



# Lean Government

EPA Region 3 and Region 7

RCRA Corrective Action Facility Investigation Process

Lean Event Case Study

## Summary

In 2013, EPA Regions 3 and 7, in partnership with the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), the States of Missouri and Virginia and industry representatives, held a Lean event on the Resource Conservation and Recovery Act (RCRA) Facility Investigation Process (RFI). The RFI process is a component of the RCRA Corrective Action Program, which oversees the investigation and cleanup of hazardous waste facilities across the country. During the facility investigation phase, the nature and extent of contamination at a facility subject to RCRA Corrective Action is evaluated.

EPA and its state partners set an aspirational goal to construct final remedies at 95 percent of the baseline of RCRA facilities nationwide believed to need Corrective Action by 2020. Out of those 3,779 RCRA Corrective Action facilities, Regions 3 and 7 alone are home to 783. The RFI process can potentially comprise 70-80 percent of the overall time it takes to build final remedies for RCRA Corrective action facilities. The Lean event team sought to identify opportunities for increased efficiencies in the RFI process by determining the root causes of delay and removing redundancies and barriers to progress. The team developed a Corrective Action Framework (CAF) that frontloads a discussion of the goals and expectations of the facility investigation into a meeting at the beginning of the process. This approach also provides a set of tools and templates for project managers to hold a CAF meeting, and also provides metrics to track facility efficiency. The introduction of the CAF meeting is expected to reduce time previously associated with non-value activities, therefore accelerating cleanup progress to the benefit of affected communities.

Figure 1: The RFI Process Lean Event Team



## Results

Metric	Old Process	Lean Approach	Percent Change
Total Avg. Lead Time	Up to 19.4 years	5.1 years	↓73%
# Handoffs	44	11	↓75%
# Reviews	33	7	↓79%
# Loopbacks/Revisions	24	2	↓92%
# Documents Generated	94	15	↓84%
Percent Value-Added Steps	10%	51%	↑80%

*\*Results are anticipated based on the new process design*

In addition to a significant reduction in lead time and cost savings, Lean process improvements can also enhance communication throughout the process, and ensure all stakeholders have a clear understanding of the steps and decisions needed to complete RCRA Facility investigations.

## Scope of the Lean Project

**Project Scope:** The scope encompassed the RFI process starting with the Corrective Action Framework Meeting and ending with the review and approval of the RFI report.

Regions 3 and 7 improved the Remedy Selection process (RSP), the next phase of RCRA corrective action, through a separate Lean event held in May 2014. The combined streamlined process for RCRA facility investigation and remedy selection is known as the RCRA FIRST approach.

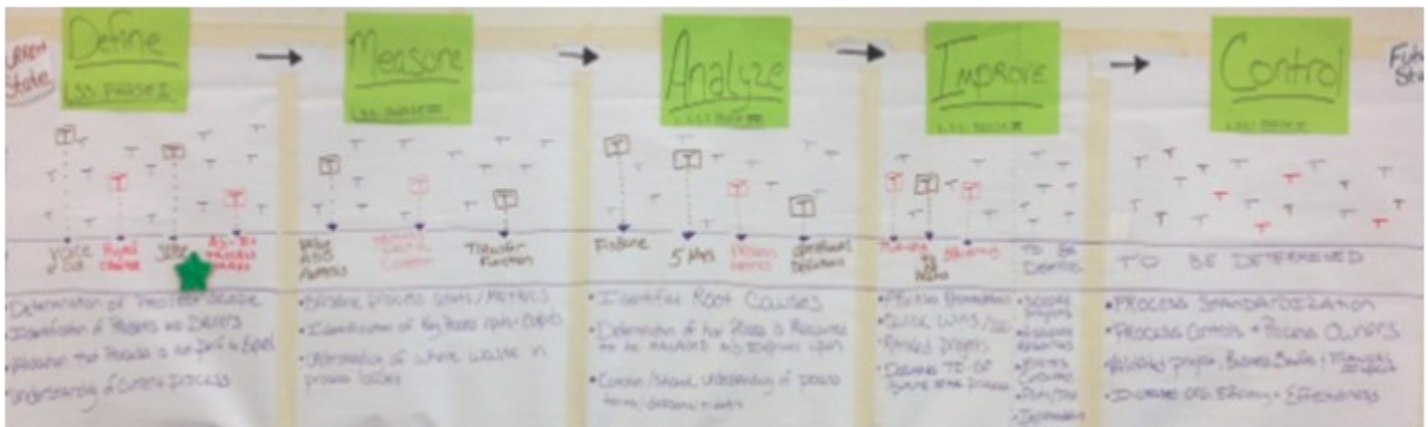
**Goal:** Streamline and reduce lead time in the facility investigation process by 50 percent.

## Process Changes and Improvements

Using DMAIC methodology (Define, Measure, Analyze, Improve, Control) and value stream mapping, the team identified twelve pain points in the RFI process and determined the root causes of these pain points. The new process design incorporated the following primary takeaways from the Lean project:

1. Upfront planning and information-sharing is essential.
2. Upfront scoping of goals and expectations can save time later in the process
3. Identify delays and elevate problems where visible
4. Use metrics to measure progress and adjust process

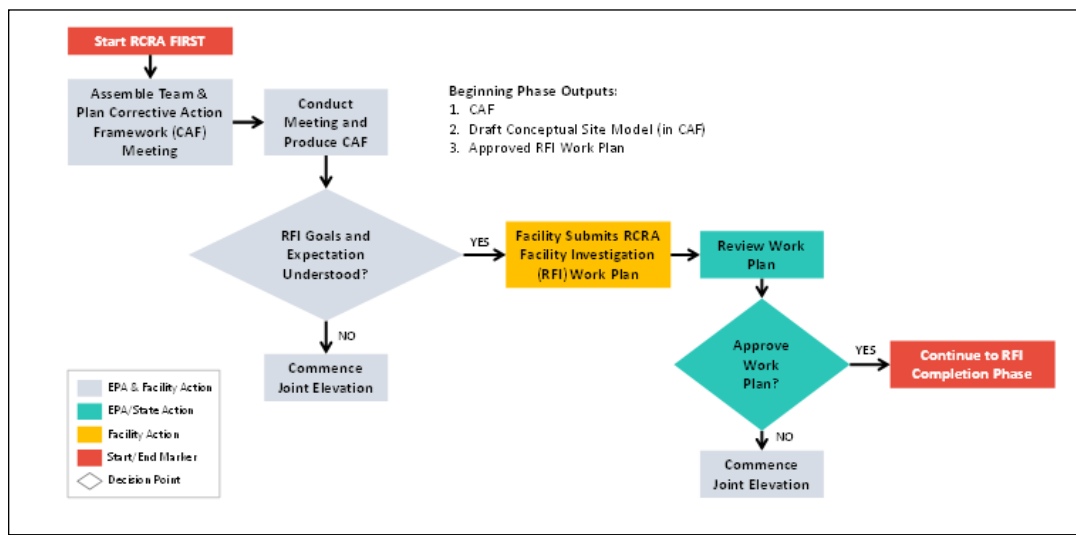
**Figure 2: The Lean event team's DMAIC methodology**



The event team determined that early understanding of goals and expectations in the RFI process could reduce redundancies and expedite the investigation process. Under the Lean approach, the lead agency, supporting agency, regulated facility, and stakeholders clarify the objectives and expectations for the facility investigation during one or more CAF meetings to develop a Corrective Action Framework. The CAF Meeting, under the RFI Lean concept, is an initial meeting between the regulatory authority (EPA and/or State) and facility representatives to identify and clarify expectations concerning the RFI phase of the Corrective Action process. This meeting would bring the representatives together early in the process for a robust discussion of the investigation scope, conceptual site model, potential interim measures, and other elements of the RFI process. The CAF summarizes the goals and expectations for the RFI as discussed during the CAF meeting. The CAF ensures that all stakeholders have a clear understanding of the data needs, decision points, and outcomes before moving forward. Figure 3 shows how this new process works with the CAF meeting taking place and the goals and expectations understood before the facility submits the RFI workplan.

EPA has developed tools for regulators and facilities wishing to draw upon the results of the RFI Lean analysis at their own facilities –a model Corrective Action Framework Meeting Agenda (CAF Meeting Agenda) and a model Corrective Action Framework Template (CAF Template). EPA anticipates that the increased attention to detail prompted by the templates will help identify potential issues that may need attention for the RFI to

**Figure 3: RCRA Facility Investigation Process showing CAF meeting and RFI Workplan Review**



continue smoothly. To make the tools accessible, the event team created a [RCRA Corrective Action Lean Effort public webpage](#) where project managers working on the RFI process at facilities across the country can download the tools as needed.

In addition to the templates, the Lean event team also created process metrics to measure the efficiency of the newly established CAF structure, and track where process adjustments might be needed.

## Implementation

During the last half of 2013, EPA Regions 3 and 7 successfully piloted the CAF tools. The pilot realized a 75 percent reduction in the time required to approve an RFI Work Plan. The regions developed a set of RCRAInfo CAF events to document the progress. In the spring of 2014, the other eight Regions identified pilot projects to utilize the CAF tools. Since the pilot, Regions 3 and 7 have now fully implemented the process changes into their facility investigations.

Following the RFI event, a separate Lean event addressed root causes of delay in the RCRA Remedy Selection process. The process improvements identified in the RFI Lean event and the Remedy Selection Lean event were combined into a streamlined process called the RCRA FIRST approach to Corrective Action. EPA is creating a guide to transfer the tools and lessons from these process improvement efforts to other regions. Once completed, it will be available on the RCRA Corrective Action Lean Effort website.

### For More Information:

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#### RCRA Corrective Action Lean Effort Website:

[http://www.epa.gov/epawaste/hazard/correctiveaction/lean\\_effort.htm](http://www.epa.gov/epawaste/hazard/correctiveaction/lean_effort.htm)

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