Value Stream Mapping Delaware's Air Permitting Processes

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October 31, 2007

Why did Delaware pursue VSM?

- **Listening to the voices of our customers**
- **To improve our permitting processes**
- **To reduce processing time and effort**
- **To create greater business certainty**
- **To optimize our resources for other functions**
- **To improve environmental quality**

Partners in the VSM Effort

- Delaware Economic Development Office
- Delaware Manufacturing Extension Partnership
- DNREC Office of the Secretary
- General Motors
- DaimlerChrysler Corporation
- Ciba Specialty Chemicals
- ILC Dover, Inc.
- PPG Industries
- DuPont

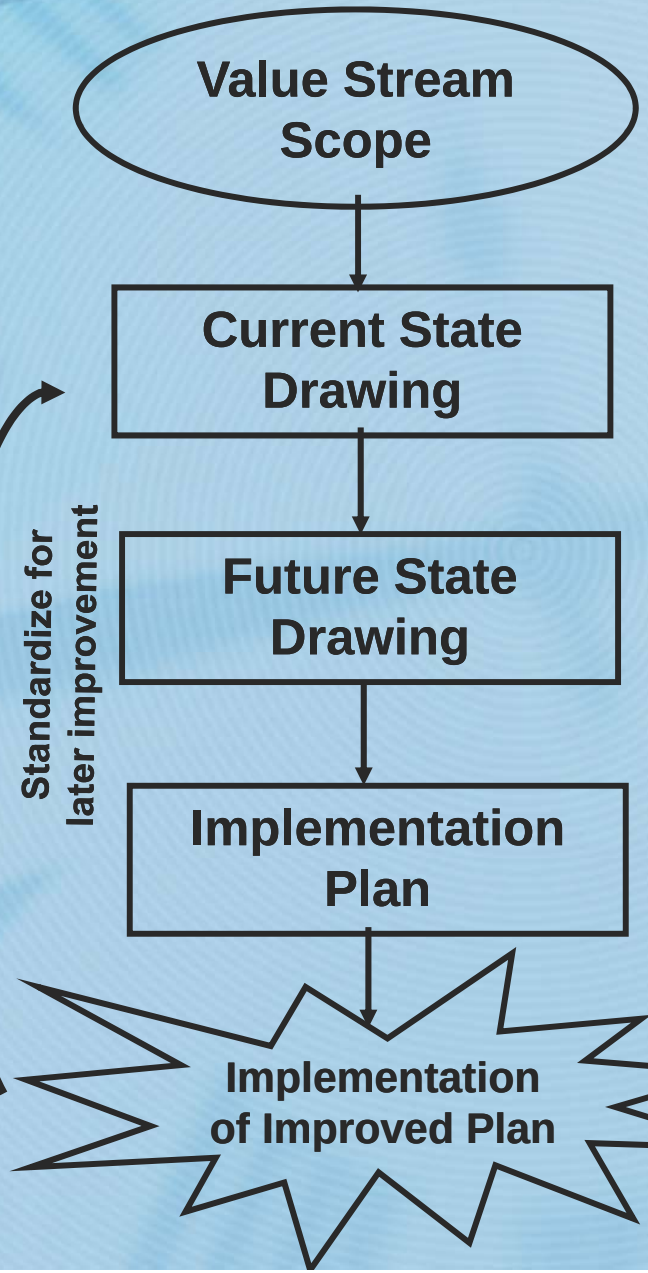
What is a Value Stream?

- A value stream involves **all the steps in a process**, both value added and non value added, required to complete a **product or service** from **beginning to end.**

What is a Value Stream Map?

- **Visual representation of a Value Stream or the work process**
- **Pencil and paper tool with lots of "post-its"**
- **Helps reveal waste and problems with the work flow**
- **It establishes a common language to talk about a process**
- **It provides a blueprint for improvement**

Using the Value Stream Mapping Tool



Determine the Value Stream to be improved

Understanding how things currently operate. This is the foundation for the future state

Designing a lean flow

Developing a detailed plan of implementation to support objectives (what, who, when)

The goal of mapping!

Step 1: Mapping the Current State

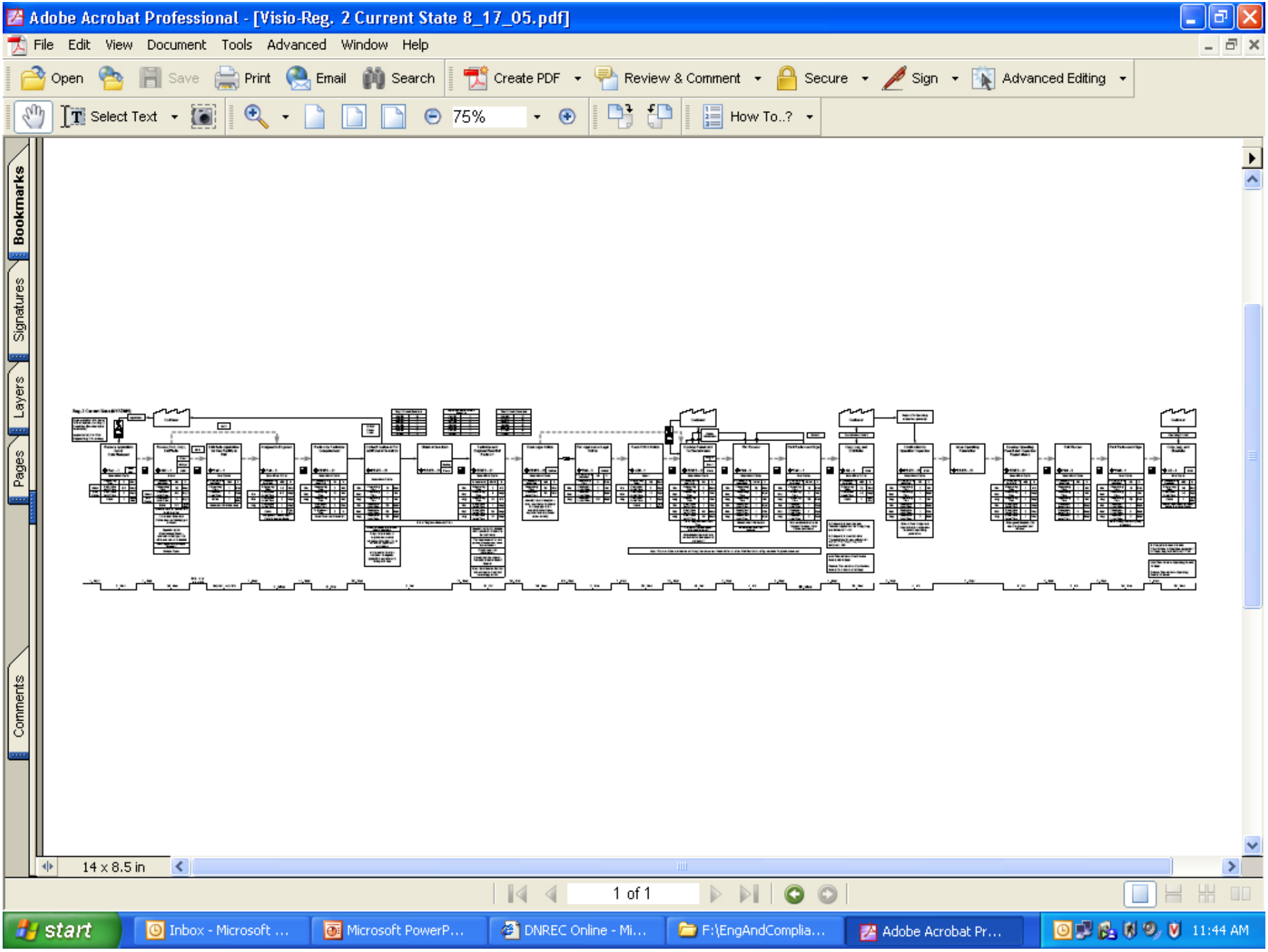
- **Create the goal for the session**
- **Define what is in scope and out of scope**
- **Map the current state for the process of interest**

In Scope

- Interpretation of DNREC rules, policies, and guidance documents
- Internal organizational structure
- Internal permit process and timing
- Applicant internal process and timing
- Electronic submittals
- Application content and format
- Permit and technical memo format
- Special condition content
- Communication (internal/external)

Out of Scope

- EPA regulations
- Interpretation of EPA rules, policies, and guidance documents
- Modifying existing DNREC rules
- Additional resources
- Permit appeal process
- New software/computer systems
- Mandated public participation requirements
- Permits involving enforcement actions
- Public hearing process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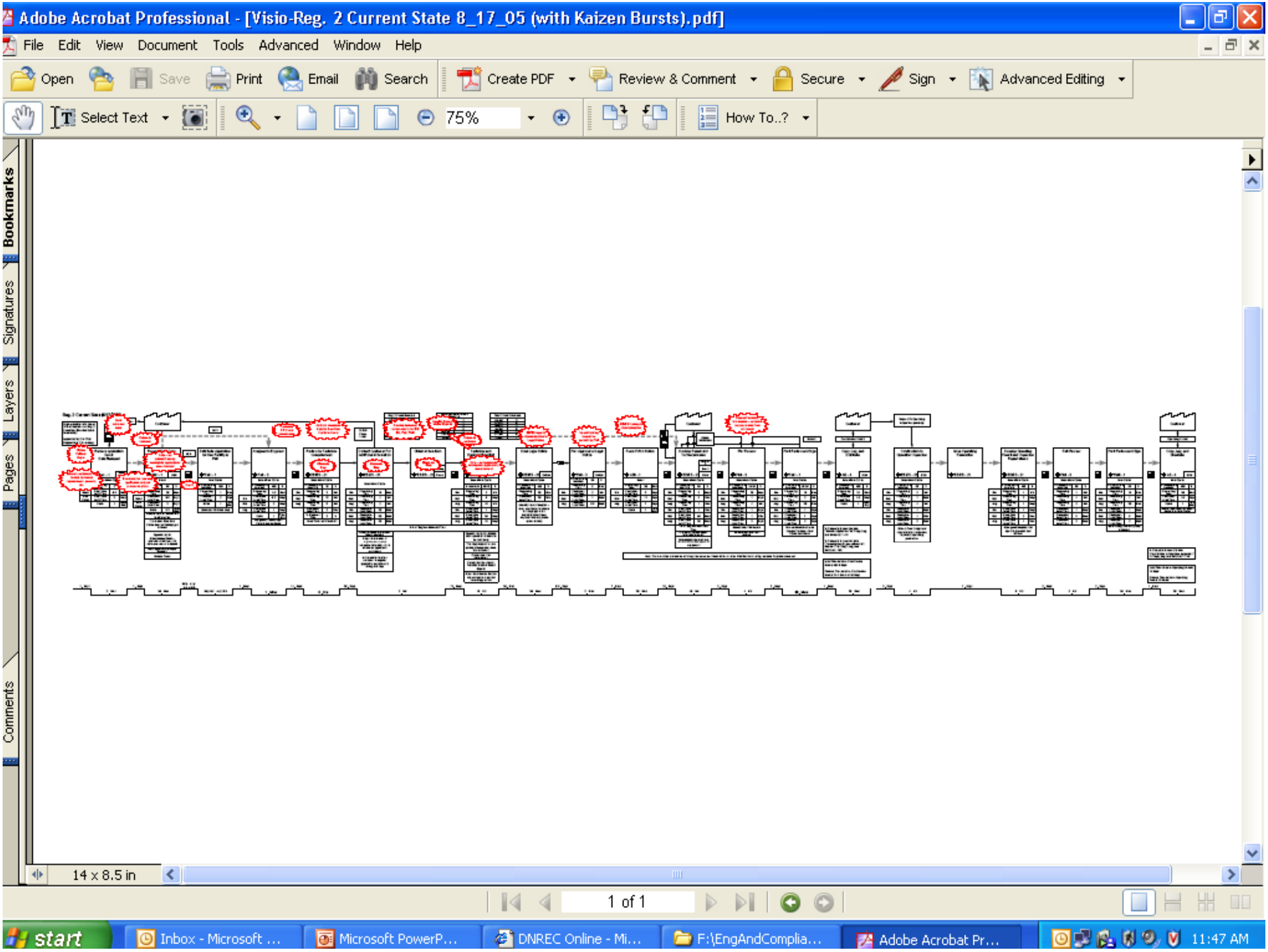
Mapping the Current State

- **Lesson learned:**
  - **The majority of process problems stem from the permit applications!**

Step 2: Identify Opportunities for Improvement

- **These opportunities are called "kaizen bursts"**
  - **"kaizen are rapid improvement processes focused on eliminating waste, improving productivity, and achieving continual improvement.**
- **"Kaizen bursts" are used to create the Future State**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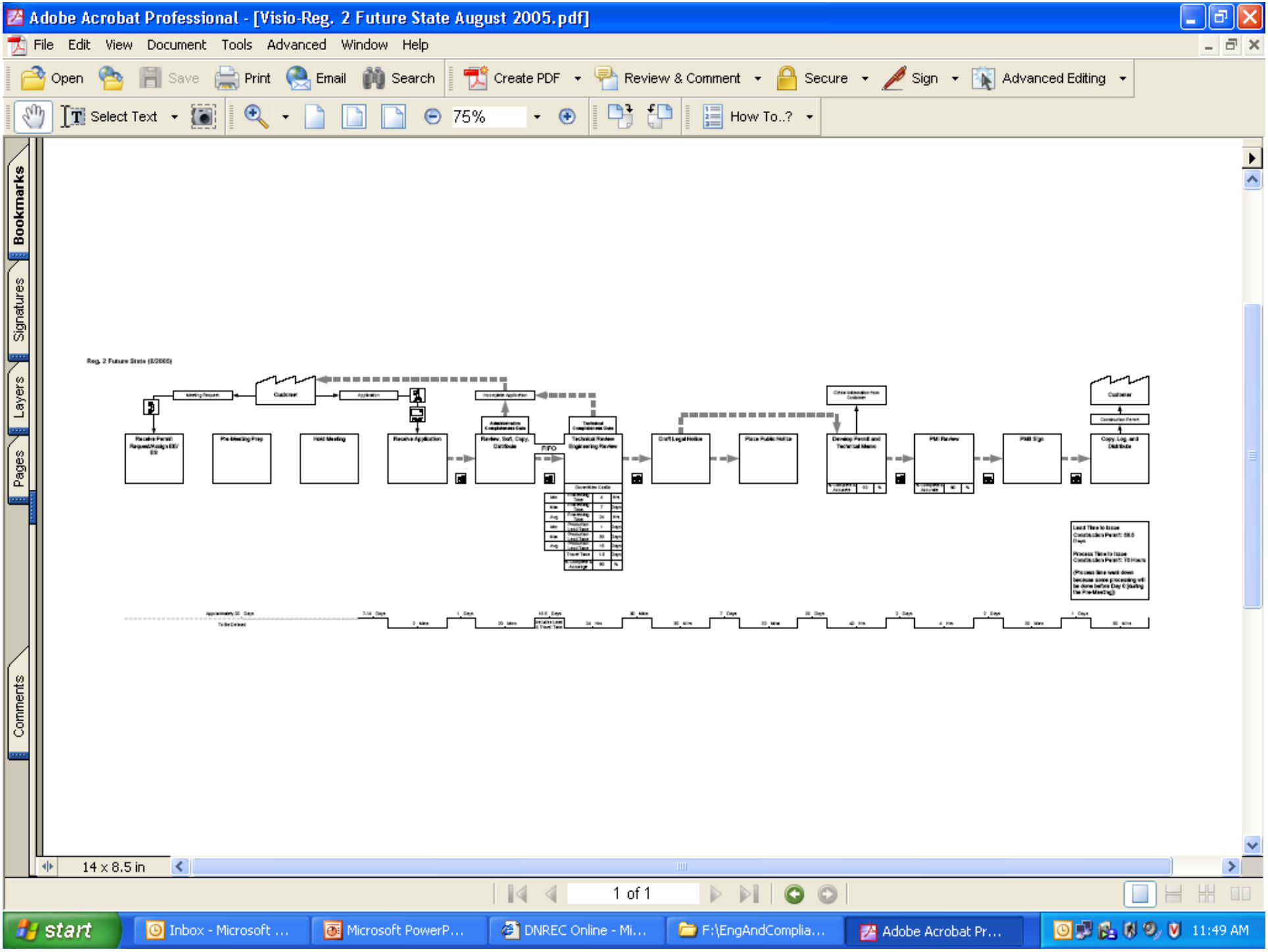
Step 3: Creating the Future State

- **Future state should be realistic**
- **Future state should be achievable in one year**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Step 4: Achieving the Future State

- Identify and schedule specific tasks to accomplish over the next year
- Our tasks included
  - Creating visual tracking boards
  - Implementing a FIFO system
  - Creating permitting checklists
  - Modifying our applications to make them more user friendly
  - Collecting performance metrics

Project Highlights

- We introduced three important new steps into the permitting process
- We completely redesigned permit applications based upon stakeholder feedback
- We created visual tracking boards
- We implemented a FIFO system

Project Highlights

- **We reduced our permitting backlog (as defined by our Permit Tracking System) from 199 permits on 8/24/2005 to 46 on 2/15/06 and completely eliminated backlog by 2/21/07**
- **On average we are issuing natural minor permits within 43 days of receipt of a complete application**

Important Process Improvements

- **Future State includes three important changes to the permitting process:**
  - **The Pre-Submittal Meeting**
  - **The Administratively Complete Gate**
  - **The Technically Complete Gate**

New Application Forms

- **We realized that our application forms were causing most of our wasted time and rework**
- **We interviewed users to find out how to improve our applications**
- **We formed internal and external application workgroups to make the process transparent**

Application Workgroups

- **Internal Workgroup**
  - **Engineers and Scientists within AQM**
  - **Determined what information was needed**
  - **Developed draft applications for the external workgroup to review**
- **External Workgroup**
  - **Representatives from the regulated community and the small business ombudsman**
  - **Reviewed and commented on draft application forms**

Old Application Forms

- Too generic
- Difficult on the eyes
- Did not ask for all needed information
- Instructions located in separate documents
- Illogical numbering system employed

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
AIR POLLUTION CONTROL PERMIT APPLICATION

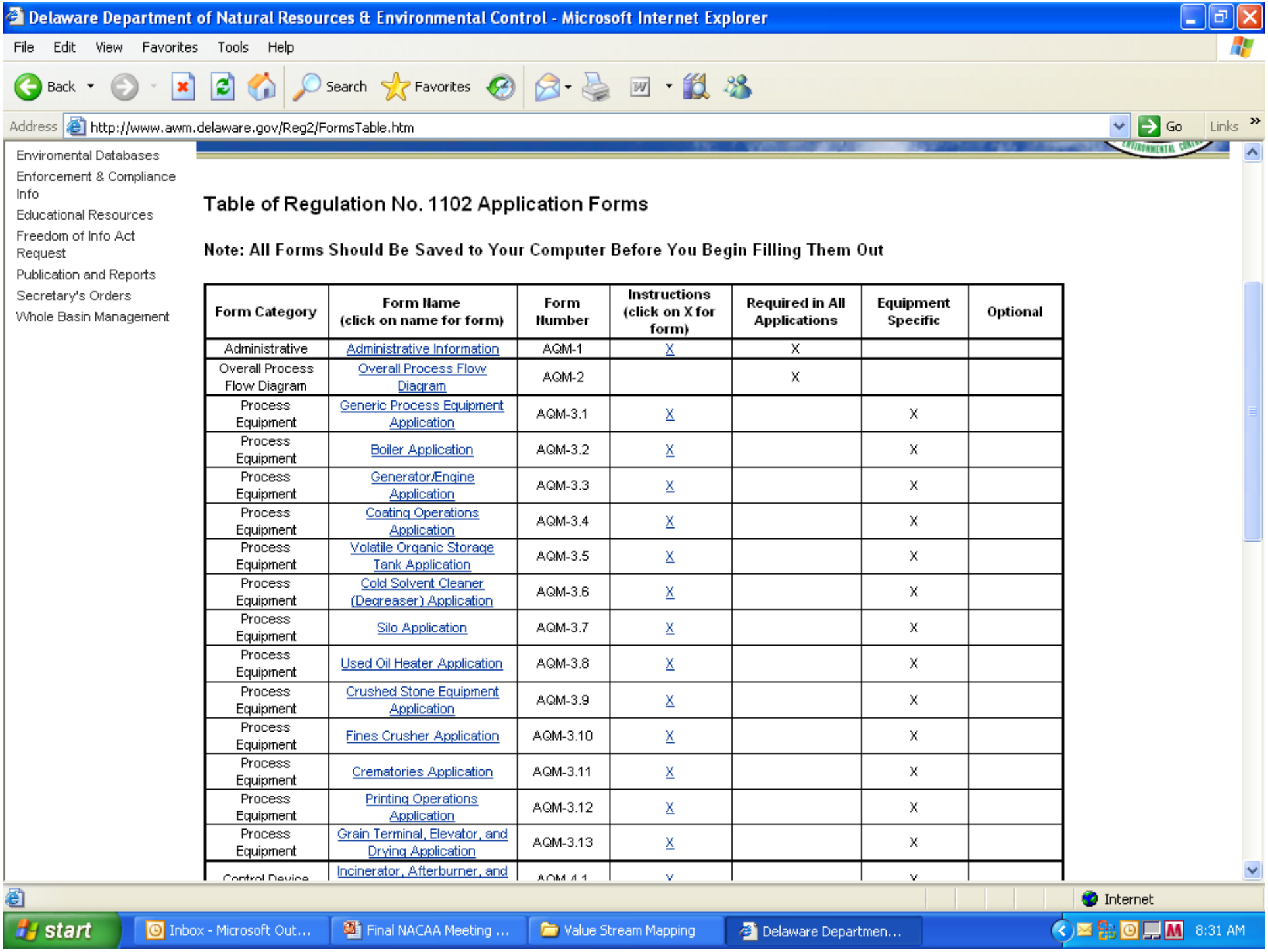
APPLICATION FOR PERMITTING PROCESS EQUIPMENT
Attach any additional information (manufacturer specifications, MSDS, etc.)
Use additional pages if necessary

DEPARTMENT USE ONLY

1. Name of Plant or Establishment			2. Date of Application	Permit Number
3. Physical Location (Street Address)	City	County: New Castle	Zip Code	Received Stamp
4. Mailing Address	City	County	Zip Code	
5. Name of Owner	6. Person Signing This Application	7. Title of Applicant	8. Telephone ext.	9. GIS Location
10. Owner/Applicants Mailing Address	City	County	Zip Code	11. Proposed Installation or Modification Date
12. Major Activity at This Location: Manufacturing	13. Describe Activity	14. Number of Employees	15. SIC Code and NAICS Code SIC: NAICS:	16. Equipment to be Permitted: New
17. Type of Equipment *(Kiln, Baghouse, Spray Booth, etc.)*			18. Operating Schedule: Hours Per Day, Days Per Week, Weeks Per Year	

New Application Forms

- **The forms use a Building Block Approach:**
  - **Administrative Form**
  - **Overall Process Flow Diagram**
  - **Process Equipment**
  - **Control Device**
  - **Emissions Information**
  - **Air Toxics Modeling**
- **Applications can be customized to meet project needs**
- **The forms include interactive instructions**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Enforcement & Compliance Info
Educational Resources
Freedom of Info Act Request
Publication and Reports
Secretary's Orders
Whole Basin Management
Table of Regulation No. 1102 Application Forms
Note: All Forms Should Be Saved to Your Computer Before You Begin Filling Them Out
Form Category | Form Name (click on name for form) | Form Number | Instructions (click on X for form) | Required in All Applications | Equipment Specific | Optional
Administrative | Administrative Information | AQM-1 | X | X
Overall Process Flow Diagram | Overall Process Flow Diagram | AQM-2 | | X
Process Equipment | Generic Process Equipment Application | AQM-3.1 | X | | X
Process Equipment | Boiler Application | AQM-3.2 | X | | X
Process Equipment | Generator/Engine Application | AQM-3.3 | X | | X
Process Equipment | Coating Operations Application | AQM-3.4 | X | | X
Process Equipment | Volatile Organic Storage Tank Application | AQM-3.5 | X | | X
Process Equipment | Cold Solvent Cleaner (Degreaser) Application | AQM-3.6 | X | | X
Process Equipment | Silo Application | AQM-3.7 | X | | X
Process Equipment | Used Oil Heater Application | AQM-3.8 | X | | X
Process Equipment | Crushed Stone Equipment Application | AQM-3.9 | X | | X
Process Equipment | Fines Crusher Application | AQM-3.10 | X | | X
Process Equipment | Crematories Application | AQM-3.11 | X | | X
Process Equipment | Printing Operations Application | AQM-3.12 | X | | X
Process Equipment | Grain Terminal, Elevator, and Drying Application | AQM-3.13 | X | | X
Control Device | Incinerator, Afterburner, and | AQM-4.1 | X | | X
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DNREC – Air Quality Management Section
Application to Construct, Operate, or Modify Stationary Sources

Generic Process Equipment Application

If you are using this form electronically, press F1 at any time for help

General Information

1. Facility Name:
2. Equipment ID Number:
3. Provide a brief description of Equipment or Process:
4. Manufacturer:
5. Model:
6. Serial Number:

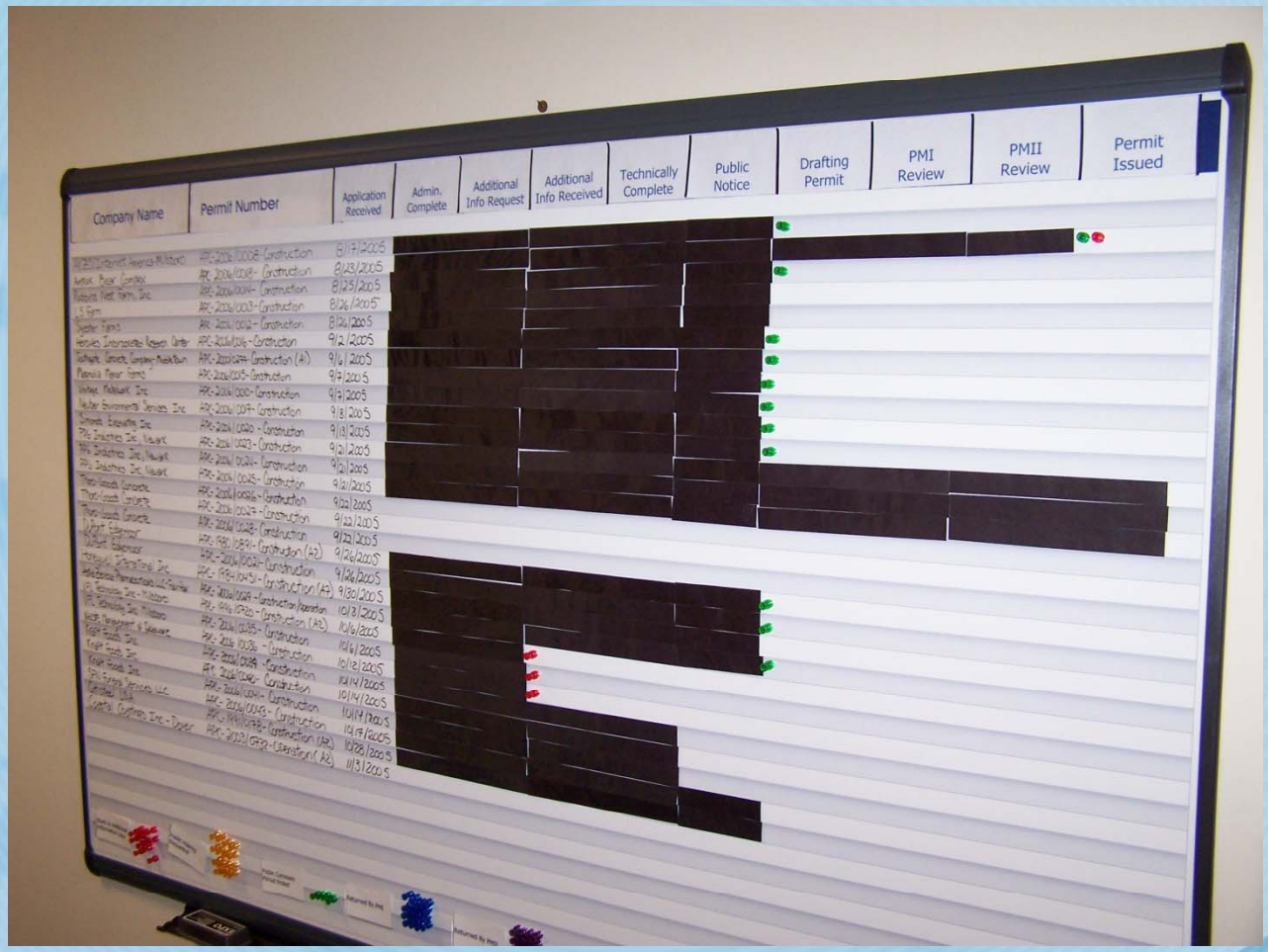
Raw Material Information

7. Raw Materials Used in Process

If there are more than four Raw Materials used, attach additional copies of this page as needed.

	Raw Material Used	CAS Number	Usage Rate (include units)	MSDS Attached?
7.1				☐ YES ☐ NO

Visual Tracking Board



Synthetic Minor VSM Project

- **Based upon the success of the Natural Minor VSM project we conducted a Synthetic Minor VSM project in October 2006**
- **The Synthetic Minor VSM project is almost complete**
- **On average we are issuing Synthetic Minor permits within 66 days of receipt of a complete application**

Contact Information

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