Massachusetts Department of Environmental Protection
Source Water Assessment Program

Land Use Pollution Potential Matrix

Under the Source Water Assessment Program (SWAP), the State is required by EPA to create an inventory of potential contamination sources and evaluate their likelihood to adversely impact source waters of public water supplies. The table below, which will be used in this inventory effort, presents land uses and activities considered to be significant potential sources of contamination to drinking water. Each land use has been ranked relative to its threat to the water quality (high, moderate, low), considering the type of drinking water source (groundwater or surface water). When looking for a particular potential pollution threat, all land use categories should be reviewed, as some activities may overlap land use categories (i.e., pesticide use and storage), but may be listed under only one category.

The ranking assigned to each of the land uses represents the relative risk it could potentially pose to a drinking water source compared to other land uses in the assessment area. The threat assigned to a particular land use was based on, but not limited to, the type and quantity of chemicals used or wastes generated by the business, and the behavior and mobility of the pollutants in the soils and groundwater. The land uses considered potential contamination sources are those facilities that typically use, produce, or store contaminants of concern, which, *if managed improperly*, could find their way to a source of public drinking water. *It is important to understand that a release may never occur from the potential contamination source provided they are using best management practices (BMPs). If BMPs are in place, the actual risk posed by the activity may be lower than the ranking presented in this matrix. Many potential contamination sources are regulated at the federal, state and/or local levels, to further reduce the risk of a release.*

The land use pollution potential ranking matrix was originally created from a compilation of numerous source protection documents published in New England, and the combined field experience of DEP staff from the Drinking Water Program, Bureau of Waste Site Cleanup and the Bureau of Waste Prevention[1]. In addition, the advisory committees and other EOEA agencies provided significant input during the drafting of the matrices.

EPA has created a matrix which links land uses and the specific contaminants that may be associated with them. DEP plans to post this matrix on its web site and make it widely available as soon as the final version is available from EPA this winter.

References:

[1] CCAMP, A Guide to Contamination Sources for Wellhead Protection, February 1989.
MA DEP/DWS, Watershed Resource Protection Self-Audit, May 8,1996.
NEIWPCC, Source Protection: A Guidance Manual for Small Surface Water Supplies In New England, March 1996.
EPA OTA, Protecting the Nation's Groundwater from Contamination, October 1984.
MA DEP/DWP, Making Wellhead Protection Work in Massachusetts: A Guide for Developing Local Groundwater Protection Controls, December 1997.
EPA/ORD, Environmental Planning for Small Communities: Guide for Local Decision-Makers, September 1994.

LAND USE	THREAT	
AGRICULTURAL	Groundwater	Surface Water
Dairy farms	M	H
Fertilizer storage or use	M	M
Forestry Operations	L	M*
Livestock Operations	M	H
Landscaping	M	M
Manure spreading or storage	H	H
Nurseries	M	M
Pesticide storage or use	H	H
Slaughterhouses	M	H

* Threat is low with an approved Chapter 132 forest management plan.

COMMERCIAL	Groundwater	Surface Water
Airports	H	M
Auto repair shops	H	M
Boat yards/builders	H	H
Bus and Truck terminals	H	M
Car washes	L	L
Cemeteries	M	L
Dry cleaners	H	M
Funeral homes	L	L
Furniture Stripping and Refinishing	H	M
Gas/service stations	H	M
Golf courses	M	M
Junk yards and Salvage yards	H	H
Laundromats	L	L
Medical facilities	M	L
Nursing homes	L	L
Paint shops	H	M
Photo processors	H	M
Printer and Blueprint shops	M	M
Railroad tracks and Yards	H	H
Repair shops (engine, appliances, etc.)	H	M
Research laboratories	M	M
Rust proofers	H	H
Sand and Gravel mining/washing	M	M

INDUSTRIAL	Groundwater	Surface Water
Asphalt, Coal tar, and Concrete plants	M	M
Chemical manufacture or storage	H	H
Electronics/electrical manufacture	H	M
Electroplaters	H	M
Food processors	L	L
Foundries or Metal fabricators	H	M
Fuel oil distributors	H	H
Gasification plants (oil or coal)	M	H
Hazardous waste storage, treatment and recycling	H	H
Industrial lagoons and pits	H	H
Hazardous materials storage	H	H
Industrial parks	H	H
Jewelry or Metal plating	H	M
Machine/metalworking shops	H	M
Metal and Drum cleaning/reconditioning	H	H
Nuclear power plants	H	H
Paper manufacture	H	H
Pharmaceutical manufacture	H	H
Plastic manufacture	H	H
RCRA TSDF facilities	H	H
Storage facilities (petroleum and chemical)	H	H
Tanneries	H	H
Textile manufacture	H	H
Wood preserving facilities	M	M

RESIDENTIAL	Groundwater	Surface Water
Fuel oil storage	M	M
Lawn care/Gardening	M	M
Septic systems/cesspools	M	M

MISCELLANEOUS	Groundwater	Surface Water
Aboveground storage tanks	M	M
Aquatic wildlife	L	H
Clandestine dumping	H	H
Combined sewer overflow	L	H
Composting facilities	L	M
Dredge disposal facilities	M	H
Fire training facilities	M	M
Fishing/boating	L	M
Landfills and Dumps	H	H
Land application of sewage sludge	M	M
Large quantity hazardous waste generators	H	H
Military facilities (past and present)	H	H
NPDES locations	L	H
Pipelines (oil and sewer)	M	M
Prisons	M	M
Road and Maintenance depots	M	M
Schools, colleges and universities	M	M
Small quantity hazardous waste generators	M	L
Snow dumps	M	M
Stormwater drains/ Retention basins	L	H
Tire dumps	M	M
Transmission line right of ways	L	H
Transportation corridors	M	H
Underground storage tanks	H	M
Utility substation transformers	L	M
Very small quantity hazardous waste generators	L	L
Waste incinerators	M	H
Waste transfer stations	M	M
Wastewater treatment plants	M	H
Water treatment sludge lagoon	M	L

NOTE: These rankings may be revised in the future if additional information indicates that the current ranking is inappropriate.

H = High
M = Moderate
L = Low