



OFFICE OF INSPECTOR GENERAL

U.S. Department of Energy

# AUDIT REPORT

OAI-M-17-05

February 2017

**QUALITY ASSURANCE FOR RIVER  
CORRIDOR CLOSURE CONTRACT  
PROCUREMENTS**



**Department of Energy**  
Washington, DC 20585

February 15, 2017

MEMORANDUM FOR THE MANAGER, RICHLAND OPERATIONS OFFICE

A handwritten signature in black ink, appearing to read "David Sedillo".

FROM: David Sedillo  
Deputy Assistant Inspector General  
for Audits and Inspections  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Quality Assurance for River  
Corridor Closure Contract Procurements"

BACKGROUND

During the Hanford Site's plutonium production mission, the Department of Energy operated nine reactors and a large laboratory complex along the Columbia River. In 2005, the Department's Richland Operations Office (Richland) awarded Washington Closure Hanford, LLC (WCH) a \$2.9 billion contract to remediate nearly 220 square miles of the Hanford Site.

To ensure compliance with contract requirements and the safe performance of work, Richland included in WCH's contract the Department's order on *Quality Assurance*,<sup>1</sup> which requires the use of an appropriate consensus quality assurance standard consistent with regulatory requirements. WCH adopted the *American Society of Mechanical Engineers (ASME) - Quality Assurance Requirements for Nuclear Facility Applications (NQA-1)* as its consensus standard for its quality assurance program. WCH developed implementing procedures to address the quality requirements of its program. Specific to procuring material and services, WCH was required to flow down quality assurance requirements specific to the scope of work in its subcontracts and to evaluate the subcontractor's capability of implementing the applied requirements. If the scope of work could affect nuclear safety or mission, WCH was required to flow down the appropriate requirements of NQA-1 in its subcontracts. Part I of NQA-1 sets forth 18 requirements for the establishment and execution of quality assurance programs for nuclear activities. We conducted this audit to determine whether WCH had effectively managed quality assurance requirements in its procurements for the River Corridor Closure Contract at the Hanford Site.

RESULTS OF AUDIT

We found instances where WCH did not effectively manage quality assurance in its procurements. Specifically, we identified weaknesses in how WCH flowed down quality

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<sup>1</sup> DOE Order 414.1d, *Quality Assurance*, establishes the Department's requirements to ensure that products and services meet or exceed customers' requirements and expectations.

assurance requirements in its subcontracts and in the subsequent evaluations used to determine whether subcontractors had the capability to implement an NQA-1 quality assurance program. We also found that WCH did not ensure that staff augmentation contracts contained requirements to perform work under WCH's quality assurance program.

### **Inadequate Application of NQA-1**

Our review found weaknesses in WCH's application of NQA-1 quality assurance requirements in four judgmentally selected NQA-1 subcontracts. In particular, WCH did not effectively flow down NQA-1 requirements to its subcontractors nor did it effectively evaluate the subcontractors' abilities to implement an NQA-1 quality assurance program to meet procurement requirements.

### **Flow Down of Quality Assurance Requirements**

WCH's procedure to flow down quality assurance requirements to subcontractors was inadequate to meet NQA-1 flow down requirements. We identified a subcontract awarded in 2013 that provided engineering, concrete coring, and cutting activities to support the demolition of two radioactive facilities. WCH only flowed down the summary paragraph (paragraph 100) for 8 of the 18 requirements of NQA-1. ASME and the Department consider this application of requirements to be insufficient to apply NQA-1. In fact, in 2012, the ASME Committee for NQA-1 announced that paragraph 100 is a summary and introductory paragraph for additional mandatory criteria contained in each requirement, and that the application of only paragraph 100 of the applicable requirements of NQA-1 is not an appropriate or sufficient method to implement an NQA-1 quality assurance program.

The significance of not effectively flowing down NQA-1 was demonstrated in another subcontract we reviewed. The subcontract for the non-intrusive characterization of radioactive waste in vertical pipe units at the 618-10 burial ground was a key element of determining the disposal path of the waste. The 618-10 and 11 burial grounds contain some of the most hazardous wastes at the Hanford Site. This waste was generated from years of reactor fuel laboratory research and manufacturing. In May 2009, WCH awarded a \$4.6 million service subcontract which included the design and construction of multi-detector probes used to identify the types of radioactive materials in the vertical pipe units. However, the multi-detector probes failed calibration checks 92 percent of the time. Despite these failures, the instruments were still used to collect data. During a surveillance of the subcontractor, Richland discovered that problems with the detectors were not corrected when they were found. Richland officials also noted that WCH had not adequately flowed down NQA-1 criteria for design control over the probes. Our review of this subcontract identified that WCH only flowed down the summary paragraph of NQA-1's requirement for "Control of Nonconforming Items." This requirement, when implemented fully, provides specific controls on how to manage the identification, segregation, and disposition of nonconforming items and services and would have required the subcontractor to remove the probes from service until they were repaired or replaced. In addition, the mandatory criteria would have required reviewing the data collected and determining its disposition.

In another instance, WCH applied NQA-1 quality assurance requirements to a procurement that posed no risk to safety or mission. Our review of this subcontract identified that WCH flowed down parts of NQA-1 to move mobile offices and restrooms at the Hanford Site. According to NQA-1, the flow down of quality assurance requirements must be consistent with the importance and complexity of the item or service procured. Had WCH considered flowing down less rigorous quality requirements, it may have achieved the same results at a lower cost for low risk items such as mobile offices and restrooms. WCH management explained that the quality requirements were selected for a hypothetical worst-case scenario. However, WCH provided no documentation to corroborate using this scenario.

### **Inadequate Supplier Evaluations**

WCH did not effectively evaluate whether suppliers had the capability to meet contract requirements. Specifically, WCH's *Supplier QA Program Evaluations* procedure lacked the criteria that personnel performing supplier evaluations would need to evaluate evidence to determine whether a supplier could meet technical and quality requirements prior to contract award. Consequently, WCH only performed limited desktop reviews of suppliers' quality assurance programs prior to contract award and did not take steps to determine whether the subcontractor could implement its quality assurance program. WCH officials responded that it would be unreasonable to request the documents necessary for the evaluation without a contract in place. Nevertheless, WCH's quality assurance program requires qualitative and quantitative evidence to evaluate the subcontractor's capability to provide items and services in accordance with the requirements of the procurement.

Similarly, WCH had a quality assurance clause for developing a post-award management and oversight program for subcontractors that have no experience performing NQA-1 work. WCH acknowledged the increased risk associated with subcontracting small businesses that do not have mature quality assurance programs. To address this, WCH's quality assurance program had an additional clause requiring that "the evaluation of a small business must identify the shortfalls of the supplier's program and provide for the intentional post-award management and oversight to ensure that the shortfalls are addressed." However, when we asked WCH to provide evidence of the implementation of this clause, WCH acknowledged that there was no procedure for implementing a post-award management and oversight plan to address known subcontractor quality assurance deficiencies.

The significance of ensuring that a subcontractor can fully implement its quality assurance program to meet procurement requirements was demonstrated in an incident that occurred at the Hanford Site. In November 2012, a WCH subcontractor had a "near-miss" event during the construction of a temporary push wall. The wall was needed to assist in the lift of a 1,100 ton cement vault that was used to store radioactive waste. Three days into construction, the wall collapsed spilling more than 95 cubic yards of wet concrete and ecology blocks into a previously occupied work area. Although the root cause analysis performed by WCH attributed the failure to a conduct of operations weakness, our review of the root cause analysis showed weaknesses in the subcontractor's ability to follow its quality assurance program. Specifically, the subcontractor's procedure did not clearly define and establish expectations for formal design of construction aids, such as the support wall. The Department reimbursed WCH the \$270,894 associated with this failure.

## **No Quality Assurance in Staff Augmentation Subcontracts**

During our review of five judgmentally selected staff augmentation contract files, we identified that all five subcontracts for temporary staff did not include requirements to follow WCH's quality assurance program. WCH's procurement instructions, *Preparation Instructions and Examples for Completing Exhibit D, Form WCH-DE-041, Scope of Work*, required the flow down of its quality assurance program into staff augmentation subcontracts in order to ensure that WCH's temporary staff worked according to the same policy and procedures as its employees.

The WCH Quality Assurance Manager acknowledged the risk that results from augmented staff not being required to follow WCH policies or procedures when they were performing services. In 2014, WCH identified a similar issue with a Request for Offsite Services agreement, which allows WCH to borrow resources or services from its parent companies. In the case of the Request for Offsite Services, WCH entered into an agreement with one of its parent companies to perform a series of calculations for the 618-11 burial grounds. However, WCH did not flow down quality assurance requirements in the agreement requiring the engineer to use a computer provided by WCH. The engineer used a different computer with unapproved software. When the nonconformance was discovered, WCH reviewed the software used and determined that the calculations could not be used.

## **Quality Assurance Implementation and Oversight**

We attributed the problems with flow down and supplier evaluations to weaknesses in WCH's implementation of its NQA-1 quality assurance program. Additionally, Richland's oversight activities did not identify some of WCH's weaknesses in implementing its quality assurance program. In particular, WCH did not effectively use the graded approach when implementing its quality assurance program. The purpose of grading is to select the controls and verifications to be applied to various items and activities consistent with their importance to safety, cost, schedule, and success of the program. We concluded that WCH selected and flowed down only portions of NQA-1 requirements and then it used less than effective procedures in the evaluation of the subcontractors' capabilities to implement those requirements.

During our review of WCH's procedure for flowing down NQA-1, we noted that WCH used pro-forma documents that allowed the selection of individual paragraphs of applicable NQA-1 requirements but not the entire requirement. WCH should have flowed down applicable NQA-1 requirements in their entirety, and the subcontractor should have used a graded approach for implementing those requirements to comply with the terms of the subcontract. WCH further reduced requirements when it did not fully implement its quality assurance program for supplier evaluations. Its procedure for supplier evaluations only required a desktop review and did not require the supplier to demonstrate that it could implement the requirements of its subcontract.

The weaknesses in staff augmentation subcontracts were due to WCH's buyers not using or modifying pro-forma documentation when developing subcontracts. WCH's pro-forma documentation for staff augmentation subcontracts required the buyer to flow down WCH's

quality assurance program in the scope of work. Buyers would grade quality to zero by either not using the pro-forma document or typing “not applicable to this Scope of Work” for the quality assurance requirements portion of the pro-forma document.

Richland did not implement effective oversight to detect WCH’s weaknesses in implementing its quality assurance program. Specifically, Richland did not conduct quality assurance audits to ensure that WCH effectively implemented its quality assurance program, as required by the Department’s *Quality Assurance* order. Quality assurance audits might have discovered that WCH did not develop procedural controls to: (1) address ASME’s interpretation specific to flowing down NQA-1 requirements in subcontracts; (2) provide sufficient guidance for qualifying subcontractors’ NQA-1 programs and address developing small business concerns as potential NQA-1 suppliers; and (3) identify the absence of quality assurance requirements in staff augmentation contracts.

To the Department’s credit, its Office of Standards and Quality Assurance (EM-43) performed an audit of Richland’s implementation of quality assurance oversight in April 2015. This audit noted, as also observed in a 2012 audit, that Richland did not perform effective quality assurance oversight of its prime contractors. In its review, EM-43 identified 16 issues and recommended downgrading Richland’s quality assurance program from “conditional approval” to “needs significant revision.” EM-43 identified that Richland’s core mission was to provide oversight of its prime contractors performing work at the Hanford Site, including audits of its prime contractors’ quality assurance programs. However, EM-43 found that Richland did not conduct any audits of its prime contractors. This issue was previously identified by EM-43 in 2012. The Office of Inspector General report, *Follow-Up on the Management of the Plutonium Finishing Plant Project (OAS-M-14-11)*, issued on September 18, 2014, cited the 2012 EM-43 observations and recommended corrective actions. Although Richland agreed with the Inspector General’s recommendations, it had not taken any actions to remedy the issue. In response to EM’s 2015 review, Richland developed a corrective action plan to fix the issues identified.

### **Increased Risk to Mission and Safety**

The weaknesses identified in WCH’s quality assurance program can increase the risk that contractual requirements are not met and ultimately expose the Department to increased financial risk. Not imposing applicable NQA-1 requirements can result in conditions that require rework. In fact, in discussions with EM-43, its review of the Department’s Environmental Management Consolidated Business Center identified several contracts that did not have quality assurance requirements included in the procurement documents. The work had to be stopped because contractors were not allowed to execute Environmental Management funded work without an approved quality assurance program. Not identifying the appropriate quality assurance requirement can affect cost and schedule, as well as possibly require the submission of a request for equitable adjustment that includes the omitted requirements. On the other hand, imposing NQA-1 requirements for items and services not important to safety or mission can result in unnecessary expenditure of funds. In addition, inadequate supplier evaluations may increase the risk of awarding contracts to subcontractors that cannot perform to contract requirements.

## RECOMMENDATIONS

In view of the issues identified in this report and recommendations or suggestions for improvement in prior reports that remain unresolved, we recommend that the Manager, Richland Operations Office:

1. Ensure that corrective actions addressing the recommendations in the July 2015 Office of Standards and Quality Assurance report are completed and effective;
2. Evaluate and determine the allowability of the costs associated with the push wall failure; and
3. Perform an extent of condition review of all prime contractors under the Richland Operations Office for flowing down NQA-1 requirements and qualifying subcontractors.

## MANAGEMENT RESPONSE

Richland reviewed the information in the draft report with respect to the facts presented, conclusions reached, and appropriateness of the recommendations. As such, Richland indicated that corrective actions had been initiated or were planned to address the report recommendations.

## AUDITOR COMMENTS

Management's comments are responsive to our recommendations. Management stated that the corrective actions developed to address the Office of Standards and Quality Assurance audit conducted in July 2015 were planned to be completed by October 31, 2016. Management has completed most of the planned corrective actions, and the recommendation can be fully closed once any remaining corrective actions are completed and the effectiveness reviews are performed, currently scheduled for 2019. Management's comments are included in Attachment 3.

### Attachments

cc: Deputy Secretary  
Acting Assistant Secretary for Environmental Management  
Chief of Staff

## OBJECTIVE, SCOPE, AND METHODOLOGY

### OBJECTIVE

We conducted this audit to determine whether Washington Closure Hanford effectively managed quality assurance requirements in its River Corridor Closure Contract procurements at the Hanford Site.

### SCOPE

We conducted the audit between June 2015 and February 2017. The scope of the audit was limited to the quality assurance requirements for procurements made by Washington Closure Hanford, LLC (WCH) for the River Corridor Closure Contract on the Hanford Site near Richland, Washington. The audit included a review of WCH's policies and procedures related to quality assurance. We conducted work at the Department of Energy's Richland Operations Office, located in Richland, Washington, and at WCH. The audit was conducted under Office of Inspector General project number A15RL041.

### METHODOLOGY

To accomplish the audit objective, we:

- Reviewed laws, regulations, and program guidance applicable to quality assurance activities within the Department;
- Interviewed key Department and WCH officials to discuss the policies and procedures used to assign and evaluate quality assurance requirements for River Corridor Closure Contract procurements;
- Obtained and analyzed assessments, surveillances, and other reviews of WCH's quality assurance activities; and
- Obtained and reviewed a judgmental sample of WCH subcontracts.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, the audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the objective. We considered the *GPRA Modernization Act of 2010* as necessary to accomplish the objective, and we determined that the Department's strategic goals and objectives were not applicable to our audit scope. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not rely on computerized data to materially support findings or conclusions.

We held an exit conference with the Department on January 10, 2017



## PRIOR REPORT

Audit Report on [\*Follow-Up on the Management of the Plutonium Finishing Plant Project\*](#) (OAS-M-14-11, September 2014). The audit noted that the Department encountered problems with CH2M Hill Plateau Remediation Company's (CHPRC) ability to plan, manage, and execute work; factors which contributed to both cost and schedule increases. Notably as of March 2014, the Plutonium Finishing Plant project was expected to be completed in September 2016, at a cost of \$932 million; 2 years behind and \$179 million over CHPRC's revised performance baseline.

The audit identified areas of needed improvement in Richland's administration of the CHPRC contract. Improvements in Richland's administration of the CHPRC contract were needed to ensure that productivity issues are identified and addressed in a timely manner in the future. In particular, Richland officials did not perform necessary audits and assessments as required by Department Order 414.1D, *Quality Assurance*. The Order requires the performance of audits and assessments to evaluate program and project processes, identify and correct problems, measure adequacy of work performance, and promote improvement.

MANAGEMENT COMMENTS



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

SEP 30 2016

AMB:SMO/16-AMB-0005

MEMORANDUM FOR RICKEY R. HASS
ACTING INSPECTOR GENERAL

THRU: MONICA C. REGALBUTO
ASSISTANT SECRETARY
FOR ENVIORNMENTAL MANAGEMENT

FROM: DOUG S. SHOOP
MANAGER

SUBJECT: MANAGEMENT RESPONSE TO THE OFFICE OF INSPECTOR
GENERAL DRAFT AUDIT REPORT ON "QUALITY ASSURANCE
FOR RIVER CORRIDOR CLOSURE CONTRACT
PROCUREMENTS"

The U.S. Department of Energy Richland Operations Office (RL) appreciates the opportunity to review and comment on the subject Office of Inspector General draft report. We reviewed the information in the draft report with respect to the facts presented, conclusions reached, and appropriateness of the recommendations. A discussion of the report's recommendations follows.

Recommendation 1:

Ensure that corrective actions addressing the recommendations in the July 2015 Office of Standards and Quality Assurance report are completed and effective.

Management Response: The corrective actions developed to address the Findings of the July 2015 Office of Standards and Quality Assurance report are planned to be complete by October 31, 2016. The associated effectiveness reviews are scheduled to commence in April of each year, 2017 through 2019.

Recommendation 2:

Evaluate and determine the allowability of the costs associated with the push wall failure.

Management Response: RL concurs. RL agrees with the recommendation and the Contracting Officer will review and evaluate the reimbursed subcontractor costs for allowability and reasonableness and recover or offset costs from Washington Closure Hanford LLC (WCH) as appropriate. Estimated completion date: March 31, 2017.

Rickey R. Hass  
16-AMB-0005

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The related Monetary Impact Report has been reviewed.

**Recommendation 3:**

Perform an extent of condition review of all prime contractors under RL for flowing down NQA-1 requirements and qualifying subcontractors.

**Management Response:** RL will perform an extent of condition review to assess prime contractors under RL flowing down NQA-1 requirements to qualifying subcontractors. This will be accomplished through Quality Assurance audits, scheduled to be performed within the required triennial periodicity. This action is planned to be completed by September 30, 2017.

Attachment

cc w/attach:  
Donna C. Chapman-Turner, MA-1.1  
Jim J. Davis, EM-3.113  
Sandra I. Hersh, MA-1.1  
Timothy M. O'Byrne, IG-301-4  
David Sedillo, IG-301  
Leslie J. Thomas, EM-5.112

## **FEEDBACK**

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