DEP FACT SHEET

Facts & Figures
LD 2073
An Act to Prevent Contamination of Drinking Water Supplies

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General Background

1. No Mainer wants oil or hazardous waste in their drinking water. Over 50% of Mainers get their drinking water from ground water sources Eighty-nine (89) percent of community public water systems serving Maine towns rely on ground water as their drinking water supply. Forty-one (41) percent of households in Maine get their drinking water from a private well.
2. The cost of remediating oil and hazardous waste spills and discharges near public and private drinking water supplies is high. The same is true of spills into Maine's significant sand and gravel aquifers. The sensitivity of these sites and the potential for public exposure to these contaminants drive up the costs. For example, the Maine Department of Environmental Protection spent over $600,000 to remediate two home heating oil tank discharges in a subdivision on the sand and gravel aquifer providing water to the town of Rumford. $3 million dollars in expenditures were incurred by the Department and the Portland Water District when two wells serving 2000 residents in North Windham had to be abandoned and replaced with a major waterline extension due to contamination from a new, state-of-the art gasoline station located in the well's source water protection area. In 1988 one of the Town of Lisbon's two municipal well fields was contaminated by solvents discharged by an electronics manufacturing facility. The solvents traveled 2000 feet and under the Sabattus River to contaminate a town well at concentrations twice the drinking water standard. After 19 years of remediation by the responsible party and expenditures in excess of $4 million, including drinking water treatment, work continues to address the risk to the well field from this contamination.
3. There have been no less than four (4) studies and reports by the Maine Center for Disease Control's Drinking Water Program to the Legislature recommending better well head protection. The most recent was submitted on February 1, 2007 and entitled "Integrating Public Water Supply Protection into the State of Maine's Vision". This stakeholders' process and study's principal finding was "that the primary risk to public water systems lies in the unmanaged development in areas contributing water to their wells or intakes". The report makes three (3) major recommendations. First, all State agencies should consider the impact of their decisions on public water supplies. Second, forestry, low intensity recreation, and agriculture should be encouraged in water supply protection areas. Lastly, "that the areas immediately around public water supplies be declared a protected natural resource, and any new activities in the area be reviewed for impact at the state level". This bill takes a significant step toward implementing the recommendations of this report and protecting well head protection areas from those new land uses that historically have been significant sources of ground water pollution by oil or hazardous waste, and pose a public health risk.

AST Oil & Hazardous Waste Generating Facilities Are Inherently Risky

4. Some new AST oil and hazardous waste generating facilities inevitably will fail, resulting in a discharge of contaminants to ground water contamination. Failures/environmental discharges will occur regardless of degree of engineering (aka bells and whistles), due to equipment failure and fatigue, installation errors, operating errors, and other human errors.
5. From experience investigating oil and hazardous waste discharges, we know these contaminants travel considerable distances in ground water, especially in fractured bedrock and in sand and gravel aquifers. Gasoline, hazardous solvents and other hazardous wastes have been found repeatedly to migrate great distances. Gasoline travels a minimum of 300 feet in 25% of discharges, and along with solvents, often close to or even exceeding 1000'. For example, in a North Fryeburg sand and gravel aquifer, benzene, a component of gasoline and a human carcinogen, traveled more than 850' at concentrations above drinking water standards. In Buxton, benzene from a gasoline discharge traveled approximately 2000' in bedrock fractures. Even less mobile heating oil has been found to migrate more than 300 feet in 20% of contamination cases, and farther in shallow, fractured bedrock found in many Maine coastal communities.

Location, Location, Location

6. Absent any restriction on siting, new AST oil and hazardous waste generating facilities are often constructed near public and private wells.
7. The State and the Department have no authority to regulate the siting of larger AST oil facilities or most hazardous waste generating facilities due to their proximity to public or private drinking water wells. Nor does the Maine Drinking Water Program. Ironically, the exception is the unorganized townships where the Land Use Regulation Commission can regulate the siting of such facilities. The Department and the DHHS have some authority over the siting of a number of activities and facilities that pose a significant risk to ground water and drinking water supplies, including underground oil storage tanks. Notable exceptions, however, are AST oil facilities and most hazardous waste generating facilities.
8. In case of AST oil facilities don't know number or location of all AST facilities, since no current registration requirement and construction permit records from the State Fire Marshal are not required to be kept current. It is reasonable to assume that AST facilities locate in a similar manner as their underground oil storage tank (UST) counterparts – 43% located in well head protection areas and sand and gravel aquifers. Do know that 27 public drinking water supplies have at least one AST oil facility (not including home heating oil tanks) in their mapped source water protection area. Another 157 supplies have an oil AST within 1000'. Many more are located in close proximity to private wells. From 2000-2006, the Department has had to replace 265 oil contaminated private wells. About 60% of these required the development of an entirely new replacement community water system or the extension of a public water line in such communities as Madawaska, Oquossoc, Searsmont, St. Francis, and Tenants Harbor.

Costs of Inadequate Well Head Protection

9. DEP's strong support of well head protection comes from its experience over the years from remediating oil and hazardous waste contamination sites. Prevention is far less expensive and more cost effective than remediation. The Department does a good job at remediating contamination risks to drinking water supplies, but has limited ability to avoid the need for such clean-ups by preventing the inherent risk to supplies.

10. Discharges in well head protection areas are more expensive than other locations to remediate. Remediation sites located in areas to be protected in the future by this bill consume a disproportionate share of the Department's remediation funding. Over a 10 year period from 1994 to 2004, the Department expended $7.3 million on the remediation of AST oil facilities (not including home heating oil sites) from the Maine Ground Water Oil Clean-up Fund. Approximately a quarter (26%) of the sites remediated were responsible for more than half (57%) of the costs. These were the sites in the more environmentally sensitive locations. 86% of long-term oil remediation sites on DEP's current priority list (446 total sites) are located in well head protection areas and sand and gravel aquifers as defined in the bill. In the case of both oil discharges and hazardous waste discharges, the sensitivity of the location of the discharge is the principle factor in determining the cost of its remediation followed by the chemical and toxicological properties of the contaminants.
11. Home heating oil tank and piping discharges also pose a substantial risk when located in close proximity to drinking water supplies, or on their recharge areas. This should be no surprise in a state with approximately 418,000 households storing heating oil. Discharges are frequent and costly, especially in well head protection areas. From 2000 to 2005, inclusive, the Department responded to 2,946 home heating oil tank system discharges, an average of 1.4 each day. While 60% did not require out-of-pocket monetary clean-up expenditures (cleaned up by DEP staff or town fire dept.), the other 40% of cases cost the Maine Oil Ground Water Clean-up Fund almost $10 million over this six year time span, and an average of $1.7 million per year. Again, the sensitivity of the discharge site determines the severity of its impact and subsequent remediation cost.
12. The Department has funded the replacement of over 6,500 existing home heating oil tanks that posed a high pollution risk since 1998. In the last several years, tanks in well head protection areas of community water supplies have been the focus of the Department. These were replaced with tanks that provide secondary containment of leaks. These include well head protection areas for the community water systems serving Kingfield, Rumford, Mexico, Old Town, Deer Isle and Hallowell. The single largest cause of home heating oil tank failures is internal corrosion. The most feasible preventative measure is to use tanks with secondary containment and which can contain leaks before they reach the environment or go under the home.
13. LD 2073 is selective as to which new hazardous waste generating facilities' location would be restricted. Hazardous waste generating facilities that historically have been the worst polluters and the most costly sources of ground water and indoor air contamination are targeted. These include automobile junkyards, commercial auto body and repair shops, metal finishing or plating plants, dry cleaners using the solvent Perchloroethylene and commercial, large scale hazardous waste treatment, storage, or disposal facilities. Although we do not know the location of all hazardous waste generators, of the 1302 locations of dry cleaners, auto body shops, and junkyards that are known, we know that seven (7) percent are located in a well head protection area of a public water supply and another 16% are located on significant sand and gravel aquifer. Of medium and large quantity hazardous waste generating facilities, 19 are located in the source water protection area of a public drinking water supply, and 129 are located on mapped significant sand and gravel aquifer.
14. Dry cleaners are a good example of the risks posed by common generators of hazardous wastes in our communities. In a 2005 study of dry cleaners in Maine, and the public health and environmental risks they pose, the DEP identified 187 current and former dry cleaner locations that use or used the solvent Perchoroethylene (PCE). Of those evaluated to date, 20 have been found serious environmental contamination requiring remediation and are listed as Uncontrolled Hazardous Waste Sites. Other

national studies have estimated that 75% of dry cleaner locations have contamination and require clean-up. Although current dry cleaner processes do not create as much pollution as earlier processes, they still have releases. PCE exposure causes damage to the central nervous system, lungs, liver and kidneys. In addition PCE is listed as a probable human carcinogen by national and international health organizations. The Maine Maximum Exposure Guideline (MEG) in drinking water is 7 parts per billion (ppb). Remediation of ground water and indoor air contamination by PCE is expensive. At a former Bangor dry cleaner effecting neighboring residences cost the Department more than $1.1 million to remediate. Former dry cleaners in Sanford, Biddeford, Lewiston, Millinocket, Presque Isle and Caribou identified as requiring clean-up, remediation costs are estimated to cost an average of $215,000 each.

15. Mapped significant sand and gravel aquifers are well recognized for their sensitivity to pollution and their importance to Maine towns and cities as cost effective drinking water sources. Because of the high cost to treat surface water supplies, ground water wells are Maine’s drinking water source of the future. Consequently the trend in Maine is for water utilities to move to sand and gravel aquifers and other ground water resources. Recent examples include Augusta, Caribou and Eagle Lake. Will those aquifers be clean when Maine’s towns and cities need them?

<u>How Much of Maine Is Effected?</u>

16. Utilizing Maine’s Geographic Information System (GIS), well head protection areas and sand and gravel aquifers covered by LD 2073 would include approximately 13% of the State’s surface area. Making up this total area, 8% is within close proximity to private drinking water supplies. Mapped high yielding sand and gravel aquifers, areas in close proximity to public water supply wells, and their associated recharge areas (source water protection areas) make up the remaining 5%.

<u>Economic Benefits of Well Head Protection</u>

17. Because Mainers commonly take clean drinking water for granted, the economic value of clean, healthy drinking water supplies is often overlooked. However, the economic benefit of encouraging the location of new, high pollution risk land uses away from significant drinking water resources is easily in the many millions of dollars statewide each year. The magnitude of such benefits can be assessed by estimating the magnitude of the costs of the pollution avoided as a consequence of more effective well head protection.
18. The cost to replace a community well is one means to estimate its economic value. For moderately sized community water systems in Caribou, Hartland, Presque Isle and Waldoboro who have recently made this investment, the cost has ranged from $1.3 to $3.9 million.
19. Another method to estimate the value of clean drinking water is to isolate the economic value of the water itself. This can be estimated by subtracting the cost to extract and deliver the water from its source to users from the revenue generated by the sale of that water. For example, in 2006, the Augusta Water District provided 557 million gallons of water to its customers, the net income produced, or the value of that 557 million gallons, is approximately $1.3 million. With 346 community water supply systems in Maine that rely on ground water for the drinking water they provide the public, the total worth of that water is easily in the hundreds of millions of dollars annually.
20. Both of the methods above under estimate the value of clean drinking water. Neither takes into account the numerous indirect costs which are incurred when a clean water supply well is polluted. A few examples include the public health impacts, lost economic development and reduced property values. These estimates also do not

take into account the value of the loss or impairment of a currently untapped or under utilized high yield sand and gravel aquifer due to oil or hazardous waste pollution. Sand and gravel aquifers are the most cost effective water supplies of tomorrow for those Maine cities and communities fortunate enough to be located near such a resource. These aquifers should be viewed as an essential part of the State's economic infrastructure. This includes the additional cost of having to go to more expensive water sources when sand and gravel aquifers are contaminated.

21. Regardless of the method used to estimate its dollar value, keeping drinking water supplies clean is a very cost effective means to ensure protection of public health and local economies.