2.19 Elevating Devices and Other Inspections

Introduction

The Department of Government Services is responsible for the inspection of amusement rides, elevating devices, boilers and pressure systems. The inspection of amusement rides and elevating devices is conducted under the *Amusement Rides and Elevating Devices Regulations* and the inspection of boilers and pressure systems is conducted under the *Boiler, Pressure Vessel and Compressed Gas Regulations.* Both of these regulations are included under the *Public Safety Act*, which was designed to provide for the safety of the public. Devices covered under these regulations and requiring inspections include:

1. Amusement Ride - the structure and machinery designed to entertain or amuse people by physically moving them.

2. Elevating device - an apparatus or a device, whether or not part of a building, used for lifting, lowering or transporting persons or goods from one permanent level, floor, landing or point to another and includes an elevator, dumbwaiter, escalator, man lift, incline lift, aerial tram, ski lift or ski tow.

3. Boiler - a vessel in which gas or vapour may be generated or liquid may be put under pressure by the application of heat and includes a pipe or fitting, prime mover, machinery or other equipment attached to or used in connection with the vessel.

4. Pressure vessel - a receptacle, other than a boiler, which is or is capable of being used for containing, storing, distributing, transferring, distilling, evaporating, processing, or otherwise handling of a gas, vapour or liquid under pressure and includes a pipe, fitting or other equipment attached to or used in connection with a pipe or fitting.

The inspections of these devices are performed by 9 inspectors employed with the Engineering and Inspection Services Division of the Department of Government Services. Certificates are issued for the purpose of registration or inspection of a system or device, and are mandatory for the operation of a device or system. A certificate is granted based on the results of the inspections. As part of an inspection, the inspectors identify any deficiencies in the operation of the devices and vessels and issue directives notifying the owner/operator that the deficiency must be corrected. The usual deadline for compliance with the directive is 30 days. After the inspector determines compliance with the directive, a certificate is issued.

2.19 Elevating Devices and Other Inspections

The Government Service Centre located in St. John's is the headquarters for the Engineering and Inspection Services Division, and is responsible for the administration of the *Amusement Rides and Elevating Devices Regulations* and the *Boiler, Pressure Vessel and Compressed Gas Regulations*.

Two inspectors are responsible for the inspection of amusement rides and elevating devices. All active amusement rides and elevating devices are required to be inspected annually. At the beginning of the year, each inspector is provided with a schedule of inspections that are to be performed during the year. The Department has a database which contains information used to manage amusement rides and elevating devices administered under the regulations. Figure 1, based on Government records, displays the total number of amusement rides and elevating devices, the number of rides and devices requiring inspection each year, the number of inspectors available to perform these inspections and the number of inspections completed.

Figure 1

Inspections of Amusement Rides and Elevating Devices
Years Ended 31 December

	Devices per Database	Inspections Required (Note 1)	Inspectors	Inspection Completed
Amusement Rides - 2003	52	51		34
Elevating Devices - 2003	1,222	1,201		1,018
Total 2003	1,274	1,252	2	1,052
Amusement Rides - 2002	52	51		34
Elevating Devices - 2002	1,187	1,162		913
Total 2002	1,239	1,213	2	947

Note 1: Based on devices identified as active by GSC database.
Source: Government Service Centre records

Seven inspectors are responsible for the inspection of boilers and pressure vessels. The inspection frequency varies based on the type of vessel. Boilers are required to be inspected annually, whereas inspection of pressure vessels are required either annually, every 24 months or 36 months, depending upon the type of vessel. On the 15th of each month, those boilers and pressure vessels requiring inspection in the subsequent month are identified by their database system and then assigned to the respective inspectors.

2.19 Elevating Devices and Other Inspections

The Department has a Boiler and Pressure Vessel Management System (BPVMS) database which provides information used to manage boilers and pressure vessels administered under the regulations. Data in the BPVMS identifies 47 types of boilers and pressure vessels. Figure 2, based on Government records, displays the total number of boilers and pressure vessels, the number of boilers and pressure vessels requiring inspection each year, the number of inspectors available to perform these inspections and the number of inspection completed.

Figure 2

Inspections of Boilers and Pressure Vessels
Years Ended 31 December

Year	Vessels per Database	Inspections Required	Inspectors	Inspections Completed
2003	12,595	5,615	7	5,051
2002	12,348	6,816	7	6,077

Source: Government Service Centre records

Scope and Objectives

We completed our review in March 2004. Our review covered the period 1 January 2002 to 31 December 2003 and focused on the inspection activity required under the *Public Safety Act*, the *Amusement Rides and Elevating Devices Regulations* and the *Boiler, Pressure Vessel and Compressed Gas Regulations*.

Our objectives were to determine:

- whether the Department was complying with the inspection frequency requirements under the *Amusement Rides and Elevating Devices Regulations* and the *Boiler, Pressure Vessel and Compressed Gas Regulations*,
- whether the Department's databases for the administration of *Amusement Rides and Elevating Devices Regulations* and the *Boiler, Pressure Vessel and Compressed Gas Regulations* were accurate, and
- whether the deficiencies noted by inspectors during the inspections of devices and vessels were being monitored.

2.19 Elevating Devices and Other Inspections

We selected a sample of amusement rides, elevating devices, boilers and pressure vessels and reviewed the inspection reports and files of each of those included in the sample. In addition, we reviewed the two databases maintained by the Government Services Centre for administration of the *Amusement Rides and Elevating Device Regulations* and the *Boiler, Pressure Vessel and Compressed Gas Regulations.*

Conclusions

Our review indicated that the Department of Government Services did not conduct all of the inspection activities necessary to ensure the safe operation of elevating devices, amusement rides, boilers and pressure vessels in the Province. In particular:

- Contrary to the *Public Safety Act*, 163 (56%) of the 291 elevating devices we reviewed operated for a period during 2003 without a certificate - 19 were still not inspected as of 31 March 2004. The Department did not include sufficient consideration of risk when scheduling inspections of elevating devices.

- Contrary to the *Amusement Rides and Elevating Devices Regulations*, 116 of the 291 elevating devices reviewed were issued a certificate with an expiry date exceeding 12 months - 42 were issued for 13 months, 65 were issued for 14 months, 7 were issued for 15 months and 2 were issued for 16 months.

- 11 elevating device files examined had identified deficiencies and directives had been issued; however, 3 of the files did not contain details of the deficiency and there was no documentation on file to indicate whether the deficiencies were corrected or that any follow-up was performed.

- Contrary to the *Public Safety Act*, 2 of the 36 amusement rides we reviewed operated during 2003 without a certificate - these 2 amusement rides were not inspected until February 2004.

- 8 amusement ride files examined had identified deficiencies and directives had been issued; however, in 4 of these 8 instances there was no documentation on file to indicate whether the deficiencies were corrected or that any follow-up was performed.

- The field inspection reports for elevating devices were inadequate for documenting compliance with the *Regulations*. There was no field inspection report designed specifically for the inspection of amusement rides. Instead, the Department used the same inspection report used for elevating devices which was inadequate for documenting compliance with the *Regulations*.

- Contrary to the *Public Safety Act*, 174 (48.3%) of the 360 boilers and pressure vessels tested operated for a period during 2003 without a valid certificate - 21 were still not inspected as of 31 March 2004.

- Information in the databases used for amusement rides, elevating devices, boilers and pressure vessels was inaccurate.

Findings and Recommendations

Elevating Devices and Amusement Rides

The *Public Safety Act* requires that no device shall operate unless the owner/operator holds a valid certificate issued by Government. The *Amusement Rides and Elevating Devices Regulations* specify that the certificate issued to an amusement ride is valid for the calendar year in which the certificate is issued, and the certificate for an elevating device is valid for a period of 12 months from when the certificate was issued. Inspections of the rides and devices are required to be performed prior to the issuance or renewal of a certificate. If amusement rides or elevating devices operate without a valid certificate, they are operating in contravention of the *Public Safety Act.*

1. Elevating Devices

We reviewed 291 elevating device files for the calendar years 2003 and 2002 and found that the Department had not complied with the *Amusement Rides and Elevating Devices Regulations* in that elevating devices were not being inspected at the required frequency. Our review indicated that:

- For 2003, of the 291 elevating devices reviewed:

  - 163 or 56% with a certificate expiring prior to 31 December 2003 operated for a period during 2003 without a certificate. Of those 163 elevating devices, 19 were still not inspected as of 31 March 2004.

  - 116 were issued a certificate with an expiry date exceeding 12 months from the date of issue - 42 were issued for 13 months, 65 were issued for 14 months, 7 were issued for 15 months and 2 were issued for 16 months. It is the practice of the Department to issue certificates that expire at the end of the month following the month in which the inspection is performed, thereby issuing certificates for average periods of 13 to 14 months. This is in contravention to the *Amusement Rides and Elevating Devices Regulations*

which provide for certificates being valid for a maximum period of 12 months.

- 3 of the 11 elevating device files which had directives issued identifying deficiencies did not identify details of the deficiency. Furthermore, in these 3 instances, there was no documentation on file to indicate whether the directives were complied with or that any follow-up was performed.

- For 2002, of the 291 elevating devices reviewed:

  - 155 or 53.3% with a certificate expiring prior to 31 December 2002 operated for a period during 2002 without a certificate. Of those 155 elevating devices, 2 were still not inspected as of 31 March 2004.

  - 169 were issued a certificate with an expiry date exceeding 12 months from the date of issue - 82 were issued for 13 months and 87 were issued for 14 months. It is the practice of the Division to issue certificates that expire at the end of the month following the month in which the inspection is performed, thereby issuing certificates for average periods of 13 to 14 months. This is in contravention to the *Amusement Rides and Elevating Devices Regulations* which provide for certificate being valid for a maximum period of 12 months.

  - 3 of the 8 elevating device files which had directives issued identifying deficiencies did not identify details of the deficiency, whether the deficiencies were corrected, or that any follow-up work was performed.

Figure 3 provides a summary of the duration in which elevating devices, identified through our testing, operated for a period without a valid certificate (163 in 2003 and 155 in 2002).

Figure 3

Summary of Elevating Device Operating for a Period Without a Valid Certificate
For the Years Ended 31 December

Time Frame Devices Operated Without a Valid Certificate	2003	2002
Less than one week	4	4
One week - one month	29	22
One month - six months	82	78
Six months - one year	33	35
Over one year	15	16
Total	**163**	**155**

Source: Review of inspection activity during 2003 and 2002 for 291 elevating devices.

We were informed by officials of the Department that, because there are only two inspectors responsible for the inspection of elevating devices throughout the Province, geographical considerations are a high priority when scheduling inspections of elevating devices. We were informed by Department officials that within the geographical areas, priority is given to inspecting the higher risk elevating device.

However, our review of the inspection of elevating devices within the St. John's area indicated that the Department does not always consider risk in determining what to inspect. For example, our review indicated that of the 55 passenger elevators with lapsed certificates during 2003, 13 were operating in either a hospital, nursing home or other health care facility, and of the 51 passenger elevators with lapsed certificates during 2002, 18 were operating in either a hospital, nursing home or other health care facility.

Our review indicated that field inspection reports for elevating devices were inadequate in that they did not provide sufficient information to determine whether the inspector had ensured that the elevating device had complied with all areas of the Regulations. The field inspection report did not require inspectors to provide any details on their inspection activities or any reference to corresponding sections of the Regulations.

2. Amusement Rides

We reviewed 36 amusement ride files for the calendar years 2003 and 2002 and found that the Department had not complied with the *Amusement Rides and Elevating Devices Regulations* in that amusement rides were not being inspected at the required frequency. Our review indicated that:

- For 2003, 2 of the 36 or 5.5% operated throughout the year without a certificate. These 2 amusement rides had certificates issued in 2000 and no further inspection was performed until February 2004.

- For 2003, our review identified 8 amusement rides that were issued directives during the year. Of those 8, there was no follow-up during the year to the directives for 4 amusement rides.

- For 2002, in addition to the 2 amusement rides which weren't inspected until February 2004, there was 1 additional amusement ride which operated without a certificate for a period during 2002.

Our review indicated that there was no field inspection report designed specifically for the inspection of amusement rides. Instead, the Department used the same inspection report used for elevating devices. These field inspection reports were inadequate in that they did not provide sufficient information to determine whether the inspector had ensured that the amusement ride had complied with all areas of the Regulations. The field inspection report did not require inspectors to provide any details on their inspection activities or any reference to corresponding sections of the Regulations.

3. Database for Amusement Rides and Elevating Devices

We obtained a copy of the database maintained by the Government Service Centre for the management of amusement rides and elevating devices. We reviewed the database with departmental staff and determined that the database did not reflect the most current information. For example, the number of active amusement rides and elevating devices and the number of rides and devices inspected according to the database were incorrect. Figure 4 outlines changes in the database resulting from this review.

Figure 4

Review of Database for Amusement Rides and Elevating Devices
For the Years Ended 31 December

	Before Review of Database		After Review of Database		Differences Resulting From Review	
	Active	Inspected	Active	Inspected	Active	Inspected
Amusement Rides - 2003	51	34	38	35	13	(1)
Elevating Devices - 2003	1,201	1,018	1,148	1,056	53	(38)
Total - 2003	1,252	1,052	1,186	1,091	66	(39)
Amusement Rides - 2002	51	34	39	33	12	1
Elevating Devices - 2002	1,162	913	1,126	884	36	29
Total - 2002	1,213	947	1,165	917	48	30

The database for the management of amusement rides and elevating devices was not accurate in that information was not updated on a timely basis. From our review of the database we determined that:

- Although 13 amusement rides and 53 elevating devices were not in service during 2003, this was not reflected in the database.
- Although inspections were performed during 2003 for 1 amusement ride and 38 elevating devices, this was not reflected in the database.
- Although 12 amusement rides and 36 elevating devices were not in service during 2002, this was not reflected in the database.
- For 1 amusement ride and 29 elevating devices, the database identified that inspections had been performed during 2002; however, no such inspections were performed.
- Although certificates had been issued for 7 elevating devices during 2003, this was not reflected in the database.

- For 1 amusement ride and 41 elevating devices, the database identified that certificates had been issued during 2003; however, no such certificates had been issued.

Boilers and Pressure Vessels

The *Public Safety Act* requires that no device shall operate unless the owner/operator holds a valid certificate issued by Government. The *Boiler, Pressure Vessel and Compressed Gas Regulations* specify that a certificate of inspection shall be issued by an inspector authorizing the operation or use of a boiler or pressure vessel from the date of the certificate until the expiry date. Policies and procedures for the periodic inspection intervals for boilers and pressure vessels drafted by the Government Service Centre state that boilers are to be inspected annually and pressure vessels are to be inspected either annually, every 24 months or 36 months, depending on the type of vessel. The purpose of inspection is to ensure boilers and pressure vessels are working properly and safely and to determine the extent to which corrosion is affecting the boiler or vessel.

We reviewed files for 360 boilers and pressure vessels that required inspection during the 2003 calendar year and found that the Department had not complied with the *Boiler, Pressure Vessel and Compressed Gas Regulations* in that boilers and pressure vessels were not being inspected at the required frequency. Our review indicated that 174 of the 360 or 48.3% of the boilers and pressure vessels tested operated for a period during 2003 without a valid certificate. Of those 174 boilers and pressure vessels, 21 were still not inspected as of 31 March 2004.

We also reviewed the database for our sample items and found the following:

- 12 boilers and pressure vessels were inappropriately classified in the database as active.

- The locations of 1 boiler and 2 pressure vessels in the database were inaccurate. Upon investigation by Departmental officials, it was determined that the boiler and pressure vessels had been removed; however, the Government Service Centre was not informed.

As a result of real-time updates to the BPVMS, the same information we used for the selection of a sample for 2003 was not readily available for the selection of a sample for testing the inspection of boilers and pressure vessels during 2002. Instead of selecting our sample from reports provided to us by the Department, as we did with our 2003 sample, we selected a sample of 240 inspection reports for inspections of boilers and pressure vessels performed during the 2002 calendar year. Our review indicated that for 147 of these 240, or 61.3%, inspections were not performed until after the certificate had expired. Therefore, these 147 vessels were operating for a period of time during 2002 without a certificate.

Figure 5 provides a summary of the duration in which the 174 boilers and pressure vessels from 2003 and the 147 boilers and pressure vessels from 2002, identified through our testing, operated for a period without a valid certificate.

Figure 5

Summary of Boiler and Pressure Vessel Operating for a Period Without a Valid Certificate
For the Years Ended 31 December

Time Frame Devices Operated Without a Valid Certificate	2003	2002
Less than one week	23	15
One week - one month	49	35
One month - six months	76	54
Six months - one year	22	31
Over one year	4	12
Total	**174**	**147**

Source: Review of inspection activity during 2003 for 360 boilers and pressure vessels and during 2002 for 240 boilers and pressure vessels.

The Boiler and Pressure Vessel Management System maintained by the Government Service Centre has the capacity to generate reports identifying inspections that are overdue as of 31 December. We reviewed these reports for the years ended 31 December 2002 and 2003. Our review of these reports indicated that in addition to the findings identified from the review of inspection activity for 240 boilers and pressure vessels in 2002 and 360 boilers and pressure vessels in 2003, there were:

- 564 boilers and pressure vessels requiring inspection during 2003 that were not inspected during 2003, and

- 739 boilers and pressure vessels requiring inspection during 2002 that were not inspected during 2002. Of these 739, 182 were still not inspected at the time of our review.

Recommendations

The Department should:

- *comply with the* Public Safety Act *and* Regulations*; and*

- *ensure that the databases for amusement rides, elevating devices, boilers and pressure systems are kept current.*

Department's Response

We generally agree with the findings and observations contained in the report and we will incorporate its recommendations during our ongoing efforts to revitalize these programs. The only comment we would have with respect to the review itself is that its mid-January timing coincided with our year end update of our database. This would explain to some degree the findings described in Figure 4 of the report concerning the review of the database.

Our efforts over the past three years have concentrated on better organizing the programs within the Department, management of staff turnover due to retirements, and the introduction of Risk Based Inspection concepts.

In terms of the long-term revitalization of these programs, the Risk Based Inspection (RBI) initiative is of key importance. Initial efforts have been focused in the Boiler and Pressure Vessel area. A Periodic Inspection Policy (PIP) has been developed for all boilers and pressure vessels and Quality Management Systems have been implemented in a number of industries. We are pleased to see the benefits reflected in the report as indicated by the 90% completion rate of boiler and pressure vessel inspections (Figure 2).

In the case of the Elevating Devices and Amusement Rides Program, RBI is very much in its infancy as the report notes. Before a PIP could be implemented, elevator maintenance programs meeting the requirements of the Canadian Standards Association B44 Elevator Code had to be implemented. Consequently, our focus has been in this area and we are just now ready to move forward with a conservative PIP for 2005.

Due to protracted sick leave for both elevator inspectors between 2000 and 2002 and a three month gap in filling one position following a retirement, the significant amount of lost time (cumulative total of 10 person-months) had a negative impact on the program during the period covered by the review.

Looking forward, our priorities are to implement risk based periodic inspections for elevating devices in order to use the time saved to enhance amusement ride inspection activities and improve directive tracking procedures. With our current organization and all of our inspector positions now filled with trained staff we feel we are positioned to make further significant progress.

With respect to the two recommendations, we offer the following responses:

"The Department should:

1) *" comply with the* Public Safety Act *and* Regulations;"

The Department is in agreement. Every effort will be made to ensure that the requirements of the Act and Regulations are met to ensure public safety.

2) *"ensure that the databases for amusement rides, elevating devices, boilers and pressure systems are kept current".*

The Department is in agreement with this recommendation and will take every measure within its power to ensure that databases are kept current. We will also be redesigning our database and developing new inspection forms to support inspection and monitoring activities more proactively.

Appendix
Detailed Responses Regarding AG Report Conclusions and Findings

Following are detailed responses on the Conclusions and Findings of the Auditor General's Report on Inspection of Amusement Rides, Elevating Devices, Boilers and Pressure Vessels.

Auditor General's comment

"Contrary to the Public Safety Act*, 163 (56%) of the 291 elevating devices we reviewed operated for a period during 2003 without a certificate -19 were still not inspected as of 31 March 2004. The Department did not include sufficient consideration of risk when scheduling inspections of elevating devices."*

Response to comment

- *Of these 19 elevating devices, 13 have now been inspected, two we have not been able to gain access to the buildings and the owners have been sent registered letters, one could not be accessed due to the Dominion strike, one is scheduled for inspection on December 10 and two are still being worked on.*

- *The statement concerning risk appears to be based on the second paragraph on page 7 of the report which states:*

Auditor General's comment

"However, our review of the inspection of elevating devices within the St. John's area indicated that the Department does not always consider risk in determining what to inspect. For example, our review indicated that of the 55 passenger elevators with lapsed certificates during 2003, 13 were operating in either a hospital, nursing home or other health care facility, and of the 51 passenger elevators, with lapsed certificates during 2002, 18 were operating in either a hospital, nursing home or other health care facility."

Response to comment

- *Of the 18 elevators in health care facilities for 2002, 12 were inspected within 3.5 months of their certificate expiry dates (St. Clare's Hospital and St. Patrick's Mercy Home), 5 at the Miller Centre were inspected within 2 to 3 weeks and Health Science Centre elevator 611 after 6 months during which major upgrade work was being performed on the device.*

- *Of the 13 elevators in health care facilities for 2003, 10 at St. Clare's Hospital were inspected within 4 weeks of their certificate expiry date, one at the Miller Centre within 10 weeks, one at St. Patrick's Mercy Home within 6 weeks, and Health Science Service Centre elevator 611 is scheduled for inspection in December 2004.*

- *It should be noted that full maintenance contracts were in place in each of these facilities at the time. This, we feel, was a very significant consideration in the assessment of risk.*

Auditor General's comment

"Contrary to the Amusement Rides and Elevating Devices Regulations, *116 of the 291 elevating devices reviewed were issued a certificate with an expiry date exceeding 12 months -42 were issued for 13 months, 65 were issued for 14 months, 7 were issued for 15 months and 2 were issued for 16 months."*

Response to comment

- *With the establishment of our new fee policy issued in July of 2004, this situation should no longer continue. In the past, fees were charged for inspections, however, fees will now be charged for certificate renewal in accordance with the provisions of Section 12 of the Regulations. This combined with the new PIP will result in the decoupling of inspections and fees. Inspections will be conducted in accordance with the PIP per Section 9 of the Regulations and fees will be charged annually per Section 12.*

Auditor General's comment

"11 elevating device files examined has identified deficiencies and directives had been issued; however, 3 of the files did not contain details of the deficiency and there was no documentation on file to indicate whether the deficiencies were corrected or that any follow-up was performed."

- *In two of the three cases, our review indicates the deficiencies were in writing and received by the owner representative whose signature appears on the Field Directive sheet and that the devices were not certified for use. In the third case, the deficiencies were in writing but did not warrant withholding of the certificate.*

- *The audit findings do, however, show that with the current inspector complement and mode of operation the division is unable to follow-up on directives on a consistent basis.*

Auditor General's comments

"Contrary to the Public Safety Act, *2 of the 36 amusement rides we reviewed operated during 2003 without a certificate - these 2 amusement rides were not inspected until February 2004."*

"Amusement ride files examined had identified deficiencies and directive had been issued; however, in 4 of these 8 instances there was no documentation on file to indicate whether the deficiencies were corrected or that any follow-up was performed."

Response to comments

- *The audit findings indicate how the Division is struggling in this area. It is our intention to use time saved through implementation of the risk based periodic inspections to follow-up on directives and conduct internal audits.*

Auditor General's comment

"The field inspection reports for elevating devices were inadequate for documenting compliance with the Regulations. *There was no field inspection report designed specifically for the inspection of amusement rides. Instead, the Department used the same inspection report used for elevating devices which was inadequate for documenting compliance with the* Regulations.*"*

Response to comment

- *This matter will be taken into consideration as we move forward with our risk based inspection program in this area.*

Auditor General's comment

"Contrary to the Public Safety Act*, 174 (48.3%) of the 360 boilers and pressure vessels tested operated for a period during 2003 without a valid certificate -21 were still not inspected as of 31 March 2004."*

Response to comment

- *Fifteen of these 21 units have since been inspected, one is no longer in operation, one is not accessible and the building is for sale, and 4 remain unresolved.*

Auditor General's comment

"Information in the databases used for amusement rides, elevating devices, boilers and pressure vessels was inaccurate."

Response to comment

- *This is an ongoing concern and every effort is being made to ensure the databases are accurate. As previously stated, we feel this was partially due to the timing of the review.*