

CHAPTER 6: PREVENTION PROGRAM (PROGRAM 2)

6.1 ABOUT THE PROGRAM 2 PREVENTION PROGRAM

If your processes are ineligible for Program 1 and you have substances above the threshold that are not covered by OSHA's PSM standard, you have Program 2 processes. If you have storage tanks and repackaging operations, the prevention program will likely be somewhat different for each covered process because the hazards and equipment may be different and, therefore, the training and procedures will differ.

For the warehouse part of your operation, the prevention program is likely to be essentially the same for all covered substances. Procedures for moving and stacking containers, operating forklifts and other equipment, and segregating substances will generally be common to all substances stored. If you start storing a new class of hazardous substances you may have to address that, but once you have, your procedures and safety information will mainly be the same. Because of this common approach to accident prevention, you will probably want to treat your storage operations in the building as one process. You should address any differences in the hazard review and safety information, but you should develop a single accident prevention program that includes storage of all covered substances within a building. If you have more than one building at your facility, you may need to develop separate prevention programs for each building with regulated substances above the threshold. Procedures that are common across buildings need not be duplicated.

The National Association of Chemical Distributors (NACD) has adopted a code of management practices, *The Responsible Distribution Process (RDP)*. Many of the elements are similar to those required under Program 2. NACD has prepared a table comparing the elements of Program 2 with those of RDP, which is included as an appendix to this chapter. If you are in compliance with the NACD code, you will probably already have taken most of steps needed for Program 2 compliance. You are responsible for evaluating your RDP activities and determining whether they meet the requirements of part 68. If your RDP activities satisfy certain requirements of the rule, you will not need to take additional steps to meet those requirements. A comparison of RDP and the risk management program is included in Appendix A to this chapter.

In addition, the Chemical Manufacturers' Association (CMA), in coordination with the International Warehouse Logistics Association (IWLA), has developed a *Warehouse Assessment Protocol*. The Protocol includes some items that are not covered by the rule (e.g., package labeling), but many of the checklists will be useful in developing your accident prevention program for your warehouse operations. Reviewing and adapting applicable parts of the Protocol to your specific operations can save you time while helping you identify issues of concern.

There are seven elements in the Program 2 prevention program, which is Subpart C of part 68. Exhibit 6-1 sets out each of the seven elements and corresponding section numbers.

EXHIBIT 6-1
SUMMARY OF PROGRAM 2 PREVENTION PROGRAM

| Number | Section Title |
|---------------|------------------------|
| § 68.48 | Safety Information |
| § 68.50 | Hazard Review |
| § 68.52 | Operating Procedures |
| § 68.54 | Training |
| § 68.56 | Maintenance |
| § 68.58 | Compliance Audits |
| § 68.60 | Incident Investigation |

You must integrate these seven elements into a risk management program that you and your staff implement on a daily basis. Understanding and managing risks must become part of the way you operate. Doing so will provide benefits beyond accident prevention as well. Preventive maintenance and routine inspections will lessen the number of equipment failures and down time.

6.2 SAFETY INFORMATION (§ 68.48)

The purpose of this requirement is for you to understand the equipment and chemicals you have, know what limits they place on your operations, and adopt accepted standards and codes where they apply. Having up-to-date information about your process is the foundation of an effective prevention program. Many elements (especially the hazard review) depend on the accuracy and thoroughness of the information this element requires you to provide.

WHAT DO I NEED TO DO?

You must compile and maintain safety information related to the regulated substances and process equipment for each Program 2 process. You probably have much of this information already, because you would have developed it to comply with OSHA or other rules. EPA has limited the information to what is likely to apply to the processes covered under the Program 2 program. Exhibit 6-2 gives a brief summary of the safety information requirements for Program 2.

EXHIBIT 6-2 SAFETY INFORMATION REQUIREMENTS

| <u>You must compile and maintain this safety information:</u> | <u>You must ensure:</u> | <u>You must update the safety information if:</u> |
|---|---|---|
| <ul style="list-style-type: none"> UMaterial Safety Data Sheets UMaximum intended inventory USafe upper and lower parameters UEquipment specifications UCodes & standards used to design, build, and operate the process | <ul style="list-style-type: none"> UThat the process is designed in compliance with recognized codes and standards | <ul style="list-style-type: none"> UThere is a <i>major change</i> at your business that makes the safety information inaccurate |

HOW DO I START?

MSDSs. You are required to maintain Material Safety Data Sheets under the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). If you do not have an MSDS for a regulated substance, you should contact your customer or the manufacturer for a copy. Because the rule states that you must have an MSDS that meets OSHA requirements you may want to review the MSDS to ensure that it is, in fact, complete. Besides the chemical name, the MSDS must have physical and chemical characteristics (e.g., flash point, vapor pressure), the physical hazards (e.g., flammability, reactivity), the health hazards, the routes of entry, exposure limits (e.g., the OSHA permissible exposure level), precautions for safe handling, generally applicable control measures, and emergency and first aid procedures. (See 29 CFR 1910.1200(g) for the complete set of requirements for an MSDS.)

MSDSs also are available from a number of websites. The University of Vermont provides access to three university-maintained MSDS collections through its website, <http://www.hazard.com>. The on-line databases usually have multiple copies of MSDSs for each substance and can help you find an MSDS that is well organized and easy to read. EPA has not verified the accuracy or completeness of MSDSs on any of these sites nor does it endorse any particular version of an MSDS. You should review any MSDS you use to ensure that it meets the requirements of OSHA's hazard communication standard (29 CFR 1910.1200).

Maximum Inventory. You must document the maximum intended inventory of any vessel that contains a regulated subject in part of a covered process. This requirement, when applied to your warehouses, means that you must document the sizes of vessels that you store. Your suppliers can provide information on the capacity of the drums, barrels, cylinders, etc., they deliver to you. You may also want to consider documenting the maximum storage capacity of areas where you store regulated substances.

For tanks, the maximum capacity can usually be found from “U1A” certificates for vessels. The U1A certificates on all vessels constructed under the ASME Boiler and Pressure Vessel Code are kept on file by the National Board. The nominal nameplate capacity can also be found on the permanently attached nameplate for your storage tank. The nameplate will also have the National Board Number for your vessel, which is the key to retrieving your U1A form from the Board. These names may be located on one of the hemispherical heads, the manway, or the manway cover. The nominal capacity will usually be the water capacity, and you may want to convert it to pounds.

If you use transportation containers (railcars or tank trucks) as storage vessels, you can obtain the capacity from the required DOT nameplate, identification plate, or specification plate or from the owner of the containers.

You may want to check with NACD or the standards group that develops standards for particular processes (e.g., chlorine distribution) to determine if there are any limitations on inventories. For example, codes may limit the size of individual flammable storage areas to less than 40,000 square feet. Codes or standards may set stack height limits. For tanks, standards may limit the extent of filling; for example, NFPA-58, the LPG gas code, limits the maximum liquid volume for filling to a specified percentage (e.g., 88 percent at 60°F for propane of commercial density). These standards will limit your maximum inventories.

Storage and Process Limits. You must document the safe upper and lower temperatures and pressures, process flows, and compositions. The last three items will generally not be applicable to warehouses, but will apply to repackagers.

Every substance you store or use will have limits on temperature, which will be determined by both the properties of the substance and the vessels. If you do not know these limits, you should contact the substance manufacturer or your trade association. They will be able to provide the data you need. It is important that you know these limits so you can avoid situations where these limits may be violated. Many people are aware of the dangers of exposing their vessels to high temperatures, but extreme low temperatures also may pose hazards you should know about.

If you are moving substances through pipes or hoses, you need to define safe temperatures and pressures; again, these limits will be determined by both the substance and the piping. For example, the substance may tolerate high pressures, but the pipes may have structural limits. To operate safely, you must have this information. The pipe manufacturer will be able to provide these data.

If you are reacting chemicals, you need to understand whether the reaction will be compromised if you vary the temperature or pressure. Again, it is important to define both the upper and lower limits. Reactions may become unstable outside of their limits and compromise safety. Check with the substance manufacturer for information on this subject if you are uncertain about the limits.

Process flows and compositions will apply to you if you transfer substances through piping or hoses and if you mix the substance. It is important in these cases that you understand the safe limits. The pipe or hose vendors will be able to provide you with the maximum flow rates that their products are designed to handle. You must also be aware of any hazards that could be created if your processes are contaminated; for example, if your substance or equipment could be contaminated by water, you must know whether that creates different hazards, such as corrosion.

For most Program 2 processes, mixing will not be an issue, but if you are mixing substances, you should understand what will happen if the composition varies. If you are uncertain about the effects of changing composition and do not have a chemist or chemical engineer on your staff, the substance manufacturer should be able to help.

Equipment Specifications. You must document any equipment you use to store, repackage, or move regulated substances. Equipment specifications will usually include information on the materials of construction, actual design, and tolerances. The vendor should be able to provide this information; you may have the specifications in your files from the time of purchase. You are not expected to develop engineering drawings of your equipment to meet this requirement. For warehouses, this requirement will apply mainly to forklifts and other equipment used to lift or move drums, barrels, pallets, etc., as well as storage racks. It is important that you understand the limitations on this equipment so that it can be operated and used properly.

The actual containers for the regulated substances will probably be designed to meet DOT specifications. You need only ensure that containers you store meet DOT specifications; you do not need to maintain copies of the DOT specifications unless you package regulated substances at your warehouse. DOT specifications are generally found in 49 CFR part 178.

If you repackage, you are likely to have more equipment on which you must maintain documentation. For example, you will need to document the specifications for all of the following that apply to your covered processes: bulk storage tanks, piping, pressure relief valves, emergency shutoff valves, temperature, pressure, and level gauges, valves, pumps, compressors, hoses, wet air scrubber systems, flame ionization systems, condensation or distillation systems, and carbon adsorption systems. You may want to file vendor specification information in a single location to make it easy to find and update.

Codes and Standards. You must document the codes and standards you used to design and build your facility and that you follow to operate. These codes will include the electrical and building codes that you must comply with under state laws. Besides the construction of the building, in storage areas, you should consider racks that you use for storage, sprinkler systems, heating and ventilation systems, and any other equipment or design features that affect the safety of your storage. Bulk storage containers are also subject to codes, such as ASME pressure vessel codes. Exhibit 6-3 lists some codes that may be relevant to your operation.

Note that the National Fire Protection Association (NFPA) codes may have been adopted as state or local codes. The American National Standards Institute (ANSI) is an umbrella, standards-setting organization, which imposes a specific process for gaining approval of standards and codes. ANSI codes may include codes and standards also issued by other organizations.

The CMA *Warehouse Assessment Protocol* has a section on loss prevention (section 4 of the protocol) that can help you identify areas of concern on design.

EXHIBIT 6-3 CODES AND STANDARDS

| Organization | Subject/Codes |
|---|---|
| American National Standards Institute (ANSI) | Piping, Electrical, Power wiring, Instrumentation, Lighting, Product storage and handling, Insulation and fireproofing, Painting and coating, Ventilation, Noise and Vibration, Fire protection equipment, Safety equipment, Pumps, Compressors, Motors, Refrigeration equipment, Pneumatic conveying |
| National Fire Protection Association (NFPA) | Fire pumps, Flammable liquid code, Plant equipment and layout, Electrical system design, Shutdown systems, Venting requirements, Gas turbines and engines, Storage tanks |
| American Society for Testing Materials (ASTM) | Inspection and testing, Noise and vibration, Materials of construction, Piping materials and systems, Instrumentation |

HOW DO I DOCUMENT ALL THIS?

EPA does not expect you to develop piles of papers to document your safety information. Your MSDS(s) are usually three or four pages long. You only have to keep them on file, as you already do for OSHA. Equipment specifications are usually on a few sheets or a booklet provided by the vendor; you need only keep these up-to-date and on file. You can probably document the other information on a one or more sheets that simply list each of the required items and any codes or standards that apply. See Exhibit 6-4 for a sample. Maintain that sheet in a file and update it whenever any item changes or new equipment is added.

The equipment specifications and list of standards and codes will probably meet the final requirement, that you ensure that your process is designed in compliance with

EXHIBIT 6-4
SAMPLE SAFETY INFORMATION SHEET

| ITEM | CURRENT DATA/LIMITS |
|---|--|
| MSDS Nitric Acid Chlorine Ammonia Acrylonitrile Formaldehyde Hydrochloric Acid Hydrofluoric Acid Ethylene oxide Acrolein Flammable mixtures | Date of last update: 1994 1996 1995 1997 1994 1997 1995 1996 1999 5 mixtures (1998, 1997, 1999) |
| Maximum Intended Inventory (warehouse) | Largest Vessel: 55 gallon drums Maximum storage in any section 1,000 drums Maximum area storage for flammables 30,000 square feet. Aerosol (flammable) storage less than 100 cubic feet |
| Maximum Intended Inventory Tank (chlorine) Tank (ammonia) | 60,000 gallons (nominal water capacity) 40,000 gallons (nominal water capacity) |
| Temperature (warehouse) Temperature (chlorine tank) Temperature (ammonia tank) | Upper: Lower: Upper: Lower: Upper: Lower: |
| Pressure (chlorine tank) Pressure (ammonia tank) | Upper: Lower: Upper: Lower: |
| Flow rate (chlorine) Flow rate (ammonia) | Loading: Unloading: Loading: Unloading: |

| ITEM | CURRENT DATA/LIMITS |
|---|--|
| Equipment Specifications Fork lifts Sprinkler system Wet system Foam system Rack system Storage racks Exhaust fans Fire extinguishers Alarm system Safety relief valves RV1 RV2 RV3 RV4 Excess flow valve EFV1 EFV2 EFV3 EFV4 Emergency shutoff valve ESV1 ESV2 Pump 1 Pump 2 Compressor 1 Compressor 2 Tank level indicator 1 Tank level indicator 2 Tank pressure indicator 1 Tank pressure indicator 2 Tank temperature indicator 1 Tank temperature indicator 2 | Specifications on file: On file (last update, 1992) Construction drawings and specifications Construction drawings and specifications Construction drawings and specifications Manufacturer's specifications (1985) Manufacturer's specifications (1993) Manufacturer's specifications (1995) Manufacturer's specifications (1985) Each relieves at Replaced 9/96 Replaced 4/97 Replaced 5/94 Replaced 2/99 3", closes at 225 GPM with 100 PSIG inlet 2", closes at 3", closes at 2", closes at 1 1/4", closes at 2", closes at Manufacturer's specifications (1995) Manufacturer's specifications (1992) Manufacturer's specifications (1995) Manufacturer's specifications (1997) Manufacturer's specifications (1994) Manufacturer's specifications (1996) Manufacturer's specifications (1998) Manufacturer's specifications (1996) Manufacturer's specifications (1993) Manufacturer's specifications (1994) |
| Codes and Standards | |
| Building construction Floor Interior walls Ceiling Fire doors | State building and fire code |
| Electrical | State electrical code |
| Sprinkler system | State building code; NFPA |
| Ventilation system | State building code |
| Piping design | ASME |
| Tanks | ASME (ID number) |

| ITEM | CURRENT DATA/LIMITS |
|----------------------------|---------------------|
| Racks | |
| Stack heights, separations | |

recognized and generally good engineering practices. If you have any doubt that you are meeting this requirement, you should contact your trade association to determine if there are practices or standards that you are not aware of that may be useful in your operation.

After you have documented your safety information, you should double check it to be sure that the files you have reflect the equipment you are currently using. It is important to keep this information up to date. Whenever you replace equipment, be sure that you put the new equipment specifications in the file and consider whether any of your other prevention elements need to be reviewed to reflect the new equipment.

6.3 HAZARD REVIEW (§ 68.50)

The hazard review will help you determine whether you're meeting applicable codes and standards, identify and evaluate the types of potential failures, and focus your emergency response planning efforts.

WHAT DO I NEED TO DO?

The hazard review is key to understanding your operation and continuing to operate safely. You must identify and review specific hazards and safeguards of your Program 2 processes. Exhibit 6-5 summarizes things you must do for a hazard review.

HOW DO I START?

There are three possible approaches to conducting a hazard review; which you use will depend on your particular situation.

Processes designed to industry-specific codes. If all or part of your facility and its operation was designed and built to comply with a federal or state standard for that operation or an industry-specific design code, your hazard review will be relatively simple. The standard-setting organization has already conducted a hazard review, identified the hazards, and designed the equipment and operating requirements to minimize the risks. You can use the code or standard as a checklist. The purpose of your review is to ensure that your equipment still meets the code and is being operated in appropriate ways.

Industry checklist. CMA's *Warehouse Assessment Protocol*, particularly the Warehouse Assessment (as opposed to the Management Systems Assessment), can provide the basis for a hazard review checklist for your storage operations. CMA and IWLA have already identified what your general hazards are and what types of equipment and procedures you should be using. Your job is to use the checklist to decide if you meet the requirements and, if you do not, whether you should. In some cases, your individual circumstances may make a checklist item unnecessary. You

**EXHIBIT 6-5
HAZARD REVIEW REQUIREMENTS**

| Conduct a review & identify... | Use a guide for conducting the review. | Document results & resolve problems. | Update your hazard review. |
|---|--|--|--|
| <p>UThe hazards associated with the Program 2 process & regulated substances.</p> <p>UOpportunities for equipment malfunction or human error that could cause a release.</p> <p>USafeguards that will control the hazards or prevent the malfunction or error.</p> <p>USteps to detect or monitor releases.</p> | <p>UYou may use any checklist (such as you might in a model risk management program) to conduct the review.</p> <p>UFor a process designed to industry standards like NFPA-58 or Federal /state design rules, check the equipment to make sure that it's fabricated, installed, and operated properly.</p> | <p>UYour hazard review must be documented and you must show that you have addressed problems.</p> | <p>UYou must update your review at least once every five years or whenever there is a major change in the process.</p> <p>UYou must resolve problems identified in the new review <i>before</i> you startup the changed process.</p> |

should tailor this checklist to add chemical-specific concerns. For example, if you handle a wide range of chemicals across hazard classes, you will want to be sure that these materials are segregated properly. If you have an operating engineer on staff, he or she may be able to conduct the review. If you do not have any technical staff, your vendor or trade association may be able to help you. If you seek outside help, however, work with them closely so that you understand what they find.

Develop your own checklist. If you do not choose to use the CMA protocol or industry standards, you will have to conduct your own hazard review. As discussed in the requirements section, the review must identify:

- g** The hazards of the substance and process;
- g** Possible equipment failures or human errors that could lead to a release;
- g** Safeguards used to prevent failures or errors; and
- g** Steps needed to detect or monitor releases.

You will probably be able to define the hazards of the substances themselves using the MSDSs, which list the hazardous properties of substances. However, the hazards of the process (as opposed to substance or the equipment) must also be defined. If you repackage or mix chemicals, or if you fail to segregate hazard classes, you will probably need to define process hazards. Your safety information should help here.

The next step may be to conduct a simplified What If analysis where you ask for each piece of equipment and procedure, “What if this fails?” and “What if the operator fails to do this?” Most industry standards and codes have already considered these questions and developed responses, in terms of design and operating practices. If you are doing this on your own, the important thing to remember is that you should not assume that something will not happen without a sound technical basis for that assumption. Ask why something could not happen and whether the safeguards that you think protect the equipment or operator are really adequate. In many cases, they may be adequate, but it is useful to ask, to force yourself to examine your own assumptions.

From this exercise, you should develop a checklist of items that you need to check. For example, you may have decided that your storage racks can hold a certain weight. The checklist would then include an item to check procedures to be sure that they reflect this limit. You may have identified puncturing drums with a forklift as the most likely operator error. Your checklist might then include both a check of operating procedures that address proper practices, plus a check of the width of corridors separating racks or pallets to ensure that forklift operators have enough space to maneuver. If you have listed mixing tank pump failure as a possible problem, the checklist might then include the following items to check: pump maintenance plans, tank high-level alarms, overflow tanks. You would also want to ask what effect a power outage would have on the pump. You may want to consider the particular procedures that have to be followed for safe operation of the equipment and ask what will happen if an operator omits a step or does them out of order. Do your procedures address these possible problems? Will failure of the pump affect the safe operating limits you have documented in your safety information?

When you finish the checklist, it is useful to show it to your operators. They are familiar with the equipment and may be able to point out other areas of concern. A review with your vendors or trade association may also help; their wider knowledge of the industry may give them ideas about failures you may not have experienced or considered.

CAUTION

Whichever approach you use, remember, you should consider external events as well as internal failures. If you are in an area subject to earthquakes, hurricanes, floods, or heavy snow you should examine whether your warehouse would survive these natural events without releasing the substance. You should consider the potential impacts of lightning strikes and power failures (e.g., if you lost heating in midwinter would that create dangerous situations?). These considerations may not be part of

standard checklists. If you use these standards, you may have to modify them to address these site-specific concerns. Never use someone else's checklist blindly. You must be sure that it addresses all of your potential problems.

DOCUMENTING THE REVIEW

You should maintain a copy of the checklist you used. The easiest way to document findings is to enter them into the checklist after each item. This approach will give you a simple, concise way of keeping track of findings and recommendations. Exhibit 6-6 provides a sample of part of a checklist. You may also want to create a separate document of recommendations that require implementation or other resolution. EPA does not require that you implement every recommendation. It is up to you to decide which recommendations are necessary and feasible. You may decide that other steps are as effective as the recommended actions or that the risk is too low to merit the expense. You must, however, document your decision on each recommendation.

UPDATES

You must update the review every five years or whenever a major change occurs. If you repackage chemicals, you are more likely to have changes than if you only store substances. For example, if you install new equipment or begin repackaging a substance you had previously only stored, you will need to revise your hazard review or conduct a new review. For the warehouse part of your operations, major changes will probably be limited. If you start storing a new substance, particularly if it is in a hazard class you have not handled before, you would want to consider whether the new type of hazard requires any additional actions (e.g., different type of fire suppression system, new segregation patterns). In most cases, adding new regulated substances in a hazard class you already handle (flammable liquids, acids) will not be considered a major change. Even if the changes prove to be minor and do not require an update, you should examine the process carefully before starting. You will operate more safely if you take the time to evaluate the hazards before proceeding.

WHERE CAN I LOOK FOR MORE INFORMATION?

Although the reports below target the chemical industry, you may find useful information in them:

- g** *Guidelines for Hazard Evaluation Procedures, 2nd Ed. with Worked examples*, Center for Chemical Process Safety of the American Institute of Chemical Engineers.
- g** *Evaluating Process Safety in the Chemical Industry*, Chemical Manufacturers Association.

**EXHIBIT 6-6
SAMPLE CHECKLIST¹**

| Storage and Handling | Yes | No | Comments |
|--|------------|-----------|-----------------|
| Are chemicals segregated from foods/consumer goods? | | | |
| Are chemicals segregated by hazard class? | | | |
| Are damaged containers marked and segregated? | | | |
| Are product temperature specifications followed? | | | |
| Are there floor markings to indicate storage spaces, aisles, staging areas, and routes? | | | |
| Are products stacked properly to height specifications in accordance with fire regulations? | | | |
| Are there indications of exceeding height requirements, such as crushed boxes? | | | |
| Are aisle distances between stacking racks appropriate for safe access with mechanical handling equipment? | | | |
| Is aisle distance maintained for safe access for fire fighting? | | | |
| Is there at least one meter between the top of the stack and sprinkler heads? | | | |
| Are products stored outside of the pathway of forced air conditioning and heating units? | | | |
| Are products stored in areas other than on the floor? | | | |
| Is there a designated area for drums or intermediate bulk containers stored outside? | | | |
| Are empty pallets stored in accordance with fire regulations? | | | |
| Are container labels visible? | | | |

¹ Adapted from the CMA Warehouse Assessment Protocol, 1996

- g *Handling and Storage: Warehouse Assessment Protocol*, Chemical Manufacturers Association.

In addition, the following apply to specific storage and handling:

- g 29 CFR 1910.111, OSHA's standard for the storage and handling of anhydrous ammonia.
- g ANSI K61.1, ANSI standards for the storage and handling of anhydrous ammonia
- g 29 CFR 1910.106, OSHA's standard for flammable gases.
- g 29 CFR 1910.101, OSHA's standard for compressed gases.
- g Compressed Gas Association (various publications on the safe storage and handling of compressed gases).

6.4 OPERATING PROCEDURES (§ 68.52)

Written operating procedures describe what tasks a process operator must perform, set safe process operating parameters that must be maintained, and set safety precautions for operations and maintenance activities. These procedures are the guide for telling your employees how to work safely everyday, giving everyone a quick source of information that can prevent or mitigate the effects of an accident, and providing workers and management with a standard against which to assess performance.

WHAT DO I NEED TO DO?

You must prepare written operating procedures that give workers clear instruction for safely conducting activities involving a covered process. You may use standardized procedures developed by industry groups as the basis for your operating procedures, but be sure to check that these standard procedures are appropriate for your activities. If necessary, you must update your Program 2 operating procedures whenever there is a major change and before you startup the changed process. Exhibit 6-7 briefly summarizes what your operating procedures must address.

Your operating procedures must be:

- g Appropriate for your equipment and operations;
- g Complete; and
- g Written in language that is easily understood by your operators.

The procedures do not have to be long. If you have simple equipment that requires a few basic steps, that is all you have to cover.

WHERE TO START

If you already have written procedures, you may not have to do anything more. Review the procedures. If you are satisfied that they meet the criteria listed above, you are finished. You may want to check them against any recommended procedures provided by equipment manufacturers, trade associations, or standard

EXHIBIT 6-7
OPERATING PROCEDURES REQUIREMENTS

| <u>Steps for each operating phase</u> | <u>Operating limits</u> |
|--|---|
| <ul style="list-style-type: none"> UInitial startup UNormal operations UTemporary operations UEmergency shutdown UEmergency operations UNormal shutdown UStartup following a normal or emergency shutdown or a major change | <ul style="list-style-type: none"> UConsequences of deviating USteps to avoid, correct deviations |

setting organizations, but you are not required to do so. You are responsible for ensuring that the procedures explain how to operate your equipment and store chemicals safely.

If you do not have written procedures, you may want to check with equipment manufacturers, trade associations, or standard setting organizations. They may have recommended practices and procedures that you can adapt. Do not accept anyone else's procedures without checking to be sure that they are appropriate for your particular equipment and uses and are written in language that your operators will understand. You may also want to review any requirements imposed under state or federal rules. For example, if you are subject to federal rules for loading and unloading of hazardous materials, those rules may dictate some procedures. Copies of these rules may be sufficient for those operations.

WHAT DO THESE PROCEDURES MEAN?

The rule lists eight procedures. Not all of them will be applicable to you if you only store substances. The following is a brief description to help you decide whether you need to develop procedures for each item. If a particular element does not apply, do not spend any time on it. We do not expect you to create a document that is meaningless to you. You should spend your time on items that will be useful to you.

Initial Startup. This item will probably only apply to you if you repackage or mix chemicals. If you handle the chemicals, as opposed to containers, this item covers all the steps you need to take before you start a process for the first time. You should include all the steps needed to check out equipment as well as the steps needed to start the process itself.

Normal Operations. These procedures should cover your basic operations. These are your core procedures that you expect your operators to follow on a daily basis to run your warehouse safely. For a warehouse, these would include the following:

- g Segregation and storage procedures
- g Use of forklifts
- g Loading and unloading
- g Examination for damage and labeling
- g Stock controls
- g Site security
- g Bracing and stacking
- g Hot work
- g Handling damaged containers

For repackaging operations, normal operations would also include unloading into storage tanks and repackaging into smaller containers.

Some of these operations are covered by federal or state rules (e.g., loading and unloading may be covered by US DOT; hot work is covered by OSHA). Your procedures should represent compliance with any applicable rules.

Temporary Operations. These operations are short-term; they will usually occur either when your regular process is down or when additional capacity is needed for a limited period. The procedures should cover the steps you need to take to ensure that these operations will function safely. The procedures will generally cover pre-startup checks and determinations (e.g., will the material be segregated properly). The actual operating procedures for running the temporary process will be written as the operation is put into place.

You may need to consider procedures to ensure that if a new substance or product is brought into the warehouse for temporary storage, the necessary steps are taken before that storage to ensure that it is safe (e.g., barrels are not stacked too high, or located with incompatible substances).

Emergency Shutdowns and Operations. These procedures generally will apply only if you repackage regulated substances. If you do, these procedures cover the steps you need to take if you must shutdown your process quickly. These procedures may be brief because shutting a process down may be no different in an emergency than in ordinary circumstances; you may simply shut off the flow or stop any unloading or loading.

Normal Shutdown. These procedures probably will apply only if you repackage.

Startup following a normal or emergency shutdown or a major change. These procedures will be similar to those for initial startup. Startup procedures following normal shutdown may include fewer equipment checks because you may not need to check equipment on a frequent basis. You should include all the steps your workers

should take to ensure that the process can operate safely. These procedures may not apply to warehouses in most instances.

Consequences of Deviations. Your operating procedures should tell the workers what will happen if something starts to go wrong and should be consistent with the safety information you develop. For example, if a rack appears to be sagging inward, the operator must know (1) whether this poses a problem that must be addressed and (2) what steps to take to correct the problem or otherwise respond to it. If the pressure in your storage tanks rises, your operator must know at what point higher pressure poses a hazard and the steps to take to address the problem. You should include this information in each of the other procedures (startup, normal operations, shutdowns), rather than as separate documents.

If you have substances with a distinctive odor, color, or other characteristic that operators will be able to sense, you should include in your procedures information about what to do if they notice leaks. Frequently, people are the most sensitive leak detectors. Take advantage of their abilities to catch leaks before they become serious.

Equipment Inspections. You should include steps for routine inspection of equipment by operators as part of your other procedures. These inspections cover the items that operators should look for on a daily basis to be sure that the equipment is running safely (e.g., vibration checks). These inspections are not the same as those detailed checks that maintenance workers will perform, but rather are the “eyeball,” “sound,” and “feel” tests that experienced operators do often without realizing it. Your operators, your vendors, and your trade association can help you define the things that should trigger concern: How much vibration is normal? What does a smoothly running motor sound like?

CMA PROTOCOL

The CMA *Warehouse Assessment Protocol* provides a checklist of operational practices in its Management Systems Assessment. You may want to review this list; some of the items on the list are not specifically covered by the rule (e.g., traffic office procedures), but may be important to efficient running of your warehouse. For warehouses, more than for many other businesses covered by this rule, the total operation of the business is relevant to safety. Although many of the substances you handle will not be subject to this rule, you are likely to use the same procedures that you use for covered substances for the other chemicals you store.

UPDATING PROCEDURES

You must update your procedures whenever you change your process in a way that alters the steps needed to operate safely. If you add new equipment, you will need to expand your procedures or develop a separate set to cover the new items.

WHAT KIND OF DOCUMENTS DO I HAVE TO KEEP?

You must maintain your current set of operating procedures. You are not required to keep old versions; in fact, you should avoid doing so because keeping copies of outdated procedures may cause confusion. You should date all procedures so you will know when they were last updated.

6.5 TRAINING (§ 68.54)

Training programs often provide immediate benefits because trained workers have fewer accidents, damage less equipment, and improve operational efficiency. Training gives workers the information they need to understand how to operate safely and why safe operations are necessary. A training program, including refresher training, is the key to ensuring that the rest of your prevention program is effective. You already have some type of training program because you must conduct training to comply with OSHA's Hazard Communication standard (29 CFR 1910.1200).

WHAT DO I NEED TO DO?

You must train all new workers in your operating procedures developed under the previous element; if any of your more experienced workers need training on these procedures, you should also train them. Any time the procedures are revised, you must train everyone using the new procedures. At least once every three years, you should provide refresher training on the operating procedures even if they have not changed. The training must cover all parts of the operating procedures, including information on the consequences of deviations and steps needed to address deviations.

For current workers, you may certify in writing that the employees have the "required knowledge, skills, and abilities to safely carry out the duties and responsibilities as provided in the operating procedures." This "grandfather clause" means that you do not need to conduct additional training for employees who are employed prior to June 21, 1999, and who have the appropriate knowledge and skills to operate covered processes safely, in accordance with the operating procedures. This certification should be kept in your files; you do not need to submit it to EPA.

You are not required to provide a specific amount of training or type of training. You should develop a training approach that works for you. If you are a small facility, one-on-one training and on-the-job training may work best. Larger facilities may want to provide classroom training or video courses developed by vendors or trade associations before moving staff on to supervised work. You may have senior operators present the training or use trainers provided by vendors or other outside sources. The form and the length of the training will depend on your resources and your processes. If you can teach someone the basics in two hours and move them on to supervised work, that is all right. The important thing is that your workers understand how to operate safely and can carry out their tasks properly. We are interested in the results of the training, not the details of how you achieve them.

Find a system that works for you. Exhibit 6-8 lists things that you may find useful in developing your training program.

HOW DOES THIS TRAINING FIT WITH OTHER REQUIRED TRAINING?

You are required by OSHA to provide training under the hazard communication standard; this training covers the hazards of the chemicals and steps to take to prevent exposures. DOT has required training for loading and unloading of hazardous materials. Some of that training will cover items in your operating procedures. You do not need to repeat that training to meet EPA's requirements. You may want to integrate the training programs, but you do not have to do so.

EXHIBIT 6-8 TRAINING CHART

| | |
|--|---|
| UWho needs training? | Clearly identify the employees who need to be trained and the subjects to be covered. |
| UWhat are the objectives? | Specify learning objectives, and write them in clear, measurable terms before training begins. Remember that training must address the process operating procedures. |
| UHow will you meet the training objectives? | Tailor the specific training modules or segments to the training objectives. Enhance learning by including hands-on training like using simulators whenever appropriate. Make the training environment as much like the working environment as you can, consistent with safety. Allow your employees to practice their skills and demonstrate what they know. |
| UIs your training program working? | Evaluate your training program periodically to see if your employees have the skills and know the routines required under your operating procedures. Make sure that language or presentation are not barriers to learning. Decide how you will measure your employees' competence. |
| UHow will your program work for new hires and refresher training? | Make sure all workers – including maintenance and contract employees – receive initial and refresher training. If you make changes to process chemicals, equipment, or technology, make sure that involved workers understand the changes and the effects on their jobs. |

WHAT KIND OF DOCUMENTATION DO I NEED TO KEEP?

You are not required to maintain documentation of your training program. You may, however, want to keep an attendance log for any formal training courses and refresher training to ensure that everyone who needs to be trained is trained. Such logs will help you when you do a compliance audit; without such logs you will have

to rely on your memory and the memory of your operators. Again, you are not required to keep them for this rule.

6.6 MAINTENANCE (§ 68.56)

You have several elements you must satisfy: you must develop maintenance procedures, train your workers in these procedures, and carry out inspections and tests on your equipment; if you use a contractor for maintenance, you must ensure that the contractors are able to follow your procedures. Maintenance procedures should cover routine maintenance, inspection, and testing. For storage operations, maintenance will apply primarily to equipment used to move storage containers (lifts, conveyors, ladders, dock equipment). If you repackage regulated substances, your tanks, hoses, and pumps will be covered.

WHAT DO I NEED TO DO?

You must prepare and implement procedures for maintaining the mechanical integrity of process equipment, and train your workers in the maintenance procedures. You may use procedures or instructions from equipment vendors, in Federal or state regulations, or in industry codes as the basis of your maintenance program. You should develop a schedule for inspecting and testing your equipment based on manufacturers' recommendations or your own experience. Exhibit 6-9 briefly summarized the elements of a maintenance program that would satisfy EPA's rule.

HOW DO I START?

Your first steps will probably be to determine whether you already meet all these requirements. If you review your existing written procedures and determine that they are appropriate, you do not need to revise or rewrite them. If your workers are already trained in the procedures and carry them out, you may not need to do anything else.

If you do not have written procedures, you will need to develop them. Your equipment vendors may be able to provide procedures and maintenance schedules. Using these as the basis of your program is acceptable. Your trade association may also be able to help you with industry-specific checklists. If there are existing standards, your trade association can provide you with the references. Copies of these may form the basis for your maintenance program. If there are federal or state regulations that require certain maintenance, you should use these as well.

**EXHIBIT 6-9
MAINTENANCE GUIDELINES**

| <u>Written procedures</u> | <u>Training</u> | <u>Inspection & testing</u> |
|--|--|---|
| <p>UYou may use someone else's procedures as the basis for your program. If you choose to develop your own, you must write them down.</p> | <p>UTrain process maintenance employees in process hazard and how to avoid or correct an unsafe condition.</p> <p>UMake sure this training covers the procedures applicable to safe job performance.</p> | <p>UInspect & test process equipment.</p> <p>UUse recognized and generally accepted good engineering practices.</p> <p>UFollow a schedule that matches the manufacturer's recommendations or that prior operating experience indicates is necessary.</p> |

You need to determine if procedures provided by vendors, manufacturers, trade associations, or others are appropriate for your operation. If you are operating in a standard way (e.g., using your equipment in the way it was designed for), you may assume that these other procedures will work for you. If you are using equipment for purposes other than those for which it was designed, you need to decide whether your use changes the kind of maintenance or frequency of inspection and testing.

TRAINING

Once you have written procedures, you must ensure that your maintenance workers are trained in the procedures and in the hazards of the process. As with the training discussed in the previous section, how you provide this training is up to you. We believe that you are in the best position to decide how to train your workers. Vendors may provide the training or videos; you may already provide training on hazards and how to avoid or correct them as part of Hazard Communication Standard training. You do not need to repeat this training to comply with this rule.

If you hire contractors to do your maintenance, you must ensure that they are trained to carry out the procedures. You can do this by providing training or by developing agreements with the contractor that gives you the assurance that only trained workers will sent to your site. In some cases, you may be able to rely on licenses (e.g., electricians).

INSPECTION AND TESTING

You must establish a schedule for inspection and testing equipment associated with covered processes. You may obtain recommendations from manufacturers, vendors, or trade associations. You should, however, use your own experience as a basis for examining any schedules you obtain from others. Many things may affect whether a schedule is appropriate. The manufacturer may assume a certain rate of use. If your use (e.g., the hours per day a forklift is operated) varies considerably, the variations

may affect the wear on the equipment. Extreme weather conditions may also impact wear on equipment.

Talk with your operators as you prepare or adopt these procedures and schedules. If their experience indicates that equipment fails more frequently than the manufacturer expects, you should adjust the inspection schedule to reflect that experience. Your trade association may also be able to provide advice on these issues.

WHAT KIND OF DOCUMENTATION MUST I KEEP?

You must keep your written procedures and schedules as well as any agreements you have with contractors. You are not required to keep training logs or maintenance logs to comply with this rule. You may, however, want to maintain such logs for your own use. Without some record, you will have to rely on workers' memories about when something was last checked. As workers leave or change jobs at your company, it can be difficult to keep track of when inspections and tests were done. Maintaining a record of when something was last done or is scheduled to be done next can help keep your program working smoothly.

6.7 COMPLIANCE AUDITS (§ 68.58)

Any risk management program should be reviewed periodically to ensure that employees and contractors are implementing it properly. A compliance audit is a way for you to evaluate and measure the effectiveness of your risk management program. An audit reviews each of the prevention program elements to ensure that they are up-to-date and are being implemented and will help you identify problem areas and take corrective actions. As a result, you'll be running a safer operation.

WHAT DO I NEED TO DO?

At least every three years, you must certify that you have evaluated compliance with EPA's requirements for the prevention program for each covered process. At least one person on your audit team must be knowledgeable about the process. You must develop a report of your findings, determine and document an appropriate response to each finding, and document that you have corrected any deficiency.

The purpose of the compliance audit is to ensure that you are continuing to implement the risk management program as required. Remember, the risk management program is an on-going process; it is not a set of documents that you develop and put on a shelf in case the government inspects your site. To be in compliance (and gain the benefits) procedures must be followed on a daily basis; documents must be kept up to date. The audit will check these items and provide you with items that need to be improved.

You must check each of the items in prevention program. Because you have simple procedures, the audit should not take a long time. You may want to use the CMA protocol warehouse assessment protocol as the basis of your audit of your storage operations. The NACD Responsible Distribution Process implementation guide may

be a useful starting part of an audit checklist as well; the guide covers more activities than are covered by part 68, as does the CMA protocol. You may tailor the audit to cover only requirements of part 68, or you may decide to expand the audit to cover the full range of your activities.

Once you have the checklist, you, your chief operator, or some other person who is knowledgeable about your process, singly or as a team, should walk through the facility and check on each of the items, writing down comments and recommendations. You may want to talk with employees to determine if they have been trained and are familiar with the procedures. You must respond to each of the findings and document what actions, if any, you take to address problems. You should take steps to correct any deficiencies you find.

You may choose to have the audit conducted by a qualified outside party. For example, you may have someone from another part of your company do the audit or hire an expert in warehousing. If you do either of these, you should have someone work with the person, both to understand the findings and answer questions.

Remember, this is an audit of compliance with the prevention program of this rule. You may choose to expand the scope to cover your compliance with other parts of the rule and the overall safety of your operation, but you are not required to do so.

WHAT KIND OF DOCUMENTATION MUST I KEEP?

You must keep a written record of the findings and actions for five years. You may also want to keep a record of who conducted the audit, but you are not required to do this. Exhibit 6-10 provides a sample format for documenting the audit and subsequent actions.

EXHIBIT 6-10 SAMPLE AUDIT CHECKLIST FOR SAFETY INFORMATION AND HAZARD REVIEWS

| Element | Yes/No/NA | Action/Completion Data |
|---|-----------|------------------------|
| Safety Information | | |
| MSDSs updated? | | |
| Maximum intended inventory determined? | | |
| Determined Safe upper and lower temperature? Segregation of incompatible substances | | |

| Element | Yes/No/NA | Action/Completion Data |
|--|-----------|------------------------|
| Equipment specifications Forklifts Fire suppression systems Ventilation system Tanks Pumps Compressors | | |
| Hazard Review | | |
| Are incompatible materials appropriately segregated? | | |
| Is the fire suppression system appropriate for materials stored? | | |
| Are stack heights in accordance with industry standards and codes? | | |
| Has equipment been inspected to determine if it is operated according to industry standards and codes? | | |
| Are the results of the inspections documented? | | |
| Have inspections been conducted after every major change? | | |

6.8 INCIDENT INVESTIGATION (§ 68.60)

Incidents can provide valuable information about site hazards and the steps you need to take to prevent accidental releases. Often, the immediate cause of an incident is the result of a series of other problems that need to be addressed to prevent recurrences. For example, an operator’s mistake may be the result of poor training. Equipment failure may result from improper maintenance or misuse. Without a thorough investigation, you may miss the opportunity to identify and solve these problems.

WHAT DO I NEED TO DO?

You must investigate each incident that resulted in, or could have resulted in a “catastrophic release of a regulated substance.” A catastrophic release is one that presents an imminent and substantial endangerment to public health and the environment. The easiest way to understand imminent and substantial endangerment is to consider whether the release could have exposed the public to levels that exceed the toxic or flammable endpoints. If a release had that potential, even if no such

exposure occurred (because of favorable weather conditions or because the adjoining facilities were unoccupied at the time), you should investigate. Most warehouse accidents will not meet this criterion; minor spills of toxic substances that are contained within the warehouse building are unlikely to represent a potential catastrophic release. Minor fires, however, may if the fire had the potential to spread and release toxic substances. Spills of toxic regulated substances outside may pose a threat to the public and should be investigated. Exhibit 6-11 briefly summarizes the steps you must take for investigating incidents.

HOW DO I START?

You should start with a simple set of procedures that you will use to begin an investigation. You may want to assign someone to be responsible for compiling the initial incident data and putting together the investigation team. If you have a small facility, your “team” may be one person who works with the local responders, if they were involved.

EXHIBIT 6-11 INCIDENT INVESTIGATION REQUIREMENTS

| | |
|--|---|
| UInitiate an investigation promptly. | Begin investigating no later than 48 hours following the incident. |
| USummarize the investigation in a report. | Among other things, this report will include the factors contributing to the incident. Remember that identifying the root cause may be more important than identifying the initiating event. Remember, also, that the purpose of the report is to help management take corrective action. |
| UAddress the team’s findings and recommendations. | Establish a system to address the incident report findings and recommendations and document resolutions and corrective actions. |
| UReview the report with your staff and contractors. | You must share the report - its findings and recommendations - with affected workers whose job tasks are relevant to the incident. |
| URetain the report. | Keep incident investigation summaries for five years. |

The purpose of the investigation is to find out what went wrong and why, so you can prevent it from happening again. Do not stop at the obvious failure or “initiating event” (e.g., the hose was clogged, the operator forgot to check the connection); try to determine why the failure occurred. In many cases, the underlying cause will be what matters (e.g., the operator did not check the connection because the operating procedures and training did not include this step). If the accident occurred because

of operator error, you should determine if the operator made the mistake because he or she had been trained in the wrong procedures or because design flaws made mistakes likely. If you write off the accident as operator error alone you miss the chance to take the steps needed to prevent such errors the next time. Similarly, if equipment fails, you should try to decide whether it had been used or maintained improperly.

Remember, your goals are to prevent accidents, not to blame someone, and correct any problems in your prevention program. In this way, you can prevent recurrences.

In many cases, an investigation will not take long. If you have a complex facility, if equipment has been severely damaged, or the workers seriously hurt, an investigation may take several days. You should talk with the operators who were in the area at the time and check records on maintenance (another reason for keeping logs). If equipment has failed in an unusual way, you may need to talk to the manufacturer and your trade association to determine if similar equipment has suffered similar failures.

You must develop a summary of the accident and its causes and make recommendations to prevent recurrences. You must address each recommendation and document the resolution and any actions taken. Finally, you must review the findings with operators affected by the findings.

WHAT KIND OF DOCUMENTATION MUST I KEEP?

You must maintain the summary of the accident, recommendations, and actions. A sample format is shown in Exhibit 6-12 that combines all of these in a single form. Note that the form also includes accident data that you will need for the five-year accident history. These data are not necessarily part of the incident investigation report, but including them will create a record you can use later to create the accident history.

EXHIBIT 6-12
SAMPLE INCIDENT INVESTIGATION REPORT

| Hydrofluoric Acid Release | | |
|----------------------------------|--|-----------------------|
| Date: May 15, 1998; 3 pm | Substance: Hydrofluoric acid (70%) | Quantity: 1800 pounds |
| Duration: 2 hours | Weather: 82E F, 8 mph winds | |
| Description: | A forklift punctured two 55-gallon drums of HF and severely damaged two other drums on the pallet, which then split open as they fell off the loading dock. Five workers and two local responders were treated for exposure. Neighboring facilities were notified to shelter in place. | |

| Hydrofluoric Acid Release | | |
|---|---|---|
| Findings | Recommendations | Actions |
| The forklift controls stuck. | Institute more frequent inspections and tests of the forklifts. | Changed inspection and testing intervals; revised procedures; conducted training on new procedures |
| Operator and other workers left the scene to protect themselves. It took 15 minutes for the hazmat staff to suit up and begin responding. | Conduct exercises quarterly for hazmat staff. Conduct refresher training for other staff on evacuation and notification procedures. | Exercise schedule established. Refresher training provided; safety meetings added and held on a monthly basis to review safety issues |
| Inadequate quantities of neutralizer were available. Supply had not been replenished after several minor spills. | Check and replenish supply monthly or after each use. | Routine checks added to work order schedule. |

6.9 CONCLUSION

Many of you will need to do little that's new to comply with the Program 2 prevention program, because you already are complying with many program elements through other Federal rules, state requirements, and RDP. And if you've voluntarily implemented OSHA's PSM standard for your Program 2 process, you'll meet the lesser Program 2 prevention program requirements. No matter what choices you make in complying with the Program 2 prevention program, keep these things in mind:

- , Integrate the elements of your prevention program. For Program 2 owners and operators, a major change in any single element of your program should lead to a review of other elements to identify any effect caused by the change.
- , Make accident prevention an institution at your site. Like the entire risk management program, a prevention program is more than a collection of written documents. It is a way to make safe operations and accident prevention the way you do business everyday.
- , Check your operations on a continuing basis and ask if you can improve them to make them safer as well as more efficient.

**APPENDIX 6A
COMPARISON OF RDP AND PROGRAM 2 PREVENTION ELEMENTS**

| EPA's Risk Management Program | NACD's Responsible Distribution ProcessSM |
|--|---|
| Program 2 Prevention | Matching RDP Components |
| Safety Information | Product Stewardship (Section F) Handling & Storage (Section A,E,G) |
| <p>Document & maintain MSDSs.</p> <p>Document & maintain maximum inventory.</p> <p>Document & maintain storage and process limits.</p> <p>Document & maintain equipment specifications.</p> <p>Document & maintain codes & standards used to design, build, & operate the process.</p> <p>Ensure process is designed in compliance with recognized codes & standards.</p> <p>Update safety information if there is a major change at your business that makes the safety information inaccurate.</p> | <p><u>Product Stewardship</u> Section F. A process to encourage re-sellers to communicate to their customers the principles and goals of the Responsible Distribution ProcessSM.</p> <p>Procedures should be established to obtain information (i.e. MSDS, product specifications, safety information)</p> <p><u>Handling & Storage</u> Section A: Procedures for ensuring that containers are appropriate for the chemical being shipped, comply with regulatory requirements, and are free from leaks and visible defects.</p> <p>Section E. A process for selecting owned and contracted facilities and sites for chemical storage or handling that emphasizes safety, fitness, and includes reviews.</p> <p>Section G. Facility design, construction, maintenance, inspection, and security practices that promote facility integrity, consistent with recognized codes and regulations.</p> |
| Hazard Review | Risk Management |
| <p>Conduct a review & identify hazards associated with Program 2 process, opportunities for errors resulting in a release, safeguards, and steps to detect or monitor releases.</p> <p>Use a guide for conducting the review.</p> <p>Document results & resolve problems.</p> <p>Update your hazard review.</p> | <p>Section A. Senior management commitment, through policy, communications, and resources, to ongoing improvements in chemical distribution safety.</p> <p>Section B. Regular review with manufacturers of the hazards of materials, the likelihood of accidents or releases, the potentials for human and environmental exposure from release of the materials, and the route and methods of transport.</p> <p>Section C. Identification and implementation of risk reduction measures.</p> |
| Operating Procedures | Job Procedures & Training |

| | |
|---|--|
| <p>Prepare written operating procedures that give workers clear instructions for safely conducting activities involving a covered process.</p> <p>Procedures must be appropriate for your equipment and operations, complete, and written in language easily understood by your operators.</p> | <p>Section A. Identification of the skills and knowledge necessary to perform each job.</p> <p>Section B. Establishment of procedures and work practices for safe operating and maintenance activities.</p> |
| Training | Job Procedures & Training (Section C) Compliance Review & Training (Section C) Handling & Storage (Section C) |
| <p>Must train all new workers in your developed operating procedures.</p> <p>If procedures are revised, you must train all workers using the new procedures.</p> <p>Training must cover all parts of the operating procedures, including information on the consequences of deviations and steps needed to address deviations.</p> <p>Training as required by OSHA, under the hazard communication standard, and DOT for loading and unloading hazardous materials.</p> | <p><u>Job Procedures & Training</u> Section C. Training for all personnel, including outside contract personnel, as appropriate, to reach and maintain proficiency in safe work practices and the skill and knowledge necessary to perform their job, including confirmation of job competence.</p> <p><u>Compliance Review & Training</u> Section C. Training for all employees in the implementation of applicable regulations, as well as member company's specific requirements.</p> <p><u>Handling & Storage</u> Section C. Procedures for loading and unloading chemicals at the member company's facilities that result in protection of personnel, a reduction of emissions to the environment, and ensure that chemicals are loaded and unloaded into and out of proper storage facilities.</p> |
| Maintenance | Handling & Storage (Section G) Job Procedures & Training (Section B & C) |

| | |
|--|---|
| <p>Develop maintenance procedures (for storage operations, applies to equipment used to move storage containers; for repackaging, applies to tanks, hoses, & pumps).</p> <p>Train workers in these procedures.</p> <p>Carry out inspections and test on your equipment.</p> <p>Ensure that contractors are able to follow your procedures.</p> | <p><u>Handling & Storage</u> Section G. Facility design, construction, maintenance, inspection, and security practices that promote facility integrity, consistent with recognized codes and regulations.</p> <p><u>Job Procedures & Training</u> Section B. Establishment of procedures and work practices for safe operating and maintenance activities.</p> <p>Section C. Training for all personnel, including outside contract personnel as appropriate, to reach and maintain proficiency in safe work practices and the skill and knowledge necessary to perform their job, including confirmation of job competence.</p> |
| <p>Compliance Audits</p> | <p>Adjunct Policies: Internal Audits Policy, Corrective & Preventive Action Policy</p> |
| <p>At least every three years, you must certify that you have evaluated compliance with EPA's requirements for the prevention program for each covered process.</p> <p>At least one person on your audit team must be knowledgeable about the process.</p> <p>You must develop a report of your findings, determine and document an appropriate response to each finding, and document that you have corrected any deficiency.</p> | <p><u>Internal Audits Policy</u> Member companies must establish documented procedures for regularly-scheduled internal audits to verify the implementation of policies and procedures supporting the RDP Code of Management Practice. The audits will be used to evaluate the effectiveness of the policies and procedures. Internal audits shall be done on a yearly basis beginning with successful completion of the Interim Verification Process.</p> <p>Audits should be recorded and results brought to the attention of appropriate management personnel who must take timely corrective or preventive action. Annual audit results should be retained until the next Third-party On-Site Verification is completed.</p> <p><u>Corrective & Preventive Action Policy</u> Member companies shall establish a Corrective and Preventive Action system for RDP-related issues. This system should permit the identification and communication of inadequacies or improvements in each member company's implementation of RDP.</p> <p>Member companies shall establish and maintain procedures for implementing corrective action and preventive actions arising from internal and external audits or other sources. Any corrective or preventive action taken to resolve the cause or RDP implementation inadequacy shall be appropriate, as determined by member company management, to the magnitude of the cause or inadequacy and commensurate with the risk involved.</p> |

| Incident Investigation | Emergency Response & Public Preparedness |
|--|---|
| <p>You must investigate each incident that resulted in, or could have resulted in a “catastrophic release of a regulated substance.”</p> <p>You must develop a summary of the accident and its causes and make recommendations to prevent recurrences.</p> <p>You must address each recommendation and document the resolution and any actions taken.</p> <p>You must review the findings with operators affected by the findings.</p> | <p>Section A. A process for responding to, reporting on, and investigating chemical distribution incidents and releases involving the member company’s chemicals, and implementation of appropriate preventive measures developed from the investigative process.</p> <p>Section B. A system of internal investigation, reporting, appropriate corrective action, and follow-up for each incident that results or could have resulted in a fire, explosion, or accidental chemical release.</p> |

DISCLAIMER

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