ABOVE GROUND HOME HEATING OIL TANK AND PIPING UPGRADE PILOT PROJECT

A REPORT TO THE MAINE FUND INSURANCE REVIEW BOARD

presented by

The Maine Department of Environmental Protection
Bureau of Remediation and Waste Management

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INTRODUCTION

On March 23, 1998, the Maine Legislature and Governor put into effect emergency legislation to address in a pro-active manner the growing problem of oil pollution from above ground heating oil supply tank and piping failures. This legislation, "An Act to Reduce Groundwater Contamination from Leaking Oil Storage Tanks" authorizes for the first time the use of funds from the Ground Water Oil Clean-up Fund (hereafter called the Ground Water Fund) for pollution prevention efforts, instead of just the after-the-fact remediation of oil discharges. This spending authorization was for the two fiscal years of 1999 and 2000. In essence, this legislation approved a two year pilot project, requiring the Fund Insurance Review Board (hereafter called the FIRB) to report to the Legislature by January 15, 2000 on the progress of the project. This report by the Maine Department of Environmental Protection, Bureau of Remediation and Waste Management (hereafter called the Department), is to provide the FIRB with the factual basis for its report and recommendation on the future of this program to the Maine Legislature.

As stated in the statute preamble, the purpose of the Maine Legislature in enacting this legislation was to address the growing number of oil spills and leaks from above ground heating oil storage facilities which are reported to the Department. By funding tank improvements to prevent oil discharges, the adverse impact of these leaks and spills on public health via contaminated drinking water supplies and indoor air pollution would decrease, resulting in a reduction of clean-up costs paid from the Ground Water Fund.

The vast majority of spills and leaks from above ground oil storage facilities reported to the Department were due to heating oil supply tank and piping system failures, in particular, home heating oil supply systems, found in an estimated 250,000 Maine residences and small businesses. As outlined in the April 24, 1998 "Heating Oil Supply Tanks and Piping Upgrade Project Implementation Plan", prepared by the Department and submitted to the FIRB (in accordance with the legislation), this project focused entirely on the replacement of heating oil supply tanks and piping systems.

The 1998 enabling legislation specifically asks that the report from the FIRB address three specific questions. The first of these is information on the general condition of above ground oil storage tanks and facilities in Maine. The second area to be addressed is the amount of money disbursed from the Ground Water Fund to retrofit, repair or replace above ground oil storage tanks, and the number and location of those tanks. The third is a recommendation as to whether the law should be amended to allow further disbursements from the Ground Water Fund for the continuation of this pollution prevention work. In addition, this report to the FIRB will address problems encountered and lessons learned by the Department in the implementation of this project to date, to ensure a complete assessment.

The Department is relying on a number of sources of data for the purpose of compiling this report. These include the Department oil spill tracking database (HOSS), data collected by the participating Community Action Program agencies (hereafter

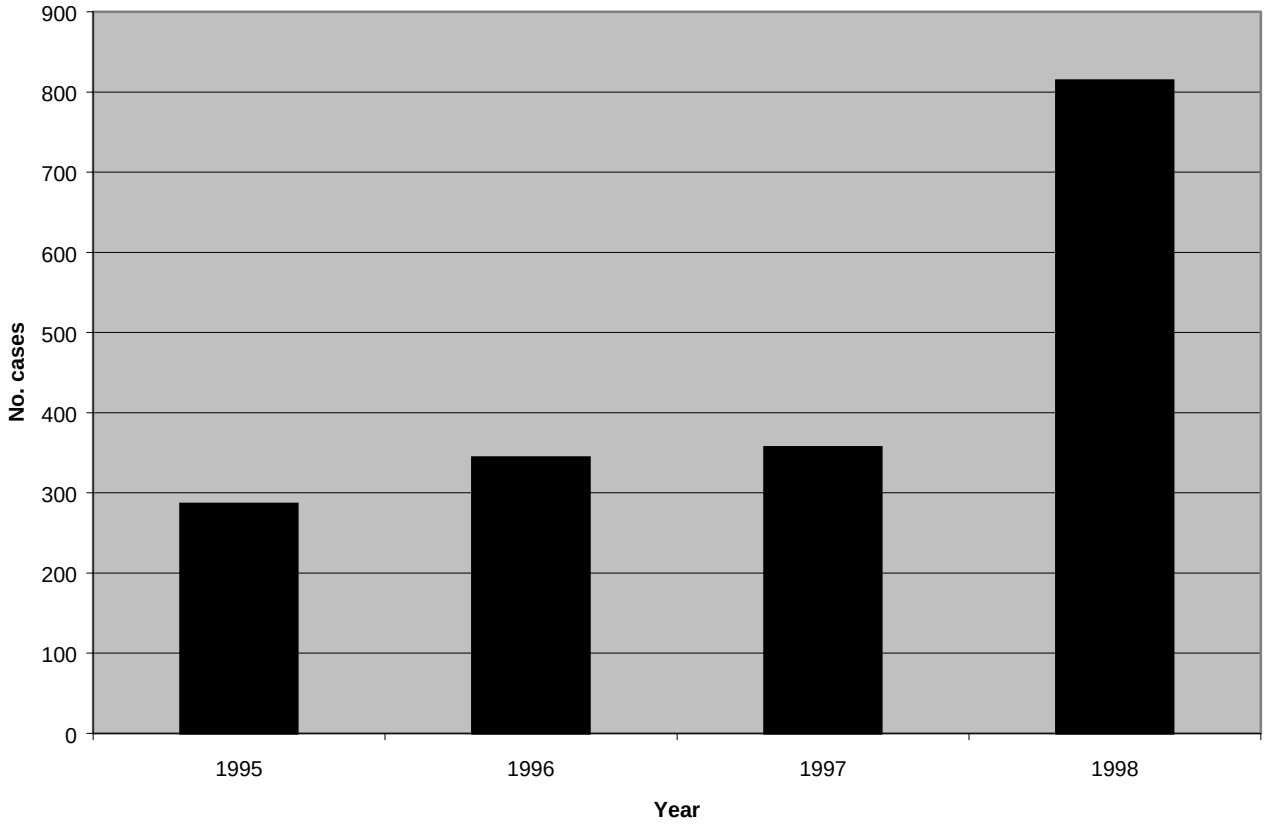
called CAPs) and municipalities, and the financial accounting records of the Department. To accommodate the January 15, 2000 deadline for the FIRB to report to the Maine Legislature, and also to give the FIRB members ample time to consider the information provided to it by the Department, it was decided in conjunction with the Chair of the FIRB that the Department report to the FIRB be submitted in early October, 1999. This, in turn, meant that data collection for use in this report would terminate on September 15, 1999 and could cover only the first 13.5 months of this twenty-four month project. Therefore, this report covers the time period of July 1, 1998 to September 15, 1999 with respect to project accomplishments and expenditures.

GENERAL CONDITION OF ABOVE GROUND HOME HEATING OIL SUPPLY TANKS AND PIPING

The clean-up of oil pollution and its effects from home heating oil supply tank and piping failures is an increasing part of the workload of the Department, via the Bureau of Remediation and Waste Management, resulting in significant expenditures from the Ground Water Fund. Such heating oil spills and leaks contaminate drinking water supplies, and in some cases cause indoor air pollution, both of which pose public health risks as well as nuisances.

For the time period of 1995 to 1998, inclusive, the Department responded to 1850 such spills, an average of over one per day. These spills and leaks are found statewide and are distributed similar to the population of Maine, as shown in the accompanying map. Discharges from above ground home heating oil tanks and piping have increased dramatically, as shown in the figure below.

NUMBER OF HOME HEATING OIL SUPPLY TANK AND PIPING SPILLS: 1995-1998



These same heating oil spills contaminated 79 private residential drinking water supply wells while placing an additional 689 wells at significant risk of contamination. These

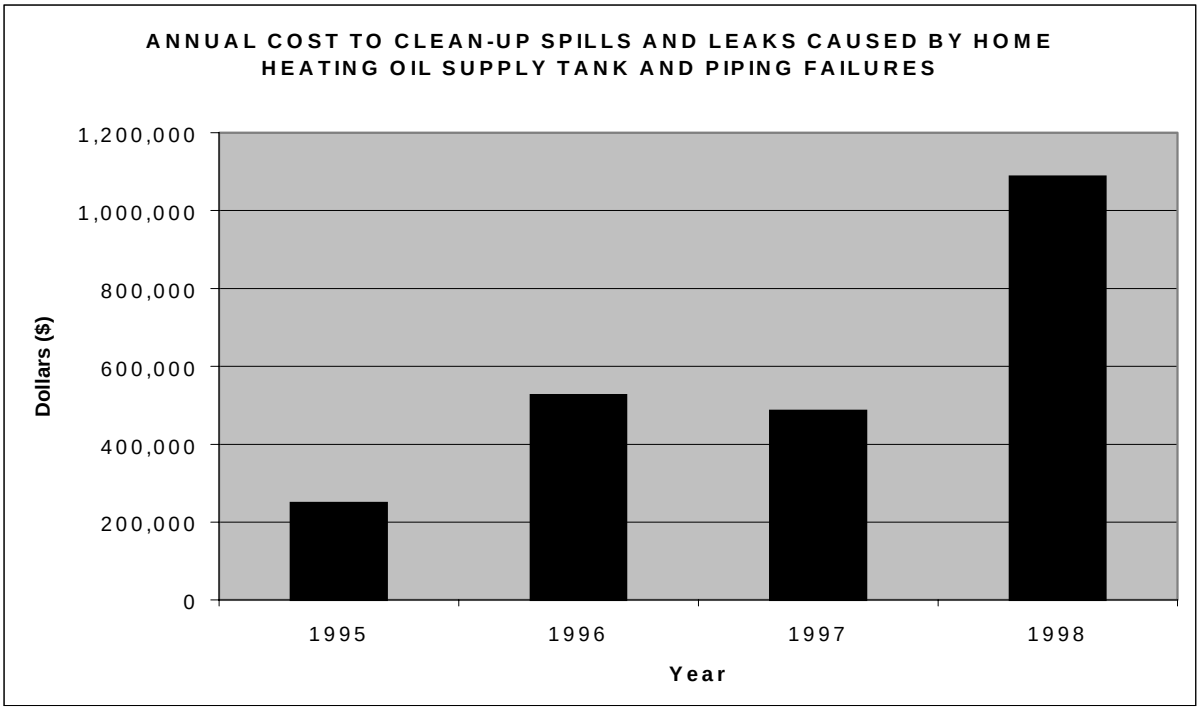
are conservative figures. They are based on an initial round of sampling of wells in immediate proximity to heating oil tank failures. Follow-up investigation over time, by way of water testing, often results in additional contaminated wells being documented. The Department is also currently managing 98 long-term remediation sites caused by home heating oil tank or piping failures. These 98 sites require long-term, multi-year remediation efforts, including the replacement of contaminated drinking water supplies.

In addition to the above cases, there are other very large contamination cases in coastal communities where above ground home heating oil tank or piping failures combined with surface spills of gasoline and leaking underground tanks contaminate large numbers of private residential wells. For example, this combination of petroleum sources in the village of Tenants Harbor in St. George, Maine has contaminated approximately 200 wells above acceptable concentrations. The only feasible remediation option is the construction of a replacement community drinking water system, at a future cost in excess of $2,000,000 to be divided among the Ground Water Fund, Maine Inland and Coastal Surface Water Clean-up Fund, and federal grant funds.

Findings of inspections of the tanks, piping and locations where work was conducted in the course of this pilot project verify the longstanding suspicion of the Department that many heating oil tanks and piping have spills and leaks that are not reported. Of the 877 sites where above ground heating oil supply tanks and piping were replaced, visual evidence of past or on-going leaks or spills was found at 174 or 20% of the sites. None of these had been previously reported to the Department as required by statute. Thirty-three (33) or 19% of these oil discharges were judged to be of a serious nature and threatened drinking water supplies or resulted in petroleum vapors in the living space of a home.

Why do heating oil tank and piping discharges contaminate drinking water supplies? One reason is that we routinely store heating oil in close proximity to water supply wells. This project found that, not only did most tank owners rely on a ground water well for their drinking water, but their neighbors did, as well. Seventy-two percent (72%) of the homes or other sites where tanks were replaced relied on private water supply wells for drinking water. Within close proximity to these tanks, 300 feet or less, 1004 water supply wells are located. Any well within 300 feet of an oil discharge should be considered at risk of contamination. Our historical information regarding spills reflects that in coastal areas of the state, where bedrock is near the surface, heating oil contaminated ground water commonly travels distances far greater than 300 feet.

The cost to remediate the public health threats from contaminated soil, ground water, drinking water supplies, and indoor air is substantial and continues to increase. Since 1995, the Department has expended $3,032,799 from the Ground Water Fund to clean-up home heating oil tanks spills; an average of approximately $54,000 per month. The year of 1998 has been the most expensive to date, averaging over $90,000 per month. As the figure below shows, costs are increasing each year. The 1999 year appears to continue this trend. In 1999, as of mid-September, $684,234 has been spent; an average of $85,529 per month.



What was condition of the above ground home heating oil supply tanks and piping that were replaced in the course of this project?

- 68% were located out of doors
- 43% were nonconforming storage vessels, such as 55 gallon drums, or tanks which do not comply with the standards contained in the regulations of the Maine Oil and Solid Fuel Board
- 619 or 71% of tanks had unstable bases, regardless of interior or exterior location
- in the case of 465 tanks (53%), the tank was found to be actually leaning
- corrosion of tanks was found to be a common occurrence regardless of location, with 73% of tanks having corrosion pitting
- with regard to the piping, pre-replacement inspections found 376 piping installations, or 43%, underground or installed under the basement floor. Of these installations only 16% had secondary containment of the piping to prevent corrosion and to contain and detect leaks

Since the focus of this project was to replace home heating oil tank and piping installations most at risk of causing an oil spill, the figures in the paragraph above are somewhat skewed toward poorly installed or maintained systems. Looking at the inspection findings from the municipalities of Long Island and Monhegan Island may be more representative since these towns attempted to replace almost all home heating oil tanks, and were limited primarily by the willingness and cooperation of homeowners.

A total of 106 home heating oil supply tank systems were inspected and replaced on Long Island and Monhegan Island. Most of these tanks (85%) were located out-of-doors with the remaining tanks located in a basement or other shelter. Sixteen percent (16%) of the systems were found to have visual evidence of an oil spill or leak, versus the 20% of the total number of tank systems inspected in the course of the project.

In these two towns, the following were found to be major structural problems much like the overall population of the project:

- 81% of tanks were on unstable bases
- 49% were found to be leaning, as a result of unstable bases
- 65% of tanks had corrosion pits
- 33% of piping was buried underground copper piping without corrosion protection or leak detection

One difference between this subgroup and all the tanks involved in the project was in the number of oil storage vessels that were drums or other containers not conforming with the regulations of the Maine Oil and Solid Fuel Board. For these two towns, 76% fell into this category, versus 43% of the project total.

The systems selected for this project were not selected because they would provide a statistically valid random sample of home heating oil supply tanks and piping in Maine. However, the information obtained is important in determining the extent and the severity of the problem of leaks from home heating oil supply tank systems. If 16% to 20% of heating oil supply tanks and piping in Maine are, in fact, leaking to some extent, then that would indicate that there may be 40,000 to 50,000 such cases statewide. As existing home heating oil tank systems age, the number of leaks will only increase unless upgraded or replaced.

PROJECT EXPENDITURES AND PERFORMANCE

The second subject area required by the Legislature to be addressed in the FIRB report concerns project expenditures from the Ground Water Fund – how much has been spent on this project, how much more is allocated for expenditure before the end of the fiscal year, how many tanks have been replaced or are planned for replacement, and where those replacements will occur.

A total of $1,000,000 was allocated in each of fiscal years 1999 and 2000 from the Ground Water Fund to implement the project. Funds were apportioned with the CAPs receiving $750,000 and the Department receiving $250,000. Of this amount, most was allocated for the towns in geologically sensitive areas. The Department held $25,000 in reserve to be used on an as-needed basis at undesignated high-risk sites.

As was previously stated in the introduction, for the purpose of completion and submission of this report, the period of July 1, 1998 to September 15, 1999 was used for consideration of data regarding tank replacements and associated costs. For several reasons, not all of the funds allocated for 1999 were expended, primarily because several contracts were extended in order to accomplish the work as is mentioned in more detail below. Table 1 and Table 2 detail project expenditures, the highlights of which follow:

Table 1 details systems replaced and the costs associated with the replacements. Through the reporting period:

- 877 tanks were replaced
  - 730 through CAPs
  - 133 in the three participating towns
  - 14 by the Department

- $904,873.00 were expended for these replacements.
  - $712,010.00 through the CAPs
  - $176,667.00 through the towns
    - $32,741.00 in Harpswell
    - $114,498.00 on Long Island
    - $29,428.00 on Monhegan
  - $16,196.00 through the Department

Depending on the agent performing the replacement, the average cost per replacement ranged from a low of $975.00 to a high of $1,328.00, including administrative fees. Exclusive of administrative fees, the average cost per replacement ranged from a low of $875.00 to a high of $1,235.00.

Three CAPs were unable to complete the projected work for the first year of the project. In order for the work to be done, the contracts for these three CAPs were extended to September 30, 1999. Likewise, both Harpswell and Long Island were unable to fully expend the amounts allocated in the 1999 timeframe so the contracts for

those towns were extended (with no increase in the award). The contract with Monhegan was increased to fund the replacement of five additional heating oil supply systems. Funding for these replacements comes from the remainder of the $25,000 which the Department held in reserve for undesignated high-risk situations. With these contract extensions and amendments, all work planned for 1999 will be accomplished.

TABLE 1

SUMMARY OF NUMBER OF HEATING OIL SUPPLY TANK SYSTEMS REPLACED AND ASSOCIATED COSTS*
(as of September 15, 1999)

AGENT	NUMBER OF TANKS REPLACED	TOTAL EXPENDITURES**	COST PER REPLACEMENT	COST/REPLACEMENT (excluding admin costs)
CAPs* **	730	$712,010.00	$975.00	$875.00
TOWNS** **	133	$176,667.00	$1,328.00	$1,235.00
DEP	14	$16,196.00	$1,157.00	$1,157.00
TOTAL	877	$904,873.00		

* dollars are rounded off to nearest whole dollar

** includes materials, labor, tank disposal and any administrative charges

*** all eleven community action agencies participated in the project

**** tank systems replaced per town:

Harpswell	27
Long Island	80
Monhegan Island	26

Table 2 details the distribution of expenses among the categories of materials, labor, disposal (of the old tank), and administrative expenses. Average costs per system replaced are:

- $562.00 for materials
- $301.00 for labor
- $54.00 for disposal of the old tank and other system components

The average cost for administration was $116.00 for each system replaced. This number is not particularly meaningful since administrative costs were assessed in different ways, if at all.

Assessed administrative fees were as follows:

- for the CAP agencies, $100.00 per system replaced
- for the towns
  - no charge from Monhegan Island
  - a total charge of $11,500.00 from Harpswell
  - a total charge of $978.50 from Long Island
- for the Department, no administrative fee was assessed

TABLE 2

BREAKDOWN OF PROJECT EXPENDITURES*
(as of September 15, 1999)

	IMPLEMENTING AGENCY				
EXPENDITURE ITEMS	**CAPs**	**TOWNS****	**DEP**	**TOTALS**	**AVERAGE COST PER TANK REPLACED**
MATERIALS	$372,915.00	$111,685.00	$8,513.00	$493,113.00	$562.00
LABOR	$217,062.00	$39,643.00	$7,568.00	$264,273.00	$301.00
TANK DISPOSAL	$34,333.00	$12,861.00	$115.00	$47,309.00	$54.00
ADMINISTRATIVE	$87,700.00	$12,478.00	$0.00	$100,178.00	
TOTALS	$712,010.00	$176,667.00	$16,196.00	$904,873.00	

* dollars are rounded off to nearest whole dollar
** includes towns of Harpswell, Long Island, and Monhegan Island

PLANS FOR THE CURRENT FISCAL YEAR

Plans for the fiscal year 2000 follow those which were identified in the June 18,1999 progress report presented to the FIRB. The report is attached as Appendix A to this document. In summary, during the fiscal year of 2000 the Department:

- continues its relationship with the eleven (11) CAPs and funds each at its 1999 level totalling $750,000
- completes 1999 planned project work in Harpswell and on Long Island
- initiates 2000 planned project work in Harpswell and on Matinicus Isle and North Haven Island totalling $235,000
- reserves $15,000 for undesignated high-risk situations

During the most recent legislative session, and effective September 18, 1999, the statute authorizing the establishment of this pilot project was amended to provide additional funds of $500,000 per year and broadened in scope to include financial assistance, via the CAPs, for the removal and replacement of underground home heating oil storage tanks. These tanks were required by statute to be removed by October of 1997. Also included is financial assistance for underground piping associated with home heating oil supply systems which must comply with new regulations adopted by the Maine Oil and Solid Fuel Board in February of 1998. In an attempt to address the approximately 350 remaining underground home heating oil storage tanks and to assist with the replacement of buried piping, the Department is working with the CAPs to implement grants for CAP clients and low interest loans (for underground oil storage tank replacement only) for those whose income exceeds the CAP ceiling. The Department will report on the progress of this program at a future time.

PROBLEMS ENCOUNTERED AND LESSONS LEARNED

In the course of designing and implementing this pilot project, a number of problems were encountered and resolved, with the Department, the CAPs , and participating municipalities learning in the process. To weed out such implementation problems, of course, was an objective of the Legislature in starting this pollution prevention effort first as a pilot project. The Department encountered four problem areas, two of which were start-up problems which have been resolved. Two additional problems will require ongoing efforts to correct or avoid, not only on the part of the implementing agencies, but also the Maine Oil and Solid Fuel Board and its staff.

The first start-up problem was related to the initial tank specifications developed by the Department and contained in its contracts with participating CAPs and the towns of Long Island, Harpswell and Monhegan Island. Although reviewed by tank manufacturers, staff of the Maine Oil and Solid Fuel Board, and selected oil burner technicians, the Department failed to include the relatively small number of equipment suppliers in Maine in this process. The initial tank specifications called for factory painting of the tanks in a light color to reflect heat and minimize moisture condensation inside the tank, believed to be the primary cause of internal tank corrosion. Internal tank corrosion accounts approximately 14% of tank leaks. Tank manufacturers were agreeable and installers generally thought it a good idea. However, suppliers would not purchase and carry in stock such unique tanks for such a small project or market. Following a meeting to which all Maine suppliers known to the Department were invited, the tank specifications were modified to accommodate the reality of what suppliers could realistically maintain in stock and provide to the master oil burner technicians doing the actual tank replacements. This resulted in a delay in the approval of contracts and awards of funds to the CAPs and the Town of Harpswell. These agencies lost approximately two months of the construction season as a result. This problem did not ultimately prevent the CAPs from meeting their tank replacement goals. However, this delay probably hindered the Town of Harpswell efforts and reduced somewhat the number of tanks replaced in FY 1999.

Another problem discovered early in the project was the installation by some oil burner technicians of supply tanks not meeting the contract specifications required by the Department. A number of non-specification tanks were discovered by the Department or town code enforcement officer inspections to have been used as replacement tanks. These tanks did not have the correct and specified weld on the tank ends. Those installed out of doors were replaced with the correct tank, while tanks installed in basements were allowed to remain. All the tanks allowed to remain meet or exceed the Maine Oil and Solid Fuel Board standards.

In the above case, the source of confusion was the fact that the Department was specifying tanks designed and manufactured to more stringent specifications than required by the regulations of the Maine Oil and Solid Fuel Board. This was done to address specific known common causes of tank failures found in the course of Department investigations of heating oil tank spills and leaks. One such cause already mentioned is the buildup of water moisture inside tanks, believed to result in internal

tank corrosion. Another is the failure of crimped tank end welds due to over pressurization and/or fatigue over time. Educating oil burner technicians participating in the project, tank suppliers, and one tank manufacturer as to these differences has prevented this problem from reoccurring. Recent conversations with representatives of the Underwriters Laboratory confirm their plans to eliminate the crimped weld option in the next edition of UL 80.

A second possible tank installation problem was recently discovered by Department and Maine Oil and Solid Fuel Board staff conducting inspections of completed home heating oil tank replacements. It was found that a sizable number of tanks manufactured by one specific Canadian manufacturer were not installed in full accordance with the manufacturer's installation specifications. The cause of this confusion is a difference between the manufacturer specifications for the diameter of the vent pipe (1.5 inches), and those cited in the regulations of the Maine Oil and Solid Fuel Board (1.25 inches) and those historically used by Maine oil burner technicians. The problem arises in that the Maine Oil and Solid Fuel Board regulations also require the oil burner technician to follow the tank manufacturer installation specifications. This problem is not unique to tanks used by this project, but is a statewide problem wherever tanks of this manufacturer had been installed. It is only because of the follow-up inspections conducted as part of this project that the problem was discovered. The Department has discussed this issue with the staff of the Maine Oil and Solid Fuel Board and is awaiting the decision on the part of the Board as to whether these vents need to be retrofitted. At the same time the tank manufacturer is reviewing its installation specifications and whether a 1.5 inch vent is technically needed. This problem has been corrected in all installations since its discovery. Obviously, additional education of oil burner technicians is needed, not only for the purposes of this project, but to ensure that manufacturer installation specifications are followed, particularly where they differ or are more stringent than the Maine Oil and Solid Fuel Board standards.

A problem which affected some CAPs, and significantly slowed the progress of one municipality to replace all the high-risk heating oil supply tanks and piping systems identified, was a localized shortage of willing oil burner technicians. This problem was most acute in the Town of Harpswell where the oil distributors of record were not interested in doing replacement work. This delayed the ability of the Town to replace the tanks and piping of willing homeowners. The Town was forced to go to bid and was only able to find one local independent master oil burner technician interested in doing the work. In the second year of this project, the Town has decided to hire a second independent firm after discussions with local oil distributors were unsuccessful in generating greater interest in participating in the project. The Town is having to hire from outside the Brunswick area and is bidding the work through Lewiston and Portland newspapers. Statewide, however, this has not been a major deterrent to getting the project work completed. Of the total 877 tanks replaced, 451 were done by technicians working for oil distribution companies and 434 were completed by independents. In Aroostook County most of the work was completed by oil distributors, including several larger oil distributors in the state. On Long Island, the one and only oil distributor servicing this island community has been hired by the Town to do all the replacements.

The review of the firms doing the tank replacements shows that most of the 451 tanks replaced by oil distributors, were completed by smaller, regional firms.

RECOMMENDATIONS

The Department is recommending to the FIRB and the Maine Legislature that the relevant statutory language be amended to allow the continuation of this pollution prevention program at the same level of funding and the same distribution of funding between low income CAP clients and geologically sensitive areas of the state under the administration of the Department. Specifically, we recommend that the current funding formula be maintained for the replacement and upgrade of above ground heating oil supply tank and piping systems posing a high-risk of causing an oil spill, with CAPs receiving up to $750,000 and the Department receiving up to $250,000 each fiscal year from the Maine Ground Water Fund. The term of this program should be tied to the existing revenue stream of the Ground Water Fund, ending December 31, 2005, when a major decrease in revenue is currently scheduled in statute.

This recommendation is based on the:

- dimension of the problem of oil spills caused by above ground home heating oil tank and piping systems
- success of the pilot project
- cost effectiveness of preventing such home heating oil tank and piping discharges vs. only responding after the fact to conduct a clean-up.

The remaining $500,000 as is statutorily authorized should be earmarked for the underground home heating oil storage tank program and the buried piping program until it is no longer necessary. At such time, it is suggested that these funds be used the above the above ground heating oil supply tank program.

As detailed in the second chapter of this report on the general condition of above ground home heating oil supply tanks and piping, it is clear that this source of oil discharges to the environment is a serious costly one. The Department responds on average to one home heating oil tank or piping leak or spill each day. From 1995 to 1998, inclusive, 79 Maine homeowners have had their drinking water supplies contaminated beyond use by such incidents. Since heating oil is stored in close proximity to private drinking water supply wells, it should be no surprise that these same leaks and spills also threaten the water quality of a large number (689) of additional wells. The Department has been left with 98 long-term, multi-year remediation sites caused by home heating oil tank or piping failures, the full costs of which are not yet known for accounted for in this report. Among the 877 sites included in this project, 16% to 20% had or were having an ongoing heating oil discharge. Extrapolated to the estimated 250,000 home heating oil tanks in Maine, this translates into the potential for 40,000 to 50,000 cases of leaking above ground home heating oil tanks or piping. Most of these are not reported to the Department. Nineteen percent (19%) of the oil discharges found in the course of this project were of a serious nature, threatening drinking water supplies or resulting in petroleum vapors in the living space of the home. Since 1995 the Department has expended over $3 million on such clean-ups. Since 1995 these remediation costs have been increasing. At present, responding to and cleaning-up home heating oil tank and piping failures is costing the Department and the Maine Ground Water Fund, on average, over $85,000 per month.

The above ground home heating oil tank and piping upgrade project has been successful, both from the perspective of the number of tanks and piping and systems replaced, as well as the lessons learned. To date, 877 tanks and piping systems posing a high-risk of causing date oil spill because of their substandard condition were replaced over the first 13.5 months of the authorized life of the two year project. The problems which have been identified and corrected, or are on the verge of being corrected, will pave the way for an even more effective program in the future. The duel strategy of focusing 75% of the funds to low income Maine residents through the CAPs and directing the remaining funds to the most geologically sensitive areas of the state, such as coastal islands and peninsulas where ramifications of even one larger volume spill as measured by the number of water supplies contaminated and cost are the greatest, appears to be successful. This approach meets the objective to ensure that most of the funds go to single-family homeowners in financial need, while still focusing on those parts of the state where the benefits in the way of pollution prevention and avoided remediation costs are likely to be the greatest. The CAPs and the participating municipalities of Harpswell, Long Island and Monhegan Island have proven to be good working partners and contractors to the Department. All indications are that in the second year of this project, the municipalities of Matinicus Isle and North Haven Island will also be effective in successfully implementing this project.

As a pollution prevention project, this project has proven to be cost-effective. One method of evaluating cost effectiveness is to compare the costs incurred to upgrade high-risk home heating oil tank systems versus the remediation and clean-up costs avoided. The average clean-up cost for an above ground home heating oil tank or piping discharge for the time period 1995 to 1998, inclusive, is approximately $1600.00 per site. The cost to upgrade high risk heating oil tanks and piping ranged from $875.00 to $1,235.00, averaging $1089.00. One-third of heating oil clean-up sites average about $5000 each, ranging to hundreds of thousands of dollars. If the program prevents two or three discharges in one year in a coastal communities with shallow the bedrock soils and where the entire contents of the supply tank is lost to the bedrock aquifer (e.g. due to broken piping or a filter), contaminating 5 to 10 drinking water wells each, it will break even, spending $1 million and saving $1 million in clean-up costs. Of course, not included in this equation is the substantial but unqualified public health costs due to exposure to heating oil in drinking water or via inhalation of polluted indoor air when a major discharge occurs in the wrong place. Long Island, Harpswell, Tenants Harbor, and Spruce Head are all good examples of this scenario. This project is also proven effective in finding previously unreported heating oil spills and leaks. One hundred seventy-four (174) such oil spills were found and addressed by the Department over the course of the project to date. Thirty-three, or 19% of these discharges, proved to be serious in nature.

APPENDIX A

FY 2000 SUPPLEMENTAL IMPLEMENTATION PLAN
HEATING OIL SUPPLY TANKS AND PIPING UPGRADE PILOT PROJECT

Prepared by the Maine Department of Environmental Protection
Bureau of Remediation and Waste Management

June 18, 1999

Introduction

The purposes of this supplemental implementation plan are to present to the Fund Insurance Review Board (FIRB), the Department of Environmental Protection (DEP) project budget for the coming fiscal year and changes in the project implementation based on our experiences over the past eleven (11) months. You may recall that in the original April 24, 1998 implementation plan, submitted to the FIRB, the Department was unable to anticipate which coastal communities were interested in participating in this project this coming year, the second year of the project. Also discussed is a new legislative responsibility to financially assist owners of substandard underground oil storage tanks.

Other than the changes presented in this supplemental plan, the heating oil supply tanks and piping upgrade project will continue to be implemented in accordance with the 1998 implementation plan originally submitted to the FIRB.

Project Implementation: Department of Environmental Protection

As in the first year of this project, the Department will be focusing its authorized $250,000 on sensitive geologic areas where heating oil spills have the greatest potential to contaminate ground water and large numbers of drinking water supply wells, or the potential to create serious indoor air quality problems. The Department funds will be budgeted toward upgrades on coastal island and peninsula communities, while reserving a small amount of monies for undesignated sensitive sites found during the course of the project by Department field staff. To ensure maximum participation and acceptance by property owners in the selected communities, the Department will again contract with municipalities to operate most of the upgrade projects.

Also as in FY 1999, the Department will focus on existing "high-risk above ground heating oil supply tanks systems" only. High risk above ground heating oil supply tanks systems include the following:

- piping buried underground without secondary containment;
- piping installed under a basement floor in concrete without secondary containment;
- piping and filters not protected from snow and ice;
- outdoor tanks that are leaning, unstable or rest on unstable bases not installed in accordance with the 1998 standards of the Maine Oil and Solid Fuel Board;
- tanks and piping with visible leaks;
- tanks and piping in contact with the ground;
- drums and other supply tanks not meeting the 1998 standards of the Maine Oil and Solid Fuel Board;
- tanks with visible severe corrosion or patches; and
- heating oil supply tanks and piping which otherwise pose an obvious risk of an oil spill or leak.

As in the past year, work will be limited to the tank and piping system, and will stop at the furnace, boiler or other appliance connection. To further narrow the scope of the project and stretch the limited funds where they are most needed, the Department will not fund replacement facilities with more than 660 gallon storage capacity.

The administrative tool to implement the above with the participating municipalities will be contracts. These contracts contain the same tasks and specifications as in the past year.

For the coming fiscal year, and the last currently authorized for this pilot project, the Department is planning to allocate its funds in accordance with the budget below:

PROPOSED FY 2000 MDEP BUDGET FOR HOME HEATING OIL TANK REPLACEMENT PROJECT

TOWN	BUDGET AMOUNT	EST. NO. TANKS
Harpswell	$75,000.00	65-85
N. Haven Island	$60,000.00	37-45
Matinicus Isle	$100,000.00	60
Undesignated DEP Sites	$15,000.00	15-18
TOTALS	$250,000.00	177-208

The above-proposed budget represents new one-year contracts with the identified municipalities. The Town of North Haven and the Plantation of Matinicus Isle are new participants in the project. On Matinicus Isle, as on Monhegan Island in FY 99, the objective is to replace every heating oil tank system in need of such, where the property owner is willing. With its larger population and sensitive geology, the project will continue in the Town of Harpswell for a second year in the award of a second contract for additional work with new monies.

In addition to the FY 2000 contracts identified in the table above, FY 1999 contracts with the municipalities of Harpswell, Long Island and Monhegan Island will be extended for another 12 months. In the cases of Harpswell and Long Island, this time extension is needed to complete the replacement of identified high-risk heating oil tanks and piping. Completion of this work simply required more than the 12 months allocated. As of May 15, 1999, Long Island has approximately $74,000 remaining unspent under its contract, while the Town of Harpswell will carry over about $22,000 of unspent monies into next year. No additional monies are being provided to these communities under these contract extensions. The situation for Monhegan Island is different. The Island completed all the tank replacements originally identified and fully spent the

contracted dollar amount. In the course of the past year, five additional tanks in need of replacement with willing property owners have been identified. The amendment to the Monhegan contract includes an additional encumbrance of $3,947 of FY 1999 dollars to complete these tanks. This money came from the $25,000 allocated in the original plan for use by DEP staff at undesignated high-risk sites.

STATUS OF FY 1999 DEP CONTRACTS AND BUDGET
As of May 15, 1999

Town	No. Tanks Replaced	Funds Expended	Unspent Funds	Total
Monhegan Island	29	$33,007.00	$1,993.00	$35,000.00
Harpswell	28	$27,783.00	$22,217.00	$50,000.00
Long Island	44	$66,139.00	$73,861.00	$140,000.00
Undesignated DEP sites	6	$5,540.00	$19,460.00	$25,000.00
Totals	107	$132,469.00	$117,531.00	$250,000.00

Project Implementation: Community Action Agencies

In the first year of the pilot project, a total of $750,000 was allocated through contracts to the eleven (11) community action program (CAP) agencies across the state in order to focus on upgrading substandard home heating oil systems for agency clients which number in excess of 30,000 statewide. In the second year allocation, another $750,000 will be distributed in the same manner. In order to establish and maintain consistency within this program, it was determined prior to the first year of the project that the Washington Hancock County Housing Director, Mike Bonzagni, would represent all the CAP agencies and serves as the point person for all administrative aspects. Mr. Bonzagni will continue to serve in this capacity in the second year. Funding is allocated to the CAP agencies based on population served with each agency. Obviously an agency with a higher population receives a greater share of the funding. Within each CAP agency, funds are spent on replacing systems which exhibit at least one of the following criteria:

- tanks and piping with visible leaks;
- outdoor tanks that are leaning, are unstable, or rest on an unstable base not installed in accordance with the 1998 standards of the Maine Oil and Solid Fuel Board;
- heating oil supply tanks and piping which otherwise pose an obvious risk of an oil spill or leak; or
- heating oil supply systems which are in non-compliance with the 1998 standards of the Maine Oil and Solid Fuel Board.

Situations falling into the last category will primarily be heating oil supply systems which use 55 (fifty-five) gallon drums as storage. After this, replacement priority will be given to systems which exhibit:

- piping buried underground without secondary containment;
- piping installed under a basement floor or in concrete without secondary containment;
- piping and filters not protected from snow and ice falling from a roof;
- tanks and piping in contact with the ground; or
- tanks with visible severe pit corrosion or patches.

To select the systems to be replaced in each of the two years of the pilot, CAP agency personnel have reviewed client files and inspected client properties in order to determine which clients fit any of the above nine criteria, tackling the most egregious situations first. Many systems replaced in the first year consisted of fifty-five (55) gallon drums with grossly substandard piping. In the second year, replacement of this type of system will predominate for certain CAP agencies.

As with the Department program, system replacement work has been and will continue to be limited to the tank (including a stable base) and the piping only for systems with a storage capacity of no more than 660 gallons of fuel. An additional requirement is that the property must be owner occupied.

For the upcoming and second year of the pilot project, the Department plans to allocate funds to the CAP agencies in accordance with the budget below:

PROPOSED FY 2000 COMMUNITY ACTION AGENCY PROGRAM BUDGET FOR HOME HEATING OIL TANK REPLACEMENT PROJECT

AGENCY	AWARD AMOUNT	EST. NO. TANKS
Androscoggin County	$82,350.00	80
Coastal	$35,250.00	25
Community Concepts	$87,825.00	60
Coastal Economic Development	$48,075.00	50
Kennebec Valley	$94,125.00	75
Penquis	$96,300.00	85
People’s Regional	$69,750.00	40
Waldo County	$44,700.00	25

Washington Hancock County	$82,650.00	75
Western Maine	$47,475.00	25
York County	$61,500.00	35
TOTALS	$750,000.00	500 - 550

The above proposed budget represents new contracts with each of the eleven (11) CAP agencies. In addition to the eleven (11) new contracts for FY 2000, FY 1999 contracts for three CAP agencies (People's Regional, Western Maine, and York County) have been extended for three months, until September 30, 1999. These three extensions are needed in order to complete replacement of previously identified systems which could not be done prior to the end of the fiscal year. The contract extensions are for time only. No additional funds for completion of FY 1999 work have been allocated.

STATUS OF FY 1999 DEP CONTRACTS AND BUDGET
As of June 17, 1999

CAP Agency	Systems Replaced	Funds Expended	Unspent Funds	Total
Aroostook	82	$82,350.00	None	$82,350.00
Coastal	22	$35,250.00	None	$35,250.00
Community Concepts	61	$87,825.00	None	$87,825.00
Coastal Economic	53	$48,075.00	None	$48,075.00
Kennebec	79	$94,125.00	None	$94,125.00
Penquis	105	$96,300.00	None	$96,300.00
PROP	21	$46,034.44	$23,715.56	$69,750.00
Waldo	29	$44,700.00	None	$44,700.00
Washington Hancock	87	$82,650.00	None	$82,650.00

Western Maine	24	$18,748.95	$28,726.05	$47,475.00
York	35	$54,906.74	$6,593.26	$61,500.00
Totals	598	$690,965.13	$59,034.87	$750,000.00

Project Implementation: Additional Project Component for FY 2000

A component of the project, which is new for FY 2000, is the result of legislation passed during the most recent session of the 119th Legislature. This legislation appropriates an additional $500,000.00 in each of the two fiscal years of the pilot project and expands the use of the funds to include underground storage tanks (USTs) in addition to above ground storage tanks (ASTs). Since the legislation will not become effective until late summer or early fall, the $500,000.00 allocation for FY 1999 is not available. The Department proposes to use the $500,000.00 allocation for FY 2000 to address substandard USTs which are in violation of the October 1997 and 1998 removal deadlines. Between 350 and 400 USTs statewide fall into this category. Records indicate that these tanks are primarily used to store home heating oil. The Department will be working with the Maine Oil Dealers Association (MODA) and the Washington Hancock County CAP agency (WHCA) to determine ways in which to gain compliance with current UST law. First and foremost, the list of USTs, listed by property owner, will be shared with MODA so that it can ensure that its membership is no longer placing petroleum products into these tanks. Also, WHCA will act in a coordinating role with its fellow CAP agencies to determine which, if any, UST registrants are CAP agency clients or, to the extent possible, might qualify for CAP client status. Those determined to qualify would be eligible for assistance for the removal of the UST and, where necessary, replacement with an approved AST. WHCA will act as the sole contractor and will disburse funds to other CAP agencies as necessary. For situations where neither MODA nor a CAP agency has a role, Department staff will consider different enforcement strategies to remedy the violations.

The Department will report in December of this year regarding the progress of the second year of the project in anticipation of the FIRB report due to the Legislature in February of 2000.