

# Disaster Review Fact Sheet

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If you or the Texas Commission on Environmental Quality (TCEQ) identifies a potential for the catastrophic release of any air contaminants, provide the following information for a disaster review analysis.

1. Identify any chemicals that have a reasonable potential in the event of a disaster to cause off-plant concentrations that are immediately dangerous to life and health (IDLH).

Chemicals of concern include (but are not limited to):

acrolein, allyl chloride, ammonia (anhydrous), arsine, boron trifluoride, bromine, carbon disulfide, chlorine, chlorine dioxide, chlorine trifluoride, chloroacetaldehyde, chloropicrin, chloroprene, diazomethane, diborane, diglycidyl ether, dimethyl hydrazine, ethyl mercaptan, ethyleneimine, fluorine, formaldehyde (anhydrous), hydrogen bromide, hydrogen chloride, hydrogen cyanide, hydrogen fluoride, hydrogen selenide, hydrogen sulfide, ketene, methyl amine, methyl bromide, methyl hydrazine, methyl isocyanate, methyl mercaptan, nickel carbonyl, nitric acid, nitric oxide, nitrogen dioxide, oxygen difluoride, ozone, pentaborane, perchloromethyl mercaptan, perchloryl fluoride, phosgene, phosphine, phosphorous trichloride, propyleneimine, selenium hexafluoride, stibine, sulfur dioxide (liquefied), sulfur pentafluoride, and tellurium hexafluoride

2. Characteristics of disaster chemicals include (but are not limited to) the following:
  - a. High toxicity to human life and health.
  - b. Moderate to high vapor pressure, or easily volatilized by fire.
  - c. High vapor density or other physical or chemical property that causes the vapor to resist dispersion or to hug the ground.
  - d. Chemical is to be stored, used in high pressure operating areas, or otherwise handled in sufficient quantity to support an off-plant impact that could be dangerous.
  - e. Equipment malfunction or operating/maintenance error could cause emissions with disastrous impacts off-plant.
  - f. Chemical has an identified IDLH value or could reasonably be expected to have impacts immediately dangerous to life and health.
3. For the selected chemicals, provide chemical and physical characteristics of each chemical including (but not limited to) the following:
  - a. Chemical formula
  - b. Molecular weight (pound per pound mole)
  - c. Vapor Pressure (pounds per square inch atmosphere) at 68 degree Fahrenheit (°F) and at maximum operating temperature
  - d. Vapor specific gravity (relative to air) at 68°F and at disaster release temperature

- e. Initial boiling point (°F)
  - f. Provide Material Safety Data Sheet for each selected chemical.
4. For these chemicals, identify the proposed process features, equipment design, instrumentation, safety redundancies, operating procedures and other factors that would minimize the probability of a disastrous release and would minimize the rate, quantity and duration of emissions in the event of a release.
  5. For each chemical, identify several worst-case disaster scenarios such as releases associated with a fire, damage to a tank or piping, or venting a runaway reaction. Do not consider the effect of abatement equipment or other emergency response measures in selecting worst-case scenarios because, in the worst case, abatement equipment and responses to the release may not be effective.
  6. For each disaster scenario, provide the emission rates, duration, and emission rate changes over time with respect to the initial puff, non-steady state evaporation, high velocity jet releases, and aerosol formation. Clearly document the basis for calculations and obtain prior TCEQ approval of assumptions and methods used.
  7. You may be requested to provide emission modeling to predict maximum downwind, off-plant emission concentrations and durations. All modeling techniques and modeling report formats must be approved in advance by the TCEQ Modeling Section.
  8. If you concede that life threatening conditions would result from a catastrophic release, and agree to install all possible design, operational, and mitigation techniques to reduce the probability, magnitude and duration of a release, the TCEQ may allow you to skip the requirement to perform disaster modeling described in paragraph No. 7 above.
  9. If predicted off-plant concentrations would be expected to be immediately dangerous to life and health, as determined by the TCEQ Toxicology Division, be prepared to consider additional changes or additions to the process, equipment design, instrumentation or operating procedures. Details may be negotiated with the reviewing permit engineer.
  10. In any permit review, where a disaster potential exists off-plant, provide a disaster contingency plan in support of the permit review.
  11. For each scenario, describe any abatement equipment or other emergency response action that may reduce the off-plant impacts.

If the effects of a catastrophic release cannot be mitigated due the proximity of citizens and nature of the project, the agency may recommend that the permit not be issued.