Implementing Real-Time Facility Data Management between Partners: Impacts to Facility Data and Pilot Lessons Learned

E-Enterprise Facility State Master Data Management Pilot

Version 1.0 May 2018

E-Enterprise Facility Team’s State MDM Pilot Team
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1. INTRODUCTION

Facility data is at the core of federal and State, Local, and Tribal (SLT) environmental regulatory processes. Knowing a facility’s name, ownership, location and characteristics are key to a comprehensive picture of past, current, future, and potential environmental impacts. Linked to other critical environmental data such as ambient air and water quality data, census figures, and other demographic information, facility data has the capacity to provide a comprehensive picture enabling co-regulators to better protect human health and the environment.

The purpose of the State Master Data Management (MDM) pilot conducted in Phase II of the E-Enterprise Facility’s multi-year project to integrate facility information was to explore how facility data can be jointly managed by the Environmental Protection Agency (EPA) and a state with a mature MDM system and processes. Implementing a joint management framework provides the enterprise with comprehensive, up-to-date facility information. It allows the participating partners to incorporate additional facility information into their systems (including public-facing websites and services), improving transparency and data quality for all stakeholders. Outcomes of the pilot are not intended to be limited to partners with mature facility MDM systems. The intention is to develop facility services that can be used by partners regardless of their current MDM capabilities and regardless of the technical platform used by partners. All partners regardless of whether they manage facility information in an MDM system or not, will benefit from the shared facility services that were developed under this pilot.

EPA partnered with the Rhode Island Department of Environmental Management (RIDEM) to explore joint facility data management. RIDEM uses a state-developed customized system, Permits, Licenses & Other Vital Environmental Records (PLOVER) to manage facility data for their agency. They have a robust data governance framework in place to manage facility data. A crucial aspect of this pilot was the use of shared web services to enable this joint facility data management while acknowledging and minimizing disruption to a state’s implemented MDM system and set of policies and practices.

Together, EPA and RIDEM implemented the State MDM Pilot. The pilot included requirements gathering, service development and documentation, and an evaluation of impacts to “downstream” users of FRS facility data. This document provides a summary of the work done in the State MDM pilot.

2. STATE MDM PILOT PHASE II ACCOMPLISHMENTS

Early efforts under the State MDM Pilot focused on requirements gathering and defining the goals of the pilot. Later, the team transitioned to development to build the pilot shared facility services. Development work was conducted by both EPA and RIDEM for their respective systems. Services built as part of the pilot were delivered within test environments.

2.1 Terminology

In order to understand the context for the accomplishments of Phase II, some readers may find an explanation of common terms and illustrations of how the data in FRS and PLOVER operated pre-pilot helpful. Appendix A includes some additional background information.

2.2 Laying the Foundation

From December 2016 to August 2017, the E-Enterprise Facility team and RIDEM had foundational discussions to provide insight into both PLOVER and EPA’s Facility Registry Service (FRS). This allowed the group to explore details of each partner system. Discussions covered how each system manages, processes, and governs facility data, including detailed discussions on system architecture, technology, governance processes, and the business rules and system logic that dictates how facilities are added, edited, merged, and unmerged. The merging and unmerging of facilities is especially critical in...
maintaining accurate information about facilities by avoiding duplicative facilities and erroneous linkages between program information and a higher-level or “master” facility records. The group developed use cases to explore step-by-step details for how joint facility management of data would work.

The group documented four main use cases (PLOVER Add New, PLOVER Edit, FRS Edit, and PLOVER Query FRS) and seven total scenarios in a flowchart format. Links to these documents are provided in Appendix B. These use cases allowed the team to identify the number and types of joint facility services that were wanted in the pilot. The group coordinated with and referenced materials created by the Facility Team Business Rules and User Stories work streams to ensure consistency.

2.3 Goals of the Pilot

The group’s goal was to develop and implement shared facility services that would enable:

- A state user to perform MDM functions in their state MDM system and have those functions be reflected in FRS in real time.
  - For example, if a data steward edits a facility record in a state MDM system or merges two facility records into a single facility record in a state MDM system, the edit/merge should be immediately visible in FRS.

- An FRS data steward to edit an FRS facility record to be reflected in a state’s MDM system in real time.
  - For example, if a data steward makes an edit to an FRS facility record, or if two FRS facility records are merged, that edit or merge should be immediately sent to partners for incorporation into their facility MDM system.

- A real-time search of FRS facility records and seamless integration into a state website and state MDM system.
  - For example, if a member of the public is on a publically accessible Internet page with the ability to search a state MDM system, the search provides results from both the state MDM system and FRS. This enhanced public search provides members of the public with a more complete search result set.

  - For example, state staff are able to execute a search of FRS facility data from within their state MDM system. By incorporating an FRS search into a state’s facility MDM system, the state MDM data stewards will be able to leverage FRS facility data, decreasing data entry time and reducing the possibility of duplicate facility records.

Once the services were implemented, the group had a goal to evaluate the impacts of real-time shared facility data management on other “downstream” users of FRS facility data.

Appendix C includes diagrams and more detailed explanations to illustrate the anticipated relationship between an FRS facility record and PLOVER records after completion of the pilot.

The group recognized the need for service components to be configurable and developed in accordance with the E-Enterprise Shared Services Strategy. Ensuring adherence to E-Enterprise principles was a touchstone of the team’s evaluation criteria. The group recognized the need to utilize E-Enterprise assets where possible.

2.4 Minimum Viable Product

The group agreed that they would focus on a Minimum Viable Product (MVP) for the first iteration of development. An MVP is a product with enough features to meet minimum requirements and allows the product owner to provide feedback for future development. The group determined that shared facility services would be implemented in a non-production environment. This allowed the team to create scenarios and evaluate many types of edits and updates to facility records. By creating and testing
scenarios in a non-production environment, the group was able to evaluate the impacts of real-time facility data management by an external partner to other users of FRS facility data. The group implemented Agile methodology in short (two to three week) development sprints in order to design, develop, and document the shared facility services. Project work was managed by the EPA development team using Agile IQ Suite tools Jira and Confluence. These products include the ability to document requirements and link them to tickets that were part of the Agile development sprints.

2.5 Shared Facility Services Design

Early Agile sprints focused on services design and decisions around security and business logic. Using the flowcharts and previous discussions as a foundation, the group determined what business logic was needed in both systems in order to implement a bi-directional flow of facility data in real time. At this stage, the team made several decisions that would define how the services would be development and implemented.

A critical decision that defined future business logic was that RIDEM would act as the primary data steward for FRS facility data that was linked to data in their state MDM system. Any new facilities added or edited by RIDEM in their state MDM system would be reflected in FRS. This meant that edits by RIDEM would be treated as equivalent to edits by FRS data stewards. The team determined that changes made in FRS to records linked to the RIDEM’s state MDM system would also be provided back to RIDEM for them to incorporate into their state MDM system. Appendix D includes a list of facility data attributes that are exchanged by the services and applied to the FRS facility record.

A second critical decision was that services would enable the exchange of data in real-time, rather than batching changes to data on a monthly, weekly, or even daily basis. Adding or editing a record in RIDEM’s state MDM system would trigger a real-time service call to FRS to provide the updated information. Likewise, a change in FRS would trigger a real-time service call to update RIDEM’s system.

The group determined that data would be exchanged using JavaScript Object Notation (JSON) files, although Extensible Markup Language (XML) files will also be available in future iterations. The group reviewed available data in both systems and identified the data fields that would be exchanged as part of the services and performed a gap analysis to identify fields that needed to be added or modified in order to exchange the desired data. The group also evaluated potential discrepancies in data type and field length in order to resolve those differences.

RIDEM examined the data in their state MDM system and determined which facility data would be part of the exchange. Like many state MDM systems, RIDEM’s system contains state-only records and other records that do not fall under EPA’s regulatory authority.

2.6 Shared Facility Services Architecture

As the team transitioned into more traditional development, the group established the necessary architecture and data that would be needed to implement the pilot services. See Appendix E for a diagram that represents the Pilot architecture.

2.7 RIDEM Dataset

RIDEM provided a dataset from their development environment via FACTID 3.0 and implemented into the FRS Pre-Production environment. Once the PLOVER dataset was fully incorporated into the FRS Pre-Production environment, FRS provided the dataset back to RIDEM along with the associated FRS facility IDs so that RIDEM could incorporate those IDs into their development environment.

2.8 Security

The group evaluated several options for security, and determined that they would use the Network Authentication and Authorization Service (NAAS) in use by the Central Data Exchange (CDX). NAAS
is a collection of services that manage access and permissions. It acts as a shared provider that allows restriction to the services to requests that have the appropriate credentials without the services themselves having to manage credentials. NAAS is commonly used for other applications within the Exchange Network. NAAS authentication was the most appropriate approach for the system-to-system exchange of facility data via web services. The group expects that options for security will evolve over time as E-Enterprise projects implement different solutions across multiple projects. Future implementations are expected to evaluate all options available to them when they are ready to implement.

Both the FRS and PLOVER services utilize NAAS authentication. In order to submit to FRS, RIDEM provided EPA with a Static IP list that will enable RIDEM to access the shared facility services. RIDEM also provided information that will enable FRS to submit updates to PLOVER.

2.9 Shared Facility Services Development

As part of Phase II of the State MDM Pilot, the team developed three facility web services. During the development phase, the team developed the shared services, implemented security and updated FRS and PLOVER with necessary changes in business logic.

FRS services were built in Java and PLOVER services are built in .Net. The use of shared services enables data exchange among partners with different architectures and technologies. This is a critical component to being able to implement shared services across the enterprise.

2.9.1 Submit to FRS

The FRS team built a submit service that will be called when changes are made within PLOVER. RIDEM developed the necessary functionality to generate a JSON file and submit the file to the Submit to FRS service. The FRS team updated FRS business logic to process the submit file from PLOVER, including applying facility updates to the FRS facility record. The service also enables PLOVER to identify facility records that should be merged or unmerged based on facility merging and unmerging performed in PLOVER by RIDEM data stewards. Once created and unit tested locally, services were deployed to a Pre-Production environment.

2.9.2 Submit to PLOVER

The RIDEM team built a submit service that FRS will call when changes are made to an FRS facility record that is related to a PLOVER record. The FRS team developed functionality to generate the JSON file to submit to this service, and RIDEM developed functionality to process the FRS edit within PLOVER. The service enables real-time transfer of facility information from FRS to PLOVER and includes the ability for FRS to specify two or more PLOVER records that could be merged or unmerged based on facility merging and unmerging performed in FRS by FRS data stewards. Once created and unit tested locally, services were deployed to a Pre-Production environment.

2.9.3 Query FRS

The FRS team developed a query service that PLOVER and ePLOVER can call to perform a real-time query of FRS. ePLOVER is RIDEM’s publicly available search interface for PLOVER. RIDEM has developed the ability to call this query upon execution of a search on their ePLOVER website. Once created and unit tested locally, services were deployed to a Pre-Production environment. Appendix F contains screenshots illustrating how the FRS query is incorporated into the ePLOVER search. The query service does not change data and can be easily implemented to enhance public access to facility information.

2.9.4 FRS Business Logic Changes

EPA made business logic changes to FRS to enable an edit from RIDEM’s State MDM system to update an FRS facility record. This included changes to the FRS logic in multiple places. The logic ensures that
only edits to records related to a RIDEM PLOVER record can occur. In other words, updates from PLOVER cannot update FRS facility records that are not in Rhode Island.

2.10 Short Term Wins

The State MDM Pilot effort has resulted in three schemas and a version of shared facility web services that can be leveraged for data exchange between EPA and SLT partners and within EPA between FRS and program-specific applications. The lessons learned through this pilot will inform future collaborations among partners. The Query FRS service, which does not involve updating data, can be implemented in production in the near-term. This will enable the Facility Team to realize the goal of providing more timely facility information to the public.

2.11 Level of Effort

The Facility Team Phase II State MDM Pilot took place between December 2016 and March 2018. The focus of the early phase (December 2016 through August 2017) was to lay the foundation for development and testing of the pilot services, which took place between December 2017 and March 2018. This pilot would not have been successful without the participation and collaboration among the State MDM Pilot team members. Participants included Rhode Island staff, EPA staff, contractor support staff, and the Facility Team co-chairs.

Rhode Island Department of Environmental Management pilot team members included the Agency Information Technology Director, a State Project Manager, Programmer and Lead Analyst, and Web Programmer. RIDEM team members participated in over 30 meetings during the scoping and planning phase of the pilot. Rhode Island staff provided an overview of their system and business processes, evaluated project review documents and content, and met offline as a sub-team in order to be prepared for large Pilot team meetings. During the development phase, the Agency IT Director provided guidance and input over the overall implementation of pilot services and the State Project Manager provided programmatic input and coordination for the RIDEM team members. The Programmer and Lead Analyst developed and unit tested the Submit to Partner Service and performed development and unit testing on the RIDEM MDM system to enable database triggers and logic changes to call the Submit to FRS service. The Programmer and Lead Analyst also tested the Submit to FRS service and obtained all screenshots necessary for full end-to-end testing and downstream evaluation with EPA and EPA’s contract support team members. The RIDEM Web Programmer developed and tested UI changes to the RIDEM public website as a result of incorporating the Query FRS service. The Web Programmer also tested the Query FRS service necessary for end-to-end testing of that service.

EPA project participants included the FRS product owners within the Office of Environmental Information and contract support from CGI Federal. The EPA FRS product owners attended all meetings and provided thorough and thoughtful input to all stages of the project including work product and deliverable review, guidance on policy and technical issues and many other areas.

EPA contractor support staff from CGI Federal participated by facilitating pilot meetings, producing work products and deliverables, developing the FRS services, and executing the downstream evaluation and testing scenarios. During the early phase of the pilot, contractor support staff consisted of a project manager and functional business analyst with some participation from application development staff. Once development began in December 2017, CGI Federal allocated three developers, a lead developer who coordinated all development, testing, and deployment activities and two JAVA developers who focused on JAVA service development.

The Facility Team Co-Chairs who were not already represented on the Pilot team also participated in most of the early planning meetings, sprint review meetings, and reviewed work products and deliverables.
Table 1 summarizes the approximate allocation of State MDM Pilot team members during both the foundational phase of the pilot and active development and testing phase of the pilot.

<table>
<thead>
<tr>
<th>State MDM Pilot Team Member Organization</th>
<th>Role</th>
<th>Approximate % Allocation December 2016 – August 2017</th>
<th>Approximate % Allocation December 2017 – March 2018</th>
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<tr>
<td>Rhode Island Department of Environmental Management</td>
<td>Agency IT Director</td>
<td>5%</td>
<td>1%</td>
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<tr>
<td></td>
<td>State Project Manager</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Programmer and Lead Analyst</td>
<td>8%</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>Web Programmer</td>
<td>5%</td>
<td>20%</td>
</tr>
<tr>
<td>EPA, Office of Environmental Information</td>
<td>FRS Product Owner</td>
<td>15%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>FRS Product Owner and EPA Co-Chair</td>
<td>10%</td>
<td>25%</td>
</tr>
<tr>
<td>Facility Team Co-Chairs</td>
<td>State Co-Chair (Josh)</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>EPA Co-Chair (Ron)</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>CGI Federal, EPA Contractors Supporting FRS</td>
<td>Project Manager</td>
<td>30%</td>
<td>50%</td>
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<tr>
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<td>Functional Business Analyst</td>
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<td>25%</td>
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<td></td>
<td>Lead FRS Developer</td>
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<td>75%</td>
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<tr>
<td></td>
<td>FRS JAVA Developers</td>
<td>N/A</td>
<td>25%</td>
</tr>
</tbody>
</table>

Table 1. Approximate allocations for State MDM Pilot Team Members.

3. DOWNSTREAM EVALUATION

Implementing shared facility services in real-time and enabling edits to FRS facility records by a state partner is a paradigm shift for EPA. One goal of the pilot was to evaluate how changes to an FRS master facility record would affect future (or “downstream”) users of those FRS facility records. It was important for the group to fully evaluate the effects of the pilot services downstream.

The group developed nine downstream evaluation scenarios. Some included very specific data setup/identification needs in order to evaluate specific impacts to changes in a facility record. Appendix G lists the downstream evaluation scenarios, including a description of the data set up and the before and after screenshots for most scenarios.

All evaluation scenarios produced the intended results (passed) and the Facility Team did not note any significant impacts to downstream users of FRS facility data because of PLOVER edits being applied to the FRS facility record.
Direct reporters who report via the Facility Widget can edit and report only on their associated FRS program record, such as a TRI or CEDRI record. Facility Widget users do not have the ability to directly edit an FRS facility record. Therefore, it has always been possible that the FRS facility record will not match the FRS program record. If the FRS facility record and the Facility Widget user’s program facility record do not match (different facility name or address), the user is alerted by an informational icon and message on the Facility Widget user interface. The Facility Widget user has the option to edit their program facility record, but is not forced to do so.

Appendix G contains screenshots of the Facility Widget that represent what regulated entities may expect to see after pilot services are implemented in production. Because the services are not updating other program records (i.e., PLOVER editing a record does not change a Toxic Release Inventory (TRI) record linked to the same FRS facility record), there is no significant impact to direct data reporters that use the FRS Facility Widget.

4. PROJECT DOCUMENTATION

The group recognizes that future partners will want to implement the new shared facility services, but may not be able to dedicate time to a lengthy on-boarding process. The group collaboratively developed an Implementation Guide that will serve as a blueprint for future partners. The Implementation Guide is a working document that will be modified based on input from subsequent pilots and testing. It is available on SharePoint at this link.

Shared Facility Services documentation was deployed as part of the services. Service documentation adheres to API best practices and standards as developed by 18F, an office within the General Services Administration focused on digital services, except in portions of the document that are only applicable once a service is available in a production environment. Once services are deployed to production, services documentation will adhere to 18F standards.

5. POST-MVP ISSUES

The focus of the State MDM Pilot was to develop services that will work for FRS and PLOVER. The group made efforts to ensure broad applicability where possible, however future partners may have different requirements and will need to evaluate the services along with the Implementation Guide to determine how to implement shared facility management to best meet the needs of their organizations. It is also possible that future partners will see significant alignment between their use cases and the current version of the services. For example, RIDEM was interested in using query services to enhance the search capability on their ePLOVER public search page. Doing so helps public users get a more complete answer to the “what’s near me?” question. This is a common use case among partners and may not need significant adjustments going forward.

During the course of the Pilot, the Facility Team identified issues and service functionality expansions that were deemed out of scope for the current Phase II MVP effort. These unresolved questions and potential future functionality were documented so that they can be addressed in subsequent facility work. The list of items to be addressed in the future will continue to evolve as more partners use the shared services.

5.1 Policy/Governance Issues

The team identified six issues that need to be discussed with a broader audience because they touch upon policy/governance topics.

- The concept of facility status and how to populate FRS facility status and status date needs to be addressed. Facility status attempts to describe whether activity is taking place at a given facility and in some systems relies on descriptors such as “active”, “inactive”, “temporary”, “permanently
closed,” among others. A future discussion may benefit from evaluating what other E-Enterprise groups, such as the ECHO workgroup, have discussed with respect to facility status.

- The management of a state’s program systems in conjunction with EPA’s program data remains an issue. States may manage program data in a state system that is provided to a corresponding EPA program system and then populated into FRS from that EPA program system.

  - For example, a state may have its own system to manage emissions data within the state, a subset of which is provided to EPA’s Emissions Inventory System (EIS), which then populates FRS. This issue also includes the matching of specific program records with potentially different facility records in FRS and a State MDM system. A change can be made in FRS but how does that change get reflected in the EPA program source system?

- Incorporating partner Geographic Information Systems (GIS) data and changing how the Best Pick location for an FRS facility record is determined is an open technical issue for the geocoding component of FRS.

- The business rules and logic surrounding facility records being archived (“deleted”) needs to be discussed. FRS does not delete records permanently; they are archived so history is preserved. Some partner systems may perform a true delete and guidance surrounding how joint facility services should manage this is needed.

- Discussing a facility’s lifecycle with respect to different media/program perspectives and how that concept should be addressed with respect to sharing facility data.

- Defining and implementing a longer-term goal of simplifying reporting for permitted entities by utilizing shared facility data among partners.

While the group agreed these issues were important, they were judged to be out of scope for the current pilot effort. In addition, these topics overlap with other areas that are currently being examined through the lens of E-Enterprise and have an impact broader than facility alone. The facility status and management of a state’s program system data were referred to the Business Rules work stream and will need to be revisited by the Facility Team in the future.

### 5.2 Refinements to Pilot Shared Facility Services

During the course of MVP development, it is common to discover additional functionality needs that are deemed important, but not critical, to the immediate MVP product. These additional features/functions will expand the current services or implement additional business logic changes in FRS. The Facility Team will consider these for future services deployments.

- Provide information about merged facilities as part of the Submit to FRS service to inform partners about other FRS program facility records associated with the partner record.

- Add duplicates fields that are already in the schema to the data exchange.

- Modify FRS business logic for null Supplemental Program Interests.

- Add Quality Assurance (QA) fields to the Submit to FRS service response.

- Evaluate the need for additional FRS business logic changes as a result of the services.

- Add failed changes to a staging table to ease the ability to investigate issues if a submission is not successful.

- Develop a versioning plan to support future pre-production and eventual production deployments of all of the services that will eventually be part of the service suite for shared facility services.

- Configure test routines to ensure services are working properly.
• Implement automated regression testing to make developer testing more efficient.

5.3 Expanded Services
The Facility Team identified potential new services or new exchanges that could be incorporated into future releases.

• Implement lookup services to provide standard code sets to partners.
• Create XML (XSD) schemas for partner that may not be able to use JSON.
• Exchange data for the following FRS tables:
  − Organization
  − Contact
  − Alternative Name
  − Alternative ID
  − Sub-Facility
  − NAICS
  − SIC
  − Mailing Address
  − Tribal Codes

5.4 Preparing for Production Deployment
Several tasks need to be complete before any shared facility services can be deployed to production.

• Test pilot services with other SLTs to ensure broad applicability.
• Develop a Shared Services Commitment (SLC) to describe EPA’s commitment for supporting shared services.
• Develop Shared Services Agreements (SLAs) with partners who want to adopt joint facility data management to address the business expectations in maintaining data.
• Register services in the Reusable Component Services (RCS) catalog along with all required supporting documentation.

6. Lessons Learned
The State MDM Pilot team compiled lessons learned throughout the course of Phase II activities. They are documented here to inform additional development and testing within the SLT community.

• Clearly define dependencies which may exist between different E-Enterprise projects and which also include dependencies between partners participating in development and those entities outside of the existing development team. This is especially relevant to E-Enterprise broadly.
• Provide flexibility to staff within the partner agency regarding their use of project tools and documentation. Some partners may wish to directly use the same set of project management, requirements gathering, and Agile development tracking tools used by EPA (e.g., the Agile IQ Suite). Some partners may wish to communicate via email and not use the tools used by the EPA development team.
• For tasks that require coordination between partners, establish a coordination mechanism between sprint reviews. For tasks that may require additional explanation, holding a short (30 minutes or less) meeting may be more productive than exchanging emails.
• Capture hours spent on tasks to help inform future planning.
• For all sprints, identify the must-completes from the nice-to-haves.
During services development/implementation, establish a good communication between partner and EPA/contractor technical team members. Availability of technical staff when issues arise helps make more efficient use of everyone’s time.

Complete project documentation as the project progresses. This enables the team to be more efficient.

Allow sufficient time for testing between partners and downstream evaluation. Prior to testing, establish a plan for who will do what, and in what order.

7. **SUGGESTED NEXT STEPS**

The initial services represent the work completed as part of the State MDM Pilot in Phase II of the Facility Team. The Facility Team expects that the services will evolve to expand functionality and that future phases will include efforts to expanded services with additional partners. Future pilots are expected to take place in test environments with continued evaluation of the impacts to other users of FRS facility data. After the services have been evaluated with an additional partner or partners, the Facility Team expects to plan for production implementation of the services. At that time, the service documentation and necessary Service Level Commitments will be created and the services will be discoverable for use across the Enterprise. Once in production, the Facility Team expects that services will continue to develop in future versions to meet the evolving needs of EPA and partner agencies.

The Facility Team created an Implementation Guide which is intended to serve as a document that will be adapted for future versions of shared facility services and aid in future pilots with additional partners and in production implementation of the shared facility services. The Implementation Guide can be found on SharePoint at this [link](#).

8. **ACKNOWLEDGEMENTS**

The Facility team wishes to acknowledge the tremendous effort, time, attentiveness and dedication shown by the RIDEM participants and Facility team members. Their contribution to this effort will help usher in a new era of joint collaborative information management. Their help in advancing the mission of E-Enterprise is greatly appreciated. Team members and their roles are listed in Appendix H.

9. **SUMMARY MATERIAL**

Materials for the State MDM Pilot meetings, including slide decks and meeting minutes can be found on SharePoint. SharePoint is used by the Facility Team and E-Enterprise as a way to share content with multiple partners. It requires a login and password. For access to SharePoint or for questions on access, please visit the E-Enterprise ‘Contact Us’ page at: [https://www.epa.gov/e-enterprise/forms/contact-us-about-e-enterprise-environment](https://www.epa.gov/e-enterprise/forms/contact-us-about-e-enterprise-environment).
APPENDIX A – TERMINOLOGY AND DATA STRUCTURES

A.1 Terminology and Data Structures in Master Data Management Systems

Many facilities that fall under environmental regulations or requirements are subject to multiple regulations. For example, an industrial facility may have an air permit, a National Pollutant Discharge Elimination System (NPDES) discharge permit, and may fall under reporting requirements for TRI. These individual requirements are often separated by media (air, water, waste), by organizational “program” areas, or by statutory or regulatory authority. This results in individual records for each type of requirement, meaning a single facility can be separately represented by an air record, a NPDES record, a TRI record, and more. Each of these records has a facility name, address, location (latitude/longitude and metadata), and unique ID in addition to other data attributes. In FRS, these records are referred to as Program Facility Records. There is an additional subset of facility data related to program facility records. In FRS, these are called Supplemental Program Interests. These typically represent a permit or facility type.

In a facility Master Data Management (MDM) system, such as FRS or PLOVER, individual Program Facility records are recognized as belonging to the same physical facility and are linked together and tied to a “master” or parent record. This higher-level record usually contains a single facility name, address, location and a unique ID (among other attributes). In FRS, these records are referred to as the FRS Facility Record. The methods used to identify program records that should be linked under a single higher-level record and to populate the data attributes are unique to each MDM system.

A.2 FRS Facility Records and Partner Data – Before the Pilot

FRS integrates facility data from EPA programs and partners. Regardless of the source of the data, all records provided to FRS from EPA programs result in the creation of FRS program records, underneath the FRS facility record. Records provided to FRS from EPA partners, such as from a partner MDM system, result in the creation of an FRS partner facility record. Within the data structure of FRS both FRS program facility records and FRS partner facility records are stored in equivalent FRS database tables. Figure A-1 illustrates the relationship between an FRS facility record and associated FRS program facility records and an FRS partner facility record and their associated supplemental program interests. In this example, the PLOVER partner facility record is shown bolded and with a dashed boarder to differentiate it from the other records, which are provided from EPA program systems.

![Diagram of FRS Facility Record and Program Facility Records](image)

Figure A-1: Example of the relationship between an FRS facility record and FRS program facility records and FRS partner facility records.

Using the example data structure illustrated in Figure A-1, Figure A-2 applies sample data to this scenario. Figure A-3 represents how FRS stores this partner data prior to execution of the Pilot and reflects
that, pre-pilot, partner facility data is not used to populate FRS facility data attributes. The PLOVER record is shown bolded and with a dashed boarder to differentiate it from other records.

Figure A-2: Example relationship between FRS facility records, program facility records, and a partner facility record from PLOVER. Note that the FRS facility record does not incorporate data attributes from the PLOVER partner facility record.
APPENDIX B – STATE MDM USE CASES AND SCENARIOS

The team developed four use cases and seven scenarios to capture requirements of the facility services in scope for the State MDM pilot. A scenario description, preconditions, user stories, and links are provided below.

- Use Case: PLOVER Add New
  - Scenario: PLOVER adding a new record
    - Precondition: The record is new to PLOVER
    - User Story: As an RI PLOVER user, I want to add a new facility record to PLOVER. I want this record to be sent to FRS (assuming it is of interest to FRS) to maintain consistency between PLOVER and FRS

- Use Case: PLOVER Edit
  - Scenario: PLOVER Edit (not de-duplication) to an existing PLOVER record
    - Precondition: Every record with an FRS Registry ID in PLOVER has a PLOVER Program Interest ID in FRS
    - User Story: As an RI PLOVER Data Steward, I want to edit a PLOVER facility record and I want the edit to be sent to FRS in order to maintain consistency between PLOVER and FRS
  - Scenario: PLOVER de-duplication between two existing PLOVER records
    - Precondition: Every record with an FRS Registry ID in PLOVER has a PLOVER Program Interest ID in FRS
    - User Story: As an RI PLOVER Data Steward, I want to de-duplicate two PLOVER records and I want the actions I take in PLOVER to be reflected in FRS in order to maintain consistency between PLOVER and FRS

- Use Case: FRS Edit to an existing FRS Facility Record
  - Scenario: FRS Edit to FRS Facility Fields (not a merge)
    - Precondition: Every FRS record with a PLOVER program interest has an FRS Registry ID in PLOVER
    - User Story: As someone interested in shared facility data curation, I want any edits to the FRS facility record by FRS data stewards to be provided to PLOVER to maintain consistency
  - Scenario: FRS Edit to Merge FRS Facility Records
    - Precondition: Every FRS record with a PLOVER program interest has an FRS Registry ID in PLOVER
    - User Story: As an FRS data steward, I want to merge FRS records and I want the merge to be reflected in PLOVER to maintain consistency

- Use Case: PLOVER Query FRS
  - Scenario: Public Query
    - Precondition: None
    - User Story: As a public user, I want to query Rhode Island’s PLOVER system and have the ability to see both PLOVER and FRS results for a complete picture of facilities that match my query
- **Scenario: Query within PLOVER**
  - **Precondition:** PLOVER records that are already linked to FRS contain the FRS Registry ID in PLOVER tables
  - **User Story:** As a PLOVER user, I want to query FRS to see if FRS has a facility that matches a new facility I need to add in PLOVER. If there is a match, I want to use the FRS record as a basis for my PLOVER record

- [SharePoint link](#)
APPENDIX C – FRS FACILITY RECORDS BEFORE AND AFTER PILOT IMPLEMENTATION

C.1 Pre-Pilot Approach to Populate FRS Facility Records

Appendix A outlines the traditional (pre-pilot) approach to incorporating facility partner data from a partner in FRS. FRS incorporates the facility information from partner systems and creates a record underneath an FRS facility record; however, the information within the partner record (in this case, the PLOVER record) has traditionally not been used to make changes to the FRS facility record. Instead, FRS populates the FRS facility record with information from EPA program offices, based on business logic and a hierarchy that takes multiple factors into account. These factors include source of the data (some EPA program systems take precedence over others), whether the data passes QA validation, age of the data and other factors. FRS data stewards can also edit FRS facility records if they become aware that a change is needed.

C.2 Updating FRS Facility Records through Pilot Services

Work completed in this pilot includes development of web services to share facility data and changes to FRS business logic for how FRS processes data from a partner. In this pilot, the team developed the capability to apply data provided in the partner facility record to the FRS facility record itself – in essence, allowing the partner system to determine attributes for the FRS facility record. Figure C-1 illustrates the difference by highlighting the data attributes in the FRS facility record that are populated from the PLOVER partner record and resulted in changes to the FRS facility record.

![Figure C-1: Example illustrating how the FRS facility record is populated with attributes from the PLOVER partner facility record. Note that the FRS facility record has incorporated data from the PLOVER partner facility record and has been updated.](image-url)
APPENDIX D – DATA ATTRIBUTES EXCHANGED IN PILOT FACILITY SERVICES

Detailed information on the Facility Services created as part of the Facility Team State MDM Pilot can be found at: https://ofmext.epa.gov/facilityiptwebservices/. There are three sets of data attributes that are part of the services. Figure D-1 describes these sub-sets.

```
Figure D-1: Relationship between data attribute sets. Note as you progress from left to right in the diagram, the set of attributes decreases.

Figures D-2 and D-3 list the data attributes that are part of the Submit to FRS and Submit to Partner services exchange and Figure D-4 lists the data attributes that are part of the Query FRS services exchange. The two submit services create or update PLOVER partner facility records in FRS and some exchanged data elements are also applied to FRS facility records. There are some data attributes that are part of the schemas but that are not part of the data exchange. These were incorporated in the schema for adoption in later implementations of the shared facility services; however, the business logic to manage this data was not part of the MVP. There are eight data attributes that are part of the Submit Schema that are not part of the data exchange. During the pilot, the Team elected to move these items to Post-MVP work.

<table>
<thead>
<tr>
<th>Facility and Partner Facility Data Attributes Exchanged in Submit Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Attribute</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>RegistryID</td>
</tr>
<tr>
<td>ProgramSystemAcronym</td>
</tr>
</tbody>
</table>
```
<table>
<thead>
<tr>
<th>Data Attribute</th>
<th>Definition</th>
<th>Example</th>
<th>Applied to FRS Facility Record?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProgramSystemID</td>
<td>Unique ID assigned by a program system (e.g., PLOVER) to identify the record.</td>
<td>5058</td>
<td>No</td>
</tr>
<tr>
<td>PrimaryName</td>
<td>Public or commercial name of a facility.</td>
<td>Premier Thread-Coats America</td>
<td>Yes</td>
</tr>
<tr>
<td>LocationAddress</td>
<td>Address that describes the front door or main entrance of a facility.</td>
<td>82 Smith Street</td>
<td>Yes</td>
</tr>
<tr>
<td>SupplementalLocation</td>
<td>Additional information about a location such as a building name or suite number.</td>
<td>Suite 45</td>
<td>Yes</td>
</tr>
<tr>
<td>CityName</td>
<td>Name of the city, town or locality in which the facility is located.</td>
<td>Providence</td>
<td>Yes</td>
</tr>
<tr>
<td>CountyName</td>
<td>The name of the county in which the facility is located.</td>
<td>Bristol County</td>
<td>Yes</td>
</tr>
<tr>
<td>CountyFIPSCode</td>
<td>Code that represents the county in which the facility is located.</td>
<td>44007</td>
<td>Yes</td>
</tr>
<tr>
<td>StateCode</td>
<td>U.S. Postal Service abbreviation in which the facility is located.</td>
<td>RI</td>
<td>Yes</td>
</tr>
<tr>
<td>CountryName</td>
<td>The Country in which the facility is located.</td>
<td>United States</td>
<td>Yes</td>
</tr>
<tr>
<td>PostalCode</td>
<td>The 5-digit or 5 plus 4 digit zip code in which the facility is located.</td>
<td>02903</td>
<td>Yes</td>
</tr>
<tr>
<td>FederalFacilityCode</td>
<td>Code indicating whether the facility site is the property of the federal government.</td>
<td>Y or N</td>
<td>Yes</td>
</tr>
<tr>
<td>AgencyID</td>
<td>The Federal Agency Bureau Code indicating the agency that owns the federal property.</td>
<td>D000</td>
<td>Yes</td>
</tr>
<tr>
<td>SiteTypeName</td>
<td>Name for the facility type.</td>
<td>Monitoring Site</td>
<td>Yes</td>
</tr>
<tr>
<td>SmallBusinessInd</td>
<td>Code indicating whether a business is requesting relief under EPA Small Business Policy.</td>
<td>Y or N</td>
<td>Yes</td>
</tr>
<tr>
<td>UserID</td>
<td>User ID of the person who entered the data or method by which the data was entered into the system.</td>
<td>John_Doe</td>
<td>Yes</td>
</tr>
<tr>
<td>ActiveStatus</td>
<td>Status of the facility.</td>
<td>Active, Inactive</td>
<td>No</td>
</tr>
<tr>
<td>MergedRegistryIds</td>
<td>FRS facility records that have been merged into the RegistryID value.</td>
<td>123456789</td>
<td>No</td>
</tr>
<tr>
<td>DataQualityCode</td>
<td>A code assigned by the automated integration process to indicate whether the address data are missing, invalid or non-standard.</td>
<td>V (for valid)</td>
<td>No</td>
</tr>
<tr>
<td>GeoDerivedAddress</td>
<td>The complete, standardized address as provided by FRS to PLOVER.</td>
<td>82 Smith ST Suite 45 Providence, RI 02903</td>
<td>No</td>
</tr>
<tr>
<td>GeoDerivedMessage</td>
<td>A message indicating the quality of the geocode (whether the address, city, state, and zip passed FRS geocoding standards. This is provided by FRS to PLOVER.</td>
<td>Good/Warning/Flunk Additional text about the nature of the good/warning/flunk is also included</td>
<td>No</td>
</tr>
</tbody>
</table>

Figure D-2. Data Attributes Exchanged in Submit Services. 15 out of 22 attributes are applied to the FRS Facility Record.
### Supplemental Facility Interest Data Attributes Exchanged in Submit Services

<table>
<thead>
<tr>
<th>Data Attribute</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>SupplementalProgramAcronym</td>
<td>Abbreviated name that represents the data system that is the source of the supplemental program interest.</td>
<td>PLOVER</td>
</tr>
<tr>
<td>SupplementalProgramID</td>
<td>Unique ID assigned to the supplemental interest.</td>
<td>123</td>
</tr>
<tr>
<td>SupplementalInterestType</td>
<td>The environmental or regulatory program that applies to the supplemental interest. This is often a permit type or facility type.</td>
<td>Underground Storage Tank Site or NPDES Major</td>
</tr>
</tbody>
</table>

Figure D-3. Supplemental Program Interest Data Attributes Exchanged in Submit Services.

### Facility Data Attributes Exchanged in Query Services

<table>
<thead>
<tr>
<th>Data Attribute</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>RegistryID</td>
<td>Unique ID assigned by FRS for this FRS Facility Record.</td>
<td>110000312091</td>
</tr>
<tr>
<td>ProgramSystemAcronym</td>
<td>Abbreviated name that represents the data source for the record.</td>
<td>RI-PLOVER</td>
</tr>
<tr>
<td>ProgramSystemID</td>
<td>Unique ID assigned by a program system (e.g., PLOVER) to identify the record.</td>
<td>5058</td>
</tr>
<tr>
<td>PrimaryName</td>
<td>Public or commercial name of a facility.</td>
<td>Premier Thread-Coats America</td>
</tr>
<tr>
<td>LocationAddress</td>
<td>Address that describes the front door or main entrance of a facility.</td>
<td>82 Smith Street</td>
</tr>
<tr>
<td>SupplementalLocation</td>
<td>Additional information about a location such as a building name or suite number.</td>
<td>Suite 45</td>
</tr>
<tr>
<td>CityName</td>
<td>Name of the city, town or locality in which the facility is located.</td>
<td>Providence</td>
</tr>
<tr>
<td>CountyName</td>
<td>The name of the county in which the facility is located.</td>
<td>Bristol County</td>
</tr>
<tr>
<td>CountyFIPSCode</td>
<td>Code that represents the county in which the facility is located.</td>
<td>44007</td>
</tr>
<tr>
<td>StateCode</td>
<td>U.S. Postal Service abbreviation in which the facility is located.</td>
<td>RI</td>
</tr>
<tr>
<td>StateName</td>
<td>The U.S. State Name.</td>
<td>Rhode Island</td>
</tr>
<tr>
<td>CountryName</td>
<td>The Country in which the facility is located.</td>
<td>United States</td>
</tr>
<tr>
<td>PostalCode</td>
<td>The 5-digit or 5 plus 4 digit zip code in which the facility is located.</td>
<td>02903</td>
</tr>
<tr>
<td>ResponseCode</td>
<td>Code representing the success of the operation.</td>
<td>200</td>
</tr>
<tr>
<td>ResponseMessage</td>
<td>The message corresponding to the response code.</td>
<td>Successful operation</td>
</tr>
<tr>
<td>RegistryID</td>
<td>Unique ID assigned by FRS for this FRS Facility Record.</td>
<td>110000312091</td>
</tr>
<tr>
<td>ProgramSystemAcronym</td>
<td>Abbreviated name that represents the data source for the record.</td>
<td>RI-PLOVER</td>
</tr>
<tr>
<td>Data Attribute</td>
<td>Definition</td>
<td>Example</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>ProgramSystemID</td>
<td>Unique ID assigned by a program system (e.g., PLOVER) to identify the record.</td>
<td>5058</td>
</tr>
<tr>
<td>PrimaryName</td>
<td>Public or commercial name of a facility.</td>
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</tr>
<tr>
<td>LocationAddress</td>
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</tr>
<tr>
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<td>Additional information about a location such as a building name or suite number.</td>
<td>Suite 45</td>
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<tr>
<td>CityName</td>
<td>Name of the city, town or locality in which the facility is located.</td>
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<tr>
<td>CountyName</td>
<td>The name of the county in which the facility is located.</td>
<td>Bristol County</td>
</tr>
<tr>
<td>CountyFIPSCode</td>
<td>Code that represents the county in which the facility is located.</td>
<td>44007</td>
</tr>
<tr>
<td>StateCode</td>
<td>U.S. Postal Service abbreviation in which the facility is located.</td>
<td>RI</td>
</tr>
<tr>
<td>StateName</td>
<td>The U.S. State Name.</td>
<td>Rhode Island</td>
</tr>
<tr>
<td>CountryName</td>
<td>The Country in which the facility is located.</td>
<td>United States</td>
</tr>
<tr>
<td>PostalCode</td>
<td>The 5-digit or 5 plus 4 digit zip code in which the facility is located.</td>
<td>02903</td>
</tr>
<tr>
<td>FederalFacilityCode</td>
<td>Code indicating whether the facility site is the property of the federal government.</td>
<td>Y or N</td>
</tr>
<tr>
<td>AgencyID</td>
<td>The Federal Agency Bureau Code indicating the agency that owns the federal property.</td>
<td>D000</td>
</tr>
<tr>
<td>SiteTypeName</td>
<td>Name for the facility type.</td>
<td>Monitoring Site</td>
</tr>
<tr>
<td>SmallBusinessInd</td>
<td>Code indicating whether a business is requesting relief under EPA Small Business Policy.</td>
<td>Y or N</td>
</tr>
<tr>
<td>UserID</td>
<td>User ID of the person who entered the data or method by which the data was entered into the system.</td>
<td>John_Doe</td>
</tr>
<tr>
<td>ActiveStatus</td>
<td>Status of the facility.</td>
<td>Active, Inactive</td>
</tr>
<tr>
<td>PossibleDuplicateIndicator</td>
<td>If the record is believed to be a possible duplicate, a Y will be provided here. The corresponding possible duplicate IDs are provided in the DuplicateValues string.</td>
<td>Y</td>
</tr>
<tr>
<td>PossibleDuplicateValues</td>
<td>A string of possible unique IDs of duplicate facility values.</td>
<td>12345; 67890</td>
</tr>
<tr>
<td>Latitude</td>
<td>Latitude for facility location.</td>
<td>41.469858</td>
</tr>
<tr>
<td>Longitude</td>
<td>Longitude for facility location.</td>
<td>-71.295265</td>
</tr>
<tr>
<td>Data Attribute</td>
<td>Definition</td>
<td>Example</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>ReferencePointCode</td>
<td>Code that represents the place for which the geographic coordinates were established.</td>
<td>101</td>
</tr>
<tr>
<td>CollectionMethodCode</td>
<td>The code that represents the method by which the geographic coordinates were collected.</td>
<td>101</td>
</tr>
<tr>
<td>AccuracyValue</td>
<td>Measure of accuracy (in meters) of the latitude and longitude coordinates.</td>
<td>75</td>
</tr>
<tr>
<td>Scale</td>
<td>Proportional distance on the ground for a unit of measure on a map. This element is provided for all horizontal collection methods except GPS.</td>
<td>100000</td>
</tr>
<tr>
<td>MergedRegistryIDs</td>
<td>FRS Facility Records that have been merged into the RegistryID value.</td>
<td>123456789</td>
</tr>
<tr>
<td>DataQualityCode</td>
<td>A code assigned by the automated integration process to indicate whether the address data are missing, invalid or non-standard.</td>
<td>V (for valid)</td>
</tr>
<tr>
<td>GeoDerivedAddress</td>
<td>The complete, standardized address as provided by FRS to PLOVER.</td>
<td>102 Christiana Rd, New Castle DE 19720 US</td>
</tr>
<tr>
<td>GeoDerivedMessage</td>
<td>A message indicating the quality of the geocode (whether the address, city, state, and zip passed FRS geocoding standards.</td>
<td>Good/Warning/Flunk Additional text about the nature of the good/warning/flunk is also included.</td>
</tr>
</tbody>
</table>

**Figure D-4. Facility Data Attributes Exchanged in Query Services.**
APPENDIX E – PILOT ARCHITECTURES

Figure E-1 illustrates the architecture used in the Pilot.

Figure E-1. Facility Data Attributes Exchanged in Query Services.
APPENDIX F – INCORPORATING FRS QUERY IN PLOVER PUBLIC WEBPAGE SEARCH

ePLOVER is Rhode Island’s public search page that accesses PLOVER data. As part of this pilot, RIDEM has incorporated FRS Query services to enhance the ePLOVER search results. Figures F-1 and F-2 illustrate screenshots from ePLOVER. The final changes to the ePLOVER user interface are still being finalized; therefore, these screenshots represent a conceptual approach and may be updated in the future.

![Figure F-1. ePLOVER Search Page. Search criteria have been entered for facilities located in Barrington, RI. By default, the search will query only RI (PLOVER) facilities. The 158 search results refer to the number of results within PLOVER.](image)

If a user wants both FRS and PLOVER facilities, they click on the ‘Add matching EPA Facility Records’ button. The user will see a list of FRS facilities and PLOVER facilities (in that order).
Figure F-2. ePLOVER Search Results Page Including FRS Results. EPA facilities have “EPA” prefixed to the facility name. Clicking an EPA Facility Name will take the user to the FRS Facility Detail Report page for that facility.
## APPENDIX G – DOWNSTREAM EVALUATION TEST SCENARIOS AND RESULTS

### G.1 Downstream Evaluation Scenarios

As part of the pilot, the Team executed nine downstream evaluation scenarios. EPA and RIDEM staff collaborated to execute the scenarios and document the results. Figure G-1 lists details and results for each scenario. Some scenarios originally part of the list were not completed because the corresponding logic is not part of the Pilot.

<table>
<thead>
<tr>
<th>Scenario No.</th>
<th>Description</th>
<th>Evaluation Steps</th>
<th>Tester</th>
<th>Test Data</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Create a new record to become a duplicate of an existing record</td>
<td>1. PLOVER submits a new record that is an exact copy of PLOVER ID 1870 but with a new PLOVER ID of 18111.</td>
<td>RI</td>
<td>FRS ID: 110070037977 Name: National Car Rental Location: 2053 Post Rd, Warwick, RI 02886</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS returns the message that this record is a duplicate of another PLOVER record.</td>
<td>RI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Process another program update to make sure it doesn’t override PLOVER change</td>
<td>1. FRS developer process a RCRAINFO program record update for Program ID: RID982766958 which is linked to PLOVER ID 1840.</td>
<td>CGI</td>
<td>FRS ID: 110004920426 Name: Metropolitan Oil Company, Inc. Location: 1086 Main St, West Warwick, RI 02893</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS Analyst verifies the program record did not update the 11000492046 FRS facility record.</td>
<td>CGI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. PLOVER verifies they did not receive an update for this FRS facility record.</td>
<td>RI</td>
<td>CGI changed the RCRA Program Facility name from “Allen Plumbing Heating Inc.” to “Smith St Plumbing &amp; Heating Inc.”</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>FRS data steward edits an FRS facility record and confirms that the edits are submitted to PLOVER</td>
<td>1. FRS Analyst edits the FRS facility record for registry ID 110004920426, which corresponds to PLOVER ID 1840.</td>
<td>CGI</td>
<td>FRS ID: 110004920426 Name: Metropolitan Oil Company, Inc. Location: 1086 Main St, West Warwick, RI 02893</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. PLOVER verifies their data has been updated correctly.</td>
<td>RI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>PLOVER overrides an edit made by an FRS data steward and the FRS facility record correctly retains the edit</td>
<td>1. PLOVER submits an update for PLOVER ID 1889 (FRS ID 110070037991).</td>
<td>RI</td>
<td>FRS ID: 110070037991 Name: Pace Gas Location: 1150 Westminster St, Providence RI 02903</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS Analyst verifies FRS has been updated accordingly.</td>
<td>CGI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Part 1: PLOVER</td>
<td>1. PLOVER submits changes for PLOVER ID 8726, also related to a TRI record.</td>
<td>RI</td>
<td>FRS ID: 110004899245</td>
<td>Pass</td>
</tr>
</tbody>
</table>
## Downstream Evaluation Scenarios Executed in the Pilot

<table>
<thead>
<tr>
<th>Scenario No.</th>
<th>Description</th>
<th>Evaluation Steps</th>
<th>Tester</th>
<th>Test Data</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>submits changes linked to TRI record</td>
<td>2. FRS analyst verifies that the TRI program record has not been changed.</td>
<td>CGI</td>
<td>PLOVER ID: 8726 TRIS ID: 02865GRYST7WELL Name: Greystone of Lincoln Location: 7 Wellington Rd, Lincoln, RI 02865</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. FRS Team verifies the test was successful and the FRS facility record was updated before initiating the second test.</td>
<td>CGI</td>
<td>PLOVER ID: 8726 TRIS ID: 02865GRYST7WELL Name: Greystone of Lincoln Location: 7 Wellington Rd, Lincoln, RI 02865</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part 2: Repeat of Part 1 with slightly different data simulating a new TRI reporting year</td>
<td>1. PLOVER submits changes for PLOVER ID 8726, also related to a TRI record.</td>
<td>RI</td>
<td>FRS ID: 110004899245 PLOVER ID: 8726</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS Analyst verifies that the TRI program record has not been changed but that changes were applied to the FRS facility record.</td>
<td>CGI</td>
<td>PLOVER ID: 8726 TRIS ID: 02865GRYST7WELL Name: Greystone of Lincoln Location: 7 Wellington Rd, Lincoln, RI 02865</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PLOVER team changed the name to: Greystone Tarzan.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. TRI record is updated with a different facility name.</td>
<td>CGI</td>
<td>FRS ID: 110015322159 PLOVER ID: 1464</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS Analyst verifies that the TRI program record has been updated, but not the FRS facility record.</td>
<td>CGI</td>
<td>TRIS ID: 2920TFFNY4KENN Name: GSM Metals, Inc. Location: 40 Kenney Dr., Cranston, RI 02920</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. PLOVER team verifies they did not receive an update for the associated PLOVER record.</td>
<td>RI</td>
<td>TRI program record updated name from: Tiffany Metals &amp; More to: Tiffany &amp; Co.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. FRS Analyst verifies the test was successful before executing Part 2.</td>
<td>CGI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part 2: Repeat of Part 1 but with slightly different data simulating a new TRI reporting year</td>
<td>1. FRS submits a new TRI record for a new reporting year on the same TRI program record (TRI facility) with a new facility name.</td>
<td>CGI</td>
<td>FRS ID: 110015322159 PLOVER ID: 1464</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS team verifies that the TRI record has been updated but not the FRS facility record.</td>
<td>CGI</td>
<td>TRIS ID: 2920TFFNY4KENN Name: GSM Metals, Inc. Location: 40 Kenney Dr., Cranston, RI 02920</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. PLOVER team verifies they did not receive an update for the associated PLOVER record.</td>
<td>RI</td>
<td>TRI program record updated name from: Tiffany &amp; Co to: Great Stone Metals Inc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part 1: PLOVER submits changes</td>
<td>1. PLOVER submits changes for PLOVER ID 644, also related to a CEDRI record.</td>
<td>RI</td>
<td>FRS ID: 110064263915 PLOVER ID: 644</td>
<td>Pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. FRS Analyst verifies that the CEDRI program record has not been changed.</td>
<td>CGI</td>
<td>CEDRI ID: CEDRI121243</td>
<td></td>
</tr>
<tr>
<td>Scenario No.</td>
<td>Description</td>
<td>Evaluation Steps</td>
<td>Tester</td>
<td>Test Data</td>
<td>Result</td>
</tr>
<tr>
<td>-------------</td>
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<td>--------</td>
</tr>
<tr>
<td>linked to CEDRI record</td>
<td>3. FRS Team verifies the test was successful before initiating the second test.</td>
<td>CGI</td>
<td>Name: Veterans Administration Medical Center Location: 830 Chalkstone Ave, Providence, RI 02908 PLOVER team added a new supplement location record for the PLOVER record.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part 2: Repeat of Part 1 with slightly different data simulating a new CEDRI reporting year</td>
<td>1. PLOVER submits changes for PLOVER ID 644, also related to a CEDRI record. 2. FRS Analyst verifies that the CEDRI program record has not been changed.</td>
<td>RI</td>
<td>FRS ID: 110064263915 PLOVER ID: 644 CEDRI ID: CEDRI121243 Name: Veterans Administration Medical Center Location: 830 Chalkstone Ave, Providence, RI 02908 PLOVER team changed the name to: VA Medical Center.</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>PLOVER submits merge of two facility records to FRS.</td>
<td>1. PLOVER submits merge data with two FRS registry IDs and identifies which FRS registry ID should be kept. 2. FRS Analyst verifies that the merge was successful in FRS.</td>
<td>RI</td>
<td>Merged Registry IDs: 110012483268 (PLOVER ID: 14711) and 110058348676 (PLOVER ID: 9229). FRS Registry ID: 110012483268 (PLOVER ID: 14711) should be the record that is kept. PLOVER ID 9229 was successfully moved to be under FRS Registry ID 110012483268 and FRS registry ID 110058348676 was successfully archived.</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>PLOVER submits</td>
<td>1. PLOVER submits the updated data multiple times.</td>
<td>RI</td>
<td>FRS ID: 110070037984</td>
<td>Pass</td>
<td></td>
</tr>
</tbody>
</table>

9.

10.
### Downstream Evaluation Scenarios Executed in the Pilot

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>multiple updates to a PLOVER record within a short time span</td>
<td>2. FRS Analyst verifies the changes are all applied to the PLOVER record in FRS and the FRS facility record.</td>
<td>CGI</td>
<td>PLOVER ID: 1881 Name: Norwood Sunoco Location: 1335 Post Rd, Warwick, RI 02886</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PLOVER team made a change to the PLOVER record and correctly received the FRS ID. They made 4 subsequent edits within 1 minute of each other and the changes were applied correctly each time.</td>
<td></td>
</tr>
</tbody>
</table>

**Figure G-1. Downstream Evaluation Scenarios and Results**

Screenshots illustrating data in both PLOVER and FRS were captured for most scenarios and are provided in the remaining portions of this appendix. For some scenarios, screenshots that show the potential effects of PLOVER edits to FRS facility records to regulated facilities that report data via the Facility Widget are also included.
G.2 Scenario 1: PLOVER Submits Duplicate Records to FRS

This scenario contains two parts and simulates PLOVER submitting PLOVER records to FRS that create duplicates for FRS facility records.

**Step 1:** PLOVER submits a new record that is an exact copy of PLOVER ID 1870 but with a new PLOVER ID. In FRS PLOVER ID 1870 corresponds to FRS Registry ID 110070037977. PLOVER submits a new record for PLOVER ID 18111.

![PLOVER Before screenshot for Scenario 1, Step 1. Note that this is the PLOVER Record for ID 1870.](image1)

![FRS Before screenshot for Scenario 1, Step 1. Note the FRS Registry ID and related PLOVER ID.](image2)

Figure G-2. PLOVER Before screenshot for Scenario 1, Step 1. *Note that this is the PLOVER Record for ID 1870.*

Figure G-3. FRS Before screenshot for Scenario 1, Step 1. *Note the FRS Registry ID and related PLOVER ID.*
Step 2: FRS returns the message that this record is a duplicate of another PLOVER record.

Figure G-4. FRS After screenshot for Scenario 1, Step 2. Note that this record corresponds to PLOVER ID 18111 and the response from FRS indicating this is a duplicate of another PLOVER record.

G.3 – Scenario 3: Process Different Program Update

Note: Scenario 2 was removed because the functionality it will evaluate is not part of the Pilot MVP.

Scenario 3 includes an update to a different program record linked to an FRS facility record that is also related to a PLOVER record. This evaluation is to ensure that the update to the other program record does not override the PLOVER information stored as part of the FRS facility record.

Step 1: FRS developer processes a RCRAINFO program record update for Program ID: RID982766958, which is linked to PLOVER ID: 1840. The FRS developer changed the RCRA Program record name from “Allen Plumbing Heating Inc.” to “Smith St Plumbing & Heating Inc.”
Step 2: FRS Analyst verifies that the program record did not update the FRS facility record for FRS ID: 11000492046.

Step 3: PLOVER team verifies they did not receive an update for the associated PLOVER record (no screenshot).

G.4 – Scenario 4: FRS Edits FRS Facility Record

The purpose of this scenario is to edit an FRS facility record and ensure that those edits are successfully submitted to and processed by PLOVER.
Step 1: FRS Analyst edits the FRS facility record for ID 110004920426, which corresponds to PLOVER ID 1840. The Analyst changed the facility name from “Metropolitan Oil Company” to “Allen Plumbing Heating Inc.”

![Figure G-7. FRS Before Screenshot for Scenario 4, Step 1. This screenshot illustrates the FRS data before the FRS facility name was changed.](image-url)
Figure G-8. PLOVER Before Screenshot for Scenario 4, Step 1. This screenshot illustrates the data in PLOVER before the change was applied to the FRS record.

Figure G-9. FRS After Screenshot for Scenario 4, Step 1. This screenshot illustrates the FRS data after the FRS facility name was changed to “Allen Plumbing Heating Inc.”
Step 2: PLOVER team verifies their data has been updated.

Figure G-10. PLOVER After Screenshot for Scenario 4, Step 2. This screenshot illustrates the data in PLOVER after the edit to the FRS facility record. Note the change to the facility name and address 2 information.
G.5 – Scenario 5: PLOVER Edits Applied to FRS Facility Record

The purpose of this scenario is to verify that an edit in PLOVER will apply to the FRS facility record.

Step 1: PLOVER submits an update for PLOVER ID 1889, which corresponds to FRS ID 110070037991. RI edited this record to add a new supplemental location.

Figure G-11. PLOVER Before Screenshot for Scenario 5, Step 1. *This screenshot illustrates PLOVER ID 1889 before edits are made. Note the absence of Address 2 data.*
Figure G-12. FRS Before Screenshot for Scenario 5, Step 1. This screenshot illustrates the FRS record before edits are made to PLOVER ID 1889. Note the absence of Address 2 in the Supplemental Location field under ‘Additional Registry Details.’
Figure G-13. PLOVER After Screenshot for Scenario 5, Step 1. This screenshot illustrates PLOVER ID 1889 after edits are made. Note the addition of Address 2 data.
**Step 2:** FRS analyst verifies that FRS has been updated appropriately.

![Figure G-14. FRS After Screenshot for Scenario 5, Step 2. This screenshot illustrates the updated FRS facility record reflecting the additional Address 2, listed as Supplemental Location in the ‘Additional Registry Details’ section of the page.](image)

**G.6 – Scenario 6: PLOVER Changes and Related TRI Records**

The purpose of this scenario is to ensure that a change made by PLOVER, and applied to the FRS facility record, does not affect a TRI program record. This section also includes a screenshot to illustrate how an update to an FRS facility record will be visible to a TRI reporter in the Facility Widget.

**Part 1:** PLOVER submits a change to a record that is linked to a TRI record.
Step 1: PLOVER edits the record for PLOVER ID 8726, which is linked to the FRS facility 110004899245. The TRI record linked to the same FRS facility record has a TRIS ID 02865GRYST7WELL.

Figure G-15. PLOVER before Screenshot for Scenario 6, Part 1, Step 1. This screenshot shows the record for PLOVER ID 8726 before an edit is applied. Note there is no Address 2 information.
Figure G-16. FRS Before Screenshot for Scenario 6, Part 1, Step 1. This screenshot shows the FRS record before the edit is applied to the PLOVER record. Note that there is no Supplemental Location information and the presence of the TRI Program record.
Figure G-17. PLOVER after Screenshot for Scenario 6, Part 1, Step 1. This screenshot shows the record for PLOVER ID 8726 after an edit is applied. Note that an address 2 has been added for this record.
Step 2: FRS analyst verifies that the edit was applied to the FRS facility record, but that the TRI record did not change.

Figure G-18. FRS After Screenshot for Scenario 6, Part 1, Step 2. This screenshot shows the record for PLOVER ID 8726 after an edit is applied. Note that an address 2 has been added for this record and the TRI record has not changed.

Step 3: FRS team verifies the test was successful before initiating the second part of the scenario (no screenshot).

Part 2: PLOVER submits an additional change to the same record as in Part 1. This is to simulate a new TRI reporting year.

Step 1: PLOVER edits the record for PLOVER ID 8726, which is linked to the FRS facility 110004899245. The TRI record linked to the same FRS facility record has a TRIS ID 02865GRYST7WELL. The facility name is changed from ‘Greystone of Lincoln’ to ‘Greystone Tarzan.’
Figure G-19. PLOVER before Screenshot for Scenario 6, Part 2, Step 1. This screenshot shows the record for PLOVER ID 8726 before an edit is applied.
Figure G-20. FRS Before Screenshot for Scenario 6, Part 2, Step 1. *This screenshot shows the FRS record before the edit is applied to the PLOYER record.*
Figure G-21. PLOVER after Screenshot for Scenario 6, Part 2, Step 1. This screenshot shows the record for PLOVER ID 8726 before after an edit is applied. The facility name is now 'Greystone Tarzan'. 
Part 2: FRS analyst verifies that the FRS facility record is updated but that there is no change to the TRI record.

**Figure G-22. FRS After Screenshot for Scenario 6, Part 2, Step 2.** This screenshot shows the edit to the FRS facility record but the TRI record is not changed. The FRS facility name is now ‘Greystone Tarzan’.

### G.6.1 Impact to TRI Reporters

The screenshots in this section were taken within the Facility Widget that has been integrated into the TRI-MEweb application and reflect the impact to a TRI user for Scenario 6. **Figure G-23** shows the Facility Widget search results screen for a user who has searched for the TRI Program ID 02865GRYST7WELL. The maroon ‘i’ icon in the ‘Facility Address’ column indicates that the TRI program record does not match FRS’ facility record for that facility. When a user selects and opens the record for editing, a note indicates that the program record does not match what EPA has on file for that field in the facility record. The user is able to select the radio button for this facility and proceed to the ‘Unsaved Facilities’ screen, where they user can choose to view and edit the facility before saving it to their TRI-MEweb user role.
Figure G-23. Facility Widget/TRI-MEweb Search Results Page Screenshot for TRI ID 02865GRYST7WELL. Note the maroon icon indicating that the program and FRS facility record do not match. A user is not forced to make a change to their TRI record but does have the opportunity to view the FRS facility record data and edit their TRI record if they choose to do so.

It is important to note that an edit of an FRS facility record does not ‘force’ or require a TRI user to do anything differently when they report their data. The user can choose to ignore the icon and not update their TRI program record to match the FRS facility record. Their TRI record will remained linked to the FRS facility record as appropriate.

Figure G-24 shows the ‘Facility Details’ for the same TRI-MEweb record as the previous screenshot. The message next to the maroon icon indicates that the FRS facility record has a different facility name than what is included in the TRI-MEweb program record. The user has the option to open the facility for editing and change the facility name to match the FRS facility record or to keep it as-is.

Figure G-24. Facility Widget/TRI-MEweb Facility Details Page Screenshot for TRI ID 02865GRYST7WELL. Note the maroon icon indicating that FRS facility record’s facility name does not match the TRI-MEweb facility name. A user is not forced to make a change to their TRI record but does have the opportunity to edit their record if they choose to do so.

Figure G-25 illustrates the ‘Edit Facility’ screen in the Facility Widget/TRI-MEweb application. In this case, the user has chosen to edit the TRI-MEweb facility used in this scenario. Note the icon and highlighted text indicating the difference between the FRS facility record and the TRI-MEweb facility record. Editing a TRI-MEweb facility is optional; the user may choose to leave it as-is even if it does not
match the FRS facility record. Leaving the record as-is will not prevent the user from successfully submitting their TRI reporting data.

G.7 – Scenario 7: Edits to a TRI Program Record

The purpose of this scenario is to confirm that a change can be made to a TRI record, such as through the Facility Widget/TRI-MEweb application, and there will be no changes to the FRS facility record and no updates sent to PLOVER.

Part 1: TRI user edits a program record that is also linked to a PLOVER record.
**Step 1:** Update to TRI record 02920TFFNY4KENN, which is related to FRS facility record 110015322159. This FRS facility record is linked to PLOVER record 1464. The FRS facility record has a facility name of ‘GSM Metals, Inc.’ and the TRI record has an initial facility name of ‘Tiffany Metals & More Inc.’ The TRI facility name is changed to ‘Tiffany & Co.’

![Figure G-26. FRS Before Screenshot for Scenario 7, Part 1, Step 1. This screenshot represents the view of the TRI Program Record. Note the FRS facility name is ‘GSM Metals, Inc.’ and the TRI Program Facility record name is ‘Tiffany Metals & More Inc.’](image-url)
Figure G-27. Facility Widget Before Screenshot for Scenario 7, Part 1, Step 1. This screenshot represents the view of the TRI Program Record in the Facility Widget. Note the TRI Program Facility record name is ‘Tiffany Metals & More Inc.’ and the Facility Widget indicates that the FRS Facility Name has a different name.

Although the TRI user is informed that the FRS facility name is different than the facility name on the TRI record, they are not forced to update their record to match the FRS facility record.
Figure G-28. Facility Widget After Screenshot for Scenario 7, Part 1, Step 1. This screenshot represents the view of the TRI Program Record in the Facility Widget after the TRI facility name has been changed to ‘Tiffany & Co’. Note the Facility Widget indicates that the FRS Facility Name has a different name.
**Step 2:** FRS analyst verifies that the TRI record has been updated, but not the FRS facility record.

![Figure G-29](image)

**Figure G-29. FRS After Screenshot for Scenario 7, Part 1, Step 2.** *This screenshot represents the view of the FRS Facility Record after the TRI Program Record has updated the TRI Facility Name. Note the FRS facility name is ‘GSM Metals, Inc.’ and the TRI Program Facility record name has been changed to ‘Tiffany & Co.’*

**Step 3:** PLOVER team verifies that they did not receive an update for the associated PLOVER record. This passed validation but no screenshot is available.

**Step 4:** FRS team verifies that the test was successful before executing Part 2 (no screenshot).

**Part 2:** Repeat of part 1 but with an edit to the TRI facility name and TRI data simulating a new TRI reporting year.

**Step 1:** Update to TRI record 02920TFFNY4KENN, which is related to FRS facility record 110015322159. This FRS facility record is linked to PLOVER record 1464. In this step, the TRI program facility name changed from `Tiffany & Co` to `Great Stone Metals Inc.`. There is no before screenshot available.
Figure G-30. Facility Widget After Screenshot for Scenario 7, Part 2, Step 1. This screenshot represents the view of the TRI Program Record in the Facility Widget after the TRI facility name has been changed to ‘Great Stone Metals Inc.’ Note the Facility Widget indicates that the FRS Facility Name has a different name.

Although the TRI user is informed that the FRS facility name is different than the facility name on the TRI record, they are not forced to update their record to match the FRS facility record.
Step 2: FRS team verifies that the TRI record has been updated, but the FRS facility record has not.

![Figure G-31. FRS After Screenshot for Scenario 7, Part 2, Step 2. This screenshot represents the FRS facility record after the TRI record has been edited. Note that the FRS facility record does not reflect the new TRI record facility name.]

G.8 – Scenario 8: PLOVER Edits to FRS Facility Record Linked to a CEDRI Program Record

The purpose of this scenario is to confirm that a change can be made to a PLOVER record related to a CEDRI record, and that there will be no updates on the CEDRI Record.

Part 1: PLOVER submits changes to a record also linked to a CEDRI record.

Step 1: Update to PLOVER record 644. This is related to FRS facility record 110064263915 and CEDRI record CEDRI121243. In this step, PLOVER added Address 2 information.
Figure G-32. PLOVER before Screenshot for Scenario 8, Part 1, Step 1. This screenshot represents shows the PLOVER record before an edit is made. Note there is no information for Address 2.
Figure G-33. FRS Before Screenshot for Scenario 8, Part 1, Step 1. Note there is no supplemental location information and note that there is a related CEDRI record.
Figure G-34. PLOVER after Screenshot for Scenario 8, Part 1, Step 1. This screenshot represents shows the PLOVER record after an edit is made. Note there is now information for Address 2.
Step 2: FRS analyst verifies that the CEDRI program record has not changed due to the edit made by PLOVER.

Figure G-35. FRS After Screenshot for Scenario 8, Part 1, Step 2. Note there is now supplemental address information for this FRS facility record, but the CEDRI record did not change.
Part 2: Repeat Part 1 with slightly different data, simulating a new CEDRI reporting year.

Step 1: Update to PLOVER record 644. This is related to FRS facility record 110064263915 and CEDRI record CEDRI121243. In this step, the facility name changed from ‘Veterans Administration Medical Center’ to ‘VA Medical Center’.

![PLOVER Screenshot](image)

Figure G-36. PLOVER after Screenshot for Scenario 8, Part 2, Step 1. *Note the updated facility name.*
Step 2: FRS analyst verifies that the FRS facility record has been updated but the CEDRI program record has not been changed.

Figure G-37. FRS After Screenshot for Scenario 8, Part 2, Step 2. Note the updated facility name for the FRS facility record, but the CEDRI record has not been changed.

G.8.1 Impact to CEDRI Reporters

The screenshots in this section were taken within the Facility Widget in the CEDRI user’s MyCDX profile for the user’s CEDRI user role. It reflects the impact to a CEDRI user for Scenario 8. Figure G-38 shows the Facility Widget screen for a user who has searched for the CEDRI Program ID CEDRI121243. The maroon icon in the ‘Facility Address’ column indicates that the CEDRI program record does not match FRS’ facility record for that facility. When a user selects and opens the record for editing, a note indicates that the program record does not match what EPA has on file for that field in the facility record. The user is able to check the checkbox for this facility and proceed to the ‘Unsaved Facilities’ screen, where they can choose to view and edit the facility before saving it to their CEDRI user role.

Figure G-38. Facility Widget/CEDRI Search Results Page Screenshot for CEDRI ID CEDRI121243. Note the maroon icon indicating that the program and FRS facility record do not match. A user is not forced to make a change to their CEDRI record but does have the opportunity to view the FRS facility record’s facility name and address data and edit their CEDRI record if they choose to do so.
It is important to note that an edit of an FRS facility record does not ‘force’ or require a CEDRI user to do anything differently when they report their data. The user can choose to ignore the icon and not update their CEDRI record to match the FRS facility record. Their CEDRI record will remained linked to the FRS facility record as appropriate.

**Figure G-39** shows the ‘Facility Details’ for the same CEDRI record as the previous screenshot. The message next to the maroon icon indicates that the FRS facility record has a different facility name than what is included in the CEDRI program record. The user has the option to open the facility for editing and change the facility name to match the FRS facility record or to keep it as-is.

Figure G-39. Facility Widget/CEDRI Facility Details Page Screenshot for CEDRI Program ID CEDRI1121243. Note the maroon icon indicating that FRS facility record facility name does not match the CEDRI facility name. A user is not forced to make a change to their CEDRI record but does have the opportunity to edit their record if they choose to do so.

**Figure G-40** illustrates the ‘Edit Facility’ screen in the Facility Widget for CEDRI. In this case, the user has chosen to edit the CEDRI facility used in this scenario. Note the icon and highlighted text indicating the difference between the FRS facility record and the CEDRI facility record. Editing a CEDRI facility is optional; the user may choose to leave it as-is even if it does not match the FRS facility record. Leaving the record as-is will not prevent the user from successfully submitting their CEDRI reporting data.
Figure G-40. Facility Widget/CEDRI Edit Facility Page Screenshot for CEDRI Program ID CEDRI121243. Note the maroon icon and text indicating that FRS facility record facility name does not match the CEDRI facility name. A user is not forced to make a change to their CEDRI record but does have the opportunity to edit their record if they choose to do so.
Scenario 9: PLOVER Submits Merge Records to FRS

The purpose of this scenario is to verify that PLOVER can identify duplicates within that system and submit them to FRS for FRS to successfully process.

**Step 1:** PLOVER submits merge data with two FRS facility records and identifies which FRS facility record should be kept, and which should be archived. PLOVER merged records FRS ID 110012483268 (PLOVER ID 14711) and FRS ID 110058348676 (PLOVER ID 9229). FRS ID 110012483268 (PLOVER ID 14711) should be kept, and the other should be archived.

![Image of FRS Before Screenshot for Scenario 9, Step 1.](image)

Figure G-41. FRS Before Screenshot for Scenario 9, Step 1. *This screenshot shows that FRS ID 110012483268 is related to PLOVER ID 14711.*
Figure G-42. FRS Before Screenshot for Scenario 9, Step 1. This screenshot shows that FRS ID 110058348676 is related to PLOVER ID 9229.

Figure G-43. PLOVER Before/After Screenshot for Scenario 9, Step 1. For this scenario, the PLOVER team manually submitted a JSON file to FRS simulating the merge of PLOVER facilities 14711 and 9229. They correctly identified the primary site (to be kept) as 14711 and set the mergedRegistryIds field to 9299. The response from FRS provided the correct FRS ID for the record that was kept (not archived).
Step 2: FRS analyst verifies that the merge was successful in FRS.

![Figure G-44. FRS After Screenshot for Scenario 9, Step 2. This screenshot shows that FRS ID 110012483268 is now related to PLOVER ID 14711 and PLOVER ID 9229, indicating that the merge was successful and that the PLOVER record previously linked to the other FRS ID is now linked to this FRS ID.]

G.10 – Scenario 10: PLOVER Submits multiple updates in a short period of time

The purpose of this scenario is to verify that the servies can appropriately handle rapid updates to a record. As part of the PLOVER business process, a record can be edited multiple times in a short period of time. This can occur as a new record is being added and RI staff are updating different portions of facility information on different screens.

**Step 1:** PLOVER submits updated data multiple times. The PLOVER team submitted five updates to PLOVER record 1881 within one minute of each other. No screenshots are available for this step.

**Step 2:** FRS verifies that the changes are all applied. This step passed and the services and FRS logic behaved as expected, but no screenshots are available.
# APPENDIX H – STATE MDM PILOT PARTICIPANTS

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