“Lean” Evaluation of the Corrective Action Process ...

A Quicker Route to the Emerald City?

Ed Hammerberg (MD Dept. of the Environment)
Chair, Corrective Action and Permitting Task Force
Presentation Outline

- Project overview/background
- Overview of “Lean” methodology
- “Kick-off” activities
- 1-week process analysis exercise
- Follow-up activities
- Current status
- Audience engagement
Disclaimers

• I’m just an observer

• I’m not a “Lean” expert

• The Ruby Slippers pinch my bunions
Project Overview

• Genesis – discussions between C/A program managers for R3 & R7 EPA

• Rumblings in the gut:
  - Looming deadlines
  - Complicated, lengthy process
  - Resource constraints
  - Concentration of unauthorized states
Project Overview (continued)

• Suggestion – problem might be amenable to “Lean” process evaluation methodology
  - R7 experience in Air program
  - EPA headquarters support for Lean Government initiatives
  - Increasing use in government settings

• Approached EPA HQ for assistance
• Reliance on HQ for support
“Lean” Methodology

- Systematic process evaluation
- Identify process inefficiencies
  - backlog of work
  - errors in documents
  - re-doing work
  - unnecessary process steps
- Originally developed for industrial settings, but increasing use by government
“Lean” Methodology - tools

- “Value stream mapping”
  - visual representation of process steps
  - can help identify “pain points” and opportunities for improvements
“Lean” Methodology

- Generalized steps in Lean methodology:
  - define
  - measure
  - analyze
  - improve
  - control

- Another tool – “Kaizen” events
  - rapid, focused process improvement event
  - aiming for immediate improvements
Initial Steps

• Engage services of contractor

• Kickoff meeting – 1 day event
  - define scope of effort
  - identify participants for 1-week event
  - develop project charter
  - problem statement, goals, expectations
Project Charter

• Event overview (objective)
  - identify key issues and seek efficiencies in investigation process (RFI)
  - seek better understanding of corrective measures study phase to lay groundwork for future efforts at improvement
Project Charter

• Problem statement
  - time-intensive nature of current processes
  - 8 years typical time for investigation phase; desired time 18 months
  - Corrective measure study phase also time consuming
  - Process times call into question ability to achieve 2020 goals
Project Charter
Goals – outputs from weeklong event

• RFI Process
  - Defined and documented “As Is” process
  - Defined Baseline of Process Stats / Metrics
  - Identification of Key Outputs, Inputs and key Barriers to a successful process
  - Identified Root Causes
  - Defined / Documented “To Be” process
  - Recommendations to address identified root causes
Project Charter
Goals – outputs from weeklong event (cont.)

• Corrective Measure Study Process
  - Defined and documented “As Is” process
  - Defined Baseline of Process Stats

• Event Out Brief and Final Report
  - Close out briefing to management and leadership teams
  - Event Summary Report (to be submitted post event)
Project Charter
Business Case

- Supports achievement of 2020 goals by improving efficiencies of key processes
- Addresses select concerns of 7/2011 GAO report
  - More consistent, less time intensive processes
  - Better accuracy in completion projections
- Provide a template/methodology capable of being replicated for other C/A process steps
Project Charter
Event Participants

- Participants and Observers
- R3 and R7 remedial project managers
- R3 and R7 C/A managers
- States’ remedial project managers
- Companies with C/A obligations
- Environmental consultants engaged in C/A work
- EPA upper management; ASTSWMO; EPA Superfund staff
Lean Process Evaluation Event
Mon. Feb. 4 – Fri. Feb. 8, 2013

Monday:
  Introductory remarks; ground rules; process mapping 10:00 – 12:00
  Discussions w/ EPA leadership 12:00 – 12:30
  Current process mapping 1:15 – 5:30

Tuesday
  Continuation of process mapping 8:30 – 11:45
  Develop baseline process metrics 12:30 – 5:30

Wednesday
  Define key process inputs and outputs 8:30 – 10:00
  Identify key success barriers 10:00 – 11:45
  Identify root causes 12:30 – 2:15
  Develop recommendations 2:30 – 5:30
Lean Process Evaluation Event
Mon. Feb. 4 – Fri. Feb. 8, 2013

Thursday:
  Develop recommendations  8:30 – 11:45
  Develop “to be” process  12:30 – 5:30

Friday
  Consolidate findings, prepare briefing 8:30 – 11:45
  Finalize briefing  12:30 – 1:30
  Deliver briefing/closing  1:30 – 2:30
## Lean Process Evaluation Event

<table>
<thead>
<tr>
<th>Process Stats</th>
<th>Current Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Hand-offs - <em>Internal to Agency</em></td>
<td>44</td>
</tr>
<tr>
<td># of Hand-offs - <em>External per Facilities</em></td>
<td>35</td>
</tr>
<tr>
<td># of Reviews / Approvals</td>
<td>33</td>
</tr>
<tr>
<td># of Loopbacks / Re-dos</td>
<td>24</td>
</tr>
<tr>
<td># of Documents generated</td>
<td>94</td>
</tr>
<tr>
<td>Total Avg. wait time in process</td>
<td>4.6 years</td>
</tr>
<tr>
<td>Total Avg. work time per process steps</td>
<td>14.8 years</td>
</tr>
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<td>TOTAL Avg. Cycle time in Process</td>
<td>19.4 Years</td>
</tr>
<tr>
<td>% Value Add activity in process*</td>
<td>10%</td>
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*5 out of 48 mapped steps in the process were defined as "value added"

Note – “Value Added” has a specialized definition that can be misleading. Also, process times were best professional judgements of experienced practitioners participating in the exercise.
“Pain Points”

• No agreement upfront on objectives with respect to site clean up

• Lack of initiative to elevate issues to determine streamline options

• Multiple phases require approval for permit requirements

• No pro-active investigation strategy due to unclear objectives up front

• Takes a long time to get up to speed (new people), revisiting decisions, etc. before proceeding
More “Pain Points”

• No documentation / historical documents
• Poorly defined data quality objectives
• Insufficient knowledge of site conceptual model
• Competing objectives across parties
• Varying perspectives around uncertainty tolerance
• Lack of defined product standards
• Lack of accountability to achieve quality product
Root Causes Identified

- No agreement upfront on objectives with respect to site clean up
- Lack of accountability to achieve quality product
- Varying perspectives around uncertainty tolerance

*Insufficient Information* and *Ineffective Transfer of Information* throughout the process is hindering the ability to drive and direct activity, support decision making and build trust between parties.*
Recommendations
Shift work to the Front of the process by conducting a standardized strategic forum with the key stakeholders.

- Exchange information and standard objectives
- Exchange and address concerns
- Discuss criteria and expectations
- Hold open, candid discussions
- Debate variations in viewpoints
- Build trust
- Reach agreement
Recommendations (cont.)

- Front end work seen as 1-3 month intensive, strategic effort among parties

- Conduct of corrective action process at the site to be governed by a “Corrective Action Framework Agreement”
Recommendations (cont.)

Bring structure to the RFI process by utilizing process management tools to enable standardization of:

- process activity
- supporting documents
- objectives, decision criteria, communication points
- information exchanges
Recommendations (cont.)

New structural elements include:

• RFI Process Map
• Communications Plan
• Escalation operating procedure
• Process metrics
• Business rules
• Control Plan
• Corrective Action Improvement Committee and defined roles and responsibilities
### Projected Future State

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Current Status

- Working on 30 day, 45 day and 90 day project schedules for work products
- Work teams formed and operating
- Contractor support has ended
- Deadlines likely to slip some, but parties actively engaged
- Monthly conference calls
Current Status – Items on Action Register

• Develop model permit/order language
• Develop cross-walk between documents in current process and future state
• Develop template for Corrective Action Framework Agreement (CAFA)
• Develop sub-process to serve as guidance for elevation of non-agreement
• Develop a change-management plan to guide transition to revised process
Current Status – Items on Action Register

• Develop criteria for deciding what sites are appropriate for the revised process

• Identify means to apply lessons learned from revision of RFI process to Corrective Measures Study process

• Develop plans for methods to foster adoption of revised process
Some Observations

• Facilitator critical to success
  - Able to identify process issues, even if not familiar w/ process being analyzed
  - Adept at managing meeting
  - Establishes structure for event

• Having right participants critical
Some Observations

- Tension between having right people involved and manageable group size
- Defining scope of exercise critical
- Process evaluation not “one and done” – a lot of follow-up work required
Some Observations

- Process changes won’t be appropriate for every site

- Implementation will be challenging
  - Staff buy-in
  - Management buy-in
  - Public buy-in
Some Observations

• Process metrics derived in mapping shouldn’t be oversold
  - Not derived from rigorous, data-based study
  - More important as qualitative indicators
Contact Information

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Extra slides
RCRA RFI PROCESS – Future State

Key:

- **Agency & Facility**
- **Facility**
- **Agency**

*Interim Measures can occur at anytime in process and does not stop*

1. **Start RFI Process**
   - Retain Contractor
   - Team Assembled

2. **Gather and Distribute Facility Background Docs**
   - Plan Corrective Action Facility Agreement (CAFA) Meeting
   - Conduct Meeting and Produce CAFA
   - Is CAFA achieved/signed?
   - Commence Joint Elevation

3. **Facility Submits Work Plan**
   - Coordinate RFI Work Plan Development and Agreed
   - IMs

4. **Approve Work Plan**
   - Implement Work Plan
   - Interim Measure Needed?
   - Yes
     - Secure Field Oversight
     - Secure Access Agreements
   - No
     - Commence Joint Elevation

5. **Evaluate Data**
   - Analysis of Samples by Lab
   - Interim Measure Needed?
   - Yes
     - Propose IM, Develop Work Plan and Implement
     - Reviews / Approves IM Work Plan and holds Public Meeting (if needed)
   - No
     - Update Conceptual Site Model

6. **Submit Work Plan**
   - Review submitted material
   - Sufficient Data?
     - Yes
       - Data Review Mtg.
     - No
       - Commence Joint Elevation

7. **Submit RFI & RA Report**
   - Agency Reviews & Approves

8. **Go to CMS Work Plan as Necessary**