

Developing an EMS to Track Compliance with MSS Activities

Presented by:

Ed Fiesinger & Maria Gou

Zephyr Environmental Corporation

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Presentation

- MSS Background
- Why an EMS is Needed
- Approach Philosophy
- Demonstration of EMS for Permit Compliance

MSS Background

- Maintenance, Startup, and Shutdown (MSS) Emissions
- Major Issue in Texas resulting from Air Quality Studies in Houston Area in 2000 and 2006/7
- Atmospheric levels of contaminants far higher than submitted emission inventories would have predicted

Background (cont'd)

- TCEQ began looking at MSS activities such as roof landings, degassing vessels prior to entry for maintenance, pump maintenance, vacuum truck exhausts.
- As a consequence, regulations written requiring all sources to submit MSS applications that:
 - a) Identify MSS activities, and
 - b) Quantify MSS emissions

Background (cont'd)

- MSS Permits have three levels of recordkeeping:
 - (1) Inherently low emitting activities (Att. A)
 - (2) Routine maintenance activities (Att. B)
 - (3) Significant MSS activities (Att. C)

“Attachment A”

- **Attachment A Recordkeeping Requirements:**
“Emissions from activities listed on Attachment A may be considered to be equal to the potential to emit represented in the permit amendment application, PI-1 dated xx, and updated in subsequent application submittals. The estimated emissions from these activities must be revalidated annually. This revalidation shall consist verifying the estimated emissions for each type of activity and the basis for that emission estimate.”
- **Proposed Recordkeeping:** Enter annual activity count per activity type, create certificate.

Attachment A Activities

- Aerosol cans
- Cleaning site glasses
- Maintenance on water treating systems
- Meter proving
- Carbon replacement
- Calibration of analytical equipment
- Catalyst charging/handling

“Attachment B”

- **Attachment B Recordkeeping Requirements:**

“Emissions from activities listed on Attachment B may be tracked using work orders, operations or maintenance logs, or other written documentation. This documentation shall identify the type of activity performed (so it can be related back to an emissions estimate from the permit amendment application), why it was done (to document that it was planned), and that emissions were controlled as required by the permit. These records shall be consolidated into an environmental database each month. Emissions from these activities shall be calculated using the number of activities of each type completed that month and the emissions associated with that activity identified in the permit amendment application”

- **Proposed Recordkeeping: Enter type and equipment involved in activity. Use permit emissions for that activity.**

Attachment B Activities

- Pump repair/replacement
- Fugitive component repair/replacement
- Compressor repair/replacement
- Heat exchanger repair/replacement
- Vessel repair/replacement

“Attachment C”

- **Attachment C Recordkeeping Requirements:**

“Planned MSS activities listed on Attachment C and any planned MSS activities on Attachment A not documented as allowed in the preceding paragraph and the emissions associated with it shall be recorded and include at least the following information:

- A. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;
- B. the type of planned MSS activity and the reason for the planned activity;
- C. the common name and the facility identification number, if applicable, of the facilities at which the MSS activity and emissions occurred;
- D. the date and time of the MSS activity and its duration;
- E. the estimated quantity of each air contaminant, or mixture of air contaminants, emitted with the data and methods used to determine it. The emissions shall be estimated using the methods identified in the permit application, consistent with good engineering practice. ”

- **Proposed Recordkeeping: Enter/record and specific details for each activity. System to calculate emissions for each entry.**

Attachment C Activities

- Vessel draining/depressuring
- Vessel degassing for entry
- Tank roof landings (maintenance or change of service)
- Tank degassing
- Tank cleaning
- Initial fill of empty tank
- Abrasive blasting

Approach Philosophy

- Goal: Recordkeeping to demonstrate compliance
- Keep it simple :
 - a) Simplicity results in a user friendly system
 - b) Use applications such as Excel, Access, Visual Basic (not proprietary)
- Integrating two different languages:
 - a) The programmer
 - b) The environmental specialist

Approach Philosophy (cont'd)

- Collecting information & data
 - a) Assess existing systems strengths & weaknesses
 - b) Integrate as much as possible into existing operations
- Customizing – each facility is different
 - a) User skill levels
 - b) Facility Size/Personnel
 - c) Existing logs, data systems

Approach Philosophy (cont'd)

- Successful implementation
 - a) Stakeholder involvement in design
 - b) Phased development & testing
 - c) Training

Why a Management System?

- TCEQ regional offices now inspecting for compliance with MSS permit and requesting that the following items be made available:
 - ✓ Operator Log
 - ✓ Supervisor's Log
 - ✓ Maintenance Log
 - ✓ Work Orders for maintenance activities
 - ✓ Hourly Flare HRVOC Monitoring
 - ✓ Hourly CEMS data
 - ✓ List of all MSS activities and Emission Events (EE)
 - ✓ Preventive maintenance plan
 - ✓ Mechanical Integrity Plan & Associated API Recommended Practices
 - ✓ MSS and EE portions of the latest emissions inventory submission (required annually in Texas)

Sample Screens

**ABC Company, Somewhere Texas Plant
Manufacturing Unit, Permit 1234
MSS Recordkeeping**



Main Menu

MSS ACTIVITY INFORMATION

Enter Turnaround or
Startup/Shutdown

Enter Maintenance
Activity "Att. C"

Enter Maintenance
Activity
"Att. B"

Enter Maintenance
Activity Count
"Att. A"

PERMIT COMPLIANCE REPORTS

Print/View
Attachment C Report

Print/View
Activity Details

Print/View
Attachment B Report

Print/View
Attachment A
Certification

ADD/EDIT EQUIPMENT & STREAM DATA

Add/Edit Equipment

Edit Stream
Information

SYSTEM TOOLS

Print/View
Archives

Exit System



Attachment B Screen Detail

ABC Company - MSS Recordkeeping

Enter Activity Information - Attachment B Activity

Start Date/Time ▼

End Date/Time ▼

Plant Area ▼

Equipment Group ▼

Select Equipment ▼

FIN: EQUIPFUG

Reason For Conducting Activity

Was Activity Controlled as represented in the permit? Yes No

Additional Comments (Optional)

Note: Emissions for this activity will be tabulated based on the emissions quantified in the permit application for this equipment.

Attachment C Screen Detail

ABC Company - MSS Recordkeeping

Enter Activity Information - Attachment C Activity

Start Date/Time: 3/15/2012 5:45 am Duration: 1 Hrs
End Date/Time: 3/15/2012 6:45 am

Type of Activity: Reactor Degassing
Reason For Conducting Activity: Maintenance
Plant Area/Process Unit: Reactor Train B

Additional Comments (Optional)

Select Equipment Involved in Activity and add to list below

Equipment Group: Reactors Select Equipment: Reactor 2 FIN: REACTOR2
Select Stream: HPLD

Reactor1 FIN:Reactor1 Stream: HPLD

Click to add equipment to list for this activity

* Double-click on list to remove equipment from list

Add MSS Activity Cancel

Note: Emissions for this activity will be calculated specific to the parameters entered above for this activity.

Attachment A Screen

**ABC Company, Somewhere Texas Plant
Manufacturing Unit, Permit 1234
Permit MSS Special Condition 35
Attachment A Certification**



Apr-2011 to Mar-2012

FIN	EPN	Activity Type	Activity Count	Permit Allowable	Percent of Allowable
			150	200	



Attachment B Screen

**ABC Company, Somewhere Texas Plant
 Manufacturing Unit, Permit 1234
 Permit MSS Special Condition 35
 Attachment B Records
 Apr-2011 to Mar-2012**



EPN	Activity Type	Equipment	Reason for Activity	Were Emissions Controlled per permit? Y/N	Permit Emission Rate (lb/activity)	Total Emissions (tpy)	Permit Allowable (tpy)	Percent of Allowable
			TOTAL					



Attachment C Screen

ABC Company, Somewhere Texas Plant
Manufacturing Unit, Permit 1234
Permit MSS Special Condition 35
Attachment C - Record Summary
Apr-2011 to Mar-2012



FIN	EPN	Activity Type	Pollutant	Calculated Emission Rate (lb/activity)	Total Emissions (tpy)	Permit Allowable (tpy)	Percent of Allowable
				TOTAL			



Attachment C Screen (cont'd)

**ABC Company, Somewhere Texas Plant
Manufacturing Unit, Permit 1234
Permit MSS Special Condition 35
Attachment C - Record Details
Apr-2011 to Mar-2012**



Date	FIN	EPN	Activity Type	Pollutant	Calculated Emission Rate (lb/activity)	Volume (ft3)	Pressure (psia)	Duration (Hours)
1/5/2012				VOC				
1/28/2012				NOx				
2/12/2012								
2/18/2012								
3/3/2012								
3/6/2012								



Questions?

The screenshot shows the Zephyr Environmental Corporation website. At the top is the Zephyr logo with a blue wave graphic. Below the logo is a navigation menu with links for SERVICES, TRAINING, PUBLICATIONS, NEWS, and ABOUT. Three main service areas are highlighted: CONSULTING, TRAINING, and DATA SYSTEMS. On the left side, there is a vertical menu with links for LOCATIONS, CONTACT, LINKS, and CAREERS, along with a HAZMAT ACADEMY logo. The main content area features a large image of an industrial facility with the text: "We are Strategic Responsive Insightful INNOVATIVE NIMBLE". Below this, there are several text blocks: "Zephyr Environmental Corporation (Zephyr) is a privately held, full-service environmental, health and safety (EHS) firm offering consulting, training, and data systems services to clients worldwide. Founded in 1994, Zephyr works with most industry sectors in a number of regulatory arenas, specializing in air and water quality, waste management and cleanup issues, incident management, natural resources, and workplace and community safety. Zephyr takes great pride in being a client-focused, solution-oriented service company. Included among our professional staff are chemical, civil, environmental, industrial, and mechanical engineers; certified safety professionals; hydrogeologists; meteorologists; biologists; and environmental scientists." Another block mentions: "Zephyr's Health and Safety Program has been evaluated and approved by ISNetworld as meeting all necessary governmental requirements and safe industry practices." A final block states: "Zephyr has always been a privately held, employee owned company. In the spirit of expanding employee ownership, in 2010, Zephyr established an Employee Stock Ownership Plan (ESOP) which enables all eligible employees to become beneficial owners of Zephyr stock." On the right side, there are sections for "ZEPHYR SPOTLIGHT" (with a link to "2012 Open Enrollment Training Schedule and Registration Form"), "GET THE LATEST..." (with links for "Zephyr Successful in Helping Client Obtain F1051 Greenhouse Gas PSD Permit in Texas!", "Zephyr Announces New Look & Logo", "Overview of Services", "Service Summaries (Printable Versions)", "Latest Issue of Currents", "2012 Open Enrollment Training Schedule", and "Zephyr Alerts Archive Hot Regulatory News"), and "VOTED BEST!" (with a link to "At the 2009 annual 'Best Firms' summit in San Francisco, the Environmental Business Journal, in conjunction with CE News, named Zephyr Environmental Corporation of Austin a 'Best Firm to Work For.'").

Ed Fiesinger

Zephyr Environmental Corporation

efiesinger@zephyrenv.com

Phone: 281-668-7353

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and www.HazMatAcademy.com

