Air Quality Management Natural Minor Permits
Value Stream Mapping - A LEAN Improvement

Project Date: August 10, 2005 to Present

PROBLEM

Any facility within Delaware that emits more than ten (10) pounds of air contaminants per day must have a natural minor permit prior to construction and operation. Delaware has more than 5,000 facilities requiring such permits. Facility owners requested, and were unable to get, a predictable timeframe when their permit request would be issued. Air Quality Management realized they were spending a majority of the permit process time getting the applications completed

CURRENT STATE

As of August, 2005:

- About 50% of applications did not contain all the general information (administrative) required.
- About 90% of applications were technically incomplete.
- Incomplete applications resulted in a large backlog and an unpredictable process timeframe.
- Permit writers were spending the majority of their time getting information from the applicants so they could complete the application.
- Applicants were purposely submitting incomplete applications in order to get in the queue.

FUTURE STATE

What the project team wanted to change.

- Establish a first-in/first-out system.
- Return incomplete applications if applicants fail to respond to requests for information.
- Create a permit tracking board to show progress.
- Develop new user-friendly application using input from the customer.
- Increase application completeness with new application form.
- Hold training sessions for the facility owners.

MAJOR ACCOMPLISHMENTS

- The Value Stream Mapping (VSM) process reduced rework time and issues with applications while maintaining the actual engineer analysis time.
- Facility owners now have a more predictable timeframe for their permit application process.
- More facility owners are submitting complete applications.
- Increased the communication and interaction between the facility owners and the program, as well as within the Air Quality Management team.
- The backlog of applications went from 199 to 0.

IMPLEMENTATION TEAM

Ali Mirzakhalili, Paul Foster, Nancy Terranova, Everett DeWhitt, Joanna French, Joanna Austin, Amy Mann, Kim Chesser, Valerie Gray, DNREC Office of the Secretary, Delaware Economic Development Office, Delaware Manufacturing Extension Partnership, *General Motors, * Daimler Chrysler Corporation, *Ciba Specialty Chemicals, *ILC Dover, Inc., *PPG Industries, *Dupont,
* Customers who use the Natural Minor Permit Program

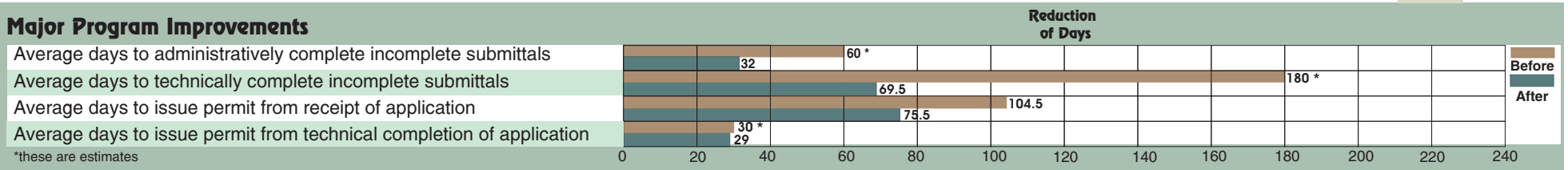
IMPLEMENTATION PLAN

	Deadline	Status
Formalize first in first out system and prioritization of applications	8/05	Complete
Formalize process for visually tracking permit progress	9/05	Complete
Solicit input from customers for application general information completeness	9/05	Complete
Plan to manage lagging permits in pipeline	10/05	Complete
Develop mechanisum to formally notify applicant of adminsitrative/ technical completeness	10/05	Complete
Begin collecting performance metrics	10/05	Complete
Design and implement process for pre-submittal meeting	12/05	Complete
Develop standards & process to return administratively incomplete applications	1/06	Complete
Develop technical review criteria	1/06	Complete
Establish process for technical review gate	1/06	Complete
Prepare checklist for technical Completeness	1/06	Complete
Revise the applications for synthetic minor approval requests so they are in compliance with VSM Proposed changes	10/06	Complete
Update webpage and new Documents	10/06	Ongoing

LESSONS LEARNED & FOLLOW UP

- The majority of problems stemmed from permit applications.
- Fixing the permit application documents dramatically improved the process.
- The Value Stream Mapping (VSM) process was a great teambuidling tool between Air Quailty management and the regulated community.

Major Program Improvements



*these are estimates

Brownfield Development Program (BDP)
Value Stream Mapping - A LEAN Improvement

Project Date: October 19, 2006 to Present

PROBLEM

The Brownfield Development Program (BDP) encourages the cleanup or redevelopment of vacant, abandoned or underutilized properties which may be contaminated. The process was not consistent and timely. Developers felt the process was too cumbersome and did not adequately protect them from liability. The Department wanted to enhance the attractiveness of the Brownfield Program and increase the number of applicants.

CURRENT STATE

As of October, 2006:

- Consultants and developers were frustrated with the program.
- Current lead time of the process was 18 to 24 months.
- There was no standard of work.
- Received 20% incomplete applications and reports from consultants and developers.

FUTURE STATE

What the project team wanted to change:

- Eliminate redundant steps.
- Reduce lead time to 13 months.
- Improve accuracy of document submission to 80%.
- Reduce time and steps.
- Reduce redundant manager reviews.
- Create templates for reports.
- Increase number of sites receiving Brownfield grant dollars.
- Decrease process from 102 steps to 69 steps.
- Increase developer and consultant confidence in the program.

MAJOR ACCOMPLISHMENTS

- Established templates for generic documents and reports.
- Delegation of final signature authority.
- Created site hallway status board to track metrics.
- Created tracking system for reimbursements.
- Decreased multiple internal managers' reviews.
- Increased number of sites receiving Brownfield grant funding from 29 in 2007 to 65 in 2009.

IMPLEMENTATION TEAM

Babatunde Asere, Robert Asreen, Patty Barone, Keith Brady, John Cargill, Vanessa Coleman, Marjorie Crofts, Greg Decowsky, Kate Durant, Rick Galloway, Lindsay Hall, Karissa Hendershot, Steve Johnson, Larry Jones, Todd Keyser, Sandie Kimbel, Liz Lasorte, Melissa Leckie, Pam Livingston, Wendy March, Robert Newsome, Jim Poling, Morgan Price, Tim Ratsep, Wilmer Reyes, Qazi Salahuddin, Stephanie Scholl, Robert Schulte, Krystal Stanley, Kathy Stiller, Jan Sunde, Kristen Thornton, Jim Werner, Paul Will, Tracey Wilson, Randy Wolfe, *Brightfields, Inc., *Environmental Alliance *Solid Hazardous Waste Branch *Stephanie Hansen *Tank Management Branch *Ten Bears Environmental, **Duffield Associates **Tetra Tech **Bob Zimmerman

**Consultants/customers who use the Brownfield Program*
***Provided input to the Value Stream Mapping/Lean event*

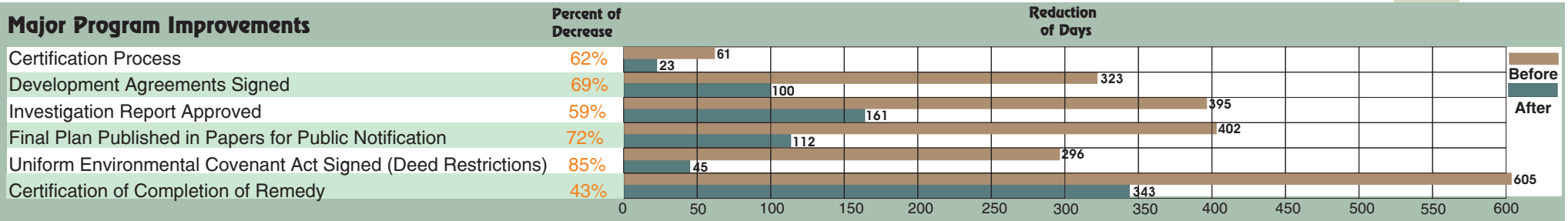
IMPLEMENTATION PLAN

	Deadline	Status
Revise application process & documents & develop application checklist	8/07	Complete
Design & implement status board	1/07	Complete
Map accounting procedures & track	1/07	Complete
Establish 30/60/90/120/150 day review process	6/07	Complete
Map contracting process & revise	2/07	Complete
Design templates for standard documents	4/07	Complete
Delegate signature authority	12/07 & 5/08	Complete
Technical Advisory Group (TAG) evaluation	12/06	Complete
Create standard processes for all actions	2/08	Complete
Create/modify submission package template & reimbursement guidance subjective	8/07	Complete
Design spreadsheet for project management time line		Open/On Hold
UECA trust account authority and Subordination agreements		Open/On Hold

LESSONS LEARNED & FOLLOW UP

- Tracking board effective for tracking metrics but not as effective for hallway meetings.
- The Value Stream Mapping process was well worth the upfront time and effort spent as the outcome created a more streamlined, efficient and effective program.
- Remap the process in fall of Fisal Year 2011.
- Continue to improve the Brownfield program and reduce lead time as staff identifies areas for improvement.

Major Program Improvements



Leaking Underground Storage Tank (LUST) Correction Action Program
Value Stream Mapping - A LEAN Improvement

Project Date: July 28, 2009 to Present

PROBLEM

The Leaking Underground Storage Tank Program (LUST) requires that parties clean up releases of petroleum and other hazardous substances from underground storage tank systems. Since 1985 DNREC has cleaned up more than 2,300 contaminated properties under the LUST program. There are currently more than 200 active/open cases with approximately 50 new cases being discovered each year. It is important to reach closure as quickly as possible at these sites to facilitate the redevelopment of the properties and minimize the environmental harm that the contamination can cause.

CURRENT STATE

As of August, 2005:

- Over 100 projects have been open for more than 10 years.
- There is a need to close out projects faster to protect the environment and expedite service to the customer.
- Tracking tools are not in place to assure consistent/ timely project tracking.
- Project delays may place Delaware's drinking water at risk.

FUTURE STATE

What the project team wanted to change.

- Eliminate redundant steps.
- Reduce lead time from 30 weeks to 16.5 weeks.
- Reduce the number of steps from 52 to 26.
- Eliminate non-value added steps.
- Have all but the most heavily impacted sites reach closure within 5 years.
- Have average time to corrective action completion when groundwater contamination exists to be 3 years.

MAJOR ACCOMPLISHMENTS

- Developed a consistent process using standardized guidance documents.
- Eliminated loop backs in review process.
- Revised templates for all key steps in the process.
- Closed 40 LUST projects in addition to current EPA commitments by end of FY2009.
- Eliminated the requirement for consultants to submit a work plan and obtain approval prior to conducting the first phases of investigation.

IMPLEMENTATION TEAM

Patrick Boettcher, Chris Brown, Pat Ellis, Dave Lerner, Alex Rittberg, Jennifer Roushey, Aaron Siegel, Liz Wolff, * Beverly Bartlett, State of DE, Division of Facilities Management, *Joe Rossi, Environmental Alliance, Josh Sobleman, Brightfields,
* Customers

IMPLEMENTATION PLAN

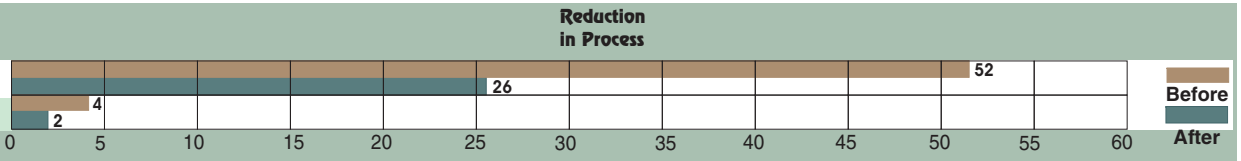
	Deadline	Status
Develop templates for generic documents & reports	3/07	Complete
Design status boards	3/07	Complete
Implement status boards	5/07	Complete
Incorporate statute review in data reduction	6/07	Complete
Develop new process guidance & checklist documents	4/07 to 9/07	Complete
Educate consultants on new process	7/07 to 10/07	Complete
Develop the plan (gantt chart)	3/07	Complete
Establish enforcement policy	3/07	Complete
Electronic signature policy	3/07	Complete
Well abandonment forms to Tank Management Branch	3/07	Complete
Time slicing (TU-W-F 8 to 10-no interruptions)	2/07 to 5/07	Complete
Put maps in the computer	3/07	Complete
Assessment of using certified consultant	2/08	Complete
Create site tracking tools within DEN to assist project managers with tracking and managing projects	9/08	Complete
Create a detailed guide on how to properly perform/report a hydrogeologic investigation	4/10	Open

LESSONS LEARNED & FOLLOW UP

- Tracking board effective for tracking metrics but not as effective for hallway meetings.
- The Value Stream Mapping process created a more efficient and effective program.
- Template documents were created to lessen the need for management review.
- Hydrogeologic investigation guide was drafted and the program is soliciting public comments from environmental consultants before finalizing the document.

Major Program Improvements

	Percent of Decrease
Number of steps in review process	50%
Number of reviews in the process	50%



Wetlands and Subaqueous Lands
Value Stream Mapping - A LEAN Improvement

Project Date: February 6, 2007 to Present

PROBLEM

The Wetlands and Subaqueous Lands Section of DNREC enforces the State's laws governing construction in wetlands and waters, including the Subaqueous Lands Program, the Wetlands Program, the Marina Program and the 401 Water Quality Certification Program. These programs require the review and issuance of numerous types of authorizations (permits, leases, letters of authorization, certifications, map changes, jurisdictional determinations, etc.) The Value Stream Mapping (VSM) process was undertaken to increase the program's efficiency in processing applications for authorizations in order to make the process simpler, faster and more predictable for the regulated community.

CURRENT STATE

As of February, 2007:

- Project applications moved slowly through the process.
- Permits took 60 to 90 days to issue.
- Not always timely recording of leases by owner which resulted in delays to close out project.
- Applications were not always complete or accurate when received.

FUTURE STATE

What the project team wanted to change.

- Increase the frequency of public notices.
- Draft and adopt new Statewide Activity Approval.
- Remove Secretary's signature from leases between private owners and the State.
- DNREC to be responsible for recording the leases with the Recorder of Deeds Office.
- Develop an application check list.
- Institute a mid-process electronic review to expedite the process.
- Revise the basic application form and appendices.
- Revise all permit and lease templates.

MAJOR ACCOMPLISHMENTS

- Weekly public notices decreased the application process time.
- Improved understanding and communication with the consultants/contractors who participated in the Value Stream Mapping event.
- Adoption of new Statewide Activity Approval eliminatied the need for public notice for about 25% of the permit applications received.
- Recording of leases by DNREC staff increased staff time but made the process more seamless and timely.
- Revised the basic application form.
- Developed an application checklist.

LESSONS LEARNED & FOLLOW UP

- Tracking board and hallway "stand-up" meetings slowed down the process for the small staff in the Wetlands program. The tracking board was stopped. Meetings need to be longer so they could include time application status review.
- Once the process was mapped most of the suggestions for change came from the consultants/contractors.
- Lost staff during the implementation phase and unable to do all the suggestions in the Future State.
- Developed some processes that were not accepted by the customers (ie. Formal per-application process).
- Increasing the frequency of public notices increased the costs.
- Unable to remove Secretary's signature from leases because it was in statute.
- Unsuccessful in measuring the tracking improvements in the process.
- Identified solutions to the problem are not always applicable to a specific program .

IMPLEMENTATION TEAM

Gayle Calder, Jim Chaconas, Laura Herr, Joanne Lee, Anne Love, Chuck McNally, Denise Rawding, Melanie Tymes, Andrew Whitman, * Rob Whitford, Precision Marine, * Ed Launay, Environmental Resources, Inc., * Evelyn Maurmeyer, Coastal and Estuarine Research, Inc., * Mark Allen, Cornerstone Contracting.
* Consultants and Contractors

IMPLEMENTATION PLAN

	Deadline	Status
Institute time limit for denying without prejudice/withdraw	11/06	Complete
Changes to mailing of leases/ documents	12/06	Complete
Purge wetlands mailing list	12/06	Complete
Collect metrics	12/06	Open
Public notice template and training for staff	12/06	Complete
Improve file organization using color coding	12/06	Aborted
Status board & 15-minute team review meetings	12/06	Completed/Aborted
Pre-application meetings with scientists & consultants	1/07	Complete
Institute time-slicing	1/07	Incomplete
Improve application document appendices	1/07	Complete Incomplete
Improve guidance document	1/07	Complete
Revise lease signing process		Complete
Revise internal check lists	2/07	Complete
Lease renewal prompts for individuals	2/07	Complete
Design standard notification for Secretary	2/07	Complete
Community education	TBD	Incomplete
Generate leases from database	TBD	Incomplete
Follow up on DNREC public hearing policy	TBD	Incomplete
Investigate licensing/certification process	TBD	Aborted
Revise basic application form	12/08	Complete
Revise appendices	TBD	On-going
Revise permit forms and conditions	TBD	On-going

What is Lean?

LEAN is about looking at the systems - the way work itself is designed and how it actually gets done – and finding ways to streamline the work so that we can do our important responsibilities well in less time and with less rework. It is not about eliminating anyone's position or decreasing anyone's importance. It is about looking at ways to make your jobs easier and hopefully less frustrating at times. It also isn't about finding fault with the current process or placing blame. Everyone has been doing the best job they can within the current parameters. But – let's change the parameters! Maybe we can eliminate a step or two – a possible signature – less copies – less movement from desk to desk or PC to PC. We won't know the answers until we look at the process.

Value Stream Mapping is a way to look at the current process. It is the simple method of directly observing the flow of information and materials as they now occur, summarizing them visually, and the envisioning of a future state with much better performance and efficiency. Everyone involved in the Value Stream Mapping process has input into the future state of the current process.

"*LEAN is the best hope for actually helping government deal with the challenge of crushing demand and limited resources.*"

(We Don't Make Widgets, Ken Miller, 2009)

DNREC EXPERIMENTS WITH THE USE OF VALUE STREAM MAPPING AND LEAN (2005 – 2008)

What did DNREC learn?

From our staff:

- Majority of process problems stem from the permit applications
- Re-work of applications was nearly 100%
- Substantial amount of time associated with waiting for information from the applicant
- Staff harbored a wealth of ideas for removing waste in time and motion

From applicants (DNREC's Customers):

- Cumbersome and slow permitting processes
- Difficult to know which form to complete
- Difficult to know where and how to obtain information that is requested
- Difficult to know which questions to answer and which ones are not applicable
- Need help with engineering calculations
- Need to know why specific information is being requested