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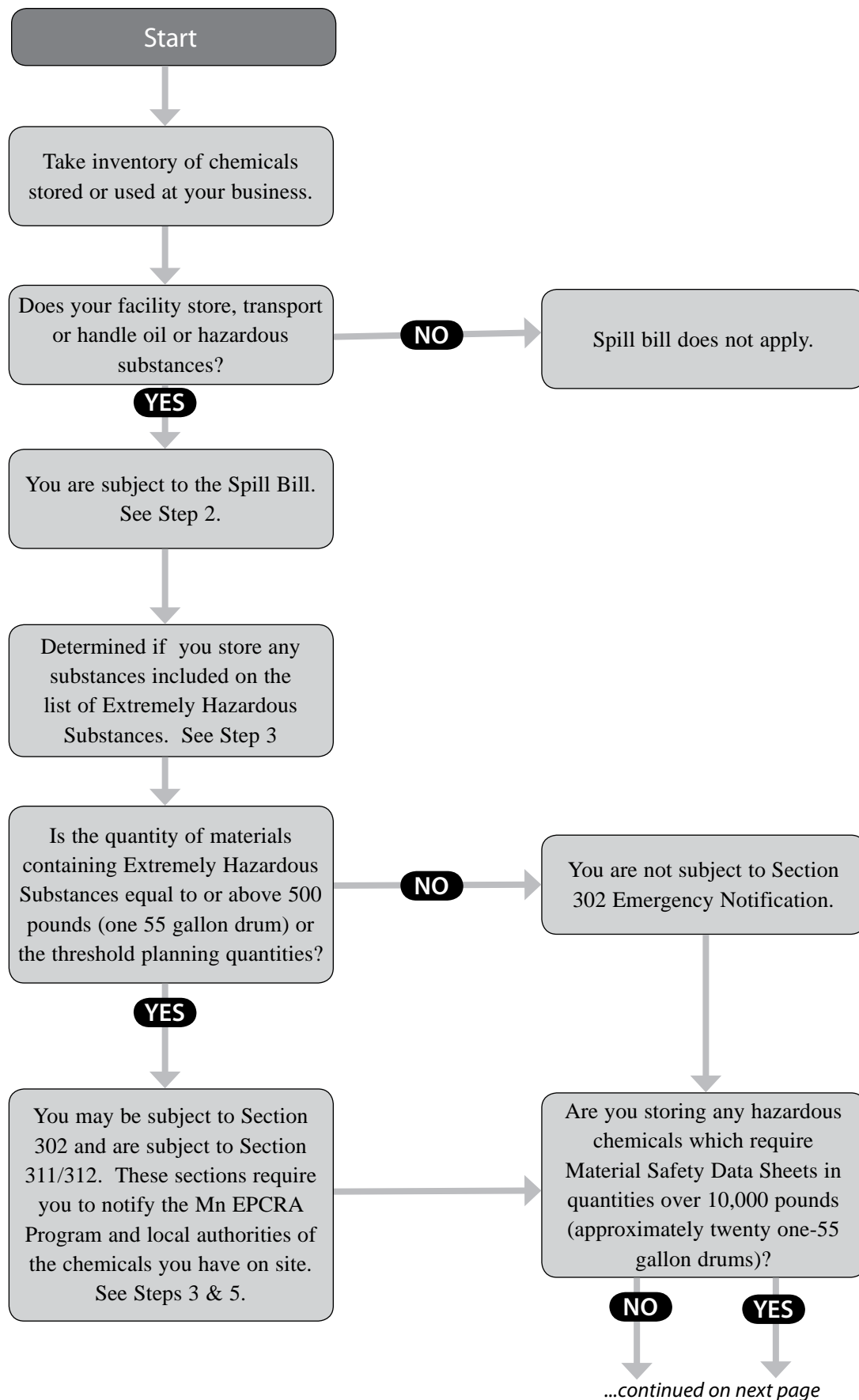
A preventive maintenance program should be in place to prevent spills and leaks and to maintain the plant at maximum efficiency. Without hazardous chemicals, you don't have employee exposure. You don't have spills and emissions for the community to worry about. Companies that use pollution prevention as a tool not only reduce risk, they can reduce the costs of raw material purchasing, regulatory compliance, and waste management for real bottom-line impact.

<http://www.mntap.umn.edu/source/2005-2/disasters.htm>

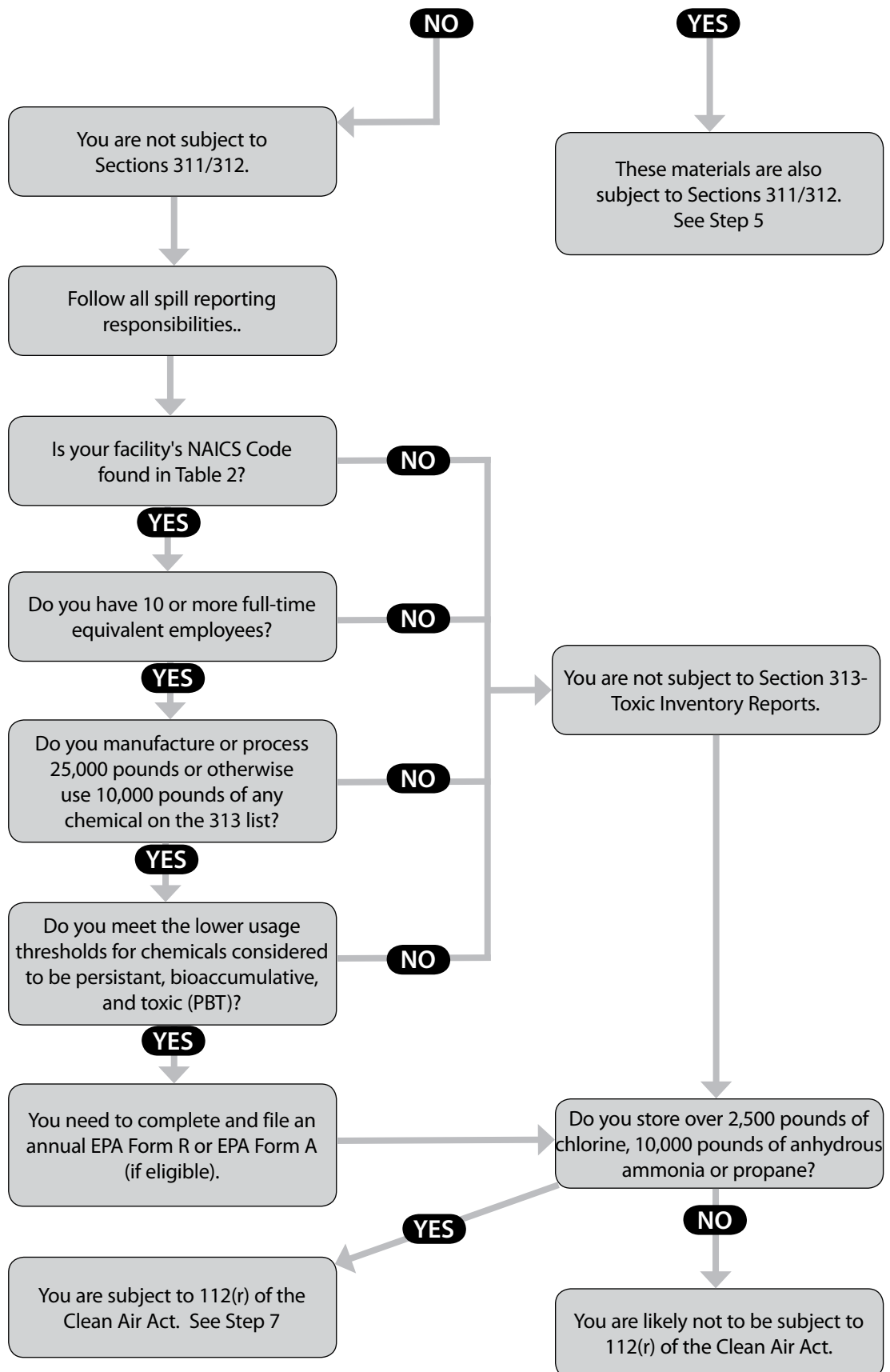
As part of pollution prevention planning, identify the specific sources of each waste or loss for the operation by analyzing its root causes. A cause and effect/fishbone diagram is a helpful tool. It requires you to consider the major categories of potential causes—people, materials, procedures and equipment. Then propose solutions to be evaluated. Concentrate on the process steps you deem particularly important or process steps that appear to have relatively large waste streams.

<http://mntap.umn.edu/prevention>

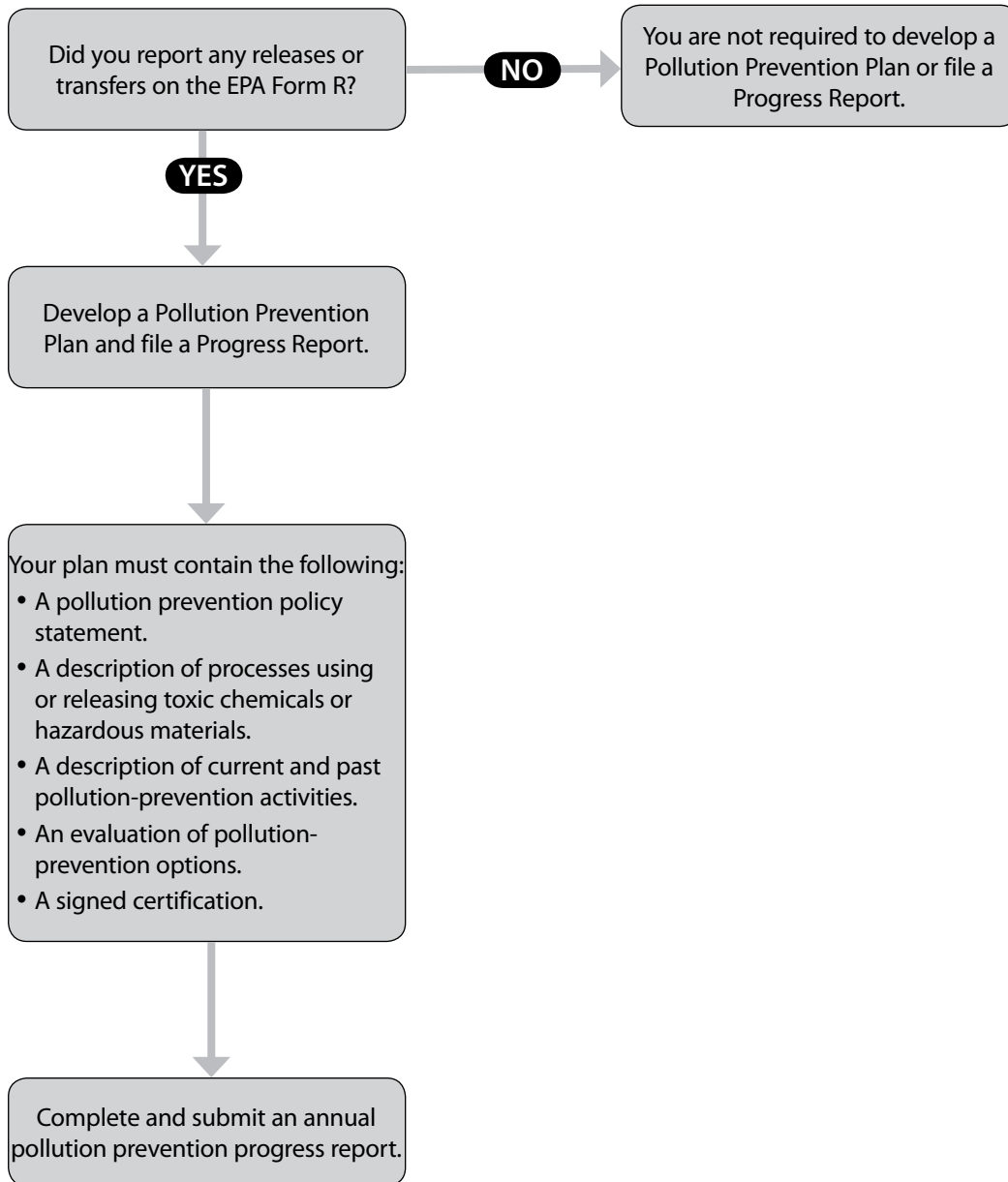
EMERGENCY AND POLLUTION PREVENTION PLANNING



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There are several sections of Minnesota and federal law that require prevention of spills, reporting spills, and preparing for response to spills that might occur.

The basic spill and emission reporting statutes in Minnesota are Minnesota Statute Sections 115.061 and 116.061.

Minnesota Statutes Chapter 115E (“Spill Bill”) requires most facilities to prepare for spills they might have.

The Emergency Planning and Community Right-To-Know Act requires emergency planning and reporting of certain hazardous and toxic chemicals. The act has four major sections, which are:

- Section 302 Emergency Planning
- Section 304 Emergency Release Notification
- Section 311-312 Community Right-To-Know
- Section 313 Toxic Chemical Release Reporting Emissions Inventory

Section 112(r) of the Clean Air Act Amendments, also referred to as Risk Management Planning (RMP), builds on the Emergency Planning and Community Right-To-Know Act. This chapter will cover these rules as well as the Minnesota requirements for reporting spills.

For more information contact :

Emergency Planning and Community Right-to-Know (EPCRA) requirements:

Minnesota EPCRA Program at (651)201-7417 or www.epcra.state.mn.us.

Section 115.061 spill reporting or Spill Bill requirements:

Minnesota Pollution Control Agency Emergency Response Team at (651)296-6300 or www.pca.state.mn.us/cleanup/ert.html.

Actual reports of spills, discharges, or releases must be made to the Minnesota Duty Officer at (651)649-5451 (Metro Area) or (800)422-0798 (TDD (651)297-5353 or (800)627-3529); and in some cases to the National Response Center at (800)424-8802.

STEP 1: Inventory chemicals stored and used

SECTION II: HAZARDOUS INGREDIENTS						
Ingredients (CAS No.)	% weight	PPM	TLV	Mg/m ³	LEL	Vapor Pressure mm Hg
Xylene (1320-20-7)	30	100	SK	1.00	6.8	
Toluene (108-88-3)	1	100	SK	1.20	22.0	
Ethyl Alcohol (84-17-5)	5	1000		3.70	47.0	
Isobutyl Alcohol (78-83-1)	2	50		1.20	8.8	
Methyl Ethyl Ketone (78-93-2)	7	200		2.00	70.0	
Ethyl Acetate (141-78-6)	5	400		2.00	86.0	
Butyl Alcohol (71-36-3)	0.2	50	SK	1.70	4.0	
Formaldehyde (50-00-0)		1				

SECTION III: PHYSICAL PROPERTIES						
Evaporation Rate:	FASTER	X	SLOWER	THAN	ETHER	
Vapor Density:	HEAVIER		LIGHTER	THAN	AIR	
Boiling Range:	148 TO 287	deg. F				
% Volatile by Wt.	58		Weight per gallon	8.06 lb. ←	Specific Gravity	0.8672 ←

Key to abbreviations used:
SK: Toxic effects can occur by skin absorption
NE: Not Established
Other: Recommended TLV

In determining which Emergency Planning and Community Right-To-Know regulations may apply, first inventory the chemicals used and stored at your facility.

For chemical mixtures, you must inventory individual components. The material safety data sheet (MSDS) provides the chemical makeup of the material. (See example below on inventorying components). You also need to know the quantity of each chemical used or stored and the quantity of each chemical left in the product, by-product or waste.

Because each section of the Act applies to a certain set of chemicals at specific thresholds, this information is critical in determining whether a section of the rule applies.

EMERGENCY AND POLLUTION PREVENTION PLANNING

Calculating the amount of chemicals in mixtures (in this case, toluene)			
Material	Quantity (Pounds)	% Toluene (from MSDS)	Constituent (Pounds)
Quik Degreaser A	8,000	50	8,000 X .50 = 4,000 lbs.
4-Ever Stick Glue	8,000	20	8,000 X .20 = 1,660 lbs.
EZ Paint Stripper	6,000	50	6,000 X .50 = 3,000 lbs.
Toluene	8,000	100	8,000 X 1 = 8,000 lbs.
Total Toluene	16,000		

Other means exist to inventory materials for different sections of the rule.
Please call the Minnesota EPCRA Program or visit the Web site for more information on different ways to inventory materials.
www.epcra.state.mn.us/

STEP 2: Determine if Minnesota “Spill Bill” applies

All facilities and people that store, transport, or otherwise handle oil or hazardous substances are required by the Spill Bill (Minnesota Statutes 115E) to take reasonable steps to prevent spills, and to be reasonably prepared to handle spills they might have.

The preparation includes protection of the public’s and employees’ safety and for environmental protection.

A written plan describing the facility’s planned response to spills is required for facilities with:

- aboveground tank storage greater than 10,000 gallons or
- facilities that transport by truck, rail, ship, or pipeline or
- facilities that transfer oil or hazardous substances in bulk

A plan that is prepared for other purposes is acceptable for Spill Bill purposes so long as it has the required information. The Department of Public Safety is to be notified when the planning is complete, but no plan need be submitted unless an agency requests it. MPCA can provide guidance fact sheets upon request, and the MPCA web page has Spill Bill guidance.

STEP 3: Determine if Section 302 applies

Section 302 applies to facilities storing any Extremely Hazardous Substances (EHS) above the threshold planning quantities (TPQ) at any one time. You must examine the list of EHS found in the column labeled Section 302 (EHS) TPQ at www.epa.gov/swercepp/pubs/title3.pdf or through a searchable database at <http://130.11.53.73/ol/> to determine if Section 302 applies to your facility. **To do this, compare your inventory list (developed in Step 1) with the website. If your inventory level is below the threshold level, section 302 does not apply. If no level is listed for a particular chemical in the appendix, the chemical is not regulated under Section 302.**

If your business stores an EHS above threshold planning quantities, you must notify the Minnesota Emergency Response Commission of that fact in writing. The letter must include:

- location of the facility
- name, telephone number and mailing address of the facility’s emergency coordinator

EMERGENCY AND POLLUTION PREVENTION PLANNING

STEP 4: Determine Spill/Release/Emission Reporting Requirements

Most spills must be reported to the MPCA through the Minnesota Duty Officer; some must ALSO be reported to the local 911 Center and the National Response Center.

- DO NOT WAIT UNTIL THERE IS A SPILL** The chemicals and raw materials you use, transport, or store determine who you need to contact if there is a spill.
- TO FIGURE OUT WHO MUST BE NOTIFIED.** Spills, releases, or discharges of any material must be reported to the MPCA via the Minnesota Duty Officer if it involves a material that could cause air or water (including groundwater) pollution. Materials include chemicals, oils, foods, wastewaters, manure, products, and almost anything else that escapes a container or any excessive or abnormal unpermitted air emission that could cause harm to human health or environment or causes obnoxious odors. The person “in control” of the substance at the time of the spill is required to make the report. This could include a facility owner, a transporter, a facility operator, or others. Often this responsibility to report is shared by several people. In addition, many permits require notification of releases and emissions.

An exception to the reporting requirement is a five gallon or smaller spill of petroleum. Those spills, however, still must be cleaned up.

There is no need to make professional or technical judgements about the ability of soils or a tank dike to contain a spill, guess whether a planned cleanup will be adequate, or look at a list for reportable quantities. If the material is out of the container the incident should be reported to MPCA and other state agencies via the Minnesota Duty Officer.

If a spill or release meets or exceeds a reportable quantity (RQ) under Section 304, then the local emergency response agencies (911), and the National Response Center must be notified in addition to the Minnesota Duty Officer. Look through the list of chemicals covered under Section 304 and their reportable quantities, which can be found at www.epa.gov/swercepp/pubs/title3.pdf or through a searchable database at <http://130.11.53.73/ol/>. The columns labeled Section 304 EHS RQ (extremely hazardous substances) and CERCLA RQ (compounds regulated under the Comprehensive Environmental Response, Compensation, and Liability Act) are the chemicals regulated under Section 304. Compare the chemicals listed on your inventory to these lists.

If you store, use, or transport chemicals and a spill or release could potentially occur, you should be prepared to contact the following agencies immediately if spill or release is outside the control of the facility:

- POST THESE SPILLS**
- Call 911 or the local emergency agency
 - Begin activation of your company’s response
- RESPONSE PHONE NUMBERS**
- Call the Minnesota Duty Officer at (651)649-5451 (Metro Area) or (800)422-0798 TDD (651)297-5353 or (800)627-3529
- IN CONVENIENT LOCATIONS:**
- Call the National Response Center at (800)424-8802

EMERGENCY AND POLLUTION PREVENTION PLANNING

Spills and releases that are subject to Section 304 also require submission of an Emergency Release Follow-Up Report to the Minnesota EPCRA Program. Copies of the reporting form are available from the EPCRA Program website at www.epcra.state.mn.us.

STEP 5: Determine if Section 311 and 312 applies

Section 311 and 312 are the Community Right-To-Know requirements of the Act. These sections apply to your facility if you store, at any one time, a chemical that meets or exceeds the following thresholds:

- 500 pounds (approximately one 55-gallon drum of liquid) OR the threshold planning quantity of an EHS as defined in Section 302, whichever is less. For example, chlorine has a TPQ of 100 pounds, and since this is less than 500 pounds, reporting would be triggered at the lesser threshold of 100 pounds.
- 10,000 pounds (about 21 55-gallon drums of liquid) of any hazardous chemical that requires a Material Safety Data Sheet.

Section 311 requires the one-time filing of a Hazardous Chemical Report. You must submit an update report for new chemicals brought on-site or chemicals for which you presently have on-site but have increased the storage amount to trigger the threshold. Reports must be sent to the Minnesota EPCRA Program and the local fire department within three months of receiving chemicals that are subject to this rule.

If Section 311 applies to your facility, Section 312 will also apply. Section 312 requires you to file an annual Tier Two Emergency and Hazardous Chemical Inventory Report. The Tier Two report is due March 1 of each year and is based on chemicals stored at your site during the previous calendar year.

Reporting can be completed by using the Tier Two Manager Software available at: www.epcra.state.mn.us/tier2manager.

STEP 6: Determine if Section 313 applies

Section 313 covers the Toxic Chemical Release Inventory reports (EPA Form R and EPA Form A). Your facility is subject to Section 313 if all of the following apply:

1. Your facility is included in one of the North American Industrial Classification System (NAICS) listed in Table 2.
2. Your facility has 10 or more full-time equivalent employees (20,000 paid personnel hours per facility per year).

IMPORTANT: Type or print, read instructions before completing form. Form Approved 08/08/08 (Rev. 03/03) Approved Agency: (0101) Page 1 of 5

EPA FORM R TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting State: (See Instructions for State) 2. APPROXIMATE DATE COVERED: (See Instructions for Appendix 7) Enter "N/A" Above if this is a revision to a previous report (see reverse)

IMPORTANT: See instructions to determine when "Not Applicable (N/A)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 19 ____

SECTION 2. TRADE SECRET INFORMATION

Are you claiming the toxic chemical identified on page 3 trade secret? 2.1 Yes (Answer question 2.1; check appropriate box) 2.2 No (Do not answer 2.2; go to Section 3) In this copy: Secretized Unsecretized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

SECTION 4. FACILITY IDENTIFICATION

4.1 Facility's Condition Code: _____ Facility's Location: _____ (State or County Name, Street Name, City, State, Zip, and Address)

4.2 Public Contact Name: _____ Telephone Number: _____

4.3 SIC Code (4-Digit): _____

4.4 Latitude: _____ Longitude: _____

4.5 EPA Identification Number(s) (EPA ID No.): _____ Facility NAICS Code Number(s) (3 characters): _____ Underground Injection Well Code Number(s) (12 digits): _____

SECTION 5. PARENT COMPANY INFORMATION

5.1 Name of Parent Company: NA

5.2 Parent Company's EPA & Business Number: NA (if 4999)

EMERGENCY AND POLLUTION PREVENTION PLANNING

3. You use 10,000 pounds (approximately 21 55-gallon drums of liquid) of a chemical or chemical category found on the Section 313 Toxic Chemical List and/or you manufacture or process 25,000 pounds (approximately 53 55-gallon drums of liquid) of a chemical or chemical category found on the Section 313 Toxic Chemical List and/or you meet the lower usage thresholds for chemicals considered to be persistent, bioaccumulative, and toxic (PBT). Examples include mercury (10 pound annual usage threshold) and lead (100 pound annual usage threshold). Additional PBT thresholds can be found at www.epa.gov/tri/chemical/pbt_chem_list.htm.

TABLE 2: SECTION 313 NAICS CODES

NAICS Code	NAICS Description
212xx	Mining (except Oil and Gas)
221xx	Utilities
311xx	Food Manufacturing
312xx	Beverage and Tobacco Product Manuf.
313xx	Textile Mills
314xx	Textile Product Mills
315xx	Apparel Manufacturing
316xx	Leather and Allied Product Manuf.
321xx	Wood Product Manufacturing
322xx	Paper Manufacturing
323xx	Printing and Related Support Activities
324xx	Petroleum and Coal Products Manuf.
325xx	Chemical Manufacturing
326xx	Plastics and Rubber Products Manuf.
327xx	Nonmetallic Mineral Product Manuf.
331xx	Primary Metal Manufacturing
332xx	Fabricated Metal Product Manuf.
333xx	Machinery Manufacturing
334xx	Computer and Electronic Product Manuf.
335xx Manuf.	Electrical Equip., Appliance, and Component
336xx	Transportation Equipment Manufacturing
337xx	Furniture and Related Product Manuf.
339xx	Miscellaneous Manufacturing

For additional information on the NAICS Codes go to www.census.gov/naics.

EMERGENCY AND POLLUTION PREVENTION PLANNING

The Toxic Chemical List is found at www.epa.gov/swercepp/pubs/title3.pdf. Toxic chemicals can also be found on the material safety data sheets or other information from your supplier (i.e. letter). The manufacturers of materials containing chemicals subject to Section 313 are required to inform end users that the materials contain these chemicals.

If your business is subject to Section 313, you must annually complete 1) EPA Form R or EPA Form A instead of a Form R (if eligible) and 2) a Minnesota Pollution Prevention Progress Report. All forms are due July 1 and are based on information from the previous calendar year. Form R, Form A and instructions, guidance documents and reporting software are available from the EPA's website at www.epa.gov/tri. To obtain a copy of the Minnesota Pollution Prevention Progress Report, go to the Minnesota EPCRA Program website at www.epcra.state.mn.us.

STEP 7: Determine if Section 112(r) applies

Section 112(r) of the Clean Air Act Amendments, also referred to as Risk Management Planning (RMP), builds on the Emergency Planning and Community Right-To-Know Act requirements. It affects facilities that produce, handle, process, distribute, or store more than the threshold quantity of any chemical listed at www.epa.gov/swercepp/pubs/title3.pdf. Section 112(r) focuses primarily on accident prevention rather than emergency preparation and response.

Examples of chemicals and thresholds that could affect small businesses are:

- chlorine - 2,500 pounds
- ammonia (anhydrous) - 10,000 pounds

If your facility is subject to Section 112(r), you are required to develop and implement safe business practices to identify hazards and manage risks. This could involve:

- Analyzing the worst case releases
- Documenting a five-year history of serious accidents
- Coordinating with local emergency responders
- Completing and submitting a Risk Management Plan (RMP) to EPA

For additional information on the Section 112(r) requirements, visit the EPA website at www.epa.gov/swercepp, EPA Region 5 at (312) 353-8217 or contact the Minnesota EPCRA Program at (651)201-7417.

Need to comply with too many regulations?

Instead of working to comply with regulations, your company can work to eliminate the need to comply with regulations. This does not mean working to get rid of regulations that protect the health of the public and the environment; it means working to prevent pollution in the first place.

THE MINNESOTA TOXIC POLLUTION PREVENTION ACT (MTPPA) DEFINES POLLUTION PREVENTION AS ELIMINATING OR REDUCING AT THE SOURCE THE USE, GENERATION OR RELEASE OF TOXIC POLLUTANTS, HAZARDOUS SUBSTANCES AND HAZARDOUS WASTES.

What is a pollution-prevention plan?

A pollution-prevention plan describes a facility's processes and operations, and sets objectives for the implementation of alternatives for the use and release of toxic chemicals. The plan establishes a program identifying the specific technical and economically practical steps that could be taken to eliminate or reduce waste.

Because pollution is a sign of inefficiency, reducing it will make your company more efficient. Here is a list of the potential benefits that can be realized by reducing waste in your facility:

Economic benefits:

save materials and production time; avoid paying fees by dropping below regulatory thresholds; decrease transport, treatment and disposal costs; reduce insurance liability through a safer work environment.

Competitive benefits:

gain ground-floor access to new methods and materials through pollution-prevention technology; maintain approved vendor status with valued customers; achieve greater operational efficiency.

Regulatory benefits:

simplify permitting and reporting; reduce legal liability

Community relations benefits:

staying off Toxic Release Inventory (TRI) list keeps you out of the public eye, reduces chances of public litigation; pollution prevention draws positive attention.

Environmental and social benefits:

reduce potential harmful effects to the environment and public health; protect worker health.

Who must develop a plan?

Pollution-prevention planning can make good business sense even if you are not required to do so by law. For some facilities, plans are required by the Minnesota Toxic Pollution Prevention Act (TPPA). The TPPA applies to all facilities currently filing the Toxic Release Inventory Reporting Form.

EMERGENCY AND POLLUTION PREVENTION PLANNING

If you did not report any releases or transfers on the EPA Form R or use EPA Form A, your business is not required to develop a pollution-prevention plan. Companies should call the Minnesota EPCRA Program at (651) 201-7417 to verify whether they are covered by the Superfund Amendments and Reauthorization Act (SARA) Title III and TPPA requirements or visit www.epcra.state.mn.us.

**SAVE MONEY, REDUCE
PAPERWORK, GET A
COMPETITIVE EDGE,
IMPROVE COMMUNITY
RELATIONS, PROTECT
THE ENVIRONMENT.**

What must be in a plan?

Each plan must set objectives for identifying and implementing pollution-prevention options.

A pollution prevention plan must include:

- A policy statement supporting pollution prevention.
- A description of processes using or releasing hazardous materials or toxic chemicals.
- A description of current and past pollution prevention activities at the facility and an evaluation of those activities.
- An evaluation of pollution prevention options applicable to the facility. This includes a description of options chosen for implementation, an implementation schedule and reasons for choosing or rejecting options.
- A certification, signed by the facility manager and a company officer, attesting to the accuracy of the plan.

The Minnesota Guide to Pollution Prevention Planning can be accessed at www.mntap.umn.edu/prevention.

What else is required?

Plans must be reviewed internally and updated by January 1 of even-numbered years (e.g., 2002, 2004). Companies which become subject to the Minnesota Toxic Pollution Prevention Act (TPPA) have six months to complete a plan.

Progress report requirements

Progress Reports are annual summaries of pollution-prevention progress based on plan objectives. Progress Reports must include:

- A summary of each option chosen for implementation.
- A implementation schedule.
- A progress summary, including barriers encountered.
- A signed certification as to the accuracy of the progress report.

Progress reports must be submitted to the Minnesota EPCRA Program with the EPA Form R by July 1 of every year. These reports cover the previous calendar year. The Minnesota EPCRA Program enforces progress report requirements.

Pollution prevention ideas

Here are a few examples of pollution prevention techniques to achieve reductions in emissions and bottom line benefits.

POLLUTION PREVENTION PLANNING

MONITORING INSTRUMENTS AND EQUIPMENT

Simple, low-tech and low-cost controllers, calibrators and monitoring equipment can help companies save considerable costs because they help to:

- Reduce spills and leaks that may be prevented or minimized by the use of simple switches or controls.
- Reduce loss of raw materials.
- Reduce the amount of waste generated that must be managed.
- Reduce rejected batches.

After expanding its facility, a Twin Cities area printed circuit board manufacturer was using water at a rate that exceeded the capacity available from the city water supply. By installing photosensors in spray rinse chambers and using flow gauges to monitor water flow, the company greatly reduced its use of water and kept it at an amount the city could supply.

GOOD HOUSEKEEPING

Good housekeeping means organizing shops to prevent waste and cleaning up spills to recover as much material as possible.

A fleet maintenance shop in northern Minnesota generated 264 pounds of used oil sorbent waste, which was disposed of at a landfill. The shop reduced its waste sorbent by following good housekeeping practices. The most significant savings came from recovering spilled liquids with a squeegee and dustpan before spreading sorbent on the spill. This recovered 95 percent of the spilled liquid, which was reused or recycled. It also greatly reduced the amount of sorbent used.

WORK WITH VENDORS

Vendors can be your ally in preventing pollution. Ask suppliers to take back unused portions of materials. Ask them to train your employees on proper use of their products.

A supplier sold a foaming agent (catalyst) for insulated doors that contained two chemicals listed on the Toxic Release Inventory (TRI). One of the supplier's customers requested that it make a new catalyst that did not contain the TRI-listed chemicals. Although the supplier had not considered this previously, it quickly realized the marketing potential of a less hazardous catalyst and developed one for its customers.

INVENTORY CONTROL

Inventory control allows a company to track and control type and quantity of raw materials it purchases, stores, distributes and consumes. Good inventory control practices reduce costs associated with handling and disposing raw materials. It also ensures that material is available when needed.

A few ideas: use inventory before shelf-life expires; do not accept vendor samples if they can't be returned or used; rotate stock to ensure older stock is used first.

Example: By establishing an inventory control program, a manufacturer of polyvinyl chloride products reduced by 50 percent the amount of out-of-date and off-specification raw materials it had to dispose of annually. To accomplish this, the company purchased smaller quantities of raw materials, separated and reused materials where possible, and used its older stock first. The program took six months to implement (at a negligible cost) and saved approximately \$40,000 during the first year through reduced raw material purchasing and disposal costs.

ASSISTANCE

Contact the Minnesota Technical Assistance Program (MnTAP), University of Minnesota, School of Public Health, about the Pollution Prevention Planning process and for how-to information on pollution prevention:

Minnesota Technical Assistance Program (MnTAP)
(612) 624-1300 or toll-free (800) 247-0015, Web site: www.mntap.umn.edu

MnTAP can help with strategies to minimize waste and improve energy efficiency at your facility through:

- Visiting your facility and doing a walk-through to offer suggestions specific to your situation.
- Providing a college student intern to work full-time in your facility for a summer developing effective waste-reduction solutions to a particular waste problem.
- Printed resources that outline pollution prevention options specific to your industry. They can be sent to you or found on MnTAP's Web site (www.mntap.umn.edu).
- Tailored presentations and workshops.

MnTAP works with Minnesota businesses primarily in the manufacturing sector. Industries they have worked with include dry cleaning, electronics, fiberglass, plastics, food processing, health care, laboratories, machining and metal fabrication, metal casting, metal finishing, painting, papermills, printing, vehicle maintenance and wood finishing.

