Start-up, Shutdown and Malfunction Plans

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Disclaimer

- This presentation provides a summary of some SS&M provisions and is not a complete description.
- Refer to the current Code of Federal Regulations and company legal and regulatory expertise for all regulatory and compliance decision-making.
Introduction

- Per §63.6(f)(1), “The non-opacity emission standards set forth in [Part 63] shall apply at all times except during periods of SS&M, ...”
- Instead, during SS&M periods, you must achieve the “general duty” requirements to minimize HAP emissions and correct malfunctions as soon as practicable.
- You must have a Start-up, Shutdown and Malfunction Plan (SSMP) that identifies how you will accomplish the general duty.
- For Subparts KK (Printing and Publishing) and JJJJ (Paper and Other Web Coating), the SS&M requirements only apply if you are using add-on controls.
• SS&M and SSMP requirements are in Part 63 Subpart A (§63.1-63.16) of the CFR and are referenced from Subparts KK and JJJJ.
  – Originally promulgated 3/16/94.
  – Significantly amended as recently as 5/30/03.
  – Additional amendments proposed July 29, 2005.
  – Still in litigation.

• Thus, SS&M requirements do change.
The SSMP does not become part of your Title V permit, rather your permit must require you to have an SS&M plan.

Thus, Title V revision procedures do not apply to SSMP changes.
§63.6(e)(1)(i) “At all times, including periods of SS&M, the O/O must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of SS&M, this general duty to minimize emissions requires that the O/O reduce emissions from the affected source to the greatest extent which is consistent with safety
and good air pollution control practices. The general duty to minimize emissions during a period of SS&M does not require the O/O to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the O/O to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved . . .”

[Underlined added 5/30/03]
§63.6(e)(1)(ii) Malfunctions must be corrected as soon as practicable after their occurrence in accordance with the SS&M plan required in paragraph (e)(3) of this section. To the extent that an unexpected event arises during a SS&M, an O/O must comply by minimizing emissions during such a SS&M event consistent with safety and good air pollution control practices.
What is a Start-up?

- Subpart A defines start-up as:
  - “the setting in operation of an affected source or portion of an affected source for any purpose.” (§63.2)
What is Shutdown?

- Subpart A defines shutdown as:
  - “the cessation of operation of an affected source or portion of an affected source for any purpose.” (§63.2)
What is a Malfunction?

Subpart A defines malfunction as:

- “any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.” (§63.2)

Underlined added 5/30/03.
Thus, since May 2003, SS&M requirements only apply to upsets which are sudden, infrequent, not reasonably preventable and which exceed or have the potential to exceed normal emission limits.

– The emission limits in Subparts KK and JJJJJ apply to other upsets.
In the Subparts KK and JJJJ, the criteria for identifying an exceedance was specified in the rule or established by the source in their monitoring plan submission as part of the compliance status report.
Where the emission limitation is expressed in terms of control requirements (e.g., route to oxidizer, destroy 95%), malfunctions typically only happen if the control does not meet requirements (e.g., outside 3 hour temperature limit) or there is a capture system failure or bypass.
What Equipment is Covered by the SS&M Provisions?

- SS&M requirements apply to:
  - Processes or portions thereof.
  - Controls and monitors.
The SSMP must be in place by the compliance date.

You must update your SSMP within 45 days if there is a malfunction that is not covered by the existing plan.  

[§63.6(e)(3)(viii)]
Otherwise, there is no formal requirement to regularly update the SSMP, but §63.6(e)(3)(viii) says:

“The owner or operator may periodically revise the SS&M plan for the affected source as necessary to satisfy the requirements of this part or to reflect changes in equipment or procedures at the affected source. ...”
And EPA has stated that such updating is a criteria in deciding if a plan is adequate.

- “the general duty to minimize emissions requires that owners or operators review their SSMP on an ongoing basis and make appropriate improvements to ensure that excess emissions are avoided.” [68 FR 32590, May 30, 2003].
EPA takes the position that following an inadequate SS&M plan does not meet the general duty requirement.

- “. . . compliance with an inadequate or improperly developed SSM plan is no defense for failing to minimize emissions.”

(66 FR 16327, March 23, 2001)
If the EPA or permitting authority determine the procedures in an SSMP do not adequately address the general duty or are otherwise inadequate they can require you to change them. (§63.6(e)(3)(vii))
SSMP Content

- The only specific SSMP content requirements are in §63.6(e)(3)(i).
  - Describe, in detail, the procedures for operating and maintaining the source during SS&M periods.
  - Describe a program of corrective actions for malfunctioning process, air pollution control and monitoring equipment.
Remembering that achieving the General Duty is the goal, the procedures should focus on minimizing excess emission (magnitude and duration) and provide for immediate corrective actions when malfunctions occur.
The level of detail expected in an SSMP is unclear, but appears to be significantly less than identifying individual operator actions. Rather identification of broad steps (e.g., route start-up purge streams to the flare, immediately notify Maintenance of a monitor malfunction) appear appropriate.
Of particular importance is inclusion of any situation where a control device or monitor must be bypassed. Identifying such events in the plan and including steps to minimize emissions during those times can meet the general duty, even if bypassing is necessary.
While monitors are expected to operate during SS&M under these subparts, unless they are malfunctioning, controls and monitors may be bypassed when safety or monitor integrity requires, if specified in the SSMP.
Secondary Aluminum NESHAP
40 CFR Part 63 Subpart RRR

Example
Malfunction Plan for Plant ABC

Final
April 3, 2003

This is an example of one way to write a malfunction plan. Citations to Federal requirements found in Title 40 of the Code of Federal Regulations (CFR) are provided for reference, as applicable.

Information Transfer and Program Integration Division
Office of Air Quality Planning Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
5-5
Loss of Utilities: Power, Gas, Water, etc.
(as applicable to facility equipment)

• Ensure that the situation has become stable and the hazards have been cleared before proceeding further.

• Confirm the system status and note which equipment is off-line or otherwise impaired.

• Notify appropriate maintenance or other responsible personnel (see Section 5-8).

• Respond to correct or repair the malfunction in a safe, efficient and timely manner as soon as it is practicable, for example:
  a Call power company or 911 if power failure seems plant-wide; if not, trace power failure from equipment to power source;
  b Check source of gas or water;
  c Trace gas or water line from equipment to the source and determine whether any leaks or breaks in line exist; and
  d Repair any breaks or leaks that are found in the utility system at the facility.

• Suspend operations as soon as practicable until compliance can be assured if failure cannot be repaired in a timely manner.

• Record pertinent information (see Section 5-7) on record sheets (see Section 5-9) to log date, time, duration, cause of malfunction, and corrective action taken. Make sure to record whether the Malfunction Plan was followed for each event.

• Submit the Malfunction Report Form to the appropriate Plant ABC personnel (see Section 5-8).
Sudden and Unavoidable Failure of Equipment*
(not due to poor operation or maintenance)

• Ensure that the situation has become stable and the hazards have been cleared before proceeding further.
• Confirm the system status and note which equipment is off-line or otherwise impaired.
• Notify appropriate maintenance or other responsible personnel.
• Respond to correct or repair the malfunction in a safe, efficient and timely manner as soon as it is practicable, for example:
  a  Replace deficient part, if spares are available; and
  b  Call maintenance for assistance if needed.
• Suspend operations as soon as practicable until compliance can be assured if failure cannot be repaired in a timely manner.
• Record pertinent information on record sheets (attached) to log date, time, duration, cause of malfunction, and corrective action taken.
• Record whether the Malfunction Plan was followed for each event.

* Such as sudden fan failure, lime feeder failure, broken salt feeder, numerous simultaneous bag breaks/leaks, etc.
5-9

Plant ABC Malfunction Report Form

Date:

Malfunctioning device:

Time malfunction began (estimated):

Time malfunction ended:

Total duration of malfunction: hours minutes

Suspected cause of malfunction:

Corrective action(s) taken:

Was this malfunction covered by the Malfunction Plan?

Yes No

Were your actions consistent with the Plant ABC Malfunction Plan during the malfunction?

Yes No

If your actions were not consistent with the Plant ABC Malfunction Plan during the malfunction, explain why you took other actions:

Have you reported your actions that were not consistent with the Plant ABC Malfunction Plan to the proper authorities by telephone or FAX within 2 working days of the event and sent a letter within 7 working days of the event?

Do you believe that any excess emissions and/or parameter monitoring exceedances occurred during the malfunction? Yes No

Which, if any, units were shut down because of malfunction:

Do you have any suggestions for future events like the one that occurred?

Your name:

Your signature:

Name of Supervisor on duty during malfunction:

Comments of Supervisor:

Signature of Supervisor:

Plant ABC Malfunction Plan
Public Review of SSMPs

- Under the May 2003 amendment of §63.6(e)(3)(v), SSMPs are available to the public on request to the permitting authority.

- On July 29, 2005 EPA proposed to remove this provision and rely on local authority if there is a need for the public to review SSMPs.
Use of Standard Operating Procedures (SOPs)

- Use of SOPs (or other existing procedures) is allowed, instead of having a separate SSMP. (§63.6(e)(3)(vi)).

- While low burden, there are several downsides to using this approach that should be considered.
– SOPs may not focus on minimizing excess emissions and thus could be considered inadequate.

– The chance of deviating from an SOP’s typically detailed requirements is high.

– Recordkeeping to assure the plan is followed could be extensive.
A Typical SSMP Organization

- Cover page with approval signature(s) and date.
  - While not required, approval signatures help obtain operator buy-in and verify the authenticity of the plan and management support of the plan.
- Affected facility identification and identification of NESHAP(s) addressed by the plan.
- Process overview and identification of regulated emission points and their control devices and monitors.
- Description of start-up and shutdown periods and tabulation of procedures that will be followed.

- Description of potential malfunctions and tabulation of procedures that will be followed.
- Recordkeeping requirements and forms.
- Reporting requirements and forms.
- Appendices:
  - Checklists (if used).
  - Personnel and notification lists.
  - Optional content items
- Recordkeeping and reporting information and forms are often included in SSMPs, but can easily be put into other documents that are more clearly not subject to the SSM plan administrative provisions.
It is also common to include lists of responsible and contact individuals, phone lists, etc. in SSMPs

- Since changes to such lists are common, these too, may be best contained in other documents.
- Similarly, recordkeeping and reporting associated with changes can be minimized by identifying positions rather than individuals.
Recordkeeping Overview

- Records are required to:
  - Identify SS&M periods.
  - Identify exceedance periods.
  - Confirm that the SSMP was followed.
  - Identify cases where the SSMP was not followed.
  - Provide other required information.
  - Provide information for reports.
A checklist to be filled out by Operations is usually the starting point for meeting the record requirements and serves as the primary event record.

The checklist is often included in the SSMP and thus its use and revision is subject to the SSMP requirements.
Summary of Subpart A SS&M Records

- §63.6(e)(3)(v)
  - You must keep a copy of your SSMP for as long as you continue to operate your NESHAP process plus five years.
  - If your SSMP is revised, you must also keep the previous version(s) for five years.
**§63.6(e)(3)(iii)**

- You must keep records for every SS&M event to demonstrate if you followed the SSMP and to record any actions not consistent with the SSMP.
  - Typically a checklist is used.
§63.10(b)

- (i) Record the occurrence and duration of each SS&M of process equipment;
- (ii) Record the occurrence and duration of each malfunction of required air pollution control and monitoring equipment;
– (iv) Record actions taken during periods of SS&M which are different from the SSMP procedures;
– (v) Record information necessary to demonstrate conformance with the SSMP when all actions taken are consistent with the procedures specified in the plan.
§63.10(c) For Sources Monitored with a Continuous Monitoring System

- (1) Record of all required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods);
The May 2003 subpart A amendment of §63.6(e)(3)(viii) requires, that you report in your next semi-annual report if you have revised your SSMP.
Also, if the revisions change the scope of activities considered to be SS&M, or change how any emission limit, work practice requirement, or other requirement in your NESHAP applies, the revised SSMP is not effective until the permitting authority has received written notice from you describing the revisions.
§63.10(d)(5)(i) requires a SS&M periodic report and specifies its content, schedule, etc.

- For Subparts KK and JJJJJ this report may be included with the periodic compliance report.
- Where all SS&M events were handled consistent with the SSMP, the report must include a statement to that effect.
– Where actions for any event were not consistent with the SSMP that must be reported.
  ▪ Whether or not there were exceedances.
– Specific information listed in §63.10(d)(5) is required for each malfunction that occurred during the reporting period.
– Note: Each SS&M reportable will also need to be reviewed for possible reporting under Title V.
§63.10(d)(5)(ii) requires “immediate” reporting where there was an exceedance and the SSMP was not followed.

– Immediate reporting means a call or fax within 2 days, followed by a letter within 7 days.