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SRB TECHNOLOGIES (CANADA) INC.

2013

Annual Compliance and Performance Report

Licence Number NSPFOL-13.00/2015

Licence Condition Number 2.4

Submission Date:	March 31, 2014
Submitted to:	Nadia Petseva Project Officer, Canadian Nuclear Safety Commision
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EXECUTIVE SUMMARY

In 2013 on average, the emissions of “HTO” were maintained at 26.52% of the licence limit and the emissions of “HTO + HT” were maintained at 17.61% of the licence limit with no action levels for air emission being reached.

Emissions to sewer in 2013 were 4.55% of the license limit with maximum concentrations in sewage of 57 Bq/L and averaging approximately 7 Bq/L.

The maximum annual dose received by any person employed by SRB is well within the regulatory limit for a nuclear energy worker of 50.0 mSv per calendar year. Collective dose for all staff low at 7.94 mSv with the highest annual dose for any staff member for the year being 1.93 mSv, with an average of only 0.21 mSv for all staff. None of the staff members exceeded the action levels for effective dose to worker and there were no instances at any time in 2013 whereby a staff member’s tritium body burden exceeded the action level of 1,000 Bq/ml.

Tritium contamination control is maintained by assessment of non-fixed tritium contamination levels throughout the facility by means of swipe method and liquid scintillation counting of the swipe material. A total of 7,936 swipes were performed in various work areas in 2013.

A total of 49 wells were routinely monitored in 2013. The concentrations of only four wells exceed the Ontario Drinking water Guideline of 7,000 Bq/L. These four wells are located on the SRB site within only 50 meters of the stack. The average concentrations in the majority of the monitoring wells continue to decrease since being drilled, for example in 2007 the concentration of 8 wells exceeded 7,000 Bq/L

The highest tritium concentration in a well used for drinking water remains in the water supply well which is located closest to SRB and is being used by individuals working for a business for some of their drinking water intake. Tritium concentrations in this well in 2013 averaged 1,032 Bq/L, which is less than 15% of the Ontario Drinking Water Standard of 7,000 Bq/L. Average concentrations over 2013 for other wells used for drinking water ranged from 4 Bq/L to 220 Bq/L, depending on their location and distance in relation to the facility.

Passive air samplers, precipitation, runoff, milk, produce and receiving waters were sampled regularly in 2013.

The maximum annual dose received by any member of the public as a result of emissions from SRB is well within the regulatory limit of 1,000 µSv per calendar year. Based on environmental monitoring results the maximum dose to a member of the public as a result of the emissions from SRB in 2013 was 6.774 µSv.

In 2013 a total of 59 minuted committee meetings have taken place. Committees have continued to be instrumental in the development and refinement of company programs and procedures and at identifying ways to reduce emissions and improve safety at the facility.

In 2013 our staff increased from 22 to 36. The employees that were employed in 2012 are working in the same positions as when the licence was issued in July 2010. By the end of 2013 our workforce had an average experience of just under 8 years with an average age of just over 39 years of age. The six members of the Health Physics Team have an average work experience of just under 16 years with the company for a combined 94 years of work experience directly with the company.

EXECUTIVE SUMMARY (Continued)

In total 21 non-conformances and one opportunity for improvement were raised in 2013 in several areas of the company operations.

In 2013 CNSC Staff performed one Type II Compliance Inspection of the facility. One recommendation was made and is currently being addressed.

In 2013 we also had one audit by our ISO 9001: 2008 registrar BSI Management Systems, one inspection by the Pembroke Fire Department and one inspection by a Fire Protection Consultant, minor issues were identified and are currently being addressed.

Although no requests for information were made by the public in 2013, various public information initiatives were taken including providing plant tours to local citizens and frequent web site updates with the latest environmental monitoring results.

Site specific requirements for payments to the decommissioning escrow account have been met.

In 2014, in support of the licence renewal process SRB will provide CNSC Staff revisions of the Safety Analysis and associated Hypothetical Incident Scenarios, Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee, Maintenance Program, Quality Manual, Waste Management Program, Contractor Management Program, Derived Release Limit and Public Information Program.

We plan on conducting an Emergency Exercise in 2014 to the requirements of our newly approved Emergency Plan.

Organizational improvements are planned for 2014 including the addition of one or more individual with an educational background and/or work experience in Health Physics. In order to further ensure our revised programs and procedures meet and exceed CNSC Staff requirements preference will be given to individuals working for the CNSC or familiar with CNSC`s regulations.

It has been decided to purchase new bubbler monitoring equipment in order to ensure that emissions are conservatively overestimated and to purchase portable tritium-in-air monitors in order to help identify localized sources of tritium which should help reduce overall doses.

In 2013, a total of 30,544,759 GBq’s of tritium was processed and we are expecting that tritium processed will remain at the same level in 2014.

We expect that the ratio of tritium released to atmosphere to processed will reduce by 15% from 0.26% to 0.22% and that tritium released to atmosphere per week will in turn reduce by 15% from 1,516.83 GBq per week to 1,289.30 GBq per week.

Senior Management has committed to reducing the average occupational dose in 2013 by 10% down from 0.21 mSv to 0.19 mSv and additionally committed to reducing the maximum dose to any employee by 10% down from 1.93 mSv to 1.74 mSv.

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1.1 GENERAL INTRODUCTION

For all of 2013, SRB Technologies (Canada) Inc. has been licensed under Canadian Nuclear Safety Commission Nuclear Substance Processing Facility Operating Licence, NSPFOL-13.00/2015[1]. Condition 2.4 of Licence NSPFOL-13.00/2015[1] reads:

> ***The licensee shall prepare an annual compliance and performance report.***

Section 3.2 of the Licence Conditions Handbook (LCH) LCH-SRBT-R000[2] for licence NSPFOL-13.00/2015[1] reads:

> ***For licence condition 2.4, that the Annual Compliance Report should be submitted to the CNSC by March 31 of each year, covering the previous calendar year's operation including the following information:***
>
> ***i. Operational review including equipment and facility performance and changes, significant events/highlights that occurred during the year.***
>
> ***ii. Information on production including verification that limits specified in the licence was complied with.***
>
> ***iii. Modifications including changes in organization, administration and/or procedures that may affect licensed activities.***
>
> ***iv. Health physics information including operating staff radiation exposures including distributions, maxima and collective doses; review of action level or regulatory exceedence(s), if any, historical trending where appropriate.***
>
> ***v. Environmental and radiological compliance including results from environmental and radiological monitoring, assessment of compliance with licence limits, historical trending where appropriate, and quality assurance/quality control results for the monitoring.***
>
> ***vi. Facility effluents including gaseous and liquid effluent releases of nuclear substances from the facility, including unplanned releases of radioactive materials and any releases of hazardous substances.***
>
> ***vii. Waste management including types, volumes and activities of solid wastes produced, and the handling and storage or disposal of those wastes.***
>
> ***viii. Updates regarding activities pertaining to safety, fire protection, security, quality assurance, emergency preparedness, research and development, waste management, tritium mitigation and training (as applicable).***
>
> ***ix. Compliance with other federal and/or provincial Regulations.***
>
> ***x. A summary of non-radiological health and safety activities, including information on minor incidents and lost time incidents.***
>
> ***xi. Public information initiatives.***
>
> ***xii. Forecast for coming year(s).***

1.1 GENERAL INTRODUCTION (Continued)

A CNSC Staff letter[3] dated March 10, 2011 from B.R. Ravishankar provided a document[4] that outlined the reporting requirements for the 2011 and future Annual Compliance and Performance Reports for Class 1 A & B Nuclear Facilities. SRB produced the 2012 Annual Compliance Report[5] to these requirements and following review of this report CNSC Staff requested[6] that SRB provide additional information which SRB subsequently provided in an Addendum[7] to the 2012 Annual Compliance Report dated October 30, 2013.

The purpose of this report is therefore to provide the same information that was provided in the 2012 Annual Compliance Report[5] and Addendum[7] and to meet the requirements of conditions 2.4 of Licence NSPFOL-13.00/2015[1] providing the information in Section 3.2 of the Licence Condition Handbook LCH-SRBT-R000[2]. The information is reported in the basic format similar to that outlined in CNSC document[4] titled Annual Compliance Monitoring and Operational Performance Reporting Requirements for Class 1 A & B Nuclear Facilities with the exception that some of the Tables and Figures are inserted in the relevant sections of the report rather than at the end of the report for ease of review.

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1.2 FACILITY OPERATION

Throughout 2013 the facility was operated and maintained to all requirements of the Nuclear Safety Control Act (NSCA), Regulations, conditions of the Licence[1] and applicable safety programs and procedures. None of the limits or action levels were exceeded and no building modifications were made.

The Quality Manager developed an audit schedule for 2013 which resulted in 5 internal audits being completed which resulted in one non-conformance being identified. In total 21 non-conformances and one opportunity for improvement were raised in 2013 in several areas of the company operations.

A total of 16 audits were initially scheduled in 2013 but only five were completed. A non-conformance report was raised to determine the root cause and to initiate a corrective action plan to address this lapse in audits and to prevent any recurrence. As a result, in a Committee Meeting dated December 2, 2013[8] Senior Management have decided to appoint a new individual in 2014 that will be partly dedicated to performing internal audits and further ensuring compliance of all work areas with company programs and procedures.

In 2013 CNSC Staff performed one Type II Compliance Inspection of the facility. The inspection[9] was conducted on November 21, 2013. One minor recommendation was made and will be addressed early in 2014.

In 2013 we also had an audit by our ISO 9001: 2008 registrar BSI Management Systems on December 20, 2013 which resulted in only one opportunity for improvement being identified.

In 2013 we had inspections by the Pembroke Fire Department on May 9, 2013 and by a Fire Protection Consultant Nadine International Inc. on December 16, 2013. Issues that were identified were minor and only one remains to be addressed in 2014.

In 2013 our staff increased from 22 to 36. The employees that were employed in 2013 are working in the same positions as when the licence[1] was issued in July 2010 and after addressing the recommendations of the Organizational Study[10][11]. By the end of 2013 our workforce had an average experience of just under 8 years with an average age of just over 39 years of age.

A number of committees meet on a regular basis to discuss various items that ensure compliance with the NSCA, Regulations and conditions of the Licence[1]. The information attained during these committee meetings has been extremely valuable in improving various safety programs and procedures and in ensuring the improvement in the provisions taken for the protection of the environment, the health and safety of persons and the maintenance of national security.

The Health Physics Committee which has formally met 11 times in 2013 is specifically responsible for review of all safety programs and safety related procedures to ensure that requirements of the NSCA, Regulations, conditions of the licence[1] are met. This Committee is comprised of five employees including the President and Vice President who remain personally involved in the development and implementation of Safety Programs demonstrating a visible commitment to all staff.

1.3 PRODUCTION OR UTILIZATION

1.3.1 POSSESSION LIMIT

Section IV (c) of Licence NSPFPL-13.00/2015[1] reads:

possess a maximum of 6,000 TBq of tritium in any form.

Throughout 2013 the possession limit was not exceeded. The maximum tritium activity possessed at any time during 2013 was 5,466 TBq in November 2013. Tritium activity on site during 2013 can be found in **Appendix A** of this report.

At all times, unsealed source material was stored on uranium getter beds or in the handling volumes of the gas filling rigs.

1.3.2 RELEASE LIMITS TO ATMOSPHERE

Throughout the year SRB Technologies (Canada) Inc. operated under release limits to atmosphere prescribed under its Nuclear Substance Processing Facility Operating Licence number NSPFOL-13.00/2015[1] and its associated release limits to atmosphere which are outlined in Appendix A of the licence.

Stack release values in 2013 based on weekly sampling and analysis for tritium oxide (HTO) and elemental tritium (HT) were well below the release limits.

On average, the emissions of “HTO” were maintained at 26.52% of the licence limit and the emissions of “HTO + HT” were maintained at 17.61% of the licence limit. See Facility Emissions Data in **Appendix B** of this report:

TABLE 1: 2013 AIR RELEASES AGAINST RELEASE LIMIT

NUCLEAR SUBSTANCE AND FORM	LIMIT (GBq/YEAR)	RELEASED (GBq/YEAR)	RELEASED (GBq/WEEK)	% OF LIMIT
TRITIUM AS TRITIUM OXIDE (HTO)	67,200	17,824	342.77	26.52%
TOTAL TRITIUM AS TRITIUM OXIDE (HTO) AND TRITIUM GAS (HT)	448,000	78,875	1,516.83	17.61%

Total air emissions in 2013 have increased by 2.64 times what they were in 2012 as a result of increasing production by 2.99 times. In 2012, emissions of “HTO” were 12.43% of the licence limit and the emissions of “HTO + HT” were 6.68% of the licence limit.

1.3.3 TRITIUM PROCESSED

In 2013, a total of 30,544,759 GBq's of tritium was processed compared to a total of 10,224,590 GBq's in 2012.

Therefore 2.99 times more tritium was processed in 2013 than in 2012.

1.3.4 TRITIUM RELEASED TO ATMOSPHERE vs TRITIUM PROCESSED

When analyzing the operation's performance at reducing emissions it is important to analyze the releases to atmosphere against the tritium processed. This provides an indication at how effective emission reduction initiatives have been successful in reducing emissions.

The following table defines the ratio of tritium released to atmosphere against tritium processed from 2009:

TABLE 2: TRITIUM RELEASED TO ATMOSPHERE vs TRITIUM PROCESSED

YEAR	TRITIUM RELEASED TO ATMOSPHERE (GBq/YEAR)	TRITIUM PROCESSED (GBq/YEAR)	% RELEASED TO PROCESSED	% INCREASE (+) REDUCTION (-)
2008	40,100	2,356,979	1.70	N/A
2009	40,547	5,045,720	0.80	- 53%
2010	36,426	6,643,732	0.55	- 31%
2011	55,584	7,342,449	0.76	+ 38%
2012	29,905	10,224,590	0.29	- 62%
2013	78,875	30,544,799	0.26	- 10%

In 2013 the amount of tritium released to atmosphere to the amount of trtium processed was 0.26%. This is a 10% reduction from what it was in 2012.

See Tritium Released to Atmosphere and Tritium Processed vs Week in **Appendix C** of this report.

Analysis of 2013 weekly data found on the graph in **Appendix C** clearly shows that releases to atmosphere increase with an increase in tritium processed but the trendline indicates that releases to atmosphere increase at a lower rate then tritium processed.

Emission reduction initiatives introduced throughout the year especially those introduced in the last quarter of the year show that releases to atmosphere have reduced significantly in the latter part of 2013.

1.3.5 ACTION LEVELS FOR RELEASES TO ATMOSPHERE

Throughout the year SRB Technologies (Canada) Inc. did not exceed the Action Levels to atmosphere which are outlined section 3.10 of the Licence Conditions Handbook number LCH-SRBT-R000[2]:

TABLE 3: ACTION LEVELS FOR RELEASES TO ATMOSPHERE

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 4: CHART RECORDER ACTION LEVEL FOR RELEASES TO ATMOSPHERE:

MEASURE ON THE CHART RECORDER
10,000 µCi/m FOR A DURATION OF ONE HOUR

1.3.6 RELEASE LIMIT TO SEWER

Throughout the year SRB Technologies (Canada) Inc. operated well below the release limits to sewer prescribed under its Nuclear Substance Processing Facility Operating Licence number NSPFOL-13.00/2015[1] and its associated release limits to sewer which are outlined in Appendix A of the licence.

Sewer release values based on sampling and analysis indicate that the emissions to sewer in 2013 were 4.55% of the license limit. See Annual Liquid Effluent Data in **Appendix D** of this report:

TABLE 5: SEWER RELEASES AGAINST RELEASE LIMIT:

NUCLEAR SUBSTANCE AND FORM	LIMIT (GBq/YEAR)	RELEASED (GBq/YEAR)	% OF LIMIT
TRITIUM – WATER SOLUBLE	200	9.1	4.55%

Sewer releases have decreased from what they were in 2012, emissions were 5.99% of the licence limit in 2012. The decrease is due to the production of fewer rectangular miniature laser cut lights. These lights when tested for surface contamination by liquid scintillation counting have an inherent higher failure rate resulting in an increase in contaminated water, therefore reducing production of this type of light reduces contaminated water and hence releases to sewer.

Since March 5, 2012[12] SRB has been working to a maximum daily release target to the sewer of 0.15 GBq. Releases were below target for all of 2013.

1.4 FACILITY MODIFICATION

A number of improvements have been made throughout 2013 that contribute to further protecting the environment and the health of the public and staff. These include a number of program and procedure improvements.

1.4.1 BUILDING MODIFICATIONS

No modifications were made to the building during 2013.

1.4.2 DOCUMENT MODIFICATION

1.4.2.1 FIRE PROTECTION PROGRAM AND PROCEDURES

A new revision of the Fire Protection Program[13] was completed on February 14, 2013. The revised document includes the approval of the Pembroke Fire Chief, an updated floor plan and reflects that a number of Fire Protection System inspections are now being performed by qualified third parties rather than being performed by staff.

1.4.2.2 EMERGENCY PLAN

As a result of the Request[14] Pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations issued by CNSC Staff as a result of the Lessons Learned From the Japanese Earthquake, we have thoroughly reviewed our Emergency Plan and it was found that the document would benefit from the addition of more detailed procedures to address the occurrence of extreme weather events. Changes to document were made and a new revision was issued to CNSC Staff for review on August 27, 2012.

CNSC Staff reviewed the Emergency Plan and requested additional changes to ensure that the Emergency Plan makes reference to Regulatory Document “RD-353: Testing the Implementation of Emergency Measures”[15]. CNSC Staff also requested that the roles and responsibilities during an emergency situation are clearly defined within the Emergency Plan and that there is a more formal link and agreement to ensure that outside assistance from other licensed facilities is available if SRB resources be unavailable during an emergency.

A new Emergency Plan[16] was revised to address CNSC Staff comments and was submitted to CNSC Staff on February 14, 2013 and subsequently approved by CNSC in an e-mail dated March 21, 2013[17].

1.4.2.3 PRELIMINARY DECOMMISSIONING PLAN

On June 23, 2013, SRB provided CNSC Staff a revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee[18].

These documents were revised using guidelines found in "G-219 - Decommissioning Planning for Licensed Activities"[19] and "G-206 - Financial Guarantees for the Decommissioning of Licensed Activities"[20] and "CSA N294-09 - Decommissioning of facilities containing nuclear substances"[21]. The revised Cost Estimate reflects inflationary increases since the plan was approved by the Commission in 2007.
In a letter dated September 17, 2013[22] CNSC Staff provided SRB comments on the revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee[18]. SRB responded to CNSC Staff in a letter dated November 19, 2013[23] requesting further clarification and a meeting with CNSC Staff. The meeting is expected to take place in early 2014 after which another revision of the Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee[18] will be submitted to CNSC Staff for comment.

1.4.2.4 THE LIQUID SCINTILLATION COUNTING QUALITY ASSURANCE PROGRAM

The Liquid Scintillation Counting Quality Assurance Program (LSC-QA)[24] was revised and issued on November 29, 2013 and to address CNSC Staff comments associated with the Dosimetry Service Licence (DSL)[25]. renewal application and Dosimetry Services Inspection Report MSD-SRBT-2009-T16318-T1-A1[26].

The LSC-QA[24] now includes a new section to specifically reflect special precautions to control the handling, storage and shipping of samples to protect against loss of sensitivity, loss of information, loss of accuracy, and against damage to, or complete loss of the samples. The revised LSC-QA[24] was also revised to specifically include how the records will be maintained in a secure manner to protect against the release of personal information in accordance with relevant applicable legislation and specific actions to be taken by staff to initiate and carry out all tasks associated with the calibration, maintenance and service of equipment.

2.0 SAFETY AND CONTROL AREAS

2.1 MANAGEMENT

2.1.1 MANAGEMENT SYSTEM

The quality management system implemented continues to ensure that results of various assessments are raised in a corrective or preventive action and subjected to a root cause analysis controlled by the Quality Department.

In 2013, a total of 21 non-conformances and one opportunity for improvement were raised in different areas of the company operations. By the end of 2013, 16 of these non-conformances had been addressed in full and the other five are expected to be addressed by the end of 2014.

All staff is continuously reminded to maintain a healthy safety culture in identified areas that may need improvement or corrective action for all company safety.

Between January 4 and 17, 2013 the Organizational Management reviews were conducted with the Quality Manager to review the Benchmarking and Self-assessment activities that were performed by all the Organizational Managers for 2012.

On January 31, 2013 a Management Meeting[27] took place for which all managers and senior management were present. The quality management system was reviewed to ensure it remains suitable and effective at meeting the requirements of the NSCA, Regulations, conditions of the licence[1] and ISO 9001: 2008.

A Senior Management Meeting[28] took place on January 31, 2013 following the Management Meeting[27] to report and discuss the results of the Benchmarking and Self-assessment activities performed in 2012 and to define areas where improvements can be made in the various company safety programs.

The review and effectiveness of the QA program was found to be effective overall at meeting the requirements of the NSCA, Regulations and conditions of the licence[1] as well as ISO9001:2008 and customer requirements.

SRB regularly performs various assessments to measure the performance and effectiveness of the Quality Management System to ensure it remains effective and review if any improvements are needed and corrective actions addressed as required. These reviews are performed through several methods for example; review of internal audits, benchmarking, routine and non-routine self-assessments and management reviews, regulatory audits and other third party audit results such as ISO 9001: 2008 and customers.

A new revision of the quality manual is expected to be issued in 2014 and submitted to the CNSC for approval. This would be for minor changes to bring the program in line with recent corrective actions addressed and improvements implemented, and to include updated responsibilities for new additions to the company organization.

2.1.1.1 CNSC INSPECTIONS

CNSC Staff conducted a Type II Compliance Inspection[9] at the facility on November 21, 2013. The purpose of the inspection was to verify compliance with the NSCA, CNSC Regulations and the CNSC operating licence NSPFOL-13.00/2015[1] and Licence Conditions Handbook[2].

The inspection resulted in one recommendation which is currently being addressed. The scope of the inspection and ensuing report[9] included the following elements:

- Radiation Protection
- Operational Performance
- Human Performance
- Packaging and Transport
- Conventional Health and Safety

2.1.1.2 ISO 9001: 2008 REGISTRAR AUDITS

SRB Technologies (Canada) Inc. continues to maintain a quality management system that is registered to ISO 9001: 2008 by BSI Management Systems. On December 20, 2013 the yearly surveillance assessment was performed by BSI Management Systems which resulted in only one opportunity for improvement being identified.

2.1.1.3 INTERNAL AND EXTERNAL AUDITS

The Quality Manager developed an audit schedule for 2013 which resulted in five internal audits being conducted. The audits performed focused on activities associated with developing, managing and implementing various company safety programs.

These five audits alone resulted in identifying one non-conformance.

A total of 16 audits were initially scheduled in 2013 but only five were completed. A non-conformance report was raised to determine the root cause and to initiate a corrective action plan to address this lapse in audits and to prevent any recurrence. As a result, in a Committee Meeting dated December 2, 2013[8] Senior Management have decided to appoint a new individual in 2014 that will be partly dedicated to performing internal audits and further ensuring compliance of all work areas with company programs and procedures.

No formal external audits were completed in 2013. However, on January 24, 2013 the Quality Manager performed an onsite inspection at a supplier’s facility in support of the production of bases for the pyrophoric uranium tritium traps (PUTT) used to dispense tritium into light sources. The Quality Manager will complete a formal external audit of this supplier in early 2014.

2.1.1.4 ONTARIO POWER GENERATION AUDIT

Ontario Power Generation who supplies SRB Technologies (Canada) Inc. with tritium gas did not perform an audit of the facility during 2013 due to scheduling issues. The next audit is expected to take place sometime in 2014.

2.1.1.5 PEMBROKE FIRE DEPARTMENT INSPECTION

Pembroke Fire Department conducted a fire inspection on May 9, 2013, five minor violations of the Ontario Fire Code were identified. All five minor violations were addressed before June 6, 2013.

2.1.1.6 FIRE PROTECTION CONSULTANT INSPECTION

As required by licence NSPFOL-13.00/2015[1] and section 3.11 of the Licence Conditions Handbook LCH-SRBT-R000[2], on December 16, 2013 a Fire Protection Consultant, Nadine International Inc. performed an annual third party review of compliance with the requirements of the National Fire Code, 2005, and National Fire Protection Association, NFPA-801, 2008 edition: Standard for Fire Protection for Facilities Handling Radioactive Materials.

The review resulted in no findings except for identifying work that needs to be undertaken in order to ensure that the Fire Alarm System is in full compliance with the requirements of CAN/ULC-S536. The Fire Alarm System will continue to be monitored as this work is being performed to ensure that there is no threat of a fire occurring without being detected. The work which will be performed and reviewed by third parties with expertise in this area is expected to be completed by May 28, 2014.

2.1.1.7 UNDERWRITERS LABORATORIES

Underwriters Laboratories (UL) provides safety-related certification, validation, testing, inspection, auditing, advising and training services to a wide range of clients, including manufacturers.

UL performs quarterly visits of our facility to ensure that products that we produced which are listed with UL are produced using the materials, procedures and testing parameters required under the specific UL listing. UL performed inspections in 2013 on March 12, 2013, May 15, 2013, September 19, 2013 and on December 4, 2013 with no issues identified.

2.1.1.8 AUDITS FROM CUSTOMERS

In 2013 aerospace manufacturers Bell Helicopter Textron Inc. and SkyWest Airlines audited our facility and only identified minor issues which have since been addressed.

2.1.1.9 BENCHMARKING

In 2013 individuals responsible for specific programs and procedures at SRB regularly looked at process problems, corrective actions as well as trending and used this information to benchmark elsewhere in or out of the organization in order to improve the effectiveness of these programs and procedures and to help define where improvements could be made.

Benchmarking against other CNSC Licensees was encouraged. The documents of other CNSC Licensees were continuously reviewed:

- Commission Member Documents
- Proceedings, Including Reasons for Decision
- Documents from other licensees

Meetings with the Quality Manager and Senior Management will take place in 2014 to discuss the results of the 2013 benchmarking activities performed and to define areas of improvement.

2.1.1.10 SELF-ASSESSMENTS

Throughout 2013 routine self-assessments by Organizational Managers were undertaken to identify, correct and prevent problems that hinder the achievement of the company's vision, mission, goals, values and policy and to assess the adequacy and effectiveness of the Quality Management System.

Self-assessments were performed by review of:

- Analysis and trending of performance data against historical data
- Input from stakeholders (public, contractors, regulators, etc.)
- Workspace inspections or observations
- Routine communications with staff to determine whether expectations are understood
- Training and coaching results
- Corrective and preventive actions raised throughout the organization
- Internal audit results

Meetings with the Quality Manager and Senior Management will take place in early 2014 to discuss the results of the 2013 self-assessments and to define areas of improvement.

2.1.1.11 CHANGES IN QUALITY ASSURANCE DOCUMENTS

The Quality Manual[29] remained unchanged for 2013, however an updated revision is near completion and is expected to be submitted to the CNSC in 2014 for approval. A few associated second tier quality procedures are also expected to be updated in 2014 to address the opportunities for improvements and the corrective actions identified through recent audits and inspections.

2.1.1.12 RESULTS OF LSC-QA PROGRAM

2.1.1.12.1 ROUTINE PERFORMANCE TESTING

Routine Performance Testing are performed on both Liquid Scintillation Machines (LSC) as required in section 4.2.3 of CNSC Regulatory Standard S-106 titled “Technical and Quality Assurance Requirements for Dosimetry Services”[30], revision 1.

Routine Performance Testing are performed to specifically demonstrate that the dosimetry service is operated in a predictable and consistent way.

Routine Performance Testing was carried out every 3 months as required throughout 2013 on each of the two LSC machines, for a total of eight Routine Performance Tests without failures. All records are kept on file.

2.1.1.12.2 WEEKLY EFFICIENCY CHECK

The LSC-QA[24] program includes weekly instrument efficiency checks using National Institute of Standards and Technology (NIST) traceable standards of a blank, H-3 and C-14 standards. The absolute activity of the capsules is calibrated by comparison with the reference standards of tritiated toluene supplied by NIST.

All tests have been performed at least on a weekly basis and passed the acceptability criteria. All records are kept on file.

2.1.1.12.3 BATCH VALIDITY TEST

In addition NIST traceable standards, certified to have an estimated accuracy of ± 1.2%, are prepared in-house, analyzed and checked against a 10% acceptability criterion with every batch of samples being analyzed.

All tests were performed with every batch and had to pass the acceptability criteria to ensure the validity of the results. All records are kept on file.

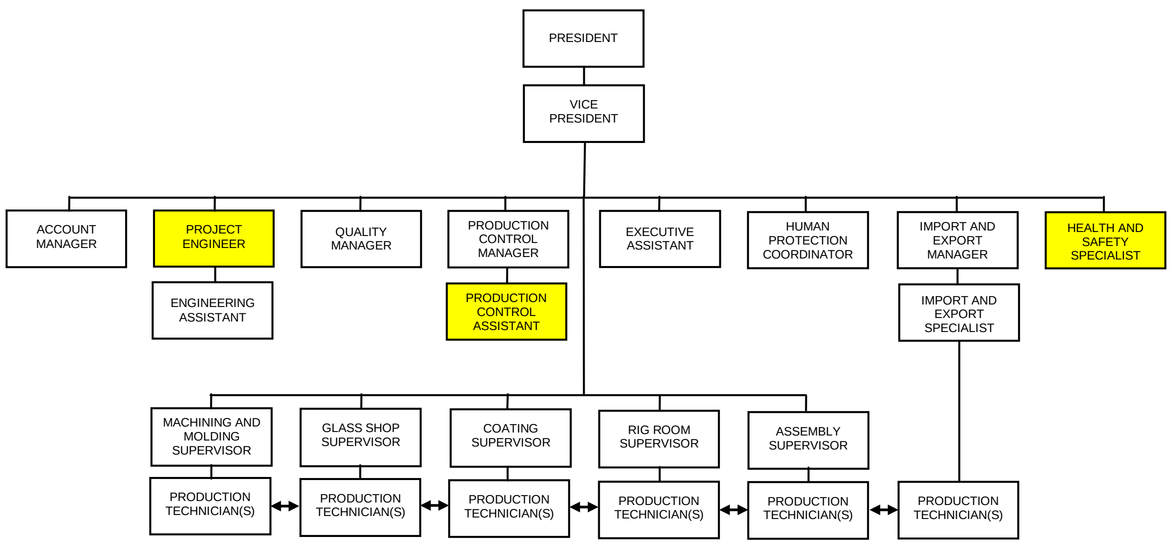
2.1.2 HUMAN PERFORMANCE MANAGEMENT

2.1.2.1 ORGANIZATIONAL IMPROVEMENTS

The following organizational chart includes the positions that are required at the facility as a result of addressing the recommendations of the Organizational Study[10][11] that was performed in support of maintaining a processing licence.

Each position is held by a single individual who possesses the “qualifications” and “experience requirements” of the position. Positions highlighted in yellow have been created in 2013:

FIGURE 1: ORGANIZATIONAL CHART



On May 1, 2013 a new position of Health and Safety Specialist was added to the organization in order to provide more focus and emphasis on occupational Health and Safety. The individual in this position has received external training in various aspects of Health and Safety and has almost six years of work experience working in different positions at SRB.

On September 16, 2013 a new position of Project Engineer was added to the organization. The individual in this position has a bachelor of engineering from an accredited Canadian University and has almost two years of work experience working at another CNSC Licensed facility. The Project Engineer is mainly responsible for research and development activities and for maintaining engineering documentation to ensure that customer requirements, requirements of the NSCA, Regulations, conditions of the licence[1] and ISO9001: 2008 are met. The Project Engineer is also responsible for the design and implementation of the Maintenance Program[31] to ensure that requirements of the NSCA, Regulations and conditions of the licence[1] are met.

On October 28, 2013 in order to ensure more coverage in the event of prolonged absence of the Production Control Manager and during times of high workload a new position of Production Control Assistant was added to the organization. The Production Control Assistant is mainly responsible for assisting the Production Control Manager with processing of customer purchase orders, providing in advance of receipt Import and Export Manager details on receipt and purchases of tritium, tritium sources and products containing tritium sources to ensure compliance with the NSCA, Regulations and conditions of the licence[1]. The Production Control Assistant is also responsible for assisting Production Control Manager and the Import and Export Manager in the tabulation and the review of the month end tritium inventory.

2.1.2.2 STABLE WORKFORCE

In 2013 our staff increased from 22 to 36.

No employees have left the company and the employees that were employed in 2013 are working in the same positions as when the licence[1] was issued in July 2010 and after addressing the recommendations of the Organizational Study[10][11].

2.1.2.3 EXPERIENCED WORKFORCE

By the end of 2013 our workforce had an average experience with the company of just under 8 years with an average age of just over 39 years of age.

The six members of the Health Physics Team have an average work experience of just under 16 years with the company for a combined 94 years of work experience directly with the company. Five of the six members have been part of the Health Physics Team since it was first instituted in 2007.

The department where tritium processing takes place has the highest average work experience with the company of any production department. The average work experience of the staff within this department is just over 8 years.

2.1.2.4 COMMITTEES

Again in 2013 committees have been instrumental in the development and refinement of company programs and procedures and at identifying ways to reduce emissions and improve safety at the facility.

Committees use meeting results as an opportunity for improvement and make recommendations accordingly. In 2013 a total of 59 minuted meetings have taken place at the company compared to 78 in 2012, a 24% decrease. The number of formal meetings has reduced in 2013 as more emphasis was placed in allocating time to training new employees and cross existing employees. Senior Management urged staff to increase the number of short informal meetings to ensure communication was maintained and committee meetings were reserved for more significant decision making and matters.

The Workplace Health and Safety Committee only had one less meeting than in 2012 and the Health Physics Committee had the same amount of meetings as in 2012 and those are the committees that have the greater influence on ensuring the protection of the staff, public and the environment.

TABLE 6: BREAKDOWN OF MEETINGS HELD

COMMITTEE	NUMBER OF MEETINGS
OTHER STAFF	16
WORKPLACE HEALTH AND SAFETY COMMITTEE	12
HEALTH PHYSICS COMMITTEE	11
MITIGATION COMMITTEE	5
FIRE PROTECTION COMMITTEE	5
EXECUTIVE COMMITTEE	4
PUBLIC INFORMATION COMMITTEE	4
PRODUCTION COMMITTEE	1
WASTE MANAGEMENT COMMITTEE	1
TOTAL	**59**

Notable improvements made by the Committees in 2013 included the introduction of new members to the Health Physics Team, Workplace Health and Safety Committee and Fire Protection Committee. These new members helped bring a fresh point of view to the committees and helped introduce new ideas based on their work experience outside of SRB.

Actual improvements included the condensing and transfer of soil generated from drilled wells from metal drums to plastic drums, the reduction of emissions by eliminating redundant lights used in certain products and the creation of new positions at the company of Health and Safety Specialist, Project Engineer and Production Control Assistant.

2.1.2.5 RADIATION PROTECTION TRAINING

All staff received Radiation Protection Training as part of the ongoing employee training program on February 7, 2013. The training included information with respect to natural radiation exposure, anticipated health effects from radiation exposure, tritium, proper handling of tritium throughout the facility, emissions monitoring, environmental monitoring, fire safety, security, the non-conformance process, licensing, overview of other licensees and facilities, public relations, emergency and safety features within the facility and open dialogue with a question and answer session. A written test was provided to all 21 participants. The pass criterion for the test is 75%. Results averaged 95% with no marks below 75%. Any wrong answer on the test was also discussed in detail as a group with all employees and with employees individually.

The 14 employees subsequently hired in 2013 successfully received indoctrination-training. A written test was provided to all 14 participants. The pass criterion for the test is also 75%. Results averaged 94% with no marks below 75%. Any wrong answer on the test was also discussed in detail with employees individually. The training of these 14 employees will be complemented by Radiation Protection Training with other staff in mid 2014.

2.1.2.6 FIRE EXTINGUISHER TRAINING

Yearly fire extinguisher training was performed for all staff on July 2, 2013 by the Pembroke Fire Department.

2.1.2.7 FIRE RESPONDER TRAINING

There was no training of Fire Responders in 2013. SRB and the Pembroke Fire Chief determine if this training is required if any changes have occurred at SRB’s facility, if the training has not been performed for a number of years or if there are a number of new firefighters and/or volunteers that have not yet taken the training. The training of fire responders was last performed in 2011 and included a tour of the facility and information with respect to the hazardous materials found on the site. Responders were also instructed on the various properties and precautions with respect to tritium.

2.1.2.8 TDG TRAINING

The Import and Export Specialist received the Transportation of Dangerous Goods Training (Initial) on July 16, 2013 from the Import and Export Manager.

In March 2014, as required every two years both the Import and Export Manager and the Import and Export Specialist are scheduled to receive Dangerous Goods Training (Recurrent) by an external qualified third party.

2.1.2.9 HEALTH PHYSICS TRAINING

In 2011, it had been decided to institute more cross training amongst the members of the health physics team to ensure more coverage in the event of prolonged absence of an individual and during times of high workload in specific areas of responsibility.

On December 21, 2012 a complete training matrix of specific tasks in Health Physics was reviewed during a Health Physics Meeting[32] and a plan to complete all the necessary training of the members of the health physics team by September 30, 2013 was put in place and completed in 2013.

This original plan was complemented by the hiring of a new individual on May 1, 2013 which was appointed as member of the health physics team and workplace health and safety committee. The individual with over 12 years of experience in management in the food industry was appointed as Import and Export Specialist reporting directly to the Import and Export Manager. This individual was trained to perform some health physics tasks such as surface contamination control, radioactive waste assessment and shipping and receiving of nuclear substances.

2.1.2.10 FIRE PROTECTION COMMITTEE MEMBER TRAINING

On May 24, 2013 the Fire Protection Committee added another member to the committee, this employee has been employed at SRB for over two years and has now become a volunteer firefighter for the Municipality of l'Isle-aux-Allumettes and will thereby be enrolled in a Fire Fighter 1 course.

Between September 2 and 4, 2013 this same individual also successfully completed Ontario Fire Code Inspection Training from Nadine International Inc. a Fire Protection Consultant with experience with a number of other CNSC Licensees.

2.1.2.11 HEALTH AND SAFETY TRAINING

The Health and Safety Specialist has received external training in various aspects of Health and Safety in 2013:

- Canada Labour Code Part II Orientation
- Fire Safety
- Lockout/Tagout
- WHMIS for Managers and Supervisors
- Accident Investigation
- Office Ergonomics
- Manual Materials Handling
- Health and Safety Committees
- Violence in The workplace
- Hazard Identification, Assessment and Control
- Developing an Occupational Health and Safety Program
- Health and Safety for Managers and Supervisors
- Workplace Inspections
- MusculoSkeletal Disorders: Prevention

2.1.3 OPERATING PERFORMANCE

Throughout 2013, SRB Technologies (Canada) Inc. has conducted their operations in accordance with their safety related programs and procedures and no events have resulted in the exceedance of any action levels over 2013.

The Quality Manager performed five internal audits in 2013. The audits focused on all activities associated with developing, managing and implementing all company safety programs. These audits alone resulted in identifying one non-conformance being identified.

In 2013, a total of 21 non-conformances and one opportunity for improvement were raised in several areas of the company operations. By the end of 2013, 16 of these non-conformances had been addressed and the other five are expected to be addressed by the end of 2014.

2.2 FACILITY AND EQUIPMENT

2.2.1 SAFETY ANALYSIS AND HYPOTHETICAL INCIDENT SCENARIOS

The methods and procedures that are used to carry on the activity licensed are summarized in the SRB Technologies (Canada) Inc. Safety Analysis Report[33] (Revision II), dated July 4, 2006.

The document titled Review of Hypothetical Incident Scenarios[34], dated February 22, 2008 analyzes incident scenarios for the facility and determines if these were applicable considering the improvements made to the safety programs and procedures and the upgrades that have been implemented over the years. The review also ensured that the hypothetical incidents identified were credible and reflected worse case conditions.

The documents are continuously reviewed for accuracy and validity. The overall safety case remained valid and effective throughout 2013. No modification or change performed in 2013 has affected the validity of the safety case.

No new potential hazards associated with any modification or changes has been identified. As most potential hazards associated with the facility would result from fire, the Safety Analysis[33] for the facility was validated and maintained for any modifications and changes during the review period by submitting any proposed modification for third party review of compliance with the National Building Code, 2005, the National Fire Code, 2005, and National Fire Protection Association, NFPA-801, 2008 edition: Standard for Fire Protection for Facilities Handling Radioactive Materials. Other potential hazards are prevented and mitigated through the adherence to our safety programs and procedures which are constantly assessed through an internal audit process and corrective and preventive action process.

In anticipation of licensing SRB will review the Safety Analysis[33] and associated Hypothetical Incident Scenarios[34] in 2014.

2.2.2 PHYSICAL DESIGN

No change in physical design of the facility occurred over 2013. As most potential hazard associated with the facility would result from fire, the ability of systems, structures and components to meet and maintain their design basis is maintained through the company Maintenance Program[31] which includes periodic inspection for the facility. As required by condition 7.1 and 7.2 of CNSC operating licence NSPFOL-13.00/2015[1] and section 3.7 of the Licence Conditions Handbook LCH-SRBT-R000[2] SRB shall operate, maintain, test, and inspect the facility in accordance with the National Fire Code, 2005, and National Fire Protection Association, NFPA-801, 2008 edition.

2.2.3 FITNESS FOR SERVICE

The Maintenance Program[31] has continued to remain effective in 2013. The facility and equipment associated with the facility were maintained and operated within all manufacturers requirements. A new revision of the Maintenance Program[32] is due in 2014 which will reflect improvements that have been made.

2.2.3.1 VENTILATION

The ventilation of the facility is such that the air from the facility flows to the area with greatest negative pressure in Zone 3 which has the highest potential for tritium contamination where all tritium processing takes place. This area and part of Zone 2 are kept at high negative pressure with the use of two air handling units which combined provide airflow of approximately 10,000 cubic feet per minute.

The air handling units are connected to a series of galvanized and stainless steel ducts. In addition to providing ventilation for the facility these air handling units also provide local ventilation to a number of fume hoods which are used to perform activities that have a potential for tritium contamination and exposure.

These air handling units are maintained through contract maintenance and service program with local contract providers in conjunction whereby preventive maintenance is performed by qualified staff. All records of the maintenance are kept on file. Ventilation equipment maintained in 2013 can be found in **Appendix E** of this report.

All ventilation systems were maintained in fully operational condition with no major system failures during 2013 to the requirements of our Maintenance Program[31] and operational procedures[35][36]. Equipment is maintained on a quarterly or semi-annually basis, see equipment maintenance information in **Appendix F** of this report. Equipment maintenance was performed under contract with a fully licensed maintenance and TSSA certified local HVAC contract provider. All records of the maintenance are kept on file.

2.2.3.2 STACK FLOW PERFORMANCE

Stack maintenance is performed by a third party, in order to ensure effective performance of the ventilation system and minimize airflow reductions from the beginning to the end of the maintenance cycle to ensure accuracy of results.

Pitot tubes that were installed in the stacks are maintained by a third party to ensure stack airflow are at design requirements. This essentially allows for daily stack flow verification in addition to more detailed annual stack flow verification performed by an independent third party.

Stack Performance Verification was performed on September 11, 2013 by an independent third party. The inspection confirmed that the stacks were performing to design requirements. It should be noted that the airflow on both air handling units have remained approximately the same in 2013 from what they were in 2012. The stack height and the airflow in the fume hoods continue to be checked on a regular basis.

We will continue to monitor and trend the results of the yearly Stack Performance Verification, no further action is required at this time other than continuing to perform the daily readings of the stack height and the monthly airflow checks of fume hoods. All records are kept on file.

2.2.3.3 LIQUID SCINTILLATION COUNTERS

Two identical liquid scintillation counters (Model Wallac 1409) are maintained and calibrated on a yearly basis to ensure their functionality by a qualified service representative from the manufacturer of the equipment.

Both liquid scintillation counters were serviced as required at least once during 2013. Service on the units was completed in March 2013. All records of the maintenance are kept on file. Also at this time, both liquid scintillation counters were upgraded by replacing the floppy drives with USB drives, these upgrades were performed by the manufacturer.

The manufacturer of our liquid scintillation counters have informed us that the liquid scintillation counters model Wallac 1409 have reached the end of their serviceable life which means that the manufacturer will continue to offer a service contract but cannot guarantee that all the required parts maybe available for a potential repair.

Based on this information SRB have looked at replacement options and will be purchasing a new liquid scintillation counter in the event that one of the Wallac 1409 break down and cannot be repaired. The remaining good parts of the Wallac 1409 that cannot be repaired can then be used to repair the Wallac 1409 that remains in service. Should this second Wallac 1409 also break down and cannot be repaired SRB will purchase a second new liquid scintillation counter.

2.2.3.4 PORTABLE TRITIUM-IN-AIR MONITORS

Portable tritium-in-air monitors are maintained in Zones 2 and 3. The portable units are used to determine the source of tritium that might cause an alarm threshold to be breached.

There are three portable tritium-in-air monitors available for airborne tritium monitoring at the facility. Normally two are located in Zone 3, one in Zone 2.

As required by our Radiation Safety Program[37] all tritium-in-air monitors were calibrated at least once during 2013, all three now in service were last calibrated in July, September and November 2013. All records of the maintenance are kept on file.

2.2.3.5 ROOM TRITIUM-IN-AIR MONITORS

The ambient air in Zones 2 and 3 is continuously monitored using stationary tritium-in-air monitors.

There are four stationary tritium-in-air monitors available for airborne tritium monitoring at the facility. Three monitors are strategically located in Zone 3; one in the Rig Room where gaseous tritium light sources are filled and sealed, one in the Laser Room where a laser is used to cut and seal small gaseous tritium light sources and inspected, and one in the Tritium Laboratory where tritium is transferred from bulk supply containers to filling containers. One stationary tritium-in-air monitor is located in Zone 2 in the Assembly Area, where gaseous tritium light sources are pre-packed in preparation for shipping or installed into device housings.

As required by our Radiation Safety Program[37] all tritium-in-air monitors were calibrated at least once during 2013 in November and December 2013. All records of the maintenance are kept on file.

2.2.3.6 STACK MONITORING EQUIPMENT

Stack monitoring equipment is incorporated for each of two main air-handling units. For each air-handling unit, the monitoring equipment includes:

- A tritium-in-air monitor connected to a real-time recording device.
- A bubbler system for discriminately collecting HTO and HT.
- A flow measurement device with elapsed time, flow rate and volume.

As required by our procedures[38], each tritium-in-air monitor connected to the real-time recording device (chart recorder) was calibrated at least once in 2013. The bulk stack monitor was calibrated in June 2013 and the rig stack monitor was calibrated in December 2013. The chart recorder itself was calibrated at least every three months during 2013 for a total of five times in 2013, in January, April, July, October and December. All records of the maintenance are kept on file.

Filters for the bubbler system and for both tritium-in-air monitors connected to the chart recorder are changed regularly and records are kept on file.

As the calibration of a flow measurement device is only valid for one year, each device was replaced a year after being in place in March 2013.

In February 2013 we contracted a third party to install independent bubbler monitoring systems to perform a validation of the bubbler systems. Results over five consecutive weekly sampling periods showed that our bubbler system is effective in measuring emissions from the facility.

Results show that the bubbler system for the bulk stack was adequate in measuring emissions from the facility and more conservative than the third party bubbler at overestimating overall HT + HTO emissions by an average of 1%.

Results also show that the bubbler system for the rig stack was adequate in measuring emissions from the facility but less conservative than the third party bubbler at overestimating overall HT + HTO emissions by an average of 20%. See third party bubbler verification results in **Appendix G** of this report.

These results show that our stack monitoring equipment is adequate in measuring emission from the facility but does demonstrate that it's ability to conservatively overestimate the emissions from the facility has diminished over the years.

TABLE 7: CONSERVATISM PERCENTAGE OF BUBBLERS

YEAR	BUBBLER FOR RIG STACK	BUBBLER FOR BULK STACK
2009	+ 8%	+ 16%
2011	+ 9%	+ 19%
2013	- 20%	+ 1%

These bubblers have been in operation since 2005 and it has been decided to purchase new bubbler monitoring equipment in order to ensure that emissions are conservatively overestimated. The new equipment is expected to be installed in early 2014. After the equipment is installed another third party validation will be performed.

2.2.3.7 WEATHER STATION

Maintenance of the weather station was not performed in 2013 and is not to be performed until 2014. The maintenance was last performed in 2012 and the specifications of the manufacturer are that the maintenance is to be performed every two years. All records of the maintenance are kept on file.

2.3 CORE CONTROL PROCESSES

2.3.1 RADIATION PROTECTION

2.3.1.1 DOSIMETRY SERVICES

During 2013, SRB maintained a Dosimetry Service License[25], 11341-3-18.0, for the purpose of providing in-house dosimetry services for the staff of SRB and contract workers performing services for SRB where there existed potential exposure for uptake of tritium.

Dosimetry results were submitted on a quarterly basis to Health Canada in a timely fashion for input to the National Dose Registry for 38 individual staff members. Two employees were only employed at SRB for a part of the year as summer students.

SRB participated in the annual Tritium Urinalysis Performance Test sponsored by the National Calibration Reference Centre for Bioassay, Radiation Surveillance and Health Assessment Division, Radiation Protection Bureau of Health Canada. The participation is a regulatory requirement for Dosimetry Service Providers.

SRB received the Certificate of Achievement for successful participation in the Tritium Urinalysis Performance Test from the National Calibration Reference Centre for Bioassay and In Vivo Monitoring for the year 2013.

SRB also submits, to the CNSC, an Annual Compliance Report (ACR)[39] for Dosimetry Service License[25], 11341-3-18.0.

2.3.1.2 STAFF RADIATION EXPOSURE

SRB, through the Dosimetry Service License[25], 11341-3-18.0, assesses the radiation dose to its employees and to contract workers who may have exposure to tritium.

For SRB staff members, all are classified as Nuclear Energy Workers. All staff members participate in the dosimetry program. Persons who work in Zones 1 and 2 provide bioassay samples for tritium concentration assessment on a bi-weekly frequency due to the very low probability of uptake of tritium. Persons assigned to work in Zone 3 provide bioassay samples on a weekly frequency due to the significant probability of uptake of tritium.

The assessment of dose to personnel, due to tritium uptake, is performed in accordance with the Health Canada Guidelines for Tritium Bioassay and CNSC Regulatory Standard S-106 titled “Technical and Quality Assurance Requirements for Dosimetry Services”[30], revision 1.

The maximum annual dose received by any person employed by SRB is well within the regulatory limit for a nuclear energy worker of 50.0 mSv per calendar year. The maximum annual staff dose was 1.93 mSv with an average for all staff of only 0.21 mSv. Collective dose was also low at 7.94 mSv. The table found in **Appendix H** of this report provides the radiological occupational annual dose data for 2013. The table provides a comparison of dosimetry results for the years 1997 to 2013. Any comparison of the dose in 2007 and 2008 to previous years is not informative or appropriate as the facility only processed tritium until January 31, 2007, and only resumed processing tritium in July of 2008.

2.3.1.3 ACTION LEVELS FOR DOSE AND BIOASSAY LEVEL

Section 3.8 of the Licence Conditions Handbook LCH-SRBT-R000[2] for licence NSPFOL-13.00/2015[1] currently provides SRB's action levels for dose and for bioassay level:

TABLE 8: ACTION LEVELS FOR EFFECTIVE DOSE TO WORKER

PERSON	PERIOD	ACTION LEVEL (mSv)
NUCLEAR ENERGY WORKER	QUARTER OF A YEAR	2.6
	1 YEAR	5.0
	5 YEAR	25.0
PREGNANT NUCLEAR ENERGY WORKER	BALANCE OF THE PREGNANCY	3.5

The highest annual staff dose for the year was 1.93 mSv, therefore none of the staff members exceeded the action levels for effective dose to worker.

TABLE 9: ACTION LEVELS FOR BIOASSAY RESULT

PARAMETER	ACTION LEVEL
BIOASSAY RESULT	1,000 Bq/ml FOR ANY PERIOD

There were no instances at any time in 2013 whereby a staff member's tritium body burden exceeded the action level of 1,000 Bq/ml.

During 2013, in response to CNSC Staff's comments on RPD-SRBT-2011-01-R2 found in Inspection Report No. RPD-SRBT-2011-01[40], SRB undertook a complete review of operating conditions and of the "Licence Limit, Action Levels and Administrative Limit" document[41] to ensure that action levels are adequate to detect the emergence of a potential loss of control of the Radiation Protection Program.

As a result, in a letter[42] to CNSC Staff dated February 25, 2013, SRB has proposed new action levels that are lower than those currently observed as outlined in the table below.

TABLE 10: PROPOSED ACTION LEVELS FOR EFFECTIVE DOSE TO WORKER

PERSON	PERIOD	PROPOSED ACTION LEVELS (mSv)
NUCLEAR ENERGY WORKER	QUARTER OF A YEAR	1.0
	1 YEAR	3.0
	5 YEAR	15.0
PREGNANT NUCLEAR ENERGY WORKER	BALANCE OF THE PREGNANCY	2.0

CNSC Staff in an e-mail dated March 21, 2013[43] stated that the proposed new action levels and the analysis were found to be acceptable and that CNSC Staff expects SRB to comply with the new action levels.

None of the staff members exceeded proposed new action levels for effective dose to worker.

2.3.1.4 ADMINISTRATIVE LIMITS FOR DOSE AND BIOASSAY LEVEL

SRB has in place administrative limits for effective dose to worker and bioassay result:

TABLE 11: ADMINISTRATIVE LIMITS FOR DOSE AND BIOASSAY LEVEL

PARAMETER	ADMINISTRATIVE LEVEL
EFFECTIVE DOSE TO WORKER	4 mSv/YEAR 2.0 mSv/QUARTER
BIOASSAY RESULT	500 Bq/ml FOR ANY PERIOD IN ZONE 3 100 Bq/ml FOR ANY PERIOD IN ZONE 1 OR 2

The highest annual staff dose for the year was 1.93 mSv, therefore none of the staff members exceeded any of the administrative levels for effective dose to worker.

At no time in 2013 did Zone 3 staff bioassay sample results exceed the administrative limit of 500 Bq/ml or did Zone 2 or Zone 1 staff bioassay sample results exceed the administrative limit 100 Bq/ml.

During 2013, in response to CNSC Staff's comments on RPD-SRBT-2011-01-R2 found in Inspection Report No. RPD-SRBT-2011-01[40], SRB undertook a complete review of operating conditions and of the "Licence Limit, Action Levels and Administrative Limit" document[41] to ensure that action levels are adequate to detect the emergence of a potential loss of control of the Radiation Safety Program[37].

As a result, in a letter[42] to CNSC Staff dated February 25, 2013, SRB has proposed to revise administrative levels that are lower than those currently observed as outlined in the table below.

TABLE 12: PROPOSED ADMINISTRATION LEVELS FOR EFFECTIVE DOSE TO WORKER

PARAMETER	PROPOSED ADMINISTRATIVE LEVEL
EFFECTIVE DOSE TO WORKER	2.25 mSv/YEAR 0.75 mSv/QUARTER
BIOASSAY RESULT	500 Bq/ml FOR ANY PERIOD IN ZONE 3 100 Bq/ml FOR ANY PERIOD IN ZONE 1 OR 2

None of the staff members exceeded proposed new administrative levels for effective dose to worker.

2.3.1.5 CONTAMINATION CONTROL

Tritium contamination control is maintained by assessment of non-fixed tritium contamination levels throughout the facility by means of swipe method and liquid scintillation counting of the swipe material. SRB has in place the following administrative surface contamination limits:

TABLE 13: ADMINISTRATIVE SURFACE CONTAMINATION LIMITS

ZONE	SURFACES	ADMINISTRATIVE SURFACE CONTAMINATION LIMITS
1	ALL SURFACES	4.0 Bq/cm^2
2	ALL SURFACES	4.0 Bq/cm^2
3	ALL SURFACES	40.0 Bq/cm^2

An overview of swipe monitoring results for 2013 has been tabulated and is included in **Appendix I** of this report. A total of 7,936 swipes were performed in various work areas in 2013.

The data collected shows that 326 swipes were taken in Zone 1 resulting in a pass rate of 95.71% below the administrative level of 4 Bq/cm^2.

The data collected shows that 1,730 swipes were taken in Zone 2 resulting in a pass rate of 94.86% below the administrative level of 4 Bq/cm^2.

The data collected shows that 5,880 swipes were taken in Zone 3 resulting in a pass rate of 93.45% below the administrative level of 40 Bq/cm^2.

All swipe results are reported to the area supervisors. The area supervisor would review the results to determine where extra cleaning effort is necessary.

A comparison of the data for 2012 and 2013 was made:

TABLE 14: 2012 AND 2013 PASS/FAIL RATIO COMPARISON

ZONE	2012 PASS/FAIL RATIO	2013 PASS/FAIL RATIO
1	97.29%	95.71%
2	93.63%	94.86%
3	94.44%	93.45%

During 2013, quarterly Health Physics Committee meetings[44][45][46][47] were held to review swipe results. The purpose of the review was to determine if the sampling locations chosen are effective in identifying areas where contamination may be present. The sampling locations were methodically compared against each other and approximately 20% of locations with the highest pass-rate for the quarter, which were the areas least likely to exceed the administrative limits, were replaced by new locations selected at the discretion of the Health Physics Committee.

The pass rate is slightly lower in 2013 than it was in 2012 which demonstrates that our program is effective at identifying areas with contamination.

2.3.1.6 DISCUSSION OF THE SIGNIFICANCE OF THE RESULTS FOR ALL DOSE CONTROL DATA

Increases in maximum, average and collective dose in 2013 compared to 2012 are attributable partly to the fact that 2.99 times more tritium was processed in 2013 than in 2012.

Another reason is that SRB hired 14 new employees in 2013 which increases the collective dose. Also, although few of these new employees are working in Zone 3 where the tritium is processed or in Zone 2 where lights sources are handled and packaged, more experience and training will undoubtedly benefit and help reduce dose levels.

2.3.1.6.1 MAXIMUM DOSE

As expected in 2013 and as previous years, the highest dose received by any employee was to an individual working primarily in Zone 3 where tritium is processed.

The maximum dose to an employee in 2013 was 1.93 mSv and is 1.13 mSv higher than the maximum dose to an employee in 2012 and 0.78 mSv higher than the maximum dose to an employee in 2011 but still below the average maximum of 2.74 mSv between 1997 and 2013. The maximum dose to an employee will be more closely managed in 2014 in order to ensure continuous reduction.

In 2013, the maximum dose to an employee working primarily in Zone 2 was 0.16 mSv and is 0.03 mSv higher than the maximum dose to an employee working primarily in Zone 2 in 2012.

In 2013, the maximum dose to an employee working primarily in Zone 1 was 0.03 mSv and is 0.01 mSv less than the maximum dose to an employee working primarily in Zone 1 in 2012.

In 2013, the maximum dose to an employee working primarily in administration was 0.17 mSv and is 0.09 mSv higher than the maximum dose to an employee working primarily in administration in 2012. The employee which received 0.17 mSv spends approximately half of their time inspecting product and performing internal audits in Zones 2 and 3.

2.3.1.6.2 AVERAGE DOSE

The average dose for all staff in 2013 was 0.21 mSv and is 0.10 mSv higher than the average dose to all staff in 2012.

The average dose to employees working primarily in Zone 3 in 2013 was 1.82 mSv and is 1.24 mSv higher than the average dose to employees working primarily in Zone 3 in 2012.

The average dose to employees working primarily in Zone 2 in 2013 was 0.08 mSv and is 0.05 mSv higher than the average dose to employees working primarily in Zone 2 in 2012.

The average dose to employees working primarily in Zone 1 in 2013 was 0.01 mSv and is 0.01 mSv lower the average dose to employees working primarily in Zone 1 in 2012.

The average dose to employees working primarily in administration in 2013 was 0.08 mSv and is 0.02 mSv higher than the average dose to employees working primarily in administration in 2012.

2.3.1.6.3 COLLECTIVE DOSE

The collective dose for the staff in 2013 was 7.94 mSv for a total of 38 (36 full time and 2 summer students) staff members and is 5.19 mSv higher than the collective dose to staff in 2012.

2.3.1.7 DISCUSSION ON RADIATION PROTECTION PROGRAM EFFECTIVENESS

The Radiation Safety Program[37] has been effective in protecting the prevention of unreasonable risk to the health and safety of persons.

2.3.1.7.1 STAFF DOSE

The Radiation Safety Program[37] prescribed measures to ensure that staff doses are kept to levels as low as reasonably acceptable.

The Radiation Safety Program[37] requires that room Tritium-In-Air monitors are used to assess ambient air in Zones 2 and 3 with alarm threshold that ensure that staff are evacuated from work areas with concentrations above normal in order to reduce staff dose. Action is taken accordingly to reduce or eliminate source of tritium exposure and in ensuring staff dose are kept as low as reasonably achievable.

The Radiation Safety Program[37] requires that portable Tritium-In-Air monitors are used by staff to identify localized sources of tritium exposure in Zones 2 and 3. Action is taken accordingly to reduce or eliminate localized source of tritium exposure and in ensuring staff dose are kept as low as reasonably achievable. Health Physics Team members informally discussed the possible benefit in acquiring more portable Tritium-In-Air monitors. This will help identify localized sources of tritium and it is expected that more will be introduced in 2014 which should help reduce overall doses.

The Radiation Safety Program[37] requires that surface contamination is assessed by liquid scintillation counters at frequent enough intervals and based on results actions are taken to ensure levels are kept as low as reasonably achievable. The actions include an informal review of work practices by the Human Protection Coordinator and Department Supervisor where adjustments are made as deemed necessary. Actions contribute in ensuring staff dose are kept as low as reasonably achievable.

The Radiation Safety Program[37] requires that staff dose is assessed by bioassay testing of staff urine measured by liquid scintillation counters at frequent enough intervals and based on results actions are taken to ensure levels are kept as low as reasonably achievable. The actions include an informal review of work practices by the Human Protection Coordinator and Department Supervisor where adjustments are made as deemed necessary.

The Radiation Safety Program[37] requires that equipment used is maintained and calibrated regularly to ensure the adequacy of results.

2.3.1.7.2 PUBLIC DOSE

The Radiation Safety Program[37] prescribed measures to ensure that public dose are kept to levels as low as reasonably acceptable.

The Radiation Safety Program[37] requires that an Environmental Monitoring Program[48] is in place to assess the amount of tritium released to the environment and to formally calculate the dose to the public. Results are reviewed on a quarterly basis by three members of the Health Physics Team. The actions from this review may result in changes in work practices as deemed necessary and contribute in ensuring public dose are kept as low as reasonably achievable.

The Radiation Safety Program[37] requires that a bubbler system is in place to formally tabulate emissions from the facility. The results are verified on a weekly basis by six employee members including four members of the Health Physics Team and the Production Supervisors for each Zone 2 and Zone 3 where tritium may be released. The actions from this review may result in changes in work practices as deemed necessary and contribute in ensuring public dose are kept as low as reasonably achievable.

The Radiation Safety Program[37] requires that a real-time recording device (chart recorder) is also in place to monitor emissions from the facility as they take place. The results are verified regularly on a daily basis by the production supervisor for Zone 3 where tritium is processed. The actions from this review may result in changes in work practices as deemed necessary and contribute in ensuring public dose are kept as low as reasonably achievable.

The Radiation Safety Program[37] requires that equipment used is maintained and calibrated regularly to ensure the adequacy of results.

2.3.1.8 SUMMARY OF RADIATION PROTECTION PROGRAM PERFORMANCE

Safety Performance Objectives have been set for the upcoming year based on historical performance in 2013 and previous years.

2.3.1.8.1 AIR EMISSION TARGET

Based on a predicted increase in production of 100% in 2013, Senior Management had committed to an emission target only 90% higher than the 575 GBq per week (HT + HTO) that was released per week in 2012, for a new target of 1,093 GBq's per week (HT + HTO) in 2013.

The increase in production was higher than the anticipated 100% with an increase of just over 199% or production increased by 2.99 times. As a result SRB released 1,516 GBq per week (HT + HTO) exceeding it`s target of 1,093 GBq per week (HT + HTO).

Average weekly releases to atmosphere of 1,516 GBq per week in 2013 represent less than 20% of our weekly Action Levels of 7,753 GBq's (HT + HTO).

Had SRB predicted increasing tritium production by 2.99 times the target would have been set higher. Future targets will also be based on tritium released to atmosphere against tritium processed. When analyzing the operation's performance at reducing emissions it is important to analyze the releases to atmosphere against the tritium processed. This provides an indication at how effective emission reduction initiatives have been successful in reducing emissions.

The following table provides the ratio of tritium released to atmosphere against tritium processed and the tritium released per week in 2013:

TABLE 15: 2013 RELEASED PER WEEK AND TRITIUM RELEASED TO PROCESSED

YEAR	RELEASED (GBq/WEEK)	% RELEASED TO PROCESSED
2013	1,516.82	0.26

In 2013 the amount of tritium released to atmosphere to the amount of tritium processed was 0.26%. This is a 10% reduction from what it was in 2012.

Emission reduction initiatives introduced throughout the year especially those introduced in the last quarter of the year show that releases to atmosphere have reduced significantly in the latter part of 2013.

Since we expect that tritium processed will remain at the same level in 2014, based on these factors we expect that the ratio of tritium released to atmosphere to processed will reduce by 15% from 0.26% to 0.22% and that tritium released to atmosphere per week will in turn reduce by 15% from 1,516.83 GBq per week to 1,289.30 GBq per week.

In addition to the emission reduction initiatives introduced in late 2013 we expect to achieve this target by ongoing training and continuing to raise awareness of the staff in respect to the effect of their activities on air emissions.

2.3.1.8.2 OCCUPATIONAL DOSE TARGET

Despite a predicted increase in production of 100% in 2013, Senior Management had committed to an average occupational dose target only 90% higher than the 0.11 mSv achieved in 2012, for a new target of 0.21 mSv in 2013.

The increase in production was higher than the anticipated 100% with an increase of just over 199% or production increased by 2.99 times. Despite this increase SRB managed to meeting the occupational dose target of 0.21 mSv. This only represents 4.2% of our yearly Action Level of 5.0 mSv.

As production is expected to remain at the same level in 2014 Senior Management has committed to reducing the average occupational dose target achieved in 2013 by 10% down from 0.21 mSv to 0.19 mSv. We expect to achieve this target by ongoing training and continuing to raise awareness of the staff in respect to the effect of their activities on their dose and on the dose of co-workers.

Senior Management has additionally committed to reducing the maximum dose to any employee by 10% down from 1.93 mSv to 1.74 mSv. We expect to achieve this target by more closely managing the maximum dose and the tasks that are being performed by the employee that receives the maximum dose.

2.3.1.9 SUMMARY OF CONTINUOUS IMPROVEMENTS UNDER ALARA PERFORMANCE

As prescribed in the Radiation Safety Program[37] ALARA is a concept that is also discussed during staff, committee and management meetings as well as in training sessions.

As discussed in section “2.1.2.4 Committees” of this report in 2013 committees have continued to be instrumental in the development and refinement of company programs and procedures and at identifying ways to reduce emissions and improve safety at the facility.

Committees use meeting results as an opportunity for improvement and make recommendations accordingly. In 2013 a total of 59 minuted meetings have taken place at the company compared to 78 in 2012, a 24% decrease. The number of formal meetings has reduced in 2013 as more emphasis was placed in allocating time to training new employees and cross existing employees. Senior Management urged staff to increase the number of short informal meetings to ensure communication was maintained and committee meetings were reserved for more significant decision making and matters.

The Workplace Health and Safety Committee only had one less meeting than in 2012 and the Health Physics Committee had the same amount of meetings as in 2012 and those are the committees that have the greater influence on ensuring the protection of the staff, public and the environment.

TABLE 6: BREAKDOWN OF MEETINGS HELD

COMMITTEE	NUMBER OF MEETINGS
OTHER STAFF	16
WORKPLACE HEALTH AND SAFETY COMMITTEE	12
HEALTH PHYSICS COMMITTEE	11
MITIGATION COMMITTEE	5
FIRE PROTECTION COMMITTEE	5
EXECUTIVE COMMITTEE	4
PUBLIC INFORMATION COMMITTEE	4
PRODUCTION COMMITTEE	1
WASTE MANAGEMENT COMMITTEE	1
TOTAL	**59**

Notable improvements made by the Committees in 2013 included the introduction of new members to the Health Physics Team, Workplace Health and Safety Committee and Fire Protection Committee. These new members helped bring a fresh point of view to the committees and helped introduce new ideas based on their work experience outside of SRB.

Actual improvements included the condensing and transfer of soil generated from drilled wells from metal drums to plastic drums, the reduction of emissions by eliminating redundant lights used in certain products and the creation of new positions at the company of Health and Safety Specialist, Project Engineer and Production Control Assistant.

2.3.1.10 SUMMARY OF RADIATION DEVICE AND INSTRUMENTATION PERFORMANCE

All instruments in 2013 continued to be maintained in a state of safe operation.

As discussed in detail in section “2.2.3 Fitness for service” of this report the Maintenance Program[31] has continued to remain effective in 2013. The facility and equipment associated with the facility were maintained and operated within all manufacturers’ requirements and as prescribed by the Radiation Safety Program[37] to ensure that all regulatory requirements were met.

2.3.1.11 SUMMARY OF INVENTORY CONTROL MEASURES

A number of Inventory Control Measures are in place to ensure that tritium on site does not exceed the possession limit prescribed by licence NSPFOL-13.00/2015[1].

Procedure RSO-009[49] (Revision I) titled “Tritium Inventory Management” is specifically used to assess tritium inventory on site.

Tritium on site is found in:

- Bulk containers, U-beds and tritium traps
- New light sources
- The exit signs for our facility
- New product that contain light sources
- Work in progress
- Waste
- Expired light sources taken out of product
- Products that contain expired light sources
- Non-conforming product

2.3.2 CONVENTIONAL HEALTH AND SAFETY

2.3.2.1 JURISDICTION

SRB is subject to Federal Jurisdiction thus, Part II of the Canada Labour Code and its Occupational Health and Safety regulations.

2.3.2.2 INDUSTRIAL HEALTH AND SAFETY PROGRAM

Being under federal jurisdiction in 2013, the industrial Health and Safety Program for the SRB facility was compliant with the requirements of the Canada Labour Code Part II and its regulations.

2.3.2.3 WORKPLACE HEALTH AND SAFETY COMMITTEE

In accordance with Section 135(1) of the Canada Labour Code Part II (CLC Part II) SRB Technologies (Canada) Inc. maintains a Workplace Health and Safety Committee.

The committee is comprised of two representatives. The representatives are required to meet no less than 9 times per year as required under section 135(10) of the CLC Part II.

The Workplace Health and Safety Committee has met 12 times in 2013 at a rate of one meeting per month. All minutes are kept on file.

2.3.2.4 MINOR INCIDENTS AND LOST TIME INCIDENTS

There were no major incidents to report in 2013. There was however six minor incident and only one where an employee needed medical care at the outpatient department at the local hospital as a result of a piece of broken glass being lodged in their finger. All the required documents were sent to Workplace Safety And Insurance Board (WSIB) and an investigation report is kept on file. This incident did not require any lost time.

2.3.2.5 VISITS FROM HUMAN RESOURCES AND SKILLS DEVELOPMENT CANADA (HRSDC)

There has been no facility visits by a Health and Safety Officer from HRSDC in 2013.

2.3.2.6 REPORTING

In accordance with Section 15.10 (1) of Part XV of the Canada Occupational Health and Safety Regulations the Employer's Annual Hazardous Occurrence Report was submitted to HRSDC as required.

In accordance with Section 135.2(1) (g) of Part II of the Canada Labour Code (Occupational Health and Safety) the Work Place Health and Safety Committee Report was submitted to HRSDC as required.

2.3.3 ENVIRONMENTAL PROTECTION

This section of the report will provide environmental and radiological compliance including results from environmental and radiological monitoring, assessment of compliance with licence limits, historical trending where appropriate, and quality assurance/quality control results for the monitoring.

SRB Technologies (Canada) Inc. developed an Environmental Monitoring Program[48] that provides data for site-specific determination of tritium concentrations along the various pathways for exposure probabilities to the public due to the activities of the operations. Most samples are analyzed and collected by a third party contracted by SRB.

On September 5, 2013 CNSC Staff also collected a number of environmental samples with our third party for comparison.

2.3.3.1 PASSIVE AIR SAMPLERS

A total of 40 passive air samplers (PAS) are located throughout a two kilometer radius from the SRB facility, in eight sectors, ranging in distance at 250, 500, 1,000, and 2,000 meters.

The samples were collected on a monthly basis by a third party laboratory for tritium concentration assessment by the third party laboratory.

Several duplicate samplers are included for quality assurance purposes. Several samplers are also located specifically to provide data for assessment of the defined critical group members. PAS results for 2013 can be found in the table in **Appendix J** of this report.

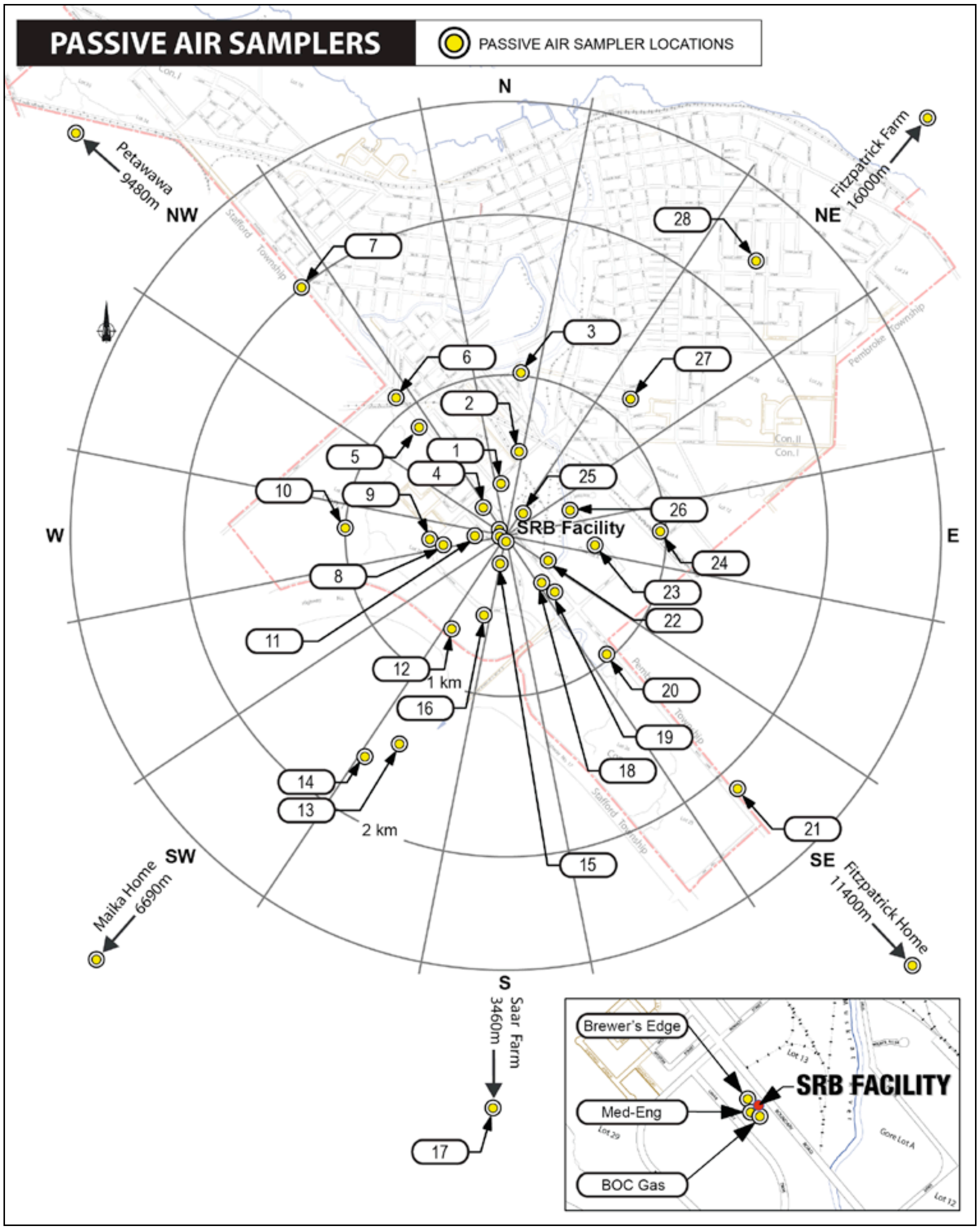
The table shows the HTO concentrations for the samplers located in each of the eight compass sectors. The correlation for the results of the samplers as they increase in distance from the facility is quite evident. The patterns of the lines are very similar in most cases. Tritium oxide in air concentrations for each month of 2013 are graphically represented for each of eight compass sectors and for each of the distances from the facility and are found in **Appendix K** of this report.

The PAS`s represent tritium exposure pathways for inhalation and skin absorption and used in the calculations for critical group annual estimated dose for 2013.

The average total concentration for all 40 PAS`s in 2013 was 95.53 Bq/$m^3$ and is 2.20 times greater than the average total concentration for all 40 PAS`s in 2012 which was 43.36 Bq/m^3.

Total air emissions in 2013 have increased by 2.64 times what they were in 2012 as a result of increasing production by 2.99 times, it is therefore reasonable to assume a similar increase in average total concentration in PAS`s.

FIGURE 2: PASSIVE AIR SAMPLER LOCATIONS



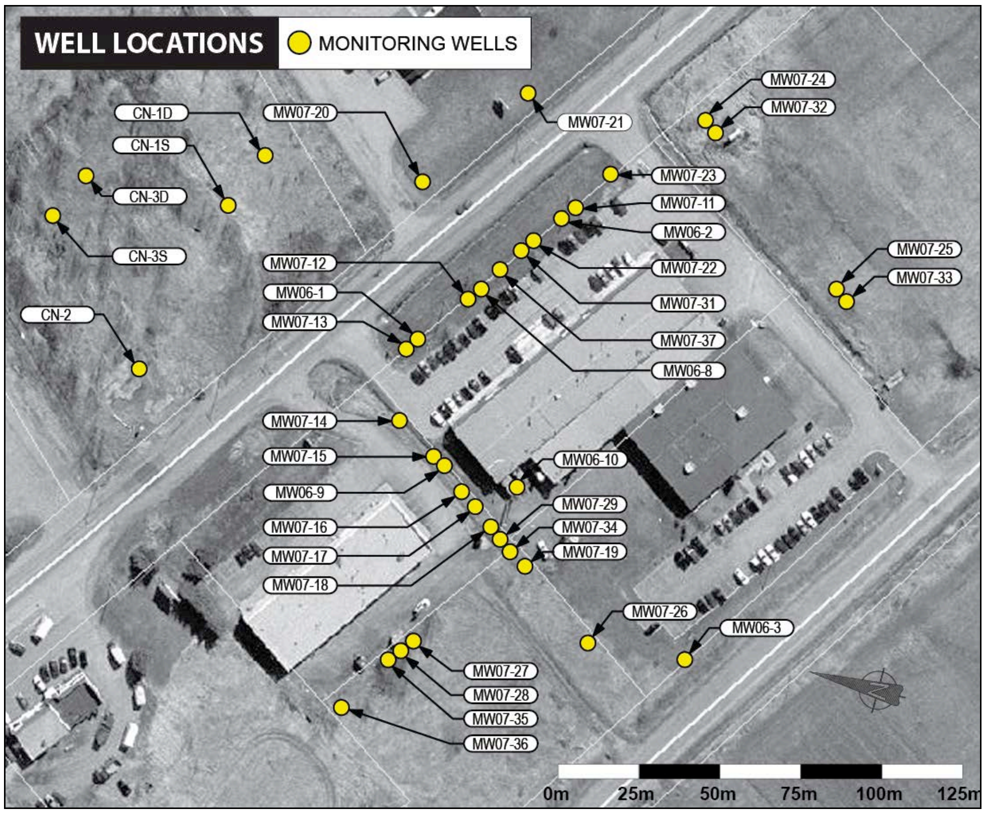
2.3.3.2 WELL MONITORING RESULTS

Our groundwater studies and ensuing reports[50][51][52][53] now includes monitoring data from 49 wells drilled at different depths in the stratigraphy including 37 wells located within approximately 150 meters of our stacks. Well monitoring results can be found in **Appendix L** of this report.

2.3.3.2.1 MONITORING WELLS

32 of these wells are monitored on a monthly basis and another 5 located further from the facility are monitored every four months.

FIGURE 3: LOCATIONS OF MONITORING WELLS

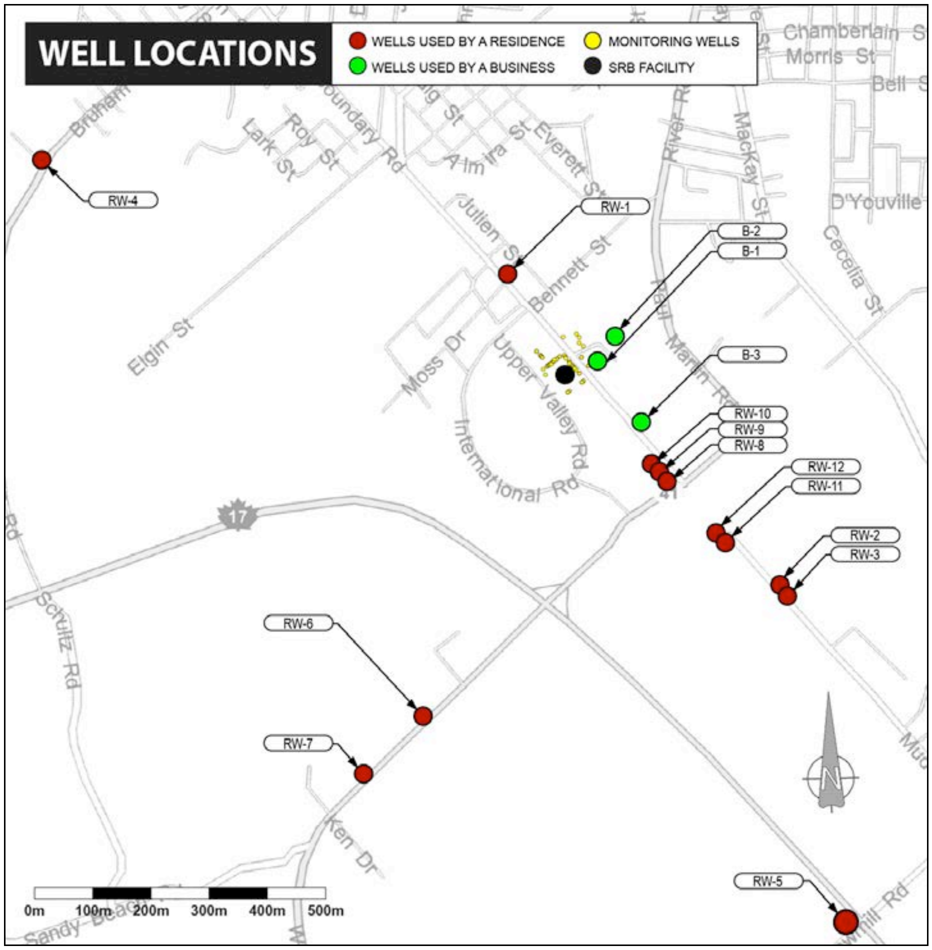


Of the now 36 monitoring wells, MW07-14 (last sampled at 2,584 Bq/L) was decommissioned in April 2013 due to damage from a snowplow the concentrations of only four wells now exceed the Ontario Drinking Water Guideline of 7,000 Bq/L. These four wells (MW06-1, MW06-10, MW07-13 and MW07-18) are located on the SRB site within 50 meters of the stack and showed either decreasing or steady concentrations in 2013. The highest average tritium concentration in any well, remains in monitoring well MW06-10 which is located in the stack area. The average concentrations in the majority of the monitoring wells continue to decrease since being drilled. For example in 2007 the concentration of 8 wells exceeded 7,000 Bq/L (MW06-1, MW06-10, MW07-13, MW07-18, MW07-29, MW07-34, MW07-35 and MW07-36).

2.3.3.2.2 RESIDENTIAL AND BUSINESS WELLS

All water supply wells located in the vicinity of SRB's facility have been identified, we have also assessed the drinking water usage for each of these wells and have been monitoring them at least every four months or at a frequency requested by the owner. The results were promptly reported to the members of the public and posted on the web site.

FIGURE 4: LOCATIONS OF RESIDENTIAL AND BUSINESS WELLS



The highest tritium concentration in a well used for drinking water remains in the water supply well B-1 which is located closest to SRB and is being used by individuals working for a business for some of their drinking water intake. Tritium concentrations in this well in 2013 averaged 1,032 Bq/L, less than 15% of the Ontario Drinking Water Guideline of 7,000 Bq/L. Average concentrations over 2013 for other wells used for drinking water ranged from 4 Bq/L to 220 Bq/L, depending on their location and distance in relation to the stacks. The average concentrations in the residential and business wells continue to decrease since being monitored.

2.3.3.2.3 PREDICTED GROUNDWATER CONDITIONS

While most of the released tritium in the air is dispersed, some of it will reach the soil through dry and wet deposition. Infiltrated precipitation water brings tritium into the groundwater below it. The deposition of tritium on and around the facility from air emissions and resulting soil moisture and standing water are the sole direct contributor to tritium found in groundwater.

Groundwater is affected by the percolation of soil moisture and standing water from the surface.

Current concentrations in the wells are expected to eventually gradually decrease once all historical emissions have flushed through the system and/or decayed with some influence of higher concentrations in nearby wells from lateral underground water flow. This will be confirmed by continuous monitoring of the existing network of wells. The rate at which this decrease will occur is dependent on the level and speed of recharge of the groundwater on and around the SRB facility.

The level and speed of recharge of groundwater differs drastically depending on the geology, surface topography, surface vegetation, soil characteristics, precipitation and climate. In turn the level and speed of recharge can differ from one monitoring well to another.

The tritium concentrations in groundwater are consistent with historical emission levels. Groundwater samples that are greater than those expected from air dispersion were affected by water draining from roof downspouts or from snow storage areas in which water or snow would have historically developed with higher tritium levels in closer proximity to the stacks. The concentrations measured in the well are dependent on the level and speed of recharge for a well and the depth of the well.

Therefore the slower the speed of recharge of a well, the older the emissions the well will be reflecting in its tritium concentration. It will take longer for soil moisture from the surface to reach the sampling depth of a well with a slower speed or recharge.

A deeper well will be reflecting older emissions than would a shallower well. In a deeper well soil moisture from the surface has to travel much longer to reach the sampling depth of the well.

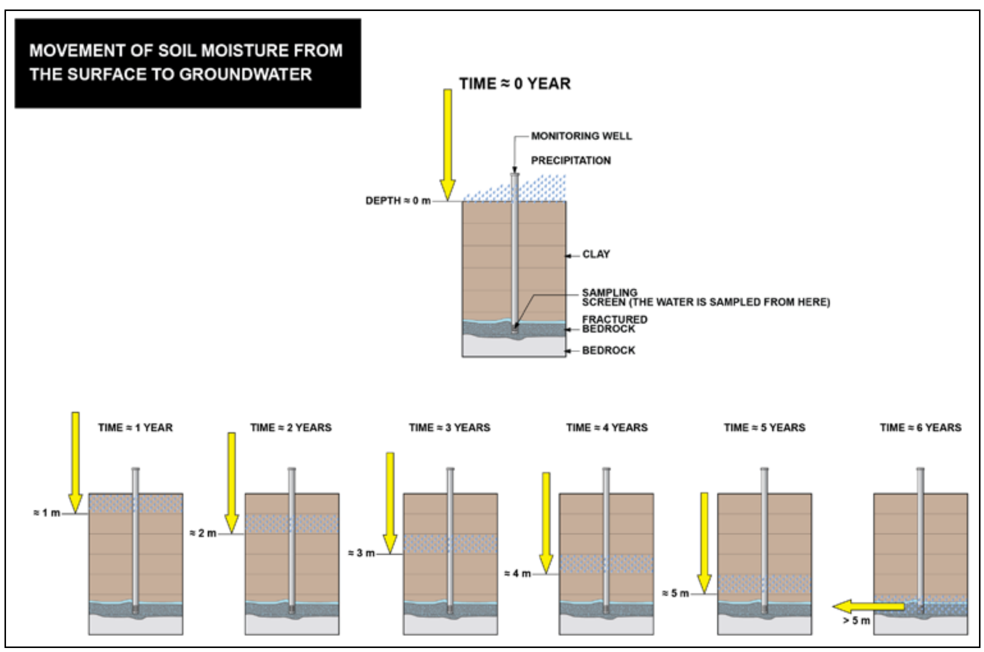
Bedrock was found to range between 5.2 to 7.5 meters below ground in the vicinity of SRB, vertical infiltration rate in clay is approximately 1 meter per year. Therefore it takes at least 5.2 years for tritium concentrations in soil moisture at the surface to be reflected in the wells.

The continued use of the existing release limit continues to ensure the sustainable use of groundwater resources and the protection of the environment and the public. We are confident that the release limit has been developed with sufficient data and conservatism. Furthermore the release limit has been validated by comparing the concentrations in downspouts and precipitation monitors to those estimated by our model.

Concentrations in the future will be within those predicted by the model and concentrations will eventually decrease once all historical emissions have flushed through the system and/or decayed with some influence of higher concentrations in nearby wells from lateral underground water flow. The rate of decrease for individual wells will be dependent on its level and speed of recharge.

The Muskrat River and drinking water supply wells are not at risk of exceeding the Ontario Drinking Water Guideline of 7,000 Bq/L.

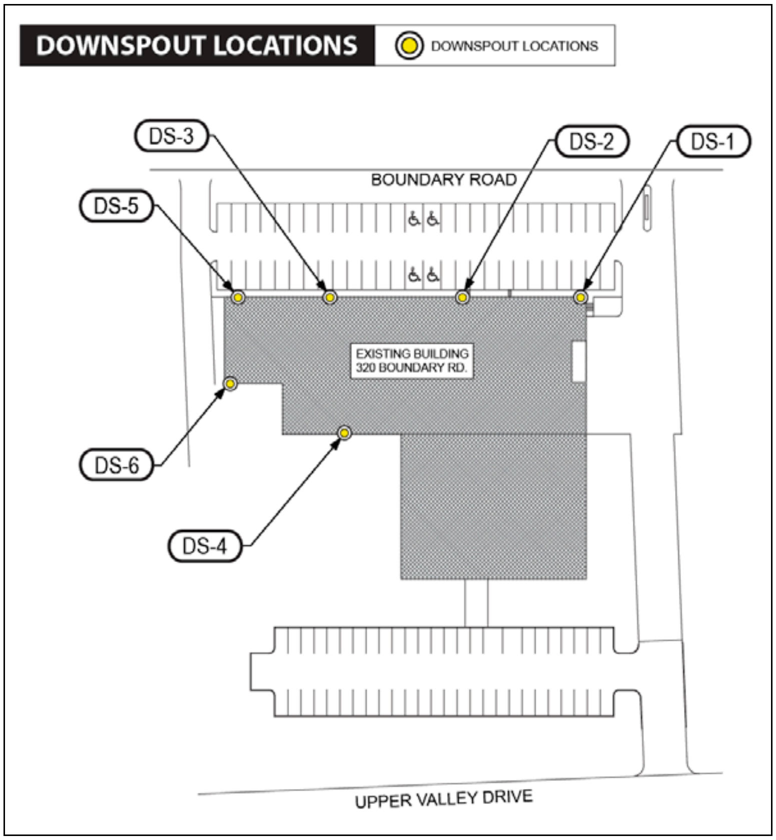
FIGURE 5: MOVEMENT OF SOIL MOISTURE FROM THE SURFACE TO GROUNDWATER



2.3.3.3 RUN OFF FROM DOWNSPOUTS

Tritium concentrations are measured in all facility downspouts. The samples were collected periodically by SRB for tritium concentration assessment.

FIGURE 6: BUILDING DOWNSPOUTS



Runoff from downspouts was collected during five precipitation events throughout 2013. Average results per downspout in 2013 ranged between 100 Bq/L (DS-1) and 1,960 Bq/L (DS-2).

The average tritium concentration for all six downspouts in 2013 was 798 Bq/L and is 2.09 times greater than the average tritium concentration for all six downspouts in 2012 which was 382 Bq/L.

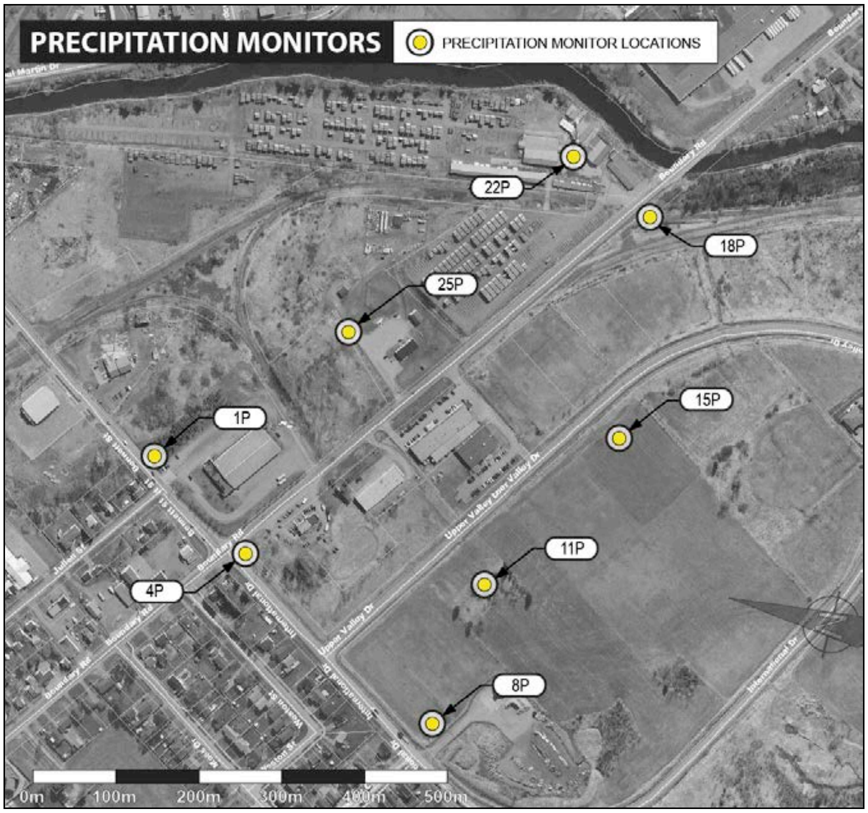
Total air emissions in 2013 have increased by 2.64 times what they were in 2012 as a result of increasing production by 2.99 times, it is therefore reasonable to assume a similar increase in tritium concentration in downspouts.

Runoff monitoring results can be found in **Appendix M** of this report.

2.3.3.4 PRECIPITATION SAMPLER RESULTS

Eight precipitation monitors are installed near existing air monitoring stations that are located approximately 250 m from the facility.

FIGURE 7: MAP OF AIR AND PRECIPITATION MONITORING STATIONS



The samples were collected on a monthly basis by SRB and a third party laboratory for tritium concentration assessment by the third party laboratory. Average results in 2013 ranged between 29 Bq/L (sampler 15P) and 326 Bq/L (sampler 22P). As reported in general observations of the Quarterly Report[54] for the third quarter, the 326 Bq/L for sampler 22P average is high due to cross contamination or an error that occurred during sampling for the sample collected on August 1, 2013.

The average tritium concentration for all eight precipitation monitors in 2013 was 103 Bq/L and is 1.87 times greater than the average tritium concentration for all eight precipitation monitors in 2012 which was 55 Bq/L.

Total air emissions in 2013 have increased by 2.64 times what they were in 2012 as a result of increasing production by 2.99 times, it is therefore reasonable to assume a similar increase in tritium concentration in precipitation monitors.

Precipitation monitoring results and comparisons can be found in **Appendix N** of this report.

The tritium concentration in precipitation monitors are generally lower than the concentrations that are expected by the model. This means that the model used to define the estimated values was adequate in overestimating the impact from the emissions on soil moisture and in turn protective of groundwater. The overestimation can also be partly attributed to the fact that SRB does not process tritium during the occurrence of any type of precipitation.

Having lower values in the precipitation monitors than the concentrations that were expected by the model can provide further evidence that concentration in soil moisture are lower when no processing takes place during the occurrence of precipitation.

2.3.3.5 WATER LEVEL MEASUREMENTS

The water levels are measured in monitoring wells on a monthly basis prior to purge and sampling. Analysis of this data shows consistent trends from year to year when comparing season to season.

Compilation of water level measurements for 2013 can be found in **Appendix O** of this report.

2.3.3.6 PRODUCE MONITORING RESULTS

Produce from a local market and from local gardens were sampled once in 2013. The samples were collected by a third party laboratory for tritium concentration assessment by the third party laboratory. The results were reported to the members of the public and posted on the web site. This data is also used in the calculations for critical group annual estimated dose for 2013.

Produce monitoring results and locations for 2013 can be found in **Appendix P** of this report with graphs comparing 2006 to 2013 results.

The average tritium concentration in produce for 2013 was 91 Bq/L and is 1.90 times greater than the average tritium concentration in produce for 2012 which was 48 Bq/L.

Total air emissions in 2013 have increased by 2.64 times what they were in 2012 as a result of increasing production by 2.99 times, it is therefore reasonable to assume a similar increase in tritium concentration in downspouts.

2.3.3.7 MILK MONITORING RESULTS

Milk from a local producer and from a local distributor is sampled every four months. The samples were collected by SRB and a third party laboratory for tritium concentration assessment by the third party laboratory. This data is also used in the calculations for critical group annual estimated dose for 2013.

Milk monitoring results and locations for 2013 can be found in **Appendix Q** of this report. Tritium concentrations in milk for 2013 on average are slightly lower to those in 2012.

2.3.3.8 WINE MONITORING RESULTS

Wine from a local producer is sampled once a year. The sample was collected by a third party laboratory for tritium concentration assessment by the third party laboratory. The results were promptly reported to the members of the public.

Wine monitoring results for 2013 are low at 8 Bq/L and can be found in **Appendix R** of this report with a graph comparing results from 2006 to 2013.

2.3.3.9 RECEIVING WATERS MONITORING RESULTS

Samples of receiving waters downstream from SRB in the Muskrat River were collected regularly. Samples were collected by SRB and a third party laboratory for tritium concentration assessment by the third party laboratory.

Receiving waters monitoring results for can be found in **Appendix S** of this report. Tritium concentrations in receiving waters in 2013 are near the minimum detection limit and comparable to those in 2012 except for the sample that was collected on August 1, 2013 which read 149 Bq/L.

As reported in general observations of the Quarterly Report[55] for the third quarter, the 149 Bq/L is high due to cross contamination or an error that occurred during sampling for the sample collected on August 1, 2013.

2.3.3.10 WEATHER DATA

A weather station near the facility collects data on a continuous basis. See weather data for 2013 in **Appendix T**.

2.3.3.11 OTHER SAMPLING RESULTS

Throughout 2013, SRB Technologies (Canada) Inc. performed additional sampling above those described in our Environment Monitoring Program[48].

2.3.3.11.2 SEWAGE MONITORING RESULTS

Sewage samples were taken by Pollution Control Plant staff on a daily basis and provided to a third party laboratory for tritium concentration assessment to quantify any possible impact on sewage plant workers and the environment.

Maximum concentration in sewage in 2013 was 57 Bq/L, an increase from the maximum in 2012 of 32 Bq/L, a decrease from the maximum in 2010 of 85 Bq/L and again a decrease from the maximum in 2009 of 138 Bq/L.

Average concentration in sewage in 2013 was approximately 7 Bq/L, a decrease from the average in 2012 of just over 16 Bq/L, a decrease from the average in 2011 of 25 Bq/L, a decrease from the average in 2010 of 30 Bq/L and again a decrease from the average in 2009 of 63 Bq/L.

Each year the maximum and average concentration have decreased, demonstrating that the measures we have taken when releasing liquid to the sewer system have been successful in reducing concentration in sewage.

Results continue to show that workers are not at risk as a result of the exposure to tritium levels associated with releases to the sewer from SRB. It has therefore been determined in a Health Physics meeting[56] held on July 13, 2012 that there is little value in continuing to contract a third party to continue analyze sewage and it was agreed that the practice should be discontinued.
The last sample taken from the Pollution Control Plant was on June 4, 2013 at 20 Bq/L.

Sewage monitoring results can be found in **Appendix U** of this report.

2.3.3.12 PUBLIC DOSE FOR 2013

The calculation method used to determine the dose to the ‘Critical Group’ as defined in the SRB Environment Monitoring Program (EMP)[48] is described in the EMP[48] document using the effective dose coefficients found in CSA Guideline N288.1-08. The dose assessed for the Critical Group is a summation of:

- Tritium uptake from inhalation and absorption through skin at the place of residence and/or the place of work, ($P_{(i)19}$ and $P_{(e)19}$),
- Tritium uptake due to consumption of well water (P_{29}),
- Tritium uptake due to consumption of produce (P_{49}),
- Tritium uptake due to consumption of dairy products (P_{59}).

Dose due to inhalation

The closest residence to Passive Air Sampler NW250 is located at the intersection of Boundary Road and International Drive at approximately 240 meters from the point of release. The 2013 average concentration of tritium oxide in air at Passive Air Sampler NW250 has been determined to be 5.65 Bq/m^3.

Three passive air samplers are located close to the SRB facility and represent the tritium oxide in air ($P_{(i)19}$ and $P_{(e)19}$) concentrations for the critical group member (adult worker) at samplers 1, 2, and 13. The sampler indicating the highest tritium oxide in air concentration is used to calculate the P19 dose values while at work. The highest average result for 2013 for PAS # 1, PAS # 2, and PAS # 13 is 8.82 Bq/m^3 at PAS # 13.

$P_{(i)19}$: Adult worker dose due to HTO inhaled at residence

The average value for tritium oxide in air for the sampler representing the place of residence for the defined critical group equals 5.65 Bq/m^3.

$P_{(i)19r}$ = [H-3$_{air}$] (Bq/m^3) x Time (h/a) x Breathing Rate (m^3/h) x DCF$_{H3}$ (μSv/Bq)
= 5.65 Bq/m^3 x 6,680 h/a x 1.2 m^3/h x 2.0E-05 μSv/Bq
= 0.906 μSv/a

$P_{(i)19}$: Adult worker dose due to HTO inhaled at work

Taking the highest concentration between Passive Air Samplers #1, #2, and #13 is Passive Air Samplers #13 at 8.82 Bq/m^3.

$P_{(i)19w}$ = [H-3$_{air}$] (Bq/m^3) x Time (h/a) x Breathing Rate (m^3/h) x DCF$_{H3}$ (μSv/Bq)
= 8.82 Bq/m^3 x 2,080 h/a x 1.2 m^3/h x 2.0E-05 μSv/Bq
= 0.440 μSv/a.

$P_{(i)19}$: Adult resident dose due to HTO inhaled at residence

The average value for tritium oxide in air for the sampler representing the place of residence for the defined critical group equals 5.65 Bq/m^3:

$P_{(i)19}$ = [H-3$_{air}$] (Bq/m^3) x Time (h/a) x Breathing Rate (m^3/h) x DCF$_{H3}$ (μSv/Bq)
= 5.65 Bq/m^3 x 8,760 h/a x 1.2 m^3/h x 2.0E-05 μSv/Bq
= 1.188 μSv/a

$P_{(i)19}$: Infant resident dose due to HTO inhaled at residence

The average value for tritium oxide in air for the sampler representing the place of residence for the defined critical group equals 5.65 Bq/m^3:

$P_{(i)19}$ = [H-3$_{air}$] (Bq/m^3) Breathing Rate (m^3/a) x DCF$_{H3}$ (μSv/Bq)
= 5.65 Bq/m^3 x 2,740 m^3/a x 5.3E-05 μSv/Bq
= 0.820 μSv/a

<u>Dose due to skin absorption</u>

$P_{(e)19}$: Adult worker dose due to skin absorption of HTO at residence

The dose due to skin absorption is equal to the dose due to inhalation.

$P_{(e)19r}$ = 0.906 μSv/a

$P_{(e)19}$: Adult worker dose due to skin absorption of HTO at work

The dose due to skin absorption is equal to the dose due to inhalation.

$P_{(e)19w}$ = 0.440 μSv/a

$P_{(e)19}$: Adult resident dose due to skin absorption of HTO at residence

The dose due to skin absorption is equal to the dose due to inhalation.

$P_{(e)19}$ = 1.188 μSv/a

$P_{(e)19}$: Infant resident dose due to skin absorption of HTO at residence

The dose due to skin absorption is equal to the dose due to inhalation.

$P_{(e)19}$ = 0.820 μSv/a

Dose due to consumption of well water

The tritium uptake due to consumption of well water is calculated by taking the average tritium concentration of the water sampled.

The annual consumption rate for well water is assumed to be 840 L/a (2.3 L/d) for adults and 358 L/a (0.98 L/d) for infants.

The highest concentration in a residential well used as the sole source of the drinking water is found in RW-8 at 220 Bq/L and will therefore be used in the calculation of the public dose.

P_{29}: Adult dose due to consumption of well water

P_{29} = $[H\text{-}3]_{well}$ x M x 2.0E-05 μSv/Bq;
= [220 Bq/L] x 840 L/a x 2.0E-05 μSv/Bq
= 3.696 μSv/a

P_{29}: Infant dose due to consumption of well water

P_{29} = $[H\text{-}3]_{well}$ x M x 5.3E-05 μSv/Bq;
= [220 Bq/L] x 358 L/a x 5.3E-05 μSv/Bq
= 4.174 μSv/a

Dose due to consumption of produce

The tritium uptake due to consumption of produce, both locally purchased and home grown is calculated by taking the average tritium concentration of produce purchased from the local market and consuming 70% of the annual total and by taking the average tritium concentration from local gardens and consuming 30% of the annual total.

The annual consumption rate for produce is assumed to be 200 kg/a for adults and 84 kg/a for infants.

If we assume the average concentration in produce purchased from a market to be 63 Bq/L and if we assume the average concentration in produce from the local gardens with the highest average concentration of 122 Bq/L at 416 Boundary Road. Historically the average concentration of all produce in all gardens was used but it was determined that using the garden with the highest average concentrations would be more conservative.

P_{49}: Adult dose due to consumption of produce (HTO)

$\mathbf{P_{49HTO}}$ = $[[\mathbf{H}_{\mathbf{prod,market}}] + [\mathbf{H}_{\mathbf{prod,res}}]]$ x 2.0E-05 μSv/Bq
= $[[H\text{-}3_{veg}]$ (Bq/kg) x (kg) x 0.7] + $[H\text{-}3_{veg}]$ (Bq/kg) x (kg) x 0.3]] x 2.0E-5 μSv/Bq
= [[63 Bq/kg x 200 kg/a x 0.7] + [122 Bq/kg x 200 kg/a x 0.3]] x 2.0E-05 μSv/Bq
= [[8,820 Bq/a] + [7,320 Bq/a]] x 2.0E-05 μSv/Bq
= 0.323 μSv/a

P_{49}: Infant dose due to consumption of produce (HTO)

$\mathbf{P_{49HTO}}$ = [[$\mathbf{H_{prod,market}}$] + [$\mathbf{H_{prod,res}}$]] x 5.3E-05 µSv/Bq
= [[H-3$_{veg}$] (Bq/kg) x (kg) x 0.7] + [H-3$_{veg}$] (Bq/kg) x (kg) x 0.3]] x 5.3E-5 µSv/Bq
= [[63 Bq/kg x 84 kg/a x 0.7] + [122 Bq/kg x 84 kg/a x 0.3]] x 5.3E-05 µSv/Bq
= [[3,704 Bq/a] + [3,074 Bq/a]] x 5.3E-05 µSv/Bq
= 0.359 µSv/a

For OBT, the same equations are applied, using the same ingestion rates and fractions. Since measures of OBT are not available, the measured HTO amount can be used to estimate the OBT. The transfer parameter from HTO in air to HTO in the plant (on a fresh weight basis) is given by:

$$\mathbf{P_{14HTO} = RF_p \cdot [1 - DW_p] / H_a}$$

The transfer parameter from HTO in air to OBT in a plant (fresh weight basis) is:

$$\mathbf{P_{14HTO\text{-}OBT} = RF_p \cdot DW_p \cdot ID_p \cdot WE_p / H_a}$$

Where: RF_p = Reduction factor – default is 0.68

DW_p = Dry weight of plant – default value of 0.1 for generic fruit and vegetables

ID_p = Isotopic discrimination factor for plant metabolism (unitless) - default is 0.8

WE_p = Water equivalent of the plant dry matter (L water • kg^{-1} dry plant) – default value for all plants is 0.56

H_a = Atmospheric absolute humidity - a generic default value of 0.011 L/m^3 can be used.

In using the default values and combining the equations, the amount of OBT in a plant (fresh weight basis) can be determined by multiplying the HTO measure for plants for the same location by 0.05.

If we assume the average concentration in produce purchased from a market to be 63 Bq/L and if we assume the average concentration in produce from the local gardens with the highest average concentration of 122 Bq/L at 416 Boundary Road.

Then the values for OBT will be 3.15 Bq/L produce purchased from a market and 6.1 Bq/L in produce from local gardens:

P_{49}: Adult dose due to consumption of produce (OBT)

$\mathbf{P_{49OBT}}$ = [[$\mathbf{H_{prod,market}}$] + [$\mathbf{H_{prod,res}}$]] x 4.6E-05 µSv/Bq
= [[H-3$_{veg}$] (Bq/kg) x (kg) x 0.7] + [H-3$_{veg}$] (Bq/kg) x (kg) x 0.3]] x 4.6E-5 µSv/Bq
= [[3.15 Bq/kg x 200 kg/a x 0.7] + [6.1 Bq/kg x 200 kg/a x 0.3]] x 4.6E-05 µSv/Bq
= [[441 Bq/a] + [366 Bq/a]] x 4.6E-05 µSv/Bq
= 0.037 µSv/a

P_{49}: Infant dose due to consumption of produce (OBT)

$$
\begin{aligned}
\mathbf{P_{49OBT}} &= [[\mathbf{H_{prod,market}}] + [\mathbf{H_{prod,res}}]] \text{ x } 1.3\text{E-4 } \mu\text{Sv/Bq} \\
&= [[\text{H-3}_{veg}] \text{ (Bq/kg) x (kg) x } 0.7] + [\text{H-3}_{veg}] \text{ (Bq/kg) x (kg) x } 0.3]] \text{ x } 1.3\text{E-4 } \mu\text{Sv/Bq} \\
&= [[3.15 \text{ Bq/kg x } 84 \text{ kg/a x } 0.7] + [6.1 \text{ Bq/kg x } 84 \text{ kg/a x } 0.3]] \text{ x } 1.3\text{E-4 } \mu\text{Sv/Bq} \\
&= [[185.22 \text{ Bq/a}] + [153.72 \text{ Bq/a}]] \text{ x } 1.3\text{E-4 } \mu\text{Sv/Bq} \\
&= 0.044 \ \mu\text{Sv/a}
\end{aligned}
$$

P_{49}: Adult dose due to consumption of produce (HTO + OBT)

$$
\begin{aligned}
\mathbf{P_{49}} &= \mathbf{P_{49HTO}} + \mathbf{P_{49OBT}} \\
&= 0.323 \ \mu\text{Sv/a} + 0.037 \ \mu\text{Sv/a} \\
&= 0.360 \ \mu\text{Sv/a}
\end{aligned}
$$

P_{49}: Infant dose due to consumption of produce (HTO + OBT)

$$
\begin{aligned}
\mathbf{P_{49}} &= \mathbf{P_{49HTO}} + \mathbf{P_{49OBT}} \\
&= 0.359 \ \mu\text{Sv/a} + 0.044 \ \mu\text{Sv/a} \\
&= 0.403 \ \mu\text{Sv/a}
\end{aligned}
$$

Dose due to consumption of local milk

The tritium uptake due to consumption of milk, from a local producer and distributor is calculated by taking the average tritium concentration of the milk sampled.

The annual consumption rate for milk is assumed to be 265 kg/a (727 g/d) for adults and 371 kg/a (1,016 g/d) for infants.

The average concentration in milk being 5 Bq/L but adjusting for the density of milk 5 Bq/L x 0.97 L/kg = 4.85 Bq/kg:

P_{59}: Adult dose due to consumption of milk

$$
\begin{aligned}
P_{59} &= [\text{H-3}]_{dairy} \text{ x M x } 2.0\text{E-05 } \mu\text{Sv/Bq;} \\
&= [4.85 \text{ Bq/kg}] \text{ x } 265 \text{ kg/a x } 2.0\text{E-05 } \mu\text{Sv/Bq} \\
&= 0.026 \ \mu\text{Sv/a}
\end{aligned}
$$

P_{59}: Infant dose due to consumption of milk

$$
\begin{aligned}
P_{59} &= [\text{H-3}]_{dairy} \text{ x M x } 5.3\text{E-05 } \mu\text{Sv/Bq;} \\
&= [4.85 \text{ Bq/kg}] \text{ x } 371 \text{ kg/a x } 5.3\text{E-05 } \mu\text{Sv/Bq} \\
&= 0.095 \ \mu\text{Sv/a}
\end{aligned}
$$

Critical group annual dose due to tritium uptake based on EMP

Based on the EMP[48] results the annual dose (P_{total}) due to tritium uptake from inhalation and skin absorption, consumption of local produce, local milk and well water equates to a maximum of 6.774 µSv/A for an adult worker of the critical group in 2013 compared to 4.949 µSv/A in 2012.

TABLE 16: 2013 CRITICAL GROUP ANNUAL DOSE DUE TO TRITIUM UPTAKE BASED ON EMP

DOSE CONTRIBUTOR		ADULT WORKER ANNUAL DOSE (µSv/A)	ADULT RESIDENT ANNUAL DOSE (µSv/A)	INFANT RESIDENT ANNUAL DOSE (µSv/A)
DOSE DUE TO INHALATION AT WORK	$P_{(I)19}$	0.440	N/A	N/A
DOSE DUE TO SKIN ABSORPTION AT WORK	$P_{(E)19}$	0.440	N/A	N/A
DOSE DUE TO INHALATION AT RESIDENCE	$P_{(I)19}$	0.906	1.188	0.820
DOSE DUE TO SKIN ABSORPTION AT RESIDENCE	$P_{(E)19}$	0.906	1.188	0.820
DOSE DUE TO CONSUMPTION OF WELL WATER	P_{29}	3.696	3.696	4.174
DOSE DUE TO CONSUMPTION OF PRODUCE	P_{49}	0.360	0.360	0.403
DOSE DUE TO CONSUMPTION OF MILK	P_{59}	0.026	0.026	0.095
TOTAL DOSE DUE TO TRITIUM UPTAKE	P_{TOTAL}	6.774	6.458	6.312

Annual dose due to tritium uptake based on Derived Release Limit

When we compare the data from the EMP[48] one can see that the annual dose to the public based on the Derived Release Limit (DRL)[57] compared is much lower than to the dose based on EMP[48] results.

TABLE 17: 2013 CRITICAL GROUP ANNUAL DOSE DUE TO TRITIUM UPTAKE BASED ON DRL

DOSE CONTRIBUTOR	ADULT WORKER ANNUAL DOSE (µSv/A)	ADULT RESIDENT ANNUAL DOSE (µSv/A)	INFANT RESIDENT ANNUAL DOSE (µSv/A)
TOTAL DOSE DUE TO TRITIUM UPTAKE	2.226	2.226	3.683

A qualified third party will revise SRB's DRL's in 2014 to reflect site specific weather data acquired from SRB's weather station and to address minor points of clarification reported in a letter[58] from CNSC Staff dated February 28, 2008.

2.3.4 EMERGENCY MANAGEMENT AND RESPONSE

As most potential hazards associated with the facility would result from fire, Emergency Management and Response for the facility are addressed by an extensive Fire Protection Program[13] supported by an Emergency Plan[16].

2.3.4.1 FIRE PROTECTION

Various measures were taken at the facility in 2013 to improve fire safety.

2.3.4.1.1 FIRE PROTECTION COMMITTEE

In 2013, five minuted meetings have been held which have resulted in the implementation of various measures which have improved fire safety at the facility.

On May 24, 2013 the Fire Protection Committee added another member to the committee, this employee has been employed at SRB for over two years and has now become a volunteer firefighter for the Municipality of l'Isle-aux-Allumettes and will thereby be enrolled in a Fire Fighter 1 course.

2.3.4.1.2 FIRE PROTECTION PROGRAM AND PROCEDURES

A new revision of the Fire Protection Program[13] was completed on February 14, 2013. The revised document includes the approval of the Pembroke Fire Chief, an updated floor plan and reflects that a number of Fire Protection System inspections are now being performed by qualified third parties rather than being performed by staff.

2.3.4.1.3 MAINTENANCE OF THE SPRINKLER SYSTEM

Quarterly maintenance was performed on the fire sprinkler system by a third party, also a weekly check of various valves and line pressures were performed by trained SRB staff. All records are kept on file.

2.3.4.1.4 FIRE PROTECTION EQUIPMENT INSPECTIONS

In 2013 inspections of the emergency lighting and fire extinguishers have been performed monthly by in-house trained staff and an inspection of the emergency lighting and fire extinguishers was also performed by a qualified third party on March 22, 2013 for the emergency lighting and May 21,2013 for the fire extinguishers. All records are kept on file.

2.3.4.1.5 FIRE EXTINGUISHER TRAINING

Yearly fire extinguisher training was performed for all staff on July 2, 2013 by the Pembroke Fire Department.

2.3.4.1.6 FIRE PROTECTION COMMITTEE MEMBER TRAINING

Between September 2 and 4, 2013 a member of the Fire Protection Committee successfully completed Ontario Fire Code Inspection Training from Nadine International Inc. a Fire Protection Consultant with experience with a number of other CNSC Licensees.

2.3.4.1.7 FIRE RESPONDER TRAINING

There was no training of Fire Responders in 2013. SRB and the Pembroke Fire Chief determine if this training is required if any changes have occurred at SRB's facility, if the training has not been performed for a number of years or if there are a number of new firefighters and/or volunteers that have not yet taken the training. The training of fire responders was last performed in 2011 and included a tour of the facility and information with respect to the hazardous materials found on the site. Responders were also instructed on the various properties and precautions with respect to tritium.

2.3.4.1.8 FIRE ALARM DRILLS

Five in-house Fire Alarm Drills were performed in 2013. All drills were reviewed by the Fire Protection Committee. All drills were conducted with no major findings to address.

2.3.4.1.9 FIRE PROTECTION CONSULTANT INSPECTION

As required by licence NSPFOL-13.00/2015[1] and section 3.11 of the Licence Conditions Handbook LCH-SRBT-R000[2], on December 16, 2013 a Fire Protection Consultant, Nadine International Inc. performed an annual third party review of compliance with the requirements of the National Fire Code, 2005, and National Fire Protection Association, NFPA-801, 2008 edition: Standard for Fire Protection for Facilities Handling Radioactive Materials.

The review resulted in no findings except for identifying work that needs to be undertaken in order to ensure that the Fire Alarm System is in full compliance with the requirements of CAN/ULC-S536. The Fire Alarm System will continue to be monitored as this work is being performed to ensure that there is no threat of a fire occurring without being detected. The work which will be performed and reviewed by third parties with expertise in this area is expected to be completed by May 28, 2014.

2.3.4.1.10 PEMBROKE FIRE DEPARTMENT INSPECTION

Pembroke Fire Department conducted a fire inspection on May 9, 2013, five minor violations of the Ontario Fire Code were identified. All five minor violations were addressed before June 6, 2013.

2.3.4.2 EMERGENCY PREPAREDNESS

Various measures were taken at the facility in 2013 to further improve emergency preparedness and emergency response measures.

2.3.4.2.1 EMERGENCY PLAN

As a result of the Request[14] Pursuant to Subsection 12(2) of the General Nuclear Safety and Control Regulations issued by CNSC Staff as a result of the Lessons Learned From the Japanese Earthquake, we have thoroughly reviewed our Emergency Plan and it was found that the document would benefit from the addition of more detailed procedures to address the occurrence of extreme weather events. Changes to document were made and a new revision was issued to CNSC Staff for review on August 27, 2012.

CNSC Staff reviewed the Emergency Plan[16] and requested additional changes to ensure that the Emergency Plan makes reference to Regulatory Document “RD-353: Testing the Implementation of Emergency Measures”[15]. CNSC Staff also requested that the roles and responsibilities during an emergency situation are clearly defined within the Emergency Plan and that there is a more formal link and agreement to ensure that outside assistance from other licensed facilities is available if SRB resources be unavailable during an emergency.

A new Emergency Plan[16] was revised to address CNSC Staff comments and was submitted to CNSC Staff on February 14, 2013 and subsequently approved by CNSC in an e-mail dated March 21, 2013[17].

We plan on conducting an Emergency Exercise in 2014 to the requirements of our newly approved Emergency Plan[16].

2.3.5 WASTE AND BY-PRODUCT MANAGEMENT

2.3.5.1 WASTE MANAGEMENT PROGRAM

The Nuclear Substances and Radiation Devices Regulations (CNSC) were amended April 2008 with one of the significant changes being the introduction of regulatory measures that allow for the removal of nuclear substances from regulatory control by establishing clearance limits below which abandonment or disposal is safe. These threshold limits are based on international standards and practices for bulk quantities of materials, published in the 2004 edition of the International Atomic Energy Agency (IAEA) Safety Standards Series, Safety Guide No. RS-G-1.7 - Application of the Concepts of Exclusion, Exemption and Clearance. The adoption of these new international standards is consistent with the CNSC risk-informed regulatory control and ensures that Canadian regulations are consistent with international practices.

Therefore, as a result of these changes, SRB is able to dispose of some of its waste through conventional methods.

The Waste Management Program[59] is being revised to reflect these changes and will be submitted to CNSC Staff for comment in mid 2014.

2.3.5.2 RADIOACTIVE CONSIGNMENTS

Eight shipments of “Low Level Waste” (LLW) were made in 2013.

Five shipments solely contained expired gaseous tritium light sources with the other two shipments made on September 24, 2013 and November 19, 2013 being comprised predominantly of Zone 3 used protective clothing, used equipment components, crushed glass, filters, broken lights and cleaning material. One shipment of scintillation vials was made on October 18, 2013.

TABLE 17: RADIOACTIVE CONSIGNMENTS

DATE	CONSIGNOR	WASTE DESCRIPTION	QTY AND PACKAGE DESCRIPTION	TOTAL WEIGHT (Kg)	TOTAL ACTIVITY (TBq)
Feb. 5, 2013	AECL	LLW	61 x Type A Pkgs	244	823.78
Apr. 23, 2013	AECL	LLW	113 x Type A Pkgs	452	2,612.40
Jul. 2, 2013	AECL	LLW	105 x Type A Pkgs	420	1,296.59
Sep. 24, 2013	AECL	LLW	8 x 200 L Drums	560	0.63
Sep. 24, 2013	AECL	LLW	121 x Type A Pkgs	484	2,019.23
Oct. 18, 2013	Energy Solutions	LLW	6 x 200 L Drums	1200	0.30
Nov. 19, 2013	AECL	LLW	6 x 200 L Drums	420	0.85
Dec. 18, 2013	AECL	LLW	66 x Type A Pkgs	134	1,430.00

2.3.5.3 STORAGE OF RADIOACTIVE WASTE

Radioactive waste was stored on-site and inventory records of the waste were maintained. All packaged wastes were inspected monthly for potential off-gassing and container integrity.

2.3.5.3.1 "VERY LOW-LEVEL WASTE" INTERIM STORAGE

Waste that is only minimally contaminated and meets the clearance limits in accordance with the Nuclear Substances and Radiation Devices Regulations is deemed to be "Very Low-Level Waste" (VLLW). The activity of the VLLW that SRB possesses, falls under Schedule 1 Exemption Quantities and is therefore limited to transferring or disposing of no more than 1 tonne of material per year per pathway or disposal route. Therefore, any additional waste that is produced throughout the year above the 1 tonne limit is stored on-site until it is transferred or disposed.

Examples of such "general waste" are typically paper towel, gloves, disposable lab coats, shoe covers, etc. The VLLW that is stored on-site was collected in various receptacles throughout the facility, assessed, and ultimately placed into storage awaiting transfer or disposal.

Intended for landfill:

TABLE 18: INTERIM STORAGE OF VLLW (GENERAL WASTE) PATHWAY: LANDFILL

AMOUNT IN STORAGE AT YEAR END 2012	AMOUNT GENERATED THROUGHOUT 2013	TRANSFERRED OFF SITE 2013	AMOUNT IN STORAGE AT YEAR END 2013
0 Kg	+ 972.10 Kg	- 972.10 Kg	0 Kg
0 GBq	+ 30.20 GBq	- 30.20 GBq	0 GBq

Intended for recycling:

TABLE 19: INTERIM STORAGE OF VLLW (PLASTIC) PATHWAY: RECYCLING

AMOUNT IN STORAGE AT YEAR END 2012	AMOUNT GENERATED THROUGHOUT 2013	TRANSFERRED OFF SITE 2013	AMOUNT IN STORAGE AT YEAR END 2013
251.20 Kg	+2,381.60 Kg	- 978.80 Kg	1,654.00 Kg
7.02 GBq	+ 77.15 GBq	- 28.16 GBq	56.01 GBq

A number of drums are also stored on site that contain excavated soil from the well drilling activities that have taken place between 2006 and 2007:

TABLE 20: INTERIM STORAGE OF "VERY LOW LEVEL WASTE" (EXCAVATED SOIL)

AMOUNT IN STORAGE AT YEAR END 2012	AMOUNT GENERATED THROUGHOUT 2013	TRANSFERRED OFF SITE 2013	AMOUNT IN STORAGE AT YEAR END 2013
*29 x 200 L drums	0	0	12 x 200 L drums
0.09 GBq	0	0	0.09 GBq

* The contents of 29 drums were condensed to 12 drums during 2013, further discussed in section 2.3.5.5 tilted **"**WASTE MINIMIZATION**".**

2.3.5.3.2 "LOW-LEVEL WASTE" INTERIM STORAGE

"Low-level waste" (LLW) is any waste with activity levels that exceed the clearance limits or exemption quantities established in the Nuclear Substances and Radiation Devices Regulations.

Typical examples of such wastes are tritium-contaminated equipment or components, crushed glass, filters, broken lights, clean-up material, pumps, pump oil, etc. LLW was collected in various sealed receptacles (cans or re-sealable bags) assessed, and ultimately placed into a steel drum, which is located in the Waste Storage Room within Zone 3. Once a drum was full it was prepared for interim storage and placed in the Waste Storage Room awaiting transfer to a CNSC licensed waste handling facility.

TABLE 21: INTERIM STORAGE OF "LOW LEVEL WASTE"

AMOUNT IN STORAGE AT YEAR END 2012	AMOUNT GENERATED THROUGHOUT 2013	TRANSFERRED OFF SITE 2013	AMOUNT IN STORAGE AT YEAR END 2013
12 x 200 L drums	+ 7 x 200 L drums	- 14 x 200 L drums	5 x 200 L drums
0.82 TBq	+ 0.85 TBq	- 1.48 TBq	0.19 TBq

* Contains Zone 3 used protective clothing, equipment components, crushed glass, filters, broken lights, cleaning material, etc. . as well as scintillation vials from the LSC Lab.

2.3.5.4 HAZARDOUS MATERIAL COLLECTION AND STORAGE

As in 2010, 2011 and 2012 there were no hazardous waste collected or stored in 2013.

2.3.5.5 WASTE MINIMIZATION

During 2013, SRB staff continued to divert uncontaminated materials from becoming unnecessarily contaminated by reducing the material transferred to the active areas such as paper, tools, parts as well as packaging and external components of expired signs received from customers. SRB has implemented keeping permanent copies in the active areas of documents that repetitively enter and exit the active areas to help reduce the amount of potentially contaminated paper waste.

Also during 2013, the amount of drums containing excavated soil from well drilling activities that took place between 2006 and 2007 was reduced from 29 drums to 12 drums. This minimization was due to combining the soil as almost all the drums had empty space as well as removing any additional water and refuse that was included in the drum along with soil such as gloves, plastic tarps, coffee cups, plastic hoses etc. The general trash that was removed was assessed and included with the other general trash. All water that was removed was tested and diverted to the liquid effluent.

2.3.6 NUCLEAR SECURITY

SRB Technologies (Canada) Inc. has a Security Program[60] for the facility in accordance with CNSC regulatory requirements and CNSC Staff expectations. No Physical Security Inspections were conducted in 2013. The last Physical Security Inspection was conducted by CNSC Staff on December 1, 2011. Minor issues identified during the inspection have since been addressed and our Facility Security Program[60] was revised accordingly on February 15, 2012.

2.3.7 SAFEGUARDS AND NON-PROLIFERATION

SRB takes all the necessary measures to facilitate Canada's compliance with any applicable nuclear safeguards international agreements. This would include providing the IAEA, an IAEA inspector or a person acting on behalf of the IAEA with such reasonable services and assistance as are required to enable the IAEA to carry out its duties and functions pursuant to a safeguards agreement.

Since SRB has a very small amount of depleted uranium on-site, SRB must comply with the nuclear safeguards agreement. During 2013, there were no inspections from the IAEA and the depleted uranium inventory increased from 6.63 Kg to 7.27 Kg after receipt of two Amersham containers.

2.3.8 PACKAGING AND TRANSPORT OF NUCLEAR SUBSTANCES

2.3.8.1 IMPORT AND EXPORT ACTIVITIES

As per the requirements of the Nuclear Non-proliferation Import and Export Control Regulations, SRB is required to obtain export and import licences for all international tritium shipments. During 2013 all Import and Export licenses were acquired as necessary and no licence limits were exceeded. Prior and Post Notifications were made to the CNSC for all international shipments. Annual reports of all import and export shipments were compiled and submitted to the CNSC as required for each licence issued to SRB. During reviews of the Import and Export activities, SRB staff note that the licences contain various conditions such as prior notifications, post notifications and annual reporting conditions.

During 2014, SRB expects to enter into discussions with the Non-Proliferation branch of the CNSC to enquire if the licences can be streamlined to all include the Annual Reporting condition as we feel that this is the most suitable to our company needs and provides a comprehensive review of the licence activities.

2.3.8.2 SHIPPING ACTIVITIES

No transport incidents occurred nor were reported during 2013.

SRB prepared, packaged and shipped, in accordance with CNSC regulatory document, SOR/2000-208, Packaging and Transport of Nuclear Substances Regulations, 744 consignments to various customers located in 13 countries around the world including Canada. The number of monthly shipments containing radioactive material for 2013 can be found in **Appendix V** of this report.

For the purpose of packaging and offering for transport, shipments of product designated as dangerous goods, SRB must comply with the requirements of:

- CNSC
- IAEA
- International Air Transport Association (IATA)
- Transport Canada

Regulations for the safe transport of radioactive goods are found in guides published by the above groups. The procedures used at SRB are based on regulations and practices found in the following publications;

- Packaging and Transport of Nuclear Substances Regulations
- IAEA Safety Standards Series - No. TS-R-1
- Dangerous Goods Regulations (IATA)
- The TDG Compliance Manual: Clear Language Edition (Carswell)

Staff members involved with the packaging, offering for transport and receipt of dangerous goods are given Transportation of Dangerous Goods (TDG) training in accordance with the applicable regulations and are issued certificates by the employer.

3.0 OTHER MATTERS OF REGULATORY INTEREST

3.1.1 PUBLIC INFORMATION PROGRAM

This section of the report will provide public information initiatives taken in 2013.

3.1.1.1 DIRECT INTERACTION WITH THE PUBLIC

In both 2013 and 2012 we received no inquiries from a member of the public.

In all of 2011 we received only one inquiry from a member of the public requesting our 2010 Annual Compliance Report[61]. In 2012 and 2013 we proactively contacted this same individual and provided them a copy of our 2011 Annual Compliance Report[62] on April 3, 2012 as well as a copy of our 2012 Annual Compliance Report[5] on April 5, 2013.

In 2013, as part of the current licence[1] we have sampled water from a number of wells belonging to the public every four months for tritium concentration. On a yearly basis we also sample produce from gardens belonging to members of the public for tritium concentration. We promptly provide each member of the public with a report of the sample results along with the anticipated radioactive exposure due to tritium from consuming either the water or produce. We provide members of the public a comparison of this exposure against the CNSC limit and against radioactive exposure from other known sources, such as cosmic radiation, x-rays, etc.

Plant tours have proven to be a useful tool for SRB to reach the public. In 2013 we have provided plant tours to 17 members of the general public who had expressed interest in our facility.

In 2013 we have also provided plant tours to local representatives for: The Federal Economic Development Agency for Southern Ontario, the Renfrew County Community Futures Development Corporation, the Ministry of Economic Development Trade and Employment, the Bank of Montreal, the Business Development Bank of Canada and the Robbie Dean Family Counselling Center.

In 2013 as part of conducting our business in Pembroke we have also provided plant tours to local employees representatives of our existing and prospective suppliers of goods and/or services: Dean and Sinclair, ETM Industries and JP2G Consultants Inc.

In 2013 we also provided plant tours to existing and prospective customers: Bell Helicopter, Betalight BV, Die-Matic, Evenlite, Isolite Corporation, Self-Powered Lighting, Shield Source Inc., Thomas and Betts, and Wild Sales.

On July 9, 2013, SRB made a presentation to a number of local citizens and government employees at the Algonquin College Pembroke Campus. The presentation focused mainly on the background of the facility, licensing and the products made at the facility.

3.1.1.2 PUBLIC INFORMATION PROGRAM

The Public Information Program (PIP)[63] will be revised in 2014 to reflect all the requirements of CNSC regulatory document RD/GD-99.3 titled “Public Information and Disclosure”[64] released in March 2012.

3.1.1.3 PUBLIC INFORMATION COMMITTEE

The Public Information Committee had four minuted meetings in 2013 mostly consisting of discussing revisions of our groundwater brochure[65], general information brochure[66] and pamphlet[67]. In a Public Information Committee meeting dated October 7, 2013[68], it was agreed that these documents will be updated to reflect the latest data available once the 2013 Annual Compliance Report is complete and then loaded on the web site.

3.1.1.4 WEBSITE

The website is frequently updated to provide up to date information on the facility including environmental monitoring results from passive air samplers, air emissions, produce and groundwater. The main page provides a number of possible information sources for the public on tritium and radiation exposure.

The web site will be revised to include important information on safe handling and return of our products after their useful life.

3.1.1.5 COLLABORATION

In the summer of 2013 SRB collaborated with the CNSC, the University of Ottawa and L'Institut de Radioprotection et de Sûreté Nucléaire (IRSN) on the research field campaign on “Tritium Measurements in the Terrestrial and Air Environments“.

The project involved extensive monitoring of tritium in the environment in the vicinity of SRB. As part of the project SRB provided plant tours to all IRSN members involved as well as providing storage space for some equipment, electricity to power some of this equipment and made available all weather station monitoring data as well as all facility air emission and passive air sampler data.

3.1.1.6 COMMUNITY SUPPORT

SRB has supported the local community by providing support to various organizations and causes. SRB employed two summer students and provided these students with some work in their field of study. SRB is a member of the Algonquin College Radiation Safety Program Advisory Committee. SRB has supported the Robbie Dean Family Counselling Center who provides mental health and suicide prevention support and services to Renfrew County. SRB has supported Main Street Community Services who provides research based programs for children with special needs.

3.1.2 SITE SPECIFIC

3.1.2.1 DECOMMISSIONING ESCROW ACCOUNT DEPOSITS

As per condition 16.2 of Licence NSPFOL-13.00/2015[1], in 2013, SRB has made the payments to the decommissioning escrow account or “Decommissioning Escrow Account Deposits” as found in section 3.16 of the Licence Condition Handbook LCH-SRBT-R000[2].

3.1.2.2 REVIEW ENGAGEMENT REPORT

As per condition 16.3 of Licence NSPFOL-13.00/2015[1], in 2013, SRB has provided CNSC Staff an annual Review Engagement Report[69] reporting the gross revenue and profits of the company as described in section 3.16 of the Licence Condition Handbook LCH-SRBT-R000[2].

3.1.2.3 ONTARIO MINISTRY OF THE ENVIRONMENT

In 2013 SRB continued to make releases of hazardous substances to the air under a Certificate[70] of Approval (Air), Number 5310-4NJQE2 issued by the Ontario Ministry of the Environment in accordance with Section 9 of the Ontario Environment Protection Act.

3.1.3 IMPROVEMENT PLANS AND FUTURE OUTLOOK

3.1.3.1 SAFETY ANALYSIS AND HYPOTHETICAL INCIDENT SCENARIOS

In anticipation of licensing SRB will review the Safety Analysis[33] and associated Hypothetical Incident Scenarios[34] in 2014.

3.1.3.2 PRELIMINARY DECOMMISSIONING PLAN, COST ESTIMATE AND FINANCIAL GUARANTEE

In a letter dated September 17, 2013[22]. CNSC Staff provided SRB comments on the revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee[18]. SRB responded to CNSC Staff in a letter dated November 19[23], 2013 requesting further clarification and a meeting with CNSC Staff. The meeting is expected to take place in early 2014 after which another revision of the Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee[18] will be submitted to CNSC Staff for comment.

3.1.3.3 MAINTENANCE PROGRAM

A new revision of the Maintenance Program[31] is due in 2014 which will reflect improvements that have been made.

3.1.3.4 QUALITY MANUAL

An updated revision of the Quality Manual[29] is near completion and is expected to be submitted to the CNSC in 2014 for approval. Various associated second tier quality procedures are also expected to be updated in 2014 to address minor changes and the opportunities for improvements and the corrective actions identified through recent audits and inspections.

3.1.3.5 WASTE MANAGEMENT PROGRAM

The Waste Management Program[59] is being revised to reflect changes to the Nuclear Substances and Radiation Devices Regulations and will be submitted to CNSC Staff for comment in mid 2014. The Nuclear Substances and Radiation Devices Regulations (CNSC) were amended April 2008 with one of the significant changes being the introduction of regulatory measures that allow for the removal of nuclear substances from regulatory control by establishing clearance limits below which abandonment or disposal is safe

3.1.3.6 CONTRACTOR MANAGEMENT PROGRAM

In 2013 we have continued to work on a draft of the Contractor Management Program[71] to address the comments[72] from CNSC Staff to provide greater control of contractors and define work to be performed in a more specific manner. The revised program will also include improved Vendor/Contractor appraisal guidelines and increased detail to the ongoing Contractor evaluation process. A draft is complete and expected to be issued in early 2014.

3.1.3.7 DERIVED RELEASE LIMITS

A qualified third party will revise SRB's Derived Release Limit (DRL)[57] in 2014 to reflect site specific weather data acquired from SRB's weather station and to address minor points of clarification reported in a letter[58] from CNSC Staff dated February 28, 2008.

When we compare the data from the EMP[48] one can see that the annual dose to the public based on the DRL[57] compared is much lower than to the dose based on EMP[48] results.

3.1.3.8 PUBLIC INFORMATION PROGRAM

The Public Information Program (PIP)[63] will be revised in 2014 to reflect all the requirements of CNSC regulatory document RD/GD-99.3 titled "Public Information and Disclosure"[64] released in March 2012.

3.1.3.9 EMERGENCY EXERCISE

We plan on conducting an Emergency Exercise in 2014 to the requirements of our newly approved Emergency Plan[16].

3.1.3.10 ORGANIZATIONAL IMPROVEMENTS

Senior Management have decided to appoint a new individual in 2014 that will be partly dedicated to performing internal audits and further ensuring compliance of all work areas with company programs and procedures.

In order to further strengthen the company's commitment to the protection of the public and the environment in 2014 SRB will seek to add to the organization one or more individual with an educational background and/or work experience in Health Physics. In order to further ensure our revised programs and procedures meet and exceed CNSC Staff requirements preference will be given to individuals working for the CNSC or familiar with CNSC`s regulations. Adding one or more individuals will facilitate re-licensing in 2015.

3.1.3.11 GROUNDWATER

Current concentrations in the wells are expected to eventually gradually decrease once all historical emissions have flushed through the system and/or decayed with some influence of higher concentrations in nearby wells from lateral underground water flow. This will be confirmed by continuing to monitor the existing network of wells.

3.1.3.12 NEW BUBBLER PURCHASE

The existing bubblers have been in operation since 2005 and it has been decided to purchase new bubbler monitoring equipment in order to ensure that emissions are conservatively overestimated. The new equipment is expected to be installed in early 2014.

3.1.3.13 PORTABLE TRITIUM-IN-AIR MONITOR PURCHASE

In order to help identify localized sources of tritium which should help reduce overall doses more portable Tritium-In-Air monitors will be purchased in 2014.

3.1.3.14 LESSONS LEARNED SHIELD SOURCE INC.

On August 30, 2012 the Health Physics Team held a meeting[73] to discuss operational issues widely reported on Shield Source Inc. (SSI), another processing facility that produces some of the same products as SRB. Members of the Health Physics Team have reviewed the “Root Cause Investigation Report Tritium Stack Emissions Reporting Discrepancies”[74] prepared by a third party for SSI. Although SRB’s emissions have been verified by a third party and although the HTO emissions are in agreement with the environmental measurements, in 2013 SRB continued to review the information available on these operational issues and have met SSI staff at their facility on two occasions to discuss the issues they have faced in order to see if any lessons can be learned to help improve the operations of SRB.

SRB has also closely reviewed all decommissioning activities performed by SSI, SRB will incorporate any findings in its upcoming revision of the decommissioning plan to ensure that our decommissioning plan closely reflects actual activities that will have to be undertaken.

3.1.4 SAFETY PERFORMANCE OBJECTIVES

3.1.4.1 TRITIUM PROCESSED

In 2013, a total of 30,544,759 GBq's of tritium was processed, we are expecting that tritium processed will remain at the same level in 2014

3.1.4.2 AIR EMISSION TARGET

We expect that the ratio of tritium released to atmosphere to processed will reduce by 15% from 0.26% to 0.22% and that tritium released to atmosphere per week will in turn reduce by 15% from 1,516.83 GBq per week to 1,289.30 GBq per week.

3.1.4.3 OCCUPATIONAL DOSE TARGET

Senior Management has committed to reducing the average occupational dose target achieved in 2013 by 10% down from 0.21 mSv to 0.19 mSv.

Senior Management has additionally committed to reducing the maximum dose to any employee by 10% down from 1.93 mSv to 1.74 mSv.

4.0 CONCLUDING REMARKS

In 2013 on average, the emissions of “HTO” were maintained at 26.52% of the licence limit and the emissions of “HTO + HT” were maintained at 17.61% of the licence limit with no action levels for air emission being reached.

Emissions to sewer in 2013 were 4.55% of the license limit with maximum concentrations in sewage of 57 Bq/L and averaging approximately 7 Bq/L.

The maximum annual dose received by any person employed by SRB is well within the regulatory limit for a nuclear energy worker of 50.0 mSv per calendar year. Collective dose for all staff low at 7.94 mSv with the highest annual dose for any staff member for the year being 1.93 mSv, with an average of only 0.21 mSv for all staff. None of the staff members exceeded the action levels for effective dose to worker and there were no instances at any time in 2013 whereby a staff member’s tritium body burden exceeded the action level of 1,000 Bq/ml.

Tritium contamination control is maintained by assessment of non-fixed tritium contamination levels throughout the facility by means of swipe method and liquid scintillation counting of the swipe material. A total of 7,936 swipes were performed in various work areas in 2013.

A total of 49 wells were routinely monitored in 2013. The concentrations of only four wells exceed the Ontario Drinking water Guideline of 7,000 Bq/L. These four wells are located on the SRB site within only 50 meters of the stack. The average concentrations in the majority of the monitoring wells continue to decrease since being drilled, for example in 2007 the concentration of 8 wells exceeded 7,000 Bq/L

The highest tritium concentration in a well used for drinking water remains in the water supply well which is located closest to SRB and is being used by individuals working for a business for some of their drinking water intake. Tritium concentrations in this well in 2013 averaged 1,032 Bq/L, which is less than 15% of the Ontario Drinking Water Standard of 7,000 Bq/L. Average concentrations over 2013 for other wells used for drinking water ranged from 4 Bq/L to 220 Bq/L, depending on their location and distance in relation to the facility.

Passive air samplers, precipitation, runoff, milk, produce and receiving waters were sampled regularly in 2013.

The maximum annual dose received by any member of the public as a result of emissions from SRB is well within the regulatory limit of 1,000 µSv per calendar year. Based on environmental monitoring results the maximum dose to a member of the public as a result of the emissions from SRB in 2013 was 6.774 µSv

In 2013 a total of 59 minuted committee meetings have taken place. Committees have continued to be instrumental in the development and refinement of company programs and procedures and at identifying ways to reduce emissions and improve safety at the facility.

In 2013 our staff increased from 22 to 36. The employees that were employed in 2012 are working in the same positions as when the licence was issued in July 2010. By the end of 2013 our workforce had an average experience of just under 8 years with an average age of just over 39 years of age. The six members of the Health Physics Team have an average work experience of just under 16 years with the company for a combined 94 years of work experience directly with the company.

In total 21 non-conformances and one opportunity for improvement were raised in 2013 in several areas of the company operations.

In 2013 CNSC Staff performed one Type II Compliance Inspection[40] of the facility. One recommendation was made and is currently being addressed.

In 2013 we also had one audit by our ISO 9001: 2008 registrar BSI Management Systems, one inspection by the Pembroke Fire Department and one inspection by a Fire Protection Consultant, minor issues were identified and are currently being addressed.

Although no requests for information were made by the public in 2013, various public information initiatives were taken including providing plant tours to local citizens and frequent web site updates with the latest environmental monitoring results.

Site specific requirements for payments to the decommissioning escrow account have been met.

In 2014, in support of the licence renewal process SRB will provide CNSC Staff revisions of the Safety Analysis[33] and associated Hypothetical Incident Scenarios[34], Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee[18], Maintenance Program[31], Quality Manual[29], Waste Management Program[59], Contractor Management Program[71], Derived Release Limit[57] and Public Information Program[63].

We plan on conducting an Emergency Exercise in 2014 to the requirements of our newly approved Emergency Plan[16].

Organizational improvements are planned for 2014 including the addition of one or more individual with an educational background and/or work experience in Health Physics. In order to further ensure our revised programs and procedures meet and exceed CNSC Staff requirements preference will be given to individuals working for the CNSC or familiar with CNSC`s regulations.

It has been decided to purchase new bubbler monitoring equipment in order to ensure that emissions are conservatively overestimated and to purchase portable tritium-in-air monitors in order to help identify localized sources of tritium which should help reduce overall doses.

In 2013, a total of 30,544,759 GBq's of tritium was processed and we are expecting that tritium processed will remain at the same level in 2014

We expect that the ratio of tritium released to atmosphere to processed will reduce by 15% from 0.26% to 0.22% and that tritium released to atmosphere per week will in turn reduce by 15% from 1,516.83 GBq per week to 1,289.30 GBq per week.

Senior Management has committed to reducing the average occupational dose in 2013 by 10% down from 0.21 mSv to 0.19 mSv and additionally committed to reducing the maximum dose to any employee by 10% down from 1.93 mSv to 1.74 mSv.

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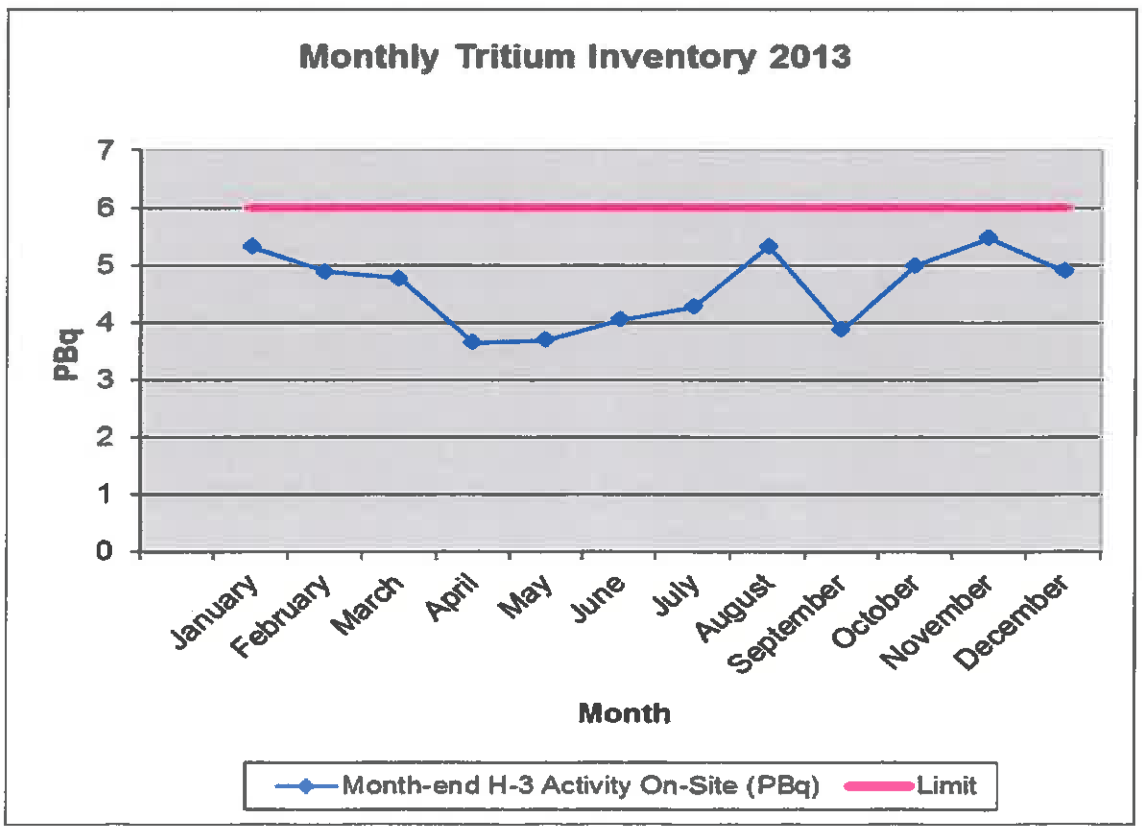
APPENDIX A

Tritium activity on site during 2013

TRITIUM ACTIVITY ON SITE DURING 2013

Month / 2013	Month-end H-3 Activity On-Site (PBq)	Percent of Licence Limit (%)
January	5.32	89
February	4.89	82
March	4.78	80
April	3.66	61
May	3.70	62
June	4.06	68
July	4.28	71
August	5.33	89
September	3.88	65
October	5.00	83
November	5.47	91
December	4.90	82
2013 Monthly Average	***4.61***	***77***

Note: Possession limit is 6.00 PBq.

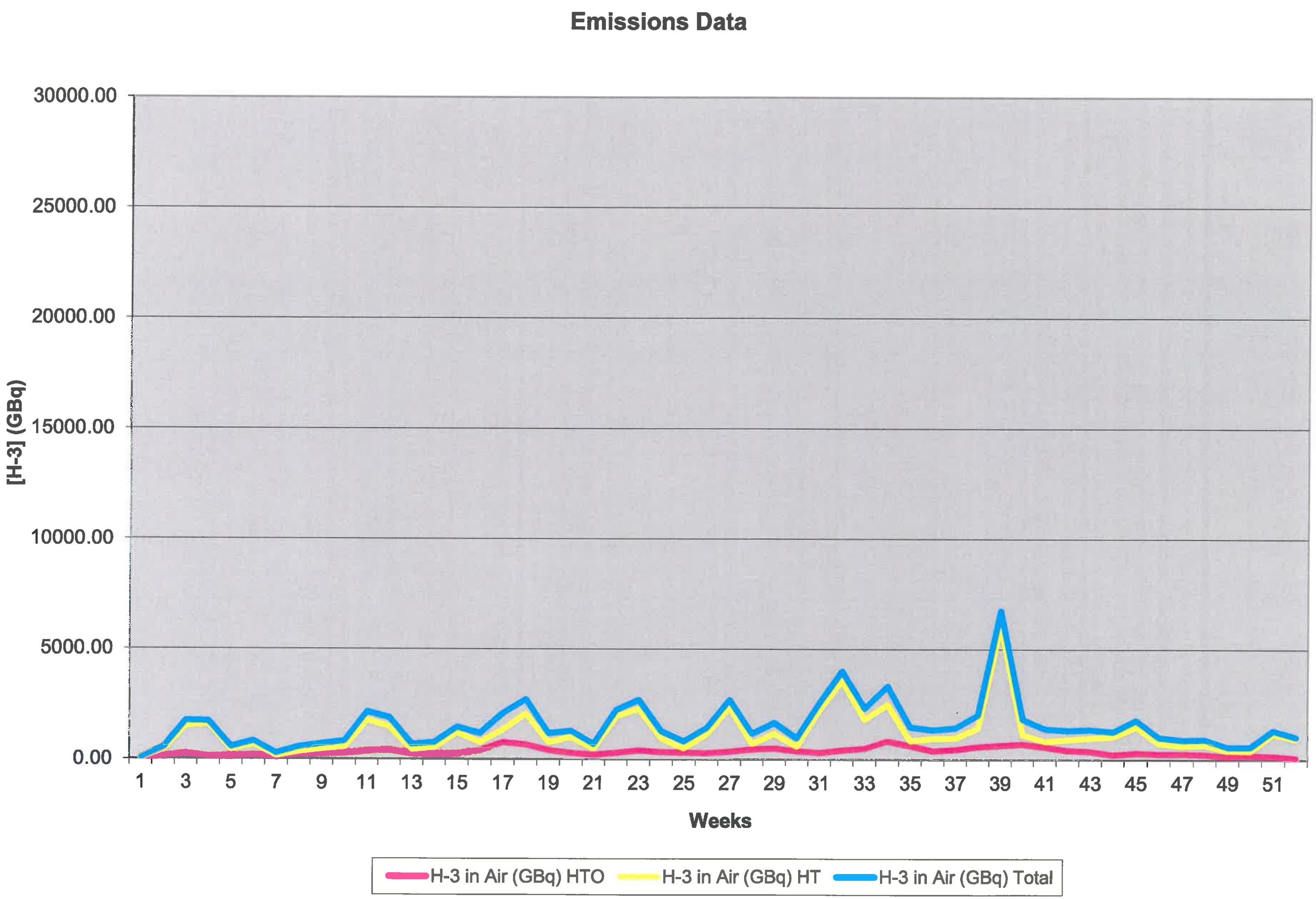


APPENDIX A

APPENDIX B

Facility Emissions Data for 2013

Stack Release Data								1996 SRBT DEL %DEL			Weekly Release Limit %WRL		2006 SRBT DRL % DRL				
Week	Date Initial	Date Final	H-3 in Air (GBq) HTO	H-3 in Air (GBq) HT	H-3 in Air (GBq) Total	(GBq) ∑(HTO)	(GBq) ∑(HTO + HT)	Adult Resident	Infant Resident	Adult Worker	HTO	HT	Adult Resident	Infant Resident	Nursing Infant	Nursing Mother	Adult Worker
1	26/12/2012	01/01/2013	27.69	3.88	31.57	27.69	31.57	0.01	0.00	0.01	0.02	0.01	0.02	0.01	0.03	0.02	0.02
2	01/01/2013	08/01/2013	103.30	398.02	501.32	130.99	532.89	0.02	0.01	0.02	0.08	0.10	0.07	0.05	0.11	0.07	0.07
3	08/01/2013	15/01/2013	235.78	1492.15	1727.93	366.77	2260.82	0.05	0.03	0.06	0.17	0.33	0.17	0.13	0.29	0.18	0.17
4	15/01/2013	22/01/2013	122.85	1585.15	1708.00	489.62	3968.82	0.03	0.02	0.03	0.09	0.33	0.11	0.09	0.19	0.11	0.11
5	22/01/2013	29/01/2013	121.67	429.43	551.10	611.29	4519.92	0.02	0.01	0.03	0.09	0.11	0.08	0.06	0.13	0.08	0.08
6	29/01/2013	05/02/2013	161.93	656.39	818.32	773.22	5338.24	0.03	0.02	0.04	0.12	0.16	0.11	0.08	0.18	0.11	0.11
7	05/02/2013	12/02/2013	112.11	144.13	256.24	885.33	5594.48	0.02	0.01	0.03	0.08	0.05	0.07	0.05	0.11	0.07	0.07
8	12/02/2013	19/02/2013	223.12	325.94	549.06	1108.45	6143.54	0.05	0.02	0.05	0.17	0.11	0.14	0.10	0.22	0.14	0.13
9	19/02/2013	26/02/2013	248.05	440.57	688.62	1356.50	6832.16	0.05	0.03	0.06	0.18	0.13	0.15	0.12	0.25	0.16	0.15
10	26/02/2013	05/03/2013	274.43	540.77	815.20	1630.93	7647.36	0.06	0.03	0.06	0.20	0.16	0.17	0.13	0.28	0.18	0.17
11	05/03/2013	12/03/2013	377.51	1762.07	2139.58	2008.44	9786.94	0.08	0.05	0.09	0.28	0.41	0.26	0.20	0.43	0.27	0.26
12	12/03/2013	19/03/2013	419.45	1458.08	1877.53	2427.89	11664.47	0.09	0.05	0.10	0.31	0.36	0.28	0.21	0.45	0.29	0.27
13	19/03/2013	26/03/2013	260.05	415.29	675.34	2687.94	12339.81	0.05	0.03	0.06	0.19	0.13	0.16	0.12	0.26	0.16	0.16
14	26/03/2013	02/04/2013	228.70	526.95	755.65	2916.64	13095.46	0.05	0.03	0.05	0.17	0.15	0.15	0.11	0.23	0.15	0.14
15	02/04/2013	09/04/2013	248.22	1205.56	1453.78	3164.86	14549.24	0.05	0.03	0.06	0.18	0.28	0.17	0.13	0.28	0.18	0.17
16	09/04/2013	16/04/2013	404.71	767.50	1172.21	3569.57	15721.45	0.08	0.05	0.09	0.30	0.22	0.25	0.19	0.40	0.26	0.25
17	16/04/2013	23/04/2013	760.69	1330.35	2091.04	4330.26	17812.49	0.15	0.09	0.17	0.56	0.40	0.47	0.36	0.76	0.49	0.46
18	23/04/2013	30/04/2013	660.30	2054.08	2714.38	4990.56	20526.87	0.14	0.08	0.15	0.49	0.52	0.43	0.33	0.70	0.44	0.42
19	30/04/2013	07/05/2013	404.85	767.19	1172.04	5395.41	21698.91	0.08	0.05	0.09	0.30	0.22	0.25	0.19	0.41	0.26	0.25
20	07/05/2013	14/05/2013	284.00	1001.01	1285.01	5679.41	22983.92	0.06	0.03	0.07	0.21	0.25	0.19	0.14	0.31	0.19	0.19
21	14/05/2013	21/05/2013	205.52	488.29	693.81	5884.93	23677.73	0.04	0.02	0.05	0.15	0.13	0.13	0.10	0.21	0.13	0.13
22	21/05/2013	28/05/2013	288.25	1940.92	2229.17	6173.18	25906.90	0.06	0.04	0.07	0.21	0.43	0.21	0.17	0.36	0.22	0.21
23	28/05/2013	04/06/2013	401.39	2282.65	2684.04	6574.57	28590.94	0.08	0.05	0.09	0.30	0.52	0.29	0.22	0.48	0.30	0.28
24	04/06/2013	11/06/2013	328.13	946.44	1274.57	6902.70	29865.51	0.07	0.04	0.08	0.24	0.24	0.21	0.16	0.34	0.22	0.21
25	11/06/2013	18/06/2013	306.89	497.03	803.92	7209.59	30669.43	0.06	0.03	0.07	0.23	0.15	0.19	0.14	0.30	0.19	0.19
26	18/06/2013	25/06/2013	285.51	1139.26	1424.77	7495.10	32094.20	0.06	0.03	0.07	0.21	0.27	0.19	0.15	0.31	0.20	0.19
27	25/06/2013	02/07/2013	340.26	2353.93	2694.19	7835.36	34788.39	0.07	0.04	0.08	0.25	0.52	0.26	0.20	0.42	0.26	0.25
28	02/07/2013	07/09/2013	450.47	698.13	1148.60	8285.83	35936.99	0.09	0.05	0.10	0.33	0.22	0.28	0.21	0.44	0.28	0.27
29	07/09/2013	07/16/2013	494.18	1157.54	1651.72	8780.01	37588.71	0.10	0.06	0.11	0.37	0.32	0.31	0.24	0.51	0.32	0.31
30	07/16/2013	07/23/2013	374.68	583.25	957.93	9154.69	38546.64	0.08	0.04	0.09	0.28	0.18	0.23	0.17	0.37	0.24	0.23
31	07/23/2013	07/30/2013	306.66	2242.70	2549.36	9461.35	41096.00	0.06	0.04	0.07	0.23	0.49	0.23	0.18	0.39	0.24	0.23
32	07/30/2013	08/06/2013	418.75	3571.60	3990.35	9880.10	45086.35	0.09	0.06	0.10	0.31	0.77	0.33	0.26	0.55	0.34	0.32
33	08/06/2013	08/13/2013	498.20	1812.70	2310.90	10378.30	47397.25	0.10	0.06	0.12	0.37	0.44	0.33	0.25	0.54	0.34	0.33
34	08/13/2013	08/20/2013	824.57	2486.04	3310.61	11202.87	50707.86	0.17	0.10	0.19	0.61	0.64	0.54	0.41	0.87	0.55	0.53
35	08/20/2013	08/27/2013	621.64	838.48	1460.12	11824.51	52167.98	0.13	0.07	0.14	0.46	0.28	0.38	0.29	0.61	0.39	0.37
36	08/27/2013	09/03/2013	388.25	951.24	1339.49	12212.76	53507.47	0.08	0.04	0.09	0.29	0.26	0.25	0.19	0.40	0.25	0.24
37	09/03/2013	09/10/2013	457.19	971.04	1428.23	12669.95	54935.70	0.09	0.05	0.11	0.34	0.27	0.29	0.22	0.46	0.30	0.28
38	09/10/2013	09/17/2013	583.77	1423.22	2006.99	13253.72	56942.69	0.12	0.07	0.13	0.43	0.39	0.37	0.28	0.60	0.38	0.36
39	09/17/2013	09/24/2013	650.62	6087.43	6738.05	13904.34	63680.74	0.14	0.09	0.16	0.48	1.29	0.53	0.41	0.89	0.55	0.52
40	09/24/2013	10/01/2013	700.40	1117.20	1817.60	14604.74	65498.34	0.14	0.08	0.16	0.52	0.35	0.43	0.33	0.69	0.44	0.42
41	10/01/2013	10/08/2013	575.83	814.76	1390.59	15180.57	66888.93	0.12	0.06	0.13	0.43	0.27	0.35	0.27	0.56	0.36	0.35
42	10/08/2013	10/15/2013	420.40	901.12	1321.52	15600.97	68210.45	0.09	0.05	0.10	0.31	0.25	0.27	0.20	0.43	0.27	0.26
43	10/15/2013	10/22/2013	379.12	980.46	1359.58	15980.09	69570.03	0.08	0.04	0.09	0.28	0.26	0.24	0.18	0.39	0.25	0.24
44	10/22/2013	10/29/2013	227.75	1035.70	1263.45	16207.84	70833.48	0.05	0.03	0.05	0.17	0.24	0.16	0.12	0.26	0.16	0.15
45	10/29/2013	11/05/2013	298.13	1481.34	1779.47	16505.97	72612.95	0.06	0.04	0.07	0.22	0.34	0.21	0.16	0.34	0.22	0.20
46	11/05/2013	11/12/2013	258.26	746.31	1004.57	16764.23	73617.52	0.05	0.03	0.06	0.19	0.19	0.17	0.13	0.27	0.17	0.16
47	11/12/2013	11/19/2013	259.59	621.90	881.49	17023.82	74499.01	0.05	0.03	0.06	0.19	0.17	0.17	0.13	0.27	0.17	0.16
48	11/19/2013	11/26/2013	234.40	667.99	902.39	17258.22	75401.40	0.05	0.03	0.05	0.17	0.17	0.15	0.12	0.25	0.16	0.15
49	11/26/2013	12/03/2013	142.61	424.70	567.31	17400.83	75968.71	0.03	0.02	0.03	0.11	0.11	0.09	0.07	0.15	0.10	0.09
50	12/03/2013	12/10/2013	191.58	384.31	575.89	17592.41	76544.60	0.04	0.02	0.04	0.14	0.11	0.12	0.09	0.19	0.12	0.12
51	12/10/2013	12/17/2013	157.83	1159.40	1317.23	17750.24	77861.83	0.03	0.02	0.04	0.12	0.25	0.12	0.09	0.20	0.12	0.12
52	12/17/2013	12/24/2013	73.46	939.49	1012.95	17823.70	78874.78	0.02	0.01	0.02	0.05	0.19	0.07	0.05	0.11	0.07	0.06
Annual	Total		17823.70	61051.08	78874.78				Average % DEL		Average % WRL				Average % DRL		
Weekly	Average		342.76	1174.06	1516.82			0.07	0.04	0.08	0.25	0.29	0.23	0.17	0.37	0.23	0.22
				(Bq/a)	% Release Limit				Projected Dose (uSv/a)						Projected Dose (uSv/a)		
% Annual Release Limit:			HTO	6.72E+13	26.52			0.70	0.41	0.80			2.27	1.73	3.68	2.34	2.22
			HTO + HT	4.48E+14	17.61			Adult Resident	Infant Resident	Adult Worker	HTO	HT	Adult Resident	Infant Resident	Nursing Infant	Nursing Mother	Adult Worker
Derived Weekly HTO Release/Emission Limit (GBq/week)								5.00E+05	9.40E+05	4.40E+05	2.90E+04	NA	1.73E+05	2.33E+05	1.10E+05	1.69E+05	1.77E+05
Derived Weekly HT Release/ Emission Limit (GBq/week)								6.60E+07	2.70E+07	6.40E+07	NA	1.80E+06	4.02E+06	4.52E+06	2.07E+06	3.80E+06	4.07E+06


Emissions Data
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25000.00
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10000.00
5000.00
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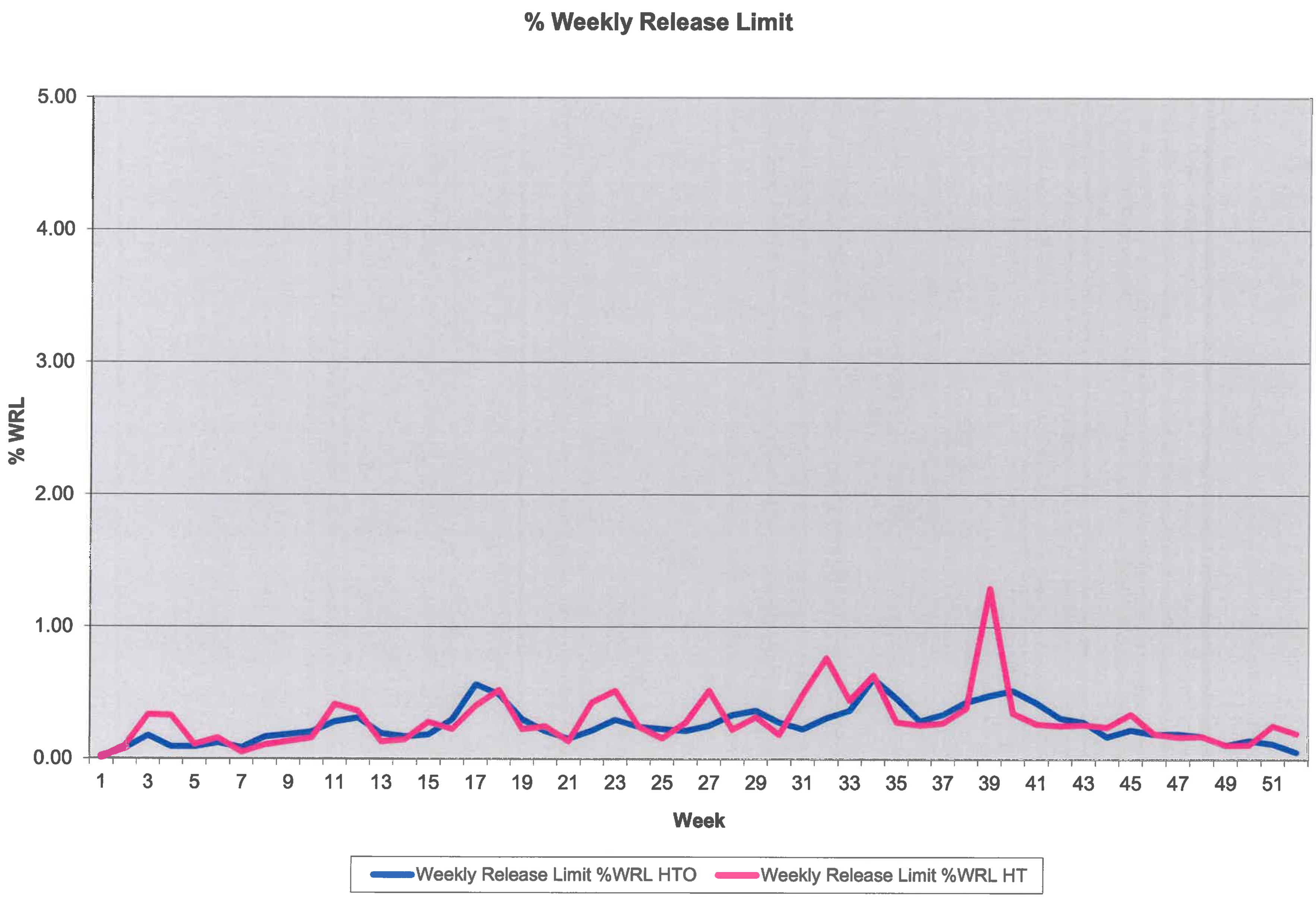
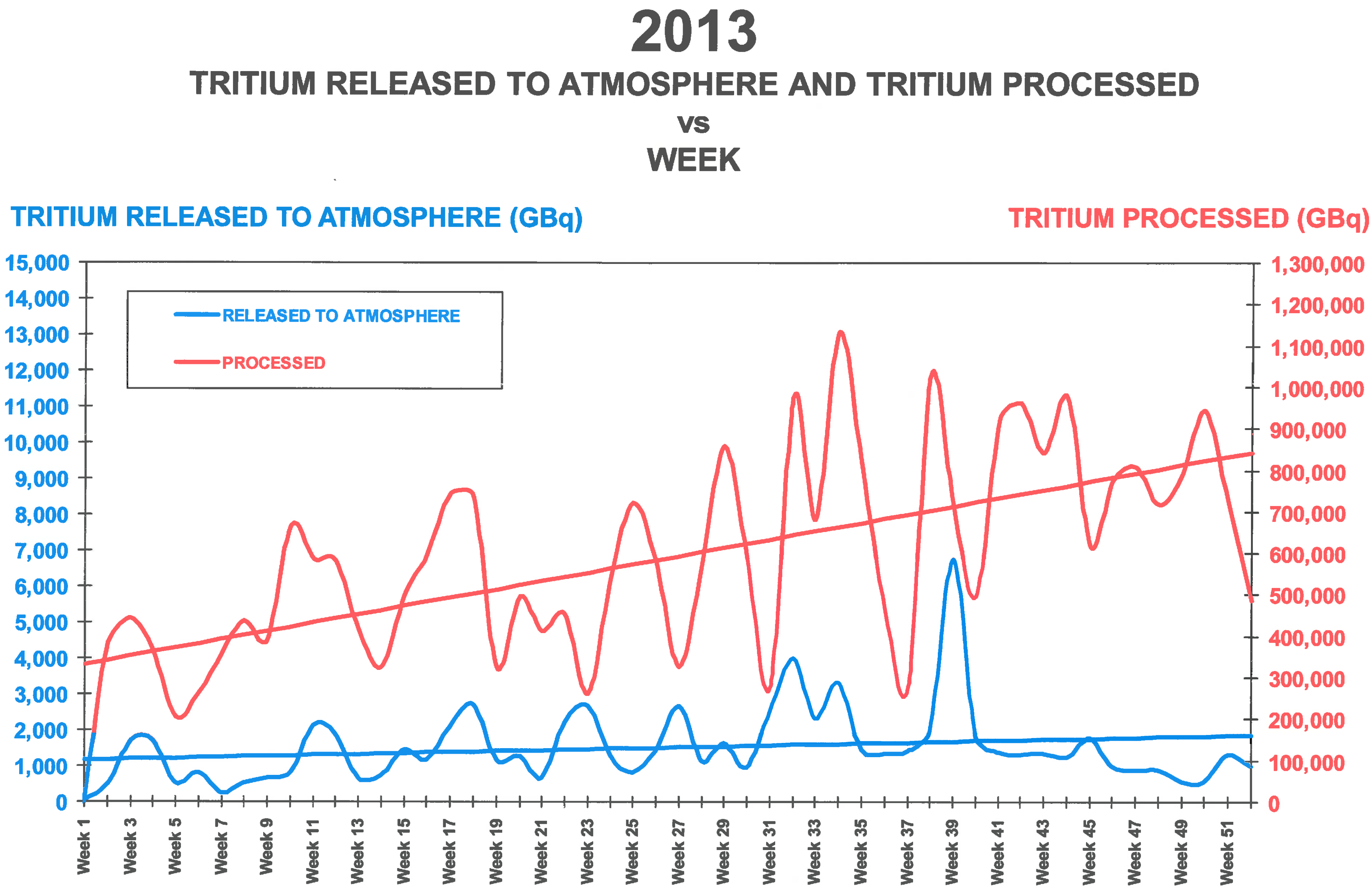
[H-3] (GBq)
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
Weeks
H-3 in Air (GBq) HTO
H-3 in Air (GBq) HT
H-3 in Air (GBq) Total


% Weekly Release Limit
5.00
4.00
3.00
2.00
1.00
0.00
% WRL
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
Week
Weekly Release Limit %WRL HTO
Weekly Release Limit %WRL HT

APPENDIX C

Tritium Released to Atmosphere and Tritium Processed vs Week


2013
TRITIUM RELEASED TO ATMOSPHERE AND TRITIUM PROCESSED
vs
WEEK
TRITIUM RELEASED TO ATMOSPHERE (GBq)
TRITIUM PROCESSED (GBq)
RELEASED TO ATMOSPHERE
PROCESSED
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1,300,000
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Week 1
Week 3
Week 5
Week 7
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45
Week 47
Week 49
Week 51

APPENDIX C

APPENDIX D

Annual Liquid Effluent Data for 2013

ANNUAL LIQUID EFFLUENT DATA

WEEK ENDING	WEEKLY RELEASE (Bq)	WEEK	LIMIT ALLOWANCE	IF RELEASED IN ONE WORK DAY AT SEWAGE PLANT (Bq/L)	IF RELEASED IN FIVE WORK DAYS AT SEWAGE PLANT (Bq/L)	IF RELEASED IN OVER ENTIRE WEEK AT SEWAGE PLANT (Bq/L)
			200,000,000,000	**4,170,399**	**20,851,995**	**87,578,380**
			200,000,000,000	0	0	0
6-Jan-13	0	52	200,000,000,000	0	0	0
13-Jan-13	0	51	200,000,000,000	0	0	0
20-Jan-13	13,952,300	50	199,986,047,700	3	1	0
27-Jan-13	0	49	199,986,047,700	0	0	0
3-Feb-13	349,756,580	48	199,636,291,120	84	17	4
10-Feb-13	349,756,580	47	199,286,534,540	84	17	4
17-Feb-13	419,707,896	46	198,866,826,644	101	20	5
24-Feb-13	225,049,588	45	198,641,777,056	54	11	3
3-Mar-13	370,326,000	44	198,271,451,056	89	18	4
10-Mar-13	0	43	198,271,451,056	0	0	0
17-Mar-13	1,659,840	42	198,269,791,216	0	0	0
24-Mar-13	194,205,000	41	198,075,586,216	47	9	2
31-Mar-13	14,843,720	40	198,060,742,496	4	1	0
7-Apr-13	0	39	198,060,742,496	0	0	0
14-Apr-13	0	38	198,060,742,496	0	0	0
21-Apr-13	0	37	198,060,742,496	0	0	0
28-Apr-13	1,035,840	36	198,059,706,656	0	0	0
5-May-13	0	35	198,059,706,656	0	0	0
12-May-13	43,828,980	34	198,015,877,676	11	2	1
19-May-13	0	33	198,015,877,676	0	0	0
26-May-13	147,067,478	32	197,868,810,198	35	7	2
2-Jun-13	423,727,645	31	197,445,082,553	102	20	5
9-Jun-13	389,541,698	30	197,055,540,855	93	19	4
16-Jun-13	461,261,658	29	196,594,279,197	111	22	5
24-Jun-13	290,899,657	28	196,303,379,540	70	14	3
30-Jun-13	443,638,510	27	195,859,741,030	106	21	5
7-Jul-13	359,449,320	26	195,500,291,710	86	17	4
14-Jul-13	349,913,930	25	195,150,377,780	84	17	4
21-Jul-13	309,946,150	24	194,840,431,630	74	15	4
28-Jul-13	363,875,070	23	194,476,556,560	87	17	4
4-Aug-13	408,559,040	22	194,067,997,520	98	20	5
11-Aug-13	273,255,320	21	193,794,742,200	66	13	3
18-Aug-13	125,077,520	20	193,669,664,680	30	6	1
25-Aug-13	0	19	193,669,664,680	0	0	0
1-Sep-13	311,997,439	18	193,357,667,241	75	15	4
8-Sep-13	276,827,892	17	193,080,839,349	66	13	3
15-Sep-13	136,590,960	16	192,944,248,389	33	7	2
22-Sep-13	478,068,360	15	192,466,180,029	115	23	5
29-Sep-13	95,570,940	14	192,370,609,089	23	5	1
6-Oct-13	252,268,193	13	192,118,340,896	60	12	3
13-Oct-13	483,565,677	12	191,634,775,219	116	23	6
20-Oct-13	294,706,084	11	191,340,069,135	71	14	3
27-Oct-13	345,404,055	10	190,994,665,080	83	17	4
3-Nov-13	17,305,600	9	190,977,359,480	4	1	0
10-Nov-13	1,308,320	8	190,976,051,160	0	0	0
17-Nov-13	25,987,300	7	190,950,063,860	6	1	0
24-Nov-13	0	6	190,950,063,860	0	0	0
1-Dec-13	0	5	190,950,063,860	0	0	0
8-Dec-13	55,497,120	4	190,894,566,740	13	3	1
15-Dec-13	0	3	190,894,566,740	0	0	0
22-Dec-13	0	2	190,894,566,740	0	0	0
29-Dec-13	0	1	190,894,566,740	0	0	0

Annual Total (Bq)	9,105,433,260
Annual Total (GBq)	9
Limit (GBq)	200
% of limit	**4.55**

APPENDIX E

Ventilation equipment maintained in 2013

VENTILATION EQUIPMENT MAINTAINED IN 2013

	TYPE	ZONE	LOCATION
1	Heat Recovery unit	1	Mold area/Office
4	Unit heaters	1 & 3	Rig room, Glass shop, Molding area & office
2	A/C wall units	1	Coating room, Glass shop
2	Makeup air units	1 & 2	Coating room, Assembly room
4	Exhaust fans	1 & 2	Coating, Assembly, Glass room, Paint Booth
1	HRV with reheat	2	Assembly room
2	Fan coils	1	Office, Mold area/Office
2	Condenser	1	Mold area/Office
1	Mid efficient gas furnace & central air	1	Stores
1	Mid efficient gas furnace	1	Receiving
1	Bulk stack air handling unit	1	Compound
1	Rig stack air handling unit	1	Compound
2	Rig and Bulk stack air handling units pitot tubes	1	Compound

APPENDIX F

Equipment maintenance information for 2013

2013 Equipment Maintenance Information

Major maintenance carried out in 2013:	None
Semi-Annual Maintenance carried out in 2013: **Contract:** Kool Temp/ Valley Refrigeration Ltd.	July 26,2013 Oct 7,2013
Maintenance Schedule: **Contract:** Valley Compressor	April 11, 2013 Aug 13, 2013 December 2, 2013
Quarterly Maintenance carried out in 2013: **Contract:** Kool Temp/ Valley Refrigeration Ltd./ J.W HVAC Services Ltd	March 12, 2013 July 26, 2013 Oct 7,2013 December 18,2013
Sprinkler System Maintenance by a Third Party in 2013: Drapeau	March 28,2013 July 4,2013 October 04,2013 December 19,2013
Sprinkler System Check by SRB Technologies in 2013:	Weekly
Report of any weakening or possible major failure of any components:	None

All ventilation systems were maintained in fully operational condition with no major system failures during 2013.

Equipment maintenance was performed under contract with a fully licensed maintenance and TSSA certified local HVAC contract provider.

All process equipment is serviced and maintained by qualified staff and through contract with companies that specialize in process control systems. All process equipment has been maintained in fully operational condition with no major equipment failures during 2013.

APPENDIX G

Third Party Bubbler Verification for 2013

2009 BUBBLER VERIFICATION RESULTS

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1	RIG STACK	HTO	116,403.02	87,441	133%
	RIG STACK	HT	299,389.18	356,381	84%
WEEK 2	RIG STACK	HTO	138,387.82	108,430	128%
	RIG STACK	HT	308,857.45	393,152	79%
WEEK 3	RIG STACK	HTO	138,388.77	98,561	140%
	RIG STACK	HT	181,518.32	215,571	84%
				AVG	108%

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1	BULK STACK	HTO	101,433.01	64,371	158%
	BULK STACK	HT	174,629.45	197,041	89%
WEEK 2	BULK STACK	HTO	133,919.20	94,042	142%
	BULK STACK	HT	372,390.84	442,286	84%
WEEK 3	BULK STACK	HTO	49,511.54	36,707	135%
	BULK STACK	HT	2,261,133.76	2,587,615	87%
				AVG	116%

2011 BUBBLER VERIFICATION RESULTS

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1	RIG STACK	HTO	37,692	67,856	56%
	RIG STACK	HT	132,847	149,885	89%
WEEK 2	RIG STACK	HTO	53,532	55,853	96%
	RIG STACK	HT	130,759	92,402	142%
WEEK 3	RIG STACK	HTO	39,992	37,210	107%
	RIG STACK	HT	77,053	51,303	150%
WEEK 4	RIG STACK	HTO	91,695	93,772	98%
	RIG STACK	HT	329,934	246,260	134%
				AVG	109%

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1	BULK STACK	HTO	49,137	59,462	83%
	BULK STACK	HT	229,665	238,347	96%
WEEK 2	BULK STACK	HTO	58,055	60,470	96%
	BULK STACK	HT	76,276	53,726	142%
WEEK 3	BULK STACK	HTO	42,327	46,834	90%
	BULK STACK	HT	6,016	3,080	195%
WEEK 4	BULK STACK	HTO	57,190	61,173	93%
	BULK STACK	HT	30,700	19,736	156%
				AVG	119%

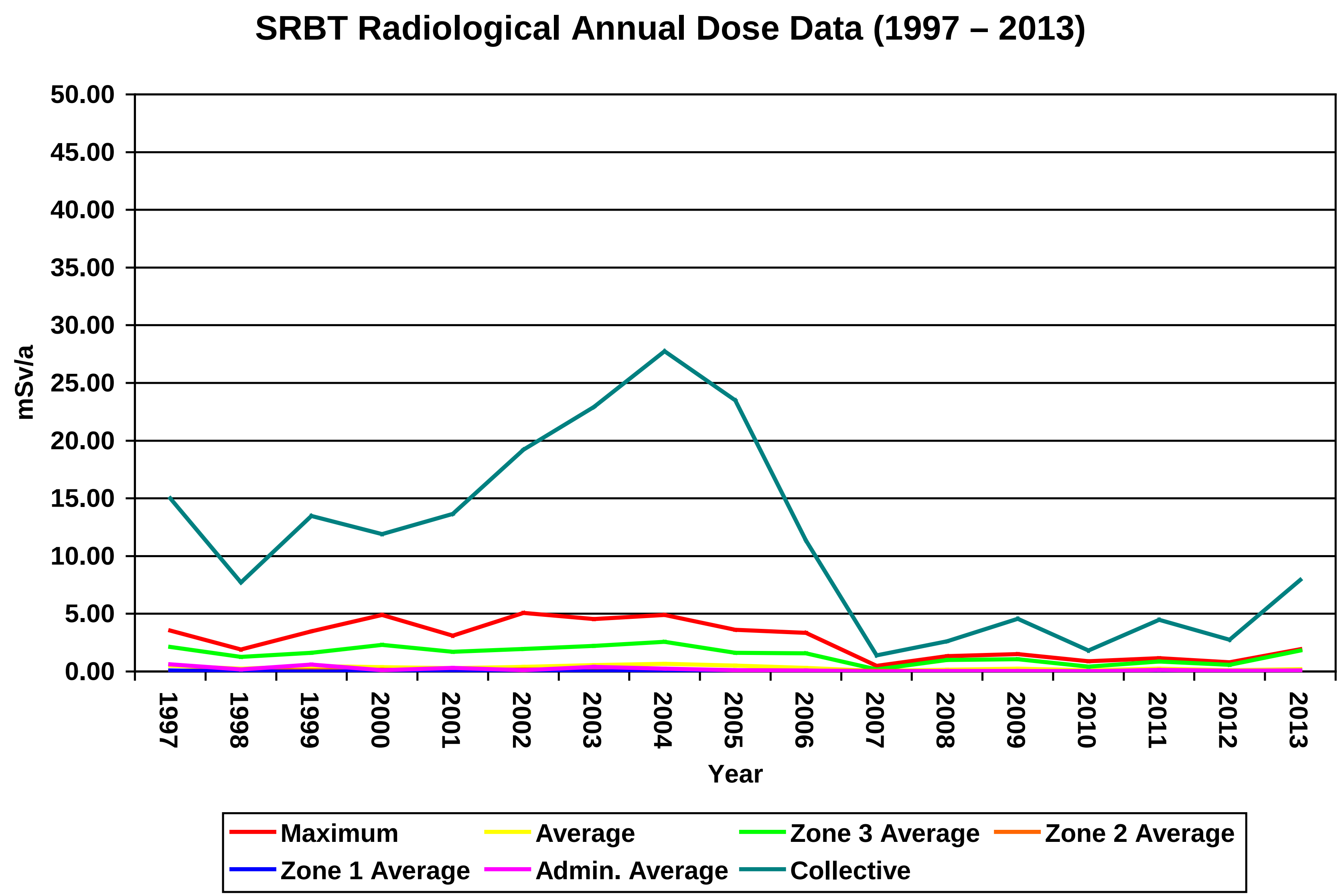
2013 BUBBLER VERIFICATION RESULTS

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m3)	EMISSION RATE AECL (Bq/m3)	SRB / AECL
WEEK 1	RIG STACK	HTO	78,668	111,545	71%
	RIG STACK	HT	128,220	148,803	86%
WEEK 2	RIG STACK	HTO	146,570	233,327	63%
	RIG STACK	HT	797,161	1,173,505	68%
WEEK 3	RIG STACK	HTO	128,813	160,636	80%
	RIG STACK	HT	414,806	512,218	81%
WEEK 4	RIG STACK	HTO	119,515	204,233	59%
	RIG STACK	HT	245,383	228,524	107%
WEEK 5	RIG STACK	HTO	101,105	134,681	75%
		HT	252,588	221,202	114%
				AVG	80%

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m3)	EMISSION RATE AECL (Bq/m3)	SRB / AECL
WEEK 1	BULK STACK	HTO	92,747	100,768	92%
	BULK STACK	HT	103,623	94,674	109%
WEEK 2	BULK STACK	HTO	176,797	188,211	94%
	BULK STACK	HT	212,318	182,797	116%
WEEK 3	BULK STACK	HTO	509,617	480,767	106%
	BULK STACK	HT	891,920	990,685	90%
WEEK 4	BULK STACK	HTO	469,743	521,695	90%
	BULK STACK	HT	1,279,672	1,184,530	108%
WEEK 5	BULK STACK	HTO	207,158	224,345	92%
		HT	78,295	70,183	112%
				AVG	101%

APPENDIX H

Radiological occupational annual dose data for 2013


SRBT Radiological Annual Dose Data (1997 – 2013)
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45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Year
Maximum
Average
Zone 3 Average
Zone 2 Average
Zone 1 Average
Admin. Average
Collective

SRB RADIOLOGICAL ANNUAL DOSE DATA (1997 – 2013)

ANNUAL DOSE (mSv/year)	1997	1998	1999	2000	2001	2002	2003	2004	2005	*2006	**2007	***2008	2009	2010	2011	2012	2013	AVERAGE
Maximum Dose	3.55	1.91	3.48	4.89	3.11	5.08	4.54	4.90	3.61	3.35	0.48	1.34	1.50	0.88	1.15	0.80	1.93	2.74
Average	0.52	0.24	0.46	0.38	0.29	0.40	0.55	0.67	0.50	0.30	0.04	0.16	0.25	0.11	0.25	0.11	0.21	0.32
Average Zone 3	2.12	1.26	1.62	2.30	1.70	1.94	2.22	2.58	1.61	1.57	0.17	1.00	1.06	0.42	0.87	0.58	1.82	1.46
Average Zone 2	0.07	0.12	0.11	0.15	0.08	0.18	0.16	0.18	0.12	0.07	0.07	0.02	0.01	0.01	0.11	0.03	0.08	0.09
Average Zone 1	0.08	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.02	<0.01	<0.01	0.00	0.03	0.03	0.02	0.02	0.02	0.01	0.02
Average Administration	0.61	0.17	0.60	0.12	0.31	0.11	0.39	0.24	0.12	0.09	<0.01	0.05	0.05	0.02	0.13	0.06	0.08	0.19
Collective Dose	15.01	7.72	13.47	11.91	13.65	19.21	22.91	27.75	23.50	11.34	1.40	2.62	4.57	1.82	4.47	2.75	7.94	11.30

DOSIMETRY RANGE (mSv/year)	1997	1998	1999	2000	2001	2002	2003	2004	2005	*2006	**2007	***2008	2009	2010	2011	2012	2013	AVERAGE
0.00 – 0.99	23	29	28	33	43	43	39	30	39	34	32	15	15	17	16	24	34	29.06
1.00 – 1.99	4	3	4	1	4	2	0	5	3	3	0	1	3	0	2	0	4	2.41
2.00 – 2.99	1	0	0	1	1	2	3	2	3	0	0	0	0	0	0	0	0	0.76
3.00 – 3.99	1	0	2	1	1	0	2	2	2	1	0	0	0	0	0	0	0	0.71
4.00 – 4.99	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0.24
> 5.00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.06
> 50.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Staff Members	29	32	34	37	49	48	45	41	47	38	32	16	18	17	18	24	38	33.12

*** Operated 48 weeks**
**** Operated 5 weeks**
***** Operated 26 weeks**

APPENDIX I

Swipe monitoring results for 2013

Swipe Data - 2013

Zone 3 Swipe Areas	No. of Swipes	Average Value	Amount Pass	Amount Fail	Average Pass
Floor @ Barrier	245	19.65	224	21	91.43%
RR Telephone Area	60	5.17	59	1	98.33%
Cleaning Supply Cabinet	122	9.55	118	4	96.72%
Rig 7 Floor	245	29.98	206	39	84.08%
Rig 7	245	7.83	240	5	97.96%
Rig 1 Floor	245	29.52	207	38	84.49%
Rig 1	245	6.82	240	5	97.96%
Muffle Fume Hood	245	29.16	226	19	92.24%
Muffle F/H Cabinet	63	11.79	61	2	96.83%
Crusher Fume Hood	63	5.81	62	1	98.41%
Crusher F/H Cabinet	245	16.09	226	19	92.24%
Wash Cabinet	125	10.47	119	6	95.20%
Waste Rm Floor	245	14.20	236	9	96.33%
Scint Table	60	6.90	60	0	100.00%
Paperwork Rack Area	60	4.95	59	1	98.33%
Laser Rm Flr - Random	245	16.31	234	11	95.51%
EIP Area	245	8.23	242	3	98.78%
Laser Rm Fume Hood	245	65.47	213	32	86.94%
Trit. Lab Floor - Random	242	17.37	226	16	93.39%
Disassembly F/H	245	31.91	227	18	92.65%
Bulk Fume Hood	245	66.92	230	15	93.88%
Bulk Splitter Floor	245	23.93	217	28	88.57%
Tool Box (Inner)	63	17.92	56	7	88.89%
Storage Rm Shelving	183	20.31	170	13	92.90%
RR Desk Area	3	1.55	3	0	100.00%
Counter @ Porthole	3	0.79	3	0	100.00%
Light Prep Cabinet	3	2.84	3	0	100.00%
Laser Rm Flr @ EIP	3	4.77	3	0	100.00%
LMI Laser	3	1.11	3	0	100.00%
Floor @ Rigs 4/6	128	26.09	108	20	84.38%
Floor @ Rig 8	182	22.55	168	14	92.31%
Floor @ Porthole	62	16.86	58	4	93.55%
Shelf @ Trit Lab sink	62	8.08	60	2	96.77%
Trit Lab Desk	62	7.65	60	2	96.77%
Tool Box (Outer)	62	10.81	59	3	95.16%
Storage Rm Floor	116	20.47	104	12	89.66%
Shelf @ Barrier	66	7.40	65	1	98.48%
Porthole	66	1.58	66	0	100.00%
Waste Rm Door/Knobs	66	3.10	66	0	100.00%
Floor @ Trit Lab Sink	66	10.32	66	0	100.00%
Trit Lab Desk Drawers	120	6.16	117	3	97.50%
Trit Lab Cabinet	66	5.36	65	1	98.48%
Coatrack Wall	54	1.99	54	0	100.00%
Floor @ Rig 6	54	23.40	49	5	90.74%
Rig 6	54	9.05	53	1	98.15%
Rig 8	54	4.95	54	0	100.00%
Diss. F/H Cabinet	54	12.56	50	4	92.59%
	5880	14.59	5495.00	385.00	95.25%

Total Swipes	5880
Total Fails	385
Pass Rate	93.45

Swipe Data - 2013

Zone 2 Swipe Areas	No. of Swipes	Average Value	Amount Pass	Amount Fail	Average Pass
Floor at Barrier	144	2.13	137	7	95.14%
Floor at QA Table	73	1.51	69	4	94.52%
WIP Shelving	144	1.45	135	9	93.75%
QA Shelving	144	2.18	131	13	90.97%
Floor @ Table 1	73	2.41	67	6	91.78%
Exposing Rm Floor	35	0.99	35	0	100.00%
Work Counters	144	0.85	140	4	97.22%
Counter @ Barrier	144	1.82	131	13	90.97%
Bubbler Fume Hood	35	1.05	34	1	97.14%
Silkscreeening Floor	67	1.10	65	2	97.01%
Insp. Prep Floor	110	1.74	105	5	95.45%
Insp. Prep Counter	144	1.40	137	7	95.14%
QA Table	2	0.07	2	0	100.00%
Insp. Prep Cabinets	2	0.33	2	0	100.00%
Rig Porthole	2	0.32	2	0	100.00%
Floor @ Assy Barrier	109	0.94	103	6	94.50%
Reflector Shelving	107	1.51	98	9	91.59%
Inspection Rm Floor	75	0.76	74	1	98.67%
Floor @ Welder Area	39	0.63	39	0	100.00%
Floor @ Black Counter	39	0.41	39	0	100.00%
Computer Desk Area	32	0.57	31	1	96.88%
Fumehood Counter	32	0.32	32	0	100.00%
Inspection Rm Counter	34	1.06	33	1	97.06%
	1730	1.11	1641	89	96.43%

Total Swipes	1730
Total Fails	89
Pass Rate	94.86

Zone 1 Swipe Areas	No. of Swipes	Average Value	Amount Pass	Amount Fail	Average Pass
Lunch Room	50	0.23	50	0	100.00%
LSC Room	50	0.25	50	0	100.00%
RR Ante Room	50	1.12	49	1	98.00%
Rig Room Barrier	50	2.11	44	6	88.00%
Assembly Barrier	50	5.03	48	2	96.00%
Table @ Assy Barrier	39	2.97	34	5	87.18%
Hallway @ Active Area	13	0.38	13	0	100.00%
Shipping Area Floor	13	0.13	13	0	100.00%
Shipping Counter	11	0.07	11	0	100.00%
	326	1.37	312	14	96.58%

Total Swipes	326
Total Fails	14
Pass Rate	95.71

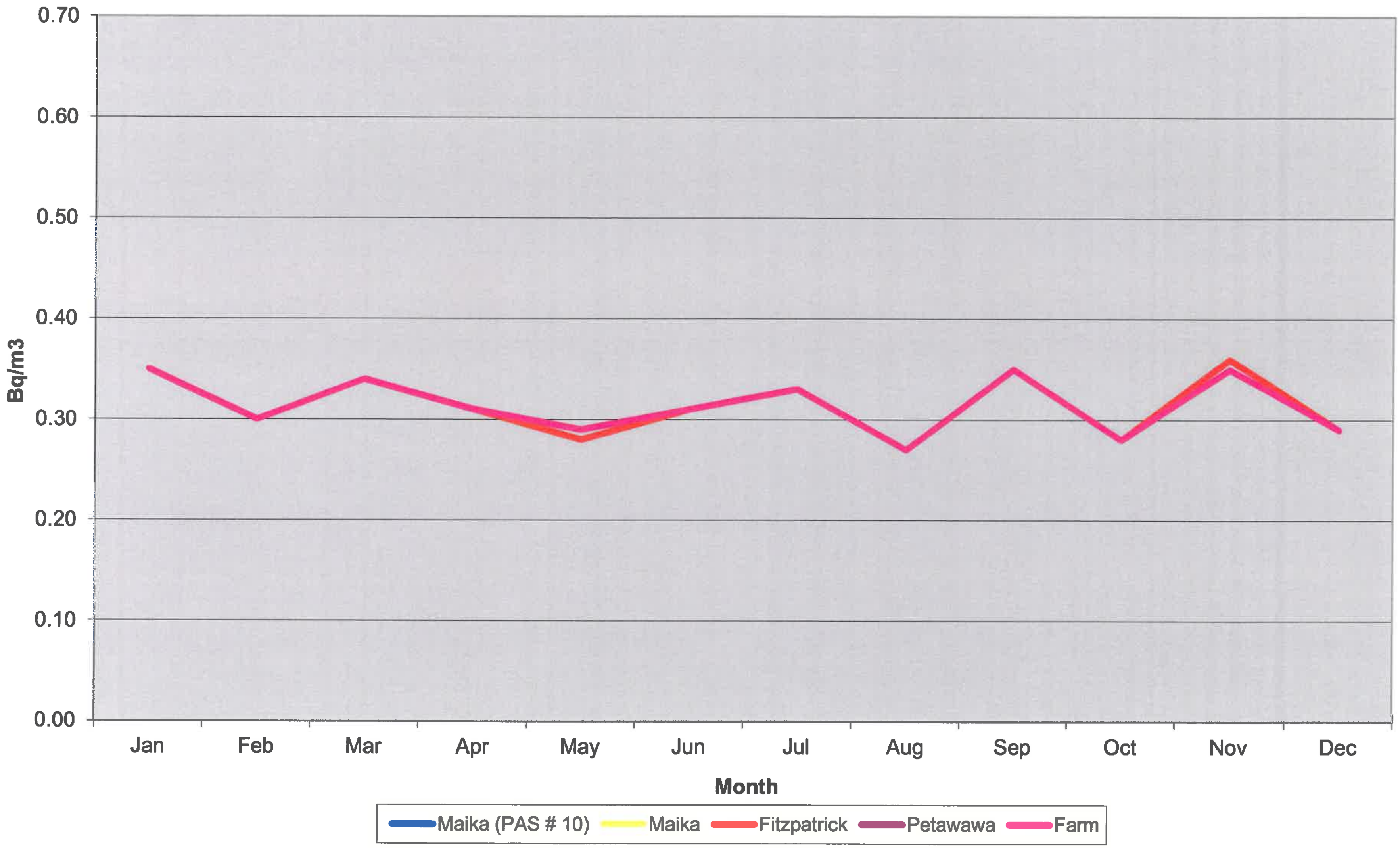
APPENDIX J

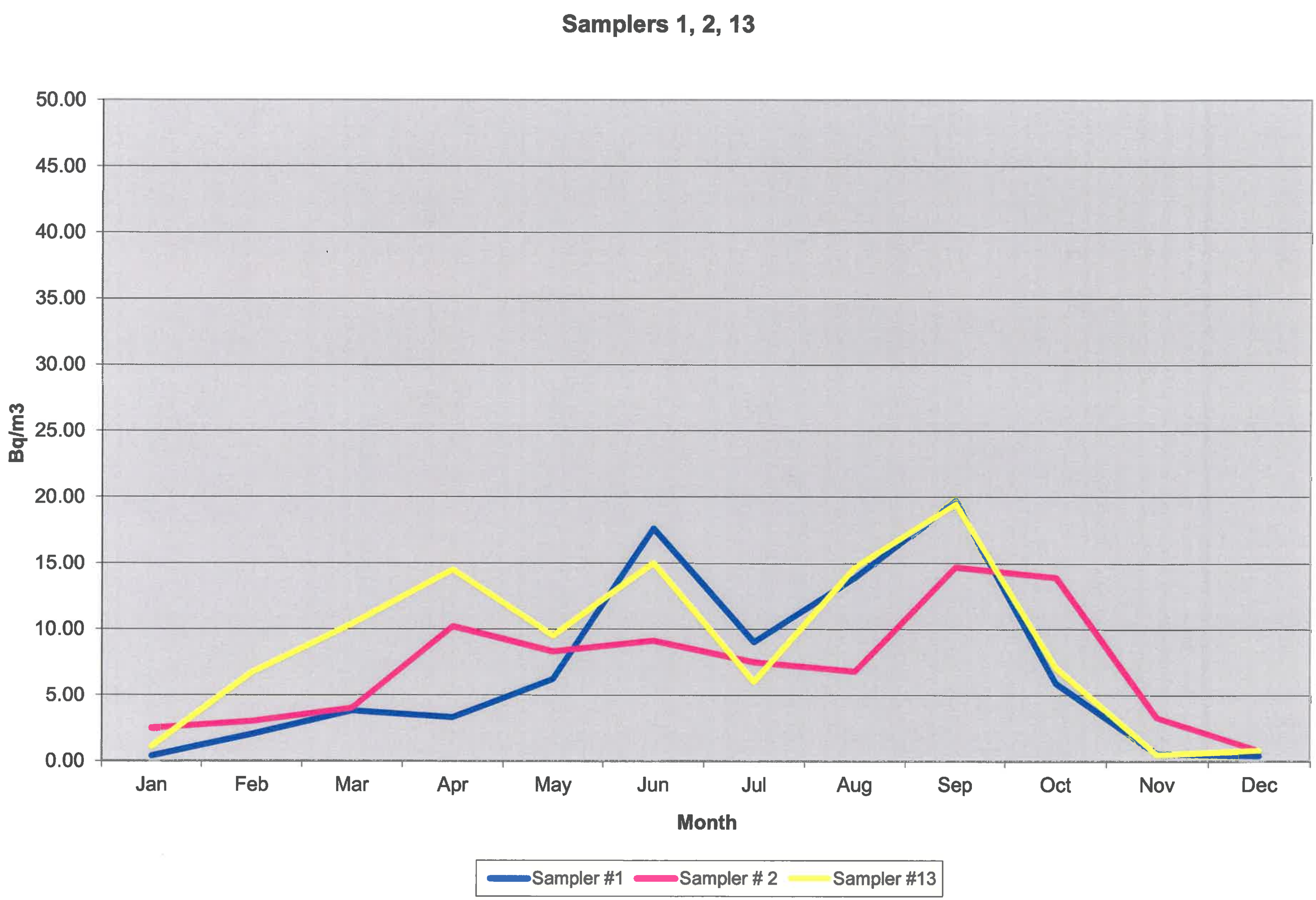
Passive Air Sampler Results 2013

2013 Environment Monitoring Program
Passive Air Sampling System

Sampler No.	Sampler ID	Location	Dist. to SRBT	Jan (Jan3-Feb1)	Feb (Feb1-Mar5)	Mar (Mar5-Apr2)	Apr (Apr2-May2)	May (May2-June4)	Jun (June4-July4)	Jul (July4-Aug1)	Aug (Aug1-Sept5)	Sep (Sept5-Oct2)	Oct (Oct2-Nov5)	Nov (Nov5-Dec4)	Dec (Dec4-Jan9)	Average (Bq/m3)
				(Bq/m3)												
1	N250	N 45º 48.486' W 077º 07.092' Elev. 137m	322m	0.83	0.86	1.50	6.50	1.40	0.97	2.30	2.60	9.20	5.20	4.00	0.29	2.97
2	N500	N 45º 48.572' W 077º 07.008' Elev. 134m	493m	0.85	0.30	0.78	1.10	0.58	0.58	1.50	1.30	5.10	2.10	2.90	0.31	1.45
3	N1000	N 45º 48.869' W 077º 06.997' Elev. 135m	1040m	0.35	0.30	0.34	0.48	0.34	0.31	0.48	0.51	1.30	0.81	0.70	0.29	0.52
4 (PAS #4)	NW250	N 45º 48.412' W 077º 07.189' Elev. 137m	222m	3.40	3.30	2.40	20.80	4.40	4.10	4.50	5.40	9.40	5.50	4.20	0.45	5.65
5	NW500	N 45º 48.577' W 077º 07.382' Elev. 134m	615m	1.20	1.40	0.94	3.20	1.10	1.20	1.20	1.50	4.10	1.50	1.20	0.28	1.57
6 (PAS # 8)	NW1000	N 45º 48.754' W 077º 07.599' Elev. 130m	1050m	0.62	0.58	0.67	1.10	0.49	0.59	0.58	0.58	1.70	0.75	0.53	0.29	0.71
7	NW2000	N 45º 49.141' W 077º 08.090' Elev. 139m	2000m	1.10	0.73	0.89	1.60	4.60	4.40	9.40	5.00	2.70	1.70	0.35	0.29	2.73
8	W250	N 45º 48.300' W 077º 07.323' Elev. 138m	297m	0.67	1.30	3.20	2.20	2.70	3.20	1.50	0.71	3.60	2.30	0.36	0.47	1.85
9	W500	N 45º 48.288' W 077º 07.393' Elev. 137m	389m	0.34	1.20	2.00	1.00	1.80	2.10	0.62	0.40	2.60	1.80	0.36	0.33	1.21
10	W1000	N 45º 48.306' W 077º 07.630' Elev. 134m	691m	0.45	0.52	1.30	0.60	0.60	1.20	0.36	0.27	1.20	0.80	0.36	0.30	0.66
11	SW250	N 45º 48.247' W 077º 07.206' Elev. 140m	183m	0.35	0.34	1.50	1.10	1.80	5.00	2.60	1.90	1.20	1.40	0.36	0.29	1.49
12	SW500	N 45º 47.896' W 077º 07.307' Elev. 148m	839m	0.35	0.30	0.41	0.36	0.28	0.31	0.33	0.39	0.35	0.29	0.36	0.30	0.34
13	SW1000	N 45º 47.599' W 077º 07.543' Elev. 149m	1470m	0.40	0.30	0.76	0.89	3.40	3.80	5.30	2.80	1.40	0.64	0.43	0.29	1.70
14	SW2000	N 45º 47.408' W 077º 07.866' Elev. 155m	2110m	0.35	0.30	0.34	0.32	0.29	0.31	0.33	0.30	0.37	0.29	0.35	0.29	0.32
15	S250	N 45º 48.129' W 077º 07.014' Elev. 131m	356m	1.50	1.10	1.80	2.30	2.30	0.42	1.40	3.50	4.30	1.30	0.44	0.29	1.72
16	S500	N 45º 48.029' W 077º 07.110' Elev. 143m	532m	0.35	0.30	0.65	0.66	0.50	0.92	0.35	0.78	0.85	0.70	0.36	0.29	0.56
17 (PAS # 12)	S1000	N 45º 46.466' W 077º 07.441' Elev. 158m	1450m	0.34	0.30	0.33	0.31	0.28	0.30	0.33	0.27	0.35	0.28	0.35	0.29	0.31
18	SE250	N 45º 48.189' W 077º 06.874' Elev. 132m	365m	3.10	10.20	7.80	3.90	6.20	5.90	16.00	7.60	12.20	3.50	4.50	1.70	6.88
19	SE500	N 45º 48.108' W 077º 06.783' Elev. 123m	554m	1.40	4.40	3.40	1.60	1.50	1.60	2.30	2.70	5.30	1.30	1.50	0.44	2.29
20	SE1000	N 45º 47.894' W 077º 06.501' Elev. 120m	1090m	0.35	1.00	0.68	0.51	0.50	0.56	0.58	0.94	1.60	0.51	0.39	0.29	0.66
21	SE2000	N 45º 47.505' W 077º 05.978' Elev. 137m	2080m	0.35	0.53	0.48	0.31	0.28	0.32	0.33	0.39	0.52	0.28	0.36	0.29	0.37
22	E250	N 45º 48.234' W 077º 06.807' Elev. 131m	401m	2.90	2.70	6.30	3.00	2.00	1.80	9.60	5.70	8.00	3.70	3.90	1.90	4.29
23	E500	N 45º 48.333' W 077º 06.693' Elev. 132m	520m	1.30	0.38	1.30	1.30	0.90	1.00	1.30	3.00	1.60	1.60	0.57	1.20	1.29
24	E1000	N 45º 48.303' W 077º 06.260' Elev. 143m	1080m	0.69	0.30	0.38	0.58	0.33	0.46	0.55	1.20	0.81	1.10	0.35	0.53	0.61
25	NE250	N 45º 48.371' W 077º 06.964' Elev. 124m	198m	2.00	1.00	7.20	20.50	5.60	4.50	13.00	21.50	9.40	9.90	6.00	1.30	8.49
26	NE500	N 45º 48.421' W 077º 06.732' Elev. 131m	508m	0.56	0.30	1.30	1.10	0.98	1.10	2.00	3.50	1.70	1.80	0.69	1.00	1.34
27	NE1000	N 45º 48.683' W 077º 06.441' Elev. 148m	1100m	0.35	0.30	0.34	0.31	0.28	0.34	0.79	1.20	0.73	0.56	0.35	0.29	0.49
28	NE2000	N 45º 49.116' W 077º 05.843' Elev. 156m	2200m	0.35	0.30	0.34	0.31	0.28	0.31	0.58	0.51	0.53	0.34	0.35	0.29	0.37
Pre-Sample Points																
(PAS #1)		N 45º 48.287' W 077º 07.123' Elev. 129m	94.1m	0.37	2.00	3.80	3.30	6.20	17.60	9.00	13.90	19.70	5.90	0.60	0.40	6.90
(PAS #2)		N 45º 48.325' W 077º 07.132' Elev. 132m	52.8m	2.50	3.00	4.00	10.20	8.30	9.10	7.50	6.80	14.70	13.90	3.30	0.79	7.01
(PAS #13)		N 45º 48.262' W 077º 07.093' Elev. 132m	61.5m	1.10	6.70	10.40	14.50	9.50	15.00	6.00	14.70	19.50	7.10	0.50	0.80	8.82
Replicates																
4-2	NW250	N 45º 48.412' W 077º 07.189' Elev. 137m	222m	2.80	3.30	2.20	20.50	4.00	2.70	4.40	5.30	9.40	5.30	3.80	0.41	5.34
11-2	SW250	N 45º 48.247' W 077º 07.206' Elev. 140m	183m	0.35	0.30	1.40	1.10	1.70	4.90	2.50	1.90	1.20	1.40	0.36	0.29	1.45
18-2	SE250	N 45º 48.189' W 077º 06.874' Elev. 132m	365m	2.40	9.00	7.10	3.60	2.50	3.20	7.20	5.50	12.20	2.50	3.90	1.30	5.03
25-2	NE250	N 45º 48.371' W 077º 06.964' Elev. 124m	198m	1.50	1.00	3.00	11.40	4.20	4.10	10.60	19.90	9.40	7.90	4.60	1.30	6.58
Background Samples																
Maika (PAS # 10)	SW	N 45º 46.367' W 077º 11.447' Elev. 149m	6690m	0.35	0.30	0.34	0.31	0.29	0.31	0.33	0.27	0.35	0.28	0.35	0.29	0.31
Maika	Duplicate	Same as above	6690m	0.35	0.30	0.34	0.31	0.29	0.31	0.33	0.27	0.35	0.28	0.35	0.29	0.31
Fitzpatrick	SE	N 45º 44.818' W 076º 59.822' Elev. 159m	11400m	0.35	0.30	0.34	0.31	0.28	0.31	0.33	0.27	0.35	0.28	0.36	0.29	0.31
Petawawa	NW	N 45º 51.497' W 077º 12.828' Elev. 149m	9480m	0.35	0.30	0.34	0.31	0.29	0.31	0.33	0.27	0.35	0.28	0.35	0.29	0.31
Farm	NE	N 45º 53.071' W 076º 56.768' Elev. 142m	16000m	0.35	0.30	0.34	0.31	0.29	0.31	0.33	0.27	0.35	0.28	0.35	0.29	0.31
			Sum	39.57	61.64	82.93	144.09	83.55	105.75	128.96	145.80	179.96	97.35	55.39	21.31	95.53

Background Samples





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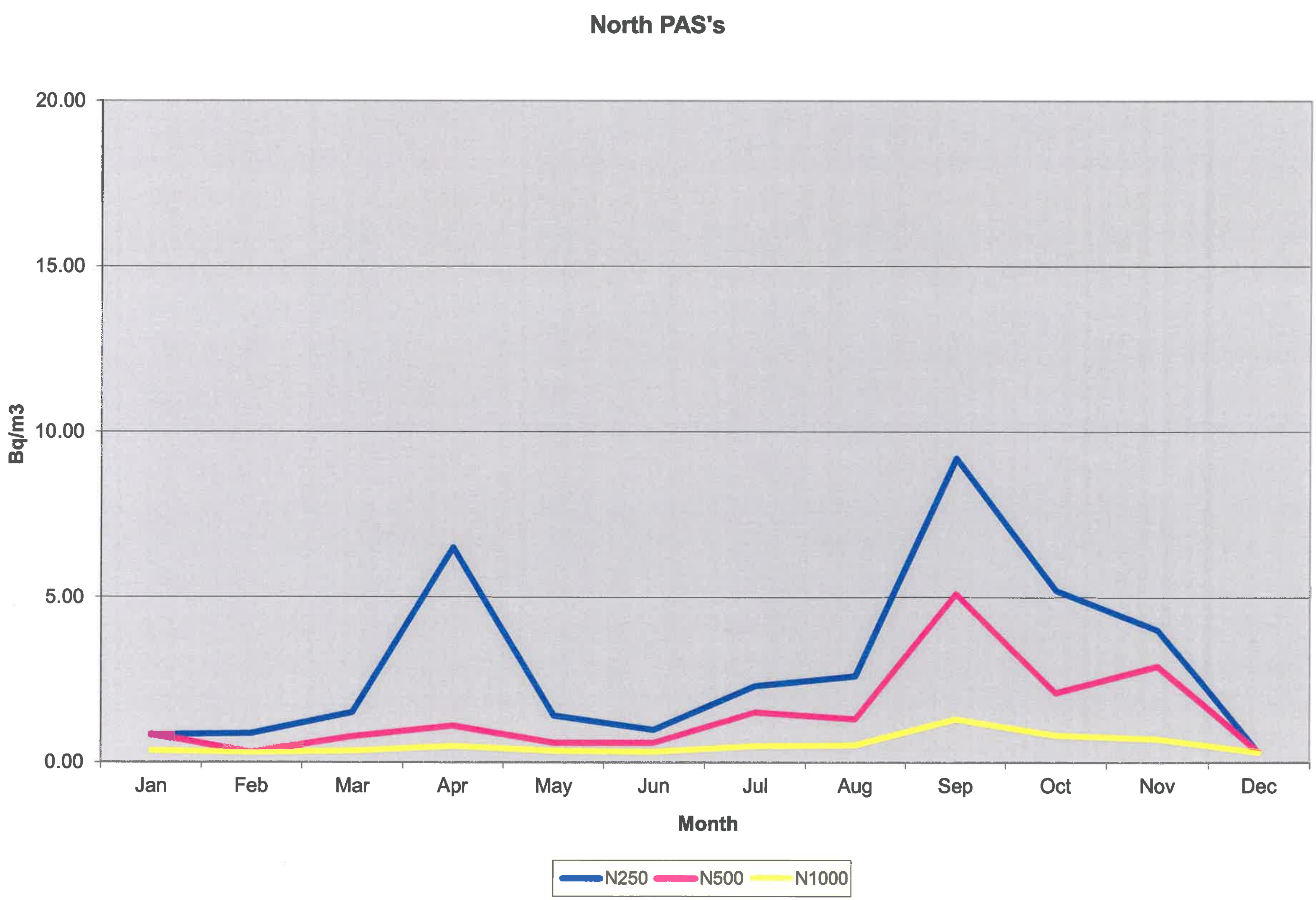
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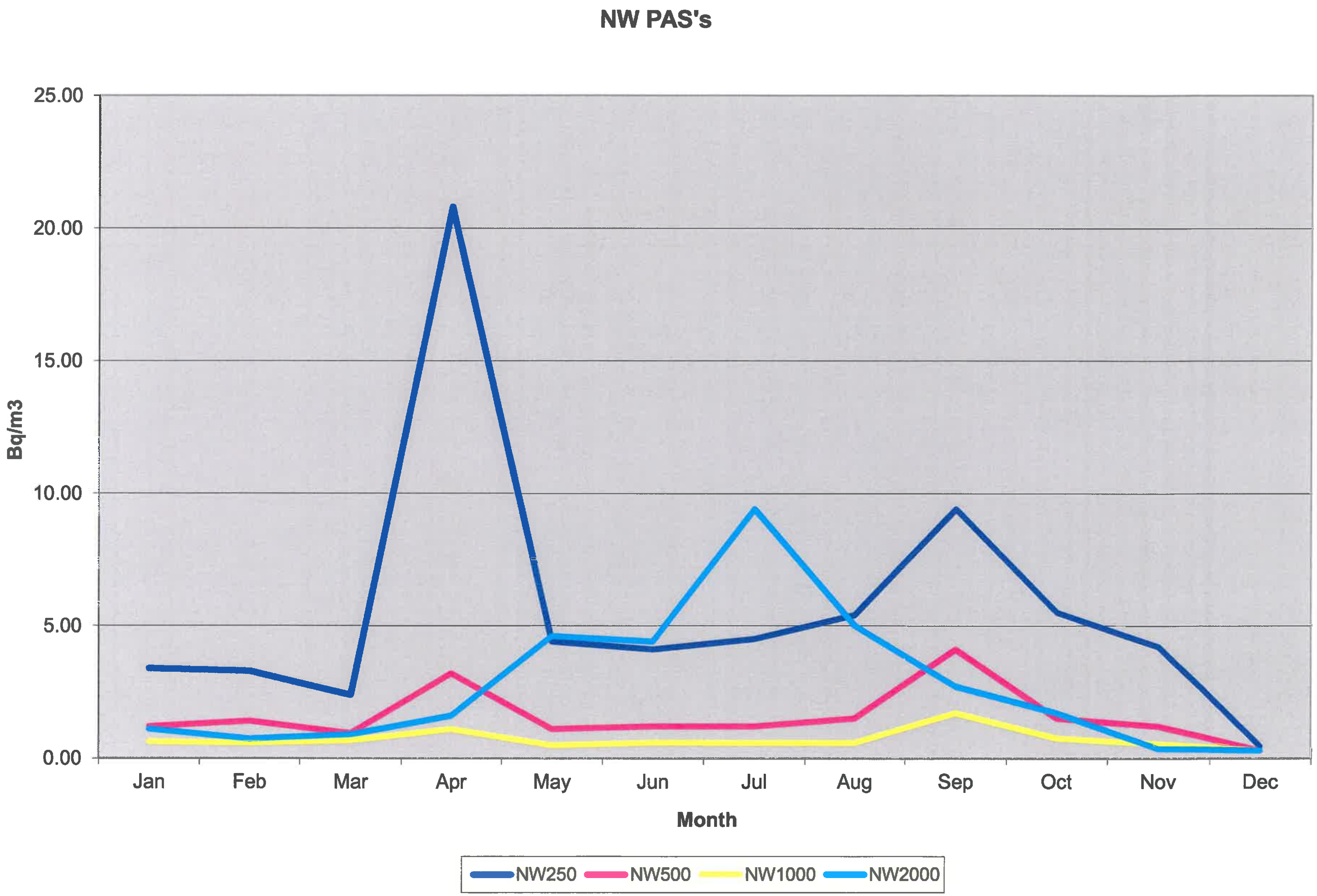
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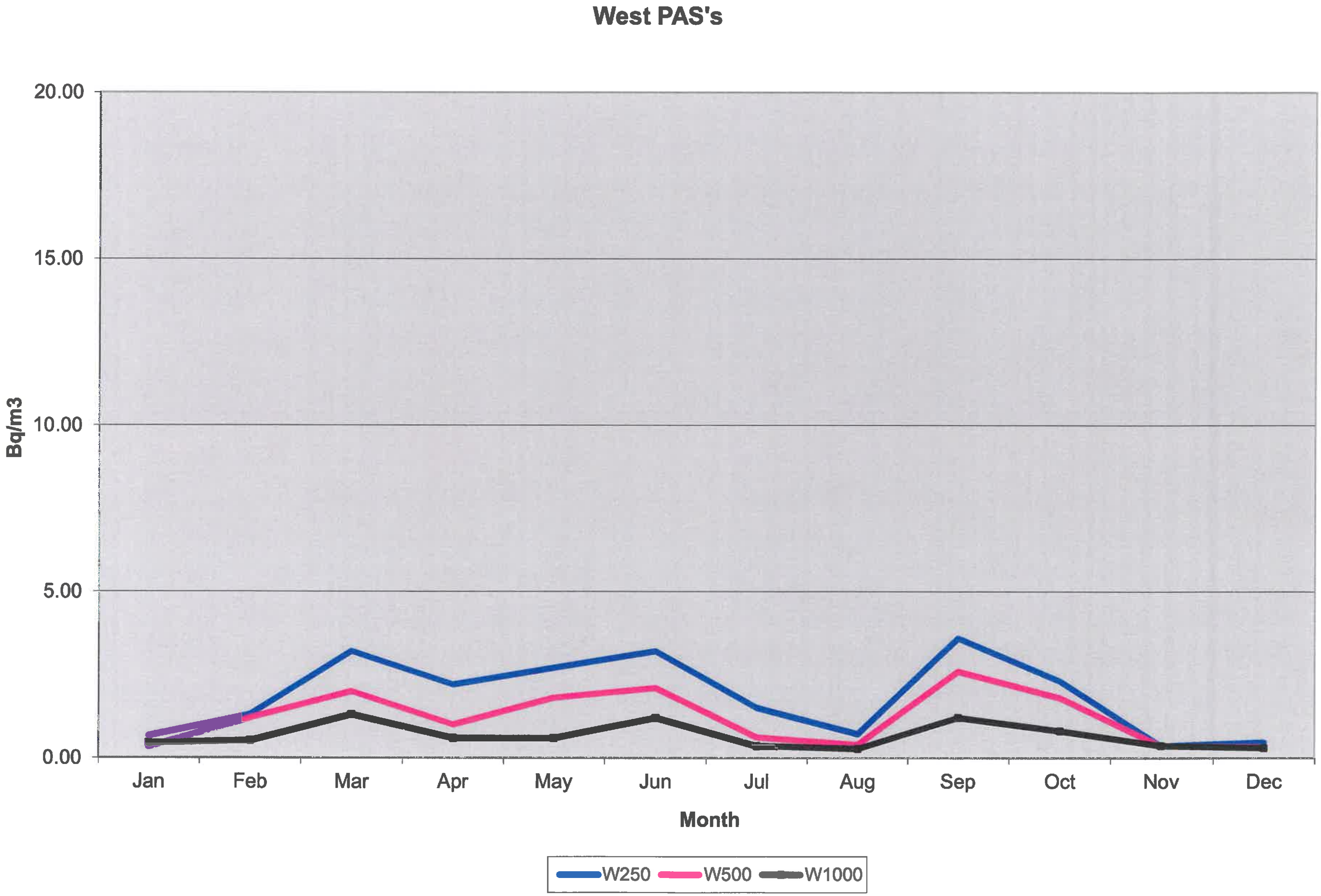
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Bq/m3
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Feb
Mar
Apr
May
Jun
Jul
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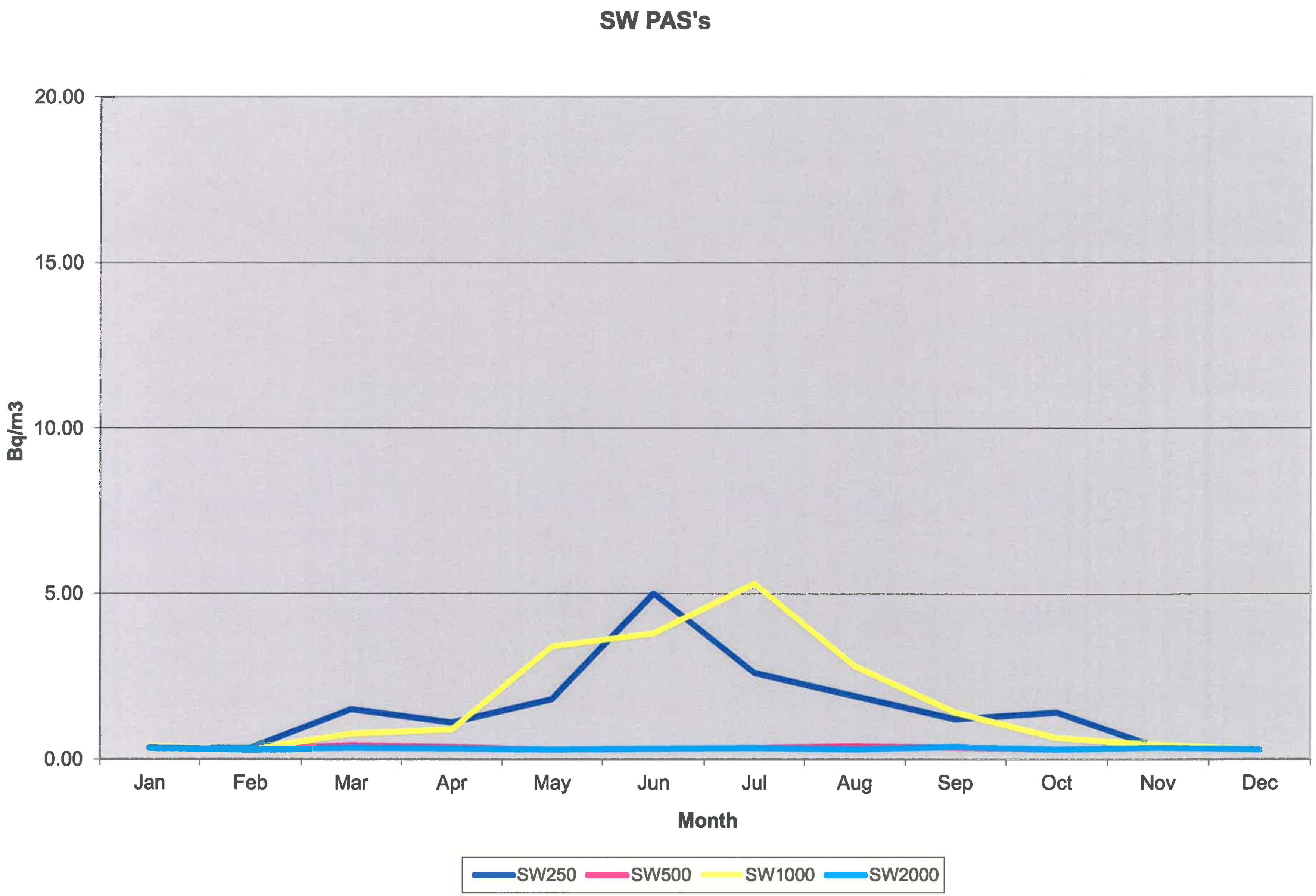
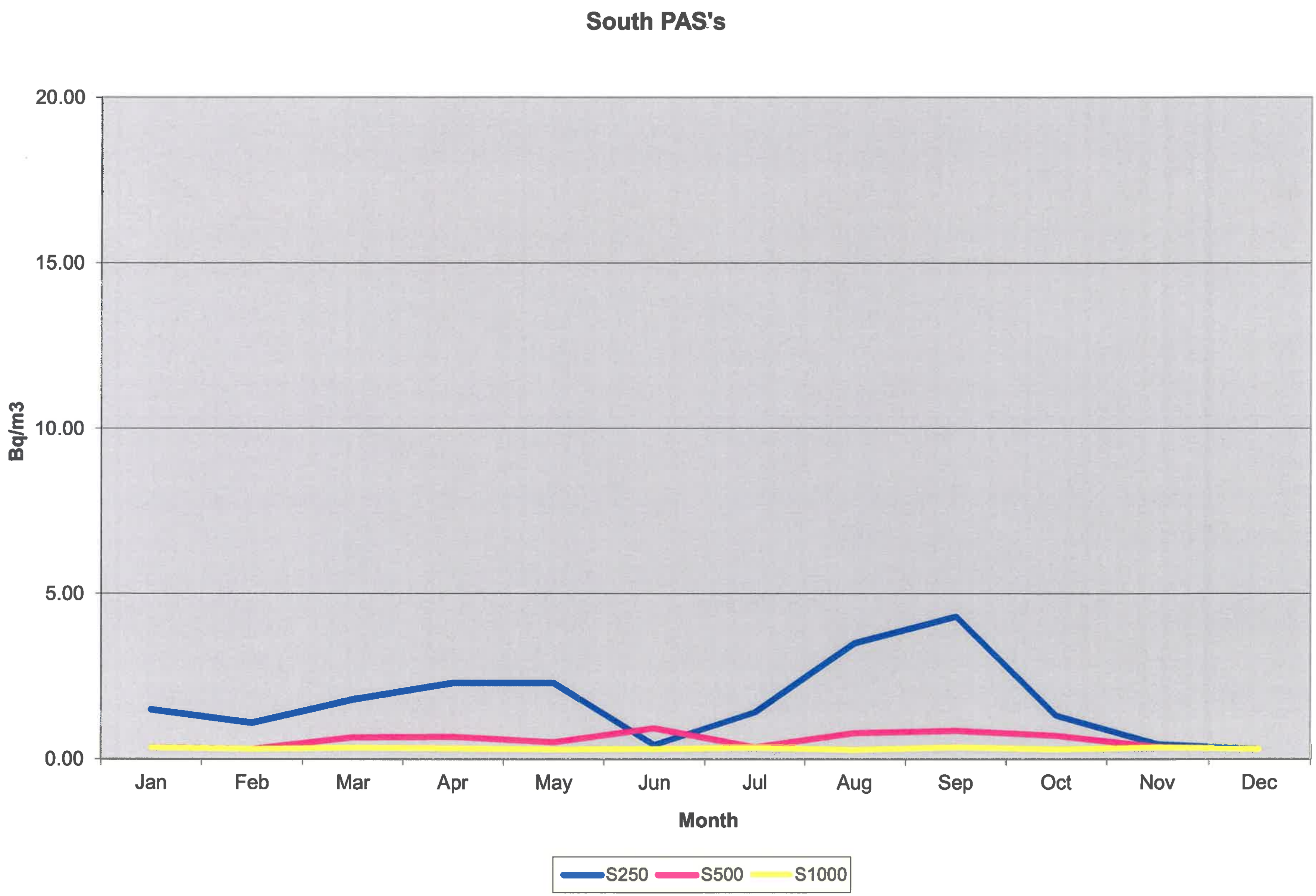
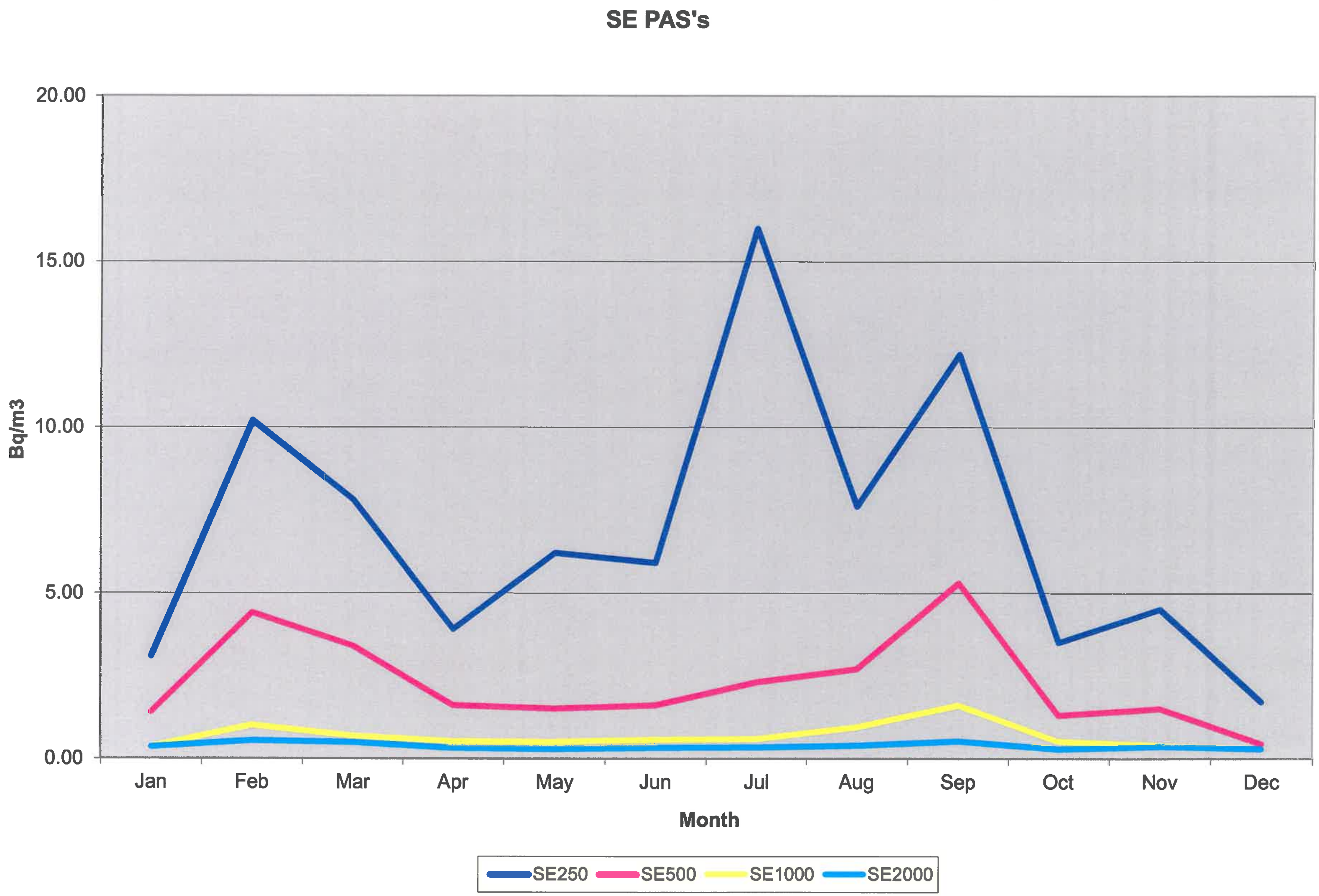
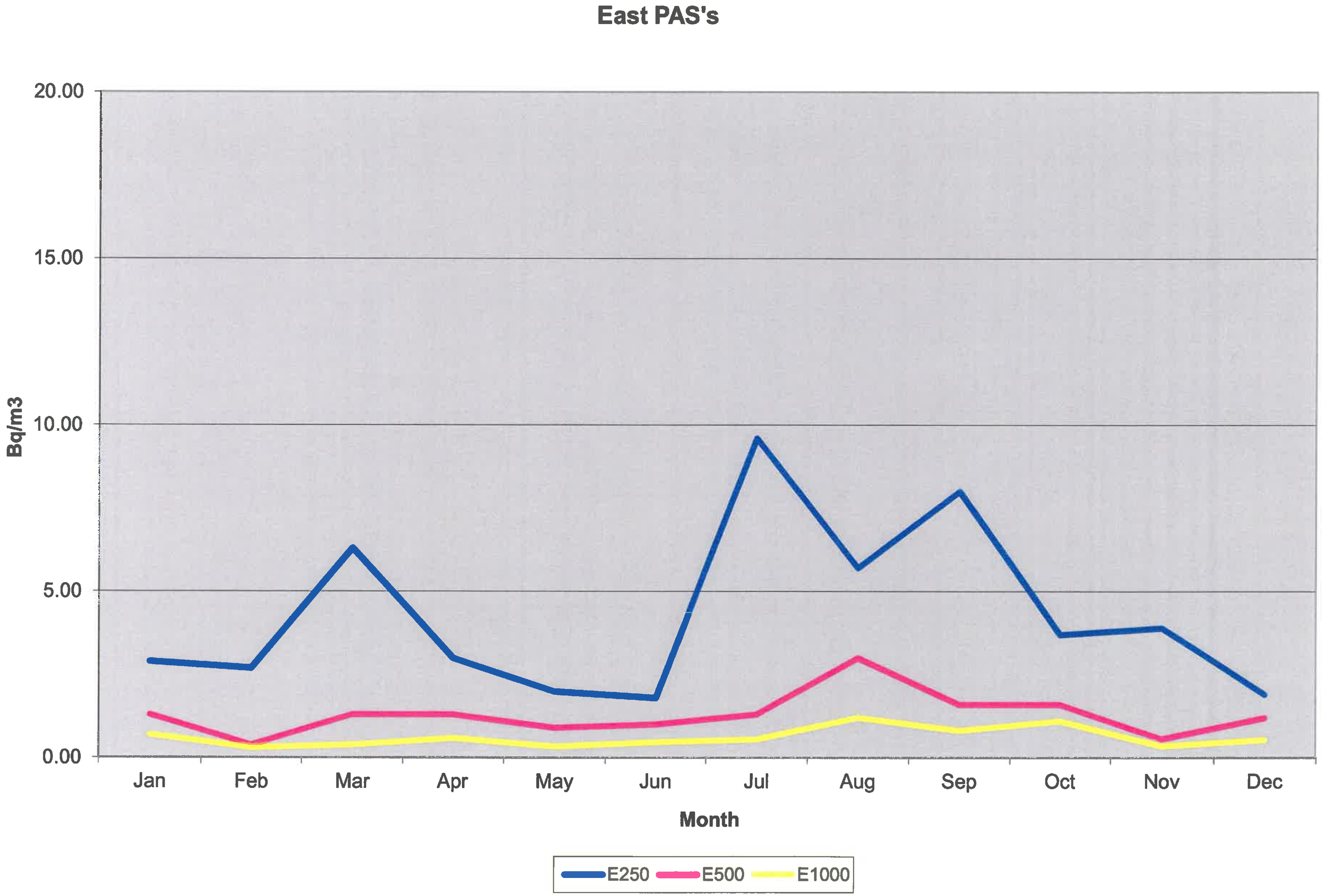
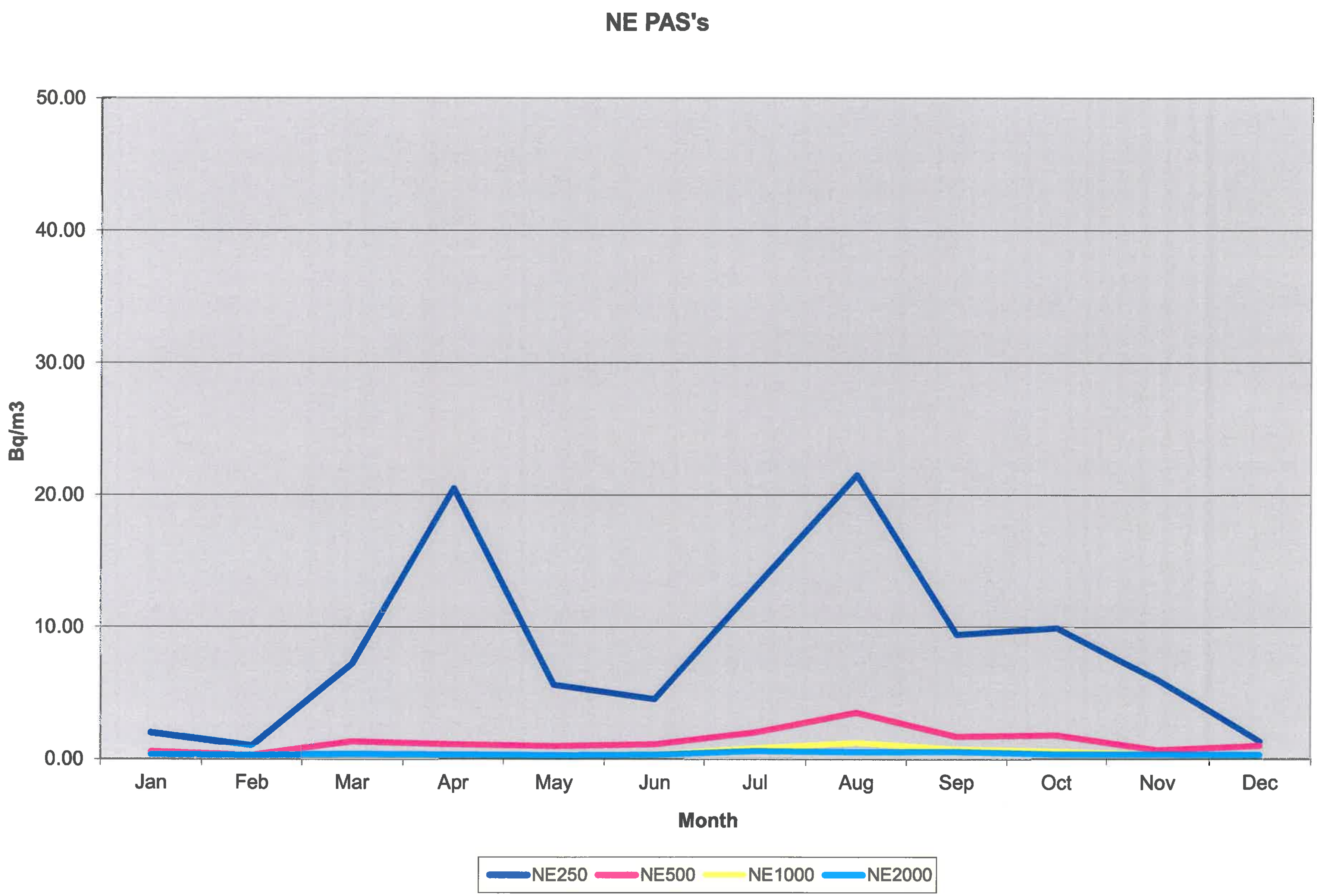
Oct
Nov
Dec
Month
W250
W500
W1000


SW PAS's
20.00
15.00
10.00
5.00
0.00
Bq/m3
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
SW250
SW500
SW1000
SW2000


South PAS's
20.00
15.00
10.00
5.00
0.00
Bq/m3
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
S250
S500
S1000


SE PAS's
20.00
15.00
10.00
5.00
0.00
Bq/m3
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
SE250
SE500
SE1000
SE2000


East PAS's
20.00
15.00
10.00
5.00
0.00
Bq/m3
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
E250
E500
E1000


NE PAS's
50.00
40.00
30.00
20.00
10.00
0.00
Bq/m3
Jan
Feb
Mar
Apr
May
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Jul
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Sep
Oct
Nov
Dec
Month
NE250
NE500
NE1000
NE2000

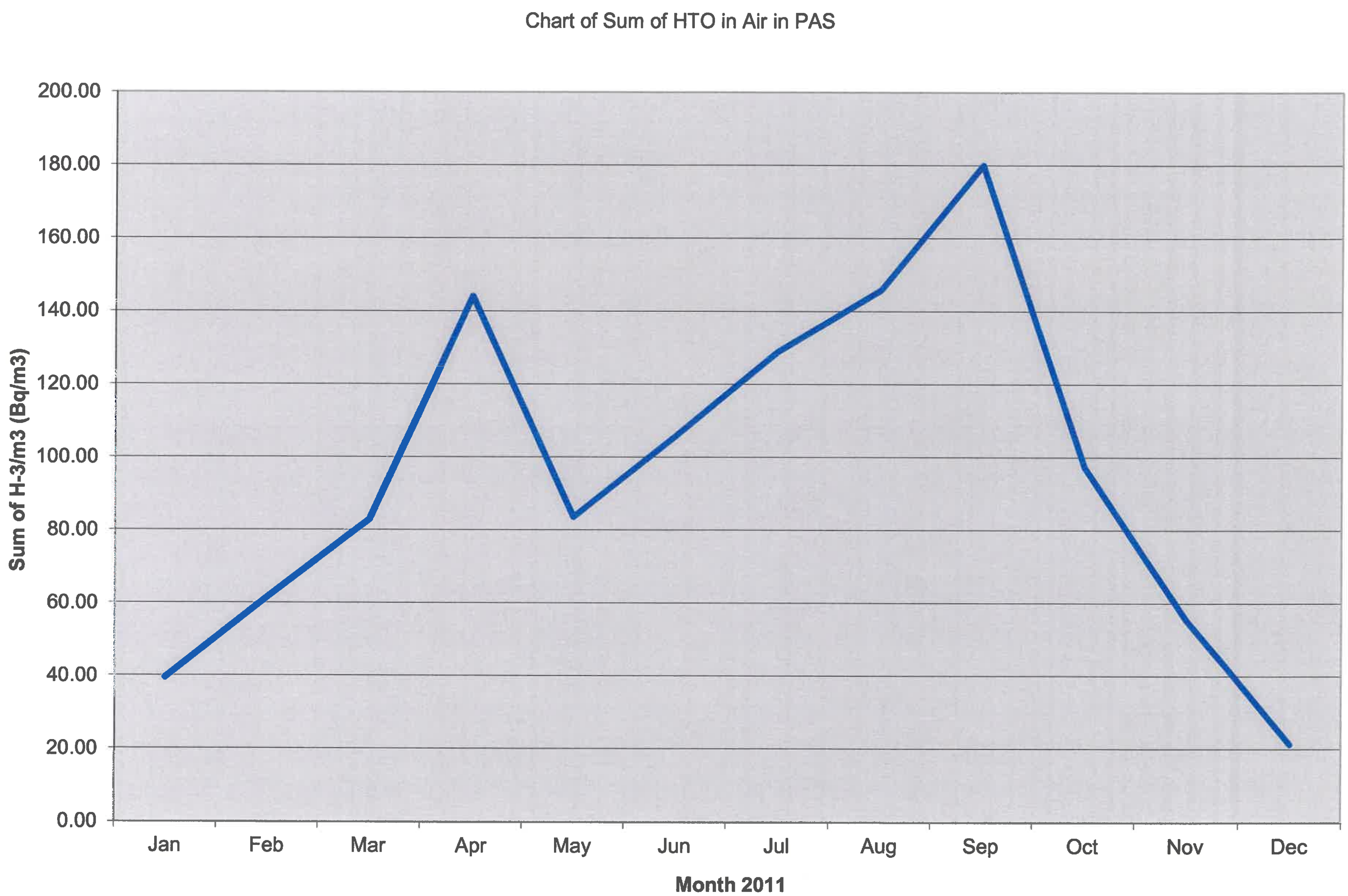


Chart of Sum of HTO in Air in PAS
Sum of H-3/m3 (Bq/m3)
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month 2011

APPENDIX K

Wind Direction Graphs for 2013

Passive Air Sampling Data (Results in Bq/m3)

1st Quarter

Direction	January 250 M	January 500 M	January 1000 M	January 2000 M	February 250 M	February 500 M	February 1000 M	February 2000 M	March 250 M	March 500 M	March 1000 M	March 2000 M
North	0.83	0.85	0.35		0.86	0.30	0.30		1.50	0.78	0.34	
North West	3.40	1.20	0.62	1.10	3.30	1.40	0.58	0.73	2.40	0.94	0.67	0.89
West	0.67	0.34	0.45		1.30	1.20	0.52		3.20	2.00	1.30	
Southwest	0.35	0.35	0.40	0.35	0.34	0.30	0.30	0.30	1.50	0.41	0.76	0.34
South	1.50	0.35	0.34		1.10	0.30	0.30		1.80	0.65	0.33	
South East	3.10	1.40	0.35	0.35	10.20	4.40	1.00	0.53	7.80	3.40	0.68	0.48
East	2.90	1.30	0.69		2.70	0.38	0.30		6.30	1.30	0.38	
North East	2.00	0.56	0.35	0.35	1.00	0.30	0.30	0.30	7.20	1.30	0.34	0.34

2nd Quarter

Direction	April 250 M	April 500 M	April 1000 M	April 2000 M	May 250 M	May 500 M	May 1000 M	May 2000 M	June 250 M	June 500 M	June 1000 M	June 2000 M
North	6.50	1.10	0.48		1.40	0.58	0.34		0.97	0.58	0.31	
North West	20.80	3.20	1.10	1.60	4.40	1.10	0.49	4.60	4.10	1.20	0.59	4.40
West	2.20	1.00	0.60		2.70	1.80	0.60		3.20	2.10	1.20	
Southwest	1.10	0.36	0.89	0.32	1.80	0.28	3.40	0.29	5.00	0.31	3.80	0.31
South	2.30	0.66	0.31		2.30	2.30	0.28		0.42	0.92	0.30	
South East	3.90	1.60	0.51	0.31	6.20	1.50	0.50	0.28	5.90	1.60	0.56	0.32
East	3.00	1.30	0.58		2.00	0.90	0.33		1.80	1.00	0.46	
North East	20.50	1.10	0.31	0.31	5.60	0.98	0.28	0.28	4.50	1.10	0.34	0.31

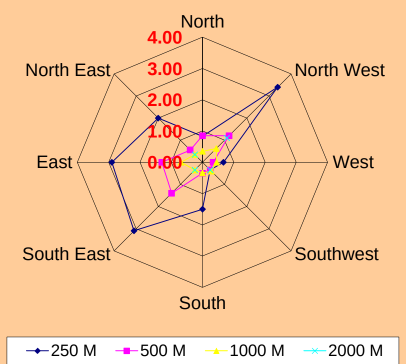
3rd Quarter

Direction	July 250 M	July 500 M	July 1000 M	July 2000 M	August 250 M	August 500 M	August 1000 M	August 2000 M	September 250 M	September 500 M	September 1000 M	September 2000 M
North	2.30	1.50	0.48		2.60	1.30	0.51		9.20	5.10	1.30	
North West	4.50	1.20	0.58	9.40	5.40	1.50	0.58	5.00	9.40	4.10	1.70	2.70
West	1.50	0.62	0.36		0.71	0.40	0.27		3.60	2.60	1.20	
Southwest	2.60	0.33	5.30	0.33	1.90	0.39	2.80	0.30	1.20	0.35	1.40	0.37
South	1.40	0.35	0.33		3.50	0.78	0.27		4.30	0.85	0.35	
South East	16.00	2.30	0.58	0.33	7.60	2.70	0.94	0.39	12.20	5.30	1.60	0.52
East	9.60	1.30	0.55		5.70	3.00	1.20		8.00	1.60	0.81	
North East	13.00	2.00	0.79	0.58	21.50	3.50	1.20	0.51	9.40	1.70	0.73	0.53

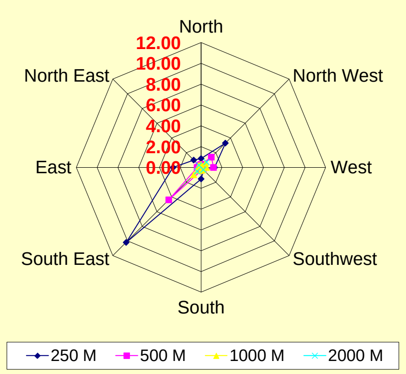
4th Quarter

Direction	October 250 M	October 500 M	October 1000 M	October 2000 M	November 250 M	November 500 M	November 1000 M	November 2000 M	December 250 M	December 500 M	December 1000 M	December 2000 M
North	5.20	2.10	0.81		4.00	2.90	0.70		0.29	0.31	0.29	
North West	5.50	1.50	0.75	1.70	4.20	1.20	0.53	0.35	0.45	0.28	0.29	0.29
West	2.30	1.80	0.80		0.36	0.36	0.36		0.47	0.33	0.30	
Southwest	1.40	0.29	0.64	0.29	0.36	0.36	0.43	0.35	0.29	0.30	0.29	0.29
South	1.30	0.70	0.28		0.44	0.36	0.35		0.29	0.29	0.29	
South East	3.50	1.30	0.51	0.28	4.50	1.50	0.39	0.36	1.70	0.44	0.29	0.29
East	3.70	1.60	1.10		3.90	0.57	0.35		1.90	1.20	0.53	
North East	9.90	1.80	0.56	0.34	6.00	0.69	0.35	0.35	1.30	1.00	0.29	0.29

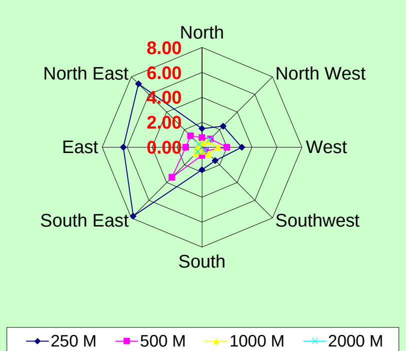
January (Jan 3-Feb 1)



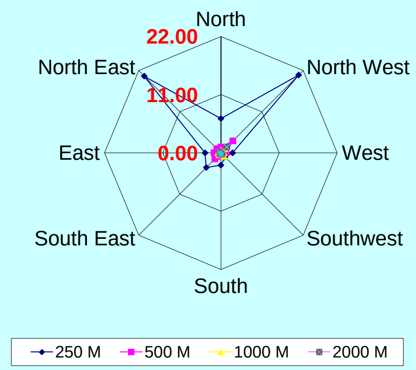
February (Feb 1-Mar 5)



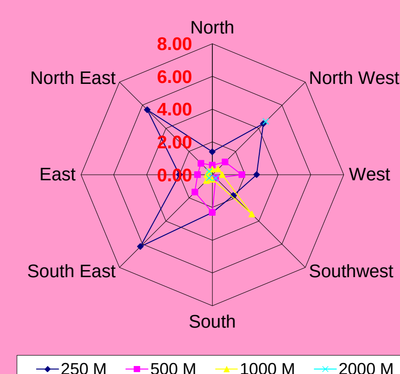
March (Mar 5-Apr 2)



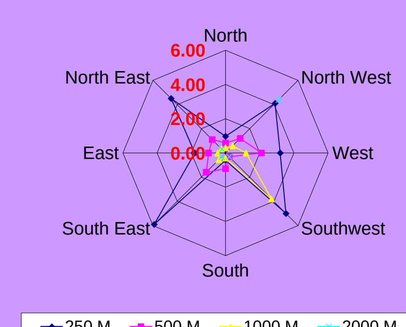
April (Apr 2-May 2)



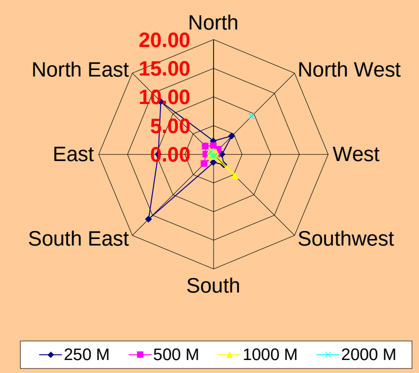
May (May 2-June 4)



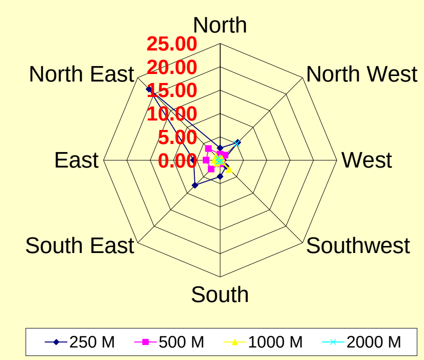
June (June 4-July 4)



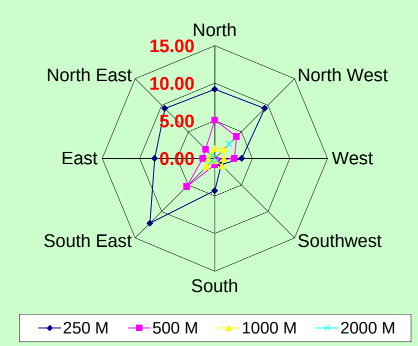
July (July 4-August 1)



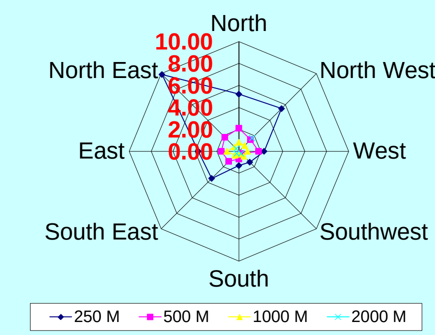
August (Aug 1 - Sept 5)



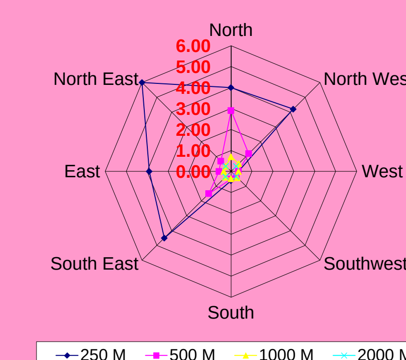
September (Sept 5 - Oct 2)



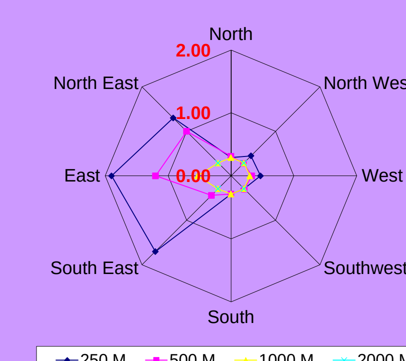
October (October 2 - November 5)



November (November 5 - December 4)



December (December 4 - January 9)



APPENDIX K

APPENDIX L

Well Monitoring Results for 2013

WELL I.D.	DESCRIPTION	DISTANCE FROM STACKS (m)	4/1/13	4/2/13	6/3/13	2/4/13	2/5/13	4/6/13	1/7/13	1/8/13	5/9/13	2/10/13	5/11/13	8/12/13	AVG
RW-2	185 MUD LAKE ROAD	1,100			124				115				103		114
RW-3	183 MUD LAKE ROAD	1,100			127				110				114		117
RW-5	171 SAWMILL ROAD	2,300			11				10				15		12
RW-6	40987 HWY 41	1,400			28				27				25.0		27
RW-7	40925 HWY 41	1,600			5				6				6		6
RW-8	204 BOUNDARY ROAD	700			224				209				226		220
RW-9	206 BOUNDARY ROAD	650			190				10				66		89
RW-10	208 BOUNDARY ROAD	625			4				4				4		4
RW-12	202 MUD LAKE ROAD	753			14				40				10		21
B-1	SUPERIOR PROPANE OFFICE	160			966				1,101				1,029		1,032
B-3	INTERNATIONAL LUMBER OFFICE	385			4				4				4		4
														AVG	150

WELL I.D.	DESCRIPTION		DISTANCE FROM STACKS (m)	4/1/13	4/2/13	6/3/13	2/4/13	2/5/13	4/6/13	1/7/13	1/8/13	5/9/13	2/10/13	5/11/13	8/12/13	WELL I.D.
MW06-1	SRB SITE	IN SOIL	50	12,198	11,078	11,113	10,237	10,666	9,518	8,791	8,538	8,040	8,017	7,143	7,289	MW06-1
MW06-2	SRB SITE	IN SOIL	75	2,787	2,560	2,581	1,876	1,371	1,988	1,925	2,015	2,274	2,237	2,326	2,419	MW06-2
MW06-3	SRB SITE	IN SOIL	50	DRY	1,791	DRY	1,632	1,652	1,600	1,526	1,541	1,621	DRY	1,605	1,605	MW06-3
MW06-4S	JOHNSTON MEADOWS		300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-4S
MW06-4D	JOHNSTON MEADOWS		300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-4D
MW06-5	RENFREW COUNTY HEALTH UNIT		500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-5
MW06-6	KI, 600 m		600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-6
MW06-8	SRB SITE	IN SOIL	55	1,274	1,084	1,171	1,112	1,123	1,084	1,018	1,047	1,130	1,156	1,111	1,079	MW06-8
MW06-9	SRB SITE	IN SOIL	25	3,810	3,538	3,224	3,493	3,354	3,210	3,144	3,184	3,448	3,244	3,252	3,511	MW06-9
MW06-10	SRB SITE	SURFACE OF BEDROCK	0	46,062	44,223	62,932	17,576	14,342	16,818	13,975	28,409	58,320	37,793	11,730	12,390	MW06-10
MW07-11	SRB SITE	SURFACE OF BEDROCK	75	1,922	1,925	1,886	1,835	2,010	1,451	1,383	1,657	1,725	1,814	1,884	1,800	MW07-11
MW07-12	SRB SITE	SURFACE OF BEDROCK	55	361	365	405	475	463	517	497	461	462	493	537	415	MW07-12
MW07-13	SRB SITE	SURFACE OF BEDROCK	50	19,755	19,800	DRY	18,088	17,434	No Sample	17,791	16,674	18,460	19,265	16,464	15,751	MW07-13
MW07-14	SRB SITE	SURFACE OF BEDROCK	40	2,675	2,584	No Sample	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW07-14
MW07-15	SRB SITE	SURFACE OF BEDROCK	25	1,268	1,424	1,427	1,761	1,978	1,866	1,821	1,776	1,620	1,619	1,554	1,586	MW07-15
MW07-16	SRB SITE	SURFACE OF BEDROCK	15	2,863	3,759	4,039	3,030	3,183	3,125	3,050	2,648	2,590	2,983	2,836	2,765	MW07-16
MW07-17	SRB SITE	DEEPER BEDROCK	15	1,359	1,339	1,256	1,144	963	733	866	843	988	1,051	1,066	1,133	MW07-17
MW07-18	SRB SITE	SURFACE OF BEDROCK	10	12,076	10,907	12,320	10,551	7,660	8,079	9,144	9,062	10,859	9,857	9,452	8,221	MW07-18
MW07-19	SRB SITE	SURFACE OF BEDROCK	20	6,377	6,140	5,628	4,289	4,711	3,438	3,784	4,541	5,336	4,080	3,722	3,062	MW07-19
MW07-20	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	90	1,095	1,032	1,060	1,047	991	1,060	961	1,009	991	975	985	991	MW07-20
MW07-21	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	110	1,885	1,645	1,783	1,480	1,381	1,372	1,440	1,618	1,778	1,821	1,732	1,599	MW07-21
MW07-22	SRB SITE	SURFACE OF BEDROCK	70	1,085	1,087	860	1,095	1,138	1,134	1,124	1,200	1,272	1,327	1,257	1,212	MW07-22
MW07-23	SRB SITE	SURFACE OF BEDROCK	90	2,814	2,745	2,451	2,774	2,645	2,723	2,735	2,553	2,689	2,745	2,727	2,585	MW07-23
MW07-24	HARRINGTON PROPERTY	SURFACE OF BEDROCK	115	2,183	2,297	2,319	2,473	2,435	2,436	2,408	2,647	2,487	2,523	2,319	2,432	MW07-24
MW07-25	HARRINGTON PROPERTY	SURFACE OF BEDROCK	105	1,020	1,071	1,523	919	741	840	983	1,166	1,049	635	1,270	827	MW07-25
MW07-26	SRB SITE	SURFACE OF BEDROCK	50	2,932	2,935	2,772	1,371	2,167	2,938	2,849	2,846	2,868	2,797	2,596	2,561	MW07-26
MW07-27	CITY PROPERTY	SURFACE OF BEDROCK	55	DRY	5,502	4,805	5,731	5,786	6,107	6,051	6,015	6,093	5,830	5,784	5,825	MW07-27
MW07-28	CITY PROPERTY	DEEPER BEDROCK	55	2,417	2,328	1,782	2,616	2,455	2,639	2,672	2,041	1,776	2,355	2,025	2,342	MW07-28
MW07-29	SRB SITE	DEEPER BEDROCK	10	4,840	5,404	5,931	5,929	5,541	3,859	3,691	6,566	6,572	7,998	6,002	5,432	MW07-29
MW07-30	SRB SITE	DEEPER BEDROCK	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW07-30
MW07-31	SRB SITE	DEEPER BEDROCK	70	1,261	1,500	1,129	1,020	224	734	1,067	1,139	1,304	1,313	1,176	914	MW07-31
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115	350	478	389	342	<108	<107	<119	109	184	300	312	331	MW07-32
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105	550	649	561	668	509	703	536	615	434	602	409	565	MW07-33
MW07-34	SRB SITE	SHALLOW BEDROCK	10	4,894	4,353	3,970	4,125	4,364	5,007	4,577	4,778	4,350	5,084	5,090	4,790	MW07-34
MW07-35	CITY PROPERTY	SHALLOW BEDROCK	55	4,696	4,395	3,997	4,239	4,801	4,964	4,938	4,722	4,399	4,789	4,472	4,658	MW07-35
MW07-36	CITY PROPERTY	SHALLOW BEDROCK	80	5,067	5,219	4,501	4,552	3,052	2,871	3,436	3,774	3,955	4,317	4,252	4,040	MW07-36
MW07-37	SRB SITE	SHALLOW BEDROCK	60	1,483	1,401	1,352	1,303	1,131	1,121	1,065	1,090	1,146	1,413	1,404	1,364	MW07-37
CN-1S	CN PROPERTY		125			683				755				DRY		CN-1S
CN-1D	CN PROPERTY		130			DRY				739				DRY		CN-1D
CN-2	CN PROPERTY		150			655				336				953		CN-2
CN-3S	CN PROPERTY		165			DRY				495				296		CN-3S
CN-3D	CN PROPERTY		160			DRY				494				729		CN-3D
RW-1	413 BOUNDARY ROAD		465			No Sample				N/A				N/A		RW-1
RW-2	185 MUD LAKE ROAD		1,100			124				115				103		RW-2
RW-3	183 MUD LAKE ROAD		1,100			127				110				114		RW-3
RW-4	711 BRUHAM AVENUE		2,200			No Sample				N/A				N/A		RW-4
RW-5	171 SAWMILL ROAD		2,300			11				10				15		RW-5
RW-6	40987 HWY 41		1,400			28				27				25.0		RW-6
RW-7	40925 HWY 41		1,600			5				6				6		RW-7
RW-8	204 BOUNDARY ROAD		700			224				209				226		RW-8
RW-9	206 BOUNDARY ROAD		650			190				10				66		RW-9
RW-10	208 BOUNDARY ROAD		625			4				4				4		RW-10
RW-11	200 MUD LAKE ROAD		794			N/A				N/A				N/A		RW-11
RW-12	202 MUD LAKE ROAD		753			14				40				10		RW-12
B-1	SUPERIOR PROPANE OFFICE		160			966				1,101				1,029		B-1
B-2	SUPERIOR PROPANE TRUCK WASH		250			1,830				1,457				1,562		B-2
B-3	INTERNATIONAL LUMBER OFFICE		385			4				4				4		B-3

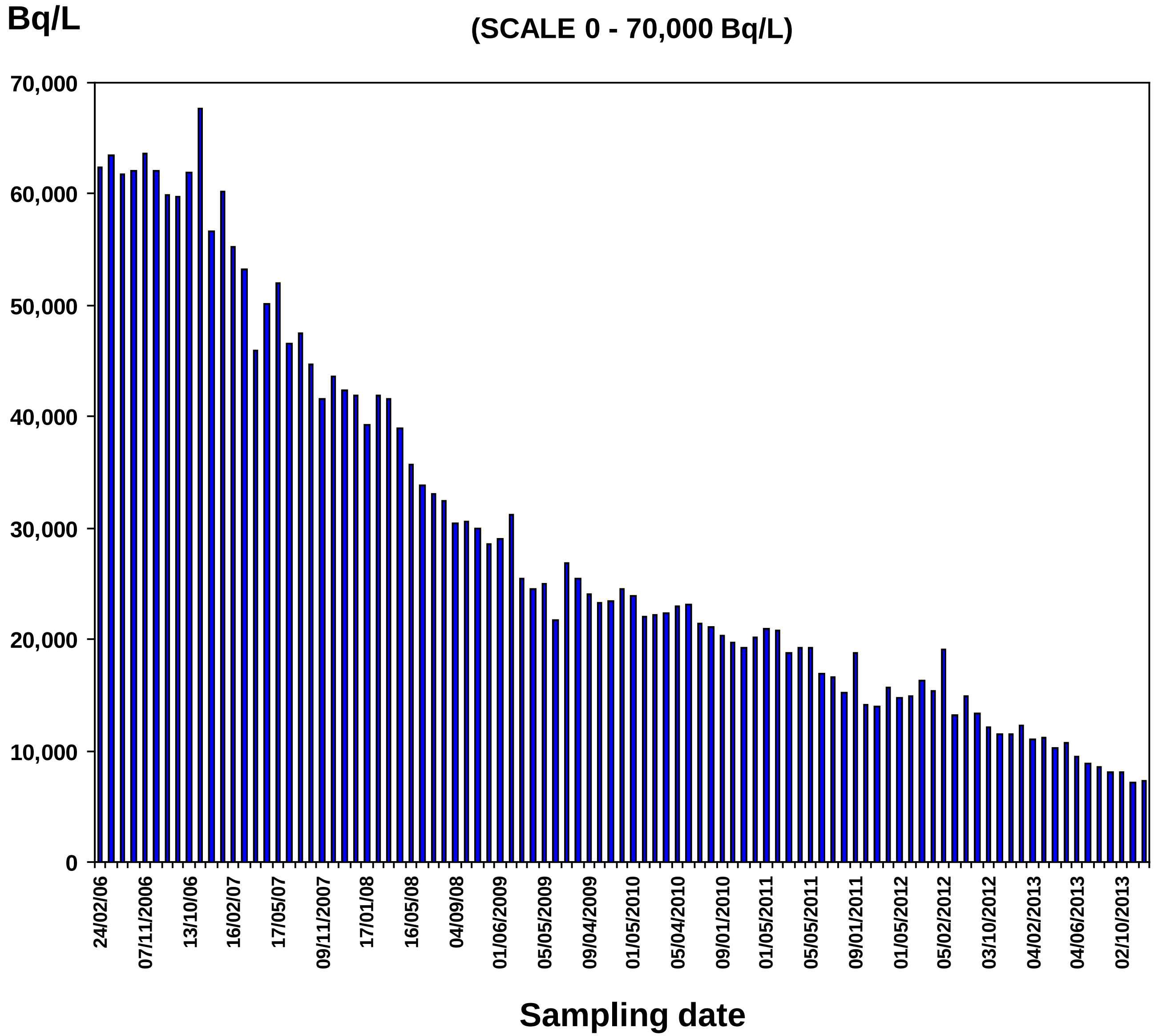
WELL I.D.	DESCRIPTION		DISTANCE FROM STACKS (m)	5/1/11	2/2/11	3/3/11	5/4/11	5/5/11	2/6/11	6/7/11	3/8/11	1/9/11	5/10/11	3/11/11	1/12/11	5/1/12	1/2/12	1/3/12	4/4/12	2/5/12	5/6/12	5/7/12	2/8/12	5/9/12	3/10/12	1/11/12	4/12/12	WELL I.D.
MW06-1	SRB SITE	IN SOIL	50	20,899	20,747	18,752	19,295	19,314	16,954	16,645	15,287	18,787	14,156	13,960	15,676	14,744	14,891	16,254	15,378	19,101	13,145	14,837	DRY	13,422	12,137	11,521	11,408	MW06-1
MW06-2	SRB SITE	IN SOIL	75	3,303	3,154	3,056	2,993	3,157	2,918	3,189	3,001	3,226	2,625	2,690	3,308	2,875	2,702	2,818	2,918	2,706	2,994	2,808	2,973	2,879	2,798	2,646	2,625	MW06-2
MW06-3	SRB SITE	IN SOIL	50	2,142	DRY	2,240	1,848	1,916	1,716	1,924	1,889	DRY	DRY	DRY	2,138	DRY	DRY	DRY	1,733	1,718	1,772	1,728	1,843	DRY	DRY	1,785	DRY	MW06-3
MW06-4S	JOHNSTON MEADOWS		300						N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-4S
MW06-4D	JOHNSTON MEADOWS		300						N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-4D
MW06-5	RENFREW COUNTY HEALTH UNIT		500						N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-5
MW06-6	KI, 600 m		600						N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW06-6
MW06-8	SRB SITE	IN SOIL	55	1,175	1,136	1,075	1,117	1,327	1,148	1,279	1,148	1,236	1,066	1,052	1,262	1,201	1,023	1,138	1,176	1,060	2,233	1,519	1,753	1,248	1,294	1,122	1,191	MW06-8
MW06-9	SRB SITE	IN SOIL	25	3,904	3,279	2,792	3,239	3,662	3,022	3,409	3,420	3,438	3,060	3,459	4,114	3,677	DRY	2,973	3,564	3,376	3,875	3,515	DRY	3,088	2,972	3,450	3,479	MW06-9
MW06-10	SRB SITE	SURFACE OF BEDROCK	0	18,566	53,965	68,486	16,488	13,417	17,336	21,683	40,538	10,062	54,757	39,142	46,388	65,918	42,582	68,154	14,572	15,462	20,043	18,090	75,825	43,355	32,441	40,501	36,959	MW06-10
MW07-11	SRB SITE	SURFACE OF BEDROCK	75	1,839	1,780	1,892	1,955	1,788	1,434	1,580	1,881	1,952	1,713	1,655	2,288	1,942	1,921	2,005	2,038	1,596	1,896	1,953	2,045	1,944	1,962	1,876	1,841	MW07-11
MW07-12	SRB SITE	SURFACE OF BEDROCK	55	453	355	360	458	468	391	440	414	511	375	426	443	418	381	355	540	455	526	394	320	273	353	425	360	MW07-12
MW07-13	SRB SITE	SURFACE OF BEDROCK	50	21,305	22,537	22,109	19,343	18,582	18,106	22,247	22,133	14,812	17,750	19,233	22,794	23,488	No Sample	19,156	20,218	13,550	22,503	22,358	21,140	21,257	20,743	20,300	20,037	MW07-13
MW07-14	SRB SITE	SURFACE OF BEDROCK	40	2,867	2,826	2,996	2,859	3,018	2,799	2,985	2,780	2,946	2,561	2,684	3,238	2,854	2,897	2,896	3,036	2,831	2,736	2,694	2,745	2,866	2,769	2,700	2,657	MW07-14
MW07-15	SRB SITE	SURFACE OF BEDROCK	25	1,560	1,322	1,102	1,427	2,032	1,749	1,535	1,225	1,442	993	927	1,701	1,058	1,371	1,267	1,818	1,731	1,444	1,221	1,217	1,406	1,574	1,380	1,208	MW07-15
MW07-16	SRB SITE	SURFACE OF BEDROCK	15	3,856	3,451	3,511	3,784	3,992	3,618	3,874	3,482	3,903	2,908	3,296	3,551	3,291	3,132	3,055	3,561	3,290	3,668	2,982	3,014	2,997	2,892	3,253	3,086	MW07-16
MW07-17	SRB SITE	DEEPER BEDROCK	15	1,856	1,670	1,612	1,508	1,250	1,064	964	1,118	1,453	1,339	1,240	1,529	1,510	1,373	1,288	1,295	1,011	1,200	1,146	1,213	1,250	1,286	1,311	1,299	MW07-17
MW07-18	SRB SITE	SURFACE OF BEDROCK	10	13,881	14,246	16,201	12,926	11,444	11,445	13,746	12,266	12,383	12,834	10,574	13,865	13,222	13,974	14,077	11,533	10,936	12,453	14,012	12,565	12,419	11,674	10,941	11,694	MW07-18
MW07-19	SRB SITE	SURFACE OF BEDROCK	20	6,651	7,124	6,613	4,580	4,132	3,788	4,836	5,725	6,782	7,018	5,328	4,378	6,104	5,671	3,172	2,957	4,223	5,737	6,274	5,981	4,704	4,022	2,452	5,731	MW07-19
MW07-20	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	90	1,323	1,137	1,230	1,192	1,244	1,069	1,194	1,212	1,321	1,126	1,283	1,117	1,267	1,182	1,091	1,188	1,093	2,017	1,436	1,221	1,262	1,196	1,042	1,179	MW07-20
MW07-21	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	110	697	757	868	835	886	808	1,001	1,030	954	1,096	1,019	1,119	1,239	1,234	1,171	1,384	1,307	2,969	2,434	1,631	1,705	1,749	1,558	1,930	MW07-21
MW07-22	SRB SITE	SURFACE OF BEDROCK	70	840	887	921	886	970	927	947	923	1,039	950	900	1,093	904	1,025	929	1,064	975	1,237	1,172	1,191	1,184	1,116	959	1,109	MW07-22
MW07-23	SRB SITE	SURFACE OF BEDROCK	90	2,642	2,610	2,751	2,751	2,886	2,637	2,744	2,655	2,799	2,507	2,572	2,753	2,754	2,829	2,704	2,830	2,621	2,833	2,729	2,808	2,799	2,679	2,549	2,701	MW07-23
MW07-24	HARRINGTON PROPERTY	SURFACE OF BEDROCK	115	1,925	1,989	1,980	2,035	2,046	1,938	2,305	1,965	2,124	1,937	1,944	2,241	2,116	2,458	2,275	2,388	2,244	2,377	2,352	2,523	2,421	2,380	2,081	1,820	MW07-24
MW07-25	HARRINGTON PROPERTY	SURFACE OF BEDROCK	105	1,524	627	1,244	1,336	959	988	941	1,127	814	656	473	755	985	792	901	800	740	1,229	1,438	864	974	407	402	587	MW07-25
MW07-26	SRB SITE	SURFACE OF BEDROCK	50	3,309	3,346	3,231	3,191	2,777	3,241	3,556	3,349	3,489	2,678	2,766	2,681	2,810	3,004	2,440	3,324	3,268	3,303	3,172	3,225	3,179	DRY	2,379	3,024	MW07-26
MW07-27	CITY PROPERTY	SURFACE OF BEDROCK	55	6,909	6,284	6,478	6,542	6,864	6,472	7,067	6,627	6,710	6,032	5,176	6,666	6,434	5,651	5,922	6,786	6,585	6,555	6,536	6,552	6,734	5,354	5,892	6,094	MW07-27
MW07-28	CITY PROPERTY	DEEPER BEDROCK	55	3,382	2,032	2,399	3,366	2,340	2,286	2,048	3,051	2,495	2,075	1,123	1,862	2,718	2,346	1,557	3,088	2,786	2,441	2,356	2,418	1,820	2,236	2,334	2,132	MW07-28
MW07-29	SRB SITE	DEEPER BEDROCK	10	7,463	6,321	5,930	5,923	6,562	6,279	6,000	6,507	7,883	7,257	7,895	8,264	5,982	5,568	4,929	3,682	4,677	5,054	5,145	4,778	4,961	5,682	6,136	5,372	MW07-29
MW07-30	SRB SITE	DEEPER BEDROCK	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW07-30
MW07-31	SRB SITE	DEEPER BEDROCK	70	1,635	1,214	1,181	300	382	603	1,361	1,436	1,606	1,491	1,235	893	1,299	1,039	871	299	943	1,262	1,191	1,377	1,385	1,399	1,243	1,397	MW07-31
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115	342	266	311	272	568	176	203	281	315	289	361	353	346	417	337	413	136	3,092	710	794	465	157	324	405	MW07-32
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105	881	877	862	1,053	1,010	977	837	764	782	636	621	848	No sample	856	716	915	776	775	697	608	546	468	305	No Sample	MW07-33
MW07-34	SRB SITE	SHALLOW BEDROCK	10	5,762	4,854	4,497	5,807	7,484	5,932	6,229	6,081	6,131	5,010	5,886	4,942	5,105	4,174	4,566	5,476	4,862	5,633	5,073	3,614	4,445	5,086	5,837	5,652	MW07-34
MW07-35	CITY PROPERTY	SHALLOW BEDROCK	55	5,900	5,773	5,660	5,741	6,669	5,805	5,960	5,659	5,775	5,029	5,187	5,622	4,845	4,878	5,083	5,345	5,067	5,564	5,037	5,119	5,568	5,468	4,618	4,546	MW07-35
MW07-36	CITY PROPERTY	SHALLOW BEDROCK	80	6,189	6,234	5,656	4,547	4,206	3,691	5,086	4,928	5,196	4,726	4,925	5,131	4,997	4,619	5,242	3,779	3,595	4,757	4,616	DRY	DRY	4,266	5,234	5,188	MW07-36
MW07-37	SRB SITE	SHALLOW BEDROCK	60	1,263	1,330	1,373	1,125	2,037	1,051	1,197	1,146	1,294	1,393	1,307	1,484	1,291	1,478	1,490	1,322	1,278	1,218	1,327	1,469	1,628	1,539	1,399	1,523	MW07-37
CN-1S	CN PROPERTY		125			1,124				928				DRY	734			857				758				DRY		CN-1S
CN-1D	CN PROPERTY		130			1,446				1,142				912				DRY	768			DRY				808		CN-1D
CN-2	CN PROPERTY		150			895				1,033				1,364				1,265				1,012				611		CN-2
CN-3S	CN PROPERTY		165			585				298				DRY	DRY			DRY	352			351				575		CN-3S
CN-3D	CN PROPERTY		160			931				523				537				725				462				DRY		CN-3D
RW-1	413 BOUNDARY ROAD		465			350				323				242				No Sample				190				No Sample		RW-1
RW-2	185 MUD LAKE ROAD		1,100			176				163				145				118				145				89		RW-2
RW-3	183 MUD LAKE ROAD		1,100			176				150				138				120				128				102		RW-3
RW-4	711 BRUHAM AVENUE		2,200			4.0				3.8				3.5				No Sample				No Sample				No Sample		RW-4
RW-5	171 SAWMILL ROAD		2,300			17				14				14				13				13				11		RW-5
RW-6	40987 HWY 41		1,400			46				42				36				27				32				24		RW-6
RW-7	40925 HWY 41		1,600			10				9				6				6				7				4		RW-7
RW-8	204 BOUNDARY ROAD		700			265				251				230				219				208				199		RW-8
RW-9	206 BOUNDARY ROAD		650			19				128				255				239				246				144		RW-9
RW-10	208 BOUNDARY ROAD		625			4.0				3.8				3.5				3.0				3.0				4.0		RW-10
RW-11	200 MUD LAKE ROAD		794			N/A				N/A				N/A				N/A				N/A				N/A		RW-11
RW-12	202 MUD LAKE ROAD		753			9				6				4				12				21				43		RW-12
B-1	SUPERIOR PROPANE OFFICE		160			834				1,351				1,004				735				698				1,174		B-1
B-2	SUPERIOR PROPANE TRUCK WASH		250			1,959				2,135				1,944				1,897				1,774				1,760		B-2
B-3	INTERNATIONAL LUMBER OFFICE		385			4.0				6.0				3.5				3.0				4.0				4.0		B-3

WELL I.D.	DESCRIPTION		DISTANCE FROM STACKS (m)	22/11/07	19/12/07	17/01/08	15/02/08	18/03/08	10/4/08	16/5/08	11/6/08	10/7/08	6/8/08	4/9/08	2/10/08	4/11/08	3/12/08	6/1/09	4/2/09	3/3/09	2/4/09	5/5/09	4/6/09	3/7/09	6/8/09	4/9/09	2/10/09	4/11/09	2/12/09	5/1/10	3/2/10	4/3/10	1/4/10	4/5/10	2/6/10	6/7/10	5/8/10	1/9/10	5/10/10	2/11/10	1/12/10	WELL I.D.
MW06-1	SRB SITE	IN SOIL	50	42,299	41,947	39,251	41,889	41,623	38,970	35,667	33,864	33,137	32,396	30,416	30,590	29,985	28,526	29,045	31,171	25,477	24,502	24,969	21,702	26,783	25,452	24,126	23,320	23,481	24,457	23,877	21,987	22,179	22,401	22,895	23,063	21,461	21,118	20,264	19,693	19,169	20,134	MW06-1
MW06-2	SRB SITE	IN SOIL	75	3,695	3,641	3,748	3,923	3,627	3,953	3,880	4,004	3,869	3,839	3,710	3,579	3,339	3,301	3,668	3,757	3,856	3,860	3,499	3,078	3,623	3,569	3,432	3,303	3,346	3,500	3,527	3,460	3,485	3,377	3,357	3,407	3,316	3,228	3,095	2,992	3,044	3,185	MW06-2
MW06-3	SRB SITE	IN SOIL	50	DRY	DRY	3,136	3,342	3,072	3,128	3,010	3,026	3,018	3,079	DRY	DRY	DRY	2,832	2,948	DRY	2,960	2,948	2,593	2,199	2,629	2,663	DRY	DRY	2,647	2,575	2,561	2,630	2,582	2,185	2,032	2,246	2,292	DRY	DRY	2,240	2,223	2,377	MW06-3
MW06-4S	JOHNSTON MEADOWS		300																																							MW06-4S
MW06-4D	JOHNSTON MEADOWS		300																																							MW06-4D
MW06-5	RENFREW COUNTY HEALTH UNIT		500																																							MW06-5
MW06-6	KI, 600 m		600																																							MW06-6
MW06-8	SRB SITE	IN SOIL	55	225	DRY	488	641	486	577	760	815	871	1,069	1,094	1,070	998	1,160	1,185	1,035	1,009	1,032	1,062	935	1,203	1,157	1,187	1,032	1,193	1,240	1,251	1,096	1,093	1,165	1,284	1,106	1,262	1,183	1,180	1,175	1,124	1,212	MW06-8
MW06-9	SRB SITE	IN SOIL	25	1,402	DRY	2,013	3,076	2,000	2,877	2,782	3,039	3,024	3,229	3,294	2,544	2,567	3,078	3,818	3,100	3,099	3,728	3,313	2,938	3,071	3,413	3,353	2,599	3,723	3,887	3,791	3,148	2,823	3,558	3,297	3,275	3,171	3,211	2,532	3,305	3,285	3,527	MW06-9
MW06-10	SRB SITE	SURFACE OF BEDROCK	0	30,326	25,712	12,995	12,448	17,064	6,243	24,126	36,040	27,930	54,979	36,311	35,275	42,897	28,330	60,624	41,029	67,282	38,639	32,241	42,319	30,839	61,191	53,990	79,479	75,762	55,334	59,317	74,942	46,473	22,666	30,160	35,986	57,159	23,579	45.181	49,327	48,842	39,501	MW06-10
MW07-11	SRB SITE	SURFACE OF BEDROCK	75	485	727	1,248	1,717	1,615	1,759	1,294	1,511	1,224	1,116	1,044	1,152	1,204	1,399	1,151	1,380	1,424	1,589	1,513	1,468	1,586	1,681	1,594	1,780	1,749	2,092	1,717	1,661	1,635	1,667	1,673	1,738	1,706	1,666	1,769	1,732	1,708	1,827	MW07-11
MW07-12	SRB SITE	SURFACE OF BEDROCK	55	177	DRY	212	490	252	292	255	283	375	345	341	307	323	352	364	304	345	322	287	239	283	347	337	316	344	363	357	335	338	361	367	365	342	389	389	405	406	430	MW07-12
MW07-13	SRB SITE	SURFACE OF BEDROCK	50	7,859	9,968	7,344	7,654	11,007	6,092	8,507	11,120	12,382	13,699	14,997	15,718	19,248	15,963	17,504	17,421	16,932	16,625	16,312	14,135	17,899	18,615	20,310	19,339	19,321	21,746	19,727	21,655	19,973	19,085	19,135	19,717	18,831	19,823	22,163	19,017	22,403	20,809	MW07-13
MW07-14	SRB SITE	SURFACE OF BEDROCK	40	3,692	2,048	3,063	3,216	2,845	2,878	2,679	2,917	2,503	2,868	2,716	2,887	2,624	2,775	2,774	2,743	2,845	3,370	2,886	2,661	3,136	3,019	2,772	2,852	3,003	3,089	2,968	3,005	3,032	2,967	3,093	2,981	2,858	2,918	2,865	2,828	2,821	2,943	MW07-14
MW07-15	SRB SITE	SURFACE OF BEDROCK	25	170	112	598	642	374	769	442	406	442	361	377	436	457	785	580	594	642	783	852	771	687	680	719	759	808	1,001	722	848	967	1,135	1,273	1,121	933	828	1,055	1,197	1,133	1,258	MW07-15
MW07-16	SRB SITE	SURFACE OF BEDROCK	15	6,776	6,358	7,007	6,543	6,545	6,388	5,720	4,785	4,864	4,385	5,520	5,143	5,295	5,859	5,255	4,097	5,083	4,126	4,996	4,271	4,674	4,219	3,642	4,750	4,620	4,293	4,621	4,642	5,539	4,272	4,536	4,445	3,906	3,680	3,651	4,031	3,780	3,757	MW07-16
MW07-17	SRB SITE	DEEPER BEDROCK	15	117	663	1,208	1,425	1,265	1,516	1,088	688	828	1,310	1,414	1,604	1,798	1,904	1,863	1,864	1,839	1,766	1,425	1,010	1,308	1,866	1,867	2,046	2,063	2,191	2,204	2,056	1,900	1,772	1,524	1,398	1,628	1,727	1,669	1,798	1,722	1,785	MW07-17
MW07-18	SRB SITE	SURFACE OF BEDROCK	10	52,516	52,009	52,690	49,994	46,343	46,735	41,374	39,674	39,345	37,892	33,369	29,530	20,752	28,723	28,066	31,743	29,267	28,347	25,318	23,198	26,736	25,664	24,601	23,189	23,184	21,323	20,873	20,855	20,714	17,722	16,383	18,194	17,387	16,078	16,029	15,715	14,658	14,935	MW07-18
MW07-19	SRB SITE	SURFACE OF BEDROCK	20	2,230	DRY	5,153	2,806	2,455	2,708	4,839	4,687	3,730	3,749	3,781	3,503	3,967	4,103	6,874	6,407	6,432	9,723	5,529	3,750	5,824	7,462	7,945	6,101	6,442	7,421	6,885	7,604	7,313	6,042	6,327	6,882	6,101	6,757	6,065	5,343	5,311	6,225	MW07-19
MW07-20	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	90	674	667	570	1,151	762	912	998	1,013	1,108	1,024	1,120	1,098	952	1,182	1,298	1,206	1,332	1,182	1,262	1,089	1,256	1,259	1,351	1,268	1,346	1,738	1,356	1,340	1,396	1,279	1,276	1,217	1,229	1,235	1,237	1,249	1,187	1,233	MW07-20
MW07-21	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	110	116	111	100	359	156	273	245	251	310	280	326	334	341	359	437	442	542	482	445	390	481	495	576	578	591	635	579	604	643	576	642	654	713	788	809	863	716	579	MW07-21
MW07-22	SRB SITE	SURFACE OF BEDROCK	70	421	184	225	578	493	422	227	187	243	246	298	291	318	807	334	396	377	440	373	338	454	465	514	644	593	727	619	691	654	640	711	645	731	779	785	757	753	796	MW07-22
MW07-23	SRB SITE	SURFACE OF BEDROCK	90	668	610	992	1,318	1,387	1,632	1,309	1,257	1,315	1,397	1,408	1,479	1,467	1,691	1,741	1,890	1,901	2,135	2,083	2,008	2,230	2,222	2,296	2,339	2,354	2,650	2,448	2,543	2,620	2,528	2,555	2,544	2,524	2,508	2,530	2,390	2,383	2,450	MW07-23
MW07-24	HARRINGTON PROPERTY	SURFACE OF BEDROCK	115	118	111	150	374	273	243	476	448	473	454	564	570	717	803	911	952	979	1,170	1,154	1,048	1,232	1,229	1,285	1,384	1,504	1,371	1,450	1,582	1,715	1,593	1,696	1,745	1,663	1,744	1,860	1,809	1,754	1,709	MW07-24
MW07-25	HARRINGTON PROPERTY	SURFACE OF BEDROCK	105	176	111	376	334	118	111	159	172	178	103	138	93	210	144	100	178	249	312	296	371	490	529	428	338	403	436	586	925	794	714	839	673	588	470	652	386	243	1,306	MW07-25
MW07-26	SRB SITE	SURFACE OF BEDROCK	50	2,609	2,533	2,839	3,429	2,917	2,919	3,376	3,624	3,833	3,803	3,800	3,471	3,193	2,947	3,479	3,811	3,835	4,077	3,941	3,481	3,934	3,915	3,763	3,332	3,514	3,600	3,854	3,662	3,123	3,518	3,635	3,605	3,524	3,569	3,113	2,670	2,877	3,255	MW07-26
MW07-27	CITY PROPERTY	SURFACE OF BEDROCK	55	6,652	DRY	7,393	7,216	7,366	7,400	6,832	7,002	7,210	6,999	7,001	7,156	7,635	6,965	6,799	7,550	7,078	7,322	7,229	6,085	6,765	6,729	6,717	7,011	6,662	6,763	6,937	6,723	6,251	6,370	6,931	6,638	6,480	6,531	6,616	6,487	6,409	6,700	MW07-27
MW07-28	CITY PROPERTY	DEEPER BEDROCK	55	6,569	4,957	3,493	2,102	2,722	1,360	2,244	2,066	2,388	2,401	1,979	1,601	928	1,630	2,340	1,306	1,680	3,216	2,470	2,561	3,644	3,578	3,223	2,297	2,875	4,026	2,358	2,116	2,501	2,440	3,282	2,399	2,908	2,786	2,278	2,599	2,966	3,496	MW07-28
MW07-29	SRB SITE	DEEPER BEDROCK	10	35,421	30,468	28,862	19,999	15,779	8,595	10,661	10,827	16,263	14,152	14,098	12,923	12,633	12,305	8,822	6,404	8,500	8,566	9,277	9,808	11,390	11,977	11,888	10,495	10,647	8,685	8,538	7,370	6,366	6,500	8,060	7,758	9,882	8,533	9,313	9,931	6,637	7,979	MW07-29
MW07-30	SRB SITE	DEEPER BEDROCK	50	10,457	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MW07-30
MW07-31	SRB SITE	DEEPER BEDROCK	70	1,394	1,436	929	1,622	940	1,115	653	1,457	2,170	2,199	2,260	1,986	1,233	1,337	1,111	1,113	1,069	1,779	531	1,340	1,806	2,005	1,817	1,908	1,720	1,618	1,135	981	903	475	1,107	1,031	1,351	1,521	1,611	1,655	1,824	1,653	MW07-31
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115	117	111	100	264	112	247	367	284	217	149	197	173	251	235	311	293	254	270	348	221	205	239	285	308	368	540	342	314	344	337	173	175	251	302	267	299	340	385	MW07-32
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105	428	458	553	791	512	532	754	690	586	546	551	466	476	439	524	473	472	708	732	809	653	585	599	607	631	817	805	859	892	939	919	788	677	691	641	522	574	No Sample	MW07-33
MW07-34	SRB SITE	SHALLOW BEDROCK	10	23,711	15,094	23,258	19,424	14,885	11,687	14,393	14,963	13,197	16,687	15,837	12,617	11,759	14,581	9,749	9,315	8,640	11,723	10,862	9,740	12,132	9,313	11,053	11,006	9,375	8,922	8,063	7,852	6,189	8,155	8,471	8,686	8,718	8,650	7,436	9,221	7,183	6,709	MW07-34
MW07-35	CITY PROPERTY	SHALLOW BEDROCK	55	13,641	12,948	10,857	11,431	10,021	9,060	8,797	8,443	8,738	8,438	7,957	7,581	6,695	7,006	6,835	8,523	7,525	7,798	7,400	6,363	7,457	7,093	7,150	6,259	6,142	6,214	6,248	6,194	5,730	6,279	6,399	6,545	6,020	5,698	5,631	5,441	5,477	5,634	MW07-35
MW07-36	CITY PROPERTY	SHALLOW BEDROCK	80	7,504	DRY	7,649	6,777	6,545	7,043	6,775	6,472	5,915	6,112	5,532	5,427	5,574	6,268	7,826	6,175	6,930	6,395	5,425	4,708	5,958	6,154	6,269	5,636	7,566	7,651	7,150	7,032	6,066	4,884	4,392	5,539	6,214	5,887	5,877	6,142	6,541	6,642	MW07-36
MW07-37	SRB SITE	SHALLOW BEDROCK	60	2,490	2,466	2,515	2,402	2,162	2,087	1,776	1,577	1,490	1,358	1,472	1,588	1,340	1,421	1,457	1,598	1,423	1,549	1,264	996	1,163	1,245	1,228	1,336	1,351	1,341	1,285	1,330	1,374	1,245	1,235	1,100	1,264	1,310	1,299	1,273	1,228	1,379	MW07-37
CN-1S	CN PROPERTY		125	2,458				1,980				2,234				2,385	2,286			1,465				1,611				1,510				1,434				1,248				1,157		CN-1S
CN-1D	CN PROPERTY		130	DRY	DRY	1,885		2,673				2,458				DRY	2,396			2,232				1,764				1,750				1,642				DRY				DRY	1,491	CN-1D
CN-2	CN PROPERTY		150	2,184				1,455				1,257				2,958	2,687			857				928				1,158				555				1,180				1,020		CN-2
CN-3S	CN PROPERTY		165	DRY	DRY	1,407		956				1,049				DRY	1,406			636				412				DRY	817			527				DRY				DRY	644	CN-3S
CN-3D	CN PROPERTY		160	1,354				1,494				1,100				1,550	1,431			1,119				958				1,154				1,022				755				1,049		CN-3D
RW-1	413 BOUNDARY ROAD		465	1,399				1,236				972				866				701				632				507				423				424				368		RW-1
RW-2	185 MUD LAKE ROAD		1,100	287				324				293				252				268				230				200				199				189				153		RW-2
RW-3	183 MUD LAKE ROAD		1,100	323				299				318				250				265				225				176				190				198				167		RW-3
RW-4	711 BRUHAM AVENUE		2,200	4.2				3.0				3.1				5				3				3.4				4.0				6.0				6.2				6.0		RW-4
RW-5	171 SAWMILL ROAD		2,300	17				20				19				25				17				17				15				14				12				14		RW-5
RW-6	40987 HWY 41		1,400	82				92				75				83				81				75				74				74				63				46		RW-6
RW-7	40925 HWY 41		1,600	25				31				23				16				12				14				9				10				11				8		RW-7
RW-8	204 BOUNDARY ROAD		700	236				262				307				242				303				283				246				238				261				245		RW-8
RW-9	206 BOUNDARY ROAD		650	583	442			454				539				422				139				132				20				104				58				62		RW-9
RW-10	208 BOUNDARY ROAD		625	4.3				3.0				2.6				3				7				3.5				4.0				6.0				6.3				6.0		RW-10
RW-11	200 MUD LAKE ROAD		794																														6.0			6.3				N/A		RW-11
RW-12	202 MUD LAKE ROAD		753																														30			17				6		RW-12
B-1	SUPERIOR PROPANE OFFICE		160	1,075	1,006	1,306	820	1,034	1,727	2,001	1,876	1,404	1,309	1,132	1,122	1,037	1,293	1,558	1,211	1,411	2,063	1,864	1,460	1,542	1,362	1,405	1,168	1,319	1,346	1,186	1,138	890	1,377	1,215	951	973	900			1,048		B-1
B-2	SUPERIOR PROPANE TRUCK WASH		250	3,087	4,073			4,435				3,939				3,875				3,376				2,661				2,660				2,303				2,051				2,022		B-2
B-3	INTERNATIONAL LUMBER OFFICE		385	4.4				6.0				5.0				7				2				3.5				4.0				6.0				6.6				6.0		B-3

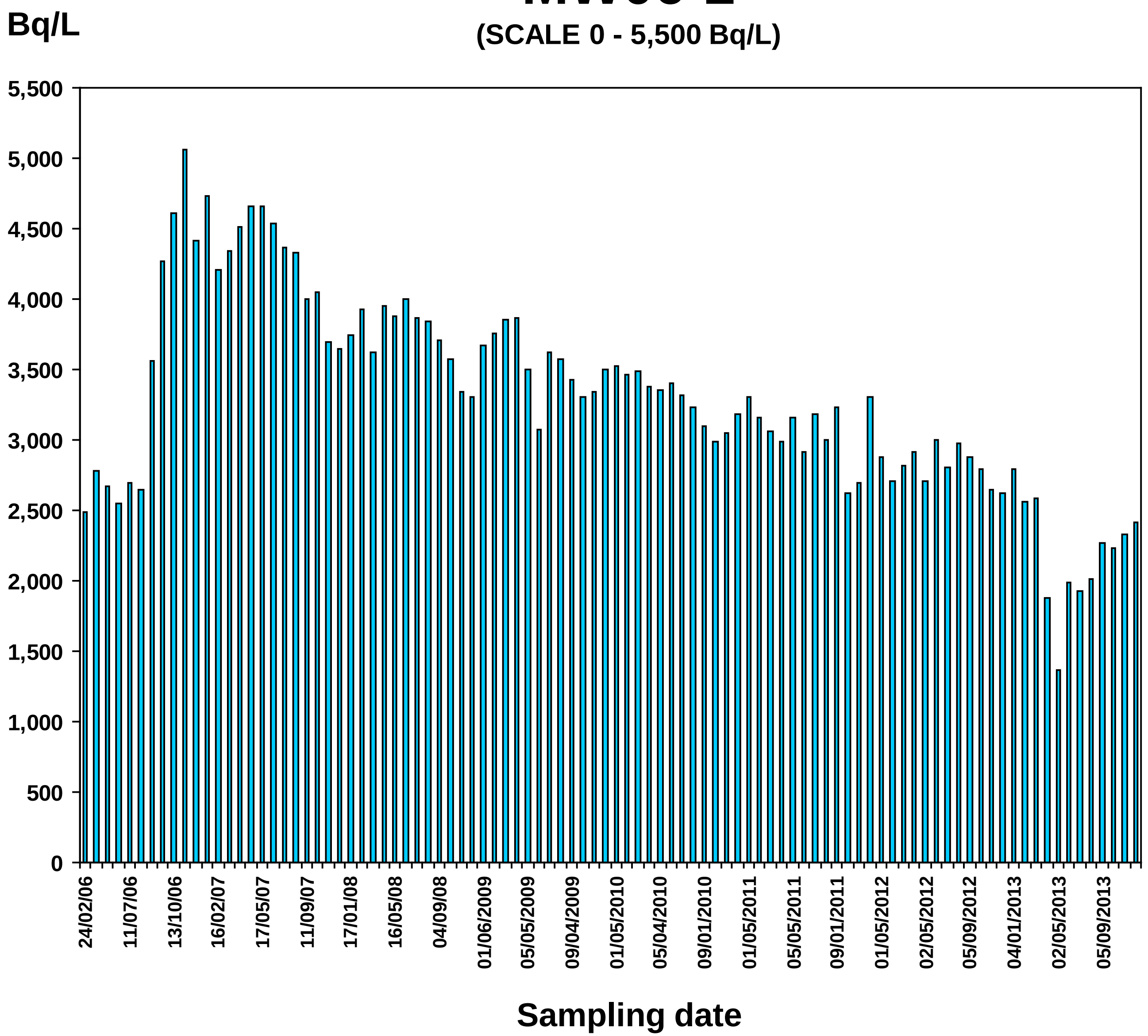
WELL I.D.	DESCRIPTION		DISTANCE FROM STACKS (m)	22/11/05	29/12/05	05/01/06	12/01/06	19/01/06	26/01/06	02/02/06	15/02/06	24/02/06	10/04/06	15/5/06	12/06/06	11/07/06	15/08/06	15/09/06
MW06-1	SRB SITE	IN SOIL	50									62,434	63,518	61,774	62,025	63,631	62,155	59,902
MW06-2	SRB SITE	IN SOIL	75									2,484	2,786	2,665	2,550	2,698	2,652	3,560
MW06-3	SRB SITE	IN SOIL	50									2,722	3,068	3,133	3,045	2,982	3,205	2,990
MW06-4S	JOHNSTON MEADOWS		300									211						
MW06-4D	JOHNSTON MEADOWS		300									3.0						
MW06-5	RENFREW COUNTY HEALTH UNIT		500									14						
MW06-6	KI, 600 m		600									376						
MW06-8	SRB SITE	IN SOIL	55															
MW06-9	SRB SITE	IN SOIL	25															
MW06-10	SRB SITE	SURFACE OF BEDROCK	0															
MW07-11	SRB SITE	SURFACE OF BEDROCK	75															
MW07-12	SRB SITE	SURFACE OF BEDROCK	55															
MW07-13	SRB SITE	SURFACE OF BEDROCK	50															
MW07-14	SRB SITE	SURFACE OF BEDROCK	40															
MW07-15	SRB SITE	SURFACE OF BEDROCK	25															
MW07-16	SRB SITE	SURFACE OF BEDROCK	15															
MW07-17	SRB SITE	DEEPER BEDROCK	15															
MW07-18	SRB SITE	SURFACE OF BEDROCK	10															
MW07-19	SRB SITE	SURFACE OF BEDROCK	20															
MW07-20	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	90															
MW07-21	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	110															
MW07-22	SRB SITE	SURFACE OF BEDROCK	70															
MW07-23	SRB SITE	SURFACE OF BEDROCK	90															
MW07-24	HARRINGTON PROPERTY	SURFACE OF BEDROCK	115															
MW07-25	HARRINGTON PROPERTY	SURFACE OF BEDROCK	105															
MW07-26	SRB SITE	SURFACE OF BEDROCK	50															
MW07-27	CITY PROPERTY	SURFACE OF BEDROCK	55															
MW07-28	CITY PROPERTY	DEEPER BEDROCK	55															
MW07-29	SRB SITE	DEEPER BEDROCK	10															
MW07-30	SRB SITE	DEEPER BEDROCK	50															
MW07-31	SRB SITE	DEEPER BEDROCK	70															
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115															
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105															
MW07-34	SRB SITE	SHALLOW BEDROCK	10															
MW07-35	CITY PROPERTY	SHALLOW BEDROCK	55															
MW07-36	CITY PROPERTY	SHALLOW BEDROCK	80															
MW07-37	SRB SITE	SHALLOW BEDROCK	60															
CN-1S	CN PROPERTY		125									3,928						
CN-1D	CN PROPERTY		130									3,838						
CN-2	CN PROPERTY		150									5,037						
CN-3S	CN PROPERTY		165									3,581						
CN-3D	CN PROPERTY		160									3,283						
RW-1	413 BOUNDARY ROAD		465	1,811	1,884	1,872	1,915	1,895	1,902	1,900	1,826	2,061						
RW-2	185 MUD LAKE ROAD		1,100		354	388			362									
RW-3	183 MUD LAKE ROAD		1,100	430	395	331	397	411	437	423		481						
RW-4	711 BRUHAM AVENUE		2,200				3.0	2.0	4.0	2.0	3.0	2.0						
RW-5	171 SAWMILL ROAD		2,300				13		18			15						
RW-6	40987 HWY 41		1,400									77						
RW-7	40925 HWY 41		1,600		123													
RW-8	204 BOUNDARY ROAD		700															
RW-9	206 BOUNDARY ROAD		650															
RW-10	208 BOUNDARY ROAD		625															
B-1	SUPERIOR PROPANE OFFICE		160															
B-2	SUPERIOR PROPANE TRUCK WASH		250															
B-3	INTERNATIONAL LUMBER OFFICE		385															

WELL I.D.	25/09/06	13/10/06	26/10/06	15/11/06	13/12/06	13/01/07	16/02/07	16/03/07	16/04/07	27/4/07	17/5/07	14/6/07	18/7/07	13/8/07	11/9/07	19/10/07	WELL I.D.
MW06-1	59,734	61,947		67,606	56,595	60,166	55,310	53,306	45,932	50,170	51,972	46,565	47,489	44,653	41,651	43,586	MW06-1
MW06-2	4,264	4,612		5,060	4,414	4,730	4,207	4,347	4,516	4,657	4,646	4,538	4,365	4,329	3,997	4,050	MW06-2
MW06-3	2,999	3,209		3,564	3,103	3,324	3,282	3,243	3,236	3,273	3,267	3,288	3,187	3,247	3,139	DRY	MW06-3
MW06-4S																	MW06-4S
MW06-4D																	MW06-4D
MW06-5																	MW06-5
MW06-6																	MW06-6
MW06-8	105	141		120	175	178	270	296	258	209	207	172	202	236	247	311	MW06-8
MW06-9	439	1,772		2,003	1,640	1,611	1,487	1,444	1,642	1,450	1,609	1,526	1,866	1,704	1,723	1,489	MW06-9
MW06-10	130,060	141,111		156,643	135,612	142,308	149,928	138,509	133,622	104,350	94,956	70,225	46,379	49,347	39,228	29,795	MW06-10
MW07-11										203	638	936	866	898	955	400	MW07-11
MW07-12										152	154	114	106	117	151	194	MW07-12
MW07-13										6,358	7,781	8,070	9,463	9,221	9,287	10,057	MW07-13
MW07-14										1,504	1,662	1,895	2,526	3,494	3,610	2,357	MW07-14
MW07-15										690	675	672	314	376	255	227	MW07-15
MW07-16										6,855	6,845	7,059	4,927	6,381	6,148	6,646	MW07-16
MW07-17										521	519	233	109	107	106	103	MW07-17
MW07-18										110,422	108,879	97,441	100,612	93,704	85,781	58,139	MW07-18
MW07-19										28,788	25,806	20,475	13,852	16,329	18,318	4,229	MW07-19
MW07-20																628	MW07-20
MW07-21																102	MW07-21
MW07-22																557	MW07-22
MW07-23																595	MW07-23
MW07-24																102	MW07-24
MW07-25																1,230	MW07-25
MW07-26																2,731	MW07-26
MW07-27																6,959	MW07-27
MW07-28																8,088	MW07-28
MW07-29																38,797	MW07-29
MW07-30																14,185	MW07-30
MW07-31																801	MW07-31
MW07-32																143	MW07-32
MW07-33																678	MW07-33
MW07-34																45,544	MW07-34
MW07-35																14,824	MW07-35
MW07-36																9,100	MW07-36
MW07-37																3,297	MW07-37
CN-1S				3,511					3,780				2,326				CN-1S
CN-1D				3,279				3,277	1,660				2,806				CN-1D
CN-2				2,123				1,363	523				2,801				CN-2
CN-3S				2,984				1,437	1,783				1,917				CN-3S
CN-3D				1,427				1,890	891				1,239				CN-3D
RW-1		1,626						1,506			1,366		1,370				RW-1
RW-2		313						336					311				RW-2
RW-3		366						186					358				RW-3
RW-4		4.0						3.8					3.0				RW-4
RW-5		14						14					18				RW-5
RW-6		67						69					70				RW-6
RW-7		90						67					38				RW-7
RW-8			260					254					294				RW-8
RW-9				455				268					269				RW-9
RW-10				7.0				3.9					2.0				RW-10
B-1			1,264					979			1,289	1,515	1,022	1,126	848	865	B-1
B-2			2,145					1,849					2,222				B-2
B-3				15				6.0					6.0				B-3

MONITORING RESULTS
MW06-1



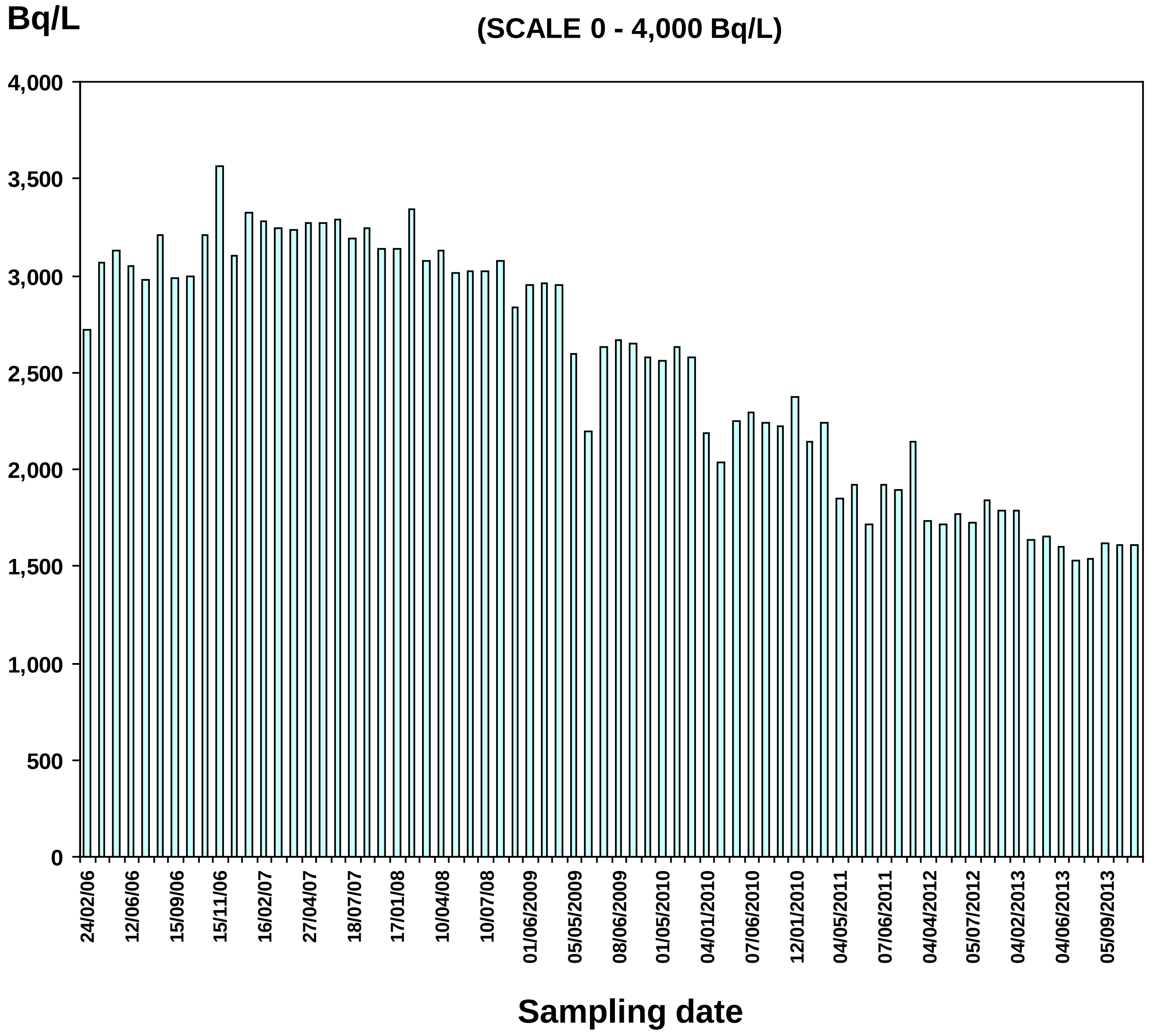
MONITORING RESULTS
MW06-2
(SCALE 0 - 5,500 Bq/L)



APPENDIX L

MONITORING RESULTS
MW06-3

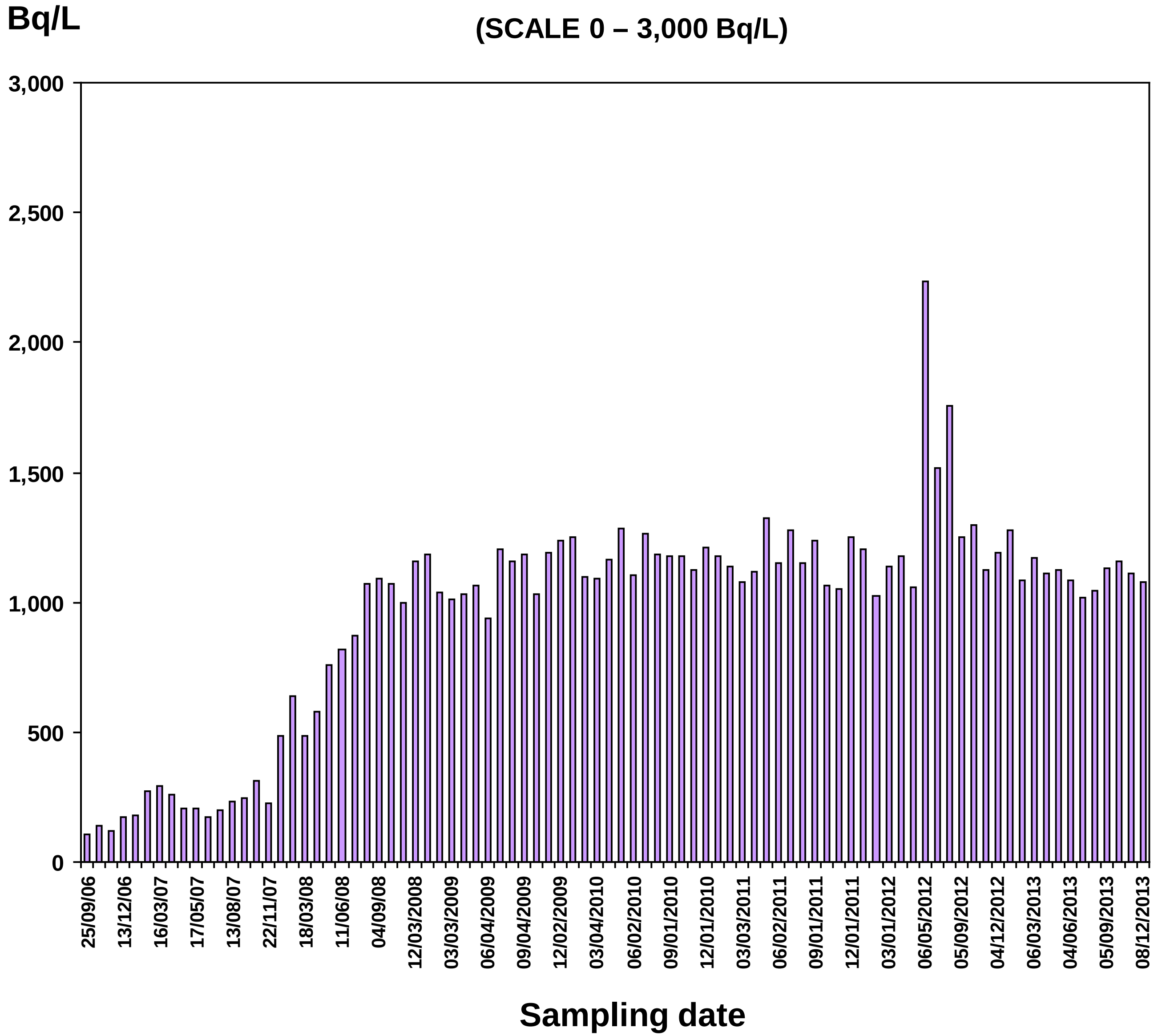
(SCALE 0 - 4,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW06-8

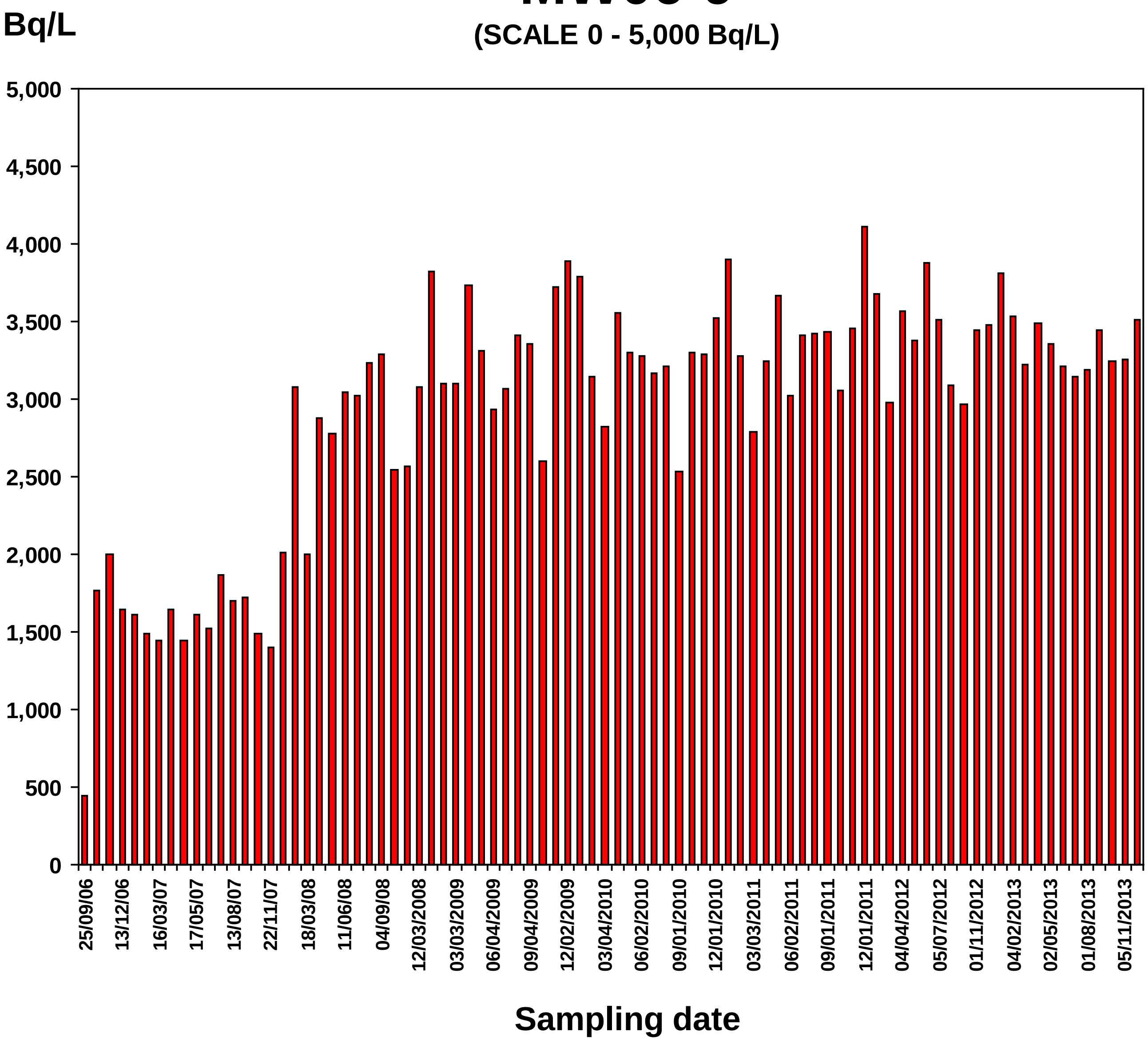
(SCALE 0 – 3,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW06-9

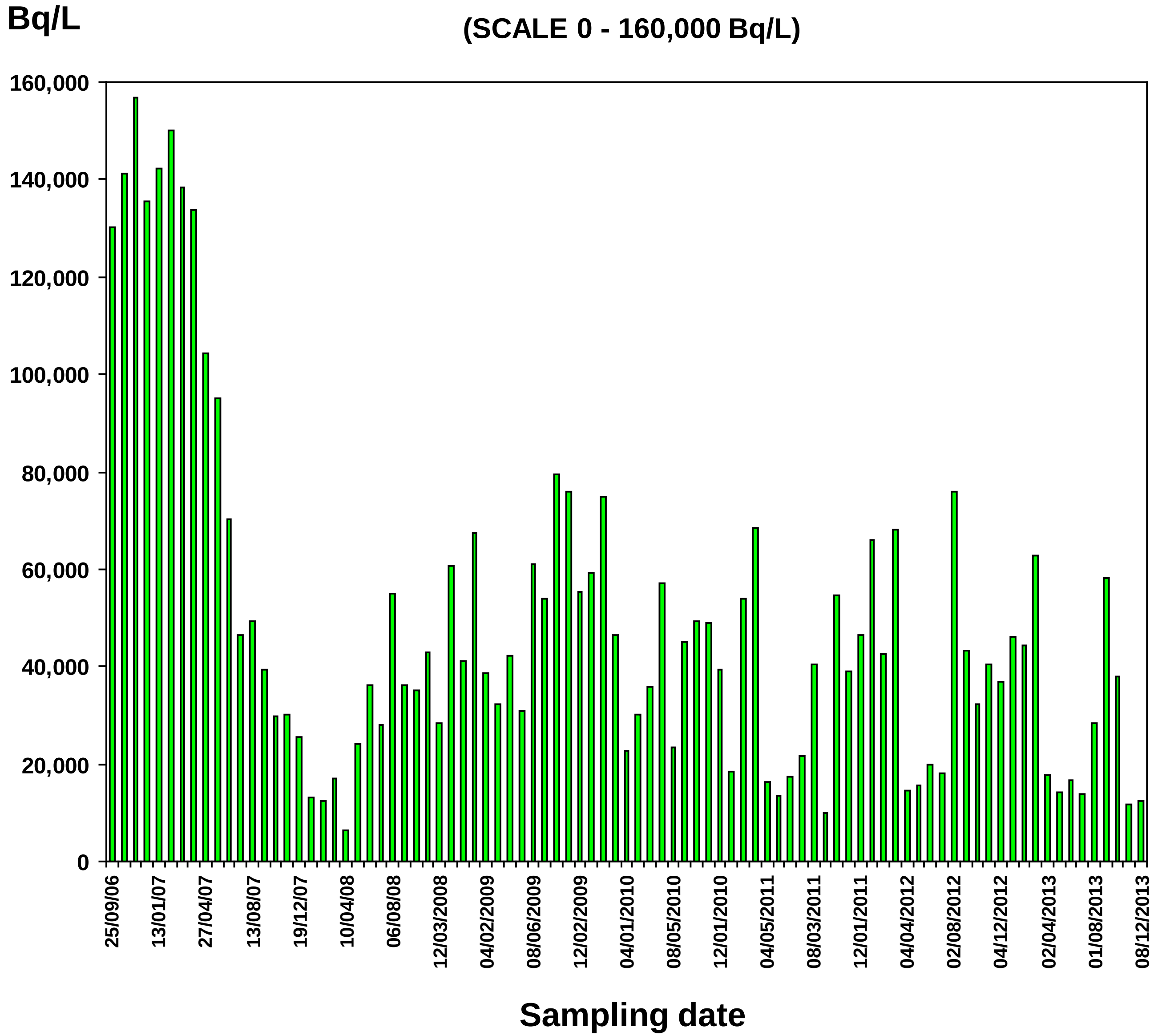
(SCALE 0 - 5,000 Bq/L)



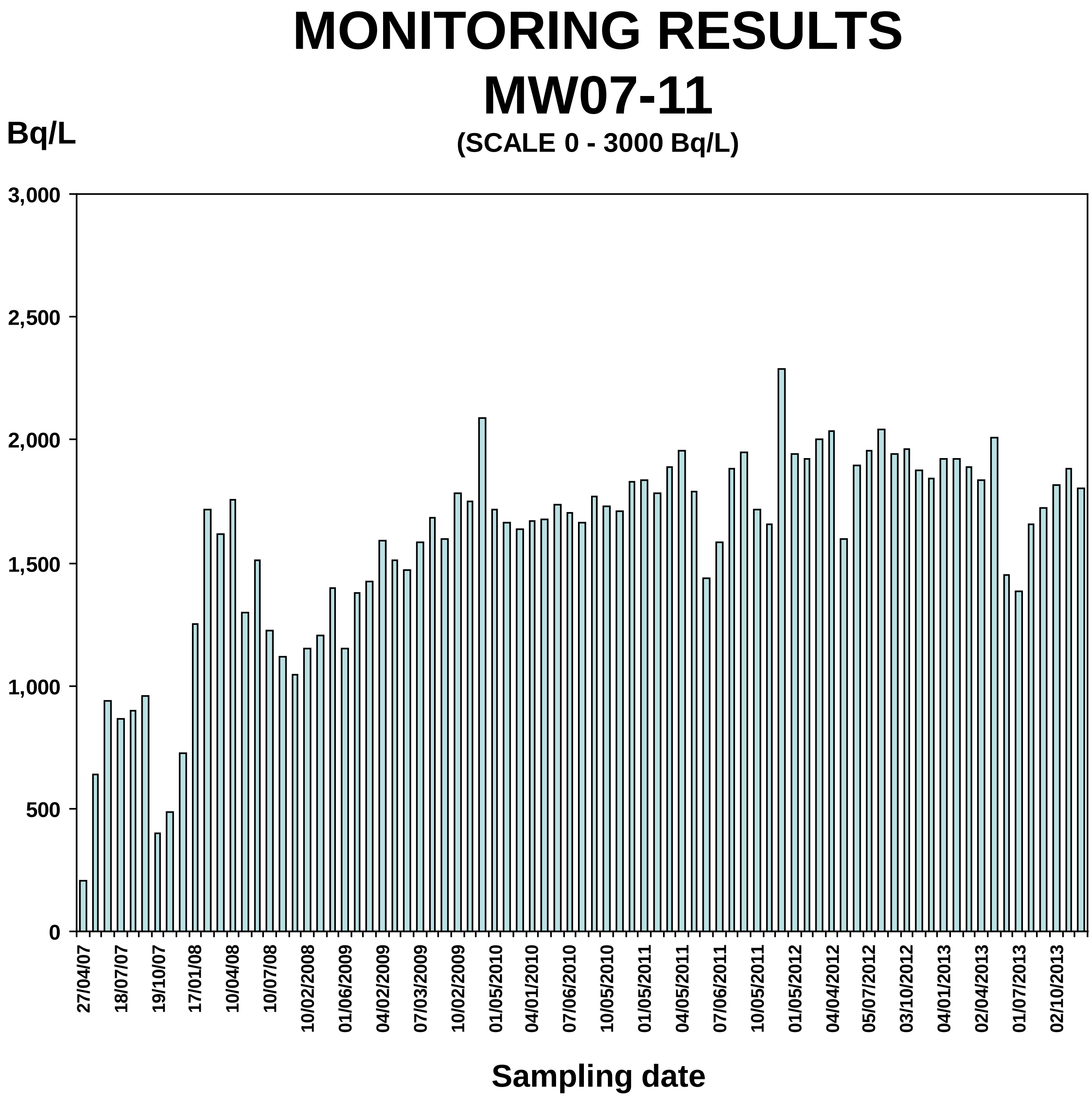
APPENDIX L

MONITORING RESULTS
MW06-10

(SCALE 0 - 160,000 Bq/L)



APPENDIX L

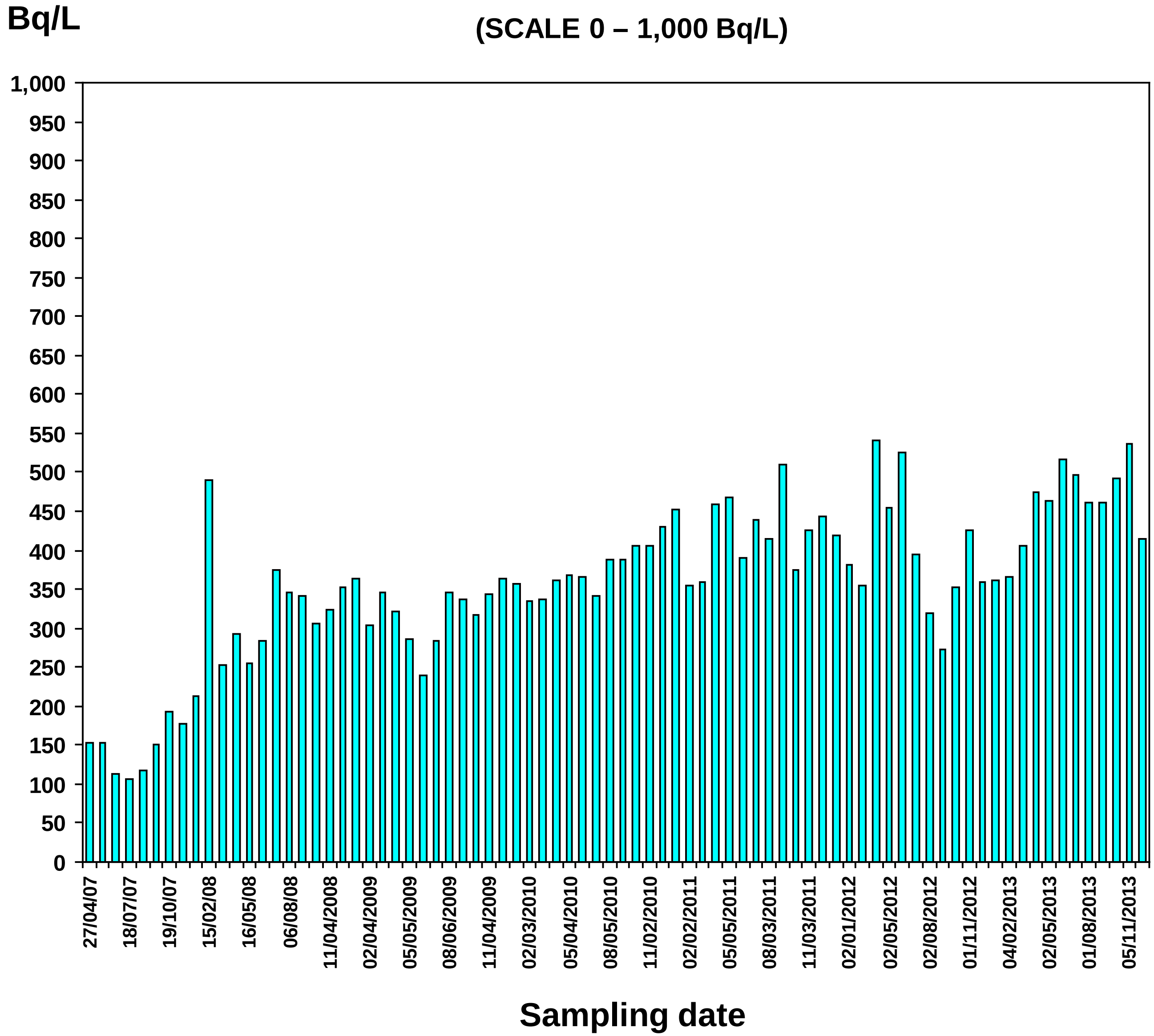


MONITORING RESULTS
MW07-11
(SCALE 0 - 3000 Bq/L)
Bq/L
3,000
2,500
2,000
1,500
1,000
500
0
27/04/07
18/07/07
19/10/07
17/01/08
10/04/08
10/07/08
10/02/2008
01/06/2009
04/02/2009
07/03/2009
10/02/2009
01/05/2010
04/01/2010
07/06/2010
10/05/2010
01/05/2011
04/05/2011
07/06/2011
10/05/2011
01/05/2012
04/04/2012
05/07/2012
03/10/2012
04/01/2013
02/04/2013
01/07/2013
02/10/2013
Sampling date

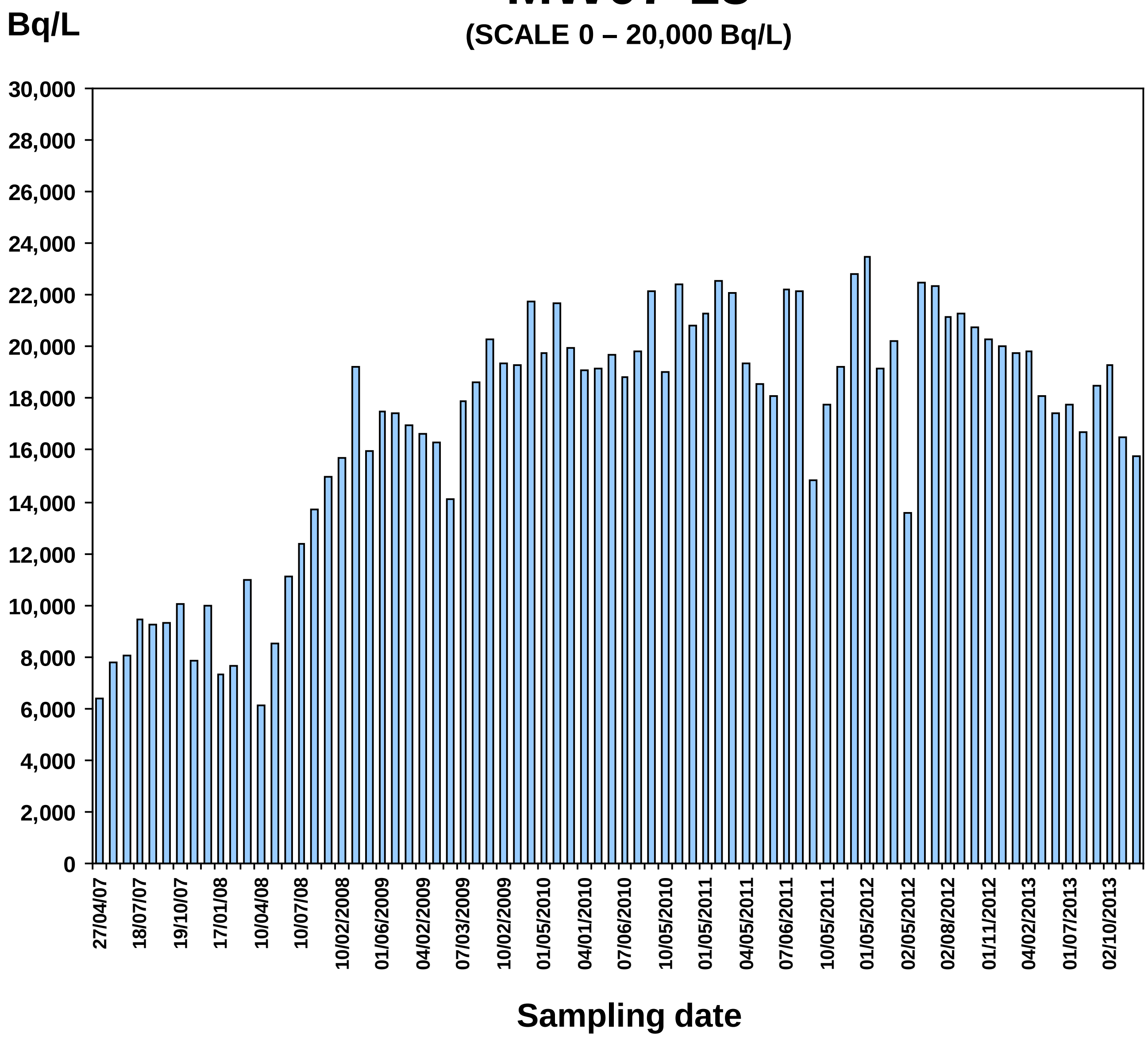
APPENDIX L

MONITORING RESULTS
MW07-12

(SCALE 0 – 1,000 Bq/L)

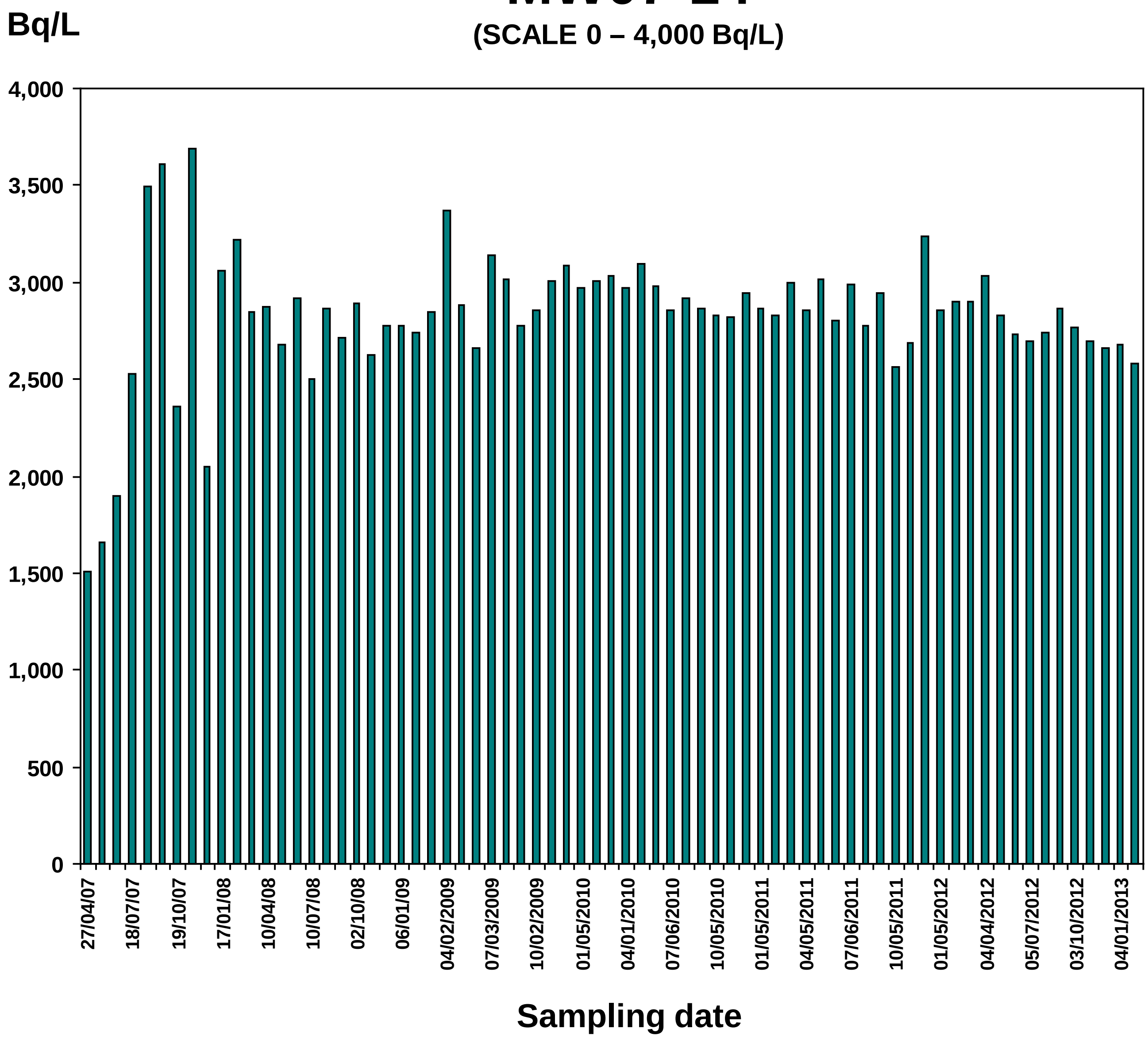


MONITORING RESULTS
MW07-13
(SCALE 0 – 20,000 Bq/L)



MONITORING RESULTS
MW07-14

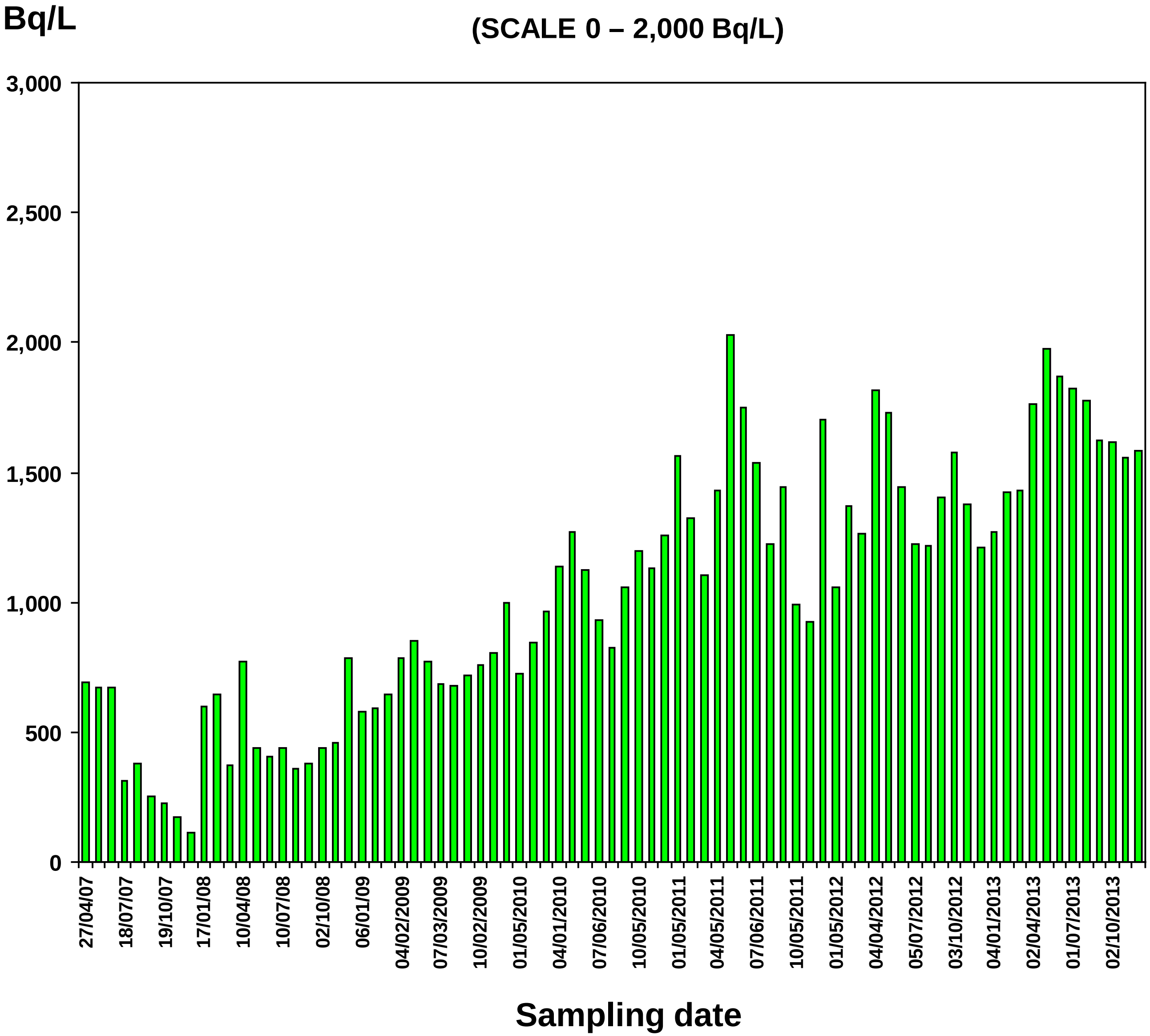
(SCALE 0 – 4,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW07-15

(SCALE 0 – 2,000 Bq/L)

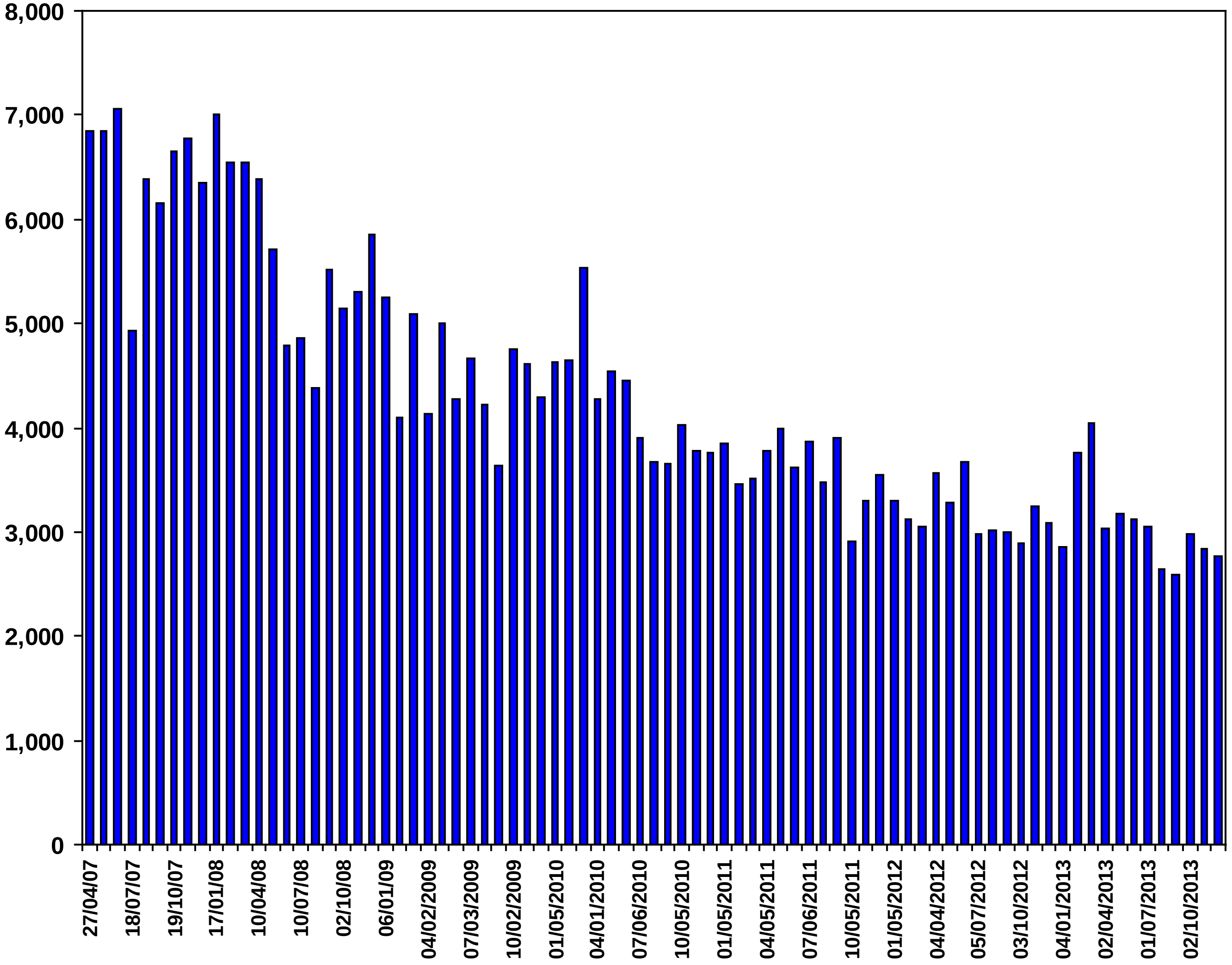


APPENDIX L

MONITORING RESULTS
MW07-16

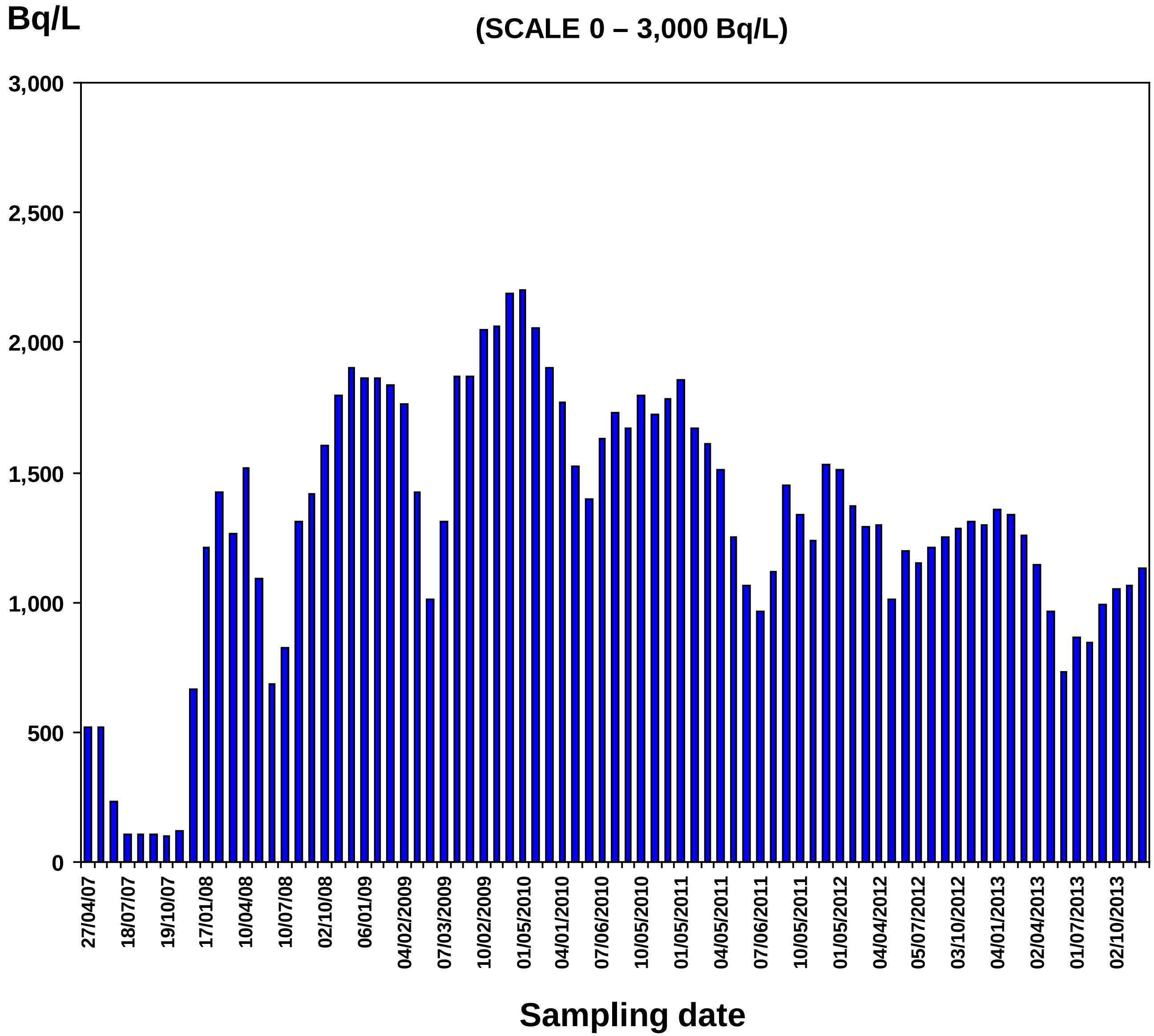
Bq/L

(SCALE 0 - 8000 Bq/L)



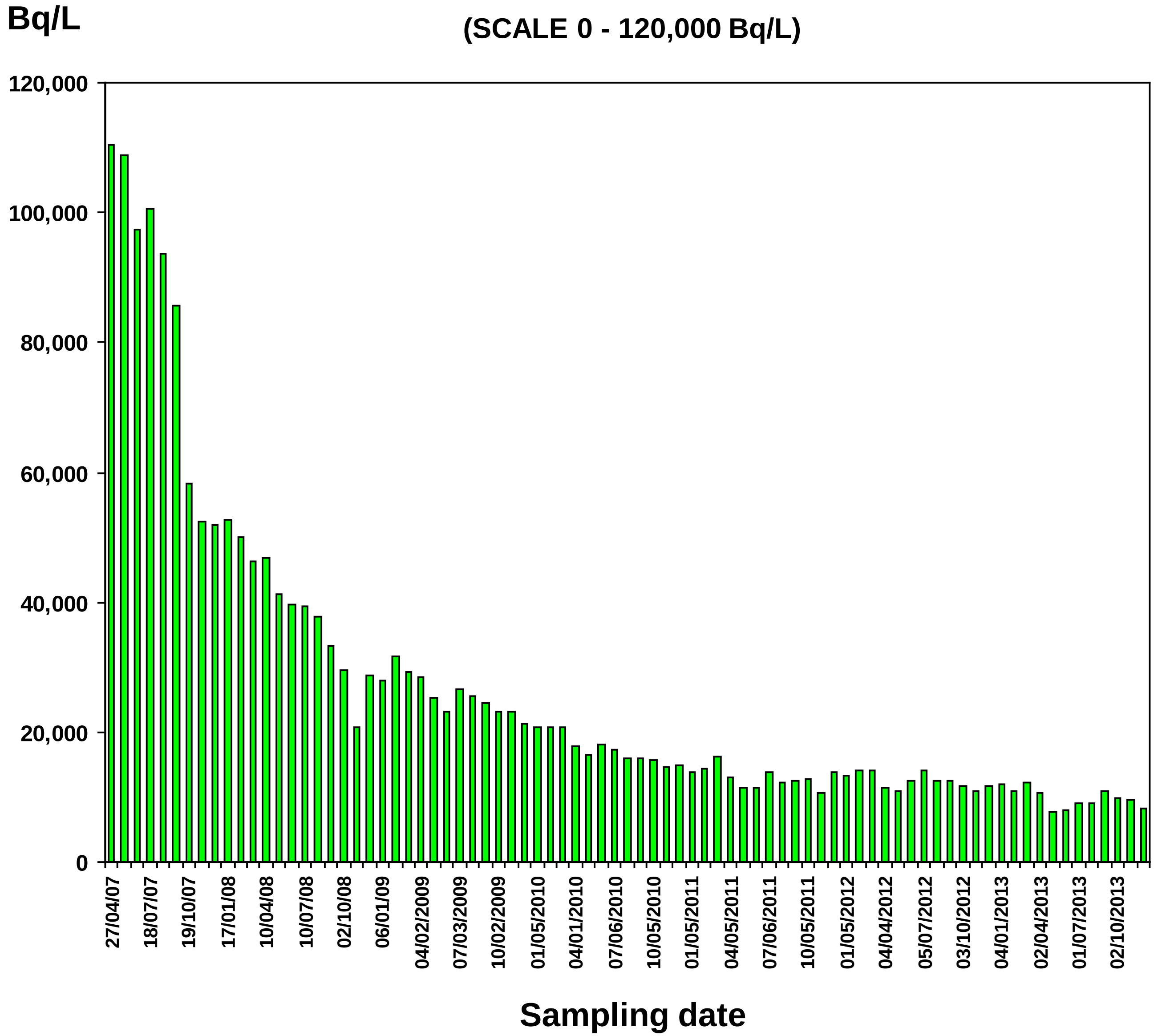
Sampling date

MONITORING RESULTS
MW07-17



APPENDIX L

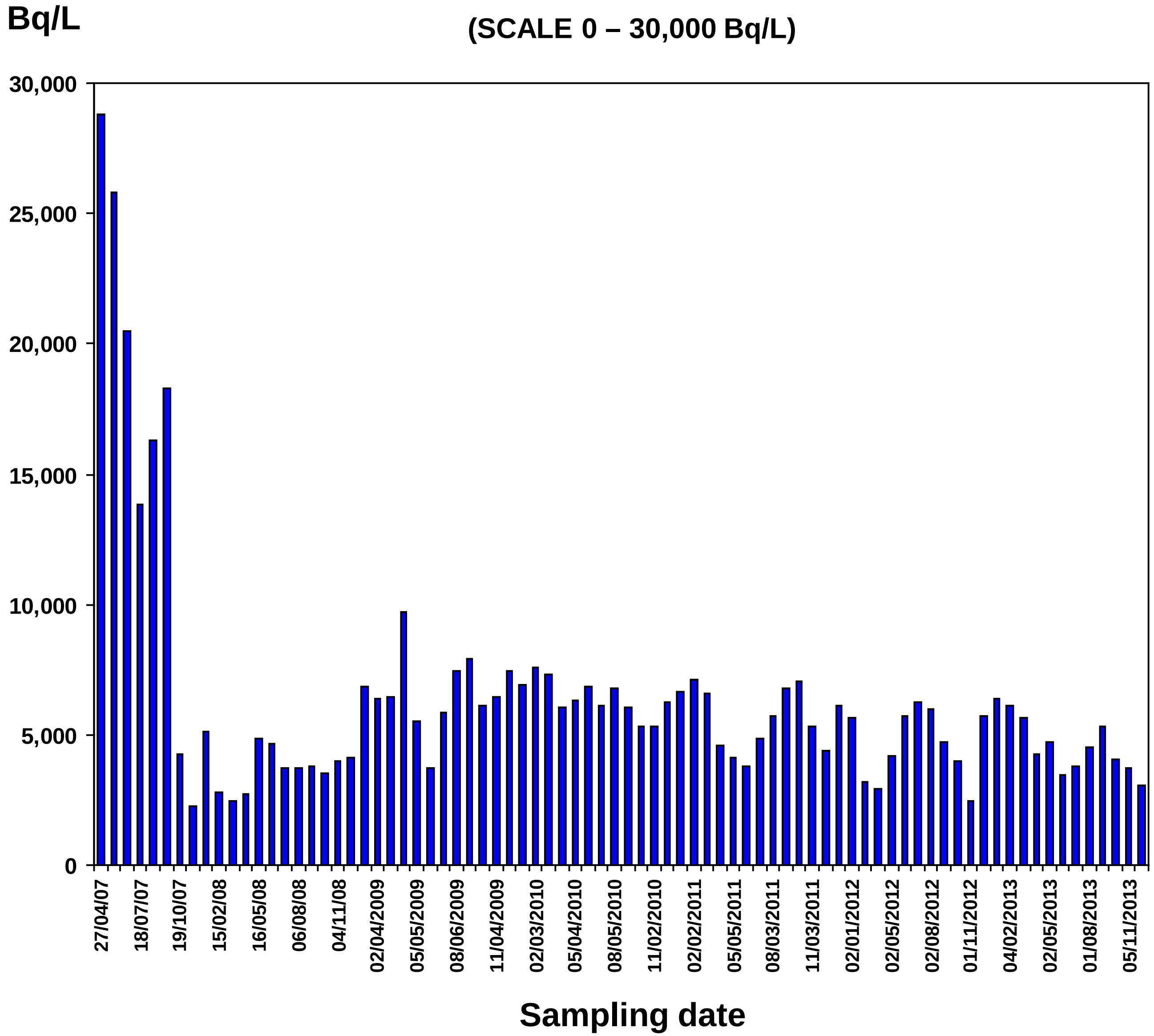
MONITORING RESULTS
MW07-18
(SCALE 0 - 120,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW07-19

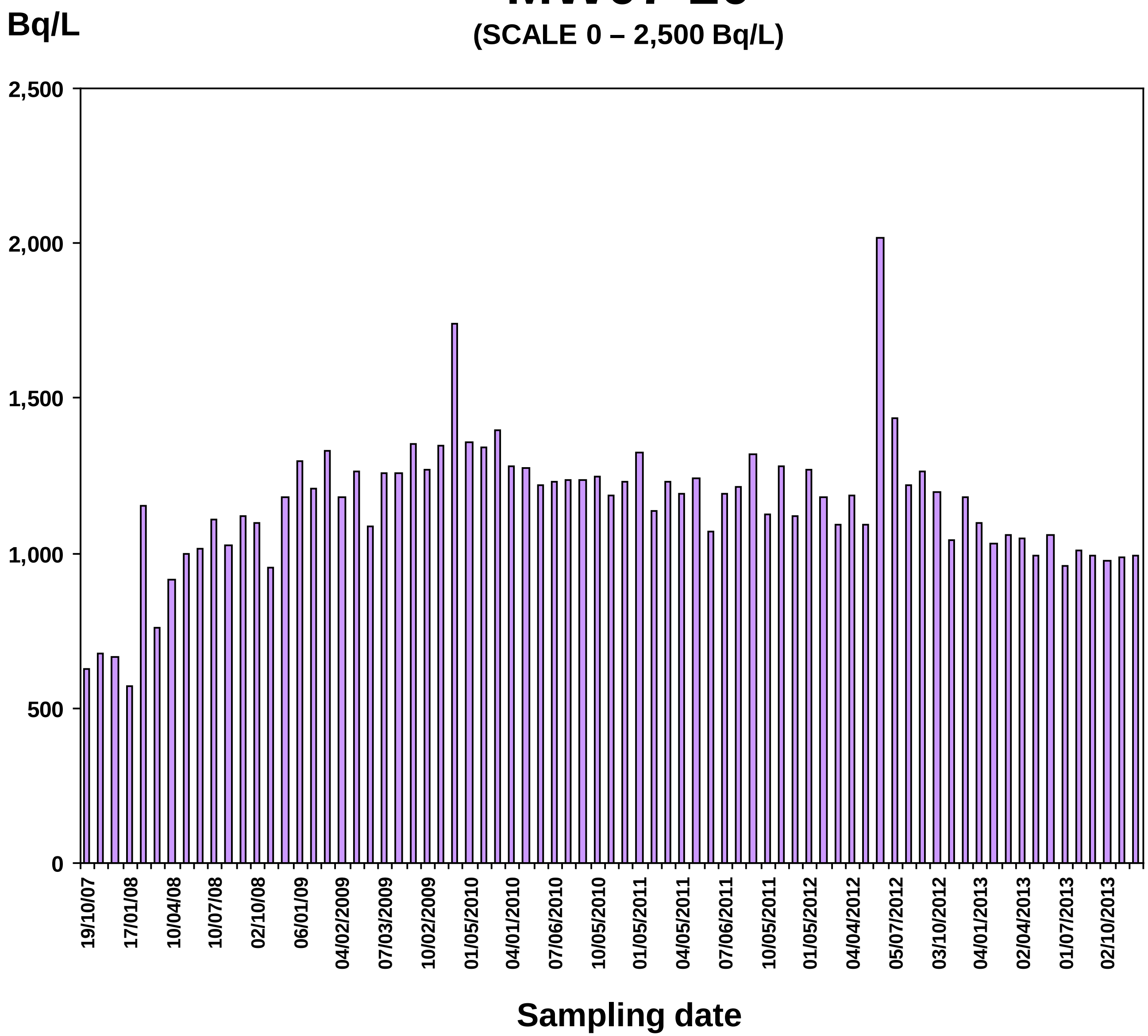
(SCALE 0 – 30,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW07-20

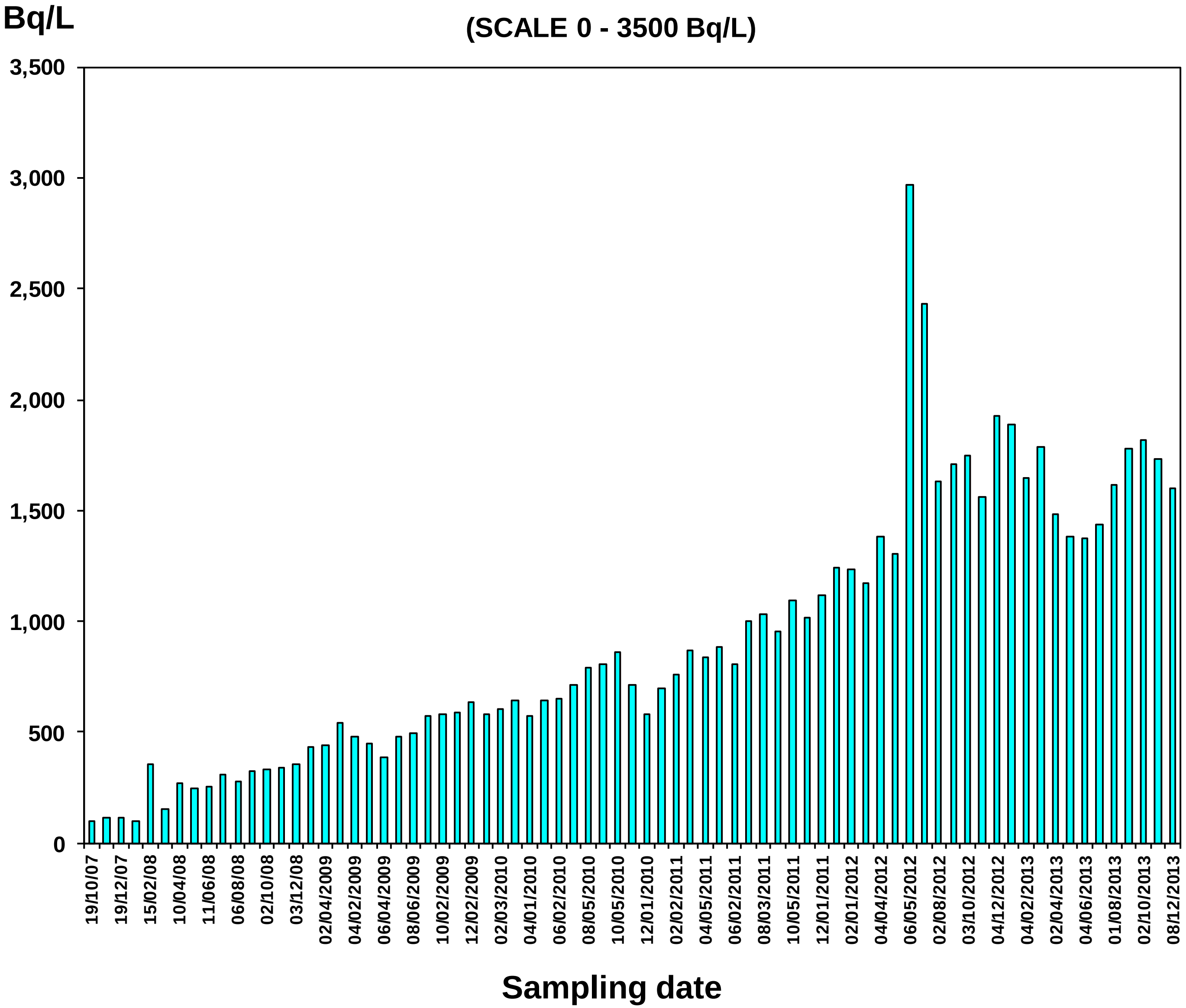
(SCALE 0 – 2,500 Bq/L)



APPENDIX L

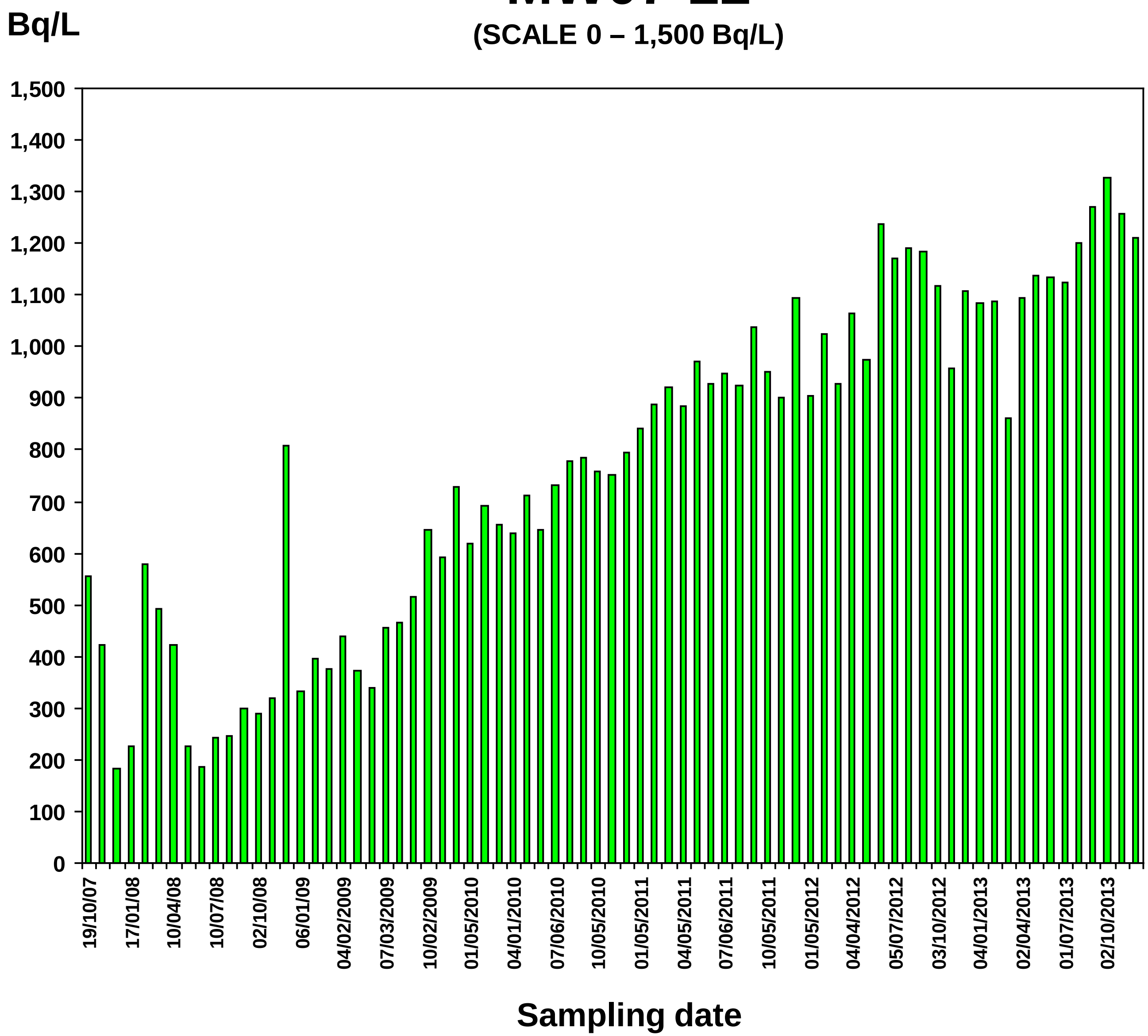
MONITORING RESULTS
MW07-21

(SCALE 0 - 3500 Bq/L)



MONITORING RESULTS
MW07-22

(SCALE 0 – 1,500 Bq/L)

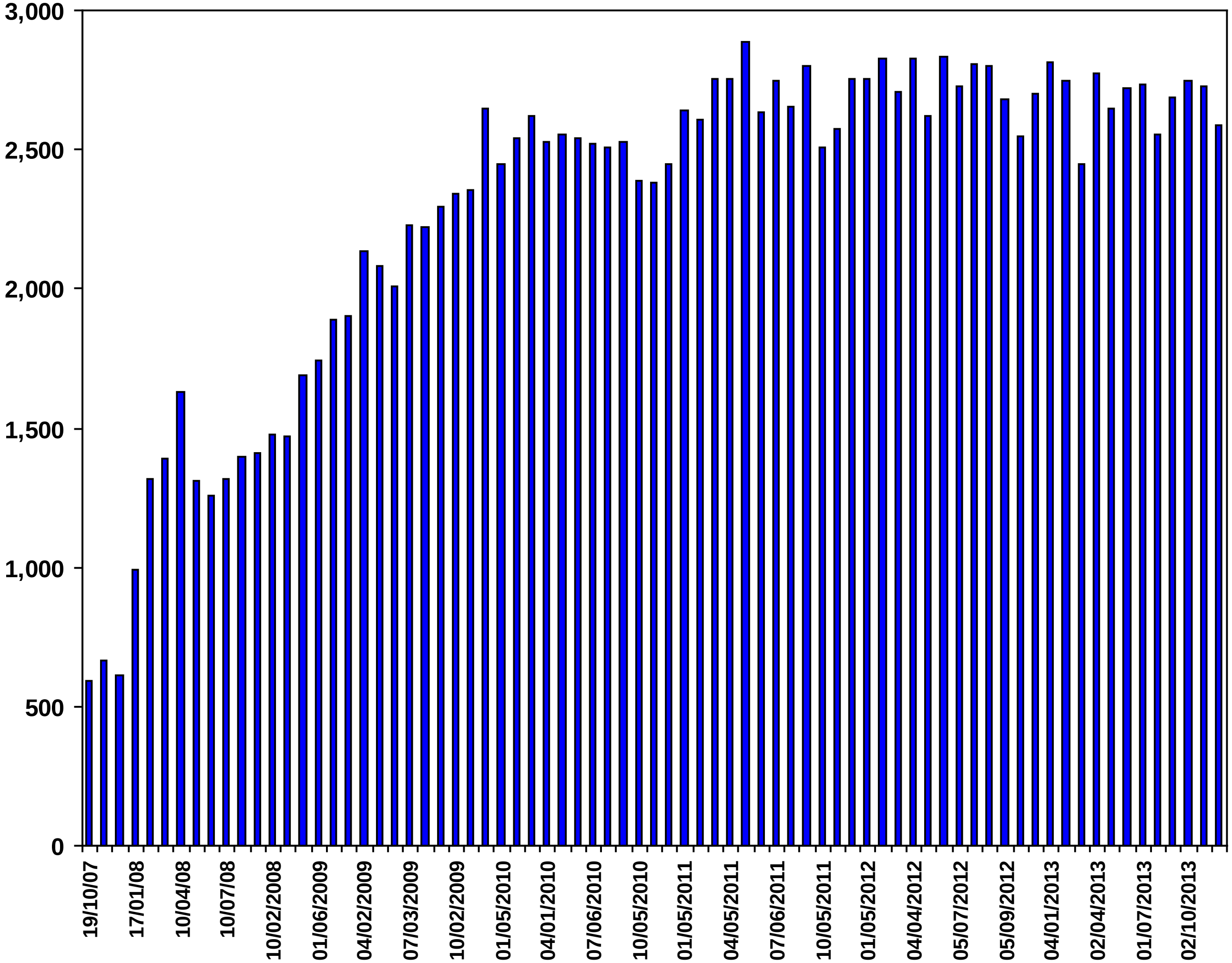


APPENDIX L

MONITORING RESULTS
MW07-23

Bq/L

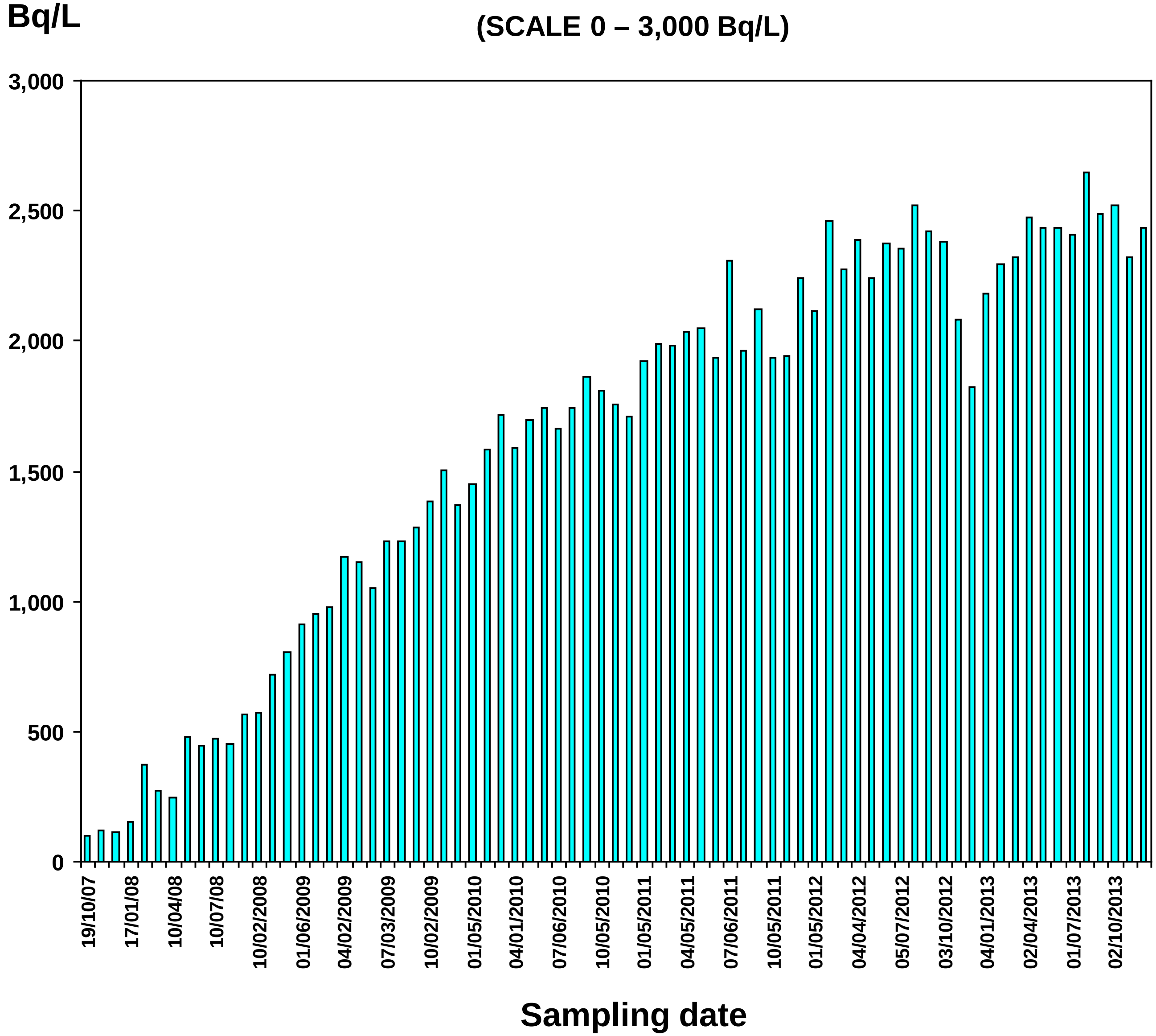
(SCALE 0 – 3,000 Bq/L)



Sampling date

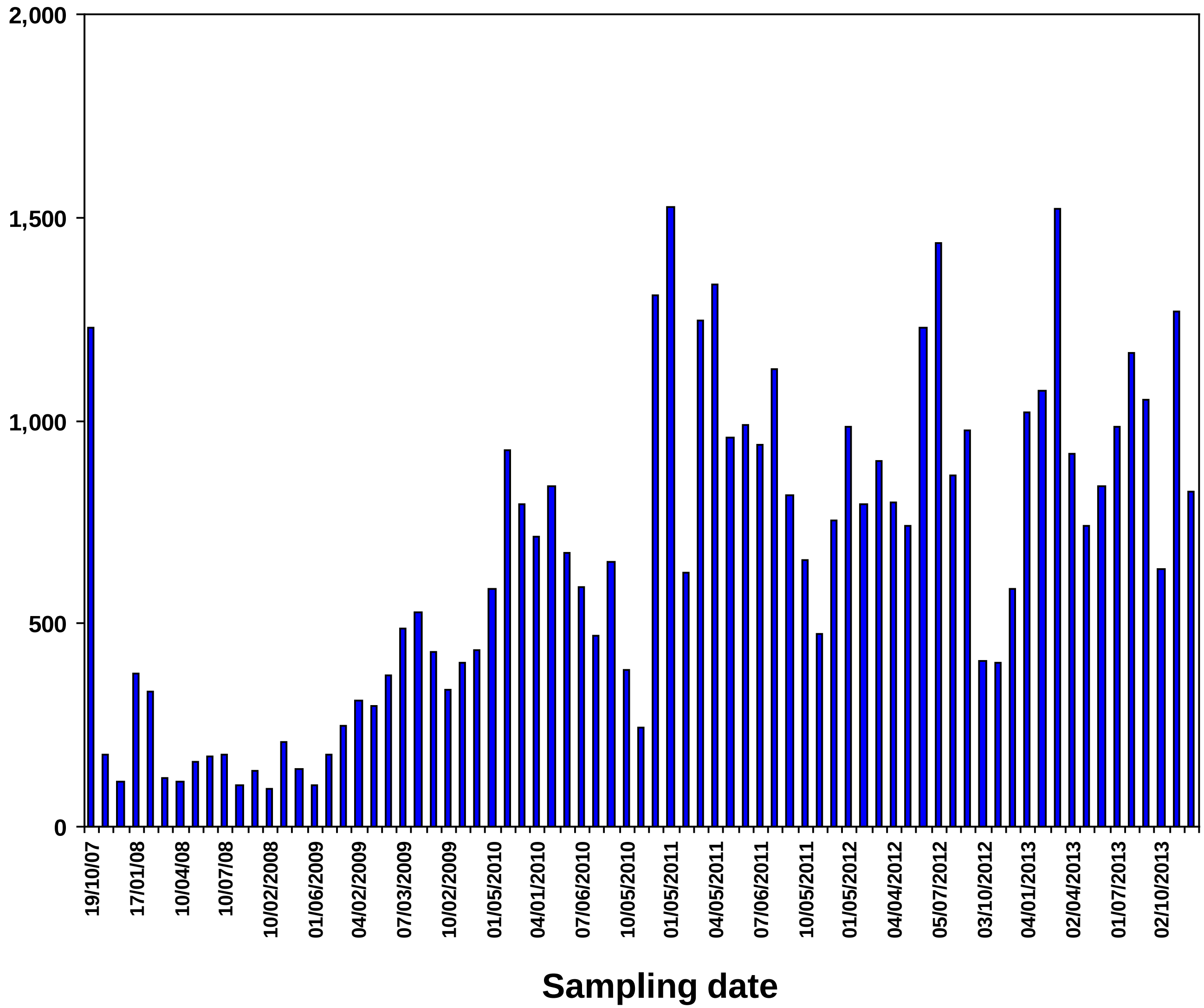
MONITORING RESULTS
MW07-24

(SCALE 0 – 3,000 Bq/L)



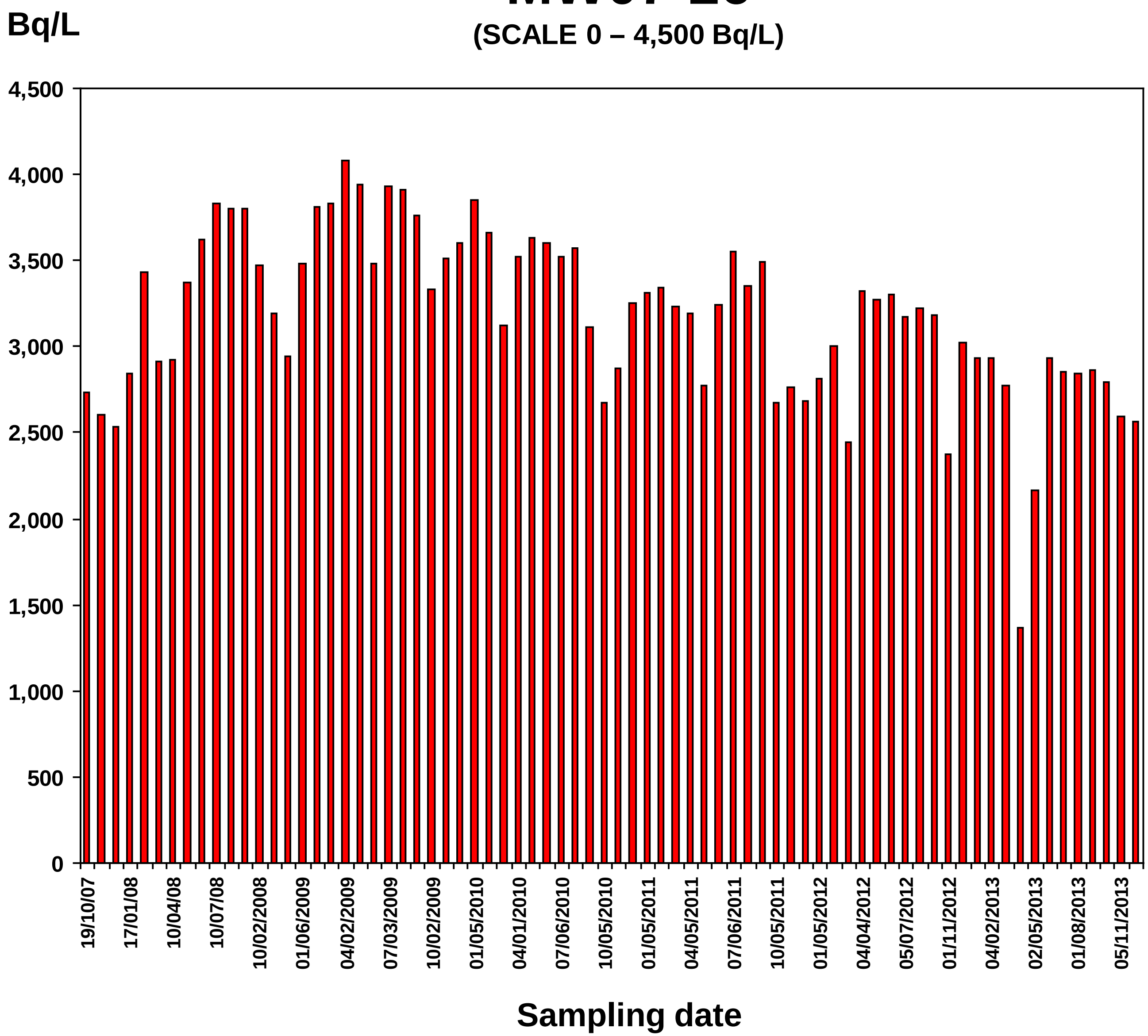
MONITORING RESULTS
MW07-25
(SCALE 0 – 2,000 Bq/L)

Bq/L



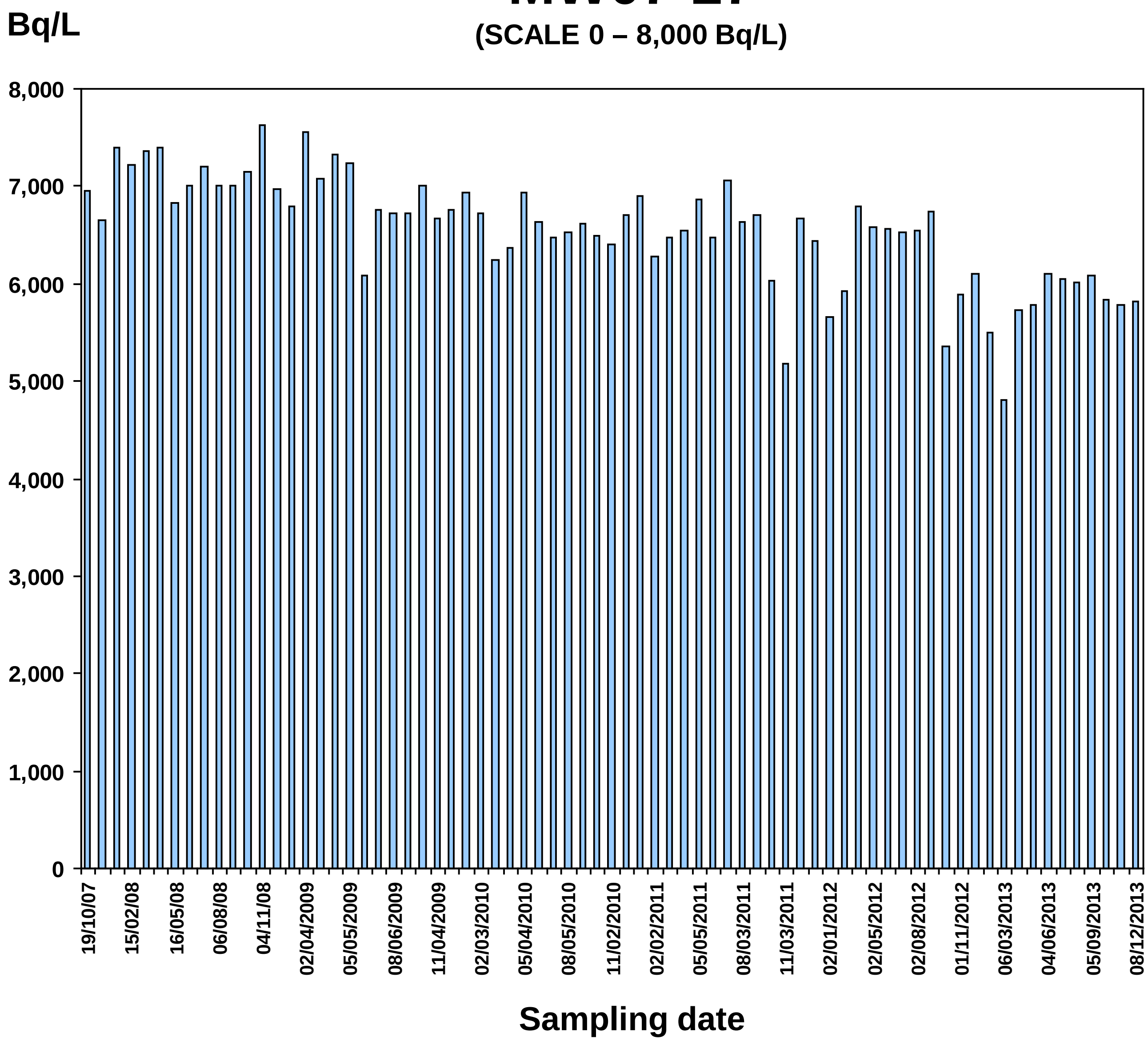
MONITORING RESULTS
MW07-26

(SCALE 0 – 4,500 Bq/L)



APPENDIX L

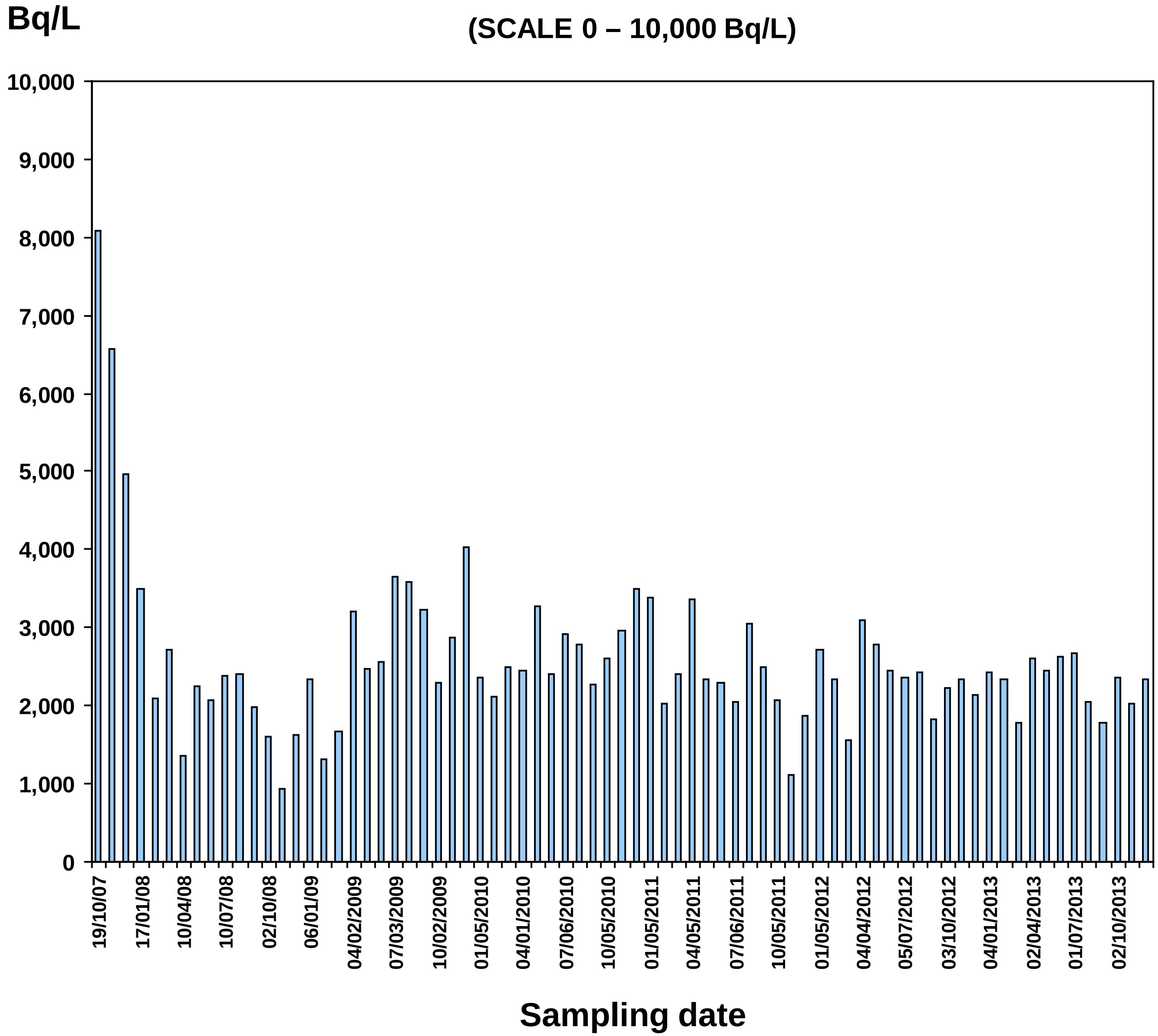
MONITORING RESULTS
MW07-27
(SCALE 0 – 8,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW07-28

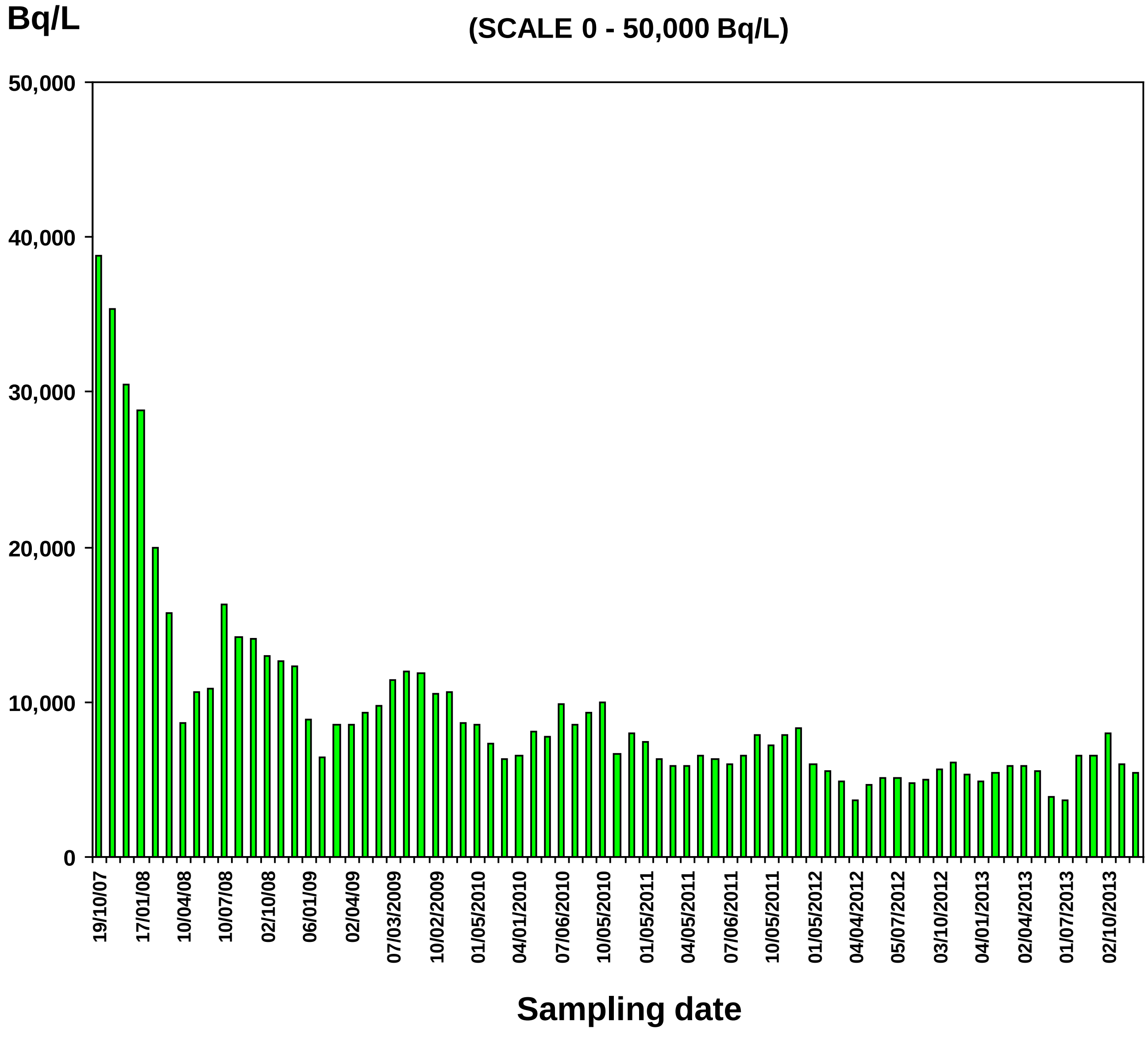
(SCALE 0 – 10,000 Bq/L)



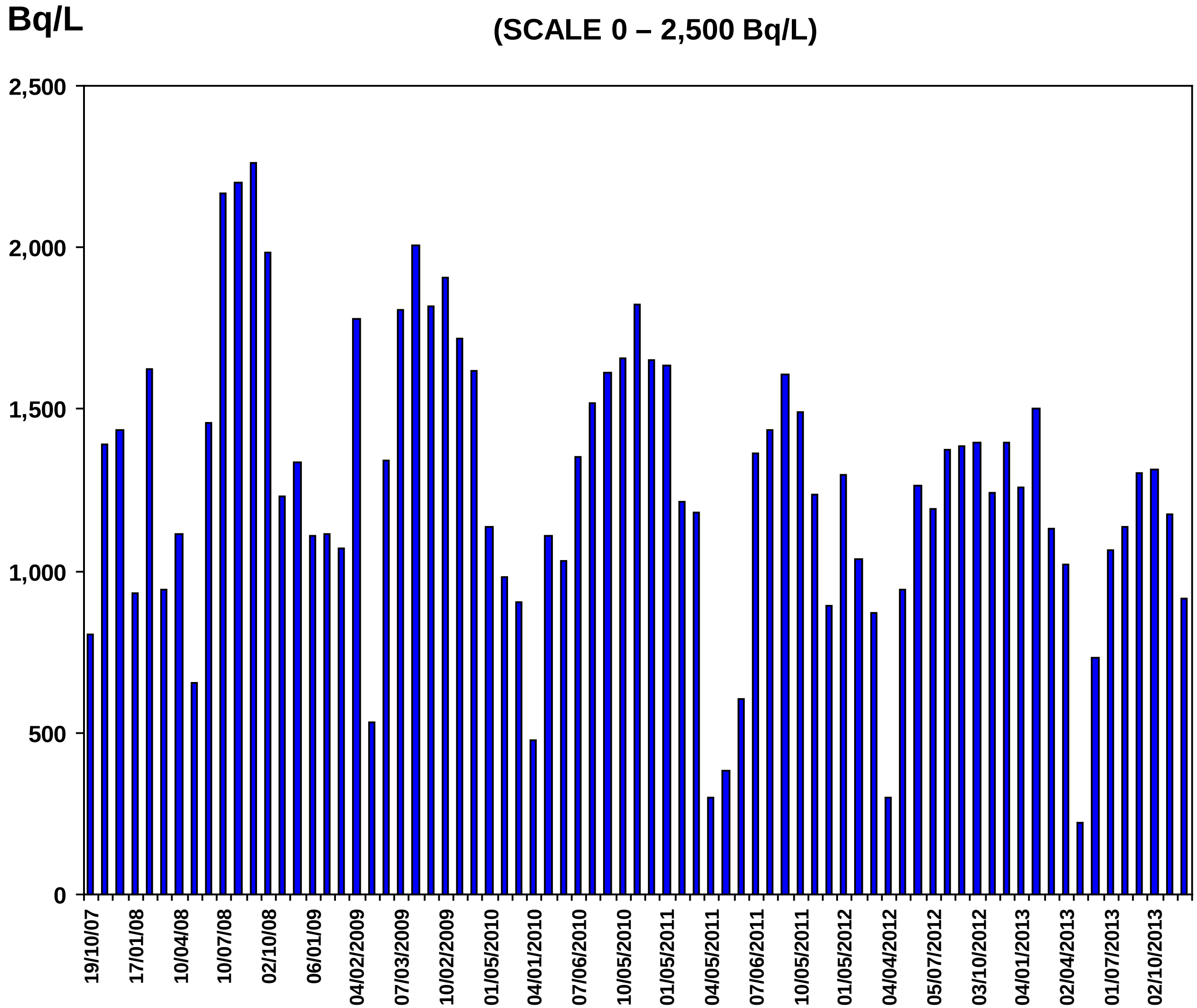
APPENDIX L

MONITORING RESULTS
MW07-29

(SCALE 0 - 50,000 Bq/L)



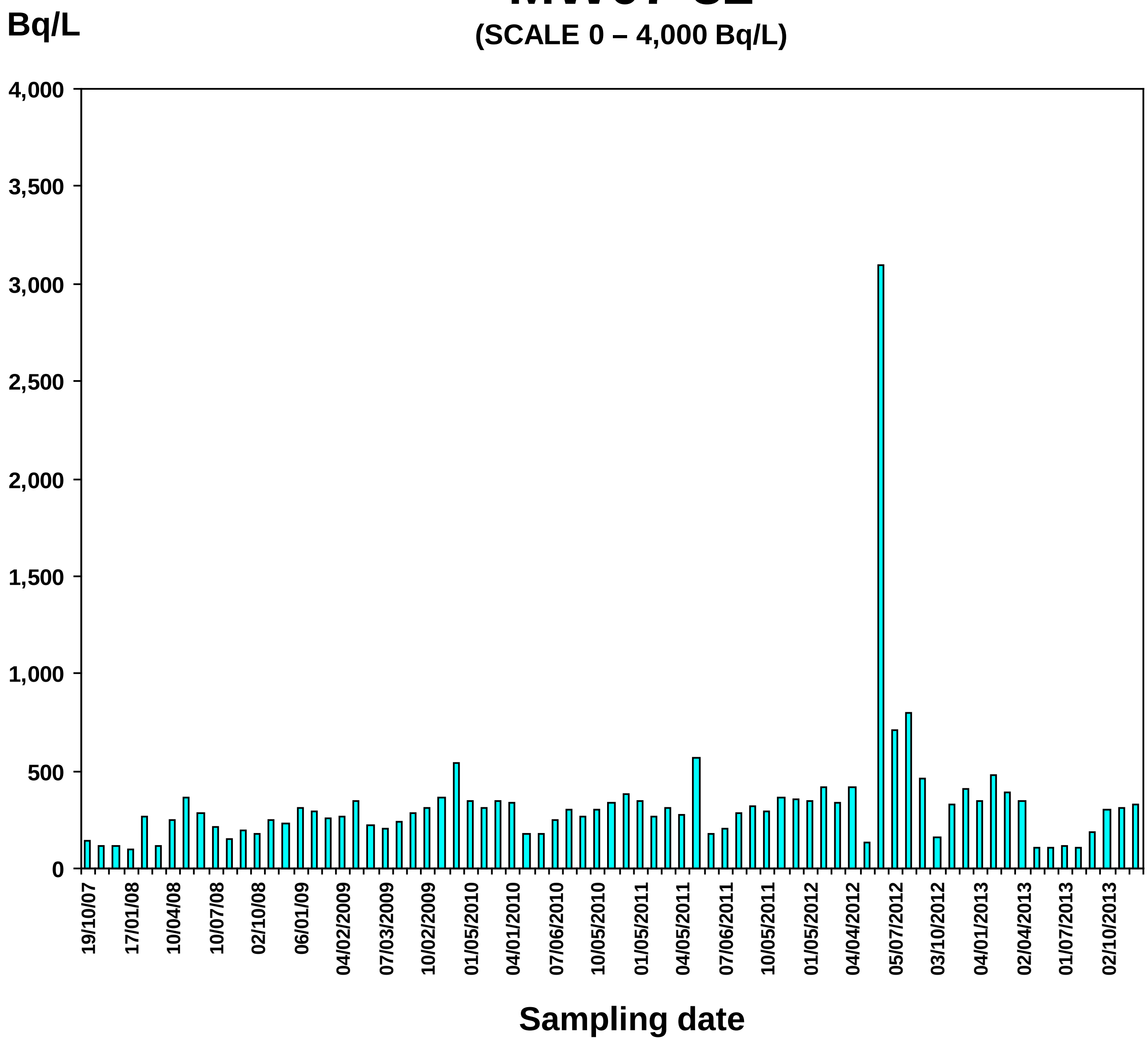
MONITORING RESULTS
MW07-31
(SCALE 0 – 2,500 Bq/L)



APPENDIX L

MONITORING RESULTS
MW07-32

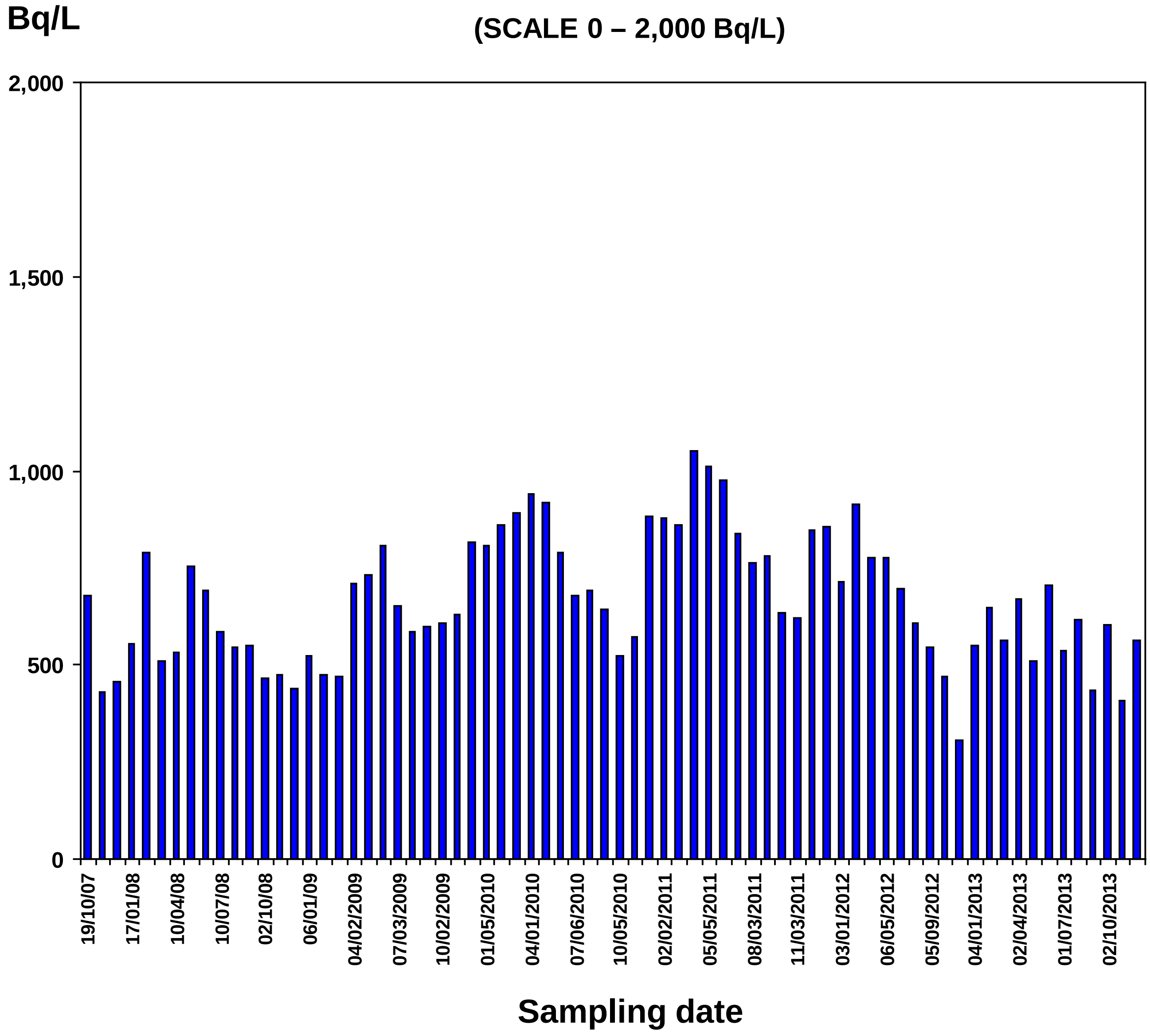
(SCALE 0 – 4,000 Bq/L)



APPENDIX L

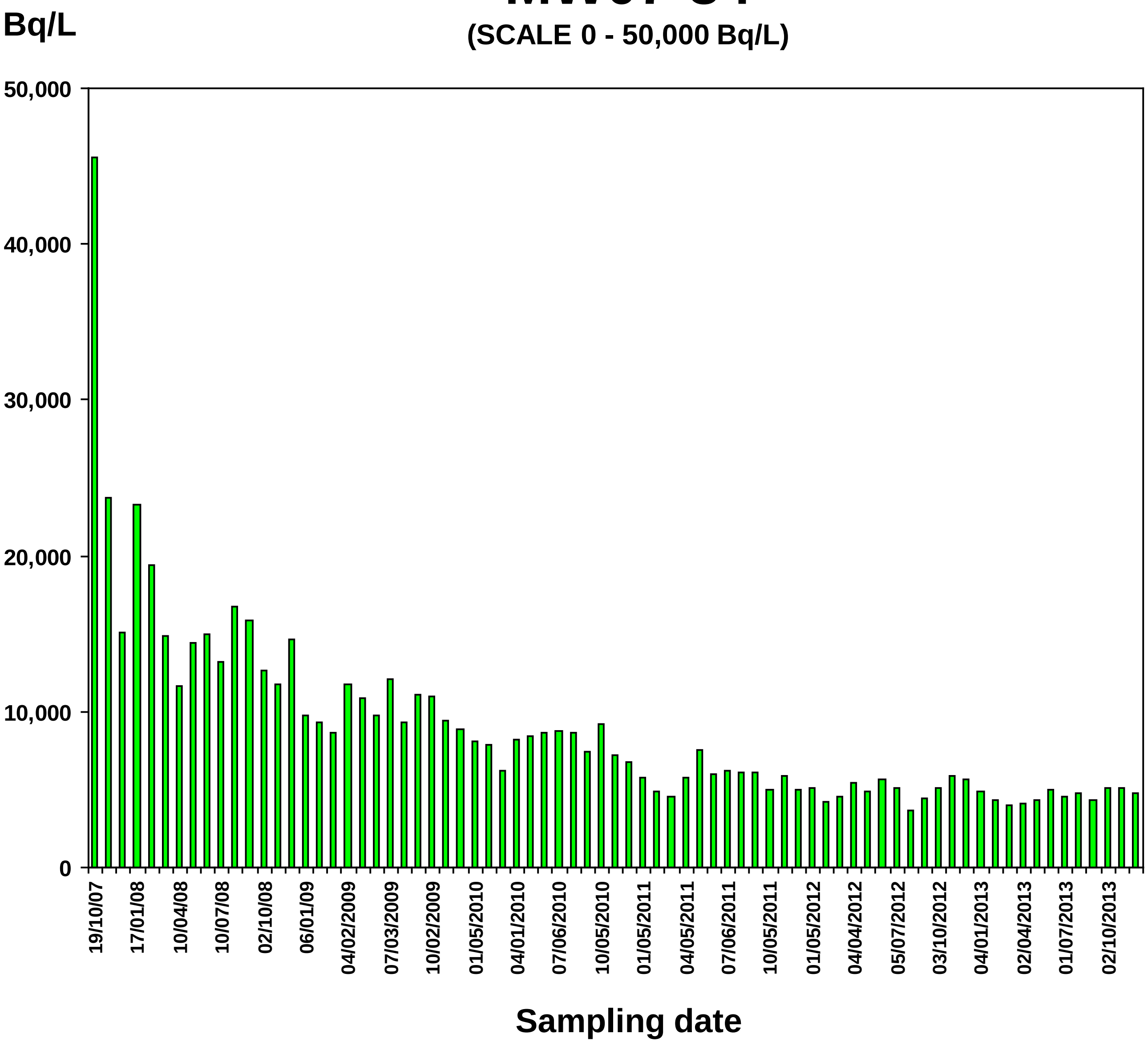
MONITORING RESULTS
MW07-33

(SCALE 0 – 2,000 Bq/L)



APPENDIX L

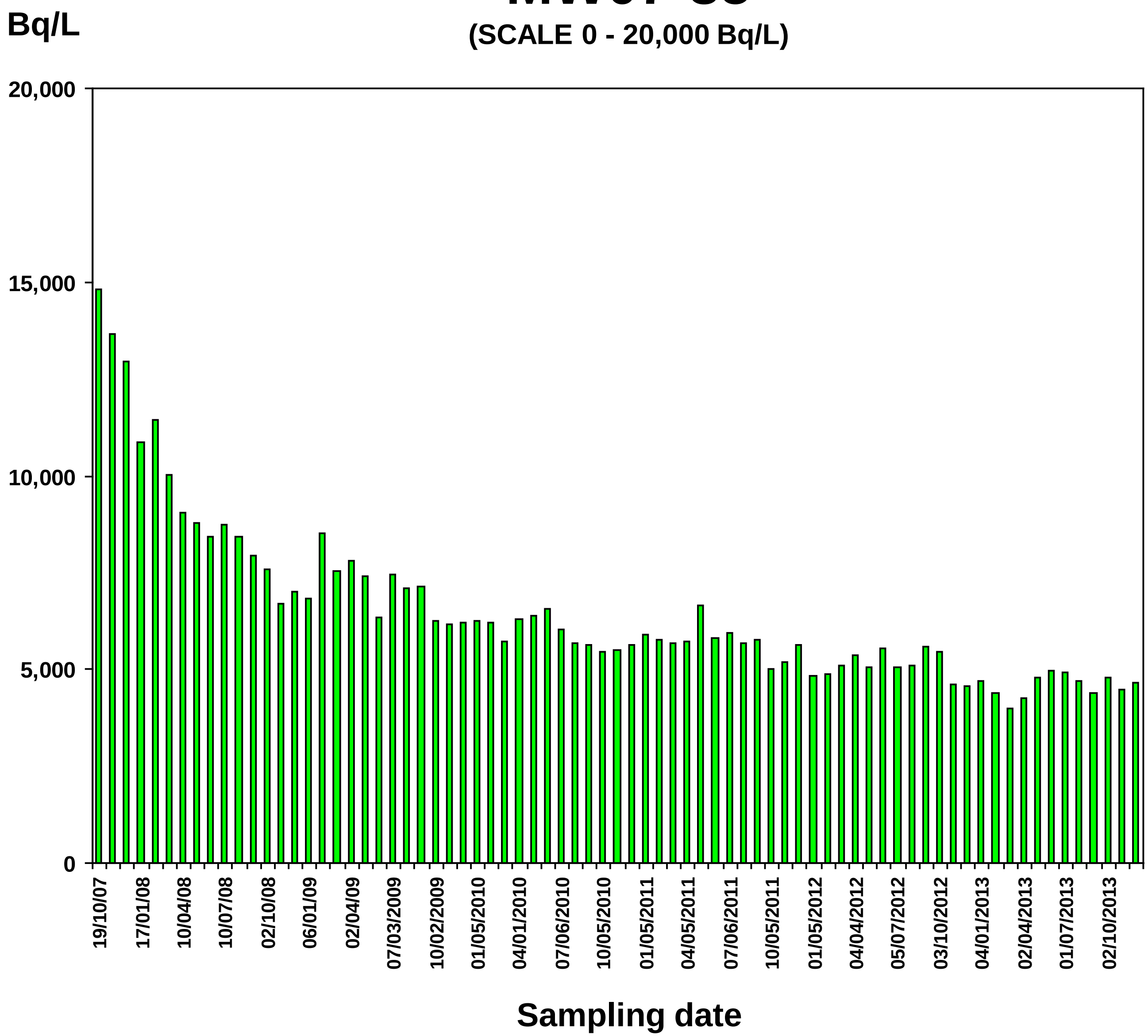
MONITORING RESULTS
MW07-34
(SCALE 0 - 50,000 Bq/L)



APPENDIX L

MONITORING RESULTS
MW07-35

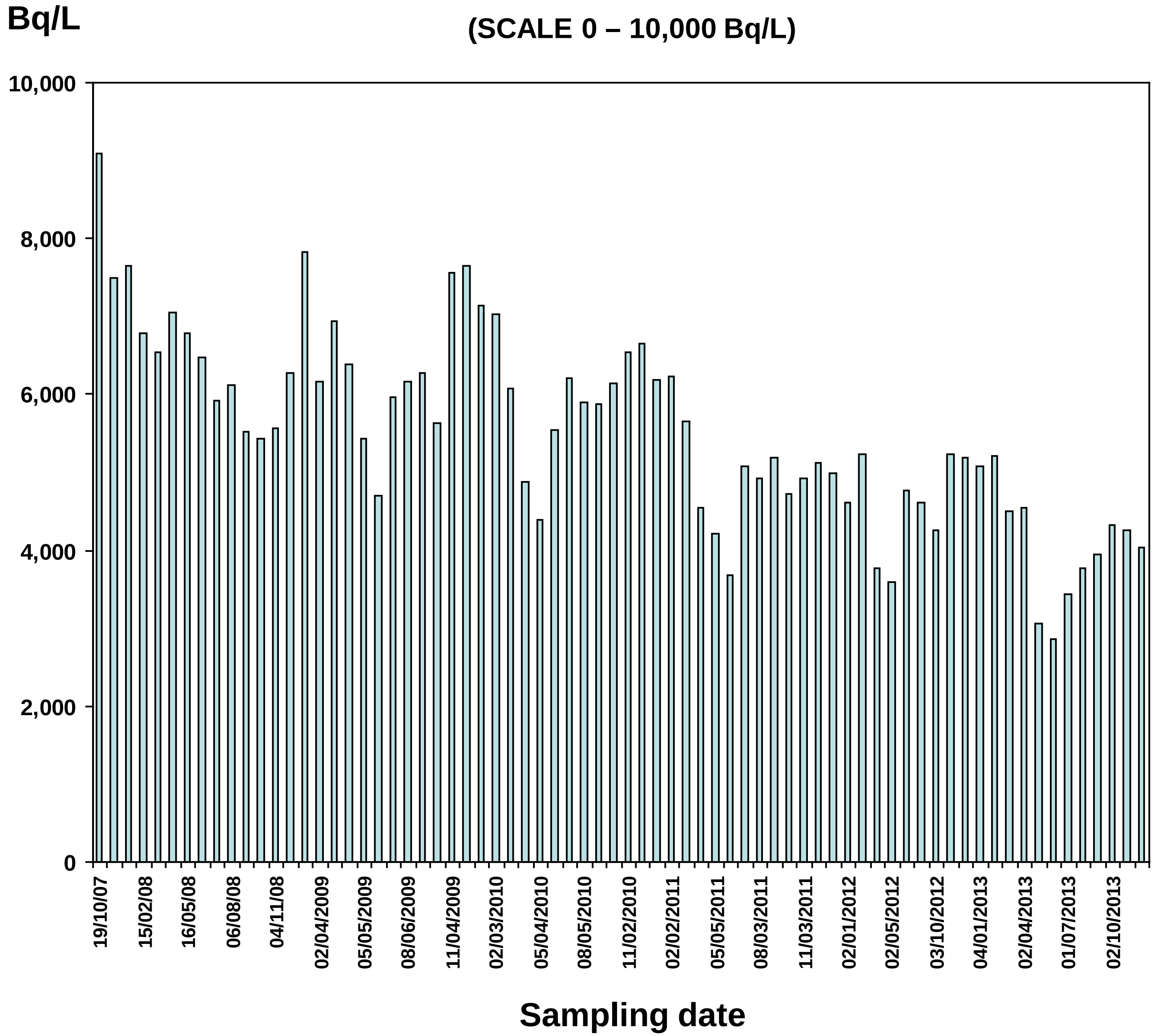
(SCALE 0 - 20,000 Bq/L)



APPENDIX L

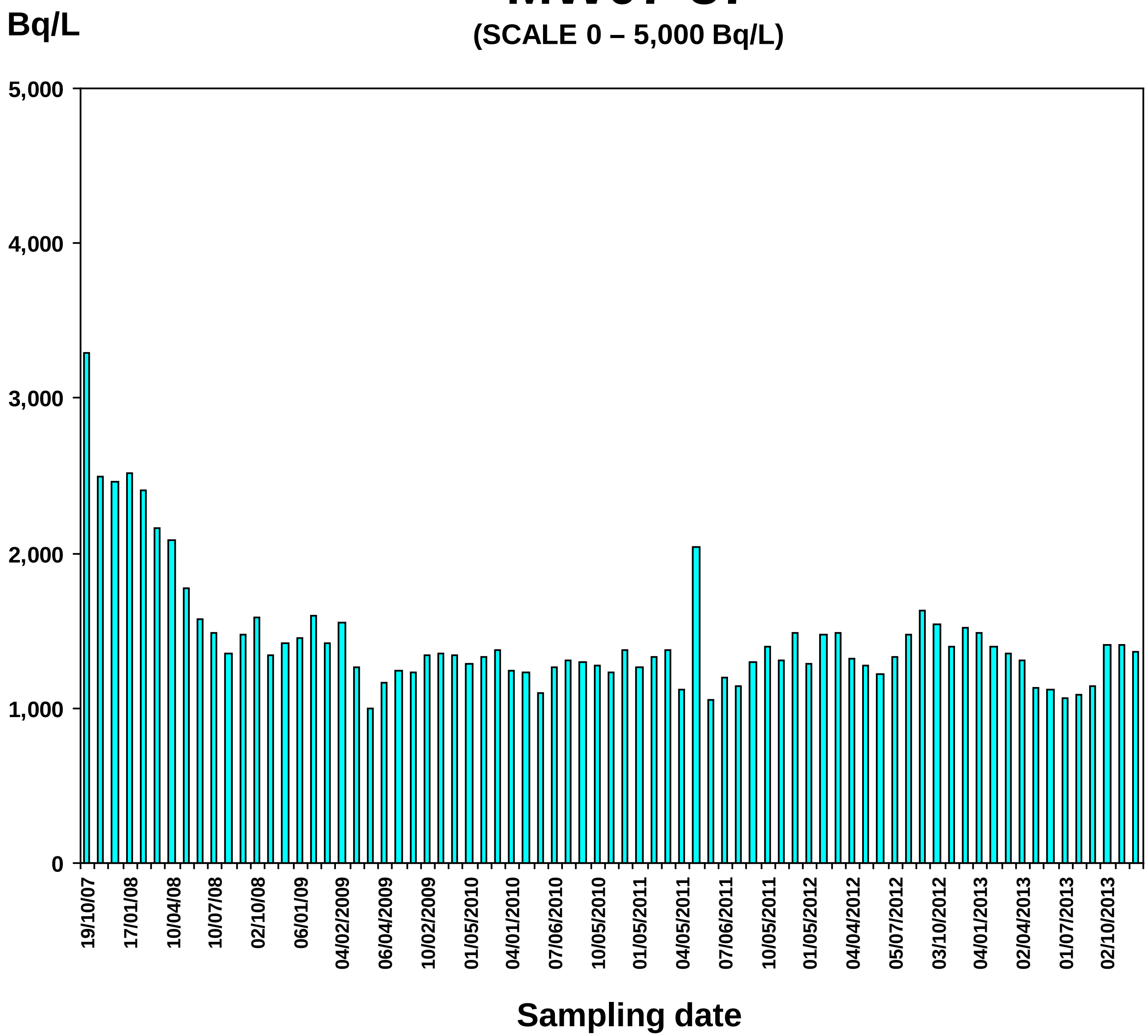
MONITORING RESULTS
MW07-36

(SCALE 0 – 10,000 Bq/L)



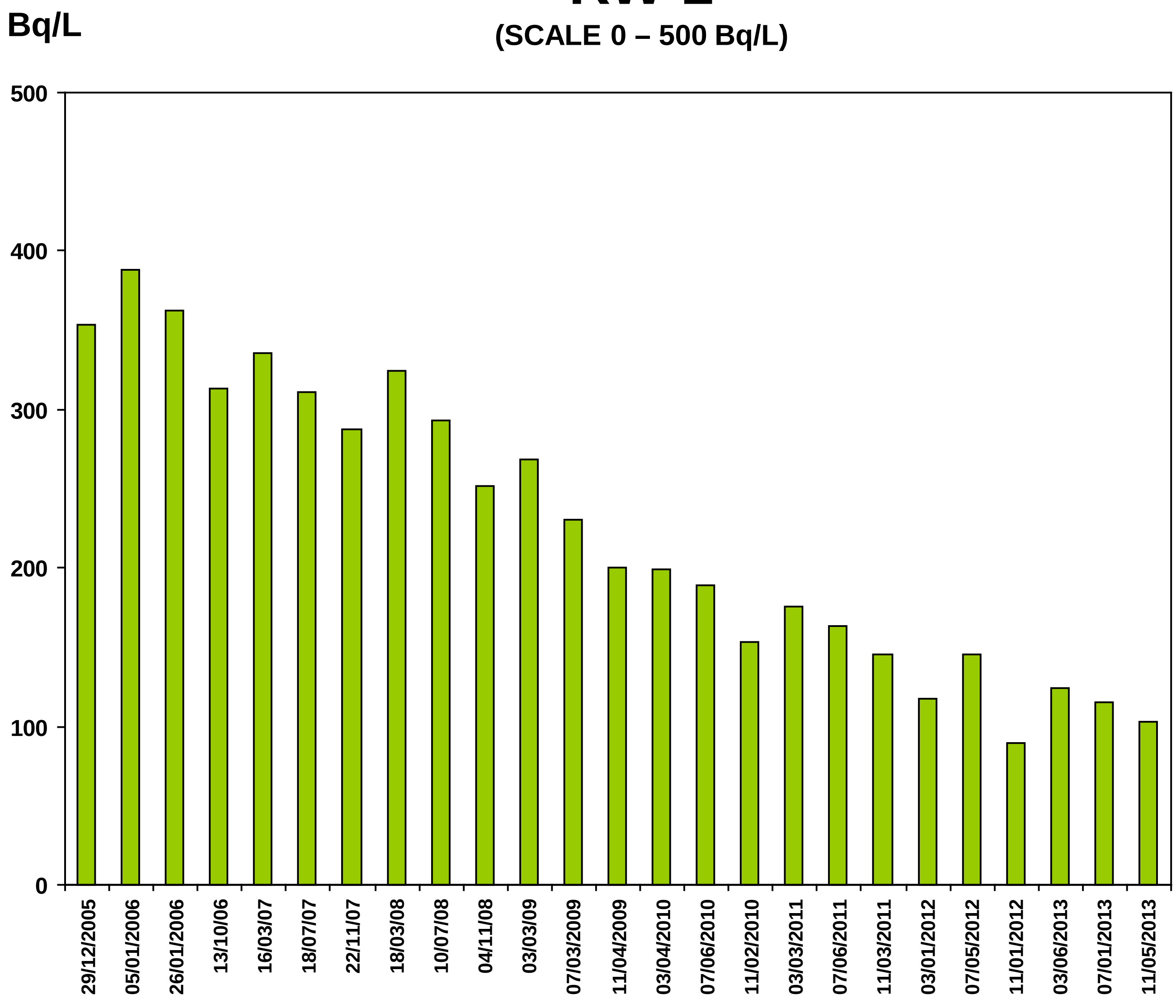
APPENDIX L

MONITORING RESULTS
MW07-37
(SCALE 0 – 5,000 Bq/L)



MONITORING RESULTS
RW-2

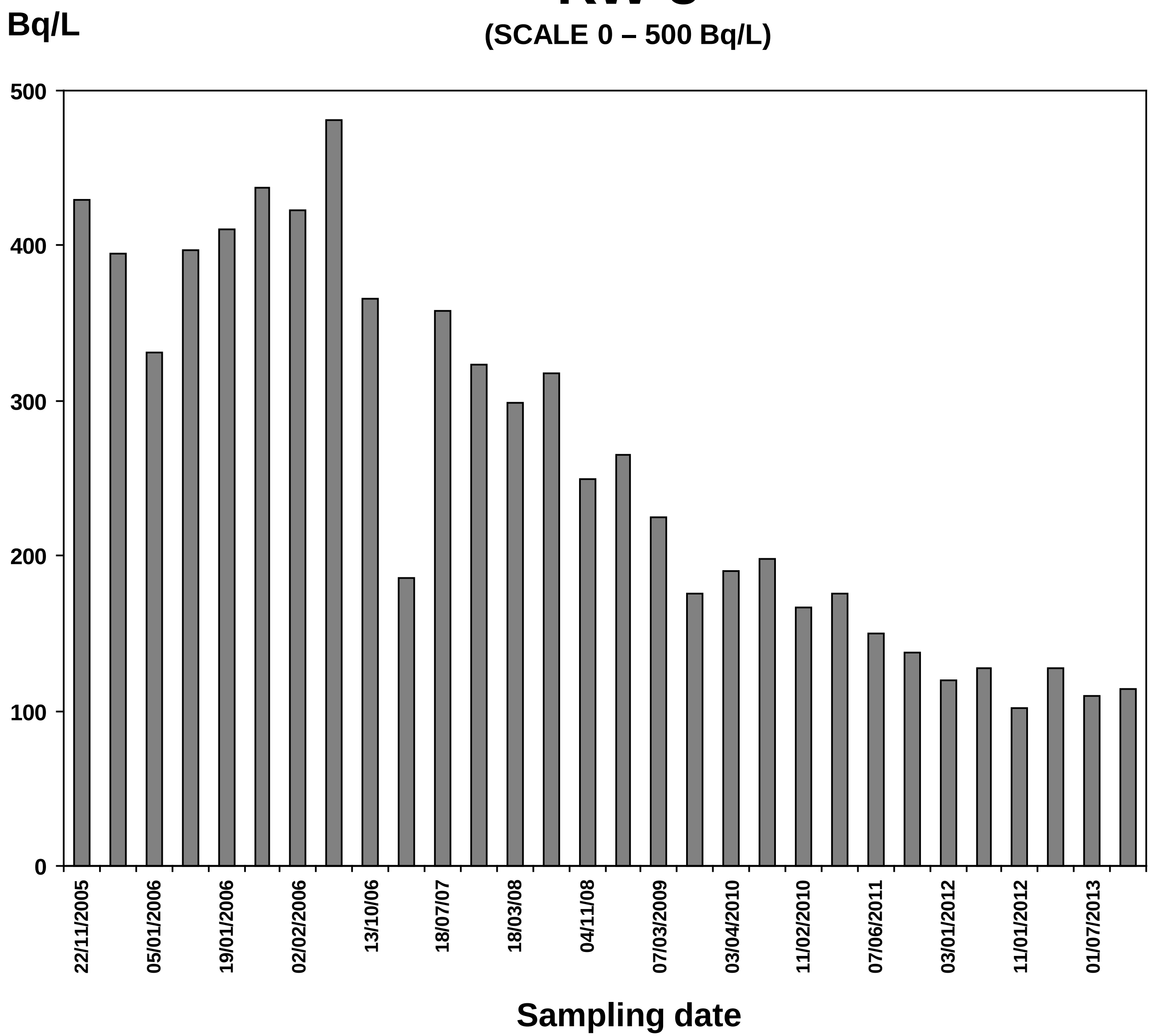
(SCALE 0 – 500 Bq/L)



APPENDIX L

MONITORING RESULTS
RW-3

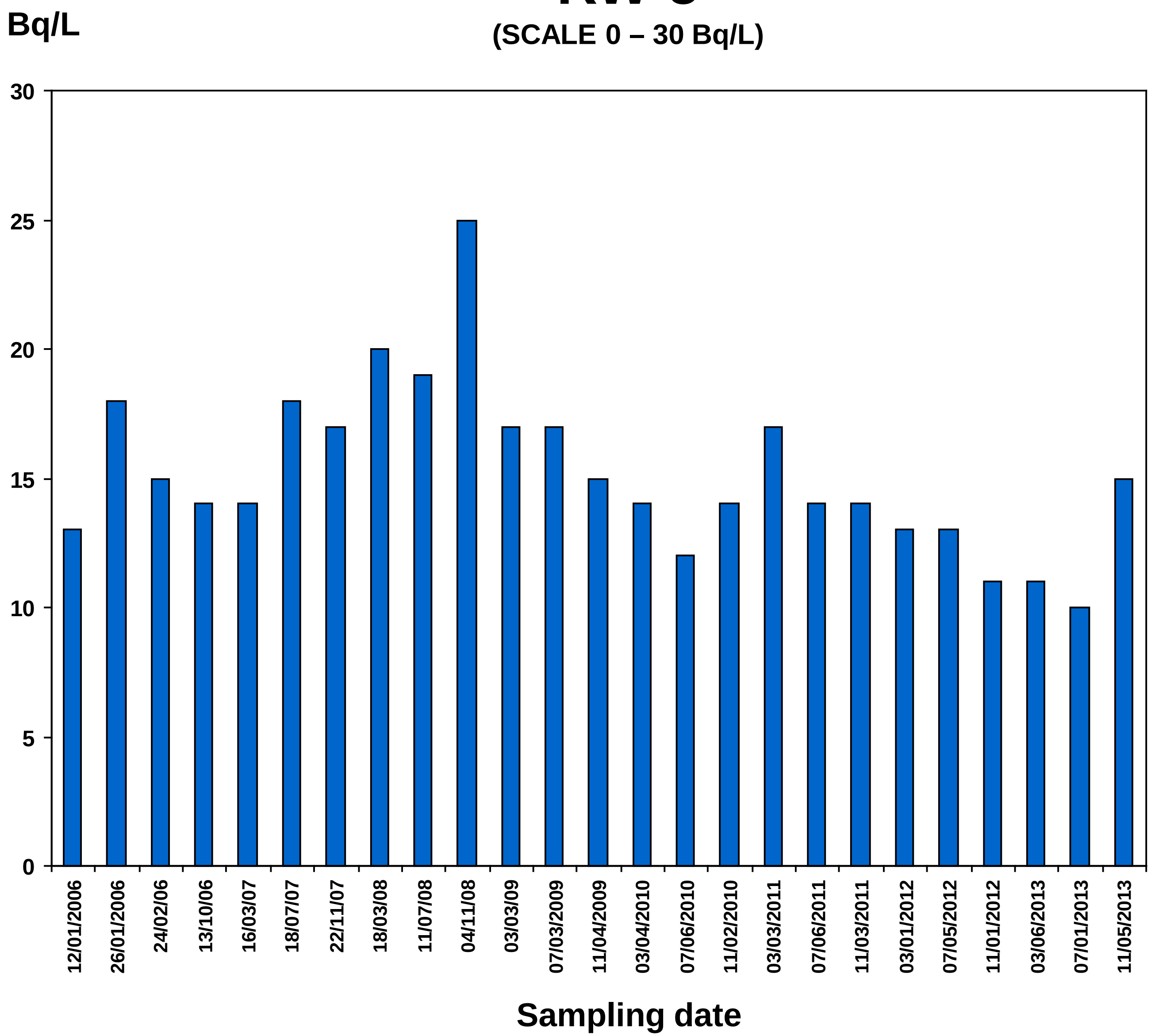
(SCALE 0 – 500 Bq/L)



APPENDIX L

MONITORING RESULTS
RW-5

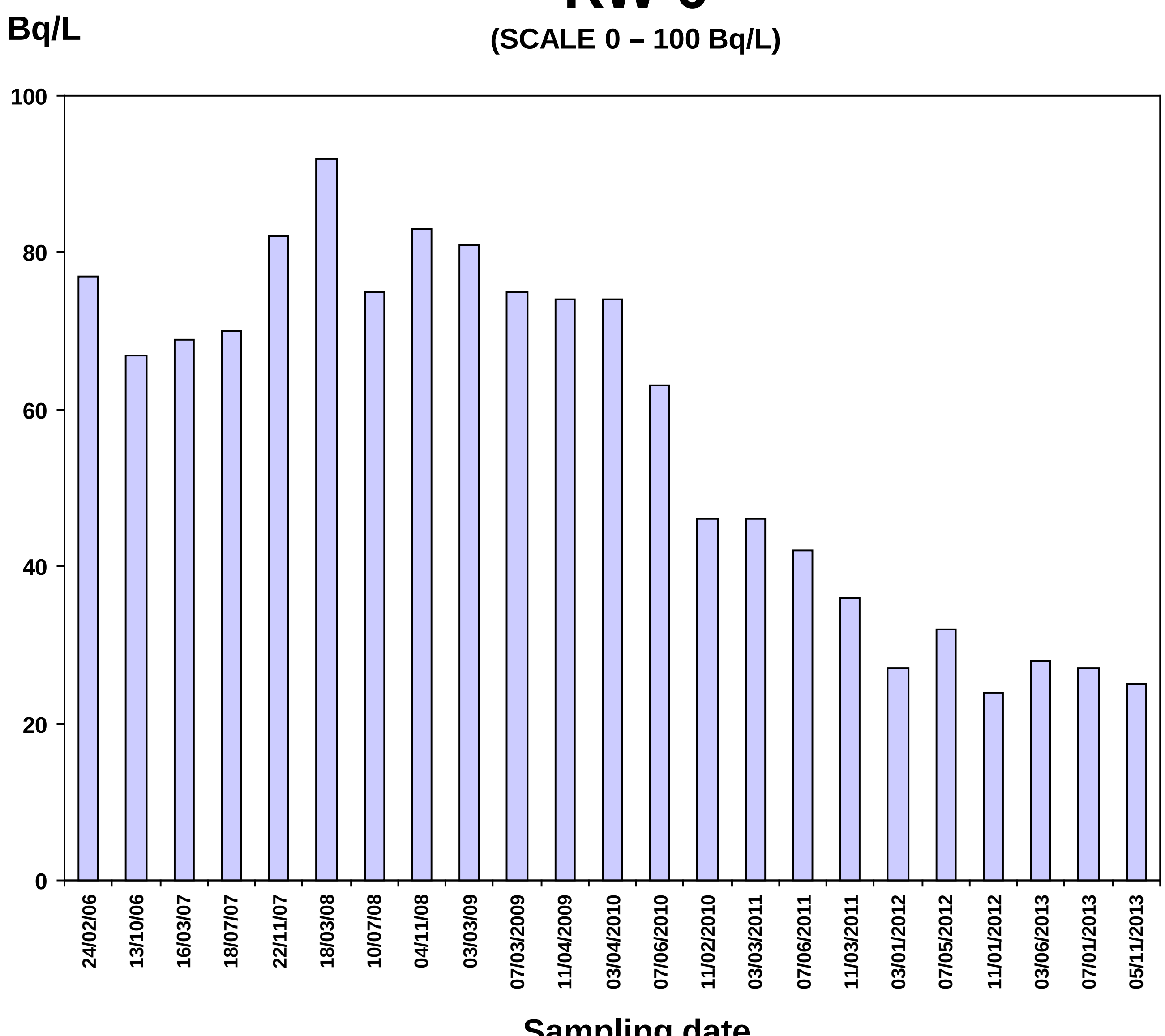
(SCALE 0 – 30 Bq/L)



APPENDIX L

MONITORING RESULTS
RW-6

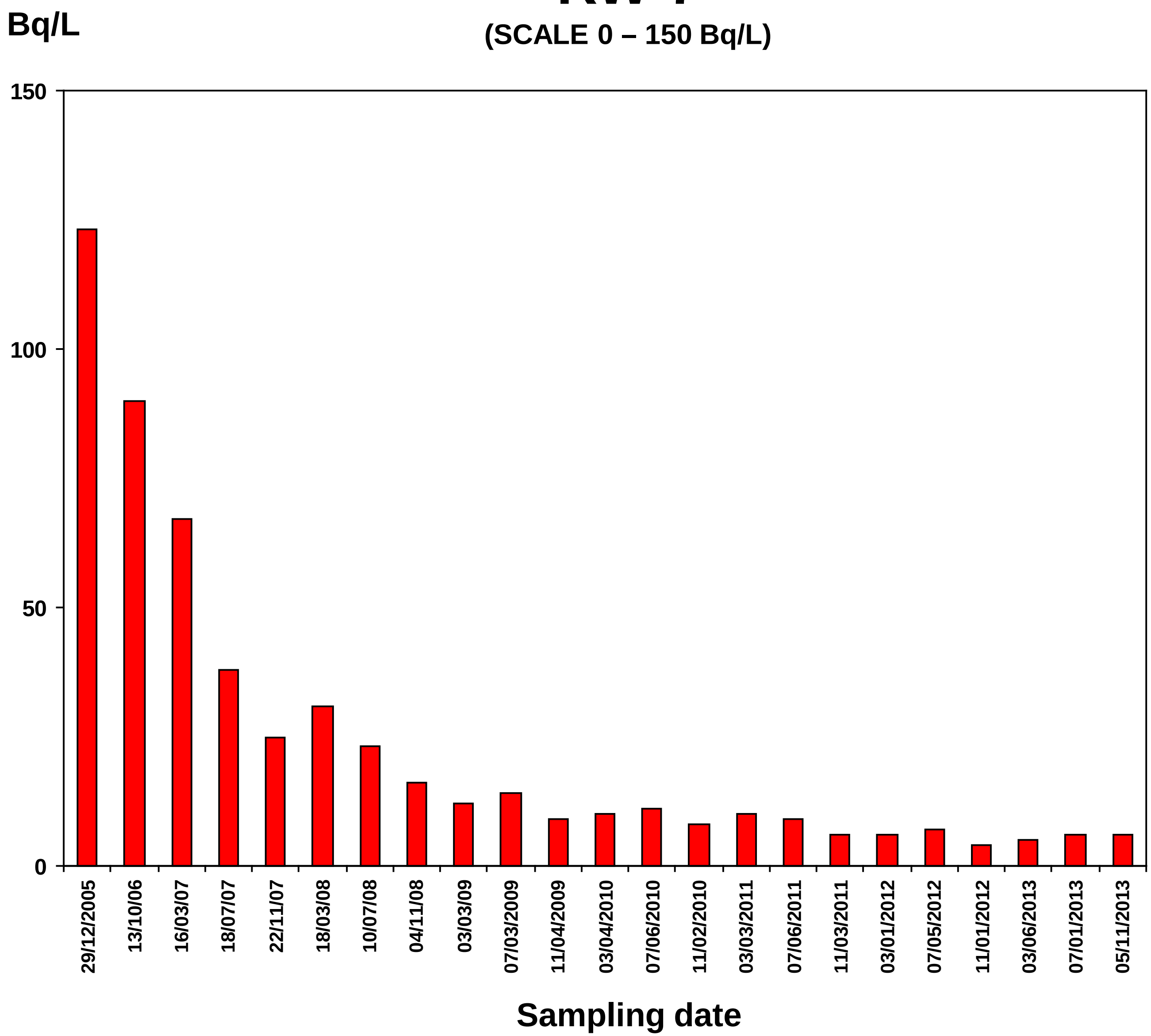
(SCALE 0 – 100 Bq/L)



APPENDIX L

MONITORING RESULTS
RW-7

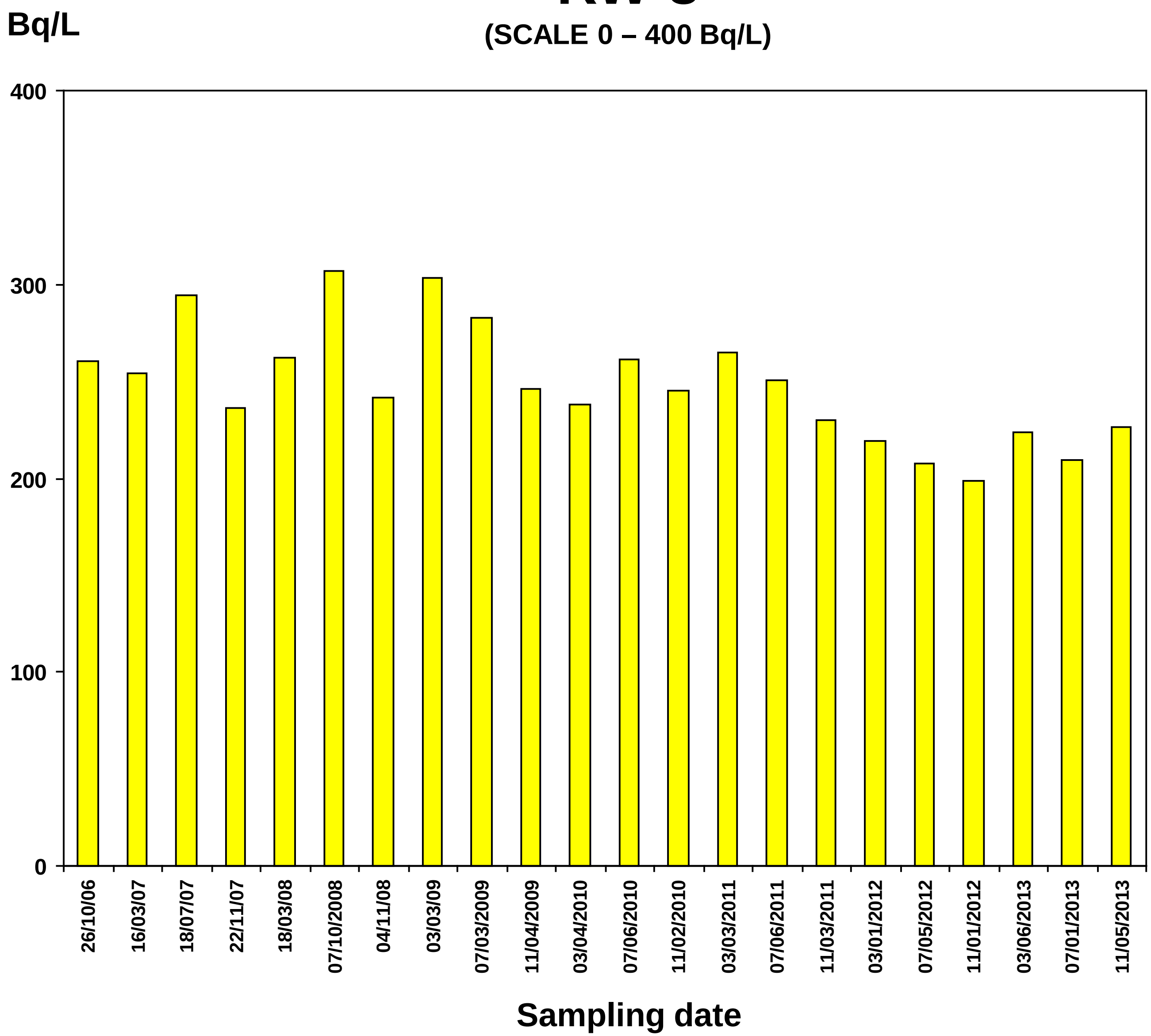
(SCALE 0 – 150 Bq/L)



APPENDIX L

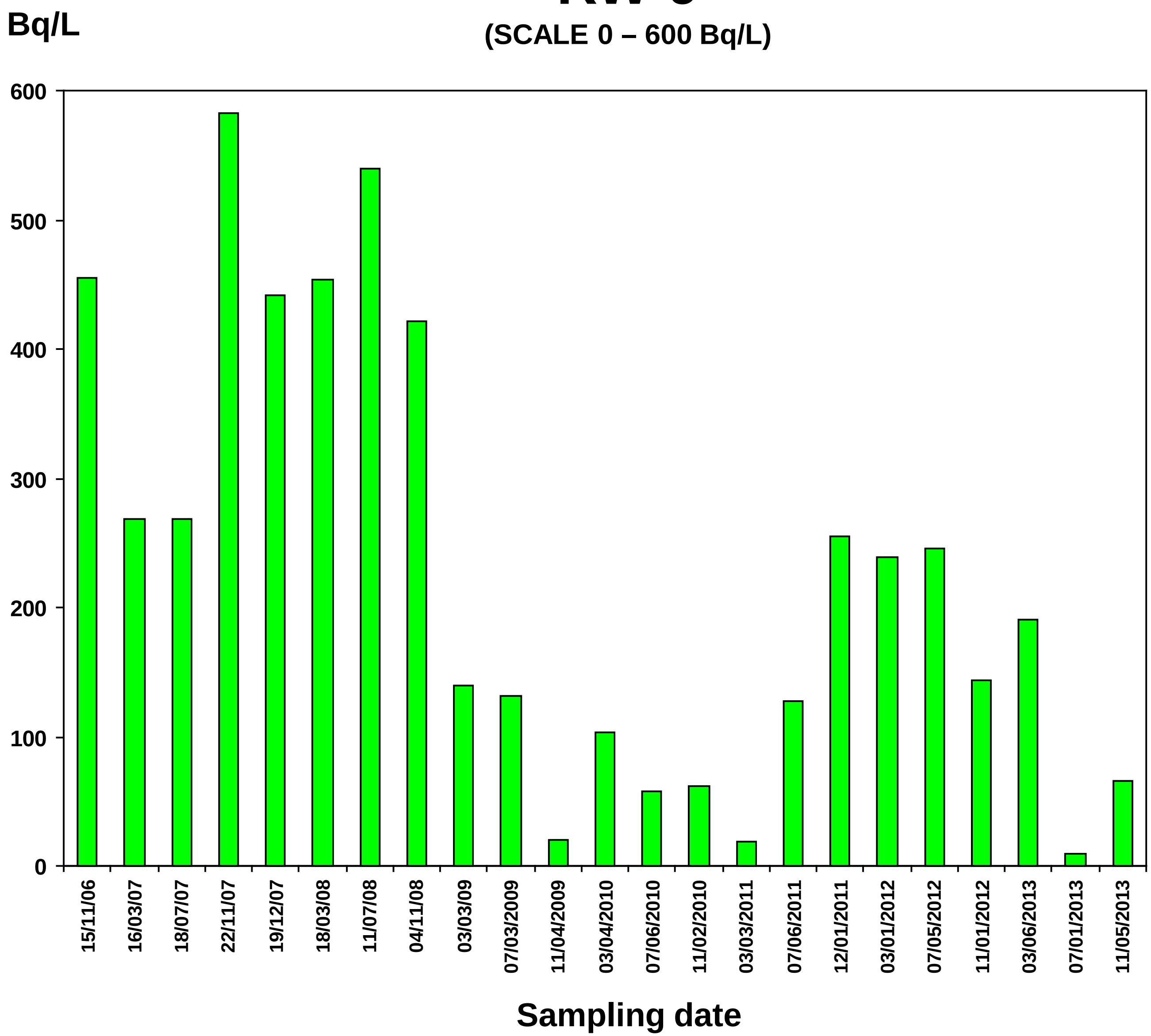
MONITORING RESULTS
RW-8

(SCALE 0 – 400 Bq/L)



MONITORING RESULTS
RW-9

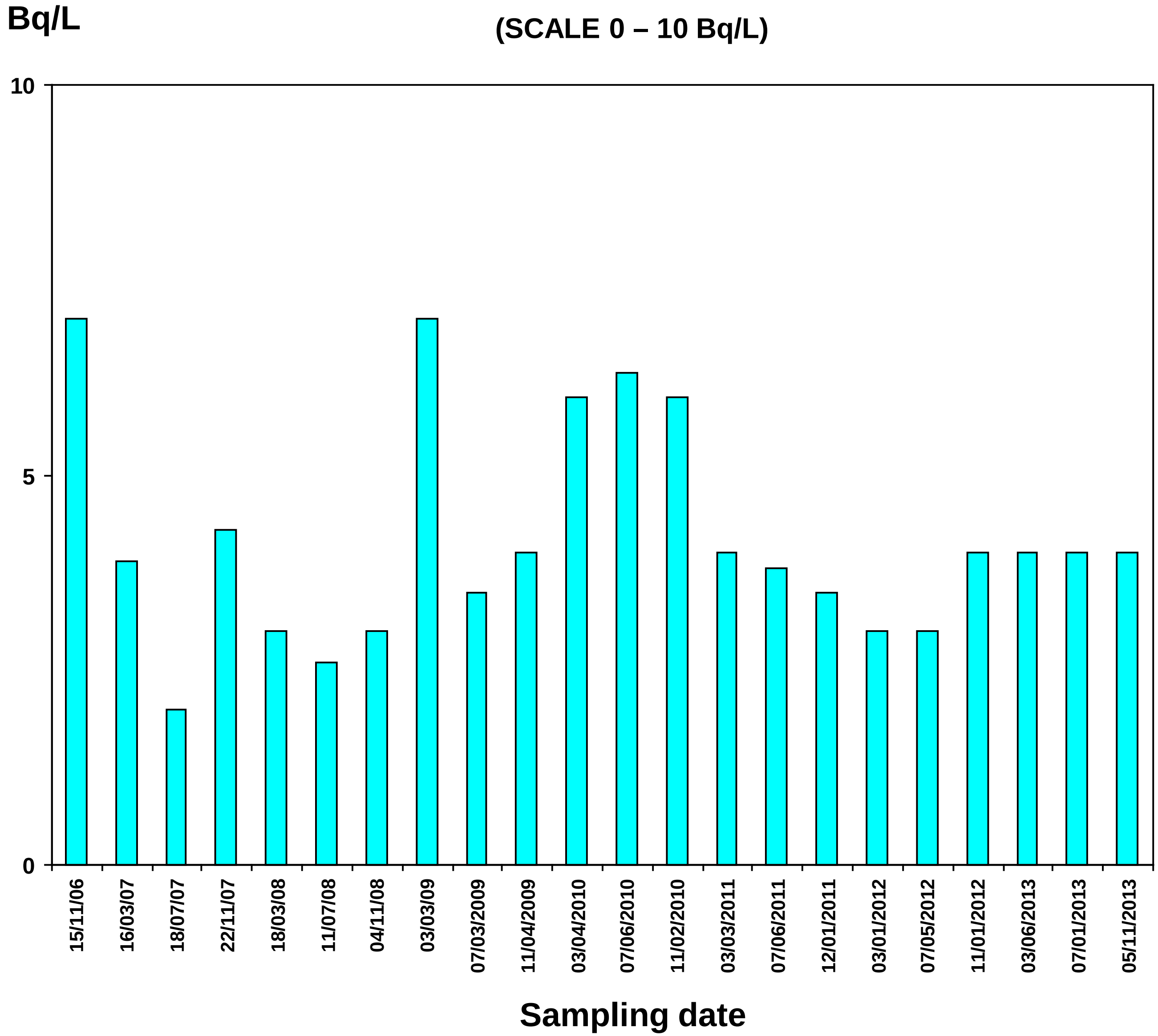
(SCALE 0 – 600 Bq/L)



APPENDIX L

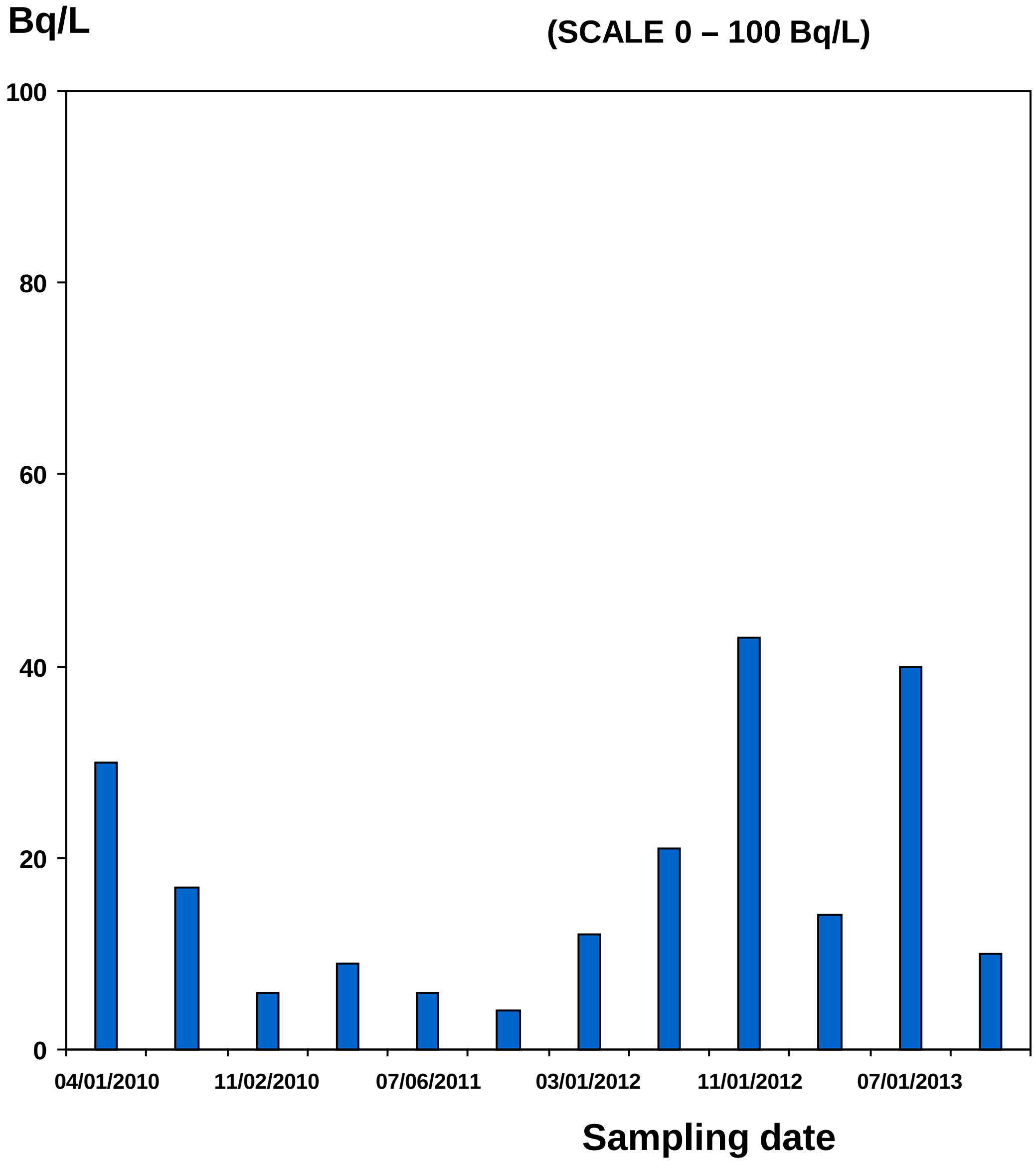
MONITORING RESULTS
RW-10

(SCALE 0 – 10 Bq/L)



MONITORING RESULTS
RW-12

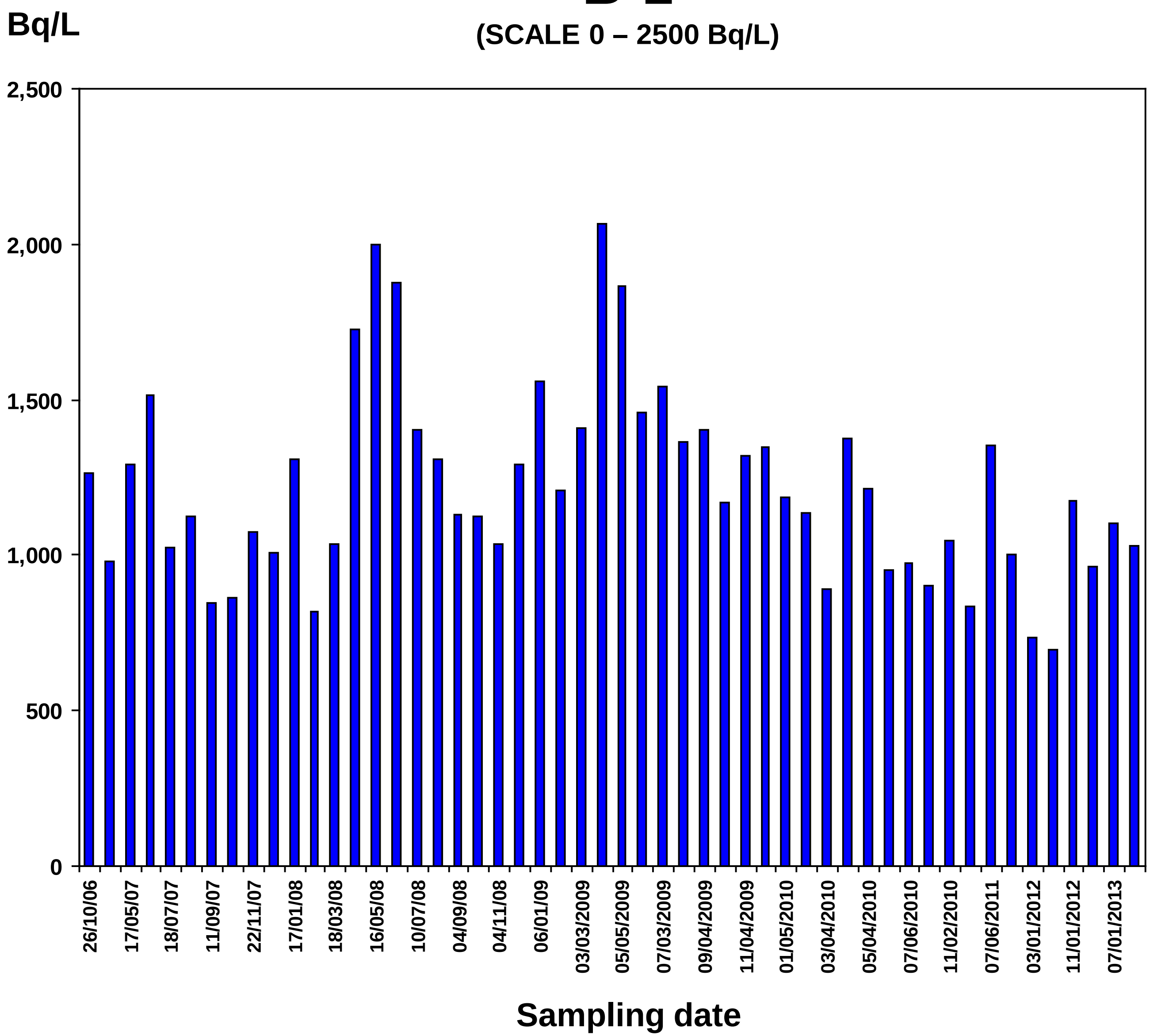
(SCALE 0 – 100 Bq/L)



APPENDIX L

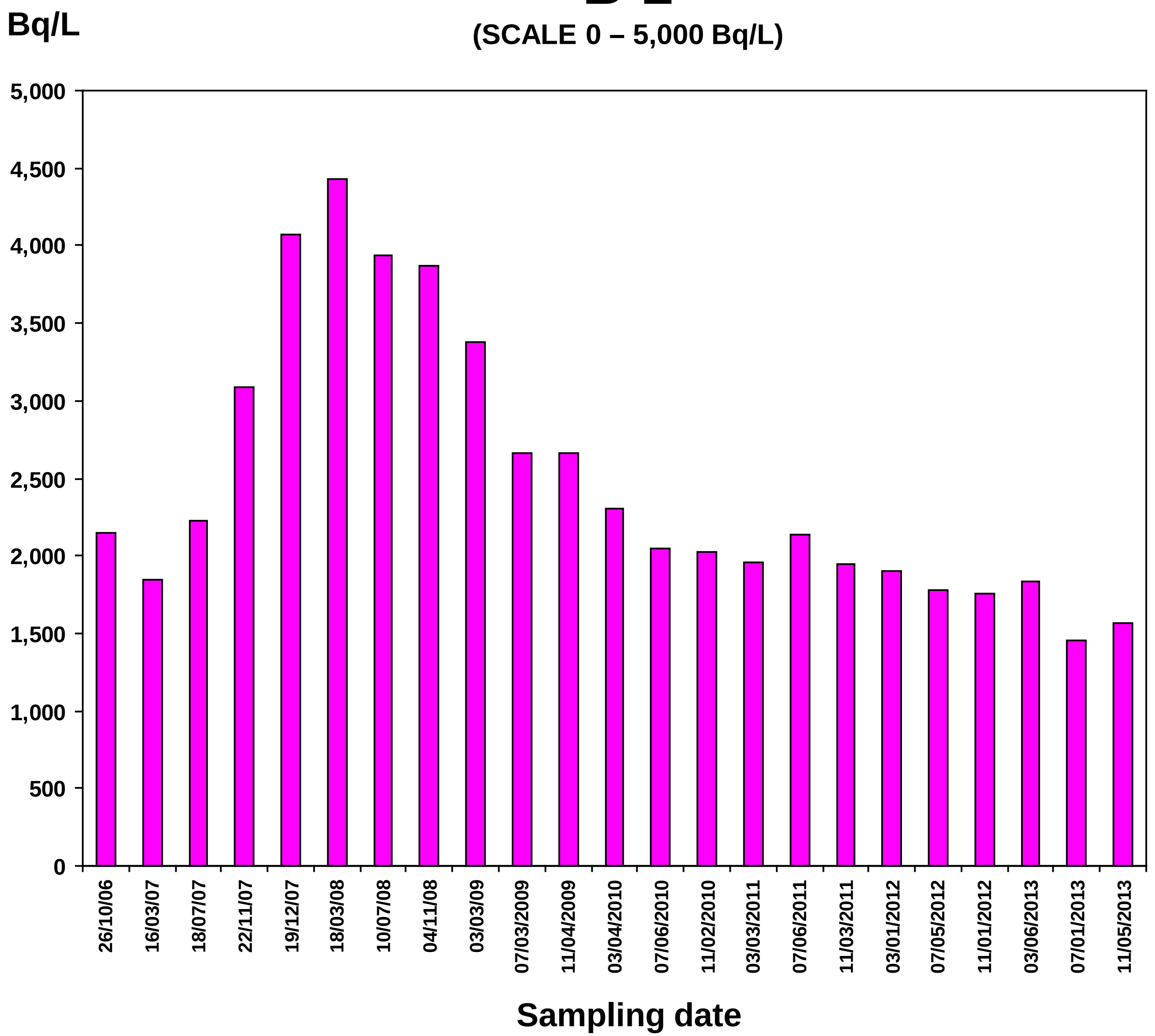
MONITORING RESULTS
B-1

(SCALE 0 – 2500 Bq/L)



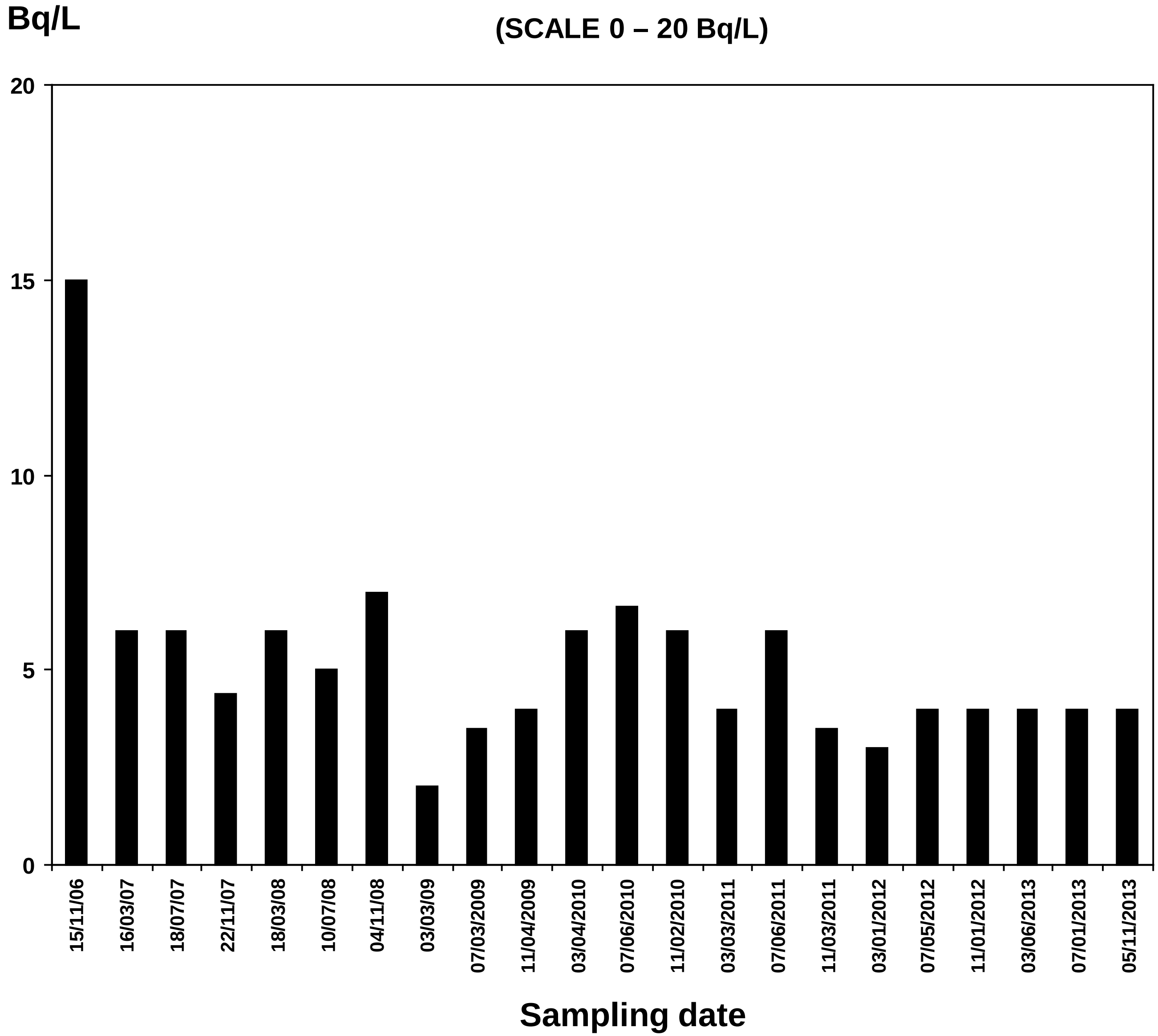
APPENDIX L

MONITORING RESULTS
B-2
(SCALE 0 – 5,000 Bq/L)

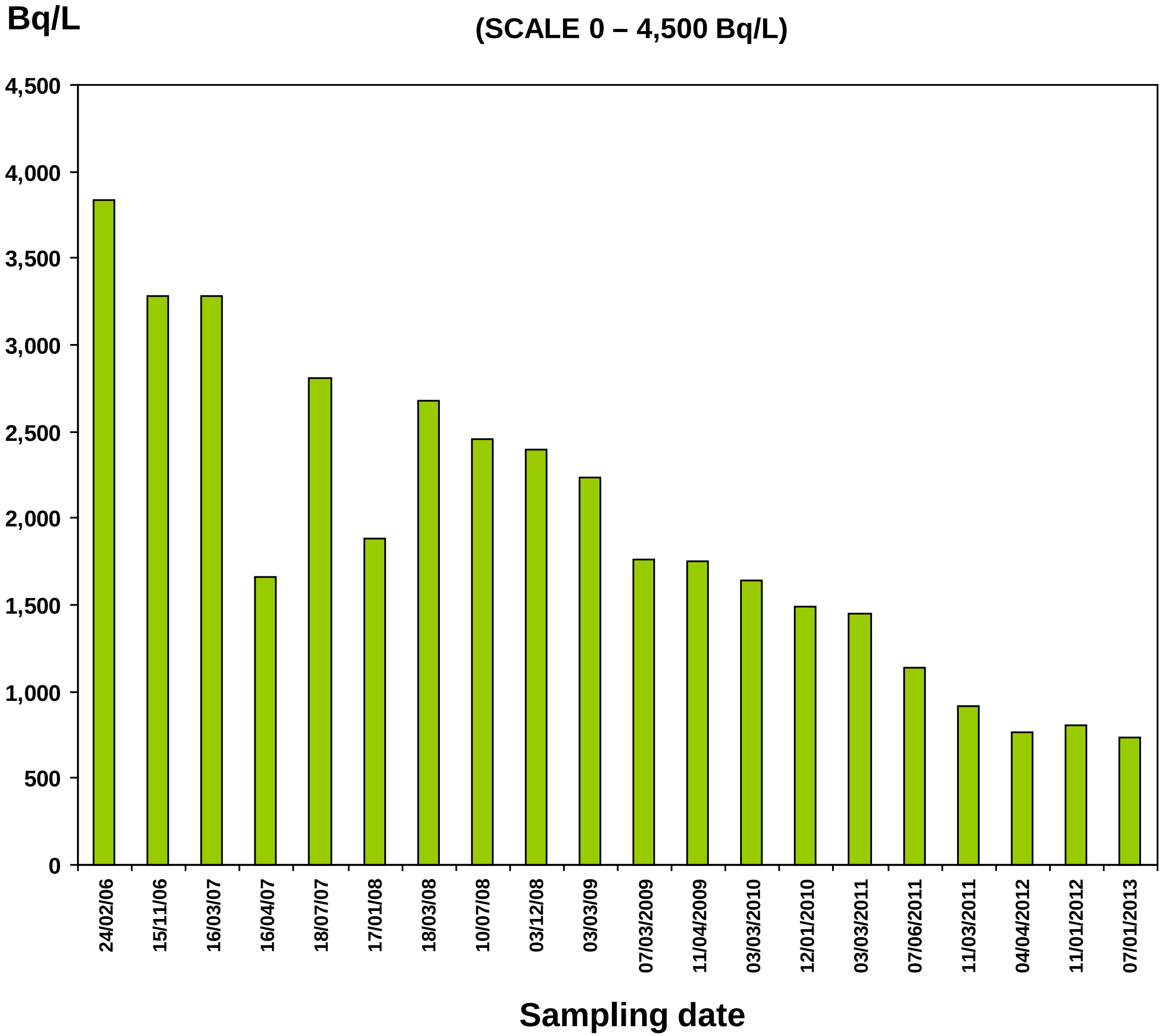


APPENDIX L

MONITORING RESULTS
B-3
(SCALE 0 – 20 Bq/L)

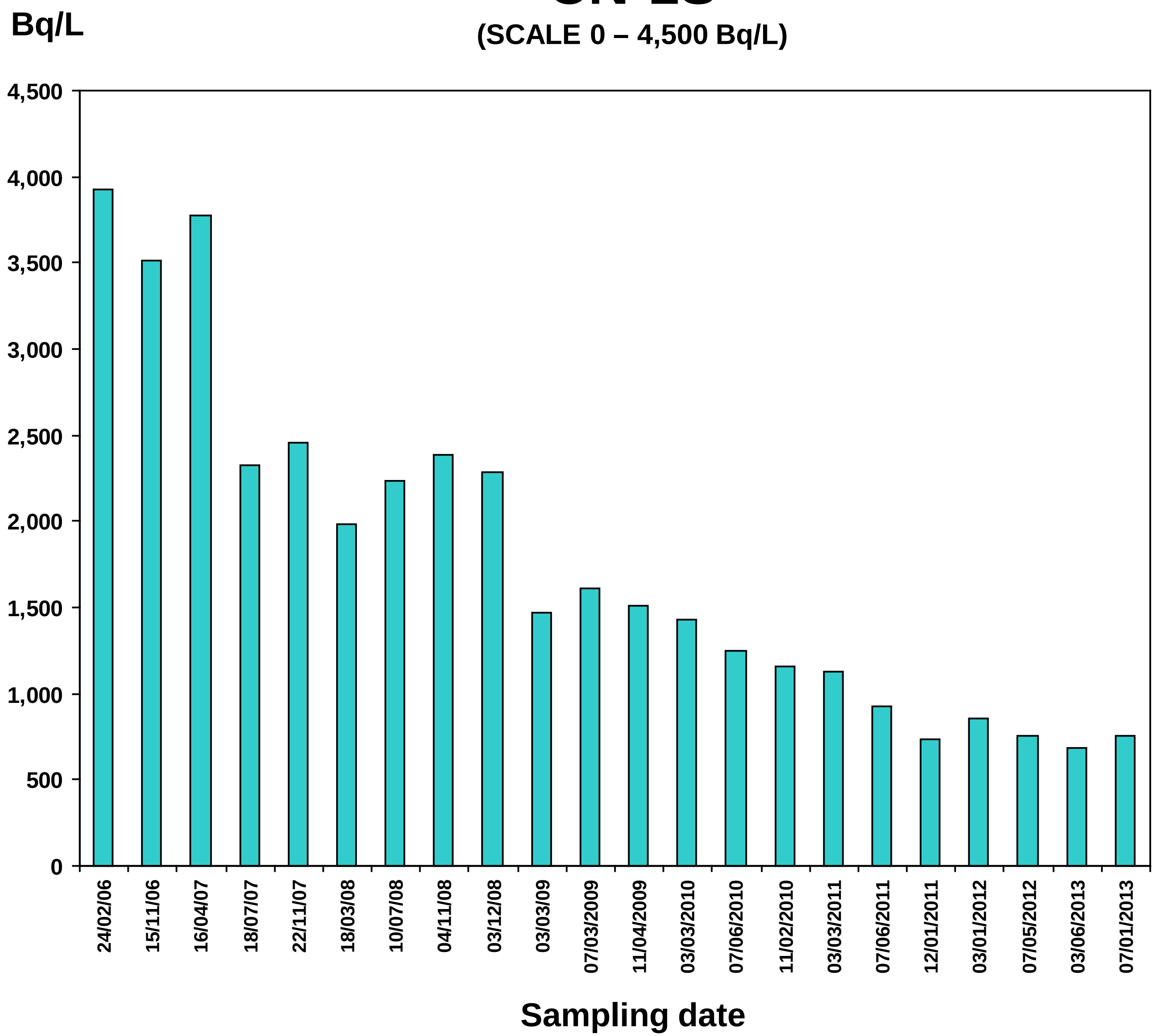


MONITORING RESULTS
CN-1D
(SCALE 0 – 4,500 Bq/L)



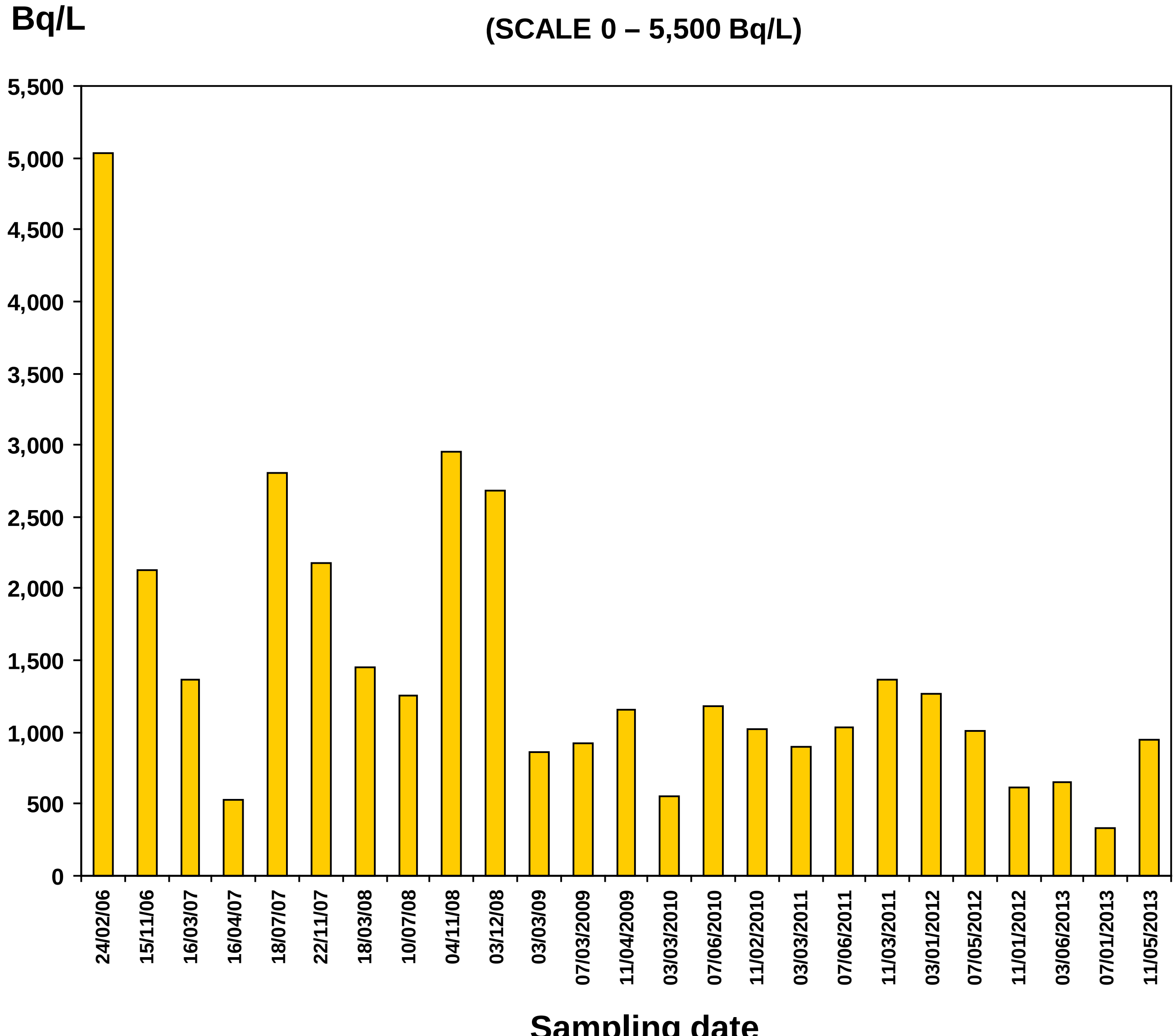
MONITORING RESULTS
CN-1S

(SCALE 0 – 4,500 Bq/L)



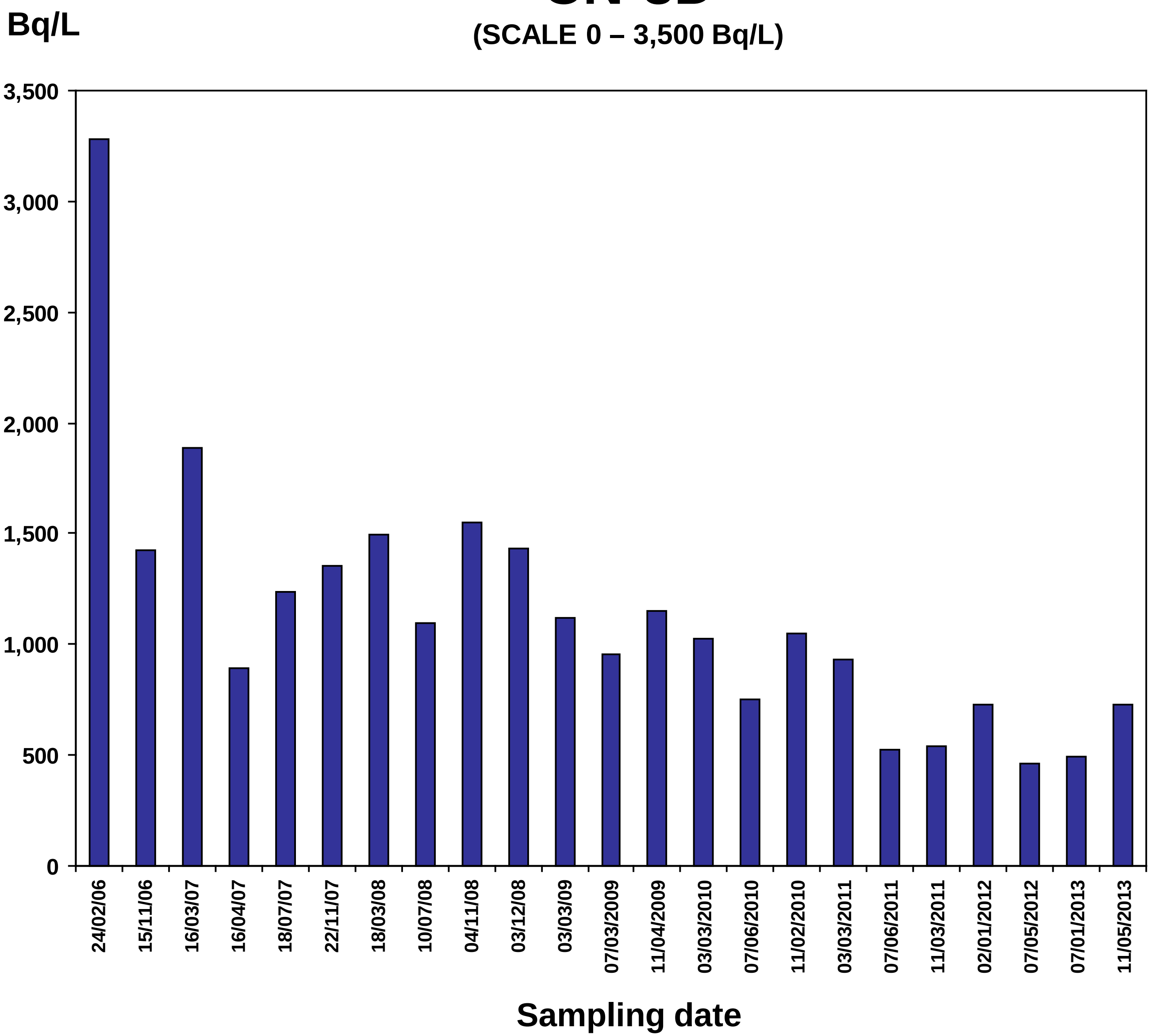
APPENDIX L

MONITORING RESULTS
CN-2



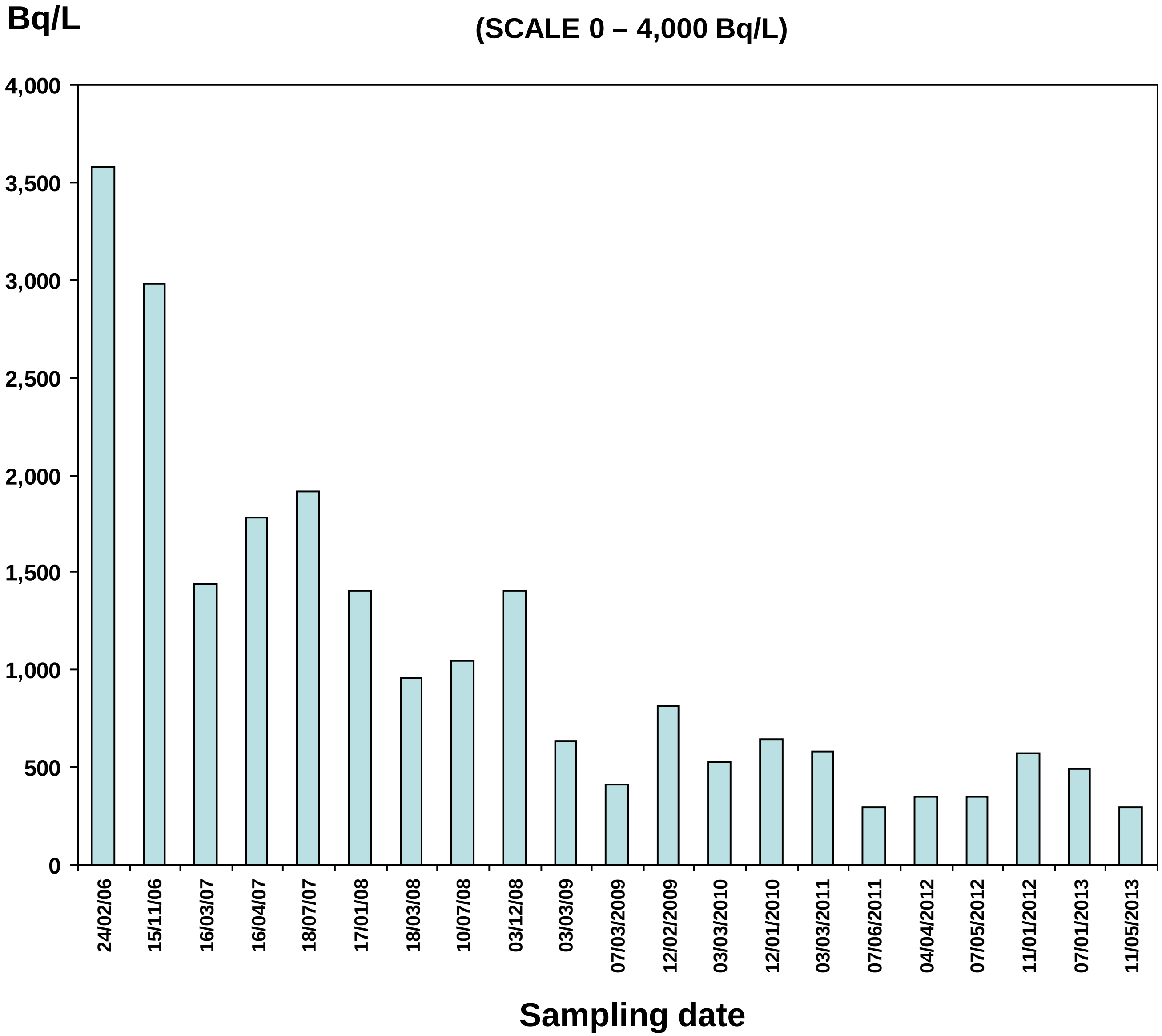
APPENDIX L

MONITORING RESULTS
CN-3D
(SCALE 0 – 3,500 Bq/L)



MONITORING RESULTS
CN-3S

(SCALE 0 – 4,000 Bq/L)



APPENDIX M

Runoff Monitoring Results for 2013

DOWNSPOUTS							
DATE	**TIME**	**DS-1**	**DS-2**	**DS-3**	**DS-4**	**DS-5**	**DS-6**
6-Mar-13	12:45 PM	No sample	3,820	390	2,180	220	740
7-Aug-13	8:30 AM	No sample	No sample	No sample	100	No sample	No sample
7-Aug-13	2:40 PM	100	No sample	No sample	No sample	No sample	No sample
12-Sep-13	9:00 AM	No sample	No sample	No sample	No sample	No sample	1,210
22-Nov-13	11:00 AM	100	100	No sample	No sample	No sample	No sample
Average		**100**	**1960**	**390**	**1140**	**220**	**975**
Average all results		**798**					

Values are all in Bq/L
Lower limit of detection = 100 Bq/L

APPENDIX N

Precipitation Monitoring Results for 2013

PRECIPITATION SAMPLERS								
	1P	**4P**	**8P**	**11P**	**15P**	**18P**	**22P**	**25P**
	Bq/L							
Jan 4 - Febr 1, 2013	73	176	25	12	16	58	51	23
Feb 1 - Mar 5, 2013	104	178	214	143	71	225	141	46
Mar 5 - April 2, 2013	77	229	60	21	44	112	162	60
April 2 - May 2, 2013	168	146	94	19	6	50	23	25
May 2 - June 4, 2013	10	72	80	No Sample	61	60	14	13
June 4 - July 4, 2013	9	15	33	No Sample	21	18	23	19
July 4 - Aug 1, 2013	21	50	16	No Sample	12	739	2,885	134
Aug 1 - Sept 5, 2013	77	105	17	43	56	58	69	46
Sept 5 - Oct 2, 2013	56	72	9	6	22	31	18	65
Oct 2 - Nov 5, 2013	95	79	28	23	9	26	35	72
Nov 5 - Dec 4, 2013	70	104	66	38	9	300	212	33
Dec 4, 2012 - Jan 9, 2014	17	37	52	43	26	115	275	87
Average	**65**	**105**	**58**	**39**	**29**	**149**	**326**	**52**
Average all results	**103**							

APPENDIX O

Compilation of Water Level Measurements for 2013

Date	Monitoring Wells (Values in m)										
	MW06-1	MW06-2	MW06-3	MW06-8	MW06-9	MW06-10	MW07-11	MW07-12	MW07-13	MW07-15	MW07-16
Easting	335449	335478	335363	335464	335401	335408	335478	335465	335448	335403	335393
Northing	5074615	5074578	5074535	5074590	5074605	5074506	5074576	5074588	5074616	5074605	5074599
TOP Elevation (m)	130.99	130.03	133.09	130.30	131.15	131.32	130.06	130.41	130.92	130.84	130.98
GS Elevation (m)	130.17	129.24	132.32	129.58	129.86	130.24	129.15	129.58	130.03	129.93	130.16
Well Diameter (m)	0.051	0.051	0.051	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Well Depth (m)	5.165	5.330	6.130	6.700	5.930	7.770	7.215	7.450	6.615	7.230	7.050
Stick-up (m)	0.820	0.788	0.767	0.720	1.290	1.077	0.905	0.835	0.893	0.910	0.822
02-Jan-13	126.63	126.96	127.02	125.24	126.46	125.68	125.40	125.18	124.63	125.39	125.38
31-Jan-13	128.53	127.36	127.13	125.97	126.89	126.91	126.03	125.80	126.13	126.71	126.49
05-Mar-13	127.37	126.66	127.06	125.56	126.22	125.95	125.61	125.42	125.51	125.83	125.70
01-Apr-13	129.14	128.73	130.70	127.71	128.83	129.19	127.64	127.55	127.73	128.89	128.78
01-May-13	129.13	128.29	130.18	128.06	129.64	129.41	128.03	127.98	128.17	129.38	129.37
03-Jun-13	128.92	128.05	129.53	127.59	129.25	128.76	127.56	127.55	127.72	128.77	128.72
03-Jul-13	128.65	128.03	129.05	127.24	128.84	128.21	127.24	127.19	127.32	128.22	128.17
31-Jul-13	128.46	127.66	127.94	126.68	128.19	127.45	126.69	126.60	126.72	127.52	127.42
04-Sep-13	127.11	127.05	127.04	125.56	126.43	126.02	125.63	125.45	125.08	125.83	125.81
01-Oct-13	127.43	127.07	127.14	125.90	127.07	126.45	125.94	125.80	125.73	126.44	126.38
04-Nov-13	128.40	127.52	127.85	126.53	127.99	128.16	126.56	126.37	126.52	127.39	127.25
03-Dec-13	128.06	127.60	127.73	126.46	127.81	127.13	126.48	126.36	126.39	127.10	127.06

Date	MW07-17	MW07-18	MW07-19	MW07-20	MW07-21	MW07-22	MW07-23	MW07-24	MW07-25	MW07-26	MW07-27
Easting	335392	335387	335378	335296	335522	335472	335492	335519	335466	335357	335354
Northing	5074599	5074595	5074587	5074616	5074584	5074584	5074560	5074530	5074498	5074567	5074611
TOP Elevation (m)	131.08	131.23	131.61	130.70	129.51	130.25	130.04	129.03	129.85	132.42	132.89
GS Elevation (m)	130.16	130.37	130.79	129.85	128.78	129.05	129.29	128.22	129.03	131.85	132.02
Well Diameter (m)	0.051	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Well Depth (m)	14.610	7.250	7.400	7.820	7.580	7.465	5.905	6.525	6.750	7.310	8.330
Stick-up (m)	0.915	0.868	0.815	0.850	0.730	1.200	0.750	0.810	0.820	0.570	0.870
02-Jan-13	120.97	125.45	125.51	124.18	124.87	125.15	126.54	125.73	126.35	125.84	125.03
31-Jan-13	121.39	126.60	126.90	124.75	124.57	125.83	127.05	126.22	127.05	127.67	126.17
05-Mar-13	121.09	125.66	125.77	124.33	123.94	125.42	126.56	125.89	126.71	125.93	125.28
01-Apr-13	123.44	129.18	129.31	127.40	126.84	127.58	128.14	127.28	128.35	130.80	129.12
01-May-13	125.15	129.46	129.41	127.45	126.88	127.99	128.39	127.50	128.39	130.26	129.59
03-Jun-13	124.20	128.71	128.87	126.89	126.30	127.49	128.08	127.17	127.86	129.41	128.81
03-Jul-13	123.52	128.12	128.26	125.90	126.13	127.12	127.87	126.84	127.80	128.79	127.98
31-Jul-13	122.56	127.36	127.43	125.83	125.09	126.54	127.49	126.45	127.27	127.53	127.03
04-Sep-13	121.46	125.83	125.91	124.20	123.55	125.42	126.59	125.55	126.48	126.10	125.36
01-Oct-13	121.40	126.29	126.33	124.67	124.04	125.75	126.88	125.83	126.59	126.28	125.70
04-Nov-13	121.78	127.17	127.22	125.49	124.89	126.39	127.48	126.41	127.21	127.26	126.53
03-Dec-13	122.25	127.00	127.04	125.46	124.90	126.32	127.34	126.44	127.40	127.13	126.50

Date	MW07-28	MW07-29	MW07-31	MW07-32	MW07-33	MW07-34	MW07-35	MW07-36	MW07-37
Easting	335352	335384	335471	335517	335465				
Northing	5074612	5074592	5074583	5074530	5074497				
TOP Elevation (m)	132.71	131.09	130.16	128.86	129.88	131.12	132.89	133.10	130.06
GS Elevation (m)	132.04	130.57	129.38	128.23	129.26	130.71	132.16	132.31	129.47
Well Diameter (m)	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Well Depth (m)	14.400	13.000	13.240	13.090	14.230	9.110	9.390	9.330	8.590
Stick-up (m)	0.670	0.520	0.780	0.630	0.620	0.410	0.730	0.790	0.590
02-Jan-13	120.89	120.86	119.90	119.96	119.90	124.93	124.76	124.42	125.26
31-Jan-13	121.45	121.49	120.41	120.40	120.40	126.17	125.77	125.05	125.94
05-Mar-13	121.14	121.17	120.25	120.23	120.21	125.22	125.01	124.63	125.56
01-Apr-13	123.43	123.47	122.72	122.70	122.69	128.48	128.48	127.23	127.71
01-May-13	124.92	124.92	125.16	125.15	125.13	128.93	129.25	128.44	128.12
03-Jun-13	124.21	124.17	123.27	123.25	123.25	128.19	128.35	127.44	127.62
03-Jul-13	123.58	123.58	122.59	122.59	122.58	127.53	127.51	126.45	127.26
31-Jul-13	122.68	122.68	121.43	121.42	121.41	126.70	126.50	125.42	126.67
04-Sep-13	121.53	121.55	120.46	120.43	120.44	125.27	125.04	124.56	125.54
01-Oct-13	121.47	121.62	120.40	120.38	120.38	125.66	125.35	124.78	125.88
04-Nov-13	121.81	121.83	120.58	120.57	120.55	126.39	126.05	125.10	126.52
03-Dec-13	122.32	122.31	121.22	121.20	121.20	126.27	126.06	125.21	126.44

APPENDIX P

Produce Monitoring Results for 2013

DESCRIPTION	DISTANCE FROM STACKS	RHUBBARB	TOMATO	SWISS CHARD	CUCUMBER	POTATO	ZUCCHINI	ONION	CARROT	APPLE	AVG
					Bq/L						
416 BOUNDARY RD	400	**82**	**119**		**143**	**130**			**110**	**148**	**122**
413 SWEEZEY CRT	400							**78**	**104**	**142**	**108**
408 BOUNDARY RD	400		**115**					**114**			**114.5**
366 CHAMBERLAIN	2,000	**16**	**24**	**20**	**22**					**24**	**21**
										AVG	**91**

DESCRIPTION	DISTANCE FROM STACKS	RHUBBARB	TOMATO	SWISS CHARD	CUCUMBER	POTATO	ZUCCHINI	ONION	CARROT	APPLE	AVG
					Bq/L						
LOCAL MARKET	1,750		**157**		**24**		**32**	**78**	**23**		**63**
										AVG	**63**

SRB PRODUCE SAMPLING - 2013

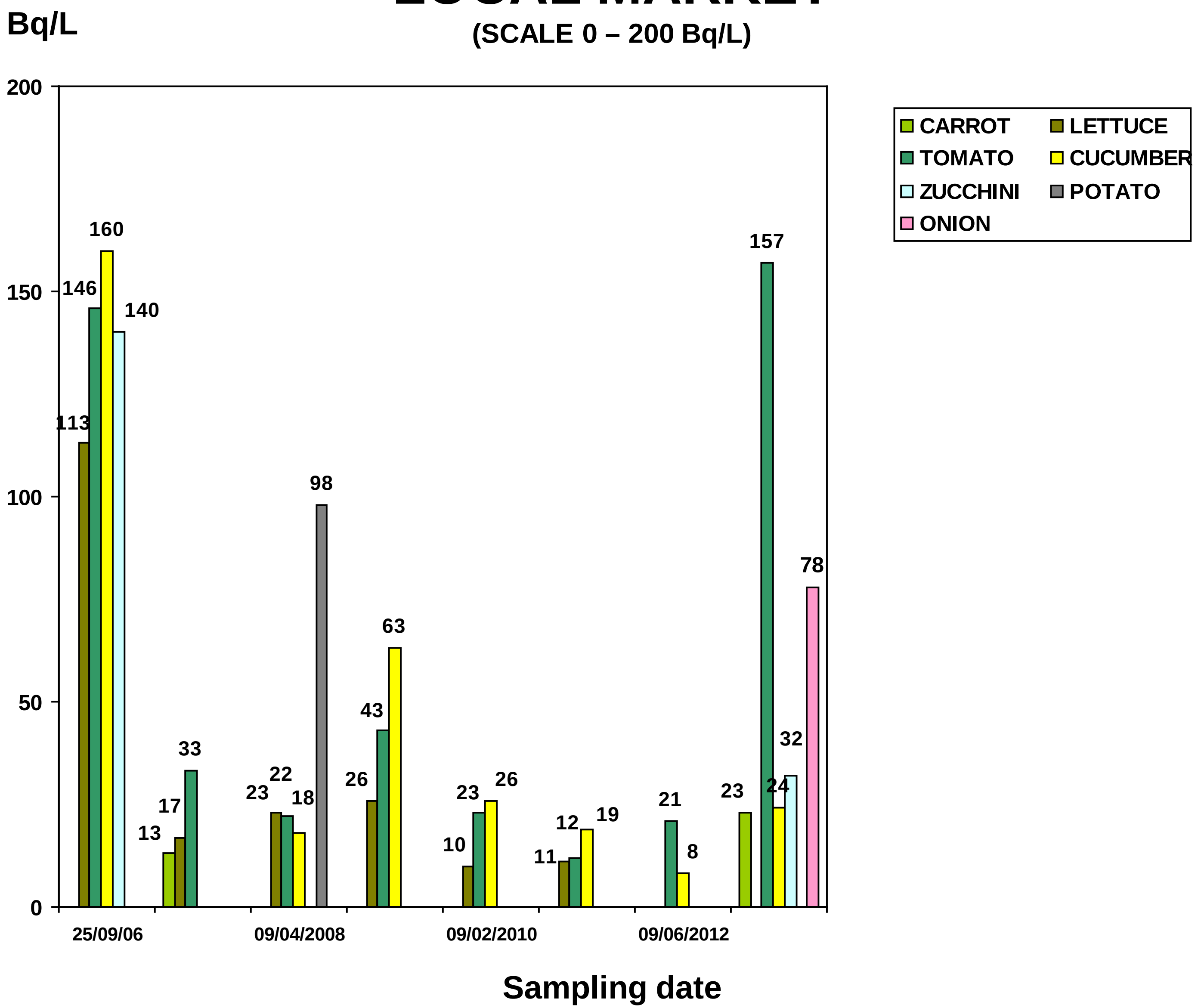
Rev. 10/ 10/2013

Sample Locations

1- Local Market ~ 1.75 KM
2- 416 Boundary Rd. ~ 0.4 KM
3- 413 Sweezey Crt. ~ 0.4 KM
4- 408 Boundary Rd. ~ 0.35 KM
5- 366 Chaimberlain St. ~ 1.65 KM

PRODUCE MONITORING RESULTS
LOCAL MARKET

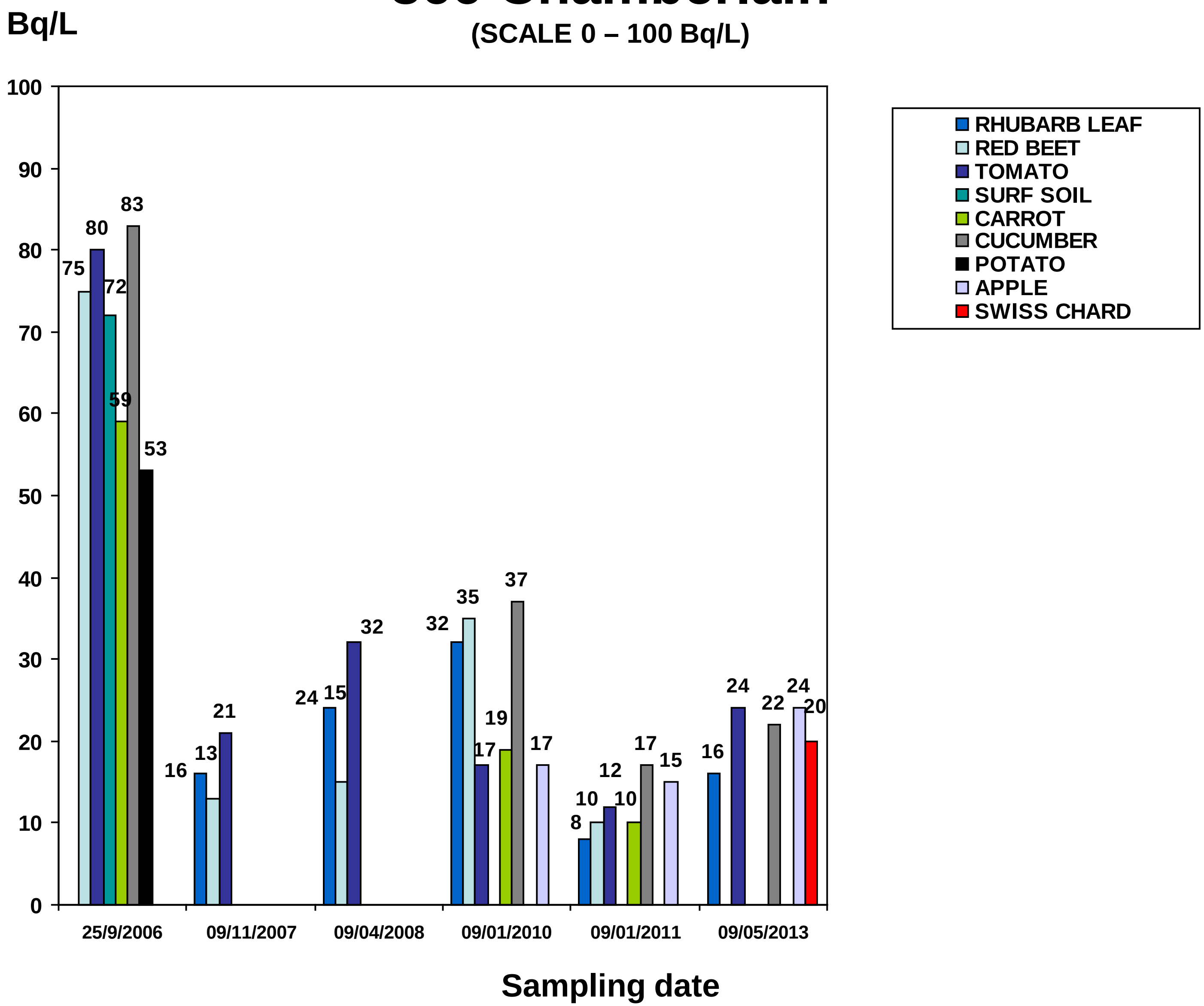
(SCALE 0 – 200 Bq/L)



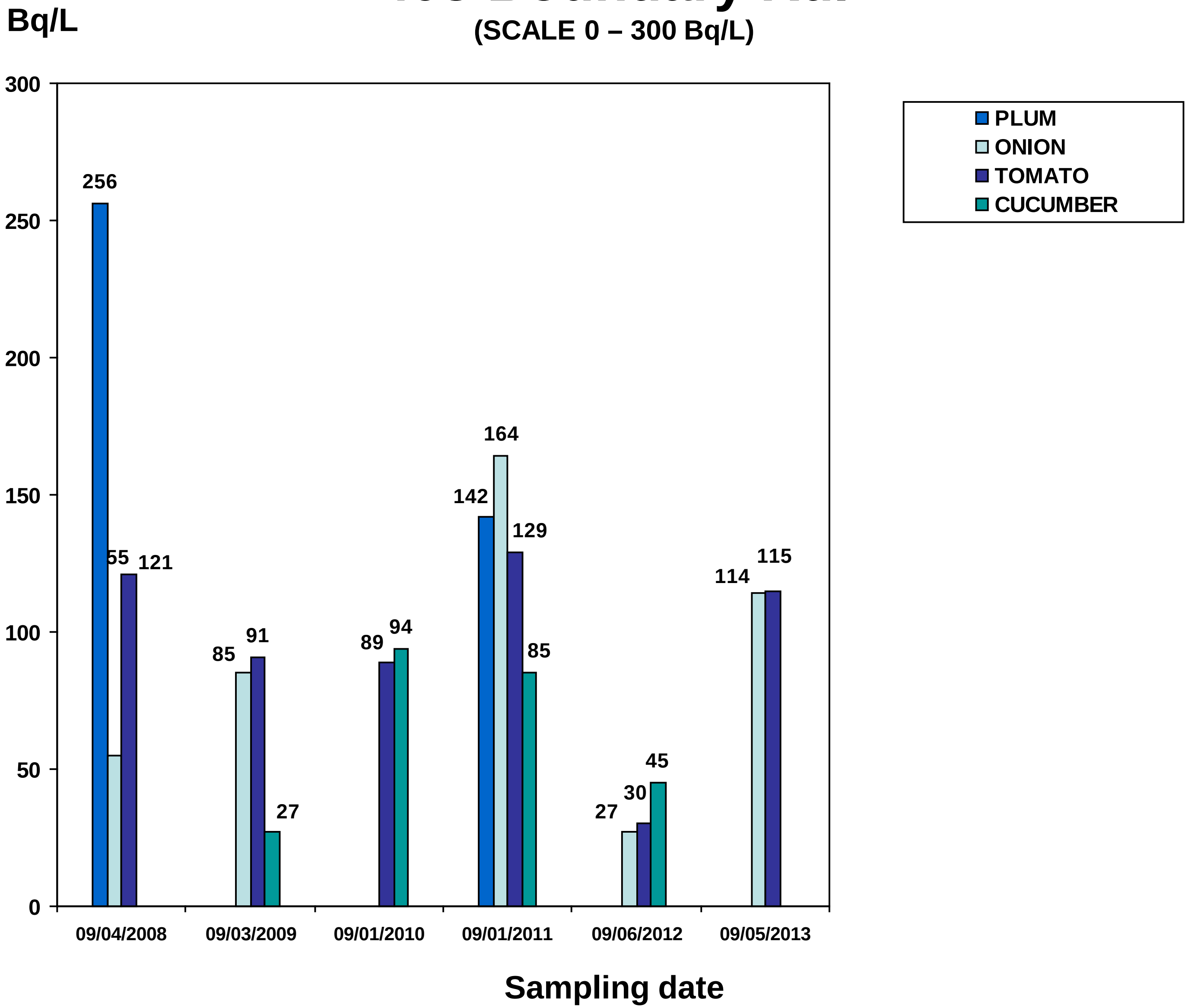
APPENDIX P

PRODUCE MONITORING RESULTS
366 Chamberlain

(SCALE 0 – 100 Bq/L)

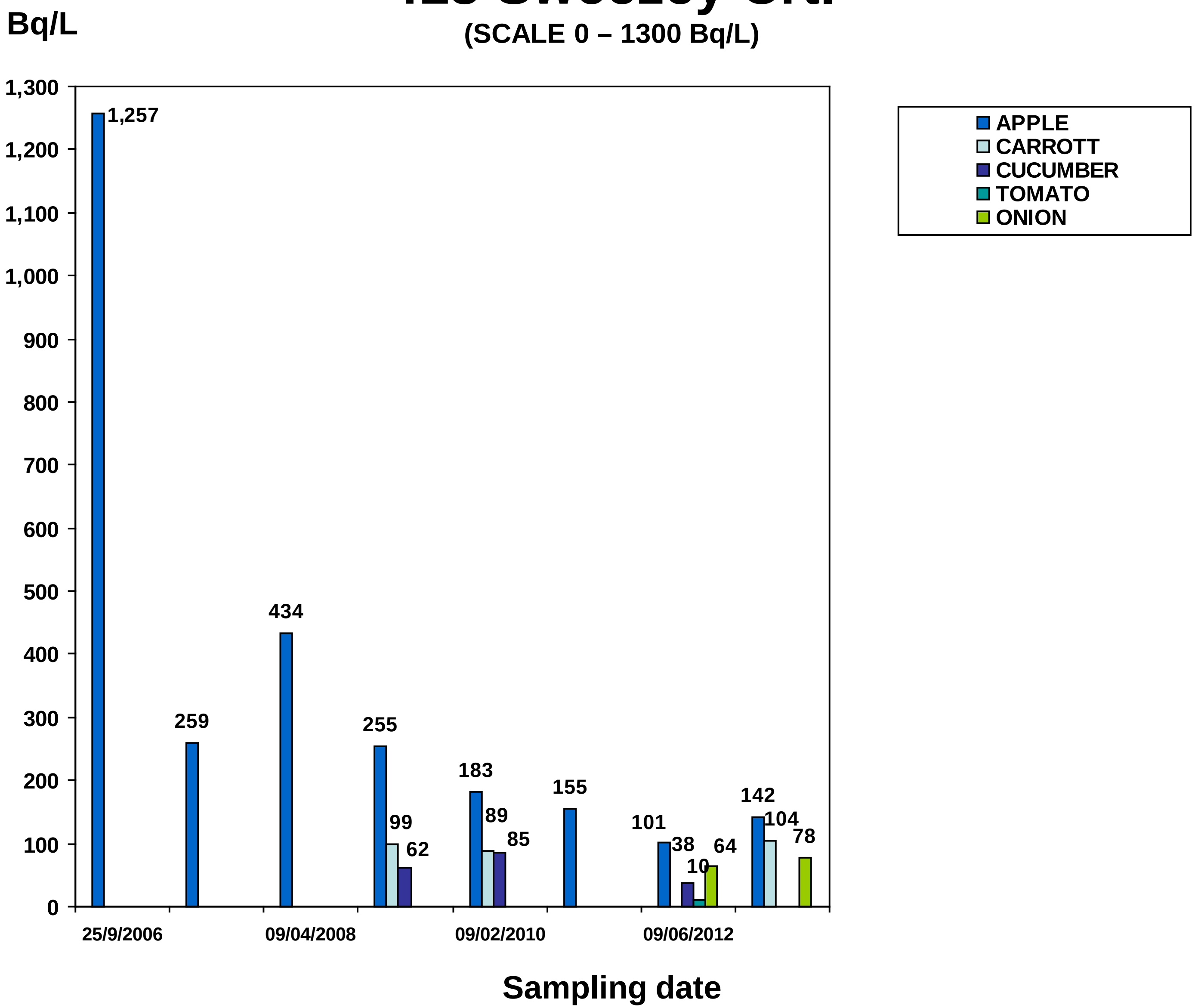


PRODUCE MONITORING RESULTS
408 Boundary Rd.



PRODUCE MONITORING RESULTS
413 Sweezey Crt.

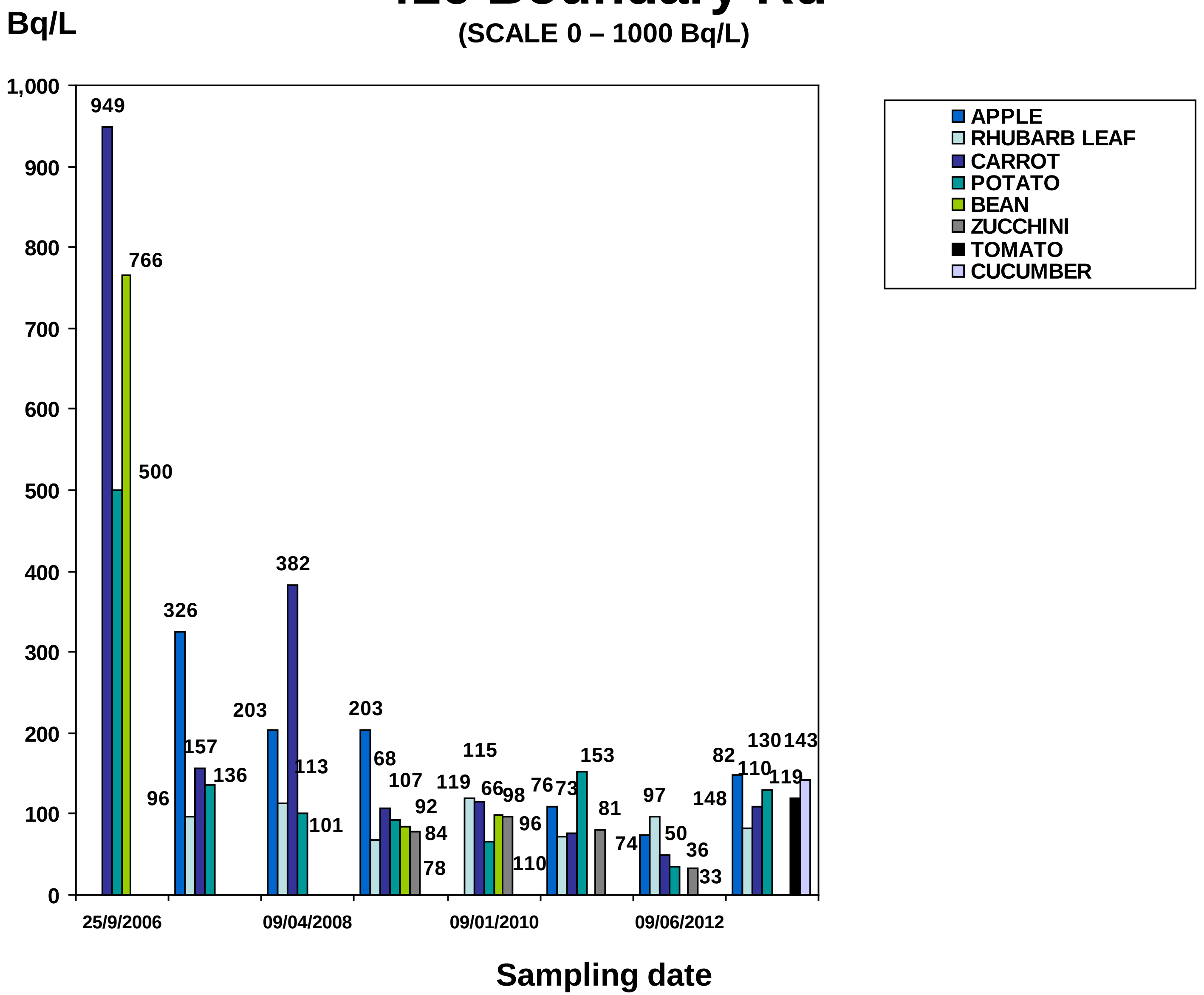
(SCALE 0 – 1300 Bq/L)



APPENDIX P

PRODUCE MONITORING RESULTS
416 Boundary Rd

(SCALE 0 – 1000 Bq/L)



APPENDIX P

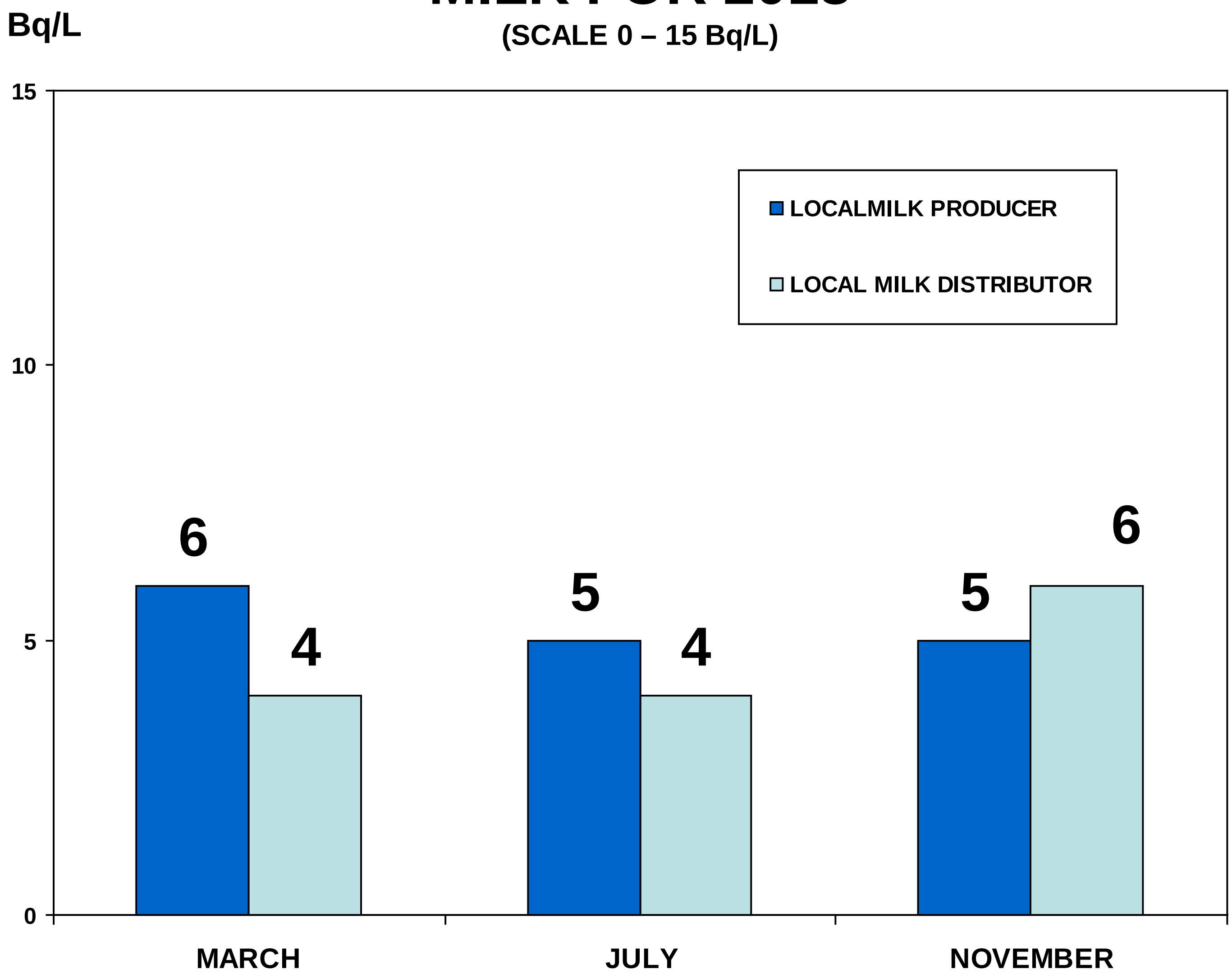
APPENDIX Q

Milk Monitoring Results for 2013

DESCRIPTION	March	July	November	AVG
LOCAL PRODUCER	6	5	5	5.3
LOCAL DISTRIBUTOR	4	4	6	4.7
			AVG	5

MONITORING RESULTS
MILK FOR 2013

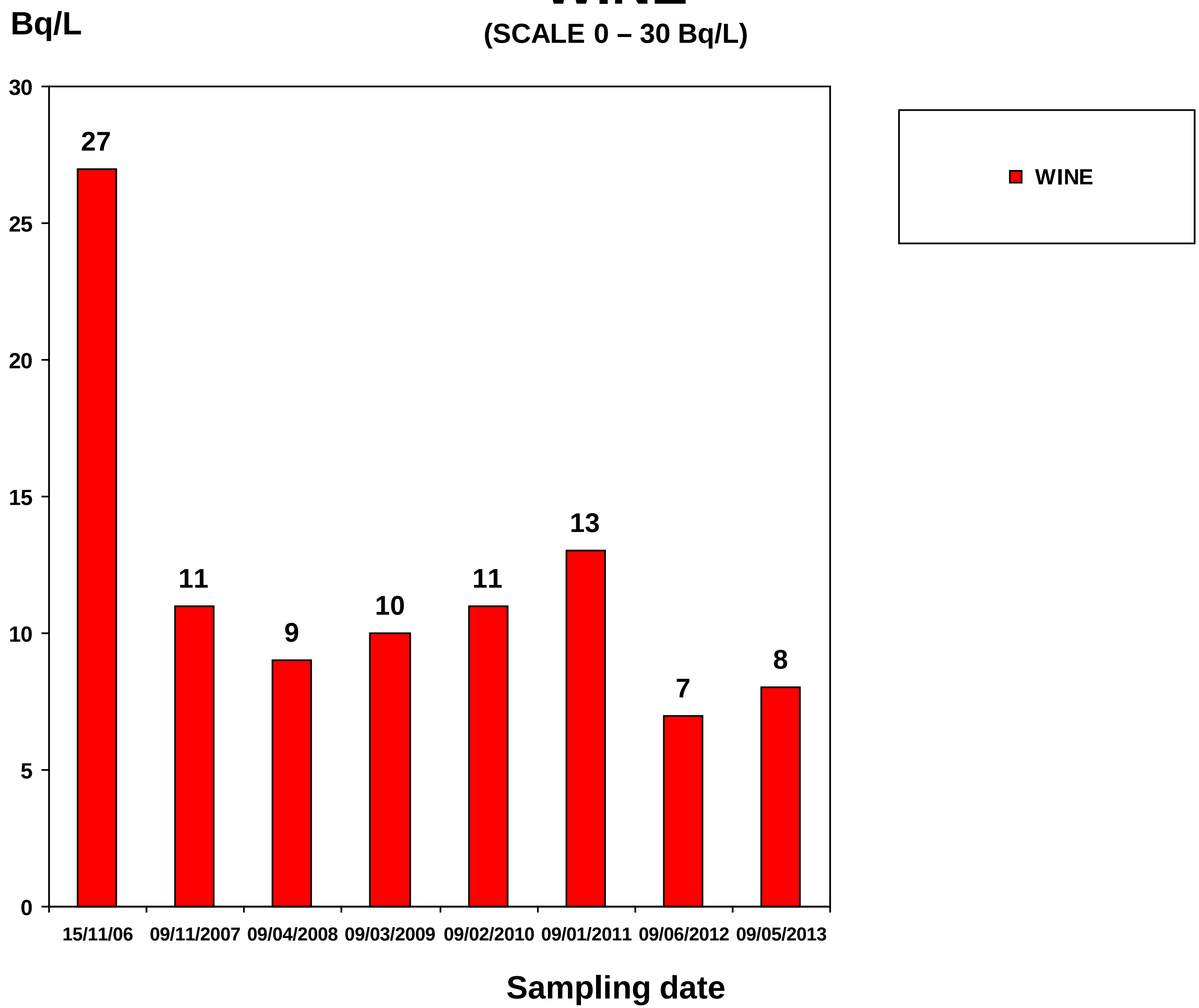
(SCALE 0 – 15 Bq/L)



APPENDIX R

Wine Monitoring Results for 2013

MONITORING RESULTS
WINE
(SCALE 0 – 30 Bq/L)



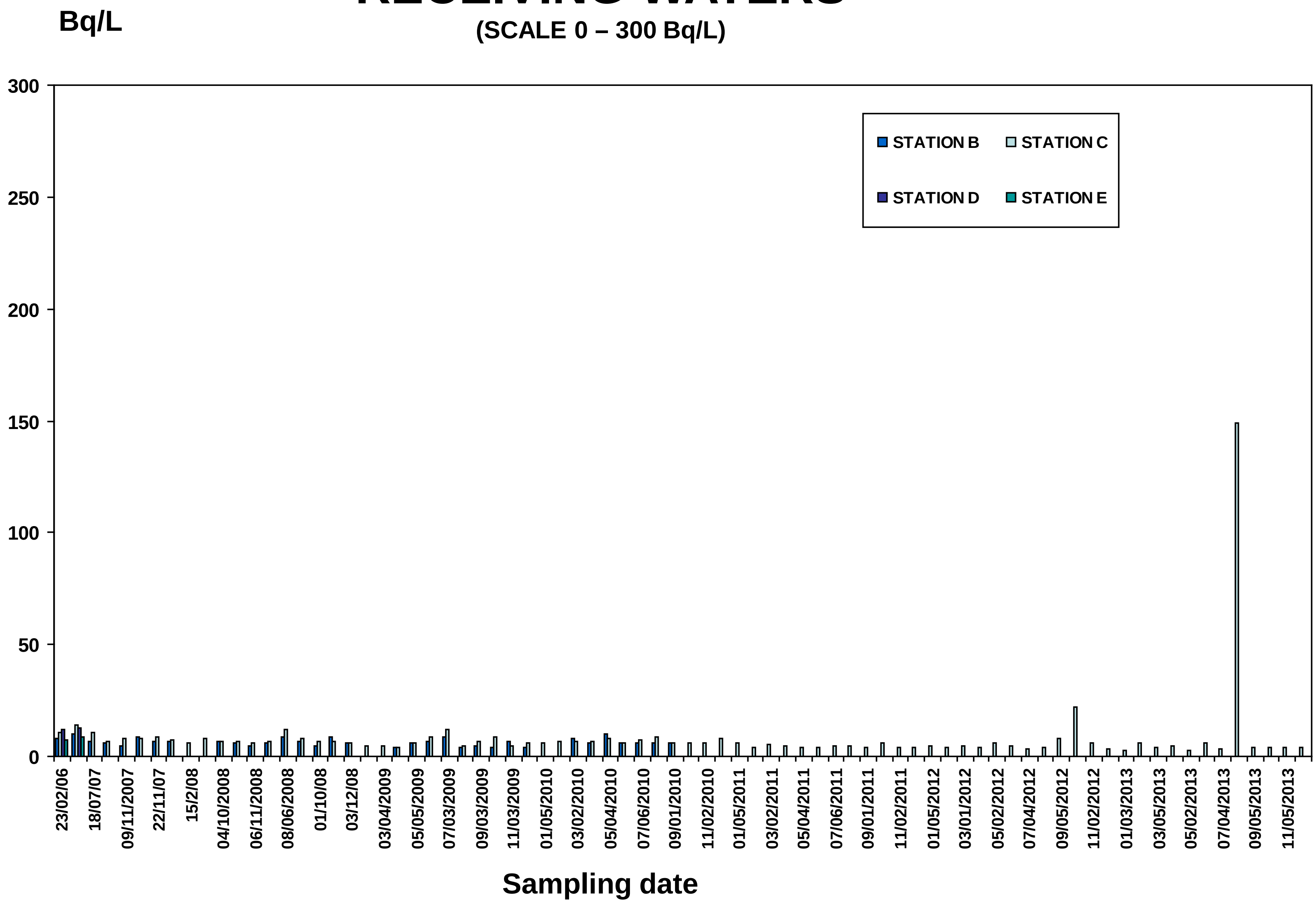
APPENDIX R

APPENDIX S

Receiving Waters Monitoring Results for 2013

MONITORING RESULTS
RECEIVING WATERS

(SCALE 0 – 300 Bq/L)



APPENDIX S

APPENDIX T

Weather Data for 2013

	WEATHER MONITORING DATA 2013									
	Pressure, mbar()	Counts, # ()	Wind Speed, m/s()	Gust Speed, m/s()	Wind Direction, ø()	Temp, °C()	RH, %()	DewPt, °C()	Wind sector (nesw)	Total rain (mm)
Jan-13	999.52	238	2.88	4.07	158.51	-9.37	81.02	-12.09	SSE	47.6
Feb-13	997.83	120	3.11	4.44	172.1	-7.85	80.56	-10.7	SSE	24
Mar-13	996.32	56	3.11	4.42	184.89	-0.78	68.28	-6.26	SSW	11.2
Apr-13	1001.26	393	3.4	4.96	180.57	5.45	67.35	-0.66	S	78.6
May-13	998.69	444	2.86	439	157.65	13.73	65.62	6.31	SSE	88.8
Jun-13	996.99	575	2	3.13	143.94	17.04	76.44	12.37	SE	115
Jul-13	998.2	616	1.96	3.17	204.94	20.78	75	15.76	SSW	123.2
Aug-13	997.43	189	1.99	3.23	194.8	18.57	75.66	13.78	SSW	37.8
Sep-13	999.39	329	2.17	3.43	179.28	13.51	79.07	9.55	SSE	65.8
Oct-13	998.88	485	2.48	3.78	185.72	7.62	78.89	3.94	SSW	97
Nov-13	1000.61	181	3.53	5.19	165.64	-1.68	80.95	-4.64	SSE	36.2
Dec-13	1001.31	54	2.61	3.78	157.56	-12.58	80.82	-15.27	SSE	10.8
YEARLY AVERAGE	998.87	306.67	2.68	40.22	173.80	5.37	75.81	1.01	SSW	61.33

APPENDIX T

APPENDIX U

Sewage Monitoring Results for 2013

2009 SLUDGE WATER FROM POLLUTION CONTROL PLANT	
DATE	**Bq/L**
Jan 7 – 13, 2009	62
Jan 14 – 20, 2009	44
Jan 21 – 27, 2009	50
Jan 28 – Feb 3, 2009	49
Feb 4 – 10, 2009	62
Feb 11 – 17, 2009	78
Feb 18 – 24, 2009	75
Feb 25 – Mar 2, 2009	64
Mar 4 – 10, 2009	56
Mar 11 – 17, 2009	64
Mar 18 – 24, 2009	77
Mar 25 – 31, 2009	91
Apr 1 – 7, 2009	<121
Apr 8 -14, 2009	<103
Apr 15 – 21, 2009	103
Apr 22 – 28, 2009	<103
Apr 29 – May 5, 2009	<103
May 6 – 12, 2009	74
May 13 – 19, 2009	138
May 19 – 26, 2009	90
May 27 – June 2, 2009	70
June 3 – 9, 2009	50
June 10 – 16, 2009	91
June 17 – 23, 2009	52
June 24 – 30, 2009	124
July 1 -7, 2009	50
July 8 – 14, 2009	60
July 15 – 21, 2009	58
July 22 – 28, 2009	54
July 29 – Aug 4, 2009	42
Aug 5 – 11, 2009	57
Aug 12 – 18, 2009	40
Aug 19 – 25, 2009	51
Aug 26 – Sept 1, 2009	67
Sept 2 – 8, 2009	50
Sept 9 – 15, 2009	44
Sept 16 – 22, 2009	49
Sept 23 – 29, 2009	48
Sept 30 – Oct 6, 2009	52
Oct 7 – 13, 2009	62
Oct 13 – 20, 2009	53
Oct 21 – 27, 2009	51
Oct 28 – Nov 3, 2009	55
Nov 4 – 10, 2009	57
Nov 11- 17, 2009	63
Nov 18 – 24, 2009	77
Nov 25 – Dec 1, 2009	36
Dec 2 – 8, 2009	38
Dec 8 – 15, 2009	34
Dec 15 – 22, 2009	26
Dec 22 – 29, 2009	25
Dec 29, 2009 – Jan 5, 2010	25
AVERAGE	**63**

2010 SLUDGE WATER FROM POLLUTION CONTROL PLANT	
DATE	**Bq/L**
Jan 6 – 12, 2010	24
Jan 13 – 19, 2010	19
Jan 20 – 26, 2010	19
Jan 27 – Feb 3, 2010	29
Feb 3 – 9, 2010	28
Feb 10 – 16, 2010	49
Feb 17 – 23, 2010	32
Feb 24 – Mar 2, 2010	18
Mar 3 – 9, 2010	33
Mar 10 – 16, 2010	33
Mar 17 – 23, 2010	36
Mar 24 – 30, 2010	71
Mar 30 – Apr 6, 2010	49
Apr 7 – 13, 2010	50
Apr 14 – 20, 2010	46
Apr 21 – 27, 2010	38
Apr 28 – May 4, 2010	51
May 5 – 11, 2010	30
May 12 – 18, 2010	30
May 19 – 25, 2010	23
May 26 – June 1, 2010	24
June 2 – 8, 2010	21
June 9 – 15, 2010	20
June 16 – 22, 2010	19
June 23 – 29, 2010	24
June 30 – July 6, 2010	24
July 6 – 13, 2010	25
July 14 – 20, 2010	27
July 21 – 27, 2010	25
July 28 – Aug 3, 2010	23
Aug 4 – 10, 2010	15
Aug 11 – 17, 2010	15
Aug 18 – 24, 2010	17
Aug 25 – 30, 2010	20
Aug 31 – Sept 7, 2010	26
Sept 8 – 14, 2010	85
Sept 15 – 21, 2010	21
Sept 22 – 28, 2010	26
Sept 29 – Oct 5, 2010	37
Oct 6 – 12, 2010	22
Oct 13 – 18, 2010	17
Oct 20 – 26, 2010	20
Oct 27 – Nov 2, 2010	22
Nov 3 – 9, 2010	25
Nov 10 – 16, 2010	23
Nov 17 – 23, 2010	22
Nov 24 – 30, 2010	35
Nov 30 – Dec 7, 2010	40
Dec 8 – 14, 2010	37
Dec 15 – 21, 2010	28
Dec 22 – 28, 2010	33
Dec 29 – Jan 4, 2011	48
AVERAGE	**30**

2011 SLUDGE WATER FROM POLLUTION CONTROL PLANT	
DATE	**Bq/L**
Jan 4 – 11, 2011	25
Jan 12 – 18, 2011	22
Jan 19 – 25, 2011	20
Jan 26 – Feb 1, 2011	18
Feb 2 – 8, 2011	15
Feb 9 – 15, 2011	13
Feb 16 – 22, 2011	12
Feb 23 – Mar 1, 2011	19
Mar 2 – 8, 2011	18
Mar 9 – 15, 2011	23
Mar 16 – 22, 2011	47
Mar 23 – 29, 2011	33
Mar 30 – Apr 5, 2011	33
Apr 6 – Apr 12, 2011	33
Apr 13 – 19, 2011	38
Apr 20 – 26, 2011	34
Apr 27 – May 3, 2011	32
May 4 – 10, 2011	31
May 11 – 17, 2011	32
May 18 – 24, 2011	27
May 25 – 31, 2011	31
June 1 – 7, 2011	51
June 8 – 14, 2011	24
June 15 – 21, 2011	23
June 22 – 28, 2011	23
June 29 – July 5, 2011	24
July 6 – 12, 2011	19
July 13 – 19, 2011	29
July 20 – 26, 2011	24
July 27- Aug 2, 2011	20
Aug 3 – 9, 2011	21
Aug 10 – 16, 2011	22
Aug 17 – 23, 2011	21
Aug 24 – 30, 2011	19
Aug 30 – Sept 6, 2011	28
Sept 7 – 13, 2011	27
Sept 14 – 20, 2011	27
Sept 21 – 27, 2011	24
Sept 28 – Oct 4, 2011	22
Oct 5 – 11, 2011	17
Oct 12 – 18, 2011	13
Oct 19 – 25, 2011	20
Oct 26 – Nov 1, 2011	15
Nov 2 – 8, 2011	17
Nov 9 – 15, 2011	16
Nov 16 – 22, 2011	15
Nov 23 – 29, 2011	54
Nov 30 – Dec 6, 2011	24
Dec 7 – 13, 2011	32
Dec 14 – 20, 2011	23
Dec 21 – 26, 2011	17
Dec 27 – Jan 3, 2012	15
AVERAGE	**25**

2012 SLUDGE WATER FROM POLLUTION CONTROL PLANT	
DATE	**Bq/L**
Jan 4 – 10, 2012	23
Jan 11 – 17, 2012	20
Jan 18 – 24, 2012	16
Jan 25 – 31, 2012	21
Feb 1 – 7, 2012	19
Feb 8 – 14, 2012	14
Feb 15 – 21, 2012	14
Feb 22 – 28, 2012	24
Feb 29 – Mar 6, 2012	14
Mar 7 – 13, 2012	19
Mar 14 – 20, 2012	21
Mar 21 – 27, 2012	27
Mar 28 – Apr 3, 2012	25
Apr 4 – 10, 2012	22
Apr 11 – 17, 2012	23
Apr 18 – 24, 2012	23
Apr 25 – May 1, 2012	25
May 2 – 8, 2012	32
May 9 – 15, 2012	19
May 16 – 22, 2012	21
May 23 – 29, 2012	22
May 30 – June 5, 2012	13.9
June 6 – 12, 2012	17
June 13 – 19, 2012	19
June 20 – 26, 2012	15.3
June 27 – July 3, 2012	21
July 4 – 10, 2012	18
July 11 – 17, 2012	22
July 18 – 24, 2012	19
July 25 – 31, 2012	30
Aug 1 – 7, 2012	16
Aug 8 – 14, 2012	16
Aug 15 – 21, 2012	19
Aug 22 – 28, 2012	16
Aug 29 – Sept 4, 2012	16
Sept 5 – 11, 2012	16
Sept 12 – 18, 2012	16
Sept 19 – 25, 2012	19
Sept 26 – Oct 2, 2012	21
Oct 3 – 9, 2012	18
Oct 10 – 16, 2012	<16
Oct 17 – 23, 2012	16.5
Oct 24 – 30, 2012	<17
Oct 31 – Nov 6, 2012	18
Nov 7 – 13, 2012	21
Nov 14 – 20, 2012	<15
Nov 21 – 27, 2012	<15
Nov 28 – Dec 4, 2012	<15
Dec 5 – 11, 2012	27
Dec 12 – 18, 2012	23
Dec 19, 2012 – Jan 2, 2013	<15
AVERAGE	**16.25**

2013 SLUDGE WATER FROM POLLUTION CONTROL PLANT	
DATE	**Bq/L**
Jan 2 – 8, 2013	<16
Jan 9 – 15, 2013	<16
Jan 16 – 22, 2013	<16
Jan 23 – 29, 2013	18
Jan 30 – Feb 5, 2013	<16
Feb 6 – 12, 2013	18
Feb 13 – 19, 2013	<16
Feb 20 – 26, 2013	<16
Feb 27 – Mar 5, 2013	<16
Mar 5 – 11, 2013	<16
Mar 12 – 18, 2013	18
Mar 19 – 25, 2013	20
Mar 26 – Apr 2, 2013	57
Apr 3 – 9, 2013	24
Apr 10 – 16, 2013	21
Apr 17 – 23, 2013	22
Apr 24 – 30, 2013	27
May 1 – 7, 2013	27
May 8 – 14, 2013	20
May 15 – 21, 2013	16
May 22 – 28, 2013	21
May 29 – June 4, 2013	20
AVERAGE	**6.98**

APPENDIX V

Shipments Containing Radioactive Material for 2013

SHIPMENTS CONTAINING RADIOACTIVE MATERIAL FOR 2013

Month / 2013	Number of Shipments
January	60
February	55
March	51
April	53
May	62
June	62
July	64
August	49
September	55
October	88
November	66
December	79
Total Shipments	***744***
2013 Monthly Average:	***62***

DISTRIBUTION OF SHIPMENTS CONTAINING RADIOACTIVE MATERIAL FOR 2013