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November 24, 2008
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Ed Jacyno
Mayor of Pembroke
City of Pembroke
1 Pembroke Street East
P.O. Box 277
Pembroke, Ontario
K8A 6X3

Dear Mr. Jacyno,

In accordance with a condition in our processing Licence, SRB has filed with the CNSC the attached Final Written Report dated November 18, 2008 within 21 working days of becoming aware that one of the weekly stack emission action levels had been exceeded for the week of October 14 to 20, 2008.

According to our Public Information Program, SRB Technologies (Canada) Inc. has committed to notify the Mayor, the Chief Administrative Officer and Economic Development Officer of any weekly emissions exceeding administrative limits.

This Final Written Report details the exceedance, the sequence of events that occurred that resulted in the exceedance as well as defining and discussing the cause and corrective actions taken.

Total emissions to date for the year are still well below the yearly release limit in our licence and we are still on track to reach "Emission Reduction Target" that we have set for the year.

The maximum dose to a member of the public resulting from the releases during the period of October 14 to 20, 2008 is very low at 0.2875 microsieverts (μSv). If this quantity was released every week for the entire year the maximum dose to a member of the public for the year would equal 14.95 μSv or 1.495% of the public dose limit of 1,000 μSv per year.

The release is attributable to a sudden leak in a valve used in some of our equipment. These valves have been removed from service and will be replaced with a type of valve that is used on a number of our production systems. We have never experienced a sudden failure of these valves, despite frequent and repeated use over 16 years of operational experience. The valves will also be complemented by secondary valves that will provide additional protection in the unlikely event that the primary valves exhibit a leak.

Do not hesitate to call me if you have any questions.

Best regards,

A handwritten signature in black ink, appearing to read 'Sh' with a long, sweeping underline.

Stephane Levesque
President

Cc: Susan Ellis, Economic Development Officer
Terry Lapierre, Chief Administrative Officer



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SRB TECHNOLOGIES (CANADA) INC.

Final Written Report
In
Accordance With
Section 6.3
Of Licence NSPFOL-13.00/2010
Regarding Exceedance Of Action Level

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1.0 INTRODUCTION

Since July 1, 2008 SRB Technologies (Canada) Inc. has been operating a Nuclear Substance Processing Facility under Licence number NSPFOL-13.00/2010¹ issued by the Canadian Nuclear Safety Commission (CNSC). Condition 6.3 of Licence NSPFOL-13.00/2010¹ stipulates that:

“If any action level set out in the document SRBT Licence Limits, Action Levels and Administrative Limits, listed in Appendix B, is reached or exceeded, the licensee shall notify the Commission or a person authorized by the Commission, within 24 hours of becoming aware of the matter and shall file a final written report within 21 working days of becoming aware of the matter.”

The SRB document titled Licence Limits, Action Levels and Administrative Limits², listed in Appendix B of Licence NSPFOL-13.00/2010¹ provides weekly stack emission action levels associated with the activities of the licence:

NUCLEAR SUBSTANCE AND FORM	WEEKLY ACTION LEVEL (GBq)
Tritium as tritium oxide (HTO)	840
Total tritium as tritium oxide (HTO) and tritium gas (HT)	7,753

TABLE 1: WEEKLY STACK EMISSION ACTION LEVELS

2.0 BACKGROUND

On October 21, 2008 SRB Technologies (Canada) Inc. became aware that one of the weekly stack emission action levels for the week of October 14 to 20, 2008 had been exceeded.

The weekly stack emission action level for “Total tritium as tritium oxide (HTO) and tritium gas (HT)” of 7,753 GBq had been exceeded with a total release of 26,712 GBq for the week, while the weekly stack emission action level for “Tritium as tritium oxide (HTO)” of 840 GBq had not been exceeded with a total release of 236 GBq for the week.

In accordance with Condition 6.3 of Licence NSPFOL-13.00/2010¹, on October 21, 2008 SRB notified Ms. Ann Erdman, Acting Director for the Processing and Research Facilities Division of the exceedance first by telephone and later that day by letter³.

3.0 PURPOSE

In accordance with Condition 6.3 of Licence NSPFOL-13.00/2010¹, SRB has produced this final written report within 21 working days of becoming aware that one of the weekly stack emission action levels had been exceeded.

This final written report details the exceedance, the sequence of events that occurred that resulted in the exceedance as well as defining and discussing the cause and corrective actions taken.

4.0 DETAILS OF THE EXCEEDANCE

4.1 STACK MONITOR

The bubbler samples were replaced on Monday October 20, 2008 and analyzed by liquid scintillation during the night of October 20, 2008. The results along with other stack parameters were entered into the spreadsheet during the morning of October 21, 2008 indicating that the weekly action level of 7,753 GBq for "Total tritium as tritium oxide (HTO) and tritium gas (HT)" had been exceeded with a total release of 26,712 GBq for the week.

The samples were also re-analyzed by liquid scintillation which further confirmed the initial results. The release was then also confirmed by observing a comparable loss on the pyrophoric unit that was used during the filling run.

Over 99% of the emissions for that week were comprised of tritium gas (HT) all originating from the rig stack. Detailed results for the week of operations up to and including the week of the exceedance are as follows with the week of the exceedance highlighted:

DATE	WEEK	HTO (GBq)	ACTION LEVEL HTO	HT (GBq)	HT+HTO (GBq)	ACTION LEVEL HTO + HT
JUNE 30- JULY 7	1	42.31	5%	3.77	46.08	1%
JULY 7 - 14	2	363.90	43%	132.14	496.04	6%
JULY 14 - 21	3	260.10	31%	71.14	331.24	4%
JULY 21 - 28	4	95.51	11%	18.09	113.60	1%
JULY 28- AUG 5	5	145.96	17%	223.19	369.15	5%
AUG 5 - 11	6	325.91	39%	672.87	998.78	13%
AUG 11 - 18	7	218.09	26%	47.94	266.03	3%
AUG 18 - 25	8	149.22	18%	8.32	157.54	2%
AUG 25- SEPT 2	9	153.05	18%	53.69	206.74	3%
SEPT 2 - 9	10	689.95	82%	911.31	1,601.26	21%
SEPT 9 - 15	11	153.97	18%	178.73	332.70	4%
SEPT 15 - 22	12	128.52	15%	265.59	394.11	5%
SEPT 22 - 30	13	347.94	41%	160.89	508.83	7%
SEPT 30- OCT 6	14	180.67	22%	268.78	449.45	6%
OCT 6 - 14	15	224.25	27%	836.93	1,061.18	14%
OCT 14 - 20	16	236.64	28%	26,475.80	26,712.44	345%
TOTAL RELEASED TO DATE		3,715.99			34,045.17	
YEARLY RELEASE LIMIT		67,200.00			448,000.00	
% YEARLY RELEASE LIMIT TO DATE		5.53%			7.60%	

TABLE 2: WEEKLY STACK EMISSIONS

Despite having exceeded the action level, Table 2 indicates that for the 16 weeks of operation including the week of the release that only 7.60% of the yearly release limit had been released for "Total tritium as tritium oxide (HTO) and tritium gas (HT)".

4.2 CHART RECORDER

After review of all data available and discussions with all production staff, it was determined that the majority of the exceedance was due to a release which occurred during a filling run performed on October 16, 2008 where the purging system valve on rig number 7 exhibited a sudden leak which was immediately observed on the chart recorder. The filling run was immediately halted and the valve was isolated and the leak was confirmed.

Chart recorder output for October 16, 2008 is as follows with the release highlighted:

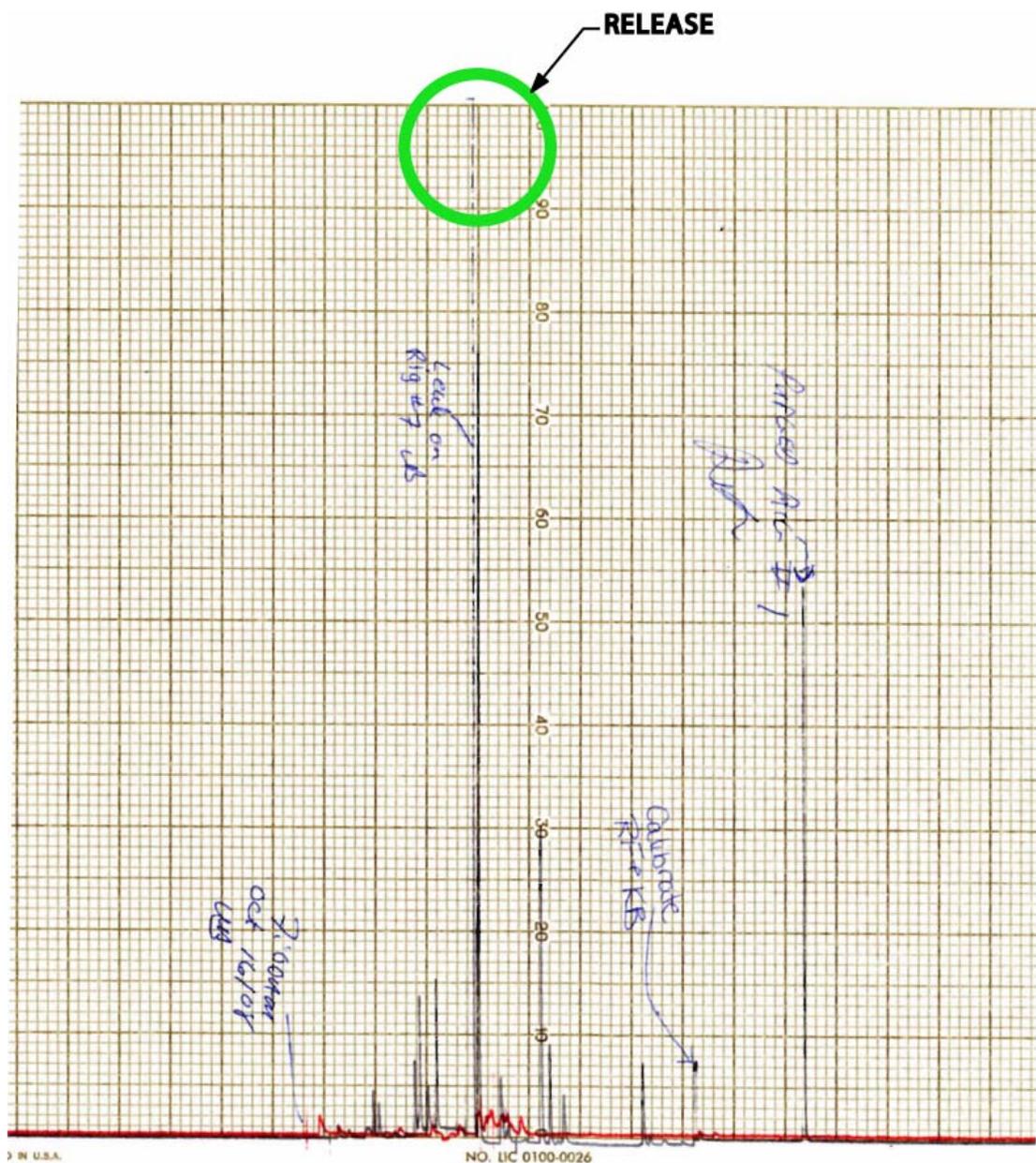


FIGURE 1: CHART RECORDER OUTPUT FOR OCTOBER 16, 2008

The chart recorder exhibited a release that exceeded 10,000 microcuries per meter cubed for a duration of less than 12 minutes as a result of the valve failure and ensuing leak.

A level equal to 10,000 microcuries/m³ on the chart recorder for a period of 12 minutes yields a minimum quantity of 825.84 GBq being released on average depending on stack flow rate, this number was calculated as follows:

$$\begin{aligned} &= 10,000 \text{ microcuries/m}^3 \times \text{average stack flow rate} \times \text{time in minutes} \\ &= 10,000 \text{ microcuries/m}^3 \times 186 \text{ m}^3/\text{minute (for rig stack)} \times 12 \text{ minutes} \\ &= 22,320,000 \text{ microcuries} \\ &= 22,320,000 \text{ microcuries} \times 0.000037 \text{ GBq/ microcurie} \\ &= 825.84 \text{ GBq} \end{aligned}$$

Not having experienced any other appreciable release for an extended period of time during that week thereby further confirms the release occurred during this event.

4.3 ENVIRONMENT

Projecting average emissions over the balance of the year would result in reaching 24.70% of the yearly release limit for "Total tritium as tritium oxide (HTO) and tritium gas (HT)".

As a reminder it is important to note the release limit to atmosphere is based upon a number of conservative assumptions. The limit was specifically designed to protect groundwater and in doing so is also protective of the environment and the public in the vicinity of the SRB facility.

To be conservative we had developed a release limit that would result over time in a concentration that would be 25% below the Drinking Water Guideline of 7,000 Bq/L in the well with the highest concentration (52,516 Bq/L in November 2007) of the 55 wells that have been monitored as part of our studies. The highest concentration in any well, according to the October 2008 sampling is only 35,275 Bq/L.

As the passive air samplers were only replaced during the week of November 3, 2008 we are not yet able to assess the resulting change in the concentration of the passive air samplers as a result of the release. This assessment will be performed as part of the analysis conducted during compilation of the quarterly report that includes the sampling period that encompasses the day of the release and will be forwarded to the CNSC for review.

4.4 DOSE TO THE PUBLIC

Various methodologies can be used to assess dose to a member of the public from the release.

Over the last several years SRB has contracted various third parties to perform DEL and DRL calculations in order to estimate dose to the public and the associated weekly release limits for HT and HTO for the members of the critical group.

The latest of these efforts was performed by Mr. Neil Morris or ECOMETRIX INC. in September 2006 and provides the most conservative effort performed to date to overestimate dose to a member of the public from the operations of SRB.

The resulting calculated weekly release limits for HT and HTO for the various members of the critical group as defined in these DRL calculations are:

	ADULT RESIDENT (GBq/WEEK)	INFANT RESIDENT (GBq/WEEK)	NURSING INFANT (GBq/WEEK)	NURSING MOTHER (GBq/WEEK)	ADULT WORKER (GBq/WEEK)
HTO	1.73E+05	2.33E+05	1.10E+05	1.69E+05	1.77E+05
HT	4.02E+06	4.52E+06	2.07E+06	3.80E+06	4.07E+06

TABLE 3: DRL FOR VARIOUS RECEPTORS

The most conservative dose to a member of the public would be that to a nursing infant, therefore the maximum dose from the releases during the period of October 14 to 20, 2008 would be:

	NURSING INFANT (GBq/WEEK)	RELEASED DURING THE WEEK (GBq)	DOSE OCTOBER 14 TO 20, 2008 (μ Sv)
HTO	110,000	236.64	0.0414
HT	2,070,000	26,475.80	0.2459
		TOTAL	0.2873

TABLE 4: MAXIMUM DOSE TO A MEMBER OF THE PUBLIC

The maximum dose to a member of the public resulting from the releases during the period of October 14 to 20, 2008 is equal to 0.2875 microsieverts (μ Sv). If this quantity was released every week for the entire year the maximum dose to a member of the public for the year would equal 14.95 μ Sv or 1.495% of the public dose limit of 1,000 μ Sv per year.

4.5 STAFF DOSIMETRY

As the release occurred within a confined area of the equipment which is directly ventilated to the atmosphere no appreciable increase in staff bioassay level was expected. Nonetheless after becoming aware of the magnitude of the release, staff who were in the proximity of the release were asked to provide a urine sample.

None of the bioassay levels for the production staff present during the release are above the administrative or action level. Furthermore the bioassay level increase from the week of the release to the following week was expected for the activities performed by these staff members:

DATE	EMPLOYEE A (Bq/ml)	EMPLOYEE B (Bq/ml)	EMPLOYEE C (Bq/ml)
OCT 13-20	62.80	26.62	21.40
OCT 20-27	53.97	33.65	70.21
ADMINISTRATIVE LEVEL (ZONE 3)	500.00		
ACTION LEVEL	1,000.00		

TABLE 5: STAFF BIOASSAY LEVEL BEFORE AND AFTER THE RELEASE

5.0 SEQUENCE OF EVENTS

The sequence of events outlines all the comments made before and during the meeting held on October 22, 2008 to specifically discuss the exceedance. The meeting was attended by all members of the Health Physics Team and the Production Supervisor of the department where the release occurred, meeting attendees and their titles are as follows:

Katie Belec, Environment Protection Coordinator
Donna Buder, Rig Room Supervisor
Ross Fitzpatrick, General Manager
Stephane Levesque, President
Brenda St-Pierre, Human Protection Coordinator

On October 16, 2008 at 9:34 a.m. Ms. Donna Buder checked the level on the chart recorder and ensured that the level was well below 10,000 microcuries per meter cubed before initiating a filling run on rig number 7.

The filling run was also being performed in the presence of Ms. Brenda St-Pierre and Mr. Neil Dunn.

Ms. Buder proceeded to perform a filling run on rig number 7 and performed a leak test of the filling rig which was successful and showed no leaks.

Ms. Buder then proceeded to heat the pyrophoric unit to release tritium into the system.

As the tritium was being released in the system, suddenly the alarm for the tritium-in-air monitor located at the entrance of the rig room sounded.

No other processing or activities that could cause the release of tritium were occurring.

The tritium-in-air monitor located at the entrance of the rig room showed concentrations of 10 microcuries per meter cubed for a few minutes until the level later decreased to background level.

The chart recorder showed a level of 10,000 microcuries per meter cubed for the rig stack.

Ms. Buder immediately stopped the heating of the pyrophoric unit thereby allowing the pyrophoric unit to cool and to reabsorb the tritium within the system.

Following stoppage of the filling run, the level on the chart recorder remained at 10,000 microcuries per meter cubed for approximately 7 minutes. The graph paper on the chart recorder is divided in 12 minute intervals and the level of 10,000 microcuries per meter cubed can be seen to slightly exceed half of the interval.

Ms. Buder used a hand held monitor to scan the filling equipment in an attempt to find a leak. An increased tritium level was detected by the hand held monitor near location of the purging valve.

After the tritium in the filling rig was reabsorbed by the pyrophoric unit, Ms. Buder now in the presence of Mr. Ross Fitzpatrick, proceeded to systematically leak test various components of the filling rig.

The systematic leak test identified a large leak in the purging valve. This leak did not exist during the leak test that was performed before the filling run was initiated.

The purging valve was removed from the system and the system leak tested immediately proving further confirmation of a leaking valve. A test filling run was then successfully completed on filling rig number 7 without the purging with no rise on the chart recorder and no room alarm sounding.

6.0 CAUSE

The chart recorder output for the week where the action level was exceeded did not show any large rise for an extended period of time other than the rise associated with the filling run on October 16, 2008. Since no other processing or activities that could cause the release of tritium were occurring during the time that the filling run was performed it can be concluded that the release was associated with the filling run.

Since the level on October 16, 2008 reached the maximum of 10,000 microcuries per meter cubed it was not possible to precisely estimate with the chart recorder output the amount of tritium released during that event until the bubbler samples were analyzed.

The systematic leak test performed after the filling run identified a large leak in the purging valve. This leak did not exist during the leak test that was performed before the filling run was initiated.

The purging valve was removed from the system and the system leak tested immediately providing further confirmation of a leaking valve.

The manufacturer was contacted to get detailed specifications for the valve to allow further investigation of its failure. Prior to removal, the installation and operating conditions (pressure, temperature) were confirmed to be well within the specifications of the valves.

Unfortunately the valve cannot be returned to the manufacturer for further evaluation as it is thoroughly contaminated with tritium and cannot be easily decontaminated below clearance levels without dismantling the valve which would compromise an investigation by the manufacturer. The purging valve was therefore dismantled and inspected in-house, the seals appeared to be well lubricated and in good condition. The valve actuator spring also appeared to be in good working condition.

While the filling run was being performed an increased tritium level was detected by the hand held monitor near the location of the purging valve, strongly suggesting that the leak occurred in the actual body or outer casing of the valve.

A leak test of the filling rig was successful and showed no leaks prior to the run being performed, and the valve had not yet been activated since the start of the run, providing further evidence that the leak is likely to have occurred within the body of the valve.

After removal of the valve, a test filling run was completed successfully on filling rig number 7 without the purging with no rise on the chart recorder and no room alarm sounding providing further evidence of a leak within the valve.

Upon further review of historical records it was also noted that the last filling run performed on rig number 7 on September 17, 2008 yielded no emission out of the ordinary again supporting a sudden leak in the valve. This is the first leak exhibited by this type of valve since their installation on July 10, 2006.

7.0 CORRECTIVE ACTION

7.1 NON-CONFORMANCE REPORT

As a result of the exceedance in Action Level, a corrective action report was raised by our Quality Department to formalize and control the investigation, discussions and corrective actions taken.

All actions were discussed and agreed upon unanimously by all members of the Health Physics Team and the Rig Room Supervisor.

7.2 REMOVAL OF PURGING SYSTEM

As previously stated as soon as the faulty purging valve was removed from rig number 7, the system leak tested immediately.

It was found that the three other operational filling rigs were equipped with a purging valve of the same type and model. Although all systems were found to leak test successfully with these valves in place, as a precautionary measure it was decided to remove the valves and to operate without the purging system on these pieces of equipment until our investigation was complete.

To determine the possible impact from temporarily removing the purging system, before resuming operation we analyzed the emissions since the issuance of the licence:

DATE	WEEK	HTO (GBq)	ACTION LEVEL HTO
JUNE 30- JULY 7	1	42.31	5%
JULY 7 – 14	2	363.90	43%
JULY 14 – 21	3	260.10	31%
JULY 21 – 28	4	95.51	11%
JULY 28- AUG 5	5	145.96	17%
AUG 5 – 11	6	325.91	39%
AUG 11 – 18	7	218.09	26%
AUG 18 – 25	8	149.22	18%
AUG 25- SEPT 2	9	153.05	18%
SEPT 2 – 9	10	689.95	82%
SEPT 9 – 15	11	153.97	18%
SEPT 15 – 22	12	128.52	15%
SEPT 22 – 30	13	347.94	41%
SEPT 30- OCT 6	14	180.67	22%
OCT 6 – 14	15	224.25	27%
OCT 14 – 20	16	236.64	28%
		AVG	28%

TABLE 6: WEEKLY HTO EMISSIONS

It was noted that operating without the purging system in place for these pieces of equipment may be expected to slightly increase the level of tritium oxide released. However ambient air in the work environment is most humid in the summer months which should result in higher oxide releases during those months. Lower humidity levels in the work environment will be sustained until the spring leaving ample time to complete our investigation.

Based on our analysis, it was observed that on average HTO emissions were 28% of the action level leaving considerable room for conversion of HT to HTO until replacement valves or backup to the existing valves can be researched.

It was also noted in our discussions that pyrophoric unit life had proven to be a greater factor to the release of tritium oxide released (HTO) and that the remaining life of pyrophoric units currently in use was high at 59% on average:

PYROPHORIC UNIT	CYCLES PERFORMED	CYCLES TO END OF LIFE	LIFE REMAINING
105B	5	10	66%
106B	11	4	27%
102B	4	11	73%
105B	6	9	60%
110C	6	9	60%
102B	5	10	66%
AVG			59%

TABLE 7: PYROPHORIC UNIT LIFE

The operating procedures for the filling rig were then formally revised to reflect the removal of the purging valve and use of the purging system before production incrementally resumed.

As we had expected, tritium oxide levels released since the removal of the purging system to date have not increased. Since removal of the purging system 20% of the weekly Action level for HTO has been released to date compared to a previous weekly average of 28% before removal of the system:

DATE	WEEK	HTO (GBq)	ACTION LEVEL HTO
OCT 20 -27	17	173.41	21%
OCT 27 - NOV 3	18	152.40	7%
NOV 3 - 10	19	269.77	32%
NOV 10 - 17	20	175.31	21%
AVG			20%

TABLE 8: WEEKLY HTO EMISSIONS SINCE REMOVAL OF THE PURGING SYSTEM

Oxide levels will continue to be closely assessed in the weeks to come until replacement valves or backup to the existing valves is introduced.

7.3 REVISED PURGING SYSTEM

Brief communications have taken place with the manufacturer of the valve that failed to identify the cause for the failure. As previously stated the valve cannot be returned to the manufacturer for further evaluation as it is thoroughly contaminated with tritium and could not be easily decontaminated below clearance levels without dismantling the valve which would compromise an investigation by the manufacturer. The purging valve was therefore dismantled in-house for inspection, the seals appeared to be well lubricated and in good condition. The valve actuator spring also appeared to be in good working condition.

It would therefore appear that the failure was caused by a leak which developed suddenly in the body of the valve, the failure cannot be attributed to anything else.

As a result, members of the Health Physics Team and the Rig Room Supervisor do not feel comfortable re-introducing this valve or a similarly designed valve in the system. The specific valves used, relied on a electronically operated actuator system made of stainless steel and brass housed within an aluminum body, valve design specifications are available on file.

A number of our production systems make use of a number of toggle valves produced by one of our long standing suppliers who are reputable and specialize in vacuum systems used widely in the nuclear industry. These specific toggle valves rely on a manually operated actuator system made entirely of stainless steel housed within a stainless steel body, valve design specifications are available on file. We have never experienced a sudden failure of these valves, despite frequent and repeated use over 16 years of operational experience.

The Health Physics Team and Rig Room Supervisor have therefore decided to replace the valve which failed by one of these known toggle valves.

As an added precaution, we have also decided to put in line with this valve, a diaphragm valve.

This system would now require an operator to open two valves rather than one to initiate the purging process. The diaphragm valve will allow the operator to manually and gradually feed inert gas into the system for purging, rather than introducing a sudden burst of gas through a solenoid which might have created repeated stress in the valve body resulting in the sudden leak experienced. This additional valve will provide additional protection in the unlikely event that the toggle valve exhibits a leak.

The specific diaphragm valves which will be used also rely on a manually operated actuator system made entirely of stainless steel housed within a stainless steel body, valve design specifications are available on file.

Operating conditions (pressure, temperature) were also analyzed and confirmed to be well within the specifications of the new valves with supporting information available on file.

The process for completing the installation of a new purging system is expected to be completed in January 2009.

All actions performed including meeting discussions will be recorded and kept on file. The actions that have or will take place are as follows:

ACTION	APPROXIMATE DATE OF COMPLETION
Health Physics Team and Rig Room Supervisor discuss and define way forward	Complete
Meet manufacturer of new valves	Complete
Develop list of components required	Complete
Acquire quotation and technical specifications	Complete
Review quotation and specifications for components	Complete
Place order for components	Complete
Components delivered	November 28, 2008
Health Physics Team and Rig Room Supervisor will discuss installation details and set a date for installation on one filling rig	December 5, 2008
Test new system over a number of filling runs	December 12, 2008
The Health Physics Team and Rig Room Supervisor will discuss the results of the test and any other issues including valve operation, training, etc. Changes will be made if necessary	December 19, 2008
Revise operating procedures to reflect the addition of the new purging valves and use of the purging system	January 9, 2009
Complete installation on all other filling rigs	January 9, 2009

TABLE 9: TIMELINES FOR THE INSTALLATION OF THE NEW PURGING SYSTEM

7.4 CHART RECORDER LIMITATIONS

The chart recorder and the tritium monitor which it is connected to provided warning of a sudden release as required and allowed us to take action as necessary.

Since the maximum scale on the tritium monitor connected to the chart recorder is 10,000 microcuries/m³, such a level for a period of 12 minutes yields a minimum quantity of 825.84 GBq being released on average depending on stack flow rate.

The chart recorder output however was limited in allowing us to determine the exact quantity released which was determined only when the stack monitor samples were analyzed a few days later.

Using a tritium monitor with a larger scale or better yet, an auto-ranging scale would have allowed us to better assess the quantity released earlier and decide the cease operation for the rest of the week and start an investigation a few days earlier.

By the end of March 2009 we will investigate the feasibility of using another system with a higher or auto-ranging scale.

8.0 CONCLUSION

On October 21, 2008 SRB Technologies (Canada) Inc. became aware that the weekly stack emission action level for "Total tritium as tritium oxide (HTO) and tritium gas (HT)" of 7,753 GBq had been exceeded with a total release of 26,712 GBq for the week of October 14 to 20, 2008.

For the 16 weeks of operation including the week of the release that only 7.60% of the yearly release limit had been released for "Total tritium as tritium oxide (HTO) and tritium gas (HT)". Projecting average emissions over the balance of the year would result in reaching 24.70% of the yearly release limit for "Total tritium as tritium oxide (HTO) and tritium gas (HT)".

No appreciable dose to a member from the staff resulted from the release.

The maximum dose to a member of the public resulting from the releases during the period of October 14 to 20, 2008 is very low at 0.2875 microsieverts (μSv).

The release is attributable to a sudden leak in a valve used on the purging system. The same type of valves were removed from service making the purging system unusable which has resulted in no appreciable HTO releases to date.

The valve in the purging system will be replaced with a toggle valve that is used on a number of our production systems which are produced by one of our long standing suppliers who are reputable and specialize in vacuum systems used widely in the nuclear industry. We have never experienced a sudden failure of these valves, despite frequent and repeated use over 16 years of operational experience.

The toggle valve will also be complemented by a secondary valve that will provide additional protection in the unlikely event that the toggle valve exhibit a leak.

The process for completing the installation of a new purging system is expected to be completed in January 2009.

Since the chart recorder output was limited in allowing us to determine the exact quantity released by the end of March 2009 we will investigate the feasibility of using another system with a higher or auto-ranging scale.

9.0 REFERENCES

- [1] CANADIAN NUCLEAR SAFETY COMMISSION, "Nuclear Substance Processing Facility Operating Licence, Licence number: NSPFOL-13.00/2010", June 26, 2008.
- [2] SRB TECHNOLOGIES (CANADA) INC., "Licence Limits, Action Levels and Administrative Limits", May 16, 2008.
- [3] SRB TECHNOLOGIES (CANADA) INC. letter, Stephane Levesque to Ann Erdman, "RE: EXCEEDANCE IN WEEKLY STACK EMISSION ACTION LEVELS", October 21, 2008.