



4.1.

Compliance and Safety Management of Petroleum Storage Tanks

January 29, 2020

2019 Annual Report

Auditor General of the Ville de Montréal



OBJECTIVE

Ensure that petroleum storage tanks are operated in compliance with the provisions of the Act and in a manner that is safe for users, citizens and the environment.

RESULTS

As the owner of several petroleum storage tanks, the City is obliged to comply with the *Building Act* and ensure that its storage tanks are safe for users and citizens and do not pose a danger to the environment. While several actions have been taken by the City to comply with this Act, we think, based on our sample, that improvements should be made in the following key areas:

- Permits required by the Act to operate high-risk petroleum storage tanks are missing (two permits are required in addition to the current 44);
- Documentation that must be preserved under the Act for each site with at least one high-risk petroleum storage tank is incomplete, either because tests and verifications have not been carried out or documents are missing;
- The timeframes for carrying out the process of renewing attestations of conformity are too short in some business units, leaving them with no leeway if corrective action is required and incurring a late notice from the Régie du bâtiment du Québec (RBQ);
- A huge disparity exists in the content of certificate of conformity reports for storage tanks produced by persons (specialists) recognized by the RBQ, making it difficult for business units to have complete confidence in their conformity;
- Certificates of conformity for high-risk petroleum storage tanks are often prepared by the same persons (specialists) recognized by the RBQ, and cases of apparent conflict of interest have been raised;
- There is no management plan for obsolete storage tanks in any of the business units;
- Preventive maintenance of petroleum storage tanks often consists of looking for an absence of leaks and is not framed within a preventive maintenance management plan;
- There is no accountability reporting to the management of each business unit regarding the compliance of storage tanks with current regulations.

In addition to these results, we have formulated various recommendations for business units.

The details of these recommendations and our conclusion are outlined in our audit report presented in the following pages.

Note that the business units have had the opportunity to formulate their comments, which appear after the audit report recommendations.



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LIST OF ACRONYMS

CC	Construction Code of the <i>Building Act</i>
DEEU	Direction de l'épuration des eaux usées
DEP	Direction de l'eau potable
RBQ	Régie du bâtiment du Québec
SEEU	Station d'épuration des eaux usées
SGPI	Service de la gestion et de la planification immobilière
SMRA	Service du matériel roulant et des ateliers



1. BACKGROUND

While the Ville de Montréal (the City) is committed to decreasing fossil fuel consumption to reduce greenhouse gases emissions,^{1,2} it nevertheless needs and will still need to use gas, diesel and heating oil in the coming years. Gas and diesel are required in the transportation sector to operate the City's vehicles (light vehicles and heavy machinery), with refueling done in fueling stations (aboveground or underground storage tanks) installed on confined roads. Diesel is also used by the City as an emergency power source to supply generators in certain buildings, drinking water production plants, the Station d'épuration des eaux usées (SEEU) and pumping stations. Finally, oil, which is becoming less popular, is still used as back-up energy source to heat certain buildings.

The installation and operation of all petroleum equipment³ in Québec are subject to the *Building Act* (CQLR, Chapter B- 1.1) and two codes arising from it: the Construction Code (B 1.1, r.2) and the Safety Code (B 1.1, r.3). This Act is administered by the Régie du bâtiment du Québec (RBQ). Within the meaning of this Act, a petroleum storage tank is a container that holds more than 225 litres of petroleum products.

In general terms, Section 8.18 of the Construction Code of the *Building Act* (CC) requires that all petroleum equipment:

- be installed in such a way as to safely contain the petroleum products for which it is intended and to resist wear, normal handling, fire and shock;
- be installed in such a way as to prevent anyone not authorized by the person responsible for the equipment from gaining access to the equipment and be protected from coming into contact with any object that could cause an accident;

¹ The objective of the 2018–2021 Plan de réduction de la consommation énergétique et des émissions de gaz à effet de serre des bâtiments municipaux of the Service de la gestion et de la planification immobilière (SGPI) is for the City to become carbon neutral between now and 2021 by reducing the greenhouse gas emissions of its building stock by 80% compared with the 2002 benchmark.

² The plan to reduce greenhouse gas emissions associated with the municipal administration's own activities for the period 2013–2020 aims to reduce greenhouse gas emissions by 20% between now and 2020 compared with the 2002 levels.

³ Under the Construction Code of the *Building Act*, "petroleum equipment" means any container, piping, apparatus or other equipment or device that may be used for the distribution, handling, transfer or storage of petroleum products, or forming part of a petroleum equipment installation (B-1.1, Section 8.01).

- be installed and have the necessary protection devices to ensure the safety of the persons who have access to the equipment or who are supplied from it;
- be designed for the use for which it is intended and to resist to the conditions of use to which it is submitted.

During the operation phase, Section 132 of the Safety Code of the *Building Act* requires that all petroleum equipment be used and maintained so that it does not present a risk of spillage, leakage, fire, explosion or intoxication. To do so, the owner must ensure (Safety Code of the *Building Act* – Section 133) that the petroleum processes and equipment used are safe, the safety devices provided for that purpose are used correctly and the necessary precautions are taken so as to prevent the risk of explosion, fire, spillage, leakage or other accidents. In addition, all petroleum equipment must be leak-proof to prevent such risks (Safety Code of the *Building Act* – Section 134). Finally, if operating conditions are hazardous, owing, in particular, to wear and tear or obsolescence, or when a leak is detected, the required rectification must be made (Safety Code of the *Building Act* – Section 135).

According to the RBQ,⁴ the purpose of ensuring the conformity of petroleum storage tanks is to reduce the risk of an accident occurring and to limit the consequences for the public in the event of an accident despite the precautions taken. When an accident does occur, the risks can affect the health and safety of equipment users and citizens, as well as contaminate the environment and City infrastructure. For example, in January 2015, a major leak of 28,000 litres of diesel fuel into a raw water pumping station of the Ville de Longueuil resulted in \$6 million in decontamination costs and a three-day unsafe drinking water advisory.⁵ Mechanisms to monitor and verify the integrity of storage tanks are vital to detect any sign that a leak is about to happen or is under way.

The CC defines a category of high-risk storage tanks for which additional requirements must be met. Table 1 gives the minimum volumes for a petroleum storage tank to be considered high-risk according to the CC. If several storage tanks are connected together, the total capacity must be taken into consideration in determining whether they are high-risk (CC.8.01).

⁴ <https://www.rbq.gouv.qc.ca/en/areas-of-intervention/petroleum-equipment/rbq-responsibilities.html>

⁵ <https://ici.radio-canada.ca/nouvelle/751399/ville-longueuil-poursuite-station-pompage-deversement-diesel-huit-millions>
<https://ici.radio-canada.ca/nouvelle/1017104/recours-collectif-crise-eau-potable-longueuil-diesel-entente-amiable>

Table 1 – Minimum Capacity of Petroleum Storage Tanks to be Considered High-Risk

TYPE OF STORAGE TANK	GAS	DIESEL	HEATING OIL
Aboveground	2,500 litres	10,000 litres	10,000 litres
Underground	500 litres	500 litres	4,000 litres

Table 2 summarizes the responsibilities of the various business units involved in managing the permits issued by the RBQ for high-risk storage tanks and in operating all types of storage tanks.

- The Service de la gestion et de la planification immobilière (hereinafter the “SGPI”) is responsible for obtaining permits and certificates of conformity for the emergency generators used in the buildings of the central departments (with the exception of the Service de l’eau) and boroughs of the former Ville de Montréal (nine former Montréal⁶), as well as for fueling stations (with the exception of the fueling station at the SEEU). It is also responsible for maintaining the emergency generators and petroleum storage tanks associated with them.
- The Service de l’eau is responsible, through its two divisions, the Direction de l’eau potable (DEP) and the Direction de l’épuration des eaux usées (DEEU), for managing permits and certificates of conformity and for maintaining the emergency generators and petroleum storage tanks associated with them, as well as all other storage tanks containing petroleum products at the SEEU, including two storage tanks of 1 million litres each that supply incinerators, as needed.
- The Service du matériel roulant et des ateliers (SMRA) is responsible for maintaining the storage tanks in the fueling stations.
- The boroughs that were previously suburbs (former suburbs⁷) are responsible for managing permits and certificates of conformity, as well as maintaining the storage tanks associated with their buildings’ emergency generators.

⁶ Ahuntsic-Cartierville, Côte-des-Neiges–Notre-Dame-de-Grâce, Mercier–Hochelaga-Maisonneuve, Le Plateau-Mont-Royal, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie, Le Sud-Ouest, Villeray–Saint-Michel–Parc-Extension and Ville-Marie boroughs.

⁷ Anjou, Lachine, LaSalle, Île-Bizard–Sainte-Geneviève, Montréal-Nord, Outremont, Pierrefonds-Roxboro, Saint-Laurent, Saint-Léonard and Verdun boroughs.

Table 2 – **Business Units’ Responsibility in Managing Permits and Operating Petroleum Storage Tanks Based on Their Location**

STORAGE TANK USE	ACTIVITY	LOCATION OF THE STORAGE TANKS				
		CENTRAL DEPARTMENTS ^[a]	BOROUGHS		SERVICE DE L’EAU	
			FORMER MONTRÉAL	FORMER SUBURBS	DIRECTION DE L’EAU POTABLE	DIRECTION DE L’ÉPURATION DES EAUX USÉES
Emergency generator	Permit	SGPI		Borough	DEP	DEEU
	Maintenance					
Fueling station	Permit	SGPI				
	Maintenance	SMRA				

^[a] Excluding the Service de l’eau.

2. PURPOSE AND SCOPE OF THE AUDIT

Pursuant to the provisions of the *Cities and Towns Act*, we conducted a resource optimization audit into the conformity and safety management of petroleum storage tanks. We carried out this assignment in accordance with the *Canadian Standard on Assurance Engagements (CSAE) 3001* of the CPA Canada Handbook – Assurance, as well as other Canadian certification standards that apply to the public sector issued by the *Auditing and Assurance Standards Board*, supported by CPA Canada.

The purpose of this audit was to ensure that petroleum storage tanks were being operated in compliance with the provisions of the Act and in a safe manner for users, citizens and the environment.

In early May 2019, the City announced its intention to prohibit the use of heating oil throughout its territory, between now and 2030, by industries, the residential sector and its own facilities. As well, given that less than 1.0% of the energy consumed by the City’s buildings comes from heating oil, we chose not to include this type of petroleum products within the scope of our audit and concentrated solely on storage of fuel (gas and diesel) and coloured diesel used to supply generators.

The responsibility of the Auditor General of the Ville de Montréal consists of providing conclusions on the objectives of the audit. To do so, we collected sufficient and appropriate evidence to support our conclusions and obtain a reasonable level of assurance. Our assessment is based on the criteria that we deemed valid under the circumstances. These criteria are outlined in Appendix 5.1.

The Auditor General of the Ville de Montréal applies the *Canadian Standard on Quality Control (CSQC 1)* of the CPA Canada Handbook – Assurance, and, accordingly, maintains an exhaustive quality control system that includes documented policies and procedures regarding compliance with the rules of ethics, professional standards and other applicable legal and regulatory requirements. He also complies with rules of independence and other ethical rules contained in the *Code of ethics of chartered professional accountants*, which is built upon basic principles of integrity, professional competence and diligence, confidentiality, and professional conduct.

Our audit work focused on the period of January 1, 2017, to April 15, 2019. For certain aspects, facts dating back prior to this time were taken into consideration to better understand a situation observed during the period covered by the audit. Our work was carried out primarily from March 2019 to September 2019. We also considered information that was sent to us up to 2020.

This work focused primarily on the following business units:

- SMRA;
- SGPI;
- Service de l'eau and its two divisions, the DEP and the DEEU;
- Lachine borough; and
- LaSalle borough.

Upon completion of our work, a draft audit report was presented to the managers involved in each of the audited business units for discussion purposes. Following this, the final report was sent to the Direction générale, as well as to each of the units involved, to obtain their action plans and completion dates for implementation. A copy of the final report was sent to the acting deputy director-general of the Services institutionnels, the deputy director-general of the Mobilité et attractivité, the deputy director-general of the Service aux citoyens, the director of the Service de la concertation des arrondissements, and the borough directors not directly targeted by our audit to enable them to implement the recommendations where warranted.

3. AUDIT RESULTS

3.1. Inventory of Petroleum Storage Tanks

3.1.A. Background and Findings

We sought to obtain an inventory of all the petroleum storage tanks under the jurisdiction of the City. Given that various business units can be responsible for the storage tanks, no single inventory exists for all of them at the City. Each audited business unit was able to provide us with the list of (high-risk and non-high-risk)⁸ storage tanks for which it was responsible. To verify that these lists were complete, we compared them with the list of oil and diesel fuel delivery addresses appearing on the contractual product agreement valid from January 4, 2016, to January 3, 2020, as well as the list of coloured diesel fuel deliveries⁹ for generators under a second contractual product agreement valid for the same period. Finally, the list of permits issued by the RBQ was also used to ensure that the addresses associated with these permits appeared on the business units' lists.

Since each audited business unit provided us with a list of sites with petroleum storage tanks and we were able to crosscheck this information with other external data sources to validate its completeness, we consider these lists to be complete. Table 3 shows a compilation that the Bureau du vérificateur général of the Ville de Montréal was able to make with the information obtained. However, given that former suburban boroughs manage storage tanks independently of central departments, our compilation cannot be considered comprehensive and representative of all the storage tanks under the jurisdiction of the City.

⁸ For ease of reading, the term “storage tank” in this audit report refers to both high-risk and non-high-risk tanks.

⁹ Diesel used for purposes other than supplying a vehicle is coloured to distinguish it from diesel used for vehicles. This distinction is made in this report to specifically refer to a petroleum product used to supply a generator.

Table 3 – Number of Sites¹⁰ with at Least One Petroleum Storage Tank in the Audited Business Units

SITES WITH AT LEAST ONE STORAGE TANK	SERVICE DU MATÉRIEL ROULANT ET DES ATELIERS	SERVICE DE LA GESTION ET DE LA PLANIFICATION IMMOBILIÈRE	SERVICE DE L'EAU		LACHINE BOROUGH	LASALLE BOROUGH	TOTAL
			DIRECTION DE L'EAU POTABLE	DIRECTION DE L'ÉPURATION DES EAUX USÉES			
High-risk	26	8	5	2	1 ^[a]	2	44
Non-high-risk	5	65	14	43	5	0	132
TOTAL	31	73	19	45	6	2	176

^[a] According to RBQ documents, the permit for the high-risk storage tanks at the Lachine borough's marina is in the name of this borough. However, on January 1, 2015, under Section 85 of the Charter of Ville de Montréal, the City assumed jurisdiction over the marina with the exception of contractual management and daily maintenance, which remain the responsibility of the borough. The City's Service des grands parcs, du Mont-Royal et des sports (unaudited business unit) is the City department in charge of the marina.

3.2. Operation of High-Risk Petroleum Storage Tanks in Compliance with Regulations

In this section, we sought to verify whether the business units responsible for high-risk petroleum storage tanks were compliant with the requirements of the *Building Act* and its Construction Code and Safety Code. Among the requirements that must be met for high-risk petroleum storage tanks is the obligation, in particular, to:

- To hold a permit for the use of all the high-risk petroleum storage tanks situated at the same address and renew it every two years (Safety Code of the *Building Act* – sections 120 and 128);
- Have a certificate of conformity produced and signed by a person (specialist) recognized by the RBQ and renew it every two, four or six years (Safety Code of the *Building Act* – Section 115);
- Every two years, inspect the cathodic protection performance of the underground storage tanks and ensure the proper operation of the automatic leak detection system (Safety Code of the *Building Act* – Section 139);

¹⁰ Given that there can be more than one petroleum storage tank at the same address and that this count was not always available in the documents obtained, we opted to present the number of sites with at least one petroleum storage tank.

- Every year, ensure the proper operation of every grounding circuit in a petroleum equipment installation and the safety valves of an aboveground piping system (Safety Code of the *Building Act* – Section 140);
- To gauge weekly the water level in each underground tank at a fuel station Safety Code of the *Building Act* – Section 143);
- Keep a register for each storage tank containing certain specific documents for two or ten years, as the case may (Safety Code of the *Building Act* – Section 114);
- Keep portable fire extinguishers in proper working order nearby the tanks (Safety Code of the *Building Act* – Section 170) and, in the case of fueling stations, at least two fire extinguishers one of which must be within 10 metres of the distribution areas for fuel (Safety Code of the *Building Act* – Section 220);
- Keep oil absorbents at all times on the premises where high-risk petroleum equipment is situated (Safety Code of the *Building Act* – Section 171).

3.2.1. Permit to Operate a Petroleum Storage Tank

3.2.1.A. Background and Findings

The primary obligation of an owner is to possess a valid permit from the RBQ for all the high-risk petroleum storage tanks situated at the same address and to renew it every two years.¹¹ We wanted to ensure that the audited business units had a permit for each of the sites where at least one petroleum storage tank qualified as high-risk within the meaning of the CC. Based on the lists of storage tanks that the audited business units supplied to us, we identified, among the 132 sites considered not to have high-risk petroleum storage tanks, two sites whose storage tank capacity exceeded the limits set by the RBQ (see Table 1) and for which the business units involved did not have a valid permit issued by the RBQ.¹²

The first case involved a diesel storage tank in Firehall 64 in the Lachine borough. According to the information obtained from the SGPI, this storage tank is used to supply coloured diesel to an emergency generator. It is underground and has a capacity of 1,135 litres, which is double that allowed for a high-risk petroleum storage tank. Yet it is not on the list of high-risk storage tanks for which the City is responsible in the RBQ register. The SGPI could not explain to us why this storage tank had no permit at the time of the audit work.

¹¹ Safety Code of the *Building Act* – sections 120 and 128.

¹² Based on the number of high-risk petroleum storage tanks that we itemized (44), these two without permits represent a 4.5% deviation.

The second case directly referenced a specification in the CC¹³ that, where several storage tanks are connected to one another, the total volume of these tanks must be taken into consideration in determining whether they are high-risk. Two generators in the Des Bailleurs drinking water production plant are supplied with coloured diesel from a 1,135-litre auxiliary tank that is itself supplied by two main storage tanks, each with a capacity of 4,556 litres. These tanks are all inside the plant (therefore considered to be aboveground). Taken individually because they are aboveground, these storage tanks each have a capacity that is less than the 10,000-litre limit that would require them to be considered high-risk. However, since the two largest storage tanks supply the same auxiliary tank, these three storage tanks form a whole unit with a total capacity of 10,247 litres, or slightly above the limit. In 2018, the DEP commissioned a study on bringing petroleum storage tanks in certain plants up to standard, including the Des Bailleurs plant. The report dated July 2018 stated that *“given that the joint capacity of the storage tanks is greater than 10,000 litres, the use of these tanks requires a permit from the RBQ”*. Despite this information being brought to the attention of the DEP, the list of storage tanks under its jurisdiction, which we obtained as part of our audit, showed these three storage tanks as being not high-risk, and, consequently, they did not appear on the register of the RBQ. This non-compliance originates from another non-compliance in the design of the storage tanks at the DEP, since the auxiliary tank supplies two generators. As reported in the standardization study produced in 2018, the CSA-C282 standard requires that each emergency generator be supplied by its own storage tank.

Operating high-risk petroleum storage tanks without a permit from the RBQ contravenes Section 35.2 of the *Building Act*, which stipulates that *“the owner of a petroleum equipment installation shall, in the cases and on the terms and conditions determined by regulation of the Board, obtain from the Board a permit for the use or operation of his installation.”* Section 197 of the Act specifies that contravention of Section 35.2 may result in a fine ranging from \$17,190 to \$85,945 in the case of a legal person.

As stated in the previous section, on January 1, 2015, the Service des grands parcs, du Mont-Royal et des sports took over responsibility for the marina on behalf of the City and, in particular, the funding of its three-year capital expenditure program for investment spending needed at the marina. Section 120 of the Safety Code of the *Building Act* states that the owner of a petroleum equipment installation having at least one component that is high-risk must obtain a permit from the RBQ for the site. At the time of our audit work, the permit issued by the RBQ was still in the name of “Ville de Montréal (Lachine borough)”. It is important that RBQ documents align with the City’s decisions regarding responsibility for the petroleum storage tanks at the Lachine borough’s marina.

¹³ CC.8.01.

RECOMMENDATION

3.2.1.B. We recommend that the Service de la gestion et de la planification immobilière and the Service de l'eau obtain a permit for all sites containing high-risk petroleum storage tanks that exceed the capacity set out in the Construction Code of the *Building Act* to comply with the Safety Code of the *Building Act*.

BUSINESS UNITS' RESPONSE

3.2.1.B. *Service de la gestion et de la planification immobilière*

[TRANSLATION] Take steps with the firm involved to obtain a permit to use high-risk petroleum equipment facilities for Firehall 64.

(Planned completion: May 2020)

.....

Service de l'eau

[TRANSLATION] The Direction de l'eau potable will need to obtain the permit for the storage tank at the Charles-J.-Des Bailleurs plant from the Régie du bâtiment du Québec. (Planned completion: June 2020)

The Direction de l'épuration des eaux usées has a permit for all high-risk petroleum storage tanks. (Planned completion: completed)

RECOMMENDATION

3.2.1.C. We recommend that the Lachine borough take steps with the Régie du bâtiment du Québec to transfer ownership of the marina's petroleum storage tanks to the Service des grands parcs, du Mont-Royal et des sports, so that the information held by the Régie du bâtiment reflects the shared responsibilities at the City.

BUSINESS UNIT'S RESPONSE

3.2.1.C. *Lachine borough*

[TRANSLATION] The current permit is valid until December 31, 2020.

The Lachine borough has contacted the Régie du bâtiment du Québec and will take steps to make changes to reflect ownership of the storage tanks by the Service des grands parcs, du Mont-Royal et des sports between now and the end of the year. (Planned completion: January 2021)

3.2.2. Recordkeeping for each Petroleum Storage Tank

3.2.2.A. Background and Findings

The Safety Code of the *Building Act* requires that the owner of each high-risk petroleum storage tank keep in a register certain documents specific to each tank for a period of two or ten years, depending on the document.¹⁴

As part of our audit work, we wanted to ensure that the City was complying with its recordkeeping obligations. After examining the files of the 13 sites having at least one high-risk petroleum storage tank in our sample,¹⁵ our work revealed that the audited business units did not officially have a complete register for each high-risk petroleum storage tank. Although there were filed documents on each of the storage tanks, we identified the following non-compliances in how this register was kept:

- Breach of an obligation set out in the Safety Code of the *Building Act* that must be entered into the register:
 - In the case of the petroleum storage tanks at the Lachine borough’s marina, the register did not contain any document indicating that the leak detection system was checked every two years. The reason given by the borough was that there is no such system on the marina’s tanks. The RBQ’s description of the petroleum equipment in the marina, however, clearly states the presence of a leak detection system for both storage tanks;
 - Again in the case of the Lachine borough’s marina, the person we met could not provide documents indicating that the weekly gauging of the water level in the tanks as required by the Safety Code of the *Building Act*.¹⁶ Such documents are required to be kept for two years in the tank’s register. The borough justified this absence by the fact that the private company managing the marina¹⁷ does this test randomly but not every week;

¹⁴ Safety Code of the *Building Act* – Section 114.

¹⁵ Appendix 5.2 shows the composition of our sample established on a discretionary basis in terms of the number of sites per audited business unit and whether the sites had high-risk or non-high-risk petroleum storage tanks. The sample size is adequate to obtain sufficient evidence to support our conclusions.

¹⁶ Safety Code of the *Building Act* – Section 143.

¹⁷ The borough delegated management of the marina’s operations, including the management of the fuel storage tanks, to a private company. The borough remains the owner of the tanks in the eyes of the RBQ. This situation means that several documents have been kept by this company and not by the borough.

- The register shall contain the biennial leak detection system verification reports for the last 10 years.¹⁸ At the SGPI, every second report was missing since the business unit prepares them every four years, i.e., only when obtaining the certificate of conformity for the storage tanks;
 - At the DEEU, reports for the last 10 years on the annual verification of the safety valves and grounding systems are not available in the register of the SEEU’s storage tanks. The safety valves are only verified every two years. In the case of the grounding test, none was done regularly prior to 2019, since the DEEU considered that everything was compliant with the electrical code;
- Non-compliances in recordkeeping due to the absence of a document:
 - At the DEP, many documents (e.g., the annual verification of the safety valves and grounding circuit) are missing for the high-risk petroleum storage tanks on two sites (the Dorval drinking water plant and the Pointe-Claire drinking water plant), since the Service de l’eau has only been responsible for managing these facilities since 2014. Documents prior to this transfer of responsibility, if they exist, would be in the archives of the related municipalities, and the Service de l’eau has not repatriated them;
 - The register for each high-risk petroleum storage tank must contain a copy of the plans relating to all construction work carried out on the storage tanks.¹⁹ Only the DEEU was able to show us plans for the high-risk petroleum storage tanks for which it is responsible. The DEP stated that it was still looking for the plans of the storage tanks, both at the SGPI and the various plants. The SGPI stated that they did not have all the plans since those of the oldest installations were missing. The LaSalle borough stated that it did not have direct access to the plans and that it would have to search the borough’s archives to find them. The Lachine borough also did not have the marina’s storage tank construction plans;
 - Because of the shared responsibility between the SGPI and the SMRA for the fueling stations, some documents (plans, permits, certificates of conformity) are kept by the SGPI, while documents of tests and technical verifications are kept by the SMRA. In neither department is there a note in the file pertaining to a storage tank explaining that documents are also available in the other department.

Based on all these findings, we believe that the business units must take the necessary steps to perform all the tests and verifications required under the Safety Code of the *Building Act* and, thereafter, ensure that the evidence of their actions is kept in one official register per site.

¹⁸ Safety Code of the *Building Act* – Section 139.

¹⁹ Safety Code of the *Building Act* – Section 114.

RECOMMENDATION

3.2.2.B. We recommend that the Service de l'eau, the Service du matériel roulant et des ateliers, the Service de la gestion et de la planification immobilière, the Lachine borough and the LaSalle borough create a register for each high-risk petroleum storage tank with a list of all the documents required by the Safety Code of the *Building Act*, specifying where they can be consulted and justifying, if necessary, the absence of certain documents to ensure compliance with the Safety Code of the *Building Act* that requires keeping such a register.

BUSINESS UNITS' RESPONSE

3.2.2.B. Service de l'eau

[TRANSLATION] The Direction de l'eau potable will set up a register for each high-risk petroleum storage tank. (Planned completion: August 2020)

The Direction de l'épuration des eaux usées will amend its current register to include the list of required documents for each of its high-risk petroleum storage tanks. (Planned completion: May 2020)

Service du matériel roulant et des ateliers

[TRANSLATION] The Service du matériel roulant et des ateliers could create and maintain a central file (with restricted access) at the Service du matériel roulant et des ateliers, identifying all the required documents (plan, permit, certificate of conformity) for each of the high-risk petroleum storage tanks. (Planned completion: March 2020)

Service de la gestion et de la planification immobilière

[TRANSLATION] Update a central information file with the Service de la gestion et de la planification immobilière. (Planned completion: May 2020)

Lachine borough

[TRANSLATION] The borough does not own any high-risk storage tanks. No action is planned.

Regarding the storage tanks at the marina, the borough, as the manager of the equipment, will ensure that a document register is maintained in collaboration with the Service des grands parcs, du Mont-Royal et des sports. (Planned completion: January 2021)

LaSalle borough

[TRANSLATION] A digital file will be created on the network in the Division bâtiments/équipements where each of the generators will have its own file/register with all the required relevant documents pertaining to the certificate of conformity, and indicate the equipment number in the integrated building management system where all these files can be found. (Planned completion: September 2020)

RECOMMENDATION

3.2.2.C. We recommend that the Service de l'eau, the Service de la gestion et de la planification immobilière and the Lachine borough draw up a schedule defining the tests and verifications that must be performed prior to renewal of the certificate of conformity to ensure that they have all the documents that are required to be in the register of each storage tank within the required timeframe.

BUSINESS UNITS' RESPONSE

3.2.2.C. Service de l'eau

[TRANSLATION] The Service de l'eau will set up a verification program of all its petroleum equipment based on the required frequency in the MAXIMO software. (Planned completion: August 2020)

Service de la gestion et de la planification immobilière

[TRANSLATION] The scheduling file for tests and verifications is already available. (Planned completion: completed)

Lachine borough

[TRANSLATION] The borough does not own any high-risk storage tanks. No action is planned.

Regarding the storage tanks at the marina, the borough, as the manager of the equipment, will establish a schedule in collaboration with the Service des grands parcs, du Mont-Royal et des sports.

(Planned completion: January 2021)

3.2.3. Certificate of Conformity of a Petroleum Storage Tank

The process for obtaining a certificate of conformity for a high-risk petroleum storage tank is an important element of the Safety Code of the *Building Act*, which is aimed at ensuring that an external independent set of eyes periodically checks to see that petroleum equipment complies with certain sections of the CC and Safety Code of the *Building Act*. This process involves an independent inspection, correction of non-compliances identified during the inspection and, thereafter, that a certificate of conformity be issued by the recognized person (specialist).

3.2.3.A. Background and Findings

Renewal Process for Certificates of Conformity

The Safety Code of the *Building Act*²⁰ requires that the owner of a site that contains at least one high-risk petroleum storage tank provide the RBQ with a certificate

²⁰ Safety Code of the *Building Act* – Section 115.

of conformity of the equipment that meets certain requirements. The certificate must be renewed every two, four or six years depending on the type of storage tank. As part of our audit, we sought to learn whether the business units renewed the certificates of conformity for high-risk petroleum storage tanks within the required timeframe. First, we found that, over the period targeted by our audit, the SMRA, the DEEU and the Lachine borough had each received an overdue notice for renewal of the certificate of conformity. The certificates for the other sites in our sample were obtained within the timeframe. During the same period, the Lachine borough and the LaSalle borough²¹ also each received an overdue notice for renewal of the permit (such renewal required every two years). The DEEU justified this as being due to a delay in granting the contract for the required inspection by the recognized person (specialist). The Lachine borough's explanation is the inability of the recognized person (specialist) to perform certain verifications at the marina during the winter, whereas the deadline for the certificate was in January. In the case of the SMRA, the new certificate was obtained from the recognized person (specialist) before expiry of the previous certificate, but the business unit sent it in late to the RBQ. This initial finding led us to conclude that there is an issue with compliance with timelines in renewing certificates of conformity.

Considering the reasons given to explain these delays, we wanted to know whether the business units allocated sufficient time to complete the renewal process for certificates of conformity. In comparing the dates at which the verification was performed with the expiry of the current certificate for the 13 sites of high-risk petroleum storage tanks in our sample (see Appendix 5.2), we noted the following:

- The SGPI and the SMRA begin the process of obtaining certificates of conformity more than six months in advance of the expiry date. In addition, only the SMRA and the SGPI jointly have a procedure to start the renewal process for a permit or certificate of conformity for a site with high-risk petroleum storage tanks;
- The Lachine borough began work on renewing the certificate of conformity 16 days before the expiry of the existing certificate. Without even considering the inability of the recognized person (specialist) to perform certain verifications due to winter and the closure of the marina, this delay gave the business unit practically no leeway to take corrective actions if the recognized person (specialist) identified non-compliances. In actual fact, the new certificate was obtained 132 days after expiry of the current one;
- The LaSalle borough did not provide us with a report certifying its conformity. We were unable to determine when the work had begun. However, the two certificates provided during the period covered by this audit were obtained 12 days before expiry in one case and 19 days after expiry in the other case. We concluded that the borough had little leeway in the first case and none in the second case;

²¹ Upon receipt of the overdue notice for renewal of the permit, the LaSalle borough immediately reacted by awarding a mutually agreed contract to a recognized person (specialist) for the certificate of conformity of the storage tank. The borough did not have to award such a contract since the certificate was not about to expire. It could simply have filled out the permit renewal form, returned it to the RBQ and paid the renewal costs.

- Finally, the DEP presented two totally different cases. In one case, the certificate process had begun 32 days before the expiry of the existing certificate. The recognized person (specialist) did not demand any immediate corrective action and issued the new certificate that same day. If corrective action had been required before the certificate could be issued, the DEP could have found itself overdue for renewal. In the other case, involving renewal of the certificate of conformity for the Pointe-Claire water storage tank, work began very early, and the new certificate was obtained about two years (731 days) before the expiry of the current certificate. However, the Safety Code of the *Building Act*²² requires that the inspection be carried out within 12 months prior to the end of the period covered by the certificate. The DEP will need therefore to redo the certification work, since the certificate obtained two years ahead of time will be ineligible at the RBQ.

Based on these findings, it is our opinion that, with the exception of the SGPI and the SMRA, the business units do not properly plan the renewal of certificates of conformity, resulting in overdue notices from the RBQ.

²² Safety Code of the *Building Act* – Section 116.

RECOMMENDATION

3.2.3.B. We recommend that the Service de l'eau, the Lachine borough and the LaSalle borough draw up a schedule for renewal of certificates of conformity for high-risk petroleum storage tanks to ensure that they are renewed at the appropriate time to maintain their conformity and avoid eventual sanctions by the Régie du bâtiment du Québec.

BUSINESS UNITS' RESPONSE :

3.2.3.B. Service de l'eau

[TRANSLATION] The Service de l'eau will set up, in the MAXIMO software, a system to generate renewal notices for certificates of conformity and the renewal of petroleum product permits. (Planned completion: May 2020)

Lachine borough

[TRANSLATION] The borough does not own any high-risk storage tanks. No action is planned.

Regarding the storage tanks at the marina, the borough, as the manager of the equipment, will establish a schedule for the renewal of certificates of conformity in collaboration with the Service des grands parcs, du Mont-Royal et des sports. (Planned completion: January 2021)

LaSalle borough

[TRANSLATION] The storage tanks will be inventoried in our Système intégré de gestion des immeubles, and a preventive maintenance plan will be created to produce a work order at the appropriate time of year for the performance of the tasks identified to maintain their conformity with the Régie du bâtiment du Québec. (Planned completion: September 2020)

Comprehensiveness of the Certificate of Conformity Process for Storage Tanks

Still regarding the certificate of conformity renewal process, we sought to determine whether the business units were able to demonstrate that the certificate of conformity of a high-risk petroleum storage tank complied with the requirements of the Safety Code of the *Building Act*. While the certificate is issued by a member of a professional order, we believe that the business units should ensure that the work done is complete and that they are paying for a proper professional service, i.e., that they are able to demonstrate that this service meets current regulatory requirements.

We wanted to know whether the reports of the various recognized persons (specialists) were sufficiently complete under the requirements of the Safety Code of the *Building Act*.²³ With the exception of the Lachine borough and the LaSalle borough, which were unable to provide us with certificate of conformity reports for all of the high-risk petroleum storage tanks under their jurisdiction (3 sites out of 13), we found a huge disparity in the reports of the recognized persons (specialists). Some reports only stated non-compliant elements, while others also pointed out compliant elements. Of the 10 reports that we examined, the recognized persons (specialists) commented (compliant, non-compliant, non applicable) on 2.9% to 82.1% of the sections of the Safety Code of the *Building Act* with which they had to certify conformity (the reports with the lowest percentages were those that dealt only with non-compliances). In the absence of a clear and explicit statement from the recognized person (specialist) that a storage tank complies with a requirement of the RBQ or that the requirement does not apply to this tank, the City is unable to show beyond any doubt that the section has been taken into consideration by the recognized person (specialist) and that the certificate of conformity process is complete. If an incident happened following such a poorly documented certificate, it would be difficult for the City to show that, in light of the information obtained by the recognized person (specialist), there was no indication that such an incident might occur.

We observed that some certificate of conformity reports stated that the work had been done in accordance with *“the requirements of the Safety Code and the Construction Code of the Régie du bâtiment du Québec”* and that *“the non-compliances of the storage tanks [are] related to the verification protocol of the Safety Code”* without specifying these requirements and detailing this protocol. Another report states that *“the storage tank was inspected and verified in accordance with a checklist that itemized the main requirements of the Construction Code and Safety Code and in accordance with the CSA B139-15 standard”* again without specifying what was actually taken into consideration in these codes. While some reports were more precise in stating that *“the verification of conformity [...] covered the requirements of sections of the Construction Code and safety stated in Section 117 of the Safety Code,”* they did not stipulate the sections that did not apply specifically to these storage tanks and those that were ultimately taken into consideration.

Considering that the Safety Code of the *Building Act*²⁴ requires that the recognized person (specialist) certify that they have verified the register of the storage tank and that its contents are in compliance with the code,²⁵ and considering, as previously stated, that we identified missing documents for each of the storage tanks for which we consulted the register, we have to wonder about the certificate that the business units receive from the recognized persons (specialists). For example, in spring 2018, the DEEU voluntarily commissioned a conformity report for the petroleum equipment of the SEEU to compare these observations with those made by the recognized person (specialist) in 2017. While the May 2017 report

²³ Safety Code of the *Building Act* – Section 117.

²⁴ Safety Code of the *Building Act* – Section 117.

²⁵ Safety Code of the *Building Act* – Section 114.

of the recognized person (specialist) and even the December 2018 report that followed stated that the fueling station complied with the requirement of a yearly verification of all grounding circuits,²⁶ the spring 2018 voluntary report by another firm stated that “*the reference documents are unavailable for these verifications*”. It is hard for us to understand how, over a period of 19 months, one recognized person (specialist) observed the presence of documents produced annually that are to be kept for 10 years, whereas another person stated that they were unavailable. The recognized person (specialist) also stated in their certificate reports of May 2017 and December 2018 that the overfill protection device on the underground storage tanks of the fueling station complied with the standard.²⁷ The conformity report prepared in spring 2018, on the other hand, stated that the storage tank was non-compliant since there was no overfill protection device.

Faced with these findings, we can only conclude that there are major discrepancies in the reports prepared by the recognized persons (specialists) and possibly even in the work they do. In light of this, we are of the opinion that it is vital that the business units demand certificate of conformity reports from the recognized persons (specialists) covering all the points set out in the Safety Code of the *Building Act*, so that they are able to show that they have met their responsibilities as owners, if need be.

²⁶ Safety Code of the *Building Act* – Section 140.

²⁷ ULC/ORD-C58.15 standard. This refers to a requirement of the CC (Section 127) that is subject to verification by the recognized person (specialist).

RECOMMENDATION

3.2.3.C. We recommend that the Service du matériel roulant et des ateliers, the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough, in the case of future certificates, obtain from the person (specialist) recognized by the Régie du bâtiment du Québec a complete certificate of conformity report certifying all the points set out in Section 117 of the Safety Code of the *Building Act* to ensure that the certificate of conformity process for high-risk petroleum storage tanks is complete and complies with regulatory requirements.

BUSINESS UNITS' RESPONSE

3.2.3.C. *Service du matériel roulant et des ateliers*

[TRANSLATION] Validate that the certificates of conformity cover all the points set out in Section 117 of the Safety Code of the Building Act. Obtain the inspection checklist provided by the Régie du bâtiment du Québec in our inspection reports. **(Planned completion: December 2020)**

.....

Service de la gestion et de la planification immobilière

[TRANSLATION] When issuing the request for proposals, stipulate that we want to have the inspection checklist provided by the Régie du bâtiment du Québec in our inspection reports. **(Planned completion: when awarding our next contract in June 2020)**

.....

Service de l'eau

[TRANSLATION] The Service de l'eau will prepare an estimate to have the person recognized by the Régie du bâtiment du Québec issue a certificate of conformity for petroleum product installations, based on the inspection checklist of the Régie du bâtiment du Québec. **(Planned completion: August 2020)**

.....

Lachine borough

[TRANSLATION] Regarding the storage tanks at the marina, the borough had been receiving a summary document. The full report was sent directly to the government and the certificate of conformity was issued thereafter. As the manager of the equipment, the borough will make certain to obtain the full report at the time of each certification, and this report will be kept in the register. **(Planned completion: June 2021)**

.....

LaSalle borough

[TRANSLATION] To ensure that all the items required for the certificate of conformity have been validated by the person (specialist) recognized by the Régie du bâtiment du Québec, a form will be created and attached directly to the work order in the *Système intégré de gestion des immeubles* and given to the recognized person (specialist) to fill in and sign. The document will then be saved and archived in the *Système intégré de gestion des immeubles* of the storage tank in question. **(Planned completion: September 2020)**

Evidence of Corrections to Non-Compliances

In the certificate of conformity process for a high-risk petroleum storage tank, if non-compliances are identified by the recognized person (specialist), they must be corrected before the certificate is issued. Proof of these corrections must be presented to the recognized person (specialist). With this in mind, we set out to learn whether the business units had taken the corrective actions required to address identified non-compliances before receiving certificates of conformity. The Lachine and LaSalle boroughs were unable to provide us with copies of the verification of conformity reports produced by the recognized persons (specialists) for three of the audited sites. Regarding the other sites, ten were covered in the reports, but six of these had non-compliances. In four cases, at the SMRA or the SGPI, we found evidence that these non-compliances had been corrected before the recognized person (specialist) issued the certificate of conformity. In two other cases, at the DEP, even though non-compliances appeared in the section of the report titled *“Non-compliances based on the verification protocol of the Safety Code,”* the recognized persons (specialists, both of whom worked for the same firm) stated that *“the non-compliances listed in this section are those that must necessarily be corrected before the next certificate of conformity”*, i.e., in 2022 for the site of the Dorval drinking water plant and in 2024 for the site of the Pointe-Claire drinking water plant. This approach is unique to this firm among the ones we observed. Following these two verifications, the DEP therefore decided that no corrective action was immediately required. The Safety Code of the *Building Act*,²⁸ however, states that the recognized person (specialist) must certify that the petroleum equipment meets the requirements of the Safety Code of the *Building Act* and the CC or inform *“the owner of any irregularities found and the reasons for refusing to produce the required certificate of conformity.”* Deferring the obligation to implement corrective action immediately for a non-compliance not only goes against the Safety Code of the *Building Act*, but it also opens the door to persistent non-compliances. We examined the recommendations related to these non-compliances and those that were merely areas for improvement based on current best practices appearing in these 10 certificate of conformity reports and asked the business units involved to provide us with proof that the corrections had been made. Of the 12 mandatory recommendations (non-compliances), all had been applied (100%), while only 10 of the 25 non-compulsory recommendations (40%) had been implemented (see Table 4, which shows the proportions by business unit).

It should be remembered that the responsibility of the owner of a petroleum storage tank is not limited solely to verifying and correcting the non-compliances identified within the framework of the certificate of conformity process. The Safety Code of the *Building Act* requires that petroleum equipment be leak-proof to prevent any risk of explosion, fire, spillage or other accident,²⁹ and that the owner ensure that the petroleum processes and equipment used are safe.³⁰

²⁸ Safety Code of the *Building Act* – Section 117.

²⁹ Safety Code of the *Building Act* – Section 134.

³⁰ Safety Code of the *Building Act* – Section 133.

Table 4 – **Distribution of Corrections Made by the Business Units, Based on Whether the Recommendations Were Deemed Mandatory or Not by the Recognized Person (Specialist)**

BUSINESS UNIT	NO. OF SITES CONSIDERED	MANDATORY RECOMMENDATIONS (NON-COMPLIANCES)			NON-COMPULSORY RECOMMENDATIONS		
		NO.	CORRECTIONS MADE		NO.	CORRECTIONS MADE	
			YES	NO		YES	NO
DEEU	2	0	0	0	8	4 (50%)	4 (50%)
DEP	2	0	0	0	8	1 (13%)	7 (87%)
SMRA	4	7	7 (100%)	0	4	1 (25%)	3 (75%)
SGPI	2	5	5 (100%)	0	5	4 (80%)	1 (20%)
TOTAL	10	12	12 (100%)	0	25	10 (40%)	15 (60%)

RECOMMENDATION

3.2.3.D. We recommend that the Service du matériel roulant et des ateliers, the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough require the person (specialist) recognized by the Régie du bâtiment du Québec to certify that the certificate of conformity is accompanied by a document confirming that they are aware of the corrective actions taken by the business unit and stating that they have been deemed appropriate and sufficient to show that the identified non-compliances no longer exist before issuing this certificate.

BUSINESS UNITS' RESPONSE

3.2.3.D. Service du matériel roulant et des ateliers

[TRANSLATION] Validate that a specialist recognized by the Régie du bâtiment du Québec conducted the required corrective actions and that the facilities are compliant before the certificate is issued. Obtain a standard work approval form to be filled in by the recognized person when the work is completed and approved. (Planned completion: October 2020)

Service de la gestion et de la planification immobilière

[TRANSLATION] Draw up a standard form to be filled in by the recognized person when the work is completed and approved. (Planned completion: June 2020)

Service de l'eau

[TRANSLATION] To establish a framework to have the person recognized by the Régie du bâtiment du Québec certify that petroleum product installations are compliant, the Service de l'eau will include, in the estimate, a form indicating approval of the corrective actions taken, if applicable. (Planned completion: August 2020)

Lachine borough

[TRANSLATION] Regarding the storage tanks at the marina, the borough, as the manager of the equipment, will obtain, prior to each certification, a document confirming that the corrective actions taken by the business unit were deemed appropriate and sufficient, to demonstrate that the non-compliances identified no longer existed before the new certificate was issued. The document will be archived in the new official register. (Planned completion: January 2021)

LaSalle borough

[TRANSLATION] The document accompanying the certificate of conformity, confirming awareness of the corrective actions taken, will be identified on the work order given to the recognized person (specialist) and required (with annotations and signatures) at the time the certificate of conformity for the storage tank in question is issued. (Planned completion: September 2020)

Choice of Persons (Specialists) Recognized by the Régie du bâtiment du Québec for the Certificate of Conformity Process for Storage Tanks

The recognized person (specialist) cannot be in a position of conflict of interest³¹ when certifying the conformity of a high-risk petroleum storage tank. We wanted to ensure that mechanisms had been put in place by the business units to choose recognized persons (specialists) with no perceived conflict of interest.

Out of the 13 certificate of conformity files for petroleum storage tanks (see Appendix 5.2), we identified three specific cases that could raise questions regarding a possible perceived conflict of interest for the recognized person (specialist). We are not saying here that there is a conflict of interest, but that there is at least the appearance of a conflict of interest:

- The recognized person (specialist) accepted a mandate to maintain the petroleum equipment at the same time as they held a contract with the DEEU. The work was done in 2017, when the renewal of the certificate was overdue. Both the DEEU and the recognized person (specialist) saw an advantage in proceeding this way, since the specialized firm could progressively verify that the required corrections were done. In the case of the 2019 verification, while the work was undertaken 122 days before the expiry date of the certificate, the same formula was used again by the recognized person (specialist), who once more contracted directly with the same maintenance firm:
 - Since the contract between the recognized person (specialist) and the DEEU is a lump sum contract and the maintenance firm is paid by the recognized person (specialist), there is a risk that the latter limits the non-compliances identified during the inspection to minimize the work of the maintenance firm and keep the greatest portion of the fees from the contract with the DEEU;
- The recognized person (specialist) who certified the certificates of conformity for the rue Saint-Urbain site and the boulevard Saint-Joseph Est site (both under the jurisdiction of the SGPI) relied on documents showing the operation of the leak verification systems that had been tested by the firm for which they worked:
 - In this case, it is fair to question the risk that the recognized person (specialist) may be less strict about documents proving that the tests were performed, knowing that they were done by their colleagues;

³¹ CC.8.13 looks at two forms of conflict of interest: 1) performing work on petroleum equipment, decontaminating sites polluted by petroleum products and monitoring the work as a contractor or employee, or 2) having a direct or indirect interest in a company that performs the work, carries out design or manufacturing activities related to petroleum equipment or performs activities related to the sale, storage or transportation of petroleum products.

- For these same two buildings under the jurisdiction of the SGPI, work was done on the petroleum equipment more than 10 years ago. At the time, the City had awarded two mandates for completion of plans and estimates to a firm that specialized in petroleum products. The firm’s mandate was *“to produce an engineering design to bring the petroleum installations up to standard by drawing up plans and estimates”*. The firm was also mandated *“to provide technical support at the critical stages of construction”* and to indicate to the contractor directives for required changes following observation of the drawings of the parts proposed by the company. The recognized person (specialist) who had to certify the conformity of the petroleum storage tanks worked for the very firm that drew up the plans and estimates:
 - While these examples of a firm involved in plans and estimates go back several years, they show that it is possible for a recognized person (specialist) to be associated with the work under way at the City on petroleum storage tanks. Against this backdrop, there is reason to question the risk that a recognized person (specialist) who rules on work done in the past by their colleagues and their employer may lack independence.

The *Act respecting contracting by public bodies* (section 14, C-65.1) recommends, in particular, that to ensure the sound management of a contract below the public tender threshold,³² one *“use a rotation system among the tenderers or contractors they deal with, or seek new tenderers or contractors.”*³³ Yet no business unit was able to show us that an official process to rotate recognized persons (specialists) had been put in place. Similarly, the SGPI, which awarded verification of conformity contracts for the petroleum equipment under its jurisdiction and that of the SMRA, stated that they preferred to do business with the same recognized person (specialist) since there was too much variability in the practices. Indeed, the certificate of conformity reports for the six sites under the SGPI or SMRA that we examined had all been prepared by the same recognized person (specialist).

³² A recognized person (specialist) billed \$1,740 to the SGPI for verification of three sites. Another recognized person (specialist) had a \$9,650 contract to verify the conformity of the petroleum equipment of the SEEU and the Rhéaume pumping station. This amount also included preventive maintenance by a third party.

³³ The *Act respecting contracting by public bodies* does not apply to the municipal sector but is presented here to show what is required of Québec public and para-public agencies and could be a good practice for the City to follow.

RECOMMENDATION

3.2.3.E. We recommend that the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough put in place monitoring mechanisms for the awarding of certificate of conformity contracts to a person (specialist) recognized by the Régie du bâtiment du Québec exempt from a perceived conflict of interest and have them sign a declaration of independence to ensure the City of the independence of this person in certifying the conformity of high-risk petroleum storage tanks.

BUSINESS UNITS' RESPONSE

3.2.3.E. *Service de la gestion et de la planification immobilière*

[TRANSLATION] Draw up a standard declaration of independence to be signed by the recognized person for each facility. (Planned completion: June 2020)

.....

Service de l'eau

[TRANSLATION] To establish a framework for certificate of conformity requests for petroleum product installations, the Service de l'eau will include, in the estimate, a declaration of independence letter to be signed by the person recognized by the Régie du bâtiment du Québec before conducting the inspection. (Planned completion: August 2020)

.....

Lachine borough

[TRANSLATION] Regarding the storage tanks at the marina, the borough, as the manager of the equipment, will obtain a declaration of independence from the professionals (recognized specialists). The document will be archived in the new official register. (Planned completion: January 2021)

.....

LaSalle borough

[TRANSLATION] This declaration of independence will be attached to the work order given to the recognized person (specialist) for signing to exclude any appearance of conflict of interest. This document will then be scanned, saved and archived directly in the Système intégré de gestion des immeubles of the storage tank in question. (Planned completion: September 2020)

RECOMMENDATION

3.2.3.F. We recommend that the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough adopt a rotation mechanism for choosing persons (specialists) recognized by the Régie du bâtiment du Québec to verify the conformity of petroleum equipment to provide a fresh perspective on this equipment and to ensure all non-compliances related to current regulations are observed.

BUSINESS UNITS' RESPONSE

3.2.3.F. *Service de la gestion et de la planification immobilière*

[TRANSLATION] We will rotate suppliers when awarding our inspection contracts. (Planned completion: June 2020)

.....

Service de l'eau

[TRANSLATION] The Service de l'eau will draw up a list of inspectors that it will prequalify, to ensure a rotation of persons recognized by the Régie du bâtiment du Québec who will conduct the inspection.

(Planned completion: June 2020)

.....

Lachine borough

[TRANSLATION] The Lachine borough will set up a register of professionals (recognized specialists) to enable the rotation of assignments.

The Lachine borough will propose that other stakeholders covered by this audit forward a request to the Service de l'approvisionnement to obtain a framework agreement. (Planned completion: January 2021)

.....

LaSalle borough

[TRANSLATION] Knowing that conformity checks of the petroleum equipment are required every four years and that a list of recognized persons (specialists) is available on the Régie du bâtiment du Québec's website, a note will be made on the work order to use the Régie du bâtiment du Québec's list, specifying that the mandate be given to a specialist other than the one used the previous time. (Planned completion: September 2020)

3.2.4. Temporary Closure of a Petroleum Storage Tank

3.2.4.A. Background and Findings

The City has obligations as the owner of high-risk petroleum storage tanks when they are temporarily closed. When a high-risk underground petroleum storage tank is not used for more than 180 days but less than two years, the Safety Code of the *Building Act*³⁴ requires that it be emptied if it contains gas, along with all piping, motor fuel dispensers and pumps and, if calculations confirm that the groundwater may lift a tank, the owner must fill the tank with a petroleum product other than gas, and the fuel level must be gauged every month during the time the tank is closed.

Among the business units audited, the Lachine borough, as the entity responsible for the high-risk petroleum storage tanks at the borough's marina, is subject to this requirement. The Lachine borough's marina operates between May 15 and October 15, i.e., for 153 days a year; the underground storage tanks are therefore not used 212 days a year. We were unable to review documents showing the monthly gauging of the levels in these tanks during the winter months of 2017–2018 and 2018–2019. Based on the information obtained by the borough, these measurements were not done due to the difficulty of accessing the storage tanks in winter. In addition, the two storage tanks are maintained at three-quarters of their capacity to avoid a push effect by the water table in the spring. The gas storage tank is therefore not emptied as required by the Safety Code of the *Building Act* (representing a second non-compliance with this same section).

Were a leak to occur in one of these storage tanks during the winter, the borough would only become aware of it in the spring, allowing sufficient time for the petroleum products to contaminate the ground and possibly migrate to the river.

³⁴ Safety Code of the *Building Act* – Section 176.

RECOMMENDATION

3.2.4.B. We recommend that the Lachine borough put in place a procedure to ensure that the requirements of the Safety Code of the *Building Act* are met for storage tanks from which no fuel is extracted for a period of more than 180 days to comply with the current regulation and to ensure that necessary measures are taken to promptly detect any fuel leak that could have an environmental impact.

BUSINESS UNIT'S RESPONSE

3.2.4.B. Lachine borough

[TRANSLATION] This recommendation is exclusive to the Lachine borough since the activities of the marina are closed between October 15 and May 15. The borough, as the manager, will work with the Service des grands parcs, du Mont-Royal et des sports to assess the costs of closing the petroleum storage tanks. (Planned completion: January 2021)

3.2.5. Operation by a Private Company of a Petroleum Storage Tank Belonging to the City

3.2.5.A. Background and Findings

As previously stated, the Lachine borough awarded a contract to a private company to manage the marina, including the operation of the fueling station.³⁵ The specifications of the call for tenders for the management of the Lachine marina in August 2018 states that the winning bidder is fully responsible for the operation of the fueling station and that it must prepare maintenance reports of the gas pumps and send them every month to the borough.

Based on the information provided to us by the borough, the private company conducts tests and verifications on the equipment or has them conducted, plans the preventive maintenance of the pumps, and manages the renewal of the operating permit for the storage tanks, as well as the certificate of conformity. Several of the documents obtained from the borough came directly from the private company, which had to be consulted by the borough several times to answer our questions related to the management and operation of the marina's petroleum storage tanks. The borough claims that it never received any report from the recognized person (specialist) following the certificate of conformity process for the high-risk petroleum storage tanks.

³⁵ The contract currently in force goes from December 1, 2018, to November 30, 2021. However, the company won the earlier calls for tenders and has provided this service since December 2014.

Clearly, the private company controls the management of the marina's fueling station and, therefore, the petroleum storage tanks and makes decisions pertaining to them. For its part, the borough pays the various bills related to the maintenance of the tanks, signs the documents required for the renewal of the permit or certificate of conformity and sends them to the RBQ with the required payment. According to the RBQ, however, official responsibility for the marina's petroleum storage tanks rests with the borough, as evidenced by the operating permit made out in the borough's name. Should the RBQ therefore crack down on a non-compliance related to these petroleum storage tanks, it would not be the company that operates the marina that would be faulted but rather the borough. For example, the 2017 and 2019 permits were renewed late, and it was the Lachine borough that received the final notices from the RBQ and not the private company. These final notices stated that the borough was exposing itself to a fine of up to \$85,945 for operating the storage tanks without a permit. Based on these findings, we believe that the Lachine borough lacks sufficient information from the company about how the high-risk petroleum storage tanks are managed to ensure that the operation, on behalf of the City, complies with the current regulation.

RECOMMENDATION

3.2.5.B. We recommend that the Lachine borough add a provision to its contract with the company managing the marina, setting out an exhaustive list of requirements that it must meet related to the Safety Code of the *Building Act*, so that the borough can ensure, as the entity responsible for the contractual management of the marina, that these petroleum storage tanks are compliant.

BUSINESS UNIT'S RESPONSE

3.2.5.B. Lachine borough

[TRANSLATION] This recommendation is exclusive to the Lachine borough since the activities of the marina are managed by an outside company.

The technical specifications of the call for tenders to manage the Lachine marina (August 2018) state that the successful bidder is entirely responsible for operating the fueling station and, in particular, must prepare maintenance reports for the fuel pumps and forward them monthly to the borough.

For the year 2020, the Lachine borough will ensure that all the documents held by the successful bidder related to the petroleum storage tanks are repatriated to the borough's archives.

In addition, future certificates of conformity will need to be issued in the name of the Service des grands parcs, du Mont-Royal et des sports. The new certificate will be obtained at the start of the 2021 season.

(Planned completion: January 2021)

3.3. Management of Obsolete Petroleum Storage Tanks

3.3.A. Background and Findings

As with all equipment, a petroleum storage tank has a limited lifespan. The older the tank gets, the greater the risk is of a malfunction or leak. It is the City's responsibility, therefore, to know the status of the tanks in order to support replacement or preventive repair decisions. We set out to determine whether the business units were equipped to assess when a petroleum storage tank needed to be replaced.

Among the business units audited, we found that the SMRA and the SGPI were able to provide us with indicators of the lifespan of their storage tanks or criteria to judge their obsolescence. In the case of the SMRA, the theoretical lifespan of a storage tank is based on the material (steel/fibreglass), type of wall (single or double) and location (underground or aboveground). In the case of the SGPI, the criticality of a storage tank is assessed from 1 (a priority) to 5 (no problem), taking into consideration whether it is a single- or double-walled storage tank, its age (the critical age is considered to be 30 years), whether it is fitted with a containment basin and whether it is made of steel.

We also found that the other business units selected—the Service de l'eau, the Lachine borough and the LaSalle borough—were unable to provide us with indicators of the lifespan of their storage tanks or criteria to judge their obsolescence. In our opinion, these business units should know the age of the storage tanks and their degree of obsolescence based on established criteria.

In the absence of criteria for all the business units audited, we applied the criteria of the SMRA and SGPI to the 23 sites in our sample (see Appendix 5.2.) This exercise enabled us to identify the sites where storage tanks had reached their theoretical lifespan. In the case of these storage tanks, we set out to assess to what extent the business units had taken steps to replace them. Based on this analysis, we arrived at the following findings:

- A total of nine sites out of 23 had petroleum storage tanks that had reached their theoretical lifespan based on the criteria of the SMRA or the SGPI;
- The business units have planned to replace the storage tanks for four of the nine sites, i.e., four fueling stations:
 - However, in the case of two underground storage tanks at the SEEU's fueling station (39 years old and a theoretical lifespan of 30 years according to the SMRA) under the jurisdiction of the SMRA, a project to replace them was included in the three-year capital expenditure program, but we observed a time shift in the project's completion. In the 2018–2020 three-year capital expenditure program, plans were to replace these two storage tanks in 2018. In the 2019–2021 three-year expenditure program, this timeline was moved to 2020. The latest version of project planning for the replacement of the fuel storage tanks obtained from the SMRA provides for the replacement to be done in 2020, which would make

these storage tanks 40 years old. The recognized person (specialist) who certified their conformity in May 2017 stated major corrosion in the two storage tanks and “*strongly recommended replacing the two underground storage tanks in the near future*”. In December 2018, at the time of a new conformity verification, the same recognized person (specialist) wrote in their report that “*we expected them to have been replaced, which is not the case*”. This type of deferral regarding the replacement time of these storage tanks appears risky to us, given their age and the cautionary statements made by the recognized person (specialist) who certified them the last two times;

- There are therefore five sites with storage tanks that have reached their theoretical lifespan and for which replacement has not been planned by the business units up to now:
 - On the site of the Lachine borough’s marina, two fuel storage tanks (33 years old) have reached their theoretical lifespan (30 years), and the type of tanks would put them in category 1 criticality if they were under the SGPI. The 2016–2018, 2017–2019 and 2018–2020 three-year capital expenditure programs stated that the Service des grands parcs, du Mont-Royal et des sports was planning various waterfront development initiatives within the framework of the Plan de l’eau project, including the Lachine marina, to “*ensure the safety, viability and success of this space dedicated to water activities*”, in particular, work on the fuel storage tanks. It should be recalled that, under an agreement reached between the City and the Lachine borough in 2015, responsibility for the marina fell to this department and that the investments were to come from its three-year capital expenditure program. A note on the 2018–2020 three-year capital expenditure program stated that, beginning in 2019, the Plan de l’eau project would be entirely dedicated to acquisitions along the Rivière-des-Prairies and lands along the St. Lawrence River. The 2019–2021 three-year capital expenditure program no longer mentions work at the Lachine borough’s marina or on its high-risk petroleum storage tanks. It should be stressed that these storage tanks are near the water and supply a fueling station used by citizens (boaters). A malfunction of these storage tanks could have consequences on the environment and the safety of citizens;
 - In the case of two separate sites with pumping stations under the jurisdiction of the DEEU, the coloured diesel storage tanks (25 years old) have exceeded the theoretical lifespan of the SMRA (20 years according to the SMRA). Considering that our sample of sites contained two wastewater pumping stations and that they were shown to have exceeded their theoretical lifespan, it would be timely for the Service de l’eau to assess the obsolescence of all the petroleum storage tanks in its network;

- In the case of the SEEU, the six generators are supplied with coloured diesel fuel by auxiliary tanks (39 years old) built at the base of each generator. In May 2017, the recognized person (specialist) stated that *“the auxiliary storage tanks have been in service more than 30 years and have reached the end of their useful life. We recommend initiating a project to replace this equipment in the near future.”* Yet no project to replace these auxiliary storage tanks was brought to our attention by the DEEU. The design of the generators would make this a complex replacement project according to the Service de l’eau. Taking this into consideration, it seems all the more relevant to start now to plan for their replacement and to closely monitor the condition of these storage tanks until the replacement project is completed;
- An external aboveground storage tank at Firehall 62 in Dorval (28 years old) has a level 2 criticality based on the SGPI but has exceeded its theoretical lifespan by eight years already according to the criteria of the SMRA (20 years).

Basing ourselves on the criteria used by the SMRA and the SGPI, we could only conclude that some petroleum storage tanks seem to have reached or exceeded their theoretical lifespan. As this audit report does not pretend to be a technical assessment of the obsolescence of the storage tanks, we leave it to the business units to conduct the necessary studies to determine the obsolescence of their storage tanks. Nevertheless, in the case of the six auxiliary storage tanks of the generators at the SEEU and the two underground storage tanks of the fueling station of the SEEU, we found that the Service de l’eau and the SMRA failed to act on the recommendations made twice, in 2017 and 2018, by the recognized person (specialist) that the tanks need to be replaced. We believe that necessary measures must be taken to replace them.

Beyond knowing the age of the storage tanks and establishing criteria for determining when a storage tank needs to be replaced, we also wanted to find out whether the business units had an obsolescence management plan containing a methodology to identify and prioritize the storage units to be replaced, an action plan to replace them and a budget. No business unit had this type of management plan in its entirety. The one plan that came closest without being complete was that of the SMRA. In addition to having criteria to establish the theoretical lifespan of storage tanks, this department has a three-year capital expenditure program to replace storage tanks that are most at risk.³⁶ At the SGPI, as previously mentioned, an internal classification was made of the level of criticality of the storage tanks. According to the list of storage tanks obtained from this department, two sites still have storage tanks with a level 1 priority criticality. As in the case of the SMRA, this prioritization of the storage tanks should be accompanied by a capital investment plan to implement the identified priority replacement projects. Considering the

³⁶ The SMRA has a project in its 2020–2022 three-year capital investment program to bring fueling stations up to standard, including replacing petroleum storage tanks. An annual budget of \$775,000 is forecast. According to the SMRA’s plan that we observed to replace the storage tanks, this budget is insufficient to carry out the work planned for 2020, which involves replacing the storage tanks for two fueling stations for a total amount of \$1,050,000.

consequences that could result from an accident with a petroleum storage tank, we believe that it is necessary for business units to have a plan to manage the obsolescence of the storage tanks under their jurisdiction and to apply it.

RECOMMENDATION

3.3.B. We recommend that the Service du matériel roulant et des ateliers undertake to replace both underground tanks of the fueling station at the Station d'épuration des eaux usées, as recommended by a recognized person (specialist) in 2017 and 2018, to ensure that they do not pose any undue risk for the environment, the City's infrastructure and users.

BUSINESS UNIT'S RESPONSE

3.3.B. *Service du matériel roulant et des ateliers*
[TRANSLATION] Work is currently under way – Produce an updated schedule for work to replace the fueling station. (Planned completion: March 2020)

RECOMMENDATION

3.3.C. We recommend that the Service de l'eau replace the six auxiliary storage tanks of the generators at the Station d'épuration des eaux usées, as recommended by a recognized person (specialist) in 2017 and 2018, to ensure that they do not pose any undue risk for the environment, the City's infrastructure and users.

BUSINESS UNIT'S RESPONSE

3.3.C. *Service de l'eau*
[TRANSLATION] The Direction de l'épuration des eaux usées mandated a specialized inspection firm to check the condition of the generators' six auxiliary storage tanks. The inspection reports showed that the storage tanks were in good working order and fit for service. The issued reports recommend that the next inspection be scheduled for 2024.
(Planned completion: completed)

RECOMMENDATION

3.3.D. We recommend that the Service du matériel roulant et des ateliers, the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough adopt a plan to manage the obsolescent petroleum storage tanks under their jurisdiction that includes a methodology to identify and prioritize storage tanks to be replaced, establish the necessary budgets, and implement it to ensure that these business units have petroleum storage tanks that are safe for the environment, the City's infrastructure, users and citizens.

BUSINESS UNITS' RESPONSE

3.3.D. **Service du matériel roulant et des ateliers**

[TRANSLATION] Effective planning of the investments required for the municipal fueling stations over three years (from 2020 to 2023).

(Planned completion: completed)

.....
Service de la gestion et de la planification immobilière

[TRANSLATION] The Service de la gestion et de la planification immobilière already has a mechanism to assess the non-regulated storage tanks that supply the generators. We will draw up a list of the replacement work planned for these storage tanks, based on information about our tanks' obsolescence. This list will set out a schedule to replace the storage tanks.

(Planned completion: March 2020)

.....
Service de l'eau

[TRANSLATION] The Service de l'eau will develop a management plan of specific assets for the petroleum storage tanks.

(Planned completion: August 2020)

.....
Lachine borough

[TRANSLATION] The petroleum storage tanks will be added to the list of assets in the annual report requested by the City. The obsolescence will be based mainly on the life cycle of the asset and the regular inspections carried out.

The Service des grands parcs, du Mont-Royal et des sports is responsible for managing the obsolescence of the marina storage tank. They are already aware of the obsolescence of the assets. The borough commits to providing all the necessary documentation requested by the owner.

(Planned completion: January 2021)

.....
LaSalle borough

[TRANSLATION] The technical data and safety data sheet of each storage tank, as well as its provenance (manufacturer), will be entered into the Système intégré de gestion des immeubles, and a preventive maintenance plan will be implemented to produce a work order at the appropriate time setting out the conditions for updating the storage tanks.

(Planned completion: September 2020)

3.4. Preventive Maintenance of Petroleum Storage Tanks

3.4.A. Background and Findings

Considering that the verification of conformity deals with only one part of the City's petroleum storage tanks (those at high risk), that it only addresses some requirements of the CC and Safety Code of the *Building Act* and that it is performed every two years at best, we wanted to know whether the business units also carried out preventive maintenance on all the petroleum storage tanks to ensure that using them was safe. We also wanted to know, if an accident with a storage tank occurred, whether a business unit would be able to show that the event was not associated with a lack of maintenance.

The maintenance process can generally be divided into two phases, the first being preventive, starting with a series of observations of the equipment. If there are signs of a malfunction or defect, a second phase, corrective maintenance, is initiated. A preventive maintenance management plan must contain a description of the equipment and a list of maintenance tasks to be done, an implementation schedule and a follow-up of the maintenance performed, i.e., a description of the work done.

In the case of the City, the maintenance of petroleum storage tanks is performed either internally or externally depending on the business unit. As part of the first phase, observations are generally made within the framework of overall equipment maintenance, such as maintenance of the generators or of the fuel pumps.³⁷ Two major findings stood out from the visual observation of the petroleum products equipment carried out as part of maintenance in the various business units audited:

- Wide variability in the frequency with which storage tanks and other petroleum equipment are visually inspected:
 - At the SMRA, the visual inspection of fueling stations is performed daily. The DEP does a tour of its equipment weekly. The DEEU does a daily visual inspection of all the equipment at the SEEU and a monthly tour of the various pumping stations and buildings where petroleum storage tanks are located. Once a month, there is also a visual inspection done by an outside firm of the two petroleum storage tanks that supply the incinerators at the SEEU. Of all the visual inspections stated above, that is the only one done by an outside firm. All these inspections fall within the category of those performed on a short-term frequency;
 - The Lachine borough and the LaSalle borough have their petroleum equipment inspected once a year by an outside firm. The SGPI has its emergency generators inspected twice a year by an outside firm, as well as its storage tanks and piping. Considering that the SGPI is the business

³⁷ At the Lachine borough's marina, the inspection and maintenance are performed during the opening of the fueling station in the spring, when the supply system is reactivated. Finally, at the SEEU and Rhéaume pumping stations, maintenance is done simultaneously with the verification of conformity process of high-risk storage tanks (the situation in 2017 and 2018).

unit with the most non-high-risk storage tanks (see Table 3) and that, based on the documents obtained for our sample, half of the non-high-risk storage tanks have no automatic leak detection system, there is good reason to question whether a visual inspection once or twice a year is adequate to avoid an incident or to uncover any signs of fatigue (e.g., seepage) in a pipe or coupling before a major break occurs;

- Limited preventive maintenance documentation:
 - The preventive maintenance done on the petroleum storage tanks in the pumping stations and buildings of the DEEU is planned through the MAXIMO system.³⁸ The request for an intervention that is generated involves the building and generator together. In the case of the petroleum storage tank specifically, the request is limited to a reading of the diesel level in the storage tank. The information subsequently entered in MAXIMO only gives the duration of the work performed. In the absence of information about any observed leak, one must conclude that there is none. We believe that it would be difficult for the City to demonstrate thoroughly and without any doubt that it had inspected the integrity of its equipment, that it had acted in a responsible manner and that, in this light, it could not have known that a leak would occur;
 - At the DEP, the inspection forms for the generators include a visual search for a leak and the diesel level in the storage tank. These forms contain only a box to check off regarding the observation, without any clarification about what was observed;
 - The forms of the outside firm performing the maintenance of the emergency generators at the SPGI and the Lachine borough include the fuel level in the storage tanks and the presence of a leak in the piping, couplings and casings. Here, again, a simple box to check off serves as proof that the work has been done;
 - In the case of the SMRA, daily maintenance is a little broader in scope and involves checking the conformity of the casings, guns, couplings, and distributors and the detection of leaks, in particular. While there is a form that specifies what must be taken into consideration during a daily tour of the fueling stations, it is not used. In fact, observations are only documented if there is a problem, and a work order is opened to correct the situation;
 - In the case of the Lachine borough's marina, as with the high-risk storage tanks of the LaSalle borough, the observation is recorded by an outside firm and supported by a bill for the work done;
 - The absence of documentation regarding the preventive maintenance work performed is a weakness in implementing a standard maintenance management plan.

³⁸ MAXIMO is a commercial business asset management software used by various business units at the City, especially to manage the maintenance of their assets.

Finally, in no case were we able to ascertain, outside of the mandatory conformity verification of high-risk petroleum storage tanks, that the business units verified or had a more detailed verification done of all the components of the petroleum equipment under their jurisdiction (e.g., corrosion, loose coupling, unsupported pipe, inappropriate valve) and not just a visual search for leaks. The absence of regular inspections limits the ability of the business units to ensure that all the petroleum storage tanks are compliant and safe within the meaning of the Safety Code of the *Building Act*.³⁹

In this regard, and based on our observations, we find that the business units are not equipped with a maintenance management plan and that, in the event of an accident, it would be difficult for a business unit to demonstrate thoroughly and without any doubt that it had acted sufficiently and in compliance with the regulation in force to ensure that the petroleum equipment under its jurisdiction was safe.

RECOMMENDATION

3.4.B. We recommend that the Service de la gestion et de la planification immobilière, the Service du matériel roulant et des ateliers, the Service de l'eau, the Lachine borough and the LaSalle borough adopt a maintenance management plan that applies to all the petroleum storage tanks for which it is responsible to ensure the conformity and safety of this equipment and to be able to demonstrate this, if need be.

BUSINESS UNITS' RESPONSE

3.4.B. Service de la gestion et de la planification immobilière
[TRANSLATION] Reporting to the designated person, a working group will develop a planned maintenance program specific to the non-regulated petroleum storage tanks that supply our generators. This planned maintenance program will be carried out at the same time as the planned maintenance program of the generators. A new inspection form will also be drawn up to ensure that the equipment is compliant and safe and to be able to demonstrate this if need be. (Planned completion: December 2020)

Service du matériel roulant et des ateliers
[TRANSLATION] Development of a preventive maintenance plan (with a frequency to be determined) and including a checklist for all the petroleum storage tanks. (Planned completion: April 2020)

³⁹ Safety Code of the *Building Act* – sections 132, 133, 134 and 135.

Service de l'eau

*[TRANSLATION] The Service de l'eau will amend the preventive maintenance program for the petroleum storage tanks in the MAXIMO software.
(Planned completion: December 2020)*

Lachine borough

*[TRANSLATION] The borough plans to add a regular inspection round of its storage tanks (the frequency to be determined) by internal staff. We will draw up an inspection form to be filled in and saved.
(Planned completion: January 2021)*

LaSalle borough

*[TRANSLATION] The storage tanks will be inventoried and saved along with the tanks' technical data and installation date in our Système intégré de gestion des immeubles. Once the tanks are inventoried in the Système intégré de gestion des immeubles, a preventive maintenance program will be created and applied. In this way, work orders will be produced and assigned to employees to perform the tasks identified therein. Once the work is completed, the work order will be signed, dated and then scanned and saved in the Système intégré de gestion des immeubles.
(Planned completion: September 2020)*

3.5. Safety Measures to Prevent or Confine Leaks

3.5.1. Automatic Leak Detection System

3.5.1.A. Background and Findings

Some storage tanks are equipped with a leak detection system to quickly detect a leak of petroleum products at any time. Guaranteeing protection with such a system, however, requires regular assurance that it is in good working order and that the detection triggers an alarm that is dealt with quickly. We wanted to learn what portion of the City's petroleum storage tanks were equipped with a leak detection system. One of the sites of the DEEU, the SEEU, contains four types of petroleum storage tanks, each having separate functions (fueling station, auxiliary storage tanks supplying the generators, main storage tanks supplying the auxiliary tanks, and the storage tank for the incinerators) and variations in the leak detection systems. We looked at them separately. For this section only, rather than talking about the 23 sites in our sample (see Appendix 5.2), we will talk about 26 groups⁴⁰ of storage tanks.

⁴⁰ 22 sites in the sample, plus four separate types of storage tanks at the 23rd site under the jurisdiction of the SEEU of the DEEU.

Nineteen out of the 26 groups (73.1%) have storage tanks equipped with a detection system. This proportion is greater for high-risk storage tanks, with 14 out of 16 groups (87.5%) having such a system. The vast majority of these systems (15 out of the 19 equipped with such a system) are connected to an alarm (78.9%). In 11 of 15 groups (73.3%), when an alarm is triggered, it is received in a control centre, i.e., the monitoring station of a drinking water plant, the SEEU or the City's Centre opérationnel de sécurité. Where the leak detection system is connected to a local alarm, the persons in charge of the storage tank are only informed when someone walking by the premises where the generator is located becomes aware of it. The SGPI stated that, in this case, the employee who detects the alarm must notify the City's Centre opérationnel de sécurité, which, in turn, will alert the persons in charge of the storage tank. At the DEP, the employee who detects the alarm must contact their manager or the on-duty manager outside of normal business hours.

We also wanted to ensure that these systems were periodically monitored to check that they were operating properly. The Safety Code of the *Building Act*⁴¹ requires that the leak detection systems of high-risk underground storage tanks be inspected every two years. Of the 14 groups with high-risk storage tanks that have leak detection systems, 12 were for underground tanks, and we had evidence that these leak detection systems were verified for 10 of them. In the case of the other two sites (the Lachine borough's marina and the Dorval drinking water plant), the business units could not provide us with proof of these verifications.

Of the five groups with non-high-risk storage tanks equipped with a leak detection system, four were under the jurisdiction of the SGPI. They are only maintained twice a year by an outside firm as part of the maintenance of the generators. The reports of the outside firms do not specify whether the leak detection systems were checked. The fifth group is under the jurisdiction of the DEP. The internal inspection procedure used does not specify whether the leak detection system is verified.

⁴¹ Safety Code of the *Building Act* – Section 139.

RECOMMENDATION

3.5.1.B. We recommend that the Service de la gestion et de la planification immobilière and the Service de l'eau verify, on an appropriate frequency, the proper functioning of the leak detection systems installed on the petroleum storage tanks that are not high-risk to ensure that they are able to promptly detect a leak and minimize the consequences on the City's infrastructure and the environment.

BUSINESS UNITS' RESPONSE

3.5.1.B. Service de la gestion et de la planification immobilière

[TRANSLATION] The working group cited in 3.4.B. – Service de la gestion et de la planification immobilière will also cover the frequency and inspections in the planned maintenance program to come.

(Planned completion: December 2020)

.....

Service de l'eau

[TRANSLATION] The Service de l'eau will amend the preventive maintenance program for the petroleum storage tanks in the MAXIMO software.

(Planned completion: December 2020)

3.5.2. Confinement of Leaks and Other Safety Measures

3.5.2.A. Background and Findings

The Safety Code of the *Building Act* requires that a site where a high-risk petroleum storage tank is situated be equipped with at least one portable fire extinguisher⁴² and oil absorbents.⁴³ In the case of fueling stations, there must be at least two extinguishers, including an extinguisher located less than 10 metres from the pumps.⁴⁴ We wanted to ensure that the audited business units complied with these requirements.

In the case of the five fueling stations in our sample (SMRA sites, see Appendix 5.2), two of them (rue Saint-Antoine and rue Remembrance – non-high-risk site) do not have the minimally required extinguishers, making them non-compliant. We obtained evidence of the presence of two extinguishers for each of the other three sites, making the sites compliant with this requirement. In addition, the four high-risk fueling stations in our sample are each equipped with oil absorbents in compliance with the regulation.

All the sites in our sample that contain high-risk and non-high-risk storage tanks at the DEP and the DEEU (total of seven sites) meet the requirement for an extinguisher nearby and oil absorbents. By having these measures also on sites

⁴² Safety Code of the *Building Act* – Section 170.

⁴³ Safety Code of the *Building Act* – Section 171.

⁴⁴ Safety Code of the *Building Act* – Section 220.

where the storage tanks are not at high risk, the Service de l'eau is developing a good practice that goes beyond regulatory requirements. The LaSalle borough's sites that have high-risk petroleum storage tanks also comply with the requirement for extinguishers and oil absorbents. The Lachine borough's marina is also compliant, with three extinguishers on the docks, as well as a 50-ft-long absorbent barrier that can be deployed on the surface of the water to contain a fuel spill. At the SGPI, the inside storage tanks that supply the emergency generators are all in buildings where there are extinguishers, but none of these premises has oil absorbents, not even the two high-risk sites in our sample (boulevard Saint-Joseph Est and rue Saint-Urbain). This is a non-compliance with the requirement to have oil absorbents close to high-risk petroleum storage tanks. In the case of the SGPI, considering that our sample contained two sites with high-risk petroleum storage tanks and that these two sites were non-compliant, a more thorough verification should be done by the SGPI on all its sites. As is done by the Service de l'eau, a good practice would be to also have oil absorbents close to non-high-risk petroleum equipment.

RECOMMENDATION

3.5.2.B. We recommend that the Service du matériel roulant et des ateliers ensure that all the City's fueling stations are equipped with at least two portable extinguishers in good working order, including one located less than 10 metres from the pumps, to ensure the safety of the users of these stations and to comply with the Safety Code of the *Building Act*.

BUSINESS UNIT'S RESPONSE

3.5.2.B. *Service du matériel roulant et des ateliers*

[TRANSLATION]

1. *The Service du matériel roulant et des ateliers will draw up an inventory of operational portable extinguishers on all the City's fueling station sites. (Planned completion: April 2020)*
2. *Purchase and install portable extinguishers, if required, to comply with the standard of two units per site. (Planned completion: September 2020)*

RECOMMENDATION

3.5.2.C. We recommend that the Service de la gestion et de la planification immobilière ensure that it has, on all its premises housing a petroleum storage tank, oil absorbents to comply with the Safety Code of the *Building Act* regarding high-risk storage tanks and, as a precautionary measure and good practice, for all the other storage tanks to minimize the consequences on the environment and the City's infrastructure in the event of a leak of petroleum products.

BUSINESS UNIT'S RESPONSE

3.5.2.C. *Service de la gestion et de la planification immobilière*
[TRANSLATION] During the first maintenance visit conducted on the generators between March 1 and May 30, 2020, the technical officer will ensure that the successful bidder of our maintenance contract supplies oil absorbents in each of our mechanical rooms.
(Planned completion: May 2020)

3.6. Accountability for the Operation of Petroleum Storage Tanks

3.6.A. Background and Findings

We tried to find out whether the business units responsible for petroleum storage tanks reported on the conformity of these storage tanks. All the managers we met in the business units indicated that they did not, nor were they asked to, report on the safety measures in place to prevent leaks or on the preventive maintenance performed or the overall conformity of the storage tanks when renewing the permit or certificate of conformity for these storage tanks. Basing ourselves on two of the City's administrative frameworks, we consider that the business units should nevertheless equip themselves and produce accountability reports.

The Directive sur la Conformité aux lois et règlements⁴⁵ tasks department managers and borough directors with “ensuring that risks of non-compliance with the acts and regulations applicable to their operations are identified, addressed and monitored to ensure compliance with and application of the current legislation and regulations”. It adds that the director general may at all times require a report on the implementation of this directive. Considering the legislative framework surrounding petroleum storage tanks and the verification process of the conformity of high-risk petroleum storage tanks, it seems important that the department managers and borough directors be aware of the conformity of the petroleum storage tanks under their jurisdiction and the actions taken or to be taken to correct non-compliances.

⁴⁵ C-OG-DG-D-15-005, came into effect on June 23, 2015.

The Directive sur la Connaissance de l'état des actifs⁴⁶ requires that each business unit assess the assets under its jurisdiction at most every five years to be able to rate their condition, remaining lifespan and replacement cost upon expiry. The Directive also requires that an annual report of the status of the assets be produced on January 30, using the data collected the previous year,⁴⁷ and that it be forwarded to the Direction générale.

Basing ourselves on the number of petroleum storage tanks that we identified as having reached or exceeded their theoretical lifespan, we believe that the status of obsolescence of all the petroleum storage tanks, and especially those at high-risk, under the jurisdiction of a business unit, must be communicated periodically to the management of these business units so that they can, in turn, comply with this Directive and produce the required annual report.

⁴⁶ C-OG-BPPI-D-18-001, came into effect on November 30, 2018.

⁴⁷ This directive dates from November 30, 2018, and the first annual report must be produced no later than January 30, 2020.

RECOMMENDATION

3.6.B. We recommend that the Service du matériel roulant et des ateliers, the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough adopt an accountability reporting mechanism related to the conformity of petroleum storage tanks to comply with the Directive sur la conformité aux lois et règlements and, if need be, to make the necessary decisions.

BUSINESS UNITS' RESPONSE

3.6.B. *Service du matériel roulant et des ateliers*

[TRANSLATION] Prepare an annual summary of the five points* mentioned in the auditor's report, attesting to the compliance of all the fueling station storage tanks and/or of the required action plan – This document will be available on the shared network.

*(renewal of permits, certificate of conformity, overall compliance of the storage tanks, safety measures in place to prevent leaks, preventive maintenance performed). (Planned completion: May 2020)

Service de la gestion et de la planification immobilière

[TRANSLATION] Update a central information table with the Service du matériel roulant et des ateliers. (Planned completion: May 2020)

Service de l'eau

[TRANSLATION] Produce an overall annual report for the Service de l'eau outlining the management status of the petroleum storage tanks. (Planned completion: December 2020)

Lachine borough

[TRANSLATION] The petroleum storage tanks will be added to the list of assets in the annual report requested by the City. The report will be forwarded to the Direction générale. (Planned completion: January 2021)

LaSalle borough

[TRANSLATION] Regarding accountability for the conformity of the storage tanks, an item will be added at the end of each work order to inform the person in charge of document management to forward a scanned copy of all the documentation sent to the Régie du bâtiment du Québec to the borough management. (Planned completion: September 2020)

RECOMMENDATION

3.6.C. We recommend that the Service du matériel roulant et des ateliers, the Service de la gestion et de la planification immobilière, the Service de l'eau, the Lachine borough and the LaSalle borough forward annual reports on the status of the petroleum storage tanks to the Direction générale to comply with the new Directive sur la connaissance de l'état des actifs.

BUSINESS UNITS' RESPONSE

3.6.C. *Service du matériel roulant et des ateliers*

[TRANSLATION] In accordance with the administrative framework governing awareness of the state of the assets, the report of the condition of the petroleum storage tanks was sent on February 21, 2020.

(Planned completion: completed)

.....

Service de la gestion et de la planification immobilière

[TRANSLATION] Forward the table in collaboration with the Service du matériel roulant et des ateliers. **(Planned completion: November 2020)**

.....

Service de l'eau

[TRANSLATION] Integrate a specific component for petroleum storage tanks, including their condition, regulatory compliance and preventive maintenance, within the framework of annual recordkeeping in keeping with the directive of awareness of the state of the asset. **(Planned completion: December 2020)**

.....

Lachine borough

[TRANSLATION] The petroleum storage tanks will be added to the list of assets in the annual report requested by the City.

(Planned completion: January 2021)

.....

LaSalle borough

[TRANSLATION] Regarding accountability to the Direction générale, an item will be added at the end of the work order to inform the person in charge of document management to forward a scanned copy of the certificate of conformity, along with a report of the state of the storage tanks, to the borough management. **(Planned completion: September 2020)**

4. CONCLUSION

The Ville de Montréal (the City) is the owner of petroleum storage tanks spread across more than 176 sites. As such, it must comply with the requirements of the *Building Act* and the Construction Code and Safety Code stemming from it. In the case of storage tanks with a capacity exceeding the limits set out in the Construction Code of the *Building Act* (CC), there are more requirements, and the City must periodically renew a certificate of conformity for each of the sites where such high-risk storage tanks are located. The ultimate goal of complying with these requirements is to ensure that the operation of these storage tanks is safe for users, citizens and the environment.

Our audit work led us to conclude that the operation of the City's petroleum storage tanks does not fully comply with the provisions of the Act, in particular due to the absence of permits for high-risk petroleum storage tanks, overdue renewals of certificates of conformity, the absence of certain tests and verifications of components or protection measures that are to be performed at set frequencies, as well as non-compliance with certain safety requirements.

The preventive maintenance performed on petroleum storage tanks, both those at high risk and others, often consists of a poorly documented observation of the absence of a leak. The discovery of a leak of petroleum products is usually the result of a series of signs of distress that were ignored.

The audited business units rely entirely on the person (specialist) recognized by the Régie du bâtiment du Québec (RBQ) for the certificate of conformity, without attempting to ensure that the work has been done completely and adequately and is well documented. We also noted a wide variability in the content of the reports of these persons (specialists) recognized by the RBQ, as well as situations where the independence of these professionals could not be assured.

In light of these findings and with the goal of fostering a safer operation of the petroleum storage tanks, we have recommended, in particular, that the audited business units:

- Ensure that operating permits are obtained for all petroleum storage units that qualify as high-risk;
- Create a register for each site that has at least one high-risk petroleum storage tank, containing all the documents required by the current regulation;
- Adopt a schedule defining the tests and verifications to be performed on the high-risk petroleum storage tanks to comply with the current regulations;
- Ensure that the certificate of conformity reports produced by the persons (specialists) recognized by the RBQ are complete and comment on all the points that should be verified in accordance with the current regulations;
- Ensure the independence of the person (specialist) recognized by the RBQ before they start work on the certificate of conformity of petroleum storage tanks, and that it is not always the same person doing the certification;
- Adopt an obsolescence management plan to be able to plan the replacement of petroleum storage tanks that have reached their theoretical lifespan;
- Adopt a preventive maintenance management plan and ensure that the maintenance is properly documented to show that it has been done, if need be;
- Produce a yearly report on the status of obsolescence of petroleum storage tanks for the Direction générale and adopt accountability reporting mechanisms aimed at applying the Directive sur la conformité aux lois et règlements.

Compliance with the current regulation, immediate implementation of measures to correct the non-compliances identified during a verification, and planned preventive maintenance are all measures that enable the City to optimize the safety of its petroleum equipment. Since there is no such thing as “zero” risk, if an accident occurs involving such equipment, complete and adequate documentation of verifications and preventive maintenance would enable the City to rightly show the thoroughness with which it has acted as the responsible owner of petroleum products.

5. APPENDICES

5.1. Objective and Evaluation Criteria

Objective

To ensure that the operation of petroleum storage tanks is done in compliance with the provisions of the Act and in a safe manner for users, citizens and the environment.

Evaluation Criteria

- The City has a complete inventory of petroleum storage tanks and all the permits required to operate them;
- A register of documents required by the Safety Code of the *Building Act* is complete and up-to-date for each high-risk petroleum storage tank;
- Preventive maintenance of the petroleum tanks is planned and documented;
- Safety measures are in force and up-to-date to ensure the safety of users, citizens and the environment;
- Reports are made to the decision makers involved in the conformity of the petroleum storage tanks.

5.2. Details of the Sample Used for the Audit

Table A – **Number of Sites per Business Unit Making Up the Sample Used for This Audit**

SITES WITH AT LEAST ONE STORAGE TANK	SERVICE DU MATÉRIEL ROULANT ET DES ATELIERS	SERVICE DE LA GESTION ET DE LA PLANIFICATION IMMOBILIÈRE	SERVICE DE L'EAU		LACHINE BOROUGH	LASALLE BOROUGH	TOTAL
			DIRECTION DE L'EAU POTABLE	DIRECTION DE L'ÉPURATION DES EAUX USÉES			
High-risk	4	2	2	2	1	2	13
Non-high-risk	1	6	1	2	0	0	10
TOTAL	5	8	3	4	1	2	23