SRB TECHNOLOGIES (CANADA) INC.
320-140 Boundary Road
Pembroke, Ontario, Canada, K8A 6W5
Tel.: (613) 732-0055
Fax: (613) 732-0056
E-Mail: sales@betalight.com
Web: www.betalight.com

SRB TECHNOLOGIES (CANADA) INC.

2011

Annual Compliance and Performance Report

Licence Number NSPFOL-13.00/2015

Licence Condition Number 2.4

Submission Date:	March 30, 2012
Submitted to:	Nadia Petseva Project Officer, Canadian Nuclear Safety Commission
Prepared and approved by:	Stephane Levesque President, SRB Technologies (Canada) Inc. Signature
Reviewed by:	Katie Belec Executive Assistant, SRB Technologies (Canada) Inc. Signature
Reviewed by:	Ross Fitzpatrick General Manager, SRB Technologies (Canada) Inc. Signature

EXECUTIVE SUMMARY

On average, the emissions of “HTO” were maintained at 18.61% of the licence limit and the emissions of “HTO + HT” were maintained at 12.43% of the licence limit. No action levels for air emission were reached in 2011.

Sewer release values based on sampling and analysis indicate that the emissions to sewer in 2011 were 3.90% of the license limit.

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 highest annual dose for any staff member for the year was 1.15 mSv, with an average of only 0.25 mSv for all staff and none of the staff members exceeded the action levels for effective dose to worker.

Collective dose was also low at 4.47 mSv. There were no instances at anytime in 2011 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 9,793 swipes were performed in various work areas in 2011. During 2011 Health Physics Staff defined a methodical manner to ensure the sampling locations chosen are effective in identifying areas where contamination may be present.

Of the 37 monitoring wells, the concentrations of only five wells now exceed the current Ontario Drinking water Guideline. The highest tritium concentration in any well, remains in monitoring well which is located in the stack area on the SRB property. The average concentration in that well in 2011 was 33,402 Bq/L, which is lower than the average concentration in 2010 of 44,438 Bq/L and significantly lower than the concentration of 156,643 Bq/L measured in November 2006.

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 a business. Tritium concentrations in this well in 2011 averaged 1,063 Bq/L, which is approximately 15% of the Ontario Drinking Water Standard of 7,000 Bq/L. This concentration is significantly lower than what it was in April 2009 at 2,063 Bq/L. Average concentrations over 2011 for other wells used for drinking water ranged from 4 Bq/L to 305 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 2011 and results were similar to those in 2010.

Based on environmental monitoring results the maximum dose to a member of the public as a result of the emissions from SRB in 2011 was 5.031 µSv which is similar to the dose in 2010.

In 2011 a total of 67 minuted committee meetings have taken place at the company compared to 56 in 2010. In 2011, formalized and standardized a process for taking committee meeting minutes that ensures that minutes are legible, easy to read and provide ample detail on discussions that take place during each meeting. The minutes further clearly define action items that have been closed, the ongoing action items and the new action items.

EXECUTIVE SUMMARY (Continued)

In 2011 our workforce continued to be stable with 16 employees working in relatively the same positions when the licence was issued in July 2010. By the end of 2011 our workforce had an average experience of almost 15 years with an average age of just over 41 years of age.

The Quality Manager developed an audit schedule for 2011 which resulted in 16 internal audits. A total of 14 non-conformances, four opportunities for improvements and one preventive action were raised in several areas of the company operations.

In 2011 CNSC Staff performed an Environmental Protection Inspection, a Type II Compliance Inspection and a Physical Security Inspection. All issues identified during the inspections have since been addressed.

In 2011 we also received inspections or audits from our ISO 9001:2008 BSI Management Systems, the Pembroke Fire Department, a Fire Protection Consultant and Ontario Power Generation.

Benchmarking activities noted that tritium emissions to air from another processing facility that performs the same types of activities as SRB Technologies (Canada) Inc. has released approximately four times more tritium to the atmosphere than SRB Technologies (Canada) Inc. over the last three years.

Although only one request for information was made by the public in 2011, various Public Information initiatives were taken including frequent web site update with latest environmental monitoring results, plant tours and direct interaction with the public reporting results of well and produce sampling.

Site specific requirements for payments of cost recovery fee arrears and payments to the decommissioning escrow account have been met.

In 2012, SRB plan on; providing CNSC Staff a revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee, Senior Management will form a Committee that will be responsible for addressing production issues, a number of TDG training initiatives will be undertaken in 2012, address any weakness in Health Physics training, continue to monitor the existing network of wells.

Despite a predicted increase in production of 12% in 2012, Senior Management has committed to observe the same air emission and occupational dose targets as in 2011.

In 2012, we expect to submit to CNSC Staff revisions of the Quality Manual, Waste Management Program, Emergency Plan and Contractor Management Program.

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1.0 INTRODUCTION

1.1 GENERAL INTRODUCTION

For all of 2011, 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 future Annual Compliance and Performance Reports for Class 1 A & B Nuclear Facilities.

The purpose of this report is therefore 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 2011 the facility was operated and maintained to all requirements of the Nuclear Safety Control Act, Regulations, conditions of the Licence[1] and applicable safety programs and procedures. None of the limits or action levels were exceeded.

The only notable building modification that occurred over 2011 was the fire separation that was supplemented in April 2011 between SRB and the neighboring tenant.

The Quality Manager developed an audit schedule for 2011 which resulted in 16 internal audits. A total of 14 non-conformances, four opportunities for improvements and one preventive action were raised in several areas of the company operations.

In 2011 CNSC Staff performed an Environmental Protection Inspection, a Type II Compliance Inspection and a Physical Security Inspection. All issues identified during the inspections have since been addressed.

In 2011 we also received inspections or audits from our ISO 9001:2008 BSI Management Systems, the Pembroke Fire Department, a Fire Protection Consultant and Ontario Power Generation.

In 2011 our workforce continued to be stable with 16 employees working in relatively the same positions as when the licence was issued in July 2010 and after addressing the recommendations of the Organizational Study[5][6]. By the end of 2011 our workforce had an average experience of almost 15 years with an average age of just over 41 years of age.

A number of committees meet on a regular basis to discuss various items that ensure compliance with the Nuclear Safety Control Act, 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 18 times in 2011 is specifically responsible for review of all safety programs and safety related procedures to ensure that requirements of the Nuclear Safety and Control Act, Regulations, conditions of the licence[1] are met. This Committee is comprised of five employees including the President and General Manager.

Being a small company, the President, supported by the General Manager are personally involved in the development and implementation of Safety Programs demonstrating a visible commitment to all staff. The President and General Manager make nuclear safety the main focus of the operations and communicate to all staff this focus. Employees are encouraged to take a leadership role and to focus on nuclear safety in their day-to-day activities. Such behaviour has improved the safety culture, which should in turn increase the confidence of all its stakeholders and lead to less regulatory oversight.

1.3 PRODUCTION OR UTILIZATION

1.3.1 TRITIUM PROCESSED

In 2011, a total of 7,342,449 GBq's of tritium was processed. For comparison, in 2010 a total of 6,643,732 GBq's of tritium was processed, an increase of 10.52%.

1.3.2 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 2011 the possession limit was not exceeded. The maximum tritium activity possessed at any time during 2011 was 5,780 TBq in November. Tritium activity on site during 2011 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.

1.3.3 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 2011 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 18.61% of the licence limit and the emissions of "HTO + HT" were maintained at 12.43% of the licence limit. See Facility Emissions Data in **Appendix B** of this report:

TABLE 1: 2011 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	12,504	240.46	18.61%
TOTAL TRITIUM AS TRITIUM OXIDE (HTO) AND TRITIUM GAS (HT)	448,000	55,684	1,070.85	12.43%

1.3.4 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 2: 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 3: CHART RECORDER ACTION LEVEL FOR RELEASES TO ATMOSPHERE:

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

1.3.5 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 2011 were 3.90% of the license limit. See Annual Liquid Effluent Data in **Appendix C** of this report:

TABLE 4: SEWER RELEASES AGAINST RELEASE LIMIT:

NUCLEAR SUBSTANCE AND FORM	LIMIT (GBq/YEAR)	RELEASED (GBq/YEAR)	% OF LIMIT
TRITIUM – WATER SOLUBLE	200	7.79	3.90%

1.4 FACILITY MODIFICATION

A number of improvements have been made throughout 2011 that contribute to further protecting the environment and the health of the public and staff. These include a building modification and a number program and procedure improvements.

1.4.1 BUILDING MODIFICATION

The only notable building modification that occurred over 2011 was the fire separation that was supplemented in April 2011 between SRB and the neighboring tenant.

This provides SRB with further protection from a fire that may occur at the neighboring tenant and likewise would protect the neighboring tenant from any possible radiation exposure as a result of a fire at SRB.

1.4.2 DOCUMENT MODIFICATION

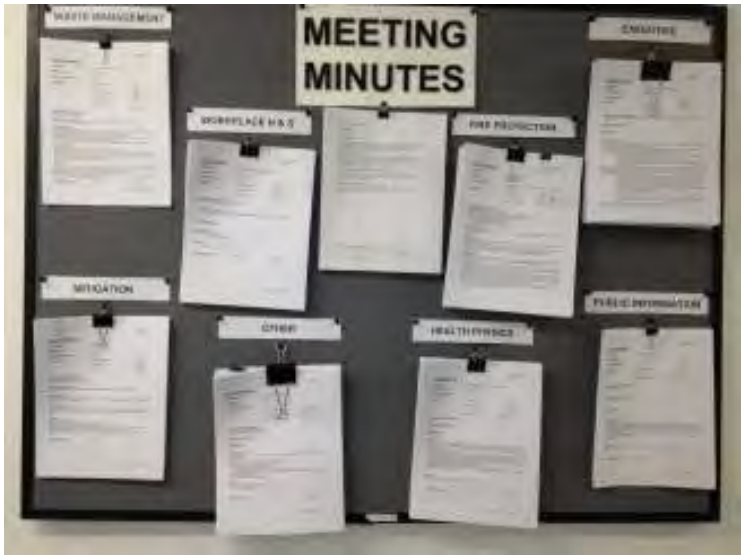
1.4.2.1 COMMITTEE MEETING MINUTES

Formalized and standardized across the company a process for taking committee meeting minutes that ensures minutes are legible, easy to read and provide ample detail on discussions that take place during each meeting. The minutes further clearly define action items that have been closed, the ongoing action items and the new action items. Minutes now also include supporting information that is presented and discussed during meetings. Minutes are now also formally read and signed by all attendees after being produced to ensure that all in attendance are in agreement. Minutes provide enough background and are designed to be easily understood so that an individual who did not take part in the meeting could easily be aware of all issues that were discussed.

FIGURE 1: TYPICAL COMMITTEE MEETING MINUTES

All minutes are scanned, backed up and continue to be promptly posted on a dedicated information board in a well traveled area of the facility where all staff can review all committee meeting minutes.

FIGURE 2: INFORMATION BOARD



1.4.2.2 HEALTH PHYSICS TRAINING

In 2011, it was 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.

In 2011, we have documented a process to evaluate the effectiveness of training and proficiency of Health Physics staff in performing specific tasks. In addition a complete training matrix of specific tasks in Health Physics has been developed and a plan to address any weakness has been put in place with a completion date of December 31, 2012.

1.4.2.3 RADIATION SAFETY PROGRAM

Improvements were made to the Radiation Safety Program[7] to address the comments[8] from CNSC Staff to ensure the program clearly reflects current activities and improvements that have been made at the facility.

1.4.2.4 CONTRACTOR MANAGEMENT PROGRAM

Continue to improve Contractor Management Program[9] to address the comments[10] from CNSC Staff to provide greater control of contractors and define work to be performed in a more specific manner.

1.4.2.5 DAILY FACILITY CONTAMINATION MONITORING PROCEDURE

The Daily Facility Contamination Monitoring procedure (RSO-001)[11] was revised to address the comments[8] from CNSC Staff to define a methodical manner to ensure the sampling locations chosen are effective in identifying areas where contamination may be present.

1.4.2.6 INTERIM PREPARATION AND STORAGE OF WASTE PROCEDURE

Interim preparation and storage of waste procedure (RSO-025)[12] was revised to address the comments[8] from CNSC Staff to include clarification on methodologies used in waste assessment.

1.4.2.7 MANAGEMENT REVIEW PROCEDURE

The Management Review procedure (QAS-019)[13] was revised to include the timeline frequency for reviews to be completed.

1.4.2.8 FIRE PROTECTION PROGRAM AND PROCEDURES

In 2011, there were some small improvements made by the Fire Protection Committee to the Fire Protection Program[14].

1.4.2.9 EMERGENCY PLAN

As a result of the Request[15] 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[16] 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 are expected to be finalized with emergency response personnel in 2012.

1.4.2.10 CONCEPTUAL MODEL DOCUMENT

A Conceptual Model Document[17] was prepared in support of the Annual Status Report[18] that was provided to the Commission on June 9, 2011.

The purpose of the document was to provide a clear written description and visual representation of the current and predicted groundwater conditions on and around the SRB facility based on all groundwater data gathered to date.

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 2011, a total of 14 non-conformances, four opportunities for improvements and one preventive action were raised in several areas of the company operations. By the end of 2011, 12 of these non-conformances had been addressed in full and the other two are expected to be addressed by the end of 2012.

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.

2.1.1.1 CNSC INSPECTIONS

An Environmental Protection Inspection was conducted by CNSC Staff at the facility on February 8, 2011. The purpose of the inspection was to verify compliance with the Nuclear Safety and Control Act, CNSC Regulations and the CNSC operating licence NSPFOL-13.00/2015[1]. The inspection resulted in no action notice and no recommendation. The scope of the inspection and ensuing report[19] included the following elements:

- Gaseous Systems
- Liquid Systems
- Monitoring Systems
- Meteorological Station

A Type II Compliance Inspection was conducted by CNSC Staff at the facility on April 6, 2011. The purpose of the inspection was to verify compliance with the Nuclear Safety and Control Act, CNSC Regulations and the CNSC operating licence NSPFOL-13.00/2015[1]. The inspection resulted in one action notice and two recommendations which have since been addressed. The scope of the inspection and ensuing report[20] included the following elements:

- Management Systems and Safety Culture
- Training
- Occupational Health and Safety
- Fitness for Service (Maintenance)
- Waste Management
- Transportation and Packaging

A Physical Security Inspection was conducted by CNSC Staff at the facility on December 1, 2011. Minor issues identified during the inspection have since been addressed.

2.1.1.2 ISO 9001 REGISTRAR AUDITS

SRB Technologies (Canada) Inc. continues to maintain registration with ISO 9001: 2008 by BSI Management Systems. A surveillance assessment of our operations was performed January 14, 2011 which resulted in two non-conformances and two opportunities for improvements that have since been addressed.

2.1.1.3 INTERNAL AUDITS

The Quality Manager developed an audit schedule for 2011 which resulted in 16 internal audits. The audits performed focused on all activities associated with developing, managing and implementing all company safety programs. These audits resulted in identifying two opportunities for improvement.

2.1.1.4 ONTARIO POWER GENERATION AUDIT

Ontario Power Generation who supplies SRB Technologies (Canada) Inc. with tritium gas performed an audit of the facility on November 12 and 13, 2011 which resulted in no findings. The audit reviewed the following:

- Operating Licence
- Operating procedures involving tritium
- Inventory control process/procedures
- Inventory control records/procedures
- Tritium stack monitoring procedures
- Staff training procedures and records for safe tritium handling
- Physical security measures at the facility
- Instrument calibration procedures/records for tritium accounting

2.1.1.5 PEMBROKE FIRE DEPARTMENT INSPECTION

Pembroke Fire Department conducted a fire inspection on April 12, 2011. One minor violation of the Ontario Fire Code was identified which has since been addressed.

2.1.1.6 FIRE PROTECTION CONSULTANT INSPECTION

On December 16, 2011, as required by CNSC operating licence NSPFOL-13.00/2015[1] and section 3.11 of the Licence Conditions Handbook LCH-SRBT-R000[2] a Fire Protection Consultant 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.

2.1.1.7 BENCHMARKING

In 2011 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

Notable areas include dosimetry, environmental monitoring, tritium inventory management and contractor management.

It was specifically noted that tritium emissions to air from another processing facility that performs the same types of activities as SRB Technologies (Canada) Inc. has released approximately four times more tritium to the atmosphere than SRB Technologies (Canada) Inc. over the last three years.

Benchmarking also showed that the monitoring well network at SRB is one of the most extensive of any facility with several wells in each potential flow direction and at many different sampling depths.

Meetings are scheduled in January 2012 with the Quality Manager and Senior Management to discuss the results of the benchmarking activities performed and to define areas of improvement.

2.1.1.8 SELF-ASSESSMENTS

Throughout 2011 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

Notable areas include waste management and human protection.

Meetings are scheduled in January 2012 with the Quality Manager and Senior Management to discuss the results of self-assessments and to define areas of improvement.

2.1.1.9 CHANGES IN QUALITY ASSURANCE DOCUMENTS

The Quality Manual[21] remained unchanged for 2011; however an updated revision is near completion. Various associated second tier procedures were updated to address minor changes needed on opportunities for improvements and corrective actions identified throughout the year.

2.1.1.10 RESULTS OF LSC QA PROGRAM

2.1.1.10.1 WEEKLY EFFICIENCY CHECK

The LSC-QA[22] 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 and all records are kept on file.

2.1.1.10.2 BATCH VALIDITY TEST

In addition NIST traceable standards, certified to have an estimated accuracy of ± 1.2%, prepared in-house, are analyzed and checked against a 10% acceptability criterion with every batch of samples. All tests are performed with every batch and must pass the acceptability criteria to ensure the validity of the results, and all records are kept on file.

2.1.1.10.3 ROUTINE PERFORMANCE TESTING

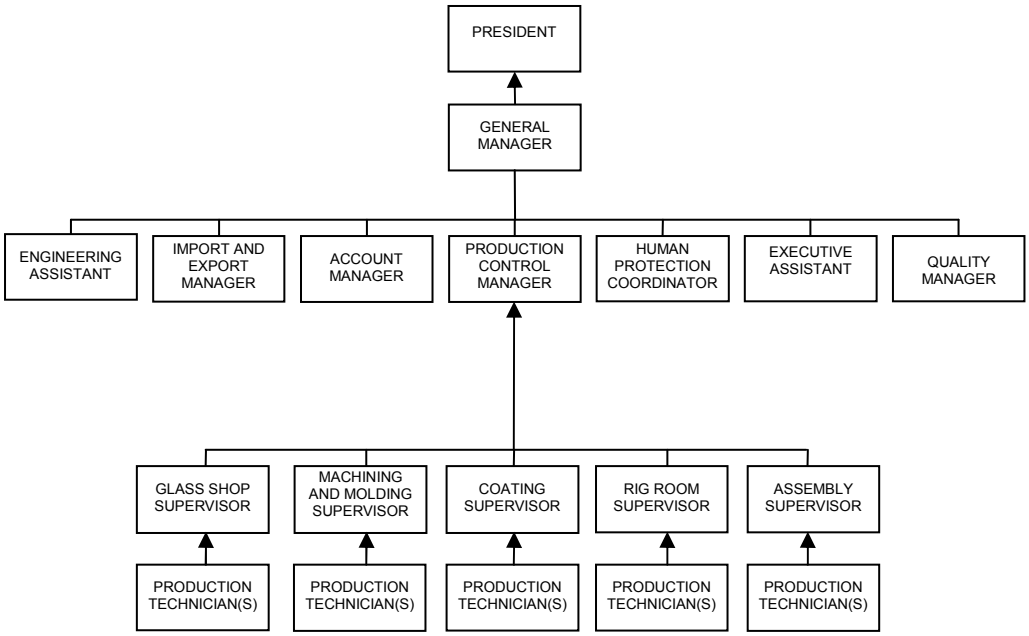
Routine Performance Testing was carried out four times throughout 2011 on two LSC machines, for a total of eight Routine Performance Tests without failures. The purpose of this testing was to specifically demonstrate that the dosimetry service operated in a predictable and consistent way.

2.1.2 HUMAN PERFORMANCE MANAGEMENT

2.1.2.1 ORGANIZATIONAL IMPROVEMENTS

The following organizational chart represents the structure at the facility as a result of addressing the recommendations of the Organizational Study[5][6] 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:

FIGURE 3: ORGANIZATIONAL CHART



In 2011, it was 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.

The position of Environment Protection Coordinator was also modified and renamed as Executive Assistant. The Executive Assistant has the added responsibility of taking formal minutes for all company meetings while continuing to coordinate any environmental measurements and producing environmental monitoring reports.

The position of Import and Export Manager now has the added responsibility of performing activities associated with contamination control at the facility relieving the Human Protection Coordinator to identify ways to reduce exposure to staff and emissions from the facility.

2.1.2.2 STABLE WORKFORCE

In 2011 our workforce continued to be stable with 16 employees, one more employee than at the end of 2010. The employees work in relatively the same positions as when the licence was issued in July 2010 and after addressing the recommendations of the Organizational Study[5][6].

2.1.2.3 EXPERIENCED WORKFORCE

By the end of 2011 employees in our workforce had an average experience of almost 15 years with an average age of just over 41 years of age.

2.1.2.4 COMMITTEES

Again in 2011 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 2011 a total of 67 minuted meetings have taken place at the company compared to 56 in 2010. The “Health Physics Committee” meetings and “Other Staff” meeting minutes both being most frequent at 18 each:

TABLE 5: BREAKDOWN OF MEETINGS HELD

COMMITTEE	NUMBER OF MEETINGS
HEALTH PHYSICS COMMITTEE	18
WORKPLACE HEALTH AND SAFETY COMMITTEE	12
EXECUTIVE COMMITTEE	1
FIRE PROTECTION COMMITTEE	5
MITIGATION COMMITTEE	6
PUBLIC INFORMATION COMMITTEE	5
WASTE MANAGEMENT COMMITTEE	2
OTHER STAFF	18
TOTAL	**67**

Notable improvements made by the Committees in 2011 included; the installation of a fire separation wall, the introduction of a new method that reduces waste in Zone 2, improved method of determining swipe areas in Zones 1, 2 and 3 and also an improved method of calculating dose to staff.

2.1.2.5 RADIATION PROTECTION TRAINING

Staff last received Radiation Protection Training as part of the ongoing employee-training program on November 30, 2011. 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, 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 14 participants. The pass criterion for the test is 75%. Results averaged 95.0% 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.

One new employee was hired in April 2011 and successfully received indoctrination-training complemented by Radiation Protection Training with other staff in November 2011.

2.1.2.6 FIRE EXTINGUISHER TRAINING

Yearly fire extinguisher training was performed for all staff on May 10, 2011 by the Pembroke Fire Department.

2.1.2.7 FIRE RESPONDER TRAINING

Fire Responders were trained to respond to a fire at the facility on two different occasions in 2011, one group on September 6, 2011 and the other group on the September 13, 2011. The training included a tour of the facility and information with respect to the hazardous materials found on the site. Responders are also instructed on the various properties and precautions with respect to tritium.

2.1.2.8 HEALTH PHYSICS TRAINING

As briefly discussed in section “2.1.2.1 Organizational Improvements” of this report, in 2011, it was 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.

In 2011, we have documented a process to evaluate the effectiveness of training and proficiency of Health Physics staff in performing specific tasks. In addition a complete training matrix of specific tasks in Health Physics has been developed and a plan to address any weakness has been put in place with a completion date of December 31, 2012.

2.1.3 OPERATING PERFORMANCE

Throughout 2011, SRB Technologies (Canada) Inc. has conducted their operations in accordance with their safety related programs and procedures.

No events have resulted in the exceedance of any action levels have occurred over the course of 2011.

The Quality Manager developed an audit schedule for 2011 which resulted in 16 internal audits. The audits performed focused on all activities associated with developing, managing and implementing all company safety programs. These audits resulted in identifying two opportunities for improvement.

In 2011, a total of 14 non-conformances, four opportunities for improvements and one preventive action were raised in several areas of the company operations. By the end of 2011, 12 of these non-conformances had been addressed in full and the other two are expected to be addressed by the end of 2012.

2.2 FACILITY AND EQUIPMENT

2.2.1 SAFETY ANALYSIS

The methods and procedures that are used to carry on the activity licensed are summarized in the SRB Technologies (Canada) Inc. Safety Analysis Report[23] (Revision II), dated July 4, 2006.

The document titled Review of Hypothetical Incident Scenarios[24], 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 2011. No modification or change performed in 2011 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[23] 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.

2.2.2 PHYSICAL DESIGN

The only notable change in physical design that occurred over 2011 was the fire separation that was supplemented in April 2011 between SRB and the neighboring tenant.

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[25] 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[25] has continued to remain effective in 2011. The facility and equipment associated with the facility were maintained and operated within all manufacturers requirements.

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.

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 2011 can be found in **Appendix D** of this report.

All ventilation systems were maintained in fully operational condition with no major system failures during 2011 to the requirements of our Maintenance Program[25] and operational procedures[26][27]. Equipment is maintained on a quarterly or monthly basis, see equipment maintenance information in **Appendix E** 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 29, 2011 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 decreased in 2011 from what they were in 2010. However the stack height and the airflow in the fume hoods continue to be checked on a regular basis and continue to meet the requirements.

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 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[7] all tritium-in-air monitors were calibrated at least once during 2011, all three now in service were last calibrated in July, September and November 2011. All records of the maintenance are kept on file.

2.2.3.4 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[7] all tritium-in-air monitors were calibrated at least once during 2011 in November and December 2011. All records of the maintenance are kept on file.

2.2.3.5 LIQUID SCINTILLATION COUNTERS

Two liquid scintillation counters 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 2011. Service on the units was completed in January and February 2011. 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:

1. A tritium-in-air monitor connected to a real-time recording device.

2. A bubbler system for discriminately collecting HTO and HT.

3. A flow measurement device with elapsed time, flow rate and volume.

As required by our procedures[28], each tritium-in-air monitor connected to the real-time recording device (chart recorder) was calibrated at least once in 2011. The bulk stack monitor was calibrated in June and the rig stack monitor was calibrated in November.

The chart recorder itself was calibrated at least every three months during 2011 for a total of 4 times in 2011, in February, May, August and November. 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 2011.

In March 2011 we also contracted a third party (AECL) to install an independent bubbler monitoring system to perform a validation of the bubbler system.

Results over four consecutive weekly sampling periods showed that our bubbler system was accurate and conservative and overestimating overall HT + HTO emissions by an average of 8%. HT emissions were above those measured by the independent bubbler by an average of 19% while HTO emissions were found to be on average 11% below those measured by the independent bubbler. See third party bubbler verification results in **Appendix F** of this report.

These results show that our stack monitoring equipment is adequate in measuring emissions from the facility. Further third party validations will be performed at least every two years.

2.2.3.7 PASSIVE AIR SAMPLER PERFORMANCE

SRB uses a network of 40 passive air samplers to measure tritium in the environment as a result of the air emissions from SRB and to provide data for assessment of dose to the defined critical group members.

In August 2011 we also contracted a third party (AECL) to install both, a passive air sampler and active air sampler near the facility, at the same height to confirm that passive air samplers continue to over estimate tritium concentrations in the air and in turn overestimate the impact on the environment, groundwater and the dose to a member of the public.

Results showed that passive air samplers were fairly accurate and conservative and overestimating overall tritium concentrations by an average of 30%. See passive air sampler performance results in **Appendix G** of this report.

Therefore based on these results the use of passive air samplers continue to over estimate tritium concentrations in the air and in turn overestimate the impact on the environment, groundwater and the dose to a member of the public.

2.2.3.8 WEATHER STATION

Maintenance of the weather station to the specifications of the manufacturer was performed on August 3, 2011. 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 2011, SRB maintained a Dosimetry Service License[29], 11341-3-10.1, 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 18 individual staff members.

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 2011.

Also, during 2011 CNSC Staff formally requested confirmation that the dose calculation software used by SRB's dosimetry service to assign doses to individuals conforms to the models and algorithms used to carry out the licensed activities. As a result, we conducted testing and validation that demonstrated that the results from dose calculations or algorithms are as expected.

SRB also submits, to the CNSC, an Annual Compliance Report (ACR)[30] for Dosimetry Service License[29], 11341-3-10.1.

2.3.1.2 STAFF RADIATION EXPOSURE

SRB, through the Dosimetry Service License[29], 11341-3-10.1, 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[31], revision 1 tilted Technical and Quality Assurance Requirements for Dosimetry Services.

The maximum annual dose received by any person employed by SRB is well within the regulatory limit for a nuclear energy worker, which is 50.0 mSv per calendar year. The maximum annual staff dose was 1.15 mSv with an average for all staff of only 0.25 mSv. Collective dose was also low at 4.47 mSv. The table found in **Appendix H** of this report provides the radiological occupational annual dose data for 2011. The table provides a comparison of dosimetry results for the years 1997 to 2011. 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] provides the same information:

TABLE 6: 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

TABLE 7: ACTION LEVELS FOR BIOASSAY RESULT

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

There were no instances at anytime in 2011 whereby a staff member's tritium body burden exceeded the action level of 1,000 Bq/ml.

The highest annual staff dose for the year was 1.15 mSv, therefore none of the staff members exceeded the 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 8: 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

At no time in 2011 did Zone 3 staff bioassay sample results exceed the administrative limit of 500 Bq/ml.

The administrative limit for Zone 2 or Zone 1 staff bioassay sample results is 100 Bq/ml. During 2011, there was only one occasion when the administrative limit was exceeded where an employee's bioassay result was 128.89 Bq/ml as a result of handling two broken gaseous tritium light sources. The Human Protection Coordinator completed an Investigation Report.

The highest annual staff dose for the year was 1.15 mSv, therefore none of the staff members exceeded any of the 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 9: 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 2011 has been tabulated and is included in **Appendix I** of this report.

The data collected shows that 685 swipes were taken in Zone 1 resulting in a pass rate of 96.64% below the administrative level of 4 Bq/cm^2.

The data collected shows that 2,220 swipes were taken in Zone 2 resulting in a pass rate of 90.68% below the administrative level of 4 Bq/cm^2.

The data collected shows that 6,888 swipes were taken in Zone 3 resulting in a pass rate of 90.65% 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 2011 and 2010 was made:

TABLE 10: 2010 AND 2011 PASS/FAIL RATIO COMPARISON

ZONE	2010 PASS/FAIL RATIO	2011 PASS/FAIL RATIO
1	99.28%	96.64%
2	96.85%	90.68%
3	93.35%	90.65%

As expected the pass/fail ratio is lower in 2011 than it was in 2010 as a result of our increased efforts to identify possible areas with contamination.

During 2011 Health Physics Staff reviewed historical results and set parameters for altering the frequency of swipes, the locations of the swipes and number of locations to be swiped based on the results analyzed. As part of this exercise Health Physics Staff also set a quarterly frequency for this review to be performed. These address the comments[8] from CNSC Staff to define a methodical manner to ensure the sampling locations chosen are effective in identifying areas where contamination may be present.

Therefore, during 2011, quarterly Health Physics Committee meetings 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

As a result and as expected the pass/fail ratio is lower in 2011 than it was in 2010 demonstrating that the measures taken were effective.

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 2011, 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 three 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 2011 at a rate of one meeting per month. All minutes are kept on file.

2.3.2.4 MINOR INCIDENTS AND LOST TIME INCIDENTS

During 2011 there was one minor incident where an employee needed medical care at the outpatient department at the local hospital as a result of an injury that occurred during the machining process in Zone 1 where no tritium is handled or processed. All required documents were sent to WSIB and an investigation report is kept on file. This incident required 5 days lost time. There were no major incidents to report in 2011

2.3.2.5 VISITS FROM HRSDC

In 2011 there has been no facility visits by a Health and Safety Officer from HRSDC.

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 in 2011 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 in 2011 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[32] 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 1, 2011 CNSC Staff collected a number of environmental samples with our third party for comparison. Results from CNSC Staff were found to be comparable to those reported by our third party for the same samples. See results in **Appendix J** of this report.

2.3.3.1 PASSIVE AIR SAMPLERS

A total of 40 passive air samplers are located throughout a two kilometer radius from the SRB facility, in eight sectors, ranging in distance at 250, 500, 1000, and 2000 meters.

The samples were collected on a monthly basis by SRB and 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.

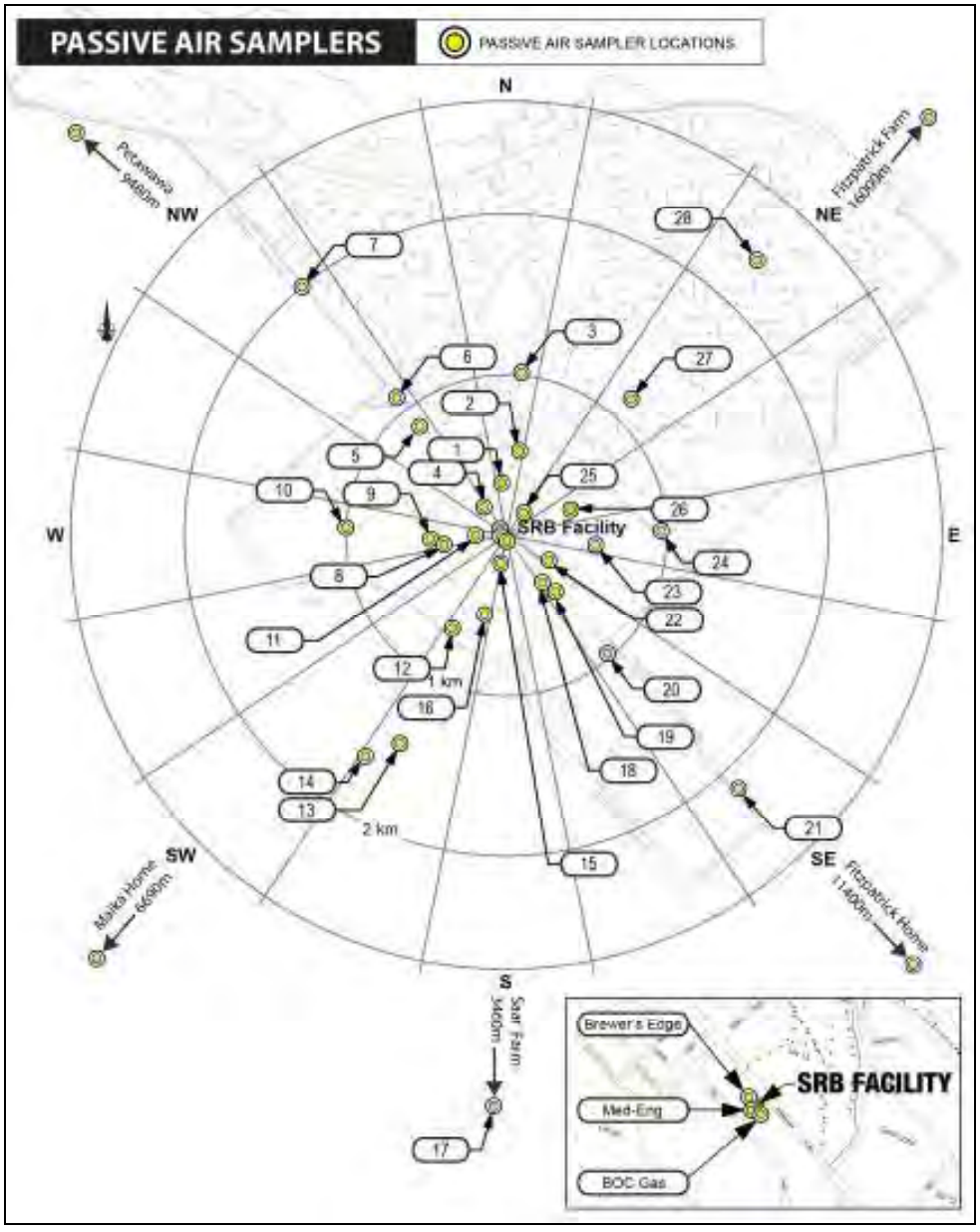
Passive air sampler results for 2011 can be found in the table in **Appendix K** of this report.

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 2011 are graphically represented for each of eight compass sectors and for each of the distances from the facility **Appendix L** of this report.

The Passive Air Samplers represent tritium exposure pathways for inhalation and skin absorption and used in the calculations for critical group annual estimated dose for 2011.

FIGURE 4: PASSIVE AIR SAMPLER LOCATIONS



2.3.3.2 WELL MONITORING RESULTS

Our groundwater studies and ensuing reports[33][34][35] now includes monitoring data from 57 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 M** of this report.

2.3.3.2.1 MONITORING WELLS

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

FIGURE 5: LOCATIONS OF MONITORING WELLS

Of the 37 monitoring wells, the concentrations of only five wells now exceed the current Ontario Drinking water Guideline.

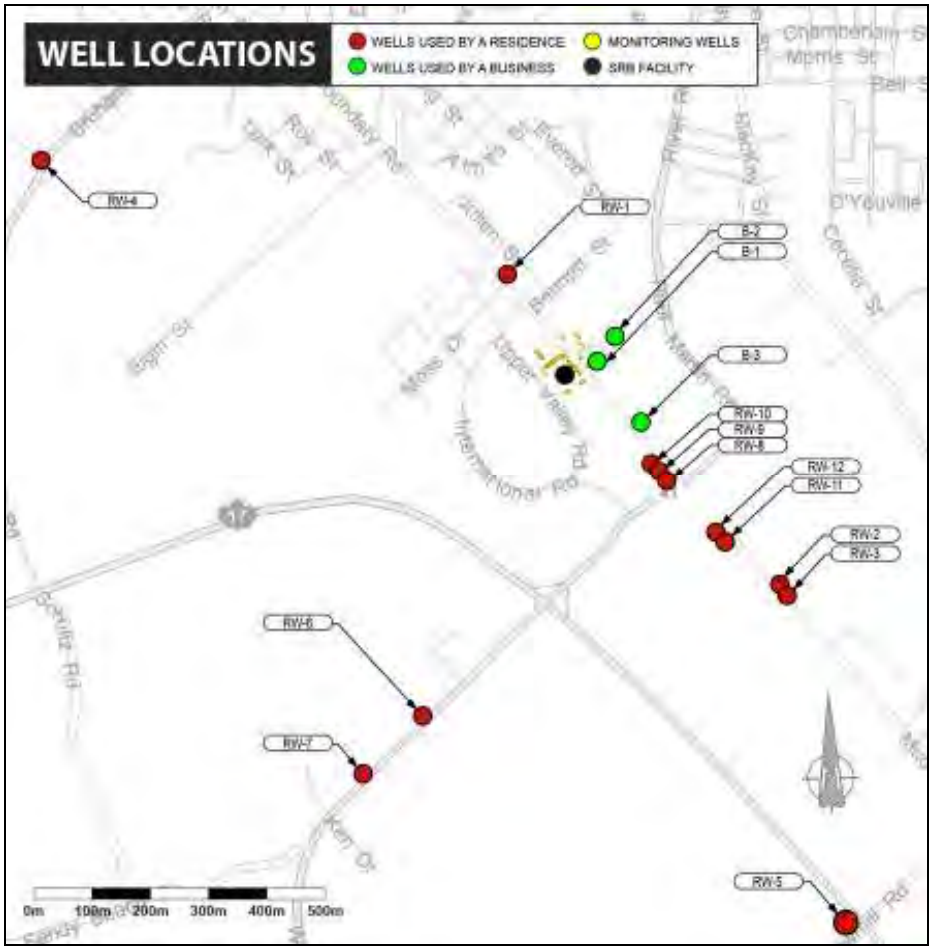
These five wells (MW06-1, MW06-10, MW07-13, MW07-18 and MW07-29) are located on the SRB site within 50 meters of the stack and showed either decreasing or steady concentrations in 2011. The highest tritium concentration in any well, remains in monitoring well MW06-10 which is located in the stack area on the SRB property.

The average concentration in MW06-10 in 2011 was 33,402 Bq/L, which is lower than the average concentration in 2010 of 44,438 Bq/L and significantly lower than the concentration of 156,643 Bq/L measured in November 2006.

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 6: 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 a business.

Tritium concentrations in this well in 2011 averaged 1,063 Bq/L, which is approximately 15% of the Ontario Drinking Water Standard of 7,000 Bq/L. This concentration is significantly lower than what it was in April 2009 at 2,063 Bq/L.

Average concentrations over 2011 for other wells used for drinking water ranged from 4 Bq/L to 305 Bq/L, depending on their location and distance in relation to the facility.

Generally, tritium concentrations for all residential and business wells have showed either decreasing or steady concentrations in 2011.

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 is 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.

2.3.3.2.4 CONCEPTUAL MODEL DOCUMENT

A Conceptual Model Document[17] was prepared in support of the Annual Status Report[18] that was provided to the Commission on June 9, 2011. The purpose of the document was to provide a clear written description and visual representation of the current and predicted groundwater conditions on and around the SRB facility based on all groundwater data gathered to date.

The Conceptual Model Document[17] concluded the following:

- 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.

- Generally soil moisture, precipitation and air concentration estimates correlate and overestimate actual values demonstrating that the model is conservative or overestimates values actually found in the environment.

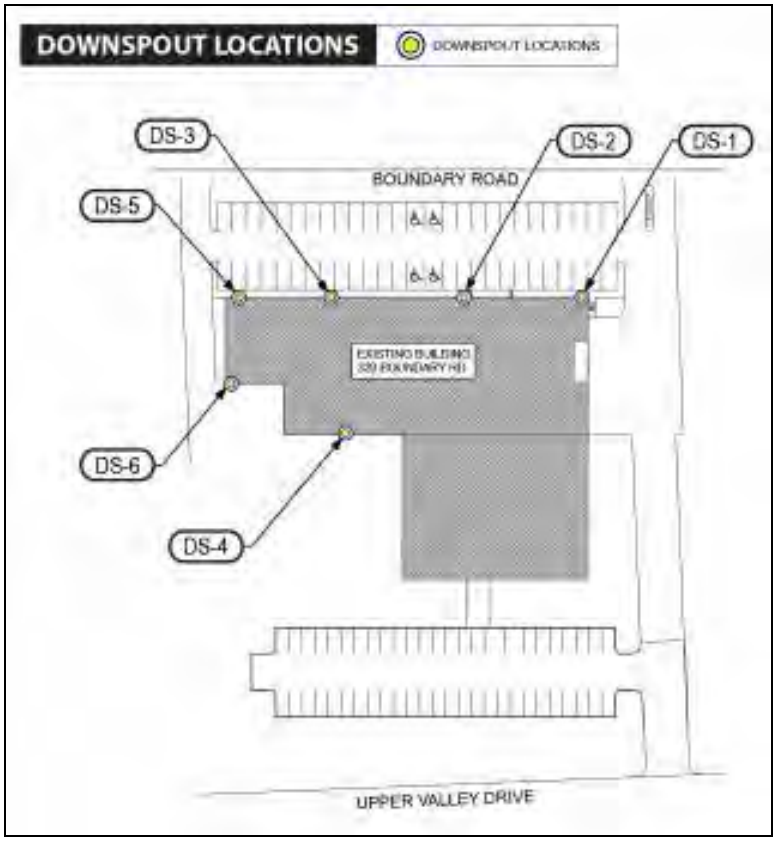
- To further validate the model additional work will be performed by using site specific metrological data from the newly installed weather tower and further validation will be made by measuring soil samples at various depths at eight locations from the facility and comparing values to soil moisture model estimates, passive air sampler and precipitation concentrations as applicable.

- Findings will be confirmed over a number of years by the ongoing monitoring of the existing network of wells.

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 7: BUILDING DOWNSPOUTS



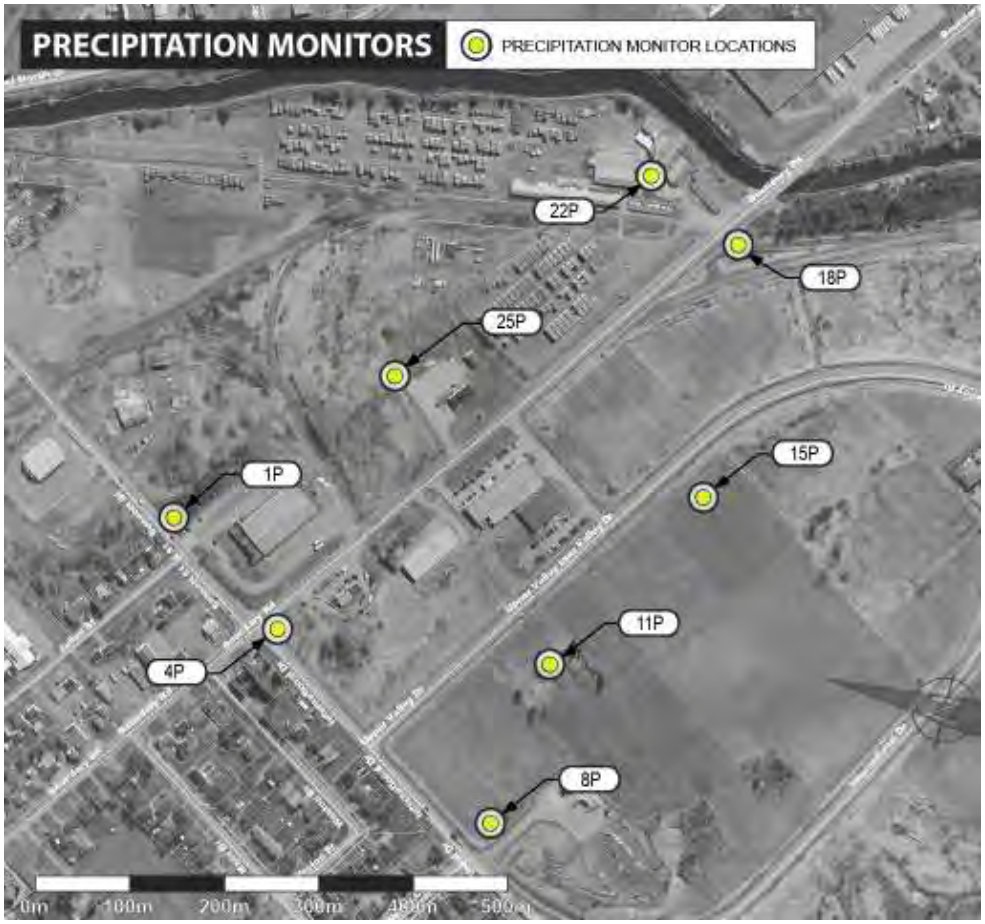
Runoff from downspouts was collected during 16 precipitation events throughout 2011. Average results per downspout in 2011 ranged between 138 Bq/L (DS-3) and 1,169 Bq/L (DS-6). The average for all six downspouts in 2011 is 492 Bq/L compared to 248 Bq/L in 2010.

Runoff monitoring results can be found in **Appendix N** 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 8: 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 2011 ranged between 32 Bq/L (sampler 25P) and 117 Bq/L (sampler 18P). The average for all eight precipitation monitors in 2011 is 76 Bq/L comparable to 82 Bq/L in 2010. Precipitation monitoring results and comparisons can be found in **Appendix O** of this report.

The tritium concentration in precipitation monitors are generally lower than the concentrations that are expected. 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 2011 can be found in **Appendix P** of this report.

2.3.3.6 PRODUCE MONITORING RESULTS

Produce from a local market and from local gardens were sampled once in 2011. 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 2011.

Produce monitoring results and locations for 2011 can be found in **Appendix Q** of this report with a graph comparing 2011, 2010, 2009, 2008, 2007 and 2006 results. Tritium concentrations in produce for 2011 on average are comparable to those in 2010.

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 2011.

Milk monitoring results and locations for 2011 can be found in **Appendix R** of this report. Tritium concentrations in milk in 2011 are comparable to those in 2010.

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 2011 can be found in **Appendix S** of this report with a graph comparing results from 2006 to 2011 results. Tritium concentrations in wine in 2011 are comparable to those in 2010.

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 T** of this report. Tritium concentrations in receiving waters in 2011 are near the minimum detection limit and comparable to those in 2010.

2.3.3.10 WEATHER DATA

A weather station near the facility collects data on a continuous basis. See weather data for 2011 in **Appendix U**.

2.3.3.11 OTHER SAMPLING RESULTS

Throughout 2011, SRB Technologies (Canada) Inc. performed additional sampling above those described in our Environment Monitoring Program[32].

2.3.3.11.1 SOIL CORE SAMPLES

As discussed in the Conceptual Model Document[17], soil sampling taken at various depths has provided some useful data which has been used to confirm and rationalize current and predicted values in groundwater. To address a recommendation of the Conceptual Model Document[17] we contracted an independent third party to take and analyze soil samples taken at different depths from seven locations within approximately 500 meters of the facility.

Samples were analyzed by the third party laboratory and results were compared to soil moisture model estimates, passive air sampler results and tritium concentration found in precipitation. Comparison showed that tritium concentrations in soil cores were well below those predicted which continues to demonstrate that the release limit continues to ensure the sustainable use of groundwater resources and the protection of the environment and the public.

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 2011 was 54 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 2011 was 25 Bq/L, a decrease from the average in 2010 of 30 Bq/L and again a decrease from the average in 2009 of 60 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. Sewage monitoring results can be found in **Appendix V** of this report.

2.3.3.11.3 PAS AT TOWNLINE LIFT STATION

From November 2010 to November 2011 a PAS was installed inside the Townline Lift Station. SRB Technologies (Canada) Inc. along with a third party laboratory would change the PAS on a monthly basis along side the regular monthly Environment Monitoring. Samples were analyzed by the third party laboratory.

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.

2.3.3.11.4 TOWNLINE LIFT STATION MONITORING

In 2011 SRB Technologies (Canada) Inc. along with a third party laboratory took sludge samples at the Townline Lift Station in February and November 2011. Samples were analyzed by the third party laboratory.

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.

2.3.3.12 PUBLIC DOSE FOR 2011

The calculation method used to determine the dose to the 'Critical Group' as defined in the SRB Environment Monitoring Program[32] is described in the EMP document using the effective dose coefficients found in CSA Guideline N288.1-08. The dose assessed for the Critical Group is a summation of:

1. Tritium uptake from inhalation and absorption through skin at the place of residence and/or the place of work, ($P_{(i)19}$ and $P_{(e)19}$), and

2. Tritium uptake due to consumption of well water (P_{29}), and

3. Tritium uptake due to consumption of produce (P_{49}), and

4. 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 2011 average concentration of tritium oxide in air at Passive Air Sampler NW250 has been determined to be 2.24 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 2011 for PAS # 1, PAS # 2, and PAS # 13 is 6.55 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 2.24 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)
= 2.24 Bq/m^3 x 6,680 h/a x 1.2 m^3/h x 2.0E-05 µSv/Bq
= 0.359 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 6.55 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)
= 6.55 Bq/m^3 x 2,080 h/a x 1.2 m^3/h x 2.0E-05 µSv/Bq
= 0.327 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 2.24 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)
= 2.24 Bq/m^3 x 8,760 h/a x 1.2 m^3/h x 2.0E-05 µSv/Bq
= 0.471 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 2.24 Bq/m^3:

$P_{(i)19}$ = [H-3_{air}] (Bq/m^3) Breathing Rate (m^3/a) x DCF_{H3} (µSv/Bq)
= 2.24 Bq/m^3 x 1.4 E+03m^3/a x 5.3E-05 µSv/Bq
= 0.166 µSv/a

Dose due to skin absorption

$P_{(e)19}$: 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.

$P_{(e)19r}$ = 0.359 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.

$P_{(e)19w}$ = 0.327 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.

$P_{(e)19}$ = 0.471 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.

$P_{(e)19}$ = 0.166 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 700 L/a for adults and 300 L/a for infants.

The highest concentration in a residential well used as the sole source of the drinking water is found in RW-8 at 249 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;
= [249 Bq/L] x 700 L/a x 2.0E-05 µSv/Bq
= 3.486 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;
= [249 Bq/L] x 300 L/a x 5.3E-05 µSv/Bq
= 3.959 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 14.00 Bq/L and if we assume the average concentration in produce from local gardens to be 84.51 Bq/L.

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

P_{49HTO} = [[$H_{prod,market}$] + [$H_{prod,res}$]] 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
= [[14.00 Bq/kg x 200 kg/a x 0.7] + [84.51 Bq/kg x 200 kg/a x 0.3]] x 2.0E-05 µSv/Bq
= [[1,960 Bq/a] + [5,070.6 Bq/a]] x 2.0E-05 µSv/Bq
= 0.141 µSv/a

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

P_{49HTO} = [[$H_{prod,market}$] + [$H_{prod,res}$]] 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
= [[14.00 Bq/kg x 84 kg/a x 0.7] + [84.51 Bq/kg x 84 kg/a x 0.3]] x 5.3E-05 µSv/Bq
= [[823.2 Bq/a] + [2,129.7 Bq/a]] x 5.3E-05 µSv/Bq
= 0.157 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:

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

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

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

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 14.00 Bq/L and if we assume the average concentration in produce from local gardens to be 84.51 Bq/L.

Then the values for OBT will be 0.7 Bq/L produce purchased from a market and 4.23 Bq/L in produce from local gardens:

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

P_{49OBT} = [[$H_{prod,market}$] + [$H_{prod,res}$]] 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
= [[0.7 Bq/kg x 200 kg/a x 0.7] + [4.23 Bq/kg x 200 kg/a x 0.3]] x 4.6E-05 µSv/Bq
= [[98 Bq/a] + [253.8 Bq/a]] x 4.6E-05 µSv/Bq
= 0.016 µSv/a

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

P_{49OBT} = [[$H_{prod,market}$] + [$H_{prod,res}$]] x 1.3E-4 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 1.3E-4 µSv/Bq
= [[0.7 Bq/kg x 84 kg/a x 0.7] + [4.23 Bq/kg x 84 kg/a x 0.3]] x 1.3E-4 µSv/Bq
= [[41.16 Bq/a] + [106 Bq/a]] x 1.3E-4 µSv/Bq
= 0.019 µSv/a

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

P_{49} = P_{49HTO} + P_{49OBT}
= 0.141 µSv/a + 0.016 µSv/a
= 0.157 µSv/a

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

P_{49} = P_{49HTO} + P_{49OBT}
= 0.157 µSv/a + 0.019 µSv/a
= 0.176 µSv/a

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 120.45 kg/a (0.33 kg/day) for adults and 219 kg/a (0.6 kg/day) for infants.

The average concentration in milk being 6.83 Bq/L but adjusting for the density of milk 6.83 Bq/L x 0.97 L/kg = 6.63 Bq/kg:

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

P_{59} = $[H\text{-}3]_{dairy}$ x M x 2.0E-05 µSv/Bq;
= [6.63 Bq/kg] x 120 kg/a x 2.0E-05 µSv/Bq
= 0.016 µSv/a

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

P_{59} = $[H\text{-}3]_{dairy}$ x M x 5.3E-05 µSv/Bq;
= [6.63 Bq/kg] x 219 kg/a x 5.3E-05 µSv/Bq
= 0.077 µSv/a

Critical group annual dose due to tritium uptake

Based on the Environmental Monitoring Program[32] 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 5.031 µSv/A for an adult worker of the critical group:

TABLE 11: CRITICAL GROUP ANNUAL DOSE DUE TO TRITIUM UPTAKE

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	$P_{(I)19}$	0.327	N/A	N/A
DOSE DUE TO SKIN ABSORPTION AT WORK	$P_{(E)19}$	0.327	N/A	N/A
DOSE DUE TO INHALATION AT RESIDENCE	$P_{(I)19}$	0.359	0.471	0.166
DOSE DUE TO SKIN ABSORPTION AT RESIDENCE	$P_{(E)19}$	0.359	0.471	0.166
DOSE DUE TO CONSUMPTION OF WELL WATER	P_{29}	3.486	3.486	3.959
DOSE DUE TO CONSUMPTION OF PRODUCE	P_{49}	0.157	0.157	0.176
DOSE DUE TO CONSUMPTION OF MILK	P_{59}	0.016	0.016	0.077
TOTAL DOSE DUE TO TRITIUM UPTAKE	P_{TOTAL}	5.031	4.601	4.544

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[14] supported by an Emergency Plan[16].

2.3.4.1 FIRE PROTECTION

Various measures were taken at the facility in 2011 to improve fire safety.

2.3.4.1.1 FIRE SEPARATION

Fire separation was supplemented in April 2011 between SRB and the neighboring tenant. This provides SRB with further protection from a fire that may occur at the neighboring tenant and likewise would protect the neighboring tenant from any possible radiation exposure as a result of a fire at SRB.

2.3.4.1.2 FIRE PROTECTION COMMITTEE

SRB Senior Management has formally constituted a Fire Protection Committee in the organizational structure. In 2011, five minuted meetings have been held which have resulted in the implementation of various measures which have improved fire safety at the facility.

2.3.4.1.3 FIRE PROTECTION PROGRAM AND PROCEDURES

In 2011, there were some small improvements made by the Fire Protection Committee to the Fire Protection Program[14] and to the Fire Protection procedures.

2.3.4.1.4 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.

2.3.4.1.5 FIRE PROTECTION EQUIPMENT INSPECTIONS

In 2011 inspections of the emergency lighting and fire extinguishers have been performed monthly by in-house trained staff and records are kept on file.

2.3.4.1.6 FIRE EXTINGUISHER TRAINING

Yearly fire extinguisher training was performed for all staff on May 10, 2011 by the Pembroke Fire Department.

2.3.4.1.7 FIRE RESPONDER TRAINING

Fire Responders were trained to respond to a fire at the facility on two different occasions in 2011, one group on September 6, 2011 and the other group on the September 13, 2011.

The training included a tour of the facility and information with respect to the hazardous materials found on the site. Responders are 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 2011. All drills were reviewed by the Fire Protection Committee.

2.3.4.1.9 FIRE PROTECTION CONSULTANT INSPECTION

On December 16, 2011, as required by CNSC operating licence NSPFOL-13.00/2015[1] and section 3.11 of the Licence Conditions Handbook LCH-SRBT-R000[2] a Fire Protection Consultant performed an annual third party review[36] 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.

2.3.4.1.10 PEMBROKE FIRE DEPARTMENT INSPECTION

Pembroke Fire Department conducted a fire inspection on April 12, 2011. One minor violation of the Ontario Fire Code was identified which has since been addressed.

2.3.4.2 EMERGENCY PREPAREDNESS

Various measures were taken at the facility in 2011 to further improve emergency preparedness and emergency response measures.

2.3.4.2.1 EMERGENCY PLAN

As a result of the Request[16] 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[16] 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 are expected to be finalized with emergency response personnel in 2012.

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[37] is being revised to reflect these changes.

2.3.5.2 RADIOACTIVE CONSIGNMENTS

In 2011 only a small amount of radioactive waste was generated. This was due to waste minimization practices. The following waste consignments were made during 2011:

TABLE 12: RADIOACTIVE CONSIGNMENTS

DATE	CONSIGNOR	WASTE DESCRIPTION	QTY AND PACKAGE DESCRIPTION (200 L DRUM)	TOTAL WEIGHT (Kg)	TOTAL ACTIVITY (GBq)
JANUARY 18, 2011	BEE LINE DISPOSAL	VERY LOW LEVEL WASTE	34	982.8	50.39
FEBRUARY 23, 2011	AECL	LOW LEVEL WASTE	5	350.0	186.61

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. 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 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 Zones 2 and 3, assessed, and ultimately placed into steel drums. Once a drum was full, it was prepared for interim storage and transferred to the secure, fenced-in compound area awaiting transfer or disposal.

TABLE 13: INTERIM STORAGE OF "VERY LOW LEVEL WASTE"

VERY LOW-LEVEL WASTE CONTAINER DESCRIPTION	AMOUNT IN STORAGE AT YEAR END 2011 (CONTAINER)	AMOUNT GENERATED THROUGHOUT 2011 (CONTAINER)	TOTAL ACTIVITY OF TRITIUM (GBQ)
200 LITER STEEL DRUMS	13	13	32.35
*200 LITER STEEL DRUMS	33	0	0.09

* Contains excavated soil from the well drilling activities on-site.

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 14: INTERIM STORAGE OF "LOW LEVEL WASTE"

LOW-LEVEL WASTE CONTAINER DESCRIPTION	AMOUNT IN STORAGE AT YEAR END 2011 (CONTAINER)	AMOUNT GENERATED THROUGHOUT 2011 (CONTAINER)	TOTAL ACTIVITY OF TRITIUM (GBq)
* 200 LITER STEEL DRUMS	12	12	848.61

* Contains used equipment components, crushed glass, filters, broken lights, rags, solidified pump oil etc.

2.3.5.4 HAZARDOUS MATERIAL COLLECTION

In 2011 there were no hazardous waste collections required.

2.3.5.5 HAZARDOUS MATERIAL STORAGE

Hazardous (non-radioactive) liquid waste material was historically produced as a result of the silk screening process. This waste was stored in 20-liter plastic containers waiting for sufficient quantity for disposal with any storage and disposal of hazardous substances (non-radioactive) reported to the Ontario Ministry of the Environment. In 2010 and throughout 2011, the generation of liquid hazardous waste material has been reduced to zero mainly due to the elimination of certain silk screening activities. Historically, the screens were emulsioned on-site which generated the bulk of the hazardous liquid waste. A third party now performs this process off-site. Also paints and thinners are now more efficiently generated and re-used as part of SRB's waste minimization practices.

TABLE 15: HAZARDOUS MATERIAL STORAGE

HAZARDOUS LIQUID WASTE	AMOUNT IN STORAGE AT YEAR END 2011	AMOUNT GENERATED THROUGHOUT 2011
20 LITER PLASTIC DRUMS	0	0

2.3.6 NUCLEAR SECURITY

SRB Technologies (Canada) Inc. has a Security Program[38] for the facility in accordance with CNSC regulatory requirements and CNSC Staff expectations. A Physical Security Inspection was conducted by CNSC Staff at the facility on December 1, 2011. Minor issues identified during the inspection have since been addressed.

2.3.7 SAFEGUARDS AND NON-PROLIFERATION

Although SRB does not have any specific licence conditions with respect to Canada's nuclear safeguards international agreements, all necessary measures are taken to facilitate Canada's compliance with any applicable safeguards agreement. 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.

Due to the fact that SRB has a very small amount of depleted uranium (6.63 Kg) on-site this situation could occur. During 2011, there were no inspections required from the IAEA.

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 2011 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.

2.3.8.2 SHIPPING ACTIVITIES

In 2011, SRB prepared, packaged and shipped, in accordance with CNSC regulatory document, SOR/2000-208, Packaging and Transport of Nuclear Substances Regulations, 239 consignments to various customers located in 13 countries around the world including Canada. The number of monthly shipments containing radioactive material for 2011 can be found in **Appendix W** 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.

No transport incidents occurred nor were reported during 2011.

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 2011.

3.1.1.1 DIRECT INTERACTION WITH THE PUBLIC

In all of 2011 we received only one inquiry from a member of the public, this individual had also historically expressed concerns regarding the operations. The individual requested our 2010 Annual Compliance Report[39] which was provided within three business days of the request. The Annual Compliance Report[39] was also posted on our web site a few days later as originally planned.

In 2011, 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 2011 we have provided three plant tours, one to a member of the general public, one to two Cooperative Education Teachers from Fellowes High School located in Pembroke and one to the newly elected Deputy Mayor for the City of Pembroke.

3.1.1.2 CITY OF PEMBROKE

Following concerns expressed in 2010 by a City of Pembroke employee working in the water distribution and waste water collection in the Operations Department, to address these concerns, in 2011 we sampled sludge and performed air monitoring at the Townline Lift Station. We explained that workers were not at risk as a result of the exposure to tritium levels associated with releases to the sewer from SRB and we provided a comparison of this exposure against the CNSC limit and against radioactive exposure from other known sources, such as cosmic radiation, x-rays, etc.

3.1.1.3 PUBLIC INFORMATION COMMITTEE

The Public Information Committee had five minuted meetings in 2011 consisting mostly of discussing future changes to the web site that will be implemented in 2012. The web site will be revised to include important information on safe handling and return of our products after their useful life.

3.1.1.4 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.

3.1.2 SITE SPECIFIC

3.1.2.1 PAYMENT SCHEDULE FOR COST RECOVERY FEE ARREARS

As per condition 16.1 of Licence NSPFOL-13.00/2015[1], in 2011, SRB has made the payments of cost recovery fee arrears or "Annual Fee Adjustment payments" as found in section 3.16 of the Licence Condition Handbook LCH-SRBT-R000[2].

3.1.2.2 DECOMMISSIONING ESCROW ACCOUNT DEPOSITS

As per condition 16.2 of Licence NSPFOL-13.00/2015[1], in 2011, 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].

3.1.2.3 REVIEW ENGAGEMENT REPORT

As per condition 16.3 of Licence NSPFOL-13.00/2015[1], in 2011, SRB has provided CNSC Staff an annual Review Engagement Report[40] reporting the gross revenue and profits of the company as described in section 3.16 of the Licence Condition Handbook LCH-SRBT-R000[2].

3.1.2.4 ONTARIO MINISTRY OF THE ENVIRONMENT

In 2011 SRB continued to make releases of hazardous substances to the air under a Certificate[41] 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 PRELIMINARY DECOMMISSIONING PLAN, COST ESTIMATE AND FINANCIAL GUARANTEE

The Financial Guarantee[42] was approved[43] by the Commission in October 2007. In early 2012 we plan on providing CNSC Staff a revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee. These documents will be revised using guidelines found in "G-219 - Decommissioning Planning for Licensed Activities" and "G-206 - Financial Guarantees for the Decommissioning of Licensed Activities" and "CSA N294-09 - Decommissioning of facilities containing nuclear substances".

We intend on providing a revised Cost Estimate that will reflect inflationary increases since the plan was approved by the Commission in 2007. We will reflect reduction of activities as a result of eliminating waste and pieces of equipment that are in the process of being removed from the facility. We will seek estimates from CNSC Staff on future regulatory costs with the assumption that future activities from CNSC Staff will be reduced as a result of the detail provided in SRB documents and SRB's improved compliance performance.

Once the documents are satisfactory to CNSC Staff, the Financial Guarantee will have to be reviewed and approved by the Commission.

3.1.3.2 PRODUCTION COMMITTEE

Senior Management will form a Committee that will responsible for addressing production issues including scheduling, staffing, training, quality issues, etc.

3.1.3.3 TDG TRAINING

A number of training initiatives will be undertaken in 2012 to provide all staff with basic TDG training and to provide the Import And Export Manager and a designate formal and thorough TDG Training for certification purposes.

3.1.3.4 HEALTH PHYSICS TRAINING

A complete training matrix of specific tasks in Health Physics has been developed and a plan to address any weakness has been put in place with a completion date of December 31, 2012.

3.1.3.5 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.

3.1.4 SAFETY PERFORMANCE OBJECTIVES

3.1.4.1 TRITIUM PROCESSED

In 2011, a total of 7,342,449 GBq's of tritium was processed, we expect an increase of approximately 12% in 2012.

3.1.4.2 AIR EMISSION TARGET

Despite a predicted increase in production of 12% in 2012, Senior Management has committed to observe the same air emission target as in 2011.

3.1.4.3 OCCUPATIONAL DOSE TARGET

Despite a predicted increase in production of 12% in 2012, Senior Management has committed to observe the same occupational dose targets as in 2011.

3.1.4.4 QUALITY MANUAL

A revision of the Quality Manual is near completion, the last revision was issued in 2008. The new revision reflects minor changes in responsibilities and the addition of a process chart.

3.1.4.5 WASTE MANAGEMENT PROGRAM

A revision of the Waste Management Program is near completion, the last revision was issued in 2007. The new revision reflects changes resulting from the amendment of the Nuclear Substances and Radiation Devices Regulations and 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.

3.1.4.6 EMERGENCY PLAN

A revision of the Emergency Plan[16] is expected to be issued by the end of 2012 after input from emergency response personnel is received and incorporated, the last revision was issued in 2008. The new revision will include detailed procedures to address the occurrence of extreme weather events.

3.1.4.7 CONTRACTOR MANAGEMENT PROGRAM

A revision of the Contractor Management Program is near completion, the last revision was issued in 2008. The new revision will include a Terms of Reference Guide for establishing a contract and the requirement for increased organizational input to define technical requirements and specification for purchased parts.

4.0 CONCLUDING REMARKS

On average, the emissions of “HTO” were maintained at 18.61% of the licence limit and the emissions of “HTO + HT” were maintained at 12.43% of the licence limit. No action levels for air emission were reached in 2011.

Sewer release values based on sampling and analysis indicate that the emissions to sewer in 2011 were 3.90% of the license limit.

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 highest annual dose for any staff member for the year was 1.15 mSv, with an average of only 0.25 mSv for all staff and none of the staff members exceeded the action levels for effective dose to worker.

Collective dose was also low at 4.47 mSv. There were no instances at anytime in 2011 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 9,793 swipes were performed in various work areas in 2011. During 2011 Health Physics Staff defined a methodical manner to ensure the sampling locations chosen are effective in identifying areas where contamination may be present.

Of the 37 monitoring wells, the concentrations of only five wells now exceed the current Ontario Drinking water Guideline. The highest tritium concentration in any well, remains in monitoring well which is located in the stack area on the SRB property. The average concentration in that well in 2011 was 33,402 Bq/L, which is lower than the average concentration in 2010 of 44,438 Bq/L and significantly lower than the concentration of 156,643 Bq/L measured in November 2006.

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 a business. Tritium concentrations in this well in 2011 averaged 1,063 Bq/L, which is approximately 15% of the Ontario Drinking Water Standard of 7,000 Bq/L. This concentration is significantly lower than what it was in April 2009 at 2,063 Bq/L. Average concentrations over 2011 for other wells used for drinking water ranged from 4 Bq/L to 305 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 2011 and results were similar to those in 2010.

Based on environmental monitoring results the maximum dose to a member of the public as a result of the emissions from SRB in 2011 was 5.031 µSv which is similar to the dose in 2010.

In 2011 a total of 67 minuted committee meetings have taken place at the company compared to 56 in 2010. In 2011, formalized and standardized a process for taking committee meeting minutes that ensures that minutes are legible, easy to read and provide ample detail on discussions that take place during each meeting. The minutes further clearly define action items that have been closed, the ongoing action items and the new action items.

In 2011 our workforce continued to be stable with 16 employees working in relatively the same positions when the licence was issued in July 2010. By the end of 2011 our workforce had an average experience of almost 15 years with an average age of just over 41 years of age.

The Quality Manager developed an audit schedule for 2011 which resulted in 16 internal audits. A total of 14 non-conformances, four opportunities for improvements and one preventive action were raised in several areas of the company operations.

In 2011 CNSC Staff performed an Environmental Protection Inspection, a Type II Compliance Inspection and a Physical Security Inspection. All issues identified during the inspections have since been addressed.

In 2011 we also received inspections or audits from our ISO 9001:2008 BSI Management Systems, the Pembroke Fire Department, a Fire Protection Consultant and Ontario Power Generation.

Benchmarking activities noted that tritium emissions to air from another processing facility that performs the same types of activities as SRB Technologies (Canada) Inc. has released approximately four times more tritium to the atmosphere than SRB Technologies (Canada) Inc. over the last three years.

Although only one request for information was made by the public in 2011, various Public Information initiatives were taken including frequent web site update with latest environmental monitoring results, plant tours and direct interaction with the public reporting results of well and produce sampling.

Site specific requirements for payments of cost recovery fee arrears and payments to the decommissioning escrow account have been met.

In 2012, SRB plan on; providing CNSC Staff a revised Preliminary Decommissioning Plan, Cost Estimate and Financial Guarantee, Senior Management will form a Committee that will be responsible for addressing production issues, a number of TDG training initiatives will be undertaken in 2012, address any weakness in Health Physics training, continue to monitor the existing network of wells.

Despite a predicted increase in production of 12% in 2012, Senior Management has committed to observe the same air emission and occupational dose targets as in 2011.

In 2012, we expect to submit to CNSC Staff revisions of the Quality Manual, Waste Management Program, Emergency Plan and Contractor Management Program.

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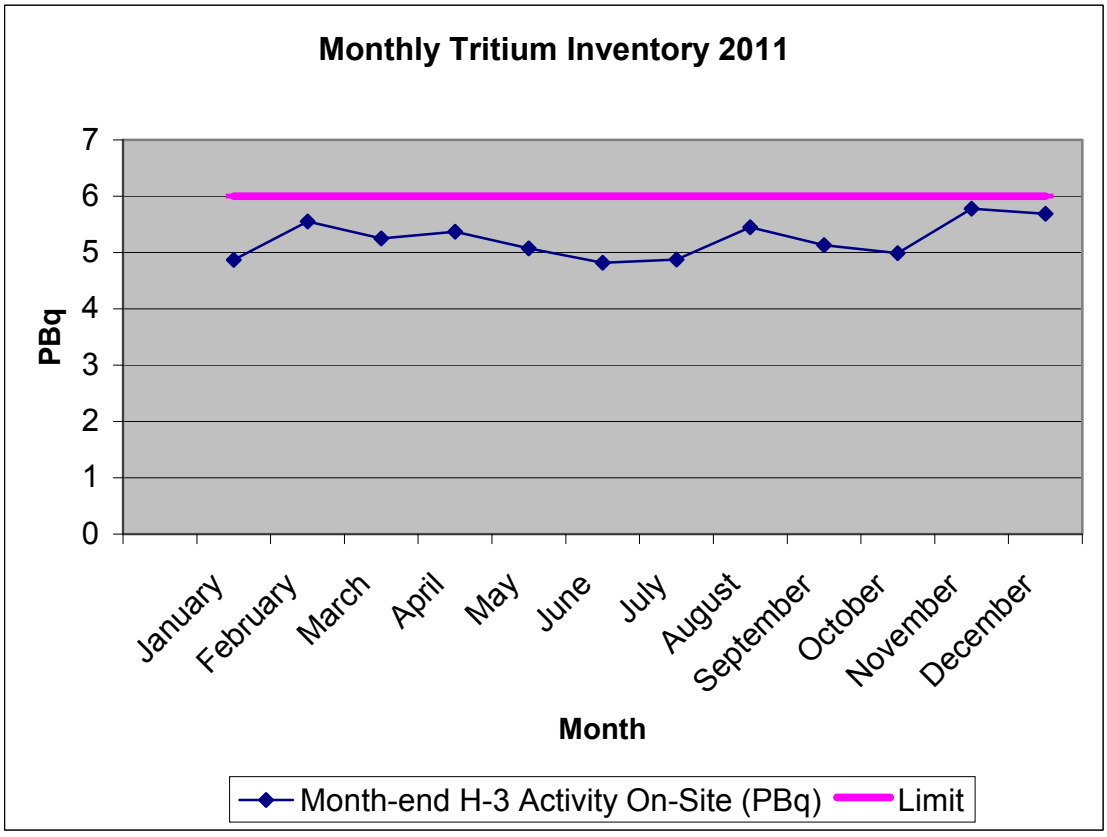
APPENDIX A

Tritium activity on site during 2011

TRITIUM ACTIVITY ON SITE DURING 2011

Month / 2011	Month-end H-3 Activity On-Site (PBq)	Percent of Licence Limit (%)
January	4.87	81
February	5.55	93
March	5.25	87
April	5.37	89
May	5.08	85
June	4.82	80
July	4.88	81
August	5.45	91
September	5.13	86
October	4.99	83
November	5.78	96
December	5.69	95
2011 Monthly Average	***5.24***	***87***

Note: Possession limit is 6.00 PBq.

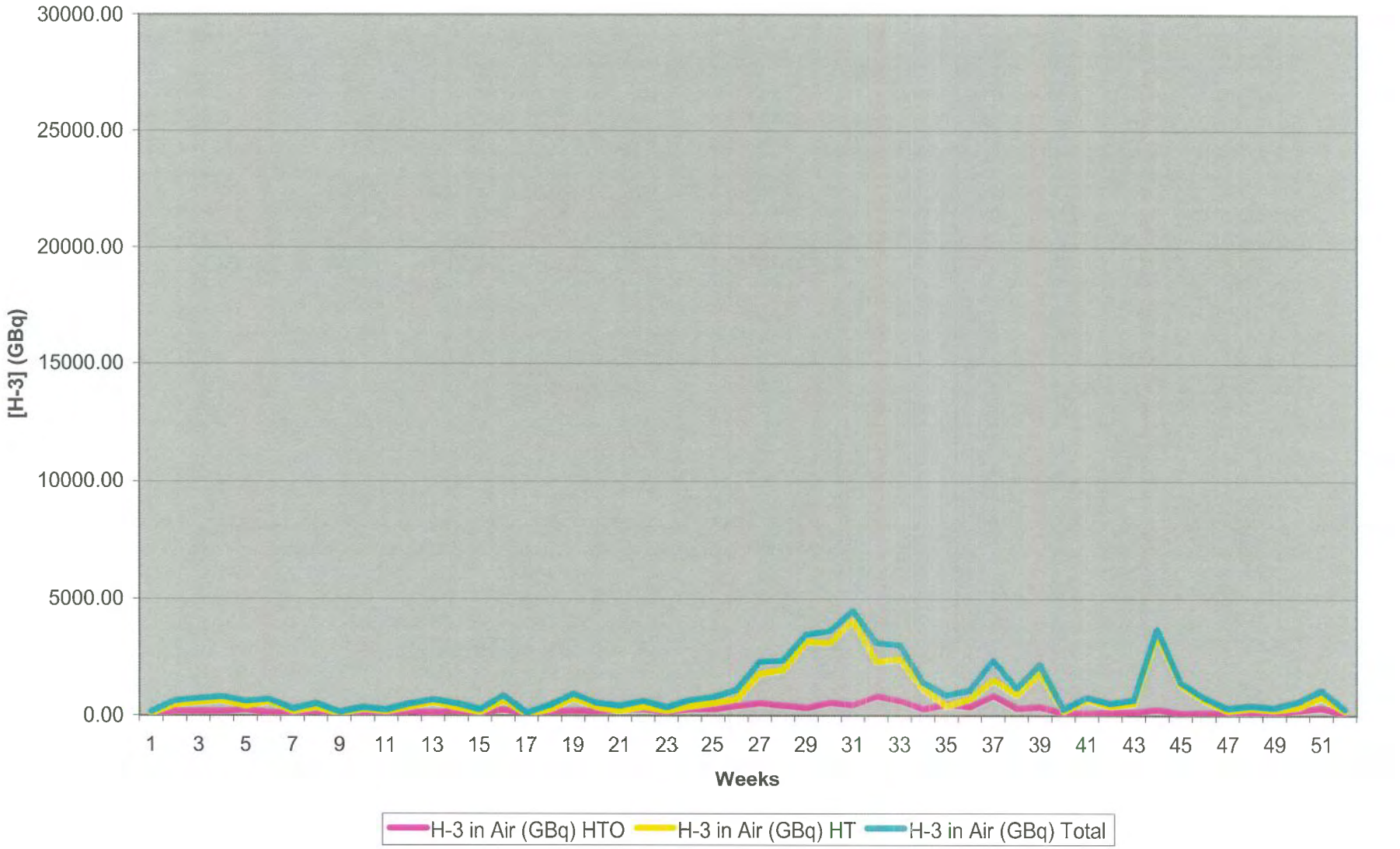


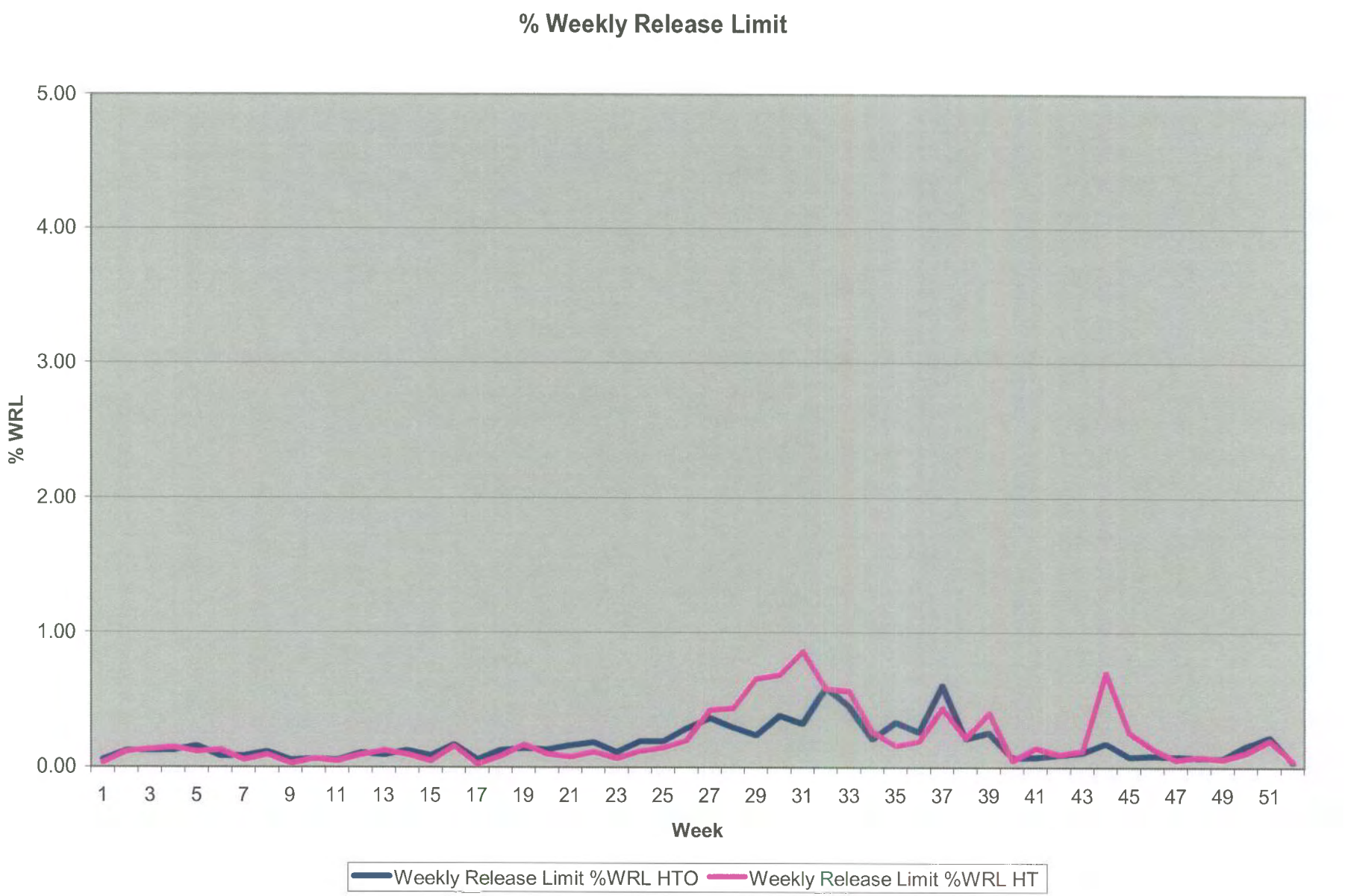
APPENDIX B

Facility Emissions Data for 2011

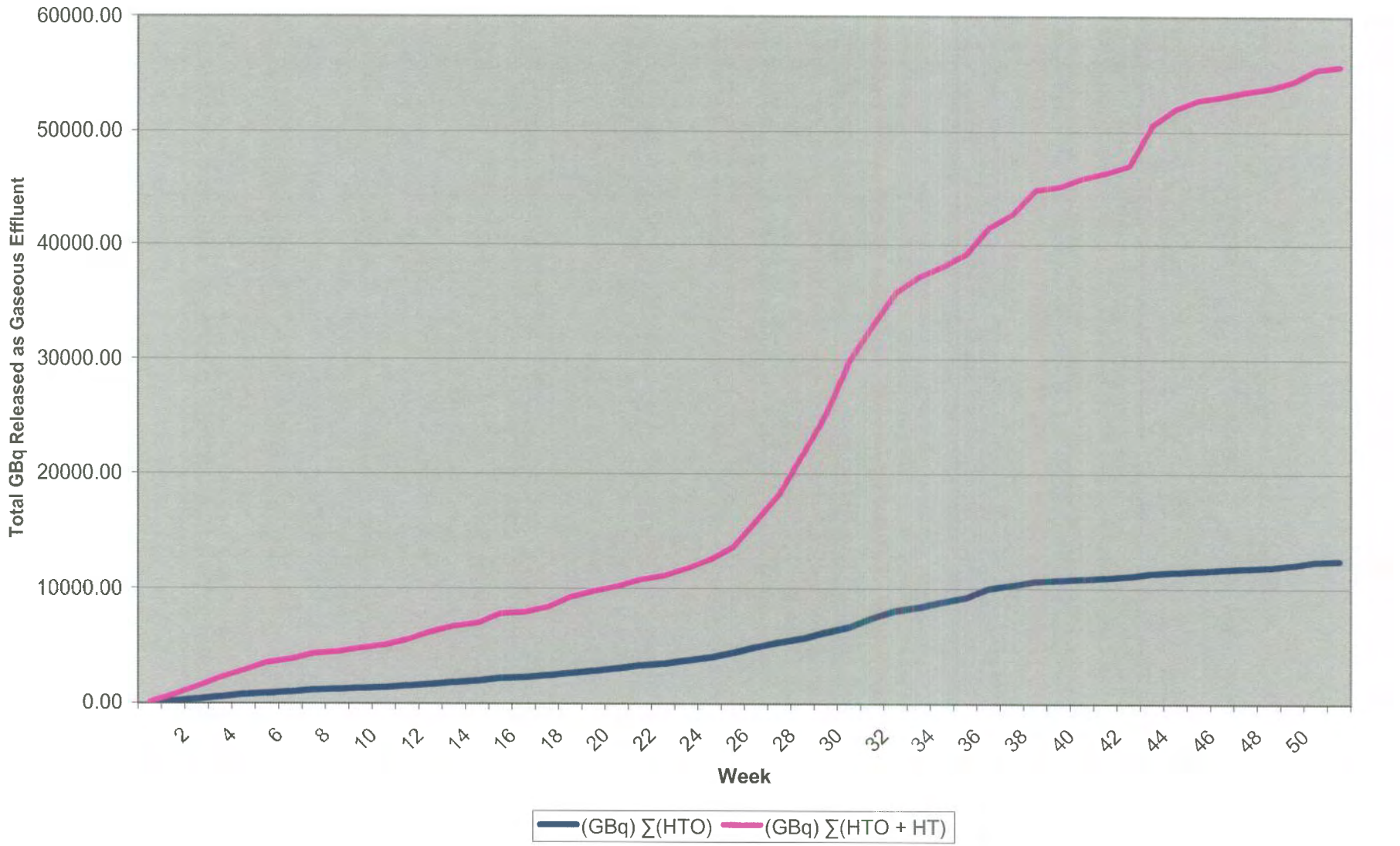
Week	Date Initial	Date Final	Stack Release Data H-3 in Air (GBq) HTO	HT	Total	(GBq) ∑(HTO)	∑(HTO + HT)	1996 SRBT DEL %DEL Adult Resident	Infant Resident	Adult Worker	Weekly Release Limit %WRL HTO	HT	2006 SRBT DRL % DRL Adult Resident	Infant Resident	Nursing Infant	Nursing Mother	Adult Worker
1	12/27/2010	1/3/2011	78.24	97.08	175.32	78.24	175.32	0.02	0.01	0.02	0.06	0.03	0.05	0.04	0.08	0.05	0.05
2	1/3/2011	1/10/2011	167.85	446.67	614.52	246.09	789.84	0.03	0.02	0.04	0.12	0.12	0.11	0.08	0.17	0.11	0.11
3	1/10/2011	1/17/2011	173.33	538.98	712.31	419.42	1502.15	0.04	0.02	0.04	0.13	0.14	0.11	0.09	0.18	0.12	0.11
4	1/17/2011	1/24/2011	174.62	613.99	788.61	594.04	2290.76	0.04	0.02	0.04	0.13	0.15	0.12	0.09	0.19	0.12	0.11
5	1/24/2011	1/31/2011	219.05	393.16	612.21	813.09	2902.97	0.04	0.02	0.05	0.16	0.12	0.14	0.10	0.22	0.14	0.13
6	1/31/2011	2/7/2011	115.31	565.39	680.70	928.40	3583.67	0.02	0.01	0.03	0.09	0.13	0.08	0.06	0.13	0.08	0.08
7	2/7/2011	2/14/2011	115.12	167.13	282.25	1043.52	3865.92	0.02	0.01	0.03	0.09	0.05	0.07	0.05	0.11	0.07	0.07
8	2/14/2011	2/22/2011	157.79	332.72	490.51	1201.31	4356.43	0.03	0.02	0.04	0.12	0.09	0.10	0.08	0.16	0.10	0.10
9	2/22/2011	2/28/2011	74.42	70.77	145.19	1275.73	4501.62	0.01	0.01	0.02	0.06	0.03	0.04	0.03	0.07	0.05	0.04
10	2/28/2011	3/7/2011	84.19	250.55	334.74	1359.92	4836.36	0.02	0.01	0.02	0.06	0.06	0.05	0.04	0.09	0.06	0.05
11	3/7/2011	3/14/2011	73.49	172.94	246.43	1433.41	5082.79	0.01	0.01	0.02	0.05	0.05	0.05	0.04	0.08	0.05	0.05
12	3/14/2011	3/21/2011	146.54	347.09	493.63	1579.95	5576.42	0.03	0.02	0.03	0.11	0.09	0.09	0.07	0.15	0.10	0.09
13	3/21/2011	3/28/2011	130.30	532.25	662.55	1710.25	6238.97	0.03	0.02	0.03	0.10	0.13	0.09	0.07	0.14	0.09	0.09
14	3/28/2011	4/4/2011	169.48	328.72	498.20	1879.73	6737.17	0.03	0.02	0.04	0.13	0.10	0.11	0.08	0.17	0.11	0.10
15	4/4/2011	4/11/2011	120.47	133.24	253.71	2000.20	6990.88	0.02	0.01	0.03	0.09	0.05	0.07	0.05	0.12	0.07	0.07
16	4/11/2011	4/18/2011	232.95	603.20	836.15	2233.15	7827.03	0.05	0.03	0.05	0.17	0.16	0.15	0.11	0.24	0.15	0.15
17	4/18/2011	4/25/2011	80.13	38.99	119.12	2313.28	7946.15	0.02	0.01	0.02	0.06	0.02	0.05	0.04	0.07	0.05	0.05
18	4/25/2011	5/2/2011	174.90	259.94	434.84	2488.18	8380.99	0.04	0.02	0.04	0.13	0.08	0.11	0.08	0.17	0.11	0.11
19	5/2/2011	5/9/2011	193.84	707.68	901.52	2682.02	9282.51	0.04	0.02	0.05	0.14	0.17	0.13	0.10	0.21	0.13	0.13
20	5/9/2011	5/16/2011	182.25	336.74	518.99	2864.27	9801.50	0.04	0.02	0.04	0.14	0.10	0.11	0.09	0.18	0.12	0.11
21	5/16/2011	5/24/2011	225.76	190.73	416.49	3090.03	10217.99	0.05	0.02	0.05	0.17	0.08	0.14	0.10	0.21	0.14	0.13
22	5/24/2011	5/30/2011	256.49	353.75	610.24	3346.52	10828.23	0.05	0.03	0.06	0.19	0.12	0.16	0.12	0.25	0.16	0.15
23	5/30/2011	6/6/2011	155.23	200.55	355.78	3501.75	11184.01	0.03	0.02	0.04	0.11	0.07	0.09	0.07	0.15	0.10	0.09
24	6/6/2011	6/13/2011	267.56	379.26	646.82	3769.31	11830.83	0.05	0.03	0.06	0.20	0.12	0.16	0.12	0.26	0.17	0.16
25	6/13/2011	6/20/2011	268.26	506.09	774.35	4037.57	12605.18	0.05	0.03	0.06	0.20	0.15	0.17	0.13	0.27	0.17	0.16
26	6/20/2011	6/27/2011	399.92	673.90	1073.82	4437.49	13679.00	0.08	0.05	0.09	0.30	0.21	0.25	0.19	0.40	0.25	0.24
27	6/27/2011	7/4/2011	506.34	1760.45	2266.79	4943.83	15945.79	0.10	0.06	0.12	0.38	0.44	0.34	0.26	0.55	0.35	0.33
28	7/4/2011	7/11/2011	411.67	1907.74	2319.41	5355.50	18265.20	0.09	0.05	0.10	0.30	0.45	0.29	0.22	0.47	0.29	0.28
29	7/11/2011	7/18/2011	330.71	3125.52	3456.23	5686.21	21721.43	0.07	0.05	0.08	0.24	0.66	0.27	0.21	0.45	0.28	0.26
30	7/18/2011	7/25/2011	529.68	3065.46	3595.14	6215.89	25316.57	0.11	0.07	0.13	0.39	0.69	0.38	0.30	0.63	0.39	0.37
31	7/25/2011	8/2/2011	447.83	4061.88	4509.71	6663.72	29826.28	0.10	0.06	0.11	0.33	0.87	0.36	0.28	0.60	0.37	0.35
32	8/2/2011	8/8/2011	807.56	2268.10	3075.66	7471.28	32901.94	0.16	0.09	0.19	0.60	0.59	0.52	0.40	0.84	0.54	0.51
33	8/8/2011	8/15/2011	620.42	2372.16	2992.58	8091.70	35894.52	0.13	0.07	0.14	0.46	0.57	0.42	0.32	0.68	0.43	0.41
34	8/15/2011	8/22/2011	291.50	1116.25	1407.75	8383.20	37302.27	0.06	0.04	0.07	0.22	0.27	0.20	0.15	0.32	0.20	0.19
35	8/22/2011	8/29/2011	463.72	395.49	859.21	8846.92	38161.48	0.09	0.05	0.11	0.34	0.16	0.28	0.21	0.44	0.28	0.27
36	8/29/2011	9/6/2011	361.54	677.98	1039.52	9208.46	39201.00	0.07	0.04	0.08	0.27	0.20	0.23	0.17	0.36	0.23	0.22
37	9/6/2011	9/12/2011	824.42	1495.22	2319.64	10032.88	41520.64	0.17	0.09	0.19	0.61	0.45	0.51	0.39	0.82	0.53	0.50
38	9/12/2011	9/20/2011	295.51	857.87	1153.38	10328.39	42674.02	0.06	0.03	0.07	0.22	0.22	0.19	0.15	0.31	0.20	0.19
39	9/20/2011	9/27/2011	355.78	1787.59	2143.37	10684.17	44817.39	0.07	0.04	0.08	0.26	0.41	0.25	0.19	0.41	0.26	0.24
40	9/27/2011	10/4/2011	97.94	167.98	265.92	10782.11	45083.31	0.02	0.01	0.02	0.07	0.05	0.06	0.05	0.10	0.06	0.06
41	10/4/2011	10/11/2011	103.58	654.10	757.68	10885.69	45840.99	0.02	0.01	0.02	0.08	0.15	0.08	0.06	0.13	0.08	0.07
42	10/11/2011	10/18/2011	126.71	384.05	510.76	11012.40	46351.75	0.03	0.01	0.03	0.09	0.10	0.08	0.06	0.13	0.09	0.08
43	10/18/2011	10/25/2011	151.88	494.25	646.13	11164.28	46997.88	0.03	0.02	0.04	0.11	0.12	0.10	0.08	0.16	0.10	0.10
44	10/25/2011	11/1/2011	244.28	3434.48	3678.76	11408.56	50676.64	0.05	0.04	0.06	0.18	0.71	0.23	0.18	0.39	0.23	0.22
45	11/1/2011	11/8/2011	107.15	1273.80	1380.95	11515.71	52057.59	0.02	0.02	0.03	0.08	0.27	0.09	0.07	0.16	0.10	0.09
46	11/8/2011	11/15/2011	117.61	633.99	751.60	11633.32	52809.19	0.02	0.01	0.03	0.09	0.14	0.08	0.06	0.14	0.09	0.08
47	11/15/2011	11/22/2011	108.26	188.96	297.22	11741.58	53106.41	0.02	0.01	0.02	0.08	0.06	0.07	0.05	0.11	0.07	0.07
48	11/22/2011	11/29/2011	94.96	302.08	397.04	11836.54	53503.45	0.02	0.01	0.02	0.07	0.08	0.06	0.05	0.10	0.06	0.06
49	11/29/2011	12/6/2011	87.83	226.60	314.43	11924.37	53817.88	0.02	0.01	0.02	0.07	0.06	0.06	0.04	0.09	0.06	0.06
50	12/6/2011	12/13/2011	218.14	344.87	563.01	12142.51	54380.89	0.04	0.02	0.05	0.16	0.11	0.13	0.10	0.21	0.14	0.13
51	12/13/2011	12/20/2011	309.43	748.19	1057.62	12451.94	55438.51	0.06	0.04	0.07	0.23	0.20	0.20	0.15	0.32	0.20	0.19
52	12/20/2011	12/27/2011	51.86	193.88	245.74	12503.80	55684.25	0.01	0.01	0.01	0.04	0.05	0.03	0.03	0.06	0.04	0.03
Annual	Total		12503.80	43180.45	55684.25												
Weekly	Average		240.46	830.39	1070.85			Average % DEL 0.05	0.03	0.06	Average % WRL 0.18	0.21	Average % DRL 0.16	0.12	0.26	0.16	0.16
				(Bq/a)	% Release Limit			Projected Dose (uSv/a) 0.49	0.29	0.56			Projected Dose (uSv/a) 1.60	1.22	2.59	1.64	1.56
% Annual Release Limit:		HTO		6.72E+13	18.61			Adult Resident	Infant Resident	Adult Worker	HTO	HT	Adult Resident	Infant Resident	Nursing Infant	Nursing Mother	Adult Worker
		HTO + HT		4.48E+14	12.43												
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




% 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

Emissions


60000.00
50000.00
40000.00
30000.00
20000.00
10000.00
0.00
Total GBq Released as Gaseous Effluent
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
Week
(GBq) ∑(HTO)
(GBq) ∑(HTO + HT)

APPENDIX C

Annual Liquid Effluent Data for 2011

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
7-Jan-11	0	52	200,000,000,000	0	0	0
14-Jan-11	154,334,400	51	199,845,665,600	37	7	2
21-Jan-11	149,439,400	50	199,696,226,200	36	7	2
28-Jan-11	106,968,400	49	199,589,257,800	26	5	1
4-Feb-11		48	199,589,257,800	0	0	0
11-Feb-11	52,124,600	47	199,537,133,200	12	2	1
18-Feb-11		46	199,537,133,200	0	0	0
25-Feb-11		45	199,537,133,200	0	0	0
4-Mar-11		44	199,537,133,200	0	0	0
11-Mar-11		43	199,537,133,200	0	0	0
18-Mar-11	124,163,600	42	199,412,969,600	30	6	1
25-Mar-11	50,175,400	41	199,362,794,200	12	2	1
1-Apr-11	100,350,800	40	199,262,443,400	24	5	1
8-Apr-11	54,420,300	39	199,208,023,100	13	3	1
15-Apr-11	163,260,900	38	199,044,762,200	39	8	2
22-Apr-11		37	199,044,762,200	0	0	0
29-Apr-11		36	199,044,762,200	0	0	0
6-May-11	101,068,000	35	198,943,694,200	24	5	1
13-May-11		34	198,943,694,200	0	0	0
20-May-11	100,711,600	33	198,842,982,600	24	5	1
27-May-11		32	198,842,982,600	0	0	0
3-Jun-11		31	198,842,982,600	0	0	0
10-Jun-11	7,073,000	30	198,835,909,600	2	0	0
17-Jun-11		29	198,835,909,600	0	0	0
24-Jun-11		28	198,835,909,600	0	0	0
1-Jul-11		27	198,835,909,600	0	0	0
8-Jul-11	47,251,600	26	198,788,658,000	11	2	1
15-Jul-11	64,786,333	25	198,723,871,667	16	3	1
22-Jul-11	323,931,667	24	198,399,940,000	78	16	4
29-Jul-11	194,359,000	23	198,205,581,000	47	9	2
5-Aug-11	203,654,550	22	198,001,926,450	49	10	2
14-Aug-11	455,294,950	21	197,546,631,500	109	22	5
19-Aug-11	339,424,250	20	197,207,207,250	81	16	4
28-Aug-11	408,572,730	19	196,798,634,520	98	20	5
4-Sep-11	482,204,800	18	196,316,429,720	116	23	6
11-Sep-11	252,472,000	17	196,063,957,720	61	12	3
18-Sep-11	405,422,600	16	195,658,535,120	97	19	5
25-Sep-11	340,185,450	15	195,318,349,670	82	16	4
30-Sep-11	312,037,630	14	195,006,312,040	75	15	4
9-Oct-11	290,257,080	13	194,716,054,960	70	14	3
14-Oct-11	87,230,000	12	194,628,824,960	21	4	1
21-Oct-11	0	11	194,628,824,960	0	0	0
28-Oct-11	231,389,400	10	194,397,435,560	55	11	3
6-Nov-11	142,328,600	9	194,255,106,960	34	7	2
11-Nov-11	278,844,000	8	193,976,262,960	67	13	3
20-Nov-11	348,555,000	7	193,627,707,960	84	17	4
25-Nov-11	303,500,325	6	193,324,207,635	73	15	3
2-Dec-11	313,685,625	5	193,010,522,010	75	15	4
10-Dec-11	382,309,450	4	192,628,212,560	92	18	4
16-Dec-11	311,832,511	3	192,316,380,049	75	15	4
23-Dec-11	109,994,622	2	192,206,385,427	26	5	1
30-Dec-11		1	192,206,385,427	0	0	0

Annual Total (Bq)	7,793,614,573
Annual Total (GBq)	7.79
Limit (GBq)	200
% of limit	**3.90**

APPENDIX D

Ventilation equipment maintained for 2011

VENTILATION EQUIPMENT MAINTAINED IN 2011

	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 E

Equipment maintenance information for 2011

EQUIPMENT MAINTENANCE INFORMATION FOR 2011

2011 Equipment Maintenance Information

Major maintenance carried out in 2011:	None
Quarterly Maintenance carried out in 2011: **Contract:** Kool Temp/ Valley Refrigeration Ltd.	March 30, 2011 June 23, 2011 September 29, 2011 December 22, 2011
Quarterly Maintenance Schedule: **Contract:** Valley Compressor	March 4, 2011 June 6, 2011 September 16, 2011 December 14, 2011
Monthly Maintenance carried out in 2011: **Contract:** Kool Temp/ Valley Refrigeration Ltd.	January 28, 2011 February 25, 2011 March 30, 2011 April 28, 2011 May 31, 2011 June 23, 2011 July 19, 2011 August 30, 2011 September 29, 2011 October 28, 2011 November 29, 2011 December 22, 2011
Sprinkler System Maintenance by a Third Party in 2011: Drapeau	March 28, 2011 June 24, 2011 September 27, 2011 December 22, 2011
Sprinkler System Check by SRB Technologies in 2011:	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 2011.

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

The contract stipulates quarterly service and maintenance program. 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 2011.

APPENDIX F

Third party 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%
	BULK STACK	HTO	49,137	59,462	83%
	BULK STACK	HT	229,665	238,347	96%
WEEK 2	RIG STACK	HTO	53,532	55,853	96%
	RIG STACK	HT	130,759	92,402	142%
	BULK STACK	HTO	58,055	60,470	96%
	BULK STACK	HT	76,276	53,726	142%
WEEK 3	RIG STACK	HTO	39,992	37,210	107%
	RIG STACK	HT	77,053	51,303	150%
	BULK STACK	HTO	42,327	46,834	90%
	BULK STACK	HT	6,016	3,080	195%
WEEK 4	RIG STACK	HTO	91,695	93,772	98%
	RIG STACK	HT	329,934	246,260	134%
	BULK STACK	HTO	57,190	61,173	93%
	BULK STACK	HT	30,700	19,736	156%
					114%

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1-4	RIG STACK	HTO	222,911	254,691	88%
	RIG STACK	HT	670,593	539,850	124%
	BULK STACK	HTO	206,709	227,939	91%
	BULK STACK	HT	342,657	314,889	109%
					103%

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1-4	RIG+ BULK STACK	HTO	429,620	482,630	89%
	RIG + BULK STACK	HT	1,013,250	854,739	119%
					104%

PERIOD	SOURCE	FORM	EMISSION RATE SRB (Bq/m^3)	EMISSION RATE AECL (Bq/m^3)	SRB / AECL
WEEK 1-4	RIG+ BULK STACK	HTO + HT	1,442,870	1,337,369	108%

AECL EACL

RESEARCH & DEVELOPMENT
Nuclear Science Division
Environmental Technologies Branch

Chalk River Laboratories
Chalk River, Ontario
Canada K0J 1J0
Tel (613) 584-3311
Fax (613) 584-1221

Laboratoires de Chalk River
Chalk River (Ontario)
Canada K0J 1J0
Tél (613) 584-3311
Fax (613) 584-1221

AECL- Protected Sensitive

ETB-11-069
TRAK No. 189-121261-021-000
6 May 2011

Mr. S. Levesque, President
Miss K. Belec, Health Physics Technician
SRB Technologies (Canada) Inc.
320 – 140 Boundary Road
PEMBROKE, ON K8A 6W5

SRB Technologies - Environmental Monitoring Program

Summary of HT and HTO Samples Collected from Air Effluent Stacks

This report provides an up-to-date summary of the stack emission results of samples collected and analyzed as part of a contract between AECL's Environmental Technologies Branch (ETB) and SRB Technologies [1, 2]. Specifically, the tables included in this report provide a summary of the HT and HTO samples collected from SRB's air effluent stacks from 21 March 2011 to 18 April 2011.

In March and April 2011, sets of four in-line bubblers were installed by ETB for monitoring HT and HTO concentrations in SRB's Rig and Bulk air effluent stacks. Air pump flow rates were controlled and monitored with Alicat Scientific 16 Series Mass and Volumetric precision gas flow controllers. The rates were set to be comparable to the rates used in SRB's air monitoring system. During the sampling period, flows were verified weekly with a *BIOS Model 510L* Dry Calc flow calibrator.

Temperatures in the cupric oxide tube furnaces used to convert HT to HTO were verified and recorded each week using a Cole Parmer Type-K digital thermocouple. Sample collection from the bubblers has been performed in accordance with ETB's tritium bubbler monitoring procedure [3].

Prepared By: T. Chaput
Reviewed By: A. Miller

APPENDIX F

Sample analysis was performed in accordance with ETB's procedure on tritium analysis by scintillation counting [4]. All tritium samples were analyzed in triplicate on ETB's Packard *Model 2700TR* scintillation counter (SN414344) or ETB's PerkinElmer scintillation counter (SN3110TR), which are both calibrated and maintained as part of ETB's Radiological Monitoring Program for CRL. The results are summarized in Tables 1 and 2.

In addition to the samples collected and analyzed from AECL's bubblers, ETB staff also analyzed aliquots of samples obtained from SRB's in-line bubblers. Those results are summarized in Table 3.

The method blank is prepared from tritium-free water and scintillation cocktail. The spiked blank is prepared from tritium-free water and cocktail with a known quantity of NIST-4926E standard added to it.

The overall uncertainty of the data presented here is in the order of 10% based on the estimated error of flow and volume measurements and scintillation counting statistics.

All QC samples met the required criteria for Analytical Control.

T. Chaput, ETB Monitoring Services

/tc

Prepared By: T. Chaput
Reviewed By: A. Miller

Table 1: **SRB RIG Stack** – 21 March - 18 April 2011

Total Air Sampled (m^3)	Total Sample Time (mins)	Sample Identification	Week Sampled	Bubbler Vol. (mLs)	Sample Bq/mL	RIG Bq / Bubbler	RIG Bq/m^3	RIG Total Bq/m^3
1.761	10,064	HTO-1 - RIG	21 - 28 March 2011	187	611	114,189	64,836	67,856
		HTO-2 - RIG	21 - 28 March 2011	199	27	5,319	3,020	
		HT-1 - RIG	21 - 28 March 2011	200	1,276	254,648	144,588	149,885
		HT-2 - RIG	21 - 28 March 2011	189	49	9,329	5,297	
1.694	10,055	HTO-1 - RIG	28 Mar - 04 Apr 2011	187	478	89,485	52,817	55,853
		HTO-2 - RIG	28 Mar - 04 Apr 2011	199	26	5,145	3,036	
		HT-1 - RIG	28 Mar - 04 Apr 2011	198	743	147,186	86,873	92,402
		HT-2 - RIG	28 Mar - 04 Apr 2011	199	47	9,369	5,530	
1.705	10,028	HTO-1 - RIG	04 - 11 Apr 2011	189	323	61,033	35,802	37,210
		HTO-2 - RIG	04 - 11 Apr 2011	199	12	2,401	1,409	
		HT-1 - RIG	04 - 11 Apr 2011	200	423	84,460	49,544	51,303
		HT-2 - RIG	04 - 11 Apr 2011	199	15	3,000	1,760	
1.589	10,060	HTO-1 - RIG	11 - 18 Apr 2011	188	751	140,955	88,680	93,772
		HTO-2 - RIG	11 - 18 Apr 2011	199	41	8,094	5,092	
		HT-1 - RIG	11 - 18 Apr 2011	198	1,877	372,450	234,322	246,260
		HT-2 - RIG	11 - 18 Apr 2011	200	95	18,975	11,938	

Table 2: **SRB Bulk Stack** – 21 March - 18 April 2011

Total Air Sampled (m^3)	Total Sample Time (mins)	Sample Identification	Week Sampled	Bubbler Vol. (mLs)	Sample Bq/mL	BULK Bq / Bubbler	BULK Bq/m^3	BULK Total Bq/m^3
1.756	10,064	HTO-1 - BULK	21 - 28 March 2011	190	534	101,301	57,683	59,462
		HTO-2 - BULK	21 - 28 March 2011	198	16	3,125	1,779	
		HT-1 - BULK	21 - 28 March 2011	199	2,052	407,952	232,297	238,347
		HT-2 - BULK	21 - 28 March 2011	199	53	10,625	6,050	
1.689	10,055	HTO-1 - BULK	28 Mar - 04 Apr 2011	187	524	98,284	58,182	60,470
		HTO-2 - BULK	28 Mar - 04 Apr 2011	199	19	3,864	2,288	
		HT-1 - BULK	28 Mar - 04 Apr 2011	199	436	86,743	51,350	53,726
		HT-2 - BULK	28 Mar - 04 Apr 2011	199	20	4,013	2,376	
1.615	10,028	HTO-1 - BULK	04 - 11 Apr 2011	190	386	73,309	45,406	46,834
		HTO-2 - BULK	04 - 11 Apr 2011	200	12	2,304	1,427	
		HT-1 - BULK	04 - 11 Apr 2011	200	24	4,802	2,974	3,080
		HT-2 - BULK	04 - 11 Apr 2011	200	1	171	106	
1.554	10,060	HTO-1 - BULK	11 - 18 Apr 2011	188	485	91,298	58,740	61,173
		HTO-2 - BULK	11 - 18 Apr 2011	200	19	3,782	2,433	
		HT-1 - BULK	11 - 18 Apr 2011	199	148	29,422	18,930	19,736
		HT-2 - BULK	11 - 18 Apr 2011	199	6	1,254	807	

Prepared By: T. Chaput
Reviewed By: A. Miller

APPENDIX F

Table 3: SRB Blank and Bubbler samples analyzed by ETB

Sample Location	Sample Week	Sample Bq/mL	1 sigma Bq/mL	LLD Bq/mL
SRB Blank	21 - 28 March 2011	< 0.09		
SRB Rig -- HTO	21 - 28 March 2011	61	1	0.2
SRB Rig -- HT	21 - 28 March 2011	214	2	0.4
SRB Bulk -- HTO	21 - 28 March 2011	87	1	0.2
SRB Bulk -- HT	21 - 28 March 2011	514	5	0.6
SRB Blank	28 Mar - 04 Apr 2011	< 0.08		
SRB Rig -- HTO	28 Mar - 04 Apr 2011	65	1	0.2
SRB Rig -- HT	28 Mar - 04 Apr 2011	173	2	0.3
SRB Bulk -- HTO	28 Mar - 04 Apr 2011	78	1	0.2
SRB Bulk -- HT	28 Mar - 04 Apr 2011	98	1	0.2
SRB Blank	4 - 11 Apr 2011	< 0.12		
SRB Rig -- HTO	4 - 11 Apr 2011	38.6	0.4	0.2
SRB Rig -- HT	4 - 11 Apr 2011	106	1	0.3
SRB Bulk -- HTO	4 - 11 Apr 2011	62	1	0.2
SRB Bulk -- HT	4 - 11 Apr 2011	9.2	0.1	0.1
SRB Blank	11 - 18 Apr 2011	< 0.08		
SRB Rig -- HTO	11 - 18 Apr 2011	106	1	0.2
SRB Rig -- HT	11 - 18 Apr 2011	412	4	0.5
SRB Bulk -- HTO	11 - 18 Apr 2011	62	1	0.2
SRB Bulk -- HT	11 - 18 Apr 2011	31.8	0.3	0.1

References

1. A. Lo (AECL), Tritium Analysis and Monitoring, AECL REF. NO. GNP-008201-0027, Letter to S. Levesque (SRB Technologies), 2 March 2010.
2. SRB Technologies (Canada) Inc. Purchase Order 7895, 26 March 2010.
3. T. Chaput, W. Workman, Procedure for the Analysis of HT and HTO in Gaseous Emissions, Procedure ETB-ERM-627.00, December 2005.
4. Tritium Analysis by Scintillaition Counting, ETB-ERM 629.00

Prepared By: T. Chaput
Reviewed By: A. Miller

APPENDIX F

Data Input Section

Description	Time / Date (mm/dd/yy hh:mm)
Start	3/21/11 8:04
Stop	3/28/11 7:48
Restart	3/28/11 8:51

Tritium Evaluations

Description	(Bq/mL)
Rig HTO-1	43.33
Rig HTO-2	43.02
Rig HT-1	152.38
Rig HT-2	151.96
Bulk HTO-1	62.36
Bulk HTO-2	61.09
Bulk HT-1	290.07
Bulk HT-2	286.93

Sample Volume

Description	(M^3)
Rig AHU	1.145455
Bulk AHU	1.256179

Stack Flow Rate Data

Description	VP (inches water column)
Rig VP-Mon.	0.35
Rig VP-Tue.	0.35
Rig VP-Wed.	0.35
Rig VP-Thu.	0.34
Rig VP-Fri.	0.34
Rig VP-Sat.	
Rig VP-Sun.	
Bulk VP-Mon.	0.70
Bulk VP-Tue.	0.72
Bulk VP-Wed.	0.65
Bulk VP-Thu.	0.62
Bulk VP-Fri.	0.60
Bulk VP-Sat.	
Bulk VP-Sun.	

Data Calculations Section

Elapsed Time

Days	Hours
6.99	167.73

Average H-3 conc. in Samples (Bq/mL)

43.18
152.17
61.73
288.50

Stack Calculations

VP-ave. (in. wc)	Flow Rate (M/sec.)
0.346	11.97
0.658	16.50

Data Calculations Output

Sample Tritium Activity (Bq)

43175	HTO
152170	HT
61725	HTO
288500	HT

Released Tritium Activity Concentration

Description	HTO(Bq/M^3)	HT(Bq/M^3)
Rig AHU	37692.45	132846.77
Bulk AHU	49137.11	229664.72

Stack Volume

Description	(M^3)
Rig AHU	1.77E+06
Bulk AHU	1.29E+06

Released Tritium Activity

Description		(Bq HTO)	(Bq HT)
Rig AHU	HTO	6.68E+10	
	HT		2.35E+11
Bulk AHU	HTO	6.35E+10	
	HT		2.97E+11

Total HTO	1.30E+11	Bq
Total HT	5.32E+11	Bq

Release Values

Release Limit (NSPFOL-13.00/2015)		Calculated Release	
Description	(Bq/a)	Description	(Bq)
HTO limit	6.72E+13	HTO	1.30E+11
HTO+HT limit	4.48E+14	HTO+HT	6.63E+11

Percent of License Limit

Description	(% of Annual Limit)
HTO	0.19
HTO+HT	0.15

Release Limit (1996 DEL)

Description	HTO (Bq/wk)	HT (Bq/wk)	% of Weekly Release Limit (%)
Adult Worker	4.40E+14	6.40E+16	0.030
Adult Non-worker	5.00E+14	6.60E+16	0.027
Infant	9.40E+14	2.70E+16	0.016
% 1996 DEL Weekly Release		0.030	% of Weekly Limit

Sept 2006 EcoMetrix DRL Submission

Release Limit (2006 DRL: Hypothetical Individual)			
Nursing Mother	5.72E+13	1.79E+15	0.258
Adult Resident	5.78E+13	1.86E+15	0.254
Infant Resident	5.36E+13	1.78E+15	0.273
Nursing Infant	5.44E+13	1.47E+15	0.276
Adult Worker	5.83E+13	1.87E+15	0.252
% 2006 Hypo-Weekly Release		0.276	% of Weekly Limit
Release Limit (2006 DRL: Site Specific)			
Nursing Mother	1.69E+14	3.80E+15	0.091
Adult Resident	1.73E+14	4.02E+15	0.089
Infant Resident	2.33E+14	4.52E+15	0.068
Nursing Infant	1.10E+14	2.07E+15	0.144
Adult Worker	1.77E+14	4.07E+15	0.087
% 2006 Site Specific Weekly Release		0.144	% of Weekly Limit

Data Entered By Member of the Health Physics Team: Katie Berry

Report Reviewed By Member of the Health Physics Team: Mark Perry

Calculations Review

Emissions Reviewed By Human Protection Coordinator

Emissions Reviewed By Rig Room Supervisor: Donna Durbin

Emissions Reviewed By Assembly Supervisor

Air Handling Unit (AHU) Data and Calculations

RIG AIR HANDLING UNIT

Radius @ Pitot Tube	0.28	meters	Physical Ht.	11.86	meters	Effective Stack Height	30.64	meters
Cross Sectional Area	0.25	M^2	Flow Rate	2.93	M^3/sec			
Radius @ Exit	0.23	meters	Exit Velocity	17.88	M/sec	Stack Height Lower Limit	27.80	meters
Cross Sectional Area	0.16	M^2						
Cross Section Ratio	1.49							

BULK AIR HANDLING UNIT

Radius @ Pitot Tube	0.20	meters	Physical Ht.	11.09	meters	Effective Stack Height	35.50	meters
Cross Sectional Area	0.13	M^2	Flow Rate	2.14	M^3/sec			
Radius @ Exit	0.18	meters	Exit Velocity	21.56	M/sec	Stack Height Lower Limit	27.80	meters
Cross Sectional Area	0.10	M^2						
Cross Section Ratio	1.31							

Tritium Release Summation

Air Handling Unit	Tritium Form	Bq	GBq	% of Total HTO	% of Total HT
RIG AHU	HTO	6.68E+10	66.79	51.26	
	HT	2.35E+11	235.40		44.23
BULK AHU	HTO	6.35E+10	63.51	48.74	
	HT	2.97E+11	296.85		55.77
Totals	HTO	1.30E+11	130.30		
	HT	5.32E+11	532.25		

ACTION LEVELS

Tritium Form	GBq	% of Weekly Action Levels
HTO	840	16
HTO + HT	7,753	9

COMMENTS

Data Input Section

Description	Date (mm/dd/yy hh:mm)
Start	3/28/11 8:51
Stop	4/4/11 8:26
Restart	4/4/11 8:55 AM

Tritium Evaluations

Description	(Bq/mL)
Rig HTO-1	56.29
Rig HTO-2	57.05
Rig HT-1	138.16
Rig HT-2	138.69
Bulk HTO-1	62.17
Bulk HTO-2	63.24
Bulk HT-1	82.18
Bulk HT-2	82.59

Sample Volume

Description	(M^3)
Rig AHU	1.058623
Bulk AHU	1.080090

Stack Flow Rate Data

Description	VP (inches water column)
Rig VP-Mon.	0.34
Rig VP-Tue.	0.35
Rig VP-Wed.	0.36
Rig VP-Thu.	0.30
Rig VP-Fri.	0.35
Rig VP-Sat.	
Rig VP-Sun.	
Bulk VP-Mon.	0.60
Bulk VP-Tue.	0.66
Bulk VP-Wed.	0.66
Bulk VP-Thu.	0.68
Bulk VP-Fri.	0.74
Bulk VP-Sat.	
Bulk VP-Sun.	

Data Calculations Section

Elapsed Time

Days	Hours
6.98	167.58

Average H-3 conc. in Samples (Bq/mL)

56.67
138.43
62.71
82.39

Stack Calculations

VP-ave. (in. wc)	Flow Rate (M/sec.)
0.34	11.86
0.668	16.63

Data Calculations Output

Sample Tritium Activity (Bq)

56670	HTO
138425	HT
62705	HTO
82385	HT

Released Tritium Activity Concentration

Description	HTO(Bq/M^3)	HT(Bq/M^3)
Rig AHU	53531.80	130759.49
Bulk AHU	58055.35	76276.05

Stack Volume

Description	(M^3)
Rig AHU	1.75E+06
Bulk AHU	1.30E+06

Released Tritium Activity

Description		(Bq HTO)	(Bq HT)
Rig AHU	HTO	9.39E+10	
	HT		2.29E+11
Bulk AHU	HTO	7.55E+10	
	HT		9.92E+10

Total HTO	1.69E+11	Bq
Total HT	3.29E+11	Bq

Release Values

Release Limit (NSPFOL-13.00/2015)		Calculated Release	
Description	(Bq/a)	Description	(Bq)
HTO limit	6.72E+13	HTO	1.69E+11
HTO+HT limit	4.48E+14	HTO+HT	4.98E+11

Percent of License Limit

Description	(% of Annual Limit)
HTO	0.25
HTO+HT	0.11

Release Limit (1996 DEL)

Description	HTO (Bq/wk)	HT (Bq/wk)	% of Weekly Release Limit (%)
Adult Worker	4.40E+14	6.40E+16	0.039
Adult Non-worker	5.00E+14	6.60E+16	0.034
Infant	9.40E+14	2.70E+16	0.019
% 1996 DEL Weekly Release		0.039	% of Weekly Limit

Sept 2006 EcoMetrix DRL Submission

Release Limit (2006 DRL: Hypothetical Individual)

Nursing Mother	5.72E+13	1.79E+15	0.315
Adult Resident	5.78E+13	1.86E+15	0.311
Infant Resident	5.36E+13	1.78E+15	0.335
Nursing Infant	5.44E+13	1.47E+15	0.334
Adult Worker	5.83E+13	1.87E+15	0.308
% 2006 Hypo-Weekly Release		0.335	% of Weekly Limit

Release Limit (2006 DRL: Site Specific)

Nursing Mother	1.69E+14	3.80E+15	0.109
Adult Resident	1.73E+14	4.02E+15	0.106
Infant Resident	2.33E+14	4.52E+15	0.080
Nursing Infant	1.10E+14	2.07E+15	0.170
Adult Worker	1.77E+14	4.07E+15	0.104
% 2006 Site Specific Weekly Release		0.170	% of Weekly Limit

Date of Report: April 6 2011

Data Entered By Member of the Health Physics Team: Judith Burgess

Report Reviewed By Member of the Health Physics Team

Report Approved by Third Party

Emissions Reviewed By Human Protection Coordinator: Brenda St Pierre

Emissions Reviewed By Rig Room Supervisor: Donna Bruder

Air Handling Unit (AHU) Data and Calculations

RIG AIR HANDLING UNIT

Radius @ Pitot Tube	0.28	meters	Physical Ht.	11.86	meters	Effective Stack Height	30.41 meters
Cross Sectional Area	0.25	M^2	Flow Rate	2.91	M^3/sec		
Radius @ Exit	0.23	meters	Exit Velocity	17.72	M/sec	Stack Height Lower Limit	27.80 meters
Cross Sectional Area	0.16	M^2					
Cross Section Ratio	1.49						

BULK AIR HANDLING UNIT

Radius @ Pitot Tube	0.20	meters	Physical Ht.	11.09	meters	Effective Stack Height	35.76 meters
Cross Sectional Area	0.13	M^2	Flow Rate	2.16	M^3/sec		
Radius @ Exit	0.18	meters	Exit Velocity	21.72	M/sec	Stack Height Lower Limit	27.80 meters
Cross Sectional Area	0.10	M^2					
Cross Section Ratio	1.31						

Tritium Release Summation

Air Handling Unit	Tritium Form	Bq	GBq	% of Total HTO	% of Total HT
RIG AHU	HTO	9.39E+10	93.94	55.43	
	HT	2.29E+11	229.47		69.81
BULK AHU	HTO	7.55E+10	75.54	44.57	
	HT	9.92E+10	99.25		30.19
Totals	HTO	1.69E+11	169.48		
	HT	3.29E+11	328.72		

ACTION LEVELS

Tritium Form	GBq	% of Weekly Action Levels
HTO	840	20
HTO + HT	7,753	6

COMMENTS

Data Input Section

Description	Time and Date (mm/dd/yy hh:mm)
Start	4/4/11 8:55
Stop	4/11/11 8:00
Restart	4/11/11 8:34

Tritium Evaluations

Description	(Bq/mL)
Rig HTO-1	42.19
Rig HTO-2	42.26
Rig HT-1	81.01
Rig HT-2	81.70
Bulk HTO-1	45.73
Bulk HTO-2	45.73
Bulk HT-1	6.47
Bulk HT-2	6.53

Sample Volume

Description	(M^3)
Rig AHU	1.055837
Bulk AHU	1.080408

Stack Flow Rate Data

Description	VP (inches water column)
Rig VP-Mon.	0.30
Rig VP-Tue.	0.30
Rig VP-Wed.	0.29
Rig VP-Thu.	0.29
Rig VP-Fri.	0.29
Rig VP-Sat.	
Rig VP-Sun.	
Bulk VP-Mon.	0.64
Bulk VP-Tue.	0.69
Bulk VP-Wed.	0.69
Bulk VP-Thu.	0.69
Bulk VP-Fri.	0.69
Bulk VP-Sat.	
Bulk VP-Sun.	

Data Calculations Section

Elapsed Time

Days	Hours
6.96	167.08

Average H-3 conc. in Samples (Bq/mL)

42.23	
81.36	
45.73	
6.50	

Stack Calculations

VP-ave. (in. wc)	Flow Rate (M/sec.)
0.294	11.03
0.68	16.78

Data Calculations Output

Sample Tritium Activity (Bq)

42225	HTO
81355	HT
45730	HTO
6500	HT

Released Tritium Activity Concentration

Description	HTO(Bq/M^3)	HT(Bq/M^3)
Rig AHU	39991.97	77052.61
Bulk AHU	42326.60	6016.25

Stack Volume

Description	(M^3)
Rig AHU	1.63E+06
Bulk AHU	1.31E+06

Released Tritium Activity

Description		(Bq HTO)	(Bq HT)
Rig AHU	HTO	6.51E+10	
	HT		1.25E+11
Bulk AHU	HTO	5.54E+10	
	HT		7.87E+09

Total HTO	1.20E+11	Bq
Total HT	1.33E+11	Bq

Release Values

Release Limit (NSPFOL-13.00/2015) / Calculated Release

Description	(Bq/a)	Description	(Bq)
HTO limit	6.72E+13	HTO	1.20E+11
HTO+HT limit	4.48E+14	HTO+HT	2.54E+11

Percent of License Limit

Description	(% of Annual Limit)
HTO	0.18
HTO+HT	0.06

Release Limit (1996 DEL)

Description	HTO (Bq/wk)	HT (Bq/wk)	% of Weekly Release Limit (%)
Adult Worker	4.40E+14	6.40E+16	0.028
Adult Non-worker	5.00E+14	6.60E+16	0.024
Infant	9.40E+14	2.70E+16	0.013
% 1996 DEL Weekly Release		0.028	% of Weekly Limit

Sept 2006 EcoMetrix DRL Submission

Release Limit (2006 DRL: Hypothetical Individual)

Nursing Mother	5.72E+13	1.79E+15	0.218
Adult Resident	5.78E+13	1.86E+15	0.216
Infant Resident	5.36E+13	1.78E+15	0.232
Nursing Infant	5.44E+13	1.47E+15	0.231
Adult Worker	5.83E+13	1.87E+15	0.214
% 2006 Hypo-Weekly Release		0.232	% of Weekly Limit

Release Limit (2006 DRL: Site Specific)

Nursing Mother	1.69E+14	3.80E+15	0.075
Adult Resident	1.73E+14	4.02E+15	0.073
Infant Resident	2.33E+14	4.52E+15	0.055
Nursing Infant	1.10E+14	2.07E+15	0.116
Adult Worker	1.77E+14	4.07E+15	0.071
% 2006 Site Specific Weekly Release		0.116	% of Weekly Limit

Date of Report: April 12 2011

Data Entered By Member of the Health Physics Team: Tim Burgess

Report Reviewed By Member of the Health Physics Team: [signature]

Report Approved by Third Party: [signature]

Emissions Reviewed By Human Protection Coordinator: [signature]

Emissions Reviewed By Rig Room Supervisor: [signature]

Air Handling Unit (AHU) Data and Calculations

RIG AIR HANDLING UNIT

Radius @ Pitot Tube	0.28	meters	Physical Ht.	11.86	meters	Effective Stack Height	28.62	meters
Cross Sectional Area	0.25	M^2	Flow Rate	2.71	M^3/sec			
Radius @ Exit	0.23	meters	Exit Velocity	16.48	M/sec	Stack Height Lower Limit	27.80	meters
Cross Sectional Area	0.16	M^2						
Cross Section Ratio	1.49							

BULK AIR HANDLING UNIT

Radius @ Pitot Tube	0.20	meters	Physical Ht.	11.09	meters	Effective Stack Height	36.07	meters
Cross Sectional Area	0.13	M^2	Flow Rate	2.18	M^3/sec			
Radius @ Exit	0.18	meters	Exit Velocity	21.91	M/sec	Stack Height Lower Limit	27.80	meters
Cross Sectional Area	0.10	M^2						
Cross Section Ratio	1.31							

Tritium Release Summation

Air Handling Unit	Tritium Form	Bq	GBq	% of Total HTO	% of Total HT
RIG AHU	HTO	6.51E+10	65.07	54.01	
	HT	1.25E+11	125.37		94.09
BULK AHU	HTO	5.54E+10	55.40	45.99	
	HT	7.87E+09	7.87		5.91
Totals	HTO	1.20E+11	120.47		
	HT	1.33E+11	133.24		

ACTION LEVELS

Tritium Form	GBq	% of Weekly Action Levels
HTO	840	14
HTO + HT	7,753	3

COMMENTS

Data Input Section

Time Date	
Description	(mm/dd/yy hh:mm)
Start	4/11/11 8:34
Stop	4/18/11 8:14
Restart	4/18/11 9:01

Tritium Evaluations

Description	(Bq/mL)
Rig HTO-1	97.42
Rig HTO-2	97.40
Rig HT-1	350.12
Rig HT-2	350.87
Bulk HTO-1	61.77
Bulk HTO-2	63.21
Bulk HT-1	34.37
Bulk HT-2	32.72

Sample Volume

Description	(M^3)
Rig AHU	1.062319
Bulk AHU	1.092665

Stack Flow Rate Data

Description	VP (inches water column)
Rig VP-Mon.	0.30
Rig VP-Tue.	0.32
Rig VP-Wed.	0.32
Rig VP-Thu.	0.34
Rig VP-Fri.	0.32
Rig VP-Sat.	
Rig VP-Sun.	
Bulk VP-Mon.	0.72
Bulk VP-Tue.	0.72
Bulk VP-Wed.	0.74
Bulk VP-Thu.	0.69
Bulk VP-Fri.	0.68
Bulk VP-Sat.	
Bulk VP-Sun.	

Data Calculations Section

Elapsed Time

Days	Hours
6.99	167.67

Average H-3 conc. in Samples (Bq/mL)

97.41
350.50
62.49
33.55

Stack Calculations

VP-ave. (in. wc)	Flow Rate (M/sec.)
0.32	11.51
0.71	17.14

Data Calculations Output

Sample Tritium Activity (Bq)

97410	HTO
350495	HT
62490	HTO
33545	HT

Released Tritium Activity Concentration

Description	HTO(Bq/M^3)	HT(Bq/M^3)
Rig AHU	91695.62	329933.85
Bulk AHU	57190.45	30700.17

Stack Volume

Description	(M^3)
Rig AHU	1.70E+06
Bulk AHU	1.34E+06

Released Tritium Activity

Description		(Bq HTO)	(Bq HT)
Rig AHU	HTO	1.56E+11	
	HT		5.62E+11
Bulk AHU	HTO	7.68E+10	
	HT		4.12E+10

Total HTO	2.33E+11	Bq
Total HT	6.03E+11	Bq

Release Values

Release Limit (NSPFOL-13.00/2015)		Calculated Release	
Description	(Bq/a)	Description	(Bq)
HTO limit	6.72E+13	HTO	2.33E+11
HTO+HT limit	4.48E+14	HTO+HT	8.36E+11

Percent of License Limit

Description	(% of Annual Limit)
HTO	0.35
HTO+HT	0.19

Release Limit (1996 DEL)

Description	HTO (Bq/wk)	HT (Bq/wk)	% of Weekly Release Limit (%)
Adult Worker	4.40E+14	6.40E+16	0.054
Adult Non-worker	5.00E+14	6.60E+16	0.048
Infant	9.40E+14	2.70E+16	0.027

% 1996 DEL Weekly Release 0.054 % of Weekly Limit

Sept 2006 EcoMetrix DRL Submission

Release Limit (2006 DRL: Hypothetical Individual)

Nursing Mother	5.72E+13	1.79E+15	0.441
Adult Resident	5.78E+13	1.86E+15	0.435
Infant Resident	5.36E+13	1.78E+15	0.468
Nursing Infant	5.44E+13	1.47E+15	0.469
Adult Worker	5.83E+13	1.87E+15	0.432

% 2006 Hypo-Weekly Release 0.469 % of Weekly Limit

Release Limit (2006 DRL: Site Specific)

Nursing Mother	1.69E+14	3.80E+15	0.154
Adult Resident	1.73E+14	4.02E+15	0.150
Infant Resident	2.33E+14	4.52E+15	0.113
Nursing Infant	1.10E+14	2.07E+15	0.241
Adult Worker	1.77E+14	4.07E+15	0.146

% 2006 Site Specific Weekly Release 0.241 % of Weekly Limit

Date of Report: April 18 2011

Data Entered By Member of the Health Physics Team: Ruth Burgess

Report Reviewed By Member of the Health Physics Team:

Report Approved by Third Party:

Emissions Reviewed By Human Protection Coordinator: Brenda Sutton

Emissions Reviewed By Rig Room Supervisor: Donna Bucher

Air Handling Unit (AHU) Data and Calculations

RIG AIR HANDLING UNIT

Radius @ Pitot Tube	0.28	meters	Physical Ht.	11.86	meters	Effective Stack Height	29.64 meters
Cross Sectional Area	0.25	M^2	Flow Rate	2.82	M^3/sec		
Radius @ Exit	0.23	meters	Exit Velocity	17.19	M/sec	Stack Height Lower Limit	27.80 meters
Cross Sectional Area	0.16	M^2					
Cross Section Ratio	1.49						

BULK AIR HANDLING UNIT

Radius @ Pitot Tube	0.20	meters	Physical Ht.	11.09	meters	Effective Stack Height	36.84 meters
Cross Sectional Area	0.13	M^2	Flow Rate	2.22	M^3/sec		
Radius @ Exit	0.18	meters	Exit Velocity	22.39	M/sec	Stack Height Lower Limit	27.80 meters
Cross Sectional Area	0.10	M^2					
Cross Section Ratio	1.31						

Tritium Release Summation

Air Handling Unit	Tritium Form	Bq	GBq	% of Total HTO	% of Total HT
RIG AHU	HTO	1.56E+11	156.19	67.05	
	HT	5.62E+11	562.00		93.17
BULK AHU	HTO	7.68E+10	76.76	32.95	
	HT	4.12E+10	41.20		6.83
Totals	HTO	2.33E+11	232.95		
	HT	6.03E+11	603.20		

ACTION LEVELS

Tritium Form	GBq	% of Weekly Action Levels
HTO	840	28
HTO + HT	7,753	11

COMMENTS

APPENDIX G

Passive air sampler performance results

Comparison between Active / Passive air sampling @ SRBT (June 6-21, 2011)

Three 5 L/d passive samplers + DS # 5 were placed out at weather stn at 4 m height on June 6/11 @ 1430

DS # 5 held 4 DRIERITE traps, each with ~~ 150 g of DRIERITE (only first two traps were analyzed)

DATA

Avg Temp for time period (C) =	19
Average RH for period (%)=	67
Total time sampled (min)	21540
Total water collected on two traps	10.7

For T & RH would expect 10.9 g / cu.m. And 10.7/10.9 gives 982 L air sampled

Trap # 1 had 6.9 g water on it and trap # 2 had 3.8 g

Trap # 1 (g, water)	6.9			
Trap # 2 (g, water)	3.8			
			weighted	
Activity Trap # 1	1937	(6.9/10.7)	1249	
Activity Trap # 2	256	(3.8/10.7)	91	
			1340 +/- 11	**Bq/L**

PASSIVE samplers

Avg activity	19 Bq/cu.m	which equals	**1742**	Bq/L	when corrected for T & RH

This activity represents 30 % more than indicated by active sampler (1742 / 1340)

APPENDIX G

APPENDIX H

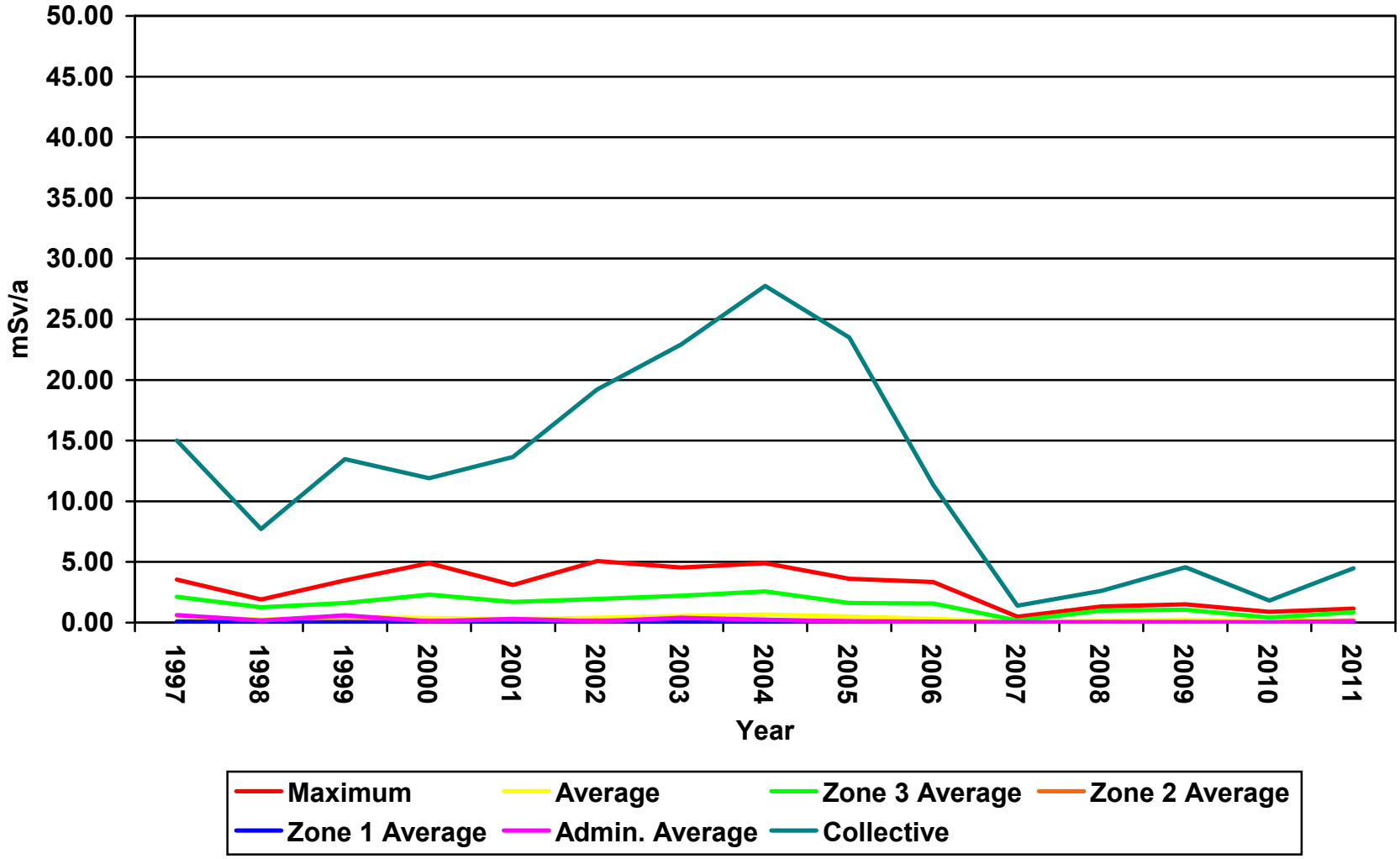
Radiological occupational annual dose data for 2011

SRB RADIOLOGICAL ANNUAL DOSE DATA (1997 – 2011)

ANNUAL DOSE (mSv/year)	1997	1998	1999	2000	2001	2002	2003	2004	2005	*2006	**2007	***2008	2009	2010	2011	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	2.92
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	0.34
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	1.50
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	0.10
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
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	0.20
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	12.09

DOSIMETRY RANGE (mSv/year)	1997	1998	1999	2000	2001	2002	2003	2004	2005	*2006	**2007	***2008	2009	2010	2011	AVERAGE
0.00 – 0.99	23	29	28	33	43	43	39	30	39	34	32	15	15	17	17	29.13
1.00 – 1.99	4	3	4	1	4	2	0	5	3	3	0	1	3	0	2	2.33
2.00 – 2.99	1	0	0	1	1	2	3	2	3	0	0	0	0	0	0	0.87
3.00 – 3.99	1	0	2	1	1	0	2	2	2	1	0	0	0	0	0	0.80
4.00 – 4.99	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0.27
> 5.00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.07
> 50.00	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	33.40

*** Operated 48 weeks**
**** Operated 5 weeks**
***** Operated 26 weeks**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2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Year
Maximum
Average
Zone 3 Average
Zone 2 Average
Zone 1 Average
Admin. Average
Collective

APPENDIX I

Swipe monitoring results for 2011

Zone 3 Swipe Areas	No. of swipes	Average Value	Amount pass	Amount Fail	Average Pass
Rig Monitor Floor	246	20.05	223	23	90.65%
Rig 7/8 floor	196	25.07	169	27	86.22%
Rig 4/6 floor	196	12.68	188	8	95.92%
Rig 3/5 floor	196	15.55	184	12	93.88%
Rig 2 floor	196	13.04	190	6	96.94%
Rig 1 floor	246	17.57	228	18	92.68%
Rig room desk top	196	13.94	185	11	94.39%
Rig room fume hood	196	70.17	159	37	81.12%
Laser room floor	246	34.72	208	38	84.55%
Laser fume hood	246	45.94	181	65	73.58%
Culham Housing	196	6.74	191	5	97.45%
Culham key pad	196	6.69	193	3	98.47%
LMI Housing	196	6.64	191	5	97.45%
LMI key pad	196	12.80	194	2	98.98%
EIP Housing	246	9.91	236	10	95.93%
EIP key pad	246	11.03	237	9	96.34%
Reclaim floor	246	18.07	222	24	90.24%
Bulk splitter floor	246	45.84	192	54	78.05%
Storage floor	246	21.08	222	24	90.24%
Trit Lab desk	246	15.03	227	19	92.28%
Disassembly F. Hood	246	45.13	205	41	83.33%
Bulk fume hood	246	122.08	212	34	86.18%
Reclaim fume hood	196	8.34	191	5	97.45%
Glove port	246	13.96	226	20	91.87%
Waste room floor	98	14.95	92	6	93.88%
Welding Area	206	6.16	202	4	98.06%
Rig 7	206	28.49	167	39	81.07%
Counter-Edge Crusher	156	17.57	144	12	92.31%
Storage Rm Floor	156	18.97	148	8	94.87%
Tables - Scint	156	9.76	153	3	98.08%
Photometer Counter	156	20.64	151	5	96.79%
Rig 7 Floor	50	18.33	48	2	96.00%
Rig 1	50	12.81	48	2	96.00%
Muffle Fume Hood	50	254.58	37	13	74.00%
Crusher Fume Hood	50	103.14	32	18	64.00%
Wash Fume Hood	50	32.00	44	6	88.00%
Laser Cabinet	50	12.88	47	3	94.00%
Tool Box Area	50	79.96	30	20	60.00%
Sink Area	50	18.16	47	3	94.00%
	6888	32.32	6244	644	89.88%

Total Swipes	6888
Total Fails	644
Pass Rate	90.65

Zone 2 Swipe Areas	No. of swipes	Average Value	Amount pass	Amount Fail	Average Pass
Floor at Barrier	146	2.31	131	15	89.73%
Floor at Computers	146	2.75	117	29	80.14%
Floor at Windows	146	2.73	130	16	89.04%
Counters	146	2.29	134	12	91.78%
Paint booth	146	1.65	132	14	90.41%
Exposing Room	117	1.51	109	8	93.16%
Silkscreening Room	146	2.37	134	12	91.78%
Inspection Floor	117	1.49	110	7	94.02%
Inspection Counter	117	1.35	109	8	93.16%
Inspection Prep floor	146	2.71	126	20	86.30%
Insp. Prep counter	146	7.67	123	23	84.25%
Rig porthole	146	2.57	135	11	92.47%
Photometer room floor	117	1.33	110	7	94.02%
Photometer Rm counter	117	0.98	114	3	97.44%
Dark room floor	117	4.28	111	6	94.87%
Dark room counter	117	0.62	114	3	97.44%
Floor at Main Tables	29	4.57	20	9	68.97%
Bubbler Fume Hood	29	1.12	27	2	93.10%
Shoe Rack	29	1.00	27	2	93.10%
	2220	2.38	2013	207	90.27%

Total Swipes	2220
Total Fails	207
Pass Rate	90.68

Zone 1 Swipe Areas	No. of swipes	Average Value	Amount pass	Amount Fail	Average Pass
Hallways	41	0.61	40	1	97.56%
Glass Shop	41	0.24	40	1	97.56%
Lunch Room	51	0.23	51	0	100.00%
Coating room	41	0.25	41	0	100.00%
Stores	41	0.31	41	0	100.00%
Receiving	41	0.15	41	0	100.00%
Main Offices	41	0.15	41	0	100.00%
Wing Offices	41	0.10	41	0	100.00%
Shipping area	51	0.49	50	1	98.04%
Milling area	41	0.59	40	1	97.56%
LSC Room	51	0.36	50	1	98.04%
Rig Room Ante Room	51	2.42	45	6	88.24%
Rig Room Barrier	51	5.24	41	10	80.39%
Rig room door handle	41	0.16	41	0	100.00%
Assembly Entry	51	0.93	49	2	96.08%
Quarrantine Hold	10	0.57	10	0	100.00%
	685	0.80	662	23	97.09%

Total Swipes	685
Total Fails	23
Pass Rate	96.64

APPENDIX J

Comparison environmental results third party vs CNSC

SRBT Analytical Results

Location	CNSC Results, Bq/L	AECL Results, Bq/L
LCBO Wine	12	18
Pembroke Wine	20.5	13
Apples – 416 Boundary Road	141	110
Apples – 413 Boundary Road	87.4	83
Apples – 406 Boundary Road	106	95
Apples – 413 Sweezey Crescent	167	155
Apples – 366 Chamberlain	15.4	15
Water Muskrat River	8	
Swimming Pool – Best Western	10.1	-
MW07-13	14300	14812
MW06-10	12000	10062
MW06-1	15614	18787

APPENDIX K

Passive air sampler data for 2011

2011 Environment Monitoring Program
Passive Air Sampling System

Sampler No.	Sampler ID	Location	Dist. to SRBT	(Bq/m3) Jan (Jan5-Feb2)	Feb (Feb2-Mar2)	Mar (Mar2-Apr5)	Apr (Apr5-May4)	May (May4-Jun2)	Jun (Jun2-Jul6)	Jul (Jul6-Aug3)	Aug (Aug3-Sept1)	Sep (Sept1-Oct4)	Oct (Oct4-Nov2)	Nov (Nov2-Dec1)	Dec (Dec1-Jan5)	Average (Bq/m3)
1	N250	N 45° 48.486' W 077° 07.092' Elev. 137m	322m	0.33	0.59	0.34	0.61	0.79	2.30	2.50	1.80	1.80	0.54	1.80	1.10	1.21
2	N500	N 45° 48.572' W 077° 07.008' Elev. 134m	493m	0.33	0.69	0.32	0.49	0.55	1.20	1.40	1.10	1.20	0.32	0.83	0.97	0.78
3	N1000	N 45° 48.869' W 077° 06.997' Elev. 135m	1040m	0.33	0.34	0.29	0.32	0.35	0.55	0.72	0.54	0.56	0.32	0.36	0.26	0.41
4 (PAS #4)	NW250	N 45° 48.412' W 077° 07.189' Elev. 137m	222m	0.40	0.87	0.86	3.22	2.30	4.70	4.10	2.40	2.40	1.23	1.50	2.90	2.24
5	NW500	N 45° 48.577' W 077° 07.382' Elev. 134m	615m	0.33	0.70	0.29	0.69	0.63	1.40	1.40	0.94	0.71	0.38	0.48	0.89	0.74
6 (PAS # 8)	NW1000	N 45° 48.754' W 077° 07.599' Elev. 130m	1050m	0.41	0.34	0.29	0.47	0.39	0.43	0.65	0.33	0.28	0.32	0.36	0.38	0.39
7	NW2000	N 45° 49.141' W 077° 08.090' Elev. 139m	2000m	0.33	0.44	0.29	0.33	0.35	0.29	0.56	0.33	0.28	0.33	0.36	0.26	0.35
8	W250	N 45° 48.300' W 077° 07.323' Elev. 138m	297m	1.65	0.54	0.80	1.54	1.80	2.40	4.10	2.10	2.30	0.55	0.75	1.50	1.67
9	W500	N 45° 48.288' W 077° 07.393' Elev. 137m	389m	0.83	0.38	*	0.64	1.30	1.50	2.10	1.90	1.50	0.32	0.36	0.81	1.06
10	W1000	N 45° 48.306' W 077° 07.630' Elev. 134m	691m	1.27	0.34	0.40	0.34	0.55	0.90	1.30	0.67	0.62	0.32	0.36	0.65	0.64
11	SW250	N 45° 48.247' W 077° 07.206' Elev. 140m	183m	0.91	0.35	0.35	1.24	3.70	1.50	0.88	1.30	6.60	3.83	0.36	0.51	1.79
12	SW500	N 45° 47.896' W 077° 07.307' Elev. 148m	839m	0.33	0.34	0.29	0.32	0.52	0.29	0.33	0.32	0.37	0.61	0.36	0.26	0.36
13	SW1000	N 45° 47.599' W 077° 07.543' Elev. 149m	1470m	0.33	0.34	0.29	0.33	0.35	0.29	0.33	0.33	0.28	0.56	0.36	0.27	0.34
14	SW2000	N 45° 47.408' W 077° 07.866' Elev. 155m	2110m	0.33	0.34	0.30	0.34	0.35	0.29	0.33	0.33	0.28	0.34	0.36	0.26	0.32
15	S250	N 45° 48.129' W 077° 07.014' Elev. 131m	356m	2.37	1.04	1.30	1.67	1.70	1.30	1.70	1.40	1.80	0.71	0.36	0.78	1.34
16	S500	N 45° 48.029' W 077° 07.110' Elev. 143m	532m	0.33	0.34	0.29	0.45	0.65	0.53	0.51	0.57	0.80	0.57	0.36	0.26	0.47
17 (PAS # 12)	S1000	N 45° 46.466' W 077° 07.441' Elev. 158m	1450m	0.33	0.34	0.29	0.33	0.35	0.29	0.33	0.33	0.28	0.32	0.36	0.27	0.32
18	SE250	N 45° 48.189' W 077° 06.874' Elev. 132m	365m	5.38	3.84	4.20	2.18	1.23	4.00	4.80	3.00	2.70	0.81	0.54	2.50	2.93
19	SE500	N 45° 48.108' W 077° 06.783' Elev. 123m	554m	2.77	2.21	2.00	1.30	0.68	2.20	2.40	1.60	1.40	0.47	0.36	0.90	1.52
20	SE1000	N 45° 47.894' W 077° 06.501' Elev. 120m	1090m	0.64	0.43	0.58	0.53	0.42	0.67	0.68	0.47	0.55	0.32	0.36	0.26	0.49
21	SE2000	N 45° 47.505' W 077° 05.978' Elev. 137m	2080m	0.33	0.34	0.29	0.32	0.35	0.32	0.42	0.33	0.36	0.32	0.36	0.26	0.33
22	E250	N 45° 48.234' W 077° 06.807' Elev. 131m	401m	2.89	1.41	1.70	1.09	0.43	2.40	4.10	3.20	2.00	1.00	0.36	1.40	1.83
23	E500	N 45° 48.333' W 077° 06.693' Elev. 132m	520m	0.33	0.34	0.30	0.61	0.36	1.10	1.40	1.40	1.10	0.46	0.36	0.87	0.72
24	E1000	N 45° 48.303' W 077° 06.260' Elev. 143m	1080m	0.33	0.34	0.29	0.33	0.35	0.65	0.70	0.61	0.54	0.35	0.36	0.30	0.43
25	NE250	N 45° 48.371' W 077° 06.964' Elev. 124m	198m	0.39	2.78	0.58	1.47	1.10	3.50	5.70	4.70	3.60	1.62	3.30	5.50	2.85
26	NE500	N 45° 48.421' W 077° 06.732' Elev. 131m	508m	0.33	0.68	0.29	0.56	0.35	1.10	1.30	1.00	0.79	0.40	0.73	1.30	0.74
27	NE1000	N 45° 48.683' W 077° 06.441' Elev. 148m	1100m	0.33	0.34	0.29	0.32	0.35	0.38	0.53	0.64	0.46	0.32	0.36	0.36	0.39
28	NE2000	N 45° 49.116' W 077° 05.843' Elev. 156m	2200m	0.33	0.34	0.29	0.32	0.35	0.29	0.33	0.33	0.28	0.32	0.36	0.27	0.32
Pre-Sample Points																
BOC Gas (PAS #1)		N 45° 48.287' W 077° 07.123' Elev. 129m	94.1m	1.15	0.35	1.70	2.18	12.40	7.10	3.40	10.70	18.90	11.48	0.72	1.10	5.93
Brewer's Edge (PAS #2)		N 45° 48.325' W 077° 07.132' Elev. 132m	52.8m	1.54	0.94	1.90	2.33	4.70	5.40	7.20	6.50	3.70	3.21	1.30	8.60	3.94
Med-Eng (PAS #13)		N 45° 48.262' W 077° 07.093' Elev. 132m	61.5m	5.68	1.80	3.60	2.40	7.40	6.50	8.50	16.70	14.90	6.52	2.20	2.40	6.65
Replicates																
4-2	NW250	N 45° 48.412' W 077° 07.189' Elev. 137m	222m	0.39	0.73	0.70	3.16	2.20	4.60	4.00	2.40	2.20	1.19	1.40	2.90	2.16
11-2	SW250	N 45° 48.247' W 077° 07.206' Elev. 140m	183m	0.77	0.34	0.32	0.77	3.20	1.40	0.83	1.20	5.90	3.83	0.36	0.41	1.61
18-2	SE250	N 45° 48.189' W 077° 06.874' Elev. 132m	365m	4.77	2.24	4.20	1.91	1.20	3.70	4.30	2.90	2.60	0.66	0.47	2.40	2.61
25-2	NE250	N 45° 48.371' W 077° 06.964' Elev. 124m	198m	0.33	2.24	0.46	1.30	1.00	3.30	5.60	4.60	3.60	1.48	3.10	4.90	2.66
Background Samples																
Maika (PAS # 10)	SW	N 45° 46.367' W 077° 11.447' Elev. 149m	6690m	0.33	0.35	0.29	0.33	0.35	0.29	0.34	0.33	0.28	0.32	0.36	0.26	0.32
Maika	Duplicate	Same as above	6690m	0.33	0.34	0.30	0.33	0.35	0.29	0.33	0.33	0.28	0.32	0.36	0.26	0.32
Fitzpatrick	SE	N 45° 44.818' W 076° 59.822' Elev. 159m	11400m	0.33	0.34	0.29	0.33	0.35	0.29	0.33	0.32	0.28	0.32	0.36	0.26	0.32
Petawawa	NW	N 45° 51.497' W 077° 12.828' Elev. 149m	9480m	0.33	0.34	0.29	0.32	0.35	0.29	0.33	0.33	0.28	0.32	0.36	0.26	0.32
Farm	NE	N 45° 53.071' W 076° 56.768' Elev. 142m	16000m	0.33	0.34	0.29	0.32	0.35	0.29	0.33	0.33	0.28	0.32	0.36	0.26	0.32
			Sum	41.47	31.72	32.14	38.04	56.45	70.22	81.09	80.61	89.04	47.93	28.48	50.26	54.04

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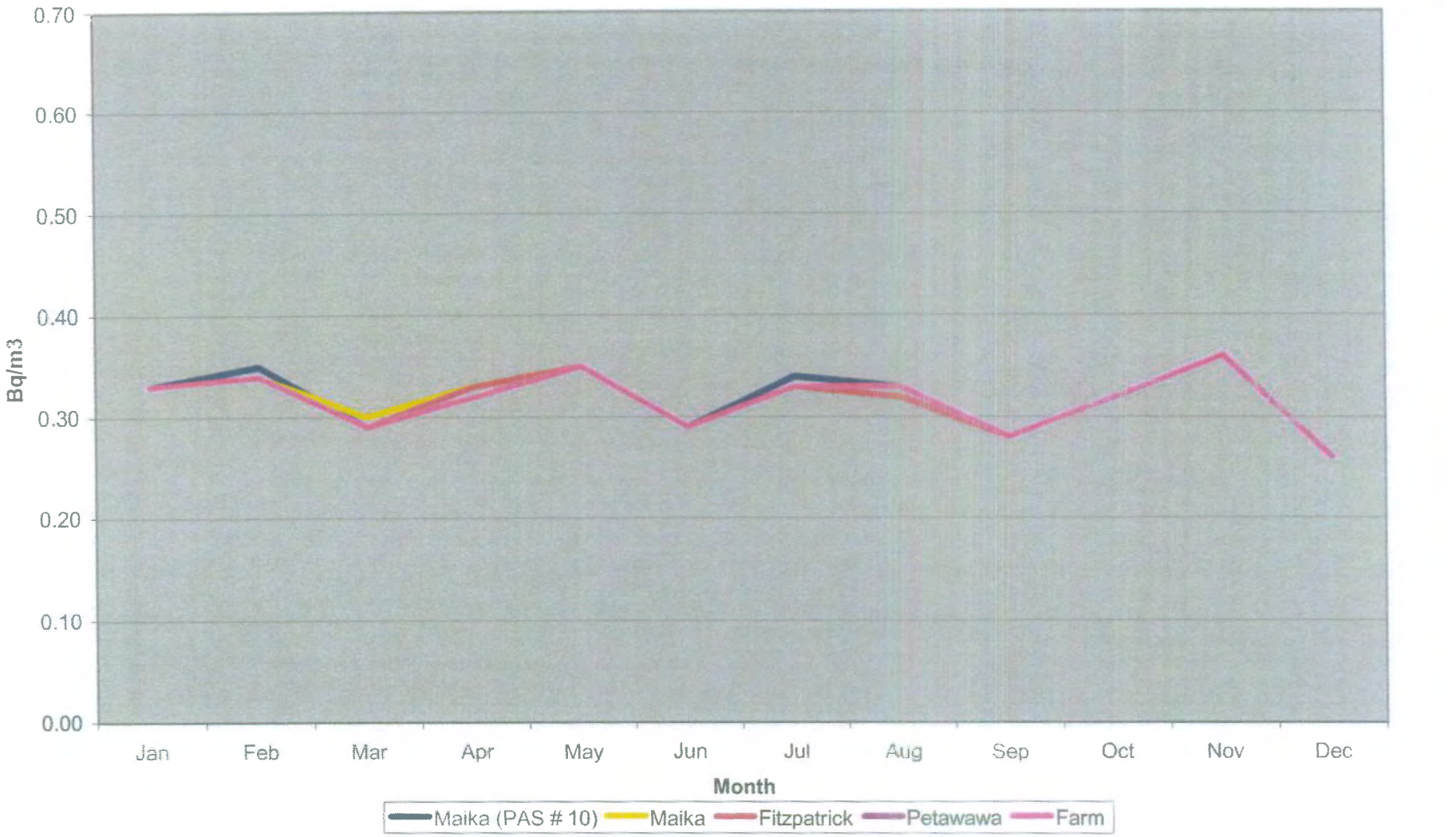

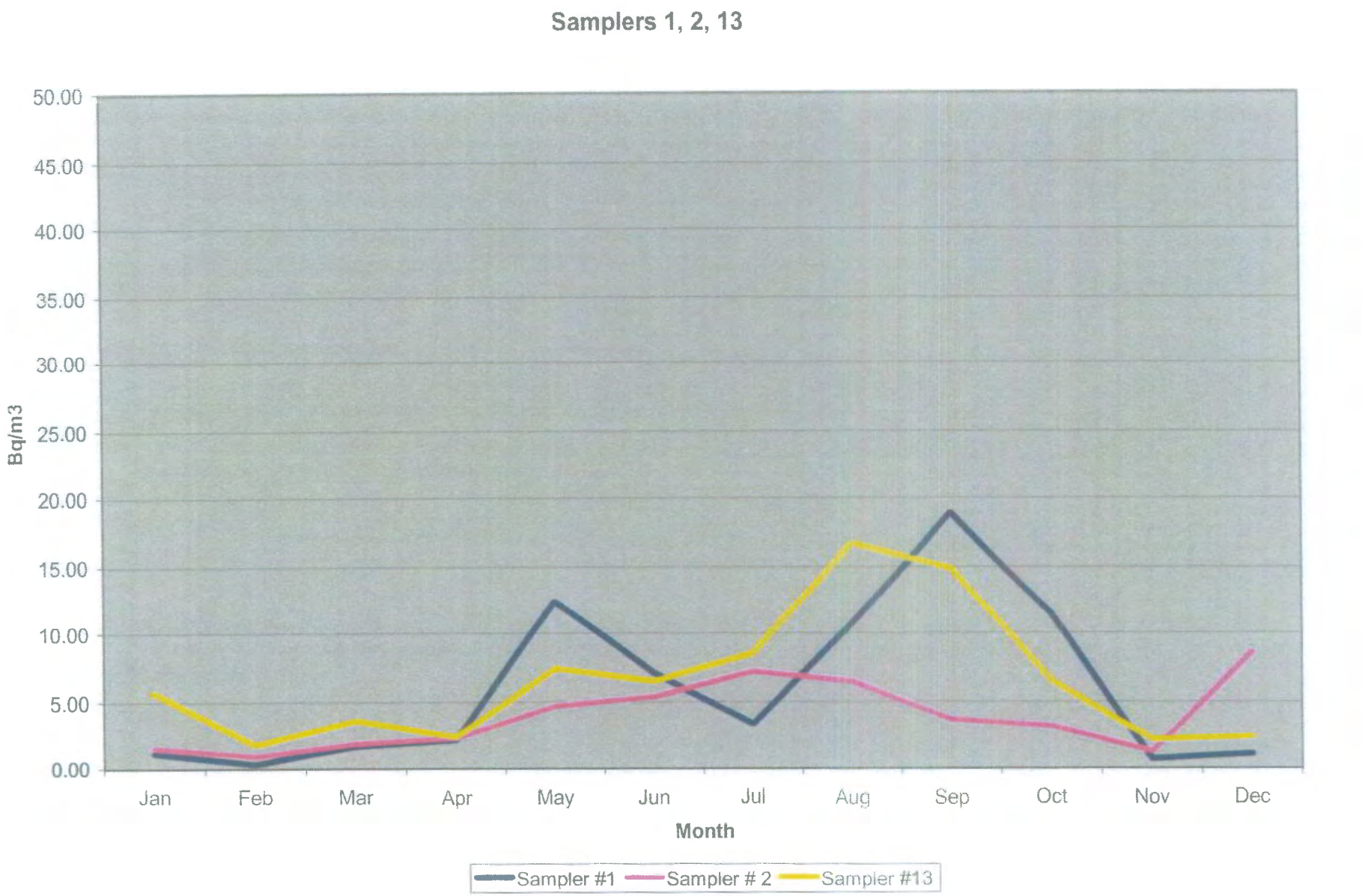
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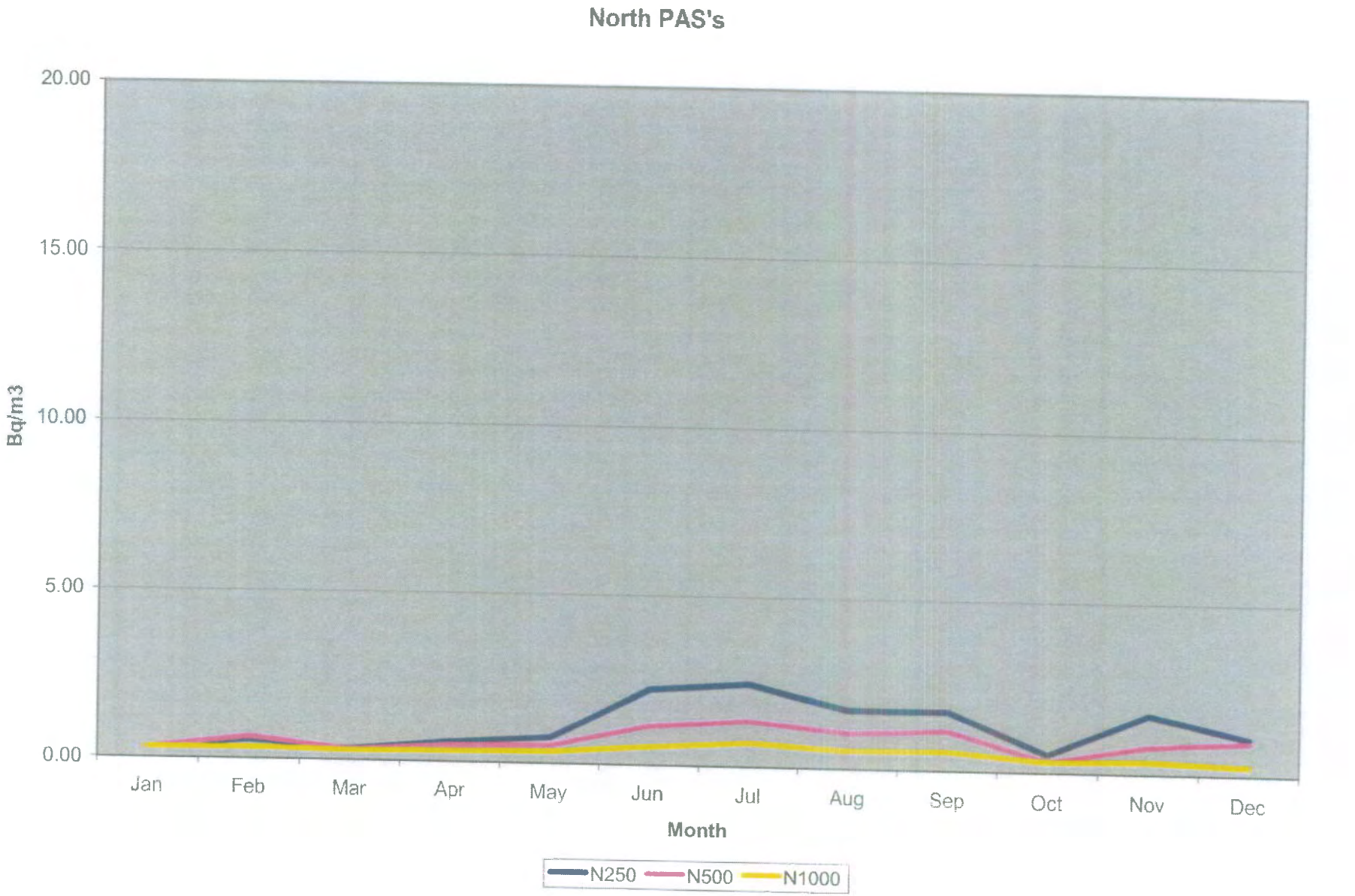
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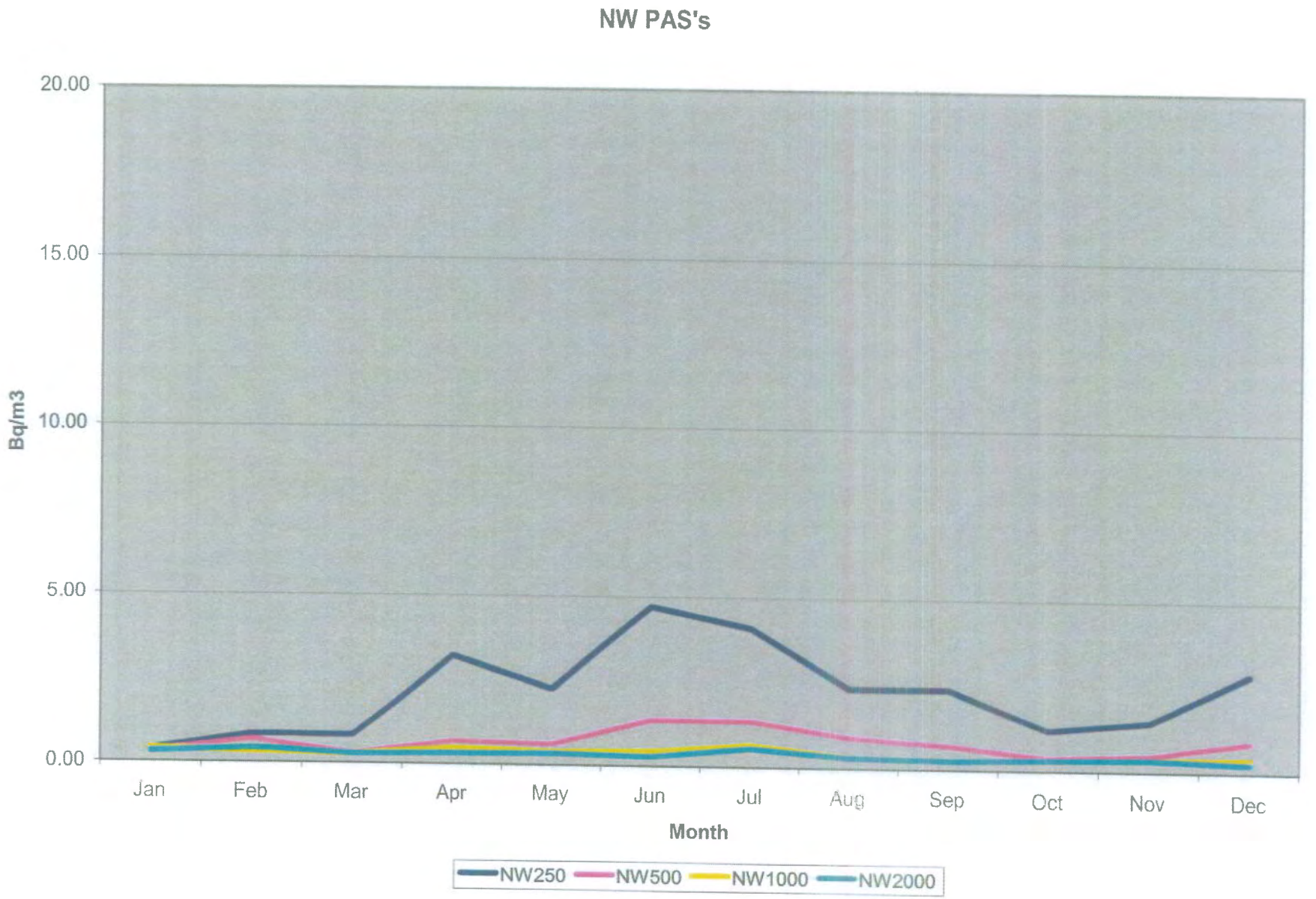
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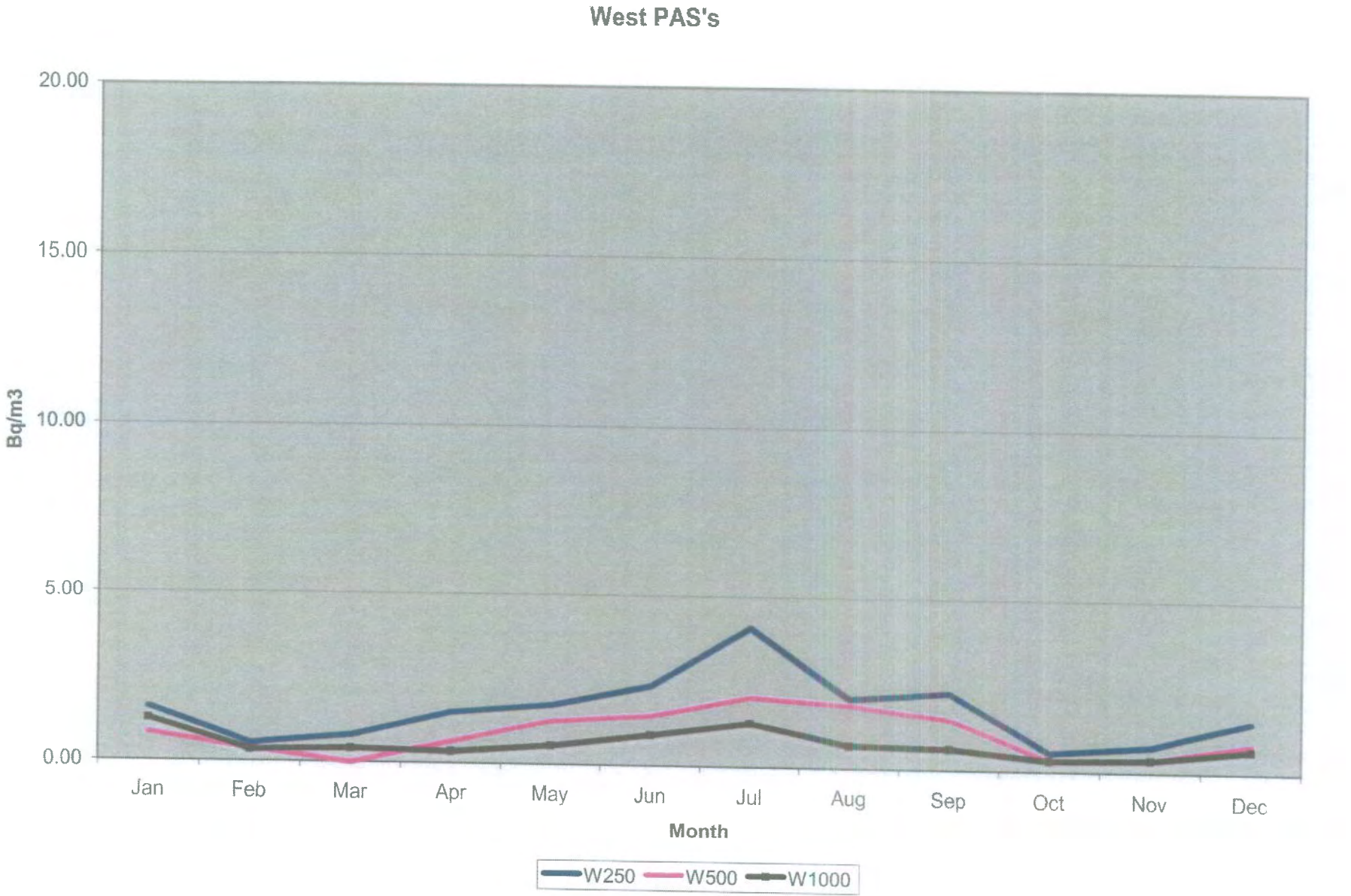
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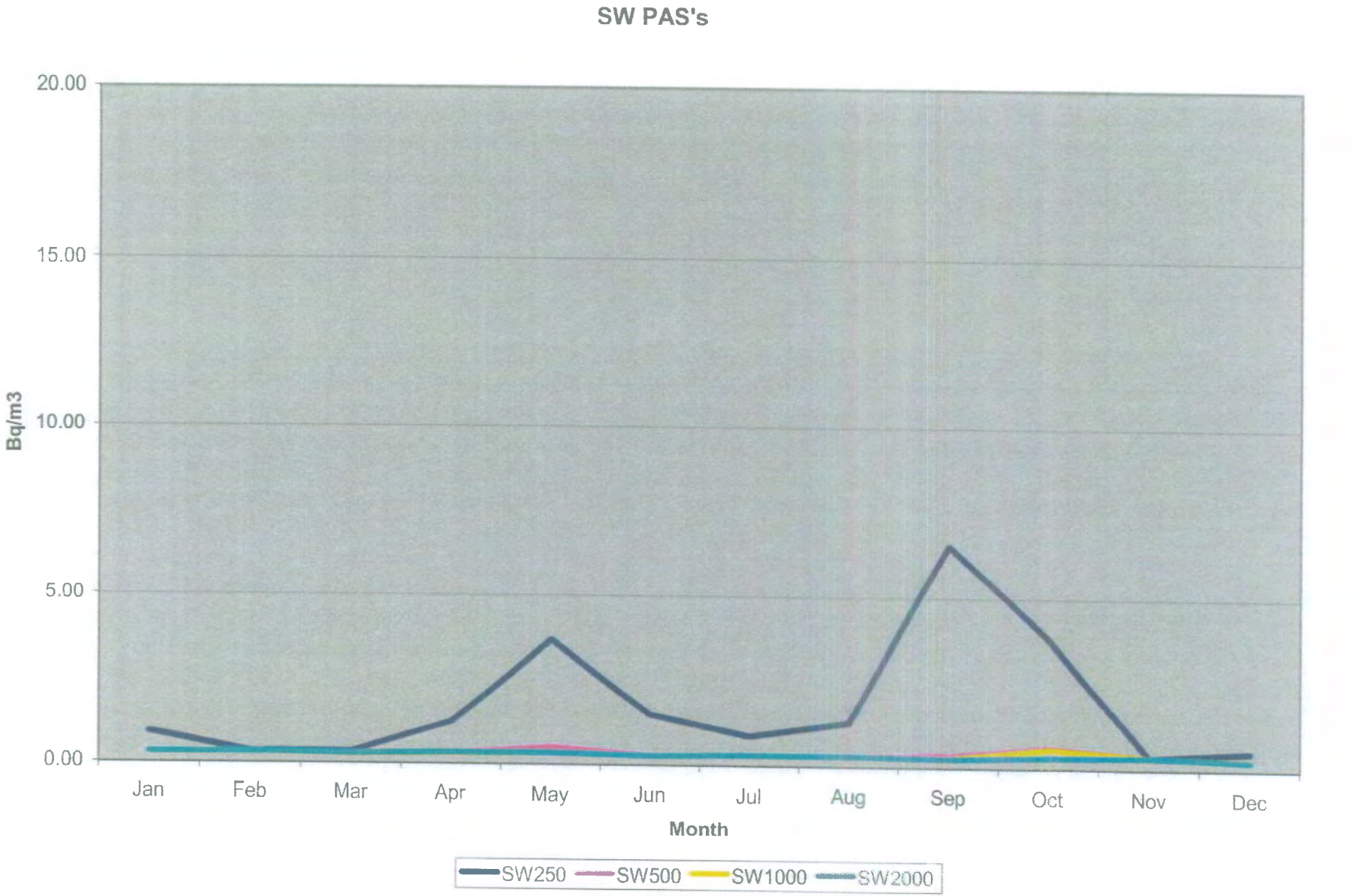
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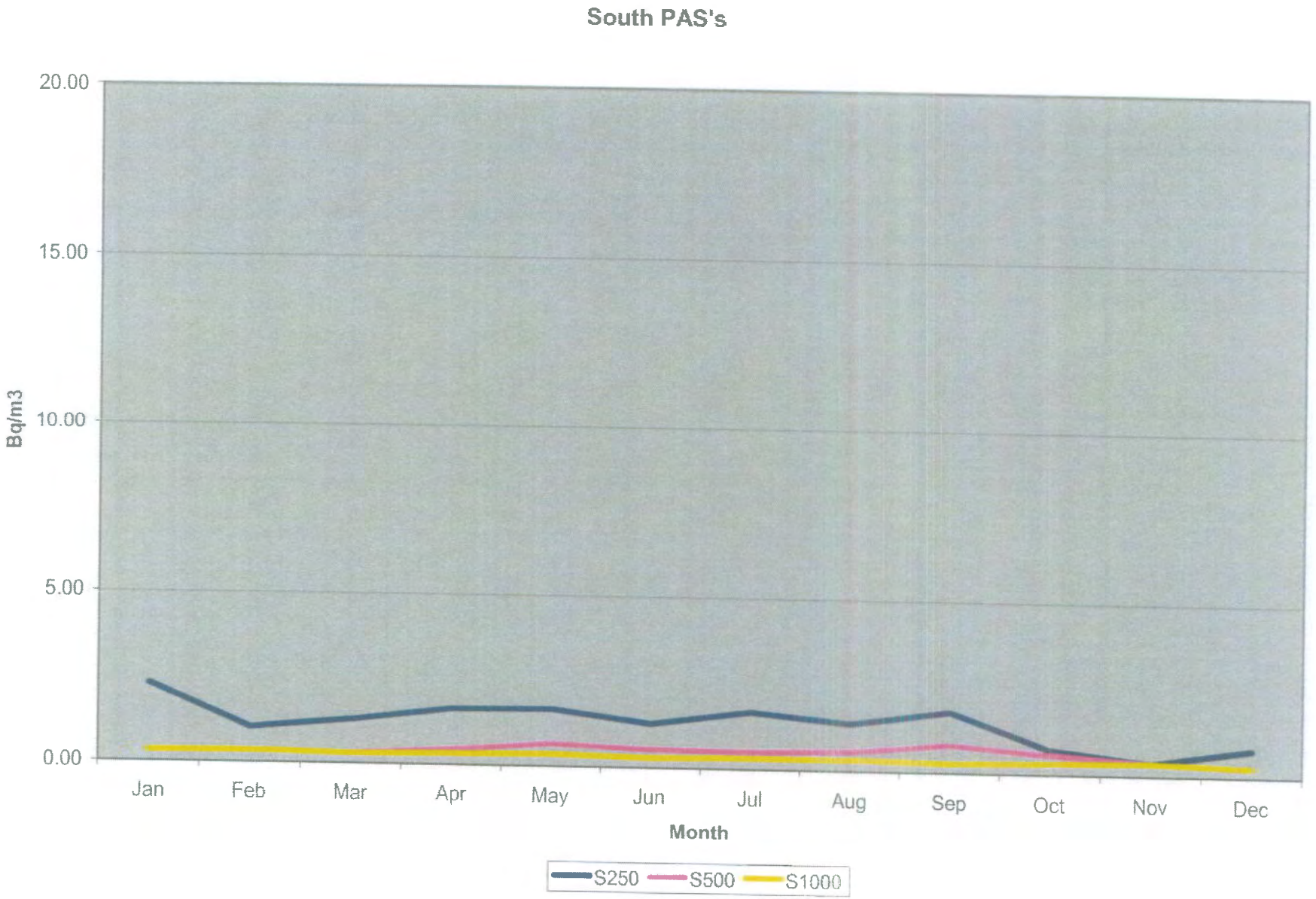
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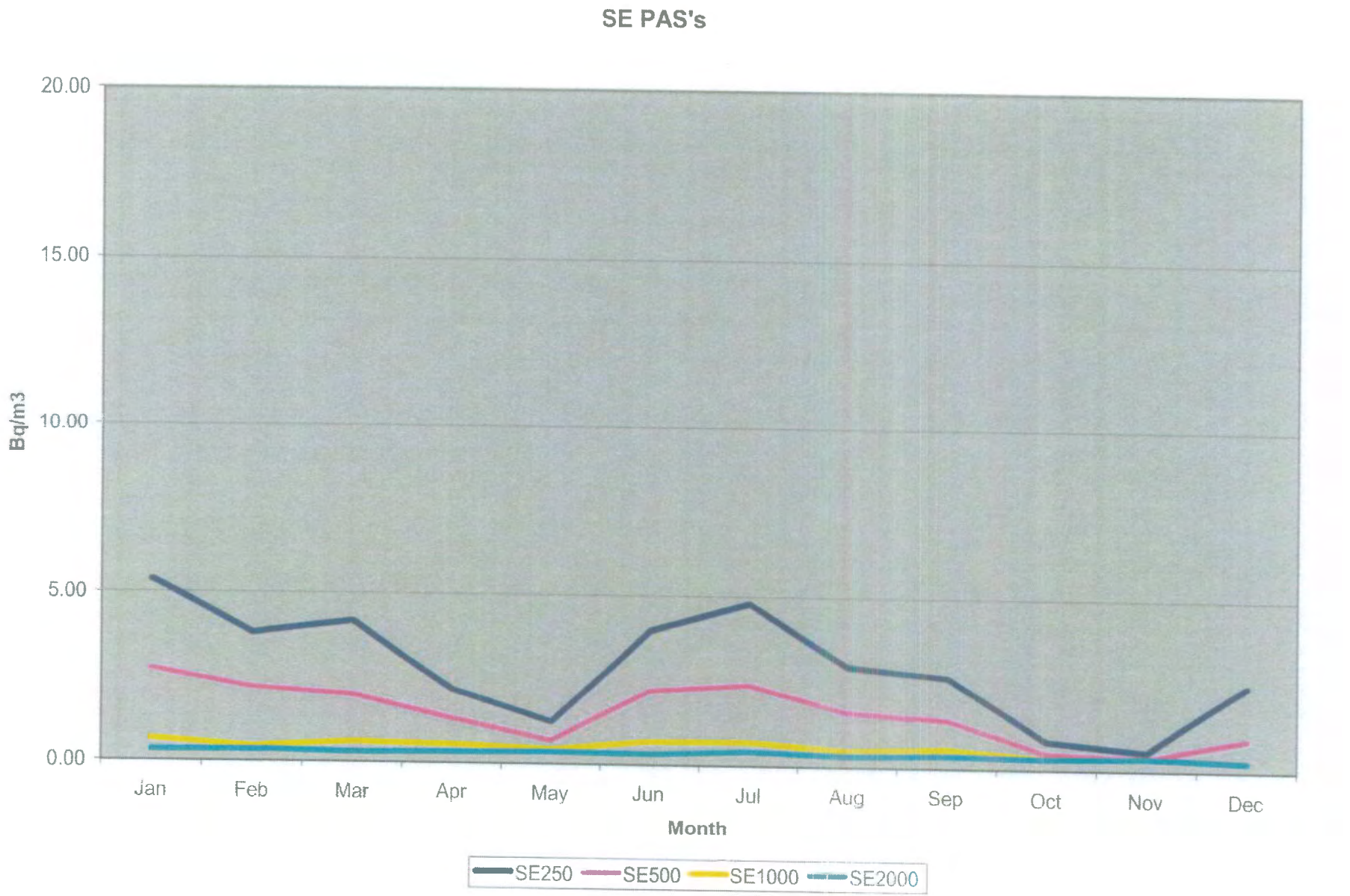
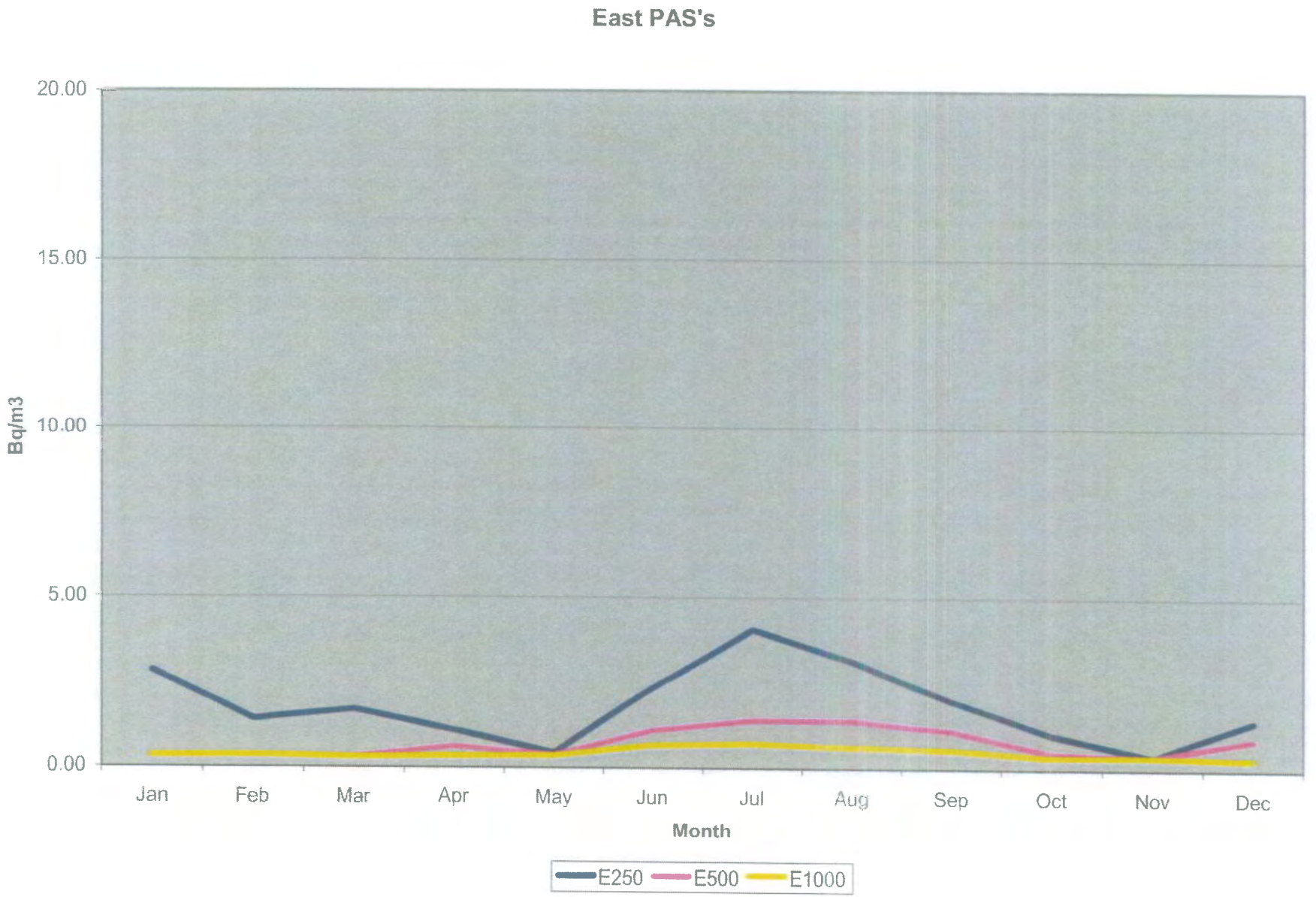
S500
S1000


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

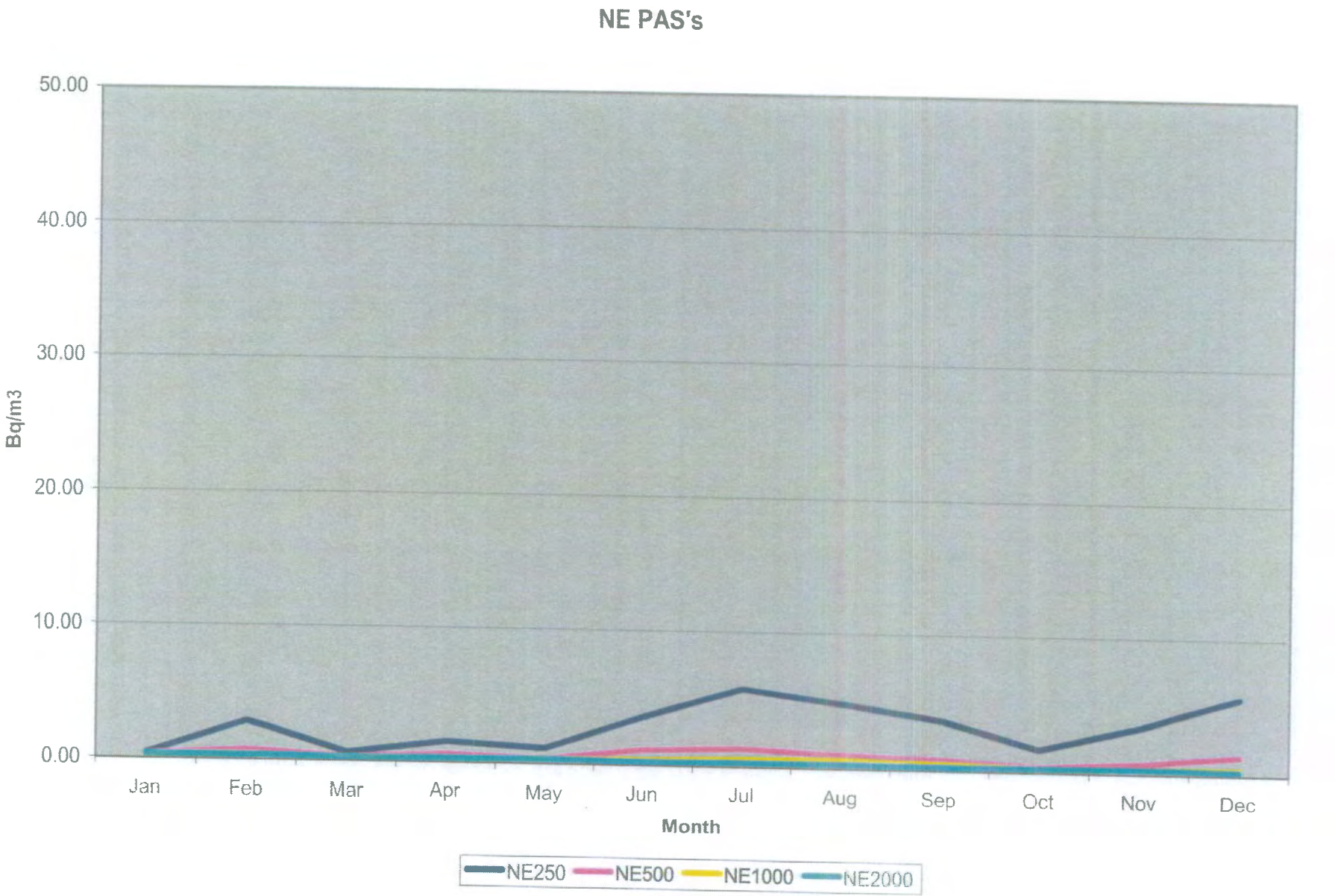
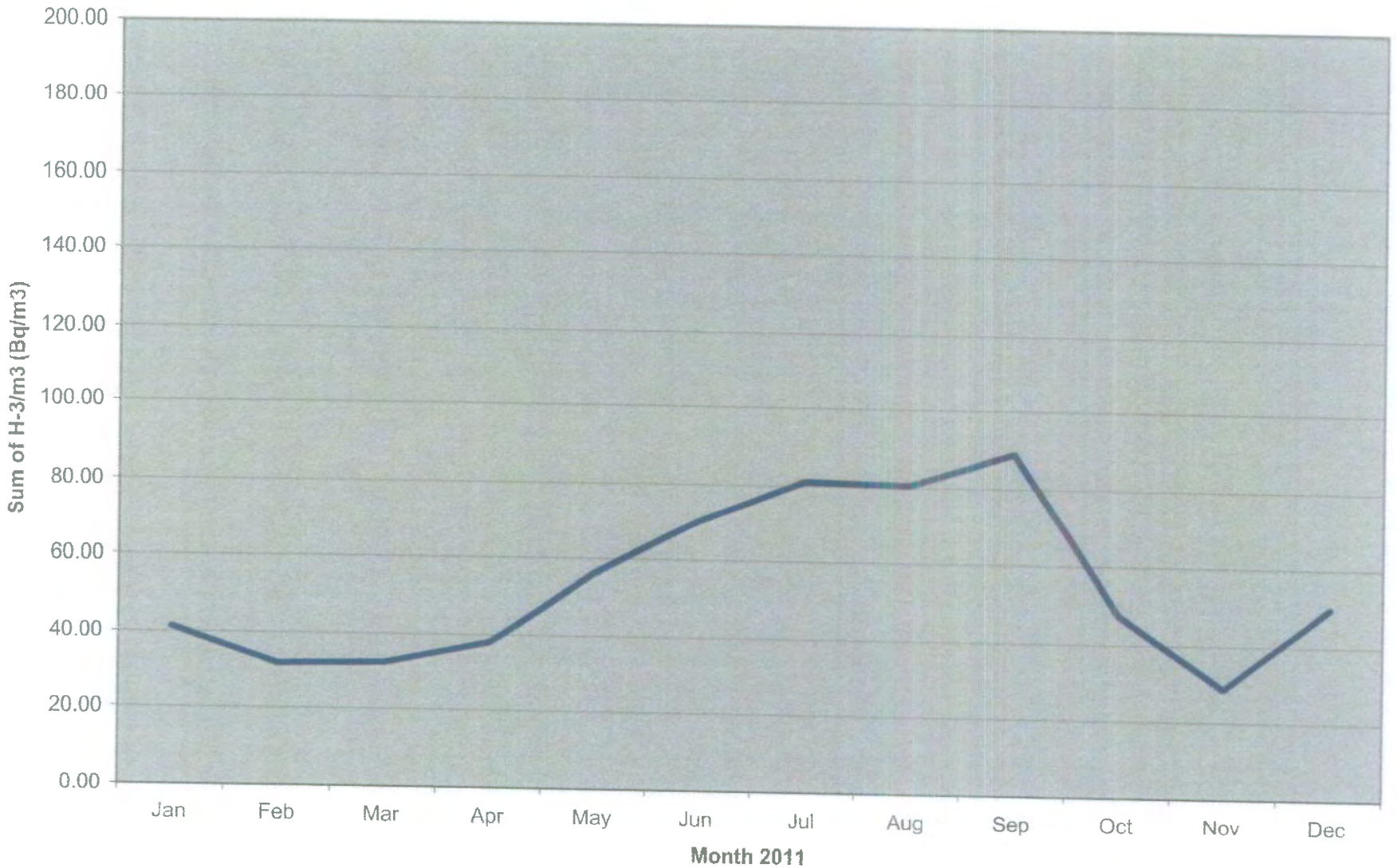

NE PAS's
50.00
40.00
30.00
20.00
10.00
0.00
Bq/m3
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
NE250
NE500
NE1000
NE2000

Chart of Sum of HTO in Air in PAS

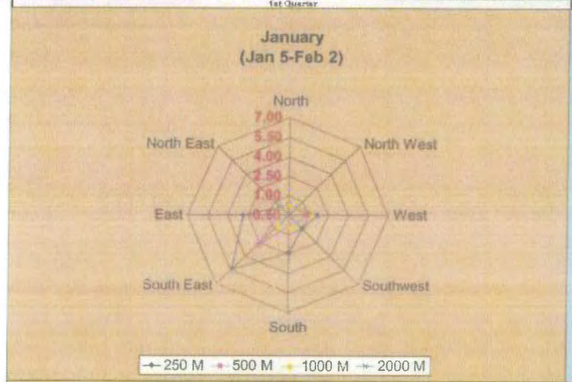


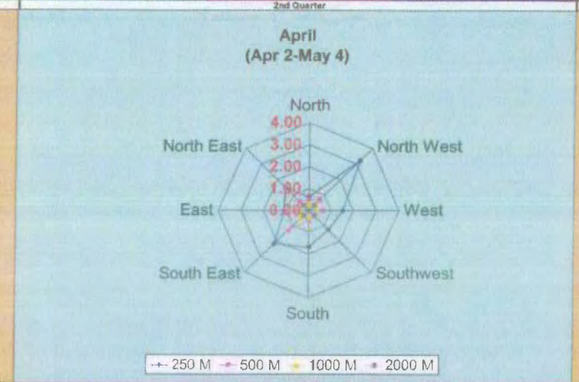
APPENDIX L

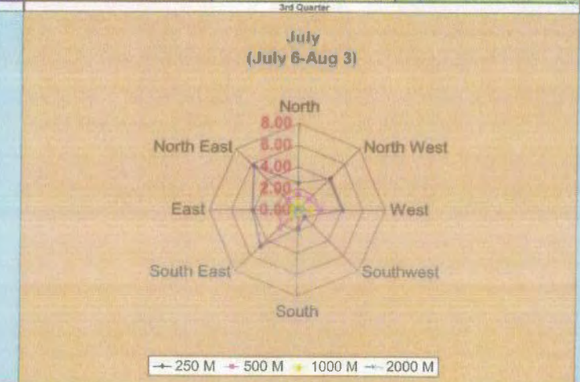
Wind direction graphs for 2011

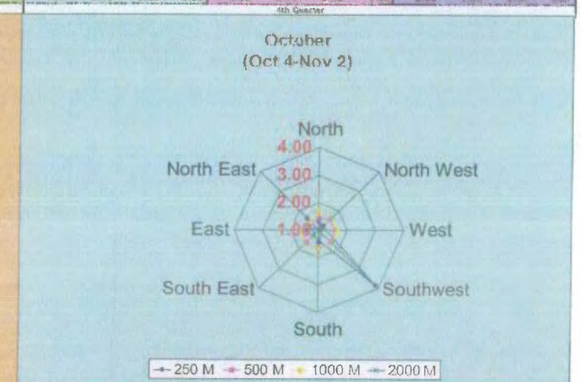
Passive Air Sampling Data (Results in Bq/m3)

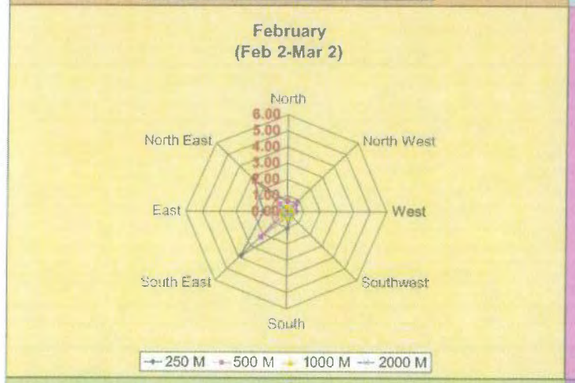
Direction	January				February				March				April				May				June				July				August				September				October				November				December			
	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M	250 M	500 M	1000 M	2000 M
North	0.33	0.33	0.33		0.59	0.69	0.34		0.34	0.32	0.29		0.61	0.49	0.32		0.79	0.55	0.35		2.30	1.20	0.55		2.50	1.40	0.72		1.80	1.10	0.54		1.80	1.20	0.56		0.54	0.33	0.32		1.90	0.83	0.36		1.10	0.39	0.23	
North West	0.40	0.33	0.41	0.33	0.87	0.70	0.34	0.44	0.86	0.29	0.29	0.29	3.22	0.69	0.47	0.33	2.30	0.63	0.39	0.35	4.70	1.40	0.43	0.29	4.10	1.40	0.65	0.56	2.40	0.94	0.33	0.33	2.40	0.71	0.28	0.28	1.23	0.38	0.32	0.33	1.50	0.49	0.36	0.36	2.90	0.59	0.36	0.29
West	1.65	0.83	1.27		0.54	0.38	0.34		0.80		0.40		1.54	0.64	0.34		1.80	1.30	0.55		2.40	1.50	0.50		4.10	2.10	1.30		2.10	1.90	0.67		2.30	1.50	0.62		0.53	0.32	0.32		0.75	0.30	0.36		1.60	0.81	0.46	
Southwest	0.91	0.33	0.33	0.33	0.35	0.34	0.34	0.34	0.36	0.29	0.29	0.30	1.24	0.32	0.33	0.34	3.70	0.82	0.35	0.35	1.50	0.29	0.29	0.29	0.88	0.33	0.33	0.33	1.30	0.32	0.33	0.33	6.60	0.37	0.28	0.28	3.83	0.61	0.36	0.34	0.98	0.33	0.36	0.36	0.84	0.36	0.37	0.29
South	2.37	0.33	0.33		1.04	0.34	0.34		1.30	0.29	0.29		1.67	0.45	0.33		1.70	1.70	0.35		1.50	0.53	0.29		1.70	0.51	0.33		1.40	0.57	0.33		1.80	0.80	0.28		0.71	0.57	0.32		0.98	0.33	0.36		0.70	0.26	0.27	
South East	5.36	2.77	0.64	0.33	3.84	2.21	0.43	0.34	4.20	2.00	0.58	0.29	2.18	1.30	0.53	0.32	1.23	0.68	0.42	0.35	4.00	2.20	0.67	0.32	4.80	2.40	0.68	0.42	3.00	1.80	0.47	0.33	2.70	1.40	0.55	0.39	0.81	0.47	0.32	0.32	0.54	0.33	0.36	0.36	2.50	0.89	0.36	0.26
East	2.89	0.33	0.33		1.41	0.34	0.34		1.70	0.30	0.29		1.09	0.61	0.33		0.43	0.36	0.35		2.40	1.10	0.65		4.10	1.40	0.70		3.20	1.40	0.61		2.00	1.10	0.54		1.00	0.46	0.35		0.98	0.30	0.36		1.40	0.67	0.30	
North East	0.39	0.33	0.33	0.33	2.78	0.69	0.34	0.34	0.58	0.29	0.29	0.29	1.47	0.56	0.32	0.32	1.10	0.35	0.35	0.35	3.50	1.10	0.38	0.29	5.70	1.30	0.53	0.33	4.70	1.00	0.64	0.33	3.60	0.79	0.46	0.29	1.62	0.40	0.32	0.32	1.30	0.21	0.36	0.36	5.50	1.30	0.30	0.27
	1st Quarter												2nd Quarter												3rd Quarter												4th Quarter											

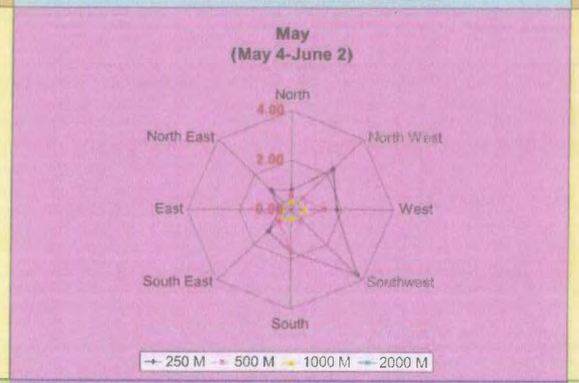


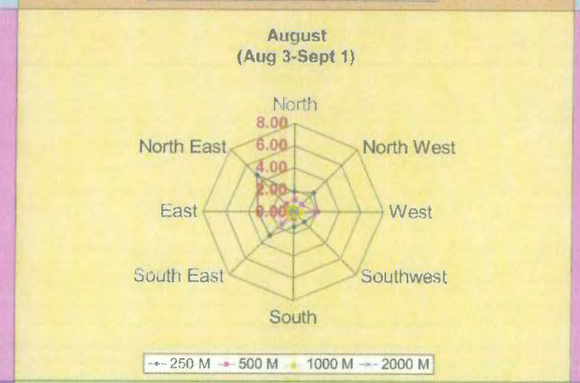


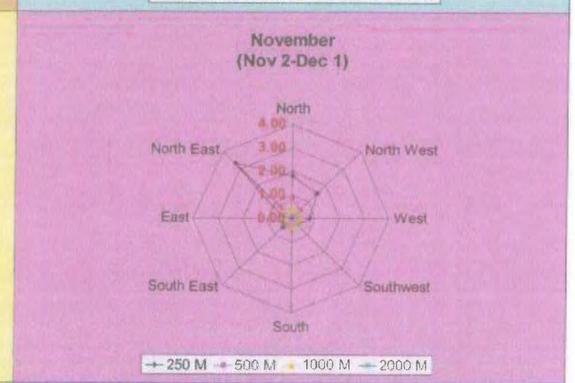


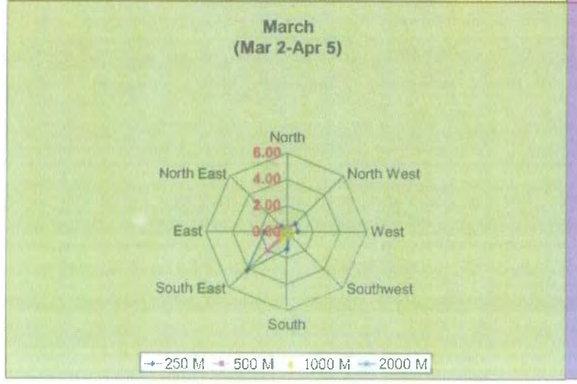


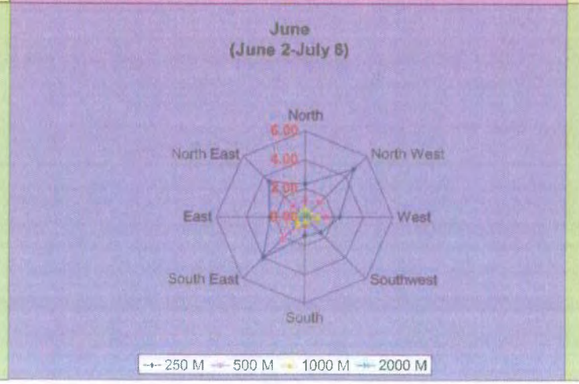


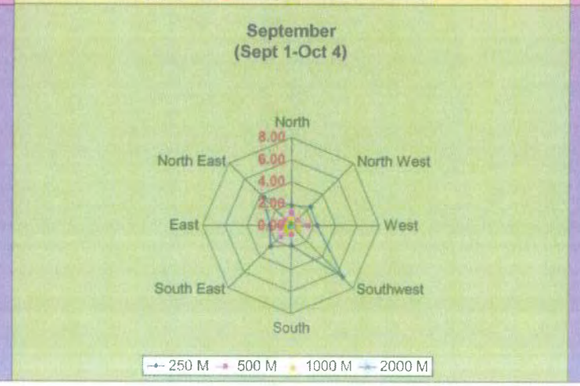


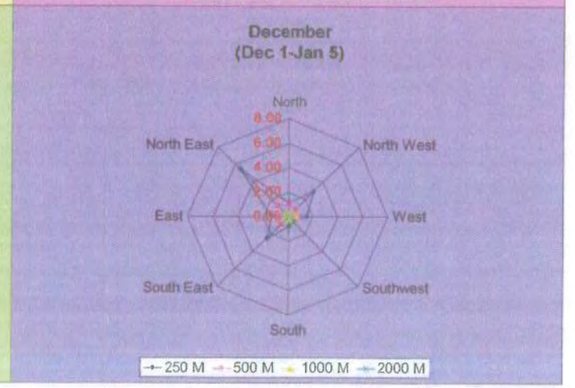












APPENDIX M

Well monitoring results for 2011

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	AVG
RW-1	413 BOUNDARY ROAD	465			350				323				242		305
RW-2	185 MUD LAKE ROAD	1,100			176				163				145		161
RW-3	183 MUD LAKE ROAD	1,100			176				150				138		155
RW-4	711 BRUHAM AVENUE	2,200			4.0				3.8				3.5		4
RW-5	171 SAWMILL ROAD	2,300			17				14				14		15
RW-6	40987 HWY 41	1,400			46				42				36		41
RW-7	40925 HWY 41	1,600			10				9				6		8
RW-8	204 BOUNDARY ROAD	700			265				251				230		249
RW-9	206 BOUNDARY ROAD	650			19				128				255		134
RW-10	208 BOUNDARY ROAD	625			4.0				3.8				3.5		4
RW-12	202 MUD LAKE ROAD	753			9				6				4		6
B-1	SUPERIOR PROPANE OFFICE	160			834				1,351				1,004		1,063
B-3	INTERNATIONAL LUMBER OFFIC	385			4.0				6.0				3.5		5
														AVG	165

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	WELL I.D.
MW06-1	SRB SITE	IN SOIL	30	20,899	20,747	18,752	19,295	19,314	16,954	16,645	15,287	18,787	14,156	13,960	15,676	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	MW06-2
MW06-3	SRB SITE	IN SOIL	60	2,142	DRY	2,240	1,848	1,916	1,716	1,924	1,889	DRY	DRY	DRY	2,138	MW06-3
MW06-4S	JOHNSTON MEADOWS		300						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	MW06-4D
MW06-5	RENFREW COUNTY HEALTH UNIT		500						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	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	MW06-8
MW06-9	SRB SITE	IN SOIL	29	3,904	3,279	2,792	3,239	3,662	3,022	3,409	3,420	3,438	3,060	3,459	4,114	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	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	MW07-11
MW07-12	SRB SITE	SURFACE OF BEDROCK	55	453	355	360	458	468	391	440	414	511	375	426	443	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	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	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	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	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	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	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	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	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	MW07-21
MW07-22	SRB SITE	SURFACE OF BEDROCK	70	840	887	921	886	970	927	947	923	1,039	950	900	1,093	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	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	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	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	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	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	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	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	1,635	1,214	1,181	300	382	603	1,361	1,436	1,606	1,491	1,235	893	MW07-31
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115	342	266	311	272	568	176	203	281	315	289	361	353	MW07-32
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105	881	877	862	1,053	1,010	977	837	764	782	636	621	848	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	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	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	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	MW07-37
CN-1S	CN PROPERTY		125			1,124				928				DRY	734	CN-1S
CN-1D	CN PROPERTY		130			1,446				1,142				912		CN-1D
CN-2	CN PROPERTY		150			895				1,033				1,364		CN-2
CN-3S	CN PROPERTY		165			585				298				DRY	DRY	CN-3S
CN-3D	CN PROPERTY		160			931				523				537		CN-3D
RW-1	413 BOUNDARY ROAD		465			350				323				242		RW-1
RW-2	185 MUD LAKE ROAD		1,100			176				163				145		RW-2
RW-3	183 MUD LAKE ROAD		1,100			176				150				138		RW-3
RW-4	711 BRUHAM AVENUE		2,200			4.0				3.8				3.5		RW-4
RW-5	171 SAWMILL ROAD		2,300			17				14				14		RW-5
RW-6	40987 HWY 41		1,400			46				42				36		RW-6
RW-7	40925 HWY 41		1,600			10				9				6		RW-7
RW-8	204 BOUNDARY ROAD		700			265				251				230		RW-8
RW-9	206 BOUNDARY ROAD		650			19				128				255		RW-9
RW-10	208 BOUNDARY ROAD		625			4.0				3.8				3.5		RW-10
RW-11	200 MUD LAKE ROAD		794			N/A				N/A				N/A		RW-11
RW-12	202 MUD LAKE ROAD		753			9				6				4		RW-12
B-1	SUPERIOR PROPANE OFFICE		160			834				1,351				1,004		B-1
B-2	SUPERIOR PROPANE TRUCK WASH		250			1,959				2,135				1,944		B-2
B-3	INTERNATIONAL LUMBER OFFICE		385			4.0				6.0				3.5		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
MW08-1	SRB SITE	IN SOIL	50	42,299	41,947	39,251	41,889	41,623	38,970	35,867	33,864	33,137	32,396	30,418	30,590	29,960
MW08-2	SRB SITE	IN SOIL	70	3,695	3,641	3,748	3,923	3,627	3,853	3,860	4,004	3,869	3,849	3,710	3,570	3,330
MW08-3	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
MW06-4S	JOHNSTON MEADOWS		700													
MW06-4D	JOHNSTON MEADOWS		700													
MW06-5	RENFREW COUNTY HEALTH UNIT		500													
MW06-6	IO. 600 m		600													
MW08-8	SRB SITE	IN SOIL	55	226	DRY	486	341	486	577	760	815	871	1,060	1,094	1,070	908
MW08-9	SRB SITE	IN SOIL	35	1,422	DRY	2,813	3,078	2,030	2,877	2,732	3,039	3,024	3,229	3,294	2,344	2,587
MW08-10	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
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
MW07-12	SRB SITE	SURFACE OF BEDROCK	65	177	DRY	212	490	252	292	255	283	375	345	341	307	323
MW07-13	SRB SITE	SURFACE OF BEDROCK	50	7,859	9,968	7,344	7,654	11,007	6,092	8,507	11,120	12,362	13,699	14,997	15,716	19,248
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
MW07-15	SRB SITE	SURFACE OF BEDROCK	25	170	112	598	642	374	769	442	406	442	361	377	436	457
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
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
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
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
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
MW07-21	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	110	116	111	100	359	156	273	245	251	310	280	326	334	341
MW07-22	SRB SITE	SURFACE OF BEDROCK	70	421	184	225	578	493	422	227	187	243	246	298	291	318
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
MW07-24	HARRINGTON PROPERTY	SURFACE OF BEDROCK	115	118	111	150	374	273	243	476	448	473	454	564	570	717
MW07-25	HARRINGTON PROPERTY	SURFACE OF BEDROCK	105	176	111	376	334	118	111	159	172	178	103	138	93	210
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
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
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
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
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
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
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115	117	111	100	264	112	247	367	284	217	149	197	173	251
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105	428	458	553	791	512	532	754	690	586	546	551	466	476
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
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
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
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
CN-1S	CN PROPERTY		125	2,458				1,980				2,234				2,385
CN-1D	CN PROPERTY		130	DRY	DRY	1,885		2,673				2,458				DRY
CN-2	CN PROPERTY		150	2,184				1,455				1,257				2,958
CN-3S	CN PROPERTY		165	DRY	DRY	1,407		956				1,049				DRY
CN-3D	CN PROPERTY		160	1,354				1,494				1,100				1,550
RW-1	413 BOUNDARY ROAD		465	1,399				1,236				972				866
RW-2	185 MUD LAKE ROAD		1,100	287				324				293				252
RW-3	183 MUD LAKE ROAD		1,100	323				299				318				250
RW-4	711 BRUHAM AVENUE		2,200	4.2				3.0				3.1				5
RW-5	171 SAWMILL ROAD		2,300	17				20				19				25
RW-6	40987 HWY 41		1,400	82				92				75				83
RW-7	40925 HWY 41		1,600	25				31				23				16
RW-8	204 BOUNDARY ROAD		700	236				262				307				242
RW-9	206 BOUNDARY ROAD		650	583	442			454				539				422
RW-10	208 BOUNDARY ROAD		625	4.3				3.0				2.6				3
RW-11	200 MUD LAKE ROAD		794													
RW-12	202 MUD LAKE ROAD		753													
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
B-2	SUPERIOR PROPANE TRUCK WASH		250	3,087	4,073			4,435				3,939				3,875
B-3	INTERNATIONAL LUMBER OFFICE		385	4.4				6.0				5.0				7

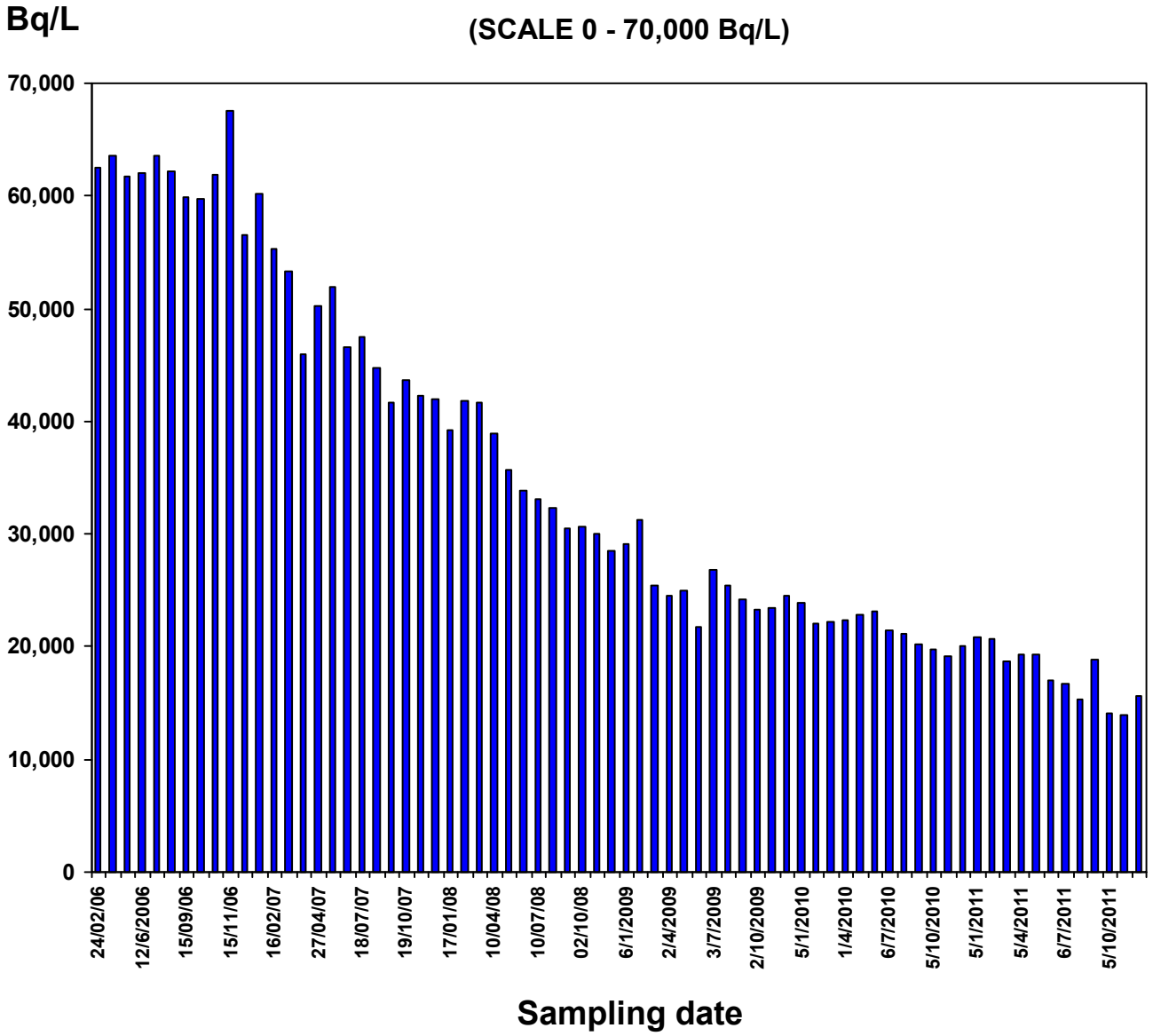
WELL I.D.	3/12/08	6/1/09	4/2/09	3/3/09	2/4/09	5/5/09	4/6/09	3/7/09	6/8/09	4/9/09	2/10/09	4/11/09	2/12/09
MW08-1	28,528	29,048	31,171	25,477	24,502	21,969	21,702	26,763	25,452	24,126	23,320	23,491	24,457
MW08-2	3,301	3,668	3,757	3,556	2,860	3,499	3,675	3,603	3,569	3,432	3,303	3,346	3,506
MW08-3	2,832	2,848	DRY	2,980	3,046	2,069	2,199	2,629	2,680	DRY	DRY	2,647	2,575
MW06-4S													
MW06-4D													
MW06-5													
MW06-6													
MW08-8	1,100	1,185	1,036	1,009	1,032	1,062	926	1,205	1,157	1,187	1,032	1,193	1,240
MW08-9	3,078	3,818	3,700	3,096	3,728	3,313	2,935	3,571	3,413	3,353	2,599	3,723	3,889
MW08-10	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
MW07-11	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
MW07-12	352	364	304	345	322	287	239	283	347	337	316	344	363
MW07-13	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
MW07-14	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
MW07-15	785	580	594	642	783	852	771	687	680	719	759	808	1,001
MW07-16	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
MW07-17	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
MW07-18	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
MW07-19	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
MW07-20	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
MW07-21	359	437	442	542	482	445	390	481	495	576	578	591	635
MW07-22	807	334	396	377	440	373	338	454	465	514	644	593	727
MW07-23	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
MW07-24	803	911	952	979	1,170	1,154	1,048	1,232	1,229	1,285	1,384	1,504	1,371
MW07-25	144	100	178	249	312	296	371	490	529	428	338	403	436
MW07-26	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
MW07-27	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
MW07-28	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
MW07-29	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
MW07-30	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
MW07-31	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
MW07-32	235	311	293	254	270	348	221	205	239	285	308	368	540
MW07-33	439	524	473	472	708	732	809	653	585	599	607	631	817
MW07-34	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
MW07-35	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
MW07-36	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
MW07-37	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
CN-1S	2,286			1,465				1,611				1,510	
CN-1D	2,396			2,232				1,764				1,750	
CN-2	2,687			857				928				1,158	
CN-3S	1,406			636				412				DRY	817
CN-3D	1,431			1,119				958				1,154	
RW-1				701				632				507	
RW-2				268				230				200	
RW-3				265				225				176	
RW-4				3				3.4				4.0	
RW-5				17				17				15	
RW-6				81				75				74	
RW-7				12				14				9	
RW-8				303				283				246	
RW-9				139				132				20	
RW-10				7				3.5				4.0	
RW-11													
RW-12													
B-1	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
B-2				3,376				2,661				2,660	
B-3				2				3.5				4.0	

WELL I.D.	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.
MW08-1	23,877	21,567	22,179	22,401	22,895	23,063	21,461	21,118	20,264	19,690	19,199	20,134	MW08-1
MW08-2	3,627	3,460	3,488	3,377	3,307	3,467	3,316	3,228	[illegible]	2,592	3,044	3,165	MW08-2
MW08-3	2,561	2,630	2,682	2,185	2,082	2,248	2,292	DRY	DRY	2,240	2,323	2,377	MW08-3
MW06-4S													MW06-4S
MW06-4D													MW06-4D
MW06-5													MW06-5
MW06-6													MW06-6
MW08-8	1,251	1,096	1,093	1,166	1,284	1,106	1,262	1,183	1,180	1,178	1,124	1,212	MW08-8
MW08-9	3,751	3,146	2,823	3,559	3,297	3,273	3,171	3,211	2,932	3,305	3,266	3,527	MW08-9
MW08-10	59,317	74,942	46,473	22,666	30,160	35,986	57,159	23,579	45,181	49,327	48,842	39,501	MW08-10
MW07-11	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	357	335	338	361	367	365	342	389	389	405	406	430	MW07-12
MW07-13	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	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	722	848	967	1,135	1,273	1,121	933	828	1,055	1,197	1,133	1,258	MW07-15
MW07-16	4,621	4,642	5,539	4,272	4,636	4,445	3,906	3,680	3,651	4,031	3,780	3,757	MW07-16
MW07-17	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	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	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	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	579	604	643	576	642	654	713	788	809	863	716	579	MW07-21
MW07-22	619	691	654	640	711	645	731	779	785	757	753	796	MW07-22
MW07-23	2,448	2,543	2,620	2,528	2,565	2,544	2,524	2,508	2,530	2,390	2,383	2,450	MW07-23
MW07-24	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	586	925	794	714	839	673	588	470	652	386	243	1,306	MW07-25
MW07-26	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	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	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	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	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	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	342	314	344	337	173	175	251	302	267	299	340	385	MW07-32
MW07-33	805	859	892	939	919	788	677	691	641	522	574	No Sample	MW07-33
MW07-34	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	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	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	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			1,434				1,248				1,157		CN-1S
CN-1D			1,642				DRY				DRY	1,491	CN-1D
CN-2			555				1,180				1,020		CN-2
CN-3S			527				DRY				DRY	644	CN-3S
CN-3D			1,022				755				1,049		CN-3D
RW-1			423				424				368		RW-1
RW-2			199				189				153		RW-2
RW-3			190				198				167		RW-3
RW-4			6.0				6.2				6.0		RW-4
RW-5			14				12				14		RW-5
RW-6			74				63				46		RW-6
RW-7			10				11				8		RW-7
RW-8			238				261				245		RW-8
RW-9			104				58				62		RW-9
RW-10			6.0				6.3				6.0		RW-10
RW-11				6.0			6.3				N/A		RW-11
RW-12				30			17				6		RW-12
B-1	1,186	1,138	890	1,377	1,215	951	973	900			1,048		B-1
B-2			2,303				2,051				2,022		B-2
B-3			6.0				6.6				6.0		B-3

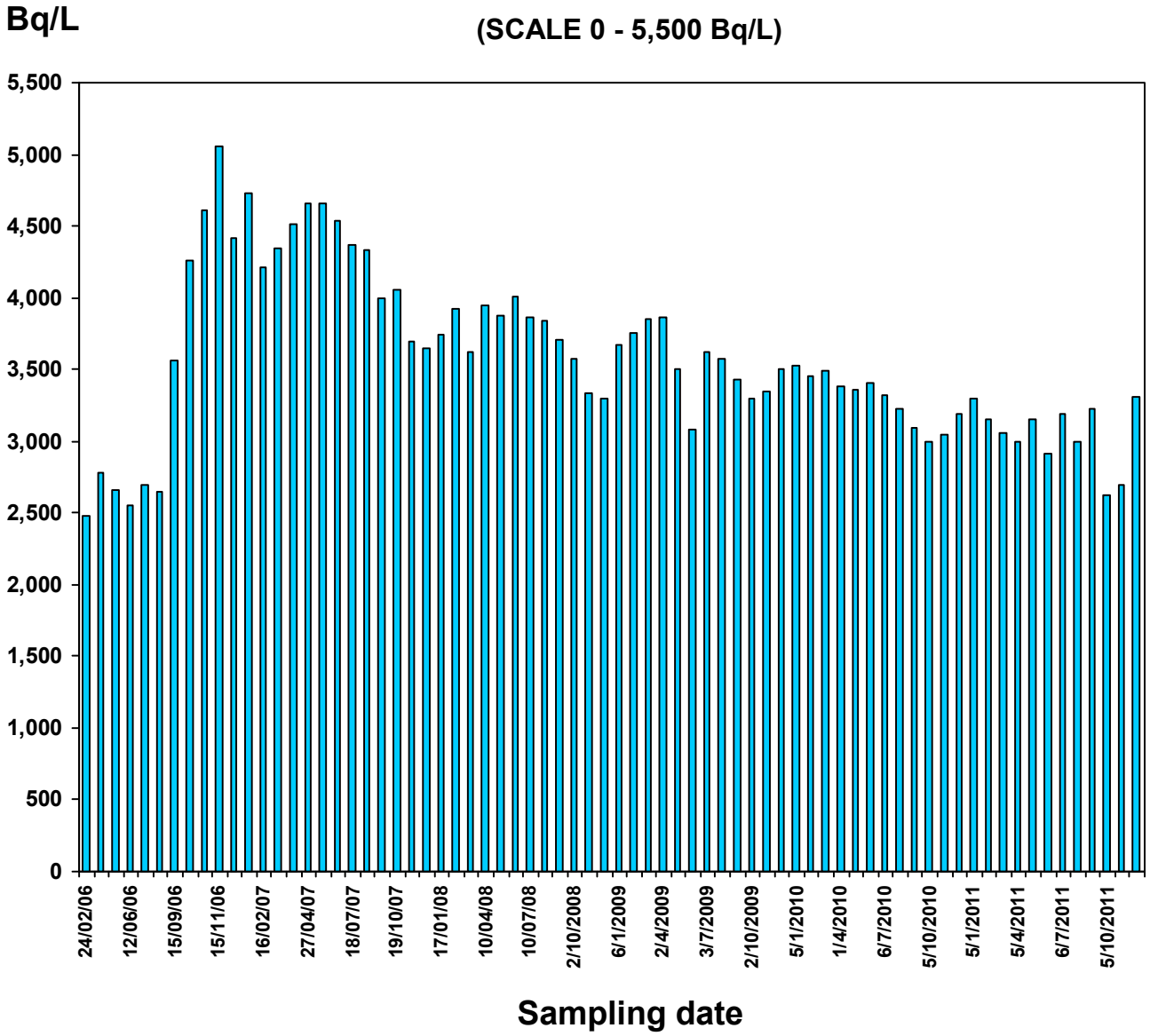
WELL I.D.	DESCRIPTION		DISTANCE FROM STACKS (m)	22/11/05	29/12/05	05/01/06	12/01/06	19/01/06	26/01/06	02/02/06	15/02/06	24/02/06	10/04/06	15/5/06	12/06/06	11/07/06	15/08/06	15/09/06	25/09/06	13/10/06	26/10/06	15/11/06	13/12/06	13/01/07	16/02/07	16/03/07	16/04/07	27/4/07	17/5/07	14/6/07	18/7/07	13/8/07	11/9/07	19/10/07	WELL I.D.
MW06-1	SRB SITE	N SOIL	50									62,434	63,615	61,774	62,025	63,031	62,156	50,002	59,734	61,947		67,600	59,595	60,166	59,319	53,396	45,352	50,170	51,972	46,595	47,669	44,663	41,651	43,526	MW06-1
MW06-2	SRB SITE	N SOIL	75									2,484	2,798	2,666	2,590	2,698	2,602	3,592	4,264	4,612		5,980	4,414	4,730	4,207	4,347	4,516	4,857	4,646	4,535	4,365	4,426	3,997	4,650	MW06-2
MW06-3	SRB SITE	N SOIL	90									2,722	3,098	3,133	3,048	2,962	3,205	2,990	2,939	3,289		3,584	3,103	3,321	3,282	3,240	3,230	3,279	3,267	3,288	3,187	3,247	3,133	DRY	MW06-3
MW06-4S	JOHNSTON MEADOWS		300									211																							MW06-4S
MW06-4D	JOHNSTON MEADOWS		300									3.0																							MW06-4D
MW06-5	RAINBOW COUNTY HEALTH UNIT		500									18																							MW06-5
MW06-6	At 400 m		600									375																							MW06-6
MW06-8	SRB SITE	N SOIL	50																106	141		120	175	176	278	299	299	209	207	172	202	236	247	311	MW06-8
MW06-9	SRB SITE	N SOIL	25																439	1,772		2,903	1,645	1,611	1,487	1,444	1,642	1,450	1,609	1,526	1,666	1,704	1,723	1,493	MW06-9
MW06-10	SRB SITE	SURFACE OF BEDROCK	0																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	SRB SITE	SURFACE OF BEDROCK	75																									203	638	936	866	898	955	400	MW07-11
MW07-12	SRB SITE	SURFACE OF BEDROCK	55																									152	154	114	106	117	151	194	MW07-12
MW07-13	SRB SITE	SURFACE OF BEDROCK	50																									6,358	7,781	8,070	9,463	9,221	9,287	10,057	MW07-13
MW07-14	SRB SITE	SURFACE OF BEDROCK	40																									1,504	1,662	1,895	2,526	3,494	3,610	2,357	MW07-14
MW07-15	SRB SITE	SURFACE OF BEDROCK	25																									690	675	672	314	376	255	227	MW07-15
MW07-16	SRB SITE	SURFACE OF BEDROCK	15																									6,855	6,845	7,059	4,927	6,381	6,148	6,646	MW07-16
MW07-17	SRB SITE	DEEPER BEDROCK	15																									521	510	233	109	107	106	103	MW07-17
MW07-18	SRB SITE	SURFACE OF BEDROCK	10																									110,422	108,679	97,441	100,612	93,704	85,781	58,139	MW07-18
MW07-19	SRB SITE	SURFACE OF BEDROCK	20																									28,788	25,806	20,475	13,852	16,329	18,318	4,229	MW07-19
MW07-20	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	90																															628	MW07-20
MW07-21	SUPERIOR PROPANE PROPERTY	SURFACE OF BEDROCK	110																															102	MW07-21
MW07-22	SRB SITE	SURFACE OF BEDROCK	70																															557	MW07-22
MW07-23	SRB SITE	SURFACE OF BEDROCK	90																															596	MW07-23
MW07-24	HARRINGTON PROPERTY	SURFACE OF BEDROCK	115																															102	MW07-24
MW07-25	HARRINGTON PROPERTY	SURFACE OF BEDROCK	105																															1,230	MW07-25
MW07-26	SRB SITE	SURFACE OF BEDROCK	50																															2,731	MW07-26
MW07-27	CITY PROPERTY	SURFACE OF BEDROCK	55																															6,959	MW07-27
MW07-28	CITY PROPERTY	DEEPER BEDROCK	55																															8,088	MW07-28
MW07-29	SRB SITE	DEEPER BEDROCK	10																															38,797	MW07-29
MW07-30	SRB SITE	DEEPER BEDROCK	50																															14,185	MW07-30
MW07-31	SRB SITE	DEEPER BEDROCK	70																															801	MW07-31
MW07-32	HARRINGTON PROPERTY	DEEPER BEDROCK	115																															143	MW07-32
MW07-33	HARRINGTON PROPERTY	DEEPER BEDROCK	105																															678	MW07-33
MW07-34	SRB SITE	SHALLOW BEDROCK	10																															45,544	MW07-34
MW07-35	CITY PROPERTY	SHALLOW BEDROCK	55																															14,824	MW07-35
MW07-36	CITY PROPERTY	SHALLOW BEDROCK	80																															9,100	MW07-36
MW07-37	SRB SITE	SHALLOW BEDROCK	60																															3,297	MW07-37
CN-1S	CN PROPERTY		125									3,928										3,511					3,780				2,326				CN-1S
CN-1D	CN PROPERTY		130									3,836										3,279				3,277	1,660				2,806				CN-1D
CN-2	CN PROPERTY		150									5,037										2,123				1,363	523				2,801				CN-2
CN-3S	CN PROPERTY		165									3,581										2,984				1,437	1,783				1,917				CN-3S
CN-3D	CN PROPERTY		160									3,283										1,427				1,890	891				1,239				CN-3D
RW-1	413 BOUNDARY ROAD		465	1,811	1,884	1,872	1,915	1,895	1,902	1,900	1,826	2,061									1,626						1,506			1,366		1,370				RW-1
RW-2	185 MUD LAKE ROAD		1,100		354	388			362												313						336					311				RW-2
RW-3	183 MUD LAKE ROAD		1,100	430	395	331	397	411	437	423		481									366						186					358				RW-3
RW-4	711 BRUHAM AVENUE		2,200				3.0	2.0	4.0	2.0	3.0	2.0									4.0						3.8					3.0				RW-4
RW-5	171 SAWMILL ROAD		2,300				13		18			15									14						14					18				RW-5
RW-6	40987 HWY 41		1,400									77									67						69					70				RW-6
RW-7	40925 HWY 41		1,600		123																90						67					38				RW-7
RW-8	204 BOUNDARY ROAD		700																			260					254					294				RW-8
RW-9	206 BOUNDARY ROAD		650																				455				268					269				RW-9
RW-10	208 BOUNDARY ROAD		625																				7.0				3.9					2.0				RW-10
B-1	SUPERIOR PROPANE OFFICE		160																			1,264					979			1,289	1,515	1,022	1,126	848	865	B-1
B-2	SUPERIOR PROPANE TRUCK WASH		250																			2,145					1,849					2,222				B-2
B-3	INTERNATIONAL LUMBER OFFICE		385																				15				6.0					6.0				B-3

APPENDIX M

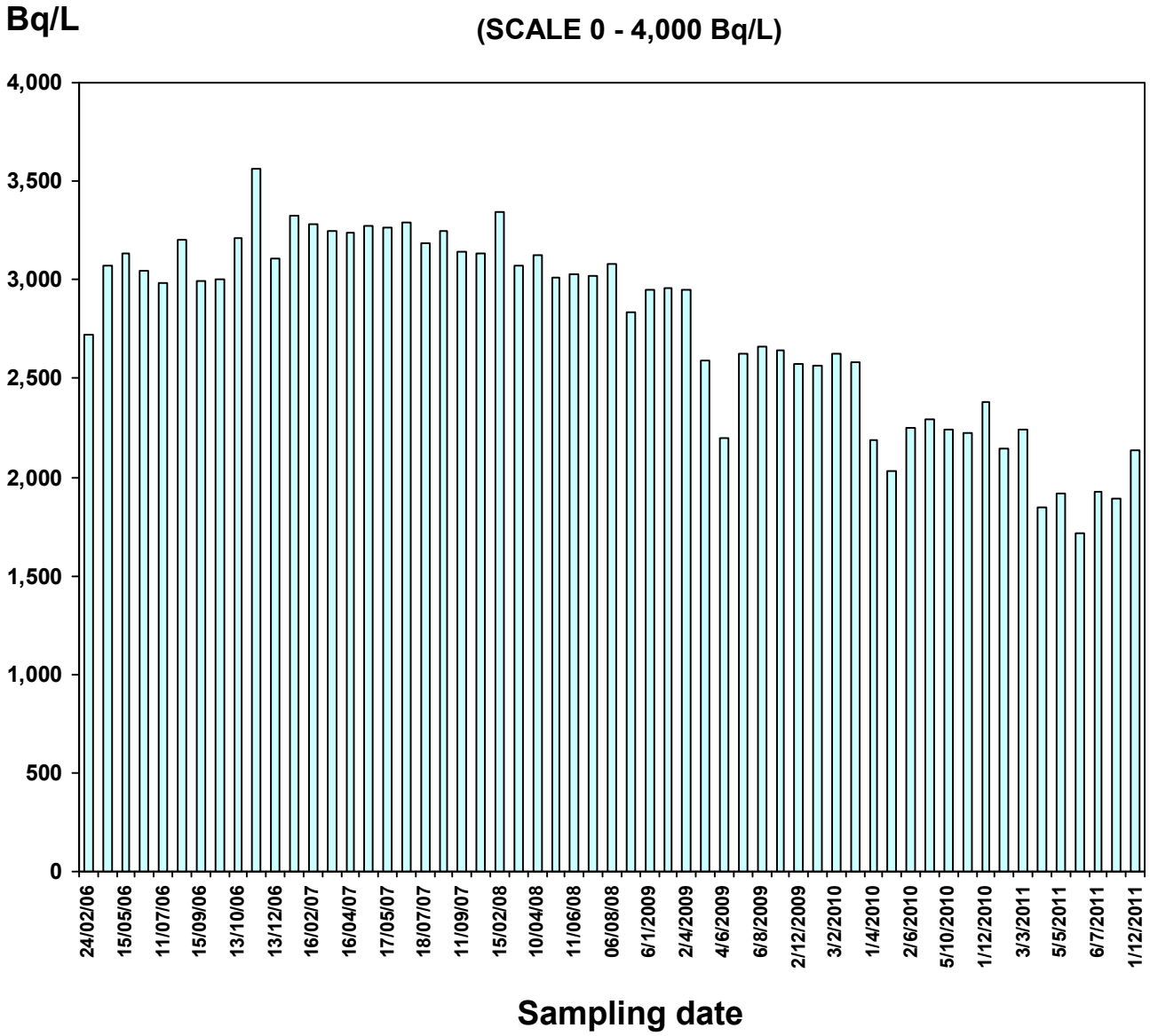
MONITORING RESULTS
MW06-1



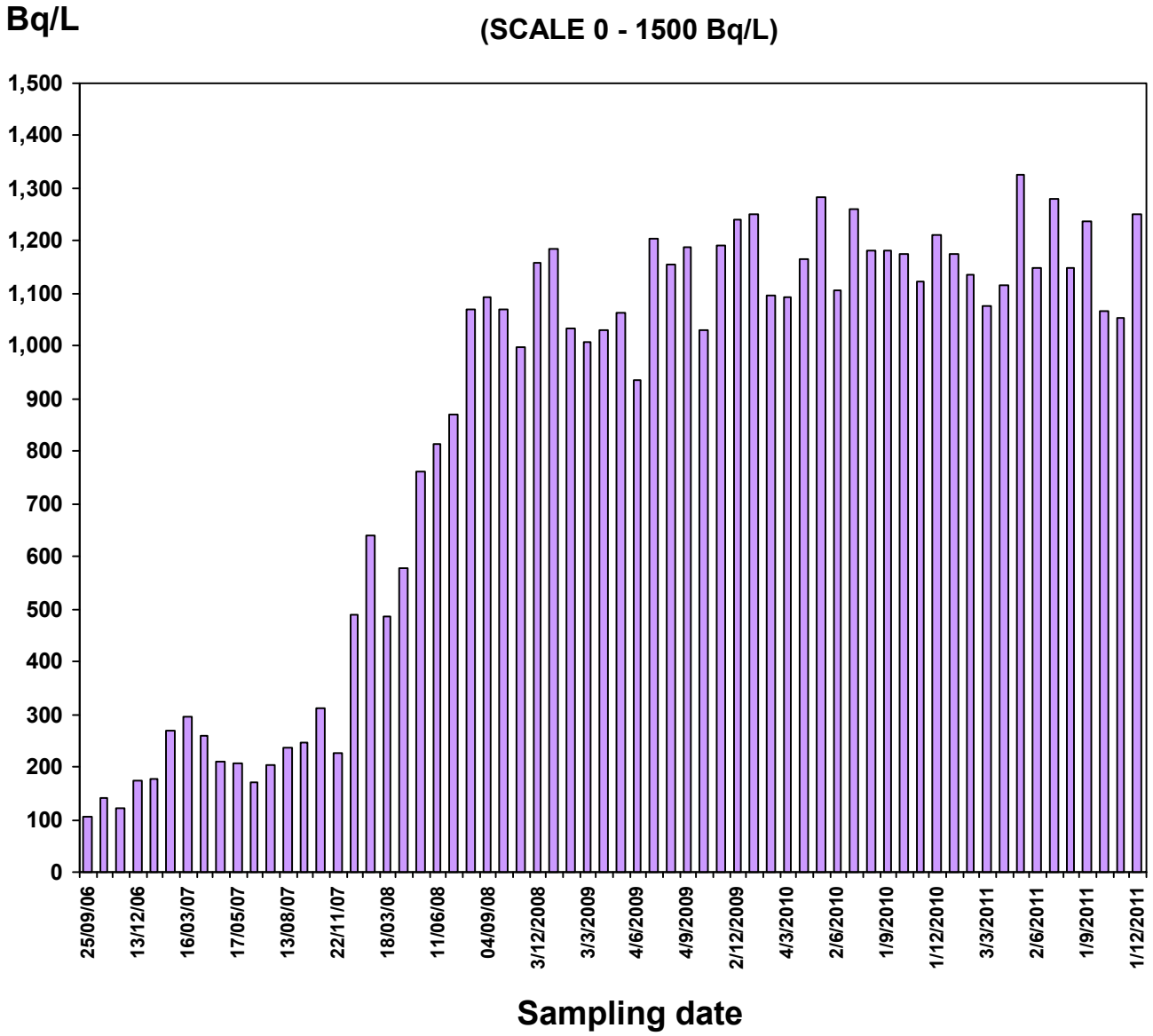
MONITORING RESULTS
MW06-2



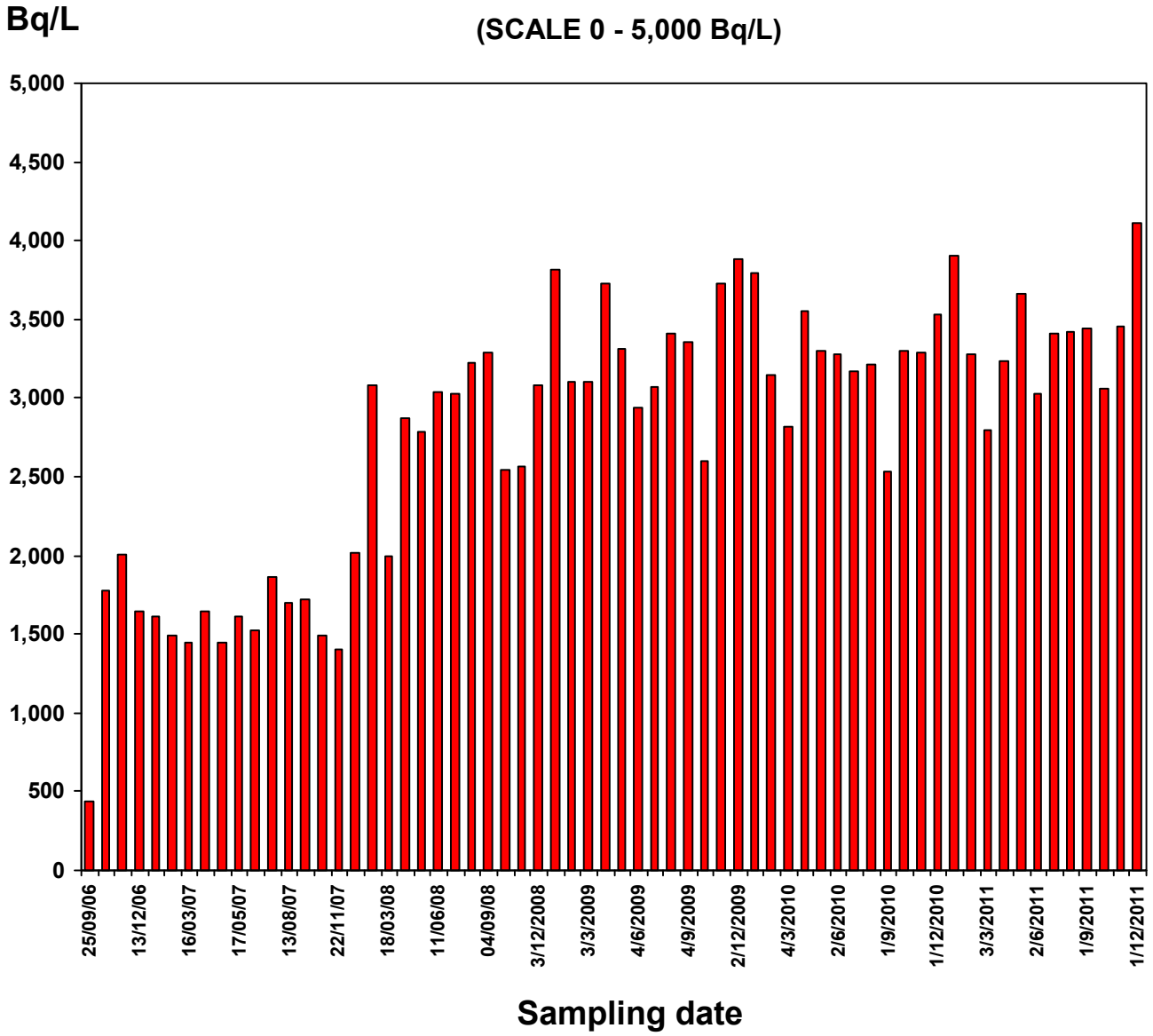
MONITORING RESULTS
MW06-3



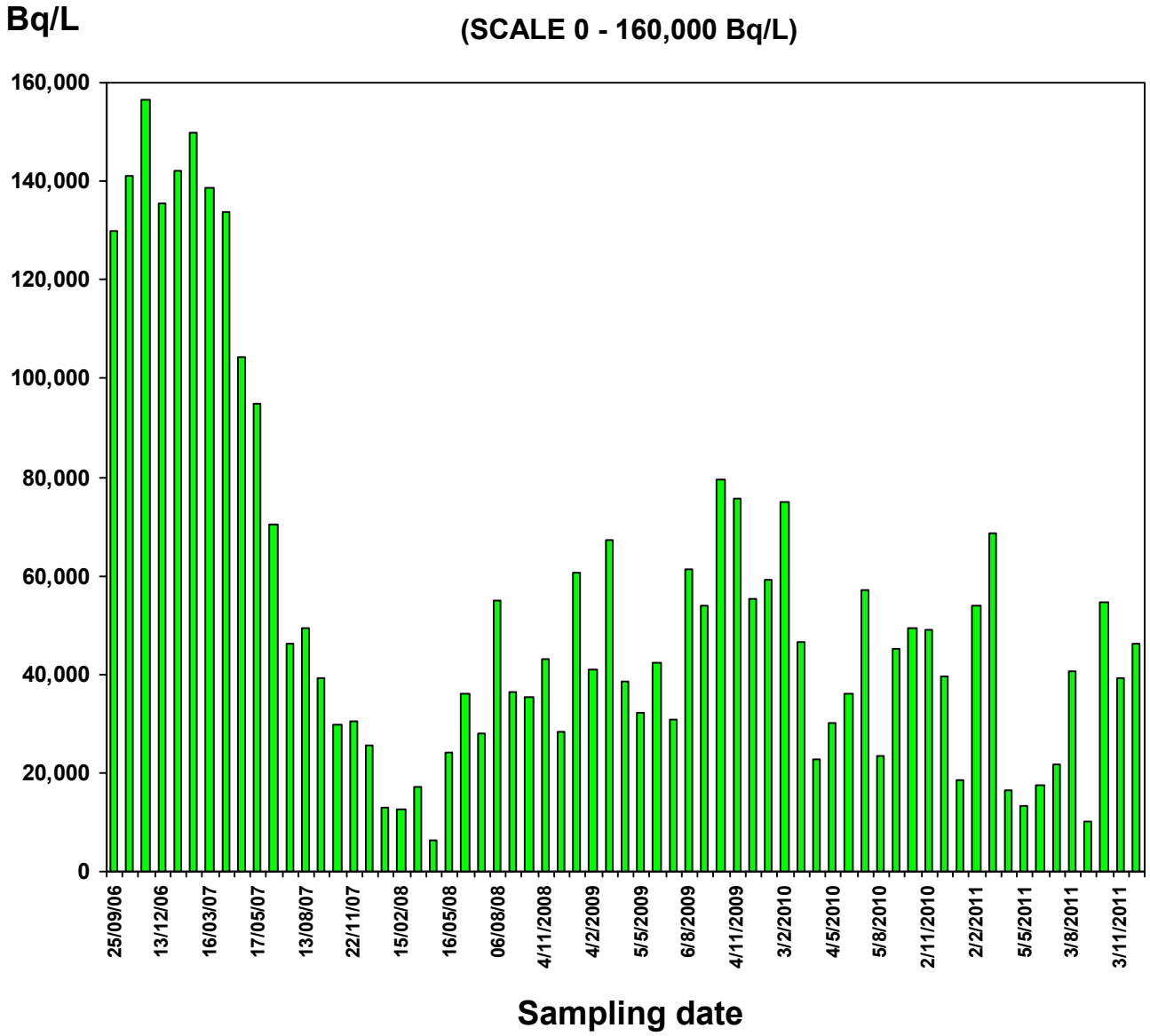
MONITORING RESULTS
MW06-8



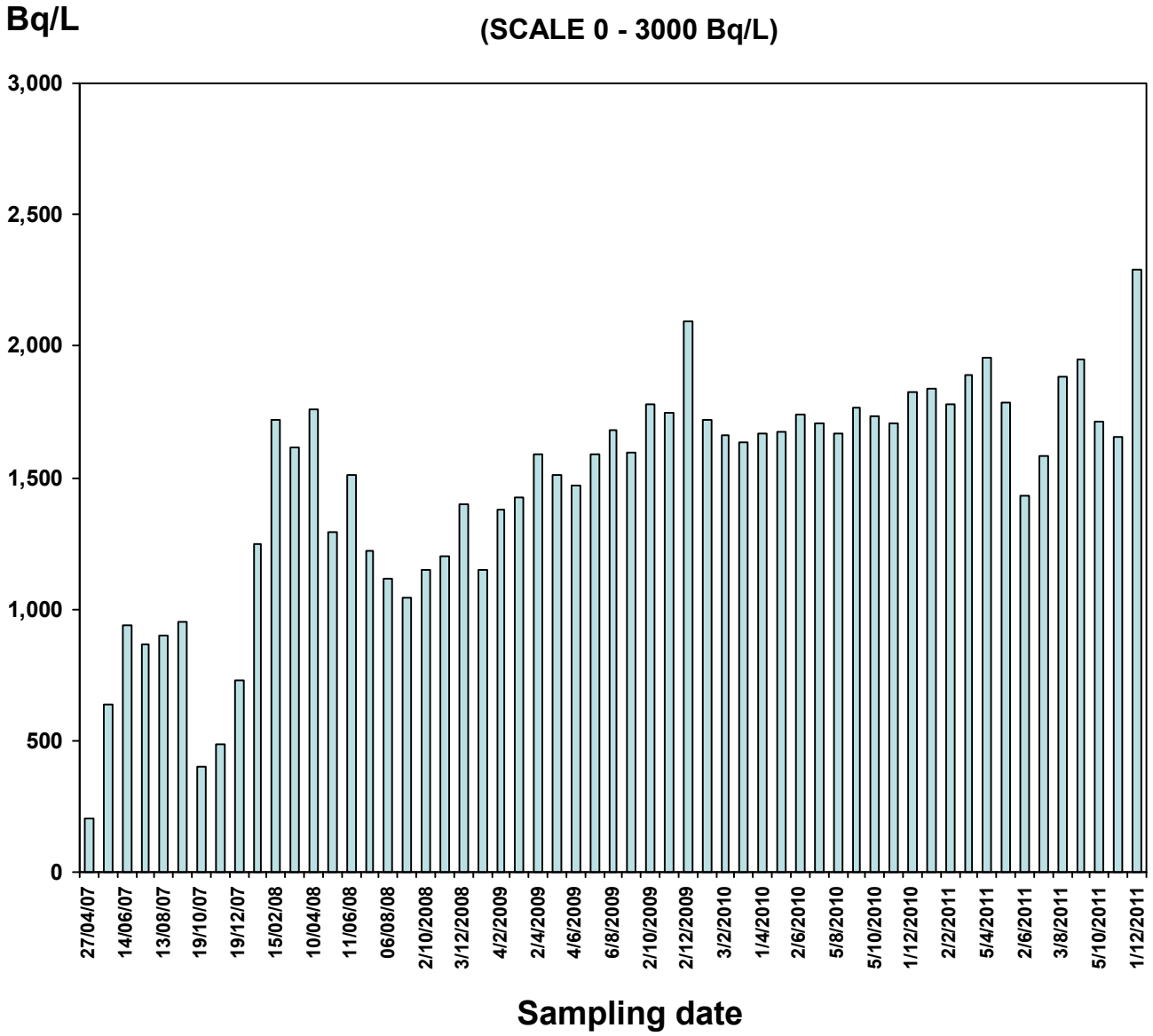
MONITORING RESULTS
MW06-9



MONITORING RESULTS
MW06-10

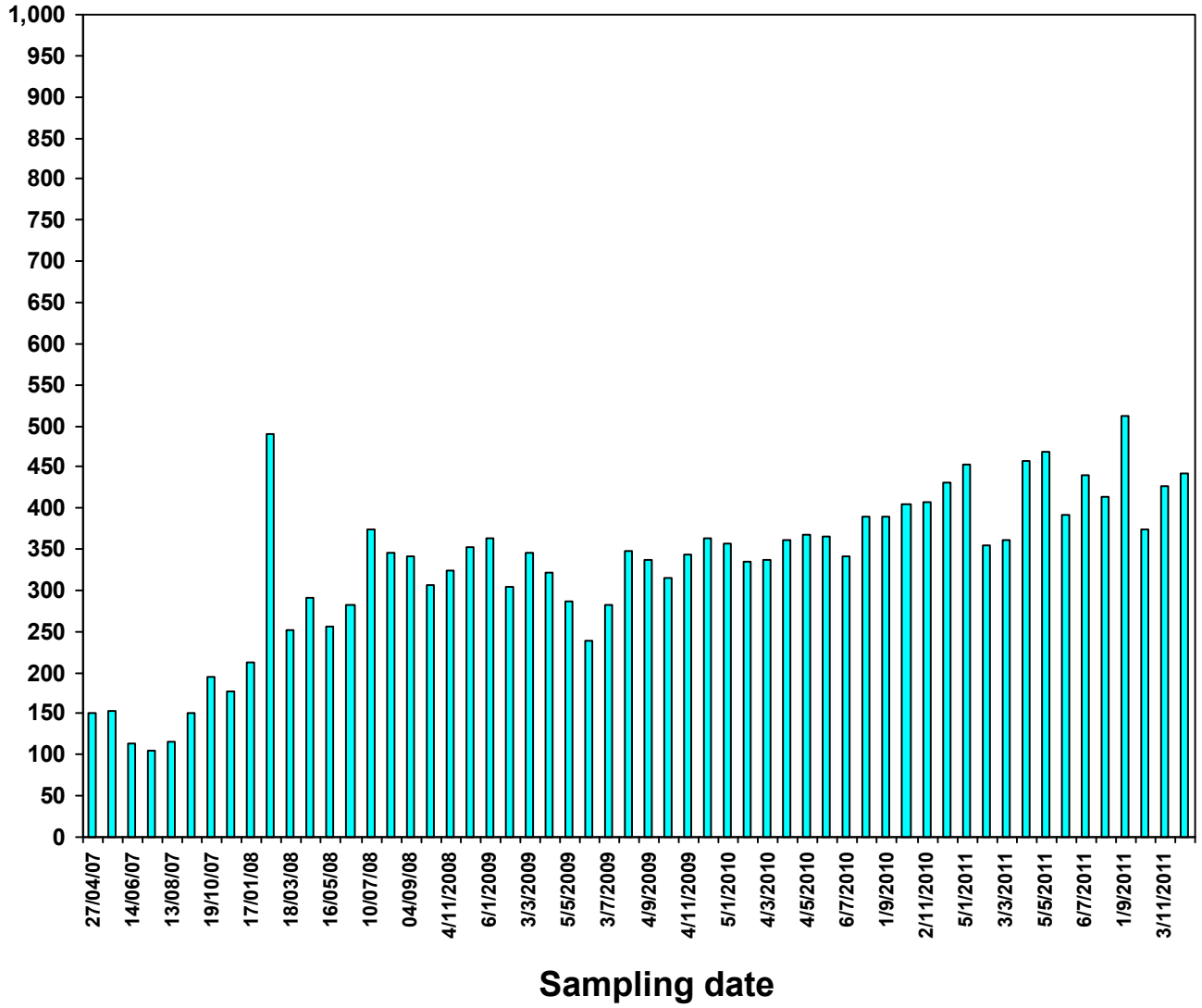


MONITORING RESULTS
MW07-11



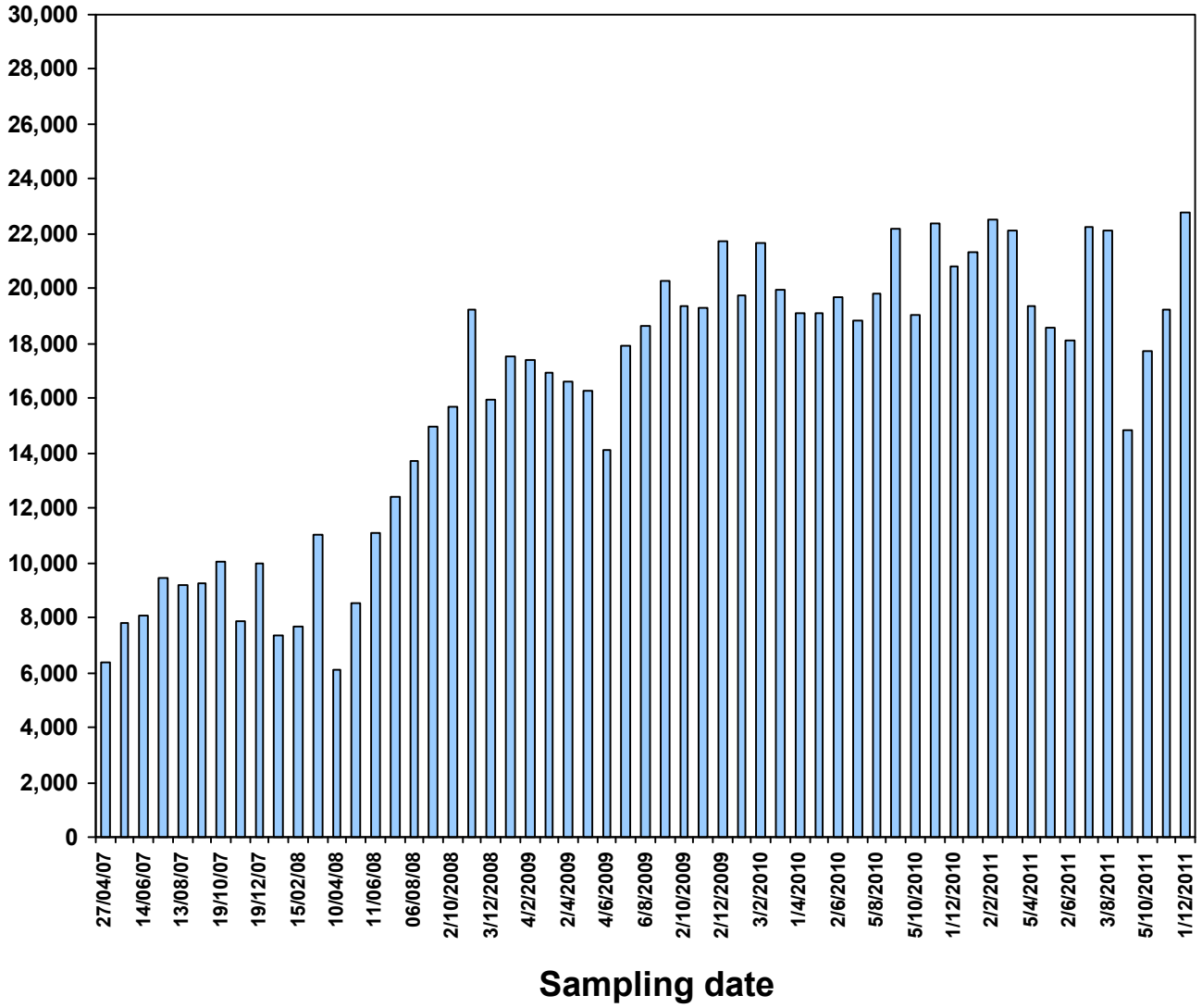
MONITORING RESULTS
MW07-12

(SCALE 0 – 1,000 Bq/L)

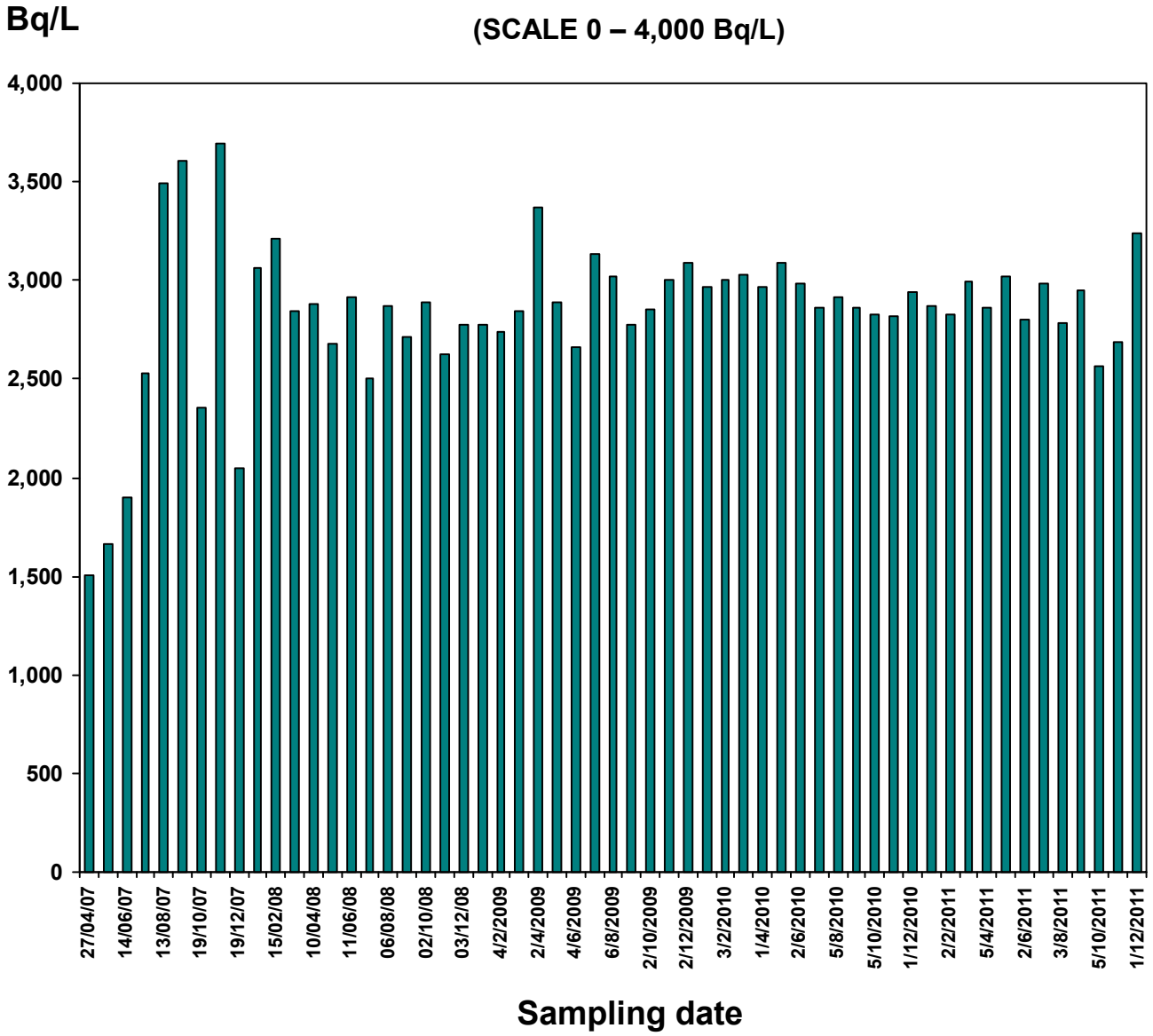


MONITORING RESULTS
MW07-13

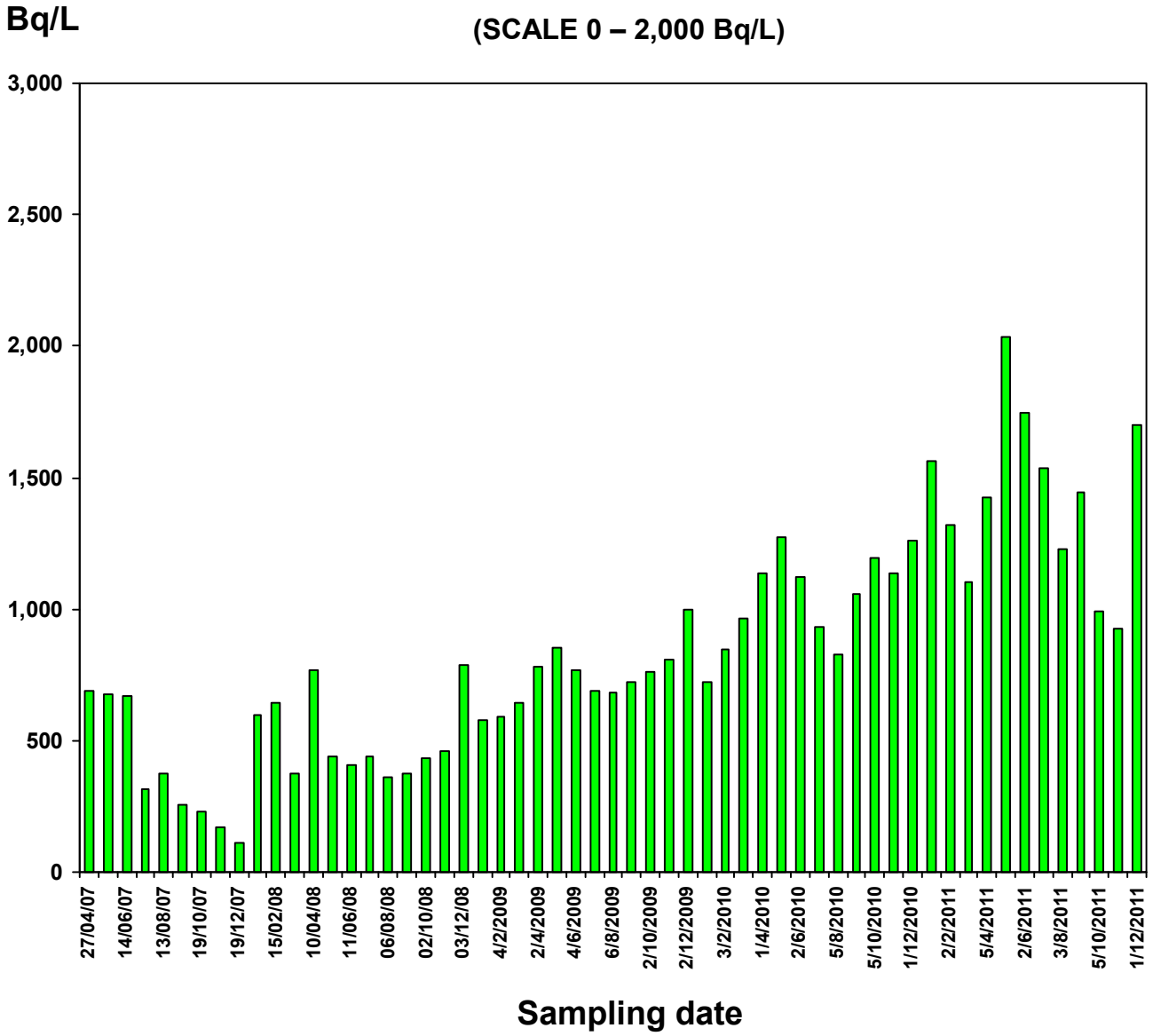
(SCALE 0 – 20,000 Bq/L)



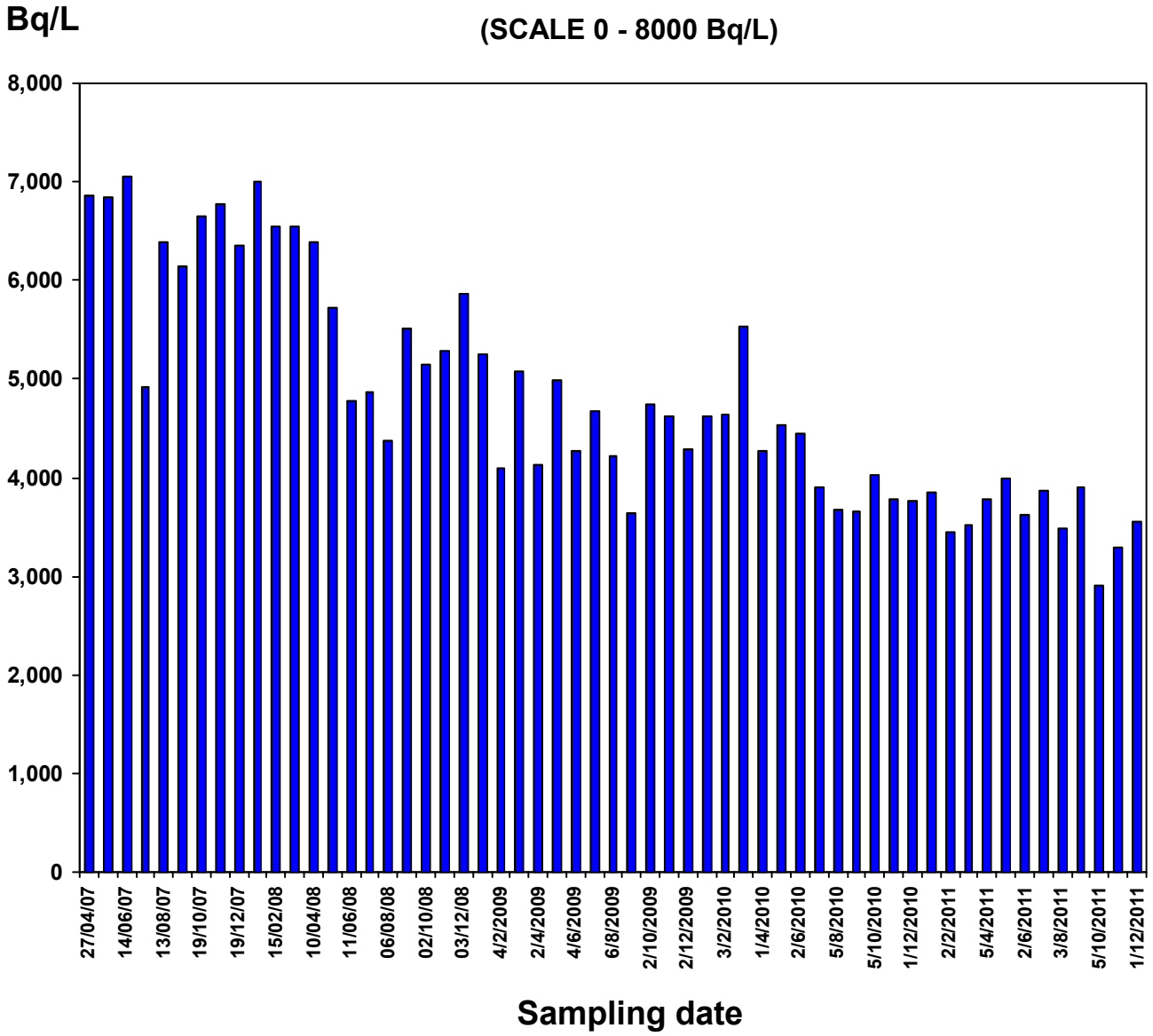
MONITORING RESULTS
MW07-14



MONITORING RESULTS
MW07-15

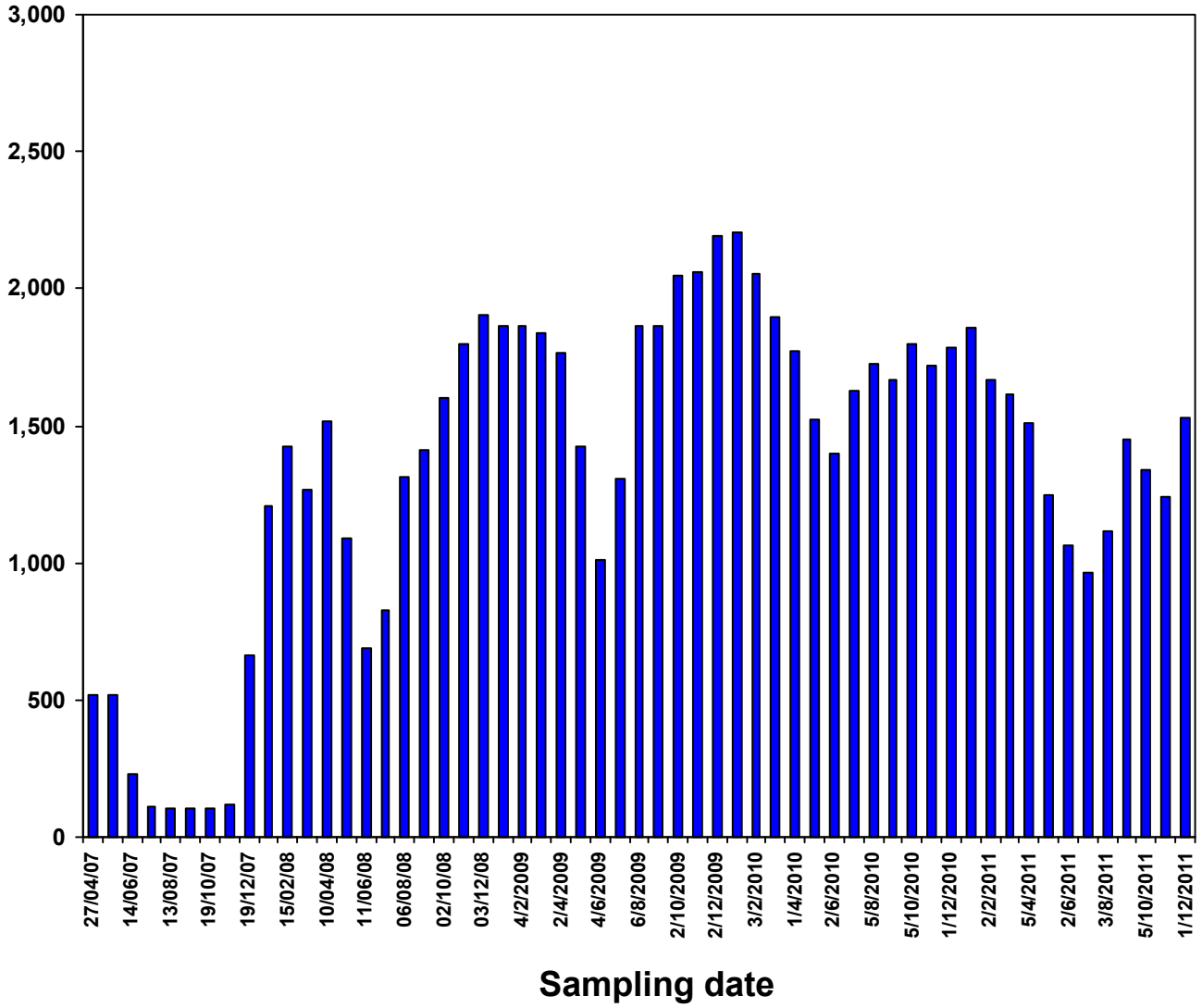


MONITORING RESULTS
MW07-16

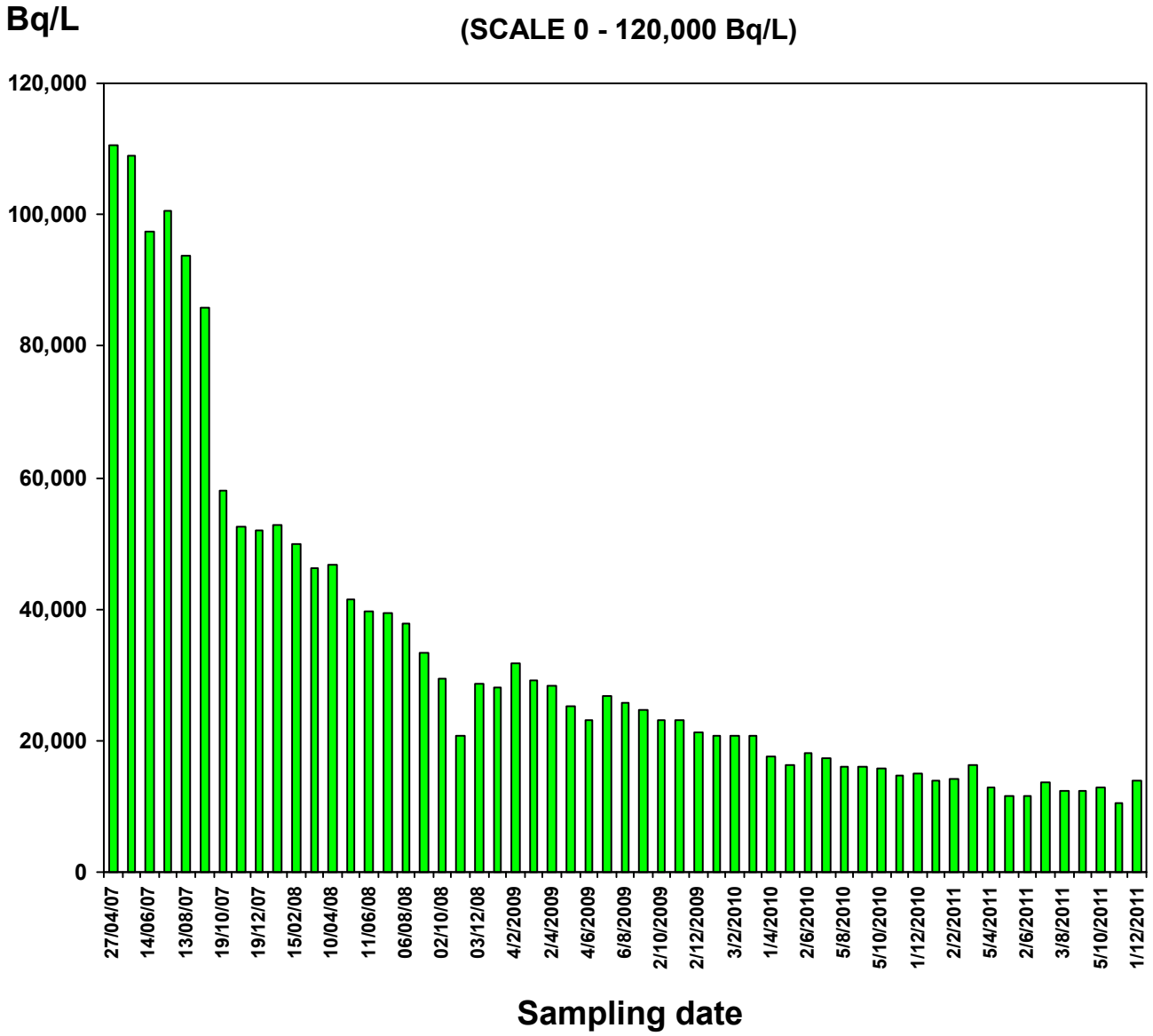


MONITORING RESULTS
MW07-17

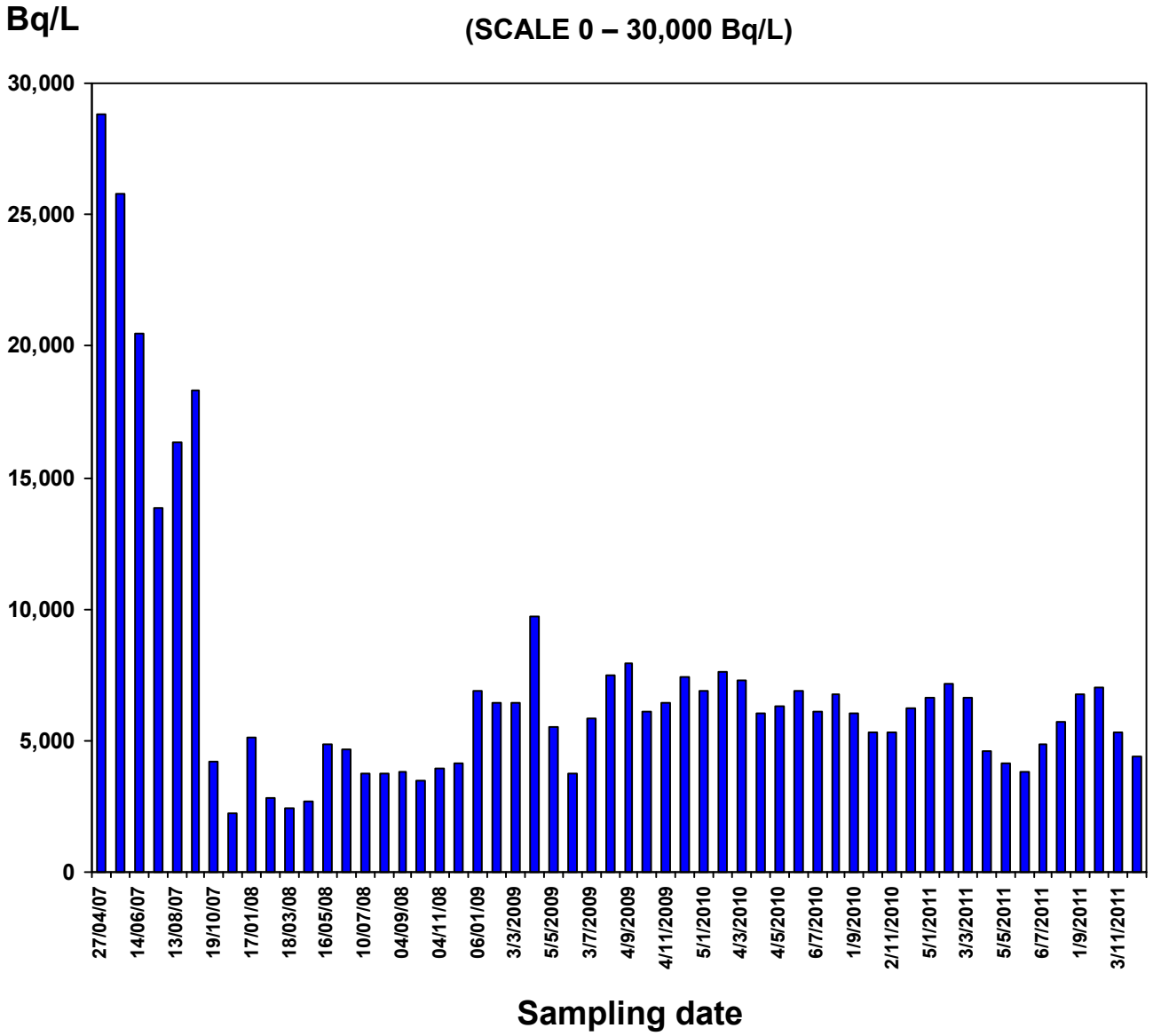
(SCALE 0 – 3,000 Bq/L)



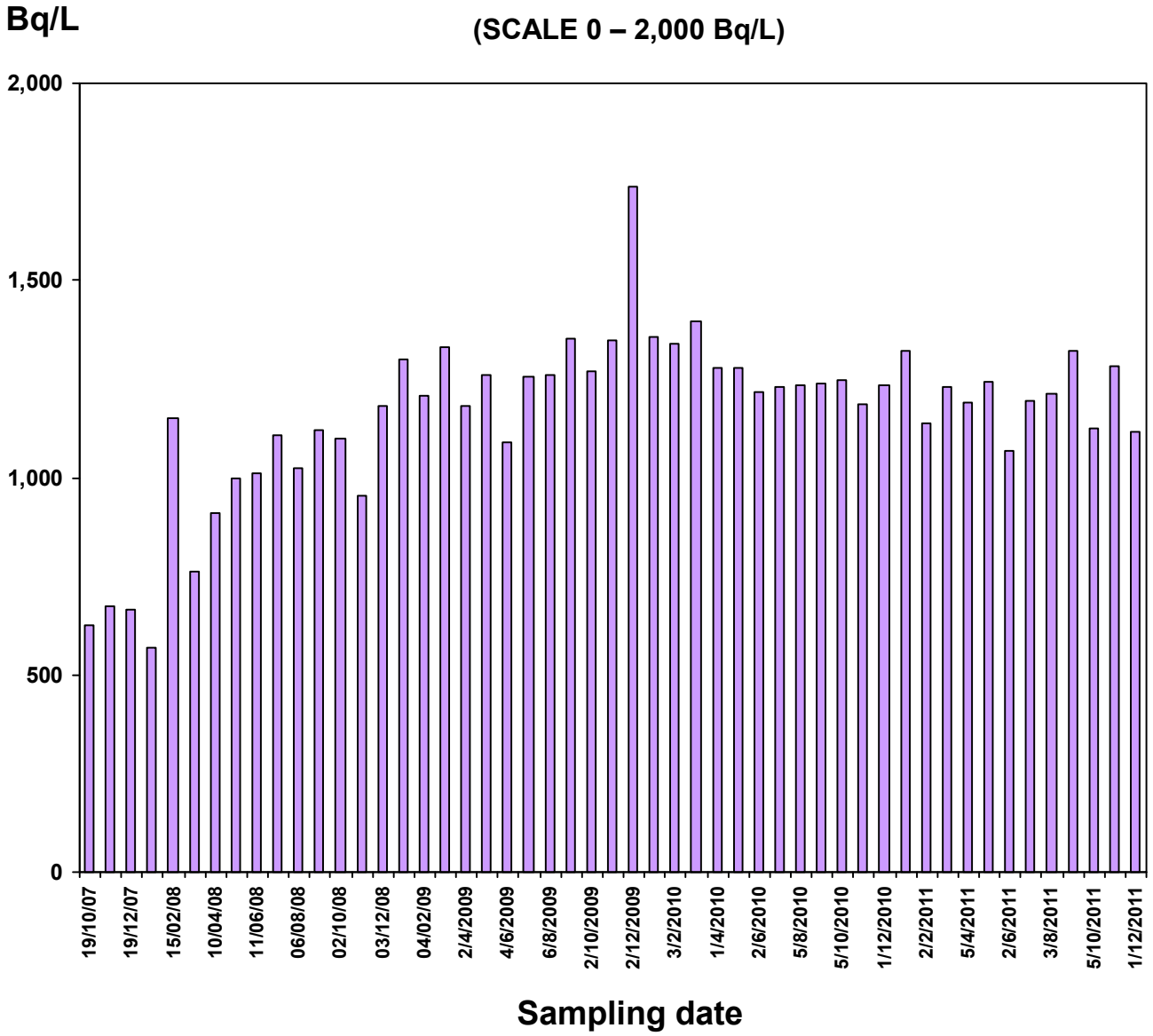
MONITORING RESULTS
MW07-18



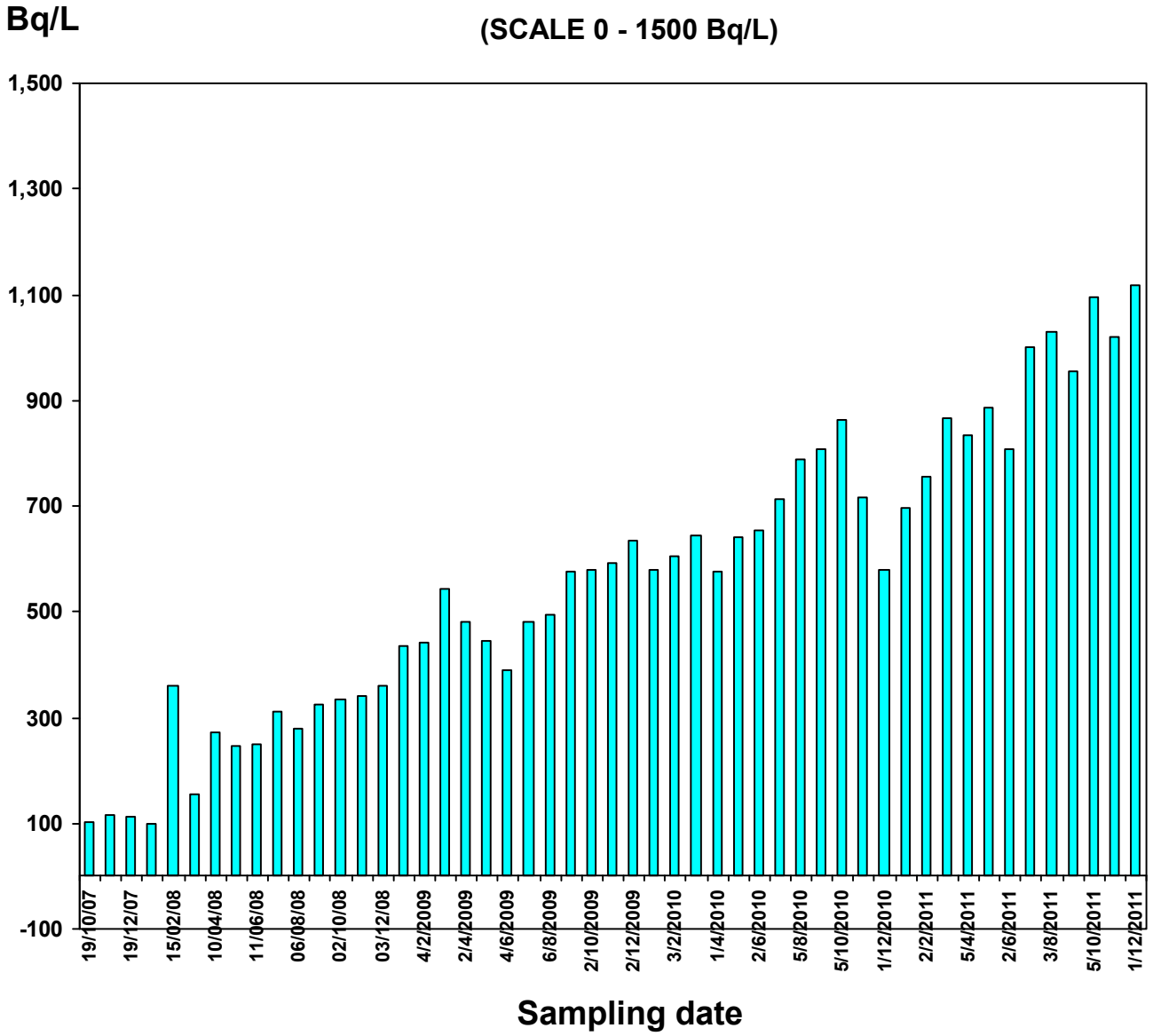
MONITORING RESULTS
MW07-19



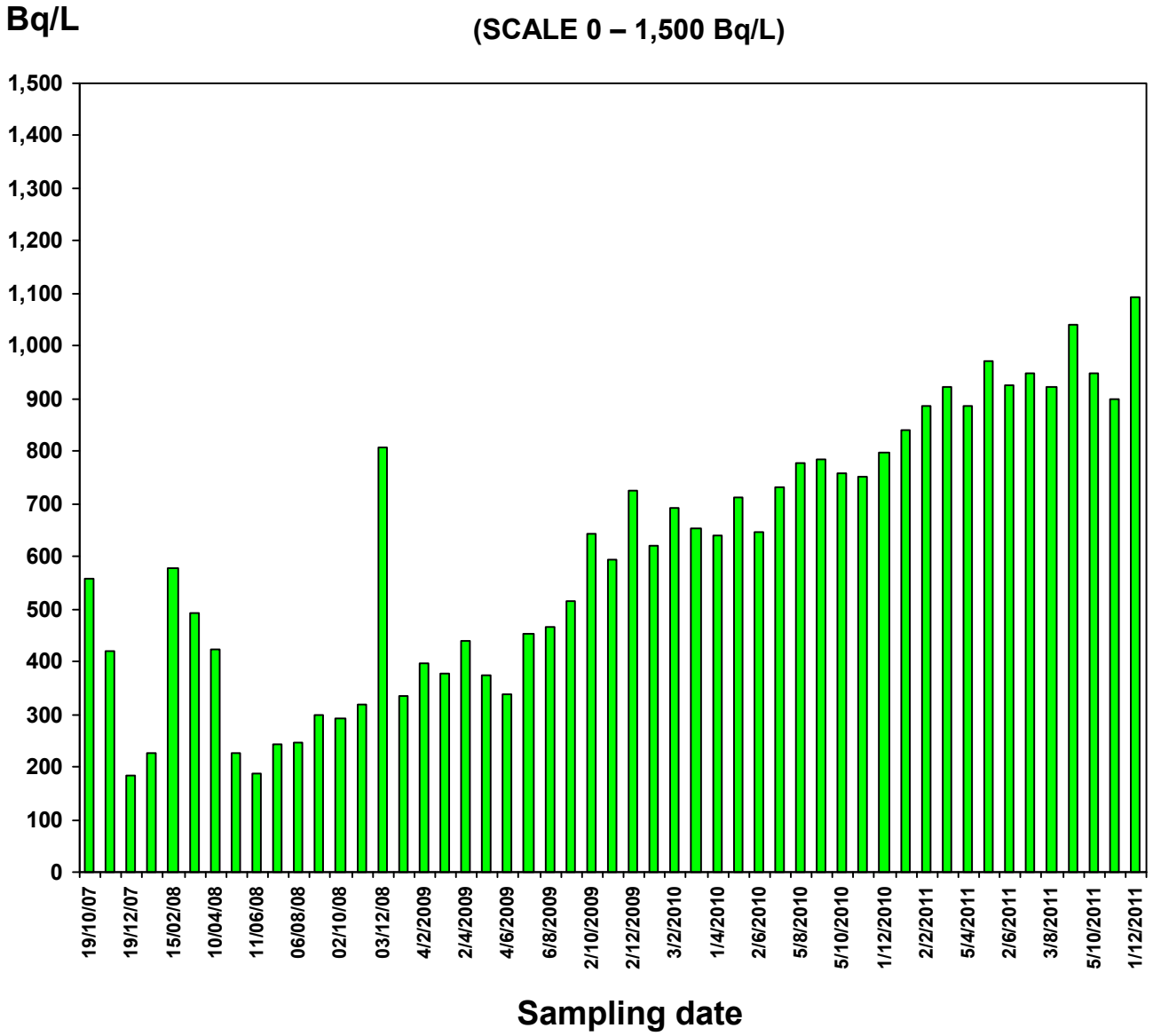
MONITORING RESULTS
MW07-20



MONITORING RESULTS
MW07-21

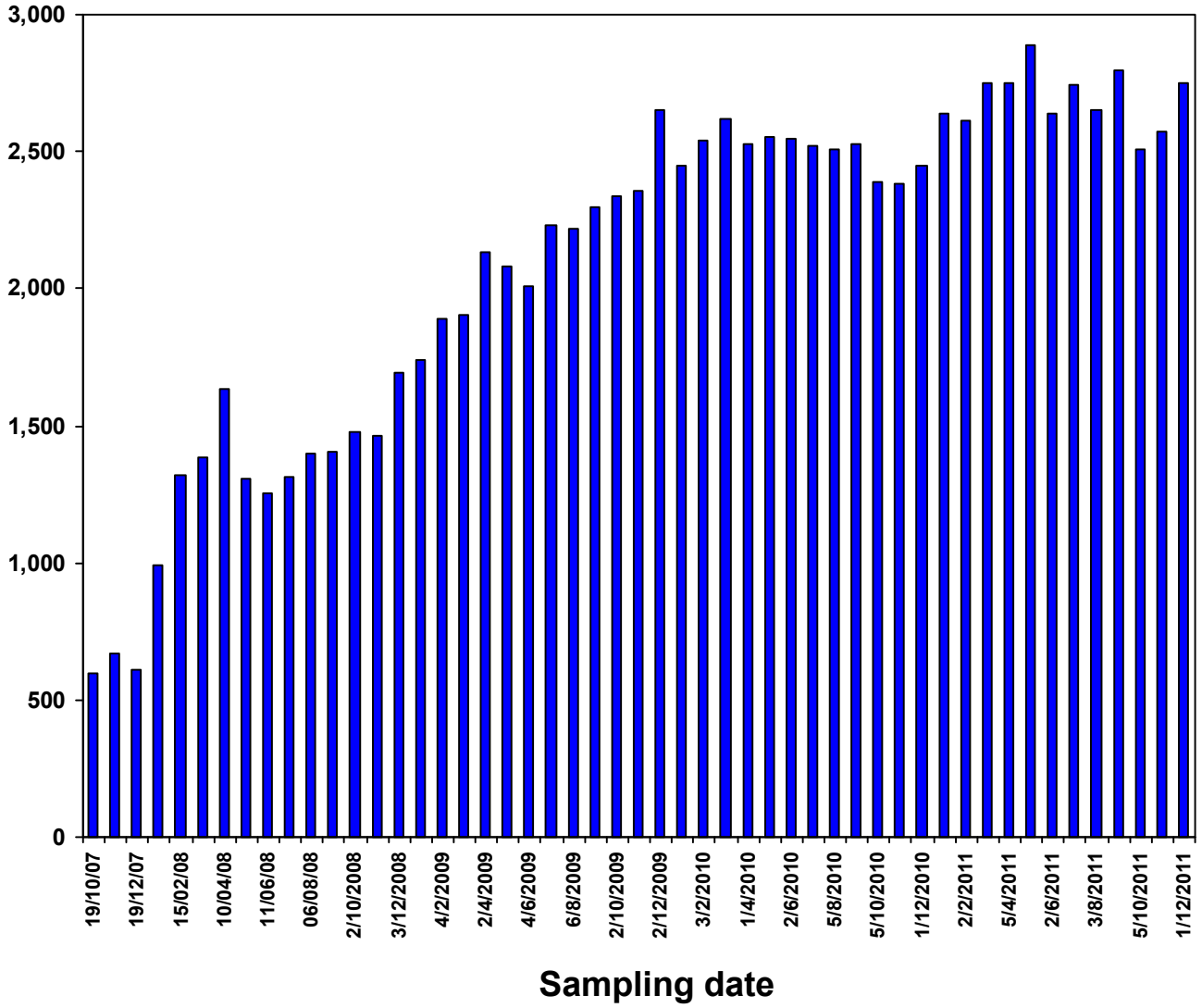


MONITORING RESULTS
MW07-22

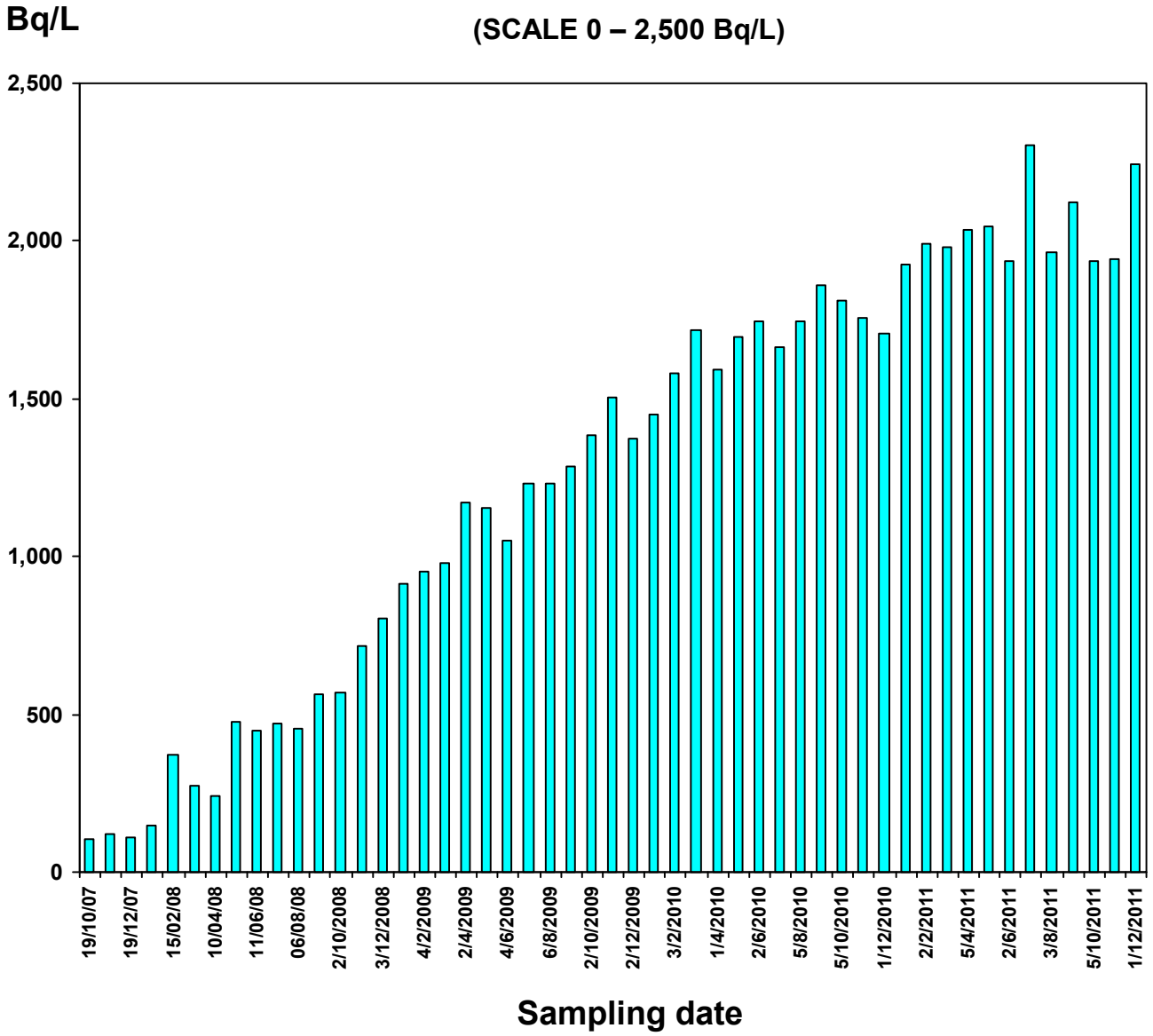


MONITORING RESULTS
MW07-23

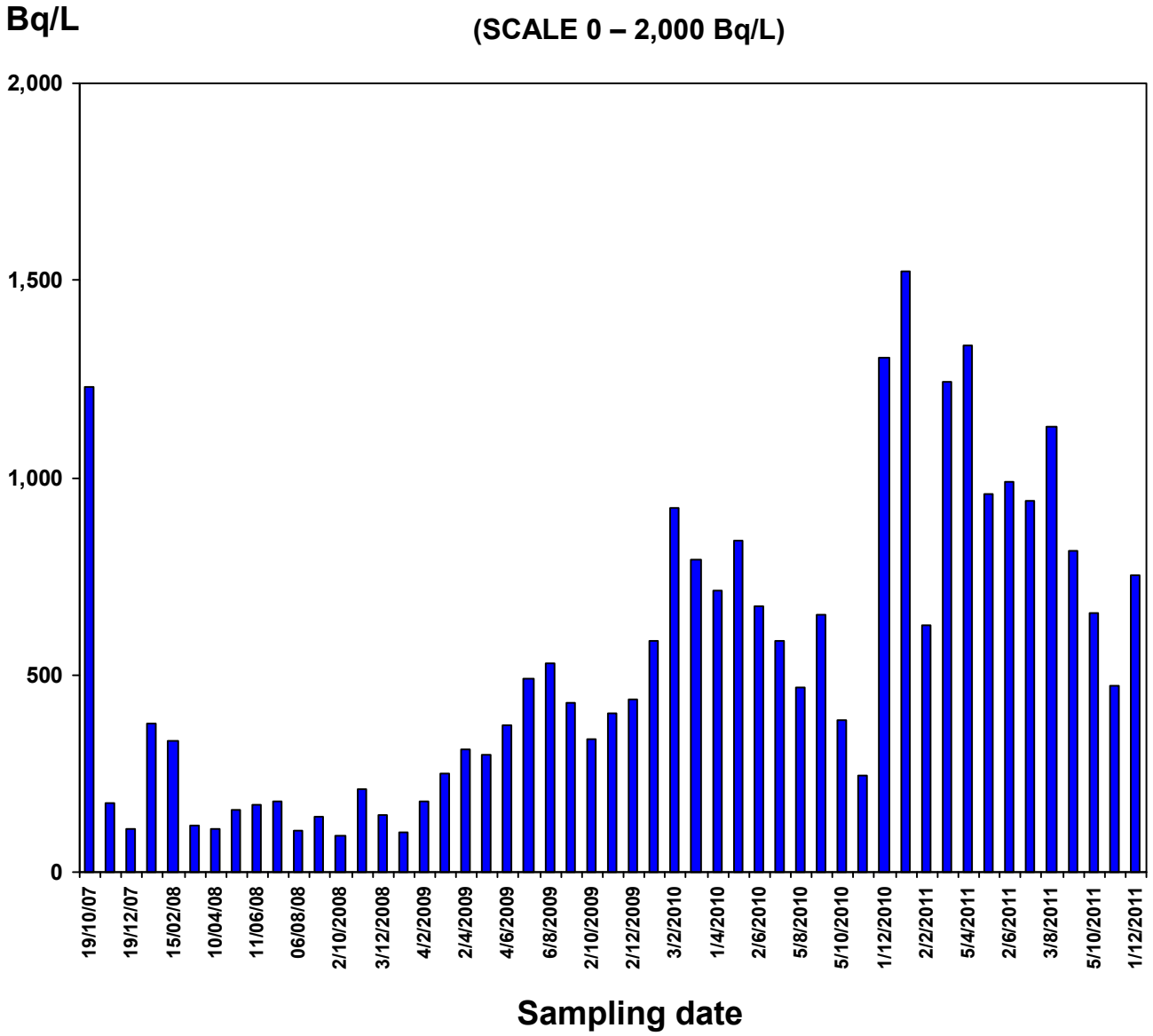
(SCALE 0 – 3,000 Bq/L)



MONITORING RESULTS
MW07-24

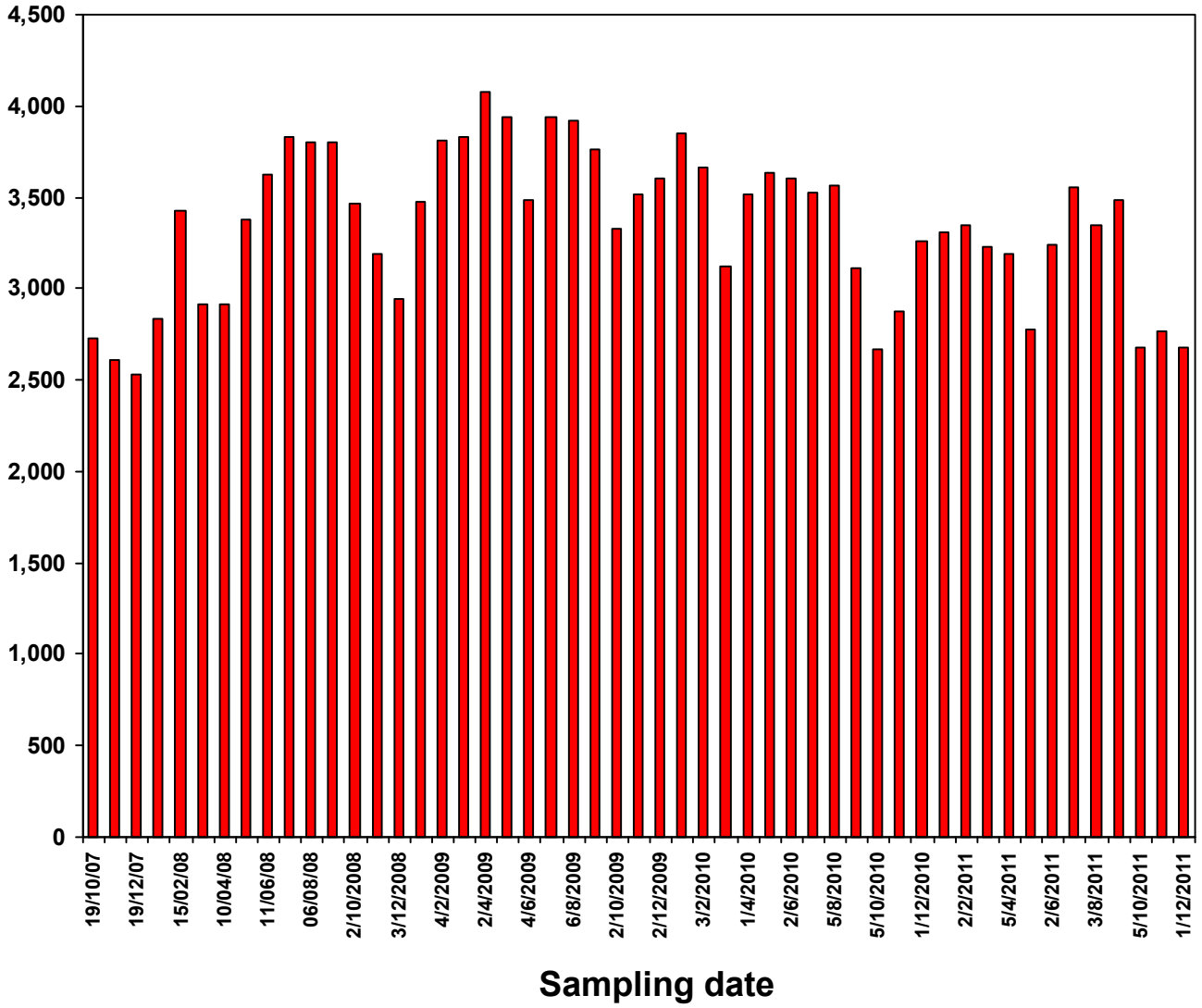


MONITORING RESULTS
MW07-25



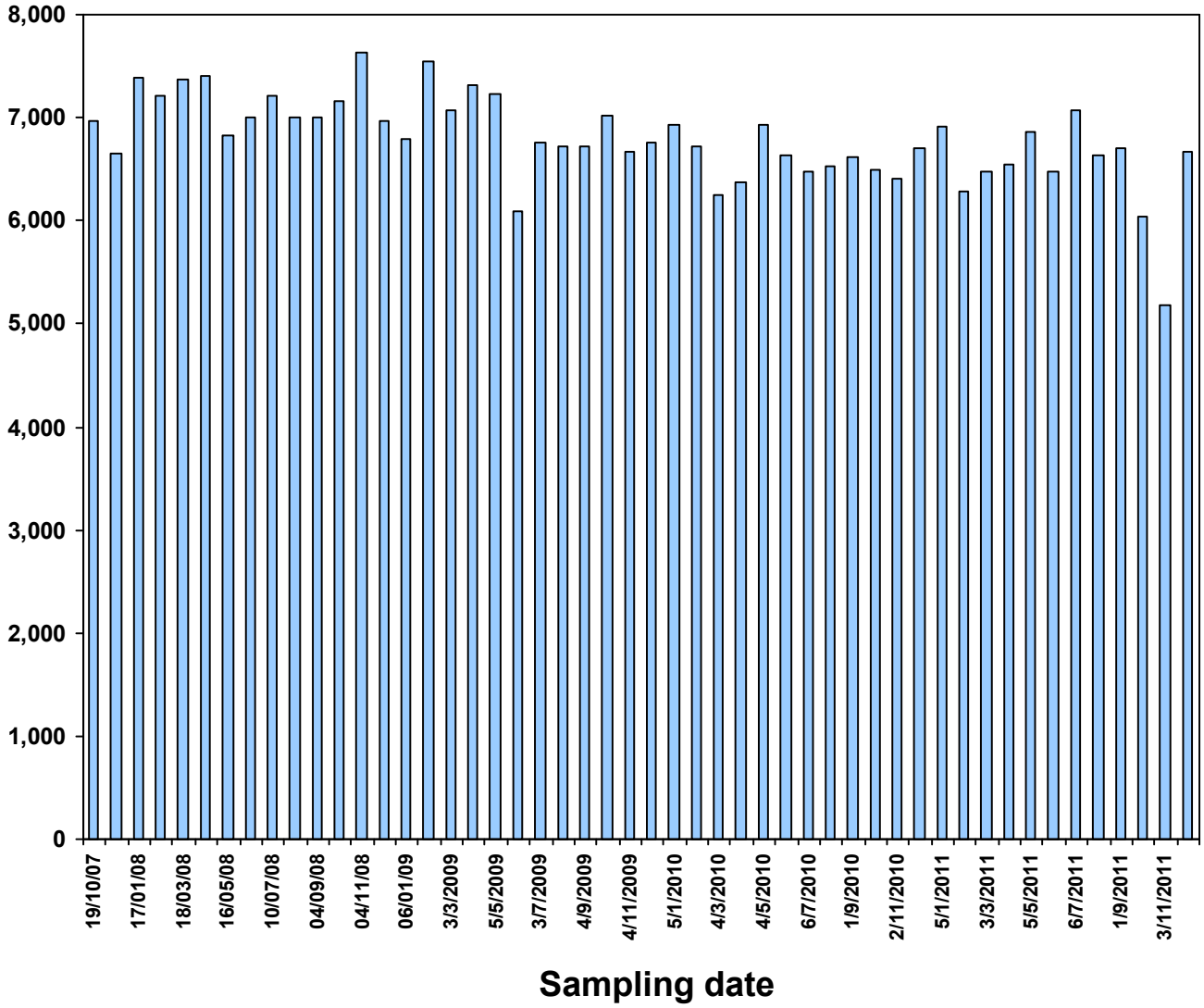
MONITORING RESULTS
MW07-26

(SCALE 0 – 4,500 Bq/L)



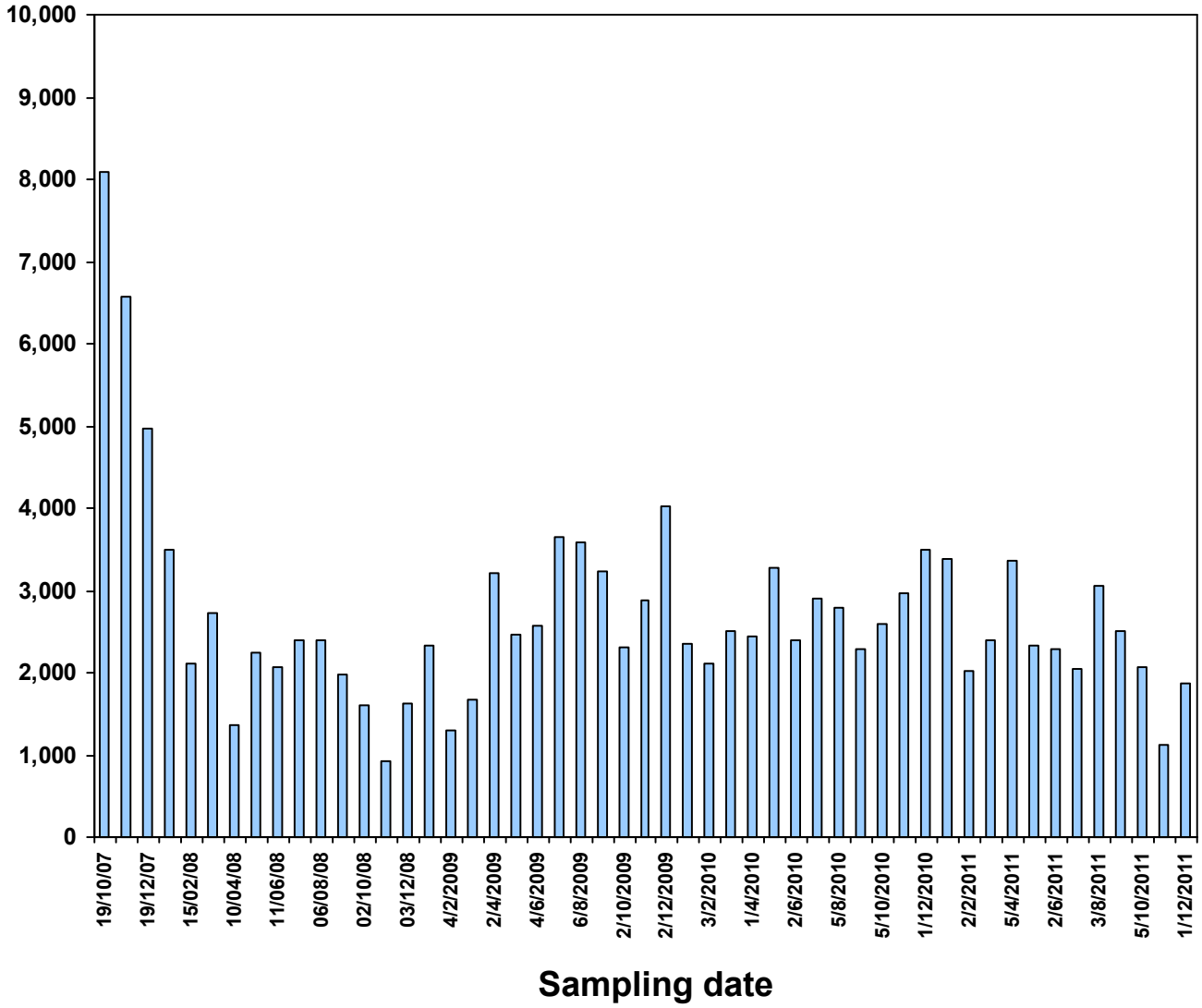
MONITORING RESULTS
MW07-27

(SCALE 0 – 8,000 Bq/L)

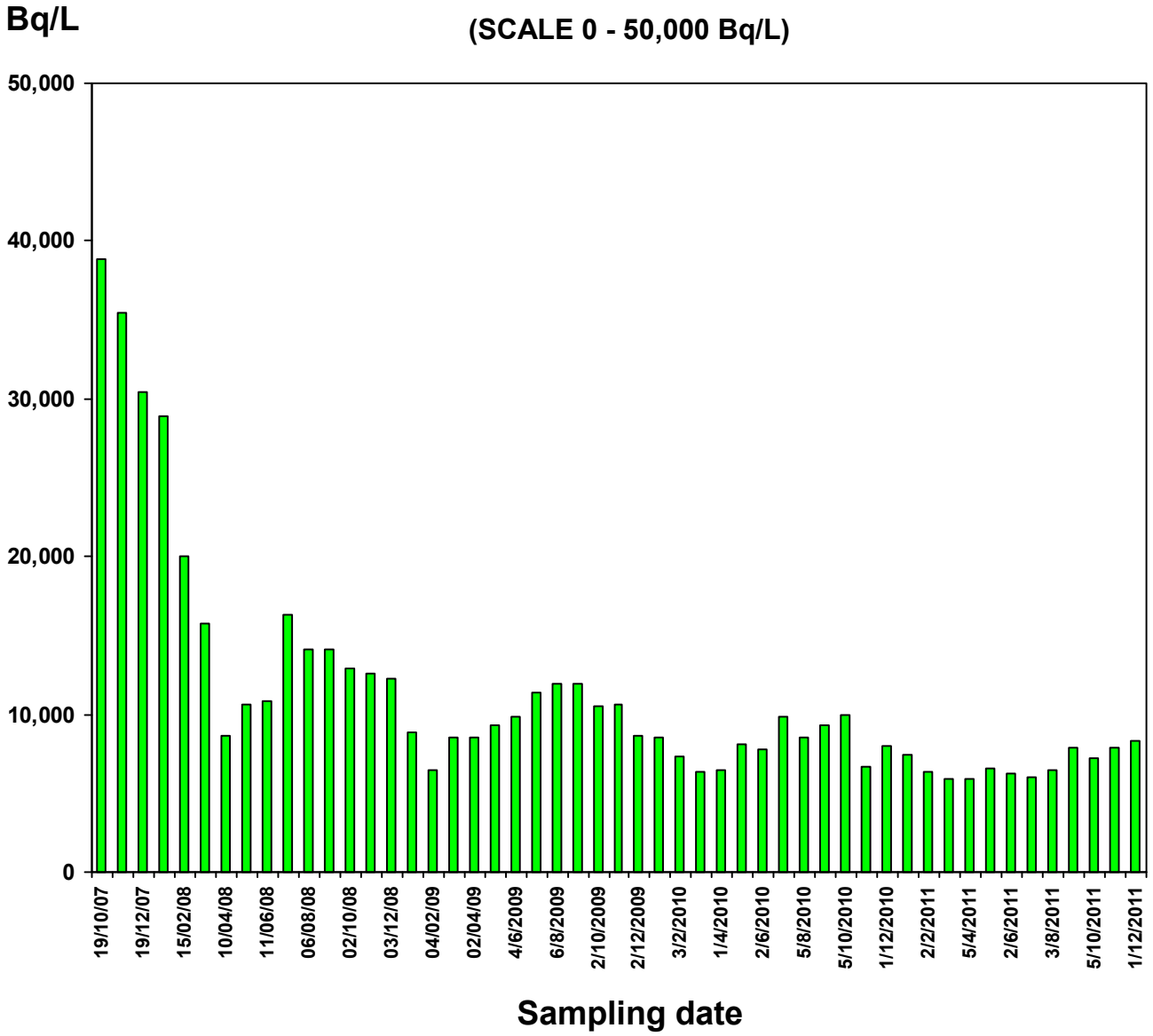


MONITORING RESULTS
MW07-28

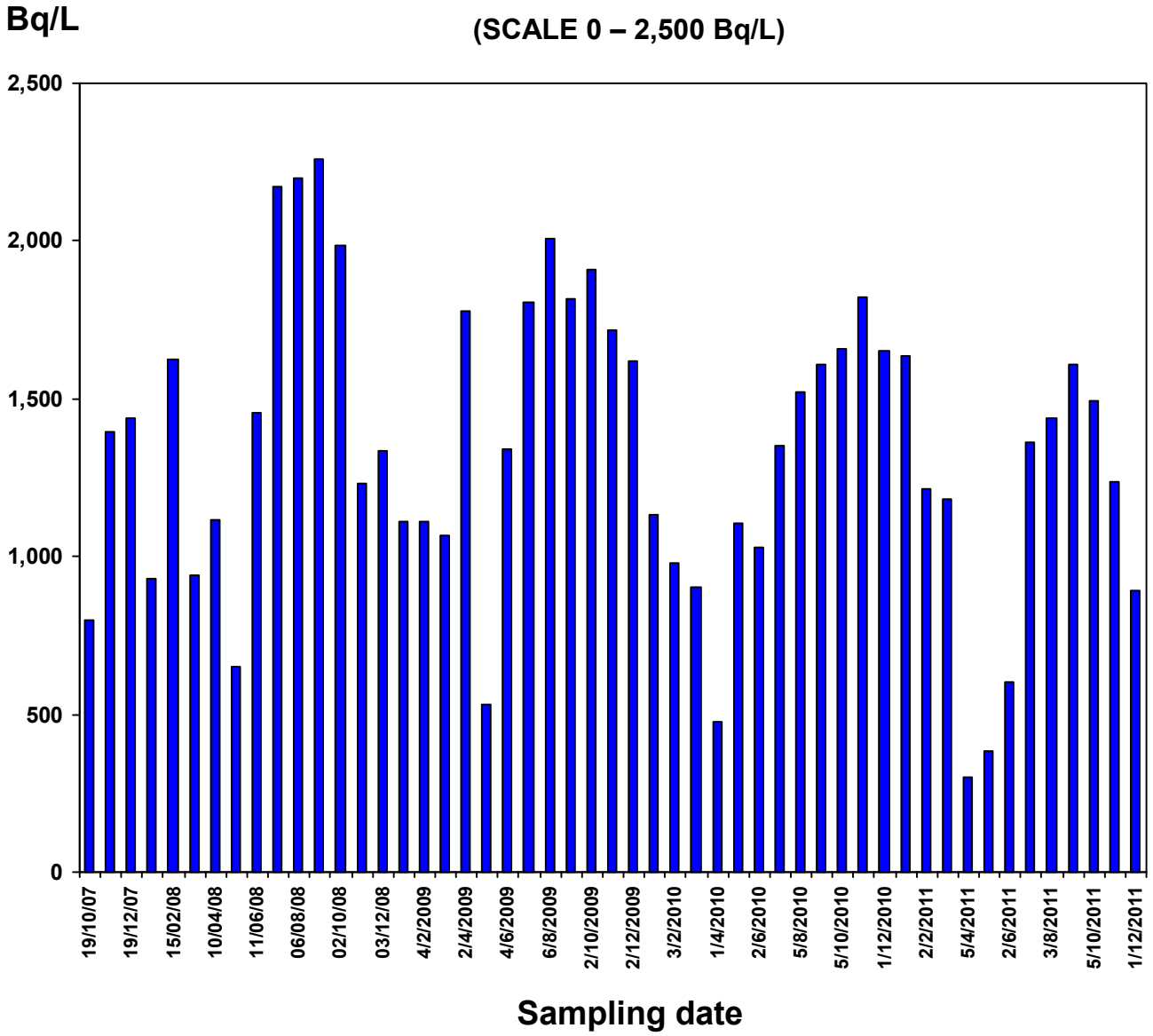
(SCALE 0 – 10,000 Bq/L)



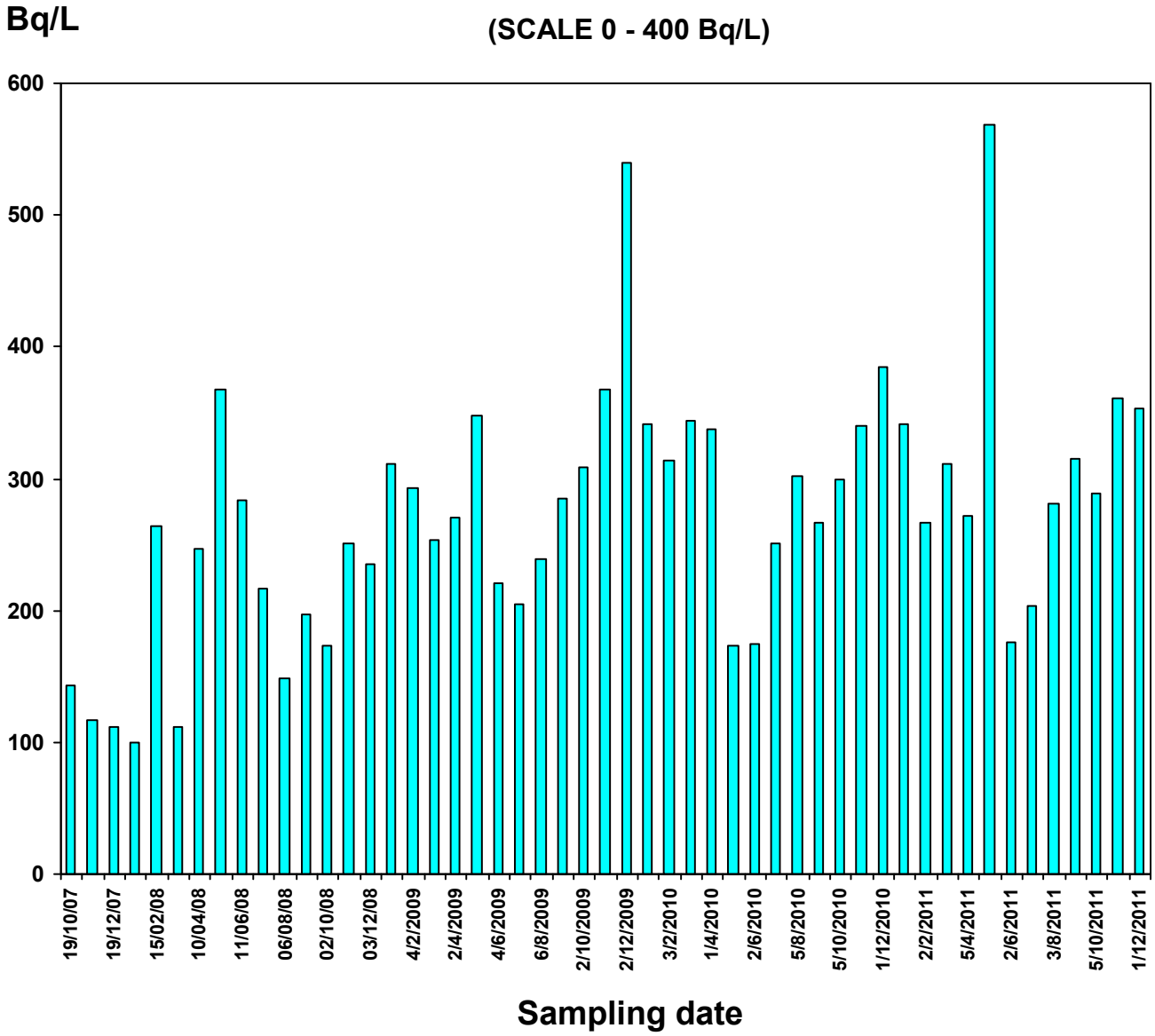
MONITORING RESULTS
MW07-29



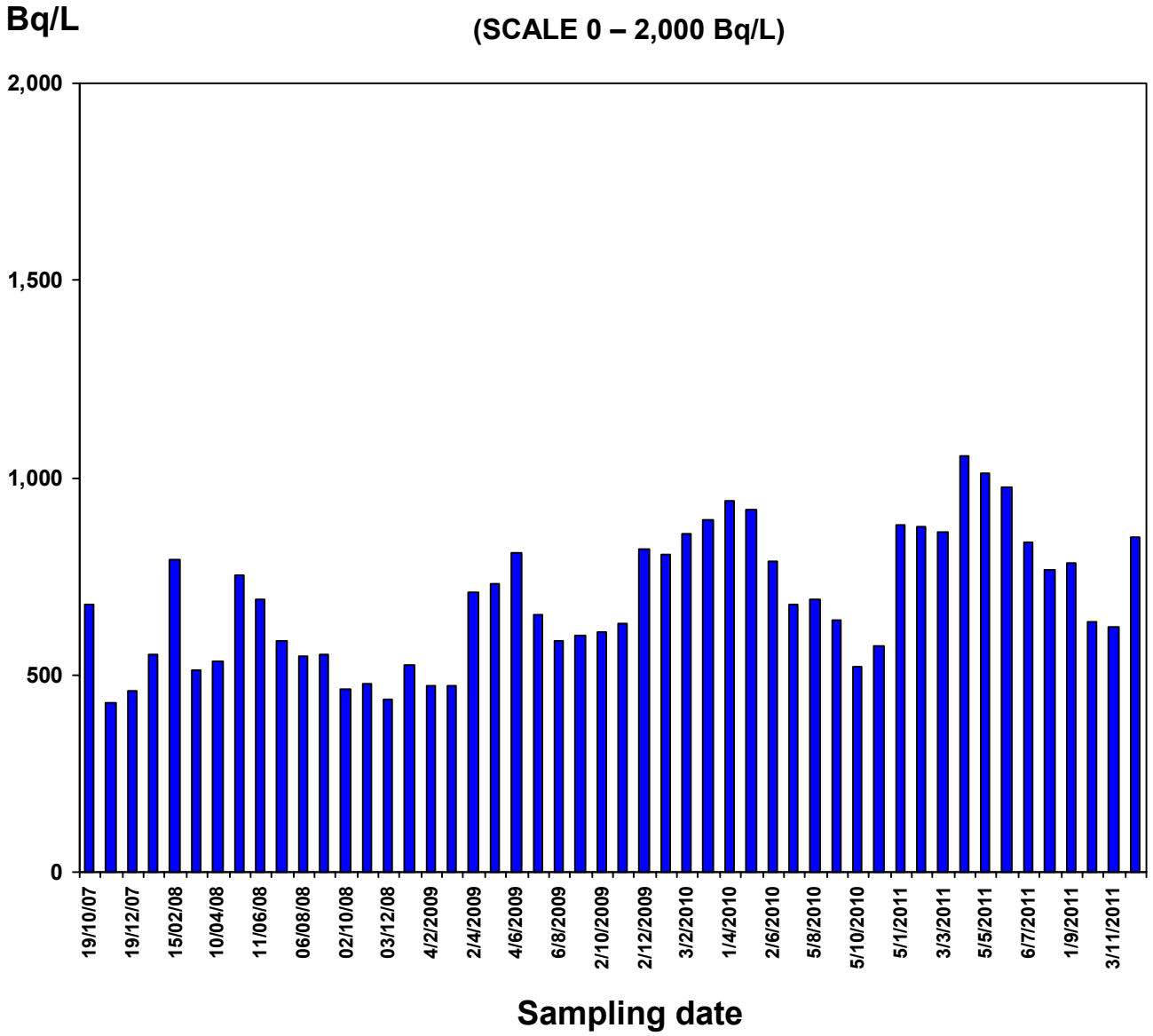
MONITORING RESULTS
MW07-31



MONITORING RESULTS
MW07-32



MONITORING RESULTS
MW07-33



MONITORING RESULTS
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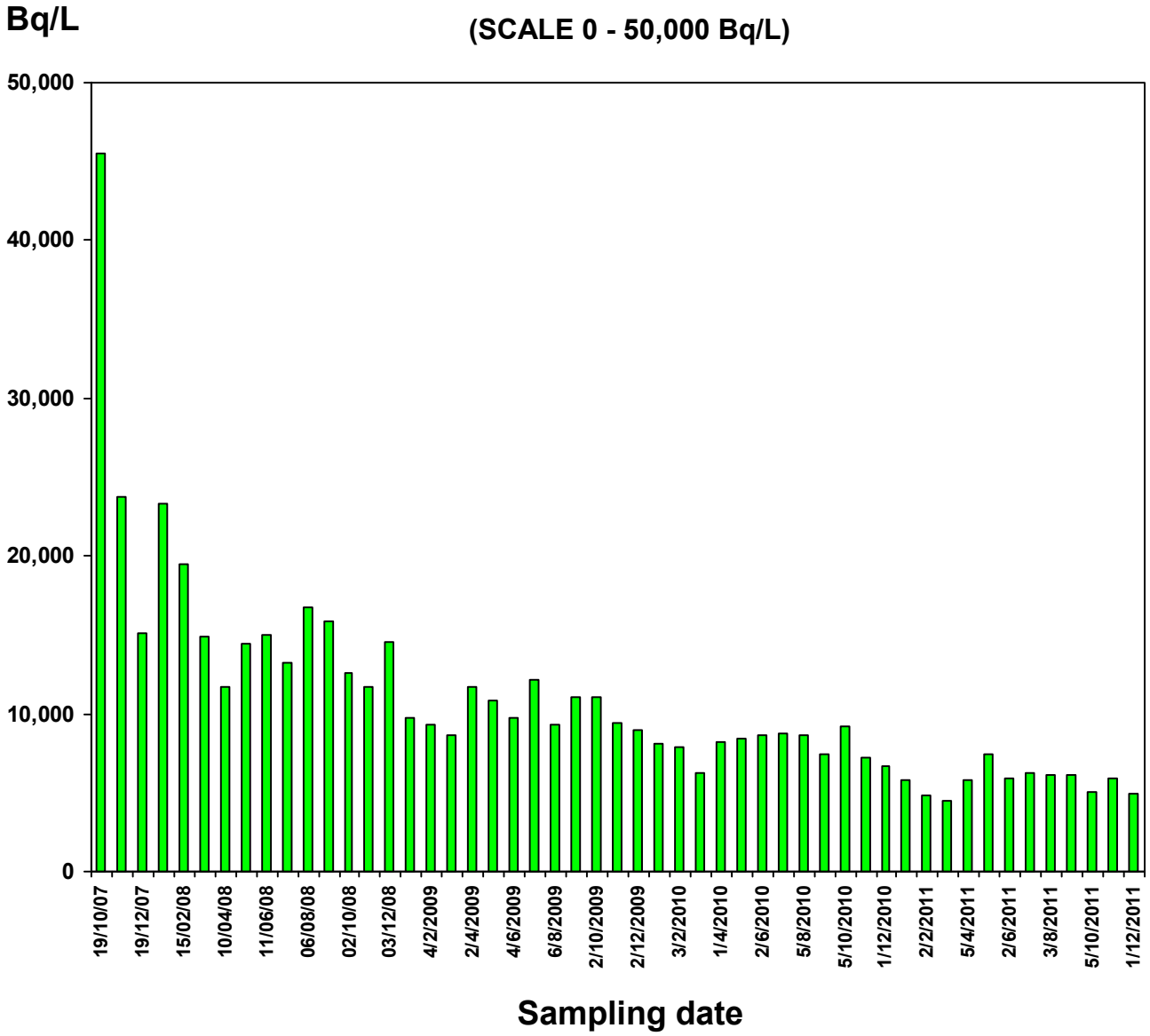
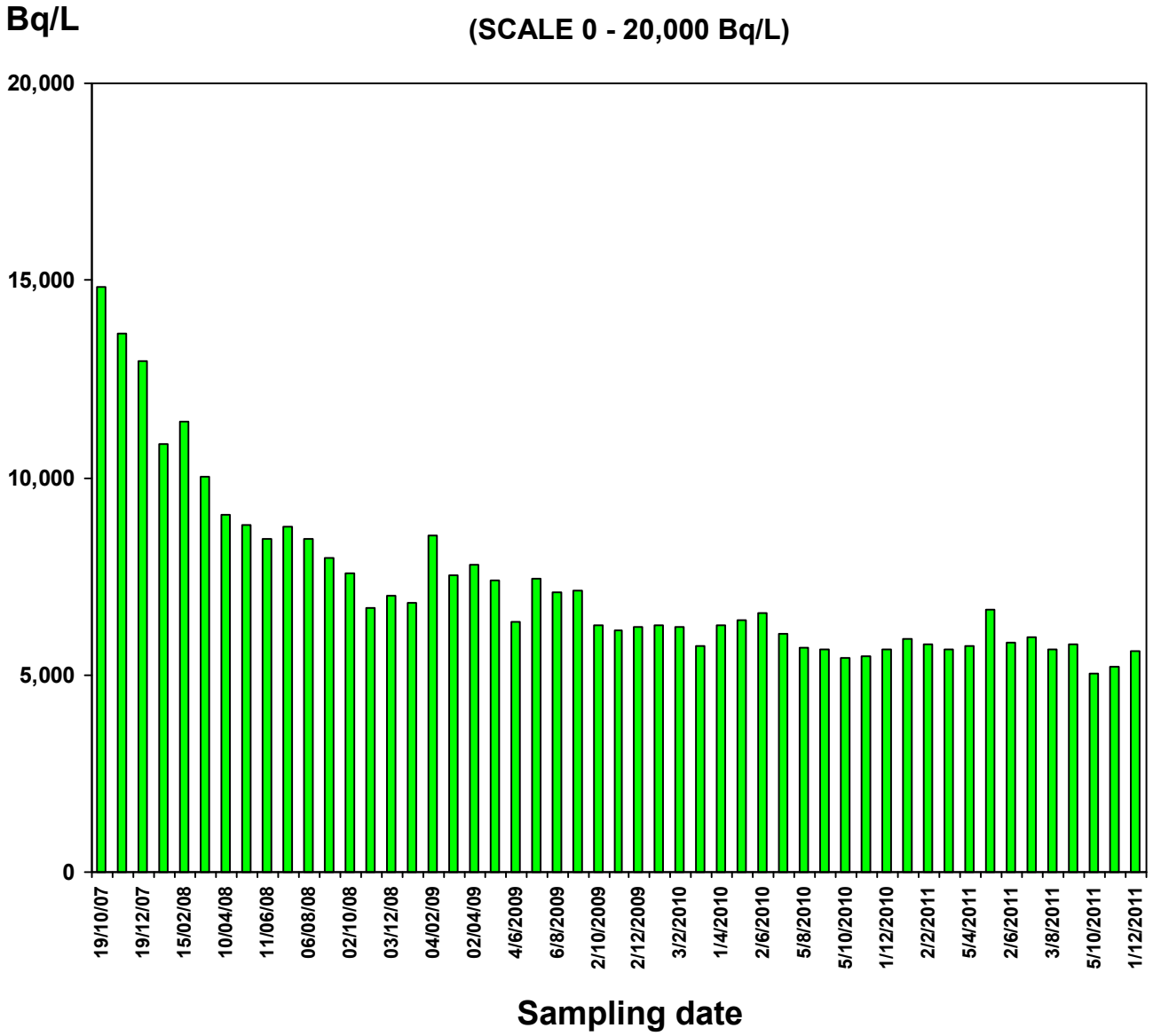
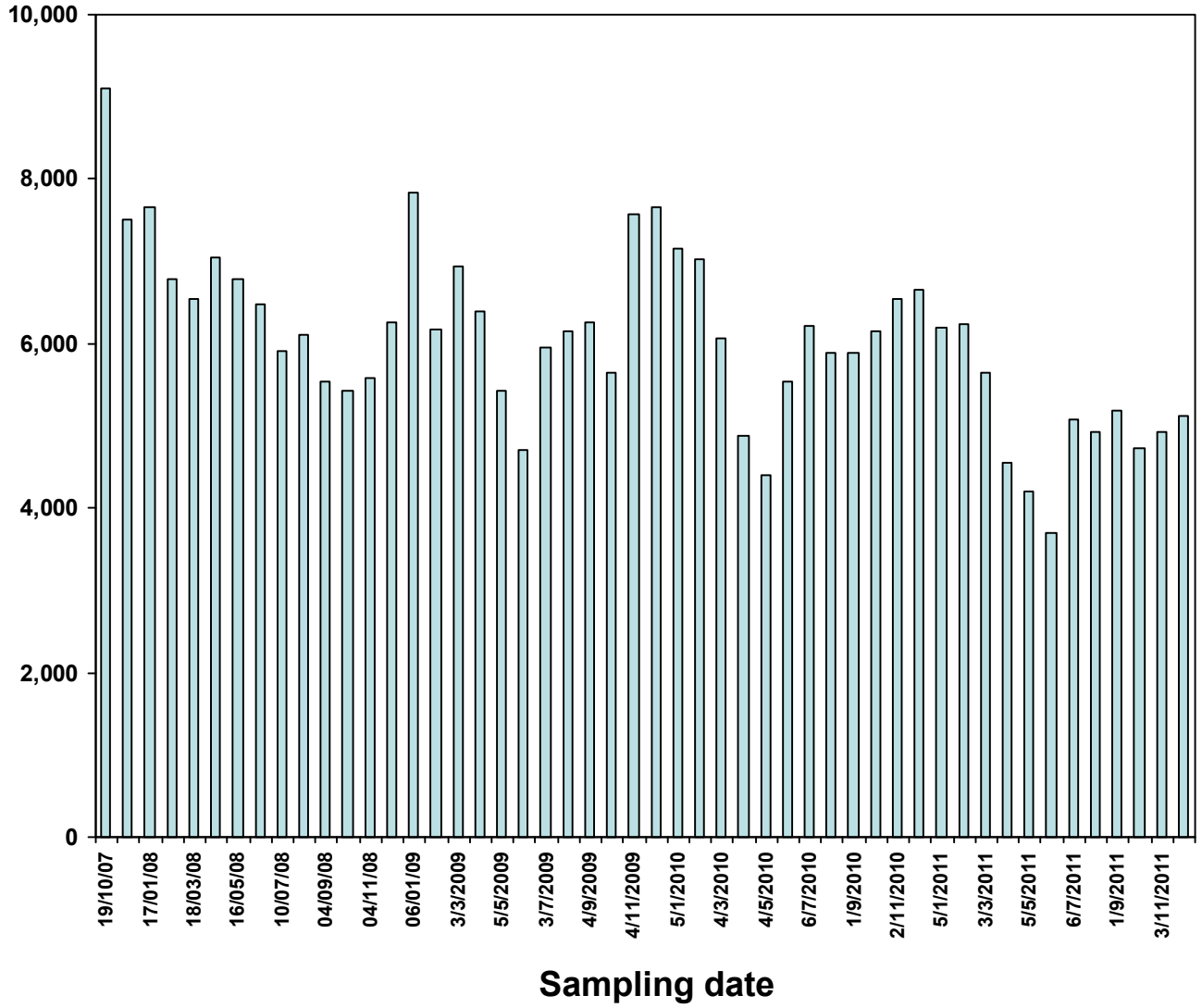


MONITORING RESULTS
MW07-35

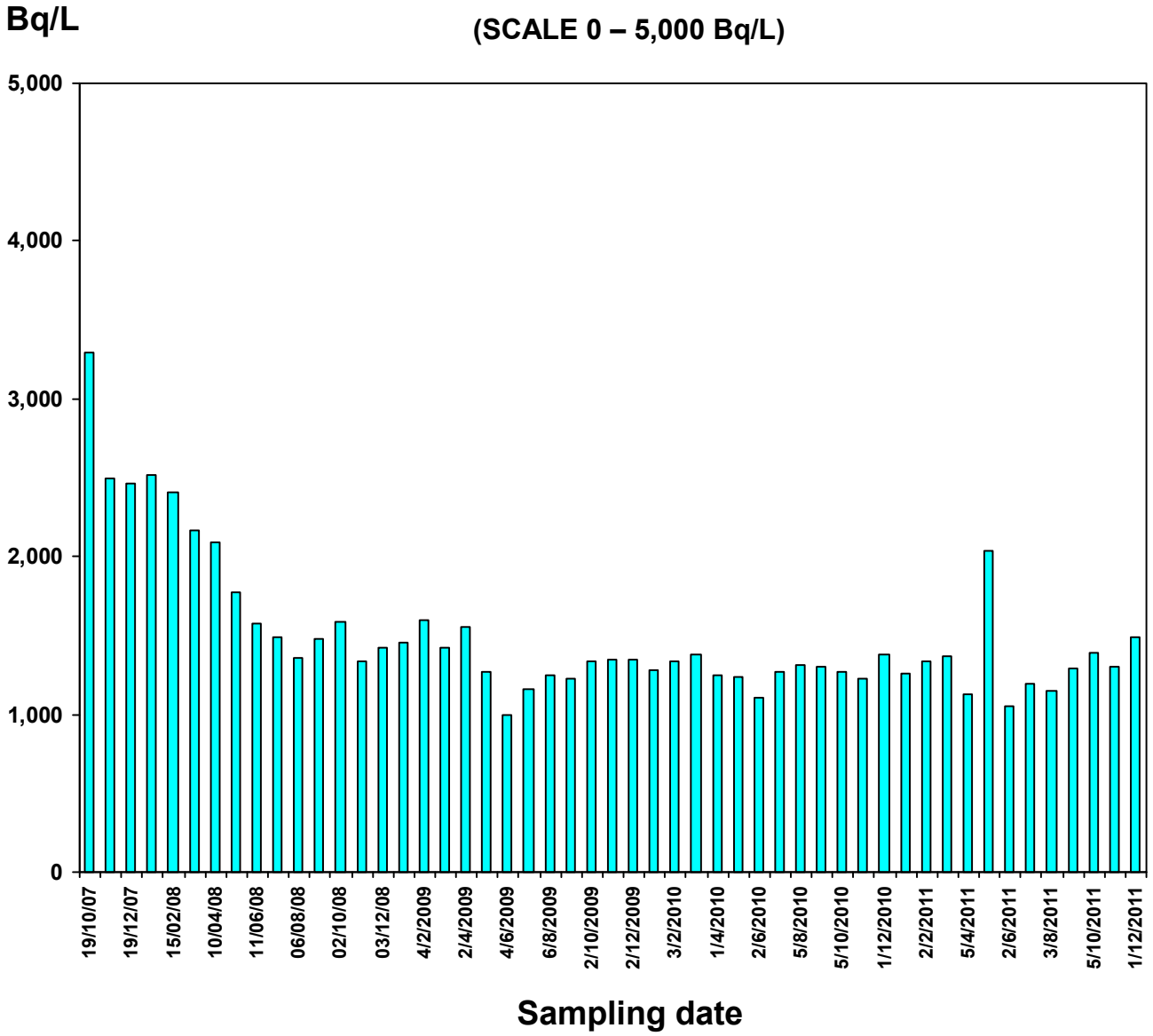


MONITORING RESULTS
MW07-36

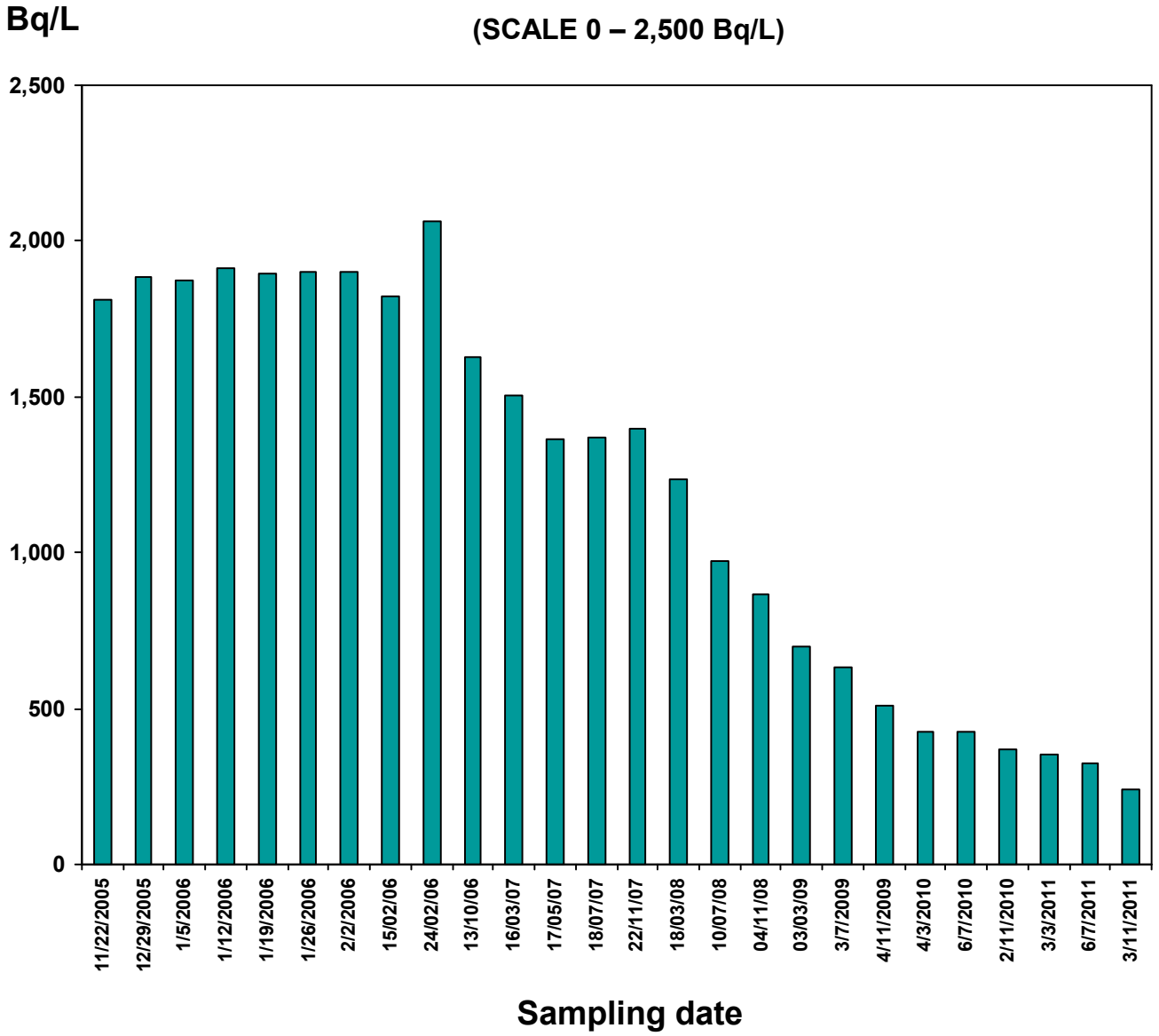
(SCALE 0 – 10,000 Bq/L)



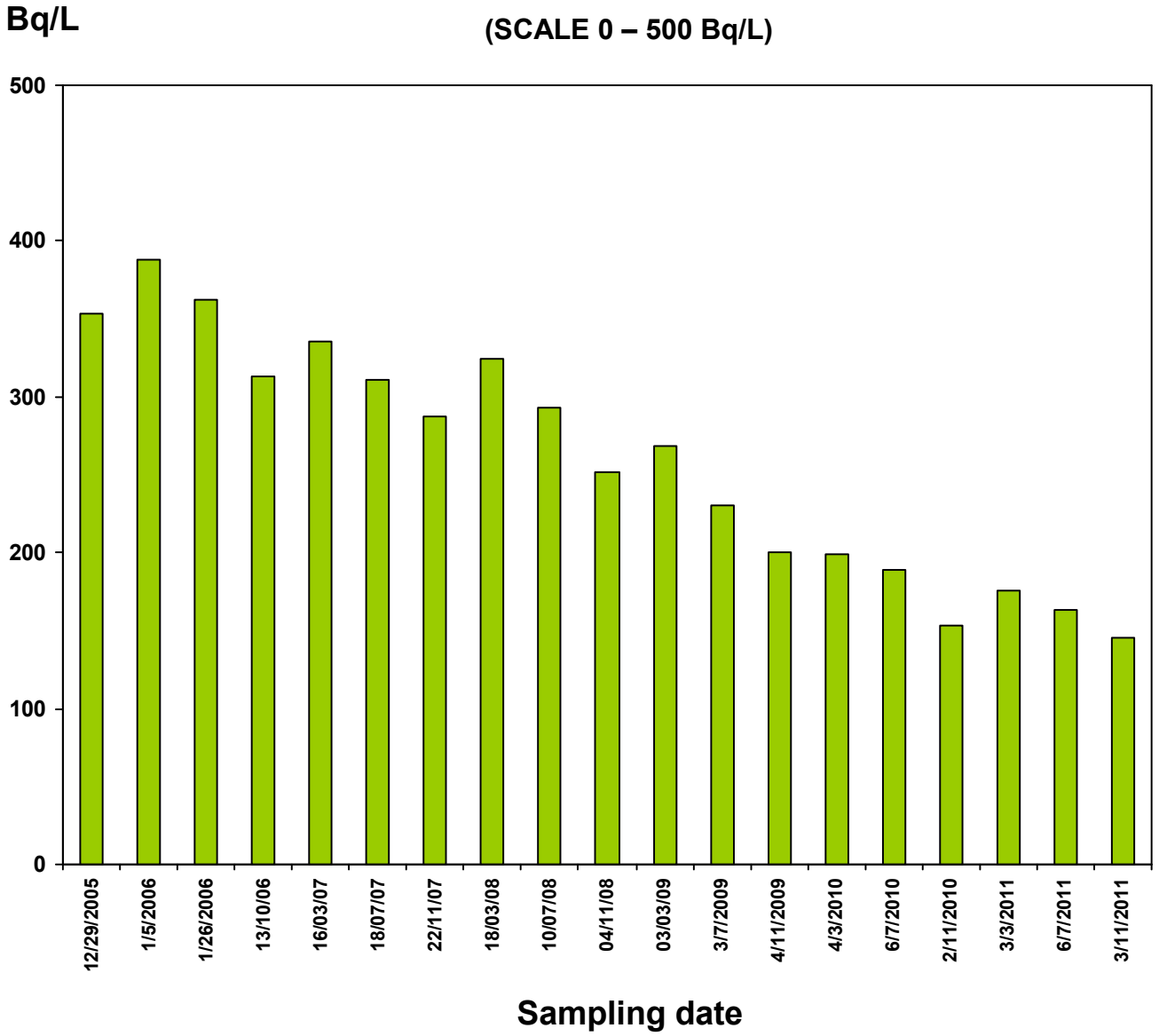
MONITORING RESULTS
MW07-37



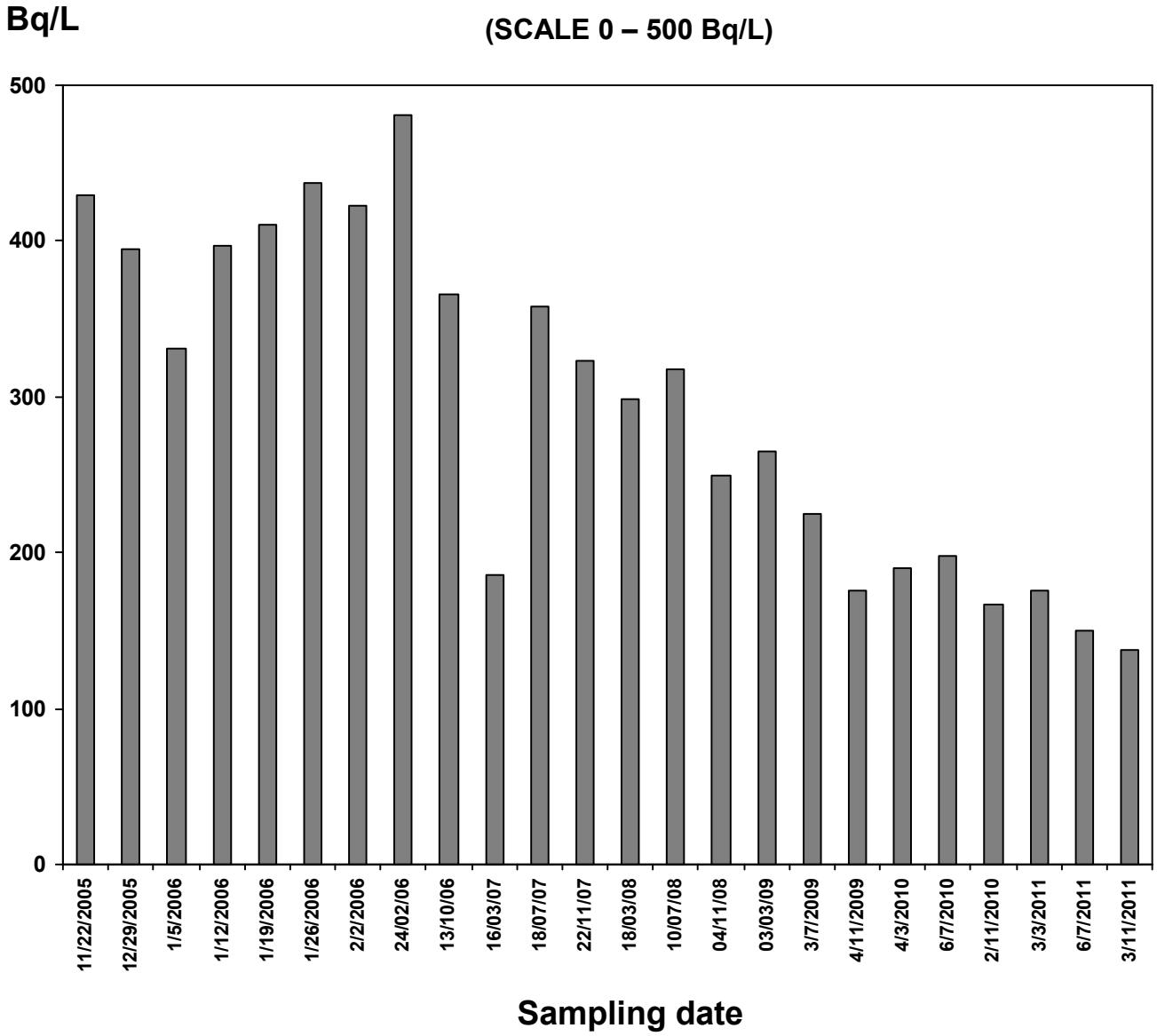
MONITORING RESULTS
RW-1



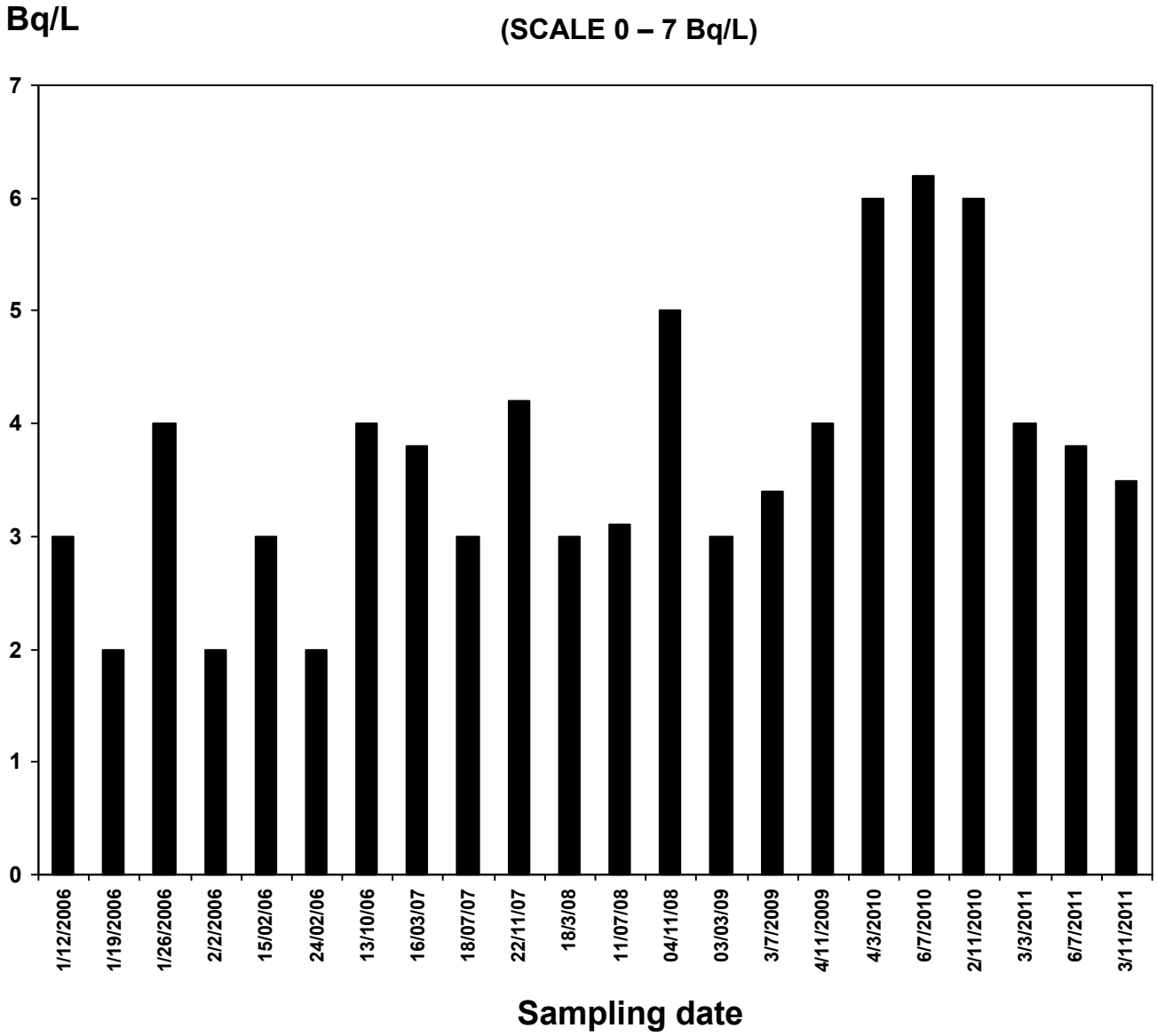
MONITORING RESULTS
RW-2



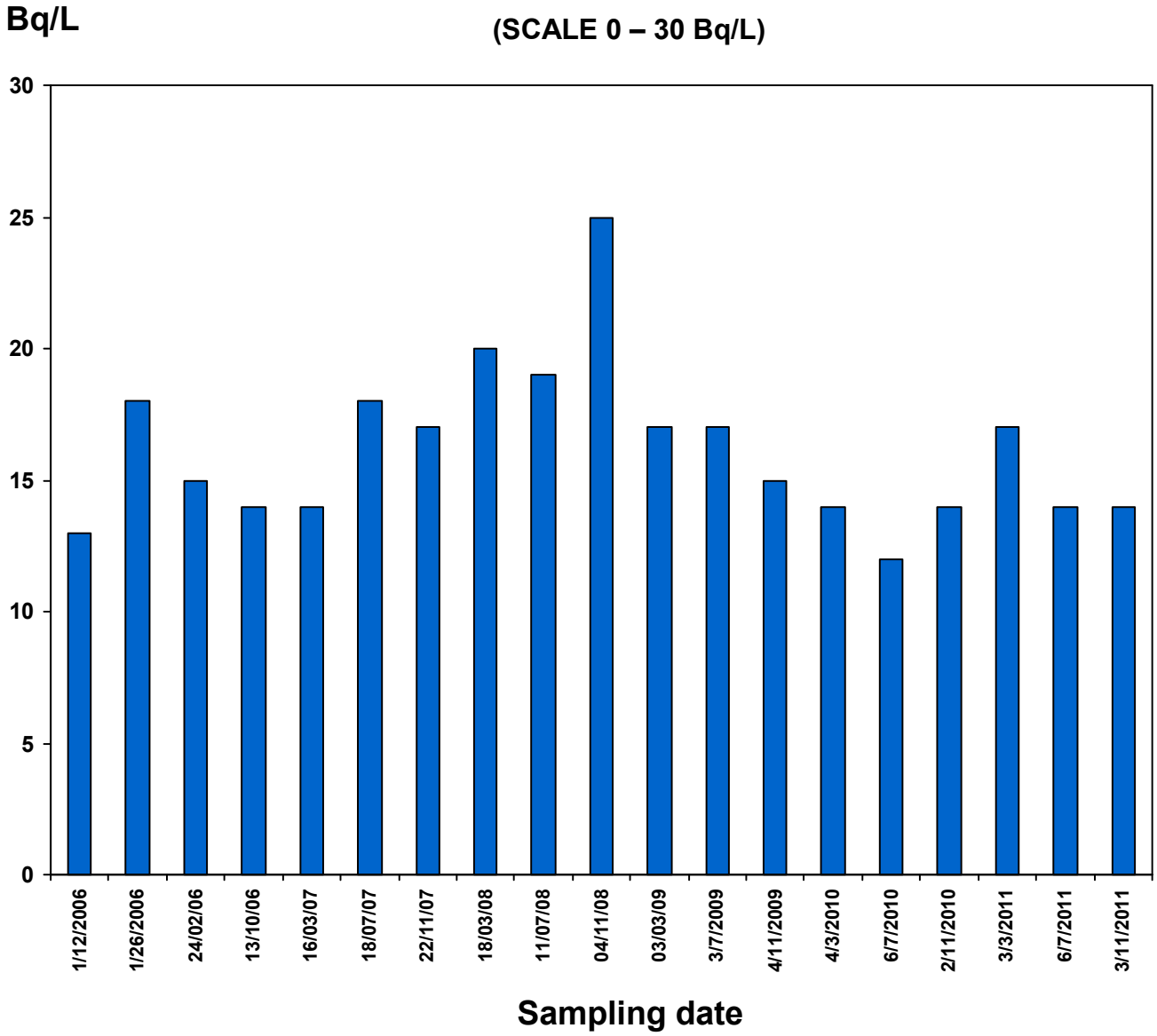
MONITORING RESULTS
RW-3



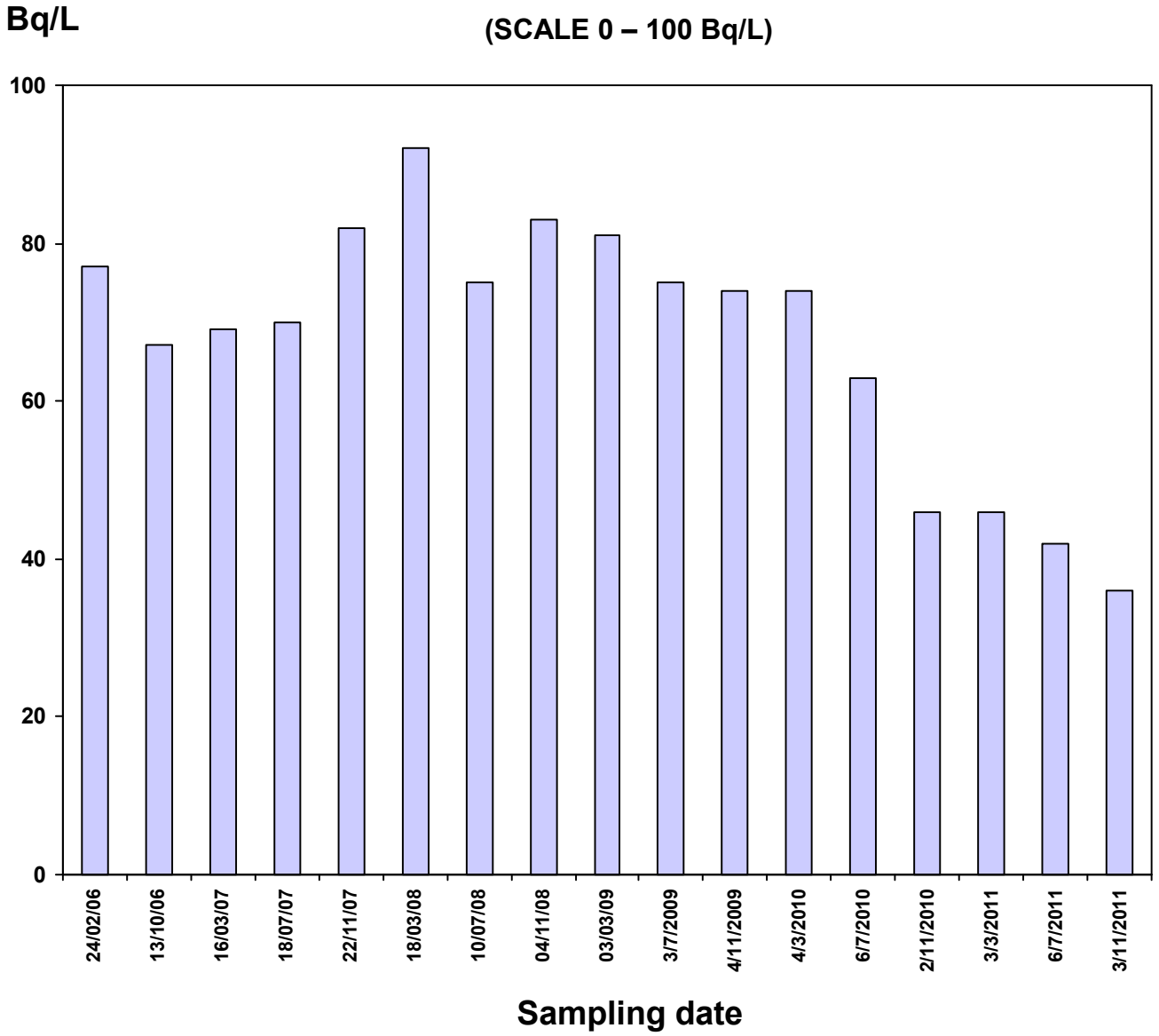
MONITORING RESULTS
RW-4



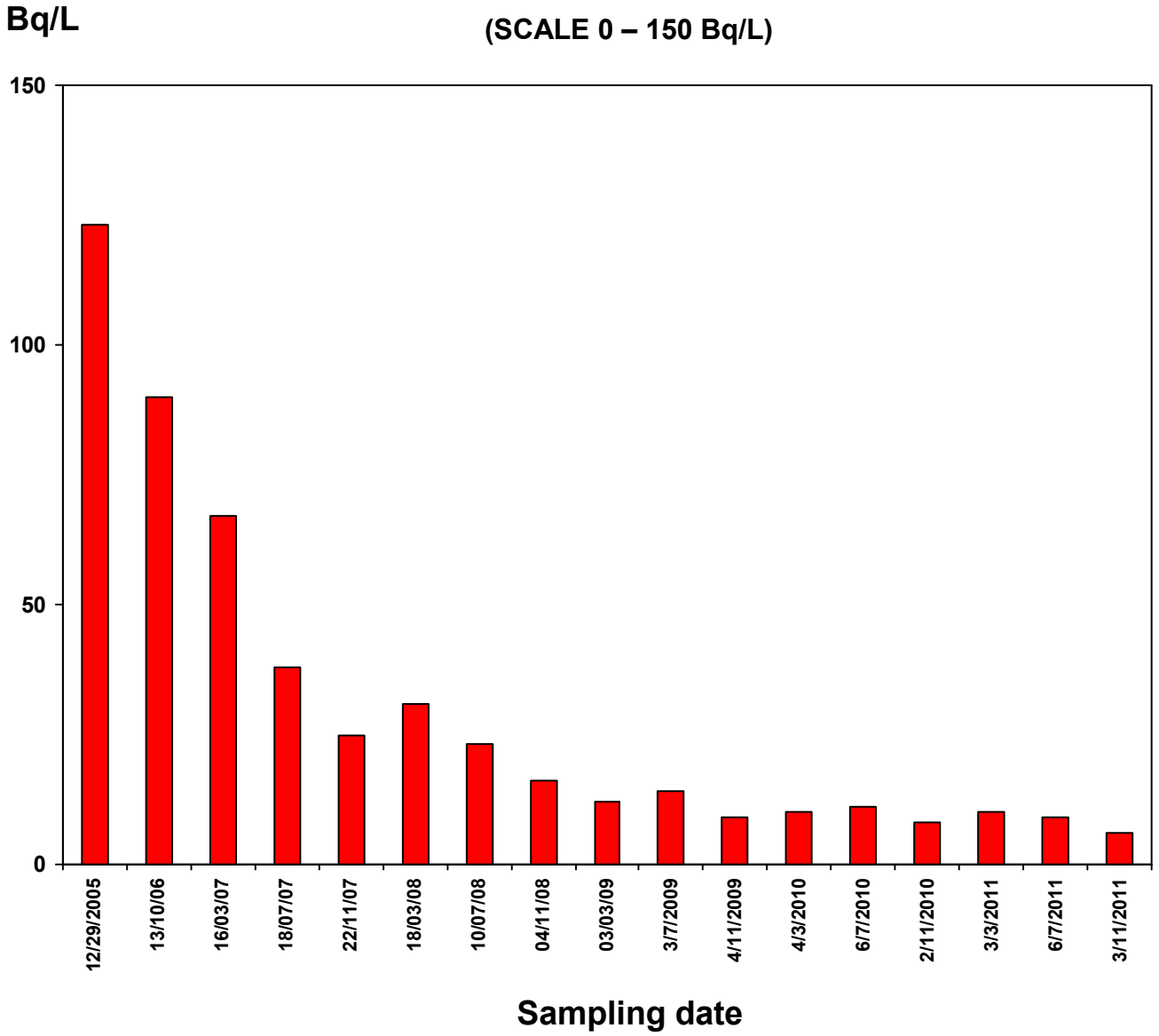
MONITORING RESULTS
RW-5



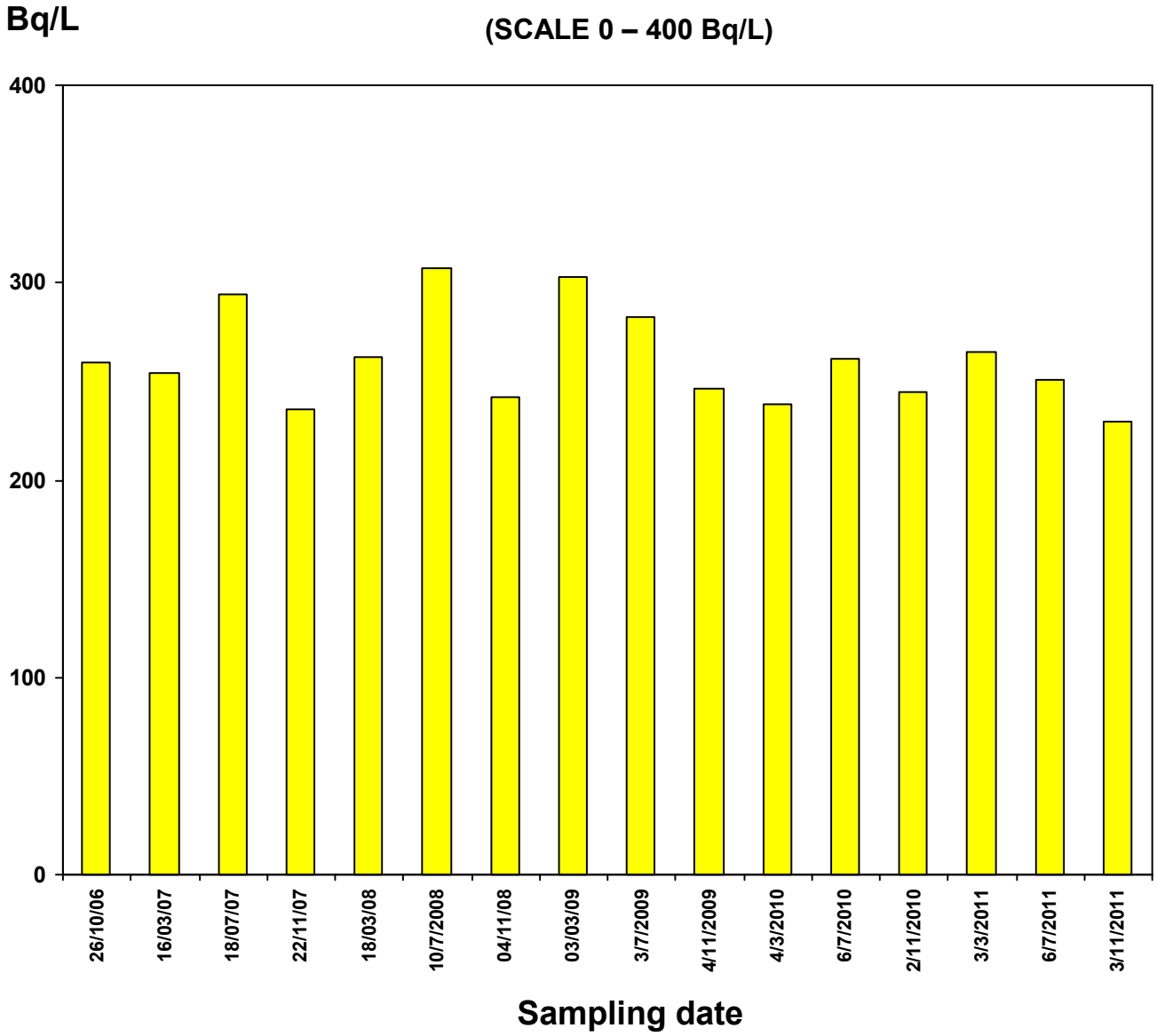
MONITORING RESULTS
RW-6



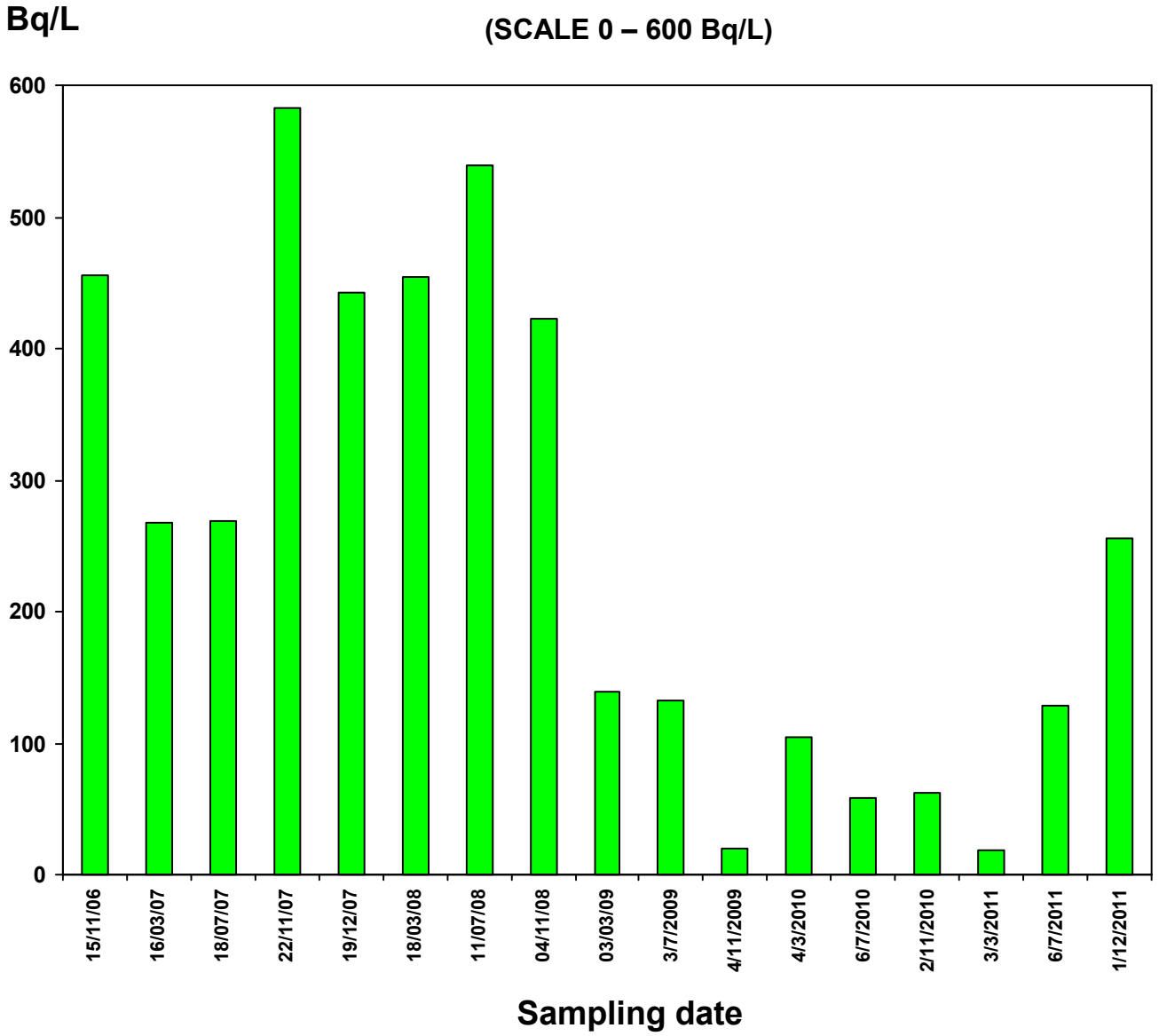
MONITORING RESULTS
RW-7



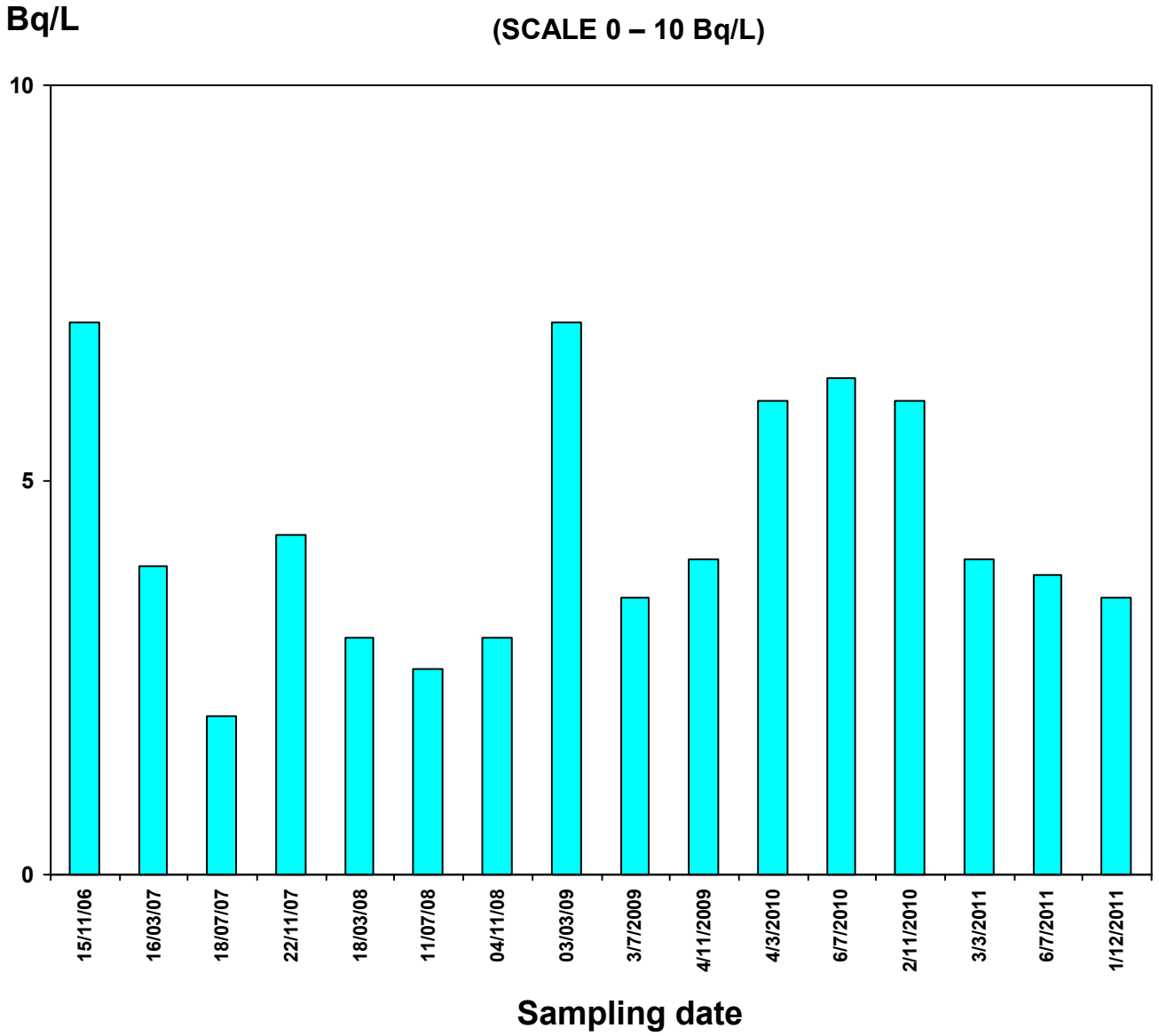
MONITORING RESULTS
RW-8



MONITORING RESULTS
RW-9



MONITORING RESULTS
RW-10



MONITORING RESULTS
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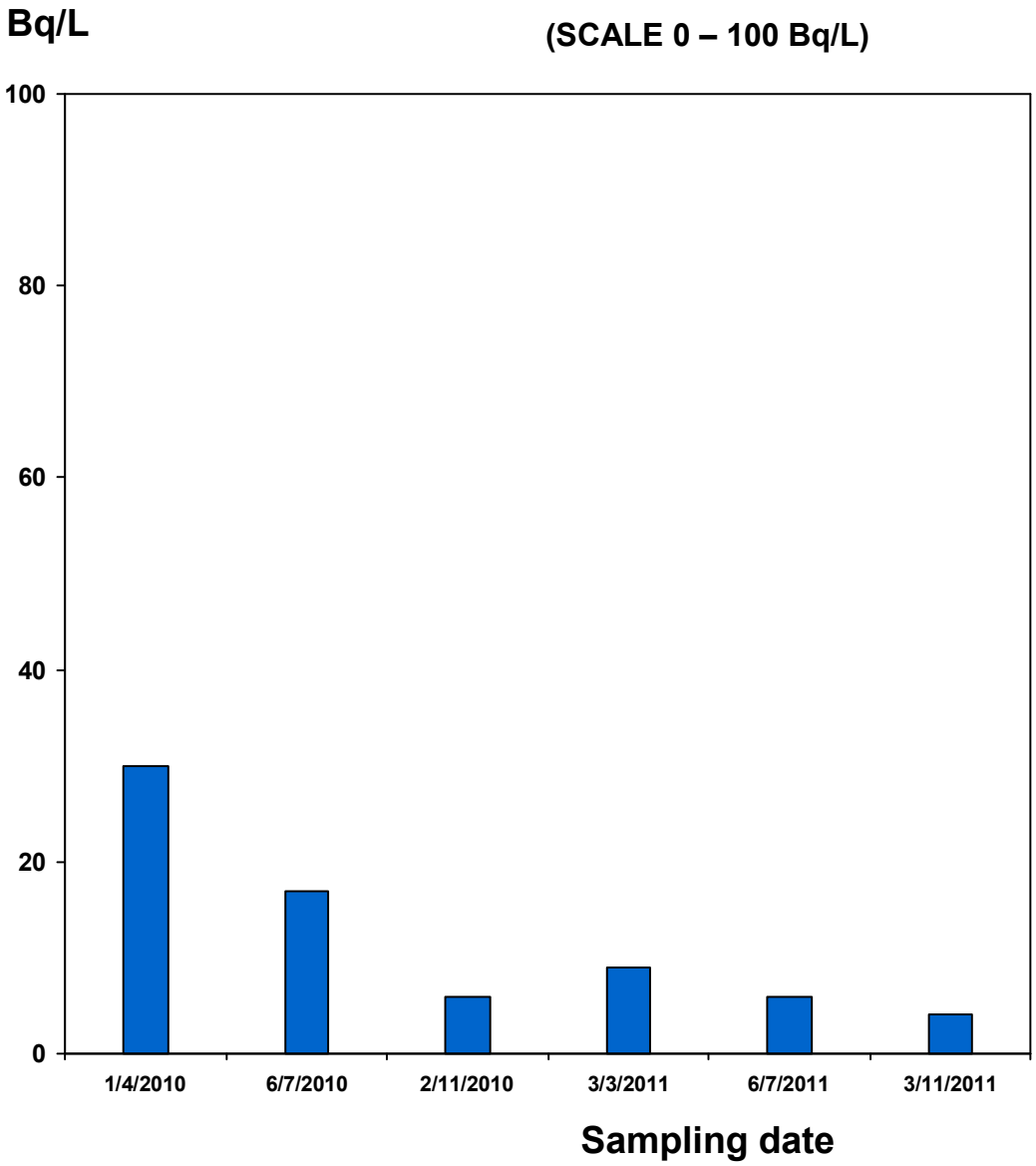
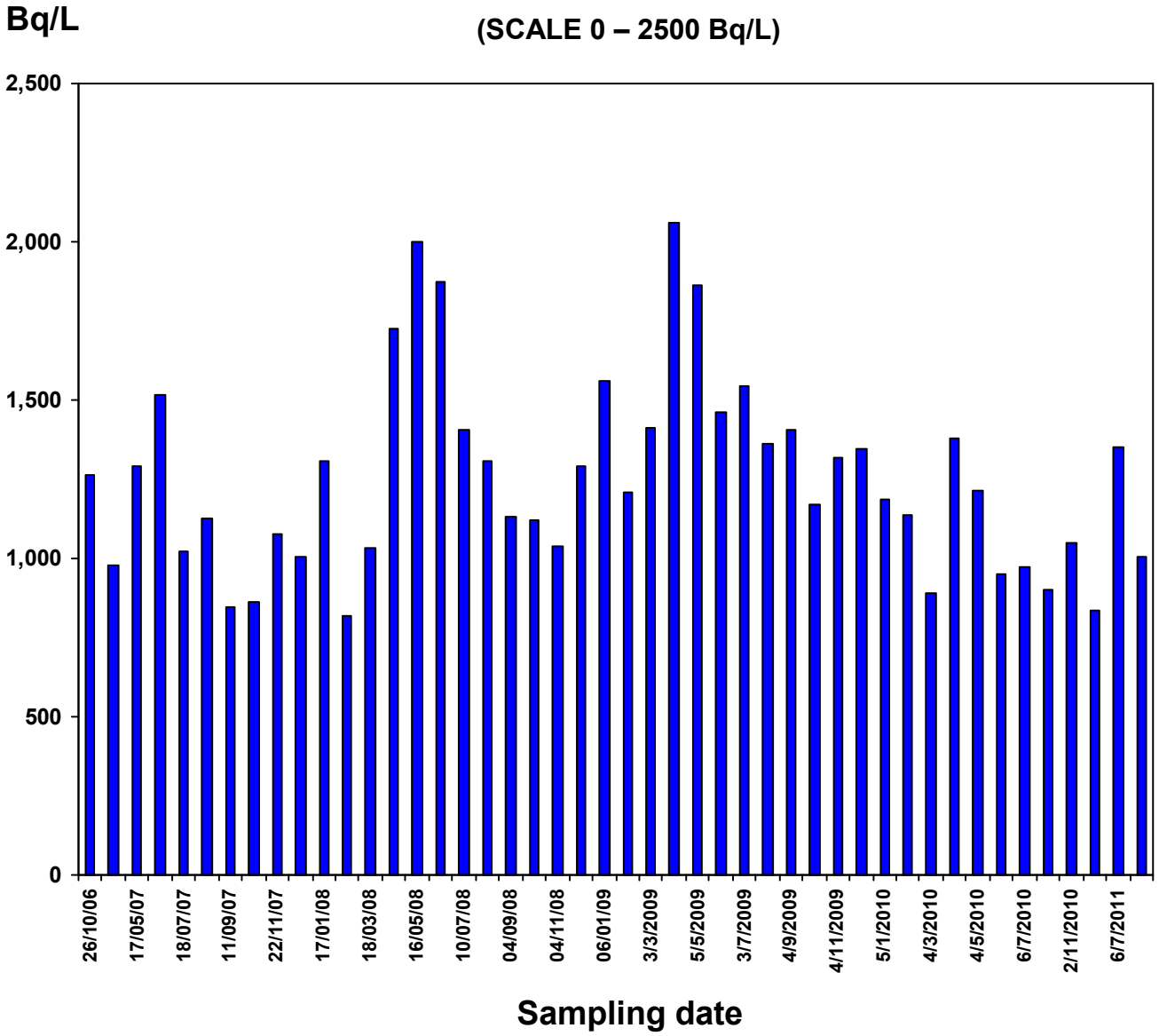


MONITORING RESULTS
B-1



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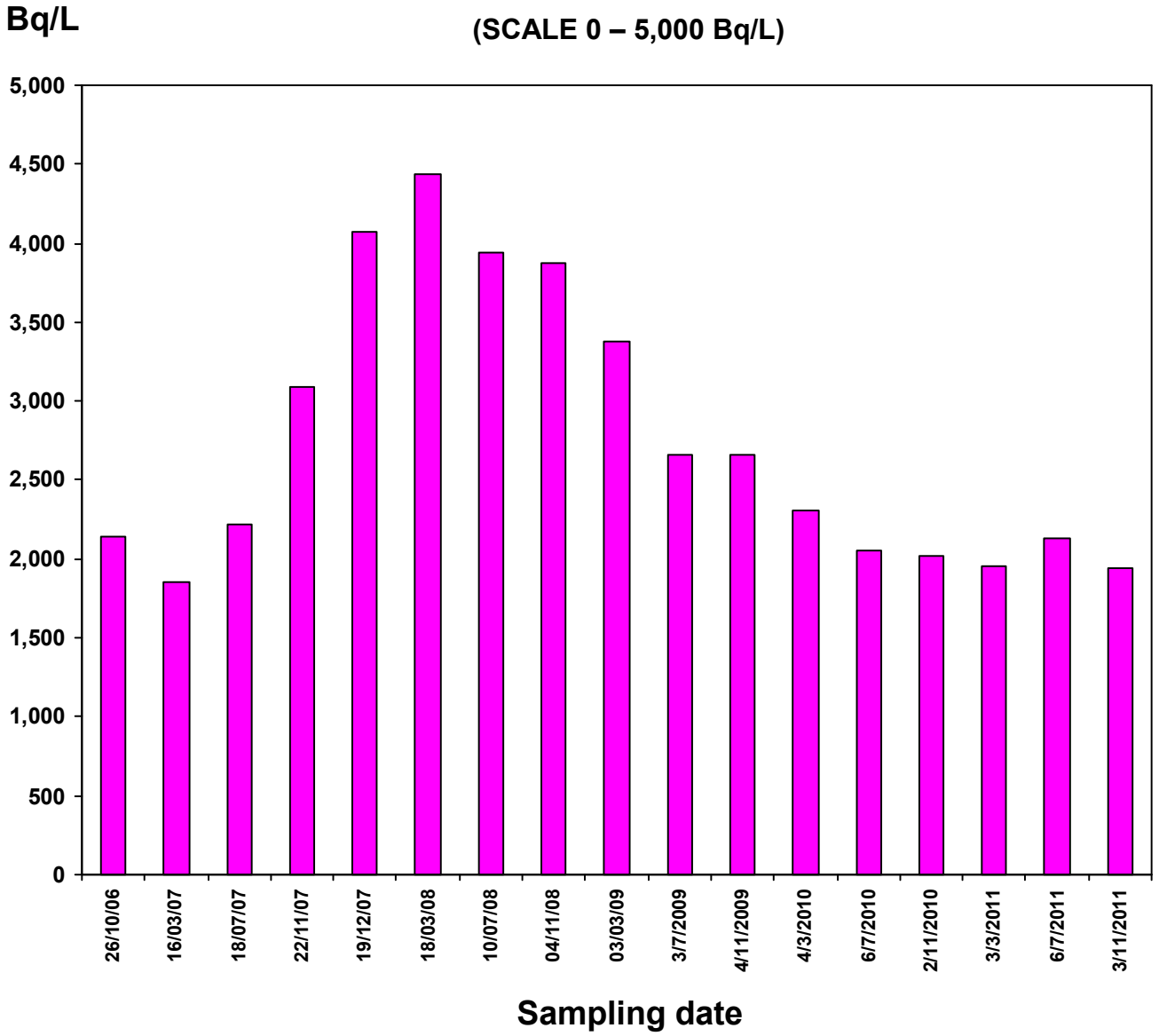
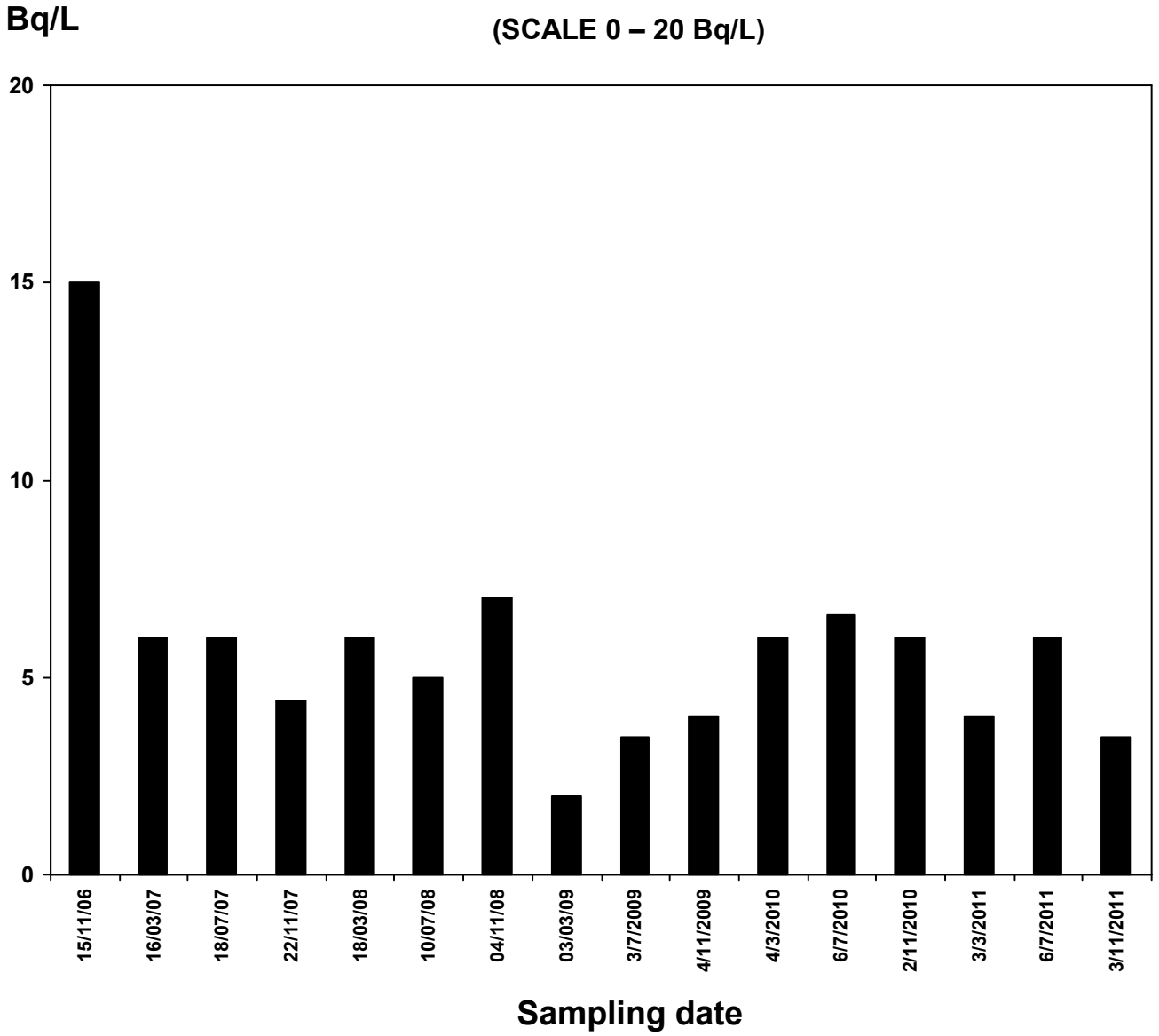
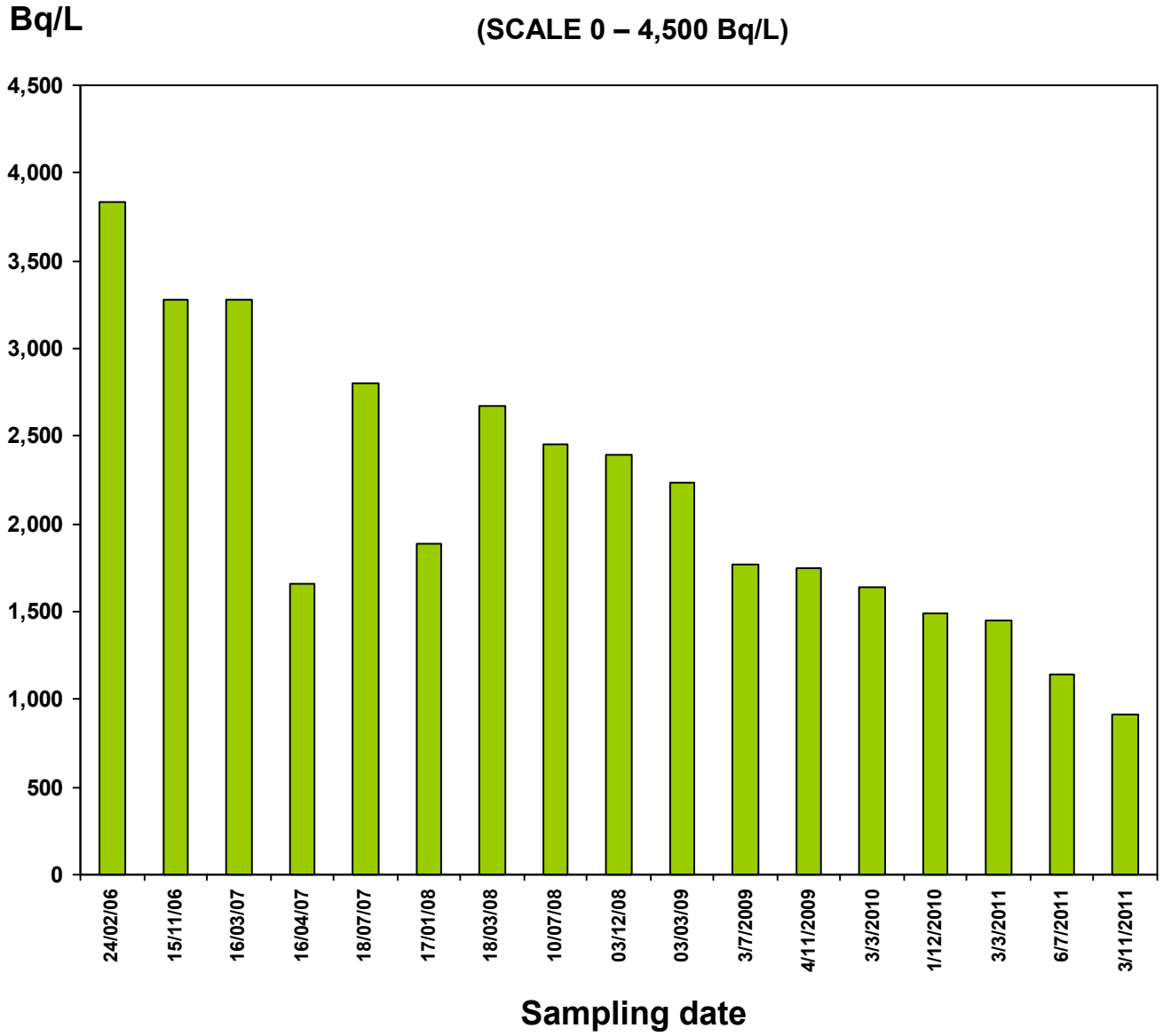
B-2



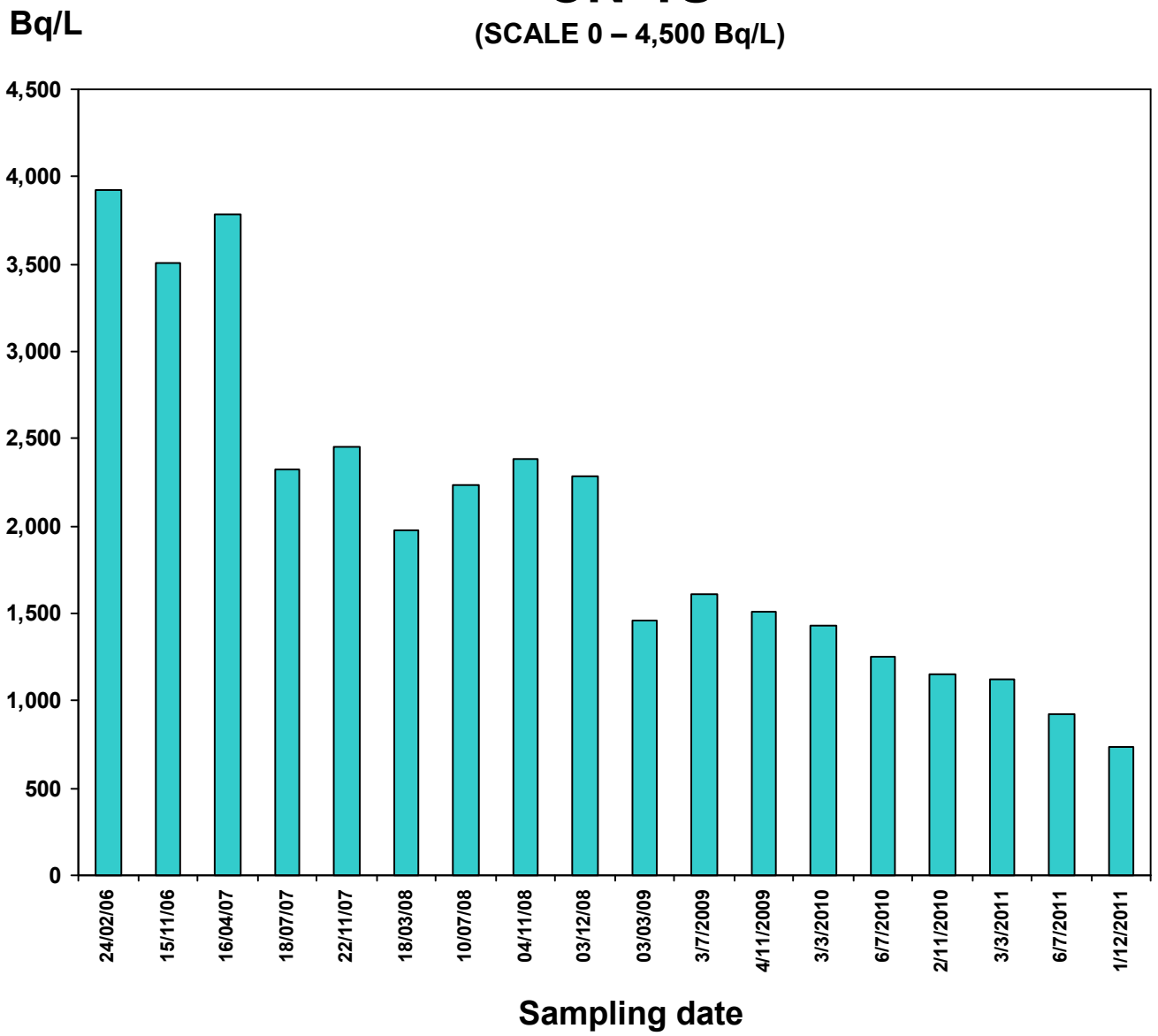
MONITORING RESULTS
B-3



MONITORING RESULTS
CN-1D



MONITORING RESULTS
CN-1S



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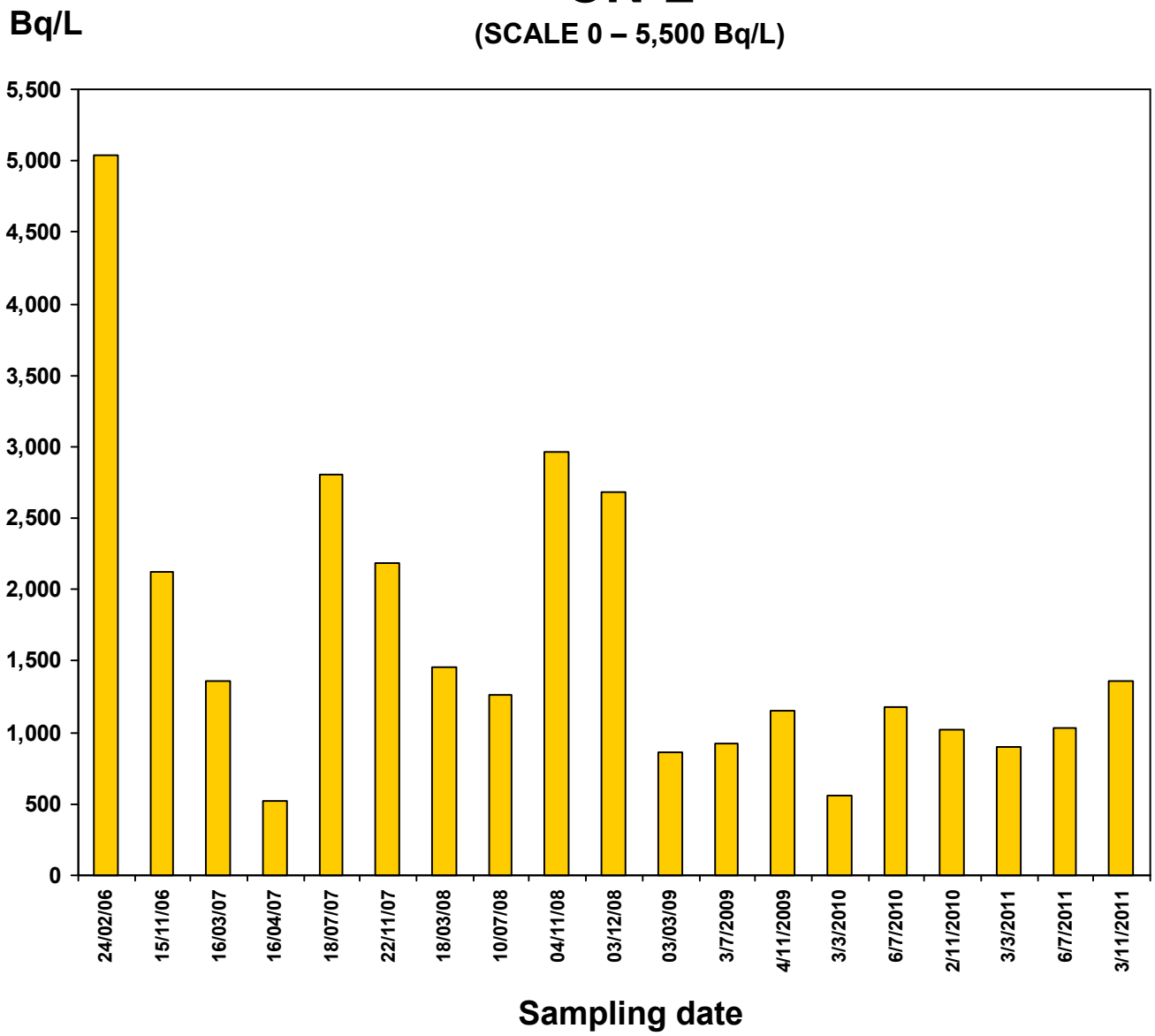
CN-2



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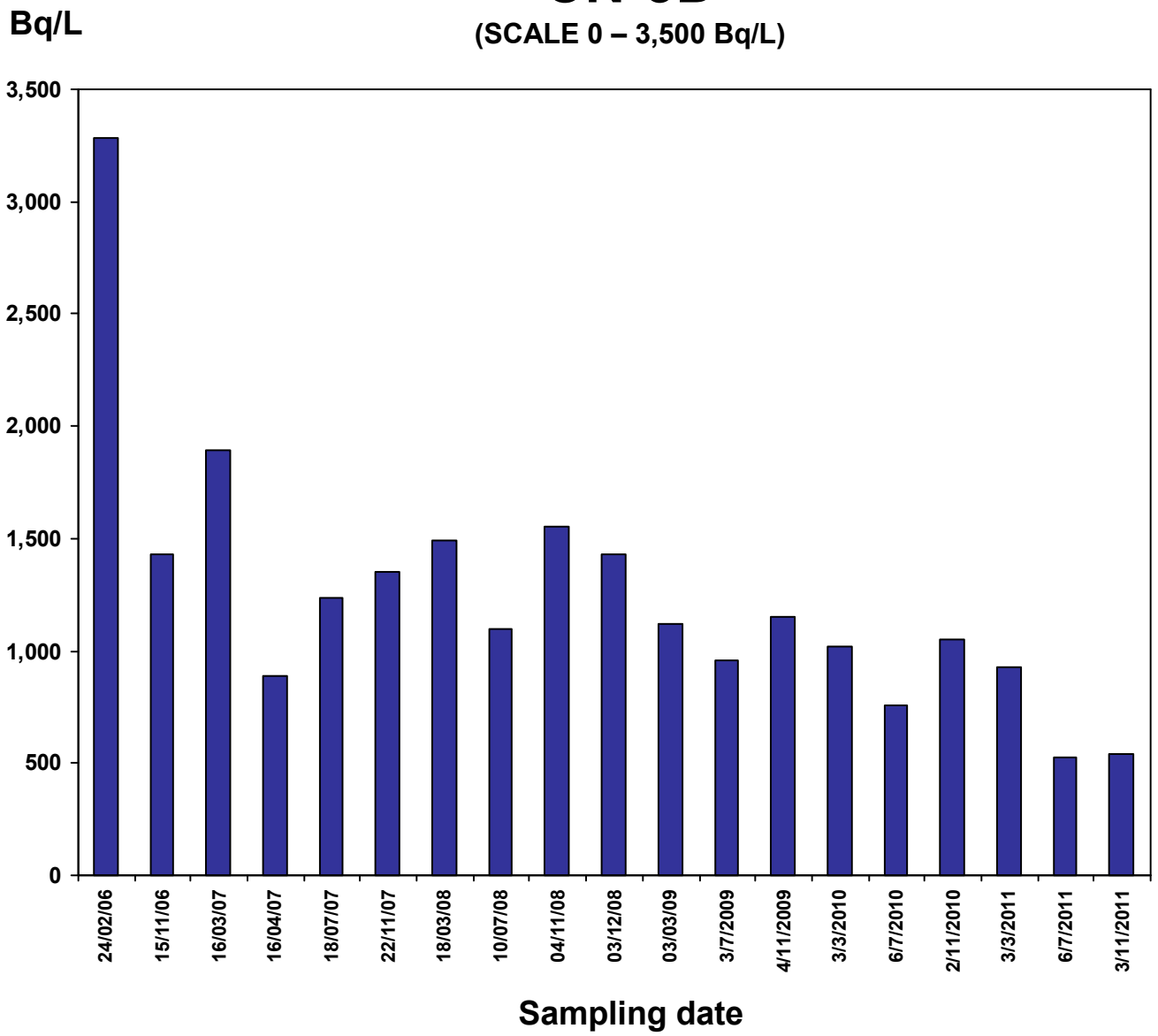

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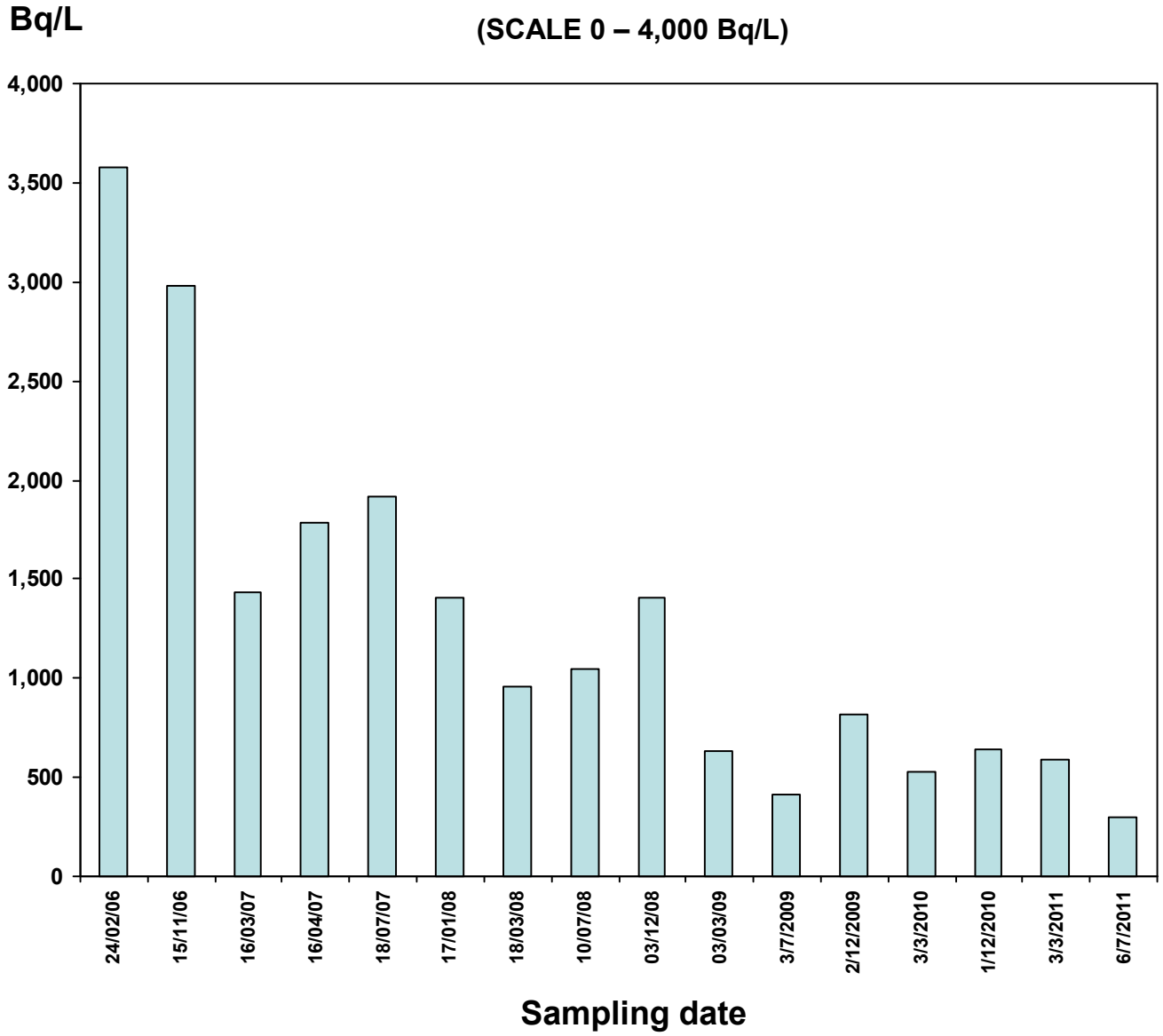


APPENDIX N

Runoff monitoring results for 2011

DOWNSPOUTS							
DATE	TIME	DS-1	DS-2	DS-3	DS-4	DS-5	DS-6
21-Mar-11	3:10 PM	100	100	100	100	100	100
21-Apr-11	11:00 AM	460	220	100	130	100	100
28-Apr-11	10:55 AM	100	100	100	100	110	900
2-May-11	10:20 AM	100	100	100	100	100	480
19-May-11	8:54 AM	100	100	100	100	130	1,620
26-May-11	10:36 AM	100	100	100	100	100	100
22-Jun-11	1:44 PM	100	100	100	100	100	390
24-Jun-11	1:10 PM	100	100	190	100	2,470	11,150
11-Jul-11	12:52 PM	340	250	250	610	200	680
13-Jul-11	11:30 AM	4,410	4,710	470	5,440	100	300
25-Jul-11	1:00 PM	100	100	100	100	130	900
30-Aug-11	9:35 AM	180	100	100	100	120	500
13-Sep-11	10:05 AM	100	120	100	1,270	410	100
30-Sep-11	9:40 AM	100	100	100	100	160	1,190
20-Oct-11	9:30 AM	100	100	100	100	100	100
29-Nov-11	2:10 PM	100	100	100	100	100	100

Average		**412**	**406**	**138**	**541**	**283**	**1169**
Average all results		**492**					

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

LOCATION OF DOWNSPOUTS

APPENDIX O

Precipitation monitoring results for 2011

PRECIPITATION SAMPLERS								
	1P	4P	8P	11P	15P	18P	22P	25P
	Bq/L							
Jan 5 - Feb 2, 2011	40	122	476	315	311	679	579	30
Feb 2 - Mar 2, 2011	92	131	39	13	33	283	80	72
Mar 2 - Apr 5, 2011	5	29	142	46	29	38	23	5
Apr 5 - May 4, 2011	35	136	55	*	21	58	20	14
May 4 - June 2, 2011	55	62	92	*	97	20	6	6
June 2 - July 6, 2011	44	110	330	6	7	29	21	56
July 6 - August 3, 2011	17	107	15	360	10	73	30	28
Aug 3 - Sept 1, 2011	14	8	11	13	25	39	73	39
Sept 1 - Oct 4, 2011	28	31	13	28	52	30	11	37
Oct 4 - Nov 2, 2011	14	32	31	59	5	5	5	32
Nov 2 - Dec 1, 2011	17	28	5	7	59	18	27	6
Dec 1 - Jan 5, 2012	181	179	72	28	25	127	116	53
Average	**45**	**81**	**107**	**88**	**56**	**117**	**83**	**32**
Average all results	**76**							

* No samples available. Poll broken do to fallen tree

PASSIVE AIR SAMPLER	JAN (Bq/m3) MEASURED	JAN (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	JAN (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	0.33	62	1P	40	155%
NW250	0.4	75	4P	122	61%
W250	1.65	309	8P	476	65%
SW250	0.91	171	11P	315	54%
S250	2.37	444	15P	311	143%
SE250	5.38	1009	18P	679	149%
E250	2.89	542	22P	579	94%
NE250	0.39	73	25P	30	244%
					121%

PASSIVE AIR SAMPLER	FEB (Bq/m3) MEASURED	FEB (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	FEB (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	0.59	104	1P	92	113%
NW250	0.87	154	4P	131	117%
W250	0.54	95	8P	39	244%
SW250	0.35	62	11P	13	475%
S250	1.04	184	15P	33	556%
SE250	3.84	678	18P	283	239%
E250	1.41	249	22P	80	311%
NE250	2.78	491	25P	72	681%
					342%

PASSIVE AIR SAMPLER	MAR (Bq/m3) MEASURED	MAR (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	MAR (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	0.34	38	1P	5	756%
NW250	0.86	96	4P	29	330%
W250	0.8	89	8P	142	63%
SW250	0.35	39	11P	46	85%
S250	1.3	144	15P	29	498%
SE250	4.2	467	18P	38	1228%
E250	1.7	189	22P	23	821%
NE250	0.58	64	25P	5	1289%
					634%

PASSIVE AIR SAMPLER	APR (Bq/m3) MEASURED	APR (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	APR (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	0.61	48	1P	35	138%
NW250	3.22	254	4P	136	187%
W250	1.54	122	8P	55	221%
SW250	1.24	98	11P		#DIV/0!
S250	1.67	132	15P	21	628%
SE250	2.18	172	18P	58	297%
E250	1.09	86	22P	20	430%
NE250	1.47	116	25P	14	829%
					390%

PASSIVE AIR SAMPLER	MAY (Bq/m3) MEASURED	MAY (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	MAY (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	0.79	34	1P	55	62%
NW250	2.3	100	4P	62	161%
W250	1.8	78	8P	92	85%
SW250	3.7	161	11P		#DIV/0!
S250	1.7	74	15P	97	76%
SE250	1.23	53	18P	20	267%
E250	0.43	19	22P	6	312%
NE250	1.1	48	25P	6	797%
					252%

PASSIVE AIR SAMPLER	JUNE (Bq/m3) MEASURED	JUNE (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	JUNE (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	2.3	70	1P	44	160%
NW250	4.7	144	4P	110	131%
W250	2.4	73	8P	330	22%
SW250	1.5	46	11P	6	765%
S250	1.3	40	15P	7	569%
SE250	4	122	18P	29	422%
E250	2.4	73	22P	21	350%
NE250	3.5	107	25P	56	191%
					326%

PASSIVE AIR SAMPLER	JULY (Bq/m3) MEASURED	JULY (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	JULY (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	2.5	63	1P	17	368%
NW250	4.1	103	4P	107	96%
W250	4.1	103	8P	15	683%
SW250	0.88	22	11P	360	6%
S250	1.7	43	15P	10	425%
SE250	4.8	120	18P	73	164%
E250	4.1	103	22P	30	342%
NE250	5.7	143	25P	28	509%
					370%

PASSIVE AIR SAMPLER	AUG (Bq/m3) MEASURED	AUG (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	AUG (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	1.8	46	1P	14	327%
NW250	2.4	61	4P	8	763%
W250	2.1	53	8P	11	485%
SW250	1.3	33	11P	13	254%
S250	1.4	36	15P	25	142%
SE250	3	76	18P	39	196%
E250	3.2	81	22P	73	111%
NE250	4.7	119	25P	39	306%
					333%

PASSIVE AIR SAMPLER	SEPT (Bq/m3) MEASURED	SEPT (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	SEPT (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	1.8	56	1P	28	199%
NW250	2.4	74	4P	31	239%
W250	2.3	71	8P	13	547%
SW250	6.6	204	11P	28	729%
S250	1.8	56	15P	52	107%
SE250	2.7	84	18P	30	278%
E250	2	62	22P	11	562%
NE250	3.6	111	25P	37	301%
					370%

PASSIVE AIR SAMPLER	OCT (Bq/m3) MEASURED	OCT (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	OCT (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	0.54	27	1P	14	196%
NW250	1.23	63	4P	32	195%
W250	0.55	28	8P	31	90%
SW250	3.83	195	11P	59	330%
S250	0.71	36	15P	5	722%
SE250	0.81	41	18P	5	824%
E250	1.00	51	22P	5	1017%
NE250	1.62	82	25P	32	257%
					472%

PASSIVE AIR SAMPLER	NOV (Bq/m3) MEASURED	NOV (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	NOV (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	1.80	132	1P	17	775%
NW250	1.50	110	4P	28	392%
W250	0.75	55	8P	5	1098%
SW250	0.36	26	11P	7	376%
S250	0.36	26	15P	59	45%
SE250	0.54	40	18P	18	220%
E250	0.36	26	22P	27	98%
NE250	3.30	241	25P	6	4024%
					950%

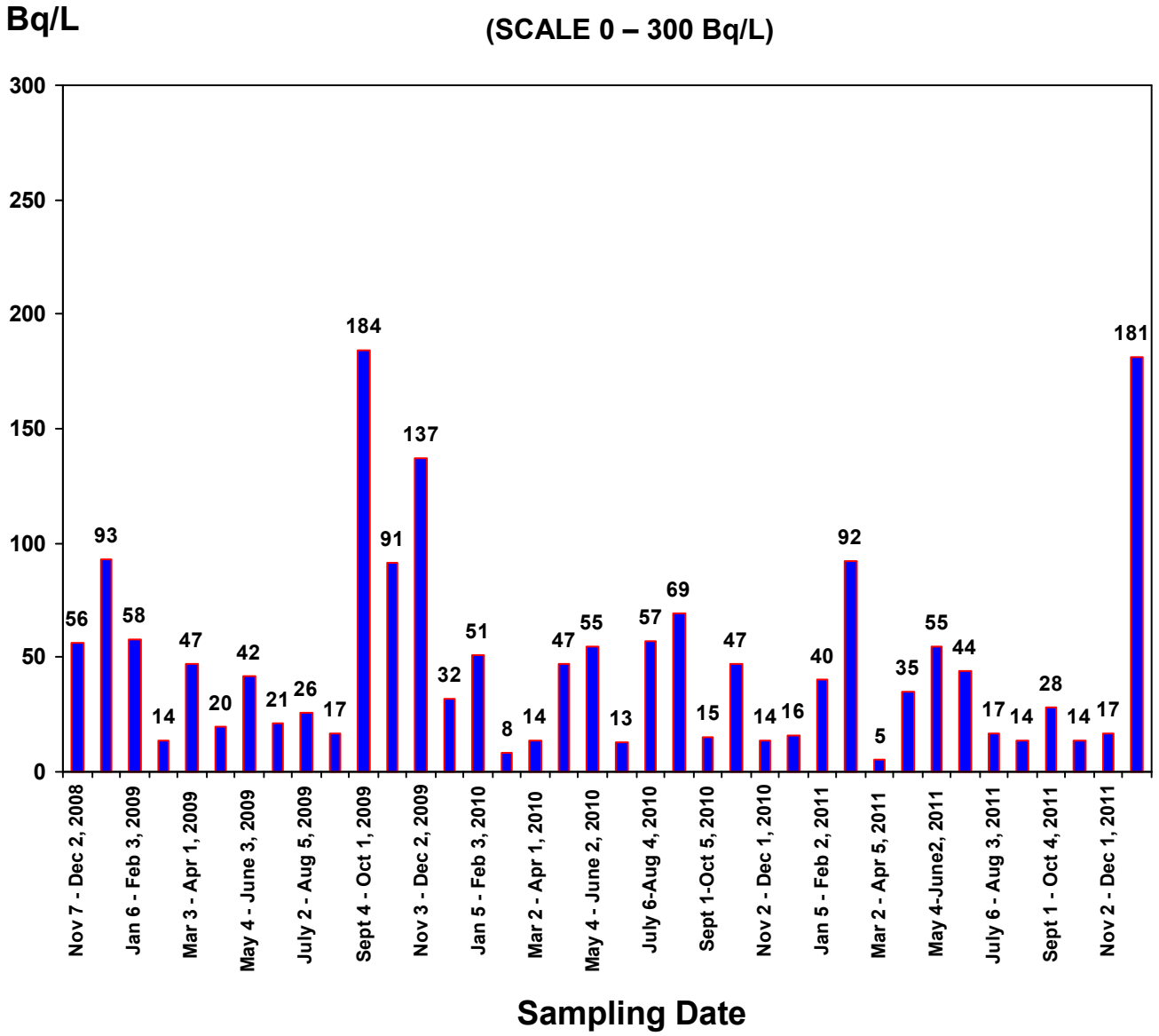
PASSIVE AIR SAMPLER	DEC (Bq/m3) MEASURED	DEC (Bq/L) ESTIMATED IN RAIN	PRECIPITATION MONITOR	DEC (Bq/L) MEASURED	RATIO ESTIMATED/MEASURED
N250	1.10	138	1P	181	76%
NW250	2.90	363	4P	179	203%
W250	1.50	188	8P	72	260%
SW250	0.51	64	11P	28	228%
S250	0.78	98	15P	25	390%
SE250	2.50	313	18P	127	246%
E250	1.40	175	22P	116	151%
NE250	5.50	688	25P	53	1297%
					356%

Site-Specific Absolute Humidity Values

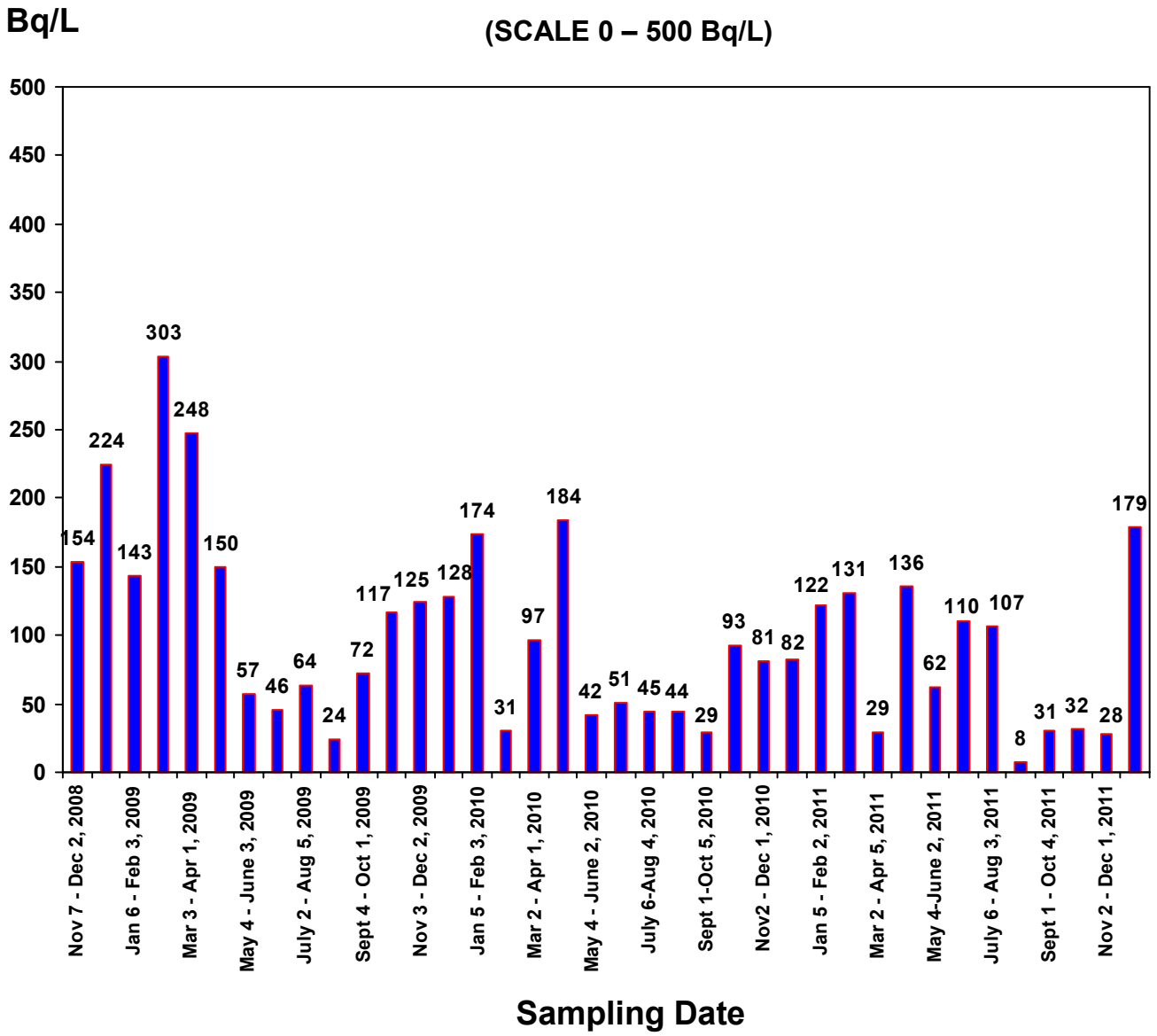
year	Endpoint	Monthly Readings												Average		
		J	F	M	A	M	J	J	A	S	O	N	D	Annual	Snow-free Period	Growing Season
2000	Temp (C)	-11.8	-8.2	0.5	4.4	12.4	15.6	18.4	17.7	12.8	7.9	1.0	-11.3	4.9	11.3	16.1
	Dew Point (C)	-16.5	-12.8	-5.7	-3.6	7.0	10.9	13.8	13.8	8.7	2.7	-2.4	-14.8	0.1	6.3	11.8
	RH (%)	68.9	71.7	65.9	61.7	72.7	76.1	77.2	79.9	78.2	72.4	79.4	76.1	73.4	74.7	77.9
	Ha (g/m^3)	1.4	1.9	3.2	3.6	7.6	9.8	11.7	11.7	8.5	5.7	4.0	1.6	5.9	7.8	10.4
2001	Temp (C)	-10.2	-9.9	-3.4	5.8	13.2	18.5	18.9	20.6	14.4	8.3	3.7	-1.2	6.6	12.9	18.1
	Dew Point (C)	-13.4	-14.4	-9.7	-2.8	6.3	12.0	12.4	13.8	10.5	4.6	-0.7	-4.0	1.2	7.0	12.2
	RH (%)	78.0	70.7	63.6	58.5	67.8	68.9	68.8	69.0	79.8	78.6	75.3	82.9	71.8	70.8	71.6
	Ha (g/m^3)	1.8	1.7	2.3	3.9	7.2	10.4	10.7	11.7	9.6	6.5	4.6	3.6	6.2	8.1	10.6
2002	Temp (C)	-5.4	-7.0	-4.0	5.2	9.7	16.5	21.0	19.5	16.6	5.3	-0.7	-6.6	5.8	11.6	18.4
	Dew Point (C)	-8.5	-11.4	-9.2	-1.4	3.2	11.7	15.2	14.3	12.0	1.8	-3.8	-10.0	1.2	6.6	13.3
	RH (%)	80.0	72.0	69.4	65.8	67.2	76.4	72.5	74.9	76.7	79.4	80.7	77.5	74.4	74.2	75.1
	Ha (g/m^3)	2.6	2.1	2.4	4.3	5.9	10.3	12.7	12.0	10.5	5.4	3.7	2.3	6.2	8.1	11.4
2003	Temp (C)	-14.2	-14.0	-4.5	2.8	11.6	17.3	19.3	19.7	15.1	6.4	1.5	-5.7	4.6	11.7	17.9
	Dew Point (C)	-18.8	-19.5	-10.2	-5.5	5.4	10.9	14.4	15.0	11.4	3.2	-1.6	-8.3	-0.3	6.6	12.9
	RH (%)	69.1	64.5	66.4	58.2	70.5	70.3	76.4	76.8	81.1	81.5	81.6	82.4	73.2	74.5	76.2
	Ha (g/m^3)	1.2	1.1	2.3	3.2	6.8	9.7	12.1	12.6	10.2	5.9	4.3	2.6	6.0	8.1	11.1
2004	Temp (C)	-16.6	-8.5	-1.2	4.6	11.3	15.8	19.1	17.3	15.5	8.0	0.8	-9.7	4.7	11.6	16.9
	Dew Point (C)	-21.4	-13.1	-6.1	-2.8	5.2	9.6	15.0	13.0	11.1	3.8	-3.1	-12.9	-0.1	6.5	12.1
	RH (%)	67.4	71.3	71.8	62.6	70.7	70.1	79.0	77.7	76.9	76.6	76.8	78.2	73.2	73.8	75.9
	Ha (g/m^3)	0.9	1.8	3.1	3.9	6.8	9.0	12.6	11.1	9.9	6.2	3.9	1.9	5.9	7.9	10.6
5-yr Avg	*Temp (C)*	*-11.7*	*-9.5*	*-2.5*	*4.6*	*11.6*	*16.8*	*19.3*	*19.0*	*14.9*	*7.2*	*1.2*	*-6.9*	***5.3***	***11.8***	***17.5***
	Dew Point (C)	*-15.7*	*-14.2*	*-8.2*	*-3.2*	*5.4*	*11.0*	*14.2*	*14.0*	*10.7*	*3.2*	*-2.3*	*-10.0*	***0.4***	***6.6***	***12.5***
	RH (%)	*72.7*	*70.0*	*67.4*	*61.4*	*69.8*	*72.4*	*74.8*	*75.7*	*78.6*	*77.7*	*78.8*	*79.4*	***73.2***	***73.6***	***75.3***
	Ha (g/m^3)	*1.6*	*1.7*	*2.7*	*3.8*	*6.9*	*9.8*	*12.0*	*11.8*	*9.7*	*5.9*	*4.1*	*2.4*	***6.0***	***8.0***	***10.8***
Factor to convert		***190***	***176***	***113***	***80***	***44***	***31***	***25***	***25***	***31***	***50***	***73***	***124***	***50***	***37***	***28***

Monthly data derived from hourly readings at Environment Canada's Petawawa A Station
Average Annual values calculated using monthly means
Snow-free period is April to November, inclusive
Growing season is June to September, inclusive

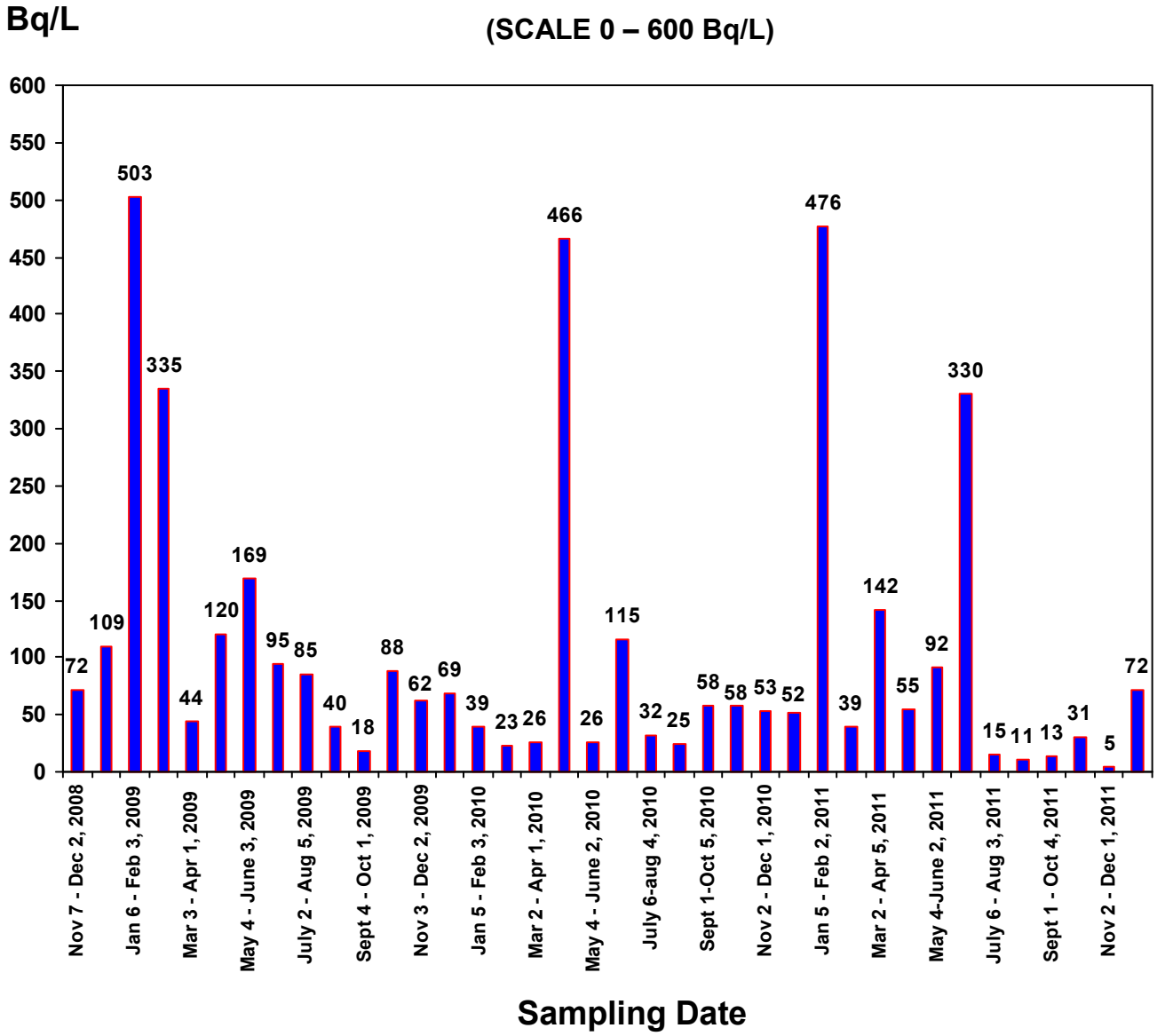
PRECIPITATION RESULTS
1P



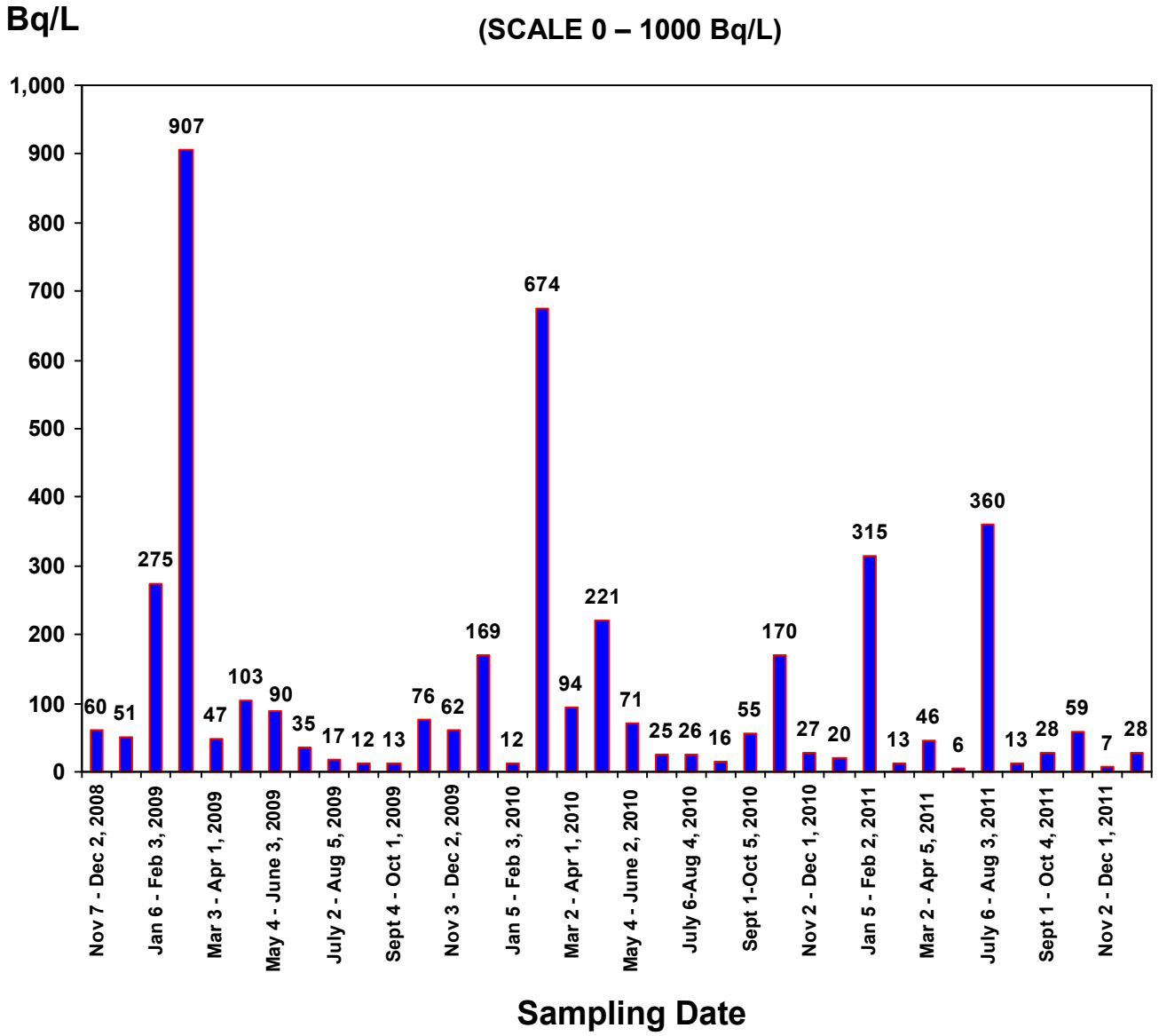
PRECIPITATION RESULTS
4P



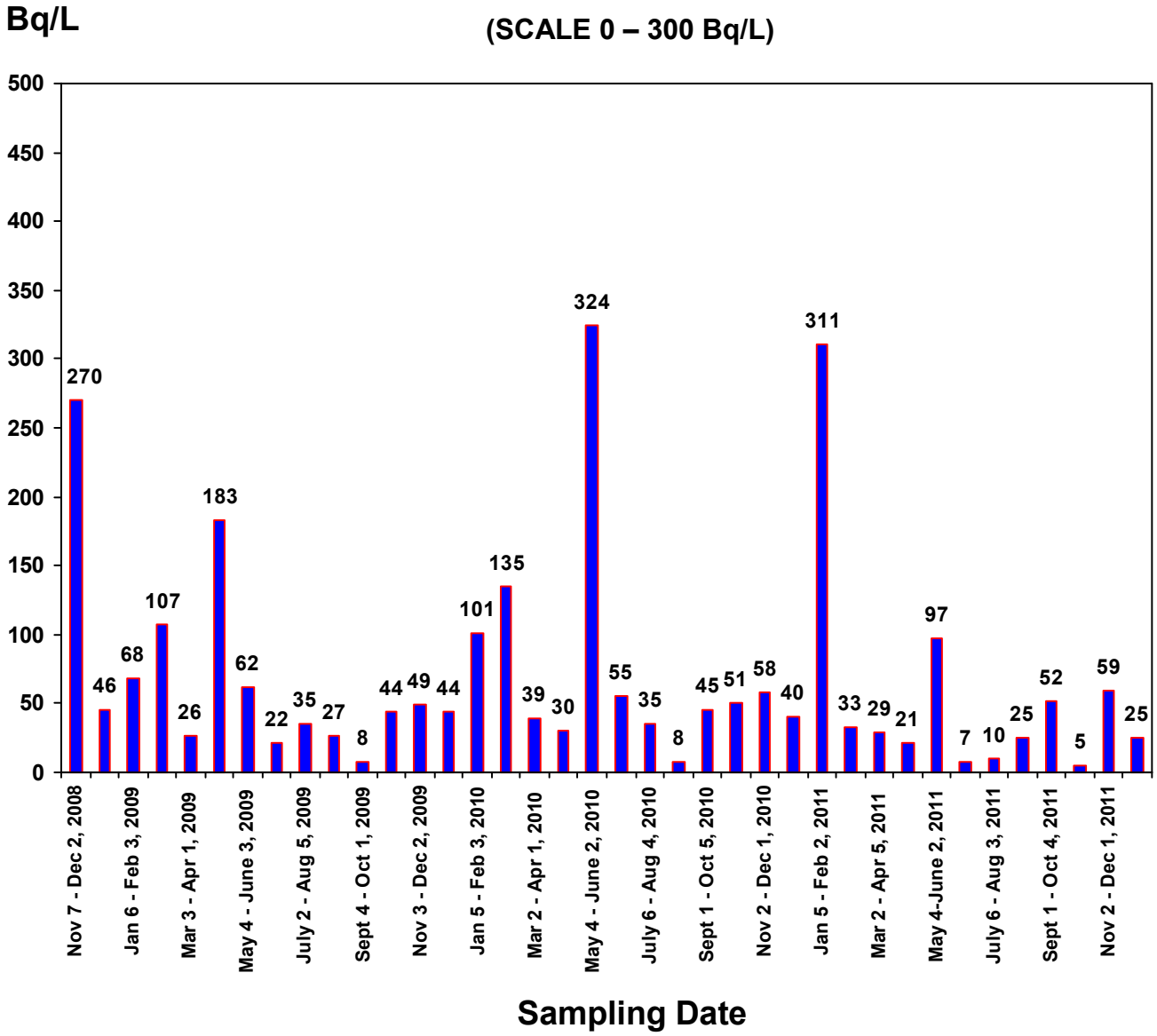
PRECIPITATION RESULTS
8P



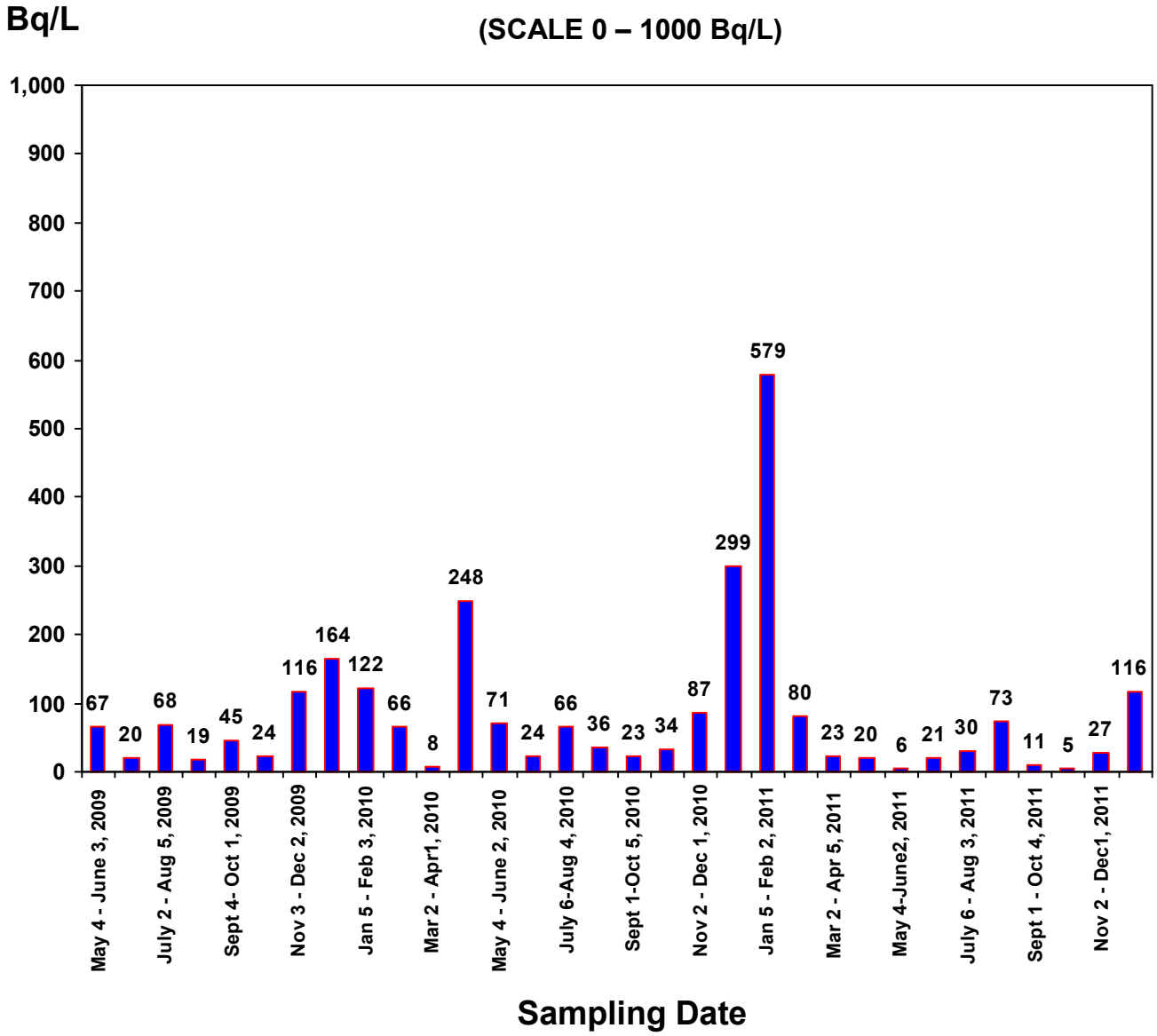
PRECIPITATION RESULTS
11P



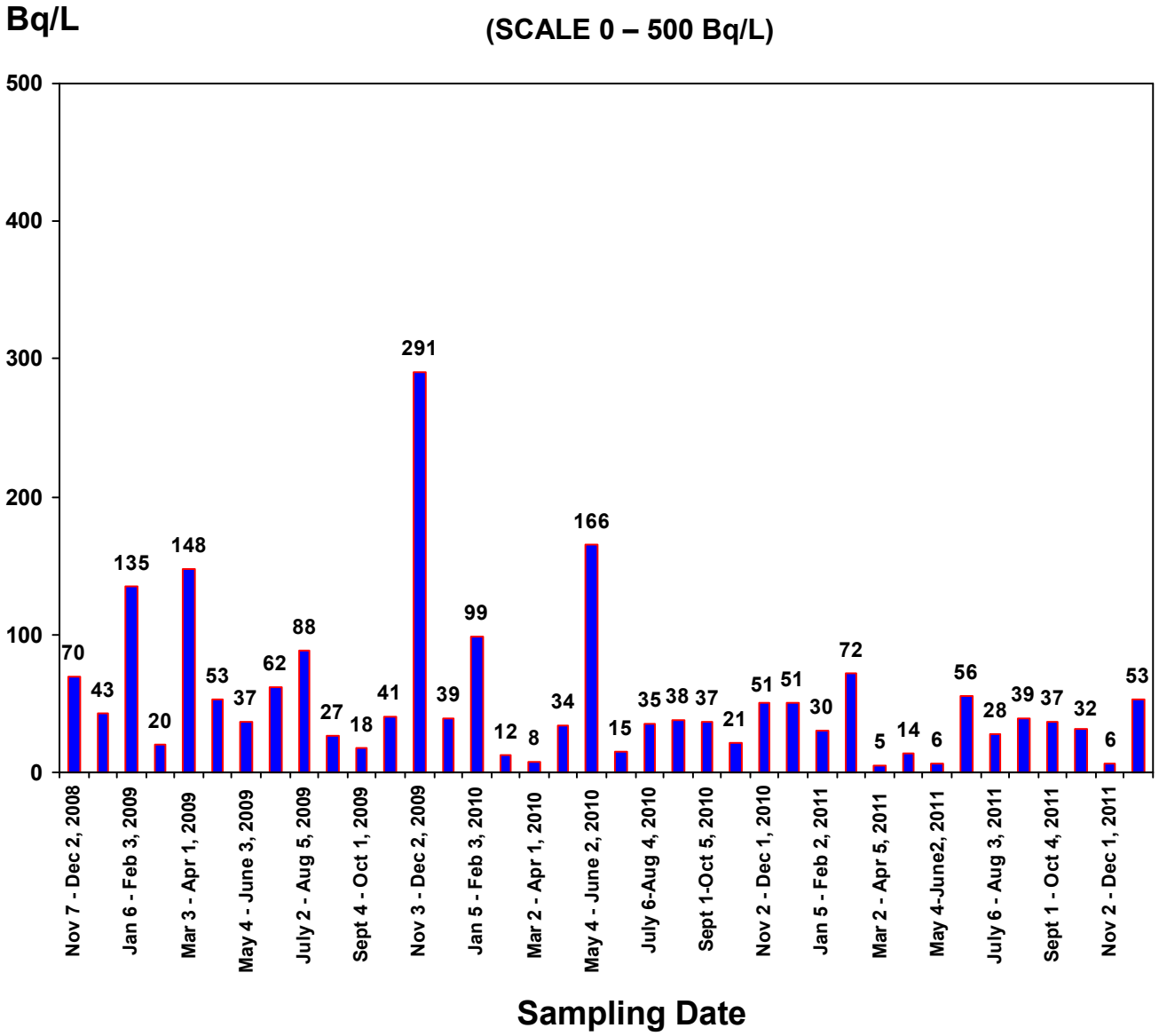
PRECIPITATION RESULTS
15P



PRECIPITATION RESULTS
22P



PRECIPITATION RESULTS
25P



APPENDIX P

Compilation of water level measurements for 2011

Date	Monitoring Wells (Values in m)																																
	MW06-1	MW06-2	MW06-3	MW06-8	MW06-9	MW06-10	MW07-11	MW07-12	MW07-13	MW07-14	MW07-15	MW07-16	MW07-17	MW07-18	MW07-19	MW07-20	MW07-21	MW07-22	MW07-23	MW07-24	MW07-25	MW07-26	MW07-27	MW07-28	MW07-29	MW07-31	MW07-32	MW07-33	MW07-34	MW07-35	MW07-36	MW07-37
Easting	335449	335478	335363	335464	335401	335408	335478	335465	335448	335415	335403	335393	335392	335387	335378	335296	335522	335472	335492	335519	335466	335357	335354	335352	335384	335471	335517	335465				
Northing	5074615	5074578	5074535	5074590	5074605	5074506	5074576	5074588	5074616	5074617	5074605	5074599	5074599	5074595	5074587	5074616	5074584	5074584	5074560	5074530	5074498	5074567	5074611	5074612	5074592	5074583	5074530	5074497				
TOP Elevation (m)	130.99	130.03	133.09	130.30	131.15	131.32	130.06	130.41	130.92	130.86	130.84	130.98	131.08	131.23	131.61	130.70	129.51	130.25	130.04	129.03	129.85	132.42	132.89	132.71	131.09	130.16	128.86	129.88	131.12	132.89	133.10	130.06
GS Elevation (m)	130.17	129.24	132.32	129.58	129.66	130.24	129.15	129.58	130.03	129.98	129.93	130.16	130.16	130.37	130.79	129.85	128.78	129.05	129.29	128.22	129.03	131.85	132.02	132.04	130.57	129.38	128.23	129.26	130.71	132.16	132.31	129.47
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	0.032	0.051	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	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	7.280	7.230	7.050	14.610	7.250	7.400	7.820	7.580	7.465	5.905	6.525	6.750	7.310	8.330	14.400	13.000	13.240	13.090	14.230	9.110	9.390	9.330	8.590
Stick-up (m)	0.820	0.788	0.767	0.720	1.290	1.077	0.905	0.835	0.893	0.880	0.910	0.822	0.915	0.868	0.815	0.850	0.730	1.200	0.750	0.810	0.820	0.570	0.870	0.670	0.520	0.780	0.630	0.620	0.410	0.730	0.790	0.590
4-Jan-11	128.33	128.17	128.66	126.52	127.56	127.53	126.54	126.42	126.59	127.53	127.37	127.32	122.92	127.34	127.53	126.03	126.00	126.36	127.58	126.74	127.65	128.62	127.21	123.12	123.19	121.74	121.73	121.72	126.88	126.67	125.67	126.46
12-Jan-11	127.86	127.63	127.88	126.23	127.44	127.03	126.28	126.16	126.27	127.11	126.94	126.89	122.95	126.85	126.98	125.83	125.72	126.09	127.30	126.55	127.43	127.54	126.74	123.11	123.14	121.93	121.93	121.91	126.47	126.29	125.57	126.21
19-Jan-11	127.25	127.28	127.49	125.85	127.02	126.46	126.99	125.78	125.78	126.51	126.34	126.30	122.82	126.26	126.37	125.46	125.41	125.72	125.91	126.28	127.16	126.76	126.02	122.92	122.95	121.83	121.82	121.81	125.90	125.68	125.00	125.84
26-Jan-11	126.66	127.06	127.25	125.40	126.55	125.92	125.50	125.44	125.04	125.65	125.67	125.66	122.47	125.69	125.81	125.01	125.09	125.28	126.66	126.01	126.91	126.35	125.49	122.58	122.61	121.54	121.53	121.52	125.39	125.20	124.69	125.39
1-Feb-11	126.39	126.85	127.08	124.98	126.17	125.57	125.12	124.92	124.57	125.18	125.27	125.26	122.10	125.31	125.44	124.43	124.61	124.88	126.36	125.75	126.69	126.08	125.17	122.17	122.21	121.22	121.21	121.20	125.05	124.90	124.46	125.00
10-Feb-11	126.02	126.57	127.03	124.60	125.60	126.28	124.78	124.56	124.19	124.83	124.96	125.02	121.84	124.99	125.15	123.80	124.17	124.54	126.01	125.52	126.46	125.88	124.94	121.88	121.93	121.04	121.02	121.01	124.75	124.68	124.33	124.66
16-Feb-11	125.91	126.14	127.04	124.37	125.46	125.11	124.57	124.36	123.98	124.65	124.79	124.79	121.62	124.83	124.98	123.48	123.42	124.34	125.75	125.36	126.40	125.77	124.81	121.70	121.76	120.89	120.88	120.86	124.74	124.55	124.23	124.46
23-Feb-11	127.20	127.50	127.68	125.53	125.94	126.44	125.61	125.44	125.42	126.34	126.20	126.19	121.91	126.22	126.45	124.64	124.94	125.40	126.82	126.14	127.12	127.23	126.13	121.98	122.04	121.12	121.11	121.10	125.81	125.66	124.92	125.51
1-Mar-11	126.90	127.11	127.27	125.17	126.24	125.82	125.29	125.10	124.83	125.53	125.53	125.52	121.95	125.54	125.69	124.30	124.39	125.07	126.56	125.93	126.86	126.30	125.44	121.92	121.99	121.18	121.16	121.15	125.22	125.12	124.63	125.19
10-Mar-11	127.14	126.79	127.04	124.98	125.83	125.55	125.14	124.95	124.69	125.48	125.28	125.28	121.82	125.30	125.45	123.95	123.86	124.89	126.32	125.76	126.71	126.02	125.19	121.86	121.91	121.14	121.16	121.13	125.01	124.92	124.52	125.03
17-Mar-11	128.42	127.86	128.80	126.48	127.13	127.84	126.52	126.48	126.82	127.95	127.75	127.74	122.85	127.77	127.93	126.02	125.64	126.41	127.29	126.69	127.61	128.89	127.75	122.94	122.99	122.15	122.14	122.13	127.32	127.24	126.35	126.55
23-Mar-11	128.75	128.18	130.25	127.40	128.52	129.01	127.35	127.35	127.67	128.79	128.83	128.89	124.50	129.01	129.20	127.06	126.49	127.27	127.89	127.17	128.18	130.29	129.32	124.42	124.47	124.36	124.34	124.34	128.58	128.78	127.89	127.41
30-Mar-11	128.78	127.78	129.86	127.31	129.03	128.92	127.29	127.29	127.62	128.77	128.78	128.81	124.41	128.89	129.11	126.98	126.38	127.21	127.81	127.12	128.10	130.01	129.16	124.40	124.41	123.94	123.93	123.93	128.47	128.61	127.74	127.35
6-Apr-11	129.00	127.76	130.22	127.50	129.28	129.31	127.57	127.61	127.99	129.16	129.19	129.19	124.83	129.33	129.50	127.31	126.60	127.53	128.02	127.24	128.28	130.46	129.76	124.92	124.96	124.37	124.38	124.37	128.86	129.20	128.33	127.66
13-Apr-11	129.17	128.45	130.57	127.86	129.09	129.43	127.78	127.82	128.09	129.29	129.32	129.34	125.23	129.43	129.56	127.51	126.83	127.75	128.30	127.45	128.36	130.61	129.88	125.17	125.20	125.03	125.01	125.01	129.06	129.35	128.48	127.88
21-Apr-11	129.19	128.25	130.41	127.86	129.47	129.31	127.81	127.80	128.04	129.23	129.24	129.28	125.28	129.31	129.45	127.43	126.80	127.74	128.35	127.48	128.37	130.30	129.65	125.12	125.12	125.05	125.04	125.03	128.91	129.13	128.28	127.87
27-Apr-11	129.21	128.47	130.54	127.99	129.56	129.45	127.96	127.95	128.17	129.33	129.36	129.37	125.49	129.45	129.60	127.58	126.94	127.89	128.45	127.56	128.45	130.54	129.84	125.37	125.45	125.42	125.41	125.40	129.06	129.33	128.49	128.03
3-May-11	129.19	128.49	130.56	127.97	129.58	129.42	127.95	127.93	128.15	129.30	129.33	129.37	125.42	129.43	129.48	127.56	126.94	127.87	128.43	127.55	128.45	130.55	129.83	125.28	125.28	125.46	125.45	125.42	129.02	129.29	128.44	128.01
11-May-11	128.97	128.13	130.09	127.72	128.94	129.08	127.69	127.67	127.88	129.03	129.03	129.05	125.08	129.06	129.19	127.23	126.65	127.62	128.17	127.33	128.18	130.02	129.40	124.97	124.97	124.99	124.98	125.08	128.68	128.90	128.06	127.74
18-May-11	129.00	127.96	129.81	127.60	129.25	128.90	127.58	127.55	127.75	128.91	128.86	128.87	124.66	128.86	128.99	127.08	126.49	127.49	128.11	127.26	128.12	129.73	129.12	124.63	124.67	124.24	124.23	124.23	128.46	128.61	127.74	127.62
26-May-11	129.01	127.90	129.44	127.47	129.18	128.69	127.46	127.42	127.63	128.81	128.69	128.68	124.31	128.64	128.77	126.93	126.34	127.35	128.07	127.20	128.03	129.38	128.80	124.33	124.36	123.52	123.50	123.48	128.22	128.29	127.37	127.49
1-Jun-11	128.89	127.89	129.67	127.48	129.18	128.71	127.47	127.43	127.60	128.73	128.67	128.68	124.29	128.66	128.76	126.97	126.39	127.37	128.07	127.18	128.04	129.57	128.85	124.37	124.38	123.13	123.12	123.11	128.24	128.35	127.46	127.50
8-Jun-11	128.72	127.75	128.85	127.07	128.28	128.23	127.05	126.97	127.20	128.32	128.21	128.15	123.74	128.15	128.28	126.47	125.88	126.94	127.73	126.81	127.59	128.89	128.27	123.83	123.84	122.48	122.47	122.47	127.74	127.78	126.85	127.05
15-Jun-11	128.58	127.63	128.18	126.71	128.38	127.77	126.71	126.61	126.83	127.94	127.77	127.73	123.15	127.66	127.77	125.99	125.29	126.55	127.50	126.57	127.30	128.28	127.67	123.24	123.20	121.82	121.78	121.77	127.22	127.15	126.14	126.69
22-Jun-11	128.24	127.45	127.74	126.28	127.96	127.25	126.29	126.18	126.37	127.41	127.23	127.19	122.66	127.11	127.23	125.48	124.61	126.13	127.16	126.22	127.00	127.61	127.03	122.76	122.77	121.40	121.39	121.39	126.62	126.50	125.44	126.26
29-Jun-11	128.78	127.63	128.39	126.64	128.22	127.60	126.63	126.53	126.79	128.01	127.69	127.61	122.64	127.46	127.57	125.91	125.28	126.47	127.59	126.62	127.32	127.81	127.24	122.74	122.76	121.46	121.47	121.45	126.92	126.68	125.54	126.59
5-Jul-11	128.48	127.52	127.89	126.44	128.19	127.63	126.45	126.33	126.56	127.63	127.36	127.29	122.58	127.21	127.29	125.76	125.09	126.27	127.37	126.42	127.14	127.55	127.08	122.69	122.72	121.27	121.27	121.25	126.73	126.51	125.41	126.40
13-Jul-11	128.61	127.57	128.38	126.51	127.63	127.47	126.51	126.39	126.64	127.79	127.51	127.41	122.52	127.31	127.43	125.83	125.22	126.33	127.49	126.52	127.21	127.89	127.03	122.63	122.63	121.18	121.16	121.16	126.82	126.49	125.50	126.45
20-Jul-11	128.60	127.56	127.93	126.53	128.12	127.40	126.54	126.42	126.66	127.77	127.49	127.42	122.55	127.28	127.34	125.90	125.29	126.36	127.49	126.51	127.14	127.52	127.08	122.70	122.73	121.19	121.16	121.20	126.80	126.51	125.39	126.49
27-Jul-11	128.44	127.40	127.53	126.28	127.94	127.13	126.29	126.18	126.43	127.61	127.39	127.26	122.20	127.08	127.08	125.71	125.04	126.11	127.24	126.26	126.92	127.12	126.79	122.51	122.49	120.92	120.92	120.91	126.51	126.25	125.22	126.24
3-Aug-11	127.97	127.27	127.29	126.04	127.61	126.85	126.06	125.94	126.10	127.09	126.85	126.80	122.25	126.70	126.78	125.31	124.40	125.88	127.02	126.06	126.76	126.85	126.47	122.38	122.40	120.86	120.85	120.84	126.24	125.98	125.05	126.00
31-Aug-11	127.26	126.79	127.04	125.48	126.54	126.17	125.53	125.37	125.39	126.35	126.10	126.04	121.50	125.97	126.04	124.32	123.52	125.32	126.57	125.62	126.36	126.15	125.51	121.59	121.61	120.33	120.36	120.32	125.51	125.18	124.58	125.43
3-Oct-11	126.63	126.33	127.03	124.17	126.06	125.88	125.28	125.11	125.12	126.31	125.80	125.75	120.99	125.68	125.72	123.88	123.30	125.07	126.31	125.39	126.12	125.81	125.27	121.03	121.06	120.11	120.10	120.11	125.26	124.98	124.51	125.19
1-Nov-11	127.47	126.62	127.04	125.58	127.16	126.23	125.66	125.49	125.56	126.56	126.23	126.13	121.12	126.04	126.09	124.58	123.78	125.45	126.72	125.31	126.38	126.13	125.49	121.16	121.29	120.17	119.36	120.15	125.59	125.19	124.70	125.56
30-Nov-11	126.89	126.20	128.16	125.24	125.74	126.53	125.47	125.31	125.54	126.89	126.30	126.26	120.83	126.31	126.47	123.97	123.58	125.23	126.64	125.87	126.68	127.56	125.27	120.77	120.84	120.39	120.37	120.37	125.74	125.04	124.58	125.36

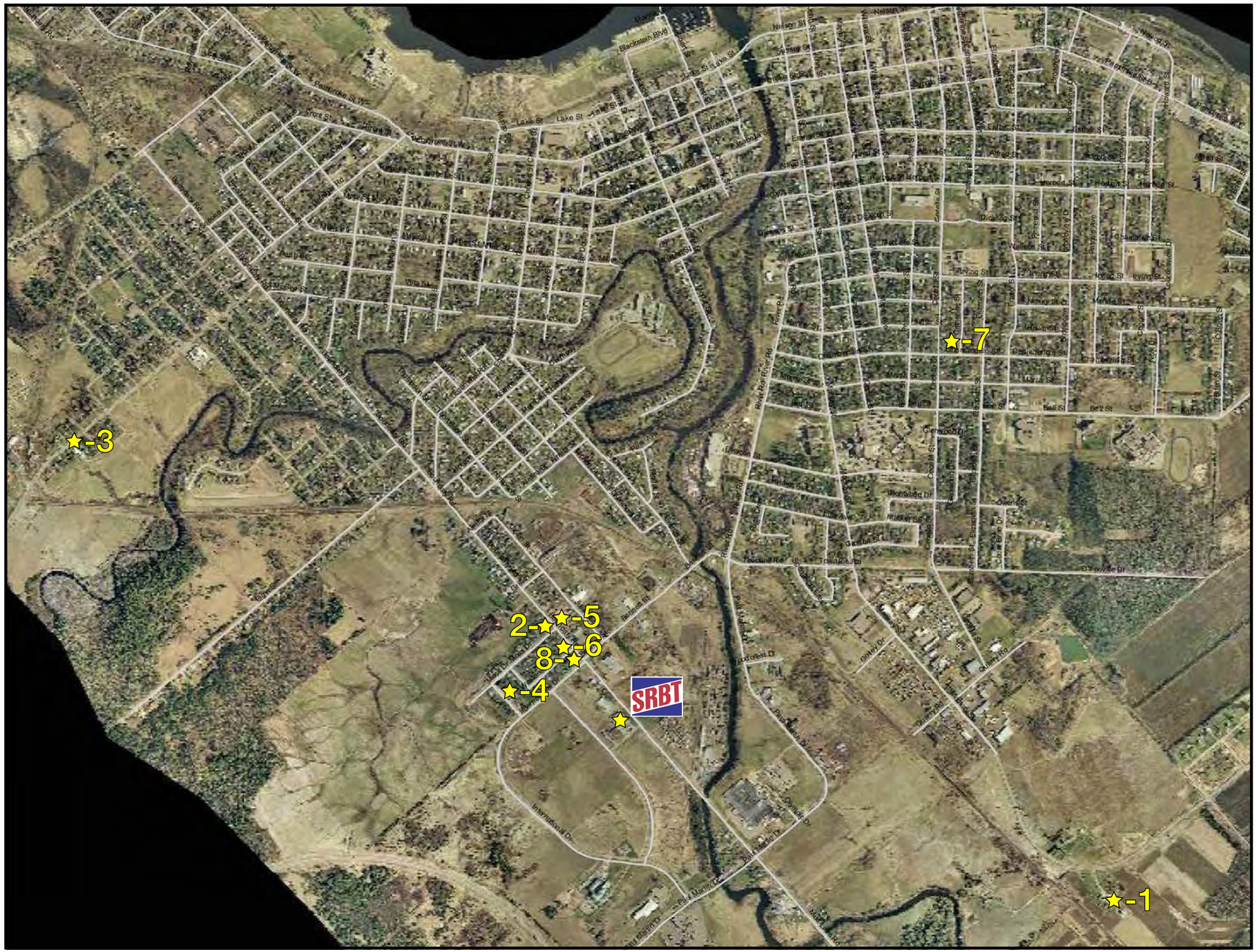
APPENDIX Q

Produce monitoring results for 2011

DESCRIPTION	DISTANCE FROM STACKS	RHUBBARB	TOMATO	PLUM	BEET	CUCUMBER	POTATO	SPINACH	ZUCCHINI	ONION	CARROT	APPLE	AVG
416 BOUNDARY RD	400	73					153		81		76	110	98.6
711 BRUHAM AVE	2,000		17			16	17	18			22		18
413 SWEEZEY CRT	400											155	155
413 BOUNDARY RD	400											83	83
408 BOUNDARY RD	400		129	142		85				164			130
366 CHAMBERLAIN	2,000	8	12		10	17					10	15	12
406 BOUNDARY RD	400											95	95
												AVG	84.51

DESCRIPTION	DISTANCE FROM STACKS	RHUBBARB	TOMATO	BEET	LETTUCE	CUCUMBER	POTATO	SPINACH	PLUM	ONION	CARROT	APPLE	AVG
LOCAL MARKET	1,750		12		11	19							14
												AVG	14

SRB PRODUCE SAMPLING - 2011

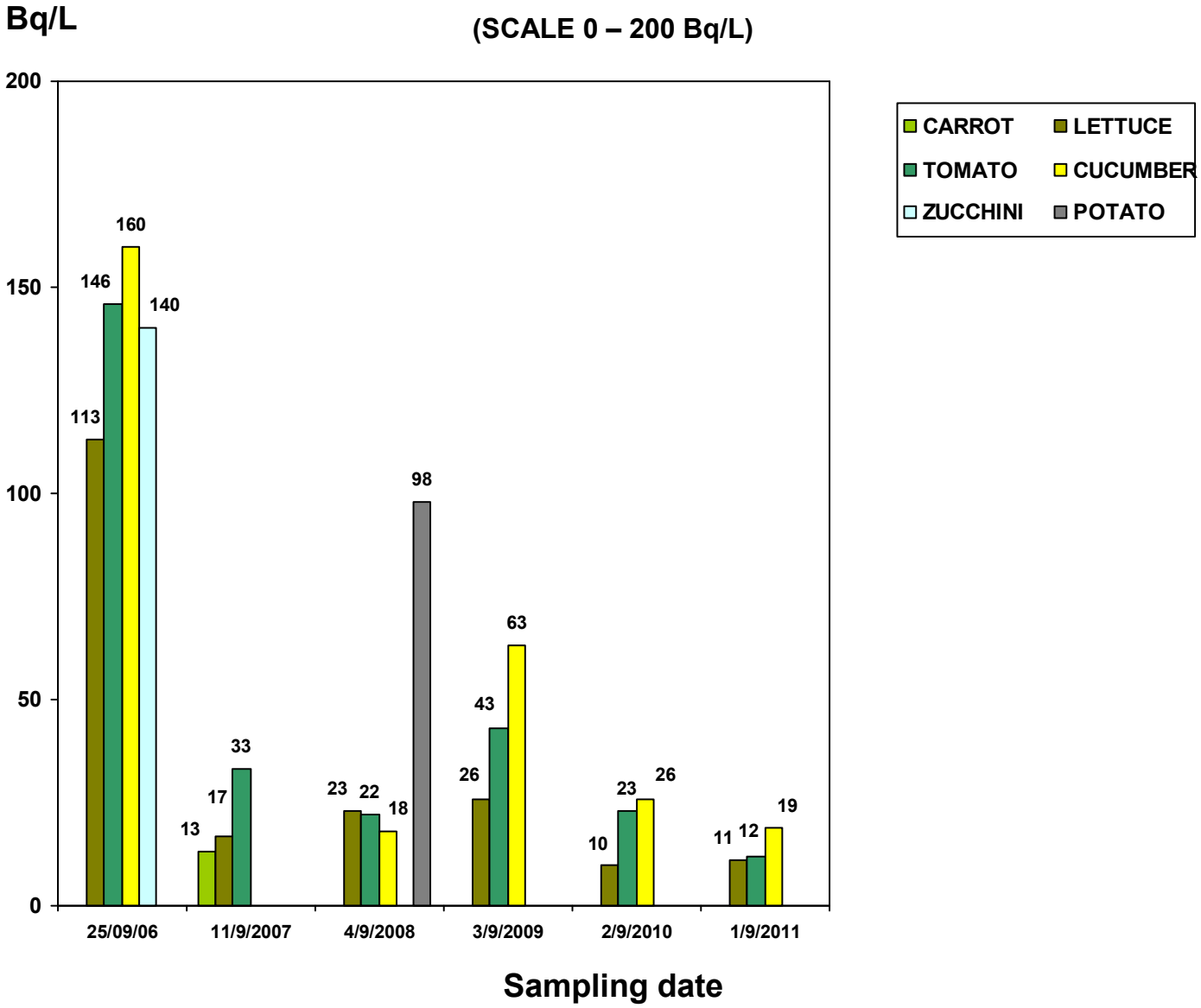


Sample Locations

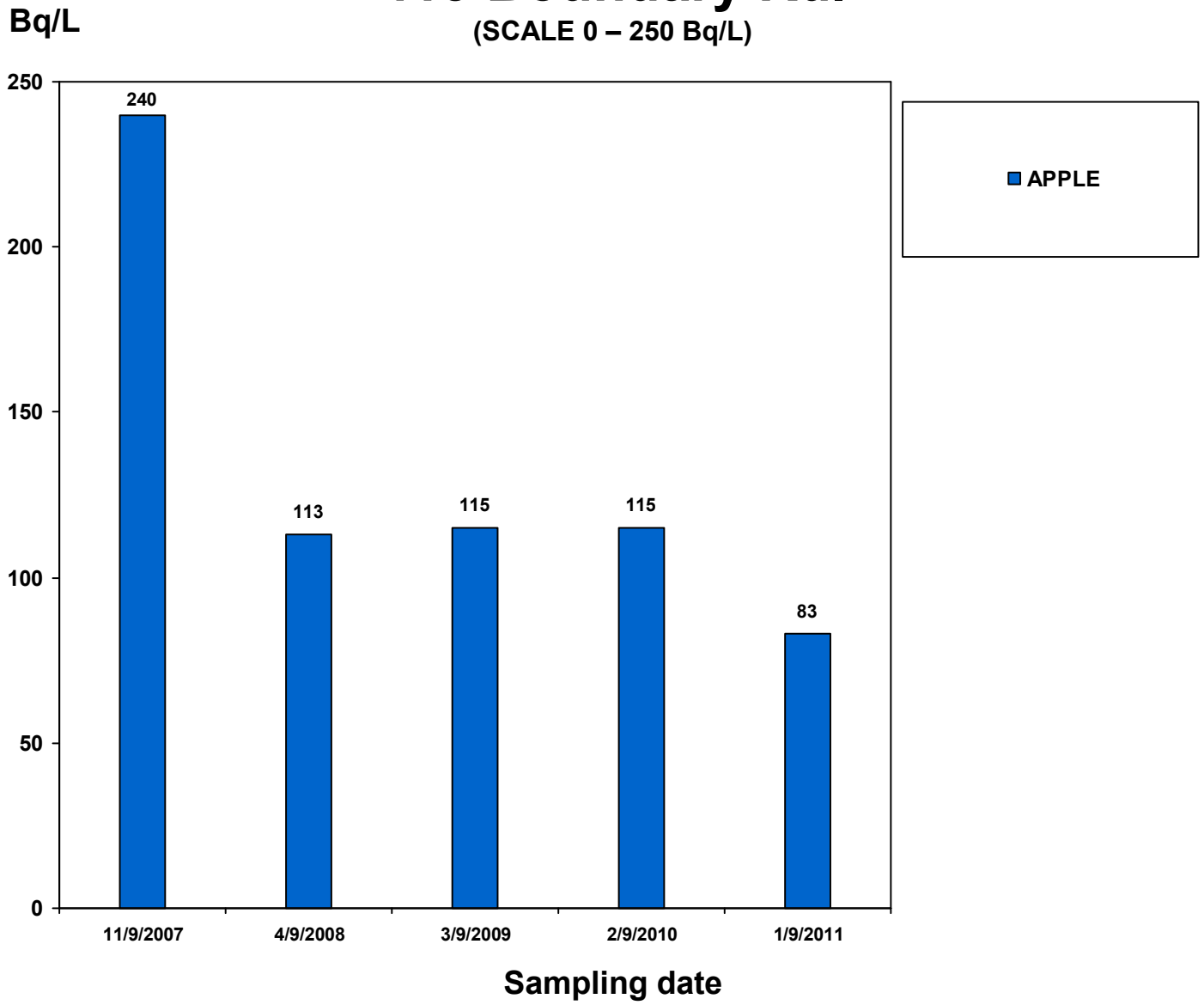
1- Local Market ~ 1.75 KM
2- 416 Boundary Rd. ~ 0.4 KM
3- 711 Bruham Ave. ~ 2.0 KM
4- 413 Sweezey Crt. ~ 0.4 KM
5- 413 Boundary Rd. ~ 0.4 KM
6- 408 Boundary Rd. ~ 0.35 KM
7- 366 Chamberlain St. ~ 1.65 KM
8- 406 Boundary Rd. ~ 0.3 KM

Rev. 10/ 25/2011

PRODUCE MONITORING RESULTS FROM LOCAL MARKET



PRODUCE MONITORING RESULTS
413 Boundary Rd.



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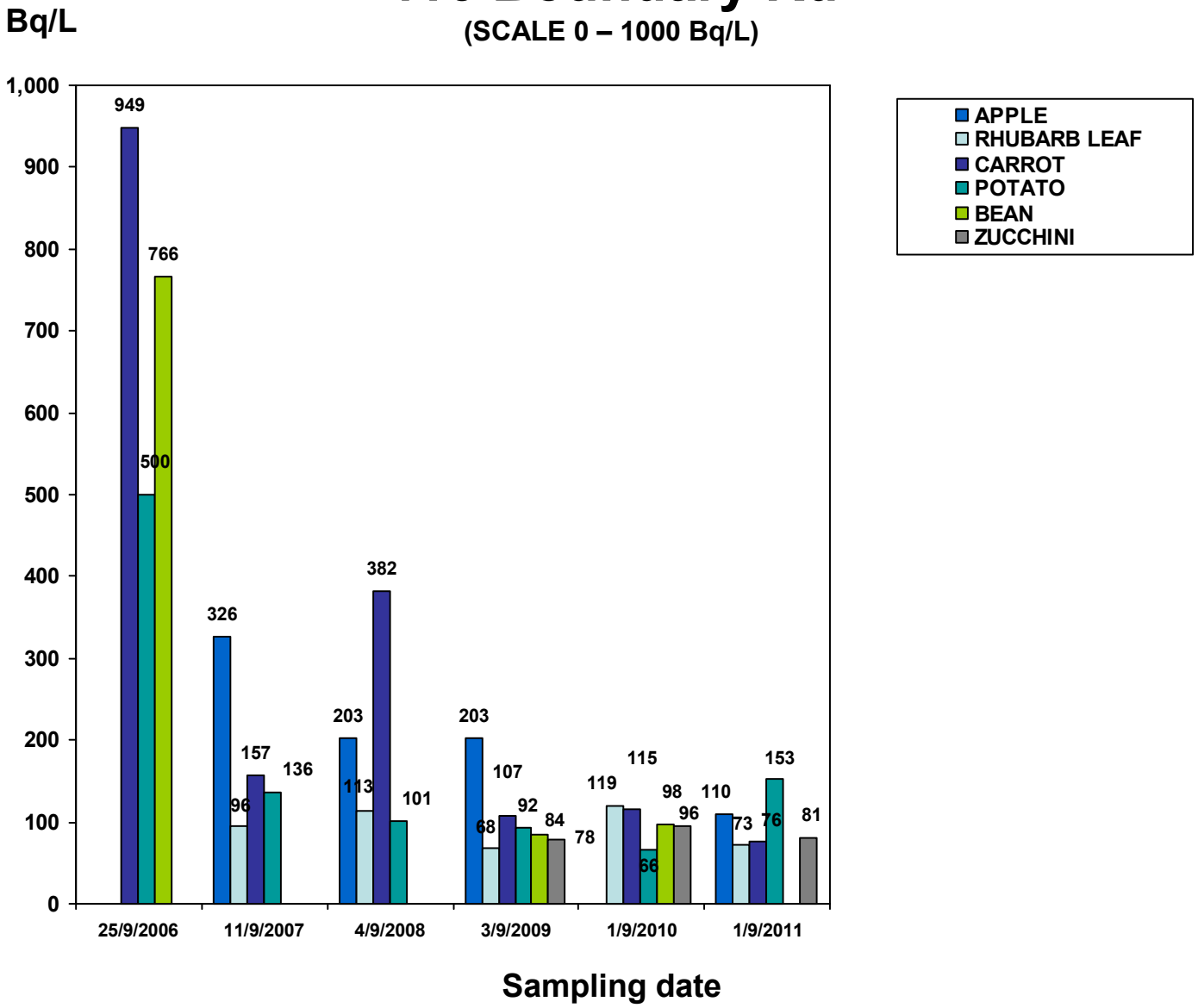
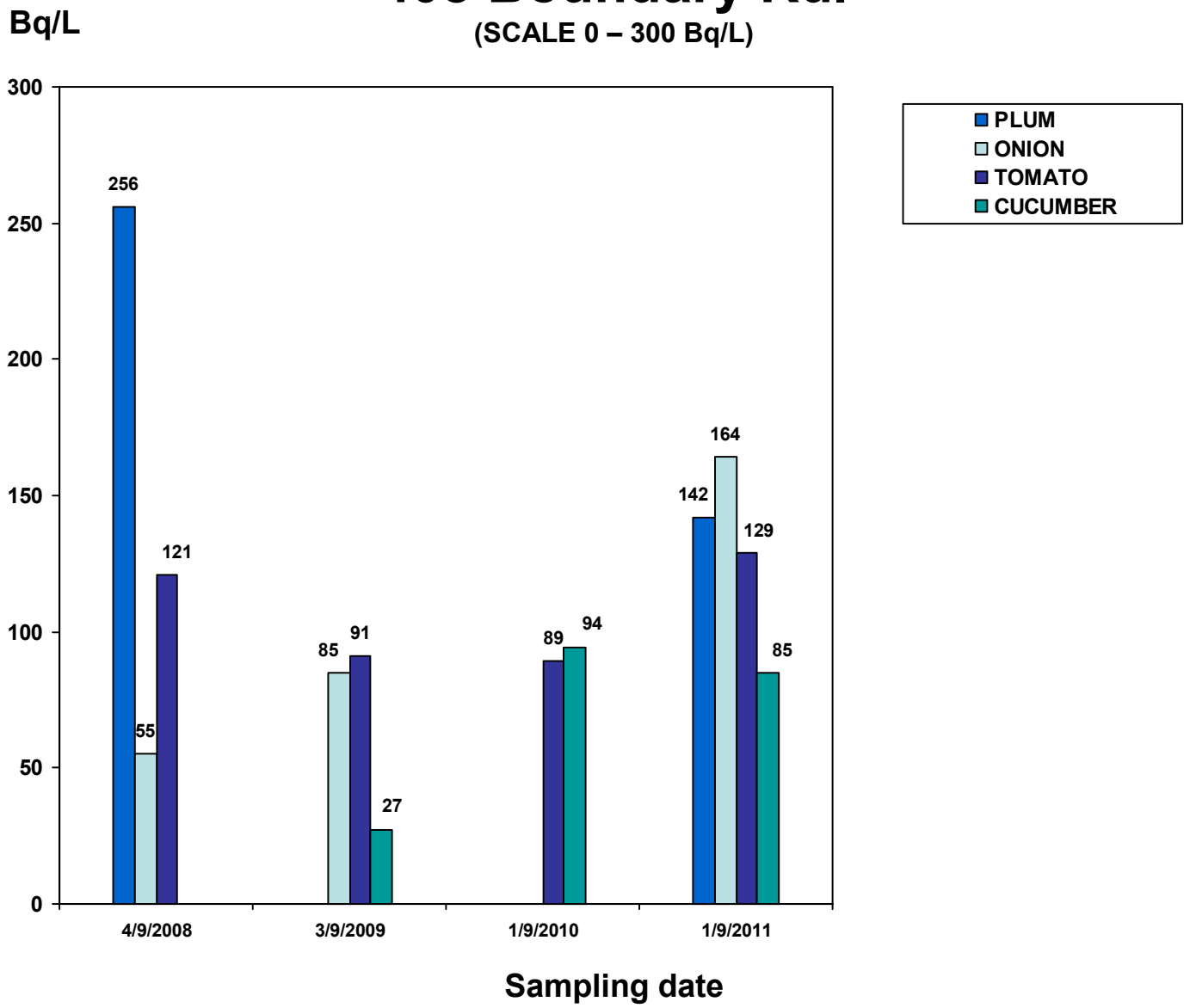
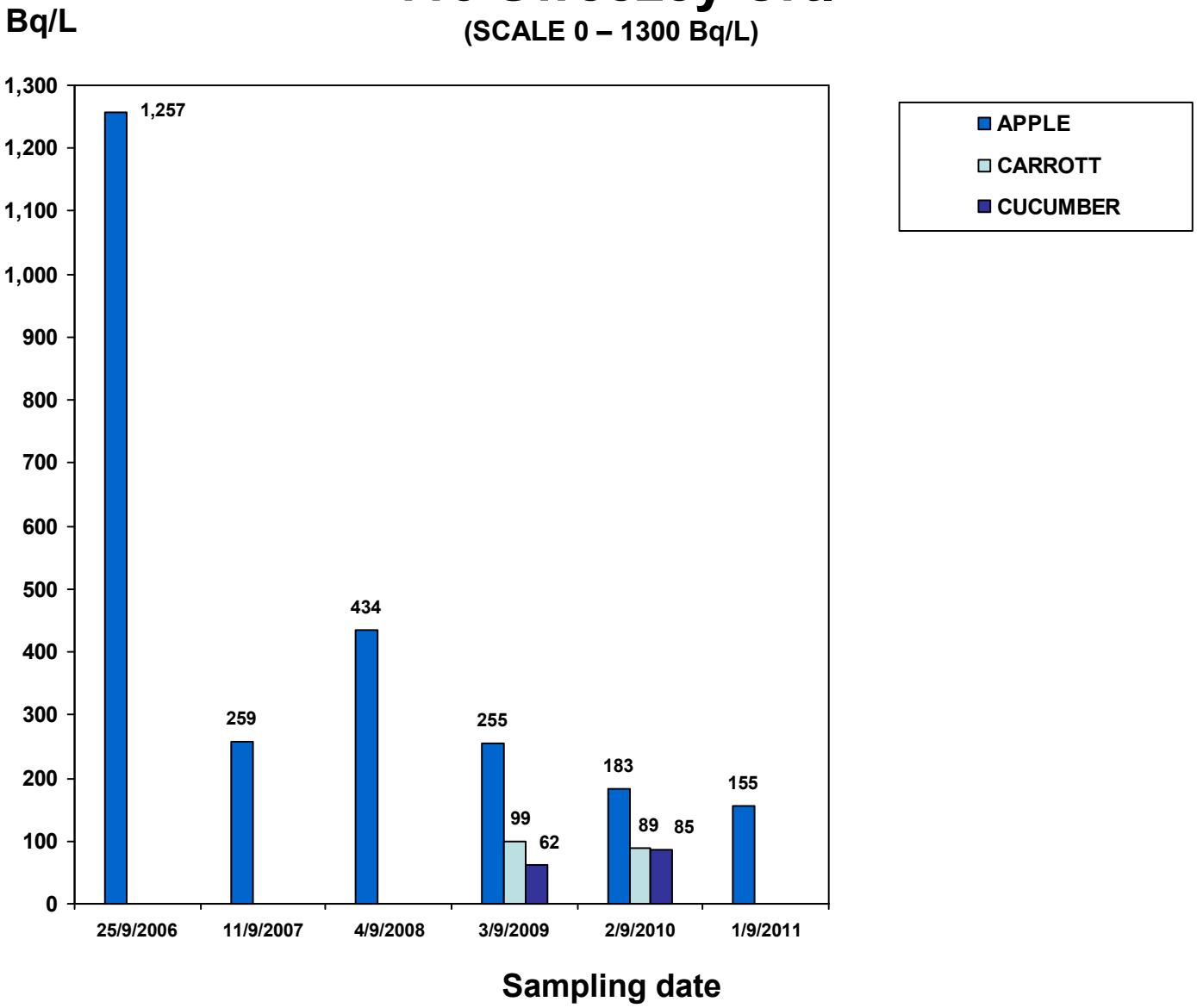
416 Boundary Rd



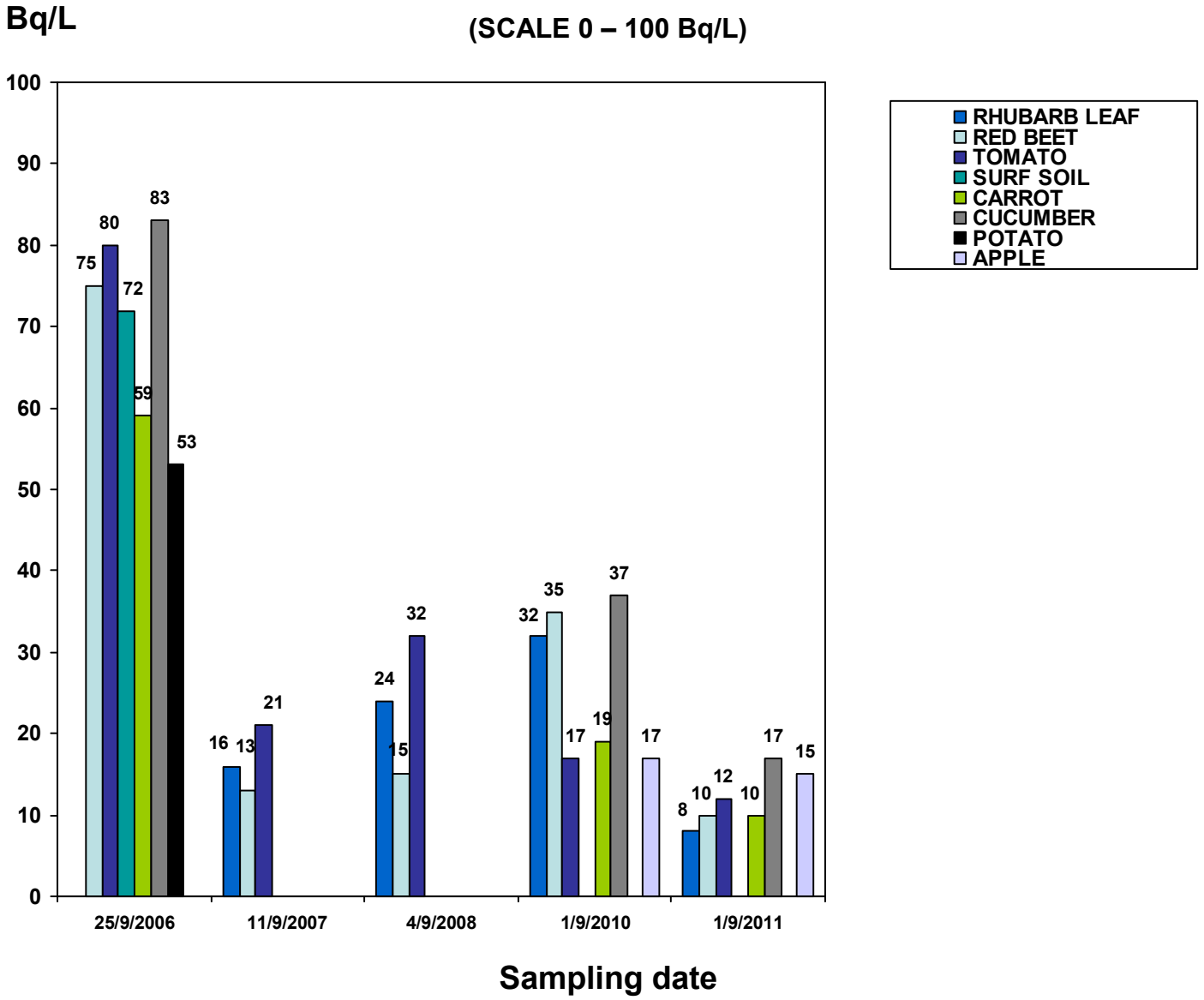
PRODUCE MONITORING RESULTS
408 Boundary Rd.



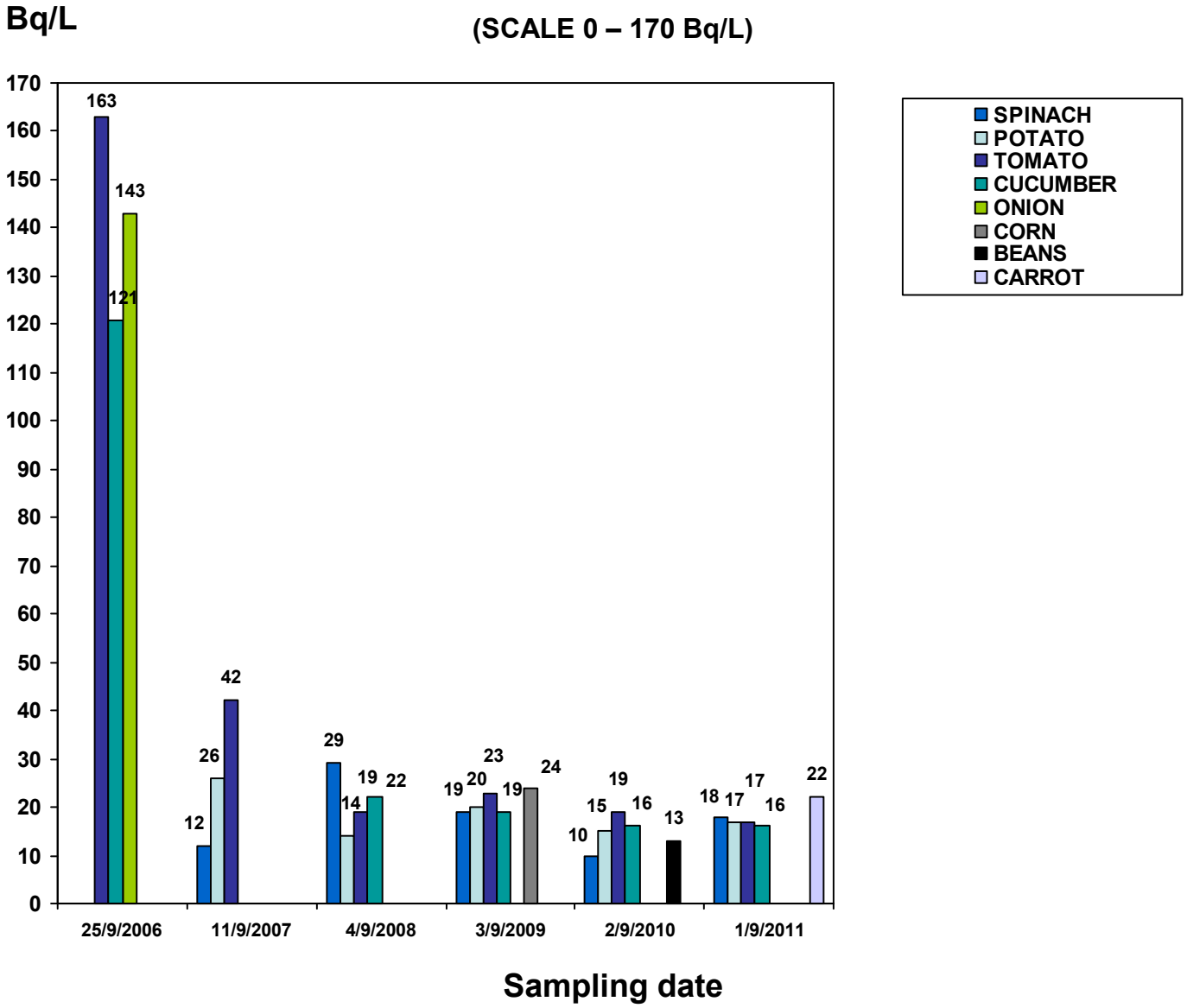
PRODUCE MONITORING RESULTS
413 Sweezey Crt.



PRODUCE MONITORING RESULTS
366 Chamberlain



PRODUCE MONITORING RESULTS
711 Bruham Ave.

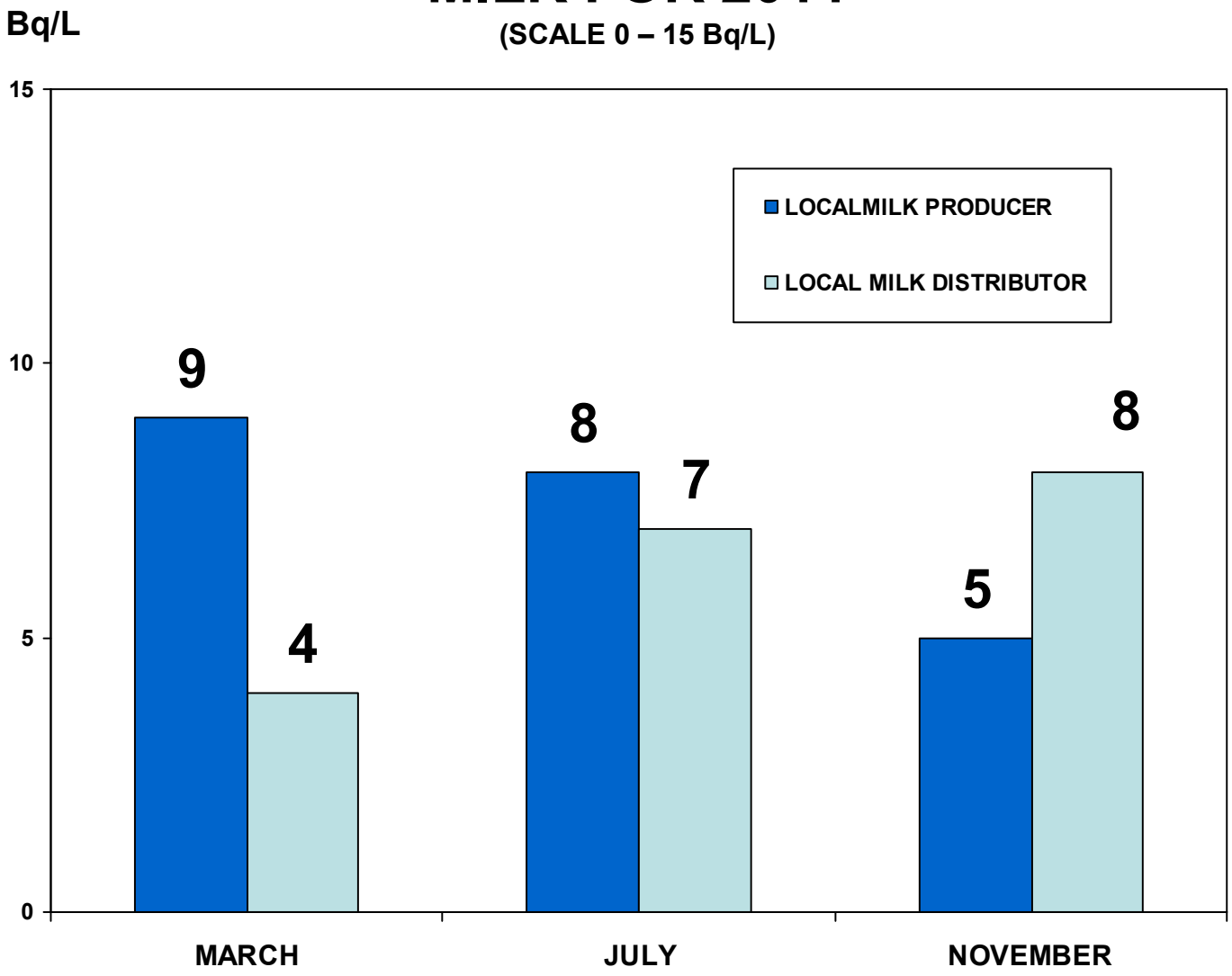


APPENDIX R

Milk monitoring results for 2011

DESCRIPTION	March	July	November	AVG
LOCAL PRODUCER	9	8	5	7.33
LOCAL DISTRIBUTOR	4	7	8	6.33
			AVG	6.83

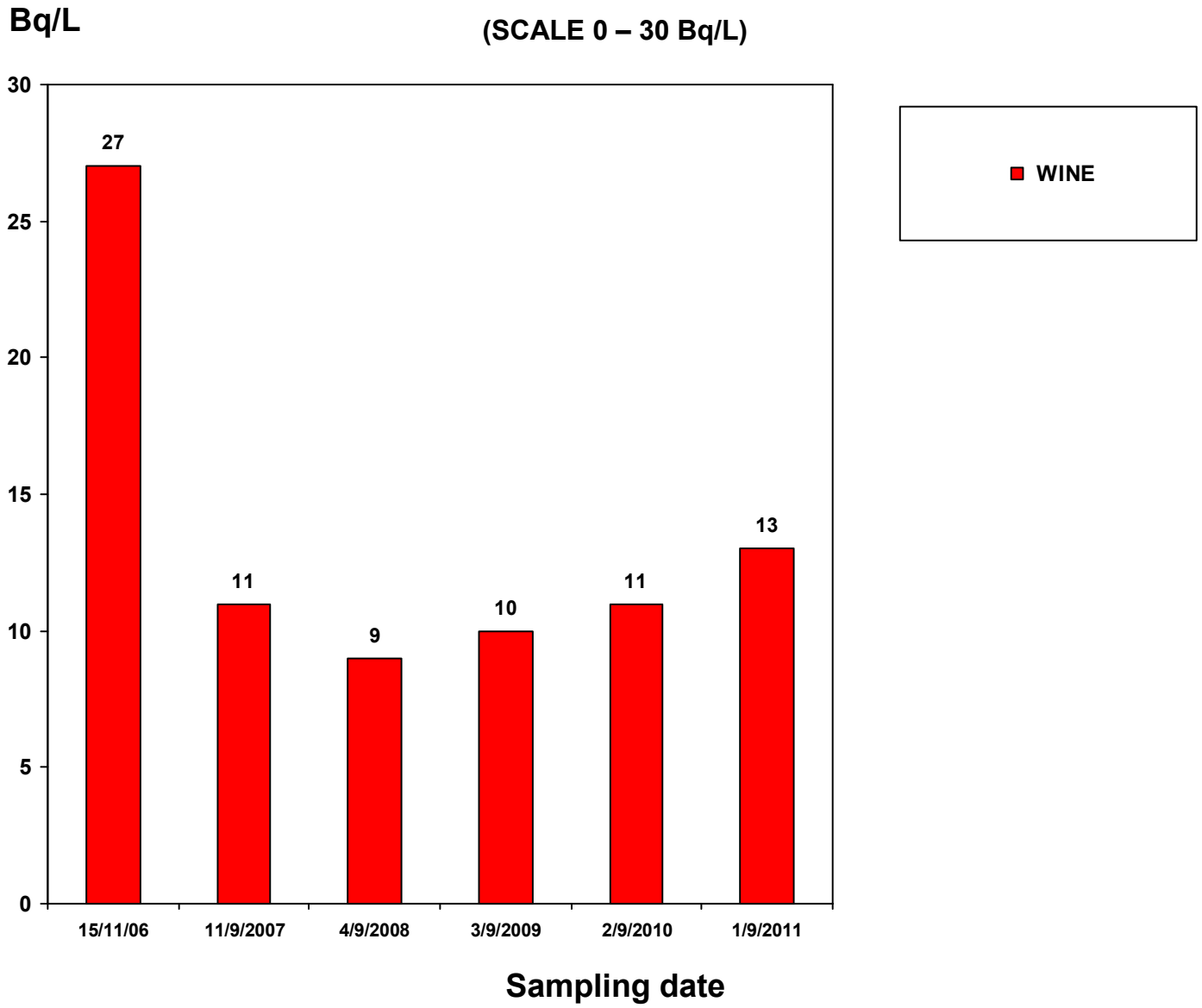
MONITORING RESULTS
MILK FOR 2011



APPENDIX S

Wine monitoring results for 2011

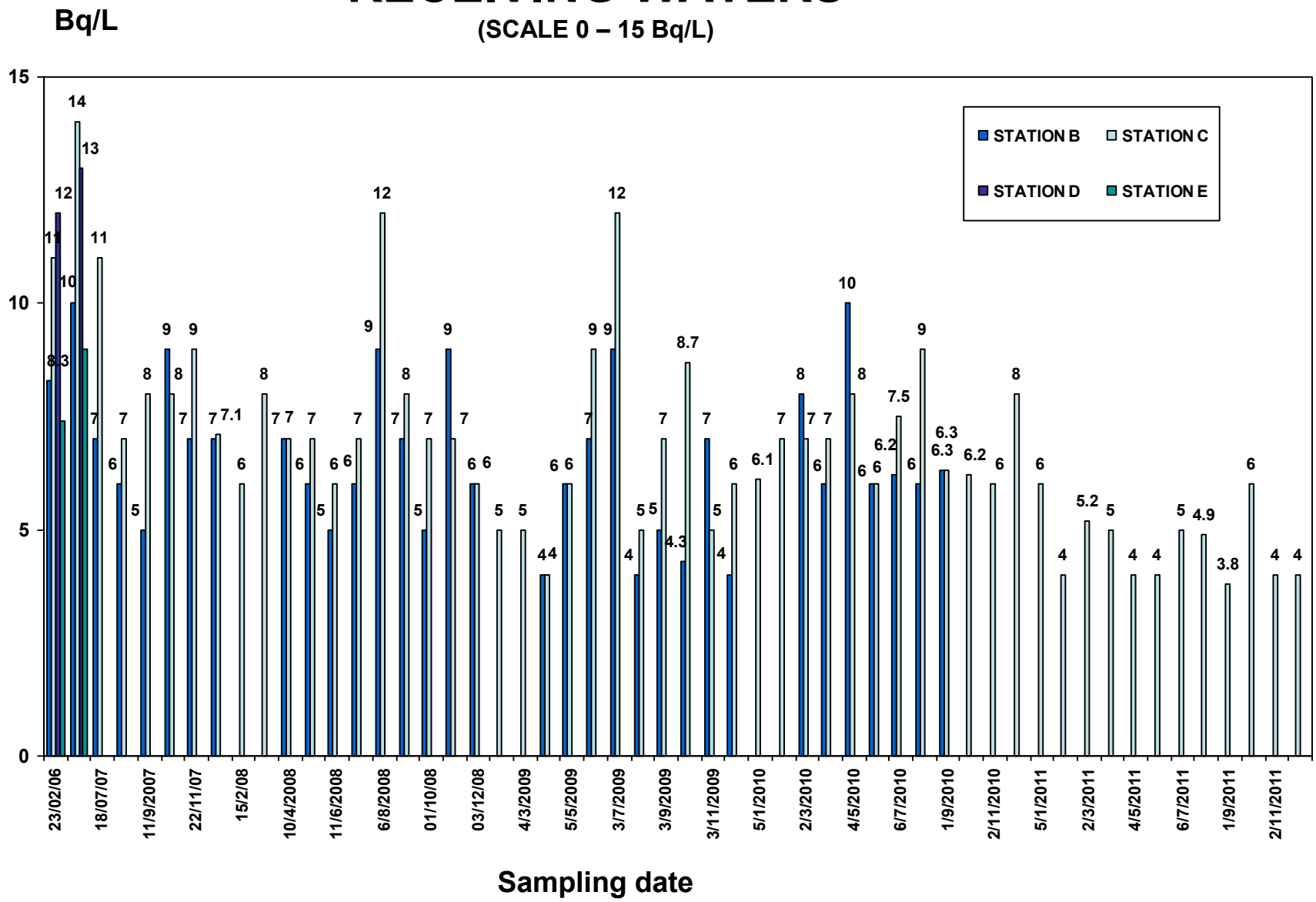
MONITORING RESULTS
WINE



APPENDIX T

Receiving waters monitoring results for 2011

MONITORING RESULTS
RECEIVING WATERS



APPENDIX U

Weather data for 2011

	WEATHER MONITORING DATA 2011									
	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-11	999.37	36	2.32	3.35	218.96	-13.55	80.55	-16.23	SW	7.2
Feb-11	997.25	64	2.95	4.39	210.46	-7.9	72.02	-12.31	SSW	12.8
Mar-11	999.25	243	2.91	4.31	221.81	-2.22	68.57	-7.78	SW	48.6
Apr-11	997.34	625	3.07	4.71	198.53	5.98	66.85	-0.59	SSW	125
May-11	996.97	313	2.75	4.3	172.74	14.48	70.04	8.29	SSE	62.6
Jun-11	994.13	499	2.2	3.47	209.21	19.15	71.63	13.24	SSW	99.8
Jul-11	994.13	508	2.17	3.32	213.95	21.25	73.51	15.81	SW	101.6
Aug-11	993.87	297	2.18	3.34	205.71	19.43	75.64	14.65	SSW	59.4
Sep-11	998.81	345	2.29	3.51	207.55	14.94	79.58	11.12	SSW	69
Oct-11	997.30	263	2.52	3.80	195.43	8.90	76.23	4.57	SSW	52.6
Nov-11	997.58	334	2.74	4.01	191.12	3.78	76.18	-0.31	SSW	66.8
Dec-11	1000.63	135	2.86	4.11	194.41	-3.94	84.07	-6.29	SSW	27
YEARLY AVERAGE	997.22	305.17	2.58	3.89	203.32	6.69	74.57	2.01	SSW	61.03

APPENDIX V

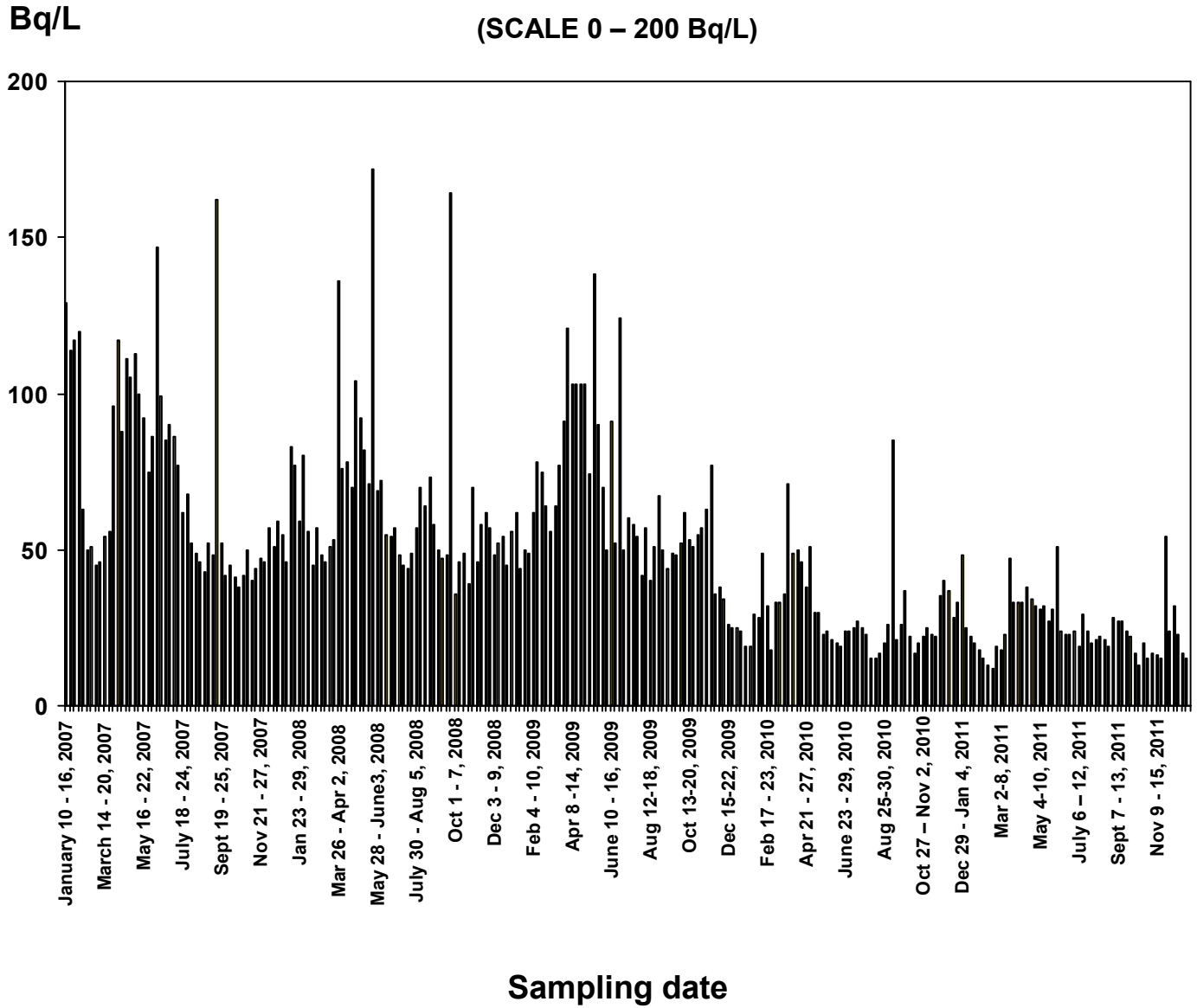
Sewage monitoring results for 2011

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, 2011	15
AVERAGE	**25**

MONITORING RESULTS
POLLUTION CONTROL PLANT



APPENDIX W

Shipments containing radioactive material for 2011

SHIPMENTS CONTAINING RADIOACTIVE MATERIAL FOR 2011

Month / 2011	Number of Shipments
January	15
February	19
March	24
April	17
May	24
June	21
July	14
August	18
September	32
October	18
November	21
December	16
Total Shipments	***239***
2011 Monthly Average:	***19***