Air Quality Bureau Complex Construction Permitting Workshop

AM Session: Are you sure you want to go through PSD?

Kaizen: Continuous Improvement

The “New” Idea

Questions? Contact:
Aaron Schmidt
(515) 281-4897
Aaron.Schmidt@dnr.state.ia.us

Kaizen – What is it? How it came to Government?

- Continuous Improvement
- Brought to State in January 2003 by the “Hot Team”
- Air Quality Bureau “Standard” Process first Addressed with Kaizen in June 2003. First Kaizen Event in State Government

Helping Partners

- Time Based Management (TBM) Consulting located in North Carolina Consultant for Kaizen
- Help Train and provide guidance through Kaizen Process
- State has Developed Continuous Improvement (CI) Team
- “Hot Team”

Growth of Kaizen

- Spreading to other Departments, Agencies, and Bureaus
- See Handout on State of Iowa Process Improvement Results
- See Handout on Business Process Improvement (BPI) Case Study

Additional Contact Information

- Teresa Hay McMahon, (515) 281-0110
- Catharine Fitzsimmons, (515) 281-8034
- Dave Phelps, (515) 281-8189

Complex Process Improvement Event

Tick-Tock

Questions? Contact:
Gary Smith
(515) 281-4635
Gary.Smith@dnr.state.ia.us

Complex Kaizen Event

- Week of October 18, 2004
- DNR, EPA and industry representatives
- Set objectives
- Map process
- Eliminate waste
- Determine work times for steps
- Develop new streamlined process

Pre-Event Objectives

- Reduce lead time to process projects from 210 to 125 days (including 40 day comment period). Reduction of 50%
- Reduce requests for additional information by 50%
- Reduce the number of unanticipated comments in the comment period by 50%
  - 30–day comment period for PSD required by rule
- Develop a standard operating procedures guide for project reviewers and project applicants

Post-Event Objectives

- Streamline the process and reduce variability
- Issue 100% of Complex PSD permits in a maximum of 180 calendar days (132 working days) from the day the application is received
- Issue 100% of non-PSD complex projects within 90 calendar days
- Reduce unanticipated comments by 50%

Defining a Complex Project

- Complex Legal – are consent orders, compliance orders, SIPs ; not subject to new process at this time (outside processes and other legal complexities difficult to control)
- Complex – Syn. Minor, Netting, VOP, 112(g), Ethanol Greenfield, PCP =< 90 days (require pre-meeting, clock starts after pre-meeting)
- Complex PSD =< 180 days (follow new process)

PSD Projects

- What is a PSD project?
  - Prevention of Significant Deterioration
  - Large greenfield projects (>250 ton/year)
  - Major modifications at Major facilities
    - 100 ton/yr CO
    - 40 ton/yr SOX, NOX, VOC
    - 25 ton/yr PM
    - 15 ton/yr PM10

PSD Projects

- Require significant review
  - BACT analysis
    - Top-down control technology
    - Cost analysis
    - Technical feasibility
  - Additional impacts
  - Dispersion modeling (NAAQS and increment)
  - Testing
  - Recordkeeping

New Process

Activity	Time (work days, excluding weekends	Time (calendar days)
Application submitted	0	0
Completeness review of application and modeling; Follow-up correspondence;Request and receive additional information	12	15
Technical Review/Communciation/Negotiation	30	40
Review Department Analysis/Draft Permit	30	55
EPA Draft Review	15	20
Public Comment Period	35*	35
Review and Respond to Comments/Issue Final Permit	10	15
Total Work Days	132	180

Questions? Call 1-877-AIR-IOWA

New Process Steps

- Initial call checklist
- Pre-application meeting agenda
- Pre-application meeting web document
- Pre-application timeline/schedule document
- Updated application forms
- Provide guidance on proposed permit language
- EPA agreement document

Complex Turnaround Time

- One full PSD project since 1/05 using new process
  - 160 days to complete
- 26 non-PSD complex in last 6 months
  - Average of 70 days to complete
    - Minor mods of PSD permits
    - Netting
    - NESHAP

Iowa – EPA Agreement

Iowa is requiring that all companies applying for a PSD permit that want a 180 day turnaround time attend a pre-application meeting with IDNR. Iowa or the applicant may request a representative from EPA Region 7 to help facilitate the project. EPA Region 7 will participate in person or by phone conference, if available. Factors that will influence EPA attendance include projects that are precedent setting or those that are very large emitters.

Iowa – EPA Agreement

- IDNR will send a copy of the PSD application to EPA at the start of the review. EPA will generally not conduct parallel reviews but will assist by responding to IDNR staff questions during the review phase. EPA will provide a timely response by email, phone, or mail as appropriate. All requests and replies will be copied to the EPA air program manager.
- To minimize comments during the formal public comment period, EPA will be allowed to review the internal draft permits during the same period as the facility and the IDNR complete their peer review prior to the formal public comment period. The department and EPA will correspond via email during this period to expedite the process. This review period will substitute for the extra 10 days allotted to the EPA currently allowed by the Iowa-EPA work agreement. EPA will make comments during the formal public comment period, as needed.

EPA comments

- Soils & vegetation analysis inadequate
- No BACT analysis on ancillary equipment
- Initial compliance testing
- Continuous or periodic monitoring
- Averaging periods
- Relying too much on emission factors
- Malfunction provisions
- Permit doesn’t completely describe emission unit/process/activity being approved

NEW PROCESS MAPPING

There is a difference between knowing the path and walking the path

Questions? Contact:
Gary Smith
(515) 281-4635
Gary.Smith@dnr.state.ia.us

Goals

- COMPLEX PSD – 180 days
- COMPLEX Non-PSD – 90 days
- COMPLEX Legal – “offramp”

PRE-APPLICATION PROCESS

- COMPLEX PSD 0 Days
- COMPLEX NON-PSD 0 Days

- Purpose – to establish a common understanding and reduce delays.
- Involves submitting a nearly complete application for review to DNR.
- Clock starts after the application is submitted.

APPLICATION & COMPLETENESS

- COMPLEX PSD 15 days
- COMPLEX NON-PSD 15 days

- Involves checking that the application has all information needed for technical review

TECHNICAL REVIEW

- COMPLEX PSD 40 days
- COMPLEX NON-PSD 30 days

- Purpose – to determine the necessary requirements for issuing a permit
- Involves DNR engineering and modeling staff review of the application.

REVIEW OF DEPT. ANALYSIS

- COMPLEX PSD 55 days
- COMPLEX NON-PSD 30 days

- Purpose – to discuss and review the results of the DNR's technical review
- Involves company and DNR staff.

Potential ‘off-ramps”

- Failure to respond to IDNR requests in a timely manner.
- Company request to EPA for policy review due to disagreement with IDNR’s interpretation - this is not covered under the Iowa-EPA PSD agreement for timely response.
- Failure to agree on what is “economically feasible” in the BACT review.
- Major change in plans after review starts

PERMIT DRAFTING

- COMPLEX PSD 20 days
- COMPLEX NON-PSD 15 days

- Involves writing permits, fact sheets, and engineering evaluations.
- Draft review before public comment period to avoid major changes to permits afterwards.
- Complex non-PSD process finished.

PUBLIC COMMENT PERIOD

- COMPLEX PSD 35 days
- COMPLEX NON-PSD 0 days

- Purpose – 30 days is legally required for all PSD projects.
- Involves publishing a notice on the project, where to find the draft package, and how to comment.

PERMIT FINALIZATION

- COMPLEX PSD 15 days
- COMPLEX NON-PSD 0 days

- Involves writing the final permits, and responding to any public comments received.
- Complex PSD process is finished.

Pre-Application Meeting

Get out while you still can

Questions? Contact:

Gary Smith
(515) 281-4635
Gary.Smith@dnr.state.ia.us

What Types of Projects?

- Required
  - PSD projects
  - Greenfield ethanol plants
- Recommended
  - SIP
  - Netting, debottlenecking, other PSD issues
  - Major non-PSD greenfields

Getting Started

- Contact either:
  - Dave Phelps
    - (515) 281-8189
    - dave.phelps@dnr.state.ia.us
  - Gary Smith
    - (515) 281-4635
    - gary.smith@dnr.state.ia.us

When & Where

- When
  - Prior to permit application being reviewed
- Where
  - Preferably at the facility (if not a new facility)

Info Submitted Prior to Meeting

- Agenda
- List of attendees
- Executive summary of the process/project
- Anticipated controls & emission rates
- Location of new or modified facility
- List of nearby supporting operations
- MACT/NSPS applicability
- Modeling protocol
- Pre-construction monitoring (if PSD)
- EPA involvement in meeting? (if PSD)

Items to be Discussed

- Required forms
- Permitting process
- Site-specific issues
  - Past facility modeling
- Local air quality concerns
  - Nonattainment issues
  - Increment issues

Items to be Discussed

- Pre-construction monitoring (if PSD)
- Dispersion modeling
- Additional impact analysis (if PSD)
- Similar permitting examples
  - BACT (if PSD)
    - Economic feasibility
    - Control technologies
    - Recent determinations
  - Monitoring, testing, and recordkeeping

Items to be Discussed

- Communication expectations
  - Email lists
  - Schedule (i.e. conference calls, meetings, etc.)
- Confidentiality
- Allowable pre-permit construction activities
- EPA's role
- Timeline for review process

Timing

- No earlier than 3 months prior application submittal
- Application should be nearly complete (80%)
  - All forms
  - BACT
  - Soils & vegetation
  - Modeling determination

Meeting Participants

- Required
  - DNR
    - Construction permit supervisor
    - 2 DNR engineers
  - Applicant
    - Environmental representative and/or project engineer
    - Consultant (if applicable)
  - Local agency (if applicable)

Meeting Participants

- Optional
  - DNR modeler
  - EPA representative
  - Compliance representative
  - Attorneys
  - Title V representative
  - Other DNR management
  - Department of Economic Development (DED) representative

Pitfalls

- Not enough documentation
- BACT analysis
  - Double counting initial cost of catalyst and replacement of catalyst
  - Wrong interest rate
  - Labor rate
  - Including property tax
  - No quotes

Pitfalls

- Soils & Vegetation analysis
  - Simply stating below modeling significance levels is not adequate
- Netting
  - No supporting stack tests
  - Not addressing all projects during contemporaneous time period

Pre-Submittal Modeling Requirements

Why is that van parked out there?

Questions? Contact:
Lori Hanson
(515) 281-8911
Lori.Hanson@dnr.state.ia.us

Overview

- New PSD Modeling Guidelines
- Modeling Protocol
- Pre-Construction Monitoring
- Website and Contact Information

New PSD Modeling Guidelines

Contents:

- General Overview
- The Modeling Protocol
- VOC Emissions
- Source Information
- Receptor Information
- Meteorological Data

New PSD Modeling Guidelines

Contents, continued

- Impact on Air Quality
- Additional Impact Analysis
- Class I Area Impact Analysis
- Submittal Requirements
- Attachments

New PSD Modeling Guidelines

Attachments:

- Modeling Protocol Template
- Expanded Scheffe Look-up Tables
- Air Quality Criteria for Oxides of Nitrogen, Summary of Vegetation Impacts

Modeling Protocol

Modeling Protocol is required prior to the pre-application meeting:

- Establishes a common understanding
- DNR evaluates acceptability of proposed analyses
- Resolves issues before extensive modeling is done
- Decreases chance of errors and inadvertent exclusion of required information
- Living document

Modeling Protocol

Modeling Protocol Template:

- Developed to simplify the process
- Assures all important topics are addressed
- DNR written response to protocol generally in one week

<Date>

Ms. Lori Hanson
Iowa Department of Natural Resources
7900 Hickman Road
Suite 1
Urbandale, IA 50322

RE: PSD Dispersion Modeling Protocol for <facility name/location/description>

Dear Ms. Hanson:

<Introduction, project description (including which pollutants are subject to preconstruction review)>

PRE-CONSTRUCTION MONITORING

<A pre-construction monitoring protocol should be submitted and approved before the modeling protocol is submitted. State whether preconstruction monitoring will be required for this project (based on the monitoring *de minimis* levels in Table 1). If pre-construction monitoring is required state whether the facility will be conducting their own monitoring or if data from an existing monitor will be used. Note that a net emissions increase of greater than 100 tpy of VOC emissions triggers the requirement to conduct preconstruction ozone monitoring.>

VOC EMISSIONS

<Emissions of VOC are not typically modeled. If the proposed project will result in a net emission increase of greater than 100 tons per year of VOC, the potential effects of ozone must be evaluated. See the DNR PSD guidance document.>

MODELING METHODOLOGY

Pre-Construction Monitoring

One year of Pre-Construction Monitoring may be required for criteria pollutant being emitted over the significant emission rate.

Pre-Construction Monitoring

Significant Emission Rates in 40 CFR 52.21:

CO	100 tpy
NOx	40 tpy
SO2	40 tpy
PM-10	15 tpy
Ozone	40 tpy
Lead	0.6 tpy

Pre-Construction Monitoring

- Facility should address pre-construction monitoring early in their decision making process
- Modeling Protocol should document how the facility plans to address pre-construction monitoring

Pre-Construction Monitoring

Facility may be exempt if either:

- Predicted ambient impacts
- Existing ambient pollutant concentrations

Are less than the prescribed significant monitoring concentrations listed in 40 CFR Part 52.21.

Pre-Construction Monitoring

Significant Monitoring Concentrations ($\mu g/m^3$)

- CO 575 (8- hour)
- NO_2 14 (Annual)
- SO_2 13 (24-hour)
- PM-10 10 (24-hour)
- Lead 0.1 (3-month)

Pre-Construction Monitoring

The requirement for pre-construction monitoring can be met in either of two ways:

- Existing ambient data may be used if DNR determines that the data is representative
- Establish a site-specific monitoring network

Pre-Construction Monitoring

- If the facility proposes to be exempt from pre-construction monitoring due to modeled impacts below the significant monitoring concentrations, review is conducted by the modeling group.

- If the facility cannot exempt out of the pre-construction monitoring requirement, use of existing monitoring data should be discussed with the construction permit engineer and the monitoring staff.

Website and Contact Information

- General Air Quality:
  - http://www.iowacleanair.com/
- Dispersion Modeling:
  - http://www.iowacleanair.com/prof/progdev/dispmodel.html
- Lori Hanson, Lead Worker – Dispersion Modeling
  - (515)281-8911
  - lori.hanson@dnr.state.ia.us

Website and Contact Information

- Ambient Monitoring Data:
  - http://www.iowacleanair.com/current/current.html

- Sean Fitzsimmons, Lead Worker – Ambient Air Monitoring
  - (515)281-8923
  - sean.fitzsimmons@dnr.state.ia.us

Rule Links

- Air Toxics Main Page (NESHAP)
  http://www.epa.gov/ttn/atw/index.html

- CFR (Title 40)
  http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm

- Code of Federal Regulations (CFR): Main Page
  http://www.gpoaccess.gov/cfr/index.html

- Electronic Code of Federal Regulations
  http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?&c=ecfr&tpl=/ecfrbrowse/Title40/40tab_02.tpl

Rule Links Continued

- Iowa Administrative Code
  http://www.legis.state.ia.us/IAC.html

- NESHAP
  http://www.epa.gov/ttn/atw/eparules.html

- NESHAP Alphabetical
  http://www.epa.gov/ttn/atw/mactfnlalph.html

- Regulations
  http://www.epa.gov/epahome/rules.html#codified

Calculation (Emission Factor) Links

- Applicability Determination Index (ADI)
  http://cfpub.epa.gov/adi
- AP-42
  http://www.epa.gov/ttn/chief/ap42/index.html
- Clean Air Technology Center - Cost Control Manual Chapters
  http://www.epa.gov/ttn/catc/products.html#cccinfo
- Clearinghouse for Inventories and Emission Factors
  http://www.epa.gov/ttn/chief/
- labor costs
  http://www.bls.gov/news.release/ecec.toc.htm

Calculation (Emission Factor) Links Continued

- List of 28 Source categories
  http://www.epa.gov/reg5oair/permits/const/psd_thres.htm
- Moody's Aaa interest rates
  http://www.federalreserve.gov/releases/
- OSHA Standard Industrial Classification (SIC) System Search
  http://www.osha.gov/pls/imis/sicsearch.html
- PSD Applicability Determinations/Issues
  http://envinfo.com/caain/newsource/nsrapplc.html
- RACT / BACT / LAER Clearinghouse
  http://cfpub.epa.gov/rblc/htm/bl02.cfm

Calculation (Emission Factor) Links Continued

- Region 7 Air Program - Air Toxics with Contact Names
  http://www.epa.gov/region07/programs/artd/air/toxics/airtox1.htm

- SIC and NAICS Codes Homepage
  http://www.census.gov/epcd/www/naics.html

- SIC Search
  http://www.osha.gov/oshstats/index.html

- TTNWeb - Technology Transfer Network (FIRE and TANKS)
  http://www.epa.gov/ttn/

Other Links

- Air Quality Bureau Homepage
  http://www.iowacleanair.com/

- American Foundry Society
  http://www.afsinc.org/

- American Indian Environmental Office
  http://www.epa.gov/indian/index.htm

- National Environmental Publications Info. System

  http://nepis.epa.gov/

Other Links Continued

- New and Emerging Environmental Technologies (NEET) Clean Air Tech. Database http://neet.rti.org/

- EPA Region 7 http://www.epa.gov/region07/

- USDA Forest Service National Air Resource Management http://www.fs.fed.us/r6/aq/natarm/index.html