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# Sand and Salt Storage in Maine

Report to the 120th Maine Legislature

Joint Standing Committee on Natural Resources  
Senator John L. Martin, Chair  
Representative Scott W. Cowger, Chair

Joint Standing Committee on Transportation  
Senator Christine R. Savage, Chair  
Representative Charles D. Fisher, Chair

Prepared by the

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Bureau of Land and Water Quality  
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And

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Bureau of Planning  
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### Executive Summary

In May 1998, a task force composed of representative of the Departments of Environmental Protection, Transportation and Human Services, the Maine Municipal Association and legislative representatives began a review and evaluation of the sand/salt storage facility program in Maine. Legislation subsequently put forth on behalf of the Task Force during the 1999 legislative session significantly modified the existing sand/salt programs at both DEP and DOT.

DEP was required to review the project priority numbers of all public and private sand/salt piles and to publish a final project priority list for municipal and county sites by April 1, 2000 and for all other state, private and other sites by July 1, 2000. This effort began with a re-registration of all uncovered sand/salt piles and on-site assessment at more than 300 sand/salt storage locations. All sand/salt piles were given a project priority number between 1 and 5. Priority 1 sites are those having an immediate and substantial impact upon local drinking water supplies. Priority 5 sites have minimal impact upon local drinking water. The results are below:

Priority	Municipal and County Uncovered Sand/Salt Piles	All Other State and Private Uncovered Sand/Salt Piles
1	19	6
2	15	12
3	57	36
4	132	47
5	83	42

The project priority list is used by the Department of Transportation in the allocation of state reimbursement funds for the construction of sand/salt storage facilities. Municipalities and counties are eligible for reimbursement between 25% and 100% of construction costs. Beginning with legislative changes in 1999, owners of Priority 4 and 5 sand/salt piles were no longer required to construct storage buildings and, therefore, were no longer eligible for state reimbursement.

The Department of Transportation has provided nearly 150 municipalities with technical assistance in their sand/salt building design and more than 100 with funding assistance. To date, more than \$11 million has been allocated or bonded for construction of municipal, county and DOT sand/salt buildings. However, there remains a sizable state obligation to complete construction of all sand/salt buildings required by state law.

Priority	Municipal and County Sand/Salt Buildings				DOT Sand/Salt Buildings	
	Number Built, but Unfunded	Estimated State Funds Needed	Number Unbuilt	Estimated State Funds Needed	Number Unbuilt	Estimated State Funds Needed
1	0	\$0	14	\$700,412	4	\$900,000
2	2	\$159,000	17	\$861,325	12	\$2,613,375
3	3	\$160,000	56	\$3,500,000	28	\$5,544,000
4	23	\$983,407	0	\$0	0	\$0
5	19	\$875,000	0	\$0	0	\$0
<b>Totals</b>	<b>47</b>	<b>\$2,177,407</b>	<b>87</b>	<b>\$5,061,737</b>	<b>44</b>	<b>\$9,057,375</b>
<b>Total State Funds Needed for All Sand/Salt Buildings</b>						<b>\$16,296,519</b>

## **Background: Prior to 1998**

The practice of using salt on Maine roads and highways dates back to the early 1930's. The peak period for salt use on Maine highways occurred in the late 1950's and early 1960's based on perceived public demands for better winter traveling conditions. However, by the mid-1960's, state and local authorities came under criticism for heavy salt use. In addition to increased corrosion of vehicles, impacts to private drinking water wells and dead/dying lawns were being recorded. A change in road maintenance policy occurred in the 1960's that moved from using pure salt to de-ice Maine's highways to using sand/salt mixtures to provide both traction and de-icing of snow-covered roads.

However, the move to sand/salt mixtures created a storage problem. Most towns had stored pure salt in small sheds, but very few sand/salt piles (<1%) were housed in buildings. Stockpiling mixed sand/salt in the open had a growing negative impact on groundwater. By the early 1980's, the Department of Environmental Protection (DEP) had been alerted to a number of homeowner complaints regarding well water contamination near both municipally and state-owned sand/salt storage areas.

In 1984, DEP prepared a report describing the extent of ground water contamination at 57 state and municipal highway maintenance lots which had been investigated in recent years by DEP, the Maine Geological Survey (MGS), and the Maine Department of Transportation (DOT). The impacts ranged from minimal, where leachate from a DOT sand/salt pile flowed a few hundred feet before discharging to the Androscoggin River where it was quickly diluted to an undetectable level, to severe at a municipal sand/salt pile and leaky salt building which had combined to contaminate eighteen wells and was threatening twenty others. DEP estimated that an average DOT sand/salt pile containing 250 tons of salt, if left uncovered, could discharge up to 25 tons of salt each year to ground and surface waters.

In addition to ground water quality degradation, contamination from sand/salt storage areas can cause other environmental impacts. The 1984 report indicated agricultural yields are greatly diminished when fields are contaminated by salt. Terrestrial and wetland vegetation can be killed, resulting in bare soils. Stratification of small ponds may be affected by the denser salt runoff. Salt contamination can also facilitate the release of mercury from aquatic sediments.<sup>1</sup>

One recommendation of the report was to begin a statewide assessment of all public and private sand/salt storage areas in Maine. Using the report as a road map, the Legislature in 1985 required all owners to register their sand/salt storage areas by January 1, 1986 and directed the DEP to develop a project priority list for sand/salt storage facility construction. The Legislature also amended a section of DEP statute and created a cost-share program which provided for state funding of 50% of the cost of salt or sand-salt buildings for municipalities, to a maximum of

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<sup>1</sup> Williams, John. "Groundwater Contamination at Highway Maintenance Lots in Maine." Draft Report, August 1984.

\$50,000 per municipality or \$2,500,000 per year.<sup>2</sup> However, the legislature failed to fund this effort in both 1985 and 1986.

Between January and June 1986 an initial visit was made to each of nearly 500 registered sand/salt storage sites. Each sand/salt storage site was placed in one of five categories based upon its impact on private and public drinking water supplies.

<b>Priority Ranking</b>	<b>Impact Upon Drinking Water Supplies</b>	<b>Sand/Salt Piles Placed in that Category</b>
Priority 1 – Very High	Any site where chloride levels in domestic water supplies exceed the state drinking water limit (250 mg/l). Also included in this category are any sites near the source of a public water supply which has sodium or chloride levels above 10 mg/l.	49
Priority 2 – High	Any site where chloride levels in nearby domestic water supplies exceed 100 mg/l.	36
Priority 3 – Moderate-High	Any site where chloride levels in nearby domestic or secondary water supplies exceed 20 mg/l. Any site likely to be causing chloride concentrations in existing water supplies to exceed 20 mg/l, where water samples could not be collected to confirm this.	131
Priority 4 – Moderate	Any site which is in an area not served by public water, but is having no known impact on existing private water supplies.	207
Priority 5 – Low	Any site in an area completely serviced by public water. The site must be having no measurable effect on the source of public water to be placed in this category.	72

**Figure 1: 1986 Sand/Salt Priority Categories<sup>3</sup>**

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<sup>2</sup> P.L. 1985, c. 479, “An Act To Implement the Recommendations of the Maine Land and Water Resources Council, Ground Water Review Policy Committee.”

<sup>3</sup> In 1985, the only enforceable drinking water standard established for contaminants from a sand/salt pile was for chloride. The U.S. Environmental Protection Agency had established a secondary Maximum Contaminant Level (MCL) of 250 mg/l (milligrams per liter) for chloride. It is a secondary standard because it does not represent an acute threat to human health but caused taste problems and corrodes pumps, water heaters, and plumbing fixtures. Sodium remains the more pressing human health concern, especially for people with hypertension and high blood pressure. In May 2000, the Maine Department of Human Service established a Maine Exposure Guideline for sodium of 20 mg/l.



In November 1986, the Board of Environmental Protection adopted the first sand/salt project priority list. Using the list, additional legislation<sup>4</sup> in 1987:

- Revised the facility construction cost-share program and transferred authority for the program to DOT. As it remains today, municipalities and counties receive reimbursement between 25% and 100% of the costs of constructing a sand/salt storage building based on a revised formula that is 1.25 times the ratio of miles of state and state-aid roads maintained in the winter to all miles maintained in the winter by the municipality or county. Public money is prohibited from being used for construction of private sand/salt storage buildings; and
- Established a time schedule for construction of sand/salt buildings based upon the project priority number of the site. The time schedule established by the 1987 legislation envisioned all sand/salt piles listed on the project priority list in completed facilities by one of several completion dates, but no later than January 1, 1996. Any sand/salt piles still discharging salt to ground water after the site's deadline could be found in violation of DEP's waste discharge law (38 MRSA §413). However, not wanting to create an unfunded municipal mandate, the legislation included a provision that the owner of a public sand/salt pile could not be in violation of waste discharge laws if the owner was eligible for a state grant and the grant was not available.

DOT developed design and construction guidelines for sand/salt buildings and took an active review role. Funding for construction came from several sources, including bond issues in 1987 and 1991, General Fund and Highway Fund allocations. Between 1987 and 1998, over \$8 million in state funding was used to construct more than 100 municipal, county and DOT sand/salt buildings at Priority 1 and 2 sites. However, there were insufficient public funds to move beyond that level of the project priority list. Meanwhile, owners of private sand/salt piles had constructed just more than a dozen buildings during that same period.

The lack of funding did not dissuade many municipalities and counties at Priority 3, 4 and 5 sites from building sand/salt storage facilities in advance of their deadline. There were several reasons for this, including: (1) lower construction costs then compared to later, (2) construction of a new public works facility which would include a sand/salt building, and (3) the belief that a state mandate required the construction of a building sooner or later. By 1998, 112 municipal and county sand/salt storage buildings had been constructed, but only 71 had been funded. Forty-one facilities -- all in Priorities 3, 4 and 5 -- remained unfunded in 1998.

Because of the chronic lack of funding and relief for owners/operators if state grant money was not available, the statutory deadlines for completing construction were modified by the Legislature in 1989, 1991 and 1993. This extended the expected completion date for all facilities to 2004.

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<sup>4</sup> P.L. 1987, c. 473, "An Act to Establish a State Cost-share Program for Salt and Sand Storage Facilities" and P.L. 1987, c. 492, "An Act to Establish a Compliance Schedule for Owners and Operators of Salt Storage Areas."



During this same period, the sand/salt pile program floundered at the DEP, due in part to a lack of program funding within the department. With no dedicated staff person to oversee the program and other more environmentally important projects, the sand/salt pile program was moved throughout the Bureau of Land and Water Quality. The legislative requirement to revise the project priority list every two years was neglected. Sand/salt storage area rules for new storage areas never got off the drawing board. DEP staff did not have the resources to track the movement of even once-registered sand/salt piles, and inconsistencies were created by re-interpretation of statute by each new program manager.

Back at DOT, the sand/salt program was assigned to the newly created Community Services Division in 1996. The division took a fresh approach to administration of the program and streamlined building and funding aspects. Since 1996, the DOT has improved its technical assistance to municipalities, created a better tracking mechanism for funding and re-established a working relationship with the DEP which has placed a renewed emphasis on the sand/salt program. By early 1998, the DEP and DOT realized that the sand/salt facility construction program needed to be completely reviewed and addressed anew by the Legislature.

### **1998 Sand and Salt Pile Task Force**

In a joint memorandum from DOT Commissioner John Melrose and DEP Commissioner Edward Sullivan, an advisory work group, later known as the Sand and Salt Pile Task Force, was constituted. The group was directed to make statutory language recommendations by December 1, 1998, so that both departments could present these recommendations to the 119<sup>th</sup> Legislature that convened in January 1999. These recommendations were to reflect:

- Environmental priorities,
- Fairness and equity for and amongst municipalities;
- Positive state/municipal partnerships; and
- Effective and efficient use of taxpayer funds.

While asked not to make recommendations regarding the source and extent of state and local funds to implement the program, the work group was to resolve interagency differences and state/municipal administrative issues.

The task force met in July 1998 with a diverse membership of stakeholders affected by the sand/salt pile issue. Representatives from the Departments of Transportation, Environmental Protection and Human Services, legislators, municipal officers and the Maine Municipal Association worked on this issue. A complete list of all participants on the Sand and Salt Pile Task Force and their affiliation may be found in Appendix A.

With funding not part of the discussion, the task force realized it could affect significant changes to the sand/salt program in two areas: (1) environmental impacts and priorities and (2) funding formulas and reimbursement equity issues.

#### Subgroup A: Environmental Subcommittee

The Environmental Subcommittee, composed primarily of DEP and DOT staff, looked at the inadequacy of the 1986 priority setting criteria that focused exclusively on impacts to drinking water supplies. The Environmental Subcommittee agreed that the current, single criterion did not adequately address public and environmental concerns. A matrix was developed that looked at several factors, including local zoning controls, potential risk to aquifers, and impacts on surface water and wetland vegetation.

The Environmental Subcommittee also recommended a significant philosophical change to the facility construction program: Low priority sand/salt storage piles did not need to be housed in buildings. This recommendation came from a combination of fiscal realism and priority setting within the larger picture of environmental priorities. The Environmental Subcommittee proposed that only owners/operators of Priority 1, 2 and 3 sand/salt piles still be required to construct storage buildings. Owners/operators of Priority 4 and 5 sites would be required to follow best management practices (BMPs) developed by the DEP, but building construction would be optional.

To ensure that only those truly low priority sites would be excluded from the building requirements, the Environmental Subcommittee also proposed a re-assessment and re-prioritization of all remaining uncovered sand/salt piles in the state. The new priority lists would more realistically represent environmental threats and provide a reliable justification for removing the historic facility construction mandate from the majority of Maine towns.

#### Subgroup B: Funding and Equity Subcommittee

The Funding and Equity Subcommittee focused on the technical aspects of buildings and the funding criteria for municipal and county buildings. The 1987 DOT guidelines discussed building design and contained construction timetables, advice on facility locations, types, sizes, and the funding mechanism and reimbursement procedures. Much of this information was still valid but needed to be updated with “lessons learned” by DOT and municipalities during the last ten years and construction over 100 buildings.

Other issues for the subcommittee were the funding formula, the State maximum volume rates, the allowable mileage values, engineering/architectural fees, and the competitive bid process. After thorough review, the following recommendations were made to finally provide some improvement to the eleven-year-old policy:

- DOT sand/salt facility guidelines needed to be updated;
- All building plans must continue to be designed and stamped by a Maine Professional Engineer (PE) or Registered Architect;

- No municipality or county would receive less than 25% of the costs for constructing a sand/salt facility. The maximum would remain 100%;
- Municipalities and counties would receive funding for a building based on the 1998 registered volume of the sand/salt pile -OR- the average of the last five years' pile volumes;
- The maximum allowable sand/salt pile amount and building size would be based on continued use of 80 cubic yards of sand/salt mixture per mile of road maintained in the winter;
- Rather than use total road miles from 1986 for calculating state share, DOT would now "freeze" the mileage at the most recent mileage inventory (as certified by each municipality to DOT). It was decided that no municipality or county would see a reduction in the State share;
- If a municipality or county built a sand/salt facility larger than the registered sand/salt pile volume or state maximum allowable, DOT would continue to use a prorated cost-per-cubic yard for the smaller size;
- If the bids for a public sand/salt building come in more than the typical cost for a building of that size and the municipality or county has taken all reasonable approaches to obtain competitive statewide bids from several bidders and DOT had prior review of the plans, then DOT would participate in the higher cost; and
- Any "gold-plating" of a municipal or county structure would be at the full expense of the owner.

### 1999 Legislative Initiative

The work of the Sand and Salt Pile Task Force and its subcommittees was distilled into L.D. 2156, "An Act to Amend the Laws Governing the Construction of Salt and Salt Storage Facilities." Passed by the 119<sup>th</sup> Legislature and signed by the Governor (P.L. 1999, c. 387), the legislation implemented a number of recommendations of the Sand and Salt Pile Task Force and created a compromise on municipal equity issues. Major points in the law include:

- The DEP was required to review and re-assess the project priority numbers of all public and private sand and salt piles and to publish a final project priority list for all municipal and county sites by April 1, 2000 and for all DOT, private and other sites by July 1, 2000. An appeals process was also established for any owner or operator to appeal their ranking.
- Only owners/operators of Priority 1, 2 and 3 sand and salt piles would now be required to construct storage buildings. Municipal and county Priority 1, 2 and 3 projects would remain eligible for reimbursement under a funding formula that

factored current town-way and state-aid road mileage. New construction deadlines were established.

- Priority 4 and 5 sand and salt piles were no longer required to be contained within a storage building. Any storage buildings at Priority 4 or 5 sites constructed after November 1, 1999 would no longer be eligible for State reimbursement. Furthermore, as long as Priority 4 and 5 municipal and county sand/salt piles remained at their current locations, municipal and county governments could never be in violation of any ground water classification with respect to discharges to ground water from those sites.
- Any new sand and salt piles registered with the DEP after October 1, 1999 and all other existing (state and private) sand and salt piles would have to comply with operational and best management practices adopted by rule by the DEP.
- Any future funds allocated for reimbursement to municipalities and counties would be divided so that 20% would go to reimbursing Priority 4 towns that had built a facility prior to November 1, 1999. The remaining 80% of the funds would be used to reimburse municipal and county Priority 1, 2 and 3 projects in the order of completion, by priority number.

L.D. 2156 did not include a fiscal note -- its sole purpose was to make structural changes to the sand and salt storage program. In the final days of the first session of the 119<sup>th</sup> Legislature, \$2.5 million was allocated from an increase in the gasoline tax to fund further construction of sand/salt storage facilities. The allocation would be divided as follows: \$1 million for reimbursement to municipalities and counties; and \$1.5 million for construction of DOT sand/salt storage facilities.

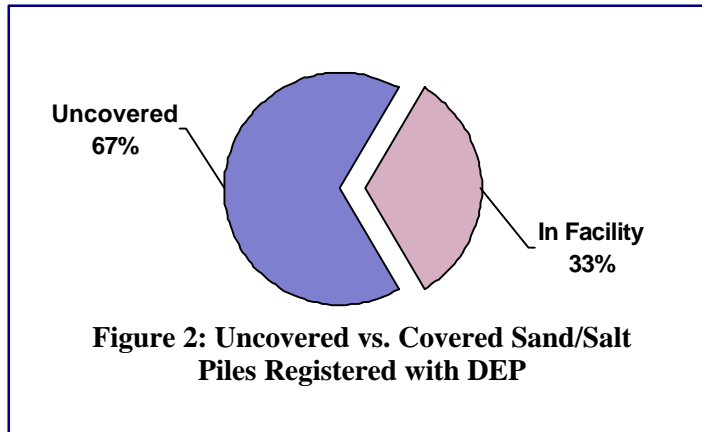
### **Assessment Results for Public and Private Sand/Salt Piles**

Using the work started by the Environmental Subcommittee of the Sand and Salt Pile Task Force and at their urging, the DEP began an earnest effort in late 1998 to register and re-prioritize all public and private sand and salt piles. The DEP and DOT mailed a sand/salt pile re-registration form to all municipalities in late November 1998. Because of limited staff resources at the DEP, the registration forms were used as a "first cut" to determine which sand/salt piles would need on-site assessments. The sand/salt pile registration form had several key questions on it that determined whether or not a sand/salt pile was visited, such as whether the sand/salt pile was in the same location as registered in 1986, whether there was any visible damage to vegetation in the area, and the distance to the nearest drinking water well.

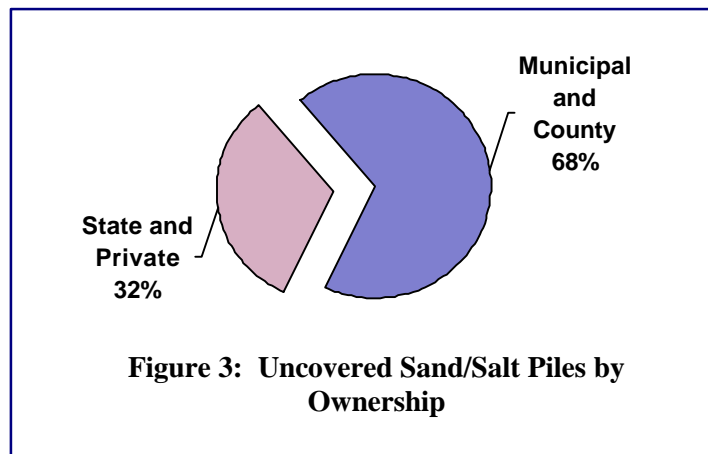
DEP staff conducted the majority of site assessments on municipal and county sand/salt storage areas and all assessments on private sand/salt piles. DOT's Division of Environmental Assessment agreed to do the site assessment work for the majority of DOT sand/salt piles and assisted on some municipal sites as well. As time allowed, the DEP conducted additional site investigations, however, for the majority of those sites which did not trigger a site visit, the

information provided on the registration form alone was used to re-prioritize the site. More than 300 on-site assessments were conducted by DEP and DOT staff.

Through the course of this effort, 674 public and private sand/salt storage areas were registered with the DEP. Of those, one-third (225) were in buildings. The remaining 449 storage sites contained uncovered sand/salt piles (**Figure 2**).



Municipal and county sand/salt piles account for 306 (68%) of uncovered sites; private and state entities account for 143 (32%) uncovered sand/salt piles (**Figure 3**).



#### Impact on Private Water Supplies

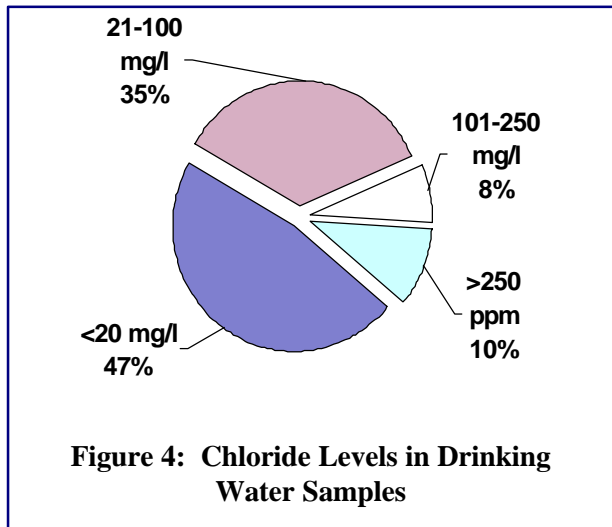
One important question that the DEP wanted to answer was "How are private wells currently being impacted by sand/salt piles?"

DEP and DOT staff collected 270 water samples during the course of the project and 243 of those samples were analyzed for chloride.<sup>5</sup> The majority of the analyzed samples (222) were domestic well water samples collected from the homes of residents near sand/salt piles. These individuals voluntarily provided these samples for which the DEP is exceedingly grateful. Twenty-one samples analyzed were from surface water sources. Surface water sources included culverts, ditches, streams and wetlands near sand/salt piles. Two of the twenty-one surface water samples were from brooks used as domestic drinking water sources.

Combining ground and surface water sources of drinking water, the DEP found that just under half of the drinking water samples (47% or 107) had chloride levels less than 20 parts per million (ppm) -- the chloride level considered to be "background" for well water in Maine. Ninety-five samples (43%) had elevated chloride levels, yet below the U.S. EPA-established Secondary Maximum Contaminant Level (MCL) for chloride of 250 mg/l. Twenty-three samples (10%) had chloride levels exceeding the drinking water standard for chloride (**Figure 4**).

<sup>5</sup> Not all samples were analyzed for chloride. Some samples were test for salinity only, some were not analyzed due to time, cost or other available data, and some results were discarded due to lab error.

Nearly all the samples with chloride levels that exceeded the drinking water standard came from homeowners; the remaining from public works facilities and garages operated by the owners of the sand/salt piles. All the households affected are in rural areas -- Alexander, Allagash, Brownfield, Carthage, Corinna, Corinth, Fayette, Gouldsboro, Jonesboro, Lowell,



Parkman, Sullivan, Sweden, Upton, and Westport. With no public water supply available in any of the towns, these homeowners were left to find their own replacement source of drinking water. The DEP has no fund available to provide immediate relief for individuals whose drinking water has been impacted by salt from sand/salt piles.

A 1987 law<sup>6</sup> created a process by which a landowner who believes his/her water supply had been impacted by a public sand/salt pile can apply to the political subdivision (town, county or state) for remedy. The law

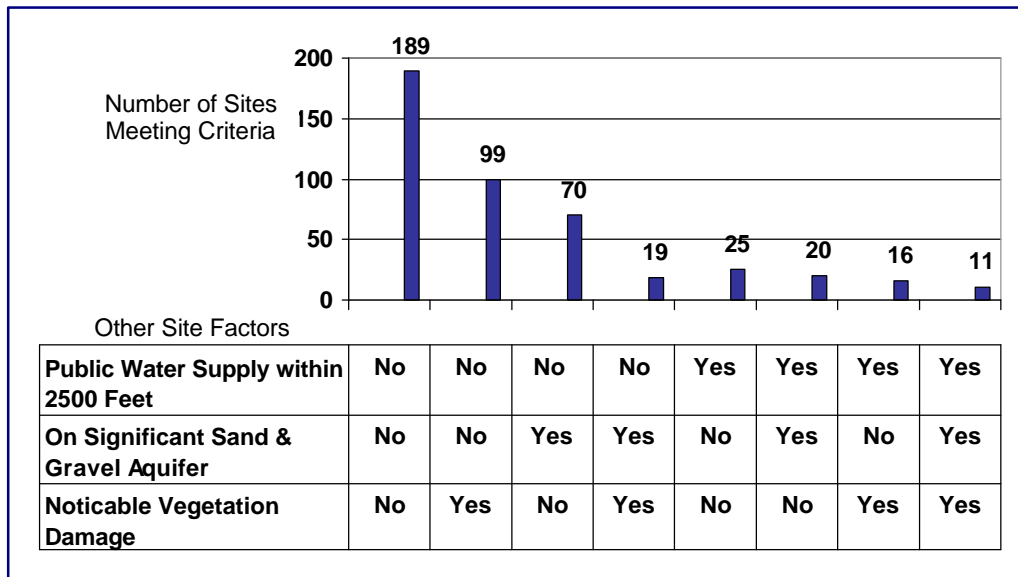
establishes time frames for response by the political subdivision and allows homeowners to file suit in Superior Court should a satisfactory solution not be reached. The DEP is aware of at least two pending lawsuits between homeowners and municipalities and routinely provides information to both plaintiffs and defendants as requested. However, during this often-protracted process, homeowners remain with unsuitable or poor quality drinking water.

#### Other Site Factors and Existing or Potential Environmental Impacts

Three other factors considered in establishing the project priority number for a sand/salt pile were: (1) whether the sand/salt pile was within 2500 feet of a public water supply; (2) whether or not the sand/salt pile overlay a significant sand and gravel aquifer; and (3) the presence of vegetation damage. Broader assessment criteria were used to identify sand/salt piles that may be impacting the environment, but not drinking water, or those piles likely to have a future impact upon drinking water. A cross-tabulation of the factors is found in **Figure 5**.

The majority of uncovered sand/salt piles (42%) were negative for all three additional factors. Provided there were no current impacts upon a local drinking water supply, it would be unlikely that these sand/salt piles would be of significant concern in the future. Only 2% (11) of uncovered sand/salt piles were positive for all three factors. Ten of those eleven sites are ranked Priority 3 or higher and scheduled to have buildings constructed within the next few years.

<sup>6</sup> P.L. 1987, c. 491, "An Act to Provide Comprehensive Protection for Ground Water." See Appendix E for full text.



**Figure 5: Other Site Factors Presenting Existing or Potential Environmental Impacts Near Uncovered Sand/Salt Piles**

The single factor encountered most frequently was vegetation damage. During the site assessment stage, vegetation damage was observed ranging from areas of dead grass and "browning" pines adjacent to the pile to more than 10 acres of dead wetland with salt-encrusted soil adjacent to a maintenance lot. Twelve sites out of the hundreds which were visited were considered to have *severe* vegetation damage (multiple dead species and soil incapable of supporting plant life). Eight of these twelve are ranked a Priority 3 or higher and are scheduled to have buildings constructed. For comparison, in 1986 only four of the twelve were ranked as a Priority 3 or higher.

### 1999 Prioritization of Sand and Salt Piles

Criteria for assigning priority numbers was based on the work of the Environmental Subcommittee. Although still weighted heavily to the protection of local drinking water, a matrix of five factors was used to determine the project priority number for an uncovered sand/salt pile:

- 1) Ground water monitoring data from nearby wells, or, if there are no wells to sample, the presence or absence of a public water system. The starting point of the priority setting process mirrored the 1986 system (see **Figure 1**) so as to provide initial consistency between project lists.
- 2) The extent of visible damage to trees and wetlands. Because of the effort and resources that would be needed to quantify such damage, a qualitative assessment was done. The impact was judged by investigating staff as begin either *none* (no noticeable or substantive damage to grass and low-growing vegetation), *slight* (dead



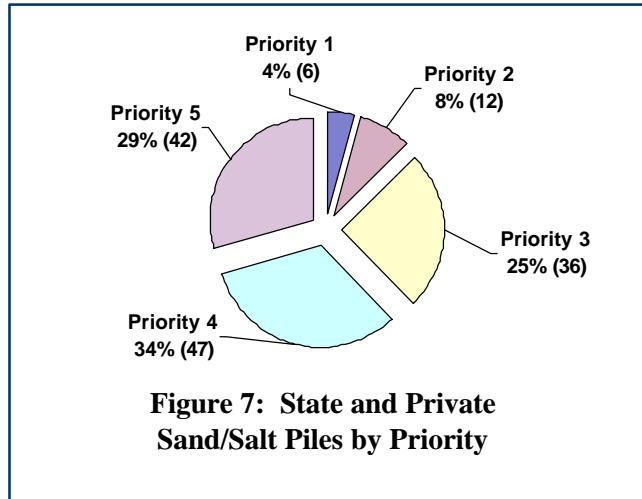
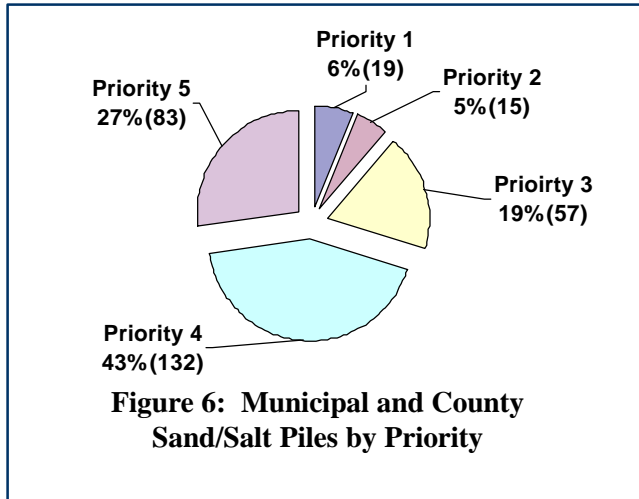
- grass/vegetation, browning of leaves and needles/desiccation effects on trees), *moderate* (dead trees and a larger area of dead grass/vegetation), *severe* (multiple trees and vegetation species dead, significant area where vegetation is incapable of growing).
- 3) Whether the pile is located in an area zoned for commercial, industrial or similar use, or, in the absence of zoning, the likelihood that new houses with wells would be built near the sand/salt pile. Zoning was factored in because municipalities have it within their powers to place sand/salt piles -- public and private -- in areas unlikely to experience residential development and thus reduce the likelihood of impacts to future drinking water supplies.
  - 4) Distance to the nearest public water supply well and intake. To complement on-going source water protection efforts, a sand/salt pile's risk was considered higher if it was located within 2500 feet of a public water supply well or intake. Geospatial data on the location of public wells and intakes was provided by the Department of Human Services, Drinking Water Program.
  - 5) Whether the sand/salt pile is located on a significant sand and gravel aquifer. Significant sand and gravel aquifers are considered a unique ground water resource and are mapped by the Department of Conservation, Maine Geological Survey (MGS). MGS provided current geospatial data to DEP for this determination.

As before, all public and private sand/salt piles were given a project priority number between 1 and 5. Priority 1 sites were those having an immediate and substantial impact upon local drinking water supplies and the environment. Priority 5 sites have no impact upon local drinking water supplies and are unlikely to do so in the future. The "1999 Sand/Salt Pile Priority Setting System" matrix and completed sample are found in Appendix B.

By September 2000 – almost two years after the registration and re-prioritization process started – the DEP had prioritized all 449 uncovered, sand/salt storage piles that had been registered with the department. Municipalities and counties were notified of their project priority ranking by certified letter and given an opportunity to appeal their priority ranking. Three towns appealed their sand/salt pile's priority ranking. After further investigation, the DEP changed the priority number for two (Litchfield and Carthage) and denied one appeal (Kingfield).

At their March 16, 2000 meeting, the Board of Environmental Protection approved the first project priority list, "Project Priority List for Municipal and County Sand/Salt Storage Areas." This first list included project priority numbers for more than 300 municipal and county sand/salt piles. On September 21, 2000, two remaining lists were approved by the Board: (1) the final priority list for more than 140 state and private sand/salt piles and (2) the final priority list for twelve municipal and county sites about which DEP had too little information to finalize a priority number in March. These three lists are combined in Appendix C.

As **Figure 6** shows, there are 19 new municipal and county Priority 1 sites – sites having an immediate and substantial impact upon drinking water and the environment. Combined,



Priority 1, 2 and 3 municipal and county sites – whose owners are still obligated to construct a facility and still eligible for State funding – totaled 91 (30%). Several of these sites contain sand/salt for more than one municipality or are shared by one or more municipalities and the county government. Seventy percent of the uncovered municipal and county sand/salt piles fell in the Priority 4 and 5 categories. Owners of these sand/salt piles are no longer required to construct a sand/salt storage building and no longer eligible for construction reimbursement.

State and private sites show roughly the same proportion as municipalities and counties across the five priorities (**Figure 7**). Five DOT sand/salt piles and one belonging to a private contractor were ranked as Priority 1 on the state and private sand/salt pile list. All the Priority 2 sites and 28 of the 36 Priority 3 sites on the state and private list are DOT sand/salt piles. The DEP believes that the higher proportion of DOT sand/salt piles in Priorities 1 through 3 may be related to the relative size and age of DOT sand/salt piles to those operated by private contractors. The average registered size of a DOT sand/salt pile is 4,550 cubic yards and has been on its site for more than 35 years. The average registered size of a sand/salt pile operated by a private contractor is 1,465 cubic yards and has been on its site for 20 years. A larger pile on the same site for a longer time simply has the ability to leach larger amounts of salt into the immediate environment.

Looking at the geographic distribution of priority numbers, there are a couple of interesting things to note (**Figure 8**). First, Priority 1, 2 and 3 sites, while confined primarily to rural areas, are geographically disbursed throughout the state. The DEP does not believe that sand/salt storage presents a more significant ground water contamination problem in one geographic area of the state versus another. Second, Priority 5 sites are confined to urban areas and Priority 4 sites are predominantly in remote rural areas. The reasons are that a site may only be given a Priority 5 ranking when there is a public water supply in the area, something most often found in urban and developed areas. Conversely, most Priority 4 sites are those having absolutely no impact upon private water supplies, so they are found in remote areas away from residences and development. The implications of this are that Maine's larger cities and smaller, rural towns will be least likely to receive funding for construction of a sand/salt building under this program now that Priority 4 and 5 sites are no longer eligible to receive construction funding.

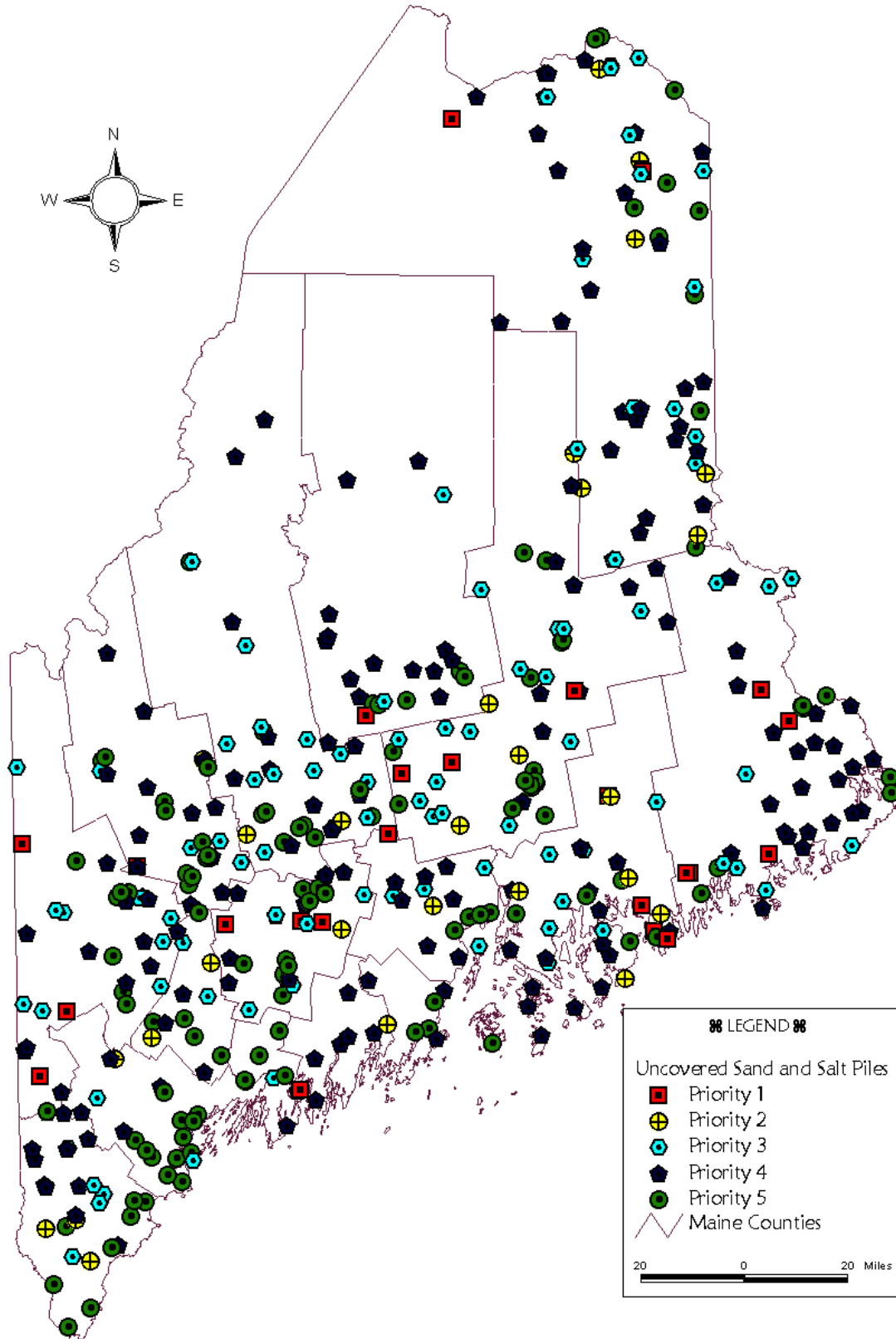


Figure 8: Map: 1999 Project Priority Rankings for Uncovered Sand and Salt Piles

## Construction Deadlines, Completed Facilities and Remaining State Financial Obligation for Sand/Salt Storage Buildings

### Construction Deadlines

Since the inception of the sand/salt building program, construction deadlines for owners and operators of public sand/salt piles (municipal, county and state) have been tied to the availability of state funds. As mentioned earlier, when no state funds were available, the construction deadlines were adjusted forward four times, most recently in 1999.

Provided sufficient funding remains available, the programmatic deadlines in **Figure 9** would be in effect.

Event	Municipal and County Priority 1 and 2 Sites	Municipal, County and State Priority 3 Sites	All Other Priority 1, 2, and 3 Sites
<b>Step A:</b> Preliminary notice form to MDOT	<i>the later of:</i> April 1, 2001 -or- one year from notice of availability of state funds	<i>the later of:</i> January 1, 2003 -or- one year from notice of availability of state funds	October 1, 2001
<b>Step B:</b> Final review of plans by MDOT	April 1, 2002 -or- one year from the date in Step A	January 1, 2004 -or- one year from the date in Step A	Review of plans not required by MDOT
<b>Step C:</b> Construction complete and facility in operation	April 1, 2003 -or- two years from the date in Step A	January 1, 2005 -or- two years from the date in Step A	October 1, 2003

**Figure 9: Sand/Salt Facility Construction Program - Revised Timetable (1999)<sup>7</sup>**

If funding must be rationed among eligible projects and the dates established in statute appear unattainable, the DOT and DEP plan to send eligible towns a formal notification letter that establishes the "notice of availability of state funds" and subsequent event deadlines. While eliminating the need to periodically revise the dates in statute, this practice creates a myriad of enforceable deadlines for DEP and DOT and places DOT in the difficult position of determining which projects can proceed and which will have to wait until the next funding allocation.

<sup>7</sup> 38 M.R.S.A., §451-A, sub-§1-A, "Time schedule for salt and sand-salt storage program."

Previous Funding Sources

Funding for the sand/salt program has come from a variety of areas over the years. **Figure 10** describes the funding sources and amounts appropriated or bonded over the years to pay for construction of municipal, county and DOT sand/salt buildings.

Year	Source / Breakdown	Amount
1987	Transportation Bond (Highway Fund) for <b>DOT</b> sand/salt buildings for <b>Municipal</b> and <b>County</b> sand/salt buildings	\$2,800,000 \$900,000
FY89	Allocation from Rainy Day Fund (General Fund) for <b>Municipal</b> and <b>County</b> sand/salt buildings	\$1,200,000
1991	Jobs Creation Bond Community Development Block Grants	\$700,000 <sup>8</sup> ??? <sup>9</sup>
FY96	Productivity Task Force (Highway Fund) for <b>DOT</b> sand/salt buildings for <b>Municipal</b> and <b>County</b> sand/salt buildings	\$1,000,000 \$2,000,000
FY00	Increase in Gasoline Tax (Highway Fund) for <b>DOT</b> sand/salt buildings for Municipal and County sand/salt buildings	\$1,500,000 \$1,000,000
	<b>Total Funding:</b> for <b>DOT</b> sand/salt buildings for <b>Municipal</b> and <b>County</b> sand/salt buildings	<b>\$5,300,000</b> <b>\$5,800,000</b>

**Figure 10: Sand/Salt Building Funding History**

State Obligation for Municipal and County Sand/Salt Storage Buildings

The DOT has provided almost 150 towns with technical assistance in their sand/salt building design and more than 100 of them with funding assistance. By priority number, **Figure 11** depicts completed municipal and county sand/salt buildings (includes 1986 and 1999 priority lists) and sand/salt buildings which remain unbuilt/unfunded, as of January 8, 2001.

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<sup>8</sup> This amount is estimated based on information provided to DOT.

<sup>9</sup> The amount is unknown as towns that utilized Community Development Block Grant monies were not required to file construction reimbursement paperwork with DOT.

Priority	Built	Number Funded	Amount Reimbursed	Number Unfunded	Estimated State Funds Needed	Number Unbuilt	Estimated State Funds Needed
1	39	39	\$2,027,194.00	0	\$0.00	14	\$700,412.00
2	19	17	\$896,037.00	2	\$159,000.00	17	\$950,220.00
3	39	36	\$1,437,472.00	3	\$160,000.00	56	\$3,500,000.00
4	32	9	\$437,645.81	23	\$983,407.00	0	\$0.00
5	19	0	\$0.00	19	\$875,000.00	0	\$0.00
<b>Totals</b>	<b>150</b>	<b>101</b>	<b>\$4,798,348.81</b>	<b>47</b>	<b>\$2,177,407.00</b>	<b>87</b>	<b>\$5,061,737.00</b>

**Figure 11: State Obligation for Unbuilt Municipal and County Sand/Salt Storage Buildings for Towns and Counties Participating in Program<sup>10</sup>**

State Obligation for DOT Sand/Salt Storage Buildings

DOT has constructed 41 sand/salt storage facilities at its maintenance yards. Unlike most municipal and county projects, DOT sand/salt buildings are funded solely by state funds. As such, the "Estimated State Funds Needed" column in **Figure 12** represents 100% of costs for each building.

Priority	Built	Number Unbuilt	Estimated State Funds Needed
1	13	4	\$900,000.00
2	17	12	\$2,613,375.00
3	5	28	\$5,544,000.00
4 <sup>11</sup>	2	0	\$0.00
5 <sup>11</sup>	3	0	\$0.00
not previously registered	1	0	
<b>Totals</b>	<b>41</b>	<b>44</b>	<b>\$9,057,375.00</b>

**Figure 12: State Obligation for Unbuilt DOT Sand/Salt Storage Buildings**

<sup>10</sup> This chart reflects only those municipal and county projects in which the DOT has participated in funding and expects to do so in the future. It should be noted that some towns have chosen to not participate in the reimbursement program for construction of sand and salt buildings. These towns either have chosen to fully fund construction with municipal or other grant monies or have winter maintenance contractors who have constructed sand/salt storage buildings.

<sup>11</sup> At this time, DOT is not planning any construction projects at its Priority 4 and 5 sites. However, changes in operations or site conditions may necessitate the construction of a sand/salt building in the future.

Remaining State Obligation to Complete Construction at All Priority 1, 2, and 3 Sites

Combining additional funding needs from **Figure 11** and **Figure 12**, the following table estimates the funding needed to complete all public sand/salt facility construction as required by state law.

Priority	Municipal and County Sand/Salt Buildings				DOT Sand/Salt Buildings	
	Number Built, but Unfunded	Estimated State Funds Needed	Number Unbuilt	Estimated State Funds Needed	Number Unbuilt	Estimated State Funds Needed
1	0	\$0.00	14	\$700,412.00	4	\$900,000.00
2	2	\$159,000.00	17	\$950,220.00	12	\$2,613,375.00
3	3	\$160,000.00	56	\$3,500,000.00	28	\$5,544,000.00
4	23	\$983,407.00	0	\$0.00	0	\$0.00
5	19	\$875,000.00	0	\$0.00	0	\$0.00
<b>Totals</b>	<b>47</b>	<b>\$2,177,407.00</b>	<b>87</b>	<b>\$5,061,737.00</b>	<b>44</b>	<b>\$9,057,375.00</b>
<b>Total State Funds Needed for All Remaining Sand/Salt Buildings</b>						<b>\$16,296,519.00</b>

**Figure 13: Remaining State Obligation to Complete Construction at All Priority 1, 2, and 3 Sites**

Other Sand/Salt Storage Buildings

It should not be overlooked that many other public and private entities have constructed sand/salt storage buildings without the benefit of state construction funds. While a few buildings were constructed under deadlines imposed by the 1986 priority list or as required by a municipal ordinance, most were constructed voluntarily by their owners. **Figure 14** lists the buildings by ownership found in the DEP database.

Ownership	Number of Sand/Salt Storage Buildings
Private Contractors	35
Maine Turnpike Authority	7
University	3
Federal	1
Other State Agency	1
<b>Total</b>	<b>47</b>

**Figure 14: Other Sand/Salt Building Construction**



## **Other Sand and Salt Pile Program Considerations**

### Potential Threats from Sand and Salt Piles No Longer Addressed by Building Construction Program

The most significant change to the sand/salt program in 1999 was the removal of the obligation from owners and operators of Priority 4 and Priority 5 sand/salt piles to construct storage buildings. While owners and operators of private and state sand/salt piles will be required to comply with DEP rules governing siting and operation (see below), the law provides an indefinite exemption for discharges of salt to ground water for municipal and county sand/salt piles which remain at their current location. Following the prioritization, we now find two-thirds of all registered, uncovered sand/salt piles are not in the building program, and to some degree, these sites will continue to discharge salt to ground and surface waters. Also, no provisions were made in the law to re-visit the sand/salt pile priority list or revise it at a later date.

The DEP has had to ask itself: Is it likely that Priority 4 and 5 sites will present a threat to drinking water in the near future? We believe that the discovery of additional wells impacted by chloride from existing Priority 4 and 5 sand/salt piles is unlikely in the near future for the following reasons:

- (1) The criteria used in 1999 to establish priority numbers were expanded to address not only current impacts to ground water but also attempted to anticipate future use and the likelihood of future contamination due to salt. In particular, new emphasis was given to local zoning controls and source water protection of public water supplies.
- (2) Most of the Priority 4 sites are in remote locations. Two-thirds of municipal Priority 4 sand/salt piles have no private wells within 1,000 feet. DEP fieldwork was focused on sand/salt piles with homes within 500 feet. Any wells in proximity to these sand-salt piles were sampled and, for the site to be a Priority 4, all sampled wells had to have 20 mg/l or less of chloride. Also, a Priority 4 site can only have one other prioritization factor working against the site (vegetation damage, residential zoning, proximity to public water supply or overlying a sand and gravel aquifer), otherwise it is classified as Priority 3 or higher.
- (3) All of the municipal Priority 5 sand-salt piles are located in areas where the homes are served by a public water supply or drain to a tidal area. While ground water contamination due to salt may exist at these sites, there are no drinking water wells, public or private, impacted.

For these reasons, it is unlikely that sand/salt storage areas currently with a Priority 4 or 5 ranking will pose additional threats to drinking water in the near future. However, beyond the next decade, DEP can make no speculation about the likelihood of Priority 4 sites to impact drinking water supplies. Our hope is that, over time, many municipalities with Priority 4 or 5

sites will see both the economic and environmental benefits of storing their sand/salt piles under cover and chose to build storage buildings without the offer of state assistance.<sup>12</sup>

### Salt Priority Program and Effect on Building Size

In 2000 DOT initiated a "salt priority" program on Interstate and selected primary highways in Maine. Salt priority relies on strategic timing and placement of salt on highways to prevent build-up of ice and snow. Research has shown that it is six times more difficult to remove snow and ice build-up on a road than it is to prevent it. By getting a layer of wet salt brine onto the road as it begins to snow, snow and ice are prevented from bonding to the pavement, making it much easier to plow. Overall, DOT emphasizes that this is simply better use of salt, not greater use of salt.<sup>13</sup>

With a return to reliance upon pure salt, DOT anticipates reducing all future sand/salt building volumes by at least 25%.<sup>14</sup> While salt priority will not completely eliminate the need for mixed sand/salt, new buildings will need be only large enough to accommodate a smaller mixed sand/salt pile and pure salt. For this report, DOT has provided building and cost estimates (**Figure 12** and **Figure 13**) which already take into account the reduced size of storage buildings.

### Status of Sand and Salt Storage Rules

The 1999 law also directed DEP to adopt operational and best management practice rules for sand/salt storage areas. This rule making effort was delayed significantly by the prioritization process and it was not until April 2000 that DEP mailed a draft version of Chapter 574, "Siting and Operation of Certain Salt and Sand-Salt Storage Areas" to more than 750 stakeholders and interested parties for initial stakeholder comment. Approximately half of the recipients were owners/operators of sand/salt storage areas registered with the department and half were owners/operators of public water supplies in the state. Copies were also sent to numerous representatives from other state agencies, including the Departments of Transportation, Conservation and Human Services. The draft rule was also talked about at eight DOT-sponsored workshops attended by over 230 municipal officials in April and May, 2000.

Fifty-one groups and individuals commented on the rule by the requested deadline of May 15 for eighty-two pages of comments. A cover memo included with the draft rule requested comments on specific areas of the rule. To summarize:

- Several commenters, including a couple sand/salt pile owners/operators, felt that sand/salt could not be stored outside of a building without presenting a risk to the environment.

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<sup>12</sup> Find further information on the benefits of storing salt and sand/salt in buildings in Appendix D.

<sup>13</sup> Department of Transportation News Release, "Salt Use Only Part of MDOT Snow and Ice Strategy," November 2, 2000.

<sup>14</sup> DOT Memorandum from Marc Guimont, March 15, 2000.

- The DEP requested comment on the applicability of this rule, specifically, should there be a minimum pile size to which these rules apply. Looking strictly at this issue as a "Yes" or "No" question, most commenters felt there should be a minimum pile size below which these rules were not applicable. However, DEP could find no consensus on what that "size" should be.
- Two issues were raised regarding the use of impermeable pads on which to store sand/salt piles. The majority of commenters supported pads composed of bituminous concrete. In support of this position, they noted how quickly polyethylene tarps would be torn and how they would not support the constant truck traffic. Many commenters also felt that pads without covers were useless because they would not stop brine runoff from the pad. They felt that the investment was costly for a bituminous concrete pad and that it provided a false sense of security.
- Nearly all commenters felt that berms didn't work and caused more problems than solved. Many cited that earthen berms simply pooled runoff that was released off the pad eventually.
- Comments on the use of polyethylene tarps to cover sand/salt piles ranged from "not a major issue" to "nearly impossible." Several commenters felt that tarping was too difficult to maintain, especially during winter use, and that it would be more costly than a building over many years. Some even provided examples of problems encountered to demonstrate their limited success.
- The overwhelming majority of commenters, both public water suppliers and sand/salt pile owner/operators, favored extending the protections to surface water supplies as well as ground water supplies.

DEP staff will continue developing these rules in 2001.

#### Staffing and On-going Program Responsibilities at DEP

An active, on-going Sand and Salt Pile Program now exists at DEP, continuing the momentum begun in 1998 with the statewide assessment and prioritization of sand/salt piles. Although dormant for many years, the revitalized program now includes:

- Assistance to municipalities and private contractors with the siting of new sand/salt piles and buildings;
- An on-going registration program for new sand/salt piles (ones missed during the prioritization and first-time sand/salt piles);
- Further development of siting and operational rules with stakeholders and education and outreach to owners and operators once the rules are complete; and
- Investigation of complaints involving chloride contamination of drinking water wells.

No funding has ever been allocated by the Legislature for Personnel Service to support a staff position at DEP. As mentioned in the **Background** portion of this document, the Sand and Salt Pile Program floundered for many years at DEP during a time in which no dedicated staff was assigned to oversee or implement the program. Beginning in 1998, the one staff person was re-assigned to implement and administer the program, however, that person continues to be paid from a Federal grant to perform other duties.

Existing Federal funding for the DEP position appears to be secure for the immediate future. However, at some point, additional state funding will likely be needed. Among the available funding options are a General Fund allocation; funding through other Federal program (e.g., the 106 program); and initial or annual registration fees for uncovered sand/salt piles. DEP will continue to evaluate the need for and sources of additional sand/salt program funds.

**Appendix A**  
**1998 Sand and Salt Pile Task Force Participants**

<u>Organization</u>	<u>Name</u>
Dept. of Environmental Protection	Michael Barden Jeff Canwell Tammy Gould Florence Grosvenor John Hopeck Martha Kirkpatrick
Dept. of Human Services	David Braley
Dept. of Transportation	Peter Coughlan Clifton Curtis Kevin Doering John Dority Dede Gilbert Mark Guimont Josh Katz Brant Miller Christine Olsen Bill Reid Alan Stearns Helen Wiczorek
Legislature	Sen. William O’Gara Rep. Christine Savage Rep. Ben Rines
Municipal Officials	Andrew Hart, Union Town Manager Dan L’Heureux, China Town Manager Jeff Jacques, Bingham Selectman Mark Hagar, Damariscotta Selectman Grant Watmough, Warren Town Manager
Maine Municipal Association	Kate DuFour Geoff Herman

1999 Sand/Salt Pile Priority Setting System

Sand/Salt Pile Monitoring Results	Starting Priority	Site Visit? Yes No Date of Site Visit			Ending Priority
		Surface Water/Aquatic Impacts	Current and Future Use Considerations		
Private Well with greater than 250 mg/l Cl -or- Public Water Supply Well with greater than 10 mg/l Cl	1	<p>Then - move from the Starting Priority Number up a maximum of two priorities based on these other factors.</p> <p><input type="checkbox"/> Is there visible damage to surrounding vegetation or wetlands? YES = Subtract 0.5 from Starting Priority Number NO = No change</p> <p><input type="checkbox"/> Is there a community or non-community/non-transient water supply well or intake within 2500 feet? YES = Subtract 0.5 from Starting Priority Number NO = No change</p> <p><input type="checkbox"/> Is the sand/salt pile located on a significant sand &amp; gravel aquifer? YES = Subtract 0.5 from Starting Priority Number NO = No change</p>	<p><input type="checkbox"/> Is the sand/salt pile in an area zoned for commercial/industrial use? YES = No change If NO → Is it likely that new houses will be built in the area? YES = Subtract 0.5 from Starting Priority Number NO = No change</p>	1 (includes all 1 and lower numbers)	
Private Well with greater than 100 mg/l Cl	2			2 (includes 1.5 and 2)	
Private Well with greater than 20 mg/l Cl	3			3 (includes 2.5 and 3)	
Area not served by public water, but is having no known impact on existing private water supplies.	4			4 (includes 3.5 and 4)	
Area served completely by public water supply -or- sand/salt pile discharges directly to a river or marine system with a drainage area greater than 100 square miles -and- no impact on surrounding public or private wells.	5			5 (includes 4.5 and 5)	

Vegetation damage judged to be:

- ◆ none
- ◆ slight
- ◆ moderate
- ◆ severe

Date of Sample \_\_\_\_\_

Chloride \_\_\_\_\_ mg/l

No sample taken

No sample taken, starting with 1986 project priority number

**\* SAMPLE \***

1999 Sand/Salt Pile Priority Setting System

Sand/Salt Pile Monitoring Results	Starting Priority	Surface Water/Aquatic Impacts	Site Visits	Yes	No	Date of Site Visit	Current and Future Use Considerations	Ending Priority
Private Well with greater than 250 mg/l Cl -or- Public Water Supply Well with greater than 10 mg/l Cl	1			<input checked="" type="checkbox"/>		8/1/99	<input type="checkbox"/> Is the sand/salt pile in an area zoned for commercial/industrial use? YES = No change If NO → Is it likely that new houses will be built in the area? YES = Subtract 0.5 from Starting Priority Number NO = No change	1 (includes all 1 and lower numbers)
Private Well with greater than 100 mg/l Cl	2				<input checked="" type="checkbox"/>		<input type="checkbox"/> Is there a community or non-community/non-transient water supply well or intake within 2500 feet? YES = Subtract 0.5 from Starting Priority Number NO = No change	2 (includes 1.5 and 2)
Private Well with greater than 20 mg/l Cl	3	<input type="checkbox"/> Is there visible damage to surrounding vegetation or wetlands? YES = Subtract 0.5 from Starting Priority Number NO = No change					<input type="checkbox"/> Is there a community or non-community/non-transient water supply well or intake within 2500 feet? YES = Subtract 0.5 from Starting Priority Number NO = No change	3 (includes 2.5 and 3)
Area not served by public water, but is having no known impact on existing private water supplies.	4		Then - move from the Starting Priority Number up a maximum of two priorities based on these other factors.				<input type="checkbox"/> Is the sand/salt pile located on a significant sand & gravel aquifer? YES = Subtract 0.5 from Starting Priority Number NO = No change	4 (includes 3.5 and 4)
Area served completely by public water supply -or- sand/salt pile discharges directly to a river or marine system with a drainage area greater than 100 square miles -and- no impact on surrounding public or private wells.	5						<input type="checkbox"/> Is the sand/salt pile located on a significant sand & gravel aquifer? YES = Subtract 0.5 from Starting Priority Number NO = No change	5 (includes 4.5 and 5)

Vegetation damage judged to be:

- ♦ none
- ♦ slight
- ♦ moderate
- ♦ severe

Date of Sample 8/1/99

Chloride 40 mg/l

No sample taken

No sample taken, starting with 1986 project priority number



**Appendix C: 1999 Project Priority List for Sand/Salt Storage Areas**

1999 Priority	Ownership	Town	County	Remarks
1	Town	Alexander	Washington	
1	Town /Private	Allagash	Aroostook	Town uses a private contractor (G. McBreairty)
1	DOT	Aurora	Hancock	
1	Town	Brownfield	Oxford	
1	Town	Carthage	Franklin	Town Pile 1 of 2
1	DOT	Cherryfield	Washington	
1	Town	Cherryfield	Washington	
1	Town	Corinna	Penobscot	
1	Town/Private	Corinth	Penobscot	Town uses a private contractor (T. Grant)
1	Town	Detroit	Somerset	
1	Town	Fayette	Kennebec	
1	Private	Gouldsboro	Hancock	Owner: P. Joy
1	DOT	Jonesboro	Washington	
1	Town/Private	Jonesboro	Washington	Town uses a private contractor (C.F. Look) -- Pile shared with Town of Roque Bluffs
1	Town/County	Lowell	Penobscot	Site shared by Town and Penobscot County
1	Town	Parkman	Piscataquis	
1	Town	Princeton	Washington	
1	DOT	Sidney	Kennebec	
1	Town/Private	Sullivan	Hancock	Town uses a private contractor (R. Johnson)
1	Town	Sweden	Oxford	
1	Town	Upton	Oxford	
1	Town	Vassalboro	Kennebec	
1	Town/Private	Westport	Lincoln	Town uses a private contractor (T. Cromwell)
1	Town	Winter Harbor	Hancock	
1	DOT	Woodland	Aroostook	
2	DOT	Alfred	York	
2	DOT	Alton	Penobscot	
2	DOT	Amity	Aroostook	
2	Town	Aurora	Hancock	Pile shared with Town of Osborn
2	DOT	Brooks	Waldo	
2	DOT	Canaan	Somerset	
2	DOT	Carmel	Penobscot	Route 69 site
2	Town	Casco	Cumberland	
2	Town	China	Kennebec	
2	Town	Cranberry Isles	Hancock	Islesford
2	DOT	Franklin	Hancock	
2	DOT	Gouldsboro	Hancock	
2	Town	Kingfield	Franklin	
2	Town	Lagrange	Penobscot	
2	DOT	Lebanon	York	

*Report to the 120<sup>th</sup> Maine Legislature  
Sand and Salt Storage in Maine*

<b>1999 Priority</b>	<b>Ownership</b>	<b>Town</b>	<b>County</b>	<b>Remarks</b>
2	Town	Leeds	Androscoggin	
2	Town	Mapleton	Aroostook	Pile shared by Towns of Mapleton, Castle Hill, and Chapman
2	Town	New Sweden	Aroostook	Pile shared by Town of Westmanland
2	DOT	Orland	Hancock	
2	Town/Private	Patten	Penobscot	Town uses a private contractor -- Pile shared by Towns of Hersey and Moro Plantation
2	Town	Poland	Androscoggin	
2	DOT	Sherman	Aroostook	
2	Town	St Agatha	Aroostook	
2	Town	Starks	Somerset	
2	DOT	Waldoboro	Lincoln	
2	Town	Wells	York	
2	Town/Private	Weston	Aroostook	Town uses a private contractor (Foss & Sons Inc.) -- Pile shared by Town of Haynesville
3	Town	Addison	Washington	
3	Private	Albion	Kennebec	Owner: R. Lee
3	Town	Amity	Aroostook	
3	DOT	Ashland	Aroostook	
3	DOT	Athens	Somerset	
3	Town	Bath	Sagadahoc	
3	DOT	Beddington	Washington	
3	DOT	Belgrade	Kennebec	
3	DOT/Town	Bethel	Oxford	Site shared by Town of Newry (but not Town of Bethel)
3	Town	Blue Hill	Hancock	
3	Town	Bradford	Penobscot	
3	Town	Brewer	Penobscot	
3	Town/County/ Private	Brighton Plt	Somerset	Town and County use a private contractor (Farrin Bros. & Smith) -- Site also serves Mayfield, Kingsbury
3	Town	Brooklin	Hancock	
3	Town	Brooks	Waldo	
3	DOT	Brookton Twp.	Washington	
3	Town	Canaan	Somerset	
3	Town	Canton	Oxford	
3	DOT	Carmel	Penobscot	Damascus Road site
3	Town	Charleston	Penobscot	
3	Private	Chester	Penobscot	Owner: D. Smith
3	Town	Chester	Penobscot	
3	Private	Columbia	Washington	Owner: M. Wright
3	DOT	Crystal	Aroostook	
3	Town	Cutler	Washington	
3	Town	Dayton	York	

*Report to the 120<sup>th</sup> Maine Legislature  
Sand and Salt Storage in Maine*

<b>1999 Priority</b>	<b>Ownership</b>	<b>Town</b>	<b>County</b>	<b>Remarks</b>
3	DOT	Dedham	Hancock	
3	DOT	Dexter	Penobscot	
3	Town	Embden	Somerset	
3	Town	Enfield	Penobscot	
3	Town	Etna	Penobscot	
3	Town	Freedom	Waldo	
3	Town	Grand Isle	Aroostook	
3	DOT	Greene	Androscoggin	
3	County	Greenfield	Penobscot	
3	DOT	Guilford	Penobscot	
3	Town	Harmony	Somerset	
3	Town	Hartford	Oxford	
3	Town	Hebron	Oxford	
3	Town	Hodgdon	Aroostook	
3	County	Howland	Penobscot	Penobscot County Pile For Mattamiscontis Township-- Pile owned by M.O. Harris, Inc.
3	Town	Industry	Franklin	
3	Town	Islesboro	Waldo	
3	DOT	Jackman	Somerset	
3	Town	Jonesport	Washington	
3	DOT	Lambert Lake Twp.	Washington	
3	County/Town	Lexington Twp	Somerset	Contractor for Somerset County and Highland Plt. -- Pile owned by L. Beane
3	Town	Limerick	York	
3	Town	Limestone	Aroostook	
3	DOT	Lincoln Plt.	Oxford	
3	Town	Litchfield	Kennebec	
3	Town	Livermore	Androscoggin	
3	DOT	Long A Twp.	Penobscot	
3	Town	Long Island	Cumberland	
3	Town	Lovell	Oxford	
3	DOT	Lyman	York	
3	Town	Lyman	York	
3	DOT	Macwahoc Plt.	Aroostook	
3	Private	Madawaska	Aroostook	Owner: A. Morin
3	Town	Madawaska	Aroostook	Town Pile 2 of 2
3	Town	Mariaville	Hancock	
3	Town	Mars Hill	Aroostook	
3	DOT	Mercer	Somerset	
3	Town	Merrill	Aroostook	
3	DOT	Moscow	Somerset	
3	Town/Private	New Canada	Aroostook	Town uses a private contractor (Desjardins)
3	Town	New Limerick	Aroostook	
3	Town	New Sharon	Franklin	

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1999 Priority	Ownership	Town	County	Remarks
3	Private	Newry	Oxford	Owner: Sunday River/J. Aloisio
3	DOT	North Berwick	York	
3	Town	Palmyra	Somerset	
3	Town	Peru	Oxford	
3	DOT	Pittsfield	Somerset	
3	Town	Portland	Cumberland	Peaks Island site
3	DOT	Randolph	Kennebec	
3	Town	Rangeley Plt	Franklin	
3	Town	Sebago	Cumberland	
3	DOT	Solon	Somerset	
3	Town	St Albans	Somerset	
3	Town	Stetson	Penobscot	
3	DOT	Stockholm	Aroostook	
3	Town	Stow	Oxford	
3	Private	Surry	Hancock	Owner: S. Saunders
3	Private	T2 R10 WELS	Piscataquis	Owner: Great Northern Paper/C. Akeley
3	Town	Temple	Franklin	
3	Town/Private	Trenton	Hancock	Town uses a private contractor located in Bar Harbor (Staples Construction)
3	Town	Vanceboro	Washington	Uses a private contractor, but site is operated by town
3	DOT	Vassalboro	Kennebec	
3	Town	Webster Plt	Penobscot	
3	Town	Wesley	Washington	
3	DOT	West Forks Plt.	Somerset	
3	DOT	Winterport	Waldo	
3	County/Private	Woodland	Aroostook	Contractor for Aroostook County -- Townships of Connor and T17 R5 -- Pile is owned by M.J. Ouellette & Daughters.
4	Town	Abbot	Piscataquis	
4	Town	Alfred	York	
4	Town	Ashland	Aroostook	Pile also serves Garfield Plt.
4	Town	Atkinson	Piscataquis	
4	Town	Baldwin	Cumberland	
4	DOT	Bar Harbor	Hancock	
4	Town	Baring	Washington	
4	Town	Beals	Washington	
4	Town/Private	Belgrade	Kennebec	Town uses a private contractor (Stevens)
4	Town	Belmont	Waldo	
4	Private	Benton	Kennebec	Owner: M. Richards
4	Town/County/Private	Bingham	Somerset	Serves the Town Of Bingham, Somerset County And several other public and private entities/Land Owner: T. Lancaster /Private Contractor: J. Gilbert

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1999 Priority	Ownership	Town	County	Remarks
4	Town	Boothbay Harbor	Lincoln	
4	Town	Bowerbank	Piscataquis	
4	Town	Brooksville	Hancock	
4	Private	Brownville	Piscataquis	Owner: E. Gerrish
4	Town	Brownville	Piscataquis	
4	Town	Buckfield	Oxford	
4	Town	Burlington	Penobscot	
4	DOT	Calais	Washington	
4	Town	Cambridge	Somerset	
4	Private	Camden	Knox	Owner: P. Laite
4	Private	Canaan	Somerset	Owner: T. Ames
4	DOT	Canton	Oxford	
4	Town	Carroll Plt	Penobscot	
4	Town	Carthage	Franklin	Town Pile 2 of 2
4	Town	Cary Plt	Aroostook	
4	Town	Caswell	Aroostook	
4	DOT	Chain of Ponds Twp.	Franklin	
4	Town	Charlotte	Washington	
4	Private	Chelsea	Kennebec	Owner: M. Warren
4	Town	Chesterville	Franklin	
4	Town/Private	Columbia Falls	Washington	Town uses a private contractor (County Concrete, Inc.) -- Also serves Towns of Centerville and Columbia
4	Private	Comstock Twp.	Somerset	Owner: McDonald
4	Town	Cooper	Washington	
4	DOT	Cornish	York	
4	Town	Cornville	Somerset	
4	Town	Crawford	Washington	
4	Town	Deer Isle	Hancock	
4	County/Town	Dennysville	Washington	Pile shared by Town and County (Dean Preston, WN CY)
4	DOT	Dixfield	Oxford	
4	Town	Dixfield	Oxford	
4	Town	Drew Plt	Penobscot	
4	Town/Private	Durham	Androscoggin	Town uses a private contractor (Larrabee)
4	Town	Dyer Brook	Aroostook	Town Pile 1 of 2, Second pile operated by contractor out of Island Falls
4	Town	Eagle Lake	Aroostook	
4	Town	East Machias	Washington	Town uses a private contractor (Albee's Construction)
4	Town	Eastbrook	Hancock	
4	DOT	Edgecomb	Lincoln	

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<b>1999 Priority</b>	<b>Ownership</b>	<b>Town</b>	<b>County</b>	<b>Remarks</b>
4	Town	Ellsworth	Hancock	
4	DOT	Eustis	Franklin	
4	Town	Eustis	Franklin	
4	DOT	Fairfield	Somerset	
4	Town	Fairfield	Somerset	
4	Town	Farmingdale	Kennebec	Town uses a private contractor (E.C. Barry) -- Also pile for Town of Randolph
4	Private	Farmington	Franklin	Owner: K. Vining
4	County	Forest Twp	Washington	
4	Town	Frenchville	Aroostook	
4	DOT	Fryeburg	Oxford	
4	Town	Fryeburg	Oxford	
4	DOT	Ft. Kent	Aroostook	
4	Private/Town	Ft. Kent	Aroostook	Pile serves both private and town use -- Pile owner: Morin Construction
4	Town	Ft. Kent	Aroostook	Also uses contractor site -- Morin Construction
4	Town/Private	Georgetown	Sagadahoc	Town uses a private contractor (Maine Moss Excavation)
4	Town	Gilead	Oxford	
4	Town	Glenwood Plt	Aroostook	
4	Town/Private	Gouldsboro	Hancock	Town uses a private contractor (Tracey)
4	DOT/Town	Grand Lake Stream Plt	Washington	Town shares site with DOT
4	DOT/Town	Grand Lake Stream Plt.	Washington	Site shared by DOT and plantation
4	Town	Gray	Cumberland	
4	Town/Private	Greenbush	Penobscot	Town uses a private contractor (Gaylen Madden)
4	Town	Greenville	Piscataquis	Town pile is combined with contractor's for Piscataquis County and others
4	Town	Greenwood	Oxford	
4	Town	Hammond	Aroostook	
4	Town	Hartland	Somerset	
4	Town	Hiram	Oxford	Town maintains a second site at DOT lot in South Hiram
4	Town	Houlton	Aroostook	
4	Town/Private	Island Falls	Aroostook	Pile owner: P. Mitchell -- Site serves Towns of Island Falls and Dyer Brook
4	Town	Isle Au Haut	Knox	
4	Town	Jackson	Waldo	
4	Town	Jay	Franklin	
4	DOT	Jefferson	Lincoln	
4	Private	Johnson Mtn. Twp.	Somerset	Owner: Plum Creek/S. Robe
4	Town	Kennebunk	York	

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1999 Priority	Ownership	Town	County	Remarks
4	DOT	Kingfield	Franklin	
4	County/Town/ Private	Kingman Twp	Penobscot	Penobscot County contractor for Kingman Township (J. Emery) -- Also contractor for Macwahoc Plt.
4	Town	Knox	Waldo	
4	Town/Private	Lamoine	Hancock	Town uses a private contractor (R. King)
4	DOT	Limerick	York	
4	Town	Limington	York	
4	DOT	Linneus	Aroostook	
4	Town	Linneus	Aroostook	
4	Town	Littleton	Aroostook	
4	Private	Lobster Twp.	Piscataquis	Owner: McDonald
4	Town	Machias	Washington	
4	Town	Machiasport	Washington	
4	Town	Madrid	Franklin	
4	Town	Marshfield	Washington	
4	Town	Masardis	Aroostook	
4	Town	Meddybemps	Washington	
4	DOT/Town	Medway	Penobscot	Site shared by town and DOT
4	DOT/Town	Medway	Penobscot	Town shares site with DOT
4	Private	Minot	Androscoggin	Owner: W.J. Hemond
4	Town	Minot	Androscoggin	
4	Town	Monmouth	Kennebec	
4	Town	Monroe	Waldo	
4	DOT	Monson	Piscataquis	
4	Town	Mount Desert	Hancock	
4	Town/Private	Naples	Cumberland	Town uses a private contractor (P&K Sand & Gravel)
4	Town	New Portland	Somerset	
4	Town	New Vineyard	Franklin	
4	Town	Newcastle	Lincoln	
4	Town/Private	Newfield	York	Town uses a private contractor (Tarbox)
4	Private	Nobleboro	Lincoln	Owner: N.C. Hunt
4	Private	Norridgewock	Somerset	Owner: A. Cochran
4	Town	Northfield	Washington	
4	Town	Northport	Waldo	
4	Town	Oakfield	Aroostook	
4	Town	Orient	Aroostook	
4	Town	Orland	Hancock	
4	Town	Otis	Hancock	
4	Town/Private	Owls Head	Knox	Town uses a private contractor (U.R. Ilvonen )
4	County/Town	Oxbow Plt	Aroostook	Pile owned by A. Currier -- Contractor for Aroostook County Township of T9 R5 And Oxbow
4	DOT	Paris	Oxford	



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1999 Priority	Ownership	Town	County	Remarks
4	Town	Parsonsfield	York	Town Pile #2
4	Town	Parsonsfield	York	Town Pile #1
4	Town/Private	Passadumkeag	Penobscot	Town uses a private contractor (L. Dudley)
4	Town	Pembroke	Washington	
4	Town	Perham	Aroostook	
4	Tribal	Perry	Washington	Passamaquoddy Tribe, Pleasant Point Indian Reservation
4	Town	Plymouth	Penobscot	
4	DOT	Presque Isle	Aroostook	
4	Town/DOT	Reed Plt	Aroostook	Town shares site with DOT
4	Town	Roxbury	Oxford	
4	Private	Rumford	Oxford	Owner: G. Casey
4	Town	Sandy River Plt	Franklin	
4	Town	Sebec	Piscataquis	
4	Town	Sedgwick	Hancock	
4	DOT	Shapleigh	York	
4	Town	Shapleigh	York	
4	DOT	Shirley	Piscataquis	
4	Town	Shirley	Piscataquis	
4	Town	Smyrna	Aroostook	
4	Town	Solon	Somerset	
4	Town	St Francis	Aroostook	
4	Town/Private	Stacyville	Penobscot	Town uses a private contractor (Smallwood, Inc.) -- Also contractor site for Benedicta
4	Town	Standish	Cumberland	
4	Town	Stockholm	Aroostook	
4	Town	Stonington	Hancock	
4	Town	Strong	Franklin	
4	Town	Sumner	Oxford	
4	Town	Swans Island	Hancock	
4	Town	Swanville	Waldo	
4	DOT	T14 R6 WELS	Aroostook	
4	County	T18 ED BPP	Washington	Contractor for Washington County No. 14 Plt.
4	Private	T4 R11 WELS	Piscataquis	Owner: Great Northern Paper
4	Private	T5 R17 WELS	Somerset	Owner: McDonald
4	Private	T9 R8 WELS	Aroostook	Owner: Irving Woodlands
4	Town	Thorndike	Waldo	
4	Town/Private	Tremont	Hancock	
4	County	Trescott Twp	Washington	
4	Town	Turner	Androscoggin	
4	Private	Veazie	Penobscot	Owner: B. Silver
4	Town	Veazie	Penobscot	
4	DOT/Town	Vienna	Kennebec	Site shared by town and DOT
4	Town/Private	Waite	Washington	Town uses a private contractor (Dwelley) -- Also contractor for Town of Talmadge

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1999 Priority	Ownership	Town	County	Remarks
4	Private	Waldoboro	Lincoln	Owner: Osram Sylvania/K. O'Donnell
4	Town/Private	Wallagrass	Aroostook	Town uses a private contractor (B.J. Pinette)
4	Town	Washington	Knox	
4	Town	Waterboro	York	
4	Private	Waterville	Kennebec	Owner: R. Pelotte
4	Town	Wayne	Kennebec	
4	Town	Weld	Franklin	
4	Town	Wellington	Piscataquis	
4	Private	Westport	Lincoln	Owner: R. Harrison
4	DOT	Whiting	Washington	
4	Private	Whiting	Washington	Owner: H & S Construction
4	Town	Whiting	Washington	Town uses a private contractor
4	Town	Willimantic	Piscataquis	
4	Town	Woodville	Penobscot	
5	Town	Andover	Oxford	
5	Town	Anson	Somerset	
5	Town	Auburn	Androscoggin	
5	State	Augusta	Kennebec	AMHI grounds
5	Town	Augusta	Kennebec	
5	DOT/Town	Avon	Franklin	Site shared by town and DOT
5	DOT	Baileyville	Washington	
5	Private	Baileyville	Washington	Owner: Dicenso/G. Hammond
5	Town	Baileyville	Washington	
5	DOT	Bangor	Penobscot	
5	Federal/Town	Bar Harbor	Hancock	Town site shared with Acadia National Park/R. Hamel;
5	Town	Belfast	Waldo	
5	Town	Biddeford	York	
5	Town	Blaine	Aroostook	
5	Town	Bowdoinham	Sagadahoc	
5	Town	Bradley	Penobscot	
5	Town	Brunswick	Cumberland	
5	Town	Calais	Washington	
5	Town	Cape Elizabeth	Cumberland	
5	DOT	Caribou	Aroostook	
5	Town	Cumberland	Cumberland	Mainland
5	DOT	Dallas Pt.	Franklin	
5	Town	Danforth	Washington	Washington County uses small portion of pile
5	Town	Dexter	Penobscot	
5	Town	Dover Foxcroft	Piscataquis	
5	Town	East Millinocket	Penobscot	
5	Town	Eastport	Washington	
5	DOT	Eddington	Penobscot	

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<b>1999 Priority</b>	<b>Ownership</b>	<b>Town</b>	<b>County</b>	<b>Remarks</b>
5	DOT	Ellsworth	Hancock	
5	Town	Falmouth	Cumberland	
5	DOT	Farmington	Franklin	West Farmington
5	DOT	Farmington	Franklin	Fairbanks
5	Town	Farmington	Franklin	
5	University	Farmington	Franklin	Owner: University of Maine
5	Town	Franklin	Hancock	
5	DOT	Ft. Fairfield	Aroostook	
5	Town	Gardiner	Kennebec	
5	Private	Gorham	Cumberland	Owner: D. Shaw
5	Town	Gorham	Cumberland	
5	DOT	Gray	Cumberland	
5	Town	Guilford	Piscataquis	
5	Town	Hallowell	Kennebec	
5	Town	Harrington	Washington	
5	Private	Hartland	Somerset	Owner: Irving Tanning/M. Kuhns
5	DOT	Hiram	Oxford	
5	DOT	Houlton	Aroostook	
5	Town	Howland	Penobscot	Pile also serves Sebois Plt
5	Town	Jackman	Somerset	
5	DOT	Jay	Franklin	
5	DOT	Kennebunk	York	
5	Private/Town	Kingfield	Franklin	Pile owned by Newell Construction -- Serves Carrabassett Valley and Coplin Plt.
5	Town	Kittery	York	
5	Town	Lewiston	Androscoggin	
5	Private	Lincoln	Penobscot	Owner: Lincoln Pulp and Paper/S. McCahill; Station Avenue
5	Private	Lincoln	Penobscot	Owner: Lincoln Pulp and Paper/S. McCahill; Park Street
5	Town	Lincoln	Penobscot	
5	Town	Lisbon	Androscoggin	
5	Town	Livermore Falls	Androscoggin	
5	Town	Lubec	Washington	
5	Private	Madawaska	Aroostook	Owner: P. Fongemie
5	Town	Madawaska	Aroostook	Town Pile 1 of 2
5	Town	Madison	Somerset	
5	Town	Mechanic Falls	Androscoggin	
5	Private	Mexico	Oxford	Owner: A. Archibald
5	Town	Milbridge	Washington	
5	Town	Milford	Penobscot	
5	County	Millinocket	Penobscot	Private contractor (Emery Lee) -- For Penobscot County Towns Of Indian Purchase #3 And T1 R8

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<b>1999 Priority</b>	<b>Ownership</b>	<b>Town</b>	<b>County</b>	<b>Remarks</b>
5	Private	Milo	Piscataquis	Owner: W. London
5	Town	Milo	Piscataquis	
5	Town	Moscow	Somerset	
5	Town	Newport	Penobscot	
5	Town	Norridgewock	Somerset	
5	Town	Norway	Oxford	
5	Town	Oakland	Kennebec	
5	Town	Old Orchard Beach	York	
5	Private	Old Town	Penobscot	Owner: H.E. Sargent/L. Herbert
5	Private	Old Town	Penobscot	Owner: Fort James Corp./M. Curtis
5	Town	Orono	Penobscot	
5	University	Orono	Penobscot	University of Maine site
5	Town	Oxford	Oxford	
5	Town	Penobscot	Hancock	
5	Town	Phillips	Franklin	
5	Town	Pittsfield	Somerset	
5	Town	Portland	Cumberland	
5	Town	Portland	Cumberland	Great Diamond Island site
5	Town	Presque Isle	Aroostook	
5	Town	Rangeley	Franklin	
5	Town	Richmond	Sagadahoc	
5	Town	Rockland	Knox	
5	DOT	Rockport	Knox	
5	Private	Rumford	Oxford	Owner: W. Porter
5	Town	Rumford	Oxford	
5	Town	Saco	York	
5	Town	Sanford	York	
5	Town	Sangerville	Piscataquis	
5	DOT	Scarborough	Cumberland	
5	DOT	Searsport	Waldo	
5	Town	Searsport	Waldo	
5	Town	Seboeis Plt	Penobscot	
5	Private	Skowhegan	Somerset	Owner: SAPPI/T. Griffin
5	Private	Skowhegan	Somerset	Owner: H. Austin
5	Private	Skowhegan	Somerset	Owner: E. Gilblair
5	Town	South Berwick	York	
5	Town	Stockton Springs	Waldo	
5	Town	Thomaston	Knox	
5	Town	Topsham	Sagadahoc	
5	Town	Van Buren	Aroostook	
5	Town	Vinalhaven	Knox	
5	Town	Washburn	Aroostook	

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<b>1999 Priority</b>	<b>Ownership</b>	<b>Town</b>	<b>County</b>	<b>Remarks</b>
5	Private	Waterville	Kennebec	Owner: D. Gurney
5	Town	Waterville	Kennebec	
5	Town	West Paris	Oxford	
5	Town	Westbrook	Cumberland	
5	Private	Wilton	Franklin	Owner: G.H. Bass/W.J. Maillet
5	Private	Wilton	Franklin	Owner: D. Taylor
5	Town	Wilton	Franklin	
5	Town	Winslow	Kennebec	
5	Town	Winslow	Kennebec	Salt Storage And Temp Storage Only
5	Private	Winter Harbor	Hancock	Owner: C. Whitten
5	Town	Winthrop	Kennebec	
5	Private	Woolwich	Sagadahoc	Owner: D. Holbrook
5	DOT	Yarmouth	Cumberland	
5	Town	Yarmouth	Cumberland	
5	DOT	York	York	

## WHY SALT SHOULD BE STORED UNDER COVER

Although salt (sodium chloride) is a valuable material for snow and ice control, its use also causes some harmful side effects. Salt runoff and wind-carried spray may damage or kill plants and trees. Water supplies, especially those from shallow wells within 40 feet of a roadway, may be polluted by excessive salt content. Corrosion damage to motor vehicles is another obvious harmful side effect of salt use.

Close control of salt spreading to avoid excessive application will not only save maintenance funds but will also minimize these harmful side effects. It may also be desirable to use ditching and storm drains to alter present runoff patterns to reduce contamination of wells and roadside vegetation. If this water can flow directly and quickly to reasonably sized streams or rivers, this damage can be minimized.

In addition to roadway runoff, leaching of stockpiles also can cause salt pollution problems. Proper storage facilities and control of runoff can minimize the problem. That is why the Maine Legislature enacted the storage facility program in 1987.

Because shallow wells, and maybe deep wells, can be polluted by salt, it is possible that a municipality could face unexpected expenses in providing fresh water or drilling new wells for certain buildings. A municipality should be aware of State law Title 23 MRSA 3659 on the "protection of private water supplies". This law details the procedure for handling well damage claims.

### Q. Why should a public works agency construct bulk salt storage facilities?

**A. There are three answers ----- economy, availability and convenience.**

Bulk salt is the most economical deicing material available.

Salt *never* loses its ice melting power no matter how long it is stored or how old it is. Salt is already millions of years old when it is mined. Each year thousands of tons of salt are stored and carried over to be used the next year. It is just as effective as though freshly mined or harvested. Neither is there any loss to moisture from the air if salt is stored properly. Salt does not absorb moisture until the humidity exceeds 76 %. Moisture that is absorbed will later evaporate, but there may be a thin crusting on the surface of the stockpile that is easily broken up.

Salt, however, can be lost to precipitation. Stockpiles, whether large or small, should not be left exposed to the elements. A permanent under-roof storage facility is best for protecting salt. If this is not possible, then outside piles should be built on impermeable bituminous pads and covered with one of the many types of temporary covering materials, such as tarpaulin, polyethylene, polyurethane or hypalon. Other waterproofing products may be available too.

**There are several reasons why salt should be stored in a roofed enclosure.**

- Salt stored in an outdoor stockpile, if not properly covered and if continuously exposed to moisture, will become lumpy or frozen and difficult to handle and use. These chunks can get discarded and "lost" by some individuals.
- Inside storage also eliminates the loss of salt dissolved and washed away by precipitation.
- Wet and caked or lumpy salt is harder to handle with loaders and to move through spreaders.
- Workers who must climb up onto a truck in the cold and dark or dislodge chunks on a belt or screen risk injuries and worker compensation claims.
- Salt stored inside is easier to load and spread. It's dry and flows very well. Talk to any operator of a storage building and they would never go back to outside storage.
- Inside storage eliminates the possibility of contaminating streams, wells or groundwater with salt runoff.
- Inside storage "contains" the pile whereas an outside pile tends to "spread" across a property.
- Inside storage reduces unlimited access to a pile from citizens or private contractors.
- Ultimately, less money is spent on salt due to better control.
- If left exposed to weather, anti-caking agents can be washed from the outer layer of salt.



**Appendix E  
Maine Sand/Salt Law**

Department of Transportation – Title 23: Highways

**Chapter 19: Fiscal Matters**

**§1851. State cost-share program for salt and sand storage facilities**

The Department of Transportation may administer funds for the construction of municipal or county salt and sand storage facilities in order to reduce salt pollution of ground and surface waters. In administering these funds, the department shall provide reimbursement to municipal and county governmental entities for approved projects in the following order, according to priorities established pursuant to Title 38, section 411: [1999, c. 387, §1 (rpr).]

1. Priority 1 projects. Priority 1 projects, as long as the site was registered with the Department of Environmental Protection pursuant to Title 38, section 413 before October 15, 1997, regardless of the date the priority rating was designated; [1999, c. 387, §1 (new).]
2. Priority 2 projects. Priority 2 projects, as long as the site was registered with the Department of Environmental Protection pursuant to Title 38, section 413 before October 15, 1997, regardless of the date the priority rating was designated; [1999, c. 387, §1 (new).]
3. Priority 3 projects. Priority 3 projects that were designated before October 15, 1997 and continue to be so designated on April 1, 2000 and Priority 3 projects designated on April 1, 2000 that were designated Priority 5 projects prior to October 15, 1997; [1999, c. 387, §1 (new).]
4. Priority 4 projects. Priority 4 projects that were constructed before November 1, 1999 with plans and financial information submitted to the Department of Transportation by November 1, 1999. Notwithstanding any other provision of this section, 20% of all funds authorized by the Legislature after January 1, 1999 for municipal reimbursement of sand and salt storage facility construction costs must be used to reimburse municipalities with Priority 4 projects eligible under this subsection until all such eligible projects have been fully reimbursed. The department shall reimburse municipalities eligible under this subsection in the order in which those municipalities complete the submission of all required documentation; [1999, c. 387, §1 (new); §7 (aff).]
5. Priority changes. Priority 3 projects designated on April 1, 2000 that were designated Priority 4 projects as of October 15, 1997; [1999, c. 387, §1 (new).]
6. Priority 5 projects. Priority 5 projects that were constructed before November 1, 1999, with plans and financial information submitted to the Department of Transportation by November 1, 1999; [1999, c. 387, §1 (new).]

7. Other projects. All other projects eligible for reimbursement. Priority 4 and Priority 5 sites designated on April 1, 2000 are not eligible for reimbursement. [1999, c. 387, §1 (new).]

Allocation of funds must be based upon the sum of 25% of the expenses permitted plus 1.25 times the ratio of miles of state and state aid roads maintained for winter maintenance, as described in sections 1001 and 1003, to all miles maintained for winter maintenance by the municipality, quasi-municipal agency or county. The Department of Transportation shall establish guidelines to reimburse eligible local government entities in a consistent and timely manner. [1999, c. 387, §1 (rpr).]

The Department of Transportation shall review and approve municipal and county plans and specifications pursuant to established departmental guidelines for design, construction and size before a municipality or county constructs a facility. Municipal actions inconsistent with such guidelines are reimbursed at the sole discretion of the department. [1999, c. 387, §1 (rpr).]

Reimbursable expenses under this section do not include land acquisition or debt service. [1999, c. 387, §1 (rpr).]

### **§1852. Salt and sand storage facilities**

If funds are available for grants to an owner or operator of a project in the funding order established in section 1851, yet if within one year of notice of availability of the funds the owner or operator fails to submit to the Department of Transportation in writing a preliminary plan and estimate, a notice of a completed or partially completed facility or a notice of a signed contract for imminent construction of a facility, the Department of Transportation may make any funds committed or otherwise obligated to that project under this section and section 1851 available to any constructed project of a lower funding priority under section 1851 that has sent all required submissions to the department. A project that loses its funding under this paragraph remains eligible for reimbursement at a later date, subject to availability of funds. [1999, c. 387, §2 (new).]

The department may not reimburse a municipality or county under this section or section 1851 for that portion of construction expenses paid for with a grant awarded in accordance with Public Law 1991, chapter 849, section 3 or under the Community Development Block Grant Program. [1993, c. 63, §1 (new).]

## **Chapter 313: Liability for Damages**

### **§3659. Protection of private water supplies**

In the event a land owner believes that a private water supply on his land has been destroyed or rendered unfit for human consumption by a political subdivision constructing, reconstructing or maintaining a public highway under its jurisdiction, the owner may apply in writing to the political subdivision for a determination of the alleged cause and assessment of damages. [1987, c. 491, § 1 (new).]



1. Application presented within 2 years. If the claim is founded on construction or reconstruction, the owner shall present the application within 2 years after completion of the work as that date appears in the records of the political subdivision. The application shall set forth:

- A. The name and address of the owner; [1987, c. 491, § 1 (new).]
- B. The name and address of any lien holder; [1987, c. 491, §1 (new).]
- C. The owner's source of title; [1987, c. 491, § 1 (new).]
- D. The location of the property; [1987, c. 491, § 1 (new).]
- E. A description of the damage; and [1987, c. 491, § 1 (new).]
- F. The cause to which the damage is attributed. [1987, c. 491, §1 (new).] [1987, c. 491, § 1 (new).]

2. Written response. Within 90 days upon receipt of the owner's application, the political subdivision shall forward a written response to the owner. [1987, c. 491, § 1 (new).]

3. Offer of settlement. If the political subdivision determines that any damage to the privately owned water supply was caused by the political subdivision constructing, reconstructing or maintaining the public highway, the political subdivision shall set forth in its response an offer of settlement. The political subdivision in its response shall consider the necessity for the installation or replacement of piping, tanks, pumps, heating systems or other related fixtures. In its offer of settlement, a political subdivision may consider the following remedies:

- A. Replacing the water supply; [1987, c. 491, § 1 (new).]
- B. Repairing the damage to the water supply; [1987, c. 491, §1 (new).]
- C. Paying a designated sum of money; and [1987, c. 491, § 1 (new).]
- D. Purchasing the realty served by the water supply. [1987, c. 491, § 1 (new).] [1987, c. 491, § 1 (new).]

4. Action filed. If the landowner and political subdivision are unable to agree on the cause of the problem to the water supply or to the terms of settlement, the landowner may file an action in Superior Court in the county or counties where the land is located.

- A. The complaint shall be filed within one year after receiving a written response by the municipality. [1987, c. 491, § 1 (new).]

B. The case shall be determined by a referee and the court shall appoint one or more referees pursuant to the Maine Rules of Civil Procedure. [1987, c. 491, § 1 (new).]

C. Damages to the property shall be based on the difference between the fair market value of the property before the water supply was destroyed or rendered unfit and the fair market value of the property after the water supply was destroyed or rendered unfit or based on the cost to cure the damage, whichever amount is less. [1987, c. 491, § 1 (new).]

[1987, c. 491, § 1 (new).]

5. Limitations on liability. A political subdivision shall not be liable:

A. If the private water supply is located within the right-of-way limits of the highway; [1987, c. 491, § 1 (new).]

B. If the location of the private water supply does not provide for adequate surface drainage, provided that surface drainage problems caused by the construction, reconstruction or maintenance of a public highway by the political subdivision do not relieve the political subdivision of liability under this section; or [1987, c. 491, § 1 (new).]

C. If the private water supply prior to the construction, reconstruction or maintenance was contaminated or polluted by another source to the degree that the contamination or pollution rendered it unfit for human consumption. [1987, c. 491, § 1 (new).]

[1987, c. 491, § 1 (new).]

Department of Environmental Protection – Title 38: Waters and Navigation

**Chapter 3: Protection and Improvement of Waters**

**§ 411. State contribution to pollution abatement**

(6<sup>th</sup> ¶) The commissioner shall develop a project priority list, for approval and adoption by the board, for pollution abatement construction and salt or sand-salt storage building projects. The factors considered in developing the priority lists include, but are not limited to, protection of groundwater and surface water, land use, shellfish, general public health hazards and water contact activities. The commissioner shall revise the project priority list for municipal and county salt and sand-salt storage facilities by October 1, 1999 and for all other sand and salt storage facilities by April 1, 2000. An owner or operator of a salt or sand-salt storage area may appeal the ranking and provide new information to the commissioner within 120 days of notification, which may change final priority ranking. The board shall release a final project priority list of municipal and county sites by April 1, 2000, and for all other sand and salt storage facilities by

July 1, 2000. The board may not change the priority ranking for a municipality or county that prior to January 1, 1999 built a facility and also registered the site with the department pursuant to section 413. [1999, c. 387, §3 (amd).]

### **§413. Waste discharge licenses**

**sub-§2-D. Exemptions; road salt or sand-salt storage piles.** The commissioner may exempt any road salt or sand-salt storage area from the need to obtain a license under this section for discharges to groundwaters of the State when the commissioner finds that the exempt activity will not have a significant adverse effect on the quality or classifications of the groundwaters of the State. In making this finding, the commissioner's review must include, but is not limited to, the location, structure and operation of the storage area.

Owners of salt storage areas shall register the location of storage areas with the department on or before January 1, 1986. As required by section 411, the department shall prioritize municipal or quasi-municipal sand-salt storage areas prior to November 1, 1986.

New or existing salt or sand-salt storage areas registered after October 1, 1999 may be exempt from licensing under this section as long as such areas comply with siting, operational and best management practices adopted by rule by the department. Storage areas other than those owned by municipalities or counties and registered prior to October 1, 1999 are exempt from licensing under this section as long as such areas comply with section 451-A, subsection 1-A and with operational and best management practices adopted by rule by the department. Rules adopted pursuant to this section are routine technical rules as defined in Title 5, chapter 375, subchapter II-A.

[1999, c. 387, §4 (amd).]

### **§ 451-A. Time schedule variances**

**sub-§1-A. Time schedule for salt and sand-salt storage program.** An owner or operator of a salt or sand-salt storage area is not in violation of any groundwater classification or reclassification adopted on or after January 1, 1980 with respect to discharges to the groundwater from those facilities, if the owner or operator has completed all steps required to be completed by the schedules set forth in this subchapter. The commissioner shall administer this schedule according to the project priority list adopted by the board pursuant to section 411 and the provisions of this subsection. A municipal or county site classified as Priority 4 or Priority 5 as of April 1, 2000, which was registered pursuant to section 413 prior to October 15, 1997, may not be in violation of any groundwater classification or reclassification with respect to discharges to the groundwater from those facilities.

A. Preliminary notice must be completed and submitted to the Department of Transportation by the following dates:

- (1) For Priority 1 and 2 projects , the latest of the following dates:

- (a) One year from a designation under section 411;
- (b) One year from notice of availability of a state grant, if eligible; or
- (c) January 1996.

(2) For municipal, state and county Priority 3 projects, the later of the following dates:

- (a) One year from notice of availability of a state grant, if eligible; or
- (b) January 2003.

(3) For other Priority 3 projects, the later of the following dates:

- (a) One year from a designation under section 411; or
- (b) January 1997. [1999, c. 387, §5 (amd).]

B. [1999, c. 387, §5 (rp).]

C. [1999, c. 387, §5 (rp).]

D. For municipal and county sites only, review of final plans with the Department of Transportation must be completed within 12 months of the dates established in paragraph A for each priority category. [1999, c. 387, §5 (amd).]

E. Construction must be completed and the facility in operation within 24 months of the dates established in paragraph A for each priority category. [1999, c. 387, §5 (amd).]

In no case may violations of the lowest groundwater classification be allowed. In addition, no violations of any groundwater classifications adopted after January 1, 1980, may be allowed for more than 3 years from the date of an offer of a state grant for the construction of those facilities.

The department may not issue time schedule variances under subsection 1 to owners or operators of salt or sand-salt storage areas.

An owner or operator of a salt or sand-salt storage area who is in compliance with this section is exempt from the requirements of licensing under section 413, subsection 2-D.

An owner or operator is not in violation of a schedule established pursuant to this subsection if the owner or operator is eligible for a state grant to implement the schedule and the state grant is not available.

[1999, c. 387, §5 (amd).]