



Department of Energy
Carlsbad Field Office
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NOV 6 2013



Mr. Jon E. Hoff, Manager
Quality Assurance
Nuclear Waste Partnership, LLC
P.O. Box 2078
Carlsbad, NM 88221-2078

Subject: CBFO Surveillance Report S-14-01, Application of the NWP Software Quality Assurance Program to the WWIS/WDS

Dear Mr. Hoff:

The Carlsbad Field Office (CBFO) conducted a surveillance that evaluated the adequacy, implementation, and effectiveness of the Nuclear Waste Partnership (NWP) software quality assurance program as applied to the maintenance of the Waste Data System (WDS), a web-based software application that incorporates elements of the WIPP Waste Information System (WWIS) software application. The surveillance report is enclosed.

The surveillance team verified that NWP procedures adequately address upper-tier requirements and provide adequate guidance and work steps for implementation of software quality assurance. The team also determined that the processes for configuration control, change control, and maintenance of code and life-cycle documentation associated with the activities evaluated during this surveillance are satisfactorily implemented, and that the software quality assurance program is effective.

If you have any questions, please contact me at 575-234-7491.

Sincerely,

Dennis S. Miehl
Senior Quality Assurance Specialist

Enclosure

Mr. Jon E. Hoff

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cc: w/enclosure

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CBFO SURVEILLANCE REPORT

Surveillance Number: S-14-01 Date of Surveillance: October 15 – 17, 2013

Surveillance Title: Application of the NWP Software Quality Assurance Program to the WWIS/WDS

Organization: Nuclear Waste Partnership LLC (NWP)

Surveillance Team:

Dennis Miehl	Quality Assurance Representative, CBFO
Jim Schuetz	Surveillance Team Leader, CBFO Technical Assistance Contractor (CTAC)
Rick Castillo	Surveillance Team Member, CTAC

Surveillance Scope:

The surveillance team evaluated the adequacy, implementation, and effectiveness of software quality assurance (SQA) controls applied by NWP to the maintenance of the Waste Data System (WDS), a web-based software application that incorporates elements of the WIPP Waste Information System (WWIS) software application.

Surveillance S-14-01 also evaluated continued implementation of corrective actions for CARs 11-004 and 11-005, generated during S-11-01 (October 19 – 21, 2010). Surveillance S-11-01 was the last evaluation that addressed SQA activities performed by NWP with respect to WWIS/WDS development.

The surveillance team found that Waste Stream Profile Form (WSPF) review criteria and maintenance of QA records continue to be satisfactorily proceduralized and adequately implemented.

Results:

Activities Evaluated

The surveillance team interviewed NWP personnel regarding use of the WWIS/WDS web-based data management application. This included Database Administrator (DA) approval of container characterization and shipment data from waste generator sites.

Application of SQA to changes to the WWIS/WDS code and data was evaluated. Requests for changes to code modules, generation of statements of work for contractor programming, testing, test reporting, and promotion of code changes to the production environment were included in the evaluation of SQA activities. Review and approval of requests for data changes and modification of data and data tables contained in the WWIS/WDS were included in the evaluation of maintenance and control of administrative reference tables.

The CBFO *Quality Assurance Program Document (QAPD)*, DOE/CBFO-94-1012, Revision 11, was used as the upper-tier reference document stating SQA requirements for this activity. The following documents were evaluated during the surveillance:

- DOE/WIPP 09-3427, *Waste Data System User's Manual*
- WP 05-WH.02, *WIPP Waste Handling Operations WDS User's Manual*
- WP 08-NT.01, *Waste Data System Program and Data Management Plan*
- WP 08-NT.03, *Waste Stream Profile Form Review and Approval Program*
- WP 08-NT.04, *Waste Data System Configuration Management and Software Quality Assurance Program*
- WP 08-NT.05, *Waste Data System Software Verification and Validation Plan*
- WP 08-NT.15, *Waste Data System Maintenance of Administrative Reference Tables*
- WP 08-NT1001, *Waste Data System Waste Stream Profile Review*
- WP 08-NT1002, *WDS Administrative Reference Tables*

The team reviewed NWP controlling documents, procedures, and WWIS/WDS user manuals for compliance with requirements of the upper-tier documents and WP 13-1, *NWP Quality Assurance Program Description*. The surveillance team determined that the documents listed above provide adequate flow-down of upper-tier requirements and provide adequate guidance and work steps for users to apply SQA to management of the WWIS/WDS.

Program Adequacy, Implementation, and Effectiveness

The WWIS/WDS was deployed in December 2009. The software is currently fully implemented and operates successfully. Since deployment, the software has undergone 13 version number changes addressing issues reported by users and modifications to the Waste Isolation Pilot Plant Hazardous Waste Facility Permit. Fourteen minor revisions were also made to incorporate patches and minor changes to the software.

Placement of the software contractor, Information System Laboratories, Inc. (ISL), was maintained based on an evaluation of the ISL quality program by NWP Quality Assurance (QA) performed in February 2013. ISL performs code modifications and provides SQA and configuration control of all aspects and modules of the WWIS/WDS. NWP performs acceptance and installation testing of all ISL code changes prior to deployment. Beta testing is performed by selected users following a beta test plan prior to final deployment.

The surveillance team determined that NWP adequately identifies, reviews, and approves changes to the WWIS/WDS, and generates requirements for the contractor to implement. ISL adequately translates these into design requirements, implementation documents, and software quality live-cycle documents. NWP and ISL utilize "Matrix," a web-based software management application, to track each change through the requirements, design, code modification, testing, and approval phases, including change and management of impacted life-cycle documents. ISL uses the "Sub Version" code control software to manage configuration of individual code modules. The surveillance team reviewed implementation of SQA to WWIS/WDS version 2.3 and determined that changes were reviewed and approved and that code was modified, tested, and installed in accordance with procedures. NWP adequately manages the development and production environments for servers at the Sken-Whitlock Building and at ISL. The surveillance team found that deployment of modifications and version changes to the WWIS/WDS, including the testing program performed by NWP prior to deployment, was adequately planned, performed, and documented, and was effective. (It should be noted that shortly after the performance of this surveillance an issue was identified where WWIS/WDS had not adequately identified

non-passing instances for several shipments but the shipments had subsequently occurred. The surveilled SQA program was adequate for identification of the issue and the extent of condition. The noted issue was technical in nature and affected the software logic for compliant shipping, it was however not an area reviewed under the scope of this SQA surveillance.)

Documentation reviews and personnel interviews were conducted during the course of the surveillance evaluating the maintenance and control of administrative reference tables contained in the WWIS/WDS. The team verified that DA training qualifications are current and the DAs are maintaining the Reference Data Change Log as required. Further evaluations of the WDS and interviews with the DAs verified that the Reference Data Change Log is maintained electronically and can be produced in hard copy format upon request. Roles and responsibilities of reference tables are maintained and controlled by limiting access, function, and control to specific personnel within the WDS system.

The surveillance team verified the QA functions that apply to maintenance of administrative reference tables are incorporated into the WDS system, and personnel are performing these functions per procedural requirements. Additionally, WDS-related records are generated and maintained according to the current Records Inventory and Disposition Schedule.

The surveillance team determined that NWP SQA procedures are adequate and that implementation of these procedures is satisfactory and provides for an effective application of SQA to maintenance, control, and use of the WWIS/WDS.

Corrective Actions:

Corrective Action Reports/Deficiencies Corrected During the Surveillance

No deficiencies were identified during the surveillance. As a result, there were no corrective action reports issued and no deficiencies were corrected during the surveillance.

Observations

No Observations were made as a result of the surveillance.

Recommendations

No Recommendations were offered for management consideration as a result of the surveillance.

Surveillance Team Leader Signature: James R. Schuetz Date: 11-1-13
James R. Schuetz
Assistant Manager/Office Director: Dennis Miehl Date: 11-4-13
Dennis Miehl,
Senior Quality Assurance Specialist