the overall status of the project, this document stated the "...original completion date was 18 June 2004, but due to erratic production by SCOP, actual completion will occur in late 2004 or early 2005."*

KBR officials stated that while they provided an estimate to the government in the amount of approximately \$10-11 million, the Administrative Contracting Officer never gave KBR a notice to proceed for the HDD of the three canal crossings. The USACE SWD stated that they intended KBR to start on the HDD of the three canal crossings after completing the HDD at Al Fatah. Since KBR did not complete the Al Fatah HDD prior to being terminated KBR did not begin any construction at the three canal crossings.

### **Schedule Slippages**

The TF-RIO PRB funding submission identified a 4 month completion goal for the pipeline project. TF-RIO mission was set to expire on 31 March 2004, and considering TO #6 was awarded on 8 December 2003, this time frame was consistent with the original intent. However, the TO #6's completion deadline was one year, thereby adding an additional eight months to the project.

The primary reason for the one year completion deadline instead of the 4 month goal appears to be the USACE SWD decision not to have KBR begin the three canal crossings until after the completion of the Al Fatah HDD. Considering this pipeline project was to result in additional revenue to the Iraqi Government of approximately \$7.5 million per day, the goal of the USACE SWD should have been to expeditiously complete the three canal crossings instead of waiting for Al Fatah to be completed.

In addition, the SCOP construction of the pipeline was behind schedule. In a 2 February 2004 memorandum to the Senior Advisor to CPA Oil, the Commander of TF-RIO stated that there "...has been a total lack of progress on the 40..." diameter 50 KM pipeline project that SCOP has been executing for months. The project is now at a crossroad where a decision must be made to alter the current course or adjust our expectations and accept the fact that the pipeline will not be complete by the time the Al Fatah river crossing is complete." The memorandum continued with the Commander stating that SCOP's "...performance to date on the first 25 km of the line clearly indicates they are not capable of timely, quality execution." The Commander identified the following four alternative plans to ensure the timely completion of the 50 km pipeline project:

1. SCOP is removed completely from the project and KBR is issued an order to complete execution of the remaining pipeline work.
2. Allow SCOP to continue ongoing work on one end of the pipeline with KBR providing QC/QA and simultaneously start KBR at the river working north.
3. Integrate SCOP crews into KBR managed crews as part of a larger effort to train the Iraqi crews.
4. KBR supervises the SCOP crews supplemented by KBR crews.

While the Commander “strongly” recommended the adoption of option 2 or 3, SCOP was allowed to continue construction work. We discussed this memorandum with the former Commander who stated that the Senior Advisor to CPA Oil and his staff “...discussed my proposal at length with the MOO and that the MOO flatly rejected the proposal... they believed that SCOP could and should construct the pipeline.” According to the former Commander, the Senior Advisor “...honored the MOO rejection and trusted that the MOO and SCOP could get the job done.”

Further, in April 2004, TF-RIO officials internally debated the need for the use of HDD at the three canal crossings of the 50 km pipeline project. In a 17 April 2004 email, a TF-RIO official stated it was his belief that the “...two southern crossing [sic] aren’t critical to the success of the pipeline project.” Apparently, the Director General of the NOC wanted the canal crossings done with HDD because the pipeline would be more secure. However, the email continued, “...pipeline along the entire route is only three feet or less under ground and much of it may not be backfilled for a long time anyway.”

The USACE document mentioned in the Work Completed section that as of 7 June 2004, the USACE was still debating whether to delete the three canal crossings. At that time, KBR was running behind schedule and was well over budget with the HDD of Al Fatah. Ultimately, the requirement for HDD of the three canal crossings was eliminated when KBR was terminated in August 2004. However, if the USACE SWD had decided in April/May 2004 to delete KBR’s requirement for the HDD of the three canal crossings, the crossings could have been turned over for SCOP to complete using the existing canal crossing technique. Instead, nothing was done on the first canal crossing (Kirkuk Irrigation Canal) until PCO awarded it to PIJV; and the remaining two canal crossings (Riyadh Canal Crossing and Zegeton Canal Crossing) were not mentioned again until February 2005 when they were added to PIJV’s TO.

### **Quality Control Requirement Removed**

According to the TO, KBR was to monitor pipeline construction and the SCOP quality control program. The USACE SWD wanted KBR to provide quality control services, specifically focused on welding inspection. However, according to KBR officials, KBR’s role was to be more of “advisors” than to perform a traditional quality control program. For example, KBR was to provide technical training to SCOP’s workers.

KBR technicians did not inspect SCOP’s pipeline construction work daily and did not write up daily quality assurance reports. According to both the USACE SWD and KBR officials, KBR technicians found many of SCOP’s pipeline welds to be flawed. For instance, in a meeting on 11 February 2004, a senior RIO engineer reported that of the 902 welds completed by SCOP, 137 were checked and 37 failures were identified. USACE SWD stated that the pipeline construction was the responsibility of the SCOP; therefore, KBR could not direct SCOP to correct any identified faulty welds. According to the senior RIO engineer, of the 37 failures identified, only 3 had been repaired.

During June 2004, in an effort to reduce costs, the government directed KBR to delete the Contractor Quality Control requirement on the 50 km pipeline project. The government eliminated KBR's Contractor Quality Control requirement even though in February 2004, the TF-RIO Commander described SCOP as having "...demonstrated minimal capability to perform, particularly in large diameter oil pipeline construction..." From this point forward, the government lost the limited oversight KBR was performing on SCOP's pipeline construction. As a result, the government does not currently know the status of the 50 km pipeline constructed by SCOP or the quality of its welds.

### **Costs Incurred**

The PRB decision allocated \$82 million of DFI funds for the 50 km pipeline project. Identifying the actual amount of money paid to KBR has been problematic. Initial estimates from KBR to replace the entire pipeline were in the amount of approximately \$56 million; while internal USACE documents estimated the project between \$10 and 15 million. The decrease in cost estimates appears to be consistent with the role KBR was to play in the pipeline project. Since SCOP was responsible for the pipeline construction, KBR's responsibility was to perform HDD on three canal crossings, limited quality assurance on SCOP's construction work, and the procurement of materials for SCOP. According to KBR officials, KBR purchased a total of approximately 1,000 feet of pipe for the three canal crossings and provided materials for SCOP, such as welding rods and clamps.

We identified two KBR Summary Cost Reports for periods ending 6 March 2004 and 26 June 2004, respectively, which contained contradictory information regarding the incurred costs of work performed, actual costs of work performed, and estimates to completion (Cost Reports Figure 3 and Figure 4). For instance, for the 06 March 2004 report, the incurred cost of work performed was \$1,080,384, actual cost of work performed was \$1,817,995, and estimate to completion was \$8,300,402; while the 26 June 2004 report listed the incurred cost of work performed as \$554,240, actual cost of work performed as \$939,385, and estimate to completion as \$1,493,625.

Contract# DACA63-02-D-0005  
Restore Iraqi Oil (RIO)  
Facility ID Summary Cost Report  
Task Order 06 - Final Work Plan  
Period Ending 06 March 2004

MoO Operating Company	FWP Proj ID #	Description	Project Code	Incurred Cost of Work Performed (ICWP)	Actual Cost of Work Performed (ACWP)	Estimate to Completion (ETC)	Estimate at Completion (EAC)	Appvd Budget at Completion (ABAC)	Variance (VAR)	% Budget Expended (PBE)	% Schedule Completed (PSC)
				a	b	c = d - b	d	e	f = d - e	g = a / e	h
<b>PRIORITY 1 Projects TO # 6</b>											
NOC	16	Replace 50km of Pipeline for 40" IT P/L	BOL02	\$ 1,080,384	\$ 1,817,995	\$ 8,300,402	10,118,397	\$ 10,118,397	\$ -	10.7%	0.0%
NOC	23	Al Fathah HDD Pipe Crossing	BOL09	\$ 4,808,817	\$ 51,308,073	\$ 24,300,810	\$ 75,710,382	\$ 75,710,382	\$ -	6.5%	0.0%
		<b>SUBTOTAL NOC</b>	<b>B</b>	<b>\$ 6,020,201</b>	<b>\$ 53,177,567</b>	<b>\$ 32,651,212</b>	<b>\$ 85,828,780</b>	<b>\$ 85,828,780</b>	<b>\$ -</b>	<b>7.0%</b>	
NRC	2	Electrical Cables	ERR2B	\$ 25,559	\$ 46,195	\$ 1,092,238	\$ 1,138,434	\$ 1,138,434	\$ -	2.2%	0.0%
			<b>E</b>	<b>\$ 25,559</b>	<b>\$ 46,195</b>	<b>\$ 1,092,238</b>	<b>\$ 1,138,434</b>	<b>\$ 1,138,434</b>	<b>\$ -</b>	<b>2.2%</b>	
POW	12A.6	NR LNG/LPG Plant	SOX22.6	\$ 32,323,088	\$ 32,858,842	\$ 228,789	\$ 33,087,432	\$ 33,087,432	\$ -	97.7%	0.0%
POW	12B.6	Productions / Regional Power	SOX20.6	\$ 24,209,470	\$ 28,814,432	\$ 28,941,124	\$ 55,555,556	\$ 55,555,556	\$ -	43.6%	0.0%
POW	12D.6	Misc small generator that move	SOX21.6	\$ 278,252	\$ 2,423,145	\$ 8,551,355	\$ 10,974,499	\$ 10,974,499	\$ -	2.5%	0.0%
POW	12F	Al Basarah Refinery	SOX01	\$ 268,578	\$ 487,025	\$ 899,095	\$ 1,368,120	\$ 1,368,120	\$ -	19.5%	0.0%
		<b>SUBTOTAL POW</b>	<b>S</b>	<b>\$ 57,077,383</b>	<b>\$ 64,363,244</b>	<b>\$ 36,620,363</b>	<b>\$ 100,983,607</b>	<b>\$ 100,983,607</b>	<b>\$ -</b>		
		<b>Subtotal Priority 1 Projects TO#6</b>		<b>\$ 63,123,143</b>	<b>\$ 117,587,006</b>	<b>\$ 70,363,813</b>	<b>\$ 187,950,820</b>	<b>\$ 187,950,820</b>	<b>\$ -</b>		
		Overhead (OH)	0.810%	\$ 385,051	\$ 717,281	\$ 429,219	\$ 1,146,500	\$ 1,146,500	\$ -		
		General & Administrative (G&A)	1.990%	\$ 1,263,813	\$ 2,354,255	\$ 1,408,781	\$ 3,783,037	\$ 3,783,037	\$ -		
		Base Fee	2.000%	\$ 1,295,440	\$ 2,413,171	\$ 1,444,038	\$ 3,857,207	\$ 3,857,207	\$ -		
		Award Fee	5.000%				\$ 9,643,018	\$ 9,643,018	\$ -		
		Facilities Cost of Capital Money (FCCM)	0.000%	\$ 19	\$ 35	\$ 21	\$ 57	\$ 57	\$ -		
		<b>Grand Total Priority 1 Projects TO#6</b>		<b>\$ 66,067,466</b>	<b>\$ 123,071,749</b>	<b>\$ 73,645,871</b>	<b>\$ 206,360,638</b>	<b>\$ 206,360,638</b>	<b>\$ -</b>		

**Figure 3. KBR cost report dated 6 March 2004**

However, these cost reports are not consistent with other USACE activities at the time. In April 2004, an internal USACE email debated the need for HDD of the canal crossings of the 50 km pipeline project. Specifically, the email stated that "...my own belief the two southern crossing(s) aren't critical to the success of the pipeline project." Apparently, the Director General of the NOC wanted the canal crossings done with HDD because the pipeline would be more secure. However, the email continued with the "...pipeline along the entire route is only three feet or less under ground and much of it may not be backfilled for a long time anyway."

Contract# DACA63-03-D-0005								
Restore Iraqi Oil (RIO)								
Facility ID Summary Cost Report								
Task Order 06 - Final Work Plan								
Period Ending 26 June 2004								
MoO Operating Company	FWP Proj ID #	Description	Project Code	Actual Cost of Work Performed (ACWP)	Estimate to Completion (ETC)	Estimate at Completion (EAC)	Appvd Budget at Completion (ABAC)	Variance (VAR)
				b	c = d - b	d	e	f = d - e
<b>PRIORITY 1 Projects TO # 6</b>								
NOC	16	Replace 50km of Pipeline for 40" IT P/L	BOL02	\$ 554,240	\$ 939,395	\$ 1,493,625	\$ 10,118,921	\$ (8,623,296)
NOC	23	Al Fatah HDD Pipe Crossing	BOL09	\$ 4,659,647	\$ 12,979,540	\$ 17,639,187	\$ 75,708,888	\$ 11,293,114
		<b>SUBTOTAL NOC</b>	<b>B</b>	<b>\$ 75,514,085</b>	<b>\$ 12,979,540</b>	<b>\$ 88,493,625</b>	<b>\$ 85,823,807</b>	<b>\$ 2,669,818</b>
NRC	2	Electrical Cables	ERR2B	\$ 898,767	\$ 75,732	\$ 974,499	\$ 1,138,434	\$ (163,934)
			<b>E</b>	<b>\$ 898,767</b>	<b>\$ 75,732</b>	<b>\$ 974,499</b>	<b>\$ 1,138,434</b>	<b>\$ (163,934)</b>
POW	12A.6	NR LNG/LPG Plant	SOX22.6	\$ 34,828,613	\$ 171,569	\$ 35,100,182	\$ 33,087,432	\$ 2,012,750
POW	12B.6	Productions / Regional Power	SOX20.6	\$ 84,224,910	\$ 547,404	\$ 84,772,313	\$ 55,555,556	\$ 9,216,758
POW	12D.6	Misc small generator that move	SOX21.6	\$ 8,318,694	\$ 104,071	\$ 8,420,765	\$ 10,974,499	\$ (4,553,734)
POW	12F	Al Basarah Refinery	SOX01	\$ 2,216,708	\$ 225,833	\$ 2,442,340	\$ 1,839,344	\$ 802,996
POW	12H	Al Shaibah Power Plant	SOX51	\$ -	\$ -	\$ -	\$ -	\$ -
		<b>SUBTOTAL POW</b>	<b>S</b>	<b>\$ 107,586,924</b>	<b>\$ 1,048,676</b>	<b>\$ 108,735,601</b>	<b>\$ 101,256,831</b>	<b>\$ 7,478,770</b>
		Freight for Material and Equipment	XOE10.6	\$ 2,055,419	\$ 1,587,568	\$ 3,642,987	\$ 3,642,987	\$ -
		<b>SUBTOTAL Freight</b>		<b>\$ 2,055,419</b>	<b>\$ 1,587,568</b>	<b>\$ 3,642,987</b>	<b>\$ 3,642,987</b>	<b>\$ -</b>
		Suspense Records	XXXXX	\$ 48,328	\$ (48,328)	\$ -	\$ -	\$ -
		<b>SUBTOTAL</b>		<b>\$ 48,328</b>	<b>\$ (48,328)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
		<b>Subtotal Priority 1 Projects TO#6</b>		<b>\$ 186,203,523</b>	<b>\$ 15,643,188</b>	<b>\$ 201,846,712</b>	<b>\$ 191,862,058</b>	<b>\$ 9,984,654</b>
		Overhead (OH)	0.810%	\$ 1,025,388	\$ 175,179	\$ 1,200,565	\$ 1,170,359	\$ 30,206
		General & Administrative (G&A)	1.990%	\$ 3,385,516	\$ 574,973	\$ 3,940,488	\$ 3,841,345	\$ 99,143
		Base Fee	2.000%	\$ 3,440,738	\$ 589,361	\$ 4,039,100	\$ 3,937,475	\$ 101,624
		Award Fee	5.000%	\$ -	\$ -	\$ 10,097,749	\$ 9,843,888	\$ 254,061
		Facilities Cost of Capital Money (FCCM)	0.000%	\$ 51	\$ 9	\$ 59	\$ 58	\$ 1
		<b>Grand Total Priority 1 Projects TO#6</b>		<b>\$ 194,044,214</b>	<b>\$ 16,982,711</b>	<b>\$ 221,124,673</b>	<b>\$ 210,654,983</b>	<b>\$ 10,469,690</b>

Figure 4. KBR cost report dated 26 June 2004

A review of the 26 June 2004 Summary Cost Report identified the variance between the Estimate to Complete and the Approved Budget at Completion for the 50 km pipeline project was \$8,623,296; while the variance for the Al Fatah HDD Pipe Crossing project was \$11,293,114. The Al Fatah HDD project was encountering significant construction problems by June 2004 and required additional funding<sup>12</sup>. Since the USACE SWD directed KBR to complete the Al Fatah HDD project prior to beginning the three canal crossings, it appears that a significant part of the allocated funding for the 50 km pipeline project was being diverted to the Al Fatah HDD project. An April 2004 USACE email mentioned, "...KBR's notification that they are about to run out of money on both the HDD River Crossing and the 50 k Pipeline Crossing..." Mentioned earlier was the fact that in order to reduce costs, the KBR's QC requirement for the 50 km pipeline project was deleted. However, in 3 July 2004 USACE GRD memorandum stated that "...KBR merely moved the personnel involved [in the QC program] to the river HDD project. Consequently, costs to TO #6 continued unabated; resulting in no apparent Government savings."

The CPA's Chief Financial Officer informed the Commander, USACE, SWD, that \$222 million was available from 31 July 2003 through 30 September 2004 for the following three oil infrastructure projects:

<sup>12</sup> For a full discussion of the Al Fatah HDD project, see SIGIR Report Number SA-05-001.

- Pipeline Crossing of Tigris River \$90 million
- 50 km of New Strategic Pipeline \$82 million
- Back up Generating Capacity \$50 million

Of the \$222 million, the Commander, TF-RIO stated \$205,208,956 was paid to KBR. According to the Commander, USACE SWD, "...over half of the T.O. supported the purchase and installation of emergency back-up generation capability at various locations throughout the region to keep crude oil flowing from the pumps to the pipelines." This, however, contradicts the fact that only \$50 million was to be used for back up generating capacity. Approximately one third of the \$222 million was to be used for the time critical 50 km pipeline project; yet it appears this did not happen due to the diversion of the majority of the funds to KBR's HDD at Al Fatah.

According to USACE SWD documentation, KBR was paid approximately \$700,000 for its role in the 50 km pipeline project. Even though the PRB allocated \$82 million for this critical revenue producing project, only \$700,000 was expended.

### **TF-RIO Documentation**

At the conclusion of the TF-RIO mission, the USACE SWD did not turn over essential and necessary documentation to successor organizations, such as GRD/PCO. According to PCO Oil officials, TF-RIO took all information with them regarding the pipeline project. For all requests for information made regarding the pipeline project prior to the awarding of the three canal crossings to PIJV, PCO Oil officials referred us to the USACE SWD. As a result, PCO Oil has insufficient knowledge of the status of the pipeline.

### **Status of Pipeline Project**

At the completion of TF-RIO's responsibility for the 50 km pipeline project, which occurred when the USACE SWD terminated TO #6 in August 2004, the status of the overall pipeline project was virtually unknown.

As previously noted, KBR was to provide technical and Quality Control (QC) support to the SCOP, who was to perform the actual construction. One of KBR's final Situation Reports (SITREP), dated 30 April 2004, indicated KBR reviewed approximately 20% of the completed welds and rejected approximately 24% of the welds. In June 2004, the U.S. Government deleted the KBR QC responsibility for the remainder of the pipeline project. When KBR's QC requirement was deleted, the U.S. Government lost the limited oversight it had of SCOP's work on the pipeline project. The U.S. Government did not receive a final report indicating the amount of work performed by SCOP, the number of welds reviewed, the number and specific location of welds rejected, and the number of rejected welds corrected. Further, in August 2004, the USACE SWD terminated KBR for the Al Fatah HDD effort, which also cancelled the three canal crossings.

## **PIJV Management of the Canal Crossing Projects**

### **Funding and Contracting of the Canal Crossings**

Task Order #6, which included the Al Fatah HDD and canal crossings for the 50 km pipeline project, was discontinued in August 2004. On 19 November 2004, the PCO issued Parsons Iraq Joint Venture (PIJV) TO 0014 on Contract W9126G-04-D-0002 to complete the Al Fatah HDD project and the Kirkuk Irrigation Canal Crossing. The contract is a cost reimbursable award fee IDIQ contract for the repair and continuity of

operations of the Iraqi oil infrastructure. The TO completion date was 30 November 2005. The USACE Kirkuk Area Office was appointed as the construction manager for this TO.

On 22 February 2005, Modification #3 was added to TO 0014, which added the Riyadh Canal Crossing and the Zegeton Canal Crossing projects. The estimated completion date for the two new canal crossings was 1 November 2005. While the KBR TO #6 was paid through DFI funds, the PIJV TO 0014 was paid with Iraq Relief and Reconstruction Fund (IRRF) funds.

No form of QC responsibility for the remainder of the 50 km pipeline being constructed by SCOP was included in TO 0014. PIJV's sole responsibility for the 50 km pipeline project was the completion of the three canal crossings along the 50 km pipeline.

### **Completion Dates**

PIJV provided the following completion schedules for the three canal crossings to the PCO:

<u>Canal Crossing</u>	<u>Projected Completion Date</u>
Kirkuk Irrigation Canal	1 July 2005
Riyadh Canal Crossing	8 August 2005
Zegeton Canal Crossing	12 October 2005

TO 0014 modifications 13 and 17 extended the periods of performance to 15 March 2006 and 31 May 2006, respectively.

### **Work Completed**

*Kirkuk Irrigation Canal Crossing.* On 1 October 2005, a SIGIR inspection team performed an on-site assessment of the Kirkuk Irrigation Canal<sup>13</sup>. The assessment determined the project was not completed. At the time of the assessment, excavation of the trenches was progressing and fabrication of the pipeline was in progress. Site Photo 2 was taken by the SIGIR assessment team on 1 October 2005 and depicts the culvert over the Kirkuk Irrigation Canal with soil removed. A follow up visit to the Kirkuk Irrigation Canal was made by a SIGIR assessment team on 17 February 2006. We identified that from 1 October 2005 to 17 February 2006; PIJV's subcontractor laid the pipeline in the culvert and poured soil over it (Site Photo 3). However, additional pipe welding and repair work was still required (Site Photo 4). During the site visit, we also identified continued oil leakages from the existing 40 inch pipe (Site Photo 5).

PCO advised us that PIJV's subcontractors completed the Kirkuk Irrigation Canal in April 2006. Site Photo 6 shows the canal bridge (with pipeline buried underneath) being used by the local community. The Kirkuk Irrigation Canal was completed by PIJV in April 2006, approximately 9 months behind its original schedule and more than 5 months behind the completion date required by the TO.

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<sup>13</sup> SIGIR Report Number PA-05-011



**Site Photo 2. SIGIR Site Photo from October 2005**



**Site Photo 3. SIGIR Site Photo from February 2006**



**Site Photo 4. SIGIR Site Photo from February 2006. Additional pipe welding and repair work required**





**Site Photo 5. SIGIR Site Photo from February 2006. Oil leakage from existing pipeline**



**Site Photo 6. Photo of completed Kirkuk Irrigation Canal (Photo courtesy of PIJV)**

*Riyadh and Zegeton Canal Crossings.* On 17 May 2006, a SIGIR assessment team was scheduled to fly over the Al Fatah to Kirkuk pipeline and land at both the Riyadh and Zegeton Canal Crossings to perform a limited assessment of the work performed by PIJV. Unfortunately, we were unable to land at either site due to written requests from

PIJV and the Deputy Director of the Iraq Reconstruction Management Office (IRMO). The reason cited was that PIJV subcontracted the canal crossings to a local Iraqi company and this company would only perform the work with the guarantee of no American presence at either site. PIJV stated that three previous subcontractors decided not to complete the projects and the fourth subcontractor would only agree to perform the work on the agreement that no American presence ever visit either site.

With U.S. Army assistance, we performed a flyover assessment of the Zegeton Canal Crossing to observe and verify construction progress. We observed the contractor was not working at the site and there was little evidence of progress. Site Photo 7 shows the Zegeton Canal Crossing.

We were not provided a flyover of the Riyadh Canal Crossing. Site Photo 8, which was provided by PIJV, shows the Riyadh Canal Crossing.



**Site Photo 7. Aerial view of Zegeton Canal Crossing**



**Site Photo 8. Riyadh Canal Crossing (Photo courtesy of PIJV)**

### **Environmental Concerns**

Oil leakages from the existing crude oil pipelines provided major environmental concerns for the local communities surrounding the pipeline. In addition to potential fires, in some instances according to USACE personnel, crude oil may have been leaking into local drinking water. USACE personnel in early 2003 became aware of the oil leakage problem and the resulting pools of oil. One reason for the 50 km pipeline project was to eliminate the existing oil leaks.

During the flyover we observed what appeared to be old and new crude oil spills along the length of the pipeline corridor and also liquid oil and oil stained soil in the excavations for the new pipeline (Site Photos 9-12). We were told that the spills occurred as a result of leaking crude oil pipelines.

The oil fumes in the spill areas were significant and easily detected from the helicopter as we flew over the crossing sites and the pipeline corridor. We were told by Army personnel that at least 37 oil spills had been observed along the pipeline.



**Site Photo 9. Aerial view of oil leakage along Kirkuk to Al Fatah Pipeline**



**Site Photo 10. Aerial view of oil leakage along Kirkuk to Al Fatah Pipeline**



**Site Photo 11. Aerial view of oil leakage along Kirkuk to Al Fatah Pipeline**



**Site Photo 12. Aerial view of oil leakage along Kirkuk to Al Fatah Pipeline**

### **Quality Assurance for TO 14**

The basic contract TO required the contractor to prepare for PCO Oil and USACE review and approval, a comprehensive Quality Management Plan (QMP) to identify key personnel and procedures to ensure quality. The Contractor's Quality Control (CQC)

plan was adequate and sufficiently detailed. For example, procedures to detect, evaluate, correct, and track deficiencies were included. For the Kirkuk Irrigation Canal Crossing, the contractor and the USACE Kirkuk Area Office provided adequate oversight. The USACE Kirkuk Area Office's QA program was adequate and sufficiently detailed. Key procedures to detect, evaluate, correct, and track deficiencies were in-place and effective, such as the radiograph testing of all pipe welds.

However, for the Riyadh and Zegeton Canal Crossings, the PIJV's CQC and the USACE Kirkuk Area Office's Quality Assurance (QA) programs were inadequate and ineffective. For instance, the previous subcontractors did not submit adequate daily quality control reports. The reports did not explain the daily events, significant issues, or identify construction deficiencies. In addition, no photographs were provided with the QC reports to verify the written report.

The USACE Kirkuk Area Office's QA plan was prepared with adequate and sufficient detail, such as identifying key personnel and procedures to detect, evaluate, correct, and track deficiencies. However, the USACE Kirkuk Area Office did not maintain a system of periodic inspections and evaluation of the contractor's CQC organization's performance. As mentioned earlier, for the Riyadh and Zegeton Canal Crossings, the PIJV subcontracted the work to an Iraqi company that did not want any American presence at either site. The subcontractor told the PIJV that the subcontractor's company would complete both canal crossings and then bury them.

The USACE Kirkuk Area Office and the PCO Oil both agreed to allow the subcontractor to complete the work and then bury the pipelines without any American supervision or oversight. Apparently, NOC officials would visit the two canal crossing sites, take photographs, and write reports for PIJV. PIJV and PCO Oil stated the reason for this arrangement was the previous three subcontractors who were originally supposed to complete the canal crossings left over security concerns. It was concluded this was the best way to get the pipeline done in a timely manner. However, by agreeing to this method, the PIJV, the USACE Kirkuk Area Office, and the PCO Oil lost oversight of the quantity and quality of work done by the subcontractor.

According to the USACE Kirkuk Area Office, once the QA was essentially contracted out to NOC, "we weren't tracking the QA." In addition, PIJV and PCO were relying upon NOC for QA, with whom they did not have a contractual commitment. This could also lead to a similar problem TF-RIO experienced with SCOP – lack of authority over an Iraqi entity. As a result, the U.S. Government QA program on the canal projects was not adequate and did not effectively meet the requirements of Engineering Regulation 1180-1-6 or PCO Standard Operating Procedure CN-100.

### **Current Status of the Riyadh and Zegeton Canal Crossings**

On 5 May 2006, we met with PCO Oil representatives to discuss the status of the three canal crossings and the overall pipeline project. The PCO Oil representatives provided a handout, which indicated the Kirkuk Irrigation Canal was almost complete and that Riyadh and Zegeton Canal Crossings were both 80% complete (Figure 5 below). However, according to the USACE's Resident Management System (RMS), the Riyadh and Zegeton Canal Crossings are 40% and 38% complete, respectively (Table 1 below). Further, the USACE Kirkuk Area Office personnel, who recently visited the Zegeton Canal Crossing, believe it is approximately only 10% complete. For the Riyadh Canal Crossing, the USACE Kirkuk Area Office personnel recently flew over the site. At the site were two portions of approximately 150 feet each of pipe welded and a ditch dug. The USACE Kirkuk Area Office personnel were not able to readily identify the

percentage complete for this site, since they were not sure who performed this work or if the welds were, "...accepted by either the QC or QA." The lack of quality oversight of the previous subcontractors put the USACE Kirkuk Area Office in this position.

The confusion over the status of the two canal crossings stems from the lack of quality oversight of the projects. We made repeated requests to the PCO Oil Sector to explain their rationale for believing both canal crossings are 80% complete. One PCO Oil official stated the, "...estimated percent complete is based on work in place as reported by PIJV." When asked if PIJV provides a basis for its completion percentage, we were told, "No." The PCO Oil Sector should not have based its percentage complete solely upon the word of the contractor. When the PCO Oil Sector agreed to eliminate the QA oversight role of the USACE Kirkuk Area Office, it lost one way to independently verify or validate the information provided to them by PIJV. The other option for validating contractor information is the PCO Oil Project Manager who resides at the Kirkuk Area Office. The Project Manager should have relayed the correct cost vs. completion percentage data back to PCO Oil in Baghdad. Without these two independent sources to verify and validate the contractor's information, the PCO Oil Sector had no alternative other than to believe what the contractor reported.

Unfortunately, there is still no agreement on the status of the two canal crossings. According to the USACE Kirkuk Area Office official, he met "...with PIJV/PCO/NOC yesterday [12 June 2006] and we all have different information."

A USACE Kirkuk Area Office official stated when he looked at RMS; PCO Oil's 80% complete more than likely refers to the amount of money expended, not on the amount of work completed. However, this rationale is contradicted by the fact that the USACE Corps of Engineers Financial Management System (CEFMS) indicated no money has been expended for the Zegeton Canal Crossing. Since CEFMS shows no money expended for the Zegeton Canal Crossing, it is difficult to understand how the PCO Oil sector believed the project was approximately 80% complete.

Based upon our flyover view of the Zegeton Canal Crossing, we agree that the amount of work complete is closer to 10% than the 38% completion percentage in RMS.

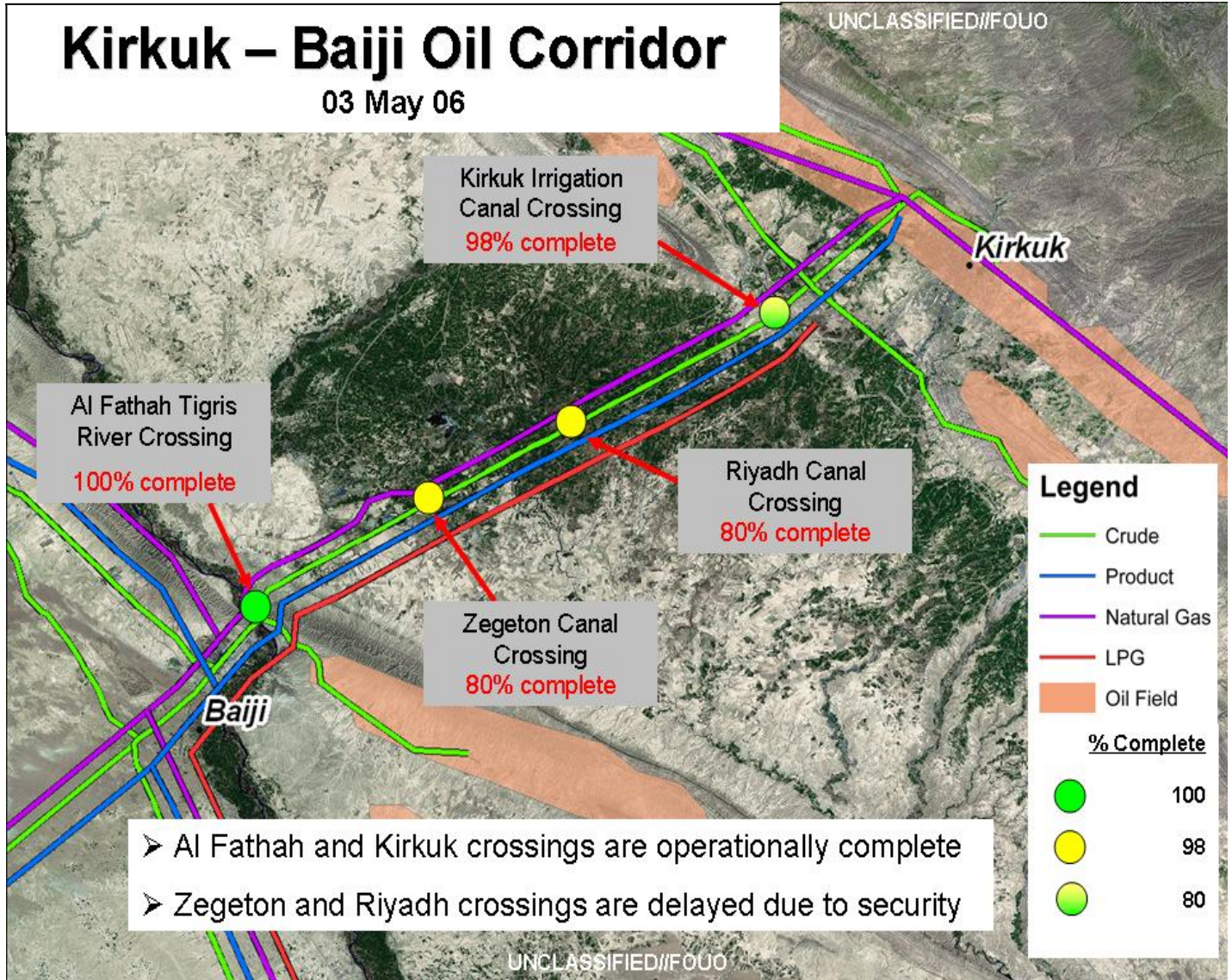


Figure 5. Briefing chart from PCO Oil Sector indicating Riyadh and Zege-ton Canal Crossings are 80% complete. (Courtesy of PCO Oil Sector)

URI #	Contract #	Project Name	Pln Strt	Act Strt	Pln Fin	Act Fin	Contract \$	Sch %	Act %
Kirkuk Area Office									
Oil									Kirkuk Area Office
19606	W9126G-04-D-0002	O-102-P PIJV NOC Riyadh Canal Crossing	09/01/05	08/27/05	07/31/06		\$666,683	83%	40%
19607	W9126G-04-D-0002	O-102-P PIJV NOC Zege-ton Canal Crossing	08/20/05	07/25/05	07/31/06		\$690,371	84%	38%

Table 1. Information from RMS. Status of projects is 40% and 38% complete, respectively



## Costs Incurred

According to PCO Oil Sector officials, for the three canal crossings, as of 14 June 2006, \$4,942,942 was obligated and \$2,558,144 has been expended<sup>14</sup>. The amounts obligated and expended for each canal crossing are the following:

- **Kirkuk Irrigation Canal**

Obligated	\$2,087,890
Expended	\$2,087,890
  
- **Canal Crossing 2 (Riyadh)**

Obligated	\$666,682
Expended	\$470,254
  
- **Canal Crossing 3 (Zegeton)**

Obligated	\$690,370
Expended	\$ 0
  
- **Riyadh and Zegeton (recently awarded)**

Obligated	\$1,498,000
Expended	\$ 0

## Review of Payment Invoices

No effective on-site presence or verification of work was performed before contractor payments were made. The USACE Kirkuk Area Office stated they did not review the contractor's invoices prior to payment. Neither the USACE Kirkuk Area Office nor the Quality Assurance Representative (QAR) responsible for the canal crossings were asked to review or approve the invoices to validate the work claimed by the contractor. As a result, the potential existed for payment to the contractor for work not performed or not performed to the contract standards.

PCO Standard Operating Procedures (SOP) Number CN-107, "...Process Construction Interim Payments (Cost Plus)," states the resident engineer is responsible for entering the pay activities submitted by the design build (DB) contractor into RMS and reviewing the DB contractor's interim invoice and listing costs, which appear to be questionable in this case. This policy also states, "...the PCO and GRD staffs must review interim invoices for cost reimbursable task orders ensuring costs are reasonable, allocable, and allowable and the invoices are processed within the timeframe set forth by the prompt payments clause of the contract."

In addition, the practice of paying a contractor without verifying work quality and completeness is very questionable. This is especially true in this case because the pipeline would be buried in the ground. It would be difficult after the pipeline has been buried to identify poor quality work.

Further, a thorough review of invoices by the Kirkuk Area Office would have alerted the USACE and PCO Oil that for the Riyadh Canal Crossing, approximately 71% of the obligated money for the project had been spent, with little work completed. In addition, a thorough review of invoices would have made the USACE and PCO Oil aware of the fact

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<sup>14</sup> This information was provided by PCO Oil Sector, which stated the source of the information was Corps of Engineers Financial Management System (CEFMS).

that for the Zegeton Canal Crossing, it was questionable for the project to be 80% complete when no money had been expended.

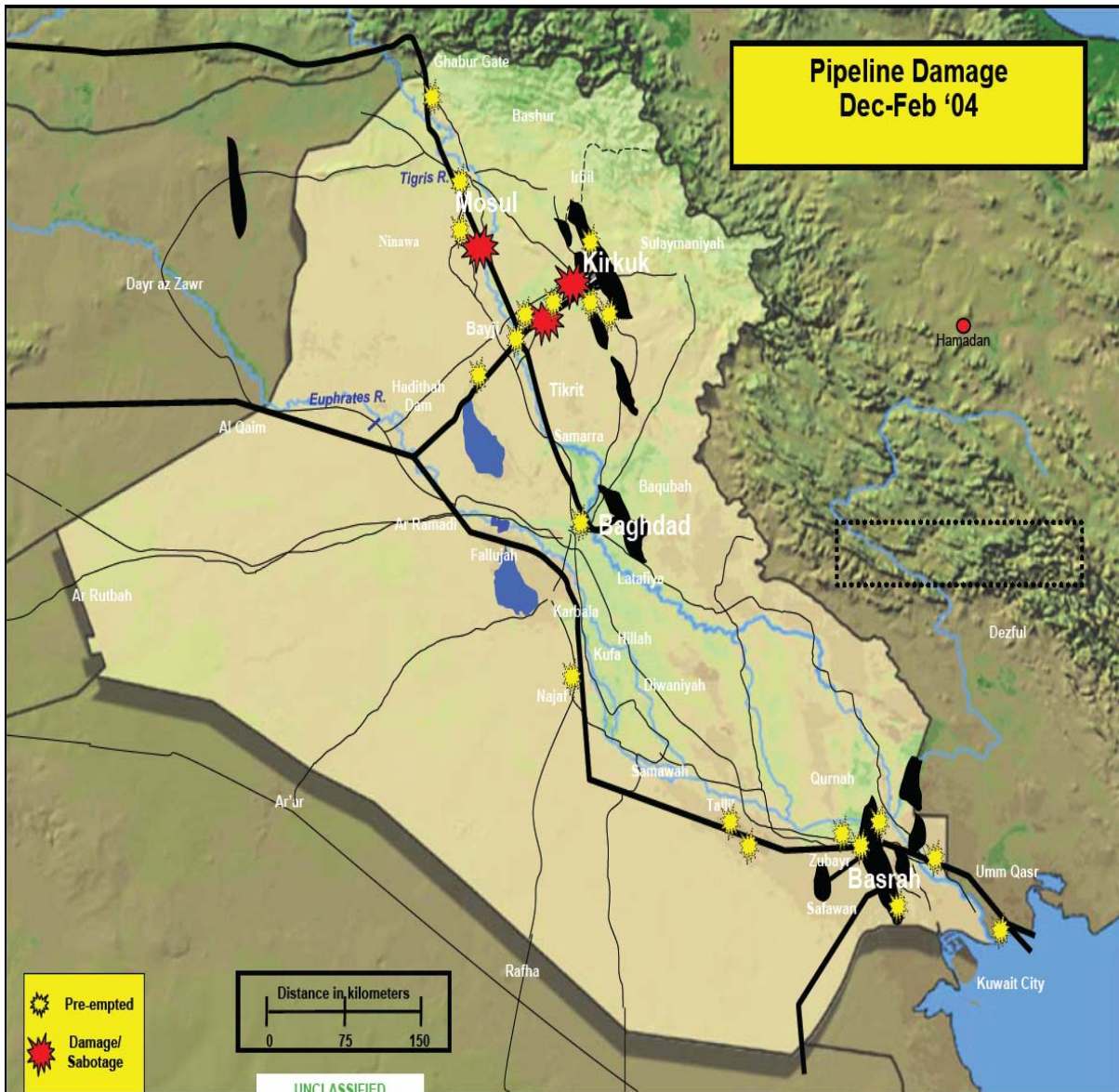
### **Insurgent Activities**

Security in Iraq is always a concern. According to PCO Oil officials, Riyadh and Zegeton Canal Crossings are located in a particularly dangerous part of northern Iraq. During the early days of the pipeline installation, the primary security issue was sabotage rather than kidnappings and murder. A TF-RIO briefing slide (Figure 6) shows that from December 2003-February 2004, there were multiple attempts at sabotage of the pipeline, with only two successful. According to KBR officials, the main source of sabotage was people shooting at the pipeline, resulting in the pipeline crew having to repair the damage. However, more recently the tactic has changed from sabotage to violence towards people working on the pipeline. Specifically, the primary challenge for the two remaining canal crossings is intimidation. According to PIJV, four separate subcontractors have refused to complete the remaining canal crossings because of threats and kidnappings. In addition, there was a major pipeline explosion between Al Fatah and Zegeton in late 2005, which was blamed on insurgents.

An apparent solution seemed to be having the military secure the work sites and bring in crews from other parts of the country or foreign workers. The workers would be secured on site during construction and would not have to worry about repercussions when returning home.

A Multi National Forces – Iraq (MNF-I) official stated the security at the crossings is “more than adequate.” In addition, this official stated, “...we have repeatedly committed to the Ministry of Oil that we will secure crews to and from and on site and during these repairs or during construction.” The previous PIJV subcontractors have refused to complete the two canal crossings due to their crews and their families being intimidated at home. Since both canal crossing sites are in remote areas, identifying the pipeline crews is rather easy.

PIJV has identified a fifth subcontractor, from the Republic of Georgia, willing to complete the two remaining canal crossings. PIJV sent a proposal to PCO Oil indicating this firm will do the work if security is provided by Coalition Forces. A PCO Oil official recently stated a limited Notice to Proceed was given to the Georgian firm to begin mobilization to the site. According to the PCO Oil official, the plan is for the units of the 101<sup>st</sup> Airborne Division to secure one site, complete the construction, then secure the next site and complete the construction. It will take the 101<sup>st</sup> Airborne Division units approximately 30 days to secure each site, and construction will take approximately 15-20 days at each site. Therefore, the earliest anticipated completion date for the two remaining canal crossings is early September 2006. The PIJV, PCO Oil, and USACE Kirkuk Area Office are optimistic this contractor will be able to complete both canal crossings on schedule.



**Figure 6. Examples of attacks (planned and successful) during December 2003-February 2004 (Slide courtesy of TF-RIO)**

### **Operational Capability of the Pipeline**

The PCO Oil Sector is confident PIJV’s Georgian subcontractor will be able to complete the two remaining canal crossings by September 2006. After the Riyadh and Zegeton Canal Crossings are completed, the government’s responsibility for the 50 km replacement of the 40 inch pipeline project will be over. At that point, the entire 40 inch pipeline should be complete. However, since the government lost oversight on 1 June 2004, when it deleted the limited QA responsibility from KBR on SCOP’s construction work, little is known about the quantity and quality of the non-canal crossings portion of the 50 km pipeline.

According to IRMO officials, NOC “believes” the remaining portion of the 50 km pipeline is complete and operational, but, this is not a known fact. However, a PCO Oil document indicated NOC has identified at least 14 “defects” in the pipeline needing

repair. In addition, the completed pipeline will have to undergo the following tests of the entire pipeline:

- Flushing out the rubbish from the pipe
- Fill the line with water
- Pressurize the line
- Identify, dig out, and repair any faulty welds

According to a PCO Oil representative, substantial work will be required from NOC before the pipeline becomes operational.

### **Lost Revenues for the Iraqi Government**

The main objective for the completion of the 50 km pipeline project was to provide the Iraqi Government with additional revenue. The additional revenue would help Iraq establish its own government and aid in its own reconstruction. According to the USACE TF-RIO personnel, the new 40 inch pipeline would allow an additional 300,000 barrels per day of crude oil, resulting in a significant increase in cash flow. The original milestone for the completion of the project was 31 March 2004, which was to coincide with the end of the TF-RIO mission.

Since the pipeline project is still not complete, the Iraqi Government has not realized this additional revenue. At the time of the TF-RIO funding submission, crude oil was valued at \$25/barrel; today's price hovers around \$70/barrel. To date, the Iraqi Government has not benefited from approximately \$14.8 billion in additional revenue as a result of the project schedule slippages.

Not having the pipeline completed until at least early September 2006 will result in an additional potential loss to the Iraqi Government of an additional \$1.1 billion.

### **Conclusions**

Based upon the field work performed during this assessment, we reached the following conclusions for specific assessment objectives. Appendix B provides details pertaining to Scope and Methodology.

1. Determine the original objectives of the pipeline project (including the three canal crossings).

The original objective of the 50 kilometer replacement of the 40 inch Kirkuk to Baiji pipeline project was to increase the flow rate from approximately 500,000 to approximately 800,000 barrels per day, an increase of 300,000 barrels per day. The existing 40 inch pipeline is approximately 15 years old and has reached the end of its design life. Along this pipeline are three critical canal crossings (Kirkuk Irrigation Canal, Riyadh Canal, and Zegeton Canal), which were originally to be completed by KBR; however, the U.S. Government terminated KBR's contract and the PCO awarded the three canal crossings to PIJV.

2. Determine whether construction or rehabilitation met the standards of the design.

There is no reasonable assurance that project construction will meet the standards of the design because the U.S. Government's processes to independently verify project completeness and quality were ineffective at the Riyadh and Zegeton

Canal Crossings. Unless processes to independently verify project completion and quality are adequate, the U.S. Government will have an insufficient amount of reliable evidence to verify the work performed actually met the design standards.

3. Determine whether the Contractor's Quality Control plan and the U.S. Government's Quality Assurance programs were adequate.

The contractor's quality control program and the U.S. Government's Quality Assurance program for the Riyadh and Zegeton Canal Crossings projects have not been effective. The entire pipeline project lacked any significant monitoring of construction practices. With regards to the two canal crossings, the prime contractor, subcontractor, nor the U.S. Government implemented effective quality management programs. In addition, project monitoring has been very limited and not continuous. As a result, construction conformity with the design standards and overall construction quality and completion have not been properly validated. For the overall pipeline project, KBR was tasked to "...monitor pipeline construction and SCOP quality assurance program to assure compatibility..." However, KBR did not perform a traditional quality assurance program. KBR viewed its role as "advisors" and "consultants" rather than performing daily verification of the quality of SCOP's construction. Even though its quality assurance program was limited, KBR identified approximately 25% of SCOP's welds were flawed. In June 2004, in an effort to save money, the U.S. Government deleted KBR's limited quality assurance work for the pipeline project. Since KBR did not perform traditional quality assurance, daily quality assurance reports were not done to identify the condition of the overall pipeline construction. When the U.S. Government deleted the limited quality assurance program, it lost oversight of the remainder of SCOP's construction of the pipeline. Consequently, the U.S. Government does not have any reliable data on the quantity and quality of the overall pipeline project.

4. Determine whether project sustainability was addressed.

Sustainability was adequately addressed for the three canal crossings. Specifically, the U.S. Government does not plan to maintain or operate the pipeline after commissioning. The pipeline operations will be turned over to the Iraqi MoO and the NOC. Upon project completion, as-built drawings of the pipeline will be provided to the MoO and the NOC. In addition, PIJV will provide a plan for cathodic protection of the pipeline at turnover. In that sustainability of pipeline operations was adequately planned, the risk of any future responsibility for the pipeline by the U.S. Government is low.

5. Determine the original completion schedule and reasons for slippages.

The original completion date for the entire 50 kilometer pipeline project, including the three canal crossings, was 31 March 2004. The USACE SWD allowed the SCOP to construct the 50 kilometer pipeline project, except for the HDD for the three canal crossings, which was awarded to KBR. The CPA Oil Sector and the MoO wanted the SCOP to construct the pipeline project because the Coalition's strategy for "...fixing the oil infrastructure was to help the Iraqis fix their own infrastructure, not to do it for them." The USACE SWD wanted KBR to complete the HDD at Al Fatah before starting work on the three canal

crossings. This decision resulted in the period of performance expanding from 4 months to 12 months.

The U.S. Government terminated KBR in August 2004 because, for the Al Fatah HDD River Crossing project, \$75.7 million allocated to the project was exhausted while only 28% of the drilling scope was completed. Since the HDD of the three canal crossings was to begin after the completion of the Al Fatah project, KBR was terminated for the canal crossings, too. The PCO awarded the three canal crossings to PIJV in November 2004. The three canal crossings were scheduled to be completed by November 2005. The Kirkuk Irrigation Canal Crossing was completed in April 2006. Currently, the Riyadh and Zegeton Canal Crossings have not been completed. The status of both sites is reported differently by the PCO Oil Sector, and the USACE RMS. The PCO Oil Sector believes the sites are 80% complete; while the RMS lists the canal crossings as 40% and 38% complete, respectively. However, the USACE Kirkuk Area Office recently visited the Zegeton Canal Crossing and estimated the canal crossing at approximately 10% complete.

6. Determine whether project results will be consistent with original objectives.

As a result, revenue potential of approximately \$14.8 billion has been lost to the Iraqi Government due to the unavailability of increased capacity for moving oil. Such potential cash resources are essential to improve and stimulate the Iraqi economy in the short term while enhancing the potential long term stability of the Iraqi Government. These projects are critical elements to repair the Iraqi oil infrastructure and to re-establish continuous pipeline operations.

## **Recommendations**

We recommend that the Commanding General, Gulf Region Division:

1. Implement a specific and immediate plan to complete the Riyadh and Zegeton Canal Crossing projects.
2. Implement a case specific process to ensure effective and reliable U.S. Government oversight pertaining to project quality and completion status.
3. Investigate and resolve the significant differences between the Project and Contracting Office Oil Sector and the U.S. Army Corps of Engineers' Resident Management System completion percentages for the Riyadh and Zegeton Canal Crossings.
4. Follow the established procedure to review contractor invoices prior to payment.

## **Management Comments**

The Commanding General, Gulf Region Division did not agree with all of the draft report conclusions. He suggested significant editing of the report to "...accurately represent the effectiveness and efficiency of the execution of the three canal crossing projects being performed by Parsons Iraq Joint Venture, Gulf Region Division-PCO, and USACE." However, the Commanding General did concur with our report's recommendations.

## Evaluation of Management Comments

We believe our report presents an accurate picture of the execution of the three canal crossings and the entire 50 km pipeline project. Management comments concurred with our recommendations for corrective actions and, while not fully responsive to three of the four recommendations, we believe that the comments constitute a basis for dialogue to implement responsive corrective actions. We will continue to work with GRD-PCO to resolve areas of disagreement.

The complete text of the comments is provided in the Appendix D. Our detailed response to comments from the Gulf Region Division follows.

**SIGIR Draft Report. Page ii (Conclusions).** The original objective of the 50 kilometer replacement of the 40-inch Kirkuk to Baiji pipeline project was to increase the flow rate from approximately 500,000 to approximately 800,000 barrels per day, an increase of 300,000 barrels per day. The existing 40-inch pipeline is approximately 15 years old and has reached the end of its design life. Along this pipeline are three critical canal crossings (Kirkuk Irrigation Canal, Riyadh Canal, and Zegeton Canal), which were originally to be completed by Kellogg, Brown, and Root (KBR); however, the U.S. Government terminated KBR's contract and the Project and Contracting Office (PCO) awarded the three canal crossings to Parsons Iraq Joint Venture.

**GRD-PCO Comments.** The pipeline project was originally a Task Force – Restore Iraqi Oil (RIO) project. GRD-PCO was given a portion of the original RIO project at Al Fatah and at the three canal crossings when both KBR and SCOP were unable to complete the work due to security risks. The work at Al Fatah River Crossing and Kirkuk Canal Crossing is complete and the completion of the canal crossings at Zegeton and Riyadh was delayed due to insurgent threats and attacks. The original project objective was to assist SCOP with the replacement of an aging and vulnerable export pipeline and not to increase flow rate from 500,000 to 800,000 barrels per day (BPD). Though the project objective was to replace aging pipeline, the project results and benefit of the objective is a pipeline that can accommodate the total potential output of the north by 800,000 BPD. The maximum throughput of the pipeline will be approximately 1.1 million BPD. The combined capacity of the new 40-inch pipeline and other existing North Oil Company (NOC) crude pipelines in the north far exceeds the current NOC production capacity. GRD-PCO is well on the way to successfully fulfill the RIO initiated objective to assist SCOP in replacing a poorly maintained 40-inch pipeline.

**SIGIR Response.** The GRD-PCO is correct that the pipeline project was originally a TF-RIO project; however, its statement that the GRD-PCO "...was given a portion of the original RIO project at Al Fatah and at the three canal crossings when both KBR and SCOP were unable to complete the work due to security risks..." is inaccurate. The USACE SWD awarded TO #6 to KBR to design and construct the three canal crossings using HDD technology and monitor pipeline construction and SCOP quality assurance program, as well as to construct a pipeline crossing of the Tigris River at the Al Fatah Bridge. KBR was terminated in August 2004 for the Al Fatah HDD effort, which also relieved KBR's responsibility for the three canal crossings. However, according to USACE SWD representatives, KBR was terminated not because of security risks, but rather because \$75.7 million allocated to the Al Fatah HDD project was exhausted while only 28% of the drilling scope was complete.

Further, GRD-PCO's statement that the "...original project objective was to assist SCOP with the replacement of an aging and vulnerable export pipeline and not to increase flow

rate from 500,000 to 800,000 barrels per day...” is also inaccurate. In July 2003, the TF-RIO – Army completed the original funding request form for the 50 km pipeline project and presented it to the Program Review Board for review and approval. The rationale for the project was that “...by replacing the pipe, it is projected that the flow rate could be increased from approximately 500,000 bopd to approximately 800,000 bopd, and increase of 300,000 bopd.”

**SIGIR Draft Report. Page ii (Conclusions).** There is no reasonable assurance that project construction will meet the standards of the design because the U.S. Government’s processes to independently verify project completeness and quality were ineffective at the Riyadh and Zegeton Canal Crossings. Unless processes to independently verify project completion and quality are adequate, the U.S. Government will have an insufficient amount of reliable evidence to verify the work performed actually met the design standards.

**GRD-PCO Comments.** GRD-PCO does not agree with the draft report conclusion. Parsons Iraq Joint Venture (PIJV) performed Quality Assurance (QA) and Quality Controls (QC) at all sites and with all subcontractors. It was only the last subcontractor that requested PIJV not visit the construction site and this contractor withdrew from the project shortly after mobilization. GRD-PCO maintains that the draft report is not fully depicting all the known facts by asserting repeatedly only the negative issues when in fact there were procedures in place to assure both project quality and project completeness. GRD-PCO is monitoring the subcontractor’s QC plan, the PIJV QA plan, and the NOC inspection of the pipeline welds and fully expects the Riyadh and Zegeton Canal Crossings projects will meet design standards. QA/QC is in place for the current scope of work and welding records will be supplied by PIJV. GRD-PCO is confident construction will meet the standards of design as demonstrated by the completed Kirkuk irrigation canal crossing.

**SIGIR Response.** The GRD-PCO statement that there were “...procedures in place to assure both project quality and project completeness...” is not supported by field results. For instance, the USACE Kirkuk Area Office, which is the construction manager for the three canal crossings, does not know the status or the quality of the work done at the Zegeton and Riyadh Canal Crossings. USACE Kirkuk Area Office representatives recently flew over the Riyadh Canal Crossing and provided us with the following report:

*“...at the Riyadh, we saw (at 140 mph flying low) that there are two strings (about 150 ft each) of pipe welded and a ditch dug...what percentage is that of the whole and who did it?????....I don’t know...were the welds accepted by either the QC or QA?????  
Unknown....presently all the ditches are filled with oil...what is the status???  
Unknown...1/2 of one of the strings of 40” pipes is inside the security fence and the other 1/2 is outside...there is a hold in the fence...when were the pipes welded and by whom??  
Unknown...”*

The GRD-PCO response stated that PIJV is performing both the QA and QC functions for the two canal crossings; however, the QA function is the responsibility of the USACE Kirkuk Area Office. While procedures may have been in place to monitor project quality and project completeness, the procedures were not being implemented. The USACE Kirkuk Area Office, until it landed at Zegeton Canal Crossing and flew over the Riyadh Canal Crossing in June 2006, did not know the status of either project. Currently, the USACE Kirkuk Area Office still does not know who prepared the two strings of pipe or whether the welds were accepted by either the QC or QA representatives. There are no QC or QA reports to document who performed the welds or whether they were accepted. Therefore, we still maintain that the U.S. Government’s processes to independently verify



project completeness and quality were ineffective at the Zegeton and Riyadh Canal Crossings.

Finally, we do not agree with the GRD-PCO's assertion that our draft reported "...only the negative issues when in fact there were procedures in place to assure both project quality and project completeness." In the "Quality Assurance for TO 14" section of our draft report, we stated that both the CQC plan and the USACE Kirkuk Area Office's QA plan were adequate and sufficiently detailed. In addition, for the Kirkuk Irrigation Canal, our draft report stated the "...contractor and USACE Kirkuk Area Office provided adequate oversight." Our concerns are with the lack of periodic site inspections and evaluations of the contractor's CQC performance for the Zegeton and Riyadh Canal Crossings. The USACE Kirkuk Area Office's June 2006 site visit clearly indicates that little oversight of the two canal crossings was previously done, since no one knows who did the work at the Riyadh Canal Crossing or the quality of the work done there. Therefore, we concluded that for the Kirkuk Irrigation Canal, the contractor and USACE Kirkuk Area Office provided adequate oversight, but at the Zegeton and Riyadh Canals, the contractor and the USACE processes to independently verify project completeness and quality were ineffective. Without effective processes to monitor the contractor's performance at the two canal crossings, the U.S. Government will have an insufficient amount of reliable evidence to verify the work performed actually met the design standards.

**SIGIR Draft Report. Page ii (Conclusions).** The contractor's quality control program and the U.S. Government's Quality Assurance program for the Riyadh and Zegeton Canal Crossings project has not been effective and the entire pipeline project lacked any significant monitoring of construction practices. With regards to the two canal crossings, neither the prime contractor, subcontractor, nor the U.S. Government implemented effective Quality Management programs. In addition, project monitoring has been very limited and sporadic. As a result, conformity with the design standards and overall construction quality and completion has not been properly validated. For the overall pipeline project, KBR was tasked to "...monitor pipeline construction and the State Company for Oil Projects (SCOP) quality assurance program to assure compatibility..." However, KBR did not perform a traditional quality assurance program. KBR viewed its role as "advisors" and "consultants" rather than performing daily verification of the quality of the SCOP's construction. Even though its quality assurance program was limited, KBR identified approximately 25% of SCOP's welds were flawed. In June 2004, in an effort to save money, the U.S. Government deleted KBR's limited quality assurance work for the pipeline project. Since KBR did not perform traditional quality assurance, daily quality assurance reports were not done to identify the condition of the overall pipeline construction. When the U.S. Government deleted the limited quality assurance program, it lost oversight of the remainder of the SCOP's construction of the pipeline. Consequently, the U.S. Government does not have any reliable data on the quantity and quality of the overall pipeline project.

**GRD-PCO Comments.** GRD-PCO disagrees with this conclusion. The level of insurgency activity on this pipeline and at the canal crossings required the contractor to implement security procedures to minimize the risk to construction personnel. The QA/QC measures employed by PIJV and observed by GRD-PCO were different than those employed on the RIO project. GRD-PCO asserts that the contractor's and the U.S. Government's QA/QC plans are adequate and effective. Delays due to high levels of insurgency activity were beyond the control of GRD-PCO or PIJV. Currently, GRD-PCO, the subcontractor, the prime contractor, and NOC all have effective Quality Management Programs in place and are executing those programs. These programs will ensure conformity with design standards and overall construction quality.

**SIGIR Response.** Our draft report stated that the CQC plan and the USACE Kirkuk Area Office's QA plan were adequate and sufficiently detailed. However, we concluded that the CQC and U.S. Government's QA programs for the Zegeton and Riyadh Canal Crossings were ineffective because project monitoring has been limited and sporadic. The GRD-PCO's statement that, "...GRD-PCO, the subcontractor, the prime contractor, and NOC all have effective Quality Management Programs in place and are executing those programs..." is not supported field results for the Zegeton and Riyadh Canal Crossings. As mentioned earlier, the completion percentage status of the two canal crossings was not known until the USACE Kirkuk Area Office visited the sites in June 2006. The execution of the Quality Management Programs cannot be adequate when the USACE Kirkuk Area Office, the construction manager for the two canal crossings, is not certain who performed the work at the Riyadh Canal Crossing and if the work was accepted by QA and QC representatives.

Further, the GRD-PCO's comments do not address our conclusion that the U.S. Government, "...does not have any reliable data on the quantity and quality of the overall pipeline project." Originally, KBR was tasked to monitor the SCOP's quality assurance program for the pipeline construction. On 1 June 2004, in an effort to save money to be used for the Al Fatah HDD project, the U.S. Government deleted KBR's limited quality assurance work for the pipeline construction. As a result, from that point forward, the U.S. Government lost all oversight over the quantity and quality of the work performed by SCOP. Therefore, the U.S. Government does not have any reliable data on the quantity and quality of the overall pipeline project.

**SIGIR Draft Report. Page iii.** Currently, the Riyadh and Zegeton Canal Crossings have not been completed. The status of both sites is reported differently by the PCO Oil Sector and the USACE Resident Management System. The PCO Oil Sector believes the sites are 80% complete; while the Resident Management System lists the canal crossings as 40% and 38% complete, respectively. However, the USACE Kirkuk Area Office recently visited the Zegeton Canal Crossing and estimated the canal crossing at approximately 10% complete.

**GRD-PCO Comments.** It is an inherent characteristic of the record keeping process that at times there will be completion percentage differences between organizations and tracking systems. The different completion percentages are continually reviewed, analyzed and updated. GRD-PCO reviewed weekly progress figures from PIJV which is based on the Earned Value Management System (EVMS). The RMS system is updated only after a site visit and the percent complete is established by physical progress. The fact there was a difference between the systems which were based on estimates, at different points in time, and on different measurement processes is not unusual and does not give immediate cause for concern.

**SIGIR Response.** GRD-PCO did not adequately explain the reason for the discrepancy between the PCO Oil, USACE's RMS, and the USACE Kirkuk Area Office regarding the completion percentage for the Zegeton and Riyadh Canal Crossings. The PCO Oil sector Program Manager told us on 5 May 2006 that the Zegeton and Riyadh Canal Crossings were approximately 80% complete; the USACE's RMS in June 2006 listed the canal crossings as 40% and 38% complete, respectively; while representatives from the USACE Kirkuk Area Office, who landed at the Zegeton Canal Crossing and flew over the Riyadh Canal Crossing in June 2006, stated that the Zegeton Canal Crossing was approximately 10% complete and could not determine the completion percentage for the Riyadh Canal Crossing. In responding to our draft report, the GRD-PCO stated that, "...it is an inherent characteristic of the record keeping process that at times there will be

completion percentage differences between organizations and tracking systems. The different completion percentages are continually reviewed, analyzed, and updated.” This response is not sufficient since it does not address the reason for the large variance between what the PCO Oil sector and USACE’s RMS are reporting and the actual condition of both canal crossings. It is difficult to believe that completion percentages that are “...continually reviewed, analyzed, and updated...” would not have recognized that PCO was reporting 80% completion percentages for both canal crossings while the USACE’s RMS database was reporting 40% and 38% completion percentages. We do not believe that 40% is an acceptable variance between the two reporting systems.

The GRD-PCO response also stated that GRD-PCO “...reviewed weekly progress figures from PIJV which is based on the Earned Value Management System (EVMS). The RMS system is updated only after a site visit and the percent complete is established by physical progress. The fact that there was a difference between the systems which were based on estimates, at different points in time, and on different measurement processes is not unusual and does not give immediate cause for concern.” Since the USACE Kirkuk Area Office was the construction manager for the canal crossings, GRD-PCO should not have relied completely upon the weekly progress figures provided by PIJV. In addition, when we met with the PCO Oil sector representatives on 5 May 2006, we asked for the status of the canal crossings.

The PCO Oil sector Program Manager stated that the two remaining canal crossings (Zegeton and Riyadh) were approximately 80% complete. He did not mention this was based upon the EVMS or on a “different measurement process.” We specifically asked for the physical status of the canal crossings and we were told they were 80% complete. Further, if the RMS system is “...updated only after a site visit and the percent complete is established by physical progress...” then we do not understand how the RMS database listed the projects as 40% and 38% complete, while the USACE Kirkuk Area Office site visit in June 2006 identified the Zegeton Canal Crossing as only 10% complete and could not establish a percentage completion for the Riyadh Canal Crossing.

Further, a GRD Daily Situation Report, dated 9 July 2006, identified the Zegeton Canal Crossing as only “1% complete.” We believe that it is highly unusual for different tracking systems to have this kind of significant differences between them. Finally, when the PCO Oil sector Program Manager states verbally (as well as in a briefing chart) that the two remaining canal crossings are 80% complete when they are only 10% and 1% complete, we believe that is an immediate cause for concern.

**SIGIR Draft Report. Page iii (Conclusions).** As a result, revenue potential of approximately \$14.8 billion has been lost to the Iraqi Government due to the unavailability of increased capacity for moving oil. Such cash resources are essential to improve and stimulate the Iraqi economy in the short term while enhancing the potential long term stability of the Iraqi Government. These projects are critical elements to repair the Iraqi oil infrastructure and to re-establish continuous pipeline operations.

**GRD-PCO Comments.** GRD-PCO disagrees with the draft report assumptions that the delays in completing the new pipeline from Baiji to Kirkuk have cost the Iraqi government \$14.8 billion. There are four existing crude pipelines which can transport crude oil from Kirkuk to Baiji. In total, these pipelines are capable of transporting the production of the Kirkuk oil fields. Sabotage on these pipelines and on NOC production facilities is the major factor contributing to loss of oil revenue, and not the lack of a new 40-inch pipeline. The draft report estimate of potential revenue loss is conceptual and not actual revenue loss. Further, the draft report did not contain a sufficient market analysis

or demonstrate that the Kirkuk oil fields could actually produce enough oil to earn the figure of \$14.8 billion.

**SIGIR Response.** In July 2003, the TF-RIO – Army completed the original funding request form for the 50 km pipeline project and presented it to the Program Review Board for review and approval. The rationale for the project was that “...by replacing the pipe, it is projected that the flow rate could be increased from approximately 500,000 bopd to approximately 800,000 bopd, and increase of 300,000 bopd. The additional revenue would be approximately \$7.5 million per day.” The TF-RIO identified the amount of increased barrels of oil per day and multiplied it by the cost of a barrel of crude oil to determine the additional review per day to the Iraqi Government. We accepted this rationale and used it to determine the Iraqi Government’s potential revenue loss as a result of the pipeline project not being completed. Therefore, we identified the number of days that have passed since the date the pipeline project, including the three canal crossings, was to be completed (31 March 2004) and multiplied by 300,000; we then multiplied this number by an average cost of a barrel of crude oil since 1 April 2004. Since the price of crude oil has significantly increased since July 2003, starting at \$25 per barrel to approximately \$75 per barrel today, we decided to take an average of \$60 per barrel in order to provide a simple explanation for the potential revenue loss.

The GRD-PCO’s suggestion to perform a “...sufficient market analysis or demonstrate that the Kirkuk oil fields could actually produce enough oil to earn the figure of \$14.8 billion.” is not appropriate. We used the original TF-RIO rationale in order to determine the potential revenue loss to the Iraqi Government. If the GRD-PCO is questioning the numbers and rationale used in our calculation, it is therefore also questioning the rationale used by the TF-RIO to fund this project through the Program Revenue Board in July 2003. The TF-RIO identified increased flow rate and additional review to the Iraqi Government in its funding request. The GRD-PCO apparently believed the basic assumptions of the TF-RIO submission for funding were flawed.

**SIGIR Draft Report. Page 1.** The Northern oil fields are dominated by the Kirkuk fields, with production capacity of approximately 900,000 barrels per day (bpd). The Kirkuk oil fields provide all crude oil for the Baiji Refinery, 40 to 45% of the crude oil for the Doura Refinery and export of crude oil to Turkey.

**GRD-PCO Comments.** The crude oil production capacity in the north of Iraq is currently 500,000 to 550,000 BPD. When the Oil Sector completes the IRRF program the north will have a capacity to produce approximately 800,000 barrels of crude oil per day.

**SIGIR Response.** The statement questioned by the GRD-PCO was provided to us by IRMO Oil and USACE representatives.

**SIGIR Draft Report.** Site Photo 1. Example of Severe Corrosion of Existing Pipeline and Oil Leakage.

**GRD-PCO Comments.** GRD/PCO noted a factual discrepancy on the caption for Site Photo 1. Rather than severe corrosion, the photo actually depicts a pipeline which has had portions of its protective coating removed exposing surface oxidation and nothing more.

**SIGIR Response.** We modified the report to document surface oxidation rather than severe corrosion. However, we do not agree with the statement that it was simply surface

oxidation and “nothing more.” During our site visit, we observed oil leaks with the existing pipeline (Site Photo 1). The surface oxidation has led to significant problems with the existing pipeline.

**SIGIR Draft Report. Page 4.** The groups responsible for the Northern oil fields developed a prioritized list of 16 projects with one of the priorities being the restoration of 50 km of the 40” pipeline from Kirkuk to Al Fatah.

**GRD-PCO Comments.** The groups responsible for the Northern oil fields developed a prioritized list of 48 projects with the 16<sup>th</sup> project being the Ministry of Oil’s restoration of the 50 km 40-inch pipeline from Kirkuk to Al Fatah utilizing the SCOP. The prioritized lists identified what organization would be responsible for the construction, supplies, materials, and training. Task Force RIO was initially responsible to repair and restore facilities damaged as a result of the war. The 50 km pipeline was not authorized as a Task Force RIO project because there was no war damage. The project was a Ministry of Oil project which was to be executed by the SCOP. SCOP had already installed 25 km of the pipeline and the pipeline and fittings were already purchased for the project which was initiated 2 years before the war.

**SIGIR Response.** According to the GRD-PCO’s first comment (see page 31), the pipeline project was “...originally a Task Force – Restore Iraqi Oil (RIO) project.” The comment on page 31 contradicts the GRD-PCO comment here that the 50 km pipeline was “...not authorized as a Task Force RIO project...”

**SIGIR Draft Report.** The 50 km Kirkuk to Al Fatah pipeline was considered a top priority on the approved consolidated list of oil reconstruction projects.

**GRD-PCO Comments.** The 50 km Kirkuk to Al Fatah pipeline was the 16<sup>th</sup> project on the approved consolidated list of prioritized oil reconstruction projects that was tasked for completion by SCOP. The draft report suggested that the 50 km Kirkuk to Al Fatah pipeline was a Task Force RIO project when the project was actually designated a Ministry of Oil project. The project was to be funded and managed by the Ministry of Oil utilizing SCOP to execute the project.

**SIGIR Response.** GRD-PCO’s comment regarding this pipeline project not being a TF-RIO project is inaccurate. The USACE SWD, through TO #6, awarded KBR the design and construction of the three canal crossings using HDD technology. The GRD-PCO in various documents has referred to the three canal crossings as “critical” projects. While the canal crossings and KBR’s monitoring of SCOP’s quality assurance program were originally funded with DFI money, PIJV has been paid with IRRF funds for its work on the canal crossings.

**SIGIR Draft Report. Page 5.** As of the date of this assessment, the 50 km replacement of the 40 inch Kirkuk to Al Fatah pipeline project, originally planned for completion by 31 March 2004, has not been completed. CPA, TF-RIO/USACE SWD, PCO/GRD, GRN, and the MOO officials did not properly coordinate, plan, and execute the pipeline project. Specifically,

- TF-RIO allowed an inexperienced Iraqi company to attempt to construct the pipeline project instead of awarding it to an established company capable of completing the project in a timely manner.

**GRD-PCO Comments.** GRD-PCO does not agree with the statement that Task Force RIO allowed an inexperienced company (SCOP) to attempt to construct the pipeline.

Task Force RIO did not have the authority to override the decision by the CPA Senior Advisor for Oil to approve the recommendation of the Iraqi Ministry of Oil to allow SCOP to construct the pipeline. The desire to put Iraqi personnel back to work and the fact that Iraqi funds were being used no doubt were factors which heavily influenced the decision of the CPA Senior Advisor for Oil. Nevertheless, the decision was not one which RIO could have changed. Further, Task Force RIO did not have operational control of the 50 km pipeline mission. The Ministry of Oil was responsible for the mission and it assigned the project to SCOP utilizing Iraqi funds. Task Force RIO was assigned the responsibility to supply welding rods, equipment, and training with Iraqi funds. The draft report statement that the Iraqi company (SCOP) was inexperienced is not correct. SCOP is the premier Iraqi state owned company that was previously responsible for constructing the major oil infrastructure within Iraq. SCOP built the first 25 km of the original pipeline project. At the time, there was no better or more qualified company within Iraq.

**SIGIR Response.** We agree that the desire to use Iraqi funds to employ Iraqi personnel was a contributing factor for the CPA Senior Advisor for Oil's decision to recommend the use of SCOP; however, the GRD-PCO's statement that TF-RIO did not have any authority with regards to the pipeline project is misleading. The TF-RIO asked for and the PRB allocated \$82 million for the 50 km pipeline project, of which the USACE SWD used only a fraction of this amount for the pipeline project. Even though the CPA Senior Advisor to Oil and the Ministry of Oil wanted SCOP to construct the new pipeline, the USACE SWD had sufficient funding to do more than just "...supply welding rods, equipment, and training." In addition, according to TO #6, the USACE SWD had the responsibility for the three canal crossings and the monitoring of SCOP's quality assurance program.

The GRD-PCO statement that there was "no better or more qualified company" than SCOP to construct the pipeline is not supported by comments from the TF-RIO, USACE SWD, KBR, USACE Kirkuk Area Office, PCO Oil, and the Northern Oil Company officials. A former TF-RIO representative stated that, prior to awarding the pipeline construction to SCOP, the TF-RIO and NOC protested because "...it took SCOP 2 years to complete 25 km of pipeline and, even then, didn't make the canal crossings." Once SCOP's construction of the pipeline began, KBR, while providing limited quality assurance of the welds, identified a 25% reject rate. In addition, in our draft report, we quote the Commander TF-RIO in a memorandum stating that SCOP's "...performance to date on the first 25 km of the line clearly indicates they are not capable of timely, quality execution." According to a PCO Oil sector representative, SCOP does not have the skill set required to do even the most basic pipeline construction.

**SIGIR Draft Report.**

- USACE SWD, when it terminated the project with KBR, did not provide PCO/GRD with a status of the pipeline project.

**GRD-PCO Comments.** SWD was responsible for overseeing the contractor until 25 January 2004. After that date, USACE assigned that responsibility to GRD. On that date, all SWD RIO deployed personnel, all their equipment and all their records were transferred from SWD to GRD. There was no failure by SWD to transfer any equipment or records and no failure by GRD to take control of equipment or records. Other than personnel who may have been scheduled to rotate back to the United States at that time, no changes to the RIO personnel or records occurred on this date. Therefore, the draft report conclusion that USACE SWD, when it terminated the project with KBR, did not provide GRD-PCO with the status of the pipeline project is not a correct statement.

**SIGIR Response.** The GRD-PCO's statement that there "...was no failure by SWD to transfer any equipment or records and no failure by GRD to take control of the equipment or records" is both incorrect and contradicted by PCO Oil Sector, USACE SWD, GRN, and IRMO Oil officials. During our initial meeting with PCO Oil sector officials, on 5 May 2006, we requested information regarding the 40 inch pipeline. The PCO Oil sector Program Manager told us that PCO "...did not have any information regarding the work done on the pipeline project during TF-RIO's management...all information and documentation..." is with the USACE SWD. In a 29 May 2006 email from the PCO Oil sector Program Manager to us, the Program Manager stated the following:

*"Please understand that PCO (Foster Wheeler) has no record of the previous RIO (IRRF 1) project accomplished by KBR/USACE SW. All records or information that SIGIR requires regarding those projects will have to be obtained through others."*

We responded back to the Program Manager to confirm this point by stating we "...just want to be clear on one point – there are no historical records at PCO to show what was done by KBR and the amount of money paid to them (with regards to the 50 km pipeline project)?" The Program Manager stated the following:

*"I will confirm that PCO does not have any records regarding any of the RIO (IRRF 1) projects. USACE SW was the executing authority."*

We also asked the PCO Oil sector if PCO had "...any historical information for the 3 canal crossings." PCO Oil sector responded "No."

The former Commander of TF-RIO stated that the following:

*"...command and control of the RIO effort, to include construction management of the KBRS contract, switched from SWD to GRD in January 2004. That's why you can not find much information regarding TF RIO or KBRS-RIO contract actions within the PCO today."*

We asked the GRN Deputy Director of E&C if anyone from GRN had any knowledge of the condition of the 40 pipeline project. The GRN Deputy Director responded back with the following:

*"Not to my knowledge, particularly if you are talking about the entire length of the pipeline, probably only the Oil Ministry could properly answer that question."*

IRMO Oil representatives stated they had previously asked PCO/Foster Wheeler for "...all the old as built's, drawings, flow data etc..." However, IRMO Oil representatives stated they have "...a lot of Powerpoint presentations but no real history..." and that the history is with the "SWD of the US Corps of Engineers."

We do not understand why the GRD-PCO comments state that the SWD provided all the documentation for the 50 km pipeline project to the GRD. During the course of this assessment, we were told verbally and in writing by senior representatives from the PCO Oil sector, USACE SWD, GRN, and IRMO Oil that PCO did not have any information and/or documentation for the overall pipeline project. The GRD-PCO's comment directly contradicts what we were told by the PCO Oil sector Program Manager.

## **SIGIR Draft Report.**

- PCO/GRD allowed the continued slippage of schedule by PIJV.

**GRD-PCO Comments.** The draft report does not give sufficient acknowledgement to the security incidents that brought the projects to a complete halt on multiple occasions. Project slippage was due entirely to security issues that were beyond the control of GRD-PCO, PIJV and GRN. The U.S. Government and construction contractors should not be held responsible for insurgent intervention. For example, the draft report does not acknowledge that all nine pipelines crossing Zegeton were sabotaged during the construction period, rendering the entire site too dangerous to enter for several months.

**SIGIR Response.** Our draft report, in the “Insurgent Activities” section, acknowledges both the security situation at the canal crossing sites and alleged insurgent explosion near the Zegeton Canal Crossing. However, the GRD-PCO comment that the canal crossings have not been completed on time “due entirely to security issues” is not accurate. The Kirkuk Irrigation Canal is located very close to the Kirkuk Regional Air Base and is not considered to be an especially dangerous area; yet its completion was approximately 9 months behind its original schedule and more than 5 months behind the completion date required by the TO.

In addition, the PIJV contract required PIJV to provide security for the three canal crossings. According to PCO Oil sector officials, PIJV’s costs associated with security, life support, and overhead are in the PIJV Administrative Task Order (ATO). PIJV’s daily burn rate is approximately \$145-152,000. GRD-PCO stated that the sabotage at the Zegeton Canal Crossing resulted in the site being “too dangerous to enter for several months.” However, during this time frame in which there was no attempt to complete the work, yet PIJV was still being paid approximately \$145-152,000 per day under the ATO. Consequently, PIJV was paid approximately \$13 million for not attempting any work during the three month time frame.

**SIGIR Draft Report.** These conditions occurred because the officials responsible for the restoration of Iraqi oil infrastructure did not:

- Agree on who would perform the construction work for the pipeline. USACE intended for a foreign company to construct the entire pipeline; while the CPA and MOO officials wanted to use the Development Fund for Iraq (DFI) money to employ the Iraqi State Company for Oil Projects (SCOP).

**GRD-PCO Comments.** All organizations were in agreement that SCOP should be given the opportunity to participate in Iraq’s reconstruction and construct the pipeline. There was some reasonable uncertainty whether SCOP would be able to complete the project within the timeframe allocated during a wartime situation. The Senior Advisor for Oil, working with the Iraqi Ministry of Oil, made the decision that SCOP would execute the 50 km pipeline project and that KBRS would provide training and quality control of the welding for SCOP. Once that decision had been made, RIO (and KBRS acting under the RIO contract) had no authority to oversee or control the activities of SCOP. The files are quite clear on this and the draft report conclusion that the officials responsible for reconstruction of the oil infrastructure failed to agree on who would perform the work is not accurate. The Ministry of Oil, CPA and USACE all understood that SCOP would perform the construction work, with the exception of HDD at the three canal crossings.

**SIGIR Response.** The GRD-PCO comment that “...all organizations were in agreement that SCOP should be given the opportunity to participate in Iraq’s reconstruction and



construct the pipeline” is not supported by former TF-RIO and USACE Kirkuk Area Office officials. According to a former TF-RIO official, the USACE Kirkuk Area Office and the NOC officially protested the award of the 50 km pipeline project to SCOP. The Kirkuk Area Office and NOC did not want SCOP to construct the pipeline project because SCOP was very slow with completing the initial 25 km of pipeline (pre-war). The former TF-RIO official stated the following:

*“...it took SCOP 2 years to complete 25 km of pipeline and, even then, didn’t make the canal crossings under Saddam. SCOP, at that time 2 years previous, had all of their equipment, manpower, supplies and materials intact. Now that SCOP had nothing, how would they accomplish the mission??...We (NOC and TF RIO/KBR) estimated that it would take the SCOP 4 years to complete job, if they could ever even start it in 4 months.”*

While ultimately all organizations agreed that SCOP would be responsible for the construction of the 50 km pipeline project, the TF-RIO, USACE Kirkuk Area Office, and NOC did not agree with the CPA Senior Advisor to Oil and the MoO officials’ decision to award the project to SCOP. In fact, TF-RIO, Kirkuk Area Office, and NOC officials protested the decision in various meetings.

#### **SIGIR Draft Report.**

- Did not agree on the current status of the 2 remaining canal crossings.

**GRD-PCO Comments.** GRD-PCO disagrees that officials responsible for the restoration of Iraq Oil Infrastructure were not actively involved in the execution of the remaining canal crossings by PIJV. GRD-PCO management is actively involved in the execution of all projects through site visits; a strict project reporting system on a daily, weekly and monthly basis and weekly teleconferences with project managers. In addition, reports are given in face to face monthly meetings with USACE, IRMO and the Ministry of Oil concerning the current planning and status of projects.

**SIGIR Response.** The GRD-PCO’s comment does not address the issue raised in the draft report. The draft report stated that, “...officials responsible for the restoration of Iraqi oil infrastructure...did not agree on the current status of the 2 remaining canal crossings.” In a previous SIGIR response, we identified that currently the PCO Oil sector, the USACE Kirkuk Area Office, and GRD officials disagree on the status of the Zegeton and Riyadh Canal Crossings. The PCO Oil sector stated that the canal crossings were 80% complete; the USACE RMS system stated the projects were 40% and 38% complete, respectively; the USACE Kirkuk Area Office, after visits to both sites in June 2006, stated the Zegeton Canal Crossing was approximately 10% complete and could not determine a completion percentage for the Riyadh Canal Crossings as it was not able to identify who performed the work at the site and whether it was done to standards; and the GRD, in a Daily Situation Report, dated 9 July 2006, stated the Zegeton Canal Crossing was only 1% complete.

In view of the fact that the various parties involved reported the Zegeton Canal Crossing as anywhere from 1% to 80% complete and the Riyadh Canal Crossing as anywhere from 0% to 80% complete, depending upon which organization is providing the numbers, we stand by our conclusion that those organizations did not agree on the current status of the two remaining canal crossings.

**SIGIR Draft Report.** As a result, the 50 km replacement pipeline has not been completed; an unknown amount of DFI funds and more than \$2.5 million in IRRF funds

have been paid to KBR and PIJV, respectively, which has resulted in lost revenue potential of approximately \$14.8 billion for the Iraqi Government. In addition, the existing 40-inch pipeline is leaking, adding to a previously known environmental hazard.

**GRD-PCO Comments.** While it is true that the existing 40-inch line is leaking as indicated in the draft report, the report didn't recognize that the recent environmental damage is due mostly to pipeline sabotage and not operational leaks. In addition, the 26-inch line is currently on standby and not in use because there is insufficient oil production. GRD-PCO disagrees that the Iraqi Government lost revenue amounting to \$14.8 billion. It would not be possible for NOC to produce the crude oil volumes used in the revenue calculations during the period cited by the draft report, because production was constrained by poor oil infrastructure, and sabotage of pipeline and NOC production facilities.

**SIGIR Response.** The GRD-PCO statement that our draft report "...didn't recognize that recent environmental damage is due mostly to pipeline sabotage and not operation leaks..." is not accurate. In the "Insurgent Activities" section of the draft report, we stated the following:

*"...a TF-RIO briefing slide (Figure 6) shows that from December 2003-February 2004, there were multiple attempts at sabotage of the pipeline, with only two successful. According to KBR officials, the main source of sabotage was people shooting at the pipeline, resulting in the pipeline crew having to repair the damage... In addition, there was a major pipeline explosion between Al Fatah and Zegeton in late 2005, which was blamed upon insurgents."*

Neither the PCO nor the USACE provided any additional specifics regarding sabotage of the pipeline resulting in oil spillages.

In addition, according to officials who viewed the oil spills in 2003, the cause was more pipeline leakage than sabotage. For example, a former TF-RIO official stated, "...in 2003, we referred to the oil pipeline route as the oil everglades. We had a horrible problem with leakage, oil pooling, and the local Iraqis burning it off." Further, the former Commander of TF-RIO stated, "I saw oil all over the ground when I arrived in October 2003." He listed as one of the principle reasons for the oil spills was the "...poor condition of the pipelines themselves..." Additionally, during our flyover of the pipeline, we were told that the oil spills occurred as a result of leaking crude oil pipelines.

We responded in a previous response to GRD-PCO's concern about our statements regarding lost revenue amounting to \$14.8 billion for the Iraqi Government. The rationale and formula we used to determine this amount was identical to the calculation the TF-RIO used to request funding for the pipeline project. If the GRD-PCO believes our number is not accurate, then it is also indicating that the original rationale used by the TF-RIO to fund this project was flawed.

**SIGIR Draft Report.** Even though TF-RIO memorandum stated TF-RIO was "...responsible for executing and completion of the 50 km" project, the CPA's Chief Financial Officer informed TF-RIO that it was "...under the operational control of the Ministry of Oil." Apparently this dichotomy, and the fact the project was being financed with Iraqi oil money, allowed the MOO to be able to make the decision to allow SCOP to construct the pipeline.

**GRD-PCO Comments.** Regardless of memorandums referenced at certain points in time, in July 2003 it was made clear that the 50 km pipeline was not a Task Force RIO

mission. The Ministry of Oil was responsible for the mission and it assigned the pipeline project to SCOP.

**SIGIR Response.** The GRD-PCO comment does not identify who made it clear in July 2003 that the 50 km pipeline was not a TF-RIO mission. In addition, in a previous comment, GRD-PCO stated the 50 km pipeline project was “originally a Task Force – Restore Iraqi Oil (RIO) project.” Further, the PRB approved and allocated \$82 million in DFI to the TF-RIO for the 50 km pipeline project.

**SIGIR Draft Report. Page 10.** The TF-RIO PRB funding submission identified a 4 month completion goal for the pipeline project. TF-RIO mission was set to expire on 31 March 2004, and considering TO #6 was awarded on 8 December 2003, this time frame was consistent with the original intent. However, the TO #6’s completion deadline was one year, thereby adding an additional eight months to the project.

The primary reason for the one year completion deadline instead of the 4 month goal appears to be the USACE SWD decision not to have KBR begin the three canal crossings until after the completion of the Al Fatah HDD. Considering that this pipeline project was to result in additional revenue to the Iraqi Government of approximately \$7.5 million per day, the goal of the USACE SWD should have been to expeditiously complete the three canal crossings instead of waiting for Al Fatah to be completed.

**GRD-PCO Comments.** The draft report statement that USACE failed to start HDD at the canal crossings pending the completion of the Al Fatah crossing is technically accurate, but does not consider all the facts. When SWD terminated Task Order 6, no work had been completed on the canal crossings. The canal crossings were scheduled to be started only after completion of the Al Fatah crossing. The draft report criticized the schedule based on the assumption that HDD rigs and drill crews were readily available and could have been used on the canal crossings. Neither assumption is valid. Both HDD rigs used at Al Fatah and the crews to operate the equipment had to be imported to Iraq from the United States. The option to bring a third HDD rig and crew to Iraq, where they would apparently spend months in standby status at a cost of \$99,600 per day would have significantly increased project costs. This option would also not have enabled exports to begin any sooner as the canal crossings would not be useful without the Al Fatah crossing and completed pipeline. As a result, the estimate of revenue lost due to delayed completion of the crossings and pipeline does not take into account actual oil production, offsetting costs and other existing conditions at the time, like sabotage and security concerns.

**SIGIR Response.** Our draft report stated that the TF-RIO original funding request identified the completion deadline for this project as four months. Further, the decision by the USACE SWD to delay the start of the three canal crossing until after the completion of Al Fatah did, from the start, add approximately eight months to the project.

In addition, the PRB allocated \$82 million for the pipeline project; therefore, the TF-RIO had sufficient funding to bring a third HDD rig and crew to Iraq. Again, the pipeline project was determined to be an important project; consequently, the TF-RIO should have used the resources/funding available to expeditiously complete (or at least start) the three critical canal crossings. Further, the TF-RIO funding request stated that the anticipated benefit of the completed pipeline project was an additional \$7.5 million per day. This daily benefit far exceeds the daily cost of \$99,600 mentioned in the GRD-PCO comments.

The GRD-PCO comment stating that completing the three canal crossings would not have enabled exports to begin any sooner as the canal crossing would not be useful without the Al Fatah crossing and completed pipeline is not valid. The USACE SWD should not be excused from not completing the three canal crossings on time simply because of it did not manage KBR's performance at Al Fatah. In fact, our draft report stated that it appeared that funding for the pipeline project was diverted to the Al Fatah HDD project.

Finally, the GRD-PCO comments again question our estimate of revenue lost due to delayed completion of the crossings and the pipeline project. However, in its response to a previous SIGIR report dealing specifically with the Al Fatah pipeline river crossings, the Commander, GRD, concurred with the report's conclusion that KBR's failure to complete the project "...may have been instrumental in losing more than \$1.5 billion in potential oil revenues critical to the Iraqi government."

**SIGIR Draft Report. Page 15.** To date, the USACE SWD has been unable to provide the total costs incurred for specifically the 50 km pipeline project. We requested this information from the USACE SWD on 29 May 2006 and repeated follow-up requests made up until the time of this report remain unanswered.

**GRD-PCO Comments.** The draft report assertion that SWD does not know what it paid KBR for activities relating to the 50 km pipeline was resolved. KBR submitted a revised cost proposal dated 18 May 2005 containing detailed descriptions of what KBR had spent on each of the three tasks it had been assigned under Task Order 6. DCAA audited that proposal and issued a final audit report to the SWD contracting officer on 29 July 2005 (Audit No. 3311-2005K21000033). SWD provided SIGIR two files showing what was paid for the 50 km pipeline project on 7 July 2006.

**SIGIR Response.** Our draft report never stated that the USACE SWD did not know what it paid KBR for activities relating to the 50 km pipeline. The draft report stated that the USACE SWD had been "...unable to provide the total costs incurred specifically for the 50 km pipeline project." The initial request for this amount was made on 29 May 2006 to the appropriate USACE SWD personnel. As of the date of the draft report, 26 June 2006, the USACE SWD had been unable to provide the total costs. The GRD-PCO comments are correct that the USACE SWD did provide the total costs to us on 7 July 2006. The final report was modified to include the total costs paid to KBR for its activities relating to the 50 km pipeline project.

**Draft Report. Page 18. Site Photo 5.** SIGIR Site Photo from February 2006. Oil Leakage from Existing Pipeline.

**GRD-PCO Comments.** It is difficult to distinguish from the photo years of pipeline breaks or leaks, or deliberate acts of sabotage. PIJV has documented instances when oil pollution contributed to work delays. PIJV was pro-active in pointing out the serious pollution problems that exist at all canal crossing sites. Much of the soil along the pipeline corridor between Kirkuk and Baiji is saturated with crude oil from previous leaks and sabotage. This is due to the lack of environmental awareness and operating culture.

**SIGIR Response.** We visited the Kirkuk Irrigation Canal in February 2006. At the time, the crossing had not been completed. While reviewing the work completed and the work pending, we identified significant amounts of oil (Site Photo 5). We were told that this oil came from leaks from the existing 40 inch pipeline.

One of the original reasons for the justification of the pipeline project was to reduce the amount of oil spills. The fact that the pipeline project has not been completed has resulted in an additional three years of continued oil spills from the highly corroded existing 40 inch pipeline.

**SIGIR Draft Report. Page 23.** However, for the Riyadh and Zegeton Canal Crossings, the PIJV's CQC and the USACE Kirkuk Area Office's QA programs have been inadequate and ineffective. For instance, the previous subcontractors did not submit adequate daily quality control reports. The reports did not explain the daily events, significant issues, or identify construction deficiencies. In addition, no photographs were provided with the QC reports to verify the written report.

**GRD-PCO Comments.** GRD-PCO disagrees that PIJV's QA and QC were inadequate and ineffective. Considering the constraints of the high risk work environment, PIJV deserves credit for conducting regular site visits; filing trip reports; meeting with the sub-contractor; documenting work quality and demanding corrective action for work that did not meet international standards. QA and QC trip reports had acceptable quality and were frequently reported.

**SIGIR Response.** After reviewing the limited contractor QC reports for the Zegeton Canal Crossing, we determined they did not explain the daily events, significant issues, or identify construction deficiencies; nor were any photographs provided with the QC reports to verify the written report.

As for the U.S. Government's QA program, the USACE Kirkuk Area Office, when it flew over the Riyadh Canal Crossing in June 2006, could not identify what work was done or the quality of the work performed. In addition, a site visit by the USACE Kirkuk Area Office to the Zegeton Canal Crossing identified the completion percentage as 10%, not the 80% and 40% claimed by the PCO Oil sector and USACE RMS, respectively.

An adequate and effective QA and QC program provides daily reports documenting daily events, significant issues, quality of construction practices, and photographs verifying the written text. Neither the QC nor the QA programs provided this information. This is confirmed by the fact that the PCO Oil sector, USACE RMS database, and USACE Kirkuk Area Office all had significantly different completion percentages for the two canal crossings. It was not until the USACE Kirkuk Area Office visited the canal crossings in June 2006 that an accurate picture of the status of the two canal crossings became known. In addition, how effective are the QA and QC programs when USACE Kirkuk Area Office personnel fly over the Riyadh Canal Crossing and state the following:

*"...at the Riyadh, we saw (at 140 mph flying low) that there are two strings (about 150 ft. each) of pipe welded and a ditch dug.....what percentage is that of the whole and who did it?????.....I don't know.....were the welds accepted by either the QC or QA?????  
Unknown.....presently all the ditches are filled with oil.....what is the status???  
Unknown.....1/2 of one of the strings of 40" pipes is inside the security fence and the other 1/2 is outside.....there is a hole in the fence.....when were the pipes welded and by whom?? Unknown..."*

**SIGIR Draft Report.** Apparently, NOC officials would visit the two canal crossing sites, take photographs, and write reports for PIJV. PIJV and PCO Oil stated the reason for this arrangement was the previous three subcontractors who were originally supposed to complete the canal crossings left over security concerns. It was concluded this was the

best way to get the pipeline done in a timely manner. However, by agreeing to this method, the PIJV, the USACE Kirkuk Area Office, and the PCO Oil lost oversight of the quantity and quality of work done by the subcontractor. According to the USACE Kirkuk Area Office, once the QA was essentially contracted out to NOC, "...we weren't tracking the QA." In addition, PIJV and PCO were relying upon NOC for QA, with whom they did not have a contractual commitment. This could also lead to a similar problem TF-RIO experienced with SCOP – lack of authority over an Iraqi entity. As a result, the U.S. Government QA program on the canal projects was not adequate and did not effectively meet the requirements of Engineering Regulation 1180-1-6 or PCO Standard Operating Procedure CN-100.

**GRD-PCO Comments.** GRD-PCO does not agree that PIJV and GRD-PCO relied on NOC for QA. NOC did assist in visiting sites, taking photographs and reporting issues, but QA was always the responsibility of PIJV.

**SIGIR Response.** The GRD-PCO comment that PIJV and GRD-PCO did not rely upon NOC for QA is contradicted by the USACE Kirkuk Area Office personnel, who provided the following:

*"QA was not deleted from the project. Due to security issues and the attempt to make the crossing a total Iraqi operation (ie. Al Noblaa and NOC); the PCO stated that, 'all QA/QC will be performed by the NOC; x-rays, video, and pictures will be provided to PIJV; no hydrotest will be performed; No DV/western presence at all requested/required; NO site visits from anyone, including LN's, requested'... Therefore, the Corps mission then became one of just reporting the findings in RMS from the NOC/PIJV QA."*

The USACE Kirkuk Area Office is the construction manager for the canal crossings and is responsible for providing QA oversight. According to the USACE Kirkuk Area Office officials, the QA function was tasked to NOC for the subcontractor, Al Noblaa.

**SIGIR Draft Report. Page 24.** The confusion over the status of the two canal crossings stems from the lack of quality oversight of the projects. We made repeated requests to the PCO Oil Sector to explain their rationale for believing both canal crossings are 80% complete. One PCO Oil official stated the "...estimated percent complete is based on work in place as reported by PIJV." When asked if PIJV provides a basis for its completion percentage, we were told "No." The PCO Oil Sector should not have based its percentage complete solely upon the word of the contractor. When the PCO Oil Sector agreed to eliminate the QA oversight role of the USACE Kirkuk Area Office, it lost one way to independently verify or validate the information provided to them by PIJV. The other option for validating contractor information is the PCO Oil Project Manager who resides at the Kirkuk Area Office. The Project Manager should have relayed the correct cost vs. completion percentage data back to PCO Oil in Baghdad. Without these two independent sources to verify and validate the contractor's information, the PCO Oil Sector had no alternative than to believe what the contractor reported.

**GRD-PCO Comments.** GRD-PCO does not agree that there was any confusion on the status of the two canal crossings. GRD-PCO asserts that these important, highly political and visible projects received the best possible oversight at the time under adverse security conditions. Further, GRD-PCO disagrees with the draft report assertion that there was a discrepancy with the estimated percent complete numbers used by different organizations. Systems to track the percent complete numbers are based on different criteria and updated depending on the frequency of site visits. In addition, GRD-PCO did

not base its percentage complete solely on the word of the contractor as suggested in the draft report.

**SIGIR Response.** We agree that the canal crossings are important, highly political and visible projects; consequently, GRD-PCO officials need to correctly report the completion percentage for the canal crossings. However, we do not understand how GRD-PCO can state that they "...do not agree that there was any confusion on the status of the two canal crossings." As mentioned throughout the draft report and our responses to GRD-PCO's comments, the PCO Oil sector told us on 5 May 2006 that the Zegeton and Riyadh Canal Crossing were 80% complete, the USACE's RMS identifies the projects as 40% and 38% complete, and the USACE Kirkuk Area Office identified the Zegeton Canal Crossing at 10% complete and could not determine a completion percentage for the Riyadh Canal Crossing. The GRD Daily Situation Report, dated 9 July 2006, stated the Zegeton Canal Crossing was 1% complete. For the Zegeton Canal Crossing, according to the organizations responsible for oil restoration, this project is anywhere from 1% to 80% complete. For the Riyadh Canal Crossing, there is confusion as to not only what percent complete it is, but also who did the work (SCOP, PIJV, etc) and whether there was any QA or QC performed on the work done.

The GRD-PCO comment that GRD-PCO "...did not base its percentage complete solely on the word of the contractor as suggested in the draft report" is contradicted by the PCO Oil sector Program Manager. In a 29 May 2006 email exchange between the PCO Oil sector Program Manager and SIGIR, the PCO Oil sector Program Manager was asked the basis for the 80% completion percentage for the Zegeton and Riyadh Canal Crossings. The PCO Oil sector Program Manager stated that, "...the estimated percent complete is based on work in place as reported by PIJV."

**SIGIR Draft Report.** Based upon our flyover view of the Zegeton Canal Crossing, we agree that the amount of work complete is closer to 10% than the 38% completion percentage in RMS, let alone the 80% reported by PCO.

**GRD-PCO Comments.** GRD-PCO would not agree that the helicopter fly over method of estimating pipeline project completion is a recognized approach to project management, because the pipeline is not visible from the air after installation. Using this method may be applicable to a total pipeline construction project, but would only give a very limited utility in a pipeline repair project. At the time that the second subcontractor left the construction site, PIJV estimated that there were approximately 2 weeks of work remaining at each of the canal crossings. This assessment proved accurate when the work on the 40-inch line at the Zegeton canal was completed in less than 2 weeks.

**SIGIR Response.** We agree that a helicopter fly over is not the best method for estimating pipeline project completion. Our original plan was to fly the entire 50 km of the Kirkuk to Baiji pipeline and land at both the Zegeton and Riyadh Canal Crossing sites to perform a limited assessment of the work performed. Prior to our trip, written requests from PIJV and the Deputy Director of IRMO requested we do not land at either site. The reason cited was that PIJV subcontracted the canal crossing to a local Iraqi company and this company would only perform the work with the guarantee of no American presence at either site. We accommodated PIJV and IRMO's request not to land at either site and instead conduct a fly over of the entire pipeline in order not to jeopardize the subcontractor; however, two weeks later, IRMO Oil officials landed at the Zegeton Canal Crossing.

While the GRD-PCO stated our fly over approach is not a recognized method for estimating pipeline project completion, it does not mention the fact that the USACE

Kirkuk Area Office performed a fly over assessment of the Riyadh Canal Crossing in June 2006 in order to determine the amount of work accomplished.

Finally, GRD-PCO's comment, dated 13 July 2006, that "...at the time that the second subcontractor left the construction site, PIJV estimated that there were approximately 2 weeks of work remaining at each of the canal crossings. This assessment proved accurate when the work on the 40-inch line at the Zegeton canal was completed in less than 2 weeks" is contradicted by the GRD Daily Situation Report, dated 9 July 2006, which stated the Zegeton Canal Crossing was 1% complete.

**SIGIR Draft Report. Page 26.** No effective on-site presence or verification of work was performed before contractor payments were made. The USACE Kirkuk Area Office stated they did not review the contractor's invoices prior to payment. Neither the USACE Kirkuk Area Office nor the Quality Assurance Representative (QAR) responsible for the canal crossings were asked to review or approve the invoices to validate the work claimed by the contractor. As a result, the potential existed for payment to the contractor for work not performed or not performed to the contract standards.

**GRD-PCO Comments.** GRD-PCO disagrees that there was no effective on-site presence or verification of work performed before contractor payments were made. GRD-PCO and PIJV have procedures in place for verification of payments made to contractors.

**SIGIR Response.** The GRD-PCO statement that procedures are in place for the "verification of payments made to contractors" is not accurate. PCO SOP Number CN-107, "Process Construction Interim Payments (Cost Plus)," states the resident engineer is responsible for entering the pay activities submitted by the DB contractor into RMS and reviewing the DB contractor's interim invoice and listing costs. However, the USACE Kirkuk Area Office Area Engineer stated that "...invoices and expenditures are not reviewed by the USACE..." for the canal crossings.

**SIGIR Draft Report.** In addition, the practice of paying a contractor without verifying work quality and completeness is very questionable. This is especially true in this case because the pipeline would be buried in the ground. It is very difficult after the pipeline has been buried to identify poor quality work.

**GRD-PCO Comments.** GRD-PCO disagrees with the statement that there is an on-going practice for this project of paying a contractor without verifying work quality and completeness. As previously stated, GRD-PCO and PIJV have procedures in place for verification of payments made to contractors.

**SIGIR Response.** The previous response documented our concerns that the USACE Kirkuk Area Office, the construction manager for the two canal crossings, is not reviewing invoices and expenditures for the canal crossings.

**SIGIR Draft Report. Page 26 and 27.** Further, a thorough review of invoices by the Kirkuk Area Office would have alerted the USACE and PCO Oil that for the Riyadh Canal Crossing, approximately 71% of the obligated money for the project had been spent, with little work completed. In addition, a thorough review of invoices would have made the USACE and PCO Oil aware of the fact that for the Zegeton Canal Crossing, it was impossible for the project to be 80% complete when no money had been expended.



**GRD-PCO Comments.** It is misleading to state that 71 percent of the obligated money for Riyadh Canal Crossing was spent with little work accomplished. GRD-PCO used the EVMS system to determine that 80 percent of the original scope of work was completed by the original subcontractor before the insurgency forced the subcontractor to depart from the construction site.

**SIGIR Response.** We do not believe our statement was misleading. According to PCO Oil sector officials, 71% of the obligated money for the Riyadh Canal Crossing has been spent with little work accomplished. The GRN Deputy Chief of E&C stated that "...to my knowledge, none of PIJV's other contractors' ever put any physical work in place." The fact that GRD-PCO states the EVMS system was used to determine that 80% of the original scope of work was completed makes us question the reliability of EVMS. The completion percentage within EVMS is contradicted by officials in the field, such as the USACE Kirkuk Area Office, which believes the completion percentage is significantly lower than 80%.

**SIGIR Draft Report. Page 29.** Since the pipeline project is still not complete, the Iraqi Government has not realized this additional revenue. At the time of the TF-RIO funding submission, crude oil was valued at \$25/barrel; while today's price hovers around \$70/barrel. To date, the Iraqi Government has not benefited from approximately \$14.8 billion in additional revenue as a result of the project failures.

**GRD-PCO Comments.** GRD-PCO maintains that the method of calculating lost revenue to the Iraqi government due to the lack of a completed 40-inch pipeline is not representative of actual operating conditions and production in northern Iraq.

**SIGIR Response.** This comment has been addressed throughout the Management Comment section of this report. The rationale and formula we used to determine this amount was identical to the calculation the TF-RIO used to request funding for the pipeline project. If the GRD-PCO believes our number is not accurate, then it is also indicating that the original rationale used by the TF-RIO to fund this project was seriously flawed.

## **Recommendation and Command Comments**

### **Page iii. Recommendations**

We recommend that the Commanding General, Gulf Region Division:

**Recommendation 1.** Implement a specific and immediate plan to complete the Riyadh and Zegeton Canal Crossings project.

**Action Taken.** Concur. GRD-PCO has had a plan to complete the Riyadh and Zegeton Canal Crossing projects developed since the earliest days of the project. However, security risks have prevented the implementation of the plan. Currently, the plan to complete the canal crossings was put into place and the contractors were on Zegeton canal crossing site as of 17 June 2006. Estimated time to complete both crossings is about mid August 2006.

**Recommendation 2.** Implement a case specific process to ensure effective and reliable U.S. Government oversight pertaining to project quality and completion status.

**Action Taken.** Concur. The effectiveness and reliability of the Government's oversight policy and guides and quality assurance program were demonstrated by the successful

completion of the Kirkuk irrigation canal crossing. GRD-PCO currently has sufficient detailed Contract Quality Control guides to manage its projects. The Government's Quality Assurance controls are described in PCO Standard Operating Procedures (SOP) including: CN-100, Conduct Construction Contractor Quality Control/Quality Assurance Inspections and Reporting; CN-101, Prepare Project Construction Management Plan (Work Plan); CN-102, Contractor Quality Control/Quality Assurance Construction Deficiency Tracking; CN-103, Contractor Construction Quality Contracting and U.S. Army Corps of Engineer publications, for example ER 1180-1-6, Construction Quality Management. Further, each Area Office has its own Quality Assurance Plan as required by Engineer Regulations. The Kirkuk Area Office and GRD-PCO are working diligently with PIJV on the QA inspections for the Zegeton and Riyadh canal crossings. Contractor QC personnel are living on site at the crossings conducting necessary inspections. PIJV QA personnel are living on site inspecting the contractor's QC system. In addition, the NOC is sending their personnel to personally oversee the pipe line welds.

**Recommendation 3.** Investigate and resolve the significant differences between the Project and Contracting Office Oil Sector and the U.S. Army Corps of Engineers' Resident Management System completion percentages for the Riyadh and Zegeton Canal Crossings.

**Action Taken.** Concur. It is an inherent characteristic of the record keeping process that at times there will be completion percentage differences between the two systems. These different completion percentages are continually reviewed, analyzed, resolved and updated. GRD-PCO reviews the weekly progress figures from PIJV which is based on Earned Value Management System (EVMS). The RMS system is updated only after a site visit and the percent complete is established by physical progress. The fact there was a difference between the systems which were based on estimates, at different points in time, and on different measurement processes is not unusual and does not give immediate cause for concern.

**Recommendation 4.** Follow the established procedure to review contractor invoices prior to payment.

**Action Taken.** Concur. GRD-PCO is following established procedures to review contractor invoices prior to payment.

**SIGIR Response.** The Commander, GRD-PCO comments to three of the four recommendations are not fully responsive. As a result, we request additional comments from the Commanding General, Gulf Region Division-Project and Contracting Office, U.S. Army Corps of Engineers to resolve the following areas of disagreement:

**Recommendation 2.** GRD-PCO did not address the failings of its current QC and QA programs for the Zegeton and Riyadh Canal Crossings. The QC reports for the Zegeton Canal Crossing did not explain the daily events, significant issues, or identify construction deficiencies; nor were any photographs provided with the QC reports to verify the written report. The U.S. Government's QA program could not identify what work was done at the Riyadh Canal Crossing or the quality of the work performed. The USACE Kirkuk Area Office, the construction manager for the canal crossings, does not know what work was done at the Riyadh Canal Crossing or if the work was accepted by either the QC or QA.

**Recommendation 3.** GRD-PCO did not have "immediate cause for concern" over the fact that PCO Oil sector stated the Zegeton and Riyadh Canal Crossings were 80% complete; the USACE RMS indicated the canal crossings were 40% and 38%

complete, respectively; the USACE Kirkuk Area Office site visit in June 2006 identified the Zegeton Canal Crossing as only 10% complete and could not establish a percentage completion for the Riyadh Canal Crossing; and a GRD Daily Situation Report, dated 9 July 2006, identified the Zegeton Canal Crossing as only “1% complete.” Until the GRD-PCO recognize that the information within its tracking systems do not accurately reflect field results, misinformation will continue to be provided to decision makers.

**Recommendation 4.** GRD-PCO statement that GRD-PCO is following established procedures to review contractor invoices prior to payment is not accurate. PCO SOP Number CN-107, “Process Construction Interim Payments (Cost Plus),” states that the resident engineer is responsible for entering the pay activities submitted by the DB contractor into RMS and reviewing the DB contractor’s interim invoice and listing costs. However, the USACE Kirkuk Area Office Area Engineer stated that “...invoices and expenditures are not reviewed by the USACE” for the canal crossings.”

# Appendix A. Assessments of the Riyadh and Zegeton Canal Crossings

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## Current Project Design and Specifications

The contract required the submission and approval of Phase I, Phase II, and Phase III design and specifications. Phase I was to perform survey and investigation work so a project plan and an initial cost estimate could be developed, Phase II was intended to produce the basic engineering design, and Phase III was the detailed design, construction and pipeline commissioning procedure of the projects.

The Zegeton and Riyadh Canal Crossings were the two remaining projects required to complete the pipeline project. The Project Scope and Status Report (PSSR) stated significant welding of pipe sections had been performed at both of the canal crossings by the previous subcontractor (SCOP). The welded sections of heavy wall pipe needed to be installed across the canals and connected to the pipeline using any remaining pipe.

At the Riyadh project site, the PSSR stated ten pipe lengths of 40-inch OD, 0.433 inch WT Grade X-60 pipe were previously welded together into one string and stored on the eastern section of the site for the contractor to use to complete the Riyadh crossing. In addition, six lengths of 40-inch OD, 0.688 inch WT Grade X-60 spiral wound pipe were welded together into a string in close proximity. All piping and fittings to complete the project were reported to be on site. It was stated in the PSSR that there is a large pool of crude oil and considerable oil pollution at the Riyadh site which will require taking extra safety measures.

During the course of this assessment, we reviewed available procedures and drawings for the canal crossings. The design drawings and specifications appeared to be complete and consistent with the requirements of the contract.

## On-Site Assessments

We planned to conduct the assessment during construction activities in order to determine if field work was consistent with contract requirements and whether corrective action would be necessary to provide reasonable assurance for the successful completion of the project's objectives.

Prior SIGIR site assessments<sup>15</sup> were completed in September 2005 on TO 14 projects at the Al Fatah and Kirkuk Irrigation Canal locations and, as a result of a SIGIR recommendation, modification 15 to the TO was implemented. However, this assessment focused on the completion of the time critical work remaining at Riyadh and Zegeton Canal Crossings.

The on-site assessments were not performed as planned at the Riyadh and Zegeton Canal Crossings. The original plan was to fly the entire pipeline using U.S. Army provided air assets and to make quick stops at Al Fatah and the Riyadh and Zegeton Canal Crossings for a limited site assessment. However, the assessment team received written requests from PIJV and the Deputy Director, Iraq Reconstruction Management Office (IRMO) not to land at either site. The reason provided was that any American presence may convince

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<sup>15</sup> SIGIR Report Numbers PA-05-10, PA-05-11, and PA-05-012

the subcontractor to quit work and break their contract agreement to complete the projects. Therefore, on 17 May 2006, we performed a flyover assessment of the Zegeton Canal Crossing to observe and verify construction progress. We observed the contractor was not working at the Zegeton site and there was little evidence of progress. However, we were not flown over the Riyadh Canal Crossing. For the Riyadh Canal Crossing, the USACE Kirkuk Area Office personnel recently flew over the site. At the site were two strings of approximately 150 feet each of pipe welded and a ditch dug. The USACE Kirkuk Area Office personnel were not able to readily identify the percentage complete for this site, since they were not sure who performed this work or if the welds were “accepted by either the QC or QA.”

#### Work Completed:

*Canal Crossings:* During the fly over at the Zegeton Canal Crossing, we observed individual sections of pipe and welded strings of pipe (Site Photo 13). The work we observed appeared to have previously been performed by SCOP. Site Photo 14 shows the twelve pieces of welded pipe string discussed in the PSSR. The welded sections of the pipes have not been coated with the required fusion bonded epoxy. Also observed were open excavations where the pipeline will be installed. The previous SCOP efforts excavated and installed most of the pipeline and it was not apparent from our observations how much, if any, of the current open excavations were performed under the current contract. For a picture of an open excavation, see Site Photo 15. Based upon our flyover assessment, we determined the Zegeton Canal Crossing is not complete or operational. Since we did not flyover the Riyadh Canal Crossing, we could not determine the amount of work completed; however, according to the USACE Kirkuk Area Office and the IRMO Oil Sector report, little work has been accomplished. The remaining work at the Riyadh and Zegeton Canal Crossings will be specifically addressed in the section, “Work Pending.”

#### Work in Progress:

During our flyover, there were no construction activities ongoing at the Zegeton Canal Crossing. The 17 May 2006 IRMO oil sector report later confirmed our observation. The report noted no work conducted as of 17 May 2006 at either the Zegeton or Riyadh Canal Crossings.



**Site Photo 13. Welded pipe string at the Zegeton Canal**



**Site Photo 14. Welded pipe string and excavation at Zegeton Canal (Courtesy of IRMO - May 06)**

Work Pending:

*Welding of Riyadh and Zegeton Pipes to Provide a Continuous Pipeline:* During the flyover, we observed the overall progress of the Zegeton Canal Crossing. We also observed welded strings of pipeline and many single pipes at the canal. It was not apparent if SCOP or the PIJV subcontractor performed the welding. The pipeline did not appear to be complete.

*Excavation of Riyadh and Zegeton Pipeline Trenches and Backfilling:* The PSSR required the excavation of trenches for the placement of the pipelines. During the flyover, we observed the contractor was not on site and the excavation of the trenches was not progressing. While pipeline excavations were observed, it is unknown whether the latest excavation work occurred under the current or previous contract. It appeared that additional excavation and backfill work is required to complete the project.

Oil spills at the Riyadh and Zegeton Canal Crossing may provide an environmental and safety challenge to the work crews during excavation and the welding of pipe. The standing oil and oil stained soil at the Zegeton and Riyadh Canal Crossings are shown in Site Photos 15 and 16, respectively.

In addition, satisfactory completion and acceptance of both canal crossings is dependent on covering the newly installed pipe string with 50 cm of washed river sand followed by 50 cm of compacted conventional backfill.



**Site Photo 15. Oil contamination at the Zegeton Canal site**



**Site Photo 16. Pipe and oil near Riyadh Canal Crossing (Courtesy of PIJV – March 05)**

*Hydro-testing of New Pipeline Sections and Connection to Pipeline:* The PSSR stated hydro testing of each canal crossing is required when the new sections are complete and before connection to the new 40 inch pipeline. Hydro-testing is required to identify any leaks before the canal crossing sections are connected to the new pipeline. Once the canal crossing sections are complete, flanges will be welded to the ends to perform the hydro-testing. Following an acceptable hydro-test, the flanges will be removed, water will be drained and the line blown dry using an air blower. At this point, the canal crossing sections will be welded and connected to the portions of the pipeline completed by SCOP. At the time of our assessment, it appeared the hydro-testing and connection to the pipeline had not started.

Outside the scope of this TO are a few remaining tasks to be completed before commissioning the pipeline for production. The NOC is planning to pig<sup>16</sup> the entire length of the pipeline to remove debris and hydro-test the length of the pipeline to check for leaks. Any leaks detected will be excavated and repaired. Once cleaning, testing, and repairing of any problems are complete, the pipeline will be ready for production.

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<sup>16</sup> A pig acts like a free moving piston inside the pipeline, sealing against the inside wall with a number of sealing elements. Pigs can perform a number of tasks including cleaning debris from the line, the removal of residual product in, and gauging the internal bore of, the pipeline.



## Appendix B. Scope and Methodology

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We performed this project assessment from May through June 2006 in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer and an auditor.

In performing this Project Assessment we:

- Reviewed contract documentation to include the following: Task Order, Task Order Modifications, Contract documentation, and Scopes of Work;
- Reviewed the design package (drawings and specifications), Quality Control Plan, Contractor's Quality Control Reports, USACE Quality Assurance Reports, and Construction Progress Photos;
- Interviewed personnel from Task Force – Reconstruct Iraqi Oil, the U.S. Army Corps of Engineers Area Engineer, Project and Contracting Office Oil Sector personnel, Iraq Reconstruction Management Office personnel, and Multi-National Forces – Iraq personnel; and
- Conducted a flyover of the Al Fatah to Kirkuk pipeline corridor.

**Scope Limitation.** Originally, the Kirkuk Oil Pipeline Canal Crossings 2 and 3 projects were to be a separate report from the Kirkuk to Baiji pipeline project. Our intention was to visit both Canal Crossings 2 and 3 and issue a report based upon our site visit. However, due to security issues at both sites and a written request from the Deputy Director of the Iraq Reconstruction Management Office not to visit either site, we were not able to conduct an on-site assessment. Instead we were flown along the Al Fatah to Kirkuk pipeline, circling over Canal Crossing 3 (Zegeton). In order to avoid the potential of repetitive findings and recommendations between the Canal Crossings and Pipeline projects, we combined the projects into this single report. The Kirkuk to Baiji Pipeline project was addressed in the main text of this report; while the Canal Crossings 2 and 3 was addressed in Appendix A.

Our assessment was originally announced to be of the Kirkuk to Baiji Pipeline Project. However, during the course of the assessment, we learned that the intent of the pipeline project was, in fact, only from Kirkuk to Al Fatah. Therefore, we modified our scope accordingly.

## Appendix C. Acronyms

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BPD	Barrels Per Day
bopd	Barrels of Oil Per Day
CEFMS	Corps of Engineers Financial Management System
CPA	Coalition Provisional Authority
CQC	Contractor Quality Control
DB	Design Build
DFI	Development Fund for Iraq
GRD	Gulf Region Division
GRN	Gulf Region North
HDD	Horizontal Directional Drilling
IDIQ	Indefinite Delivery Indefinite Quantity
IRMO	Iraq Reconstruction Management Office
IRRF	Iraq Relief and Reconstruction Fund
IT	Iraq to Turkey
KBR	Kellogg, Brown, and Root
km	Kilometer
MNF-I	Multi-National Forces - Iraq
MoO	Ministry of Oil
NOC	North Oil Company
PIJV	Parsons Iraq Joint Venture
PRB	Program Review Board
QA	Quality Assurance
QAR	Quality Assurance Representative
QC	Quality Control
QMP	Quality Management Plan
RMS	Resident Management System
SCOP	State Company for Oil Projects
SIGIR	Special Inspector General for Iraq Reconstruction
SITREP	Situation Report
SOP	Standard Operating Procedure
SWD	Southwestern Division
USACE	U.S. Army Corps of Engineers
USAID	U.S. Agency for International Development
TF-RIO	Task Force – Reconstruct Iraqi Oil
TO	Task Order

# Appendix D. Text of GRD Comments



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS  
GULF REGION DIVISION  
BAGHDAD, IRAQ  
APO AE 09316

CEGRD-CG

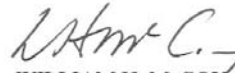
13 July 2006

MEMORANDUM FOR Special Inspector General for Iraq Reconstruction, US Embassy Annex,  
M-202, Old Presidential Palace, APO AE 09316

SUBJECT: Draft SIGIR Project Assessment Report – Kirkuk to Baiji Pipeline Project  
(SIGIR PA-06-063, PA-05-013 and PA-05-014)

1. This memorandum provides the U.S. Army Corps of Engineers, Gulf Region Division response to the subject draft project assessment report.
2. The Gulf Region Division generally agreed with the draft report recommendations, but did not agree with all the conclusions contained in the report. The draft report did not fully take into account the effect security and insurgent activity had on the success of this project. See the enclosure for additional information regarding the conclusions and draft report discussion.
3. Thank you for the opportunity to provide our written comments for incorporation in the final assessment report.
4. If you have any questions, please contact Mr. Eric Tichay at (540) 665-5021 or his email [Eric.P.Tichay@tac01.usace.army.mil](mailto:Eric.P.Tichay@tac01.usace.army.mil).

Encl

  
WILLIAM H. McCOY  
Major General, USA  
Commanding

## COMMAND REPLY

### SIGIR Draft Assessment Report – Kirkuk to Baiji Pipeline Project (SIGIR PA-06-063, PA-05-013 and PA-05-014)

#### Additional Comments

GRD-PCO did not agree with all the draft report conclusions and suggested significant editing to accurately represent the effectiveness and efficiency of the execution of the three canal crossing projects being performed by PIJV, GRD-PCO and USACE. Among other suggestions, a realistic assessment of the projects should acknowledge the impact of the high level of violence and sabotage that plagued construction in this region of Iraq. Repair of the pipelines and the construction of the canal crossings have been severely impacted by insurgent activities. This is not a technically challenging project and is well within the capabilities of the Ministry of Oil and State Company for Oil Projects (SCOP). The security issues and the high volume of interdictions on the pipelines in the last few years have gradually shifted the responsibility for the projects to GRD-PCO. This is a result of a changing and challenging environment and not a failure by the Government of Iraq, SCOP or contractors to perform.

#### **Page ii. Conclusions.**

Draft Report. The original objective of the 50 kilometer replacement of the 40 inch Kirkuk to Baiji pipeline project was to increase the flow rate from approximately 500,000 to approximately 800,000 barrels per day, an increase of 300,000 barrels per day. The existing 40 inch pipeline is approximately 15 years old and has reached the end of its design life. Along this pipeline are three critical canal crossings (Kirkuk Irrigation Canal, Riyadh Canal, and Zegeton Canal), which were originally to be completed by Kellogg, Brown, and Root (KBR); however, the U.S. Government terminated KBR's contract and the Project and Contracting Office (PCO) awarded the three canal crossings to Parsons Iraq Joint Venture.

GRD-PCO Comments. The pipeline project was originally a Task Force – Restore Iraqi Oil (RIO) project. GRD-PCO was given a portion of the original RIO project at Al Fatha and at the three canal crossings when both KBR and SCOP were unable to complete the work due to security risks. The work at Al Fatha River Crossing and Kirkuk Canal Crossing is complete and the completion of the canal crossings at Zegeton and Riyadh was delayed due to insurgent threats and attacks. The original project objective was to assist SCOP with the replacement of an aging and vulnerable export pipeline and not to increase flow rate from 500,000 to 800,000 barrels per day (BPD). Though the project objective was to replace aging pipeline, the project results and benefit of the objective is a pipeline that can accommodate the total potential output of the north by 800,000 BPD. The maximum throughput of the pipeline will be approximately 1.1 million BPD. The combined capacity of the new 40-inch pipeline and other existing North Oil Company (NOC) crude pipelines in the north far exceeds the current NOC production capacity. GRD-PCO is well on the way to successfully fulfill the RIO initiated objective to assist SCOP in replacing a poorly maintained 40-inch pipeline.

Enclosure

Draft Report. There is no reasonable assurance that project construction will meet the standards of the design because the U.S. Government's processes to independently verify project completeness and quality were ineffective at the Riyadh and Zegeton Canal Crossings. Unless processes to independently verify project completion and quality are adequate, the U.S. Government will have an insufficient amount of reliable evidence to verify the work performed actually met the design standards.

GRD-PCO comments. GRD-PCO does not agree with the draft report conclusion. Parsons Iraq Joint Venture (PIJV) performed Quality Assurance (QA) and Quality Controls (QC) at all sites and with all subcontractors. It was only the last subcontractor that requested PIJV not visit the construction site and this contractor withdrew from the project shortly after mobilization. GRD-PCO maintains that the draft report is not fully depicting all the known facts by asserting repeatedly only the negative issues when in fact there were procedures in place to assure both project quality and project completeness. GRD-PCO is monitoring the subcontractor's QC plan, the PIJV QA plan, and the NOC inspection of the pipeline welds and fully expects the Riyadh and Zegeton Canal Crossings projects will meet design standards. QA/QC is in place for the current scope of work and welding records will be supplied by PIJV. GRD-PCO is confident construction will meet the standards of design as demonstrated by the completed Kirkuk irrigation canal crossing.

Draft Report. The contractor's quality control program and the U.S. Government's Quality Assurance program for the Riyadh and Zegeton Canal Crossings project has not been effective and the entire pipeline project lacked any significant monitoring of construction practices. With regards to the two canal crossings, neither the prime contractor, subcontractor, nor the U.S. Government implemented effective Quality Management programs. In addition, project monitoring has been very limited and sporadic. As a result, conformity with the design standards and overall construction quality and completion has not been properly validated. For the overall pipeline project, KBR was tasked to "monitor pipeline construction and the State Company for Oil Projects (SCOP) quality assurance program to assure compatibility..." However, KBR did not perform a traditional quality assurance program. KBR viewed its role as "advisors" and "consultants" rather than performing daily verification of the quality of the SCOP's construction. Even though its quality assurance program was limited, KBR identified approximately 25% of SCOP's welds were flawed. In June 2004, in an effort to save money, the U.S. Government deleted KBR's limited quality assurance work for the pipeline project. Since KBR did not perform traditional quality assurance, daily quality assurance reports were not done to identify the condition of the overall pipeline construction. When the U.S. Government deleted the limited quality assurance program, it lost oversight of the remainder of the SCOP's construction of the pipeline. Consequently, the U.S. Government does not have any reliable data on the quantity and quality of the overall pipeline project.

GRD-PCO Comments. GRD-PCO disagrees with this conclusion. The level of insurgency activity on this pipeline and at the canal crossings required the contractor to

implement security procedures to minimize the risk to construction personnel. The QA/QC measures employed by PIJV and observed by GRD-PCO were different than those employed on the RIO project. GRD-PCO asserts that the contractor's and the U.S. Government's QA/QC plans are adequate and effective. Delays due to high levels of insurgency activity were beyond the control of GRD-PCO or PIJV. Currently, GRD-PCO, the subcontractor, the prime contractor, and NOC all have effective Quality Management Programs in place and are executing those programs. These programs will ensure conformity with design standards and overall construction quality.

**Page iii.**

Draft Report. Currently, the Riyadh and Zegeton Canal Crossings have not been completed. The status of both sites is reported differently by the PCO Oil Sector and the USACE Resident Management System. The PCO Oil Sector believes the sites are 80% complete; while the Resident Management System lists the canal crossings as 40% and 38% complete, respectively. However, the USACE Kirkuk Area Office recently visited the Zegeton Canal Crossing and estimated the canal crossing at approximately 10% complete.

GRD-PCO Comments. It is an inherent characteristic of the record keeping process that at times there will be completion percentage differences between organizations and tracking systems. The different completion percentages are continually reviewed, analyzed and updated. GRD-PCO reviewed weekly progress figures from PIJV which is based on the Earned Value Management System (EVMS). The RMS system is updated only after a site visit and the percent complete is established by physical progress. The fact there was a difference between the systems which were based on estimates, at different points in time, and on different measurement processes is not unusual and does not give immediate cause for concern.

Draft Report. As a result, revenue potential of approximately \$14.8 billion has been lost to the Iraqi Government due to the unavailability of increased capacity for moving oil. Such cash resources are essential to improve and stimulate the Iraqi economy in the short term while enhancing the potential long term stability of the Iraqi Government. These projects are critical elements to repair the Iraqi oil infrastructure and to re-establish continuous pipeline operations.

GRD-PCO Comments. GRD-PCO disagrees with the draft report assumptions that the delays in completing the new pipeline from Baiji to Kirkuk have cost the Iraqi government \$14.8 billion. There are four existing crude pipelines which can transport crude oil from Kirkuk to Baiji. In total, these pipelines are capable of transporting the production of the Kirkuk oil fields. Sabotage on these pipelines and on NOC production facilities is the major factor contributing to loss of oil revenue, and not the lack of a new 40-inch pipeline. The draft report estimate of potential revenue loss is conceptual and not actual revenue loss. Further, the draft report did not contain a sufficient market analysis or demonstrate that the Kirkuk oil fields could actually produce enough oil to earn the figure of \$14.8 billion.

**Page 1.**

Draft Report. The Northern oil fields are dominated by the Kirkuk fields, with production capacity of approximately 900,000 barrels per day (bpd). The Kirkuk oil fields provide all crude oil for the Baiji Refinery, 40 to 45% of the crude oil for the Daura Refinery and export of crude oil to Turkey.

GRD-PCO Comments. The crude oil production capacity in the north of Iraq is currently 500,000 to 550,000 BPD. When the Oil Sector completes the IRRF program the north will have a capacity to produce approximately 800,000 barrels of crude oil per day.

Draft Report. Several pipelines from the Kirkuk oilfields to the Baiji Refinery carry crude oil, liquid petroleum gas, diesel, benzene, and kerosene. Crude oil from the Kirkuk oilfields is delivered to the Baiji refinery through two pipelines – 26 inch and 40 inch. The current 40 inch crude pipeline is approximately 15 years old and has reached the end of its design life.

GRD-PCO Comments. There are four crude oil pipelines (40", 32", 30" and 26") operating between Kirkuk and Baiji. Overall, there are a total of 11 pipe lines to move multiple petroleum products, not including the new 40-inch line. In addition, the actual age of the current 40-inch crude oil pipeline is believed to be in excess of 20 years.

Draft Report. Site Photo 1. Example of Severe Corrosion of Existing Pipeline and Oil Leakage.



Site Photo 1. Example of Severe Corrosion of Existing Pipeline and Oil Leakage  
Task Force - Restore Iraqi Oil  
The U.S. Army Corps of Engineers (USACE) was assigned the responsibility to repair and upgrade the oil and gas pipelines in the Department of Defense's (DoD) northern Iraq Oil Field. The task force was established in 2003 as part of the Iraq Reconstruction Program (IRP). The task force was assigned prior to the beginning of Operations Enduring Freedom. The task force included the following:

GRD-PCO Comments. GRD/PCO noted a factual discrepancy on the caption for Site Photo 1. Rather than severe corrosion, the photo actually depicts a pipeline which has had portions of its protective coating removed exposing surface oxidation and nothing more.

**Page 4.**

Draft Report. The groups responsible for the Northern oil fields developed a prioritized list of 16 projects with one of the priorities being the restoration of 50 km of the 40" pipeline from Kirkuk to Al Fatah.

GRD-PCO Comments. The groups responsible for the Northern oil fields developed a prioritized list of 48 projects with the 16<sup>th</sup> project being the Ministry of Oil's restoration of the 50 km 40-inch pipeline from Kirkuk to Al Fatah utilizing the SCOP. The prioritized lists identified what organization would be responsible for the construction, supplies, materials, and training. Task Force RIO was initially responsible to repair and restore facilities damaged as a result of the war. The 50 km pipeline was not authorized as a Task Force RIO project because there was no war damage. The project was a Ministry of Oil project which was to be executed by the SCOP. SCOP had already installed 25 km of the pipeline and the pipeline and fittings were already purchased for the project which was initiated 2 years before the war.

Draft Report. The 50 km Kirkuk to Al Fatah pipeline was considered a top priority on the approved consolidated list of oil reconstruction projects.

GRD-PCO Comments. The 50 km Kirkuk to Al Fatah pipeline was the 16<sup>th</sup> project on the approved consolidated list of prioritized oil reconstruction projects that was tasked for completion by SCOP. The draft report suggested that the 50 km Kirkuk to Al Fatah pipeline was a Task Force RIO project when the project was actually designated a Ministry of Oil project. The project was to be funded and managed by the Ministry of Oil utilizing SCOP to execute the project.

**Page 5.**

Draft Report. As of the date of this assessment, the 50 km replacement of the 40 inch Kirkuk to Al Fatah pipeline project, originally planned for completion by 31 March 2004, has not been completed. CPA, TF-RIO/USACE SWD, PCO/GRD, GRN, and the MOO officials did not properly coordinate, plan, and execute the pipeline project. Specifically,

- TF-RIO allowed an inexperienced Iraqi company to attempt to construct the pipeline project instead of awarding it to an established company capable of completing the project in a timely manner.

GRD-PCO Comments. GRD-PCO does not agree with the statement that Task Force RIO allowed an inexperienced company (SCOP) to attempt to construct the pipeline. Task Force RIO did not have the authority to override the decision by the CPA Senior Advisor for Oil to approve the recommendation of the Iraqi Ministry of Oil to allow SCOP to construct the pipeline. The desire to put Iraqi personnel back to work and the fact that Iraqi funds were being used no doubt were factors which heavily influenced the decision of the CPA Senior Advisor for Oil. Nevertheless, the decision was not one which RIO could have changed. Further, Task Force RIO did not have operational control of the 50 km pipeline mission. The Ministry of Oil was responsible for the mission and it assigned the project to SCOP utilizing Iraqi funds. Task Force RIO was assigned the responsibility to supply welding rods, equipment, and training with Iraqi funds. The draft report statement that the Iraqi company (SCOP) was inexperienced is not correct. SCOP is the premier Iraqi state owned company that was previously



responsible for constructing the major oil infrastructure within Iraq. SCOP built the first 25 km of the original pipeline project. At the time, there was no better or more qualified company within Iraq.

Draft Report.

- USACE SWD, when it terminated the project with KBR, did not provide PCO/GRD with a status of the pipeline project.

GRD-PCO Comments. SWD was responsible for overseeing the contractor until 25 January 2004. After that date, USACE assigned that responsibility to GRD. On that date, all SWD RIO deployed personnel, all their equipment and all their records were transferred from SWD to GRD. There was no failure by SWD to transfer any equipment or records and no failure by GRD to take control of equipment or records. Other than personnel who may have been scheduled to rotate back to the United States at that time, no changes to the RIO personnel or records occurred on this date. Therefore, the draft report conclusion that USACE SWD, when it terminated the project with KBR, did not provide GRD-PCO with the status of the pipeline project is not a correct statement.

Draft Report.

- PCO/GRD allowed the continued slippage of schedule by PIJV.

GRD-PCO Comments. The draft report does not give sufficient acknowledgement to the security incidents that brought the projects to a complete halt on multiple occasions. Project slippage was due entirely to security issues that were beyond the control of GRD-PCO, PIJV and GRN. The U.S. Government and construction contractors should not be held responsible for insurgent intervention. For example, the draft report does not acknowledge that all nine pipelines crossing Zegeeton were sabotaged during the construction period, rendering the entire site too dangerous to enter for several months.

Draft Report. These conditions occurred because the officials responsible for the restoration of Iraqi oil infrastructure:

- Failed to agree on who would perform the construction work for the pipeline. USACE intended for a foreign company to construct the entire pipeline; while the CPA and MOO officials wanted to use the Development Fund for Iraq (DFI) money to employ the Iraqi State Company for Oil Projects (SCOP).

GRD-PCO Comments. All organizations were in agreement that SCOP should be given the opportunity to participate in Iraq's reconstruction and construct the pipeline. There was some reasonable uncertainty whether SCOP would be able to complete the project within the timeframe allocated during a wartime situation. The Senior Advisor for Oil, working with the Iraqi Ministry of Oil, made the decision that SCOP would execute the 50 km pipeline project and that KBRs would provide training and quality control of the welding for SCOP. Once that decision had been made, RIO (and KBRs acting under the

RIO contract) had no authority to oversee or control the activities of SCOP. The files are quite clear on this and the draft report conclusion that the officials responsible for reconstruction of the oil infrastructure failed to agree on who would perform the work is not accurate. The Ministry of Oil, CPA and USACE all understood that SCOP would perform the construction work, with the exception of HDD at the three canal crossings.

Draft Report.

- Did not agree on the current status of the 2 remaining canal crossings.

GRD-PCO Comments. GRD-PCO disagrees that officials responsible for the restoration of Iraq Oil Infrastructure were not actively involved in the execution of the remaining canal crossings by PIJV. GRD-PCO management is actively involved in the execution of all projects through site visits; a strict project reporting system on a daily, weekly and monthly basis and weekly teleconferences with project managers. In addition, reports are given in face to face monthly meetings with USACE, IRMO and the Ministry of Oil concerning the current planning and status of projects.

Draft Report. As a result, the 50 km replacement pipeline has not been completed; an unknown amount of DFI funds and more than \$2.5 million in IRRF funds have been paid to KBR and PIJV, respectively, which has resulted in lost revenue potential of approximately \$14.8 billion for the Iraqi Government. In addition, the existing 40-inch pipeline is leaking, adding to a previously known environmental hazard.

GRD-PCO Comments. While it is true that the existing 40-inch line is leaking as indicated in the draft report, the report didn't recognize that the recent environmental damage is due mostly to pipeline sabotage and not operational leaks. In addition, the 26-inch line is currently on standby and not in use because there is insufficient oil production. GRD-PCO disagrees that the Iraqi Government lost revenue amounting to \$14.8 billion. It would not be possible for NOC to produce the crude oil volumes used in the revenue calculations during the period cited by the draft report, because production was constrained by poor oil infrastructure, and sabotage of pipeline and NOC production facilities.

**Page 7.**

Draft Report. Even though TF-RIO memorandum stated TF-RIO was "responsible for executing and completion of the 50 km" project, the CPA's Chief Financial Officer informed TF-RIO that it was "under the operational control of the Ministry of Oil." Apparently this dichotomy, and the fact the project was being financed with Iraqi oil money, allowed the MOO to be able to make the decision to allow SCOP to construct the pipeline.

GRD-PCO Comments. Regardless of memorandums referenced at certain points in time, in July 2003 it was made clear that the 50 km pipeline was not a Task Force RIO mission.

The Ministry of Oil was responsible for the mission and it assigned the pipeline project to SCOP.

**Page 10.**

Draft Report. The TF-RIO PRB funding submission identified a 4 month completion goal for the pipeline project. TF-RIO mission was set to expire on 31 March 2004, and considering TO #6 were awarded on 8 December 2003, this time frame was consistent with the original intent. However, the TO #6's completion deadline was one year, thereby adding an additional eight months to the project.

The primary reason for the one year completion deadline instead of the 4 month goal appears to be the USACE SWD decision not to have KBR begin the three canal crossings until after the completion of the Al Fatah HDD. Considering this pipeline project was to result in additional revenue to the Iraqi Government of approximately \$7.5 million per day, the goal of the USACE SWD should have been to expeditiously complete the three canal crossings instead of waiting for Al Fatah to be completed.

GRD-PCO Comments. The draft report statement that USACE failed to start HDD at the canal crossings pending the completion of the Al Fatah crossing is technically accurate, but does not consider all the facts. When SWD terminated Task Order 6, no work had been completed on the canal crossings. The canal crossings were scheduled to be started only after completion of the Al Fatah crossing. The draft report criticized the schedule based on the assumption that HDD rigs and drill crews were readily available and could have been used on the canal crossings. Neither assumption is valid. Both HDD rigs used at Al Fatah and the crews to operate the equipment had to be imported to Iraq from the United States. The option to bring a third HDD rig and crew to Iraq, where they would apparently spend months in standby status at a cost of \$99,600 per day would have significantly increased project costs. This option would also not have enabled exports to begin any sooner as the canal crossings would not be useful without the Al Fatah crossing and completed pipeline. As a result, the estimate of revenue lost due to delayed completion of the crossings and pipeline does not take into account actual oil production, offsetting costs and other existing conditions at the time, like sabotage and security concerns.

**Page 15.**

Draft Report. To date, the USACE SWD has been unable to provide the total costs incurred for specifically the 50 km pipeline project. We requested this information from the USACE SWD on 29 May 2006 and repeated follow-up requests made up until the time of this report remain unanswered.

GRD-PCO Comments. The draft report assertion that SWD does not know what it paid KBR for activities relating to the 50 km pipeline was resolved. KBR submitted a revised cost proposal dated 18 May 2005 containing detailed descriptions of what KBR spent on each of the three tasks it had been assigned under Task Order 6. DCAA

audited that proposal and issued a final audit report to the SWD contracting officer on 29 July 2005 (Audit No. 3311-2005K21000033). SWD provided SIGIR two files showing what was paid for the 50 km pipeline project on 7 July 2006.

**Page 18.**

Draft Report. Site Photo 5. SIGIR Site Photo from February 2006. Oil Leakage from Existing Pipeline.



Site Photo 5. SIGIR Site Photo from February 2006. Oil Leakage from Existing Pipeline.

GRD-PCO Comments. It is difficult to distinguish from the photo years of pipeline breaks or leaks, or deliberate acts of sabotage. PIJV has documented instances when oil pollution contributed to work delays. PIJV was pro-active in pointing out the serious pollution problems that exist at all canal crossing sites. Much of the soil along the pipeline corridor between Kirkuk and Baiji is saturated with crude oil from previous leaks and sabotage. This is due to the lack of environmental awareness and operating culture.

**Page 23.**

Draft Report. However, for the Riyadh and Zegeton Canal Crossings, the PIJV's CQC and the USACE Kirkuk Area Office's QA programs have been inadequate and ineffective. For instance, the previous subcontractors did not submit adequate daily quality control reports. The reports did not explain the daily events, significant issues, or identify construction deficiencies. In addition, no photographs were provided with the QC reports to verify the written report.

GRD-PCO Comments. GRD-PCO disagrees that PIJV's QA and QC were inadequate and ineffective. Considering the constraints of the high risk work environment, PIJV deserves credit for conducting regular site visits; filing trip reports; meeting with the sub-contractor; documenting work quality and demanding corrective action for work that did not meet international standards. QA and QC trip reports had acceptable quality and were frequently reported.

Draft Report. Apparently, NOC officials would visit the two canal crossing sites, take photographs, and write reports for PIJV. PIJV and PCO Oil stated the reason for this arrangement was the previous three subcontractors who were originally supposed to complete the canal crossings left over security concerns. It was concluded this was the best way to get the pipeline done in a timely manner. However, by agreeing to this method, the PIJV, the USACE Kirkuk Area Office, and the PCO Oil lost oversight of the quantity and quality of work done by the subcontractor. According to the USACE Kirkuk Area Office, once the QA was essentially contracted out to NOC, “we weren’t tracking the QA.” In addition, PIJV and PCO were relying upon NOC for QA, with whom they did not have a contractual commitment. This could also lead to a similar problem TF-RIO experienced with SCOP – lack of authority over an Iraqi entity. As a result, the U.S. Government QA program on the canal projects was not adequate and did not effectively meet the requirements of Engineering Regulation 1180-1-6 or PCO Standard Operating Procedure CN-100.

GRD-PCO Comments. GRD-PCO does not agree that PIJV and GRD-PCO relied on NOC for QA. NOC did assist in visiting sites, taking photographs and reporting issues, but QA was always the responsibility of PIJV.

**Page 24.**

Draft Report. The confusion over the status of the two canal crossings stems from the lack of quality oversight of the projects. We made repeated requests to the PCO Oil Sector to explain their rationale for believing both canal crossings are 80% complete. One PCO Oil official stated the “estimated percent complete is based on work in place as reported by PIJV.” When asked if PIJV provides a basis for its completion percentage, we were told “No.” The PCO Oil Sector should not have based its percentage complete solely upon the word of the contractor. When the PCO Oil Sector agreed to eliminate the QA oversight role of the USACE Kirkuk Area Office, it lost one way to independently verify or validate the information provided to them by PIJV. The other option for validating contractor information is the PCO Oil Project Manager who resides at the Kirkuk Area Office. The Project Manager should have relayed the correct cost vs. completion percentage data back to PCO Oil in Baghdad. Without these two independent sources to verify and validate the contractor’s information, the PCO Oil Sector had no alternative than to believe what the contractor reported.

GRD-PCO Comments. GRD-PCO does not agree that there was any confusion on the status of the two canal crossings. GRD-PCO asserts that these important, highly political and visible projects received the best possible oversight at the time under adverse security conditions. Further, GRD-PCO disagrees with the draft report assertion that there was a discrepancy with the estimated percent complete numbers used by different organizations. Systems to track the percent complete numbers are based on different criteria and updated depending on the frequency of site visits. In addition, GRD-PCO did not base its percentage complete solely on the word of the contractor as suggested in the draft report.

Draft Report. Based upon our flyover view of the Zegeton Canal Crossing, we agree that the amount of work complete is closer to 10% than the 38% completion percentage in RMS, let alone the 80% reported by PCO.

GRD-PCO Comments. GRD-PCO would not agree that the helicopter fly over method of estimating pipeline project completion is a recognized approach to project management, because the pipeline is not visible from the air after installation. Using this method may be applicable to a total pipeline construction project, but would only give a very limited utility in a pipeline repair project. At the time that the second subcontractor left the construction site, PIJV estimated that there were approximately 2 weeks of work remaining at each of the canal crossings. This assessment proved accurate when the work on the 40-inch line at the Zegeton canal was completed in less than 2 weeks.

**Page 26.**

Draft Report. No effective on-site presence or verification of work was performed before contractor payments were made. The USACE Kirkuk Area Office stated they did not review the contractor's invoices prior to payment. Neither the USACE Kirkuk Area Office nor the Quality Assurance Representative (QAR) responsible for the canal crossings were asked to review or approve the invoices to validate the work claimed by the contractor. As a result, the potential existed for payment to the contractor for work not performed or not performed to the contract standards.

GRD-PCO Comments. GRD-PCO disagrees that there was no effective on-site presence or verification of work performed before contractor payments were made. GRD-PCO and PIJV have procedures in place for verification of payments made to contractors.

Draft Report. In addition, the practice of paying a contractor without verifying work quality and completeness is very questionable. This is especially true in this case because the pipeline would be buried in the ground. It is very difficult after the pipeline has been buried to identify poor quality work.

GRD-PCO Comments. GRD-PCO disagrees with the statement that there is an on-going practice for this project of paying a contractor without verifying work quality and completeness. As previously stated, GRD-PCO and PIJV have procedures in place for verification of payments made to contractors.

**Page 26 and 27.**

Draft Report. Further, a thorough review of invoices by the Kirkuk Area Office would have alerted the USACE and PCO Oil that for the Riyadh Canal Crossing, approximately 71% of the obligated money for the project had been spent, with little work completed. In addition, a thorough review of invoices would have made the USACE and PCO Oil aware of the fact that for the Zegeton Canal Crossing, it was impossible for the project to be 80% complete when no money had been expended.

GRD-PCO Comments. It is misleading to state that 71 percent of the obligated money for Riyadh Canal Crossing was spent with little work accomplished. GRD-PCO used the EVMS system to determine that 80 percent of the original scope of work was completed by the original subcontractor before the insurgency forced the subcontractor to depart from the construction site.

**Page 29.**

Draft Report. Since the pipeline project is still not complete, the Iraqi Government has not realized this additional revenue. At the time of the TF-RIO funding submission, crude oil was valued at \$25/barrel; while today's price hovers around \$70/barrel. To date, the Iraqi Government has not benefited from approximately \$14.8 billion in additional revenue as a result of the project failures.

GRD-PCO Comments. GRD-PCO maintains that the method of calculating lost revenue to the Iraqi government due to the lack of a completed 40-inch pipeline is not representative of actual operating conditions and production in northern Iraq.

**Recommendation and Command Comments**

**Page iii. Recommendations**

We recommend that the Commanding General, Gulf Region Division:

**Recommendation.** 1. Implement a specific and immediate plan to complete the Riyadh and Zegeton Canal Crossings project.

**Action Taken.** Concur. GRD-PCO has had a plan to complete the Riyadh and Zegeton Canal Crossing projects developed since the earliest days of the project. However, security risks have prevented the implementation of the plan. Currently, the plan to complete the canal crossings was put into place and the contractors were on Zegeton canal crossing site as of 17 June 2006. Estimated time to complete both crossings is about mid August 2006.

**Recommendation.** 2. Implement a case specific process to ensure effective and reliable U.S. Government oversight pertaining to project quality and completion status.

**Action Taken.** Concur. The effectiveness and reliability of the Government's oversight policy and guides and quality assurance program were demonstrated by the successful completion of the Kirkuk irrigation canal crossing. GRD-PCO currently has sufficient detailed Contract Quality Control guides to manage its projects. The Government's Quality Assurance controls are described in PCO Standard Operating Procedures (SOP) including: CN-100, Conduct Construction Contractor Quality Control/Quality Assurance Inspections and Reporting; CN-101, Prepare Project Construction Management Plan (Work Plan); CN-102, Contractor Quality Control/Quality Assurance Construction Deficiency Tracking; CN-103, Contractor Construction Quality Contracting and U.S. Army Corps of Engineer publications, for example ER 1180-1-6, Construction Quality Management. Further, each Area Office has its own Quality Assurance Plan as required

by Engineer Regulations. The Kirkuk Area Office and GRD-PCO are working diligently with PIJV on the QA inspections for the Zegeton and Riyadh canal crossings. Contractor QC personnel are living on site at the crossings conducting necessary inspections. PIJV QA personnel are living on site inspecting the contractor's QC system. In addition, the NOC is sending their personnel to personally oversee the pipe line welds.

**Recommendation.** 3. Investigate and resolve the significant differences between the Project and Contracting Office Oil Sector and the U.S. Army Corps of Engineers' Resident Management System completion percentages for the Riyadh and Zegeton Canal Crossings.

**Action Taken.** Concur. It is an inherent characteristic of the record keeping process that at times there will be completion percentage differences between the two systems. These different completion percentages are continually reviewed, analyzed, resolved and updated. GRD-PCO reviews the weekly progress figures from PIJV which is based on Earned Value Management System (EVMS). The RMS system is updated only after a site visit and the percent complete is established by physical progress. The fact there was a difference between the systems which were based on estimates, at different points in time, and on different measurement processes is not unusual and does not give immediate cause for concern.

**Recommendation.** 4. Follow the established procedure to review contractor invoices prior to payment.

**Action Taken.** Concur. GRD-PCO is following established procedures to review contractor invoices prior to payment.



## **Appendix E. Report Distribution**

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### **Department of State**

Secretary of State

Senior Advisor to the Secretary and Coordinator for Iraq

U.S. Ambassador to Iraq

Director, Iraq Reconstruction Management Office

Inspector General, Department of State

### **Department of Defense**

Secretary of Defense

Deputy Secretary of Defense

Director, Defense Reconstruction Support Office

Under Secretary of Defense (Comptroller)/Chief Financial Officer

Deputy Chief Financial Officer

Deputy Comptroller (Program/Budget)

Inspector General, Department of Defense

### **Department of the Army**

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

Principal Deputy to the Assistant Secretary of the Army for Acquisition,

Logistics, and Technology

Deputy Assistant Secretary of the Army (Policy and Procurement)

Assistant Secretary of the Army for Financial Management and Comptroller

Chief of Engineers and Commander, U.S. Army Corps of Engineers

Commanding General, Gulf Region Division

Auditor General of the Army

### **U.S. Central Command**

Commanding General, Multi-National Force - Iraq

Commanding General, Joint Contracting Command – Iraq/Afghanistan

Commanding General, Multi-National Corps – Iraq

Commanding General, Multi-National Security Transition Command – Iraq

Commander, Joint Area Support Group – Central

### **Other Defense Organizations**

Director, Defense Contract Audit Agency

## **Other Federal Government Organizations**

Director, Office of Management and Budget  
Comptroller General of the United States  
Inspector General, Department of the Treasury  
Inspector General, Department of Commerce  
Inspector General, Health and Human Services  
Inspector General, U.S. Agency for International Development  
Mission Director – Iraq, U.S. Agency for International Development

## **Congressional Committees and Subcommittees, Chairman and Ranking Minority Member**

### **U.S. Senate**

Senate Committee on Appropriations  
    Subcommittee on Defense  
    Subcommittee on State, Foreign Operations and Related Programs  
Senate Committee on Armed Services  
Senate Committee on Foreign Relations  
    Subcommittee on International Operations and Terrorism  
    Subcommittee on Near Eastern and South Asian Affairs  
Senate Committee on Homeland Security and Governmental Affairs  
    Subcommittee on Federal Financial Management, Government Information and International Security  
    Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia

### **U.S. House of Representatives**

House Committee on Appropriations  
    Subcommittee on Defense  
    Subcommittee on Foreign Operations, Export Financing and Related Programs  
    Subcommittee on Science, State, Justice and Commerce and Related Agencies  
House Committee on Armed Services  
House Committee on Government Reform  
    Subcommittee on Management, Finance and Accountability  
    Subcommittee on National Security, Emerging Threats and International Relations  
House Committee on International Relations  
    Subcommittee on Middle East and Central Asia

## **Appendix F. Project Assessment Team Members**

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

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Randall Nida

Lloyd Wilson