

## **Launching a Research Archive for FUSRAP Site Records – 17057**

Edwin T. Parks, D.P.A.; Bob Walker

US Department of Energy Office of Legacy Management, Morgantown, West Virginia  
edwin.parks@lm.doe.gov, bob.walker@lm.doe.gov

### **ABSTRACT**

The US Department of Energy Office of Legacy Management (LM) maintains a broad set of Formerly Utilized Sites Remedial Action Program (FUSRAP) document collections. The LM FUSRAP technical staff regularly needs access to documents contained in these record collections. The majority of the FUSRAP records are maintained in a large paper-based collection in the LM records storage facility. These records cover the period prior to 1997 in which DOE was responsible for the remediation efforts of FUSRAP sites. Other FUSRAP records are maintained as PDF files in LM's recordkeeping system. LM also maintains FUSRAP information in reference repositories in SharePoint directories and on network drives. The reference collection allows LM to keep abreast of active site remediation by the U.S. Army Corps of Engineers (USACE) since 1997.

Searching these FUSRAP collections in its current arrangement can be time-consuming and can result in incomplete searches. In response, LM proactively developed the FUSRAP Document Information System (FDIS) to provide a rapid, single-point search and retrieval system to provide real-time access to reference copies of FUSRAP documents.

Each entry in FDIS includes metadata listing the FUSRAP site, document title, date, source collection, and pertinent keywords. More significant entries (e.g., certification documents, site characterization reports, waste manifests) include a PDF scan of the entire document. Each PDF file is processed using an advanced optical character recognition (OCR) tool. The first significant content added to FDIS is 45,000 entries documenting remediation work performed primarily in the early 1990s by Bechtel National, Inc.

With the entries in FDIS, technical staff will be able to search the collection by site, category and keyword to quickly locate precise required content. LM records staff are also adding records that document remediation and monitoring work at FUSRAP sites where cleanup activities are considered complete. Documents for completed FUSRAP sites will be processed before documents for sites currently being remediated. In the future, FDIS will be populated with information about FUSRAP sites with ongoing remediation work as they are released to LM stewardship.

### **INTRODUCTION**

The US Department of Energy (DOE) Office of Legacy Management (LM) is responsible for long-term stewardship of completed FUSRAP sites. The majority of the FUSRAP sites currently under LM stewardship are remediated to conditions that pose no risk to human health and the environment, with limited surveillance

required. LM responsibilities for these sites consist primarily of preserving site records and responding to stakeholder inquiries. Specific requirements are established in individual long-term surveillance and maintenance (LTS&M) plans developed for each site. FUSRAP site transferring from the USACE to LM within the upcoming 10 years will require greater stewardship activities and real-time record search tools are essential; thus the need for FDIS.

FUSRAP LTS&M responsibilities for completed sites under LM stewardship, regardless of site conditions, include responding to external stakeholder requests for information about sites under its control. This includes Freedom of Information Act (FOIA) requests from the public and support for Privacy Act requests filed by former workers who were involved with site cleanup activities. LM's FUSRAP records have been crucial in responding to requests concerning site history, legacy operations, and worker safety.

LM also must ensure that information is available to their personnel and support contractors assigned with FUSRAP responsibilities. FUSRAP site records are needed for eligibility determinations, which evaluate whether a site meets criteria for remediation and post-closure care under FUSRAP. Eligibility determination involves evaluating the contractual relationship to DOE or predecessor agencies and the work performed onsite. Records are also needed to document remedial action activities, final site conditions, and post-closure care requirements.

To meet its mission, LM must ensure that it receives copies of relevant record from the U.S. Army Corps of Engineers (USACE) when remediation is complete and the site transfers to LM for post-closure care. LM also maintains pertinent historical records and metadata on where additional records are archived in the federal records system.

To assist in planning for these records transfers, LM published "Records and Information Management Transition Guidance" [1]. The document provides criteria for developing a Records and Information Management Transition Plan as part of an overall site transition. The transition plan established responsibilities for records transfer and includes a schedule with milestones to track records transition to completion. The transition plan also addresses records management concerns that may arise prior to its transfer to LM. Concerns include management support, contract language and agreements, interactions with the National Archives and Records Administration, and procedures to safeguard records.

Once a site records collection is transferred to LM, it must be properly maintained with adequate finding aids to allow staff to retrieve needed information in response to future requests.

## **LM FUSRAP HOLDINGS**

FUSRAP records are housed in numerous collections each with a unique organizational arrangement and with various forms of indexing. Records Management personnel must have FUSRAP project and institutional knowledge to understand the collections and how they are arranged in order to effectively identify and retrieve information about a site or to respond to an inquiry.

LM's primary FUSRAP records collections are described in this section.

### **Considered Sites Library**

The Considered Sites Library (CSL) documents FUSRAP functions from program initiation through 2004, when the collection was transferred to LM. The CSL originated as a collection of paper documents that provide the basis for understanding site histories, ownership, and FUSRAP eligibility.

In 2004, the paper-based CSL was digitized to provide an electronic document collection with improved retrievability. The electronic CSL files are maintained in LM's electronic recordkeeping system. The physical documents representing the contents of 83 standard records boxes are now maintained in the records storage facility at the LM Business Center in Morgantown, West Virginia.

Unfortunately, the PDF files were originally digitized as large, consolidated files with a dozen to hundreds of individual documents. The PDF files were processed with optical character recognition (OCR) which allows for keyword searches, but searches are cumbersome for personnel who do not have an understanding of how the large files are organized.

### **Considered Sites Database**

A subset to the CSL is a collection of electronic records, defined as the Considered Sites Database (CSD), that document sites' FUSRAP eligibility. The CSD includes documents that describe eligibility determinations and characterization, verification, and certification activities for FUSRAP sites—those designated for remediation as well as those eliminated from consideration for FUSRAP remediation.

LM has undertaken efforts in the past to quality check and enhance the CSD by finding and adding missing documents and correcting scanned images with missing or misplaced pages.

The CSD is available through the DOE website (<http://energy.gov/lm/sites/lm-sites/considered-sites>).

### **Electronic FUSRAP Record Holdings**

Individual electronic records pertaining to FUSRAP sites are maintained in the LM electronic recordkeeping system. These records are typically PDF files with OCR

(that allows for keyword searching) and metadata is maintained for each document, further enhancing keyword searches. The FUSRAP files organization does, however, requires some site knowledge such as a site's remediation status, for optimal search results.

Additional electronic records are maintained outside the electronic records system. Some are actively used by FUSRAP staff and have not formally transferred to LM's central electronic recordkeeping system. Records for some sites were historically maintained outside the recordkeeping system pending site transfer status to LM responsibility.

### **Physical FUSRAP Record Holdings**

Additionally, LM maintains several hundred boxes of paper-based FUSRAP records at the LM Business Center and a filing system of frequently accessed physical documents maintained at the LM records operation in Grand Junction, Colorado, where many of LM's technical representatives are located.

LM maintains finding aids in its electronic recordkeeping system for all of the physical holdings. These finding aids provide the storage locations and a summary of the information maintained in the physical collection. As with the CSD and CSL, an extensive knowledge of the physical collections and how they are organized will optimize chances for a successful search.

The physical holdings include 292 boxes of Bechtel National, Inc. (BNI) records pertaining to cleanup activities at several dozen FUSRAP sites. This collection has been of special interest to technical staff researching FUSRAP site activities. The BNI records are separated into two sets, or accessions, representing an initial cleanup contract and a second, follow-on contract. Until recently, the BNI accessions were indexed at the box level. The original index provided just a brief statement about what site records were included in a particular box. The original index gave little indication as to what information was included in the hundreds of documents in each box. Work to improve access to the BNI collection is described later in this paper.

### **FDIS DEVELOPMENT**

The arrangement of LM's FUSRAP holdings in several isolated collections led to frustrations. LM technical staff grew increasingly dissatisfied that they could not conduct their own research concerning FUSRAP topics. Each query required an explanation to Records Management Support staff who then conducted the multiple steps needed to search the collections properly.

Technical staff lamented the lack of a "one-stop" resource for information access. LM also observed how difficult it could be to preserve working knowledge of the complexly organized FUSRAP records collections in the midst of anticipated records staff turnover.

These problems led to the decision to develop a tool that allows technical staff direct access to FUSRAP information and that simplifies how the records are organized. The new tool was named the FUSRAP Document Information System (FDIS).

### **Reuse of an Existing Solution**

LM recently faced a similar challenge when it was assigned responsibility to preserve records and information pertaining to the Yucca Mountain Project. LM needed to provide ongoing access to Yucca Mountain records but could not actively maintain the project's complex records systems.

The solution was LM's development of the Yucca Mountain Records Information System (YMRIS) in 2012. YMRIS provided LM with the ability to conduct read-only search and retrieval from a copy of the original Yucca Mountain Records Information System (RIS) document collection.

When LM assumed responsibility for RIS its technical architecture was nearing the end of its productive usefulness. YMRIS was based on current technologies, ensuring ongoing vendor support and continuity of operations.

YMRIS provided LM the capability needed to respond to Yucca Mountain-related inquiries. Because the Yucca Mountain records remained under a preservation order, LM did not need or want YMRIS to include disposition functionality nor other features of a full records management program.

FDIS is based on the YMRIS technical architecture and includes updates to address FUSRAP-specific needs. Most significantly, LM needs to be able to add new documents to the FDIS collection and enhance document metadata easily. YMRIS is considered a steady-state collection and has no such capabilities.

### **FDIS User Experience**

The process of preparing documents for FDIS greatly improves document retrievability. The searchable OCR results combined with other document metadata give FUSRAP technical staff a powerful and flexible research tool.

As PDF files are uploaded into FDIS, the system conducts an advanced OCR scan using OmniPage document conversion processing. Once the document is loaded into the system, the OCR text is available for review on a separate "text" page.

A simple search bar allows FDIS users to conduct quick checks for unique document numbers or specific keywords in the FDIS holdings. An advanced search form offers a wide variety of search options (see Figure 1). First, users can search the collection by the site ID number, the site name, or by one of the many alternate site names. Users can also search among documents pertaining to multiple sites in a particular state. The latter can be helpful in response to searches involving both the primary FUSRAP site and any related vicinity properties.

FDIS users also can search by document title, document category, the document's source collection, and many other categories. Criteria for several categories can be combined for even greater precision in narrowing search results.

The screenshot shows the 'Document Search - Advanced' page of the FDIS system. At the top, there is a header with the U.S. Department of Energy logo and the text 'Legacy Management FDIS - FUSRAP Document Information System'. Below the header, there are navigation tabs for 'Search', 'Document', and 'Site', and a user welcome message: 'Welcome DEVNETLOCAL\MaulR\_nm'. The main search area is titled 'Document Search - Advanced' and contains two 'Submit Search' buttons and a 'Clear Search Form' button. A 'Search Tips' link is also present. The search criteria are organized into two columns. The left column includes: 'State' (dropdown), 'Title' (Title Contains dropdown and text input), 'Date' (Date On dropdown and text input, with a note: '(Use mm/dd/yyyy format! Enter 'first : last' for Between)'), 'Author' (Author Is dropdown and text input), 'Receiver' (Receiver Is dropdown and text input), 'Collection' (dropdown), 'Document Key' (Key Is dropdown and text input), 'Identifier' (Identifier Is dropdown and text input), and 'Access' (dropdown). The right column includes: 'Text' (Text Contains dropdown and text input), 'Type' (dropdown), 'Category' (dropdown), 'Document #' (Document # Is dropdown and text input), 'Comment' (Comment Contains dropdown and text input), 'License #' (License # Is dropdown and text input), 'Box #' (Box # Is dropdown and text input), 'Hold' (dropdown, currently showing 'L2007-0001'), and 'Concealed' (dropdown). At the bottom of the search area, there are three dropdowns: 'SortField' (currently 'NONE'), 'SortOrder' (currently 'Ascend'), and 'ConnectOper' (currently 'AND'). The footer contains 'Submit Search', 'Clear Search Form', 'Dept. of Energy', 'Version 0.1', and 'DOE Legacy Management'.

Figure 1. FDIS advanced search options.

Search results can be exported into static reports or they can be exported to spreadsheets with dynamic hyperlinks for quick document viewing. Documents of interest can be reviewed via a browser plug-in within the FDIS framework or they can be downloaded from the system as reference copies.

The system includes a help page with extensive search suggestions. The help page includes general advice about search techniques as well as specific advice about using wildcard symbols, search string syntax, and date field searches.

FDIS also includes a document feedback feature that allows users to inquire about a particular file or offer corrections to the metadata describing the document. The

feedback feature notifies LM records support personnel who work with the FDIS holdings.

FDIS was formally released for user access in November 2016 with 2,000 searchable documents loaded and detailed information about another 45,000 documents available in paper form at LM's records storage facility. Over the next few years, LM will work to make several thousand more documents searchable via FDIS.

## **DOCUMENT PRODUCTION SCHEDULE**

Planning for the FDIS system provided LM with an important opportunity to focus attention and resources on FUSRAP document maintenance efforts. To date, LM has produced finding aids for thousands of FUSRAP-related documents and produced PDF scans of thousands of paper-based documents of special interest to LM technical staff. Additional FDIS document preparation is ongoing.

### **Indexing Physical Records**

LM records management staff has generated an index listing every document in the BNI records collection mentioned earlier. The seven-month indexing effort was initiated in late 2015 after a successful pilot effort demonstrated the benefit of harvesting the document metadata.

The BNI record index can be organized easily into categories such as environmental monitoring and health and safety. Records in each category can be grouped further into specific topics. The health and safety category, for example, contains nearly 30 record topics including controlled area access registers, accident reports, and contamination surveys. Before this indexing effort, technical and records staff knew which box contained records pertaining to a particular site, but there was no certainty as to the volume and types of documents available for a site without poring through thousands of individual pieces of paper.

As the indexing information was generated by LM records staff, LM technical staff flagged site certification docket (or site closure reports) and other entries of special significance. The flagged documents were scanned to produce PDF images for direct access via FDIS search.

As LM has gained a more detailed understanding of the BNI records, external and internal stakeholder interest increased even before FDIS was formally launched. The U.S. Department of Labor (DOL) has expressed interest in gaining access to BNI records that may be responsive to Energy Employees Occupational Illness Compensation Program Act (EEOICPA) claims from former Bechtel/BNI FUSRAP site remediation workers. Dose reconstruction personnel from the National Institute for Occupational Safety and Health (NIOSH) continue their review of the BNI accessions to determine which records are relevant to DOL and NIOSH activities. It is also anticipated that the enhanced BNI indexes will allow LM to better identify

records and data for inclusion in the new Environmental Quality Information System (EQUIS).

### **Organized Electronic Records**

Upon completion of the BNI indexing, LM records support personnel launched an effort to organize the CSL, CSD, and other electronic records holdings pertaining to 30 FUSRAP sites with “completed” remediation status.

Personnel are checking each FUSRAP records collection for all records about each site. As those records are collected, staff are removing duplicate documents and retaining the best version if duplicates differ in quality. Staff are also taking other quality control measures to ensure document completeness and maximize PDF readability. As records organization efforts for each site are completed, they are prepared for loading into FDIS.

### **FDIS Preparation Phases**

The effort to ready FDIS and populate the new system with an initial set of documents was a significant task. The ongoing effort to incorporate additional documents is expected to continue for several years (see Figure 2).

Phase 1 involved development of an FDIS prototype as a proof-of-concept to solidify requirements and demonstrate system search and retrieval capabilities. The prototype was accepted by LM users; their suggestions for changes were minor. In support of Phase 1, records support staff identified and prepared a set of approximately 50 typical FUSRAP documents to populate the prototype system.

Phase 2 involved full-scale FDIS implementation incorporating lessons learned from the Phase 1 testing. Significant technical work during this phase was to include functionality to add and update documents—features not present in the original YMRIS programming on which FDIS is based.

During Phase 2 the BNI documents and index entries mentioned earlier were loaded into the system. Several hundred documents from the Painesville, Ohio, site administrative record were also prepared and loaded into the system before the November 2016 FDIS release date.

With the release of FDIS, LM anticipates no significant additional technical work on the system, but document preparation work continues as Phase 3. This effort involves the previously discussed project to identify and organize electronic documents pertaining to 30 completed sites. It is estimated that Phase 3 will result in the addition of roughly 6,000 documents to the system.

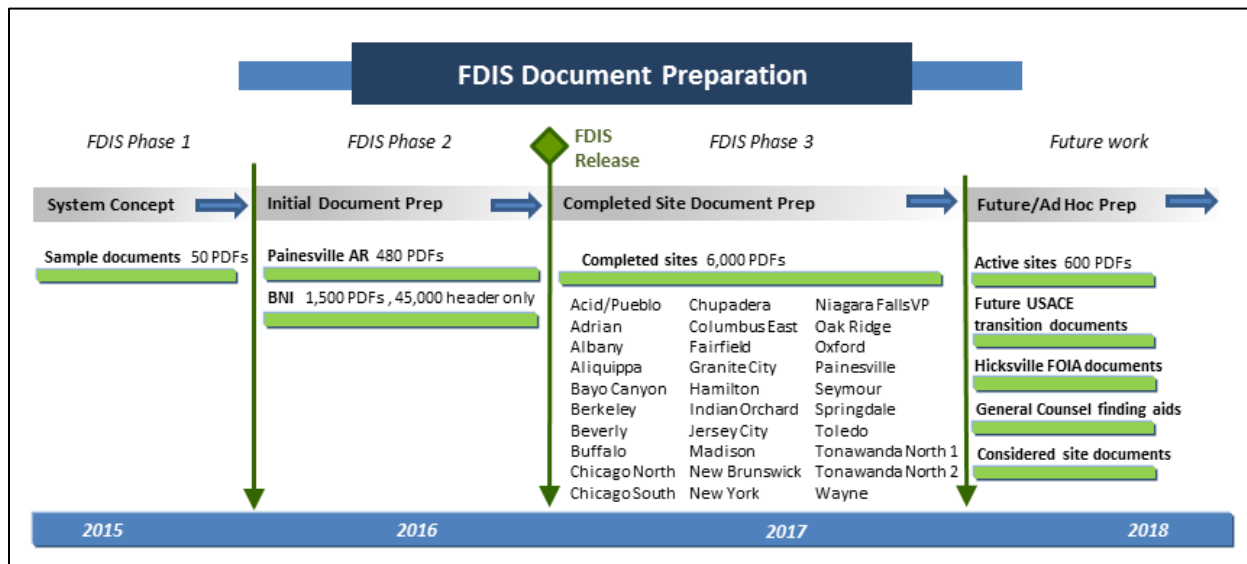
FDIS Phase 3 work is being performed by Records Management personnel responsible for ensuring retrievability of all LM record collections. Based on a projection of 3 full time equivalent (FTE) staff from the Records Management group, the completed site document work is scheduled to take approximately 18 months.



An exact completion deadline has not been set due to uncertainties about the total volume of documents; however, progress metrics have been established to ensure progress.

Once Phase 3 work to prepare FUSRAP completed site documents is completed, Records Management staff will collect and enter additional FUSRAP-related documents. These include:

- Documents for the 24 FUSRAP active sites. Active site records will be gathered using the same process observed for FUSRAP completed sites records.
- The remaining Painesville site documents anticipated to be transferred from USACE.
- Additional new FUSRAP-related collections received from USACE. This includes documents for Linde and other sites scheduled for transfer.
- Collections of Oak Ridge National Laboratory and Savannah River Site documents responsive to a FOIA request concerning the Hicksville, New York, FUSRAP site. These documents are currently maintained by LM technical staff.
- A collection of finding aids for DOE General Counsel records that contain FUSRAP-related entries.



**Figure 2. FDIS document preparation schedule.**

The schedule for including these additional collections will be based on Records Management resource availability and USACE records transfer progress. The order that each collection is entered into FDIS may be prioritized later based on FUSRAP project needs as document preparations proceeds. LM recognizes the importance of identifying and properly cataloging remediation and other FUSRAP legacy records.

Curation of other LM record collections will largely be superseded during the FDIS document preparation effort.

### **Improving LM's Records Holdings**

FDIS is a reference only collection. The official record copy of any FUSRAP documents will remain in the LM electronic recordkeeping system.

The effort to organize FUSRAP documents for FDIS would be squandered if those organizational benefits weren't also reflected in the LM recordkeeping system. As each collection is readied for FDIS inclusion, LM is verifying that the collection is properly represented in the recordkeeping system with corrections or additions being made as necessary.

Each entry in the LM electronic recordkeeping system has a unique document object number. LM records staff ensure that the document object numbers are also reflected in FDIS. Use of the object numbers will help ensure the official record version of LM's FUSRAP holdings remains synchronized with the reference version offered in FDIS.

### **CONCLUSION**

FDIS provides LM technical staff with direct access to information and eliminates the need for LM records personnel to serve as gatekeepers to the information. With FDIS entries, technical staff are able to search the collection by site, category and keyword and quickly locate the required information.

The benefit of FDIS to LM and its stakeholders will continue to increase over time as more documents and collections are received, processed, and added to the database. FUSRAP information that could not be retrieved in the past will be accessible once it has been processed into FDIS. LM technical staff and records personnel alike will be better able to respond to requests for information.

LM cannot state conclusively that all essential information pertaining to FUSRAP sites is contained in LM's records holdings or whether that information can be retrieved when needed. Nonetheless, the effort to prepare documents for FDIS and the search features available in the system go a long way toward enhancing retrievability.

### **REFERENCES**

1. US Department of Energy, 2016. "Records and Information Management Transition Guidance," Office of Legacy Management, Guide 243.1B, May.