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Preventing Home Heating Oil Spills in British Columbia

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Preventing Home Heating Oil Spills in British Columbia

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Prepared for the Gorge-Tillicum Community Association

GORGE TILLICUM
Community Association
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Overview

Numerous homes in British Columbia are still heated by fuel oil. Indeed, oil was the most popular type of home heating in places like Greater Victoria before 1992 -- when a natural gas line was built from the mainland.

Home oil furnaces require the installation of a storage tank on the property to hold the oil. These tanks were typically 1000L and installed in one of three ways: either freestanding outside, buried outside, or in the basement of the home, with plumbing taking the oil from the tank to the heating unit in each case as needed.

However, these tanks and systems are aging and are becoming a growing environmental hazard. For example, a number of fuel oil spills have recently occurred in Saanich from home heating oil tanks. While in many cases these spills have been small, their persistence is quite troubling. For example, in the six months between September 2011 and February 2012, it has been reported that there were ten spills into streams on Vancouver Island -- and five in Saanich alone[1]. In one case 1000 litres spilled during the height of salmon spawning season into Saanich's Colquitz River, contaminating the river, nauseating the neighbours, and killing a large number of coho and other fish[2]. Just three months later a similar spill occurred on the same river.

Unfortunately, the design of storm water systems makes it likely that such home heating oil spills will damage natural bodies of water. When spills occur, they tend to flow into storm sewers (sometimes via perimeter drains around the house). Rain runoff then washes the oil through the storm sewer system into streams and lakes.

Spills can contaminate streams, pollute the local air, mar the aesthetics of parks and green spaces and impact wildlife. In particular, B.C. is fortunate to be home to a number of rare runs of urban salmon-spawning streams, which also support a wide array of aquatic and terrestrial life along their lengths and at their outflows. Such spills can threaten this remarkable natural asset.

Even if a home heating oil spill is small, the impacts can be significant. One cup of oil can pollute a quantity of water equal to an Olympic swimming pool. And the very frequency of these spills enhances the concern, because a stream may be unable to fully recover in between contamination events. As salmon runs are based on a 5-year cycle the full extent of the damage caused by these incidents may not be evident for some time -- but preliminary reports from those on the ground are troubling.

Once in the stream the oil harms the fish in a number of ways. Oil is toxic. The fish ingest the oil when they feed on other organisms in the water that has been coated with oil and in turn suffer poisoning. The oil also coats their gills making it difficult for them to exchange oxygen, which causes the fish to suffocate. And finally it also damages the eggs that are laid in the streambeds.

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[1] Kevin Slavin (February 24, 2012)"Colquitz River Polluted again after 630 liters of home heating oil spills in Saanich" quoting Graham Knox, manager of BC's environmental emergency program Saanichnews.com

[2] Kevin Slavin (November 27, 2011) "Oil Spill Darkens Feel-good story of Urban Salmon Creek" retrieved from http://www.saanichnews.com/news/134564313.html

The oil contaminates the benthic substrate, which is highly toxic to the eggs of spawning salmon. Once there, it remains in the environment for as long as several seasons and reduces, sometimes nearly completely, the survival rate of the hatchlings. As the Pacific salmon tend to return to the same stream from which they came, the loss of a single season's run can have a serious effect for generations to come.

Such damage to salmon streams and marine waters is critically important. Salmon are iconic in British Columbia – and are of profound cultural significance for First Nations. In addition, when streams are damaged, it can not only impact the fish, but also the eagles, osprey, seals, sea lions, bear and orca that rely upon them.

Sighting salmon, eagles, heron and osprey – or even an occasional bear or whale – may be the stuff of movies in most parts of North America, but it is a common occurrence for British Columbians. It is a critical part of what makes SuperNatural British Columbia. In the long run, repeated oiling of our local streams can put this at risk.

We need to act, and not just for purely environmental reasons. If we are to maintain a strong economy, it is important that we protect our urban waterways and fish. Twenty-first century companies rate the quality of a city's physical environment as one of the two top factors in siting a company.[3] For example, when Microsoft located its game division in Victoria, it cited the liveability of this region as a major factor. And the tourism industry depends upon the health of our local waters, fish and wildlife. Unchecked chronic oil spills threaten these economic drivers that depend upon a healthy environment.

Economic Liabilities for Homeowners

Not only do home heating oil tanks represent a significant risk to local the local environment and economy, they also represent a significant economic liability to individual homeowners. B.C.'s *Environmental Management Act* and the common law can require the owner of a property that is a contamination source to pay for the cost of cleaning up that contamination and contamination of neighbouring properties.

The cost of these clean ups can be very high. This is especially the case where the fuel makes its way into a stream, which is quite likely. In the case of one recent spill the homeowners were faced with a clean-up cost exceeding $200,000[4]. A clean up bill of that size represents an enormous and very likely unmanageable debt to a middle class family.

Unfortunately, insurance generally does not cover these types of spills as most brokers offering insurance in Saanich have an explicit pollution exclusion clause.

The insurance industry has responded to the potential for very large liabilities from these old tanks. Now all but one of the companies offering homeowner policies in Victoria have written "pollution exclusion" clauses into their policies -- which prevents them from having to pay for damage from such a spill.

[3] Sandborn, Green Space and Growth, p. 4.
[4] Courbould v BCAA Insurance Corporation, 2012 BSCS 1536, at para 17

Even where insurance was in place, one court found that the presence of the leak amounted to a inherent defect in the property rather than an incident giving rise to a valid insurance claim[5].

Many property owners are ill-informed about the risks associated with home heating oil systems, and the potentially economically disastrous costs associated with their failure. A number of jurisdictions have published risk-prevention guides in an attempt to better inform the public.[6] Clearly it will benefit BC homeowners if a system can be devised to prevent such leaks – and their serious environmental and economic impacts.

Causes of leaks

The spills that have occurred have generally happened in one of three ways: either the tank itself leaked, the plumbing from the tank leaked, or the delivery company tried to fill a tank that was no longer in place.

Leaking tanks:

As noted earlier, in order to utilize this type of heating one had to have a tank storing the oil onsite. The problem is that the tanks themselves are prone to corrosion from condensation accumulating inside of the tank. This settles to the bottom of the tank because it is heavier than the oil and it encourages the growth of highly acidic bacteria that eats away at the metal. This corrosion is not apparent from the outside of the tank until it actually begins to leak, and by then it is too late to prevent the environmental harm.

This problem does not plague all tanks uniformly. Outside freestanding tanks are much more prone to this type of corrosion because they experience more temperature fluctuation and condensation. However, any leaks from such units are much more rapidly detected than underground tanks. In fact, some sources suggest that the majority of in ground tanks have caused some level of contamination of the surrounding soil, but unless it becomes particularly bad it goes unnoticed.

Corrosion problems are actually getting worse. Today's new lower sulphur and bio-fuel blended heating oil is more conducive to the growth of this bacteria and so these leaks, if the problem is unaddressed, will only increase in frequency in the coming years.

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[5] Johnston v Chubb Insurance Company of Canada, 2010 QCCA 1066

[6] See for example: District of Saanich, Environtmental Services. *Home Heating Oil Tanks: Tank Maintenance & Spill Response* <http://www.saanich.ca/living/environment/pdf/OilTanks2012.pdf>; Government of the Northwest Territories, Department of Environment and Natural Resources. *Check Your Heating Fuel Tank!* < http://www.enr.gov.nt.ca/_live/documents/content/Check_Your_Fuel_Tank.pdf>; Government of the Northwest Territories, Department of Environment and Natural Resources, *Homeowners Guide to Oil Tanks* < http://www.enr.gov.nt.ca/_live/documents/content/Homeowners_Guide_Oil_Tanks.pdf>; Government of Nova Scotia, Department of Environment. *Homeowners Guide to Heating Oil Tank Systems* < http://www.gov.ns.ca/nse/petroleum/docs/OilTankGuide.pdf>; and Government of Nunavut, Department of Environment. *Illustrated Homeowners Guide to Heating Oil Tank Inspections* < http://www.gov.nu.ca/env/ogh.pdf>

Leaking plumbing:

The second most common cause of leaks into the environment is from the plumbing that connects the fuel source to the appliance that burns it. The plumbing is often exposed to the elements and comprised of thin-walled metal tubing. This tubing is highly prone to puncture and corrosion. For example, in one recent Saanich incident a person using a weed-trimmer to mow around the structures at his house cut through the plumbing leading to a spill. In the Maritimes it is not uncommon for vandals to cut the plumbing on tank systems[7]. Generally speaking, leaky plumbing, like leaks from the tanks themselves, is prevalent and largely the result of age of the system and poor design.

There are also problems with the accessories that go in between the tank and the plumbing. One of the more common of these is a fuel filter located immediately on the tank drain nozzle. It too is prone to corrosion as a result of the accumulation of condensation in the bottom of the housing, which can lead to failure and leakage.

Filling tanks no longer in place:

I include this not because it is particularly prevalent, indeed I am only aware of one case where this was the cause of the spill. I include it because, while not common, the sheer volume of material spilled is very high relative to other spills of this type, the severe repercussions of this type of spill can extend to neighbouring property owners, and also because it is illustrative of the lack of effective regulation over decommissioning old tanks. The recent spill from an Adelaide Avenue home in Saanich was the result of the fuel delivery company going to the wrong house to fill up an oil tank that had been removed, but with the filler pipe left in place. The delivery driver pumped oil into the filler pipe – and directly into the basement. The driver would have had no indication whatsoever just by looking at the filler hole that there was no tank attached to it[8].

Current Legislative schemes:

The current legal framework that affects home oil storage tanks is disparate, unwieldy and ineffective. Notably, there is the provincial *Environmental Management Act*, the Federal *Fisheries Act*, the British Columbia *Fire Code,* and bylaws enacted at the municipal level. While each of these legal regimes touches on this problem in some way, they fail to deal with it directly, cohesively, or effectively. Most important, the laws tend to deal with spills and contamination after the fact -- no laws deal effectively and comprehensively with preventing the damage in the first place.

[7] See for example, "Nova Scotia Oil spill caused by vandalism causes threat to salmon" by Stephanie Dearing found at http://www.digitaljournal.com/article/281864, or "Oil Vandals Hit Halifax Barber Shop" found at http://www.cbc.ca/news/canada/nova-scotia/story/2011/12/12/ns-oil-vandals-hit-barber.html

[8] Kevin Slavin (February 23, 2012) "Oil Tank Spills Continue to Cause Concerns" Retrieved from http://www.saanichnews.com/news/140085213.html

Fisheries Act

The *Fisheries Act* makes it illegal for anyone to deposit a deleterious substance into waters frequented by fish[9]. Oil leaking from home heating oil tanks certainly constitutes a substance deleterious to fish, and a conviction under s. 36 can lead to substantial penalties. However, s. 36 of the *Fisheries Act* generally only comes into play after a spill has occurred and damage is already done.

Environmental Management Act

The *Environmental Management Act* can require a homeowner whose property has been the source of contamination to pay for the cost of that clean up. However, this is primarily a compensatory regime – it doesn't necessarily prevent the problem in the first place. The problem with this scheme is that homeowners do not generally know about their broad potential liability under it -- and the ones that do likely assume that their insurance will cover it. Furthermore, there is a question whether this regime achieves the full cost internalization necessary to fully incentivise the homeowner to prevent the spills[10].

The benefit of this Act is that it is an absolute liability regime, meaning that there is no defence generally available if the substance has leaked into the environment. In that sense it is a very effective law. The weakness is that it only comes into play once the damage to the environment has been done.

Fire Code

The BC *Fire Code,* which incorporated the National *Fire Code* into BC Law in 2006, works in conjunction with the Canadian Standards Assocation's "Installation code for oil-burning equipment" ("CSA Code"), and includes a few provisions governing decommissioning of tanks, and the standards of tank design.[11] But these codes do not provide for regular monitoring of tanks to prevent spills, and are primarily concerned with fire prevention, and human health and safety -- not environmental health and safety. An illustration of just how ineffective these

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[9] *Fisheries Act*, section 36. Note that the newly-weakened s. 35 which now prohibits causing serious harm to commercial, recreational or aboriginal fisheries might also be invoked, but may be difficult to prove.

[10] When doing a basic cost benefit analysis, a rational economic actor will avoid those costs where the expected clean-up cost X the probability of the payout being needed is less than the cost taking the preventative steps. Where the costs are so large that no individual would actually be able to pay them their internalization mechanism is lost. Instead the rational economic actor will only pay for the cost of prevention where the probability of payout X cost that they will actually be paying out exceeds the cost of the prevention measures. Consequently, the market will under-demand and under-supply environmental prevention. In that sense it is comparable to the classic open access resource problem, that is to say, a homeowner who uses the environmental resource only pays for a fraction of the cost of using that resource but gains all of the benefit.

[11] BC Reg 175/2006 ("BC *Fire Code*"); Consumer Standards Association, *Installation Code for oil-burning equipment*, B139-09 (August 2009) ("CSA Code").

provisions can be at preventing spills occurred in 2006 -- where one of the spills that occurred was traced back to a firehouse as its source.[12]

Municipal Bylaws

Many municipalities have enacted bylaws that require a permit and inspection for the installation, removal, or repair of home heating oil systems.[13] These bylaws work in conjunction with the British Columbia *Building Code,* the British Columbia *Fire Code*, and the CSA Code.[14] However, many homeowners remain uninformed of these by-laws and simply rely upon installation contractors to meet local permitting requirements. This, combined with varying degrees of punitive consequence for non-compliance, can render the bylaw regimes inconsistent and ineffective in preventing spills.[15]

In sum, perhaps the most important law governing home heating oil spills is the BC *Environmental Management Act*. *The Fisheries' Act*, though much more robust in number of ways, including the ability to levy punitive fines, has a wider range of defences available that could serve to limit the applicability of that act[16]. But both laws are reactive to incidents, and not preventative.

Potential models for reforming the law

The Province and local governments need to enact law reform to deal with this issue. Research indicates that many jurisdictions have addressed the tank spill problem by using a wide range of regulatory tools to prevent spills in the first place. These can be tailored to prevent situations that lead to leaks – and can be more effective at prevention than the reactive compensation and penal provisions of the *Environmental Management Act* and the *Fisheries Act*. The Canadian Council of Ministers of the Environment ("CCME") has published the *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* ("CCME Code"), a model set of technical requirements that is intended to "promot[e] environmentally sound management of petroleum and allied petroleum product

[12] Kevin Slavin (December 6, 2011) "Oil Spill History Repeats Itself in Saanich, Stream Steward says" Retrieved from http://www.saanichnews.com/news/135111208.html

[13] See for example: City of Colwood, by-law No 785, *A bylaw to establish permit and inspection fees with respect to the installation and removal of oil burning equipment and flammable or combustible liquid storage tanks,* (2004); The Corporation of the District of Oak Bay, by-law No 4144, *A Bylaw to regulate the installation of oil burning equipment and flammable liquid and combustible liquid fuel tanks*, (2002) ("Oak Bay Bylaw"); The Corporation of the District of Saanich, by-law No 8204, *Oil Burning Equipment and Flammable Liquid and Combustible Liquid Fuel Tank Bylaw,* (2001).

[14] CSA Code, *supra* note 11.

[15] For example, the Oak Bay Bylaw has relatively severe consequences with potential fines as high as $2000 for non compliance (Oak Bay Bylaw, *supra* note 12 at s. 13). Whereas, the Colwood Bylaw doubles the permit fee for work that is commenced prior to obtaining a permit, resulting in an additional $50 charge for failing to obtain a permit for a new tank installation (Colwood Bylaw, *supra* note 12 at s. 4, and Appendix A).

[16] *Fisheries Act*, section 78.6

storage tank systems through the application of uniform performance standards throughout Canada."[17] The CCME Code can be adopted by any authority having jurisdiction, and goes beyond the British Columbia *Fire Code* and CSA Code to address issues such as the need to upgrade aging systems.[18] To date no part of the CCME Code has been officially adopted as law in British Columbia.[19]

Prevention provisions fall into roughly into seven categories. These are:

- Physical requirements for tanks and equipment,
- Limiting the length of time a tank can be installed on a property,
- Regulating oil delivery to tanks,
- Inspection and monitoring requirements,
- Requirements for proper decommissioning of tanks,
- Direct economic incentives, and
- Laws imposing or modifying liability including insurance provisions.

Each of these legal requirements addresses a different potential cause of spills. Implementation of the full suite of such laws would create a robust scheme that should solve the problem of home heating oil spills.

Physical requirements for tank and equipment

One approach is to establish a technology standard for tanks and equipment. Such standards are easy to understand and easy to implement. Technology standards are one of the more common elements of the various regulatory regimes designed to prevent home heating oil spills. A number of design elements are potentially problematic for causing leaks -- and so various standards have been set to address these shortcomings. Some types of these provisions that we would recommend BC implement include:

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[17] Canadian Council of Ministers of the Environment, *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* (2003) ("CCME Code") at x.

[18] The CCME identifies the Ministry of Environment, Environmental Services Branch, Industrial Waste Section and the Office of the Fire Commissioner, Ministry of Public Safety and Solicitor General as authorities in British Columbia with the jurisdiction to adopt the CCME Code. [See: Canadian Council of Ministers of the Environment, *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* "Appendix A: Authorities having jurisdiction" (Revised March 2012) <http://www.ccme.ca/assets/pdf/pn_1326_rvsd_appendix_a_1.0_e.pdf>].

[19] However, the British Columbia *Fire Code* does identify Part 9 of the CCME Code as one of three acceptable engineering standards that can be applied in conforming with the requirement that the decommissioning of underground storage tanks be "in conformance with good engineering practice" (*supra* note 11, at s. 4.3.15.1,). Alternatively, decommissioning can be in accordance with the similar American Petroleum Institute Standards, or National Fire Protection Association 30, Annex C. (BC *Fire Code*, *supra* note 11 at s. 4.3.15.1, and Appendix A).

- Requirements that the tank and other aspects of the system be manufactured from either non-metallic or corrosion resistant materials[20];
- Requirements for the tank to be manufactured from fiberglass or be double walled[21];
- Require interstitial monitoring device to be installed on double walled tanks to alert of any leaks[22];
- Requirements for various valves and containment apparatus[23];
- Requirements for the nozzle to be located on the bottom[24];
- Require the plumbing to be made out of an insulated material in order to prevent puncture from external sources[25]; and
- Establish standards of certification that must be met by the tank[26] (this is done by incorporating other statutory or professional standards covering the exact same subject matter[27]).

The CCME Code provides draft technical requirements in Part 3 and Part 4 that address design and installation standards for new aboveground and underground storage tank systems; these draft technical requirements incorporate many of the recommendations identified here.[28]

However, such standards do little to address systems already in place. If a homeowner is completely replacing or modifying an existing system then these can come into play. However, many leaks come from existing tanks – tanks that are not well designed, not well-maintained, or not even used any more. Just imposing technology standards on *new installations* will be of very limited success if it is the only thing done.

Again, the CCME Code provides draft regulations that address the need to register existing storage tank systems by a prescribed date, and to upgrade or decommission non-conforming storage tank systems within two years of the effective date of the CCME Code adoption.[29] Under the CCME Code fuel delivery to tanks not registered by a prescribed deadline would be prohibited.[30] One effective measure for identifying tanks that are in compliance would be the imposition of a requirement to affix a date of installation on new tanks, or registry on existing tanks, and disallowing delivery people from depositing fuel in a tank without that identification.

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[20] See Prince Edward Island home heat tank regulation sections 4;7(3).
[21] See for example Heating Oil Storage Tank System Regulations, 2003, NLR 60/03 s.15(4)(a), PEI Home Heat Tank Regulation section s.7(3-5)
[22] See for example PEI home heat tank regulation section 1(f), 7(4)(b)
[23] See for example PEI s14(2)(a)
[24] See for example PEI home heat tank regulation section 7(4)(b))
[25] See Massachusetts law [ch453 of the Acts of 2008, amended in 2010]
[26] See for example PEI home heat tank regulation section 7
[27] See for example PEI Home Heat Tank Regulation section s.7(2)
[28] CCME Code, *supra* note 17, at Parts 3 & 4.
[29] *Ibid,* at Parts 2 & 7.
[30] *Ibid*, at s. 2.5.1

Limiting the length of time a tank can be installed on a property

A number of jurisdictions have imposed restrictions on the length of time that a tank may be installed on a property. For example, Prince Edward Island now requires that steel tanks be replaced every 15-25 years depending on the tank design and steel thickness.[31]

Jurisdictions have acted in different ways to set time limits on tanks: establishing different maximum lengths, varying the time limit for different tank configurations, and establishing different procedures for dealing with the matter when a tank has exceeded the time limit.

In some jurisdictions the specific time limits are set out in the Act; elsewhere the minister sets the limits in regulations; and elsewhere the issuer of the identification tags for tanks (discussed below) can set the time limit as they see fit in the circumstances. Note that a number of jurisdictions with more comprehensive schemes have prescribed these time limits in the regulations themselves[32].

Time limits need to reflect the variable resilience of the different types of systems. For example, a single walled tank may only have a safe life of ten years outside above ground and twenty below ground or inside. In contrast, a double-walled tank with an interstitial monitoring device could conceivably stay in the ground indefinitely as long as the interstitial space continued to be monitored[33]. Prince Edward Island has excluded approved non-corroding home heat tanks from its time limits.[34]

Restrictions on the length of time a tank may be installed on the property will only be effective if there are consequences when the tank is past its date. The jurisdictions examined have two different potential consequences:

- There can be restrictions on delivery, where the fuel truck driver is not allowed to deliver to any house unless there is a tag attached that is valid[35]; or
- There can be a requirement for periodic re-inspection, resulting in either a new tag to be issued or the homeowner being forced to decommission the tank[36].

Regulating oil delivery to tanks

The tank time limits need to have a mechanism in place to force compliance when the tank expires. One way of accomplishing this is to require oil delivery companies to check a government-mandated identification tag affixed to the filler cap on the tanks at the time of

[31] http://www.atlanticrbca.com/eng/regulations_pei.html
[32] See for example Heating Oil Storage Tank System Regulations, 2003, NLR 60/03 s.15(1),(5)
[33] See for example Heating Oil Storage Tank System Regulations, 2003, NLR 60/03 s.15
[34] http://www.atlanticrbca.com/eng/regulations_pei.html
[35] See for example Heating Oil Storage Tank System Regulations, 2003, NLR 60/03 s. 13(1)(b)(ii), or PEI s 14(1)
[36] See for example PEI. Home Heat Tank Regulations S.19.

installation or last inspection -- and refuse to fill such tanks if the date on the tag has expired. The oil company is then typically required to report this to the ministry responsible for overseeing the issuance of the identification tags -- which can then order an inspection, discussed further below.

The one shortcoming in this regard is that the expired tank may only get reported when the driver attempts to deliver to a house with a tank past its expiry date. In cases where the homeowner has switched to a newer heating technology and no longer orders new oil, then the tank could sit there far past its safe life.

There are ways to overcome this problem however. Government inspection can be triggered automatically at the expiry date filed in the ministry's records.

An effective way to ensure removal of such obsolete tanks would be to legally require every installer of any type of home heating systems to ensure that the old oil tank has been properly decommissioned before installing a new system.

Inspection and Monitoring

Periodic inspection of existing home oil tank systems is crucially important. Systems tend to age, corrode and fail over time. Such systems are often poorly designed and constructed. For example, a few years ago the Prince Edward Island government estimated that 63 percent of PEI home heating tanks failed to meet proper installation standards to protect against spills. This is why the PEI government ordered the inspection of all such tanks by 2006. Inspected tanks were given a government-issued identification tag – and it became illegal to deliver oil to a home heat tank which had not been inspected and given a valid tag. [37]

Furthermore, ongoing inspection of installed equipment is necessary to check on aging, corrosion, and other potential problems. The nature of the monitoring required depends on the exact nature of the installed equipment. This can take the form of requiring usage monitoring, dipping to check for the presence of water, checking the interstitial monitoring device for changes in pressure, and even occasional soil samples where a leak is suspected. The CCME Code suggests that inspection and performance testing should be conducted annually, and makes it mandatory that any deficiencies identified through the inspection process be remedied in conformance with the Code.[38] In order to ensure the effectiveness of a mandatory inspection regime, delivery of oil should be prohibited for any tanks found inadequate.

Decommissioning requirements

Tanks no longer in use still pose a significant threat to the environment. They need to be properly decommissioned. For example, decommissioning of an underground tank can involve

[37] http://www.atlanticrbca.com/eng/regulations_pei.html
[38] CCME Code, *supra* note 17, at s. 8.4.

removing it entirely, or draining it of all old fuel, cleaning it, and filling it with an inert substance such as sand (to prevent soil subsidence from tank collapse).

The British Columbia *Fire Code* establishes that unused underground oil storage tanks must be decommissioned[39]. However, governments have grossly inadequate information about exactly where those underground tanks actually are. In addition, there is not a comprehensive scheme to require proper decommissioning of above-ground tanks.

Any new regulation regime for home heat tanks needs to ensure enforcement of proper decommissioning of home heating oil tanks. Legislation needs to fashion a way to identify and track where old tanks are – and ensure their proper decommissioning.

To do this effectively, we must obtain accurate information on where these old tanks are located. The West Vancouver Fire Department has been attempting for several years to get a handle on the exact number there and has yet to do so[40].

One way of improving the information about where old tanks are located would be to legislate a requirement that oil delivery companies keep a database of their customers along with the date of expiry of their systems. This database could be used to keep track of where oil tanks are, and help in identifying tanks that will be dropped from usage in the future. This information -- along with information gathered from homeowners who may self-identify their old tanks in order to get free insurance coverage (discussed below) -- should help determine the exact locations of unused tanks.

Direct Economic incentives to discourage oil tanks:

One approach that has been commonly used in other jurisdictions is to provide homeowners with direct incentives to change to different methods of heating altogether. These can take the form of either a positive economic incentive to switch to a new technology, or a negative incentive if the homeowner does not. The positive incentive is through a subsidy program that pays people a small amount of compensation to switch to a newer heating technology. An example of this was done in New Jersey and the program was so successful that the fund actually ran out of money, though it is still being administered in the expectation of receiving future appropriations[41]. The negative economic incentive can come in the form of an annual fee for continuing to keep the tank installed. This can be a powerful incentive to remove the tank. However, despite that benefit, these programs have been unpopular and may not be terribly effective at achieving their ends, especially in light of the inadequate records regarding where

[39] British Columbia *Fire Code,* supra note 11, at s. 4.3.15.1.

[40] Several years after the program was first brought into being the municipality was still sending out letters and information packages trying to figure out which properties still had tanks. For an example of these letter see: http://westvancouver.ca/uploadedFiles/Emergency_Services/Emergency_Services_Main_Pages/FOP%20LETTER%20TO%20ACCOMPANY%202011%20DECLARATION.pdf, or http://westvancouver.ca/uploadedFiles/Emergency_Services/Emergency_Services_Main_Pages/FUEL%20STORAGE%20TANK%20RESPONSE%20FORM.pdf

[41] New Jersey Petroleum Underground Storage Tank Remediation, Upgrade And Closure Fund

these tanks are actually located. This was recently tried in West Vancouver through the West Vancouver Tank Permitting scheme and has been controversial[42].

Liability provisions and insurance requirements

As noted above, tanks can not only create large risks to the environment, they can also create a massive economic liability to individual homeowners. This homeowner liability is exacerbated by the fact that insurance policies generally do not cover such losses.

A number of the jurisdictions examined have attempted to deal with this problem. There are a number of different models that can be looked at, and each has its strengths and weaknesses.

The first decision to be made about a law governing insurance is whether it will be compelled or voluntary. The argument in favour of voluntary is fairly straightforward. The homeowners know the peril they are facing if they do not have some sort of protection and so should be free to take that risk. However, there are good reasons to believe that this will lead to an under-consumption of insurance by the public. First, the public simply doesn't know about the level of liability they may be facing – and economic models require decision makers to have reasonably complete information. Furthermore, there is a reason to believe that even if the homeowners in question had perfect information that they would still under-consume insurance goods because of the lack of full cost internalization noted earlier.

By contrast, mandatory insurance is based on the idea that the individuals in question are engaged in an activity that has a high likelihood of imposing costs on others that they will be unable to bear and so should be insured for it. This is the reason why we force people to buy auto insurance for example. The problem with compelled insurance is that it tends to be very unpopular, even where it on average saves everyone money[43].

For home heating tanks, one possible way of providing compelled insurance with low political costs might be to impose a public insurance scheme similar to the one in Washington State whereby the insurance fund is paid for by a small surcharge on each unit of fuel[44]. A great benefit in the way that they have designed their system is that the homeowners only receive insurance protection if they sign up their system ahead of time, at no cost. Consequently it provides a strong incentive for those owners that have a tank on their property to self identify. This serves the vital function of improving government records about where all the oil tanks are.

Even if the decision if made to ultimately leave the choice of whether to buy insurance up to the individual homeowner, there will still be a need for some form of regulatory intervention. Currently the insurance companies on Vancouver Island have pollution exclusion clauses that prevent them from being on the hook for any of these costs. Even where they do not have such

[42] West Vancouver Fuel Storage program

[43] One need only look to our neighbors to the south and the public outrage over the compelled health insurance mandate of the Patient Protection and Affordable Care Act

[44] See for example Washington state, 70.149 RCW and Chapter 374-70 of the Washington Administrative Code, also http://www.plia.wa.gov/heating/insurance.htm

an exclusion clause, recent case law would suggest that property owners might still find themselves without coverage[45]. Other jurisdictions have passed regulations requiring the insurance companies to at least offer pollution coverage, though they still leave it up to the individual homeowner whether or not to purchase it[46].

As deliverers of oil, the oil companies are in a unique position to reduce risk of spills from poor tanks. Therefore, government should review how making such companies absolutely liable for spills -- and requiring them to carry commensurate insurance -- might reduce the incidence of spills.

[45] Johnston v Chubb Insurance Company of Canada, 2010 QCCA 1066

[46] See Massachusetts law [ch453 of the Acts of 2008, amended in 2010]

Recommendations: Solutions from Other Jurisdictions

Having surveyed a number of other jurisdictions that have dealt with this issue, we make the following recommendations for reform. British Columbia and local governments should legislate the following:

- Mandatory physical requirements for home heating oil tanks and equipment, including requiring tanks to be double-walled or made of fiberglass, requiring reinforced plumbing and making containment apparatuses mandatory, etc. CCME Code standards should be considered.

- Requirements for tank system replacement and upgrades, including maximum time limits on the length of time a tank can stay installed on a property;

- A requirement that tank systems be registered – and establishment of government-issued identification tag systems that confirm tanks and systems are in good shape and not obsolete. Delivery of fuel to tanks without a valid tag should be prohibited;

- Mandatory regular inspection systems, including authorization of inspectors to enter private property for that purpose;

- Require every installer of home heating systems to ensure that the old oil tank has been properly decommissioned before installing a new system.

- Require proper decommissioning of any tanks that no longer meet certification or if unused for a prescribed period. This will require setting up mechanisms to identify where all tanks are (including access to oil delivery company records and offering of public insurance to homeowners who self-identify old tanks).

- Governments should consider legislating absolute liability for oil companies for any subsequent spills from a tank they fill – and a requirement that the company carry liability insurance for that liability;

- Subsidies to homeowners to change to cleaner home heating options;

- A public insurance fund paid for by surcharge on fuel to pay for spills from the property of those homeowners who have self-identified as having a tank.