

STATIONARY SOURCES PROGRAM
FIELD SERVICES UNIT
POLICY

TITLE: DETERMINATION OF VALID UPSETS/MALFUNCTIONS

BACKGROUND: The Air Quality Control Commission has addressed upset/malfunction conditions in the Common Provisions Regulation. The Common Provisions Regulation defines an upset/malfunction condition as follows:

MALFUNCTION

Any sudden and unavoidable failure of air pollution control equipment or process equipment or unintended failure of a process to operate in a normal or usual manner. Failures that are primarily caused by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

The Commission provided direction for enforcement with respect to upset/malfunction conditions in Common Provisions, Section II, E. which states:

II.E. Affirmative Defense Provision for Excess Emissions During Malfunctions

II.E.1. An affirmative defense to a claim of violation under these regulations is provided to owners and operators for civil penalty actions for excess emissions during periods of malfunction. To establish the affirmative defense and to be relieved of a civil penalty in any action to enforce an applicable requirement, the owner or operator of the facility must meet the notification requirements of Section II.E.2. in a timely manner and prove by a preponderance of evidence that:

II.E.1.a. The excess emissions were caused by a sudden, unavoidable breakdown of equipment, or a sudden, unavoidable failure of a process to operate in the normal or usual manner, beyond the reasonable control of the owner or operator;

II.E.1.b. The excess emissions did not stem from any activity or event that could have reasonably been foreseen and avoided, or planned for, and could not have been avoided by better operation and maintenance practices;

II.E.1.c. Repairs were made as expeditiously as possible when the applicable emission limitations were being exceeded.

II.E.1.d. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

II.E.1.e. All Reasonably possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

II.E.1.f. All emissions monitoring systems were kept in operation (if at all possible);

II.E.1.g. The owner or operator's actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence;

II.E.1.h. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

II.E.1.i. At all times, the facility was operated in a manner consistent with good practices for minimizing emissions. This Section II.E.1.i. is intended solely to be a factor in determining whether an affirmative defense is available to an owner or operator, and shall not constitute an additional applicable requirement; and

II.E.1.J During the period of excess emissions, there were no exceedances of the relevant ambient air quality standards established in the Commissions' Regulations that could be attributed to the emitting source.

II.E.2. Notification

The owner or operator of the facility experiencing excess emissions during a malfunction *shall notify the division verbally as soon as possible, but no later than noon of the Division's next working day, and shall submit written notification following the initial occurrence of the excess emissions by the end of the source's next reporting period.* The notification shall address the criteria set forth in Section II.E.1., above.

II.E.3. The Affirmative Defense Provision contained in this Section II.E. shall not be available to claims for injunctive relief.

II.E.4. The Affirmative Defense Provision does not apply to failures to meet federally promulgated performance standards or emission limits, including, but not limited to, new source performance standards and national emission standards for hazardous air pollutants. The affirmative defense provision does not apply to state implementation plan (sip) limits or permit limits that have been set taking into account potential emissions during malfunctions, including, but not necessarily limited to, certain limits with 30-day or longer averaging times, limits that indicate they apply during malfunctions, and limits that indicate they apply at all times or without exception.

The Commission intended to provide an affirmative defense for those occasions when unpredictable failures of air pollution control or process equipment have made it difficult for sources to continuously comply with applicable air pollution control standards.

The Commission did not intend this relief to apply to all equipment-related excursions of the standards. The regulation identifies nine criteria that must be met for an upset/malfunction to qualify for the affirmative defense.

This policy provides the Division's interpretation of these provisions. This policy does not specifically define all possible valid or invalid upset/malfunction conditions – such analysis will occur on a case-by-case basis through internal review, and discussion with the source. The policy defines the parameters used in making such determinations.

PURPOSE: The purpose of this document is to delineate the strategies, procedures, and interpretations that the Air Pollution Control Division, Compliance Monitoring and Enforcement, Field Services Unit will generally follow in evaluating valid upset/malfunction conditions at stationary sources of air pollutants.

The Division also intends that this policy provide clarity to sources on the requirements for claiming an affirmative defense for an upset/malfunction so that sources can undertake self-evaluations of their ability to claim the affirmative defense.

SCOPE: This policy and validity determination procedures apply to all stationary sources of air pollution as provided for in regulations set forth by the Colorado Air Quality Control Commission.

POLICY: Regulated sources of air pollution should be provided relief from enforcement actions under specific circumstances that make it impossible for sources to maintain continuous compliance with the applicable requirements. Based on the Common Provisions, the Division must assess the validity of a reported upset/malfunction based on an evaluation of the ten conditions identified in the Common Provisions.

1. Whether there was a sudden, unavoidable breakdown of equipment
2. Whether an activity or event could have been foreseen and avoided
3. Whether repairs were made as expeditiously as possible
4. Whether excess emissions were minimized
5. Whether all reasonably possible steps were taken to minimize the impact of the excess emissions on ambient air quality standards.
6. Whether the emissions monitoring systems continuously operated
7. Whether the owner/operator's actions were documented
8. Whether this evidences a recurring pattern
9. Whether the source used good practices for minimizing emissions and
10. Whether there were exceedances of the relevant ambient air quality standards

In evaluating each of these ten conditions, the Division will use the following additional information and standards:

- 1. Sudden, unavoidable breakdown of equipment and**
- 2. Activity or event that could have been foreseen and avoided:**

The Division will determine whether the upset/malfunction was caused by a sudden unavoidable breakdown and whether it could have been foreseen and avoided by evaluating several key factors, including:

- **Unpredictability/Unavoidable breakdown**

The condition leading to the upset/malfunction must have been unpredictable in its nature. In evaluating unpredictability, the upset/malfunction cannot be attributable to the standard operational process or to the normal operation of the equipment. Under this analysis, conditions such as poor fuel quality, condensing plumes, wet plumes, start-ups and shutdowns or any exceedances due to poor design do not, in and of themselves, qualify for relief under the upset/malfunction provisions.

By definition, unpredictable implies an uncontrollable element. Those occurrences that continue over an extended period will at some point in time cease to be unpredictable. While this point in time is not easily defined, generally upsets/malfunctions occurring for longer than a 24-hour period will no longer be classified as valid upsets/malfunctions. A 24-hour period will generally be considered a maximum allowable time period for an upset and will normally be accepted for only certain types of sources. Special circumstances documented by the source and investigated by the Division may warrant relaxation of this standard.

- **Repair/Maintenance**

Upset/malfunctions cannot be attributable to poor maintenance. While it can be argued that any upset/malfunction is ultimately preventable through proper maintenance, the Division interprets this criteria to mean maintenance activities that can be reasonably and appropriately expected of the source. The Division will resolve any final differences in what "reasonable maintenance" means by consulting the equipment operation and maintenance manuals, which should be provided by the source.

The Division should also consult any source specific maintenance plans on file for the source. Sources with a history of repeated upset conditions at specific emission units may be required to file a maintenance plan with the Division.

- **Improper or Careless Operation**

The upset condition definition does not allow relief for excursions caused by improper or careless operation of the emission unit. This means that any exceedance that is caused by an operational parameter differing from standard, compliant operation of the emission unit may not be accepted as a valid upset. For example, operator error will not be accepted as a valid upset. These occurrences can be documented by the Division through investigation and/or inspection of the source and subsequent comparison of operating parameters documented in previous routine inspection.

- **Preventable Through Exercise of Reasonable Care**

If the source could have prevented the upset implementing some prior, logical action that should have been recognized by the operators of the source, the upset might be invalidated. The Division should make this decision based on the data that was available to the source at the time of the incident. It is also

required that the source take necessary action to prevent the situation from occurring in the future.

3. Repairs were made as expeditiously as possible.

Any source experiencing an upset/malfunction is required to make appropriate repairs to the facility in a timely manner to alleviate and eliminate the situation. It is also required that the source take necessary action to prevent the situation from occurring in the future. Failure to satisfy these requirements may render the affirmative defense unavailable.

4 & 5. Excess emissions were minimized.

Any source experiencing a malfunction is required to take sufficient action (including shutdown), to alleviate (i.e., minimize emissions during upset conditions as much as reasonably possible) the situation. It is also required that the source take necessary action to prevent the situation from occurring in the future. Failure to satisfy these requirements may render the affirmative defense unavailable.

6. Emissions monitoring systems operated.

During an upset/malfunction the source must continue to operate emissions monitoring systems. If it is not possible, the source must provide the Division with information explaining why it was not possible to operate the emissions monitoring systems.

7. The owner/operator's actions documented

The owner/operator must document the actions regarding repairs, emissions minimization, operation of emissions monitoring systems, and information regarding the cause of the upset/malfunction.

8. Recurring pattern

The Division will evaluate the upset/malfunction along with other upset/malfunctions reported by the source. This criteria may not be applicable to any one upset/malfunction report, but through upset/malfunction tracking the Division may invalidate upset/malfunction reports which show repeating patterns or those that continue to occur on a regular and frequent basis.

9. Good practices for minimizing emissions.

Any source experiencing a malfunction is required to take sufficient action (including shutdown), to alleviate (i.e., minimize emissions during upset conditions as much as reasonably possible) the situation. It is also requires that the source take necessary action to prevent the situation from occurring in the future. Failure to satisfy these requirements may render the affirmative defense unavailable.

10. Exceedances of the relevant ambient air quality standards

The Division does not intend that modeling be done to show that upsets or malfunctions have or have not caused a violation of the NAAQS. However, if an exceedance of the ambient air quality standards is attributable to the source during an upset/malfunction the affirmative defense will not be available.

PROCEDURES: The following outlines malfunction recording, investigation, and enforcement procedures that the Division and the source should follow.

All malfunctions should be reported to the Malfunction Coordinator as described below. Sources should leave a voicemail message regarding the malfunction event on the malfunction voicemail box (303-692-3155) no later than noon of the Division's next working day after the malfunction. The Malfunction Coordinator will enter the reported information into the Division's database. In reporting malfunctions, sources must follow the reporting requirements and time limits found in Common Provisions, Section II, E. (noted on page 1 of this document). If sources do not follow the notification and written reporting requirements for malfunctions, it will not be eligible for the affirmative defense. The source, after verbal notification to the Division, must follow-up with written notification to the Division. Written notification must be received at the Division within 30 days of the occurrence of the malfunction or at the end of the source's next reporting period, whichever is later. A source may use the Division's form for malfunction reporting, or their own form as long as all of the information on the Division's form is included in their report. A source may FAX or email the information to the Division no later than noon of the Division's next working day after the malfunction and that will be sufficient for both the verbal and written notification requirements.

In the written notification to the Division, the source must include, along with the information on the malfunction reporting form, an explanation of the malfunction, the reason that it is considered a malfunction, i.e.: unpredictability, emergency, no control over event, etc., and the action taken to prevent future similar upsets. The malfunction report form addresses reporting of both excess emission standards and exceedances of parametric surrogate standards. The Division recognizes that exceedances of parametric surrogate standards do not always represent the presence of excess emissions and will account for such occurrences in its analysis.

After initial notification the Malfunction Coordinator will then consult any information needed (i.e., source's malfunction history, files, area coordinators, and/or supervisors) to make a preliminary decision as to whether the malfunction meets the criteria for an affirmative defense. The inspector will further review the upset when the compliance inspection for that source is conducted.

When the malfunction does not meet the affirmative defense criteria:

If the malfunction does not meet the criteria for an affirmative defense, and either remains ongoing or appears to be a serious event, the Malfunction Coordinator will contact the unit supervisor or next level supervisor, as well as the assigned inspector for the source. If a source has a continuous emissions monitor ("CEM") for the pollutant in question, no immediate response by the unit supervisor is necessary, although action may be taken based upon the impact of the malfunction to the environment. In this case, enforcement decisions and/or other actions will be handled upon submittal of the Excess Emission Report by the source. In addition, if the event is ongoing, then the Division will continue to monitor the source with respect to such event. If the source is not

equipped with a CEM, a decision will be made to determine if immediate inspection is necessary to document the violation. There may be occasions when even though the malfunction does not meet the affirmative defense criteria, the Division will not immediately respond provided the source is taking steps to eliminate or alleviate the occurrences.

The Malfunction Coordinator will make note of those malfunctions that do not meet the affirmative defense criteria and pass that information to the appropriate inspector and supervisors. The Malfunction Coordinator will then designate the malfunction in the upset/malfunction database as “disapproved”. A written notice will be sent to the source indicating that the malfunction does not meet the affirmative defense criteria, either immediately or after the completion of a compliance inspection. Investigation and documentation of that event by the area coordinator and/or inspector may also lead to enforcement under the normal enforcement proceedings.

The Division may request that these sources submit a malfunction plan listing additional maintenance procedures and/or preventive measures and steps to be taken to minimize emissions during malfunction conditions. Enforcement decisions regarding CEMs should be discussed with the unit supervisor. If the source is not equipped with a CEM, the source may be targeted for inspection and/or required to install a CEM. An enforcement action may also be taken if a Method 9 opacity reading is taken which demonstrates a violation of the applicable opacity standard, and the event is documented as not meeting the affirmative defense criteria.

Under no circumstances should the source be allowed to continue operations unless shutting down the process would cause an even greater hazard or expose more individuals to harmful pollutants. If necessary, the procedures spelled out in Section 25-7-112 or 25-7-113 of the Air Quality Control Act governing air pollution emergencies endangering public health should be used to stop the source from operating.

OPERATING PERMIT SOURCES:

Operating permit sources have specific requirements for emergency situations. These requirements are found in Regulation 3, Part C, Section VII. This section states:

VII. EMERGENCY PROVISIONS

A. An emergency means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of god, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

B. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of section VII.C. are met. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

C. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
2. The permitted facility was at the time being properly operated;
3. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
4. The permittee submitted oral notice of the emergency to the division no later than noon of the next working day following the emergency, and followed by written notice within one month of the time when emission limitations were exceeded due to the emergency. This notice fulfills the requirement of section V.C.7.b of this Part C. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

D. This provision is in addition to any emergency or upset provision contained in any applicable requirement. As noted above the emergency provisions of Regulation 3 relate to upsets at these facilities when it results in the source exceeding a technology-based emission limitation. An operating permit source must follow the requirements of Section VII, Part C of Regulation 3 to receive relief from any enforcement action for noncompliance as a result of the emergency. The Division will follow the requirements in Section VII and other applicable guidance in this document in evaluating an operating permit source's protection from enforcement action when an emergency occurs. Other upsets that do not fall under the emergency provisions for technology based emission limitations will be evaluated solely under this policy.

MACT SOURCES

Regulation 8 Part E of the Colorado Air Quality Control Regulations deals with Federal Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants. The state is adopting by reference the Federal requirements under 40 C.F.R. Part 63 for sources that generate Hazardous Air Pollutants. A particular MACT standard may contain specific malfunction condition reporting requirements. Additionally, all sources subject to MACT requirements are subject to specific reporting and record keeping requirements under subpart A of this regulation. Several of those

reporting/record-keeping requirements deal with startup, shutdown and malfunction (upset). The basic requirements are as follows.

Under the regulation, sources." shall develop and implement a written startup, shutdown and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standard." The plan must be maintained onsite and available to the Division for review upon request.

Sources must then maintain a record of their actions taken during these periods and demonstrate that they have followed the plan. Additionally, sources must indicate whether or not the plan was followed in their MACT Periodic Reports. Most MACT rules, but not all, require these Periodic Reports to be submitted to the Division. If a source deviates from its plan it must record what action has been taken and report its actions to the Division within 2 working days after taking action inconsistent with the plan (this "prompt" report may take the form of a phone call or facsimile message) and follow up with a letter within 7 working days after the end of the event.

Additionally, sources affected by this regulation must file a startup, shutdown, and malfunction report if a startup, shutdown or malfunction occurred during a required reporting period.

Sources should read and become familiar with the MACT regulations regarding startup, shutdown and malfunctions. There is a lot of detail that is involved.