

MODEL GROUNDWATER PROTECTION ORDINANCE



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Ensuring safe and adequate drinking water supplies requires maintaining the quality and availability of present and future water supply sources, because in the long run it is less expensive and more protective of public health to prevent contamination than it is to treat water to meet health standards, and it is less expensive to use existing sources than it is to develop new ones. New contaminants of concern continue to emerge, potentially requiring more costly treatment of source waters if they have not been adequately protected. Municipalities and water suppliers have crucial roles in managing activities that affect source water quality and availability. NHDES's primary role is to provide technical and financial assistance and to enforce state regulations that serve to protect the state's sources of drinking water. Effective protection relies on the combined efforts of the state, water suppliers, municipalities, businesses, institutions, and individuals whose activities have the potential to affect source water quality and availability.



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INTRODUCTION

This model ordinance was created in response to numerous requests from municipal officials for more local tools to protect stratified-drift aquifers.¹ This ordinance has been designed for the protection of aquifers as well as other locally important groundwater, which may include wellhead protection areas (see the ordinance for definitions).² The purpose of this model is to provide communities with an example of an ordinance that complies with state laws and is consistent with current approaches to groundwater protection. This ordinance does not represent a state or federal requirement. The model is a starting point and should be modified to be consistent with existing local land use development regulations.

Groundwater is a critical natural and economic resource for New Hampshire. It is our most frequently used source of drinking water, in addition to being an integral part of the hydrologic system and vitally important for fish, wildlife, and recreation. The United States Geologic Survey (USGS, 2010) estimates that approximately 90 million gallons of groundwater are supplied for drinking water in New Hampshire per day. Approximately 60 percent of New Hampshire residents rely on groundwater for their drinking water. Of the 2,436 public water supply systems in New Hampshire, 98 percent rely on groundwater. Groundwater also provides an estimated 40 percent of the total flow in New Hampshire's rivers, which in turn feed the state's lakes, reservoirs, and estuaries.

Groundwater can be contaminated when chemicals or other substances are spilled or discharged onto or into the ground. Liquids can flow through the ground into groundwater, and both solids and liquids can be flushed downward by rain and snowmelt. Once contaminants reach groundwater, they often move along with the groundwater flow. The most common causes of groundwater contamination in New Hampshire are leaking underground storage tanks, mishandling of industrial chemicals, and stormwater runoff. The presence in groundwater of some contaminants, such as MtBE (methyl-*tertiary*-butyl ether) strongly correlate with urban factors (population density, housing density, and the percentage of urban land use or roads) emphasizing the importance of controlling potential contaminants in developed or developing areas.³ Although MtBE has been removed from the national gasoline supply, a statewide effort continues to address MtBE found in groundwater used as a source of drinking water by public water systems and private wells. In 2013, the state settled a lawsuit with 22 gasoline manufacturers and refiners obtaining over \$81 million dollars for statewide remediation of MtBE contamination. In 2014 the NHDES MtBE Remediation Bureau was created and continues to investigate and remediate MtBE contamination sites, test private wells at risk of contamination and provide clean water to those citizens impacted by MtBE. Other compounds in gasoline are harmful to human health, including toluene or benzene; therefore gasoline releases to the ground are still a concern. Some industrial solvents are especially potent contaminants; only 5 ounces of TCE (trichloroethene), a common industrial solvent, can make up to 7.8 million gallons of water unacceptable for drinking based on federal standards. Other substances, such as 1,4 – dioxane (commonly used as a stabilizer in chlorinated solvents and in some cosmetics, detergents and shampoos) are being evaluated by US EPA as potential contaminants to be regulated in drinking water.⁴ When it comes to groundwater resources, “*an ounce of prevention is worth a pound of cure*”

¹ Two of the catalysts behind local interest in aquifer protection have been the experience with groundwater contaminants (e.g., MtBE) and rapid growth taking place near or in water supply protection areas.

² Locally important groundwater may also include other areas. For background on groundwater protection and the various regulatory and non-regulatory tools available to municipalities, see The DES Guide to Groundwater Protection, available from NHDES' Drinking Water Source Protection Program, (603) 271-7061.

³ Methyl tert-Butyl Ether Occurrence and Related Factors in Public and Private Wells in Southeast New Hampshire, Joseph D. Ayotte, Denise M. Argue, and Fredrick J. McGarry. (USGS, 2004)

⁴ See <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-3-24.pdf> for more information about 1,4 – dioxane. For information about other emerging contaminants, see US EPA's website on Contaminants of Concern, <http://water.epa.gov/scitech/cec/>

is very applicable; although easy to contaminate, groundwater contamination can be very difficult and expensive to clean-up.

Although there are many state and federal programs that directly or indirectly serve to protect groundwater, local land use controls, inspection programs and public education are necessary to maximize the effectiveness of groundwater protection.

Local Approaches to Groundwater Protection

There are many tools that cities and towns can use to protect groundwater. Some of these tools involve passing new zoning or changing existing zoning, while others are entirely non-regulatory. The most effective way to protect groundwater is by controlling land uses, either through acquisition of the land or easements, or through land use controls. Land use controls can include zoning ordinances (such as this one), site plan review regulations, and subdivision regulations. Local regulations can also address specific activities such as gravel excavations, blasting, septic system operation and maintenance, and the use of underground storage tanks, fertilizer, and wastewater residuals (e.g., sludge or biosolids). NHDES' *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development*⁵ includes a variety of model ordinances and related information to assist municipalities to adopt land use policies and zoning that help to protect water resources. Non-regulatory approaches include household hazardous waste collection and public education. All of these techniques are described in *The NHDES Guide to Groundwater Protection*.⁶

Planning as a Prelude to Zoning

Before adopting a groundwater protection ordinance, the municipality should address the need for groundwater protection in its master plan, typically in the natural resources chapter. Groundwater protection may also be addressed in a document (incorporated by reference into the master plan) often referred to as the *Water Resources Management and Protection Plan*.

Guidance on drafting such a plan is available from NHDES (271-0688). This document should inventory local water resources (i.e., wetlands, rivers, aquifers) and address a wide range of water resources management issues, including identifying the value and use of specific water resources, a summary of current threats and an analytical approach to evaluating whether local land use controls will be needed to protect water resources now, and in the future. Communities that share an aquifer should consider developing regional aquifer management plans or other collaborative efforts to protect shared groundwater resources.

⁵ Available by calling (603) 271-7889 or online from DES' Watershed Assistance webpage, found by clicking on the "A to Z" list at www.des.nh.gov/ for a link to Watershed Assistance.

⁶ Available by calling (603) 271-0688 or online from DES' Drinking Water Source Protection Program webpage, found by clicking on the "A to Z" list at www.des.nh.gov/ for a link to Drinking Water Source Protection.

A more detailed analysis geared toward management and protection of water supplies (including groundwater) can be compiled into a drinking water source protection plan. Source water protection planning usually involves assembling a team of interested stakeholders. A source protection plan identifies source water threats and corresponding management approaches. The plan sets priorities for community actions necessary to protect drinking water sources (i.e., aquifers, wells and/or surface water sources). In some communities, source water protection may address the protection of areas to develop water supply wells in the future. Alternatively, with the expectation of greater industrial or commercial development, a source protection plan may focus on land use management. Examples of source protection plans in New Hampshire are found online at www.des.nh.gov (search “source water protection plan”). For information about developing a source water protection plan, contact the Drinking Water Source Protection Program at (271-0688) or the Granite State Rural Water Association at (756-3670).

Restrictive Zoning or Better Management of Land Uses?

More than one third (92) of New Hampshire communities have some form of groundwater or aquifer protection zoning, most of them relying on land use restrictions to minimize the risk of groundwater contamination. The advantages of this approach include its simplicity, the relatively low cost of administration, and the high degree of protection that can be achieved if there are no existing land uses that may pose a risk of groundwater contamination. The main drawbacks of relying exclusively on restrictive zoning are that most existing uses⁷ are allowed to continue (i.e., they are “grandfathered”) and some land uses that may pose a low risk if properly designed and managed, are prohibited.

Alternatively, many New Hampshire municipalities and water suppliers rely on inspection programs to protect their groundwater resources, especially in wellhead protection areas. These inspection programs typically rely on the Best Management Practices (BMP) Rules for Groundwater Protection, Env-Wq 401, which are common-sense practices that apply to the storage, handling, and disposal of regulated substances.⁸ Inspection programs may be either voluntary or mandatory, meaning that the facility owner may or may not have the option to deny the inspector access to the facility. Mandatory inspection programs typically derive their authority from a local health ordinance or from groundwater reclassification, a cooperative state-local approach.⁹ The advantage of inspection programs over restrictive zoning is that a greater variety of commercial and industrial land uses may be permitted. The disadvantage of relying too heavily upon inspection is that high-risk land uses are still permitted, despite the fact that their potential contamination risks may not be acceptable even with periodic inspections.

Specialized expertise is not needed in order to conduct BMP inspections. NHDES has successfully trained dozens of health officers and water supply operators to conduct inspection programs and has found their background and experience appropriate. Call 271-0688 if you are interested in this training. Communities with public water supplies that already conduct BMP inspections within wellhead protection areas (WHPAs) should discuss and coordinate BMP inspection activities. This model ordinance integrates inspection into a zoning ordinance as described in the following section.

A Combined Approach

⁷ A land use established before a zoning regulation goes into effect may continue unless it includes an activity which is a nuisance or harmful to public health and welfare; it cannot be changed or substantially expanded without being brought into compliance (Cohen v. Henniker, 134 N.H. 425, 427 (1991))

⁸ For a summary of the BMP Rules, see fact sheet WD-DWGB 22-4 in Appendix A.

⁹ For more information about groundwater reclassification, contact NHDES’ Drinking Water Source Protection

Program at (603) 271-0688.

In order to ensure a high level of protection while still providing for maximum flexibility in siting land uses, this model ordinance provides an alternative to restrictive zoning. This model ordinance prohibits only seven high-risk land uses and requires all others (except for those with *no regulated substances* in containers of five gallons or more and others exempted under Article XII) to conform to performance standards. The performance standards incorporate many of the state BMP Rules, which are already in effect throughout the state, but go beyond them to require pollution prevention measures (e.g., spill prevention and control) and stormwater treatment for commercial and industrial land uses. Some uses, designated conditional uses under Article X, must undergo additional planning board review and may need to post a performance bond to ensure compliance with the performance standards. As with any zoning ordinance, the municipality has the authority to conduct inspections to ensure compliance.

This model is written as a stand-alone ordinance; if it is to be adopted as an overlay district in an existing zoning ordinance, several articles could be removed to avoid duplicating existing text. Specifically, Articles I, XI, XIII, XV, and XVI of this model ordinance may duplicate existing provisions in local ordinance. A list of communities with aquifer/groundwater protection ordinances is in Appendix I. Before using this or any other ordinance as a model, carefully review this model ordinance's provisions for consistency with your municipality's health, zoning and land use regulations. Other municipal regulations that may be reviewed for consistency include municipal site plan, subdivision and earth excavation regulations.

Inspections Necessary

In order for this ordinance to be effective at minimizing the risk of groundwater contamination, the municipality must conduct periodic inspections of every facility that may store or use regulated substances in containers with a capacity of five gallons or more. Municipalities may charge a fee to pay for an inspection program, but experience suggests that in most communities the costs of such programs are so low that they can be administered by existing personnel. If a municipality wishes to protect its important groundwater resources but is unable to make a permanent commitment to conducting an inspection program, it should consider expanding the list of prohibited uses in this ordinance (see Appendix C). BMP training and guidance to conduct inspections are available from NHDES by calling 271-0688.

Narrowing or Broadening the Scope of the Ordinance

Because a community's need for groundwater protection is usually driven by its need for drinking water supplies, the geographic scope of this model (Article IV) should be reviewed carefully in light of the analysis included in the municipality's master plan and/or water resources plan. Zoning protections should also be designed to address the known vulnerabilities or gaps in local groundwater protection in light of existing or potential future land uses.¹⁰ A community with extensive areas underlain by stratified-drift aquifers and/or wellhead protection areas may or may not wish to include all such areas in the Groundwater Protection District. For example, the town may wish to include only wellhead protection areas, only some aquifers, or only some areas of mapped aquifers, such as areas where transmissivity is mapped as 1,000 ft²/day or greater. Protecting potential (future) public drinking water supplies may also be a priority, and NHDES' Drinking Water Source Protection Program can provide assistance and resources in those efforts. For example, a community may also wish to ask NHDES to conduct a Favorable Gravel Well Analysis to identify areas of the

¹⁰A summary of known and potential contamination threats as of 1999-2002 is provided in Source Assessments Reports prepared by NHDES and available online (click on the Drinking Water Source Protection Program link on the "A to Z" list, then click on "Source Assessment Reports"). The Source Assessment Reports do not take local protection programs into account.

municipality that are most probably developable as future public water supplies

In this model ordinance, the definition of *wellhead protection area* (WHPA) includes all wellhead protection areas delineated and/or approved by NHDES for either “community” or “non-transient, non-community” water systems. Community water systems are those that serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents. Non-community systems are categorized by NHDES as either “transient” (e.g., restaurants) or “non-transient” systems, such as those serving schools and work places. Community and non-transient, non-community public water systems have defined WHPAs, while transient systems do not have delineated WHPAs. Information concerning WHPAs for public water systems can be obtained from NHDES Source Water Protection Program (271-0688).

Other Recommended Measures

The focus of this ordinance is fairly narrow; it is concerned with the protection of selected groundwater resources. Local officials might also consider the following water resource-related strategies.

- **Private water well testing**. Approximately 46 percent of New Hampshire residents use private wells for domestic water supply and many private well users who fail to test their well water risk being exposed to unhealthy levels of natural or anthropogenic contaminants in groundwater. Testing well water in a lab is the only way to determine the presence of contaminants and potential health risks. Municipalities should encourage regular well water testing for both aesthetic and health-based contaminants as recommended by NHDES and listed within the “Standard Analysis.” Municipalities may also refine their local definition of *potable water* found in their building codes to establish an enforceable standard for private well water quality. NHDES’ *Guidance to Refine the Potable Water Definition in NH in Municipal Building Codes* (2015) is available for download at www.des.nh.gov. (Search “Potable Water Guide”) The guidance provides sample language for refining the *potable water* definition in local building codes. Residents with private wells may also use the NHDES *Be Well Informed* web application to help interpret their private well water quality results from a lab report and obtain recommended treatment for specific contaminants. The web application is available at www.des.nh.gov. (Search “Be Well Informed”)

Municipalities may also wish to adopt regulations to ensure there is sufficient well yield (quantity of water). NHDES guidance regarding contaminants to test for and minimum yield is available online from NHDES website (click on the *Private Well Testing Program* link on the “A to Z” list).

- **Protect water resources from non-point source pollution**. Municipalities should consider adopting other ordinances for the prevention of non-point source pollution of surface waters and for the protection of wetlands. The New Hampshire Stormwater Manual, Volumes I-III (December 2008) and the Center for Watershed Protection, (www.cwp.org), a leading national non-profit organization, are two useful technical resources when working to reduce non-point source pollution and improve watershed management. Model stormwater ordinances, such as the *Model Stormwater Standards for Coastal Watershed Communities* (UNH Stormwater Center & Rockingham Planning Commission, 2012) provide sample regulatory language that municipalities can use as a starting point for considering new zoning or site plan regulations to minimize non-point source pollution associated with stormwater runoff. Non-regulatory programs, like NHDES’ *Soak Up The Rain NH*, promote voluntary installation of *do-it-yourself* stormwater practices, such as rain barrels or rain gardens, designed to conserve water or treat contaminants before being infiltrated or discharged by a practice to groundwater or surface water. More information may be found at

<http://soaknh.org/>.

- **Prevent contamination from home-based businesses or accessory uses.** Many zoning ordinances allow home occupations in residential districts with few restrictions. Home occupations such as beauty shops or small engine service shops that store and use gasoline, solvents, cleaners or other chemical products in quantities under five gallons are exempt from inspections under this model ordinance. Consider amending Article VI, Performance Standards, of this ordinance if local conditions warrant inspections of home-based businesses or accessory uses.

To minimize the risk of groundwater contamination, ...

- Home-based businesses that, by their nature, regularly expose regulated substances to precipitation and cannot segregate clean stormwater from stormwater contaminated with regulated substances should be prohibited.
- Municipalities should consider restricting to five gallons the total quantity of regulated substances that home occupations may keep on site without being subject to best management practices inspections.
- Home-based businesses should be restricted to using **appropriate hazardous substances containers** with a capacity of less than five gallons or else be treated as a business that is subject to inspections.

Education

Regardless of whether your municipality chooses to take a regulatory approach, every groundwater protection program should have a strong education component. Regulatory programs, which appropriately focus on only the riskiest land uses, can accomplish only so much. Since nearly all businesses and households use substances that can potentially contaminate groundwater, the vast majority of potential contamination sources are unregulated, such as household cleaners, personal care, yard and garden products. Education is a practical way to address the situation. Education and outreach activities may be targeted at the general public or at specific groups such as business owners and residents of the groundwater protection district, and school-age youth. To improve the results of education programs, public health and environmental officials often use a marketing approach referred to as community-based social marketing (CBSM). CBSM involves the use of social science methodologies and techniques to more effectively design and implement public education resulting in better health or environmental choices. Several innovative CBSM organizations include Tools of Change (<http://www.toolsofchange.com/en/home/>) and Fostering Sustainable Behavior / McKenzie-Mohr & Associates (<http://www.cbsm.com/public/world.lasso>). NHDES' Drinking Water Source Protection Program and non-profit organizations such as the American Ground Water Trust (<http://www.agwt.org/>) offer a variety of assistance to municipal boards (e.g., conservation commissions), neighborhood groups and teachers interested in groundwater education.

MODEL ORDINANCE

I. AUTHORITY

The [City or Town] of [Town Name] hereby adopts this ordinance pursuant to the authority granted under RSA 674:16 as an Innovative Land Use Control pursuant to RSA 674:21. This ordinance shall be administered, including the granting of conditional permits, by the planning board.

II. PURPOSE

The purpose of this ordinance is, in the interest of public health, safety, and general welfare, to preserve, maintain, and protect from contamination existing and potential groundwater supply areas *and to protect surface waters that are fed by groundwater.*

The purpose is to be accomplished by regulating land uses which could contribute pollutants to designated wells and/or aquifers identified as being needed for present and/or future public water supply.

III. DEFINITIONS

- A. Aquifer: a geologic formation composed of rock, sand, or gravel that contains significant amounts of potentially recoverable water.
- B. Petroleum bulk plant or terminal: means that portion of the property where petroleum products are received by tank vessel, pipeline, tank car, or tank vehicle and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel, pipeline, tank car, tank vehicle, portable tank, or container.
- C. Groundwater: subsurface water that occurs beneath the water table in soils and geologic formations.
- D. Gasoline station: means that portion of a property where petroleum products are received by tank vessel, pipeline, tank car, or tank vehicle and distributed for the purposes of retail sale of gasoline.
- E. Impervious: not readily permitting the infiltration of water.

EXPLANATORY NOTES

RSA 674 includes the zoning enabling law; RSA 675 governs enactment and adoption procedures; and RSA 676 governs administrative and enforcement procedures. RSA 674:21 provides examples of the innovative land use controls that municipalities may adopt under RSA 674:16, including performance standards and environmental characteristics zoning.

This section describes the purposes of this ordinance, which should be consistent with the purposes of an up-to-date, properly adopted master plan. The italicized text at left is optional; protection of drinking water sources is usually more compelling, if for no other reason than the fact that the contamination of drinking water sources has been far more common in New Hampshire than the contamination of surface waters by groundwater.

This term is defined in order to clarify the purpose of the ordinance.

This term is used in Prohibited Uses, Article IX, part G.

From RSA 485-C, the Groundwater Protection Act.

This term is used in Prohibited Uses, Article IX, part G.

"Impervious" is used in Performance Standards Article VI, part D. It is defined to distinguish it from "Impervious surface."

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- F. Impervious surface: a surface through which regulated substances cannot pass when spilled. Impervious surfaces include concrete unless unsealed cracks or holes are present. Earthen; wooden, or gravel surfaces; or other surfaces which could react with or dissolve when in contact with the substances stored on them are not considered impervious surfaces.
- G. Junkyard: an establishment or place of business which is maintained, operated, or used for storing, keeping, buying, or selling junk, or for the maintenance or operation of an automotive recycling yard. The word does not include any motor vehicle dealers registered with the director of motor vehicles under RSA 261:104 and controlled under RSA 236:126.
- H. Outdoor storage: storage of materials where they are not protected from the elements by a roof, walls, and a floor with an impervious surface.
- I. Public water system: a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- J. Regulated substance: petroleum, petroleum products, regulated contaminants for which an ambient groundwater quality standard has been established under RSA 485-C:6, and substances listed under 40 CFR 302, 7-1-05 edition, excluding substances used in the treatment of drinking water or waste water at department approved facilities.
- K. Sanitary protective radius: The area around a public water supply well which must be maintained in its natural state as required by Env-Dw 301 or 302 (for community water systems); Env-Dw 405.14 and 406.12 (for other public water systems).

EXPLANATORY NOTES

What is considered impervious with respect to stormwater infiltration is not necessarily considered impervious with respect to containment of regulated substances.

From NH Code of Administrative Rules Env-Wq 401.03(c), Best Management Practices rules for groundwater protection, except that "substances" has been substituted for "contaminants."

From RSA 236:91 IV. Junkyard owners must obtain an annual town or city issued "junkyard" license under RSA 236:111-129 and certify in their application for this license that the yard operates in compliance with best management practices (BMPs) established by NHDES. The BMPs, in addition to other helpful information about auto recycling issues, are available on the NHDES' Green Yards webpage. See the "A to Z" list on www.des.nh.gov for a link to the Green Yards Program webpage. Additional assistance is available by contacting the DES auto salvage yard specialist at 271-2925 or nhgreenyards@des.nh.gov.

"Outdoor storage" is a term used in the Performance Standards (Article VI, part F and G and under Prohibited Uses (Article IX, part. C).

From RSA 485:1-a, XV. The definition used here is abbreviated because the only reference in this ordinance to a public water system is in the definition of wellhead protection area.

From Env-Wq 401.03(h). Chemicals used by NHDES-permitted facilities to treat drinking water or waste water are excluded from the definition of regulated substance because they are used in the treatment of water supplies and are not considered to pose a significant risk to groundwater. Regulated contaminants and petroleum/petroleum products are included with the exception of propane.

The sanitary protective radius ranges from 75 to 400 feet, depending on the amount of water withdrawn from the well. The minimum radius for a community well is 150 feet. The "natural state" requirement for new community wells prohibits any development in the sanitary radius of the well. Other non-community public water systems (i.e. hotels, campgrounds, convenience stores) have a less restrictive natural state requirement that allows a limited set of uses (i.e. parking lots, tennis courts) in the sanitary radii.

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- L. Seasonal high water table: The depth from the mineral soil surface to the upper most soil horizon that contains 2 percent or more distinct or prominent redoximorphic features that increase in percentage with increasing depth as determined by a licensed Hydrogeologist, Soils Scientist, Wetlands Scientist, Civil or Environmental Engineer or other qualified professional approved by the Planning Board or the shallowest depth measured from ground surface to free water that stands in an unlined or screened borehole for at least a period of seven consecutive days.
- M. Secondary containment: a structure such as a berm or dike with an impervious surface which is adequate to hold at least 110 percent of the volume of the largest regulated-substances container that will be stored there.
- N. Snow dump: For the purposes of this ordinance, a location where snow, which is cleared from roadways and/or motor vehicle parking areas, is placed for disposal.
- O. Stratified-drift aquifer: A geologic formation of predominantly well-sorted sediment deposited by or in bodies of glacial meltwater, including gravel, sand, silt, or clay, which contains sufficient saturated permeable material to yield significant quantities of water to wells.
- P. Surface water: streams, lakes, ponds and tidal waters, including marshes, water-courses and other bodies of water, natural or artificial.
- Q. Wellhead protection area: The surface and subsurface area surrounding a water well or wellfield supplying a community public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield.

EXPLANATORY NOTES

Adapted from the definition under Env-Wq 1502.49, NHDES Alteration of Terrain rules. "Water table" refers to a saturated zone in the soil. Estimates of the seasonal highest water table for a soil are based mainly on observations of the water table at selected sites or on physical characteristics of the soil that are considered to be evidence of a saturated zone, typically, gray redoximorphic depletions.(USDA, NRCS TSSH Part 617) Alternatively, it may be measured by creating a borehole and measuring the difference in the elevation of the land surface to standing water over a defined period of time.

From Env-Wq 401.03(i).

Prohibited under Article IX.

From RSA 485-C:2, XIV. Most stratified drift aquifers in the state have been mapped by the United States Geological Survey (USGS). NHDES' One Stop Web GIS viewer can display aquifer location and some characteristics or maps and full technical reports can be obtained from USGS's Pembroke, NH Office (call 226-7800). This definition is not needed if the ordinance is to be used only to protect wellhead protection areas.

From RSA 485-A:2 XIV, Surface waters of the state.

From RSA 485-C:2, XVIII, except that the definition has been narrowed to include only wells for community (residential) public water systems and not other types of public water systems. This definition is not needed if the ordinance is to be used only to protect stratified-drift aquifers. Check with NHDES to see how the wellhead protection areas in your district have been delineated.

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IV. GROUNDWATER PROTECTION DISTRICT

The Groundwater Protection District is an overlay district which is superimposed over the existing underlying zoning and includes within its boundaries,

(1) all of the Wellhead Protection Areas for public water supply wells as defined under Article III, part (I) of this ordinance. The district is shown on the map entitled, Town of [Town Name] Groundwater Protection District, dated [Date Adopted].

Or . . .

(2) the Stratified Drift Aquifer(s) shown on the map entitled, [City/Town Name] Groundwater Protection District, dated [Date Adopted].

Or... a combination of the two.

V. APPLICABILITY

This Ordinance applies to all uses in the Groundwater Protection District, except for those uses exempt under Article XII (Exemptions) of this Ordinance.

VI. PERFORMANCE STANDARDS

The following Performance Standards apply to all uses in the Groundwater Protection District unless exempt under Article XII:

- A. For any new or expanded uses that will render impervious more than 15 percent or more than 2,500 square feet of any lot, whichever is greater, a stormwater management plan shall be prepared which the planning board determines is consistent with New Hampshire Stormwater Manual Volumes 1-3, December 2008, NH Department of Environmental Services.

EXPLANATORY NOTES

Two options are presented in the model--one for wellhead protection areas and one for stratified-drift aquifers. A municipality may choose to protect one of these types of groundwater resource areas or both. If it chooses to protect both, the text in this section should be modified, as well as the title of the ordinance (i.e., Wellhead Protection or Aquifer Protection District).

The municipality should develop and update a map to accompany the ordinance. Information on the extent of stratified-drift aquifers may be obtained from maps prepared by USGS, NH Geologic Survey or NHDES. Wellhead protection area (WHPA) maps are available from NHDES. (271-0688) When requesting a WHPA map from NHDES, please specify which types of WHPAs should be included (e.g., community systems only).

See Appendix H, Defining and Revising Boundaries for Aquifer Protection Districts for guidance on drafting and revising the district boundary. The rationale or technical support for such a district should be incorporated into the municipal master plan prior to adoption of this ordinance.

The effectiveness of this model ordinance depends on the ability of the municipality to ensure initial and continuing compliance with these performance standards.

The performance standards apply to all existing uses, including expansions and new uses requiring Planning Board approval, except as noted.

A Planning Board review of a land use application normally occurs when there is new land use activity or expansion of use. Expansion of existing parking areas or other uses that render an area impervious should be subject to this provision.

Any lot could have up to 2,500 square feet of impervious area without requiring a stormwater management plan. For lots less than 0.38 acres the 2,500 square foot impervious area maximum applies while for lots larger greater than 0.38 acres, the 15 percent limit applies.

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B. Conditional uses, as defined under Article X shall develop stormwater management and pollution prevention plans and include information consistent with Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators (US EPA, Feb 2009) The plan shall demonstrate that the use will:

- 1) Meet minimum stormwater discharge setbacks between water supply wells and constructed stormwater practices as found within the Innovative Land Use Planning Techniques: A Handbook for Sustainable Development, Section 2.1 Permanent (Post-Construction) Stormwater Management,(NHDES, 2008 or later edition)
- 2) Minimize, through a source control plan that identifies pollution prevention measures, the release of regulated substances into stormwater;
- 3) Stipulate that expansion or redevelopment activities shall require an amended stormwater plan and may not infiltrate stormwater through areas containing contaminated soils without completing a Phase I Assessment in conformance with ASTM E 1527-05, also referred to as All Appropriate Inquiry (AAI);
- 4) Maintain a minimum of four feet vertical separation between the bottom of a stormwater practice that infiltrates or filters stormwater and the average seasonal high water table as determined by a licensed hydrogeologist, soil scientist, engineer or other qualified professional as determined by the Planning Board.

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Conditional uses, as listed in Article X, should infiltrate only clean or properly treated runoff and use pollution prevention measures (referred to as “source controls”) that prevent any regulated substances from mixing with clean runoff. Industrial or petroleum related areas (sometimes referred to as “high-load areas”) or other sites that cannot prevent contamination of stormwater or effectively treat contaminants should be prohibited from infiltrating stormwater.

Provisions 1-4 are consistent with provisions recommended in Section 2.1 Permanent (Post-Construction) Stormwater Management of the Handbook for Sustainable Land Use Development. Additional provisions are recommended in the model stormwater ordinance provided in the Handbook and may be included in this ordinance or as a separate stormwater management ordinance.

Discharge of large volumes of stormwater in close proximity to water supply wells may expose well users to harmful contaminants (bacteria, nitrates, etc.). Minimum discharge setbacks between 75 to 400 feet should be maintained.

For certain uses, EPA, through its NPDES General Permit for Storm Water Discharges Associated with Industrial Activity, requires a stormwater pollution prevention plan (SWPPP).¹¹ A source control plan is similar to a SWPPP and should provide details concerning how operational or structural BMPs segregate clean from contaminated stormwater runoff (i.e., exposed to regulated substances). For further information contact NHDES at 271-0688.

Expansions or redevelopment of areas with preexisting soil contamination problems should be evaluated to determine whether changes to the surface or underlying soils will release existing contamination to groundwater. Environmental assessment standards and guidance for evaluating “brownfield” conditions can be obtained from the American Society of Testing and Materials (ASTM) or the US EPA. See EPA’s Brownfield’s website at <http://www.epa.gov/brownfields/>.

The UNH Stormwater Center suggests maintaining a minimum of 3 to 4 feet of vertical separation (undisturbed soil) distance between the bottom of stormwater infiltration or unlined filtration practices and the average seasonal high water table, and five feet of separation when the practice is in a sole source aquifer

¹¹ Developing Your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators (US EPA, Feb 2009), online at http://www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf

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- C. Animal manures, fertilizers, and compost must be stored in accordance with Manual of Best Management Practices for Agriculture in New Hampshire, NH Department of Agriculture, Markets, and Food, (June 2011) and any subsequent revisions;
- D. All regulated substances stored in containers with a capacity of five gallons or more must be stored in product-tight containers on an impervious surface designed and maintained to prevent flow to exposed soils, floor drains, and outside drains;
- E. Facilities where regulated substances are stored must be secured against unauthorized entry by means of a door and/or gate that is locked when authorized personnel are not present and must be inspected weekly by the facility owner;
- F. Outdoor storage areas for regulated substances, associated material or waste must be protected from exposure to precipitation and must be located at least 50 feet from surface water or storm drains, at least 75 feet from private wells, and outside the sanitary protective radius of wells used by public water systems;
- G. Secondary containment must be provided for outdoor storage of regulated substances in regulated containers and the containment structure must include a cover to minimize accumulation of water in the containment area and contact between precipitation and storage container(s);
- H. Containers in which regulated substances are stored must be clearly and visibly labeled and must be kept closed and sealed when material is not being transferred from one container to another;
- I. Prior to any land disturbing activities, all inactive wells on the property, not in use or properly maintained at the time the plan is submitted, shall be considered abandoned and must be sealed in accordance with We 604 of the New Hampshire Water Well Board Rules.
- J. Blasting activities shall be planned and conducted to minimize groundwater contamination. Excavation activities should be planned and conducted to minimize adverse impacts to hydrology and the

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NH Department of Agriculture, Markets and Food (DAMF) may be consulted to help determine whether a particular facility is in compliance with the agriculture BMPs. NH DAMF may order property owners to develop a nutrient management plan when state BMPs related to manure or fertilizers are not followed and RSA 431:35 authorizes local health authorities and NHDES to enforce the plan.

Five performance standards (D through H) are based on Env-Wq 401, Best Management Practices for Groundwater Protections, which apply in all areas of the state. However, the state rules apply only to containers used at businesses considered Potential Contamination Sources that purchase, store or handle regulated substances in containers five gallons or larger in capacity. The advantages of including these standards here are:

- they are enforceable on the local level;*
- owners are put on notice that the rules apply;*
- they apply to a broader range of uses and activities;*
- they apply to small containers as well as large;*
- there is a process to ensure initial compliance (for uses that come under planning board review; and*
- the planning board may require a performance bond to ensure compliance (for conditional uses).*

The presence of a five-gallon (or larger) container for regulated substances makes a facility subject to this ordinance, but performance standards E through H apply to all regulated substances containers at those facilities, even if they are smaller than five gallons.

The purpose of the New Hampshire Well Water Board's rule (We-604) concerning sealing abandoned wells is to prevent contaminants from groundwater through unsealed, abandoned wells. Prior to development or redevelopment activities, inactive wells should be identified and determined to be in compliance with the NH Well Board's We 604 rule. For more information about Well Water Board rules contact 271-1974.

Municipalities have the authority to regulate excavations under RSA 155-E and may require blasting plans. NHDES guidance includes recommended BMPs and model regulatory language within WD-10-12 Rock Blasting and Water Quality Measures That Can Be Taken To Protect Water Quality and Mitigate Impacts (2010) or contact 271-0660 for more information.

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dewatering of nearby drinking water supply wells

- K. All transfers of petroleum from delivery trucks and storage containers over five gallons in capacity shall be conducted over an impervious surface having a positive limiting barrier at its perimeter.¹²

VII. Spill Prevention, Control and Countermeasure (SPCC) Plan

Conditional uses, as described under Article X, part (A), using regulated substances shall submit a spill control and countermeasure (SPCC) plan to the [Fire Chief, Health officer or Emergency Management officer] who shall determine whether the plan will prevent, contain, and minimize releases from ordinary or catastrophic events such as spills, floods or fires that may cause large releases of *regulated substances*. It shall include:

- 1) A description of the physical layout and a facility diagram, including all surrounding surface waters and wellhead protection areas.
- 2) Contact list and phone numbers for the current facility response coordinator(s), cleanup contractors, and all appropriate federal, state, and local agencies who must be contacted in case of a release to the environment.
- 3) A list of all regulated substances in use and locations of use and storage;
- 4) A prediction of the direction, rate of flow, and total quantity of regulated substance that could be released where experience indicates a potential for equipment failure.
- 5) A description of containment and/or diversionary structures or equipment to prevent regulated substances from infiltrating into the ground.
- 6) List of positions within the facility that require training to respond to spills of regulated substances.

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Fuel transfers must be conducted over an impervious surface per Env-Wq 401.05(b) and should have a containment barrier (e.g., berm, lip) at the perimeter to contain the "most likely" volume that may be spilled. See NHDES Fact Sheet WD-DWGB 22-6 Best Management Practices for Fueling and Maintenance of Excavation and Earthmoving Equipment for guidance.

See Appendix B or view the US Gov. Printing Office website for a full listing of regulated substances:
http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr302_00.html

Current contact information for facility response coordinators is vital to public safety and emergency clean-up efforts so that responders can quickly assess the situation and nature of the substances on-site. NHDES Spill Response should be notified of spills involving more than 25 gallons, and any spill that enters a waterway.

Article VII requires an SPCC plan for those conditional uses with more than 55 gallons or 660 lbs of a regulated substance on-site. This extends the state's current requirement for SPCC plans by applying it to all regulated substances and lowering the quantities required on-site to necessitate an SPCC plan. NHDES requires only facilities that store oil in an aggregate capacity of greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons to prepare an SPCC plan.

Containment or diversionary structures should be located on plans and include: dikes, berms, retaining walls, curbing, culverts, gutters, or other drainage systems; weirs, booms, or other barriers; spill diversion ponds; retention ponds; catch basin covers, and sorbent materials.

¹² A positive limiting barrier (PLB) is a depression (e.g., groove) in the surface of an otherwise level impervious area designed to impede the flow and contain spilled substances within the perimeter of the impervious area. PLBs are typically constructed and maintained to contain small spills or releases (five to fifteen gallons).

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- 7) Prevention protocols that are to be followed after an event to limit future large releases of any regulated substance.

VIII. PERMITTED USES

All uses permitted by right or allowed by special exception in the underlying district are permitted in the Groundwater Protection District unless they are Prohibited Uses or Conditional Uses. All uses must comply with the Performance Standards unless specifically exempt under Article XII.

IX. PROHIBITED USES

The following uses are prohibited in the Groundwater Protection District.

- A. The development or operation of a solid waste landfill;
- B. The outdoor storage of road salt or other deicing chemicals in bulk;
- C. The development or operation of a junkyard;
- D. The development or operation of a snow dump;
- E. The development or operation of a wastewater or septage lagoon;
- F. The development or operation of a petroleum bulk plant or terminal;
- G. The development or operation of gasoline stations.

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No Planning Board review is required unless such review is triggered by other provisions such as site plan or subdivision review.

This model ordinance includes two regulatory approaches to protecting important groundwater: prohibiting high-risk land uses and ensuring that other land uses comply with performance standards. The short list (A-G in Article IX) of prohibited uses assumes that the municipality has the personnel resources to review development proposals, inspect construction activities, and ensure continuing post-construction compliance through periodic facility inspections. Without inspections to ensure continuing compliance with performance standards, this short list of prohibited uses does not provide a significant level of protection.

*Parts A-F of this section prohibit the same uses listed in RSA 485-C:12, Prohibited Uses in GAA (groundwater) classified areas with the exception of hazardous waste disposal facilities, as defined under RSA 147-A, and gasoline stations. New hazardous waste disposal facilities may be prohibited from specific locations through state reclassification to GAA. Otherwise, municipal regulation of the location of a hazardous waste disposal facility is preempted by state permitting authority. See *Stablex v. Hooksett*, 122 N.H. 1091 (1982)*

If the municipality does not plan to carry out an inspection program, the list of prohibited uses should be expanded. See Appendix C.

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X. CONDITIONAL USES

The Planning Board may grant a Conditional Use Permit for a use which is otherwise permitted in the underlying district, if the permitted use is involved in one or more of the following:

- A. Storage, handling, and use of regulated substances in quantities exceeding 55 gallons or 660 pounds dry weight at any one time, provided that an adequate spill prevention, control and countermeasure (SPCC) plan, in accordance with Article VII, is approved by the [local Fire Department, Health officer or Emergency Management officer];
- B. Any use that will render impervious more than 15 percent or 2,500 square feet of any lot, whichever is greater.
- C. Any activities that involve blasting of bedrock.

In granting such approval the Planning Board must first determine that the proposed use is not a prohibited use (as listed in Article IX of this Ordinance) and will be in compliance with the Performance Standards in Article VI as well as all applicable local, state and federal requirements. The Planning Board may, at its discretion, require a performance guarantee or bond, in an amount and with surety conditions satisfactory to the Board, to be posted to ensure completion of construction of any facilities required for compliance with the Performance Standards.

XI. EXISTING NON-CONFORMING USES

Existing non-conforming uses may continue without expanding or changing to another non-conforming use, but must be in compliance with all applicable state and federal requirements, including Env-Wq 401, Best Management Practices Rules.

EXPLANATORY NOTES

RSA 674:21(II) states that an innovative land use control ordinance may provide for the granting of conditional or special use permits by any of several different municipal authorities, including planning boards. While planning boards are typically more experienced at reviewing and determining appropriate conditions for various land uses, it may be desirable to substitute some other authority, such as the Zoning Board of Adjustment.

The SPCC plan should be required when a land use activity has the potential to result in a large spill. According to the Pipeline and Hazardous Materials Safety Administration's Emergency Response Guidebook, large spills are considered to involve volumes greater than 55 US gallons (208 liters) for liquids and those exceeding 660 pounds (300 kilograms) for solids with regard to initial isolation and protection action distances.

Facilities that store and use regulated substances only in containers smaller than five gallons are exempt from the ordinance; other facilities are subject to inspections per Article XIV; and amounts exceeding 55 gallons/660 pounds require a conditional use permit.

The applicability of the performance guarantee or bond is limited to apply only to the construction of facilities, such as dikes, berms or stormwater treatment facilities, so that the bond can be released once the facilities are constructed in compliance with the Performance Standards. In order to determine the amount of the guarantee or bond, the Planning Board generally will have to retain a consulting engineer to estimate the cost of building the required structures. The Planning Board will also need to consult with legal counsel to ensure that the city/town obtains the authority to enter the property in order to complete construction of the required structures if necessary. The Conditional Use Permit should reference approved plans so that it is clear what conditions are necessary for the Board to release the bond.

Pre-existing, non-conforming structures and uses are generally exempt from new zoning requirements under RSA 674:19, however existing and new uses must follow state BMP rules. Non-compliance with state BMPs per Env-Wq 401 that are similarly stated within the Performance Standards section of this model ordinance can be enforced at pre-existing non-conforming uses by the local health officer under RSA 485-C or RSA 147 if the non-compliance is considered an immediate public health threat, e.g., a nuisance.

See the fact sheets in Appendix A for a summary of Best Management Practices Rules and the facilities to which they apply.

XII. EXEMPTIONS

The following uses are exempt from the specified provisions of this ordinance as long as they are in compliance with all applicable local, state, and federal requirements:

- A) Any private residence is exempt from all Performance Standards;
- B) Any business or facility where regulated substances are stored in containers with a capacity of less than five gallons is exempt from Article VI, Performance Standards, sections E through H;
- C) Storage of heating fuels for on-site use or fuels for emergency electric generation, provided that storage tanks are indoors on a concrete floor or have corrosion control, leak detection, and secondary containment in place, is exempt from Performance Standard E;
- D) Storage of motor fuel in tanks attached to vehicles and fitted with permanent fuel lines to enable the fuel to be used by that vehicle is exempt from Performance Standards E through H;
- E) Storage and use of office supplies is exempt from Performance Standards E through H;
- F) Temporary storage of construction materials on a site where they are to be used is exempt from Performance Standards E through H if incorporated within the site development project within six months of their deposit on the site;;
- G) The sale, transportation, and use of pesticides as defined in RSA 430:29 XXVI are exempt from all provisions of this ordinance;
- H) Household hazardous waste collection projects regulated under NH Code of Administrative Rules Env-Hw 401.03(b)(1) and 501.01(b) are exempt from Performance Standards E through H;
- I) Underground storage tank systems and aboveground storage tank systems that are in compliance with applicable state rules are exempt from inspections under Article XIV of this ordinance.

Residences and exempt businesses may still pose a risk of groundwater contamination from relatively small releases of regulated substances. These properties should be addressed by a public education program that includes periodic distribution of educational fliers (see example in Appendix E). For more information or assistance concerning public education and media resources available for your community, contact NHDES at 271-0688.

Note that propane and liquefied gas fuels are not regulated under this ordinance; they are excluded from the definition of "Regulated Substance" because they do not pose a groundwater contamination hazard by virtue of their volatility.

The municipality may wish to define temporary in terms of a certain number of months.

RSA 430:49 prohibits local governments from regulating the registration, sale, transportation, or use of pesticides.

To determine whether a storage tank system is in compliance with state rules, the municipality may contact NHDES at 271-3644. See the UST and AST fact sheets in Appendix A. The presence of a UST/AST system in compliance does not exempt the rest of the business or facility from inspections.

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XIII. RELATIONSHIP BETWEEN STATE AND LOCAL REQUIREMENTS

Where both the State and the municipality have existing requirements the more stringent shall govern.

XIV. MAINTENANCE AND INSPECTION

- A. For uses requiring planning board approval for any reason, a narrative description of maintenance requirements for structures required to comply with Performance Standards shall be recorded so as to run with the land on which such structures are located, at the Registry of Deeds for [name of county] County. The description so prepared shall comply with the requirements of RSA 478:4-a.

- B. Inspections may be required to verify compliance with Performance Standards. Such inspections shall be performed by the [designated agent] at reasonable times with prior notice to the landowner.

- C. All properties in the Groundwater Protection District known to the [designated agent] as using or storing regulated substances in containers with a capacity of five gallons or more, except for facilities where all regulated substances storage is exempt from this Ordinance under Article XII, shall be subject to inspections under this Article.

- D. The [governing body] may require a fee for compliance inspections. The fee shall be paid by the property owner. A fee schedule shall be established by the [governing body] as provided for in RSA 41-9:a.

XV. ENFORCEMENT PROCEDURES AND PENALTIES

EXPLANATORY NOTES

Articles XIII, XV, and XVI are usually included in an existing ordinance and may not be necessary to be incorporated if this ordinance is adopted as an amendment. Enforcement procedures, penalties and violations should conform to existing municipal requirements and statutory procedures. However, including the reference to inspections, would serve to put business owners on notice that inspections will be conducted.

The provision for recording maintenance requirements on the deed serves to put future property owners on notice that they are subject to these requirements. It applies to any structure associated with any facility that comes under planning board review, not only those that require a conditional use permit under this ordinance.

In order to achieve the goals of this ordinance, inspections should be performed at least once every three years. The municipality may wish to perform inspections in the entire groundwater protection district or only in areas considered most sensitive, most vulnerable, or most valuable.

The term "designated agent" should be replaced with the appropriate person's title, such as Code Enforcement Officer, if such a position exists. If not, the governing body may wish to designate some other town official and include a definition of the term "designated agent." (The person designated by the [governing body] to carry out its inspection and enforcement role with respect to this ordinance.)

The term "governing body" should be replaced with the name of the governing body, e.g., Selectmen, City or Town Council.

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Any violation of the requirements of this ordinance shall be subject to the enforcement procedures and penalties detailed in RSA 676 or RSA 485-C.

XVI. SAVING CLAUSE

If any provision of this ordinance is found to be unenforceable, such provision shall be considered separable and shall not be construed to invalidate the remainder of the ordinance.

XVII. EFFECTIVE DATE

This ordinance shall be effective upon adoption by the legislative body.

EXPLANATORY NOTES

Municipal enforcement procedures and penalties to address violations of local ordinances are enumerated under the Penalties and Remedies subdivision of RSA 676, specifically Fines and Penalties (676:17), Cease and Desist Orders (676:17-a) and Local Land Use Citations (676:17-b). RSA 485-C:16 through 485-C:19 establish the authority for NHDES and local authorities to issue cease and desist orders, impose administrative fines and related penalties.

Appendix A

NHDES Groundwater Protection Fact Sheets

WD-DWGB-22-1	The NH Groundwater Protection Act: An Overview
WD-DWGB-22-2	Local Reclassification of Groundwater to Implement Protection Programs: A Seven Step Process
WD-DWGB-22-3	Groundwater Reclassification and How It Affects the Property Owner
WD-DWGB-22-4	Best Management Practices (BMPs) for Groundwater Protection
WD-DWGB-22-5	Source Control Programs Required for Infiltration of Stormwater at Industrial and Petroleum-Related Facilities
WD-DWGB-22-6	Best Management Practices for Fueling and Maintenance of Excavation and Earth Removal Equipment
WD-DWGB-22-8	Holding Tanks for Floor Drains
WD-DWGB-22-9	Protecting Groundwater from Floor Drains and Other Typical Discharges
WD-DWGB-22-10	Wastewater Discharges from Vehicle Washing
WD-DWGB-22-20	Preventing Groundwater Contamination at Gas Stations - What Municipalities and Water Suppliers Can Do

ENVIRONMENTAL Fact Sheet



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WD-DWGB-22-1

2011

The N.H. Groundwater Protection Act: RSA 485-C An Overview

Sixty percent of New Hampshire's residents are dependent on groundwater for their drinking water supplies. New Hampshire's Groundwater Protection Act, passed in 1991, authorizes DES to regulate large groundwater withdrawals and commercial discharges of wastewater, establishes best management practices that must be employed by activities that are considered potential contamination sources, creates four classes of groundwater (Table 1), establishes groundwater quality standards, and enables local entities, such as water suppliers and town boards, to play a role in actively managing activities having the potential to contaminate valuable groundwater.

Preventing Contamination of Groundwater

Potential contamination sources (PCSs) are activities that use significant quantities of substances that have the potential to contaminate groundwater and/or affect human health. DES has established best management practices (BMPs), codified in Env-Wq 401, involving the use, transfer or storage of regulated substances in containers having a capacity of five or more gallons. The BMPs must be employed by all PCSs in the state.

The act establishes four classes of groundwater: GAA, GA1, GA2 and GB.

Table 1. CLASSES OF GROUNDWATER

Class	Local Inspection Of PCSs	Description/Comments
GAA	Yes	<ul style="list-style-type: none">• Most protected class• Includes groundwater flowing to public water supply wells (wellhead protection areas).• Prohibits six high risk land uses
GA1	Yes	<ul style="list-style-type: none">• Local entities identify valuable groundwater resources they want to protect via management of potential contamination sources.
GA2	No	<ul style="list-style-type: none">• Includes high-yield stratified drift aquifers mapped by the USGS that are potentially valuable sources of drinking water.
GB	No	<ul style="list-style-type: none">• Includes all groundwater not in a higher classification. As in all classes, groundwater must meet drinking water quality standards.

Under the act, all areas were initially classified as GA2 or GB. Wellhead protection areas and other valuable groundwater may be reclassified to Classes GAA or GA1, with both DES and the local entity (typically the municipality or water supplier) taking on specific responsibilities to prevent groundwater contamination in the reclassified areas. (See Table 1.) For guidance

concerning how to reclassify important groundwater resources, download DES's Guide to Groundwater Reclassification at <http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-24.pdf> or contact the groundwater reclassification program manager at (603) 271-0688.

DES's fact sheet WD-DWGB-22-2 Local Reclassification of Groundwater to Implement Protection Programs: A Six Step Process, provides a summary of the process and is available online at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm> .

The DES Groundwater Discharge Permitting and Registration Program regulates commercial discharges to groundwater to minimize improper disposal of waste and wastewater containing solvents, petroleum products and other industrial and commercial wastes. All discharges of non-domestic wastewater to the ground must be registered with, and in some cases permitted by, the DES Water Division. In all cases state rules prohibit any discharge of non-domestic wastewater containing regulated contaminants above ambient groundwater quality standards established under the act. For more information visit the program's webpage at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge/index.htm.

Preventing Unacceptable Impacts from Groundwater Withdrawals

To address concerns about the impacts of groundwater withdrawals, the act, along with the N.H. Safe Drinking Water Act, was amended in 1998 to give DES the authority to regulate groundwater withdrawals in excess of 57,600 gallons over a 24-hour period. The act ensures that no adverse impacts to water users or groundwater-dependent natural resources will occur. Adverse impacts as defined under the act include reducing the withdrawal capacity of private and public water supply wells, reducing river flows below acceptable levels established pursuant to the Rivers Management and Protection Act, or altering the flow or movement of any existing groundwater contamination. For more information concerning large groundwater withdrawals, see WD-DWGB-22-15, Large Groundwater Withdrawal Permitting Process for Major Projects at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm> .

The New Hampshire Groundwater Protection Act is available online at www.gencourt.state.nh.us/rsa/html/indexes/485-C.html or you may contact the DES Source Water Protection Program, (603) 271-0688.

Note: This fact sheet is accurate as of December 2011. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

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WD-DWGB-22-2

2011

Local Reclassification of Groundwater To Implement Protection Programs: A Six-Step Process

Groundwater reclassification, established under RSA 485-C, is a process to provide greater protection to land areas contributing water to public water systems or to other locally-important groundwater resources. Reclassification is initiated by a “local entity” which may include a water supplier, city or town, village district, or other duly constituted municipal unit, e.g., planning board, conservation commission.

The primary benefit of reclassification is increased safety of water supply resources (public water supply wells, aquifers) in the area that has been reclassified. With reclassification, the local entity conducts education efforts and inspections to monitor compliance with best management practices (BMPs) rules that apply to regulated substances, such as gasoline and oil, in Env-Wq 401, Best Management Practices for Groundwater Protection.

DES can provide technical assistance to complete the reclassification process including a map of potential contamination sources (PCSs) as well as delineations of wellhead protection areas and other important groundwater resources. For information on how reclassification can affect property use, see fact sheet WD-DWGB-22-3 “Groundwater Reclassification and How it Effects the Property Owner” at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>.

STEP ONE: Identify the Area to Protect – The local entity must identify the groundwater protection area to be reclassified. DES has delineated wellhead protection areas (WHPAs) for all community and non-transient public water supply wells. The local entity needs to identify which WHPAs are to be reclassified to GAA, and/or other areas to be reclassified GA1. GA1 delineations have utilized watershed boundaries, USGS aquifer transmissivity maps or even political boundaries to determine the extent of the area of locally important groundwater.

STEP TWO: Inventory, Visit and Verify Potential Contamination Sources (PCSs) Located in

Delineated Area – The PCS inventory is performed by the local entity requesting reclassification and must include information as listed in RSA 485-C:8. DES maintains a PCS database that can provide partial listings of PCSs and maps at <http://www2.des.state.nh.us/OneStop/>. This information can be used as a starting point for inventory inspections. However, the PCS inventory must be verified and completed locally, and this is typically done through onsite inspections or drive-by (windshield) surveys and phone calls. The purpose of the inspection or phone call is to ensure that all PCSs in the inventory use, handle, store, or dispose of

Groundwater Classifications

<i>Class</i>	<i>Description</i>
GAA	Delineated Wellhead Protection Areas. Prohibits new and monitors existing high risk uses, e.g. landfills.
GA1	Groundwater of high value for present or future drinking water. No prohibitions.
GA2	Potentially high-yielding stratified drift aquifers. No active management.
GB	All groundwater not assigned to a higher class. No active management.

regulated substances. If they do not, they should be taken off the inventory. The local entity must submit a current PCS inventory and map to DES as part of the reclassification application.

STEP THREE: Hold an Informational Meeting (optional) – The purpose of this meeting is to inform the public of the intention to implement a protection program. The meeting is optional, but if the meeting is held the following information must accompany the reclassification request: date and location of meeting, number of people who attended, locations of two public notification postings, name of local newspaper in which notice was published, and a summary of the required information that was presented at the meeting as per Env-Dw 901.13.

STEP FOUR: Describe the Management Program – Developed by the local entity requesting reclassification, the local management program identifies the process that will be utilized for updating the inventory, notifying PCSs (at intervals not to exceed three years), and performing inspections for compliance with the BMP rules under Env-Wq 401. In addition, the management program provides names and addresses of all landowners in the area to be reclassified and a list of all facilities, which have or would need to obtain DES release detection permits issued under the Groundwater Release Detection Permit Rules, Env-Or 700. It also includes an assessment of the local entity's ability to implement and maintain the protection program authorized by reclassification. The required elements of the management program are defined and listed under Env-Dw 901.16.

STEP FIVE: Submit a Request to Reclassify Groundwater to DES – This request, submitted by the local entity requesting reclassification, is accomplished by submitting a request form to DES with the information completed in Steps 1 through 4. The application form and a checklist of items that must accompany the reclassification request is available at <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/reclassification/index.htm>.

After acknowledging receipt of the completed reclassification request, DES must notify all landowners of record and the town or city clerk of all affected municipalities. DES will then schedule a public hearing. DES must provide notice 30 days in advance of a public hearing to all landowners within the area to be reclassified. After the hearing, the DES commissioner approves or denies the reclassification request. If the request is denied, DES must notify the local entity and provide a written summary of the reasons for denial.

STEP SIX: Following DES Approval, Implement the Local Management Program – Every three years the local entity must update the PCS inventory, notify PCS owners per RSA 485-C:8 III(b), and conduct PCS inspections. If the local entity fails to implement and/or maintain the protection program authorized by reclassification, the groundwater could be reclassified to class GA2 or GB, which do not contain inspection and enforcement authorities.

For Additional Information

For more information on groundwater reclassification, see <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/reclassification/index.htm>. For guidance concerning how to reclassify important groundwater resources, download the DES Guide to Groundwater Reclassification at <http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-24.pdf>, or contact the program manager at (603) 271-0688.

To learn more about drinking water and groundwater resources, contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov, or go online at <http://des.nh.gov/organization/divisions/water/dwgb/index.htm>. All of the bureau's fact sheets are on-line at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>.

Note: This fact sheet is accurate as of December 2010. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

WD-DWGB-22-3

2011

Groundwater Reclassification and How It Affects the Property Owner

What is groundwater reclassification?

Under New Hampshire state law, RSA 485-C, all groundwater is classified into one of four categories: GAA, GA1, GA2 and GB. (See Table 1) Typically, groundwater reclassification involves designating an area for a higher level of protection because it contributes groundwater to a public water system or represents an area of high value groundwater for present or future water supply. Reclassification is initiated by a local entity—usually a municipality or public water supplier—but can also be initiated by DES. The primary benefit of reclassification is increased safety of water supply wells by limiting six high risk land uses and/or instituting local inspection of potential contamination sources within the area that has been reclassified.

Table 1 Groundwater Classifications	
Class	Description
GAA	<ul style="list-style-type: none"> • Delineated Wellhead Protection Areas • Prohibits new and monitors existing high risk uses (e.g., landfills) • Authorizes active management on local level
GA1	<ul style="list-style-type: none"> • Groundwater of high value for present or future drinking water • No land use prohibitions • Authorizes active management on local level
GA2	<ul style="list-style-type: none"> • Potentially valuable stratified drift aquifers defined by USGS • No land use prohibitions • No active management
GB	<ul style="list-style-type: none"> • All groundwater not assigned to a higher class • No land use prohibitions • No active management

What is the local role?

A local entity begins the reclassification process by identifying wellhead protection areas and/or other locally important groundwater resources to reclassify to GAA or GA1 respectively from a classification offering less protection, e.g., GA2 or GB. Within the areas to be reclassified, the local entity must develop and maintain an inventory of potential contamination sources (PCSs) that use, store, or handle regulated substances in greater-than-household quantities. The local entity must develop a PCS management program that regularly provides notice and information concerning best management practices and conducts inspections of PCS facilities within GAA or GA1 reclassified areas. The

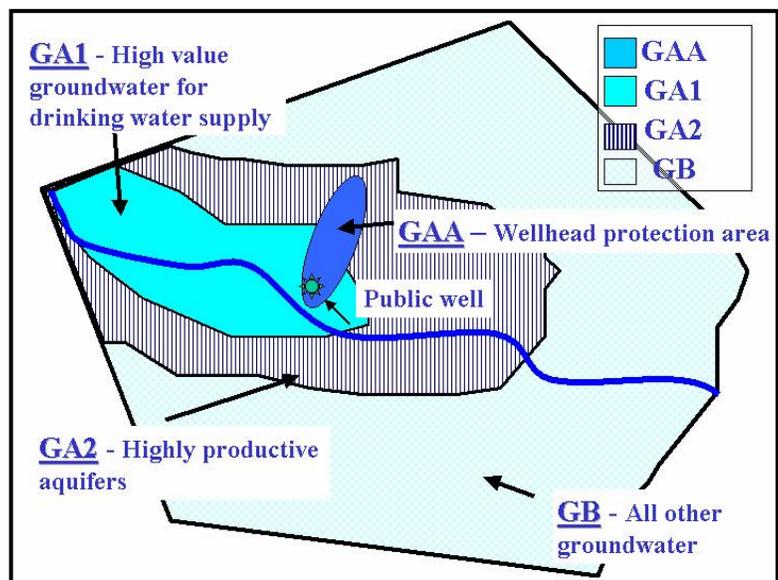


Figure 1. Example of Groundwater Reclassification Zones.

PCS inventory and management plan are submitted as part of a reclassification application to DES.

What is the state’s role?

DES assists local entities to prepare applications for groundwater reclassification and then determines whether the application is complete and in compliance with applicable laws and regulations, specifically RSA 485-C, the Groundwater Protection Act, and Administrative Rule Env-Dw 901, Groundwater Reclassification rules. Once the reclassification application is determined to be complete, DES holds a public hearing to hear comments on the proposed reclassification. DES considers the public comments and either approves or denies the application. If the reclassification request is approved, DES continues to assist the local entity to implement its PCS management program.

How does the local entity manage potential contamination sources?

PCS management is accomplished primarily by providing educational materials and copies of BMP rules and conducting on-site inspections of PCS facilities at least once every three years. The educational materials and rules assist PCS managers to implement proper storage, handling, and transfer of regulated substances that can pose a threat to groundwater quality and public health. In addition, the local entity inspects PCSs (see Table 2) to make sure they are complying with best management practices (BMP) rules that address proper storage, handling, and disposal of regulated substances. The BMPs are defined in Administrative Rule Env-Wq 401, Best Management Practices for Groundwater Protection.

Table 2 Potential Contamination Sources Subject to BMP Compliance Inspections
Vehicle service and repair shops
General service and repair shops
Metalworking shops
Manufacturing facilities
Waste and scrap processing and storage
Laboratories and certain professional offices (medical, dental, veterinary)
Salt storage and use
Cleaning services
Food processing plants
Fueling and maintenance of earth moving equipment
Concrete, asphalt, and tar manufacture
Hazardous waste facilities

Does reclassification mean more regulation? Does it limit what I can do on my property?

Land Use Restrictions: In wellhead protection areas reclassified to GAA, six high-risk land uses are prohibited: hazardous waste disposal facilities, solid waste landfills, outdoor bulk storage of road salt, junkyards, snow dumps, and wastewater or septage lagoons. In New Hampshire, all PCSs that use regulated substances in regulated containers (equal to or exceeding five gallons) are required to comply with the BMP rules. The difference is that in reclassified areas local resources are committed to regularly checking to ensure compliance. *Residential properties are not subject to Env-Wq 401 nor are businesses that use small quantities of regulated substances (e.g., less than five gallons).*

Monitoring Requirements: Prohibited land uses (listed above) that already operate within a GAA area may continue but must obtain a Groundwater Release Detection permit from DES and, as part of that permit, regularly monitor groundwater. This is also required for any new solid waste composting or resource recovery facility.

Who has the authority to enforce the rules?

The local entity electing to reclassify areas to GAA or GA1 has the authority to enforce the BMP rules. The enforcement process, which emphasizes education and a common-sense approach to preventing groundwater contamination, is designed to encourage compliance with the rules rather than resort to fines. However, a PCS owner may be subject to fines and other state and local enforcement action if BMP rule violations are not corrected within a reasonable period of time following notification. DES has the

authority to enforce the rules statewide but concentrates on assisting local entities in developing and implementing groundwater protection programs.

For Additional Information

For more information on groundwater reclassification, visit DES's Groundwater Reclassification webpage at <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/reclassification/index.htm>. For guidance concerning how to reclassify important groundwater resources, download DES's Guide to Groundwater Reclassification (2011) at <http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-24.pdf> or contact the program manager at (603) 271-0688.

For other water supply information, please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit the bureau's webpage at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>. All of the bureau's fact sheets are online at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>.

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ENVIRONMENTAL Fact Sheet



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WD-DWGB 22-4

2009

Best Management Practices (BMPs) for Groundwater Protection

Sixty percent of New Hampshire residents rely primarily on groundwater for their drinking water. Recognizing the importance of protecting the natural quality of groundwater, the legislature passed the Groundwater Protection Act (RSA 485-C) in 1991. This legislation recognized that a wide variety of activities involve the use of materials that can, if not properly handled, contaminate groundwater. There have been numerous instances of groundwater contamination in New Hampshire from leaking storage facilities, improper waste disposal, accidental spills, and even from normal use of these materials. Potentially contaminating substances can be more safely managed if certain basic guidelines are followed. The Groundwater Protection Act directed the N.H. Department of Environmental Services to adopt rules specifying best management practices (BMPs) for the Potential Contamination Sources (PCSs) listed below.

DES developed and adopted N.H. Code of Administrative Rules Part Env-Wq 401 Best Management Practices for Groundwater Protection, (formerly Env-Ws 421) which apply to all potential contamination sources in the state. The BMPs within the rules are essentially common-sense operating practices that are simple and economical to implement. The purpose of the BMPs is to help prevent a release of regulated substances. Regulated substances include oil, as defined under RSA 146-A, III, regulated contaminants established pursuant to RSA 485-C:6, and hazardous substances listed under federal regulations at 40 CFR 302. Cleaning up the release of a regulated substance can be very expensive. Following the BMP rules reduces environmental liability and minimizes potential cleanup costs.

Potential Contamination Sources (PCSs) ¹	
<ul style="list-style-type: none"> • Vehicle service and repair shops • General service and repair shops • Metalworking shops • Manufacturing facilities • Underground and above-ground storage tanks • Waste and scrap processing and storage • Transportation corridors • Septic systems (at commercial and industrial facilities) • Laboratories and certain professional offices (medical, dental, veterinary) 	<ul style="list-style-type: none"> • Use of agricultural chemicals² • Salt storage and use • Snow dumps • Stormwater infiltration ponds or leaching catch basins • Cleaning services • Food processing plants • Fueling and maintenance of earth moving equipment • Concrete, asphalt, and tar manufacture • Cemeteries • Hazardous waste facilities
<p>¹As identified in New Hampshire's Groundwater Protection Act (RSA 485-C)</p> <p>²Subject to BMPs developed and administered by NH Dept. of Food, Agriculture, and Markets</p>	

Summary of BMP for Groundwater Protection Rules

Storage

- Store regulated substances on an impervious surface.
- Secure storage areas against unauthorized entry.
- Label regulated containers clearly and visibly.
- Inspect storage areas weekly.
- Cover regulated containers¹ in outside storage areas.
- Keep regulated containers that are stored outside more than 50 feet from surface water and storm drains, 75 feet from private wells, and up to 400 feet from public wells.
- Secondary containment is required for regulated containers stored outside, except for on-premise use heating fuel tanks, or aboveground or underground storage tanks otherwise regulated.

Handling

- Keep regulated containers closed and sealed.
- Place drip pans under spigots, valves, and pumps.
- Have spill control and containment equipment readily available in all work areas.
- Use funnels and drip pans when transferring regulated substances; perform transfers over impervious surface.

Release Response Information

- Post information on what to do in the event of a spill.

Floor Drains and Work Sinks

- Cannot discharge into or onto the ground.

¹Regulated container means any device in which a regulated substance is stored, transported, treated, disposed of, or otherwise handled, with a capacity of five gallons or more. The term does not include fuel tanks attached to and supplying fuel to a motor vehicle.

For more information on best management practices for groundwater protection visit the DES Drinking Water Source Protection webpage at <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/index.htm>, or contact the NH Department of Environmental Services at (603) 271-2947 or (603) 271-0688.

Disclaimer: Statutory information contained in this fact sheet is current as of February 2, 2007. Statutory or regulatory changes that may occur after February 2, 2007, may cause part or all of the information to be invalid. If there are any questions concerning the status of the information, please contact DES at (603) 271-3644.

WD-DWGB-22-5

2010

Developing A Source Control Plan for High-Load Areas

Applicability

When land use development requires a DES Alteration-of-Terrain (AoT) permit and involves certain activities that release hydrocarbons, metals, or suspended solids in concentrations greater than typically found in stormwater runoff, a source control plan is required. Land use activities, such as petroleum storage, fuel dispensing areas and hazardous waste facilities often have areas (e.g. fuel transfer or loading zones) for activities that may expose “regulated substances” (e.g. oil, gasoline) to precipitation or mix with relatively clean stormwater runoff. These areas are referred to as “High-Load Areas” under the AoT regulations. Sites with no regulated substances being used or demonstrating through the use of best management practices (BMPs) no contact between regulated substances and precipitation/ runoff from any portion of the site do not need to develop a source control plan.

Required Content for a Source Control Plan

A source control plan developed for High-Load Areas must include a narrative and map(s) describing the use of structural and/or non-structural BMPs to minimize the volume of stormwater coming in contact with regulated substances. BMPs related to the storage, transfer and handling of regulated substances should be consistent with Env-Wq 401, Best Management Practices for Groundwater Protection. (See Summary of Env-Wq 401 BMP below)

A source control plan must include the content described within AoT regulations (see Env-Wq 1504.07):

1. An overview of how source controls including structural or operational management practices will prevent or minimize the amount of regulated substances from mixing with clean stormwater.
2. A list of regulated substances expected to be present on the site in quantities of five gallons or more.
3. Groundwater Protection Areas, if any, within 1,000 feet of the site perimeter.
4. A plan depicting the drainage area with exposed regulated substances and the location(s) of stormwater practice(s) or discharge point(s) serving those areas, including latitude-longitude point(s) of the practice or discharge point(s) to within plus or minus 5 meters of

Table 1 High Load Areas Include the Following Land Use Activities per Env-Wq 1502.26
Industrial facilities subject to the NPDES Multi-Sector General Permit
Petroleum storage facilities
Petroleum dispensing facilities
Vehicle fueling facilities
Vehicle service, maintenance and equipment cleaning facilities
Fleet storage areas
Public works storage areas
Road salt facilities
Commercial nurseries
Non-residential facilities having uncoated metal roofs with a slope flatter than 20%
Facilities with outdoor storage, loading, or unloading of hazardous substances, regardless of the primary use of the facility
Facilities subject to chemical inventory under Section 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

the practice or discharge point.

5. The location(s) and containment method(s) to be employed for storage of regulated substances.
6. A plan depicting the location(s) where regulated substances will be handled, including the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.
7. A plan showing the location(s) of snow storage areas.
8. A description of spill prevention and control or containment measures.
9. A list of the phone numbers and mailing addresses of the owner of the facility.
10. A program of training to familiarize employees with the plan and to ensure its implementation.

Under AoT regulations, stormwater discharge, filtration/infiltration restrictions or additional design requirements apply to sites within certain high-value water supply resources areas. Source control plans should identify water supply well setbacks, Groundwater Protection Areas or Water Supply Intake Protection Areas and indicate how the plan complies with the restrictions or additional design requirements.¹ For a summary of the discharge restrictions and additional design requirements in these areas review Section 3-1 of the New Hampshire Stormwater Manual (Volume 2).

The source control plan is evaluated by DES as to whether the plan meets the following criteria:

- Source controls minimize the volume of stormwater coming into contact with regulated substances and segregate relatively clean stormwater from stormwater with a higher concentration of pollutants.
- Source controls and narrative on plan include necessary information required by Env-Wq 1507.04.
- BMPs applicable to regulated substances in regulated containers (greater than or equal to five gallons) are consistent with Env-Wq 401.
- Plan meets the discharge setbacks, restrictions and additional design requirements within water supply well setbacks, Groundwater Protection Areas and Water Supply Intake Protection Areas.

Summary of Env-Wq 401 BMP Requirements

Storage

- Store regulated substances on an impervious surface.
- Secure storage areas against unauthorized entry.
- Inspect storage areas weekly.
- Have secondary containment areas for outdoor storage that includes a cover.
- Keep containers stored outside more than 50 feet from surface water, 75 feet from private wells, and up to 400 feet from public water supply wells.
- Keep containers at least 50 feet from storm drains, if no secondary containment.
- Label containers clearly and visibly.

Handling

- Maintain good housekeeping practices, e.g., clean up of small spills, within High-Load Areas.
- Keep containers closed and sealed.
- Place drip pans under spigots, valves, and pumps.

¹ Groundwater Protection Areas and Water Supply Protection Areas may be located using DES's One Stop Web GIS after registration with DES. See <http://www2.des.state.nh.us/OneStop/>.

- Use funnels and drip pans when transferring regulated substances; perform transfers over impervious surfaces.

Spill and Release Response

- Employee training and information posted concerning response procedures in the event of a spill.
- Availability and capacity of spill control and containment equipment

Floor Drains and Work Sinks

- Cannot discharge into or onto the ground.

Env-Wq 401, Best Management Practices for Groundwater Protection can be reviewed online at <http://des.nh.gov/organization/commissioner/legal/rules/index.htm#envwq401>

Industry-Specific Requirements

In addition to the BMPs listed above, plans for industrial facilities must evaluate the appropriateness of industry-specific controls, and include provisions for the implementation of those that are found to be appropriate.

Consistency with Other Permits, Plans or Controls

Many land uses or activities already operate under local, state or federal permits that require pollution prevention controls, permits and/or plans. Source control plans should be consistent with other applicable permit requirements, plans or controls including Spill Prevention, Control, and Countermeasures plans (SPCCs) required under 40 CFR 112, National Fire Protection Association (NFPA) standards, specifically NFPA 30 Flammable and Combustible Liquids Code and Stormwater Pollution Prevention Plans (SWPPP) approved by U.S. EPA through the National Pollutant Discharge Elimination System (NPDES) program. EPA-approved SWPPPs may be submitted to the AoT program in lieu of a source control plan.

For Additional Information

For additional information, please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit www.des.nh.gov, click on A-Z List and choose Drinking Water and Groundwater Bureau. All of the bureau's fact sheets are on-line at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>.

Note: This fact sheet is accurate as of August 2010. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

ENVIRONMENTAL Fact Sheet



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WD-DWGB-22-6

2010

Best Management Practices for Fueling and Maintenance of Excavation and Earthmoving Equipment

Env-Wq 401, Best Management Practices for Groundwater Protection, applies to a variety of businesses and activities considered potential contamination sources under the Groundwater Protection Act, RSA 485-C. If you operate a *permanent* facility for fueling or maintenance of excavation or earthmoving equipment (or other vehicles), consult DES fact sheet WD-DWGB-22-4, Best Management Practices for Groundwater Protection. **If you fuel or maintain excavation or earthmoving equipment *in the field***, this fact sheet explains how to meet the requirements of the best management practices (BMP) rules. The BMP rules apply to “regulated containers” holding five or more gallons of a regulated substance, **which include motor fuels, lubricants, hydraulic fluids, other petroleum products, degreasers, and other substances that are capable of contaminating drinking water.**¹ The rules do not apply to petroleum storage tanks regulated under Env-Wm 1401 Underground Storage Facilities (USTs) or Env-Wm 1402 Control of Aboveground Petroleum Storage Facilities (ASTs), but may apply to the transfer of fuel or other petroleum products between ASTs/USTs and equipment or portable containers.

1. Store fuels and regulated substances in sealed, clearly labeled containers.

Regulated containers must be labeled (specifying contents), closed and sealed at all times, except to add or remove fluids.

2. Store regulated containers on a stable, level, impervious surface.

Regulated containers must be stored in such a way that they will not easily tip over. Fueling, fuel storage, and maintenance areas, where transfers of fuel/fluids or work on equipment or vehicles that might result in spills, must be located on level ground with an impervious floor surface constructed of concrete, asphalt, chemically compatible polymer material or any other impervious surface that will contain gas, oil or other fluids in use. If the facility is subject to Env-Wm 1402 (AST rules; see above) the impervious surface must be concrete. Impervious surfaces together with secondary containment barriers (e.g., tank vaults, positive limiting barriers, containment berms) can effectively contain spills or tank failures. Containers must not be stored on pervious surfaces (wood, soil) or otherwise come in contact with moist earth.

¹ Under Env-Wq 401, “Regulated substance” means any of the following, with the exclusion of ammonia, sodium hypochlorite, sodium hydroxide, acetic acid, sulfuric acid, potassium hydroxide, and potassium permanganate:

(1) Oil as defined in RSA 146-A:2, III; (2) Any substance that contains a regulated contaminant for which an ambient groundwater quality standard has been established pursuant to RSA 485-C:6; and (3) Any substance listed in 40 CFR 302, 7-1-05 edition.

3. Provide secondary containment around fuel storage containers and during transfers.

Secondary containment must be provided for all regulated containers and be in place during refueling activities involving transfers of fuel from “on-road” delivery trucks, “off-road” tank trucks (referred to as “mobile refuelers”) or portable containers to field equipment.

Option 1 (Mobile Fueling): This involves fueling earthmoving or excavation equipment from a tank truck or some other container that is moved around the site. Secondary containment equipment used during mobile fueling should be sized to contain the *most likely* volume of fuel to be spilled during a fuel transfer.² Portable containment equipment should be positioned to catch any fuel spills due to overfilling the equipment and any other spills that may occur at or near the fuel filler port to that equipment. The selection of containment equipment and its positioning and use should take into account all of the drip points associated with the fuel filling port and the hose from the fuel delivery truck.³ Personnel must attend to the fueling process to ensure that any spills will be of limited volume. See the diagram in Figure 1A and Attachment 1, photos A and B for examples of portable spill containment that may be used during mobile fuel transfers.

Option 2 (Fuel Storage and Transfer Areas): This involves fueling equipment in a fixed location on the site. Refueling containers (skid-mounted tanks, drums, five-gallon cans) must have secondary containment. Secondary containment areas for fuel storage tanks must be able to contain 110 percent of the volume of the largest fuel storage container and have an impervious floor. Tanks may be placed within a metal, plastic, polymer or pre-cast concrete vault providing 110 percent of the volume of the largest fuel storage container. For smaller volumes stored in fuel drums, containment pallets provide suitable secondary containment. See Attachment 1, photos E and F. Fuel transfer should be done over a flat, impervious fuel transfer area adjacent to the fuel storage tank(s). The impervious fuel transfer area should extend beyond the full reach (length) of the fuel hose to avoid spills directly onto a pervious surface. See Figure 1B. Portable containment equipment may provide both secondary containment for the fuel storage tank (110 percent of the volume) and the required impervious area (typically raised at the perimeter) necessary for conducting fuel transfers. See Attachment 1, photos C and, D. Tank storage and fuel transfers may also be within secondary containment areas constructed by forming a basin sloped down to a central low point or bermed along the perimeter, lined with a continuous sheet of 20 mil (or greater) polymer material or appropriate geomembrane liner⁴, and backfilled with at least six inches of sand.

² The “most likely” volume to be spilled is dependent upon factors such as the fuel transfer rate (gallons per minute), amount of fuel being transferred, the distance between the hose nozzle and pump shut off switch, and the response time of personnel and equipment available at the facility.

³ Drip points include any points from which fuel may drip to the ground if leaked from or spilled near the fuel tank filler port or the fuel nozzle on the hose. Portable containment systems typically include a floor having an impervious geotextile with an attached berm or sidewall to contain spilled fluids.

⁴ Portable containment products must be used according to manufacturer’s specifications including those related to environmental, chemical resistance limits including exposure time, bonded seam strength, and puncture and tear strength. An ASTM Puncture rating (D4833) of 200 lbs or greater and tear strength (D4533) to equal 30/30 lb should be minimum requirements for all liners.

Figure 1A
Containment with Impervious Surface (in grey)
for Mobile Fuel Transfers

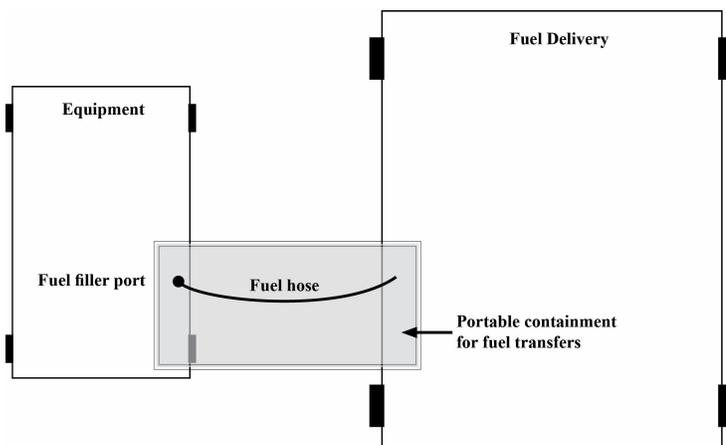
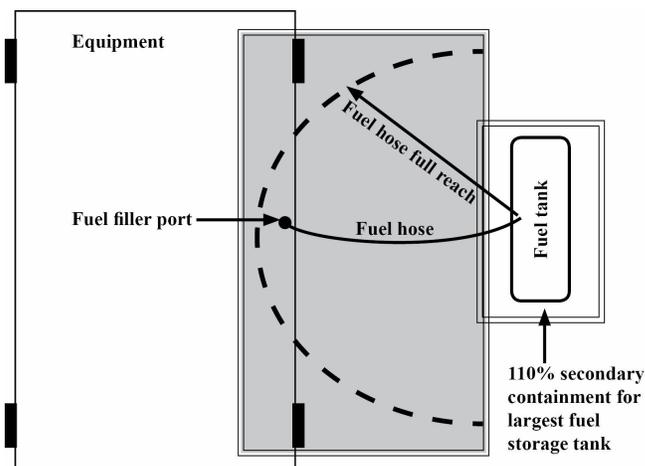


Figure 1B
Tank Containment with Impervious Surface
(in grey) for Fuel Transfers



4. Keep secondary containment area covered and dry.

Secondary containment for outdoor storage areas (for fuel or other regulated substances) must be covered with a roof, plastic sheeting, or waterproof tarpaulins to keep containers dry, except when materials are being added or removed. The area must be kept free of rain, snow, and ice to ensure sufficient containment volume remains to contain a release from the largest storage tank. For relatively small storage areas, spill containment pallets and covers are commercially available. (See Attachment 1, photos E and F) If the water collected from the containment area has a visible sheen, DES must be contacted at (603) 271-3644 before disposal of the water.

5. Comply with Related State and Federal Requirements

Construction, installation or use of aboveground tanks storing petroleum products with a capacity greater than 660 gallons in any one tank, or a combined volume of petroleum products tanks on a site greater than 1,320 gallons, must be pre-approved and registered with DES per Env-Wm 1402. (Contact the AST Program at 271-3644)

Sites storing more than a total of 1,320 gallons (in containers 55-gallons or larger) of oil products are also regulated under the federal Spill Prevention Control and Countermeasure (SPCC) Rule, 40 CFR 112. In addition to secondary containment requirements for “bulk storage” these sites must also provide spill containment during mobile fuel transfers complying with the rule’s provisions.⁵ Both fuel trucks that come to the site to deliver fuel (e.g. “on-road”) and vehicles only used at the site to dispense fuel to equipment (e.g., “mobile refuelers”) are subject to the SPCC rules involving secondary containment during fuel transfers. Guidance on the SPCC rule with examples of secondary containment options may be found within *EPA’s Spill Prevention, Control, and Countermeasure (SPCC) Guidance for Regional Inspectors*. For a copy of this guide, please see www.epa.gov/OEM/content/spcc/spcc_guidance.htm#Content.⁶

⁵ Tanks regulated under Env-Wm 1402 (AST rules) must also comply with the federal (SPCC) and must conduct fueling activities in accordance with a facility plan summarizing the structural and/or non-structural measures in place or in use to contain spills or releases of “oil” as defined under the rule.

⁶ For more information concerning the SPCC rule, contact the EPA Region 1 SPCC Enforcement Coordinator (Joseph Canzano) at (617) 918-1763 or canzano.joseph@epa.gov.

Stationary fuel tanks over 60 gallons and portable containers under 60 gallons that provide fuel to off-road vehicles (e.g. excavators) must also comply with National Fire Protection Association (NFPA) standards, specifically NFPA 30 Flammable and Combustible Liquids Code, and, if fueling “on-road” vehicles, NFPA 30A Motor Fuel Dispensing Facilities and Repair Garages. NFPA standard 30 establishes minimum fabrication standards for tanks and containers holding flammable and combustible liquids, limits on the amount of materials that can be stored in any one pile or rack, distances between piles or racks, property line setbacks and accessibility.

Any fuel container larger than 60 gallons must meet UL standard 142, *Steel Aboveground Tanks for Flammable and Combustible Liquids* establishing minimum requirements for fabrication, installation and inspection for aboveground storage tanks.⁷

6. Train employees to prevent, contain, and clean up spills.

Train employees in all aspects of proper storage and handling of fuel or other regulated substances. Instruct employees to use spill prevention equipment (e.g., drip pans, etc.), be present during all fuel transfers, and *immediately* clean up spills and contaminated soil. Absorbents to pick up spills and leaks must be located in the immediate area where fuels are transferred, used, or stored. In addition, spill response information must be posted at all storage areas (poster available from DES).

7. Immediately report significant or uncontrolled spills.

Small spills that are quickly cleaned up do not need to be reported. However, if *any* of the following occurs, the spill must be immediately reported to the N.H. Department of Environmental Services at (603) 271-3899 or (603) 271-3636 after 4 p.m. on weekdays or on weekends:

- ✓ The spill is 25 gallons or more.
- ✓ The spill is not contained immediately.
- ✓ The spill and contamination are not completely removed within 24 hours.
- ✓ There is impact or potential impact to groundwater or surface water.

8. Properly store and dispose of contaminated soil and materials.

Store small quantities of contaminated soil, leaking drums/cans or used absorbent materials in covered, water-tight containers. If you are going to transport contaminated absorbents or leaking drums/cans, they must be shipped in a DOT or UN Salvage Drum that complies with DOT 49 CFR 173.3 (c). Do not mix absorbents contaminated with different petroleum products or other regulated substances. This can create a hazardous waste that requires disposal by a licensed hauler. If wastes with petroleum or other regulated substances are mixed, contact DES to determine whether it is necessary to manage the waste as a hazardous or solid waste. Determining whether the waste is hazardous may require lab testing. Contact the Hazardous Waste Management Bureau’s Compliance Section at (603) 271-2942 for more information. Information concerning proper disposal of petroleum contaminated solid wastes (e.g., absorbents) is available from the Solid Waste Bureau’s Compliance Section at (603) 271-2925.

9. Keep storage areas secure.

Fuel storage areas must be kept secure. Employ a locked gate at the entrance to the site, a fence and a locked gate around the storage area, and/or store regulated substances in a locked trailer or shed. Access to storage areas must be under lock whenever the site is unattended. If the site is inactive for a period, the storage area must be inspected weekly for leaks and security. To keep storage areas secure from collision damage, berms or boulders should be used and the storage area should be located away from the active portion of the site.

⁷ See Underwriters Laboratory Standards at <http://ulstandardsinfontet.ul.com/> for access to a complete copy of the standards.

10. Keep containers away from surface waters, catch basins (stormwater), private and public water supply wells.

Containers must be kept at least 50 feet from catch basins and surface waters, 75 feet from private wells, and outside the sanitary radius (varies from 150 to 400 feet) of a public well. Contact the local public water supplier or DES (271-0688) to determine the sanitary radius for the well.

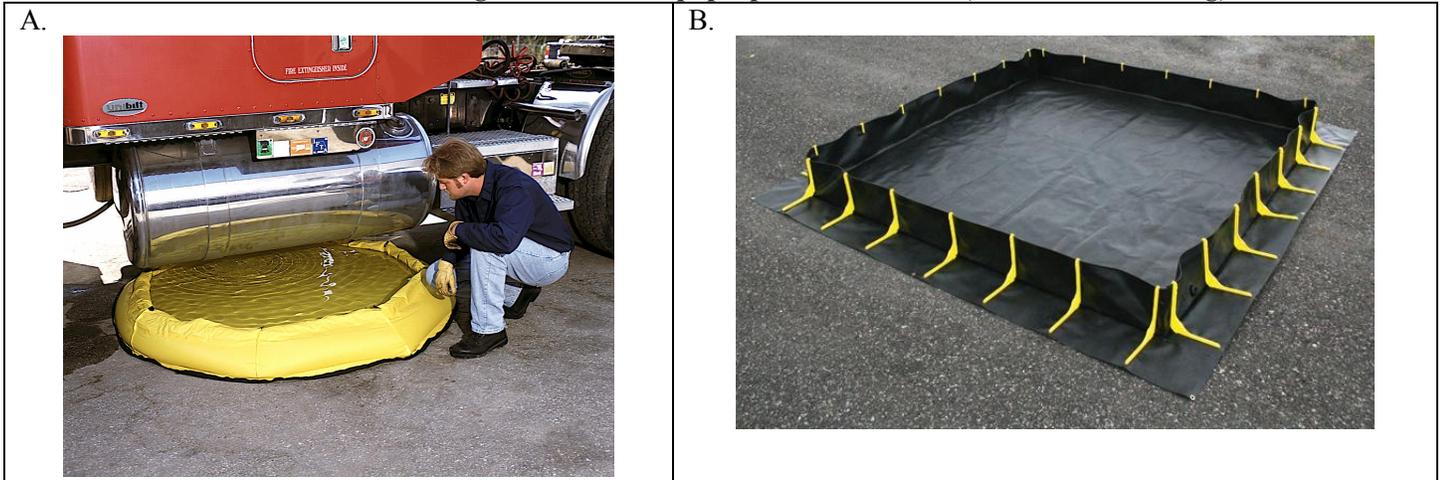
Waivers

While the BMP rules are intended to apply to a variety of circumstances, DES recognizes that strict compliance may not fit every situation. Requests for specific waivers should be directed to DES at (603) 271-2947.

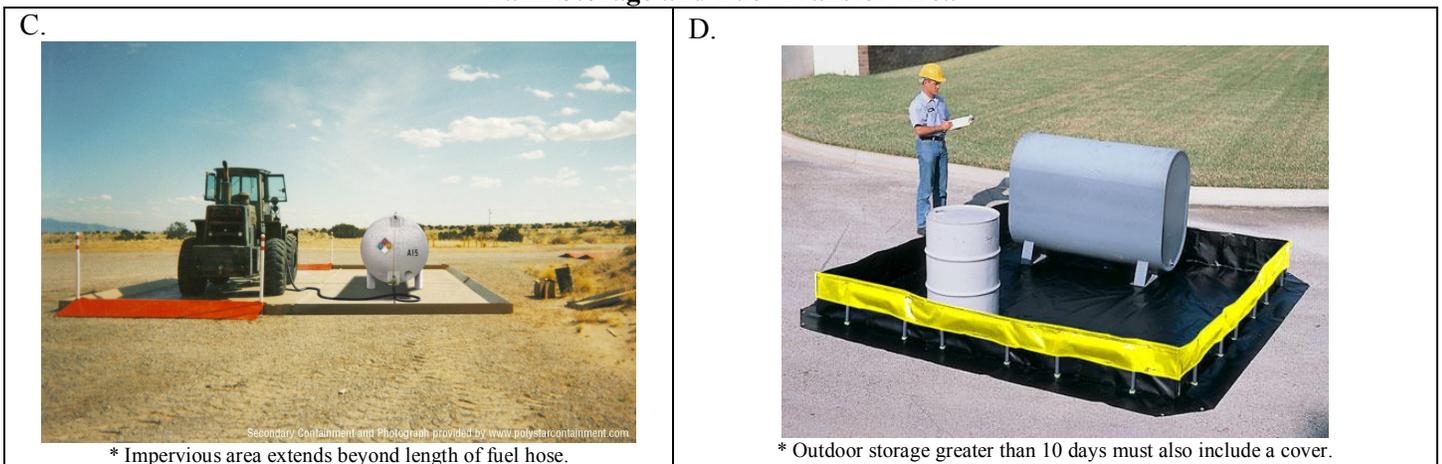
This fact sheet is a statement of DES's policy for interpreting Env-Wq 401, in terms of its applicability to fueling and maintenance of earthmoving and excavation equipment. Information contained in this fact sheet is current as of March 2010. Statutory or regulatory changes that may occur after this date may change this information. If there are any questions concerning the status of the information, please contact DES at (603) 271-2947.

Attachment 1
Portable Containment, Storage and Cover⁸

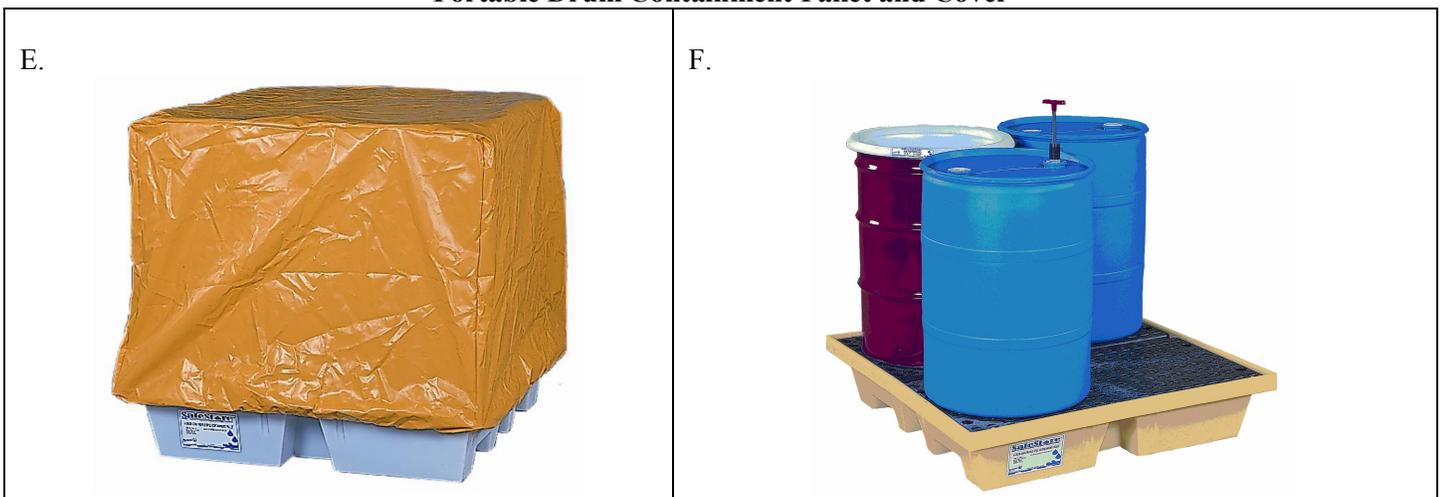
Containment with Rigid or Flexible “pop-up” Pool or Berm (for mobile refueling)



Tank Storage and Fuel Transfer Area



Portable Drum Containment Pallet and Cover



⁸ Photos have been provided courtesy of Dawg Inc., Interstate Inc., Safetyshop, UltraTech International Inc., and PolyStar Inc.

ENVIRONMENTAL Fact Sheet



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WD-DWGB-22-8

2010

Holding Tanks for Floor Drains

Holding tanks that receive wastewater from floor drains in areas where regulated contaminants¹ are used or stored or that will receive non-domestic, non-hazardous wastewater must be registered with the Water Division of DES under New Hampshire Administrative Rules Env-Wq 402.35, "Holding Tank Registration for Discharges of Non-domestic, Non-hazardous Wastewater."

What Are DES's Requirements for Holding Tanks?

- The minimum holding tank capacity must be 1,000 gallons.
- Holding tanks and piping must be watertight and sealed with materials compatible with the liquid or sludge being stored.
- Access must be provided to each compartment of the tank for inspection and cleaning by means of either a removable cover or manhole (minimum diameter 20 inches). Manholes must extend to finished grade.
- The tank must be designed for the expected maximum structural load and ballast must be provided when necessary to prevent structural damage when the tank is emptied.
- The volume between inlet cover and the maximum water depth must be equal to approximately 20 percent of the liquid volume stored below the maximum water depth. An alarm with both visual and audio signals must be activated once the water level reaches the maximum water depth.
- The holding tank must be registered with DES. Use the form at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge/documents/holdreg.pdf.
- Records of pumping events shall be kept and made available for review if requested by DES.

For Additional Information

For additional information, please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit www.des.nh.gov, click on A-Z List and choose Groundwater Discharges. The "Holding Tank Registration Form" can also be found here. All of the bureau's fact sheets are online at <http://des.nh.gov/organization/commissioner/pip/factsheets/index.htm>.

Note: This fact sheet is accurate as of June 2010. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

¹ **What is a Regulated Contaminant?** State law defines a regulated contaminant as "any physical, chemical, biological, radiological substance or other matter, other than naturally occurring substances at naturally occurring levels, in water which adversely affects human health or the environment." Consult the Material Safety Data Sheets (MSDSs) for the products you use; see the disposal information in the "Spills or Leaks" section of each MSDS.

ENVIRONMENTAL Fact Sheet



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WD-DWGB-22-9

2010

Protecting Groundwater from Floor Drains and Other Typical Discharges

Why the Concern About Floor Drains and Other Discharges?

The main concern is for the protection of human health. There have been instances of drinking water contamination from improper disposal of wastewater, solvents, oils and various industrial wastes onto or into the ground in New Hampshire. The N.H. Department of Environmental Services wants to ensure that the use of floor drains and the discharge of wastewater onto or into the ground do not cause the contamination of groundwater, which is the state's main source of drinking water. Preventing groundwater contamination is also the property owner's concern, because the owner is responsible for preventing—and cleaning up—contamination. When groundwater does become contaminated, cleanup costs can easily run into tens or hundreds of thousands of dollars.

Do I Have to Let DES Know About Discharges?

Any regular discharge of non-domestic wastewater to the ground must be registered with, and in some cases requires a permit from, the DES Water Division.

Can I Continue to Discharge to the Ground?

While the state does allow some groundwater discharges as long as they are properly registered or permitted (see table of examples on following page), state rules prohibit any discharge to the ground of non-domestic wastewater containing a regulated contaminant (see box at right) without treatment with best available technology. Your first step is to determine whether your wastewater contains regulated contaminants or whether you store or use regulated contaminants in the area served by a floor drain. If the answer is no, you may continue the discharge by registering it with DES using the "Registration and Notification Form for Floor Drains and Discharges to Groundwater" located at www.des.nh.gov; click on "A to Z List," scroll to "Groundwater Discharges" and click on "Forms/Applications."

What Is A Regulated Contaminant?

State law (RSA 485-C:2 XIII) defines a regulated contaminant as "any physical, chemical, biological, radiological substance or other matter, other than naturally occurring substances at naturally occurring levels, in water which adversely affects human health or the environment." Consult the material safety data sheets (MSDS) for the products you use; see the disposal information in the "Spills or Leaks" section of the MSDS.

What Are My Options?

If the wastewater or the area served by the floor drain does contain regulated contaminants, you must choose one of the following five options:

1. Eliminate the discharge; permanently seal the drain to prevent releases to groundwater.
2. Eliminate regulated contaminants from the wastewater or, if a floor drain, eliminate regulated

contaminants from the area served by the floor drain and register the discharge with DES.

3. Connect the drain or discharge line to a municipal sanitary sewer in accordance with DES and local regulations.
4. Connect the drain or discharge to a registered holding tank that meets DES requirements.
5. Obtain a groundwater discharge permit. This is allowed only if the wastewater receives best available treatment and meets ambient groundwater quality standards.

If you choose options # 1-4, you must file the “Registration and Notification Form for Floor Drains and Discharges to Groundwater” (located at the address referenced above) with DES.

Discharges Generally Allowed with Registration	Discharges Requiring a Permit	Discharges That Are Not Allowed
<ul style="list-style-type: none"> • Beauty salon wastewater • Kennel wastewater • Bathroom floor drains • Non-contact cooling water 	<ul style="list-style-type: none"> • Car washes • Non-domestic wastewater from industry or commercial business 	<ul style="list-style-type: none"> • Floor drains where regulated substances are stored • Laboratory sinks • Manufacturing process water • Floor drains at automotive facilities

If you intend to continue the discharge as is (option #5), contact DES for a groundwater discharge permit application.

How Do I Seal My Floor Drain?

First, you need to be certain that no contaminants have been released to groundwater. If you are not familiar with the property’s history, or if it is possible that regulated contaminants have been released to the ground through the drain, you should contact an environmental consultant to investigate (contact DES for a list of consultants). If you are positive that no regulated contaminants were ever discharged to the floor drain, you must fill out the “Discharge Well & Floor Drain Pre-Closure Notification Form” (located at the address referenced above) and submit it to DES at least 30 days prior to sealing the floor drain(s) with concrete. However, this does not remove any future liability associated with the drain. It is customary when property is to be sold or refinanced to perform an environmental assessment (sampling) of floor drains as well as other locations where contaminants may have been released.

What About Connecting to a Municipal Sanitary Sewer?

Connections to your municipal sanitary sewer are controlled by the local sewer authority. Contact the local authority regarding restrictions. Some local sewer authorities do not allow connection of floor drains, while others allow connection only with adequate pretreatment (e.g., oil/grit separator) or other controls. If you connect a floor drain to a municipal sanitary sewer, you still need to notify DES using the attached notification form.

What Are the Requirements for Holding Tanks?

DES has design standards for holding tanks. For more information please review fact sheet WD-DWGB-22-8 “Holding Tanks for Floor Drains” at the fact sheets website referenced below.

For Additional Information

For additional information, please call (603) 271-2858 or visit <http://des.nh.gov/index.htm>, click on A to Z List and choose Groundwater Discharges. The forms mentioned in this fact sheet can also be found on this page. All of the Drinking Water and Groundwater Bureau’s fact sheets can be found on-line at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>.

Note: This fact sheet is accurate as of June 2010. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

WD-DWGB-22-10

2015

Wastewater Discharges from Vehicle Washing

Water used in washing cars, trucks, and other vehicles may contain a wide range of contaminants. These contaminants can include oil, fuels and other hydrocarbons, metals, detergents, road salt and grit. Discharged into surface waters, these contaminants can degrade water quality and harm aquatic life. Discharged into groundwater, they can make water unfit for drinking. To avoid these problems and the legal consequences that may result, the following guidelines apply to facilities where vehicles are washed on a regular basis and the wash water is collected by a conveyance such as a drain, catch basin, ditch or swale and infiltrated to the ground or groundwater*. Owners of facilities that conduct washing activities have four options for their wastewater discharges:

1. Operate a closed system with wastewater recycling (no discharge of wastewater).
2. Discharge to a municipal sanitary sewer.
3. Obtain a groundwater discharge permit.
4. Obtain registration to wash fewer than 30 vehicles per week and discharge to the ground *surface only*.

1. Closed System with No Discharge

This does not require a permit. However, it may require a “Holding Tank Registration” if the treatment system has a grit and oil tank that is pumped out. The water and sludge that are pumped from the tank must be collected and disposed of at an approved disposal facility, i.e., a wastewater treatment plant or hazardous waste disposal facility, depending on the nature of the material.

2. Discharge to Municipal Sanitary Sewer

Connections to your municipal sanitary sewer are controlled by the local sewer authority. Contact the local authority regarding restrictions. Some local sewer authorities do not allow connection of floor drains, while others allow connection only with adequate pretreatment, e.g., an oil/grit separator, or other controls. If you connect an existing floor drain to a municipal sanitary sewer, you still need to notify NHDES.

* These restrictions do not apply to occasional vehicle washing, such as at residences or occasional events such as fundraising car washes. For more information on community car washes and water quality see fact sheet WD-WMB-14 “Community Car Washes and Water Quality” at <http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/documents/wmb-14.pdf>.

3. Obtain a Groundwater Discharge Permit

You may discharge vehicle wash water directly to the ground if both of the following are true:

- a. A groundwater discharge permit is obtained in accordance with Env-Wq 402.11; and
- b. The wash water is treated to ambient groundwater quality standards (Env-Or 600, Table 600-1) using best available technology (typically granular activated carbon).

4. Wash Fewer than 30 Vehicles per Week

If you wash fewer than 30 vehicles per week, you may be able to discharge indirectly to groundwater without obtaining a groundwater discharge permit. However, you need to follow Env-Wq, 401 Best Management Practices for Groundwater Protection to avoid contamination of your wash water with regulated substances. You also need to register your discharge and floor drain, if any. To avoid having to obtain a groundwater discharge permit, you must meet *all* of the following conditions:

- a. Best Management Practices for Groundwater Protection are followed.
- b. The floor drain is *not* in an area where regulated contaminants are used or stored.
- c. The wastewater:
 - Is *not* from power washing, steam cleaning, engine cleaning or undercarriage cleaning.
 - Is *not* from a chemical or acid wash.
 - Does *not* contain soaps or other products that contain regulated contaminants.
 - Does *not* result in a surface water discharge.
 - Discharges to the ground surface.
 - Contains only approved detergents.
 - Leads to an oil/water separator or other pretreatment method prior to infiltration.
 - Is registered with NHDES in accordance with Env-Wq 402.33.

Owners of facilities with these discharges are responsible for ensuring that regulated contaminants are not discharged and that groundwater is suitable for drinking without treatment. NHDES reserves the right to verify compliance by requiring the collection and analysis of soil samples from the discharge area(s) under Env-Wq 402.33.

Surface Water Discharges

In order to adequately protect the quality of surface water in New Hampshire, direct discharges of wastewater derived from car washing into surface water is **prohibited**. For more information about permitting of discharges to surface water, contact the NHDES Wastewater Engineering Bureau at (603) 271-3908.

For Additional Information

For more information about groundwater discharges, holding tank registration, floor drain registrations, and rules, please call (603) 271-2858 or visit NHDES' Groundwater Discharge Permitting & Registration webpage at: http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge/index.htm.

For additional information, please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov, or visit <http://des.nh.gov/organization/divisions/water/dwgb/index.htm>.

Note: This fact sheet is accurate as of January 2015. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WD-DWGB-22-20

2012

Preventing Groundwater Contamination at Gas Stations— What Municipalities and Water Suppliers Can Do

Generations of automobile drivers have become accustomed to finding gas stations conveniently located along busy roads and highways, at intersections, and in village centers, to support our automobile-dependent lifestyles. As the environmental risks associated with gas stations—particularly the risk of gasoline leaked from underground storage tank (UST) systems—have become increasingly clear, vast improvements have been made in the design, construction, and operation of UST systems. Unfortunately, federal and state regulators and UST system designers and installers have *not* succeeded in engineering *all* of the groundwater contamination risk out of these systems. A study by the U.S. Geological Survey, which randomly sampled 225 water supply wells in Rockingham County in 2003, detected the gasoline additive MtBE in 40 percent of public wells, and found a correlation between MtBE concentration and proximity to USTs.¹

The main sources of concern with respect to double-walled USTs and groundwater contamination are vapor releases from UST facilities and small spills of fuel that routinely occur when fuel is being dispensed to vehicles. With a view to minimizing the impacts of those releases, DES maintains technical standards for the siting, design, and installation of UST systems, and an active inspection program to oversee their operation and maintenance. Unfortunately, DES does not have the resources to ensure that all UST systems comply with daily operation and maintenance requirements once they are installed, let alone ensure that these systems are leak-free. There are also many older single-walled tanks and piping systems at gas stations that are *not* required to comply with newer design standards for spill containment and stormwater management, but that must be closed no later than December 22, 2015. These must pass leak monitoring tests designed to detect leaks as slow as 0.1 gallon/hour, but could continuously leak at a less rate without detection.

In addition to vapor releases and chronic small spills, larger spills sometimes take place during the process of fueling vehicles and portable containers. Well-designed and operated gas stations incorporate a number of measures to minimize the groundwater contamination risk from routine and accidental spills. However, given the limits of DES's oversight and the state of the art, local officials need to ensure that the appropriate restrictions and oversight are in place on the local level, to the extent that communities want to ensure protection of their groundwater resources.

This fact sheet outlines a number of steps that municipal officials and water suppliers should consider taking to minimize the groundwater contamination risk of gas stations.

¹ Ayotte, J.D., Argue, D.M., and McGarry, F.J., 2005, Methyl tertiary-Butyl Ether occurrence and related factors in public and private wells in southeast New Hampshire: *Environmental Science and Technology*, vol. 39, no. 1, p. 9-16. (<http://nh.water.usgs.gov/Publications/2005/es049549e.pdf>)

Siting Restrictions

Given the likelihood that UST systems will release gasoline constituents (most commonly in the form of vapor leaks from underground piping systems or overfills of the UST, vehicle tank, or portable container) and the possibility that spilled fuel will be carried off the fueling area by stormwater, municipal officials interested in providing the highest possible level of protection for groundwater used for drinking water should consider restricting the siting of gas stations as they would any other land use that is likely to contaminate groundwater. If the municipality's zoning ordinance prohibits the location of certain high-risk land uses in wellhead protection areas, aquifer protection areas, or other areas of high-value groundwater, gas stations should be considered for inclusion in the list of prohibited land uses.

Municipal officials should also consider including setbacks in zoning ordinances or site plan review regulations to separate UST systems and gas station stormwater discharges from water supply wells, both public and private. A 2002 study of petroleum contamination travel distances at discharge sites in Maine found the *average* distance traveled was 295 feet for gasoline constituents and 140 feet for diesel/fuel oil constituents. About one-third of MtBE contamination plumes, one-quarter of other gasoline plumes, and one-sixth of diesel/fuel oil plumes traveled more than 300 feet.² DES's rules for the siting of UST systems *at new sites* (Env-Wm 1401.28 (ac)) include the following setbacks:

- ❑ 500' between gasoline USTs and public water supplies (PWSs)
- ❑ 400' between other USTs and PWSs
- ❑ 250' between gasoline USTs and private wells
- ❑ 75' between other USTs and private wells
- ❑ 75' between any UST and surface water

Municipalities that feel that these setbacks are not sufficiently protective of public or private water supplies or other water resources can establish more stringent setbacks, as well as applying setbacks to new USTs at existing sites, although DES does not recommend that local siting restrictions be applied to replacement USTs.

Whether or not municipalities establish their own UST setback requirements, they should help ensure that UST systems at new sites comply with DES's setbacks, since DES does not always have the resources to field-check information about existing wells provided to DES by UST applicants. This can be done through the local site plan review process in municipalities that have site plan review regulations, and whenever applicants for new USTs notify the municipality, as required by DES.

Site Design

The design of UST systems (the tank and underground piping) is thoroughly regulated by DES.³ DES is *not* recommending that municipalities establish additional *design* criteria for these tank systems. However, there are several aspects of gas station design that can receive additional attention during site plan review from a groundwater protection standpoint.

Spill Containment

In addition to requiring devices that are designed to contain spills that may occur when USTs are being filled, DES rules for new USTs⁴ require a concrete pad with positive limiting barriers (PLBs) to contain spills in the fuel dispensing area (Env-Wm 1401.28 (v)). PLBs are grooves in the concrete around the edge of the dispensing area; the rule requires that they be constructed *and*

² Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, "Historical Oil Contamination Travel Distances in Ground Water at Sensitive Geological Sites in Maine," April 30, 2002.

³ This fact sheet deals only with USTs used to store motor fuel at gas stations. For state regulatory requirements for other UST types, please refer to DES fact sheet WMD-REM-20. For information on above-ground storage tanks, please refer to WMD-REM-5.

⁴ The rules apply where the concrete pad is disrupted for tank or piping installation after February 2005.

maintained to contain five gallons *for each dispenser*—each dispenser typically has two dispensing hose. The rule also states that dispensing nozzles may not extend beyond the PLBs.

Additional Sump Requirement

Municipalities could drastically reduce the probability of releases by requiring that all tank top connections—including fill, pump, and automatic tank gauging (ATG) risers—occur within full-depth or collared sumps, and by requiring double-walled piping for the underground portion of vent pipes.⁵

Stormwater Management

The guiding principle of stormwater management at gas stations is to keep clean water clean. Relatively clean stormwater, such as from roofs and areas other than the fueling area, may not be allowed to run onto the fuel dispensing area (Env-Wm 1401.28 (al)). The relatively clean stormwater can be managed the same as stormwater from any parking area; it should be directed as sheet flow over grassed areas and/or collected and treated according to accepted stormwater best management practices (BMPs).⁶ With this in mind, the site should be designed and maintained with a snow removal plan and designated snow storage areas that do not interfere with the intended stormwater flow.

If the municipality has an opportunity to review the site plan for an existing facility, such as in the case of site alteration or expansion, the design goal should be to keep stormwater off the dispensing pad. Whenever practical, stormwater management at an existing facility should be brought up to date with a canopy draining outside the dispensing area, a properly pitched, impervious concrete dispensing pad, and properly sized PLBs.

Groundwater Protection Plan

Municipalities should require applicants to submit a plan to minimize the potential for groundwater contamination. Implementation of the plan should be a condition of site plan review approval. The plan should cover the following items:

- ❑ A complete description of spill prevention and control measures for the facility. Spill prevention begins with the customer. Signs should be posted at the pump instructing customers not to top off fuel tanks and to notify an employee in the event of a spill. Emergency shutoff switches should be plainly labeled.
- ❑ An estimate of the maximum quantity of fuel that could be spilled in the event of an equipment failure, along with an analysis of its fate and a plan for preventing it from reaching groundwater or surface water. The plan should include descriptions of containment and/or diversionary structures or equipment needed in the event of a spill, and a demonstration that the needed equipment, personnel, and other resources would be available to respond to a spill.
- ❑ A notification list, including the names and phone numbers of local management, remote management, fire and police, local and state agencies needing to be notified, and spill response contractors.
- ❑ Routine spot cleaning of small spills at fueling areas with dry methods. Dry methods include using rags or absorbents. Fueling areas should never be washed down unless the water is collected and disposed of properly. The plan should specify that an adequate supply of absorbent materials be kept readily available.
- ❑ Storage and disposal of used sorbents and/or rags.
- ❑ Maintenance of PLBs and the stormwater management system, including BMPs.
- ❑ Provisions to ensure that snow plowing and other maintenance will not interfere with the proper functioning of stormwater management, spill containment, and leak detection systems.

⁵ DES plans to propose adding these additional requirements to Env-Wm 1401 during 2012.

⁶ For more information, please see DES report R-WSPCD-95-3, Best Management Practice for Urban Stormwater Runoff.

- Employee training: Employees should be trained (upon hiring and annually thereafter) in all aspects of routine operation and maintenance, including routine spill cleaning and containment of contaminated stormwater, as well as spill response and other emergency procedures.

Existing Gas Stations—Local Regulatory Options

Several options exist for local oversight of existing gas stations. Of the approaches listed above, siting restrictions clearly would not apply to existing UST systems at existing gas stations. However, some aspects of site design (stormwater management, PLBs) could be corrected at existing gas stations, and the implementation of a groundwater protection plan is certainly achievable at existing sites. While existing operations would be exempt from requirements enacted in zoning or site plan review regulations, municipalities can institute these requirements through a general bylaw under RSA 31:39, or a health regulation or health ordinance enacted under RSA 147:1, I, if the purpose is to protect public health.

Existing Gas Stations—Non-Regulatory Options

According to a 2001 report by the U.S. Government Accounting Office, 29 percent of regulated USTs nationally are not being operated and maintained properly. The most important non-regulatory role for water suppliers and municipal officials with respect to existing gas stations is to ensure compliance with state requirements with respect to stormwater management, spill containment, and periodic inspection of release prevention and detection systems. DES strongly urges municipalities and/or water suppliers to visit gas stations annually (subject to the voluntary cooperation of owners) to verify that the owners are complying with these requirements, as well as any local site plan review conditions. Municipalities may also wish to offer incentives to owners of single-walled tanks or piping to close them prior to the December 22, 2015, deadline.

For Additional Information

For more information on local groundwater protection measures, please visit www.des.nh.gov, click on A to Z List and choose Drinking Water Source Protection Program., or call (603) 271-7061.

For additional information, please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit www.des.nh.gov, click on A to Z List and choose Drinking Water and Groundwater Bureau. All of the bureau's fact sheets are online at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/index.htm>.

Note: This fact sheet is accurate as of December 2011. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.

Appendix B

40 CFR 302 (List of regulated substances)

Environmental Protection Agency

§ 302.4

State, municipality, commission, political subdivision of a State, or any interstate body;

Release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes:

(1) Any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons;

(2) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine;

(3) Release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or for the purposes of section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and

(4) The normal application of fertilizer;

Reportable quantity ("RQ") means that quantity, as set forth in this part, the release of which requires notification pursuant to this part;

United States include the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Commonwealth of the North-

ern Marianas, and any other territory or possession over which the United States has jurisdiction; and

Vessel means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

[50 FR 13474, Apr. 4, 1985, as amended at 67 FR 45321, July 9, 2002]

§ 302.4 Designation of hazardous substances.

(a) *Listed hazardous substances.* The elements and compounds and hazardous wastes appearing in table 302.4 are designated as hazardous substances under section 102(a) of the Act.

(b) *Unlisted hazardous substances.* A solid waste, as defined in 40 CFR 261.2, which is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), is a hazardous substance under section 101(14) of the Act if it exhibits any of the characteristics identified in 40 CFR 261.20 through 261.24.

NOTE: The numbers under the column headed "CASRN" are the Chemical Abstracts Service Registry Numbers for each hazardous substance. The "Statutory Code" column indicates the statutory source for designating each substance as a CERCLA hazardous substance: "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act, "2" indicates that the source is section 307(a) of the Clean Water Act, "3" indicates that the source is section 112 of the Clean Air Act, and "4" indicates that the source is section 3001 of the Resource Conservation and Recovery Act (RCRA). The "RCRA Waste Number" column provides the waste identification numbers assigned to various substances by RCRA regulations. The "Pounds (kg)" column provides the reportable quantity adjustment for each hazardous substance in pounds and kilograms. Appendix A to §302.4, which lists CERCLA hazardous substances in sequential order by CASRN, provides a per-substance grouping of regulatory synonyms (i.e., names by which each hazardous substance is identified in other statutes and their implementing regulations).

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Acenaphthene	83-32-9	2		100 (45.4)
Acenaphthylene	208-96-8	2		5000 (2270)
Acetaldehyde	75-07-0	1,3,4	U001	1000 (454)
Acetaldehyde, chloro-	107-20-0	4	P023	1000 (454)

§ 302.4

40 CFR Ch. I (7-1-04 Edition)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Acetaldehyde, trichloro-	75-87-6	4	U034	5000 (2270)
Acetamide	60-35-5	3		100 (45.4)
Acetamide, N-(aminothioxomethyl)-	591-08-2	4	P002	1000 (454)
Acetamide, N-(4-ethoxyphenyl)-	62-44-2	4	U187	100 (45.4)
Acetamide, N-9H-fluoren-2-yl-	53-96-3	3,4	U005	1 (0.454)
Acetamide, 2-fluoro-	640-19-7	4	P057	100 (45.4)
Acetic acid	64-19-7	1		5000 (2270)
Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	94-75-7	1,3,4	U240	100 (45.4)
Acetic acid, ethyl ester	141-78-6	4	U112	5000 (2270)
Acetic acid, fluoro-, sodium salt	62-74-8	4	P058	10 (4.54)
Acetic acid, lead(2+) salt	301-04-2	1,4	U144	10 (4.54)
Acetic acid, thallium(1+) salt	563-68-8	4	U214	100 (45.4)
Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5	1,4	See F027	1000 (454)
Acetic anhydride	108-24-7	1		5000 (2270)
Acetone	67-64-1	4	U002	5000 (2270)
Acetone cyanohydrin	75-86-5	1,4	P069	10 (4.54)
Acetonitrile	75-05-8	3,4	U003	5000 (2270)
Acetophenone	98-86-2	3,4	U004	5000 (2270)
2-Acetylaminofluorene	53-96-3	3,4	U005	1 (0.454)
Acetyl bromide	506-96-7	1		5000 (2270)
Acetyl chloride	75-36-5	1,4	U006	5000 (2270)
1-Acetyl-2-thiourea	591-08-2	4	P002	1000 (454)
Acrolein	107-02-8	1,2,3,4	P003	1 (0.454)
Acrylamide	79-06-1	3,4	U007	5000 (2270)
Acrylic acid	79-10-7	3,4	U008	5000 (2270)
Acrylonitrile	107-13-1	1,2,3,4	U009	100 (45.4)
Adipic acid	124-04-9	1		5000 (2270)
Aldicarb	116-06-3	4	P070	1 (0.454)
Aldrin	309-00-2	1,2,4	P004	1 (0.454)
Allyl alcohol	107-18-6	1,4	P005	100 (45.4)
Allyl chloride	107-05-1	1,3		1000 (454)
Aluminum phosphide	20859-73-8	4	P006	100 (45.4)
Aluminum sulfate	10043-01-3	1		5000 (2270)
4-Aminobiphenyl	92-67-1	3		1 (0.454)
5-(Aminomethyl)-3-isoxazolol	2763-96-4	4	P007	1000 (454)
4-Aminopyridine	504-24-5	4	P008	1000 (454)
Amitrole	61-82-5	4	U011	10 (4.54)
Ammonia	7664-41-7	1		100 (45.4)
Ammonium acetate	631-61-8	1		5000 (2270)
Ammonium benzoate	1863-63-4	1		5000 (2270)
Ammonium bicarbonate	1066-33-7	1		5000 (2270)
Ammonium bichromate	7789-09-5	1		10 (4.54)
Ammonium bifluoride	1341-49-7	1		100 (45.4)
Ammonium bisulfite	10192-30-0	1		5000 (2270)
Ammonium carbamate	1111-78-0	1		5000 (2270)
Ammonium carbonate	506-87-6	1		5000 (2270)
Ammonium chloride	12125-02-9	1		5000 (2270)
Ammonium chromate	7788-98-9	1		10 (4.54)
Ammonium citrate, dibasic	3012-65-5	1		5000 (2270)
Ammonium fluoborate	13826-83-0	1		5000 (2270)
Ammonium fluoride	12125-01-8	1		100 (45.4)
Ammonium hydroxide	1336-21-6	1		1000 (454)
Ammonium oxalate	6009-70-7	1		5000 (2270)
	5972-73-6			
	14258-49-2			
Ammonium picrate	131-74-8	4	P009	10 (4.54)
Ammonium silicofluoride	16919-19-0	1		1000 (454)
Ammonium sulfamate	7773-06-0	1		5000 (2270)
Ammonium sulfide	12135-76-1	1		100 (45.4)
Ammonium sulfite	10196-04-0	1		5000 (2270)
Ammonium tartrate	14307-43-8	1		5000 (2270)
	3164-29-2			
Ammonium thiocyanate	1762-95-4	1		5000 (2270)
Ammonium vanadate	7803-55-6	4	P119	1000 (454)
Amyl acetate	628-63-7	1		5000 (2270)
iso-Amyl acetate	123-92-2			
sec-Amyl acetate	626-38-0			
tert-Amyl acetate	625-16-1			
Aniline	62-53-3	1,3,4	U012	5000 (2270)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
o-Anisidine	90-04-0	3		100 (45.4)
Anthracene	120-12-7	2		5000 (2270)
Antimonydagger;dagger;	7440-36-0	2		5000 (2270)
ANTIMONY AND COMPOUNDS	N.A.	2,3		**
Antimony Compounds	N.A.	2,3		**
Antimony pentachloride	7647-18-9	1		1000 (454)
Antimony potassium tartrate	28300-74-5	1		100 (45.4)
Antimony tribromide	7789-61-9	1		1000 (454)
Antimony trichloride	10025-91-9	1		1000 (454)
Antimony trifluoride	7783-56-4	1		1000 (454)
Antimony trioxide	1309-64-4	1		1000 (454)
Argentate(1-), bis(cyano-C)-, potassium	506-61-6	4	P099	1 (0.454)
Aroclor 1016	12674-11-2	1,2,3		1 (0.454)
Aroclor 1221	11104-28-2	1,2,3		1 (0.454)
Aroclor 1232	11141-16-5	1,2,3		1 (0.454)
Aroclor 1242	53469-21-9	1,2,3		1 (0.454)
Aroclor 1248	12672-29-6	1,2,3		1 (0.454)
Aroclor 1254	11097-69-1	1,2,3		1 (0.454)
Aroclor 1260	11096-82-5	1,2,3		1 (0.454)
Aroclors	1336-36-3	1,2,3		1 (0.454)
Arsenicdagger;dagger;	7440-38-2	2,3		1 (0.454)
Arsenic acid H3AsO4	7778-39-4	4	P010	1 (0.454)
ARSENIC AND COMPOUNDS	N.A.	2,3		**
Arsenic Compounds (inorganic including arsine)	N.A.	2,3		**
Arsenic disulfide	1303-32-8	1		1 (0.454)
Arsenic oxide As2O3	1327-53-3	1,4	P012	1 (0.454)
Arsenic oxide As2O5	1303-28-2	1,4	P011	1 (0.454)
Arsenic pentoxide	1303-28-2	1,4	P011	1 (0.454)
Arsenic trichloride	7784-34-1	1		1 (0.454)
Arsenic trioxide	1327-53-3	1,4	P012	1 (0.454)
Arsenic trisulfide	1303-33-9	1		1 (0.454)
Arsine, diethyl-	692-42-2	4	P038	1 (0.454)
Arsinic acid, dimethyl-	75-60-5	4	U136	1 (0.454)
Arsonous dichloride, phenyl-	696-28-6	4	P036	1 (0.454)
Asbestosdagger;dagger;dagger;	1332-21-4	2,3		1 (0.454)
Auramine	492-80-8	4	U014	100 (45.4)
Azaserine	115-02-6	4	U015	1 (0.454)
Aziridine	151-56-4	3,4	P054	1 (0.454)
Aziridine, 2-methyl-	75-55-8	3,4	P067	1 (0.454)
Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8- [[[aminocarbonyloxy]methyl]-1,1a,2,8,8a,8b- hexahydro-8a-methoxy-5- methyl-[1aS-(1alpha,8beta,8alpha, 8balpha)]]-	50-07-7	4	U010	10 (4.54)
Barium cyanide	542-62-1	1,4	P013	10 (4.54)
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56-49-5	4	U157	10 (4.54)
Benz[c]acridine	225-51-4	4	U016	100 (45.4)
Benzal chloride	98-87-3	4	U017	5000 (2270)
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2propynyl)-	23950-58-5	4	U192	5000 (2270)
Benz[a]anthracene	56-55-3	2,4	U018	10 (4.54)
1,2-Benzanthracene	56-55-3	2,4	U018	10 (4.54)
Benz[a]anthracene, 7,12-dimethyl-	57-97-6	4	U094	1 (0.454)
Benzenamine	62-53-3	1,3,4	U012	5000 (2270)
Benzenamine, 4,4'-carbonimidoylbis (N,N dimethyl-	492-80-8	4	U014	100 (45.4)
Benzenamine, 4-chloro-	106-47-8	4	P024	1000 (454)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	3165-93-3	4	U049	100 (45.4)
Benzenamine, N,N-dimethyl-4-(phenylazo)-	60-11-7	3,4	U093	10 (4.54)
Benzenamine, 2-methyl-	95-53-4	3,4	U328	100 (45.4)
Benzenamine, 4-methyl-	106-49-0	4	U353	100 (45.4)
Benzenamine, 4,4'-methylenebis [2-chloro-	101-14-4	3,4	U158	10 (4.54)
Benzenamine, 2-methyl-, hydrochloride	636-21-5	4	U222	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	99-55-8	4	U181	100 (45.4)
Benzenamine, 4-nitro-	100-01-6	4	P077	5000 (2270)
Benzene ^a	71-43-2	1,2,3,4	U019	10 (4.54)
Benzenoacetic acid, 4-chloro- α -(4-chlorophenyl)- α -hydroxy-, ethyl ester.	510-15-6	3,4	U038	10 (4.54)
Benzene, 1-bromo-4-phenoxy-	101-55-3	2,4	U030	100 (45.4)
Benzenobutanoic acid, 4-[bis(2-chloroethyl)amino]-	305-03-3	4	U035	10 (4.54)
Benzene, chloro-	108-90-7	1,2,3,4	U037	100 (45.4)
Benzene, (chloromethyl)-	100-44-7	1,3,4	P028	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Benzenediamine, ar-methyl-	95-80-7 496-72-0 823-40-5 25376-45-8	3,4	U221	10 (4.54)
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	117-81-7	2,3,4	U028	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	84-74-2	1,2,3,4	U069	10 (4.54)
1,2-Benzenedicarboxylic acid, diethyl ester	84-66-2	2,4	U088	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3	2,3,4	U102	5000 (2270)
1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	2,4	U107	5000 (2270)
Benzene, 1,2-dichloro-	95-50-1	1,2,4	U070	100 (45.4)
Benzene, 1,3-dichloro-	541-73-1	2,4	U071	100 (45.4)
Benzene, 1,4-dichloro-	106-46-7	1,2,3,4	U072	100 (45.4)
Benzene, 1,1'-(2,2-dichloroethylidene) bis[4-chloro-	72-54-8	1,2,4	U060	1 (0.454)
Benzene, (dichloromethyl)-	98-87-3	4	U017	5000 (2270)
Benzene, 1,3-diisocyanatomethyl-	91-08-7 584-84-9 26471-62-5	3,4	U223	100 (45.4)
Benzene, dimethyl-	1330-20-7	1,3,4	U239	100 (45.4)
1,3-Benzenediol	108-46-3	1,4	U201	5000 (2270)
1,2-Benzenediol,4-[1-hydroxy-2-(methyl amino)ethyl]-	51-43-4	4	P042	1000 (454)
Benzeneethanamine, alpha,alpha-dimethyl-	122-09-8	4	P046	5000 (2270)
Benzene, hexachloro-	118-74-1	2,3,4	U127	10 (4.54)
Benzene, hexahydro-	110-82-7	1,4	U056	1000 (454)
Benzene, methyl-	108-88-3	1,2,3,4	U220	1000 (454)
Benzene, 1-methyl-2,4-dinitro-	121-14-2	1,2,3,4	U105	10 (4.54)
Benzene, 2-methyl-1,3-dinitro-	606-20-2	1,2,4	U106	100 (45.4)
Benzene, (1-methylethyl)-	98-82-8	3,4	U055	5000 (2270)
Benzene, nitro-	98-95-3	1,2,3,4	U169	1000 (454)
Benzene, pentachloro-	608-93-5	4	U183	10 (4.54)
Benzene, pentachloronitro-	82-68-8	3,4	U185	100 (45.4)
Benzenesulfonic acid chloride	98-09-9	4	U020	100 (45.4)
Benzenesulfonyl chloride	98-09-9	4	U020	100 (45.4)
Benzene,1,2,4,5-tetrachloro-	95-94-3	4	U207	5000 (2270)
Benzenethiol	108-98-5	4	P014	100 (45.4)
Benzene,1,1'-(2,2,2-trichloroethylidene) bis[4-chloro-	50-29-3	1,2,4	U061	1 (0.454)
Benzene,1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-	72-43-5	1,3,4	U247	1 (0.454)
Benzene, (trichloromethyl)-	98-07-7	3,4	U023	10 (4.54)
Benzene, 1,3,5-trinitro-	99-35-4	4	U234	10 (4.54)
Benzidine	92-87-5	2,3,4	U021	1 (0.454)
1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts	81-07-2	4	U202	100 (45.4)
Benzo[a]anthracene	56-55-3	2,4	U018	10 (4.54)
1,3-Benzodioxole, 5-(1-propenyl)-1	120-58-1	4	U141	100 (45.4)
1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	4	U203	100 (45.4)
1,3-Benzodioxole, 5-propyl-	94-58-6	4	U090	10 (4.54)
1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol) ..	22961-82-6	4	U364	##
1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb).	22781-23-3	4	U278	##
Benzo[b]fluoranthene	205-99-2	2		1 (0.454)
Benzo[k]fluoranthene	207-08-9	2		5000 (2270)
7-Benzofuranol, 2,3-dihydro-2,2-dimethyl- (Carbofuran phenol).	1563-38-8	4	U367	##
7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate.	1563-66-2	1,4	P127	10 (4.54)
Benzoic acid	65-85-0	1		5000 (2270)
Benzoic acid, 2-hydroxy-, compd. with (3aS- cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate).	57-64-7	4	P188	##
Benzonitrile	100-47-0	1		5000 (2270)
Benzo[st]pentaphene	189-55-9	4	U064	10 (4.54)
Benzo[ghi]perylene	191-24-2	2		5000 (2270)
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts.	81-81-2	4	P001 U248	100 (45.4)
Benzo[a]pyrene	50-32-8	2,4	U022	1 (0.454)
3,4-Benzopyrene	50-32-8	2,4	U022	1 (0.454)
p-Benzoquinone	106-51-4	3,4	U197	10 (4.54)
Benzotrichloride	98-07-7	3,4	U023	10 (4.54)
Benzoyl chloride	98-88-4	1		1000 (454)
Benzyl chloride	100-44-7	1,3,4	P028	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Beryllium dagger;dagger;	7440-41-7	2,3,4	P015	10 (4.54)
BERYLLIUM AND COMPOUNDS	N.A.	2,3		**
Beryllium chloride	7787-47-5	1		1 (0.454)
Beryllium compounds	N.A.	2,3		**
Beryllium fluoride	7787-49-7	1		1 (0.454)
Beryllium nitrate	13597-99-4	1		1 (0.454)
Beryllium powder dagger;dagger;	7440-41-7	2,3,4	P015	10 (4.54)
alpha-BHC	319-84-6	2		10 (4.54)
beta-BHC	319-85-7	2		1 (0.454)
delta-BHC	319-86-8	2		1 (0.454)
gamma-BHC	58-89-9	1,2,3,4	U129	1 (0.454)
2,2'-Bioxirane	1464-53-5	4	U085	10 (4.54)
Biphenyl	92-52-4	3		100 (45.4)
[1,1'-Biphenyl]-4,4'-diamine	92-87-5	2,3,4	U021	1 (0.454)
[1,1'-Biphenyl]-4,4'-diamine,3,3'-dichloro-	91-94-1	2,3,4	U073	1 (0.454)
[1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethoxy-	119-90-4	3,4	U091	100 (45.4)
[1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethyl-	119-93-7	3,4	U095	10 (4.54)
Bis(2-chloroethoxy) methane	111-91-1	2,4	U024	1000 (454)
Bis(2-chloroethyl) ether	111-44-4	2,3,4	U025	10 (4.54)
Bis(chloromethyl) ether	542-88-1	2,3,4	P016	10 (4.54)
Bis(2-ethylhexyl) phthalate	117-81-7	3,4	U028	100 (45.4)
Bromoacetone	598-31-2	4	P017	1000 (454)
Bromoform	75-25-2	2,3,4	U225	100 (45.4)
Bromomethane	74-83-9	2,3,4	U029	1000 (454)
4-Bromophenyl phenyl ether	101-55-3	2,4	U030	100 (45.4)
Brucine	357-57-3	4	P018	100 (45.4)
1,3-Butadiene	106-99-0	3		10 (4.54)
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87-68-3	2,3,4	U128	1 (0.454)
1-Butanamine, N-butyl-N-nitroso-	924-16-3	4	U172	10 (4.54)
1-Butanol	71-36-3	4	U031	5000 (2270)
2-Butanone	78-93-3	3,4	U159	5000 (2270)
2-Butanone, 3,3-dimethyl-1(methylthio)-, O-[(methylamino)carbonyl] oxime.	39196-18-4	4	P045	100 (45.4)
2-Butanone peroxide	1338-23-4	4	U160	10 (4.54)
2-Butenal	123-73-9	1,4	U053	100 (45.4)
2-Butene, 1,4-dichloro-	4170-30-3			
2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3- methyl-1-oxobutoxy] methyl]-2,3, 5,7a-tetrahydro- 1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), 7(2S*,3R*),7aalpha]]-.	764-41-0	4	U074	1 (0.454)
2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3- methyl-1-oxobutoxy] methyl]-2,3, 5,7a-tetrahydro- 1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), 7(2S*,3R*),7aalpha]]-.	303-34-4	4	U143	10 (4.54)
Butyl acetate	123-86-4	1		5000 (2270)
iso-Butyl acetate	110-19-0			
sec-Butyl acetate	105-46-4			
tert-Butyl acetate	540-88-5			
n-Butyl alcohol	71-36-3	4	U031	5000 (2270)
Butylamine	109-73-9	1		1000 (454)
iso-Butylamine	78-81-9			
sec-Butylamine	513-49-5			
tert-Butylamine	13952-84-6			
Butyl benzyl phthalate	75-64-9			
n-Butyl phthalate	85-68-7	2		100 (45.4)
Butyric acid	84-74-2	1,2,3,4	U069	10 (4.54)
iso-Butyric acid	107-92-6	1		5000 (2270)
Cacodylic acid	79-31-2			
Cadmium dagger;dagger;	75-60-5	4	U136	1 (0.454)
Cadmium acetate	7440-43-9	2		10 (4.54)
CADMIUM AND COMPOUNDS	543-90-8	1		10 (4.54)
Cadmium bromide	N.A.	2,3		**
Cadmium chloride	7789-42-6	1		10 (4.54)
Cadmium compounds	10108-64-2	1		10 (4.54)
Calcium arsenate	N.A.	2,3		**
Calcium arsenite	7778-44-1	1		1 (0.454)
Calcium carbide	52740-16-6	1		1 (0.454)
Calcium chromate	75-20-7	1		10 (4.54)
Calcium cyanamide	13765-19-0	1,4	U032	10 (4.54)
Calcium cyanide Ca(CN)2	156-62-7	3		1000 (454)
Calcium cyanide Ca(CN)2	592-01-8	1,4	P021	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Calcium dodecylbenzenesulfonate	26264-06-2	1		1000 (454)
Calcium hypochlorite	7778-54-3	1		10 (4.54)
Captan	133-06-2	1,3		10 (4.54)
Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim).	10605-21-7	4	U372	##
Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester (Benomyl).	17804-35-2	4	U271	##
Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester (Barban).	101-27-9	4	U280	##
Carbamic acid, [(dibutylamino)thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan).	55285-14-8	4	P189	##
Carbamic acid, dimethyl-, 1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester (Dimetilan).	644-64-4	4	P191	##
Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan).	119-38-0	4	P192	##
Carbamic acid, ethyl ester	51-79-6	3,4	U238	100 (45.4)
Carbamic acid, methyl-, 3-methylphenyl ester (Metolcarb)	1129-41-5	4	P190	##
Carbamic acid, methylnitroso-, ethyl ester	615-53-2	4	U178	1 (0.454)
Carbamic acid, [1,2-phenylenebis(iminocarbonothioyl)] bis-, dimethyl ester (Thiophanate-methyl).	23564-05-8	4	U409	##
Carbamic acid, phenyl-, 1-methylethyl ester (Propham)	122-42-9	4	U373	##
Carbamic chloride, dimethyl-	79-44-7	3,4	U097	1 (0.454)
Carbamodithioic acid, 1,2-ethanediybis-, salts & esters	111-54-6	4	U114	5000 (2270)
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester.	2303-16-4	4	U062	100 (45.4)
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate).	2303-17-5	4	U389	##
Carbamothioic acid, dipropyl-, S - (phenylmethyl) ester (Prosulfocarb).	52888-80-9	4	U387	##
Carbaryl	63-25-2	1,3,4	U279	100 (45.4)
Carbofuran	1563-66-2	1,4	P127	10 (4.54)
Carbon disulfide	75-15-0	1,3,4	P022	100 (45.4)
Carbonic acid, dithallium(1+) salt	6533-73-9	4	U215	100 (45.4)
Carbonic dichloride	75-44-5	1,3,4	P095	10 (4.54)
Carbonic difluoride	353-50-4	4	U033	1000 (454)
Carbonochloridic acid, methyl ester	79-22-1	4	U156	1000 (454)
Carbon oxyfluoride	353-50-4	4	U033	1000 (454)
Carbon tetrachloride	56-23-5	1,2,3,4	U211	10 (4.54)
Carbonyl sulfide	463-58-1	3		100 (45.4)
Catechol	120-80-9	3		100 (45.4)
Chloral	75-87-6	4	U034	5000 (2270)
Chloramben	133-90-4	3		100 (45.4)
Chlorambucil	305-03-3	4	U035	10 (4.54)
Chlordane	57-74-9	1,2,3,4	U036	1 (0.454)
Chlordane, alpha & gamma isomers	57-74-9	1,2,3,4	U036	1 (0.454)
CHLORDANE (TECHNICAL MIXTURE AND METABOLITES).	57-74-9	1,2,3,4	U036	1 (0.454)
CHLORINATED BENZENES	N.A.	2		**
Chlorinated camphene	8001-35-2	1,2,3,4	P123	1 (0.454)
CHLORINATED ETHANES	N.A.	2		**
CHLORINATED NAPHTHALENE	N.A.	2		**
CHLORINATED PHENOLS	N.A.	2		**
Chlorine	7782-50-5	1,3		10 (4.54)
Chloromaphazine	494-03-1	4	U026	100 (45.4)
Chloroacetaldehyde	107-20-0	4	P023	1000 (454)
Chloroacetic acid	79-11-8	3		100 (45.4)
2-Chloroacetophenone	532-27-4	3		100 (45.4)
CHLOROALKYL ETHERS	N.A.	2		**
p-Chloroaniline	106-47-8	4	P024	1000 (454)
Chlorobenzene	108-90-7	1,2,3,4	U037	100 (45.4)
Chlorobenzilate	510-15-6	3,4	U038	10 (4.54)
p-Chloro-m-cresol	59-50-7	2,4	U039	5000 (2270)
Chlorodibromomethane	124-48-1	2		100 (45.4)
1-Chloro-2,3-epoxypropane	106-89-8	1,3,4	U041	100 (45.4)
Chloroethane	75-00-3	2,3		100 (45.4)
2-Chloroethyl vinyl ether	110-75-8	2,4	U042	1000 (454)
Chloroform	67-66-3	1,2,3,4	U044	10 (4.54)
Chloromethane	74-87-3	2,3,4	U045	100 (45.4)
Chloromethyl methyl ether	107-30-2	3,4	U046	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
beta-Chloronaphthalene	91-58-7	2,4	U047	5000 (2270)
2-Chloronaphthalene	91-58-7	2,4	U047	5000 (2270)
2-Chlorophenol	95-57-8	2,4	U048	100 (45.4)
o-Chlorophenol	95-57-8	2,4	U048	100 (45.4)
4-Chlorophenyl phenyl ether	7005-72-3	2		5000 (2270)
1-(o-Chlorophenyl)thiourea	5344-82-1	4	P026	100 (45.4)
Chloroprene	126-99-8	3		100 (45.4)
3-Chloropropionitrile	542-76-7	4	P027	1000 (454)
Chlorosulfonic acid	7790-94-5	1		1000 (454)
4-Chloro-o-toluidine, hydrochloride	3165-93-3	4	U049	100 (45.4)
Chlorpyrifos	2921-88-2	1		1 (0.454)
Chromic acetate	1066-30-4	1		1000 (454)
Chromic acid	11115-74-5	1		10 (4.54)
	7738-94-5			
Chromic acid H ₂ CrO ₄ , calcium salt	13765-19-0	1,4	U032	10 (4.54)
Chromic sulfate	10101-53-8	1		1000 (454)
Chromium dagger,dagger;	7440-47-3	2		5000 (2270)
CHROMIUM AND COMPOUNDS	N.A.	2,3		**
Chromium Compounds	N.A.	2,3		**
Chromous chloride	10049-05-5	1		1000 (454)
Chrysene	218-01-9	2,4	U050	100 (45.4)
Cobalt Compounds	N.A.	3		**
Cobaltous bromide	7789-43-7	1		1000 (454)
Cobaltous formate	544-18-3	1		1000 (454)
Cobaltous sulfamate	14017-41-5	1		1000 (454)
Coke Oven Emissions	N.A.	3		1 (0.454)
Copper dagger,dagger;	7440-50-8	2		5000 (2270)
COPPER AND COMPOUNDS	N.A.	2		**
Copper cyanide Cu(CN)	544-92-3	4	P029	10 (4.54)
Coumaphos	56-72-4	1		10 (4.54)
Creosote	N.A.	4	U051	1 (0.454)
Cresol (cresylic acid)	1319-77-3	1,3,4	U052	100 (45.4)
m-Cresol	108-39-4	3		100 (45.4)
o-Cresol	95-48-7	3		100 (45.4)
p-Cresol	106-44-5	3		100 (45.4)
Cresols (isomers and mixture)	1319-77-3	1,3,4	U052	100 (45.4)
Cresylic acid (isomers and mixture)	1319-77-3	1,3,4	U052	100 (45.4)
Crotonaldehyde	123-73-9	1,4	U053	100 (45.4)
	4170-30-3			
Cumene	98-82-8	3,4	U055	5000 (2270)
Cupric acetate	142-71-2	1		100 (45.4)
Cupric acetoarsenite	12002-03-8	1		1 (0.454)
Cupric chloride	7447-39-4	1		10 (4.54)
Cupric nitrate	3251-23-8	1		100 (45.4)
Cupric oxalate	5893-66-3	1		100 (45.4)
Cupric sulfate	7758-98-7	1		10 (4.54)
Cupric sulfate, ammoniated	10380-29-7	1		100 (45.4)
Cupric tartrate	815-82-7	1		100 (45.4)
Cyanide Compounds	N.A.	2,3		**
CYANIDES	N.A.	2,3		**
Cyanides (soluble salts and complexes) not otherwise specified.	N.A.	4	P030	10 (4.54)
Cyanogen	460-19-5	4	P031	100 (45.4)
Cyanogen bromide (CN)Br	506-68-3	4	U246	1000 (454)
Cyanogen chloride (CN)Cl	506-77-4	1,4	P033	10 (4.54)
2,5-Cyclohexadiene-1,4-dione	106-51-4	3,4	U197	10 (4.54)
Cyclohexane	110-82-7	1,4	U056	1000 (454)
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1 α , 2 α , 3 β -, 4 α , 5 α , 6 β).	58-89-9	1,2,3,4	U129	1 (0.454)
Cyclohexanone	108-94-1	4	U057	5000 (2270)
2-Cyclohexyl-4,6-dinitrophenol	131-89-5	4	P034	100 (45.4)
1,3-Cyclopentadiene, 1,2,3,4,5-hexachloro-	77-47-4	1,2,3,4	U130	10 (4.54)
Cyclophosphamide	50-18-0	4	U058	10 (4.54)
2,4-D Acid	94-75-7	1,3,4	U240	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
2,4-D Ester	94-11-1 94-79-1 94-80-4 1320-18-9 1928-38-7 1928-61-6 1929-73-3 2971-38-2 25168-26-7 53467-11-1	1		100 (45.4)
2,4-D, salts and esters	94-75-7	1,3,4	U240	100 (45.4)
Daunomycin	20830-81-3	4	U059	10 (4.54)
DDD	72-54-8	1,2,4	U060	1 (0.454)
4,4'-DDD	72-54-8	1,2,4	U060	1 (0.454)
DDE ^b	72-55-9	2		1 (0.454)
DDE ^b	3547-04-4	3		5000 (2270)
4,4'-DDE	72-55-9	2		1 (0.454)
DDT	50-29-3	1,2,4	U061	1 (0.454)
4,4'-DDT	50-29-3	1,2,4	U061	1 (0.454)
DDT AND METABOLITES	N.A.	2		**
DEHP	117-81-7	2,3,4	U028	100 (45.4)
Diallate	2303-16-4	4	U062	100 (45.4)
Diazinon	333-41-5	1		1 (0.454)
Diazomethane	334-88-3	3		100 (45.4)
Dibenz[a,h]anthracene	53-70-3	2,4	U063	1 (0.454)
1,2:5,6-Dibenzanthracene	53-70-3	2,4	U063	1 (0.454)
Dibenzo[a,h]anthracene	53-70-3	2,4	U063	1 (0.454)
Dibenzofuran	132-64-9	3		100 (45.4)
Dibenzo[a,i]pyrene	189-55-9	4	U064	10 (4.54)
1,2-Dibromo-3-chloropropane	96-12-8	3,4	U066	1 (0.454)
Dibromoethane	106-93-4	1,3,4	U067	1 (0.454)
Dibutyl phthalate	84-74-2	1,2,3,4	U069	10 (4.54)
Di-n-butyl phthalate	84-74-2	1,2,3,4	U069	10 (4.54)
Dicamba	1918-00-9	1		1000 (454)
Dichlobenil	1194-65-6	1		100 (45.4)
Dichlone	117-80-6	1		1 (0.454)
Dichlorobenzene	25321-22-6	1		100 (45.4)
1,2-Dichlorobenzene	95-50-1	1,2,4	U070	100 (45.4)
1,3-Dichlorobenzene	541-73-1	2,4	U071	100 (45.4)
1,4-Dichlorobenzene	106-46-7	1,2,3,4	U072	100 (45.4)
m-Dichlorobenzene	541-73-1	2,4	U071	100 (45.4)
o-Dichlorobenzene	95-50-1	1,2,4	U070	100 (45.4)
p-Dichlorobenzene	106-46-7	1,2,3,4	U072	100 (45.4)
DICHLOROBENZIDINE	N.A.	2		**
3,3'-Dichlorobenzidine	91-94-1	2,3,4	U073	1 (0.454)
Dichlorobromomethane	75-27-4	2		5000 (2270)
1,4-Dichloro-2-butene	764-41-0	4	U074	1 (0.454)
Dichlorodifluoromethane	75-71-8	4	U075	5000 (2270)
1,1-Dichloroethane	75-34-3	2,3,4	U076	1000 (454)
1,2-Dichloroethane	107-06-2	1,2,3,4	U077	100 (45.4)
1,1-Dichloroethylene	75-35-4	1,2,3,4	U078	100 (45.4)
1,2-Dichloroethylene	156-60-5	2,4	U079	1000 (454)
Dichloroethyl ether	111-44-4	2,3,4	U025	10 (4.54)
Dichloroisopropyl ether	108-60-1	2,4	U027	1000 (454)
Dichloromethane	75-09-2	2,3,4	U080	1000 (454)
Dichloromethoxyethane	111-91-1	2,4	U024	1000 (454)
Dichloromethyl ether	542-88-1	2,3,4	P016	10 (4.54)
2,4-Dichlorophenol	120-83-2	2,4	U081	100 (45.4)
2,6-Dichlorophenol	87-65-0	4	U082	100 (45.4)
Dichlorophenylarsine	696-28-6	4	P036	1 (0.454)
Dichloropropane	26638-19-7	1		1000 (454)
1,1-Dichloropropane	78-99-9			
1,3-Dichloropropane	142-28-9			
1,2-Dichloropropane	78-87-5	1,2,3,4	U083	1000 (454)
Dichloropropane—Dichloropropene (mixture)	8003-19-8	1		100 (45.4)
Dichloropropene	26952-23-8	1		100 (45.4)
2,3-Dichloropropene	78-88-6			
1,3-Dichloropropene	542-75-6	1,2,3,4	U084	100 (45.4)
2,2-Dichloropropionic acid	75-99-0	1		5000 (2270)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Dichlorvos	62-73-7	1,3		10 (4.54)
Dicofol	115-32-2	1		10 (4.54)
Dieldrin	60-57-1	1,2,4	P037	1 (0.454)
1,2:3,4-Diepoxybutane	1464-53-5	4	U085	10 (4.54)
Diethanolamine	111-42-2	3		100 (45.4)
Diethylamine	109-89-7	1		100 (45.4)
N,N-Diethylaniline	91-66-7	3		1000 (454)
Diethylarsine	692-42-2	4	P038	1 (0.454)
1,4-Diethyleneoxide	123-91-1	3,4	U108	100 (45.4)
Diethylhexyl phthalate	117-81-7	2,3,4	U028	100 (45.4)
N,N'-Diethylhydrazine	1615-80-1	4	U086	10 (4.54)
O,O-Diethyl S-methyl dithiophosphate	3288-58-2	4	U087	5000 (2270)
Diethyl-p-nitrophenyl phosphate	311-45-5	4	P041	100 (45.4)
Diethyl phthalate	84-66-2	2,4	U088	1000 (454)
O,O-Diethyl O-pyrazinyl phosphorothioate	297-97-2	4	P040	100 (45.4)
Diethylstilbestrol	56-53-1	4	U089	1 (0.454)
Diethyl sulfate	64-67-5	3		10 (4.54)
Dihydrosafrole	94-58-6	4	U090	10 (4.54)
Diisopropylfluorophosphate (DFP)	55-91-4	4	P043	100 (45.4)
1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4beta,5alpha,8alpha,8beta)-	309-00-2	1,2,4	P004	1 (0.454)
1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4beta,5beta,8beta,8beta)-	465-73-6	4	P060	1 (0.454)
2,7:3,6-Dimethanonaphth[2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-(1alpha,2beta,2alpha,3beta,6beta,6alpha,7beta,7alpha)-	60-57-1	1,2,4	P037	1 (0.454)
2,7:3,6-Dimethanonaphth[2,3-b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-(1alpha,2beta,2alpha,3beta,6beta,6alpha,7beta,7alpha)-, & metabolites.	72-20-8	1,2,4	P051	1 (0.454)
Dimethoate	60-51-5	4	P044	10 (4.54)
3,3'-Dimethoxybenzidine	119-90-4	3,4	U091	100 (45.4)
Dimethylamine	124-40-3	1,4	U092	1000 (454)
Dimethyl aminoazobenzene	60-11-7	3,4	U093	10 (4.54)
p-Dimethylaminoazobenzene	60-11-7	3,4	U093	10 (4.54)
N,N-Dimethylaniline	121-69-7	3		100 (45.4)
7,12-Dimethylbenz[a]anthracene	57-97-6	4	U094	1 (0.454)
3,3'-Dimethylbenzidine	119-93-7	3,4	U095	10 (4.54)
alpha, alpha-Dimethylbenzylhydroperoxide	80-15-9	4	U096	10 (4.54)
Dimethylcarbamoyl chloride	79-44-7	3,4	U097	1 (0.454)
Dimethylformamide	68-12-2	3		100 (45.4)
1,1-Dimethylhydrazine	57-14-7	3,4	U098	10 (4.54)
1,2-Dimethylhydrazine	540-73-8	4	U099	1 (0.454)
alpha, alpha-Dimethylphenethylamine	122-09-8	4	P046	5000 (2270)
2,4-Dimethylphenol	105-67-9	2,4	U101	100 (45.4)
Dimethyl phthalate	131-11-3	2,3,4	U102	5000 (2270)
Dimethyl sulfate	77-78-1	3,4	U103	100 (45.4)
Dinitrobenzene (mixed)	25154-54-5	1		100 (45.4)
m-Dinitrobenzene	99-65-0			
o-Dinitrobenzene	528-29-0			
p-Dinitrobenzene	100-25-4			
4,6-Dinitro-o-cresol, and salts	534-52-1	2,3,4	P047	10 (4.54)
Dinitrophenol	25550-58-7	1		10 (4.54)
2,5-Dinitrophenol	329-71-5			
2,6-Dinitrophenol	573-56-8			
2,4-Dinitrophenol	51-28-5	1,2,3,4	P048	10 (4.54)
Dinitrotoluene	25321-14-6	1,2		10 (4.54)
3,4-Dinitrotoluene	610-39-9			
2,4-Dinitrotoluene	121-14-2	1,2,3,4	U105	10 (4.54)
2,6-Dinitrotoluene	606-20-2	1,2,4	U106	100 (45.4)
Dinoseb	88-85-7	4	P020	1000 (454)
Di-n-octyl phthalate	117-84-0	2,4	U107	5000 (2270)
1,4-Dioxane	123-91-1	3,4	U108	100 (45.4)
DIPHENYLHYDRAZINE	N.A.	2		**
1,2-Diphenylhydrazine	122-66-7	2,3,4	U109	10 (4.54)
Diphosphoramidate, octamethyl-	152-16-9	4	P085	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Diphosphoric acid, tetraethyl ester	107-49-3	1,4	P111	10 (4.54)
Dipropylamine	142-84-7	4	U110	5000 (2270)
Di-n-propylnitrosamine	621-64-7	2,4	U111	10 (4.54)
Diquat	85-00-7	1		1000 (454)
	2764-72-9			
Disulfoton	298-04-4	1,4	P039	1 (0.454)
Dithiobiuret	541-53-7	4	P049	100 (45.4)
1,3-Dithiolane-2- carboxaldehyde, 2,4- dimethyl-O- [(methylamino)carbonyl] oxime (Tirpate).	26419-73-8	4	P185	##
Diuron	330-54-1	1		100 (45.4)
Dodecylbenzenesulfonic acid	27176-87-0	1		1000 (454)
Endosulfan	115-29-7	1,2,4	P050	1 (0.454)
alpha-Endosulfan	959-98-8	2		1 (0.454)
beta-Endosulfan	33213-65-9	2		1 (0.454)
ENDOSULFAN AND METABOLITES	N.A.	2		**
Endosulfan sulfate	1031-07-8	2		1 (0.454)
Endothall	145-73-3	4	P088	1000 (454)
Endrin	72-20-8	1,2,4	P051	1 (0.454)
Endrin aldehyde	7421-93-4	2		1 (0.454)
ENDRIN AND METABOLITES	N.A.	2		**
Endrin, & metabolites	72-20-8	1,2,4	P051	1 (0.454)
Epichlorohydrin	106-89-8	1,3,4	U041	100 (45.4)
Epinephrine	51-43-4	4	P042	1000 (454)
1,2-Epoxybutane	106-88-7	3		100 (45.4)
Ethanal	75-07-0	1,3,4	U001	1000 (454)
Ethanamine, N,N-diethyl-	121-44-8	1,3,4	U404	5000 (2270)
Ethanamine, N-ethyl-N-nitroso-	55-18-5	4	U174	1 (0.454)
1,2-Ethanediamine, N,N-dimethyl-N'-2- pyridinyl-N'-(2- thienylmethyl)-.	91-80-5	4	U155	5000 (2270)
Ethane, 1,2-dibromo-	106-93-4	1,3,4	U067	1 (0.454)
Ethane, 1,1-dichloro-	75-34-3	2,3,4	U076	1000 (454)
Ethane, 1,2-dichloro-	107-06-2	1,2,3,4	U077	100 (45.4)
Ethanedinitrile	460-19-5	4	P031	100 (45.4)
Ethane, hexachloro-	67-72-1	2,3,4	U131	100 (45.4)
Ethane, 1,1'-[methylenebis(oxy)]bis[2- chloro-	111-91-1	2,4	U024	1000 (454)
Ethane, 1,1'-oxybis-	60-29-7	4	U117	100 (45.4)
Ethane, 1,1'-oxybis[2-chloro-	111-44-4	2,3,4	U025	10 (4.54)
Ethane, pentachloro-	76-01-7	4	U184	10 (4.54)
Ethane, 1,1,1,2-tetrachloro-	630-20-6	4	U208	100 (45.4)
Ethane, 1,1,2,2-tetrachloro-	79-34-5	2,3,4	U209	100 (45.4)
Ethanethioamide	62-55-5	4	U218	10 (4.54)
Ethane, 1,1,1-trichloro-	71-55-6	2,3,4	U226	1000 (454)
Ethane, 1,1,2-trichloro-	79-00-5	2,3,4	U227	100 (45.4)
Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo- , methyl ester (A2213).	30558-43-1	4	U394	##
Ethanimidothioic acid, 2-(dimethylamino)-N- [[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester (Oxamyl).	23135-22-0	4	P194	##
Ethanimidothioic acid, N-[[[(methylamino) carbonyl]oxy]-, methyl ester.	16752-77-5	4	P066	100 (45.4)
Ethanimidothioic acid, N,N'[[thiois[(methylimino) carbonyloxy]]bis-, dimethyl ester (Thiodicarb).	59669-26-0	4	U410	##
Ethanol, 2-ethoxy-	110-80-5	4	U359	1000 (454)
Ethanol, 2,2'-(nitrosoimino)bis-	1116-54-7	4	U173	1 (0.454)
Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate).	5952-26-1	4	U395	##
Ethanone, 1-phenyl-	98-86-2	3,4	U004	5000 (2270)
Ethene, chloro-	75-01-4	2,3,4	U043	1 (0.454)
Ethene, (2-chloroethoxy)-	110-75-8	2,4	U042	1000 (454)
Ethene, 1,1-dichloro-	75-35-4	1,2,3,4	U078	100 (45.4)
Ethene, 1,2-dichloro-(E)	156-60-5	2,4	U079	1000 (454)
Ethene, tetrachloro-	127-18-4	2,3,4	U210	100 (45.4)
Ethene, trichloro-	79-01-6	1,2,3,4	U228	100 (45.4)
Ethion	563-12-2	1		10 (4.54)
Ethyl acetate	141-78-6	4	U112	5000 (2270)
Ethyl acrylate	140-88-5	3,4	U113	1000 (454)
Ethylbenzene	100-41-4	1,2,3		1000 (454)
Ethyl carbamate	51-79-6	3,4	U238	100 (45.4)
Ethyl chloride	75-00-3	2,3		100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Ethyl cyanide	107-12-0	4	P101	10 (4.54)
Ethylenebisdithiocarbamic acid, salts & esters	111-54-6	4	U114	5000 (2270)
Ethylenediamine	107-15-3	1		5000 (2270)
Ethylenediamine-tetraacetic acid (EDTA)	60-00-4	1		5000 (2270)
Ethylene dibromide	106-93-4	1,3,4	U067	1 (0.454)
Ethylene dichloride	107-06-2	1,2,3,4	U077	100 (45.4)
Ethylene glycol	107-21-1	3		5000 (2270)
Ethylene glycol monoethyl ether	110-80-5	4	U359	1000 (454)
Ethylene oxide	75-21-8	3,4	U115	10 (4.54)
Ethylenethiourea	96-45-7	3,4	U116	10 (4.54)
Ethylenimine	151-56-4	3,4	P054	1 (0.454)
Ethyl ether	60-29-7	4	U117	100 (45.4)
Ethylidene dichloride	75-34-3	2,3,4	U076	1000 (454)
Ethyl methacrylate	97-63-2	4	U118	1000 (454)
Ethyl methanesulfonate	62-50-0	4	U119	1 (0.454)
Famphur	52-85-7	4	P097	1000 (454)
Ferric ammonium citrate	1185-57-5	1		1000 (454)
Ferric ammonium oxalate	2944-67-4	1		1000 (454)
	55488-87-4			
Ferric chloride	7705-08-0	1		1000 (454)
Ferric fluoride	7783-50-8	1		100 (45.4)
Ferric nitrate	10421-48-4	1		1000 (454)
Ferric sulfate	10028-22-5	1		1000 (454)
Ferrous ammonium sulfate	10045-89-3	1		1000 (454)
Ferrous chloride	7758-94-3	1		100 (45.4)
Ferrous sulfate	7720-78-7	1		1000 (454)
	7782- 63-0			
Fine mineral fibers ^c	N.A.	3		**
Fluoranthene	206-44-0	2,4	U120	100 (45.4)
Fluorene	86-73-7	2		5000 (2270)
Fluorine	7782-41-4	4	P056	10 (4.54)
Fluoroacetamide	640-19-7	4	P057	100 (45.4)
Fluoroacetic acid, sodium salt	62-74-8	4	P058	10 (4.54)
Formaldehyde	50-00-0	1,3,4	U122	100 (45.4)
Formic acid	64-18-6	1,4	U123	5000 (2270)
Fulminic acid, mercury(2+)-salt	628-86-4	4	P065	10 (4.54)
Fumaric acid	110-17-8	1		5000 (2270)
Furan	110-00-9	4	U124	100 (45.4)
2-Furancarboxaldehyde	98-01-1	1,4	U125	5000 (2270)
2,5-Furandione	108-31-6	1,3,4	U147	5000 (2270)
Furan, tetrahydro-	109-99-9	4	U213	1000 (454)
Furfural	98-01-1	1,4	U125	5000 (2270)
Furfuran	110-00-9	4	U124	100 (45.4)
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitroso-ureido)-, D-	18883-66-4	4	U206	1 (0.454)
D-Glucose, 2-deoxy-2-[[[(methylnitrosoamino)-carbonyl]amino]-	18883-66-4	4	U206	1 (0.454)
Glycidylaldehyde	765-34-4	4	U126	10 (4.54)
Glycol ethers ^d	N.A.	3		**
Guanidine, N-methyl-N'-nitro-N-nitroso-	70-25-7	4	U163	10 (4.54)
Guthion	86-50-0	1		1 (0.454)
HALOETHERS	N.A.	2		**
HALOMETHANES	N.A.	2		**
Heptachlor	76-44-8	1,2,3,4	P059	1 (0.454)
HEPTACHLOR AND METABOLITES	N.A.	2		**
Heptachlor epoxide	1024-57-3	2		1 (0.454)
Hexachlorobenzene	118-74-1	2,3,4	U127	10 (4.54)
Hexachlorobutadiene	87-68-3	2,3,4	U128	1 (0.454)
HEXACHLOROCYCLOHEXANE (all isomers)	608-73-1	2		**
Hexachlorocyclopentadiene	77-47-4	1,2,3,4	U130	10 (4.54)
Hexachloroethane	67-72-1	2,3,4	U131	100 (45.4)
Hexachlorophene	70-30-4	4	U132	100 (45.4)
Hexachloropropene	1888-71-7	4	U243	1000 (454)
Hexaethyl tetraphosphate	757-58-4	4	P062	100 (45.4)
Hexamethylene-1,6-diisocyanate	822-06-0	3		100 (45.4)
Hexamethylphosphoramide	680-31-9	3		1 (0.454)
Hexane	110-54-3	3		5000 (2270)
Hexone	108-10-1	3,4	U161	5000 (2270)
Hydrazine	302-01-2	3,4	U133	1 (0.454)
Hydrazinecarbothioamide	79-19-6	4	P116	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Hydrazine, 1,2-diethyl-	1615-80-1	4	U086	10 (4.54)
Hydrazine, 1,1-dimethyl-	57-14-7	3,4	U098	10 (4.54)
Hydrazine, 1,2-dimethyl-	540-73-8	4	U099	1 (0.454)
Hydrazine, 1,2-diphenyl-	122-66-7	2,3,4	U109	10 (4.54)
Hydrazine, methyl-	60-34-4	3,4	P068	10 (4.54)
Hydrochloric acid	7647-01-0	1,3		5000 (2270)
Hydrocyanic acid	74-90-8	1,4	P063	10 (4.54)
Hydrofluoric acid	7664-39-3	1,3,4	U134	100 (45.4)
Hydrogen chloride	7647-01-0	1,3		5000 (2270)
Hydrogen cyanide	74-90-8	1,4	P063	10 (4.54)
Hydrogen fluoride	7664-39-3	1,3,4	U134	100 (45.4)
Hydrogen phosphide	7803-51-2	3,4	P096	100 (45.4)
Hydrogen sulfide H2S	7783-06-4	1,4	U135	100 (45.4)
Hydroperoxide, 1-methyl-1-phenylethyl-	80-15-9	4	U096	10 (4.54)
Hydroquinone	123-31-9	3		100 (45.4)
2-Imidazolidinethione	96-45-7	3,4	U116	10 (4.54)
Indeno(1,2,3-cd)pyrene	193-39-5	2,4	U137	100 (45.4)
Iodomethane	74-88-4	3,4	U138	100 (45.4)
1,3-Isobenzofurandione	85-44-9	3,4	U190	5000 (2270)
Isobutyl alcohol	78-83-1	4	U140	5000 (2270)
Isodrin	465-73-6	4	P060	1 (0.454)
Isophorone	78-59-1	2,3		5000 (2270)
Isoprene	78-79-5	1		100 (45.4)
Isopropanolamine dodecylbenzenesulfonate	42504-46-1	1		1000 (454)
Isosafrole	120-58-1	4	U141	100 (45.4)
3(2H)-Isoxazolone, 5-(aminomethyl)-	2763-96-4	4	P007	1000 (454)
Kepone	143-50-0	1,4	U142	1 (0.454)
Lasiocarpine	303-34-4	4	U143	10 (4.54)
Lead††	7439-92-1	2		10 (4.54)
Lead acetate	301-04-2	1,4	U144	10 (4.54)
LEAD AND COMPOUNDS	N.A.	2,3		**
Lead arsenate	7784-40-9	1		1 (0.454)
	7645-25-2			
	10102-48-4			
Lead, bis(acetato-O)tetrahydroxytri-	1335-32-6	4	U146	10 (4.54)
Lead chloride	7758-95-4	1		10 (4.54)
Lead compounds	N.A.	2,3		**
Lead fluoborate	13814-96-5	1		10 (4.54)
Lead fluoride	7783-46-2	1		10 (4.54)
Lead iodide	10101-63-0	1		10 (4.54)
Lead nitrate	10099-74-8	1		10 (4.54)
Lead phosphate	7446-27-7	4	U145	10 (4.54)
Lead stearate	1072-35-1	1		10 (4.54)
	7428-48-0			
	52652-59-2			
	56189-09-4			
Lead subacetate	1335-32-6	4	U146	10 (4.54)
Lead sulfate	7446-14-2	1		10 (4.54)
	15739-80-7			
Lead sulfide	1314-87-0	1		10 (4.54)
Lead thiocyanate	592-87-0	1		10 (4.54)
Lindane	58-89-9	1,2,3,4	U129	1 (0.454)
Lindane (all isomers)	58-89-9	1,2,3,4	U129	1 (0.454)
Lithium chromate	14307-35-8	1		10 (4.54)
Malathion	121-75-5	1		100 (45.4)
Maleic acid	110-16-7	1		5000 (2270)
Maleic anhydride	108-31-6	1,3,4	U147	5000 (2270)
Maleic hydrazide	123-33-1	4	U148	5000 (2270)
Malononitrile	109-77-3	4	U149	1000 (454)
Manganese, bis(dimethylcarbamodithioato-S,S')-Manganese dimethyldithio-carbamate).	15339-36-3	4	P196	##
Manganese Compounds	N.A.	3		**
MDI	101-68-8	3		5000 (2270)
MEK	78-93-3	3,4	U159	5000 (2270)
Melphalan	148-82-3	4	U150	1 (0.454)
Mercaptodimethur	2032-65-7	1,4	P199	10 (4.54)
Mercuric cyanide	592-04-1	1		10 (4.54)
Mercuric nitrate	10045-94-0	1		10 (4.54)
Mercuric sulfate	7783-35-9	1		10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Mercuric thiocyanate	592-85-8	1		10 (4.54)
Mercurous nitrate	10415-75-5	1	10 (4.54)	7782-86-7
Mercury	7439-97-6	2,3,4	U151	1 (0.454)
MERCURY AND COMPOUNDS	N.A.	2,3		**
Mercury, (acetato-O)phenyl-	62-38-4	4	P092	100 (45.4)
Mercury Compounds	N.A.	2,3		**
Mercury fulminate	628-86-4	4	P065	10 (4.54)
Methacrylonitrile	126-98-7	4	U152	1000 (454)
Methanamine, N-methyl-	124-40-3	1,4	U092	1000 (454)
Methanamine, N-methyl-N-nitroso-	62-75-9	2,3,4	P082	10 (4.54)
Methane, bromo-	74-83-9	2,3,4	U029	1000 (454)
Methane, chloro-	74-87-3	2,3,4	U045	100 (45.4)
Methane, chloromethoxy-	107-30-2	3,4	U046	10 (4.54)
Methane, dibromo-	74-95-3	4	U068	1000 (454)
Methane, dichloro-	75-09-2	2,3,4	U080	1000 (454)
Methane, dichlorodifluoro-	75-71-8	4	U075	5000 (2270)
Methane, iodo-	74-88-4	3,4	U138	100 (45.4)
Methane, isocyanato-	624-83-9	3,4	P064	10 (4.54)
Methane, oxybis(chloro-	542-88-1	2,3,4	P016	10 (4.54)
Methanesulfonyl chloride, trichloro-	594-42-3	4	P118	100 (45.4)
Methanesulfonic acid, ethyl ester	62-50-0	4	U119	1 (0.454)
Methane, tetrachloro-	56-23-5	1,2,3,4	U211	10 (4.54)
Methane, tetranitro-	509-14-8	4	P112	10 (4.54)
Methanethiol	74-93-1	1,4	U153	100 (45.4)
Methane, tribromo-	75-25-2	2,3,4	U225	100 (45.4)
Methane, trichloro-	67-66-3	1,2,3,4	U044	10 (4.54)
Methane, trichlorofluoro-	75-69-4	4	U121	5000 (2270)
Methanimidamide, N,N-dimethyl-N'-[3- [[[(methylamino)carbonyl]oxy]phenyl]- monohydrochloride (Formetanate hydrochloride).	23422-53-9	4	P198	##
Methanimidamide, N,N-dimethyl-N'-[2-methyl-4- [[[(methylamino)carbonyl]oxy]phenyl]-(Formparanate).	17702-57-7	4	P197	##
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10- hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3-oxide.	115-29-7	1,2,4	P050	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro- 3a,4,7,7a-tetrahydro-	76-44-8	1,2,3,4	P059	1 (0.454)
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro- 2,3,3a,4,7,7a-hexahydro—	57-74-9	1,2,3,4	U036	1 (0.454)
Methanol	67-56-1	3,4	U154	5000 (2270)
Methapyriline	91-80-5	4	U155	5000 (2270)
1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5a,5b,6-decachlorooctahydro-	143-50-0	1,4	U142	1 (0.454)
Methiocarb	2032-65-7	1,4	P199	10 (4.54)
Methomyl	16752-77-5	4	P066	100 (45.4)
Methoxychlor	72-43-5	1,3,4	U247	1 (0.454)
Methyl alcohol	67-56-1	3,4	U154	5000 (2270)
2-Methyl aziridine	75-55-8	3,4	P067	1 (0.454)
Methyl bromide	74-83-9	2,3,4	U029	1000 (454)
1-Methylbutadiene	504-60-9	4	U186	100 (45.4)
Methyl chloride	74-87-3	2,3,4	U045	100 (45.4)
Methyl chlorocarbonate	79-22-1	4	U156	1000 (454)
Methyl chloroform	71-55-6	2,3,4	U226	1000 (454)
3-Methylcholanthrene	56-49-5	4	U157	10 (4.54)
4,4'-Methylenebis(2-chloroaniline)	101-14-4	3,4	U158	10 (4.54)
Methylene bromide	74-95-3	4	U068	1000 (454)
Methylene chloride	75-09-2	2,3,4	U080	1000 (454)
4,4'-Methylenedianiline	101-77-9	3		10 (4.54)
Methylene diphenyl diisocyanate	101-68-8	3		5000 (2270)
Methyl ethyl ketone	78-93-3	3,4	U159	5000 (2270)
Methyl ethyl ketone peroxide	1338-23-4	4	U160	10 (4.54)
Methyl hydrazine	60-34-4	3,4	P068	10 (4.54)
Methyl iodide	74-88-4	3,4	U138	100 (45.4)
Methyl isobutyl ketone	108-10-1	3,4	U161	5000 (2270)
Methyl isocyanate	624-83-9	3,4	P064	10 (4.54)
2-Methylacetonitrile	75-86-5	1,4	P069	10 (4.54)
Methyl mercaptan	74-93-1	1,4	U153	100 (45.4)
Methyl methacrylate	80-62-6	1,3,4	U162	1000 (454)
Methyl parathion	298-00-0	1,4	P071	100 (45.4)
4-Methyl-2-pentanone	108-10-1	3,4	U161	5000 (2270)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Methyl tert-butyl ether	1634-04-4	3		1000 (454)
Methylthiouracil	56-04-2	4	U164	10 (4.54)
Mevinphos	7786-34-7	1		10 (4.54)
Mexacarbate	315-18-4	1,4	P128	1000 (454)
Mitomycin C	50-07-7	4	U010	10 (4.54)
MNNG	70-25-7	4	U163	10 (4.54)
Monoethylamine	75-04-7	1		100 (45.4)
Monomethylamine	74-89-5	1		100 (45.4)
Naled	300-76-5	1		10 (4.54)
5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyloxy)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-.	20830-81-3	4	U059	10 (4.54)
1-Naphthalenamine	134-32-7	4	U167	100 (45.4)
2-Naphthalenamine	91-59-8	4	U168	10 (4.54)
Naphthalenamine, N,N'-bis(2-chloroethyl)-	494-03-1	4	U026	100 (45.4)
Naphthalene	91-20-3	1,2,3,4	U165	100 (45.4)
Naphthalene, 2-chloro-	91-58-7	2,4	U047	5000 (2270)
1,4-Naphthalenedione	130-15-4	4	U166	5000 (2270)
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.	72-57-1	4	U236	10 (4.54)
1-Naphthalenol, methylcarbamate	63-25-2	1,3,4	U279	100 (45.4)
Naphthenic acid	1338-24-5	1		100 (45.4)
1,4-Naphthoquinone	130-15-4	4	U166	5000 (2270)
alpha-Naphthylamine	134-32-7	4	U167	100 (45.4)
beta-Naphthylamine	91-59-8	4	U168	10 (4.54)
alpha-Naphthylthiourea	86-88-4	4	P072	100 (45.4)
Nickel††	7440-02-0	2		100 (45.4)
Nickel ammonium sulfate	15699-18-0	1		100 (45.4)
NICKEL AND COMPOUNDS	N.A.	2,3		**
Nickel carbonyl Ni(CO)4, (T-4)	13463-39-3	4	P073	10 (4.54)
Nickel chloride	7718-54-9	1		100 (45.4)
Nickel compounds	37211-05-5	2,3		**
Nickel cyanide Ni(CN)2	N.A.	2,3		**
Nickel cyanide Ni(CN)2	557-19-7	4	P074	10 (4.54)
Nickel hydroxide	12054-48-7	1		10 (4.54)
Nickel nitrate	14216-75-2	1		100 (45.4)
Nickel sulfate	7786-81-4	1		100 (45.4)
Nicotine, & salts	54-11-5	4	P075	100 (45.4)
Nitric acid	7697-37-2	1		1000 (454)
Nitric acid, thallium (1+) salt	10102-45-1	4	U217	100 (45.4)
Nitric oxide	10102-43-9	4	P076	10 (4.54)
p-Nitroaniline	100-01-6	4	P077	5000 (2270)
Nitrobenzene	98-95-3	1,2,3,4	U169	1000 (454)
4-Nitrobiphenyl	92-93-3	3		10 (4.54)
Nitrogen dioxide	10102-44-0	1,4	P078	10 (4.54)
Nitrogen oxide NO	10544-72-6			
Nitrogen oxide NO2	10102-43-9	4	P076	10 (4.54)
Nitrogen oxide NO2	10102-44-0	1,4	P078	10 (4.54)
Nitrogen oxide NO2	10544-72-6			
Nitroglycerine	55-63-0	4	P081	10 (4.54)
Nitrophenol (mixed)	25154-55-6	1		100 (45.4)
m-Nitrophenol	554-84-7			
o-Nitrophenol	88-75-5	1,2		100 (45.4)
p-Nitrophenol	100-02-7	1,2,3,4	U170	100 (45.4)
2-Nitrophenol	88-75-5	1,2		100 (45.4)
4-Nitrophenol	100-02-7	1,2,3,4	U170	100 (45.4)
NITROPHENOLS	N.A.	2		**
2-Nitropropane	79-46-9	3,4	U171	10 (4.54)
NITROSAMINES	N.A.	2		**
N-Nitrosodi-n-butylamine	924-16-3	4	U172	10 (4.54)
N-Nitrosodiethanolamine	1116-54-7	4	U173	1 (0.454)
N-Nitrosodimethylamine	55-18-5	4	U174	1 (0.454)
N-Nitrosodimethylamine	62-75-9	2,3,4	P082	10 (4.54)
N-Nitrosodiphenylamine	86-30-6	2		100 (45.4)
N-Nitroso-N-ethylurea	759-73-9	4	U176	1 (0.454)
N-Nitroso-N-methylurea	684-93-5	3,4	U177	1 (0.454)
N-Nitroso-N-methylurethane	615-53-2	4	U178	1 (0.454)
N-Nitrosomethylvinylamine	4549-40-0	4	P084	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
N-Nitrosomorpholine	59-89-2	3		1 (0.454)
N-Nitrosopiperidine	100-75-4	4	U179	10 (4.54)
N-Nitrosopyrrolidine	930-55-2	4	U180	1 (0.454)
Nitrotoluene	1321-12-6	1		1000 (454)
m-Nitrotoluene	99-08-1			
o-Nitrotoluene	88-72-2			
p-Nitrotoluene	99-99-0			
5-Nitro-o-toluidine	99-55-8	4	U181	100 (45.4)
Octamethylpyrophosphoramide	152-16-9	4	P085	100 (45.4)
Osmium oxide OsO ₄ , (T-4)-	20816-12-0	4	P087	1000 (454)
Osmium tetroxide	20816-12-0	4	P087	1000 (454)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145-73-3	4	P088	1000 (454)
1,2-Oxathiolane, 2,2-dioxide	1120-71-4	3,4	U193	10 (4.54)
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide.	50-18-0	4	U058	10 (4.54)
Oxirane	75-21-8	3,4	U115	10 (4.54)
Oxiranecarboxyaldehyde	765-34-4	4	U126	10 (4.54)
Oxirane, (chloromethyl)-	106-89-8	1,3,4	U041	100 (45.4)
Paraformaldehyde	30525-89-4	1		1000 (454)
Paraldehyde	123-63-7	4	U182	1000 (454)
Parathion	56-38-2	1,3,4	P089	10 (4.54)
PCBs	1336-36-3	1,2,3		1 (0.454)
PCNB	82-68-8	3,4	U185	100 (45.4)
Pentachlorobenzene	608-93-5	4	U183	10 (4.54)
Pentachloroethane	76-01-7	4	U184	10 (4.54)
Pentachloronitrobenzene	82-68-8	3,4	U185	100 (45.4)
Pentachlorophenol	87-86-5	1,2,3,4	See F027	10 (4.54)
1,3-Pentadiene	504-60-9	4	U186	100 (45.4)
Perchloroethylene	127-18-4	2,3,4	U210	100 (45.4)
Phenacetin	62-44-2	4	U187	100 (45.4)
Phenanthrene	85-01-8	2		5000 (2270)
Phenol	108-95-2	1,2,3,4	U188	1000 (454)
Phenol, 2-chloro-	95-57-8	2,4	U048	100 (45.4)
Phenol, 4-chloro-3-methyl-	59-50-7	2,4	U039	5000 (2270)
Phenol, 2-cyclohexyl-4,6-dinitro-	131-89-5	4	P034	100 (45.4)
Phenol, 2,4-dichloro-	120-83-2	2,4	U081	100 (45.4)
Phenol, 2,6-dichloro-	87-65-0	4	U082	100 (45.4)
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	56-53-1	4	U089	1 (0.454)
Phenol, 2,4-dimethyl-	105-67-9	2,4	U101	100 (45.4)
Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester).	315-18-4	1,4	P128	1000 (454)
Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	2032-65-7	1,4	P199	10 (4.54)
Phenol, 2,4-dinitro-	51-28-5	1,2,3,4	P048	10 (4.54)
Phenol, methyl-	1319-77-3	1,3,4	U052	100 (45.4)
Phenol, 2-methyl-4,6-dinitro-, & salts	534-52-1	2,3,4	P047	10 (4.54)
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70-30-4	4	U132	100 (45.4)
Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	3,4	U411	100 (45.4)
Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate).	64-00-6	4	P202	##
Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb).	2631-37-0	4	P201	##
Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7	4	P020	1000 (454)
Phenol, 4-nitro-	100-02-7	1,2,3,4	U170	100 (45.4)
Phenol, pentachloro-	87-86-5	1,2,3,4	See F027	10 (4.54)
Phenol, 2,3,4,6-tetrachloro-	58-90-2	4	See F027	10 (4.54)
Phenol, 2,4,5-trichloro-	95-95-4	1,3,4	See F027	10 (4.54)
Phenol, 2,4,6-trichloro-	88-06-2	1,2,3,4	See F027	10 (4.54)
Phenol, 2,4,6-trinitro-, ammonium salt	131-74-8	4	P009	10 (4.54)
L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-	148-82-3	4	U150	1 (0.454)
p-Phenylenediamine	106-50-3	3		5000 (2270)
Phenylmercury acetate	62-38-4	4	P092	100 (45.4)
Phenylthiourea	103-85-5	4	P093	100 (45.4)
Phorate	298-02-2	4	P094	10 (4.54)
Phosgene	75-44-5	1,3,4	P095	10 (4.54)
Phosphine	7803-51-2	3,4	P096	100 (45.4)
Phosphoric acid	7664-38-2	1		5000 (2270)
Phosphoric acid, diethyl 4-nitrophenyl ester	311-45-5	4	P041	100 (45.4)
Phosphoric acid, lead(2+) salt (2:3)	7446-27-7	4	U145	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester.	298-04-4	1,4	P039	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester.	298-02-2	4	P094	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288-58-2	4	U087	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester.	60-51-5	4	P044	10 (4.54)
Phosphorofluoric acid, bis(1-methylethyl) ester	55-91-4	4	P043	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56-38-2	1,3,4	P089	10 (4.54)
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297-97-2	4	P040	100 (45.4)
Phosphorothioic acid, O-[[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester.	52-85-7	4	P097	1000 (454)
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.	298-00-0	1,4	P071	100 (45.4)
Phosphorus	7723-14-0	1,3		1 (0.454)
Phosphorus oxychloride	10025-87-3	1		1000 (454)
Phosphorus pentasulfide	1314-80-3	1,4	U189	100 (45.4)
Phosphorus sulfide	1314-80-3	1,4	U189	100 (45.4)
Phosphorus trichloride	7719-12-2	1		1000 (454)
PHTHALATE ESTERS	N.A.	2		**
Phthalic anhydride	85-44-9	3,4	U190	5000 (2270)
2-Picoline	109-06-8	4	U191	5000 (2270)
Piperidine, 1-nitroso-	100-75-4	4	U179	10 (4.54)
Plumbane, tetraethyl-	78-00-2	1,4	P110	10 (4.54)
POLYCHLORINATED BIPHENYLS	1336-36-3	1,2,3		1 (0.454)
Polycyclic Organic Matter ⁵	N.A.	3		**
POLYNUCLEAR AROMATIC HYDROCARBONS	N.A.	2		**
Potassium arsenate	7784-41-0	1		1 (0.454)
Potassium arsenite	10124-50-2	1		1 (0.454)
Potassium bichromate	7778-50-9	1		10 (4.54)
Potassium chromate	7789-00-6	1		10 (4.54)
Potassium cyanide K(CN)	151-50-8	1,4	P098	10 (4.54)
Potassium hydroxide	1310-58-3	1		1000 (454)
Potassium permanganate	7722-64-7	1		100 (45.4)
Potassium silver cyanide	506-61-6	4	P099	1 (0.454)
Pronamide	23950-58-5	4	U192	5000 (2270)
Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone).	1646-88-4	4	P203	##
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime.	116-06-3	4	P070	1 (0.454)
1-Propanamine	107-10-8	4	U194	5000 (2270)
1-Propanamine, N-propyl-	142-84-7	4	U110	5000 (2270)
1-Propanamine, N-nitroso-N-propyl-	621-64-7	2,4	U111	10 (4.54)
Propane, 1,2-dibromo-3-chloro-	96-12-8	3,4	U066	1 (0.454)
Propane, 1,2-dichloro-	78-87-5	1,2,3,4	U083	1000 (454)
Propanedinitrile	109-77-3	4	U149	1000 (454)
Propanenitrile	107-12-0	4	P101	10 (4.54)
Propanenitrile, 3-chloro-	542-76-7	4	P027	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl-	75-86-5	1,4	P069	10 (4.54)
Propane, 2-nitro-	79-46-9	3,4	U171	10 (4.54)
Propane, 2,2'-oxybis[2-chloro-	108-60-1	2,4	U027	1000 (454)
1,3-Propane sultone	1120-71-4	3,4	U193	10 (4.54)
1,2,3-Propanetriol, trinitrate	55-63-0	4	P081	10 (4.54)
Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	1,4	See F027	100 (45.4)
1-Propanol, 2,3-dibromo-, phosphate (3:1)	126-72-7	4	U235	10 (4.54)
1-Propanol, 2-methyl-	78-83-1	4	U140	5000 (2270)
2-Propanone	67-64-1	4	U002	5000 (2270)
2-Propanone, 1-bromo-	598-31-2	4	P017	1000 (454)
Propargite	2312-35-8	1		10 (4.54)
Propargyl alcohol	107-19-7	4	P102	1000 (454)
2-Propenal	107-02-8	1,2,3,4	P003	1 (0.454)
2-Propenamide	79-06-1	3,4	U007	5000 (2270)
1-Propene, 1,3-dichloro-	542-75-6	1,2,3,4	U084	100 (45.4)
1-Propene, 1,1,2,3,3,3-hexachloro-	1888-71-7	4	U243	1000 (454)
2-Propenenitrile	107-13-1	1,2,3,4	U009	100 (45.4)
2-Propenenitrile, 2-methyl-	126-98-7	4	U152	1000 (454)
2-Propenoic acid	79-10-7	3,4	U008	5000 (2270)
2-Propenoic acid, ethyl ester	140-88-5	3,4	U113	1000 (454)
2-Propenoic acid, 2-methyl-, ethyl ester	97-63-2	4	U118	1000 (454)
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	1,3,4	U162	1000 (454)
2-Propen-1-ol	107-18-6	1,4	P005	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
beta-Propiolactone	57-57-8	3		10 (4.54)
Propionaldehyde	123-38-6	3	1000 (454)	
Propionic acid	79-09-4	1		5000 (2270)
Propionic anhydride	123-62-6	1		5000 (2270)
Propoxur (Baygon)	114-26-1	3,4	U411	100 (45.4)
n-Propylamine	107-10-8	4	U194	5000 (2270)
Propylene dichloride	78-87-5	1,2,3,4	U083	1000 (454)
Propylene oxide	75-56-9	1,3		100 (45.4)
1,2-Propylenimine	75-55-8	3,4	P067	1 (0.454)
2-Propyn-1-ol	107-19-7	4	P102	1000 (454)
Pyrene	129-00-0	2		5000 (2270)
Pyrethrins	121-29-9	1		1 (0.454)
	121-21-1			
	8003-34-7			
3,6-Pyridazinedione, 1,2-dihydro-	123-33-1	4	U148	5000 (2270)
4-Pyridinamine	504-24-5	4	P008	1000 (454)
Pyridine	110-86-1	4	U196	1000 (454)
Pyridine, 2-methyl-	109-06-8	4	U191	5000 (2270)
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts	54-11-5	4	P075	100 (45.4)
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66-75-1	4	U237	10 (4.54)
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56-04-2	4	U164	10 (4.54)
Pyrrolidine, 1-nitroso-	930-55-2	4	U180	1 (0.454)
Pyrrolo[2,3-b] indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-(Physostigmine).	57-47-6	4	P204	##
Quinoline	91-22-5	1,3		5000 (2270)
Quinone	106-51-4	3,4	U197	10 (4.54)
Quintobenzene	82-68-8	3,4	U185	100 (45.4)
Radionuclides (including radon)	N.A.	3		§
Reserpine	50-55-5	4	U200	5000 (2270)
Resorcinol	108-46-3	1,4	U201	5000 (2270)
Saccharin, & salts	81-07-2	4	U202	100 (45.4)
Safrole	94-59-7	4	U203	100 (45.4)
Selenious acid	7783-00-8	4	U204	10 (4.54)
Selenious acid, dithallium (1+) salt	12039-52-0	4	P114	1000 (454)
Seleniumdagger;dagger;	7782-49-2	2		100 (45.4)
SELENIUM AND COMPOUNDS	N.A.	2,3		**
Selenium Compounds	N.A.	2,3		**
Selenium dioxide	7446-08-4	1,4	U204	10 (4.54)
Selenium oxide	7446-08-4	1,4	U204	10 (4.54)
Selenium sulfide SeS2	7488-56-4	4	U205	10 (4.54)
Selenourea	630-10-4	4	P103	1000 (454)
L-Serine, diazoacetate (ester)	115-02-6	4	U015	1 (0.454)
Silver dagger;dagger;	7440-22-4	2		1000 (454)
SILVER AND COMPOUNDS	N.A.	2		**
Silver cyanide Ag(CN)	506-64-9	4	P104	1 (0.454)
Silver nitrate	7761-88-8	1		1 (0.454)
Silvex (2,4,5-TP)	93-72-1	1,4	See F027	100 (45.4)
Sodium	7440-23-5	1		10 (4.54)
Sodium arsenate	7631-89-2	1		1 (0.454)
Sodium arsenite	7784-46-5	1		1 (0.454)
Sodium azide	26628-22-8	4	P105	1000 (454)
Sodium bichromate	10588-01-9	1		10 (4.54)
Sodium bifluoride	1333-83-1	1		100 (45.4)
Sodium bisulfite	7631-90-5	1		5000 (2270)
Sodium chromate	7775-11-3	1		10 (4.54)
Sodium cyanide Na(CN)	143-33-9	1,4	P106	10 (4.54)
Sodium dodecylbenzenesulfonate	25155-30-0	1		1000 (454)
Sodium fluoride	7681-49-4	1		1000 (454)
Sodium hydrosulfide	16721-80-5	1		5000 (2270)
Sodium hydroxide	1310-73-2	1		1000 (454)
Sodium hypochlorite	7681-52-9	1		100 (45.4)
	10022-70-5			
Sodium methylate	124-41-4	1		1000 (454)
Sodium nitrite	7632-00-0	1		100 (45.4)
Sodium phosphate, dibasic	7558-79-4	1		5000 (2270)
	10039-32-4			
	10140-65-5			

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Sodium phosphate, tribasic	7601-54-9 7758-29-4 7785-84-4 10101-89-0 10124-56-8 10361-89-4	1		5000 (2270)
Sodium selenite	7782-82-3 10102-18-8	1		100 (45.4)
Streptozotocin	18883-66-4	4	U206	1 (0.454)
Strontium chromate	7789-06-2	1		10 (4.54)
Strychnidin-10-one, & salts	57-24-9	1,4	P108	10 (4.54)
Strychnidin-10-one, 2,3-dimethoxy-	357-57-3	4	P018	100 (45.4)
Strychnine, & salts	57-24-9	1,4	P108	10 (4.54)
Styrene	100-42-5	1,3		1000 (454)
Styrene oxide	96-09-3	3		100 (45.4)
Sulfuric acid	7664-93-9 8014-95-7	1		1000 (454)
Sulfuric acid, dimethyl ester	77-78-1	3,4	U103	100 (45.4)
Sulfuric acid, dithallium (1+) salt	7446-18-6 10031-59-1	1,4	P115	100 (45.4)
Sulfur monochloride	12771-08-3	1		1000 (454)
Sulfur phosphide	1314-80-3	1,4	U189	100 (45.4)
2,4,5-T	93-76-5	1,4	See F027	1000 (454)
2,4,5-T acid	93-76-5	1,4	See F027	1000 (454)
2,4,5-T amines	2008-46-0 1319-72-8 3813-14-7 6369-96-6 6369-97-7	1		5000 (2270)
2,4,5-T esters	93-79-8 1928-47-8 2545-59-7 25168-15-4 61792-07-2	1		1000 (454)
2,4,5-T salts	13560-99-1	1		1000 (454)
TCDD	1746-01-6	2,3		1 (0.454)
TDE	72-54-8	1,2,4	U060	1 (0.454)
1,2,4,5-Tetrachlorobenzene	95-94-3	4	U207	5000 (2270)
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	2,3		1 (0.454)
1,1,1,2-Tetrachloroethane	630-20-6	4	U208	100 (45.4)
1,1,2,2-Tetrachloroethane	79-34-5	2,3,4	U209	100 (45.4)
Tetrachloroethylene	127-18-4	2,3,4	U210	100 (45.4)
2,3,4,6-Tetrachlorophenol	58-90-2	4	See F027	10 (4.54)
Tetraethyl pyrophosphate	107-49-3	1,4	P111	10 (4.54)
Tetraethyl lead	78-00-2	1,4	P110	10 (4.54)
Tetraethyldithiopyrophosphate	3689-24-5	4	P109	100 (45.4)
Tetrahydrofuran	109-99-9	4	U213	1000 (454)
Tetranitromethane	509-14-8	4	P112	10 (4.54)
Tetraphosphoric acid, hexaethyl ester	757-58-4	4	P062	100 (45.4)
Thallic oxide	1314-32-5	4	P113	100 (45.4)
Thallium dagger;dagger;	7440-28-0	2		1000 (454)
THALLIUM AND COMPOUNDS	N.A.	2		**
Thallium (I) acetate	563-68-8	4	U214	100 (45.4)
Thallium (I) carbonate	6533-73-9	4	U215	100 (45.4)
Thallium chloride TlCl	7791-12-0	4	U216	100 (45.4)
Thallium (I) nitrate	10102-45-1	4	U217	100 (45.4)
Thallium oxide Tl2O3	1314-32-5	4	P113	100 (45.4)
Thallium (I) selenite	12039-52-0	4	P114	1000 (454)
Thallium (I) sulfate	7446-18-6 10031-59-1	1,4	P115	100 (45.4)
Thioacetamide	62-55-5	4	U218	10 (4.54)
Thiodiphosphoric acid, tetraethyl ester	3689-24-5	4	P109	100 (45.4)
Thiofanox	39196-18-4	4	P045	100 (45.4)
Thioimidodicarbonic diamide [(H2N)C(S)] 2NH	541-53-7	4	P049	100 (45.4)
Thiomethanol	74-93-1	1,4	U153	100 (45.4)
Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-	137-26-8	4	U244	10 (4.54)
Thiophenol	108-98-5	4	P014	100 (45.4)
Thiosemicarbazide	79-19-6	4	P116	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Thiourea	62-56-6	4	U219	10 (4.54)
Thiourea, (2-chlorophenyl)-	5344-82-1	4	P026	100 (45.4)
Thiourea, 1-naphthalenyl-	86-88-4	4	P072	100 (45.4)
Thiourea, phenyl-	103-85-5	4	P093	100 (45.4)
Thiram	137-26-8	4	U244	10 (4.54)
Titanium tetrachloride	7550-45-0	3		1,2,41000 (454)
Toluene	108-88-3	1,2,3,4	U220	1000 (454)
Toluenediamine	95-80-7	3,4	U221	10 (4.54)
	496-72-0			
	823-40-5			
	25376-45-8			
2,4-Toluene diamine	95-80-7	3,4	U221	10 (4.54)
	496-72-0			
	823-40-5			
	25376-45-8			
Toluene diisocyanate	91-08-7	3,4	U223	100 (45.4)
	584-84-9			
	26471-62-5			
2,4-Toluene diisocyanate	91-08-7	3,4	U223	100 (45.4)
	584-84-9			
	26471-62-5			
o-Toluidine	95-53-4	3,4	U328	100 (45.4)
p-Toluidine	106-49-0	4	U353	100 (45.4)
o-Toluidine hydrochloride	636-21-5	4	U222	100 (45.4)
Toxaphene	8001-35-2	1,2,3,4	P123	1 (0.454)
2,4,5-TP acid	93-72-1	1,4	See F027	100 (45.4)
2,4,5-TP esters	32534-95-5	1		100 (45.4)
1H-1,2,4-Triazol-3-amine	61-82-5	4	U011	10 (4.54)
Trichlorfon	52-68-6	1		100 (45.4)
1,2,4-Trichlorobenzene	120-82-1	2,3		100 (45.4)
1,1,1-Trichloroethane	71-55-6	2,3,4	U226	1000 (454)
1,1,2-Trichloroethane	79-00-5	2,3,4	U227	100 (45.4)
Trichloroethylene	79-01-6	1,2,3,4	U228	100 (45.4)
Trichloromethanesulfonyl chloride	594-42-3	4	P118	100 (45.4)
Trichloromonofluoromethane	75-69-4	4	U121	5000 (2270)
Trichlorophenol	25167-82-2	1		10 (4.54)
2,3,4-Trichlorophenol	15950-66-0			
2,3,5-Trichlorophenol	933-78-8			
2,3,6-Trichlorophenol	933-75-5			
3,4,5-Trichlorophenol	609-19-8			
2,4,5-Trichlorophenol	95-95-4	1,3,4	See F027	10 (4.54)
2,4,6-Trichlorophenol	88-06-2	1,2,3,4	See F027	10 (4.54)
Triethanolamine dodecylbenzenesulfonate	27323-41-7	1		1000 (454)
Triethylamine	121-44-8	1,3,4	U404	5000 (2270)
Trifluralin	1582-09-8	3		10 (4.54)
Trimethylamine	75-50-3	1		100 (45.4)
2,2,4-Trimethylpentane	540-84-1	3		1000 (454)
1,3,5-Trinitrobenzene	99-35-4	4	U234	10 (4.54)
1,3,5-Trioxane, 2,4,6-trimethyl-	123-63-7	4	U182	1000 (454)
Tris(2,3-dibromopropyl) phosphate	126-72-7	4	U235	10 (4.54)
Trypan blue	72-57-1	4	U236	10 (4.54)
Unlisted Hazardous Wastes Characteristic of Corrosivity ..	N.A.	4	D002	100 (45.4)
Unlisted Hazardous Wastes Characteristic of Ignitability ..	N.A.	4	D001	100 (45.4)
Unlisted Hazardous Wastes Characteristic of Reactivity ...	N.A.	4	D003	100 (45.4)
Unlisted Hazardous Wastes Characteristic of Toxicity:				
Arsenic (D004)	N.A.	4	D004	1 (0.454)
Barium (D005)	N.A.	4	D005	1000 (454)
Benzene (D018)	N.A.	1,2,3,4	D018	10 (4.54)
Cadmium (D006)	N.A.	4	D006	10 (4.54)
Carbon tetrachloride (D019)	N.A.	1,2,4	D019	10 (4.54)
Chlordane (D020)	N.A.	1,2,4	D020	1 (0.454)
Chlorobenzene (D021)	N.A.	1,2,4	D021	100 (45.4)
Chloroform (D022)	N.A.	1,2,4	D022	10 (4.54)
Chromium (D007)	N.A.	4	D007	10 (4.54)
o-Cresol (D023)	N.A.	4	D023	100 (45.4)
m-Cresol (D024)	N.A.	4	D024	100 (45.4)
p-Cresol (D025)	N.A.	4	D025	100 (45.4)
Cresol (D026)	N.A.	4	D026	100 (45.4)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
2,4-D (D016)	N.A.	1,4	D016	100 (45.4)
1,4-Dichlorobenzene (D027)	N.A.	1,2,4	D027	100 (45.4)
1,2-Dichloroethane (D028)	N.A.	1,2,4	D028	100 (45.4)
1,1-Dichloroethylene (D029)	N.A.	1,2,4	D029	100 (45.4)
2,4-Dinitrotoluene (D030)	N.A.	1,2,4	D030	10 (4.54)
Endrin (D012)	N.A.	1,4	D012	1 (0.454)
Heptachlor (and epoxide) (D031)	N.A.	1,2,4	D031	1 (0.454)
Hexachlorobenzene (D032)	N.A.	2,4	D032	10 (4.54)
Hexachlorobutadiene (D033)	N.A.	2,4	D033	1 (0.454)
Hexachloroethane (D034)	N.A.	2,4	D034	100 (45.4)
Lead (D008)	N.A.	4	D008	10 (4.54)
Lindane (D013)	N.A.	1,4	D013	1 (0.454)
Mercury (D009)	N.A.	4	D009	1 (0.454)
Methoxychlor (D014)	N.A.	1,4	D014	1 (0.454)
Methyl ethyl ketone (D035)	N.A.	4	D035	5000 (2270)
Nitrobenzene (D036)	N.A.	1,2,4	D036	1000 (454)
Pentachlorophenol (D037)	N.A.	1,2,4	D037	10 (4.54)
Pyridine (D038)	N.A.	4	D038	1000 (454)
Selenium (D010)	N.A.	4	D010	10 (4.54)
Silver (D011)	N.A.	4	D011	1 (0.454)
Tetrachloroethylene (D039)	N.A.	2,4	D039	100 (45.4)
Toxaphene (D015)	N.A.	1,4	D015	1 (0.454)
Trichloroethylene (D040)	N.A.	1,2,4	D040	100 (45.4)
2,4,5-Trichlorophenol (D041)	N.A.	1,4	D041	10 (4.54)
2,4,6-Trichlorophenol (D042)	N.A.	1,2,4	D042	10 (4.54)
2,4,5-TP (D017)	N.A.	1,4	D017	100 (45.4)
Vinyl chloride (D043)	N.A.	2,3,4	D043	1 (0.454)
Uracil mustard	66-75-1	4	U237	10 (4.54)
Uranyl acetate	541-09-3	1		100 (45.4)
Uranyl nitrate	10102-06-4	1		100 (45.4)
	36478-76-9			
Urea, N-ethyl-N-nitroso-	759-73-9	4	U176	1 (0.454)
Urea, N-methyl-N-nitroso-	684-93-5	3,4	U177	1 (0.454)
Urethane	51-79-6	3,4	U238	100 (45.4)
Vanadic acid, ammonium salt	7803-55-6	4	P119	1000 (454)
Vanadium oxide V2O5	1314-62-1	1,4	P120	1000 (454)
Vanadium pentoxide	1314-62-1	1,4	P120	1000 (454)
Vanadyl sulfate	27774-13-6	1		1000 (454)
Vinyl acetate	108-05-4	1,3		5000 (2270)
Vinyl acetate monomer	108-05-4	1,3		5000 (2270)
Vinylamine, N-methyl-N-nitroso-	4549-40-0	4	P084	10 (4.54)
Vinyl bromide	593-60-2	3		100 (45.4)
Vinyl chloride	75-01-4	2,3,4	U043	1 (0.454)
Vinylidene chloride	75-35-4	1,2,3,4	U078	100 (45.4)
Warfarin, & salts	81-81-2	4	P001, U248	100 (45.4)
Xylene	1330-20-7	1,3,4	U239	100 (45.4)
m-Xylene	108-38-3	3		1000 (454)
o-Xylene	95-47-6	3		1000 (454)
p-Xylene	106-42-3	3		100 (45.4)
Xylene (mixed)	1330-20-7	1,3,4	U239	100 (45.4)
Xylenes (isomers and mixture)	1330-20-7	1,3,4	U239	100 (45.4)
Xylenol	1300-71-6	1		1000 (454)
Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta,16beta,17alpha, 18beta,20alpha).	50-55-54	4	U200	5000 (2270)
Zinc dagger;dagger;	7440-66-6	2		1000 (454)
ZINC AND COMPOUNDS	N.A.	2		**
Zinc acetate	557-34-6	1		1000 (454)
Zinc ammonium chloride	52628-25-8	1		1000 (454)
	14639-97-5			
	14639-98-6			
Zinc, bis(dimethylcarbomodiithioato-S,S)-, (Ziram)	137-30-4	4	P205	##
Zinc borate	1332-07-6	1		1000 (454)
Zinc bromide	7699-45-8	1		1000 (454)
Zinc carbonate	3486-35-9	1		1000 (454)
Zinc chloride	7646-85-7	1		1000 (454)
Zinc cyanide Zn(CN)2	557-21-1	1,4	P121	10 (4.54)
Zinc fluoride	7783-49-5	1		1000 (454)
Zinc formate	557-41-5	1		1000 (454)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Zinc hydrosulfite	7779-86-4	1		1000 (454)
Zinc nitrate	7779-88-6	1		1000 (454)
Zinc phenolsulfonate	127-82-2	1		5000 (2270)
Zinc phosphide Zn3P2	1314-84-7	1,4	P122, U249	100 (45.4)
Zinc silicofluoride	16871-71-9	1		5000 (2270)
Zinc sulfate	7733-02-0	1		1000 (454)
Zirconium nitrate	13746-89-9	1		5000 (2270)
Zirconium potassium fluoride	16923-95-8	1		1000 (454)
Zirconium sulfate	14644-61-2	1		5000 (2270)
Zirconium tetrachloride	10026-11-6	1		5000 (2270)
F001		4	F001	10 (4.54)
The following spent halogenated solvents used in degreasing; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the halogenated solvents listed below or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.				
(a) Tetrachloroethylene	127-18-4	2,3,4	U210	100 (45.4)
(b) Trichloroethylene	79-01-6	1,2,3,4	U228	100 (45.4)
(c) Methylene chloride	75-09-2	2,3,4	U080	1000 (454)
(d) 1,1,1-Trichloroethane	71-55-6	2,3,4	U226	1000 (454)
(e) Carbon tetrachloride	56-23-5	1,2,3,4	U211	10 (4.54)
(f) Chlorinated fluorocarbons	N.A.			5000 (2270)
F002		4	F002	10 (4.54)
The following spent halogenated solvents; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the halogenated solvents listed below or those solvents listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.				
(a) Tetrachloroethylene	127-18-4	2,3,4	U210	100 (45.4)
(b) Methylene chloride	75-09-2	2,3,4	U080	1000 (454)
(c) Trichloroethylene	79-01-6	1,2,3,4	U228	100 (45.4)
(d) 1,1,1-Trichloroethane	71-55-6	2,3,4	U226	1000 (454)
(e) Chlorobenzene	108-90-7	1,2,3,4	U037	100 (45.4)
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1			5000 (2270)
(g) o-Dichlorobenzene	95-50-1	1,2,4	U070	100 (45.4)
(h) Trichlorofluoromethane	75-69-4	4	U121	5000 (2270)
(i) 1,1,2-Trichloroethane	79-00-5	2,3,4	U227	100 (45.4)
F003		4	F003	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents.				
(a) Xylene	1330-20-7			1000 (454)
(b) Acetone	67-64-1			5000 (2270)
(c) Ethyl acetate	141-78-6			5000 (2270)
(d) Ethylbenzene	100-41-4			1000 (454)
(e) Ethyl ether	60-29-7			100 (45.4)
(f) Methyl isobutyl ketone	108-10-1			5000 (2270)
(g) n-Butyl alcohol	71-36-3			5000 (2270)
(h) Cyclohexanone	108-94-1			5000 (2270)
(i) Methanol	67-56-1			5000 (2270)
F004		4	F004	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:				
(a) Cresols/Cresylic acid	1319-77-3	1,3,4	U052	100 (45.4)
(b) Nitrobenzene	98-95-3	1,2,3,4	U169	1000 (454)
F005		4	F005	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:				
(a) Toluene	108-88-3	1,2,3,4	U220	1000 (454)
(b) Methyl ethyl ketone	78-93-3	3,4	U159	5000 (2270)
(c) Carbon disulfide	75-15-0	1,3,4	P022	100 (45.4)
(d) Isobutanol	78-83-1	4	U140	5000 (2270)
(e) Pyridine	110-86-1	4	U196	1000 (454)
F006		4	F006	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum.				
F007 Spent cyanide plating bath solutions from electroplating operations.		4	F007	10 (4.54)
F008 Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.		4	F008	10 (4.54)
F009 Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.		4	F009	10 (4.54)
F010 Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.		4	F010	10 (4.54)
F011 Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.		4	F011	10 (4.54)
F012 Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.		4	F012	10 (4.54)
F019 Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.		4	F019	10 (4.54)
F020 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)		4	F020	1 (0.454)
F021 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol or of intermediates used to produce its derivatives.		4	F021	1 (0.454)
F022 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.		4	F022	1 (0.454)
F023 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or a component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)		4	F023	1 (0.454)
F024 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or a component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)		4	F024	1 (0.454)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in 40 CFR 261.31 or 261.32.)				
F025		4	F025	1 (0.454)
Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.				
F026		4	F026	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.				
F027		4	F027	1 (0.454)
Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5- trichlorophenol as the sole component.)				
F028		4	F028	1 (0.454)
Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027.				
F032		4	F032	1 (0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with §261.35 of this chapter or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.				
F034		4	F034	1 (0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.				
F035		4	F035	1 (0.454)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.				
F037	4	F037	1 (0.454)
Petroleum refinery primary oil/water/solids separation sludge-Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in §261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing. This listing does include residuals generated from processing or recycling oil-bearing hazardous secondary materials excluded under §261.4(a)(12)(i), if those residuals are to be disposed of.				
F038	4	F038	1 (0.454)
Petroleum refinery secondary (emulsified) oil/water/solids separation sludge-Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in §261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.				
F039	4	F039	1 (0.454)
Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of 40 CFR part 261. (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other hazardous wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028.)				
K001	4	K001	1 (0.454)
Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.				
K002	4	K002	10 (4.54)
Wastewater treatment sludge from the production of chrome yellow and orange pigments.				
K003	4	K003	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Wastewater treatment sludge from the production of molybdate orange pigments.				
K004		4	K004	10 (4.54)
Wastewater treatment sludge from the production of zinc yellow pigments.				
K005		4	K005	10 (4.54)
Wastewater treatment sludge from the production of chrome green pigments.				
K006		4	K006	10 (4.54)
Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).				
K007		4	K007	10 (4.54)
Wastewater treatment sludge from the production of iron blue pigments.				
K008		4	K008	10 (4.54)
Oven residue from the production of chrome oxide green pigments.				
K009		4	K009	10 (4.54)
Distillation bottoms from the production of acetaldehyde from ethylene.				
K010		4	K010	10 (4.54)
Distillation side cuts from the production of acetaldehyde from ethylene.				
K011		4	K011	10 (4.54)
Bottom stream from the wastewater stripper in the production of acrylonitrile.				
K013		4	K013	10 (4.54)
Bottom stream from the acetonitrile column in the production of acrylonitrile.				
K014		4	K014	5000 (2270)
Bottoms from the acetonitrile purification column in the production of acrylonitrile.				
K015		4	K015	10 (4.54)
Still bottoms from the distillation of benzyl chloride.				
K016		4	K016	1 (0.454)
Heavy ends or distillation residues from the production of carbon tetrachloride.				
K017		4	K017	10 (4.54)
Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.				
K018		4	K018	1 (0.454)
Heavy ends from the fractionation column in ethyl chloride production.				
K019		4	K019	1 (0.454)
Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.				
K020		4	K020	1 (0.454)
Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.				
K021		4	K021	10 (4.54)
Aqueous spent antimony catalyst waste from fluoromethanes production.				
K022		4	K022	1 (0.454)
Distillation bottom tars from the production of phenol/acetone from cumene.				
K023		4	K023	5000 (2270)
Distillation light ends from the production of phthalic anhydride from naphthalene.				
K024		4	K024	5000 (2270)
Distillation bottoms from the production of phthalic anhydride from naphthalene.				
K025		4	K025	10 (4.54)
Distillation bottoms from the production of nitrobenzene by the nitration of benzene.				
K026		4	K026	1000 (454)
Stripping still tails from the production of methyl ethyl pyridines.				
K027		4	K027	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Centrifuge and distillation residues from toluene diisocyanate production.				
K028		4	K028	1 (0.454)
Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.				
K029		4	K029	1 (0.454)
Waste from the product steam stripper in the production of 1,1,1-trichloroethane.				
K030		4	K030	1 (0.454)
Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.				
K031		4	K031	1 (0.454)
By-product salts generated in the production of MSMA and cacodylic acid.				
K032		4	K032	10 (4.54)
Wastewater treatment sludge from the production of chlordane.				
K033		4	K033	10 (4.54)
Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.				
K034		4	K034	10 (4.54)
Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.				
K035		4	K035	1 (0.454)
Wastewater treatment sludges generated in the production of creosote.				
K036		4	K036	1 (0.454)
Still bottoms from toluene reclamation distillation in the production of disulfoton.				
K037		4	K037	1 (0.454)
Wastewater treatment sludges from the production of disulfoton.				
K038		4	K038	10 (4.54)
Wastewater from the washing and stripping of phorate production.				
K039		4	K039	10 (4.54)
Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.				
K040		4	K040	10 (4.54)
Wastewater treatment sludge from the production of phorate.				
K041		4	K041	1 (0.454)
Wastewater treatment sludge from the production of toxaphene.				
K042		4	K042	10 (4.54)
Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.				
K043		4	K043	10 (4.54)
2,6-Dichlorophenol waste from the production of 2,4-D.				
K044		4	K044	10 (4.54)
Wastewater treatment sludges from the manufacturing and processing of explosives.				
K045		4	K045	10 (4.54)
Spent carbon from the treatment of wastewater containing explosives.				
K046		4	K046	10 (4.54)
Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.				
K047		4	K047	10 (4.54)
Pink/red water from TNT operations.				
K048		4	K048	10 (4.54)
Dissolved air flotation (DAF) float from the petroleum refining industry.				
K049		4	K049	10 (4.54)
Slop oil emulsion solids from the petroleum refining industry.				
K050		4	K050	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Heat exchanger bundle cleaning sludge from the petroleum refining industry.				
K051		4	K051	10 (4.54)
API separator sludge from the petroleum refining industry.				
K052		4	K052	10 (4.54)
Tank bottoms (leaded) from the petroleum refining industry.				
K060		4	K060	1 (0.454)
Ammonia still lime sludge from coking operations.				
K061		4	K061	10 (4.54)
Emission control dust/sludge from the primary production of steel in electric furnaces.				
K062		4	K062	10 (4.54)
Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).				
K064		4	K064	10 (4.54)
Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.				
K065		4	K065	10 (4.54)
Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.				
K066		4	K066	10 (4.54)
Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.				
K069		4	K069	10 (4.54)
Emission control dust/sludge from secondary lead smelting. (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action effecting the stay, EPA will publish a notice of the action in the Federal Register .)				
K071		4	K071	1 (0.454)
Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.				
K073		4	K073	10 (4.54)
Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.				
K083		4	K083	100 (45.4)
Distillation bottoms from aniline production.				
K084		4	K084	1 (0.454)
Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.				
K085		4	K085	10 (4.54)
Distillation or fractionation column bottoms from the production of chlorobenzenes.				
K086		4	K086	10 (4.54)
Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.				
K087		4	K087	100 (45.4)
Decanter tank tar sludge from coking operations.				
K088		4	K088	10 (4.54)
Spent polliners from primary aluminum reduction.				
K090		4	K090	10 (4.54)
Emission control dust or sludge from ferrochromium/silicon production.				
K091		4	K091	10 (4.54)
Emission control dust or sludge from ferrochromium production.				
K093		4	K093	5000 (2270)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Distillation light ends from the production of phthalic anhydride from ortho-xylene.				
K094		4	K094	5000 (2270)
Distillation bottoms from the production of phthalic anhydride from ortho-xylene.				
K095		4	K095	100 (45.4)
Distillation bottoms from the production of 1,1,1-trichloroethane.				
K096		4	K096	100 (45.4)
Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.				
K097		4	K097	1 (0.454)
Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.				
K098		4	K098	1 (0.454)
Untreated process wastewater from the production of toxaphene.				
K099		4	K099	10 (4.54)
Untreated wastewater from the production of 2,4-D.				
K100		4	K100	10 (4.54)
Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.				
K101		4	K101	1 (0.454)
Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.				
K102		4	K102	1 (0.454)
Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.				
K103		4	K103	100 (45.4)
Process residues from aniline extraction from the production of aniline.				
K104		4	K104	10 (4.54)
Combined wastewater streams generated from nitrobenzene/aniline production.				
K105		4	K105	10 (4.54)
Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.				
K106		4	K106	1 (0.454)
Wastewater treatment sludge from the mercury cell process in chlorine production.				
K107		4	K107	10 (4.54)
Column bottoms from product separation from the production of 1,1- dimethylhydrazine (UDMH) from carboxylic acid hydrazines.				
K108		4	K108	10 (4.54)
Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1- dimethylhydrazine (UDMH) from carboxylic acid hydrazides.				
K109		4	K109	10 (4.54)
Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.				
K110		4	K110	10 (4.54)
Condensed column overheads from intermediate separation from the production of 1,1- dimethylhydrazine (UDMH) from carboxylic acid hydrazides.				
K111		4	K111	10 (4.54)
Product washwaters from the production of dinitrotoluene via nitration of toluene.				
K112		4	K112	10 (4.54)
Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K113		4	K113	10 (4.54)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K114		4	K114	10 (4.54)
Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K115		4	K115	10 (4.54)
Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K116		4	K116	10 (4.54)
Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.				
K117		4	K117	1 (0.454)
Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.				
K118		4	K118	1 (0.454)
Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.				
K123		4	K123	10 (4.54)
Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.				
K124		4	K124	10 (4.54)
Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.				
K125		4	K125	10 (4.54)
Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.				
K126		4	K126	10 (4.54)
Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.				
K131		4	K131	100 (45.4)
Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.				
K132		4	K132	1000 (454)
Spent absorbent and wastewater separator solids from the production of methyl bromide.				
K136		4	K136	1 (0.454)
Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.				
K141		4	K141	1 (0.454)
Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations).				
K142		4	K142	1 (0.454)
Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal.				
K143		4	K143	1 (0.454)
Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.				
K144		4	K144	1 (0.454)
Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal.				

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
K145 Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal.	4	K145	1 (0.454)
K147 Tar storage tank residues from coal tar refining.	4	K147	1 (0.454)
K148 Residues from coal tar distillation, including, but not limited to, still bottoms.	4	K148	1 (0.454)
K149 Distillation bottoms from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. [This waste does not include still bottoms from the distillation of benzyl chloride.]	4	K149	10 (4.54)
K150 Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	4	K150	10 (4.54)
K151 Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of waste-waters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	4	K151	10 (4.54)
K156 Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	4	K156	##
K157 Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	4	K157	##
K158 Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)	4	K158	##
K159 Organics from the treatment of thiocarbamate wastes.	4	K159	##
K161 Purification solids (including filtration, evaporation, and centrifugation solids), baghouse dust and floor sweepings from the production of dithiocarbamate acids and their salts. (This does not include K125 or K126.)	4	K161	##
K169 ^f Crude oil storage tank sediment from petroleum refining operations.	4	K169	10 (4.54)
K170 ^f Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations.	4	K170	1 (0.454)
K171 ^f Spent hydrotreating catalyst from petroleum refining operations. (This listing does not include inert support media.)	4	K171	1 (0.454)
K172 ^f Spent hydrotreating catalyst from petroleum refining operations. (This listing does not include inert support media.)	4	K172	1 (0.454)
K174 ^f	4	K174	1 (0.454)
K175 ^f	4	K175	1 (0.454)

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Statutory codedagger;	RCRA waste No.	Final RQ pounds (Kg)
K176 Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide)	4	K176	1 (0.454)
K177 Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide)	4	K177	5,000 (2270)
K178 Residues from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride ilmenite process	4	K178	1 (0.454)

dagger; Indicates the statutory source defined by 1,2,3, and 4, as described in the note preceding Table 302.4.
dagger;dagger; No reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers (0.004 inches).
dagger;dagger;dagger; The RQ for asbestos is limited to friable forms only.
The Agency may adjust the statutory RQ for this hazardous substance in a future rulemaking; until then the statutory one-pound RQ applies.
§ The adjusted RQs for radionuclides may be found in Appendix B to this table.
** Indicates that no RQ is being assigned to the generic or broad class.
^a Benzene was already a CERCLA hazardous substance prior to the CAA Amendments of 1990 and received an adjusted 10-pound RQ based on potential carcinogenicity in an August 14, 1989, final rule (54 FR 33418). The CAA Amendments specify that "benzene (including benzene from gasoline)" is a hazardous air pollutant and, thus, a CERCLA hazardous substance.
^b The CAA Amendments of 1990 list DDE (3547-04-4) as a CAA hazardous air pollutant. The CAS number, 3547-04-4, is for the chemical, p,p'-dichlorodiphenylethane. DDE or p,p'-dichlorodiphenyldichloroethylene, CAS number 72-55-9, is already listed in Table 302.4 with a final RQ of 1 pound. The substance identified by the CAS number 3547-04-4 has been evaluated and listed as DDE to be consistent with the CAA section 112 listing, as amended.
^c Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.
^d Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH2CH2)n-OR' where:
n = 1, 2, or 3;
R = alkyl C7 or less; or
R = phenyl or alkyl substituted phenyl;
R' = H or alkyl C7 or less; or
OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.
^e Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 °C.
^f See 40 CFR 302.6(b)(1) for application of the mixture rule to this hazardous waste.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
50000	Formaldehyde.
50077	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[[(aminocarbonyloxy)methyl]-1,1a,2,8,8a, 8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-Mitomycin C.
50180	Cyclophosphamide. 2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide.
50293	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-, DDT, 4,4'-DDT.
50328	Benzo[a]pyrene. 3,4-Benzopyrene.
50555	Reserpine. Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[[3,4,5-trimethoxybenzoyloxy]-, methyl ester (3beta, 16beta,17alpha,18beta,20alpha)-.
51285	Phenol, 2,4-dinitro-. 2,4-Dinitrophenol.
51434	Epinephrine.

CASRN	Hazardous substance
51796	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-. Carbamic acid, ethyl ester. Ethyl carbamate. Urethane. Trichlorfon. Famphur. [(dimethylamino)sulfonyl]phenyl O,O-dimethyl ester. Dibenzo[a,h]anthracene. Dibenzo[a,h]anthracene. 1,2:5,6-Dibenzanthracene. Acetamide, N-9H-fluoren-2-yl-. 2-Acetylaminofluorene.
52686	Trichlorfon.
52857	Famphur. [(dimethylamino)sulfonyl]phenyl O,O-dimethyl ester.
53703	Dibenzo[a,h]anthracene. Dibenzo[a,h]anthracene. 1,2:5,6-Dibenzanthracene.
53963	Acetamide, N-9H-fluoren-2-yl-. 2-Acetylaminofluorene.
54115	Nicotine, & salts. Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts.
55185	Ethanamine, N-ethyl-N-nitroso-. N-Nitrosodiethylamine.
55630	Nitroglycerine. 1,2,3-Propanetriol, trinitrate.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
55914	Diisopropylfluorophosphate (DFP). Phosphorofluoridic acid, bis(1-methylethyl) ester.
56042	Methylthiourea. 4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thio-
56235	Carbon tetrachloride. Methane, tetrachloro-
56382	Parathion. Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.
56495	Benz[<i>j</i>]aceanthrylene, 1,2-dihydro-3-methyl-3-Methylcholanthrene.
56531	Diethylstilbestrol. Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E).
56553	Benz[<i>a</i>]anthracene. Benzo[<i>a</i>]anthracene. 1,2-Benzanthracene.
56724	Coumaphos.
57147	Hydrazine, 1,1-dimethyl-. 1,1-Dimethylhydrazine.
57249	Strychnidin-10-one, & salts. Strychnine, & salts.
57476	Pyrrolo[2,3- <i>b</i>]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3 <i>aS</i> - <i>cis</i> -) (Physostigmine).
57578	beta-Propiolactone.
57647	Benzoic acid, 2-hydroxy-, compd. with (3 <i>aS</i> - <i>cis</i> -) 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3- <i>b</i>]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate).
57749	Chlordane. Chlordane, alpha & gamma isomers. CHLORDANE (TECHNICAL MIXTURE AND METABOLITES). 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
57976	Benz[<i>a</i>]anthracene, 7,12-dimethyl-. 7,12-Dimethylbenz[<i>a</i>]anthracene.
58899	γ-BHC. Cyclohexane, 1,2,3,4,5,6-hexachloro-(1α,2α,3β,4α,5α,6β)-. Lindane. Lindane (all isomers).
58902	Phenol, 2,3,4,6-tetrachloro-. 2,3,4,6-Tetrachlorophenol.
59507	p-Chloro-m-cresol. Phenol, 4-chloro-3-methyl-.
59892	N-Nitrosomorpholine.
60004	Ethylenediamine-tetraacetic acid (EDTA).
60117	Benzenamine, N,N-dimethyl-4-(phenylazo)-. Dimethyl aminoazobenzene. p-Dimethylaminoazobenzene.
60297	Ethane, 1,1'-oxybis-. Ethyl ether.
60344	Hydrazine, methyl-. Methyl hydrazine.
60355	Acetamide.
60515	Dimethoate. Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester.
60571	Dieldrin. 2,7:3,6-Dimethanonaphth[2,3- <i>b</i>]oxirene, 3,4,5,6,9,9-hexachloro-1a,2, 2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2alpha,3beta,6beta, 6aalpha,7beta, 7aalpha)-.
61825	Amitrole. 1H-1,2,4-Triazol-3-amine.

CASRN	Hazardous substance
62384	Mercury, (acetato-O)phenyl-. Phenylmercury acetate.
62442	Acetamide, N-(4-ethoxyphenyl)-. Phenacetin.
62500	Ethyl methanesulfonate. Methanesulfonic acid, ethyl ester.
62533	Aniline. Benzenamine.
62555	Ethanethioamide. Thioacetamide.
62566	Thiourea.
62737	Dichlorvos.
62748	Acetic acid, fluoro-, sodium salt. Fluoroacetic acid, sodium salt.
62759	Methanamine, N-methyl-N-nitroso-. N-Nitrosodimethylamine.
63252	Carbaryl. 1-Naphthalenol, methylcarbamate.
64006	Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate).
64186	Formic acid.
64197	Acetic acid.
64675	Diethyl sulfate.
65850	Benzoic acid.
66751	Uracil mustard. 2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl) amino]-.
67561	Methanol. Methyl alcohol.
67641	Acetone. 2-Propanone.
67663	Chloroform. Methane, trichloro-.
67721	Ethane, hexachloro-. Hexachloroethane.
68122	Dimethylformamide.
70257	Guanidine, N-methyl-N'-nitro-N-nitroso- MNNG.
70304	Hexachlorophene. Phenol, 2,2'-methylenebis[3,4,6-tri-chloro- n-Butyl alcohol.
71363	1-Butanol.
71432	Benzene.
71556	Ethane, 1,1,1-trichloro-. Methyl chloroform. 1,1,1-Trichloroethane.
72208	Endrin. Endrin, & metabolites. 2,7:3,6-Dimethanonaphth[2,3- b]oxirene,3,4,5,6,9,9-hexachloro- 1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2alpha,3alpha, 6alpha,6beta,7beta,7aalpha)-, & metabolites.
72435	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy- Methoxychlor.
72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro- DDD. TDE. 4,4'-DDD.
72559	DDE 4,4'-DDE.
72571	Trypan blue. 2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-di-methyl-(1,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.
74839	Bromomethane. Methane, bromo-. Methyl bromide.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS
REGISTRY NUMBER LIST OF CERCLA HAZ-
ARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS
REGISTRY NUMBER LIST OF CERCLA HAZ-
ARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
74873	Chloromethane. Methane, chloro-.
74884	Methyl chloride. Iodomethane. Methane, iodo-.
74895	Methyl iodide. Monomethylamine.
74908	Hydrocyanic acid. Hydrogen cyanide.
74931	Methanethiol. Methyl mercaptan. Thiomethanol.
74953	Methane, dibromo-.
75003	Methylene bromide. Chloroethane.
75014	Ethyl chloride. Ethene, chloro-.
75047	Vinyl chloride. Monoethylamine.
75058	Acetonitrile.
75070	Acetaldehyde. Ethanal.
75092	Dichloromethane. Methane, dichloro-.
75150	Methylene chloride. Carbon disulfide.
75207	Calcium carbide.
75218	Ethylene oxide. Oxirane.
75252	Bromoform. Methane, tribromo-.
75274	Dichlorobromomethane.
75343	Ethane, 1,1-dichloro-.
75354	Ethylidene dichloride. 1,1-Dichloroethane. Ethene, 1,1-dichloro-.
75365	Vinylidene chloride. 1,1-Dichloroethylene.
75445	Acetyl chloride. Carbonic dichloride. Phosgene.
75503	Trimethylamine.
75558	Aziridine, 2-methyl-.
75569	2-Methyl aziridine. 1,2-Propylenimine. Propylene oxide.
75605	Arsinic acid, dimethyl-.
75649	Cacodylic acid. tert-Butylamine.
75694	Methane, trichlorofluoro-.
75718	Trichloromonofluoromethane. Dichlorodifluoromethane. Methane, dichlorodifluoro-.
75865	Acetone cyanohydrin. Propanenitrile, 2-hydroxy-2-methyl-.
75876	2-Methylacetonitrile. Acetaldehyde, trichloro-.
75990	Chloral. 2,2-Dichloropropionic acid.
76017	Ethane, pentachloro-.
76448	Pentachloroethane. Heptachlor. 4,7-Methano-1H-indene, 1,4,5,6,7,8,8- heptachloro-3a,4,7,7a-tetrahydro-.
77474	Hexachlorocyclopentadiene. 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexa- chloro-.
77781	Dimethyl sulfate. Sulfuric acid, dimethyl ester.
78002	Plumbane, tetraethyl-.
	Tetraethyl lead.

CASRN	Hazardous substance
78591	Isophorone.
78795	Isoprene.
78819	iso-Butylamine.
78831	Isobutyl alcohol. 1-Propanol, 2-methyl-.
78875	Propane, 1,2-dichloro-.
78886	Propylene dichloride. 1,2-Dichloropropane.
78933	2,3-Dichloropropene. 2-Butanone. MEK. Methyl ethyl ketone.
78999	1,1-Dichloropropane.
79005	Ethane, 1,1,2-trichloro-.
79016	1,1,2-Trichloroethane. Ethene, trichloro-.
79061	Trichloroethylene. Acrylamide. 2-Propenamide.
79094	Propionic acid.
79107	Acrylic acid. 2-Propenoic acid.
79118	Chloroacetic acid.
79196	Hydrazinecarbothioamide. Thiosemicarbazide.
79221	Carbonylchloride acid, methyl ester. Methyl chlorocarbonate.
79312	iso-Butyric acid.
79345	Ethane, 1,1,2,2-tetrachloro-.
79447	1,1,2,2-Tetrachloroethane. Carbamic chloride, dimethyl-.
79469	Dimethylcarbonyl chloride. Propane, 2-nitro-.
80159	2-Nitropropane. alpha,alpha-Dimethylbenzylhydroperoxide. Hydroperoxide, 1-methyl-1-phenylethyl-.
80626	Methyl methacrylate. 2-Propenoic acid, 2-methyl-, methyl ester.
81072	Saccharin, & salts. 1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts.
81812	Warfarin, & salts. 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1- phenylbutyl)-, & salts.
82688	Benzene, pentachloronitro-.
83329	PCNB. Pentachloronitrobenzene. Quintobenzene.
84662	Acenaphthene. Diethyl phthalate.
84742	1,2-Benzenedicarboxylic acid, diethyl ester. Di-n-butyl phthalate. Dibutyl phthalate. n-Butyl phthalate. 1,2-Benzenedicarboxylic acid, dibutyl ester.
85007	Diquat.
85018	Phenanthrene.
85449	Phthalic anhydride. 1,3-Isobenzofurandione.
85687	Butyl benzyl phthalate.
86306	N-Nitrosodiphenylamine.
86500	Guthion.
86737	Fluorene.
86884	alpha-Naphthylthiourea. Thiourea, 1-naphthalenyl-.
87650	Phenol, 2,6-dichloro-.
87683	2,6-Dichlorophenol. Hexachlorobutadiene.
87865	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-.
	Pentachlorophenol.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
88062	Phenol, pentachloro- Phenol, 2,4,6-trichloro- 2,4,6-Trichlorophenol.
88722	o-Nitrotoluene.
88755	o-Nitrophenol. 2-Nitrophenol.
88857	Dinoseb. Phenol, 2-(1-methylpropyl)-4,6-dinitro-.
90040	o-Anisidine.
91087	Benzene, 1,3-diisocyanatomethyl- Toluene diisocyanate. 2,4-Toluene diisocyanate.
91203	Naphthalene.
91225	Quinoline.
91587	beta-Chloronaphthalene. Naphthalene, 2-chloro- 2-Chloronaphthalene.
91598	beta-Naphthylamine. 2-Naphthalenamine.
91667	N,N-Diethylaniline.
91805	Methapyriene. 1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl- N'- (2-thienylmethyl)-.
91941	[1,1'-Biphenyl]-4,4'-diamine,3,3'-dichloro- 3,3'-Dichlorobenzidine.
92524	Biphenyl.
92671	4-Aminobiphenyl.
92875	Benzidine. [1,1'-Biphenyl]-4,4'-diamine.
92933	4-Nitrobiphenyl. Propanoic acid, 2-(2,4,5-trichlorophenoxy)- Silvex (2,4,5-TP). 2,4,5-TP acid.
93765	Acetic acid, (2,4,5-trichlorophenoxy)-.
93721	2,4,5-T. 2,4,5-T acid.
93798	2,4,5-T esters.
94111	2,4-D Ester.
94586	Dihydrosafrole. 1,3-Benzodioxole, 5-propyl-.
94597	Safrole. 1,3-Benzodioxole, 5-(2-propenyl)-.
94791	2,4-D Ester.
94804	2,4-D Ester.
95476	o-Xylene.
95487	o-Cresol.
95501	Benzene, 1,2-dichloro- o-Dichlorobenzene. 1,2-Dichlorobenzene.
95534	Benzenamine, 2-methyl- o-Toluidine.
95578	o-Chlorophenol. Phenol, 2-chloro- 2-Chlorophenol.
95807	Benzenediamine, ar-methyl- Toluenediamine. 2,4-Toluene diamine.
95943	Benzene, 1,2,4,5-tetrachloro- 1,2,4,5-Tetrachlorobenzene.
95954	Phenol, 2,4,5-trichloro- 2,4,5-Trichlorophenol.
96093	Styrene oxide.
96128	Propane, 1,2-dibromo-3-chloro- 1,2-Dibromo-3-chloropropane.
96457	Ethylenethiourea. 2-Imidazolidinethione.
97632	Ethyl methacrylate. 2-Propenoic acid, 2-methyl-, ethyl ester.
98011	Furfural. 2-Furancarboxaldehyde.

CASRN	Hazardous substance
98077	Benzene, (trichloromethyl)- Benzotrichloride.
98099	Benzenesulfonic acid chloride. Benzenesulfonyl chloride.
98828	Benzene, (1-methylethyl)- Cumene.
98862	Acetophenone. Ethanone, 1-phenyl-.
98873	Benzal chloride. Benzene, (dichloromethyl)-.
98884	Benzoyl chloride.
98953	Benzene, nitro- Nitrobenzene.
99081	m-Nitrotoluene.
99354	Benzene, 1,3,5-trinitro- 1,3,5-Trinitrobenzene.
99558	Benzenamine, 2-methyl-5-nitro- 5-Nitro-o-toluidine.
99650	m-Dinitrobenzene.
99990	p-Nitrotoluene.
100016	Benzenamine, 4-nitro- p-Nitroaniline.
100027	p-Nitrophenol. Phenol, 4-nitro- 4-Nitrophenol.
100254	p-Dinitrobenzene.
100414	Ethylbenzene.
100425	Styrene.
100447	Benzene, (chloromethyl)- Benzyl chloride.
100470	Benzonitrile.
100754	N-Nitrosopiperidine. Piperidine, 1-nitroso-.
101144	Benzenamine, 4,4'-methylenebis[2-chloro- 4,4'-Methylenebis(2-chloroaniline)].
101279	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2- butynyl ester (Barban).
101553	Benzene, 1-bromo-4-phenoxy- 4-Bromophenyl phenyl ether.
101688	MDI. Methylene diphenyl diisocyanate.
101779	4,4'-Methylenedianiline.
103855	Phenylthiourea. Thiourea, phenyl-.
105464	sec-Butyl acetate.
105679	Phenol, 2,4-dimethyl- 2,4-Dimethylphenol.
106423	p-Xylene.
106445	p-Cresol.
106467	Benzene, 1,4-dichloro- p-Dichlorobenzene. 1,4-Dichlorobenzene.
106478	Benzenamine, 4-chloro- p-Chloroaniline.
106490	Benzenamine, 4-methyl- p-Toluidine.
106503	p-Phenylenediamine.
106514	p-Benzoquinone. 2,5-Cyclohexadiene-1,4-dione. Quinone.
106887	1,2-Epoxybutane.
106898	1-Chloro-2,3-epoxypropane. Epichlorohydrin. Oxirane, (chloromethyl)-.
106934	Dibromoethane. Ethane, 1,2-dibromo- Ethylene dibromide.
106990	1,3-Butadiene.
107028	Acrolein. 2-Propenal.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
107051	Allyl chloride.
107062	Ethane, 1,2-dichloro-. Ethylene dichloride.
107108	1,2-Dichloroethane. n-Propylamine. 1-Propanamine.
107120	Ethyl cyanide. Propanenitrile.
107131	Acrylonitrile. 2-Propenenitrile.
107153	Ethylenediamine.
107186	Allyl alcohol. 2-Propen-1-ol.
107197	Propargyl alcohol. 2-Propyn-1-ol.
107200	Acetaldehyde, chloro-. Chloroacetaldehyde.
107211	Ethylene glycol.
107302	Chloromethyl methyl ether. Methane, chloromethoxy-.
107493	Diphosphoric acid, tetraethyl ester. Tetraethyl pyrophosphate.
107926	Butyric acid.
108054	Vinyl acetate. Vinyl acetate monomer.
108101	Hexone. Methyl isobutyl ketone. 4-Methyl-2-pentanone.
108247	Acetic anhydride.
108316	Maleic anhydride. 2,5-Furandione.
108383	m-Xylene.
108394	m-Cresol.
108463	Resorcinol. 1,3-Benzenediol.
108601	Dichloroisopropyl ether. Propane, 2,2"-oxybis[2-chloro-.
108883	Benzene, methyl-. Toluene.
108907	Benzene, chloro-. Chlorobenzene.
108941	Cyclohexanone.
108952	Phenol.
108985	Benzenethiol. Thiophenol.
109068	Pyridine, 2-methyl-. 2-Picoline.
109739	Butylamine.
109773	Malononitrile. Propanedinitrile.
109897	Diethylamine.
109999	Furan, tetrahydro-. Tetrahydrofuran.
110009	Furan. Furfuran.
110167	Maleic acid.
110178	Fumaric acid.
110190	iso-Butyl acetate.
110543	Hexane.
110758	Ethene, (2-chloroethoxy)-. 2-Chloroethyl vinyl ether.
110805	Ethanol, 2-ethoxy-. Ethylene glycol monoethyl ether.
110827	Benzene, hexahydro-. Cyclohexane.
110861	Pyridine.
111422	Diethanolamine.
111444	Bis(2-chloroethyl) ether. Dichloroethyl ether. Ethane, 1,1'-oxybis[2-chloro-.

CASRN	Hazardous substance
111546	Carbamodithioic acid, 1,2-ethanediybis-, salts & esters.
111911	Ethylenebisdithiocarbamic acid, salts & esters. Bis(2-chloroethoxy) methane. Dichloromethoxyethane.
114261	Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro-. Phenol, 2-(1-methylethoxy)-, methylcarbamate. Propoxur (Baygon).
115026	Azaserine. L-Serine, diazoacetate (ester).
115297	Endosulfan. 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a- hexahydro-, 3-oxide.
115322	Dicofol.
116063	Aldicarb. Propanal, 2-methyl-2-(methylthio)-, O- [(methylamino)carbonyl]oxime.
117806	Dichlone.
117817	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester. Bis(2-ethylhexyl)phthalate. DEHP. Diethylhexyl phthalate.
117840	Di-n-octyl phthalate. 1,2-Benzenedicarboxylic acid, dioctyl ester.
118741	Benzene, hexachloro-. Hexachlorobenzene.
119380	Carbamic acid, dimethyl-, 3-methyl-1-(1- methylethyl)-1H-pyrazol-5-yl ester (Isolan).
119904	[1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethoxy-. 3,3'-Dimethoxybenzidine.
119937	[1,1'-Biphenyl]-4,4'-diamine,3,3'- dimethyl-. 3,3'-Dimethylbenzidine.
120127	Anthracene.
120581	Isosafrole. 1,3-Benzodioxole, 5-(1-propenyl)-.
120809	Catechol.
120821	1,2,4-Trichlorobenzene.
120832	Phenol, 2,4-dichloro-. 2,4-Dichlorophenol.
121142	Benzene, 1-methyl-2,4-dinitro-. 2,4-Dinitrotoluene.
121211	Pyrethrins.
121299	Pyrethrins.
121448	Ethanamine, N,N-diethyl-. Triethylamine.
121697	N,N-Dimethylaniline.
121755	Malathion.
122098	alpha, alpha-Dimethylphenethylamine. Benzeneethanamine, alpha, alpha-dimethyl-.
122429	Carbamic acid, phenyl-, 1-methylethyl ester (Propham).
122667	Hydrazine, 1,2-diphenyl-. 1,2-Diphenylhydrazine.
123319	Hydroquinone.
123331	Maleic hydrazide. 3,6-Pyridazinedione, 1,2-dihydro-.
123386	Propionaldehyde.
123626	Propionic anhydride.
123637	Paraldehyde. 1,3,5-Trioxane, 2,4,6-trimethyl-.
123739	Crotonaldehyde. 2-Butenal.
123864	Butyl acetate.
123911	1,4-Diethylaminoethoxide. 1,4-Dioxane.
123922	iso-Amyl acetate.
124049	Adipic acid.
124403	Dimethylamine.

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CASRN	Hazardous substance
	Methanamine, N-methyl-
124414	Sodium methylate.
124481	Chlorodibromomethane.
126727	Tris(2,3-dibromopropyl) phosphate.
	1-Propanol, 2,3-dibromo-, phosphate (3:1).
126987	Methacrylonitrile.
	2-Propenenitrile, 2-methyl-
126998	Chloroprene.
127184	Ethene, tetrachloro-
	Perchloroethylene.
	Tetrachloroethylene.
127822	Zinc phenolsulfonate.
129000	Pyrene.
130154	1,4-Naphthalenedione.
	1,4-Naphthoquinone.
131113	Dimethyl phthalate.
	1,2-Benzenedicarboxylic acid, dimethyl ester.
131748	Ammonium picrate.
	Phenol, 2,4,6-trinitro-, ammonium salt.
131895	Phenol, 2-cyclohexyl-4,6-dinitro-
	2-Cyclohexyl-4,6-dinitrophenol.
132649	Dibenzofuran.
133062	Captan.
133904	Chloramben.
134327	alpha-Naphthylamine.
	1-Naphthalenamine.
137268	Thioperoxydicarbonic diamide
	((H ₂ N)C(S)) ₂ S ₂ , tetramethyl-
	Thiram.
137304	Zinc, bis(dimethylcarbomodithioato-S,S')-,
	(Ziram).
140885	Ethyl acrylate.
	2-Propenoic acid, ethyl ester.
141786	Acetic acid, ethyl ester.
	Ethyl acetate.
142289	1,3-Dichloropropane.
142712	Cupric acetate.
142847	Dipropylamine.
	1-Propanamine, N-propyl-
143339	Sodium cyanide Na(CN).
143500	Kepone.
	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-
	one, 1,1a,3,3a,4,5,5a,5b,6-
	decachlorooctahydro-
145733	Endothall.
	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic
	acid.
148823	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-.
	Melphalan.
151508	Potassium cyanide K(CN).
151564	Aziridine.
	Ethylenimine.
152169	Diphosphoramidate, octamethyl-
	Octamethylpyrophosphoramidate.
156605	Ethene, 1,2-dichloro- (E).
	1,2-Dichloroethylene.
156627	Calcium cyanamide.
189559	Benzo[rs]t]pentaphene.
	Dibenzo[a,i]pyrene.
191242	Benzo[ghi]perylene.
193395	Indeno(1,2,3-cd)pyrene.
205992	Benzo[b]fluoranthene.
206440	Fluoranthene.
207089	Benzo(k)fluoranthene.
208968	Acenaphthylene.
218019	Chrysene.
225514	Benz[c]acridine.
297972	O,O-Diethyl O-pyrazinyl phosphoro-
	thioate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
	Phosphorothioic acid, O,O-diethyl O-pyrazinyl
	ester.
298000	Methyl parathion.
	Phosphorothioic acid, O,O-dimethyl O-(4-
	nitrophenyl) ester.
298022	Phorate.
	Phosphorodithioic acid, O,O-diethyl S-
	[(ethylthio) methyl] ester.
298044	Disulfoton.
	Phosphorodithioic acid, O,O-diethyl S-[2-
	(ethylthio)ethyl] ester.
300765	Naled.
301042	Acetic acid, lead(2+) salt.
	Lead acetate.
302012	Hydrazine.
303344	Lasiocarpine.
	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-
	(1-methoxyethyl)-3-methyl-1-
	oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-
	pyrrolizin-1-yl ester, [1S-
	[1alpha(Z),7(2S*,3R*),7aalpha]]-.
305033	Benzenebutanoic acid, 4-[bis(2-
	chloroethyl)amino]-.
	Chlorambucil.
309002	Aldrin.
	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-
	hexachloro-1,4,4a,5,8,8a-hexahydro-,
	(1alpha,4alpha,4abeta,5alpha,8alpha,
	8abeta)-.
311455	Diethyl-p-nitrophenyl phosphate.
	Phosphoric acid, diethyl 4-nitrophenyl ester.
315184	Mexacarbate.
	Phenol, 4-(dimethylamino)-3,5-dimethyl-,
	methylcarbamate (ester).
319846	alpha—BHC.
319857	beta—BHC.
319868	delta—BHC.
329715	2,5-Dinitrophenol.
330541	Diuron.
333415	Diazinon.
334883	Diazomethane.
353504	Carbon oxyfluoride.
	Carbonic difluoride.
357573	Brucine.
	Strychnidin-10-one, 2,3-dimethoxy-
460195	Cyanogen.
	Ethanedinitrile.
463581	Carbonyl sulfide.
465736	Isodrin.
	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-
	hexachloro-1,4,4a,5,8,8a-hexahydro-,
	(1alpha,4alpha,4abeta,5beta,8beta, 8abeta)-.
492808	Auramine.
	Benzenamine, 4,4'-carbonimidoylbis[N,N-di-
	methyl]-.
494031	Chlornaphazine.
	Naphthalenamine, N,N'-bis(2-chloro-
	ethyl)-.
496720	Benzenediamine, ar-methyl-
	Toluenediamine.
	2,4-Toluene diamine.
504245	4-Aminopyridine.
	4-Pyridinamine.
504609	1-Methylbutadiene.
	1,3-Pentadiene.
506616	Argentate(1-), bis(cyano-C)-, potassium.
	Potassium silver cyanide.
506649	Silver cyanide Ag(CN).
506683	Cyanogen bromide (CN)Br.
506774	Cyanogen chloride (CN)Cl.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
506876	Ammonium carbonate.
506967	Acetyl bromide.
509148	Methane, tetranitro-.
	Tetranitromethane.
510156	Benzeneacetic acid, 4-chloro- α -chlorophenyl)- α -hydroxy-, ethyl ester. (4-Chlorobenzilate.
513495	sec-Butylamine.
528290	o-Dinitrobenzene.
532274	2-Chloroacetophenone.
534521	4,6-Dinitro-o-cresol, and salts. Phenol, 2-methyl-4,6-dinitro-, & salts.
540738	Hydrazine, 1,2-dimethyl-1,2-Dimethylhydrazine.
540841	2,2,4-Trimethylpentane.
540885	tert-Butyl acetate.
541093	Uranyl acetate.
541537	Dithiobiuret. Thioimidodicarbonic diamide [(H2N)C(S)]2NH.
541731	Benzene, 1,3-dichloro-m-Dichlorobenzene. 1,3-Dichlorobenzene.
542621	Barium cyanide.
542756	1-Propene, 1,3-dichloro-1,3-Dichloropropene.
542767	Propanenitrile, 3-chloro-3-Chloropropionitrile.
542881	Bis(chloromethyl)ether. Dichloromethyl ether. Methane, oxybis(chloro-.
543908	Cadmium acetate.
544183	Cobaltous formate.
544923	Copper cyanide Cu(CN).
544847	m-Nitrophenol.
557197	Nickel cyanide Ni(CN)2.
557211	Zinc cyanide Zn(CN)2. Zinc cyanide Zn(CN)2.
557346	Zinc acetate.
557415	Zinc formate.
563122	Ethion.
563688	Acetic acid, thallium(1+) salt. Thallium(I) acetate.
573568	2,6-Dinitrophenol.
584849	Benzene, 1,3-diisocyanatomethyl-. Toluene diisocyanate. 2,4-Toluene diisocyanate.
591082	Acetamide, N-(aminothioxomethyl)-1-Acetyl-2-thiourea.
592018	Calcium cyanide Ca(CN)2.
592041	Mercuric cyanide.
592858	Mercuric thiocyanate.
592870	Lead thiocyanate.
593602	Vinyl bromide.
594423	Methanesulfonyl chloride, trichloro-Trichloromethanesulfonyl chloride.
598312	Bromoacetone. 2-Propanone, 1-bromo-.
606202	Benzene, 2-methyl-1,3-dinitro-2,6-Dinitrotoluene.
608731	HEXACHLOROCYCLOHEXANE (all isomers).
608935	Benzene, pentachloro-. Pentachlorobenzene.
609198	3,4,5-Trichlorophenol.
610399	3,4-Dinitrotoluene.
615532	Carbamic acid, methylnitroso-, ethyl ester. N-Nitroso-N-methylurethane.
621647	Di-n-propylnitrosamine. 1-Propanamine, N-nitroso-N-propyl-.
624839	Methane, isocyanato-.

CASRN	Hazardous substance
	Methyl isocyanate.
625161	tert-Amyl acetate.
626380	sec-Amyl acetate.
628637	Amyl acetate.
628864	Fulminic acid, mercury(2+)salt. Mercury fulminate.
630104	Selenourea.
630206	Ethane, 1,1,1,2-tetrachloro-1,1,1,2-Tetrachloroethane.
631618	Ammonium acetate.
636215	Benzenamine, 2-methyl-, hydrochloride. o-Toluidine hydrochloride.
640197	Acetamide, 2-fluoro-Fluoroacetamide.
644644	Carbamic acid, dimethyl-1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester (Dimetilan).
680319	Hexamethylphosphoramide.
684935	N-Nitroso-N-methylurea. Urea, N-methyl-N-nitroso-.
692422	Arsine, diethyl-. Diethylarsine.
696286	Arsonous dichloride, phenyl-. Dichlorophenylarsine.
757584	Hexaethyl tetraphosphate. Tetraphosphoric acid, hexaethyl ester.
759739	N-Nitroso-N-ethylurea. Urea, N-ethyl-N-nitroso-.
764410	1,4-Dichloro-2-butene. 2-Butene, 1,4-dichloro-.
765344	Glycidylaldehyde. Oxiranecarboxaldehyde.
815827	Cupric tartrate.
822060	Hexamethylene-1,6-diisocyanate.
823405	Benzenediamine, ar-methyl-Toluenediamine. 2,4-Toluene diamine.
924163	N-Nitrosodi-n-butylamine. 1-Butanamine, N-butyl-N-nitroso-.
930552	N-Nitrosopyrrolidine. Pyrrolidine, 1-nitroso-.
933755	2,3,6-Trichlorophenol.
933788	2,3,5-Trichlorophenol.
959988	alpha-Endosulfan.
1024573	Heptachlor epoxide.
1031078	Endosulfan sulfate.
1066304	Chromic acetate.
1066337	Ammonium bicarbonate.
1072351	Lead stearate.
1111780	Ammonium carbamate.
1116547	Ethanol, 2,2'-(nitrosoimino)bis-. N-Nitrosodiethanolamine.
1120714	1,2-Oxathiolane, 2,2-dioxide. 1,3-Propane sultone.
1129415	Carbamic acid, methyl-, 3-methylphenyl ester (Metolcarb).
1185575	Ferric ammonium citrate.
1194656	Dichlobenil.
1300716	Xylenol.
1303282	Arsenic oxide As2O5. Arsenic pentoxide.
1303328	Arsenic disulfide.
1303339	Arsenic trisulfide.
1309644	Antimony trioxide.
1310583	Potassium hydroxide.
1310732	Sodium hydroxide.
1314325	Thallic oxide. Thallium oxide Tl2O3.
1314621	Vanadium oxide V2O5. Vanadium pentoxide.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
1314803	Phosphorus pentasulfide. Phosphorus sulfide. Sulfur phosphide.
1314847	Zinc phosphide Zn ₃ P ₂ .
1314870	Lead sulfide.
1319728	2,4,5-T amines.
1319773	Cresol (cresylic acid). Cresols (isomers and mixture). Cresylic acid (isomers and mixture). Phenol, methyl-.
1320189	2,4-D Ester.
1321126	Nitrotoluene.
1327533	Arsenic oxide As ₂ O ₃ . Arsenic trioxide.
1330207	Benzene, dimethyl-.
Xylene.	
Xylene (mixed).	
Xylenes (isomers and mixture).	
1332076	Zinc borate.
1332214	Asbestos.
1333831	Sodium bifluoride.
1335326	Lead subacetate. Lead, bis(acetato-O)tetrahydroxytri.
1336216	Ammonium hydroxide.
1336363	Aroclors. PCBs. POLYCHLORINATED BIPHENYLS.
1338234	Methyl ethyl ketone peroxide. 2-Butanone peroxide.
1338245	Naphthenic acid.
1341497	Ammonium bifluoride.
1464535	1,2:3,4-Diepoxybutane. 2,2'-Bioxirane.
1563388	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl- (Carbofuran phenol).
1563662	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate.
Carbofuran.	
1582098	Trifluralin.
1615801	Hydrazine, 1,2-diethyl- N,N'-Diethylhydrazine.
1634044	Methyl tert-butyl ether.
1646884	Propanal, 2-methyl-2-(methylsulfonyl)-, O- [(methylamino)carbonyl] oxime (Aldicarb sulfone).
1746016	TCDD. 2,3,7,8-Tetrachlorodibenzo-p-dioxin.
1762954	Ammonium thiocyanate.
1863634	Ammonium benzoate.
1888717	Hexachloropropene. 1-Propene, 1,1,2,3,3,3-hexachloro-.
1918009	Dicamba.
1928387	2,4-D Ester.
1928478	2,4,5-T esters.
1928616	2,4-D Ester.
1929733	2,4-D Ester.

CASRN	Hazardous substance
2008460	2,4,5-T amines.
2032657	Mercaptodimethur. Methiocarb. Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate.
2303164	Carbamoithioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester. Diallate.
2303175	Carbamoithioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate).
2312358	Propargite.
2545597	2,4,5-T esters.
2631370	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb).
2763964	3(2H)-Isoxazolone, 5-(aminomethyl)-. 5-(Aminomethyl)-3-isoxazolol.
2764729	Diquat
2921882	Chlorpyrifos.
2944674	Ferric ammonium oxalate.
2971382	2,4-D Ester.
3012655	Ammonium citrate, dibasic.
3164292	Ammonium tartrate.
3165933	Benzenamine, 4-chloro-2-methyl-, hydrochloride. 4-Chloro-o-toluidine, hydrochloride.
3251238	Cupric nitrate.
3288582	O,O-Diethyl S-methyl dithiophosphate. Phosphorodithioic acid, O,O-diethyl S-methyl ester.
3486359	Zinc carbonate.
3547044	DDE.
3689245	Tetraethyldithiopyrophosphate. Thiodiphosphoric acid, tetraethyl ester.
3813147	2,4,5-T amines.
4170303	Crotonaldehyde. 2-Butenal.
4549400	N-Nitrosomethylvinylamine. Vinylamine, N-methyl-N-nitroso-.
5344821	Thiourea, (2-chlorophenyl)-. 1-(o-Chlorophenyl)thiourea.
5893663	Cupric oxalate.
5952261	Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate).
5972736	Ammonium oxalate.
6009707	Ammonium oxalate.
6369966	2,4,5-T amines.
6369977	2,4,5-T amines.
6533739	Carbonic acid, dithallium(1+) salt. Thallium(I) carbonate.
7005723	4-Chlorophenyl phenyl ether.
7421934	Endrin aldehyde.
7428480	Lead stearate.
7439921	Lead.
7439976	Mercury.
7440020	Nickel.
7440224	Silver.
7440235	Sodium.
7440280	Thallium.
7440360	Antimony.
7440382	Arsenic.
7440417	Beryllium. Beryllium powder.
7440439	Cadmium.
7440473	Chromium.
7440508	Copper.
7440666	Zinc.
7446084	Selenium dioxide. Selenium oxide.
7446142	Lead sulfate.
7446186	Sulfuric acid, dithallium(1+) salt.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
7446277	Thallium(I) sulfate. Lead phosphate.
7447394	Phosphoric acid, lead(2+) salt (2:3). Cupric chloride.
7488564	Selenium sulfide SeS ₂ .
7550450	Titanium tetrachloride.
7558794	Sodium phosphate, dibasic.
7601549	Sodium phosphate, tribasic.
7631892	Sodium arsenate.
7631905	Sodium bisulfite.
7632000	Sodium nitrite.
7645252	Lead arsenate.
7646857	Zinc chloride.
7647010	Hydrochloric acid. Hydrogen chloride.
7647189	Antimony pentachloride.
7664382	Phosphoric acid.
7664393	Hydrofluoric acid. Hydrogen fluoride.
7664417	Ammonia.
7664939	Sulfuric acid.
7681494	Sodium fluoride.
7681529	Sodium hypochlorite.
7697372	Nitric acid.
7699458	Zinc bromide.
7705080	Ferric chloride.
7718549	Nickel chloride.
7719122	Phosphorus trichloride.
7720787	Ferrous sulfate.
7722647	Potassium permanganate.
7723140	Phosphorus.
7733020	Zinc sulfate.
7738945	Chromic acid.
7758294	Sodium phosphate, tribasic.
7758943	Ferrous chloride.
7758954	Lead chloride.
7758987	Cupric sulfate.
7761888	Silver nitrate.
7773060	Ammonium sulfamate.
7775113	Sodium chromate.
7778394	Arsenic acid H ₃ AsO ₄ .
7778441	Calcium arsenate.
7778509	Potassium bichromate.
7778543	Calcium hypochlorite.
7779864	Zinc hydrosulfite.
7779886	Zinc nitrate.
7782414	Fluorine.
7782492	Selenium.
7782505	Chlorine.
7782630	Ferrous sulfate.
7782823	Sodium selenite.
7782867	Mercurous nitrate.
7783008	Selenious acid.
7783064	Hydrogen sulfide H ₂ S.
7783359	Mercuric sulfate.
7783462	Lead fluoride.
7783495	Zinc fluoride.
7783508	Ferric fluoride.
7783564	Antimony trifluoride.
7784341	Arsenic trichloride.
7784409	Lead arsenate.
7784410	Potassium arsenate.
7784465	Sodium arsenite.
7785844	Sodium phosphate, tribasic.
7786347	Mevinphos.
7786814	Nickel sulfate.
7787475	Beryllium chloride.
7787497	Beryllium fluoride.
7787555	Beryllium nitrate.
7788989	Ammonium chromate.

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
7789006	Potassium chromate.
7789062	Strontium chromate.
7789095	Ammonium bichromate.
7789426	Cadmium bromide.
7789437	Cobaltous bromide.
7789619	Antimony tribromide.
7790945	Chlorosulfonic acid.
7791120	Thallium chloride TlCl.
7803512	Hydrogen phosphide. Phosphine.
7803556	Ammonium vanadate. Vanadic acid, ammonium salt.
8001352	Chlorinated camphene.
	Toxaphene.
8003198	Dichloropropane—Dichloropropene (mixture).
8003347	Pyrethrins.
8014957	Sulfuric acid.
10022705	Sodium hypochlorite.
10025873	Phosphorus oxychloride.
10025919	Antimony trichloride.
10026116	Zirconium tetrachloride.
10028225	Ferric sulfate.
10031591	Sulfuric acid, dithallium(1+) salt. Thallium(I) sulfate.
10039324	Sodium phosphate, dibasic.
10043013	Aluminum sulfate.
10045893	Ferrous ammonium sulfate.
10045940	Mercuric nitrate.
10049055	Chromous chloride.
10099748	Lead nitrate.
10101538	Chromic sulfate.
10101630	Lead iodide.
10101890	Sodium phosphate, tribasic.
10102064	Uranyl nitrate.
10102188	Sodium selenite.
10102439	Nitric oxide.
	Nitrogen oxide NO.
10102440	Nitrogen dioxide.
	Nitrogen oxide NO ₂ .
10102451	Nitric acid, thallium(1+) salt. Thallium(I) nitrate.
10102484	Lead arsenate.
10108642	Cadmium chloride.
10124502	Potassium arsenite.
10124568	Sodium phosphate, tribasic.
10140655	Sodium phosphate, dibasic.
10192300	Ammonium bisulfite.
10196040	Ammonium sulfite.
10361894	Sodium phosphate, tribasic.
10380297	Cupric sulfate, ammoniated.
10415755	Mercurous nitrate.
10421484	Ferric nitrate.
10544726	Nitrogen dioxide. Nitrogen oxide NO ₂ .
10588019	Sodium bichromate.
10605217	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim).
11096825	Aroclor 1260.
11097691	Aroclor 1254.
11104282	Aroclor 1221.
11115745	Chromic acid.
11141165	Aroclor 1232.
12002038	Cupric acetoarsenite.
12039520	Selenious acid, dithallium(1+) salt.
	Thallium (I) selenite.
12054487	Nickel hydroxide.

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APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

APPENDIX A TO § 302.4—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
12125018	Ammonium fluoride.
12125029	Ammonium chloride.
12135761	Ammonium sulfide.
12672296	Aroclor 1248.
12674112	Aroclor 1016.
12771083	Sulfur monochloride.
13463393	Nickel carbonyl Ni(CO) _n , (T–4)-
13560991	2,4,5-T salts.
13597994	Beryllium nitrate.
13746899	Zirconium nitrate.
13765190	Calcium chromate. Chromic acid H ₂ CrO ₄ , calcium salt.
13814965	Lead fluoborate.
13826830	Ammonium fluoborate.
13952846	sec-Butylamine.
14017415	Cobaltous sulfamate.
14216752	Nickel nitrate.
14258492	Ammonium oxalate.
14307358	Lithium chromate.
14307438	Ammonium tartrate.
14639975	Zinc ammonium chloride.
14639986	Zinc ammonium chloride.
14644612	Zirconium sulfate.
15339363	Manganese, bis(dimethylcarbamodithioato-S,S')- (Manganese dimethyldithiocarbamate).
15699180	Nickel ammonium sulfate.
15739807	Lead sulfate.
15950660	2,3,4-Trichlorophenol.
16721805	Sodium hydrosulfide.
16752775	Ethanimidothioic acid, N- [[[(methylamino)carbonyl]oxy]-, methyl ester.
	Methomyl.
16871719	Zinc silicofluoride.
16919190	Ammonium silicofluoride.
16923958	Zirconium potassium fluoride.
17702577	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4- [[[(methylamino)carbonyl]oxy]phenyl]- (Formparanate).
17804352	Carbamic acid, [1-[(butylamino)carbonyl]-1H- benzimidazol-2-yl]-, methyl ester (Benomy).
18883664	D-Glucose, 2-deoxy-2[[[(methylnitrosoamino)-car- bonyl]amino]-.
	Glucopyranose, 2-deoxy- 2-(3- methyl- 3- nitrosoureido)-, D-.
	Streptozotocin.
20816120	Osmium oxide OsO ₄ , (T–4)-.
20830813	Daunomycin. 5,12-Naphthacenedione, 8-acetyl-10-[(3-amino- 2,3,6-trideoxy-alpha-L-lyxo- hexopyranosyl)oxy]-7,8,9,10-tetrahydro- 6,8,11-trihydroxy-1-methoxy-, (8S-cis)-.
20859738	Aluminum phosphide.
22781233	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl car- bamate (Bendiocarb).
22961826	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol).

CASRN	Hazardous substance
23135220	Ethanimidothioic acid, 2-(dimethylamino)-N- [[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester (Oxamy).
23422539	Methanimidamide, N,N-dimethyl-N'-[3- [[[(methylamino)carbonyl]oxy]phenyl]-, monohydrochloride (Formetanate hydro- chloride).
23564058	Carbamic acid, [1,2- phenylenebis(iminocarbonothioyl)]bis-, di- methyl ester (Thiophanate-methyl).
23950585	Benzamide, 3,5-dichloro-N-(1,1- dimethyl-2- propynyl)-. Pronamide.
25154545	Dinitrobenzene (mixed).
25154556	Nitrophenol (mixed).
25155300	Sodium dodecylbenzenesulfonate.
25167822	Trichlorophenol.
25168154	2,4,5-T esters.
25168267	2,4-D Ester.
25321146	Dinitrotoluene.
25321226	Dichlorobenzene.
25376458	Benzenediamine, ar-methyl-. Toluenediamine. 2,4-Toluene diamine.
25550587	Dinitrophenol.
26264062	Calcium dodecylbenzenesulfonate.
26419738	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl- O-[(methylamino)carbonyl]oxime (Tirpate).
26471625	Benzene, 1,3-diisocyanatomethyl-. Toluene diisocyanate. 2,4-Toluene diisocyanate.
26628228	Sodium azide.
26638197	Dichloropropane.
26952238	Dichloropropene.
27176870	Dodecylbenzenesulfonic acid.
27323417	Triethanolamine dodecylbenzene sulfonate.
27774136	Vanadyl sulfate.
28300745	Antimony potassium tartrate.
30525894	Paraformaldehyde.
30558431	Ethanimidothioic acid, 2-(dimethylamino)-N-hy- droxy-2-oxo-, methyl ester (A2213).
32534955	2,4,5-TP esters.
33213659	beta - Endosulfan.
36478769	Uranyl nitrate.
37211055	Nickel chloride.
39196184	Thiofanox. 2-Butanone, 3,3-dimethyl-1-(methylthio)-,O- [[[(methylamino)carbonyl]oxime].
42504461	Isopropanolamine dodecylbenzenesulfonate.
52628258	Zinc ammonium chloride.
52652592	Lead stearate.
52740166	Calcium arsenite.
52888809	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb).
53467111	2,4-D Ester.
53469219	Aroclor 1242.
55285148	Carbamic acid, [[(dibutylamino)thio]methyl-, 2,3- dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan).
55488874	Ferric ammonium oxalate.
56189094	Lead stearate.
59669260	Ethanimidothioic acid, N,N'- [thiobis(methylimino)carbonyloxy]]bis-, di- methyl ester (Thiodicarb).
61792072	2,4,5-T esters.

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APPENDIX B TO § 302.4—RADIONUCLIDES

APPENDIX B TO § 302.4—RADIONUCLIDES—
Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Radionuclides@		1&(3.7E 10)
Actinium-224	89	100 (3.7E 12)
Actinium-225	89	1 (3.7E 10)
Actinium-226	89	10 (3.7E 11)
Actinium-227	89	0.001 (3.7E 7)
Actinium-228	89	10 (3.7E 11)
Aluminum-26	13	10 (3.7E 11)
Americium-237	95	1000 (3.7E 13)
Americium-238	95	100 (3.7E 12)
Americium-239	95	100 (3.7E 12)
Americium-240	95	10 (3.7E 11)
Americium-241	95	0.01 (3.7E 8)
Americium-242m	95	0.01 (3.7E 8)
Americium-242	95	100 (3.7E 12)
Americium-243	95	0.01 (3.7E 8)
Americium-244m	95	1000 (3.7E 13)
Americium-244	95	10 (3.7E 11)
Americium-245	95	1000 (3.7E 13)
Americium-246m	95	1000 (3.7E 13)
Americium-246	95	1000 (3.7E 13)
Antimony-115	51	1000 (3.7E 13)
Antimony-116m	51	100 (3.7E 12)
Antimony-116	51	1000 (3.7E 13)
Antimony-117	51	1000 (3.7E 13)
Antimony-118m	51	10 (3.7E 11)
Antimony-119	51	1000 (3.7E 13)
Antimony-120 (16 min)	51	1000 (3.7E 13)
Antimony-120 (5.76 day)	51	10 (3.7E 11)
Antimony-122	51	10 (3.7E 11)
Antimony-124m	51	1000 (3.7E 13)
Antimony-124	51	10 (3.7E 11)
Antimony-125	51	10 (3.7E 11)
Antimony-126m	51	1000 (3.7E 13)
Antimony-126	51	10 (3.7E 11)
Antimony-127	51	10 (3.7E 11)
Antimony-128 (10.4 min)	51	1000 (3.7E 13)
Antimony-128 (9.01 hr)	51	10 (3.7E 11)
Antimony-129	51	100 (3.7E 12)
Antimony-130	51	100 (3.7E 12)
Antimony-131	51	1000 (3.7E 13)
Argon-39	18	1000 (3.7E 13)
Argon-41	18	10 (3.7E 11)
Arsenic-69	33	1000 (3.7E 13)
Arsenic-70	33	100 (3.7E 12)
Arsenic-71	33	100 (3.7E 12)
Arsenic-72	33	10 (3.7E 11)
Arsenic-73	33	100 (3.7E 12)
Arsenic-74	33	10 (3.7E 11)
Arsenic-76	33	100 (3.7E 12)
Arsenic-77	33	1000 (3.7E 13)
Arsenic-78	33	100 (3.7E 12)
Astatine-207	85	100 (3.7E 12)
Astatine-211	85	100 (3.7E 12)
Barium-126	56	1000 (3.7E 13)
Barium-128	56	10 (3.7E 11)
Barium-131m	56	1000 (3.7E 13)
Barium-131	56	10 (3.7E 11)
Barium-133m	56	100 (3.7E 12)
Barium-133	56	10 (3.7E 11)
Barium-135m	56	1000 (3.7E 13)
Barium-139	56	1000 (3.7E 13)
Barium-140	56	10 (3.7E 11)
Barium-141	56	1000 (3.7E 13)
Barium-142	56	1000 (3.7E 13)
Berkelium-245	97	100 (3.7E 12)
Berkelium-246	97	10 (3.7E 11)
Berkelium-247	97	0.01 (3.7E 8)
Berkelium-249	97	1 (3.7E 10)
Berkelium-250	97	100 (3.7E 12)
Beryllium-7	4	100 (3.7E 12)
Beryllium-10	4	1 (3.7E 10)

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Bismuth-200	83	100 (3.7E 12)
Bismuth-201	83	100 (3.7E 12)
Bismuth-202	83	1000 (3.7E 13)
Bismuth-203	83	10 (3.7E 11)
Bismuth-205	83	10 (3.7E 11)
Bismuth-206	83	10 (3.7E 11)
Bismuth-207	83	10 (3.7E 11)
Bismuth-210m	83	0.1 (3.7E 9)
Bismuth-210	83	10 (3.7E 11)
Bismuth-212	83	100 (3.7E 12)
Bismuth-213	83	100 (3.7E 12)
Bismuth-214	83	100 (3.7E 12)
Bromine-74m	35	100 (3.7E 12)
Bromine-74	35	100 (3.7E 12)
Bromine-75	35	100 (3.7E 12)
Bromine-76	35	10 (3.7E 11)
Bromine-77	35	100 (3.7E 12)
Bromine-80m	35	1000 (3.7E 13)
Bromine-80	35	1000 (3.7E 13)
Bromine-82	35	10 (3.7E 11)
Bromine-83	35	1000 (3.7E 13)
Bromine-84	35	100 (3.7E 12)
Cadmium-104	48	1000 (3.7E 13)
Cadmium-107	48	1000 (3.7E 13)
Cadmium-109	48	1 (3.7E 10)
Cadmium-113m	48	0.1 (3.7E 9)
Cadmium-113	48	0.1 (3.7E 9)
Cadmium-115m	48	10 (3.7E 11)
Cadmium-115	48	100 (3.7E 12)
Cadmium-117m	48	10 (3.7E 11)
Cadmium-117	48	100 (3.7E 12)
Calcium-41	20	10 (3.7E 11)
Calcium-45	20	10 (3.7E 11)
Calcium-47	20	10 (3.7E 11)
Californium-244	98	1000 (3.7E 13)
Californium-246	98	10 (3.7E 11)
Californium-248	98	0.1 (3.7E 9)
Californium-249	98	0.01 (3.7E 8)
Californium-250	98	0.01 (3.7E 8)
Californium-251	98	0.01 (3.7E 8)
Californium-252	98	0.1 (3.7E 9)
Californium-253	98	10 (3.7E 11)
Californium-254	98	0.1 (3.7E 9)
Carbon-11	6	1000 (3.7E 13)
Carbon-14	6	10 (3.7E 11)
Cerium-134	58	10 (3.7E 11)
Cerium-135	58	10 (3.7E 11)
Cerium-137m	58	100 (3.7E 12)
Cerium-137	58	1000 (3.7E 13)
Cerium-139	58	100 (3.7E 12)
Cerium-141	58	10 (3.7E 11)
Cerium-143	58	100 (3.7E 12)
Cerium-144	58	1 (3.7E 10)
Cesium-125	55	1000 (3.7E 13)
Cesium-127	55	100 (3.7E 12)
Cesium-129	55	100 (3.7E 12)
Cesium-130	55	1000 (3.7E 13)
Cesium-131	55	1000 (3.7E 13)
Cesium-132	55	10 (3.7E 11)
Cesium-134m	55	1000 (3.7E 13)
Cesium-134	55	1 (3.7E 10)
Cesium-135m	55	100 (3.7E 12)
Cesium-135	55	10 (3.7E 11)
Cesium-136	55	10 (3.7E 11)
Cesium-137	55	1 (3.7E 10)
Cesium-138	55	100 (3.7E 12)
Chlorine-36	17	10 (3.7E 11)
Chlorine-38	17	100 (3.7E 12)
Chlorine-39	17	100 (3.7E 12)
Chromium-48	24	100 (3.7E 12)

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Radionuclide	Atomic Number	Final RQ Ci (Bq)
Chromium-49	24	1000 (3.7E 13)
Chromium-51	24	1000 (3.7E 13)
Cobalt-55	27	10 (3.7E 11)
Cobalt-56	27	10 (3.7E 11)
Cobalt-57	27	100 (3.7E 12)
Cobalt-58m	27	1000 (3.7E 13)
Cobalt-58	27	10 (3.7E 11)
Cobalt-60m	27	1000 (3.7E 13)
Cobalt-60	27	10 (3.7E 11)
Cobalt-61	27	1000 (3.7E 13)
Cobalt-62m	27	1000 (3.7E 13)
Copper-60	29	100 (3.7E 12)
Copper-61	29	100 (3.7E 12)
Copper-64	29	1000 (3.7E 13)
Copper-67	29	100 (3.7E 12)
Curium-238	96	1000 (3.7E 13)
Curium-240	96	1 (3.7E 10)
Curium-241	96	10 (3.7E 11)
Curium-242	96	1 (3.7E 10)
Curium-243	96	0.01 (3.7E 8)
Curium-244	96	0.01 (3.7E 8)
Curium-245	96	0.01 (3.7E 8)
Curium-246	96	0.01 (3.7E 8)
Curium-247	96	0.01 (3.7E 8)
Curium-248	96	0.001 (3.7E 7)
Curium-249	96	1000 (3.7E 13)
Dysprosium-155	66	100 (3.7E 12)
Dysprosium-157	66	100 (3.7E 12)
Dysprosium-159	66	100 (3.7E 12)
Dysprosium-165	66	1000 (3.7E 13)
Dysprosium-166	66	10 (3.7E 11)
Einsteinium-250	99	10 (3.7E 11)
Einsteinium-251	99	1000 (3.7E 13)
Einsteinium-253	99	10 (3.7E 11)
Einsteinium-254m	99	1 (3.7E 10)
Einsteinium-254	99	0.1 (3.7E 9)
Erbium-161	68	100 (3.7E 12)
Erbium-165	68	1000 (3.7E 13)
Erbium-169	68	100 (3.7E 12)
Erbium-171	68	100 (3.7E 12)
Erbium-172	68	10 (3.7E 11)
Europium-145	63	10 (3.7E 11)
Europium-146	63	10 (3.7E 11)
Europium-147	63	10 (3.7E 11)
Europium-148	63	10 (3.7E 11)
Europium-149	63	100 (3.7E 12)
Europium-150 (12.6 hr)	63	1000 (3.7E 13)
Europium-150 (34.2 yr)	63	10 (3.7E 11)
Europium-152m	63	100 (3.7E 12)
Europium-152	63	10 (3.7E 11)
Europium-154	63	10 (3.7E 11)
Europium-155	63	10 (3.7E 11)
Europium-156	63	10 (3.7E 11)
Europium-157	63	10 (3.7E 11)
Europium-158	63	1000 (3.7E 13)
Fermium-252	100	10 (3.7E 11)
Fermium-253	100	10 (3.7E 11)
Fermium-254	100	100 (3.7E 12)
Fermium-255	100	100 (3.7E 12)
Fermium-257	100	1 (3.7E 10)
Fluorine-18	9	1000 (3.7E 13)
Francium-222	87	100 (3.7E 12)
Francium-223	87	100 (3.7E 12)
Gadolinium-145	64	100 (3.7E 12)
Gadolinium-146	64	10 (3.7E 11)
Gadolinium-147	64	10 (3.7E 11)
Gadolinium-148	64	0.001 (3.7E 7)
Gadolinium-149	64	100 (3.7E 12)
Gadolinium-151	64	100 (3.7E 12)
Gadolinium-152	64	0.001 (3.7E 7)

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Gadolinium-153	64	10 (3.7E 11)
Gadolinium-159	64	1000 (3.7E 13)
Gallium-65	31	1000 (3.7E 13)
Gallium-66	31	10 (3.7E 11)
Gallium-67	31	100 (3.7E 12)
Gallium-68	31	1000 (3.7E 13)
Gallium-70	31	1000 (3.7E 13)
Gallium-72	31	10 (3.7E 11)
Gallium-73	31	100 (3.7E 12)
Germanium-66	32	100 (3.7E 12)
Germanium-67	32	1000 (3.7E 13)
Germanium-68	32	10 (3.7E 11)
Germanium-69	32	10 (3.7E 11)
Germanium-71	32	1000 (3.7E 13)
Germanium-75	32	1000 (3.7E 13)
Germanium-77	32	10 (3.7E 11)
Germanium-78	32	1000 (3.7E 13)
Gold-193	79	100 (3.7E 12)
Gold-194	79	10 (3.7E 11)
Gold-195	79	100 (3.7E 12)
Gold-198m	79	10 (3.7E 11)
Gold-198	79	100 (3.7E 12)
Gold-199	79	100 (3.7E 12)
Gold-200m	79	10 (3.7E 11)
Gold-200	79	1000 (3.7E 13)
Gold-201	79	1000 (3.7E 13)
Hafnium-170	72	100 (3.7E 12)
Hafnium-172	72	1 (3.7E 10)
Hafnium-173	72	100 (3.7E 12)
Hafnium-175	72	100 (3.7E 12)
Hafnium-177m	72	1000 (3.7E 13)
Hafnium-178m	72	0.1 (3.7E 9)
Hafnium-179m	72	100 (3.7E 12)
Hafnium-180m	72	100 (3.7E 12)
Hafnium-181	72	10 (3.7E 11)
Hafnium-182m	72	100 (3.7E 12)
Hafnium-182	72	0.1 (3.7E 9)
Hafnium-183	72	100 (3.7E 12)
Hafnium-184	72	100 (3.7E 12)
Holmium-155	67	1000 (3.7E 13)
Holmium-157	67	1000 (3.7E 13)
Holmium-159	67	1000 (3.7E 13)
Holmium-161	67	1000 (3.7E 13)
Holmium-162m	67	1000 (3.7E 13)
Holmium-162	67	1000 (3.7E 13)
Holmium-164m	67	1000 (3.7E 13)
Holmium-164	67	1000 (3.7E 13)
Holmium-166m	67	1 (3.7E 10)
Holmium-166	67	100 (3.7E 12)
Holmium-167	67	100 (3.7E 12)
Hydrogen-3	1	100 (3.7E 12)
Indium-109	49	100 (3.7E 12)
Indium-110 (69.1 min)	49	100 (3.7E 12)
Indium-110 (4.9 hr)	49	10 (3.7E 11)
Indium-111	49	100 (3.7E 12)
Indium-112	49	1000 (3.7E 13)
Indium-113m	49	1000 (3.7E 13)
Indium-114m	49	10 (3.7E 11)
Indium-115m	49	100 (3.7E 12)
Indium-115	49	0.1 (3.7E 9)
Indium-116m	49	100 (3.7E 12)
Indium-117m	49	100 (3.7E 12)
Indium-117	49	1000 (3.7E 13)
Indium-119m	49	1000 (3.7E 13)
Iodine-120m	53	100 (3.7E 12)
Iodine-120	53	10 (3.7E 11)
Iodine-121	53	100 (3.7E 12)
Iodine-123	53	10 (3.7E 11)
Iodine-124	53	0.1 (3.7E 9)
Iodine-125	53	0.01 (3.7E 8)

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Radionuclide	Atomic Number	Final RQ Ci (Bq)
Iodine-126	53	0.01 (3.7E 8)
Iodine-128	53	1000 (3.7E 13)
Iodine-129	53	0.001 (3.7E 7)
Iodine-130	53	1 (3.7E 10)
Iodine-131	53	0.01 (3.7E 8)
Iodine-132m	53	10 (3.7E 11)
Iodine-132	53	10 (3.7E 11)
Iodine-133	53	0.1 (3.7E 9)
Iodine-134	53	100 (3.7E 12)
Iodine-135	53	10 (3.7E 11)
Iridium-182	77	1000 (3.7E 13)
Iridium-184	77	100 (3.7E 12)
Iridium-185	77	100 (3.7E 12)
Iridium-186	77	10 (3.7E 11)
Iridium-187	77	100 (3.7E 12)
Iridium-188	77	10 (3.7E 11)
Iridium-189	77	100 (3.7E 12)
Iridium-190m	77	1000 (3.7E 13)
Iridium-190	77	10 (3.7E 11)
Iridium-192m	77	100 (3.7E 12)
Iridium-192	77	10 (3.7E 11)
Iridium-194m	77	10 (3.7E 11)
Iridium-194	77	100 (3.7E 12)
Iridium-195m	77	100 (3.7E 12)
Iridium-195	77	1000 (3.7E 13)
Iron-52	26	100 (3.7E 12)
Iron-55	26	100 (3.7E 12)
Iron-59	26	10 (3.7E 11)
Iron-60	26	0.1 (3.7E 9)
Krypton-74	36	10 (3.7E 11)
Krypton-76	36	10 (3.7E 11)
Krypton-77	36	10 (3.7E 11)
Krypton-79	36	100 (3.7E 12)
Krypton-81	36	1000 (3.7E 13)
Krypton-83m	36	1000 (3.7E 13)
Krypton-85m	36	100 (3.7E 12)
Krypton-85	36	1000 (3.7E 13)
Krypton-87	36	10 (3.7E 11)
Krypton-88	36	10 (3.7E 11)
Lanthanum-131	57	1000 (3.7E 13)
Lanthanum-132	57	100 (3.7E 12)
Lanthanum-135	57	1000 (3.7E 13)
Lanthanum-137	57	10 (3.7E 11)
Lanthanum-138	57	1 (3.7E 10)
Lanthanum-140	57	10 (3.7E 11)
Lanthanum-141	57	1000 (3.7E 13)
Lanthanum-142	57	100 (3.7E 12)
Lanthanum-143	57	1000 (3.7E 13)
Lead-195m	82	1000 (3.7E 13)
Lead-198	82	100 (3.7E 12)
Lead-199	82	100 (3.7E 12)
Lead-200	82	100 (3.7E 12)
Lead-201	82	100 (3.7E 12)
Lead-202m	82	10 (3.7E 11)
Lead-202	82	1 (3.7E 10)
Lead-203	82	100 (3.7E 12)
Lead-205	82	100 (3.7E 12)
Lead-209	82	1000 (3.7E 13)
Lead-210	82	0.01 (3.7E 8)
Lead-211	82	100 (3.7E 12)
Lead-212	82	10 (3.7E 11)
Lead-214	82	100 (3.7E 12)
Lutetium-169	71	10 (3.7E 11)
Lutetium-170	71	10 (3.7E 11)
Lutetium-171	71	10 (3.7E 11)
Lutetium-172	71	10 (3.7E 11)
Lutetium-173	71	100 (3.7E 12)
Lutetium-174m	71	10 (3.7E 11)
Lutetium-174	71	10 (3.7E 11)
Lutetium-176m	71	1000 (3.7E 13)

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Lutetium-176	71	1 (3.7E 10)
Lutetium-177m	71	10 (3.7E 11)
Lutetium-177	71	100 (3.7E 12)
Lutetium-178m	71	1000 (3.7E 13)
Lutetium-178	71	1000 (3.7E 13)
Lutetium-179	71	1000 (3.7E 13)
Magnesium-28	12	10 (3.7E 11)
Manganese-51	25	1000 (3.7E 13)
Manganese-52m	25	1000 (3.7E 13)
Manganese-52	25	10 (3.7E 11)
Manganese-53	25	1000 (3.7E 13)
Manganese-54	25	10 (3.7E 11)
Manganese-56	25	100 (3.7E 12)
Mendelevium-257	101	100 (3.7E 12)
Mendelevium-258	101	1 (3.7E 10)
Mercury-193m	80	10 (3.7E 11)
Mercury-193	80	100 (3.7E 12)
Mercury-194	80	0.1 (3.7E 9)
Mercury-195m	80	100 (3.7E 12)
Mercury-195	80	100 (3.7E 12)
Mercury-197m	80	1000 (3.7E 13)
Mercury-197	80	1000 (3.7E 13)
Mercury-199m	80	1000 (3.7E 13)
Mercury-203	80	10 (3.7E 11)
Molybdenum-90	42	100 (3.7E 12)
Molybdenum-93m	42	10 (3.7E 11)
Molybdenum-93	42	100 (3.7E 12)
Molybdenum-99	42	100 (3.7E 12)
Molybdenum-101	42	1000 (3.7E 13)
Neodymium-136	60	1000 (3.7E 13)
Neodymium-138	60	1000 (3.7E 13)
Neodymium-139m	60	100 (3.7E 12)
Neodymium-139	60	1000 (3.7E 13)
Neodymium-141	60	1000 (3.7E 13)
Neodymium-147	60	10 (3.7E 11)
Neodymium-149	60	100 (3.7E 12)
Neodymium-151	60	1000 (3.7E 13)
Neptunium-232	93	1000 (3.7E 13)
Neptunium-233	93	1000 (3.7E 13)
Neptunium-234	93	10 (3.7E 11)
Neptunium-235	93	1000 (3.7E 13)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (3.7E 9)
Neptunium-236 (22.5 hr)	93	100 (3.7E 12)
Neptunium-237	93	0.01 (3.7E 8)
Neptunium-238	93	10 (3.7E 11)
Neptunium-239	93	100 (3.7E 12)
Neptunium-240	93	100 (3.7E 12)
Nickel-56	28	10 (3.7E 11)
Nickel-57	28	10 (3.7E 11)
Nickel-59	28	100 (3.7E 12)
Nickel-63	28	100 (3.7E 12)
Nickel-65	28	100 (3.7E 12)
Nickel-66	28	10 (3.7E 11)
Niobium-88	41	100 (3.7E 12)
Niobium-89 (66 min)	41	100 (3.7E 12)
Niobium-89 (122 min)	41	100 (3.7E 12)
Niobium-90	41	10 (3.7E 11)
Niobium-93m	41	100 (3.7E 12)
Niobium-94	41	10 (3.7E 11)
Niobium-95m	41	100 (3.7E 12)
Niobium-95	41	10 (3.7E 11)
Niobium-96	41	10 (3.7E 11)
Niobium-97	41	100 (3.7E 12)
Niobium-98	41	1000 (3.7E 13)
Osmium-180	76	1000 (3.7E 13)
Osmium-181	76	100 (3.7E 12)
Osmium-182	76	100 (3.7E 12)
Osmium-185	76	10 (3.7E 11)
Osmium-189m	76	1000 (3.7E 13)
Osmium-191m	76	1000 (3.7E 13)

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Radionuclide	Atomic Number	Final RQ Ci (Bq)
Osmium-191	76	100 (3.7E 12)
Osmium-193	76	100 (3.7E 12)
Osmium-194	76	1 (3.7E 10)
Palladium-100	46	100 (3.7E 12)
Palladium-101	46	100 (3.7E 12)
Palladium-103	46	100 (3.7E 12)
Palladium-107	46	100 (3.7E 12)
Palladium-109	46	1000 (3.7E 13)
Phosphorus-32	15	0.1 (3.7E 9)
Phosphorus-33	15	1 (3.7E 10)
Platinum-186	78	100 (3.7E 12)
Platinum-188	78	100 (3.7E 12)
Platinum-189	78	100 (3.7E 12)
Platinum-191	78	100 (3.7E 12)
Platinum-193m	78	100 (3.7E 12)
Platinum-193	78	1000 (3.7E 13)
Platinum-195m	78	100 (3.7E 12)
Platinum-197m	78	1000 (3.7E 13)
Platinum-197	78	1000 (3.7E 13)
Platinum-199	78	1000 (3.7E 13)
Platinum-200	78	100 (3.7E 12)
Plutonium-234	94	1000 (3.7E 13)
Plutonium-235	94	1000 (3.7E 13)
Plutonium-236	94	0.1 (3.7E 9)
Plutonium-237	94	1000 (3.7E 13)
Plutonium-238	94	0.01 (3.7E 8)
Plutonium-239	94	0.01 (3.7E 8)
Plutonium-240	94	0.01 (3.7E 8)
Plutonium-241	94	1 (3.7E 10)
Plutonium-242	94	0.01 (3.7E 8)
Plutonium-243	94	1000 (3.7E 13)
Plutonium-244	94	0.01 (3.7E 8)
Plutonium-245	94	100 (3.7E 12)
Polonium-203	84	100 (3.7E 12)
Polonium-205	84	100 (3.7E 12)
Polonium-207	84	10 (3.7E 11)
Polonium-210	84	0.01 (3.7E 8)
Potassium-40	19	1 (3.7E 10)
Potassium-42	19	100 (3.7E 12)
Potassium-43	19	10 (3.7E 11)
Potassium-44	19	100 (3.7E 12)
Potassium-45	19	1000 (3.7E 13)
Praseodymium-136	59	1000 (3.7E 13)
Praseodymium-137	59	1000 (3.7E 13)
Praseodymium-138m	59	100 (3.7E 12)
Praseodymium-139	59	1000 (3.7E 13)
Praseodymium-142m	59	1000 (3.7E 13)
Praseodymium-142	59	100 (3.7E 12)
Praseodymium-143	59	10 (3.7E 11)
Praseodymium-144	59	1000 (3.7E 13)
Praseodymium-145	59	1000 (3.7E 13)
Praseodymium-147	59	1000 (3.7E 13)
Promethium-141	61	1000 (3.7E 13)
Promethium-143	61	100 (3.7E 12)
Promethium-144	61	10 (3.7E 11)
Promethium-145	61	100 (3.7E 12)
Promethium-146	61	10 (3.7E 11)
Promethium-147	61	10 (3.7E 11)
Promethium-148m	61	10 (3.7E 11)
Promethium-148	61	10 (3.7E 11)
Promethium-149	61	100 (3.7E 12)
Promethium-150	61	100 (3.7E 12)
Promethium-151	61	100 (3.7E 12)
Protactinium-227	91	100 (3.7E 12)
Protactinium-228	91	10 (3.7E 11)
Protactinium-230	91	10 (3.7E 11)
Protactinium-231	91	0.01 (3.7E 8)
Protactinium-232	91	10 (3.7E 11)
Protactinium-233	91	100 (3.7E 12)
Protactinium-234	91	10 (3.7E 11)

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Radium-223	88	1 (3.7E 10)
Radium-224	88	10 (3.7E 11)
Radium-225	88	1 (3.7E 10)
Radium-226 ϕ	88	0.1 (3.7E 9)
Radium-227	88	1000 (3.7E 13)
Radium-228	88	0.1 (3.7E 9)
Radon-220	86	0.1 (3.7E 9)
Radon-222	86	0.1 (3.7E 9)
Rhenium-177	75	1000 (3.7E 13)
Rhenium-178	75	1000 (3.7E 13)
Rhenium-181	75	100 (3.7E 12)
Rhenium-182 (12.7 hr)	75	10 (3.7E 11)
Rhenium-182 (64.0 hr)	75	10 (3.7E 11)
Rhenium-184m	75	10 (3.7E 11)
Rhenium-184	75	10 (3.7E 11)
Rhenium-186m	75	10 (3.7E 11)
Rhenium-186	75	100 (3.7E 12)
Rhenium-187	75	1000 (3.7E 13)
Rhenium-188m	75	1000 (3.7E 13)
Rhenium-188	75	1000 (3.7E 13)
Rhenium-189	75	1000 (3.7E 13)
Rhodium-99m	45	100 (3.7E 12)
Rhodium-99	45	10 (3.7E 11)
Rhodium-100	45	10 (3.7E 11)
Rhodium-101m	45	100 (3.7E 12)
Rhodium-101	45	10 (3.7E 11)
Rhodium-102m	45	10 (3.7E 11)
Rhodium-102	45	10 (3.7E 11)
Rhodium-103m	45	1000 (3.7E 13)
Rhodium-105	45	100 (3.7E 12)
Rhodium-106m	45	10 (3.7E 11)
Rhodium-107	45	1000 (3.7E 13)
Rubidium-79	37	1000 (3.7E 13)
Rubidium-81m	37	1000 (3.7E 13)
Rubidium-81	37	100 (3.7E 12)
Rubidium-82m	37	10 (3.7E 11)
Rubidium-83	37	10 (3.7E 11)
Rubidium-84	37	10 (3.7E 11)
Rubidium-86	37	10 (3.7E 11)
Rubidium-88	37	1000 (3.7E 13)
Rubidium-89	37	1000 (3.7E 13)
Rubidium-87	37	10 (3.7E 11)
Ruthenium-94	44	1000 (3.7E 13)
Ruthenium-97	44	100 (3.7E 12)
Ruthenium-103	44	10 (3.7E 11)
Ruthenium-105	44	100 (3.7E 12)
Ruthenium-106	44	1 (3.7E 10)
Samarium-141m	62	1000 (3.7E 13)
Samarium-141	62	1000 (3.7E 13)
Samarium-142	62	1000 (3.7E 13)
Samarium-145	62	100 (3.7E 12)
Samarium-146	62	0.01 (3.7E 8)
Samarium-147	62	0.01 (3.7E 8)
Samarium-151	62	10 (3.7E 11)
Samarium-153	62	100 (3.7E 12)
Samarium-155	62	1000 (3.7E 13)
Samarium-156	62	100 (3.7E 12)
Scandium-43	21	1000 (3.7E 13)
Scandium-44m	21	10 (3.7E 11)
Scandium-44	21	100 (3.7E 12)
Scandium-46	21	10 (3.7E 11)
Scandium-47	21	100 (3.7E 12)
Scandium-48	21	10 (3.7E 11)
Scandium-49	21	1000 (3.7E 13)
Selenium-70	34	1000 (3.7E 13)
Selenium-73m	34	100 (3.7E 12)
Selenium-73	34	10 (3.7E 11)
Selenium-75	34	10 (3.7E 11)
Selenium-79	34	10 (3.7E 11)
Selenium-81m	34	1000 (3.7E 13)

Environmental Protection Agency

§ 302.4

APPENDIX B TO § 302.4—RADIONUCLIDES—
Continued

APPENDIX B TO § 302.4—RADIONUCLIDES—
Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Selenium-81	34	1000 (3.7E 13)
Selenium-83	34	1000 (3.7E 13)
Silicon-31	14	1000 (3.7E 13)
Silicon-32	14	1 (3.7E 10)
Silver-102	47	100 (3.7E 12)
Silver-103	47	1000 (3.7E 13)
Silver-104m	47	1000 (3.7E 13)
Silver-104	47	1000 (3.7E 13)
Silver-105	47	10 (3.7E 11)
Silver-106m	47	10 (3.7E 11)
Silver-106	47	1000 (3.7E 13)
Silver-108m	47	10 (3.7E 11)
Silver-110m	47	10 (3.7E 11)
Silver-111	47	10 (3.7E 11)
Silver-112	47	100 (3.7E 12)
Silver-115	47	1000 (3.7E 13)
Sodium-22	11	10 (3.7E 11)
Sodium-24	11	10 (3.7E 11)
Strontium-80	38	100 (3.7E 12)
Strontium-81	38	1000 (3.7E 13)
Strontium-83	38	100 (3.7E 12)
Strontium-85m	38	1000 (3.7E 13)
Strontium-85	38	10 (3.7E 11)
Strontium-87m	38	100 (3.7E 12)
Strontium-89	38	10 (3.7E 11)
Strontium-90	38	0.1 (3.7E 9)
Strontium-91	38	10 (3.7E 11)
Strontium-92	38	100 (3.7E 12)
Sulfur-35	16	1 (3.7E 10)
Tantalum-172	73	100 (3.7E 12)
Tantalum-173	73	100 (3.7E 12)
Tantalum-174	73	100 (3.7E 12)
Tantalum-175	73	100 (3.7E 12)
Tantalum-176	73	10 (3.7E 11)
Tantalum-177	73	1000 (3.7E 13)
Tantalum-178	73	1000 (3.7E 13)
Tantalum-179	73	1000 (3.7E 13)
Tantalum-180m	73	1000 (3.7E 13)
Tantalum-180	73	100 (3.7E 12)
Tantalum-182m	73	1000 (3.7E 13)
Tantalum-182	73	10 (3.7E 11)
Tantalum-183	73	100 (3.7E 12)
Tantalum-184	73	10 (3.7E 11)
Tantalum-185	73	1000 (3.7E 13)
Tantalum-186	73	1000 (3.7E 13)
Technetium-93m	43	1000 (3.7E 13)
Technetium-93	43	100 (3.7E 12)
Technetium-94m	43	100 (3.7E 12)
Technetium-94	43	10 (3.7E 11)
Technetium-96m	43	1000 (3.7E 13)
Technetium-96	43	10 (3.7E 11)
Technetium-97m	43	100 (3.7E 12)
Technetium-97	43	100 (3.7E 12)
Technetium-98	43	10 (3.7E 11)
Technetium-99m	43	100 (3.7E 12)
Technetium-99	43	10 (3.7E 11)
Technetium-101	43	1000 (3.7E 13)
Technetium-104	43	1000 (3.7E 13)
Tellurium-116	52	1000 (3.7E 13)
Tellurium-121m	52	10 (3.7E 11)
Tellurium-121	52	10 (3.7E 11)
Tellurium-123m	52	10 (3.7E 11)
Tellurium-123	52	10 (3.7E 11)
Tellurium-125m	52	10 (3.7E 11)
Tellurium-127m	52	10 (3.7E 11)
Tellurium-127	52	1000 (3.7E 13)
Tellurium-129m	52	10 (3.7E 11)
Tellurium-129	52	1000 (3.7E 13)
Tellurium-131m	52	10 (3.7E 11)
Tellurium-131	52	1000 (3.7E 13)

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Tellurium-132	52	10 (3.7E 11)
Tellurium-133m	52	1000 (3.7E 13)
Tellurium-133	52	1000 (3.7E 13)
Tellurium-134	52	1000 (3.7E 13)
Terbium-147	65	100 (3.7E 12)
Terbium-149	65	100 (3.7E 12)
Terbium-150	65	100 (3.7E 12)
Terbium-151	65	10 (3.7E 11)
Terbium-153	65	100 (3.7E 12)
Terbium-154	65	10 (3.7E 11)
Terbium-155	65	100 (3.7E 12)
Terbium-156m (5.0 hr)	65	1000 (3.7E 13)
Terbium-156m (24.4 hr)	65	1000 (3.7E 13)
Terbium-156	65	10 (3.7E 11)
Terbium-157	65	100 (3.7E 12)
Terbium-158	65	10 (3.7E 11)
Terbium-160	65	10 (3.7E 11)
Terbium-161	65	100 (3.7E 12)
Thallium-194m	81	100 (3.7E 12)
Thallium-194	81	1000 (3.7E 13)
Thallium-195	81	100 (3.7E 12)
Thallium-197	81	100 (3.7E 12)
Thallium-198m	81	100 (3.7E 12)
Thallium-198	81	10 (3.7E 11)
Thallium-199	81	100 (3.7E 12)
Thallium-200	81	10 (3.7E 11)
Thallium-201	81	1000 (3.7E 13)
Thallium-202	81	10 (3.7E 11)
Thallium-204	81	10 (3.7E 11)
Thorium-226	90	100 (3.7E 12)
Thorium-227	90	1 (3.7E 10)
Thorium-228	90	0.01 (3.7E 8)
Thorium-229	90	0.001 (3.7E 7)
Thorium-230	90	0.01 (3.7E 8)
Thorium-231	90	100 (3.7E 12)
Thorium-232 ϕ	90	0.001 (3.7E 7)
Thorium-234	90	100 (3.7E 12)
Thulium-162	69	1000 (3.7E 13)
Thulium-166	69	10 (3.7E 11)
Thulium-167	69	100 (3.7E 12)
Thulium-170	69	10 (3.7E 11)
Thulium-171	69	100 (3.7E 12)
Thulium-172	69	100 (3.7E 12)
Thulium-173	69	100 (3.7E 12)
Thulium-175	69	1000 (3.7E 13)
Tin-110	50	100 (3.7E 12)
Tin-111	50	1000 (3.7E 13)
Tin-113	50	10 (3.7E 11)
Tin-117m	50	100 (3.7E 12)
Tin-119m	50	10 (3.7E 11)
Tin-121m	50	10 (3.7E 11)
Tin-121	50	1000 (3.7E 13)
Tin-123m	50	1000 (3.7E 13)
Tin-123	50	10 (3.7E 11)
Tin-125	50	10 (3.7E 11)
Tin-126	50	1 (3.7E 10)
Tin-127	50	100 (3.7E 12)
Tin-128	50	1000 (3.7E 13)
Titanium-44	22	1 (3.7E 10)
Titanium-45	22	1000 (3.7E 13)
Tungsten-176	74	1000 (3.7E 13)
Tungsten-177	74	100 (3.7E 12)
Tungsten-178	74	100 (3.7E 12)
Tungsten-179	74	1000 (3.7E 13)
Tungsten-181	74	100 (3.7E 12)
Tungsten-185	74	10 (3.7E 11)
Tungsten-187	74	100 (3.7E 12)
Tungsten-188	74	10 (3.7E 11)
Uranium-230	92	1 (3.7E 10)
Uranium-231	92	1000 (3.7E 13)

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APPENDIX B TO § 302.4—RADIONUCLIDES—
Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Uranium-232	92	0.01 (3.7E 8)
Uranium-233	92	0.1 (3.7E 9)
Uranium-234 ϕ	92	0.1 (3.7E 9)
Uranium-235 ϕ	92	0.1 (3.7E 9)
Uranium-236	92	0.1 (3.7E 9)
Uranium-237	92	100 (3.7E 12)
Uranium-238 ϕ	92	0.1 $\bar{8}$ (3.7E 9)
Uranium-239	92	1000 (3.7E 13)
Uranium-240	92	1000 (3.7E 13)
Vanadium-47	23	1000 (3.7E 13)
Vanadium-48	23	10 (3.7E 11)
Vanadium-49	23	1000 (3.7E 13)
Xenon-120	54	100 (3.7E 12)
Xenon-121	54	10 (3.7E 11)
Xenon-122	54	100 (3.7E 12)
Xenon-123	54	10 (3.7E 11)
Xenon-125	54	100 (3.7E 12)
Xenon-127	54	100 (3.7E 12)
Xenon-129m	54	1000 (3.7E 13)
Xenon-131m	54	1000 (3.7E 13)
Xenon-133m	54	1000 (3.7E 13)
Xenon-133	54	1000 (3.7E 13)
Xenon-135m	54	10 (3.7E 11)
Xenon-135	54	100 (3.7E 12)
Xenon-138	54	10 (3.7E 11)
Ytterbium-162	70	1000 (3.7E 13)
Ytterbium-166	70	10 (3.7E 11)
Ytterbium-167	70	1000 (3.7E 13)
Ytterbium-169	70	10 (3.7E 11)
Ytterbium-175	70	100 (3.7E 12)
Ytterbium-177	70	1000 (3.7E 13)
Ytterbium-178	70	1000 (3.7E 13)
Yttrium-86m	39	1000 (3.7E 13)
Yttrium-86	39	10 (3.7E 11)
Yttrium-87	39	10 (3.7E 11)
Yttrium-88	39	10 (3.7E 11)
Yttrium-90m	39	100 (3.7E 12)
Yttrium-90	39	10 (3.7E 11)
Yttrium-91m	39	1000 (3.7E 13)
Yttrium-91	39	10 (3.7E 11)
Yttrium-92	39	100 (3.7E 12)
Yttrium-93	39	100 (3.7E 12)
Yttrium-94	39	1000 (3.7E 13)
Yttrium-95	39	1000 (3.7E 13)
Zinc-62	30	100 (3.7E 12)
Zinc-63	30	1000 (3.7E 13)
Zinc-65	30	10 (3.7E 11)
Zinc-69m	30	100 (3.7E 12)
Zinc-69	30	1000 (3.7E 13)
Zinc-71m	30	100 (3.7E 12)
Zinc-72	30	100 (3.7E 12)
Zirconium-86	40	100 (3.7E 12)
Zirconium-88	40	10 (3.7E 11)
Zirconium-89	40	100 (3.7E 12)
Zirconium-93	40	1 (3.7E 10)
Zirconium-95	40	10 (3.7E 11)
Zirconium-97	40	10 (3.7E 11)

Cl—Curie. The curie represents a rate of radioactive decay. One curie is the quantity of any radioactive nuclide which undergoes 3.7E 10 disintegrations per second.

Bq—Becquerel. The becquerel represents a rate of radioactive decay. One becquerel is the quantity of any radioactive nuclide which undergoes one disintegration per second. One curie is equal to 3.7E 10 becquerel.

@—Final RQs for all radionuclides apply to chemical compounds containing the radionuclides and elemental forms regardless of the diameter of pieces of solid material.

&—The adjusted RQ of one curie applies to all radionuclides not otherwise listed. Whenever the RQs in table 302.4 and this appendix to the table are in conflict, the lowest RQ shall apply. For example, uranyl acetate and uranyl nitrate have adjusted RQs shown in table 302.4 of 100 pounds, equivalent to about one-tenth the RQ level for uranium-238 listed in this appendix.

E—Exponent to the base 10. For example, 1.3E 2 is equal to 130 while 1.3E 3 is equal to 1300.

m—Signifies a nuclear isomer which is a radionuclide in a higher energy metastable state relative to the parent isotope.

ϕ —Notification requirements for releases of mixtures or solutions of radionuclides can be found in § 302.6(b) of this rule. Final RQs for the following four common radionuclide mixtures are provided: radium-226 in secular equilibrium with its daughters (0.053 curie); natural uranium (0.1 curie); natural uranium in secular equilibrium with its daughters (0.052 curie); and natural thorium in secular equilibrium with its daughters (0.011 curie).

[54 FR 33449, Aug. 14, 1989]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 302.4, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 302.5 Determination of reportable quantities.

(a) *Listed hazardous substances.* The quantity listed in the column “Final RQ” for each substance in table 302.4, or in appendix B to table 302.4, is the reportable quantity (RQ) for that substance. The RQs in table 302.4 are in units of pounds based on chemical toxicity, while the RQs in appendix B to table 302.4 are in units of curies based on radiation hazard. Whenever the RQs in table 302.4 and appendix B to the table are in conflict, the lowest RQ shall apply.

(b) *Unlisted hazardous substances.* Unlisted hazardous substances designated by 40 CFR 302.4(b) have the reportable quantity of 100 pounds, except for those unlisted hazardous wastes which exhibit toxicity identified in 40 CFR 261.24. Unlisted hazardous wastes which exhibit toxicity have the reportable quantities listed in Table 302.4 for the contaminant on which the characteristic of toxicity is based. The reportable quantity applies to the waste itself, not merely to the toxic contaminant. If an unlisted hazardous waste exhibits toxicity on the basis of more than one contaminant, the reportable quantity for that waste shall be the lowest of the reportable quantities listed in Table 302.4 for those contaminants. If an unlisted hazardous waste exhibits the characteristic of toxicity and one or more of the other characteristics referenced in 40 CFR 302.4(b), the reportable quantity for that waste

Appendix C

Expanded List of Prohibited Uses

Although this model ordinance advocates a balanced approach to using performance standards together with restrictive zoning, the following is a list of land uses that a municipality may wish to prohibit in a groundwater protection district if no inspection program is planned *and implemented*. It is recommended that the municipality review each land use on the list to determine which to prohibit, based upon the risk each land use poses to groundwater resources.

The community should also carefully consider which area(s) of the town to include in the groundwater protection district if an expanded list of prohibited uses is to be employed, since stratified-drift aquifers may underlie a substantial portion of the economically developable land in some towns. In such situations, the community may wish to designate only some aquifers, such as those used, or anticipated to be used, for water supplies, in which to prohibit a long list of uses.

1. Storage of liquid petroleum products, except the following:
 - a. normal on-site household use, outdoor maintenance, and heating of an on-site structure;
 - b. waste oil retention facilities required by statute, rule, or regulation;
 - c. emergency generators required by statute, rule, or regulation;
 - d. treatment works approved by NHDES for treatment of ground or surface waters;

provided that such storage, listed in items (a.) through (d.) above, is in free-standing containers in buildings or above ground with secondary containment adequate to contain a spill 110 percent the size of the containers total storage capacity;

2. Sludge monofills (i.e., landfill) and septage lagoons;
3. Storage of animal manure unless managed (e.g., stored) in accordance with the applicable best management practices contained in the Manual of Best Management Practices for Agriculture in New Hampshire (July 20011, or later) or additional practices required by the United States Natural Resources Conservation Service;
4. Facilities that generate, treat, store hazardous waste subject to Env-Hw 500-900 except for:
 - a. household hazardous waste centers and events regulated under Env-Hw 401.03(b)(1) and Env-Hw 501.01(b); and
 - b. water remediation treatment works approved by NHDES for the treatment of contaminated ground or surface waters;
5. Non-sanitary treatment works which discharge to the ground and that are subject to Env-Wq 402, except the following:
 - a. the replacement or repair of an existing treatment works that will not result in a design capacity greater than the design capacity of the existing treatment works;
 - b. treatment works approved by NHDES designed for the treatment of contaminated groundwater;
6. Storage of regulated substances in greater than household quantities (i.e., five-gallons), unless in a free-standing container in a building or above ground with secondary containment adequate to contain 110 percent of the container's total storage capacity;
7. Storage of commercial fertilizers, unless such storage is in a structure designed to prevent the generation and escape of contaminated runoff or leachate.

Appendix D

Sample Compliance and Enforcement Letters

The sample letters in this appendix are designed to be used as part of a best management practices survey program to ensure compliance with the model groundwater protection ordinance and with Env-Wq 401 Best Management Practices for Groundwater Protection. Please review each letter carefully before using it to ensure that it is consistent with the ordinance adopted by your community. The letters should not be used, as written, if different or additional requirements (beyond those within Env-Wq 401) are adopted in the groundwater protection ordinance. It is highly recommended that in those cases, new compliance and enforcement letters are drafted to ensure compliance with the requirements of local ordinance as it is adopted.

Municipal enforcement procedures and penalties to address violations of local ordinances are enumerated under the Penalties and Remedies subdivision of RSA 676, specifically Fines and Penalties (676:17), Cease and Desist Orders (676:17-a) and Local Land Use Citations (676:17-b). References to the procedures and fines in statute may be appropriate to reference in compliance letters.

Please note that sample letters 1 through 3 refer to inventory interviews and compliance inspections completed using the *Survey Form and Instructions for BMP Compliance*. This form, a copy of which is in Appendix F, is also available online at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/bmps/documents/survey_form.pdf. An inventory interview is an informal scheduled visit, not required under the terms of the model ordinance, to determine whether a facility stores or uses enough regulated substances (over five gallons) to come under the provisions of the ordinance. During an inventory interview the inspector completes the first two sections of the inspection form with the facility owner/operator. The interview is an opportunity to explain the provisions of the ordinance and to give the facility owner/operator an opportunity to come into compliance before an inspection takes place. During an inventory interview the inspector may determine, without actually walking through the facility, that the facility is exempt from the ordinance and that a compliance inspection will not be necessary.

A compliance inspection is a formal walk-through of a facility to ensure compliance with all provisions of the ordinance. The inspector may wish to schedule a compliance inspection without scheduling a separate inventory interview. It is generally considered less intimidating to conduct an inventory interview first, but the approach that is chosen will depend on local circumstances.

The NH Department of Environmental Services Drinking Water Source Protection Program provides training to local BMP inspectors in how to conduct inspection programs. For information, please contact the Drinking Water Source Protection Program at 271-0688.

Sample Letter 1 Explaining the Program and Setting a Time for an Inventory Interview

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date: _____

RE: [Give name and location of facility], Present use: [List present use of property]

Dear [Customer, Neighbor, Facility Owner - fill in appropriate term]:

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water. If we are all careful, substances that could pollute our drinking water will never find their way to our wells.

Your facility has been identified as being located in the area from which water flows to our wells [give location of wells] or [which we are protecting as a future source of drinking water]. As such, it is important that you are aware that the present use of your property listed above has the potential to affect the quality of groundwater. Your activity could also affect the water quality of your own well if you have one.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden chemicals or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down their toilet, sink drain, or onto the ground.

To help you avoid activities that could threaten water quality, we are enclosing an informational flyer, a copy of the State Best Management Practices for Groundwater Protection Env-Wq 401, (which is also available online at <http://des.nh.gov/organization/commissioner/legal/rules/documents/env-wq401.pdf>), and the Survey Form for BMP Compliance that can be used to perform a self-audit. Compliance with these rules is mandatory if you use, store, handle, or dispose of regulated substances in greater-than-household quantities. Any unpermitted discharges to groundwater or contamination of groundwater is illegal under RSA 485-A:13 and Env-Or 603.03, Ambient Groundwater Quality Standards. By complying with these rules and implementing the suggested practices contained on the flyer you will both help us to protect this valuable source of drinking water and at the same time reduce your own environmental liability.

Providing you with this information is the first phase of the protection program we are undertaking to protect this source of water. The next step is to contact you to determine whether you use greater-than-household quantities of regulated substances and to answer any questions you may have. We will be contacting you at your facility on [date]. Please contact me at [phone number] between the hours of [] and [] if there is a specific time or alternate date you would like to meet with me. If you have any questions about this program please call me or contact N.H. Department of Environmental Services at 271-0688.

Thank you.

Sincerely,

[Contact person's name, title]

Enclosures: BMP Rules Flyer, BMP Rules, Survey Form and Instructions for BMP Compliance

Sample Letter 2
Scheduling an Appointment for a Compliance Inspection If an Inventory Interview Has Already Been Conducted

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date: _____

RE: [Give name and location of facility]

Dear [Facility Owner - fill in appropriate name]:

Thank you for giving me a chance to explain the groundwater protection program that we are in the process of implementing. As I explained during the inventory interview, the next step in this program is to conduct best management practice (BMP) inspections of facilities using larger than household quantities of regulated substances.

The purpose of this letter is to notify you of the date that I will be performing an inspection of your facility. I will be in your area on [date]. Please contact me at [phone number] during the hours of [] and [] if you need me to be at your facility at a specific time or if you need to reschedule for another day.

The first letter I sent you contained a copy of the Survey Form and Instructions for BMP Compliance that I will be using. I urge you to do a self-audit to correct any violations of the Best Management Practices Rules before I arrive. This will also allow you to clarify any questions you may have about the inspection before my visit.

Thanks again for your help in protecting this valuable source of drinking water.

Sincerely,

[Contact person's name, title]

Sample Letter 3

Program Explanation Letter that Sets a Time for BMP Compliance Inspection

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date: _____

RE: [Give name and location of facility], Present use: [List present use of property]

Dear [Facility Owner - fill in appropriate name]:

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water. If we are all careful, we can protect our current or future sources of drinking water from contamination.

Your facility has been identified as being located in the area from which water flows to our wells [give location of well(s)] or [that we are protecting as a future source of drinking water]. As such, it is important that you are aware that the present use of your property listed above has the potential to affect the quality of the water. Your activity could also affect the water quality of your own well if you have one.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden chemicals or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down their toilet, sink drain, or onto the ground.

To help you avoid activities that could threaten water quality, we are enclosing an informational flyer, a copy of the State Best Management Practices Rules (Env-Wq 401) and a Survey Form and Instructions for Best Management Practice (BMP) Compliance that can be used to perform a self-audit. Compliance with these rules is mandatory if you use, store, handle or dispose of regulated substances in greater-than-household quantities. Any discharges, without a NHDES permit, to groundwater or contamination of groundwater is illegal under RSA 485-A:13 and Env-Or 603.03, Ambient Groundwater Quality Standards. By complying with these rules and implementing the suggested practices contained on the flyer you will help us to protect our wells while at the same time reducing your own environmental liability.

Providing you with this information is the first phase of a protection program we are undertaking to protect water quality. The next step is to perform a compliance inspection to ensure that you are in compliance with the enclosed rules. I will be coming to your facility on [date]. Please contact me at [phone] during the hours of [] and [] if you need me to arrive at a certain time or if we need to reschedule for a different day. I urge you to perform a self-audit with the attached Survey Form so that any violations of the rules can be remedied before my visit. This will also allow you to clarify any questions you may have.

Please feel free to contact me if you have any questions. Or, call the N.H. Department of Environmental Services at 271-0688. We need your help to protect this valuable source of drinking water! Thank you.

Sincerely,

[Contact person's name, title]

Encl.: Flyer, BMP Rules, Survey Form and Instructions for BMP Compliance

Sample Letter 4 The Facility is in Compliance

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date: _____

Dear **[Facility Owner - fill in appropriate name]**:

Thank you for participating in the inspection for compliance with the Best Management Practices Rules, Env-Wq 401 that I performed at your facility, **[name of facility]** on **[date]**. I am pleased to inform you that I found no violations of these rules. Therefore, you will not hear from me again until the next round of compliance inspections, which we anticipate will be conducted in **[year]** (*Insert year you intend to do inspection again*).

In the meantime, if you have any questions concerning these rules or our groundwater protection program please do not hesitate to contact me at **[phone number]**.

Thanks for your help in keeping this valuable source of drinking water safe.

Sincerely,

[Contact person's name, title]

Sample Letter 5 The Facility is Not in Compliance

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date: _____

Dear **[Facility Owner - fill in appropriate name]**:

The purpose of this letter is to summarize the results of the Best Management Practices (BMP) Inspection conducted at your facility on **[date]**. The Survey was performed to meet the requirements of the **[water system or town name]** Drinking Water Source Protection Program and to gauge compliance with New Hampshire Administrative Rule Env-Wq 401, Best Management Practices. The results of the inspection are as follows:

Facility Description: **[Describe the facility and what you observed during the survey]**

Regulation Description: **[Quote the pertinent rule, such as Env-Wq 401 .04(e) states that regulated containers shall be clearly and visibly labeled with the name of the material stored within.]**

Compliance Description: **[Describe the violation and what can be done to correct it. You should have already discussed this with the facility representative during the inspection.]**

If you need clarification of the rules or the waiver provisions contained in them, please contact NHDES directly at 271-2862.

Thank you in advance for your willingness to help protect our valuable source of drinking water. If you have any questions about this letter, please call me at **[phone number]** between the hours of **[]** and **[]**.

Sincerely,

[Contact person's name, title]

Enclosure: Completed Survey Form and Instructions for BMP Compliance

Sample Letter 6 Second Warning

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date: _____

Dear: **[Facility Owner - fill in appropriate term]**,

In a letter dated **[date]**, I informed you that you were not in compliance with certain Best Management Practices rules. On **[date]**, I conducted a follow-up inspection to determine compliance with the rules. To the best of my knowledge, you remain out of compliance with the following:

Regulation Description: **[Quote the pertinent rule, such as Env-Wq 401 .04(e) states that regulated containers shall be clearly and visibly labeled with the name of the material stored within.]**

Compliance Description: **[Describe the violation and what can be done to correct it. You should have already discussed this with the facility representative during the inspection.]**

[Refer to and include a copy of completed form from follow-up inspection]

Unless I hear from you within 30 days of the receipt of this letter with an indication that you have corrected the violation(s) or we have agreed to a compliance schedule, I will have no choice but to refer these violations to the New Hampshire Department of Environmental Services (NHDES). NHDES is authorized to levy substantial fines and to issue cease and desist orders. Under Env-C 609, fines can range from \$500 to \$1,000 for each day of a continuing violation, and up to \$2,000 for non-compliance with a cease and desist order. It is our policy that unresolved violations are referred to NHDES.

Thank you in advance for your willingness to help protect our valuable source of drinking water. If you have any questions, please call me at **[phone number]** between the hours of **[]** to **[]**.

Sincerely,

[Contact person's name, title]

Enclosures: Copy of first violation letter
Copy of completed Survey Form and Instructions for BMP Compliance

Sample Letter 7 Referring a Violation of Env-Wq 401 to NHDES

PUT THIS SAMPLE LETTER ON YOUR LETTERHEAD

Date _____

[Name], Commissioner
N.H. Department of Environmental Services
29 Hazen Drive, P.O. Box 95
Concord NH 03302-0095

RE: Enforcement Activities under the Groundwater Protection Act, RSA 485-C

Dear Commissioner [Name]:

I am writing to request the Department's assistance in managing Potential Contamination Sources in a wellhead or groundwater protection area by enforcing Env-Wq 401 Best Management Practices. I have attempted to bring about voluntary compliance with Env-Wq 401 as described below:

A first compliance inspection was held [date] at [Name of facility, location]. The following violations were discovered during that inspection:

violation(s): [description of the violations as found on inspection]

[Cite specific sections of the rules, describe nature of violation(s), and specify the regulated substance(s) involved].

The enclosed violation letter was sent on [date] and a follow-up inspection was conducted on [date]. The second inspection indicated [describe results], and second warning was sent on [date]. [Describe any communication with the PCS owner since sending the second warning.]

I have enclosed copies of all pertinent correspondence and inspection forms. Thank you for your attention to this matter.

Sincerely,

[Contact person's name, title]

Enclosures: Completed form from initial inspection
 Copy of first violation letter
 Completed form from follow-up inspection
 Copy of second warning
 Copies of other correspondence to or from PCS owner
 Copies of records of telephone conversations with PCS owner

cc.: PCS owner

Appendix E:
Information for Educational Flier

Is Gasoline Contaminating Your Drinking Water?

Gasoline is one of the most dangerous products commonly found around the home, yet people often store and use it with little care. Some of the chemicals in gasoline have been found in drinking water with increasing frequency, including benzene, toluene and MtBE (Methyl t-Butyl Ether), which is *easily dissolved in water* and is a possible carcinogen. Even a gasoline spill as small as a gallon can contaminate your drinking water wells or a public water supply.

To Protect Your Drinking Water From Gasoline

Avoid Spilling Gasoline on the Ground, Especially Near Wells

- Don't drain gasoline from lawn mowers, snow blowers, etc. onto the ground.
- Don't burn brush with gasoline.
- Don't top off your fuel tank.
- Keep refueling and engine work away from water supply wells, and if possible, over a concrete floor or similar barrier. Immediately clean up any gas or oil spills.

Avoid Spilling Gasoline in Lakes, Ponds, and Rivers

- Keep special gasoline-absorbing pads on your gas-powered boat and know how to use them.
- If you own a larger boat, make sure it has no-spill tank vents.
- Fill portable tanks from outboard boat engines on shore.
- Refuel snowmobiles and ice augers on shore; do not take gasoline storage tanks onto ice-covered ponds.

Store Gasoline Properly

- Use a clearly labeled container made for gasoline and with a spout to avoid spills.
- Keep gasoline containers in a dry, well ventilated shed or detached garage away from water supply wells. Don't keep metal gasoline cans on a dirt floor for extended periods.

Dispose of Waste Gasoline Properly

- Handle old or dirty gasoline as hazardous waste. Bring it to a household hazardous waste collection center in a proper gasoline container.

If a spill occurs: For *any size* spill that is not immediately cleaned up, first contact your local 911 responder or fire department, then call the DES emergency spill number at (603) 271-3899 (Mon-Fri, 8-4), or weekends and evenings at (603) 223-4381 (NH State Police).

Revised August 2011

Got Clean Drinking Water?



It's up to you!

The DOs and DON'Ts for maintaining clean Drinking Water



For more information please contact the Drinking Water Source Protection Program at (603) 271-7061 or visit our website: <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/index.htm>.

Where does your drinking water come from?

Your drinking water comes from either groundwater or surface water. Groundwater is the water that flows through the spaces between soil particles and through fractures in rock. It comes from rain and snowmelt percolating through the ground. Surface water comes from rainfall and snowmelt running over land and from *groundwater* seepage into lakes, rivers and reservoirs.

Why should you be concerned?

While some pollutants, such as bacteria, viruses and phosphorus, can be reduced by passing through soil under certain conditions, groundwater can be easily contaminated by chemicals and oils. Surface water is also affected by soil and pollutants picked up as water flows over land.

Keep Household Hazardous Wastes Out of your Drinking Water! Such as ...

Automotive Fluids • Auto Batteries • Used Motor Oil
Oil-Based Paint • Paint Thinner • Antifreeze
Pesticides • Cleaning products • Gasoline

DO –

- Use non-toxic and less-toxic alternatives to pesticides and household chemicals.
- Take leftover household chemicals to your town's household hazardous waste collection day.
- Follow package directions on pesticides, fertilizers and other household chemicals.
- Check your underground fuel storage tank (UST) frequently for leaks. If a UST is more than 20 years old, replace it with an aboveground storage tank that has a concrete slab underneath it, a cover and secondary containment.
- Take care of your septic system. Inspect it every year and get it pumped out every 3-5 years.
- Avoid damage to your leach field and distribution lines by keeping vehicles, livestock and other heavy objects off of them.



- Test soil every two years to determine existing nutrient levels and pH before applying fertilizers.
- Use slow or controlled release nitrogen sources of fertilizer.
- Measure the area of your lawn to be fertilized to determine how much to use and calibrate or adjust spreader settings to match the recommended rate for fertilizers.
- Use drip pans large enough to contain motor vehicle or power equipment fluids being replaced or drained.
- Fully drain oil over a drip pan or pail before disposal. Most solid waste transfer stations accept used oil filters for recycling. Store and transport used oil filters in a covered leak-proof container until disposal.
- Keep absorbent materials such as rags, pads, "Speedi-Dry" or kitty litter near the work area and clean up all spills as soon as they occur.
- Dispose of all used absorbents immediately in a leak-proof container.
- Refuel or repair engines over an impervious surface, such as a concrete floor or tarp.
- Drain all fluids from motor vehicle parts before removing them from the vehicle.
- Follow medicine disposal guidelines described at www.nh.gov/medsafety.



DON'T –

- Buy more pesticides or hazardous chemicals than you need.
- Dispose of hazardous chemicals by pouring them down the drain or onto the ground.
- Over-use pesticides or household chemicals. More is not necessarily better.
- Have your UST removed by a contractor who is not familiar with state guidelines for UST removal.
- Overload your septic system with solids by using a garbage disposal, unless the system is specifically designed for one.
- Pour chemicals down the sink or toilet.
- Use septic system cleaners or additives containing acids or chemical solvents such as trichloroethylene (TCE).
- Use fertilizers if heavy rains are anticipated as the nutrients will be flushed from the lawn into drains and low areas.
- Apply fertilizers within 25 feet of most lakes and streams.

Appendix F:
Survey Form and Instructions for BMP Compliance

Survey Form and Instructions for Best Management Practice (BMP) Compliance



BMP surveys are conducted at facilities using more than household quantities of regulated substances in conjunction with local efforts to protect sources of drinking water. The surveys are conducted to ensure that each potential contamination source (PCS) is complying with New Hampshire's BMPs for Preventing Groundwater Contamination Rule, Env-Wq 401, so that the risk of groundwater and/or surface water contamination in the source protection area is minimized.

Section 1. Survey Preparation

Follow the steps in this section to ensure that your surveys are conducted in a thorough and professional manner and to minimize the inconvenience to the PCS.

- 1. Know the BMP Rules.** Knowledge of the Env-Wq 401 BMP rules will enable you to *know what to look for* during a survey. It is important to conduct your surveys as efficiently as possible so that you don't waste your time or that of the PCS. Knowing the BMP rules will speed up a survey, prevent oversights, and is essential to discuss compliance issues.
- 2. Be sure each PCS** has received a copy of the Env-Wq 401 BMP rules and a DES fact sheet summarizing the BMP Rules *in advance* of your appointment to do the survey. Ask them to read the rules and offer to answer any questions before the survey. Many PCSs become more comfortable about a survey after realizing the "common sense" approach of the BMP rules. Bring several BMP fact sheets to each survey to distribute to the PCS representative(s).
- 3. Know your Source Water Protection Area.** During a survey keep in mind where the PCS is situated relative to your source(s). This may help you make site-specific decisions about compliance issues. Bring a map showing your protection area(s) to the survey so the PCS can see that they are located inside the protection area.
- 4. Know your Source Water Protection Area Management Plan.** Keep in mind the compliance mechanism of your management plan. One of the most commonly asked questions by PCSs is "How are the BMP rules enforced?" so you should be able to explain how you will achieve compliance with BMP violations. Emphasize that you will seek the *least costly and most practical* way to achieve compliance. Voluntary compliance is always the goal.
- 5. Find out as much as you can about a PCS before you go** to the survey. It saves time to know site -specific background information, such as: what type of sewage disposal system does the PCS have; how long has the PCS been in business; and what was the historic usage of the PCS' property. Also, before the survey, think about site-specific concerns pertaining to the storage, handling and disposal of regulated materials. For example, before surveying a printing company, anticipate that you will need to know how they store, handle and dispose of ink products. Knowing key background data and anticipating site-specific compliance concerns will help prevent oversights and will make the survey more efficient.
- 6. Be sure that the PCS understands** that a BMP survey is mutually beneficial. Explain that the Env-Wq 401 rules apply to all PCSs in New Hampshire, not just the ones within a source protection area. Also, explain that compliance with BMP rules may benefit them by: improving their environmental practices; reducing their overall environmental liability; and perhaps minimizing potential cleanup costs by preventing a release of hazardous substances. Your water system benefits from improved protection of your drinking water sources and reduced sampling costs.
7. If at all possible, **fill out Sections 2, 3, and 4 of this form before you go** to the PCS. Most PCS representatives are busy and will appreciate whatever you can do to minimize your time there. This is a good time to think about the site-specific concerns mentioned in (5) above.
- 8. Know the BMP survey form.** During a survey, it is not always possible to fill out the form in the same order as the questions are written. Knowing the form makes it much easier to "skip around" while you are touring a facility.

Section 2. Record of Survey

Fill out Sections 2 and 3 prior to each survey.

Survey Date	
Potential Contamination Source (PCS)	
Town where PCS is Located	
Agency Conducting Survey	
Name and Title of Person(s) Performing Survey	
Name and Title of Person(s) Giving Information about the PCS	

Section 3. Potential Contamination Source (PCS) Information

Update this section for each 3-year survey.

PCS Name		
PCS Address		
PCS Phone Number		
PCS Tax Map and Lot Number	Tax Map	Lot no.
PCS Owner		
PCS Owner Address (If different from above)		
General Description of Business		

Section 4. Inventory Verification

An “inventory verification” is conducted before the actual survey to find out if the PCS uses greater than household quantities of regulated substances, thereby making it subject to the Env-Wq 401 BMP rules. If the PCS does not use greater than household quantities of regulated substances, answer “no” in Step C. and do not complete the rest of this form. This verification may be performed by phone.

Complete Steps A., B., and C. below

Step A. - What regulated substances does the PCS use, handle, or store?

The best way to complete this section is to ask the PCS contact to fill out the chart below. **If possible, arrange to have the PCS fill out this chart before you arrive to do the survey.** If not done earlier, this section is filled out as the first task of your survey. Quantities listed below only need to be **estimates** of maximum quantities on hand at any one time. Any chemicals stored in regulated tanks should be included on this chart.

Regulated Substance	Quantity (gallons)	Regulated Substance	Quantity (gallons)
Transmission and brake fluid		Cleaners and Disinfectants	
Radiator coolants		De-icing salt	
Hydraulic fluid		Refrigerants	
Motor oil		Fertilizer	
Waste oil		Pesticides and herbicides	
Gasoline or jet fuel		Photo processing chemicals	
Diesel Fuel and kerosene		Printing ink	
#2 Heating oil		Lye or caustic soda	
Grease and lubricants		Metal buffing compounds	
Degreasers		PCBs (bulk)	
Battery acid (bulk)		Products labeled poison	
Rustproofers		List other products you think are hazardous , below:	
Car wash products		1.	
Asphalt and roofing tar		2.	
Paint, stain, urethane		3.	
Thinner, wood stripper		4.	
Waterproofing chemicals		5.	
Dry-Cleaning Fluids		6.	

Section 4. Inventory Verification

Step B. - What regulated substance wastes does the PCS produce?

The second part of the inventory verification is to find out if the PCS produces any regulated substance wastes and, if so, **how they are disposed**. As done for Section A, if possible arrange to have the chart below filled out by the PCS contact prior to your survey. If not done ahead of time, fill out the chart after you look over the results of Section A. For example, if the PCS is a machine shop that uses cutting oils and degreasing solvents, then the chart below must indicate how they dispose of their waste oils and used solvents. Do not list non-hazardous wastes, such as refuse and paper on this chart. Estimates of quantities generated per year are adequate.

Type of Waste	Quantity Generated per Year	Disposal Method
1.		
2.		
3.		
4.		
5.		

Step C. - Are greater than household quantities of regulated substances or wastes used, handled, or stored?

(check the appropriate box below)

If all containers at the PCS are **less than 5 gallons**, check "NO" below

√ Check Below

YES	Greater than household quantities of regulated substances or wastes <u>are used, handled, or stored</u> so conduct a survey to determine compliance with BMP rules.
NO	Greater than household quantities of regulated substances or wastes <u>are not used, handled, or stored</u> so do not conduct a survey to determine compliance with BMP rules.

If you **checked "NO" above**, do not continue with the survey because the inventory verification indicated that regulated substances are not used by the PCS.

If you **checked "YES" above**, complete the rest of this form, which contains a series of questions that need to be answered to assess if the PCS is in compliance with the BMP rules. Be sure that you answer all of the questions – indicate "n/a" if that is the correct answer.

PCSs that have underground tanks, but no other containers larger than 5 gallons are special cases. If a PCS fits that description, you should not conduct a full survey. List the USTs in Section 7, verify that the USTs are registered with the DES, and then **stop the survey**. Convenience stores and self-service gas stations are common examples.

Section 5. Regulated Substance Storage Areas

If you observe a BMP violation during a survey, point it out to the PCS contact and discuss it right away - **surveys are meant to benefit both parties.**

Storage practices of regulated substances, whether raw materials or wastes, are a major focus of the BMP rules. Therefore, one of the most important tasks of a survey is to observe all areas where the regulated substances listed in Section 4 - Steps A and B are stored. **Ask the PCS contact where they store** their regulated substances and list them below. Then be sure to carefully observe each interior and exterior storage area to see if their storage practices comply with the BMP rules. Consider at all times during your observations that you are looking for practices that could lead to a potential release of hazardous substances to the environment. Use common sense.

Step A. - List and briefly describe **all on-site storage areas** below.

Exterior Storage Areas

1.
2.
3.
4.

Interior Storage Areas

1.
2.
3.
4.

Summary of **Env-Wq 401 BMP rules pertaining to storage** of regulated substances

- Secure storage areas against unauthorized entry.
- Store regulated substances on an impervious surface.
- Inspect storage areas weekly.
- Cover regulated containers in outdoor storage areas.
- Regulated containers in outdoor storage areas must be more than 50 feet from surface water, 50 feet from storm drains, 75 feet from private wells, and more than 400 feet from public wells.
- Secondary containment is required for outdoor storage of regulated containers. On-premise use heating oil tanks are exempted, however, containment is still recommended.
- Regulated containers should be clearly and visibly labeled.

A **regulated container** is a container with a capacity of 5 gallons or more that contains hazardous substances. Multiple 5-gallon containers of a regulated substance may qualify the facility as a PCS.

Secondary containment means an impervious structure adequate to hold 110% of the volume of a regulated container.

Section 5. Regulated Substance Storage Areas

Proceed at a comfortable pace as you tour a facility. You may miss key observations if you go too fast.

Step B. - Questions to ask when observing **outdoor storage areas.**

Wooden floors with earth beneath are not impervious surfaces.

Storage of Regulated Substances in outdoor storage areas (refer to Env-Wq 401.04)

- * Yes No N/A 1. Do the outdoor storage area(s) have an impervious surface under the regulated substances?
Env-Wq 401.04(b) Describe: _____
- * Yes No N/A 2. Is the outdoor storage area(s) secured against unauthorized entry (fence, surveillance, etc.)?
Env-Wq 401.04(c) Describe: _____
- * Yes No N/A 3. Is the outdoor storage area(s) inspected at least weekly for signs of spills?
Env-Wq 401.04(d)
- * Yes No N/A 4. Is there sufficient space between large containers to allow for inspections?
Env-Wq 401.04(d)
- * Yes No N/A 5. Is each regulated container clearly and visibly labeled with the name of material?
Env-Wq 401.04(e)
- * Yes No N/A 6. Is each container closed and sealed or equipped with a drip pan beneath a spigot, valve or pump?
Env-Wq 401.04(f)
- * Yes No N/A 7. Is spill control and containment equipment (i.e. absorbents) available in the outdoor storage area?
Env-Wq 401.04(g)
- * Yes No N/A 8. Are regulated substances that are stored outside covered?
Env-Wq 401.04(h)(2) Describe: _____
- * Yes No N/A 9. Are regulated substances which are stored outside > 50 feet from a surface water body or > 75 feet from a private well?
Env-Wq 401.04(h)(4)
- * Yes No N/A 10. Are regulated substances that are stored outside > 50 feet from a storm drain? If no, is secondary containment present? _____
Env-Wq 401.04(h)(4)
- * Yes No N/A 11. Are regulated substances in outdoor storage areas stored outside the protective radius of public water supply wells? (radius is usually 400' - contact 271-2947 with questions)
Env-Wq 401.04(h)(4)
- * Yes No N/A 12. Do regulated containers in outside storage areas have secondary containment?
Env-Wq 401.04(h)(1)

A cover must be permanent and large enough to keep a container fully protected from rain and snow.

Transfer (Handling) of Regulated Substances in outdoor storage areas (refer to Env-Wq 401.05)

During a survey, it is important to find out and understand **where and how** the PCS handles regulated substances. Observe all areas where fluids are used, or moved to and from.

- * Yes No N/A 13. Are regulated substances in outdoor storage areas transferred using funnels and drip pans or other spill-safe devices?
Env-Wq 401.05(a)
- * Yes No N/A 14. Are regulated substances in outdoor storage areas transferred over impervious surfaces?
Env-Wq 401.05(b) Describe: _____

Section 5. Regulated Substance Storage Areas

Release Response Information (refer to Env-Wq 401.09)

Release response information should be easy to find, clearly visible, and easy to read. If necessary, give a blank DES response form to the PCS contact. The form works best if copied onto brightly colored paper and placed in a clear plastic sleeve.

- * Yes No N/A 15. Is there adequate information posted at each outdoor storage area that indicates what should be done and who should be contacted in the event of a spill or other emergency?
Env-Wq 401.09(b)
- Yes No N/A 16. Did you recommend to the PCS that they post the DES release response form in outdoor storage areas?

Step C. - Questions to ask when observing indoor storage areas.

Storage of Regulated Substances in Indoor Storage Areas (refer to Env-Wq 401.04).

- * Yes No N/A 1. Does the indoor storage area(s) have an impervious surface under the regulated substances?
Env-Wq 401.04(b) Describe: _____
- * Yes No N/A 2. Is the indoor storage area(s) secured against unauthorized entry (locked building, etc.)?
Env-Wq 401.04(c) Describe: _____
- * Yes No N/A 3. Is the indoor storage area(s) inspected weekly for signs of spills?
Env-Wq 401.04(d)
- * Yes No N/A 4. Is there sufficient space between large containers to allow for inspections?
Env-Wq 401.04(d)
- * Yes No N/A 5. Is each regulated container clearly and visibly labeled with the name of material?
Env-Wq 401.04(e)
- * Yes No N/A 6. Is each container closed and sealed or equipped with a drip pan beneath a spigot or pump?
Env-Wq 401.04(f)
- * Yes No N/A 7. Is spill control and containment equipment (i.e. absorbents) available in the indoor storage area?
Env-Wq 401.04(g)

Transfer (Handling) of Regulated Substances in indoor storage areas (refer to Env-Wq 401.05)

- * Yes No N/A 8. Are regulated substances in indoor storage areas transferred using funnels and drip pans or other spill-safe devices?
Env-Wq 401.05(a)
- * Yes No N/A 9. Are regulated substances in indoor storage areas transferred over impervious surfaces?
Env-Wq 401.05(b) Describe: _____

Release Response Information in indoor storage areas (refer to Env-Wq 401.09)

- * Yes No N/A 10. Is there adequate information posted at each storage area that indicates what should be done and who should be contacted in the event of a spill or other emergency?
Env-Wq 401.09(b)
- Yes No N/A 11. Did you recommend to the PCS that they post the DES release response form in indoor storage areas?

Section 6. Floor Drains and Work Sinks

Floor drains can be small and easily hidden from view, so be sure to **ask the PCS contact** if any floor drains are present at the facility. Do not assume that you will observe all drains.

Floor drains and work sinks are focuses of the BMP rules because they can be means by which hazardous substances are released to the environment. It is vital to know where floor drains and work sinks discharge. PCS background information is useful here because floor drains in an older building are more likely to discharge to a drywell or to an unknown point than those in a newer building. Env-Ws 1503.04 (c) prohibits discharges through floor drains to the environment. For this section, you need to know if the PCS is serviced by a sanitary sewer or by a septic system. Keep in mind that floor drains can range in size from circular drains a few inches in diameter to trench drains many feet in length.

Step A. - Floor Drains (refer to Env-Wq 401.06)

Answer questions 1- 6 below

Concentrate on floor drains located **near regulated substances**. Drains in non-hazardous areas like bathrooms, kitchens or cafeterias are not covered by the Env-Wq 401 BMP rules.

- Yes No 1. Is the facility connected to a sanitary sewer?
- Yes No 2. Are there any on-site septic systems?
- Yes No 3. Are there any floor drains at the facility?

Observe each floor drain for **visible stains**. Note any stains in the chart below.

If you **answered "YES" to 3., above**, list their locations and briefly describe, below

list of **Floor Drains** at the PCS

1.	4.
2.	5.
3.	6.

Floor Drain Discharge Points (circle all that apply and describe in the box)

Unknown Holding Tank Sanitary Sewer Septic System Drywell Stream or Wetland

Yes No N/A 4. If you circled unknown above, did you require that the PCS **determine the discharge point** of their floor drains?

* Yes No N/A 5. Are the floor drains **authorized to discharge** by any of the following (check all that apply)?
Env-Wq 401.06

_____ Underground Injection Control (UIC) Registration	_____ National Pollution Discharge Elimination System Permit
_____ Holding Tank Registration	other
_____ Discharge Authorization from local treatment plant	other

Yes No N/A 6. Did you ask to see the permits to verify their existence?

Floor drains and work sinks **cannot discharge** into or onto the ground or water without a permit.

Section 6.

Floor Drains and Work Sinks

Step B. - Work Sinks (refer to Env-Wq 401.07)

Env-Wq 401.03(k) defines work sink as a basin necessary to perform a task or process that requires a regulated substance, such as parts washing. Sinks used exclusively for hand washing are excluded from the survey unless they are stained or located near where regulated substances are used. Observe sinks for visible staining. Many facilities have devices for parts cleaning that utilize a self-contained, recirculating system for degreasing solvent. Consider these devices a work sink, but note the self-containment feature in the chart below. Self-contained degreasing sinks comply with BMP rules.

Answer questions 1 - 4 below

Yes No 1. Are there any work sinks used for non-hand washing purposes at the facility?

If you answered "YES" to question 1, list their locations and briefly describe, below

List of **Work Sinks** at the PCS

1.	4.
2.	5.
3.	6.

Work Sink Discharge Points (circle all that apply and describe in the box)

Unknown Holding Tank Self-Contained Sanitary Sewer Septic System Drywell Stream or Wetland

Yes No N/A 2. If you circled unknown, above, did you require that the PCS **determine the discharge point** of their work sinks? Report all unknown discharge locations to the DES/UIC Program at 271-2858.

* Yes No N/A 3. Are all the work sinks **authorized to discharge** by any of the following (check all that apply)?
Env-Wq 401.07

_____ Underground Injection Control (UIC) Registration	_____ National Pollution Discharge Elimination System Permit
_____ Holding Tank Registration	other
_____ Discharge authorization from local treatment plant	other

Yes No N/A 4. Did you ask to see the permits to verify their existence?

Section 7. Storage Tanks

Underground tanks cannot be directly observed, so simply list them and check their registration status. **Observe all fueling areas.** Keep in mind that the Env-Wq 401 BMP rules require that fueling be conducted on an impervious surface.

Storage tanks are either underground or aboveground. A tank is considered underground if more than 10% of its capacity is below grade. Env-Wq 401 BMP rules do not encompass all regulations pertaining to tanks; both underground and aboveground tanks are regulated apart from the BMP rules. However, because tanks have the potential to adversely impact the environment you must observe all PCS tanks and associated fueling and filling areas during a survey. List all tanks at the PCS and find out if they are registered with the DES. BMP issues applicable to tanks may include impervious surfaces, secondary containment, covers, and setbacks from surface water and wells. Be sure to keep these issues in mind while observing tanks.

Step A. - Underground Storage Tanks (USTs)

USTs are regulated by NH UST rules Env-Wm 1401. (to be readopted as Env-Or 400 in 2007)

Partial Summary of UST Regulations

- ◆ Non-residential USTs that contain other regulated materials (such as gasoline or chemicals) and are larger than 110 gallons must be registered with the DES.
- ◆ Non-residential heating oil USTs that are larger than 110 gallons must be registered with the DES if other USTs are on the site that must be registered.

Answer questions 1 - 6 below.

Yes No 1. Are any USTs located at the PCS? If "YES", list them below.

List of **USTs** at the PCS

Contents	Capacity (gal.)	Age	Contents	Capacity (gal.)	Age
1.			5.		
2.			6.		
3.			7.		
4.			8.		

* Yes No N/A Unknown
Env-Wm 1401

2. Are the USTs at the PCS registered with the DES?

Yes No N/A.

3. If you answered "unknown" or "no" to question 2, did you require the PCS to determine or correct its UST registration status, if applicable?

* Yes No N/A
Env-Wq 401.04(b)

4. Does the PCS conduct fueling operations from its USTs over an impervious surface?

* Yes No N/A
Env-Wq 401.04(g)

5. Is spill control and containment equipment (i.e. absorbents) available near the USTs (especially where fueling takes place)?

* Yes No N/A
Env-Wq 401.09

6. Is release response information posted near the USTs?

Section 7. Storage Tanks

Tanks in basements are aboveground tanks if they are above the floor.

Step B. - Aboveground Storage Tanks (ASTs)

ASTs are regulated by NH AST rules Env-Wm 1402.
(to be readopted as Env-Or 300 in 2007)

Partial Summary of AST Regulations

- A single AST with a capacity larger than 660 gallons must be registered with the DES.
- Two or more ASTs with a total storage capacity larger than 1,320 gallons must be registered with DES.
- ASTs with a capacity of 10,000 gallons or less storing **fuel oil used only to heat an on-site structure** do not have to be registered.
- ASTs with a capacity less than 660 gallons are subject to BMP rules.

Answer questions 1 - 8 below.

Yes No 1. Are any ASTs at the PCS? If "YES", list below

List of **ASTs at the PCS**

Contents	Capacity (gal.)	Age	Contents	Capacity (gal.)	Age
1.			5.		
2.			6.		
3.			7.		
4.			8.		

* Yes No N/A Unknown
Env-Wm 1402

2. Are the ASTs at the PCS registered with the DES?

Yes No N/A.

3. If you answered "unknown" or "no" above, did you require the PCS to determine or correct its AST registration status, if applicable?

* Yes No N/A
Env-Wq 401.04(b)

4. Does the PCS conduct fueling operations from its ASTs over an impervious surface?

* Yes No N/A
Env-Wq 401.09

5. Is release response information posted near the ASTs?

* Yes No N/A
Env-Wq 401.04(g)

6. Is spill control and containment equipment (i.e. absorbents) available near the ASTs?

* Yes No N/A
Env-Wq 401.04(h)(1)

7. Do the ASTs at the PCS (including those that do not require registration) have a cover (i.e. roof) if outside, secondary containment and/or a spill prevention control and countermeasure plan (SPCC)? Describe below.

* Yes No N/A
Env-Wq 401.04(h)(4)

8. Do all portable, outdoor ASTs meet the BMP setbacks from surface water (>50 feet) and private wells (>75 feet)? If no, describe below.

Section 8. Final Questions

Fill out this section **before you leave the site**. Don't rely on your memory to complete this form. Site specific information is easy to forget or to confuse with other facilities so fill out this form completely and have all your questions answered before leaving.

Yes No 1. Do any on-site septic system(s) or drywell(s) accept any non-sanitary discharges not previously mentioned? If **yes**, describe below.

Yes No 2. Are there any other non-sanitary discharges not previously mentioned? If **yes**, describe below.

Yes No 3. Did the survey indicate any other practices or findings that you want to discuss with the DES? If **yes**, describe below and call 271-2947 or 271-0688 for further assistance.

Section 9. Follow-up Procedures

Before you leave the site, inform the PCS representative that within 30 days you will get back to them in writing with the results of the survey.

- If you **circled "No"** to any question with an asterisk (*) beside it, or **circled "Yes"** to any question in Section 8, then the PCS is not in compliance with the referenced BMP or tank rule.

- ♦ If a BMP is **not in compliance** with a BMP or tank rule, you should notify them in writing within 30 days of the survey. Written notification should include suggestions about how to correct non-compliance issues as well as reasonable deadlines. Refer to the booklet "Managing Groundwater Protection Areas - Guidance and Sample Letters" for assistance. Call the DES at 271-2947 or 271-0688 for a copy of this booklet.
- ♦ A PCS should be notified in writing within 30 days even if no BMP rule violations were observed.
- ♦ It is not necessary to submit copies of completed survey forms to the DES. However, be certain to keep them in your files for reference. A copy of a completed survey form can be provided to a PCS if requested.

Please call the DES Source Water Protection Program at 271-2947 or 271-0688 if you need training, assistance or have any questions.

Appendix G:
Env-Wq 401
Best Management Practice (BMP)
Rules for Groundwater Protection

NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

- PART Env-Wq 401 REQUIRED BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION
- Env-Wq 401.01 Purpose
 - Env-Wq 401.02 Applicability
 - Env-Wq 401.03 Definitions
 - Env-Wq 401.04 Storage of Regulated Substances
 - Env-Wq 401.05 Transferring Regulated Substances
 - Env-Wq 401.06 Floor Drains
 - Env-Wq 401.07 Work Sinks
 - Env-Wq 401.08 Holding Tanks
 - Env-Wq 401.09 Release Response Information
 - Env-Wq 401.10 Inspections
 - Env-Wq 401.11 Waivers

REVISION NOTE:

Document #8786, effective 1-5-07, readopted with amendments and redesignated former Part Env-Ws 421 titled Best Management Practices as Env-Wq 401 pursuant to a rules reorganization plan for Department rules approved by the Director of the Office of Legislative Services on 9-7-05.

The prior filings for former Env-Ws 421 are: #5543, eff 12-24-92; #6947, eff 2-25-99

Statutory Authority: RSA 485-C:4, VII

Env-Wq 401.01 Purpose. The purpose of these rules is to implement RSA 485-C:11 relative to establishing best management practices for activities that are potential contamination sources, which are to be followed when using, storing, or otherwise handling regulated substances to minimize the risk of groundwater contamination.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.02 Applicability.

(a) Subject to (b), below, these rules shall apply only to persons who use, store, or otherwise handle any regulated substances in regulated containers.

(b) As provided in RSA 485-C:11, I, these rules shall not apply to:

- (1) Potential contamination sources listed in RSA 485-C:7, II(j), which are subject to requirements of RSA title XL and the department of agriculture, markets, and food; or
- (2) Those regulated substances defined as pesticides under RSA 430:29, XXVI.

(c) These rules also shall not apply to:

- (1) Aboveground storage tanks regulated under RSA 146-A and Env-Or 300;
- (2) Underground storage tanks regulated under RSA 146-C and Env-Or 400; or
- (3) On-premise-use facilities as defined in RSA 146-E:2, III.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.03 Definitions.

(a) “Department” means the New Hampshire department of environmental services.

(b) “Floor drain” means an opening in a floor into which regulated substances might be discharged.

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(c) “Impervious surface” means a surface through which regulated contaminants cannot pass when spilled. For purposes of this part, the term includes concrete and asphalt unless unsealed cracks or holes are present, but does not include earthen, wooden, or gravel surfaces or other surfaces that could react with or dissolve when in contact with the substances stored on them.

(d) “Owner” means the owner of the facility or site on which the potential contamination source is located and, if different, the person who is responsible for the day-to-day management of the facility or site.

(e) “Person” means “person” as defined in RSA 485-C:2, XI, as reprinted in Appendix B.

(f) “Potential contamination source” means, as specified in RSA 485-C:7, I, human activities or operations upon the land surface that pose a reasonably-foreseeable risk of introducing regulated substances into the environment in such quantities as to degrade the natural groundwater quality. Examples of potential contamination sources are listed in RSA 485-C:7, II.

(g) “Regulated container” means any device in which a regulated substance is stored, transported, treated, disposed of, or otherwise handled, with a capacity of greater than or equal to 5 gallons, other than a fuel tank attached to a motor vehicle for the sole purpose of supplying fuel to that motor vehicle for that vehicle’s normal operation.

(h) “Regulated substance” means any of the following, excluding substances used for the treatment of drinking water or waste water at department-approved facilities:

- (1) Oil as defined in RSA 146-A:2, III;
- (2) Any substance that contains a regulated contaminant for which an ambient groundwater quality standard has been established pursuant to RSA 485-C:6; and
- (3) Any substance listed in 40 CFR 302, 7-1-05 edition.

(i) “Secondary containment” means a structure, such as an impervious berm or dike, that is adequate to contain any spills or leaks at 110% of the volume of the largest regulated container in the storage area.

(j) “Storage area” means a place where a regulated container is kept for a period of 10 or more consecutive days.

(k) “Work sink” means a sink in which regulated substances are used.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.04 Storage of Regulated Substances.

(a) The owner shall store all hazardous wastes in compliance with applicable federal requirements and state requirements specified in RSA 147-A and Env-Hw 100 et seq.

(b) The owner shall store all regulated containers on an impervious surface, as follows:

- (1) The owner shall inspect the impervious surface prior to storage of any regulated containers and seal any cracks or holes prior to placing any regulated container in the storage area;
- (2) The owner shall re-inspect the impervious surface not less than annually for as long as the area is used for storage of regulated substances; and
- (3) Whenever the owner finds any cracks or holes in the impervious surface on which any regulated container is stored, the owner shall either:
 - a. Immediately seal all such cracks and holes; or

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b. Move the regulated substances to a different storage area that meets the requirements of this section.

(c) The owner shall secure all storage areas against unauthorized entry by any method or combination of methods that renders the storage area tamper-proof and inaccessible, including but not limited to personal or monitored surveillance and physically-restricting access using fencing or box trailers that are locked except when regulated substances are being moved into or out of the secure area.

(d) The owner shall inspect all storage areas weekly for signs of spills or leakage from regulated containers. The aisle space between regulated containers that cannot be moved by hand shall be of ample size to allow an inspector to determine the condition of individual regulated containers.

(e) Each regulated container shall be clearly and visibly labeled with the chemical and trade name of the material stored within.

(f) Each regulated container shall remain closed and sealed at all times except to add or remove regulated substances. Regulated containers equipped with spigots, valves, or pumps shall be considered closed and sealed when the spigots, valves, or pumps are closed or in the "off" position, provided that drip pans are placed and maintained under the spigots, valves, or pumps.

(g) Spill control and containment equipment, including at the minimum absorbents to pick up spills and leaks, shall be located in the immediate area where regulated substances are transferred, used, or stored.

(h) Regulated containers in outdoor storage areas shall:

(1) Have secondary containment;

(2) Be kept covered at all times unless the regulated containers are in the process of being transferred to another location;

(3) Have a durable covering that keeps the regulated container and the secondary containment structure free of rain, snow, and ice; and

(4) Not be stored within any of the following set-backs:

a. For surface waters, 50 feet;

b. For private wells, 75 feet;

c. The sanitary protective radius of any public water supply well; or

d. For storm drains, 50 feet.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.05 Transferring Regulated Substances. Regulated substances shall be transferred from or to regulated containers only under the following conditions:

(a) Funnels and drip pans shall be used; and

(b) Fueling or transferring shall be done only over an impervious surface.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

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Env-Wq 401.06 Floor Drains. Interior floor drains shall discharge only as authorized by one of the following:

- (a) A groundwater discharge permit obtained pursuant to Env-Wq 402;
- (b) A discharge registration for a holding tank obtained pursuant to Env-Wq 402;
- (c) A national pollutant discharge elimination system (NPDES) permit; or
- (d) A local authorization to discharge to the local wastewater treatment facility.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.07 Work Sinks. Work sinks shall discharge only as authorized by one of the following:

- (a) A groundwater discharge permit obtained pursuant to Env-Wq 402;
- (b) A discharge registration for a holding tank obtained pursuant to Env-Wq 402;
- (c) An NPDES permit; or
- (d) A local authorization to discharge to the local wastewater treatment facility.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.08 Holding Tanks. Holding tanks that receive discharges from floor drains or work sinks shall be registered and maintained in accordance with Env-Wq 402.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.09 Release Response Information.

(a) The owner shall post release response information in accordance with (b), below, at every storage area.

(b) Release response information shall include the information necessary to contact emergency response personnel, including the following:

- (1) The name of the individual designated by the owner to be contacted if a spill occurs;
- (2) The method by which the designated individual can be contacted when there is a release, such as by phone or in-person at the main office;
- (3) The procedure for spill containment; and
- (4) Emergency phone numbers including 911 and, depending on local protocol:
 - a. State police;
 - b. Local police and fire department;
 - c. Local hospital;
 - d. Department of environmental services;
 - e. Poison control center; and
 - f. Office of emergency management.

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Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15

Env-Wq 401.10 Inspections. Potential contamination sources in any area shall be subject to inspections by the department.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15 (from Env-Wq 401.02(d))

Env-Wq 401.11 Waivers.

(a) Any person who is subject to these rules who wishes to obtain a waiver of specific rules in this part shall request the waiver in accordance with this section.

(b) The person requesting the waiver(s) shall submit the following information in writing to the department:

- (1) The name, mailing address, daytime telephone number, and email address, if any, of the person who is requesting the waiver and, if the person is other than an individual, the name, daytime telephone number, and email address, if any, of an individual who can be contacted by the department relative to the request;
- (2) A description of the facility or site to which the waiver request relates, including the name, address, and identification number of the facility or site;
- (3) Identification of the specific section of the rules from which a waiver is being sought;
- (4) A full explanation of why a waiver is being requested;
- (5) Whether the waiver is needed for a limited or indefinite period of time;
- (6) A full explanation with supporting data of the alternative(s), if any, proposed to be implemented or used in lieu of the requirement(s) for which the waiver is requested; and
- (7) A full explanation of how granting a waiver with the proposed alternative(s), if any, will meet the criteria specified in (c), below.

(c) The department shall not grant a waiver unless it determines that:

- (1) The requirement to be waived is not established by statute, unless the statute that establishes the requirement expressly authorizes the department to grant waivers of the requirement;
- (2) The intent of RSA 485-C to preserve and protect the natural quality of groundwater resources will be met; and
- (3) Granting a waiver will not result in any adverse effect on human health or the environment.

(d) The department shall include such conditions, including time limitations, as are necessary to ensure that the activities conducted pursuant to the waiver will meet the criteria specified in (c), above.

(e) The department shall issue a written response to a request for a waiver within 90 days of receipt of the request. If the department denies the request, the reasons(s) for the denial shall be clearly stated in the written response.

Source. (See Revision Note) #8786, eff 1-5-07; ss by #10828, eff 5-19-15 (from Env-Wq 401.10)

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APPENDIX A

Rule Section(s)	State Statute(s) Implemented	Federal Regulations Implemented
Env-Wq 401 (also see specific section listed below)	RSA 485-C:1; RSA 485-C:11	
Env-Wq 401.11	RSA 541-A:22, IV	

APPENDIX B: STATUTORY DEFINITIONS

485-C:2

XI. "Person" means any individual, partnership, company, public or private corporation, political subdivision or agency of the state, department, agency or instrumentality of the United States, or any other legal entity.

Appendix H:
Defining and Revising Boundaries for Aquifer Protection Districts

Defining and Revising Boundaries for Aquifer Protection Districts

NHDES' Drinking Water Source Protection Program completed a survey of New Hampshire municipalities to identify aquifer/groundwater protection ordinances and their key provisions. The survey found a number of ordinances with the following problems:

- District defined in terms of out-of-date maps. Many older ordinances, when initially adopted, relied on aquifer maps prepared in the 1970s and 1980s (the so-called Cotton maps). Those maps were the best available at the time, but the aquifer maps prepared by the United States Geological Survey in the 1990s are based on much more data (earlier mapping, surficial geology data, well logs, well yield data, borings, seismic surveys) and more intensive analysis, and are considered more accurate than the earlier maps. The later maps are also available in digital form, along with mapped groundwater contours and aquifer saturated thickness.
- Ambiguous language describing district. For example, the Cotton maps typically identified "high-potential" and/or "medium-potential" aquifers, while the newer maps identify the saturated thickness and transmissivity of the aquifers. Some ordinances contain the old language, without defining the terms, while referencing the newer maps. Consequently, it is not clear which areas are included in the district.
- In some cases, the ordinance references a map to define the location and extent of the aquifer protection district, but the town officials responding to the survey could not locate the map. In other cases, only one copy of the map existed.
- In some cases, for various other reasons, the ordinance's textual description of the district was not consistent with the map referenced by the same ordinance.
- As a result of the above problems, some towns responding to the survey were unable to clarify the location and extent of their aquifer protection districts!

To avoid confusion or disagreement regarding the location and the extent of an aquifer protection district, NHDES recommends the following:

- The drafters should take time to understand the various identified groundwater resources that might be included in a local groundwater protection district. This could include NHDES-approved wellhead protection areas (for all public water systems, or just for community systems, or just for certain municipal systems), stratified-drift aquifers (all mapped aquifers, or just areas with a certain minimum transmissivity, or just certain aquifers likely to be of use for municipal water supply), and till areas located up-gradient of certain stratified-drift aquifers. The staff of NHDES' Drinking Water Source Protection Program are available to help municipalities understand and evaluate the alternatives.
- The ordinance should define the district with reference to a current map, citing the name, date, and preparer of the map, and include a textual description of what is intended to be included in the district. A few examples follow:
 - The district shall include all areas of stratified drift contiguous with stratified-drift aquifers shown on (map citation).
 - The district shall include all areas of stratified-drift aquifer with a minimum transmissivity of 1,000 ft² per day associated with aquifers shown on (map citation). [Less inclusive than previous example]
 - The district shall include all wellhead protection areas approved by the N.H. Department of

Environmental Services for active wells associated with active community water systems.
Wellhead protection areas currently included in the district are shown on (map citation).

- The ordinance should include a provision to enable the Planning Board or other body to revise the aquifer protection district boundary based on the availability of new information. For example, new wellhead protection areas could be approved by NHDES, or existing wellhead protection areas could be re-delineated. For stratified-drift aquifers, existing maps are not 100 percent accurate, so the map could be revised “based on the recommendation of a professional geologist using 1:24,000 scale surficial geology maps prepared by the N.H. Geological Survey, if available, other existing data (including wells, borings, or other excavations of sufficient depth), or appropriate field testing methods.” Such a redrawing of aquifer boundaries would necessarily rely on the textual description of what is intended to be included in the district; if that definition is not clear, it would be difficult for a geologist to make a recommendation as to what the ordinance intended to include.
- Revisit the map every few years to make sure it includes the latest information, such as new wellhead protection areas (if included) and surficial geology. The rest of the ordinance should also be reviewed periodically to make sure it reflects the latest understanding of groundwater contamination hazards, best management practices, effective regulatory approaches, etc., and is consistent with other local ordinances and state and federal rules and regulations.

Appendix I
List of Communities with Groundwater or Aquifer Protection Districts

TOWN NAME	Name of Groundwater/Aquifer Protection Ordinance	Adoption/Revision Date
ALLENSTOWN	Groundwater Protection Overlay District	3/8/2011
ALTON	Aquifer Protection Overlay District	3/9/2004
AMHERST	Aquifer Cons. District-Zoning Ord.	3/1/2003
ANTRIM	Aquifer and Wellhead Protection District	3/11/2008
BARNSTEAD	Aquifer Recharge District	
BARRINGTON	Groundwater Protection District	1/6/2005
BATH	Aquifer Conservation/Protection of Village Water	10/15/2007
BELMONT	Article 7 Aquifer Protection	4/12/2004
BERLIN	Wellhead Protection Overlay Zone	11/6/2000
BOW	Aquifer Protection Overlay District	5/12/2009
BRENTWOOD	Aquifer Protection in Zoning	4/1/2005
BROOKLINE	Aquifer Protection Ord/Wetlands Cons Ord	3/8/2005
CANAAN	Drinking Water Protection Ordinance	3/13/2012
CANDIA	Article XI: Groundwater Protection	3/9/2010
CANTERBURY	Groundwater Protection Ordinance	3/15/2012
CARROLL	Aquifer Protection Ordinance	3/1/2006
CHARLESTOWN	Drinking Water Protection District Ordinance	3/10/1998
CHESTER	Groundwater Protection Ordinance	5/10/2005
CONCORD	AQUIFER PROTECTION ORDINANCE	10/21/2010
CONWAY	Groundwater Protection Overlay District	4/12/2005
DEERFIELD	Section 214: GROUNDWATER PROTECTION	3/8/2011
DEERING	Aquifer Protection Ordinance	3/9/2005
DERRY	Groundwater Resource Conservation District	5/4/1995
DOVER	Groundwater Protection 170-28.3	6/12/1985
DURHAM	Aquifer Protection Overlay District	5/2/2005
EAST KINGSTON	Septage/Sludge Ordinance	3/8/2005
EASTON	Groundwater Protection District	2/2/2011
EFFINGHAM	ARTICLE 22 GROUNDWATER PROTECTION	3/8/2011
EPPING	Article 7: Aquifer Protection District	11/6/1984
EXETER	Aquifer Protection District	3/8/2005
FARMINGTON	Aquifer Protection Overlay District	3/12/2002
FREEDOM	Groundwater Protection Overlay District	3/14/2011
FREMONT	Aquifer Protection District	3/8/2005
GILFORD	Aquifer Protection District	3/15/2006
GORHAM	Town Well Source Protection Ordinance	3/8/2005
GOSHEN	Water Resources Protection Ordinance	3/10/2009
GREENFIELD	Groundwater Protection Ordinance	3/12/2012
GREENLAND	Aquifer Protection District	3/8/2005
HAMPTON	Aquifer Protection District Ordinance	3/5/2005

TOWN NAME	Name of Groundwater/Aquifer Protection Ordinance	Adoption/Revision Date
HAMPTON FALLS	Section 13- Aquifer Protection District	3/1/2007
HANCOCK	Article 12 Groundwater Protection District	3/1/2007
HAVERHILL	5.2 Aquifer Protection District	3/12/1996
HILL	Wellhead Protection Overlay District	3/12/2002
HINSDALE	Wellhead/Aquifer Protection District	3/10/2009
HOLDERNESS	Section 525: Groundwater Protection	3/8/2011
HOLLIS	Water Supply Cons. Zone/ Aquifer Protection Overlay	3/8/2005
HOOKSETT	Groundwater Resources Conservation District	5/13/2008
KINGSTON	Aquifer Protection Ordinance	3/8/2005
LEE	Aquifer Conservation District	
LITCHFIELD	Aquifer Protection District	3/8/2005
MADBURY	Aquifer and Wellhead Protection Overlay District	3/8/2005
MADISON	Groundwater Protection District	3/8/2011
MERRIMACK	Aquifer Conservation District	4/13/2004
MIDDLETON	Aquifer Protection District	3/1/2001
MILFORD	Groundwater Protection District	3/8/2005
MILTON	Groundwater Protection Overlay District	1/5/2006
MONROE	Aquifer Protection Zone	
NEW BOSTON	Groundwater Resource Conservation District	9/20/2005
NEW DURHAM	Aquifer Protection Overlay District	3/8/2011
NEWBURY	Aquifer Protection Overlay District	4/11/2005
NEWFIELDS	Aquifer Protection District	3/9/2010
NEWMARKET	Aquifer Protection District	2/16/2005
NEWPORT	Groundwater Protection Ordinance	5/11/2004
NORTH HAMPTON	Water Resources & Aquifer Protection	8/9/2004
NORTHFIELD	Groundwater Protection District	3/9/2010
NORTHWOOD	Wellhead Protection Overlay District	3/1/2001
NOTTINGHAM	Aquifer Conservation District	3/13/2004
OSSIPEE	Water Resources Protection District	3/8/2005
PELHAM	Aquifer Conservation District	3/8/2005
PEMBROKE	Aquifer Conservation District	3/8/2005
PETERBOROUGH	Groundwater Protection Overlay Zone	3/8/2005
PLAISTOW	Aquifer Protection District	3/8/2014
RAYMOND	Groundwater Conservation District	3/1/2002
RINDGE	Aquifer Protection Ordinance	3/14/2006
ROCHESTER	Aquifer Protection Zone	3/2/2013
ROLLINSFORD	Well Site Protection Districts	1/1/2001

TOWN NAME	Name of Groundwater/Aquifer Protection Ordinance	Adoption/Revision Date
RYE	SECTION 306: AQUIFER PROTECTION DISTRICT	3/11/2008
SANBORNTON	Aquifer Conservation district	3/1/2003
SANDWICH	Groundwater Protection Ordinance	3/8/2011
SOMERSWORTH	Groundwater Protection District	9/6/2005
SOUTH HAMPTON	Aquifer Protection District	3/1/2003
STRATHAM	Aquifer Protection District	3/8/2005
SUNAPEE	Aquifer Overlay District	3/8/2005
TILTON	Groundwater Protection Ordinance	3/8/2010
WAKEFIELD	Aquifer Conservation District	3/13/2001
WALPOLE	Town Well Source Protection Ordinance	3/1/2008
WEARE	Aquifer Protection Ordinance	3/8/2011
WEBSTER	Article XII Groundwater Protection Ordinance	3/11/2008
WILTON	Aquifer Protection District	3/8/2005
WINCHESTER	Aquifer Protection District	3/8/2005
WINDHAM	609 Aquifer Protection District	12/15/2009
WOLFEBORO	Aquifer Protection overlay District	