



OFFICE OF INSPECTOR GENERAL

U.S. Department of Energy

# AUDIT REPORT

DOE-OIG-18-45

August 2018

**FOLLOWUP ON  
WELL DECOMMISSIONING AT THE  
HANFORD SITE**



**Department of Energy**  
Washington, DC 20585

August 28, 2018

MEMORANDUM FOR THE MANAGER, RICHLAND OPERATIONS OFFICE

*Michelle Anderson*

FROM: Michelle Anderson  
Deputy Inspector General  
for Audits and Inspections  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Followup on Well  
Decommissioning at the Hanford Site"

BACKGROUND

The goal of the Richland Operations Office Soil and Groundwater Remediation Project is to eliminate the risk of contaminated groundwater reaching the Columbia River using a network of wells to extract contaminants and monitor areas of the Hanford Site. Remediation support activities may include groundwater well installation, well decommissioning, environmental sampling, and well maintenance. CH2M Hill Plateau Remediation Company (CHPRC) is the contractor responsible for soil and groundwater remediation activities at the Hanford Site.

In January 2005, the Office of Inspector General (OIG) issued an audit report on *Well Decommissioning Activities at the Hanford Site* (DOE/IG-0670). The audit determined that Richland Operations Office lacked a comprehensive Well Decommissioning Plan. Specifically, the Plan lacked a complete inventory that described the type, age, condition, and location of all wells at the site. Further, the audit found that the well database contained information that was not easily accessed, incorrect, and incomplete. In response to the previous report, Richland Operations Office developed a comprehensive Well Decommissioning Plan and decommissioned a number of wells using Recovery Act funds. Richland Operations Office also made significant changes to the well database, the Hanford Environmental Information System (HEIS) and the associated tables within HEIS. Finally, Richland Operations Office developed the Well Attributes Materialized View (Materialized View) to assist in managing well information by providing a visual presentation of the data extracted from HEIS. The Materialized View displays current attributes of more than 12,000 wells, such as whether a well has been verified as decommissioned or in use, and when a well was last inspected or maintained. We conducted this followup audit to determine whether the Department of Energy effectively managed the well decommissioning program at the Hanford Site.

RESULTS OF AUDIT

Our review determined that the Department effectively decommissioned wells at the Hanford Site. However, we found that HEIS, used to manage well information, such as inspections and

decommissioning, did not contain all current or relevant information; although, for the 15 wells we reviewed, we found hard-copy documents supporting that well activities had been performed, as appropriate. Additionally, the Well Decommissioning Plan had not been updated since 2008. Specifically, CHPRC did not:

1. Enter well inspection dates in the HEIS database, so the information shown in the Materialized View was not always correct and could not be relied upon; and
2. Update the Well Decommissioning Plan.

As a result, the Materialized View did not accurately reflect the current status of well inspections. Documenting inspection results into HEIS ensures that the Department has the most current information available to promptly identify any wells that are in disrepair and prevent potential pathways for contaminants to reach the groundwater. To its credit, the Department maintained hard-copy inspection and well decommissioning records. However, not documenting inspection results into HEIS prevents the Department from accurately tracking the status of all wells using the Materialized View. Documenting inspection results would provide the Department with a visual snapshot of the current status of more than 12,000 wells at Hanford and ensure adequate oversight of timely inspections and decommissioning.

### **Missing Inspection Dates**

Our review found that in some cases CHPRC did not document well inspection dates in the HEIS database; therefore, well inspection dates were missing or incorrect in the Materialized View. We judgmentally selected 15 wells to determine whether the HEIS inspection data accurately flowed into the Materialized View. The Materialized View is relied on to assist in managing future well decommissioning activities, so it is important that the Materialized View contains complete and accurate information. Additionally, well inspection data is considered a record and required to be entered into HEIS to capture a history of all wells on the Hanford Site. The database records and hard-copy documents are considered part of Hanford's operating record that must be maintained 10 years past Hanford Site closure.

We found that CHPRC did not consistently enter inspection data in the HEIS database, resulting in unreliable Materialized View information, such as inaccurate well inspection dates. For example, hard-copy records such as groundwater sampling reports, well maintenance reports, and inspection logs supporting that CHPRC completed an inspection were not documented in the HEIS database. Of the 15 wells we reviewed, 10 contained a null value or no record in the inspection field of the database, and as such, had no inspection date in the Materialized View. While the remaining five wells had inspection dates in the Materialized View, we found instances when the dates did not show the most recent inspection date. Had CHPRC updated inspection dates in the HEIS database, the most current inspection dates would have been displayed in the Materialized View to assist in managing well information. Inspections are required to assure that a well is in adequate condition to be sampled. During the course of the audit, the Department took immediate action to enter inspection dates into HEIS and is currently working to develop procedures to assure the inspection dates are entered into the system.

## **Outdated Well Decommissioning Plan**

The Well Decommissioning Plan contained information that was outdated. Since June 2008, the contractor updated only the appendix in the Plan, which includes information on well installation, maintenance, and decommissioning obtained from Hanford's Annual Groundwater Report. However, the Plan also contained information on various databases and systems that included information such as well locations, well depths, and construction designs. Some of the systems used to store and manage this type of well data were outdated or no longer in use. This information could be misleading as various Soil and Groundwater program documents refer back to the section on databases in the Plan. When we brought these issues forward, Department personnel stated that they recognized that these systems provide a historical perspective in the development and management of well data and are important to provide continuity through contract transition and the development of future systems and databases.

## **Inspection and Sampling Procedures**

These issues occurred because there was no procedure in place to enter the well inspection dates into the database. Therefore, information was not being entered into the database at the time inspections were completed and prior to sampling. Specifically, as part of the groundwater sampling procedure, a well should be inspected prior to sampling.

The sampling and inspection forms attached to the sampling procedures were being documented as hard-copy records in Hanford's documentation system; however, using the Materialized View, there was no way to determine whether a well had been inspected. As such, the Department may be unaware of wells that may be in disrepair.

While the Department made significant strides in the management of well activities since 2005, the current contractor, CHPRC, did not prioritize updating the Well Decommissioning Plan. It is important that the Plan be updated with the most current information in order to provide continuity to the decommissioning program. When we informed the Department that the Well Decommissioning Plan was outdated, the Department agreed that it needed to be updated.

## **Impact**

Documenting well inspections in the database ensures that the Department has promptly identified any wells that are in disrepair. Wells in disrepair can provide potential pathways for contaminants to reach the groundwater, endangering human health and the environment. Further, not documenting that wells have been inspected and repaired can lead to delays in sampling and result in increased costs to the groundwater program. Finally, updating the Well Decommissioning Plan will improve the continuity of the program through contract transition and the development of future databases and systems.

## **Path Forward**

As a result of the weaknesses we identified in this report, we suggest that the Manager, Richland Operations Office direct the contractor to:

1. Continue to develop procedures for documenting inspection results in the database; and
2. Update the Well Decommissioning Plan.

## Attachments

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

## OBJECTIVE, SCOPE, AND METHODOLOGY

### OBJECTIVE

We conducted this audit to determine whether the Department of Energy effectively managed the well decommissioning program at the Hanford Site.

### SCOPE

The audit was performed between May 2017 and August 2018. The scope of the audit was limited to well decommissioning program activities at the Hanford Site. We conducted work at the Department's Richland Operations Office, located in Richland, Washington. The audit was conducted under Office of Inspector General project number A17RL026.

### METHODOLOGY

To accomplish the audit objective we:

- Identified and reviewed applicable laws and regulations and Department directives;
- Obtained and reviewed contract requirements related to the Groundwater Vadose Zone Project;
- Determined the actions taken by the Department and the contractor to address conditions identified in the prior Office of Inspector General well decommissioning audit;
- Reviewed applicable policies and procedures related to well decommissioning and inspection activities;
- Judgmentally selected 15 wells and observed that data in the database for those wells accurately flowed into the Department's system used to manage well information;
- Reviewed relevant Office of Inspector General and Washington State Department of Ecology prior reports; and
- Interviewed key Department and contractor personnel.

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 performance measures had been established for well

decommissioning. 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 relied on computer-processed data from the Hanford Environmental Information System to accomplish our audit objective. We determined that the data were sufficiently reliable for the purposes of this report.

We held an exit conference with the Department on July 26, 2018.

## PRIOR REPORTS

- [Well Decommissioning Activities at the Hanford Site](#) (DOE/IG-0670, January 2005). The audit disclosed that abandoned and unused wells had not been decommissioned in a timely manner at the Hanford Site. At the time of the audit, Hanford had approximately 7,000 wells, of which almost 3,500 met the Washington Administrative Code criteria for required decommissioning. Although Richland Operations Office officials estimated that the site had the capability to decommission between 104 and 150 wells per year, only 146 wells were decommissioned in the 3-year period from fiscal year 2002 to 2004. Richland Operation Office's progress in this area was impeded by the lack of a comprehensive Well Decommissioning Plan. Specifically, the Well Decommissioning Plan did not outline the total inventory of Washington Administrative Code wells and did not include a risk-based prioritization schedule or a complete resource and cost estimate. In addition, the database used for well decommissioning contained inaccurate data, was not easily accessed, was misleading, and many well identification numbers were listed multiple times.



## **FEEDBACK**

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