



# October 2013 Environmental Update for SLEMA Board

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October 31, 2013

# Outline

1. Mine Update
2. Inspection Update
3. Regulators' Update
4. Aboriginal Update
5. Stakeholders' Update
6. Agency's Activities
7. SLEMA Reviews
8. SLEMA Modeling Update



# Acronyms

- AANDC – Aboriginal Affairs and Northern Development Canada (previous INAC – India and Northern Affairs Canada)
- AEMP – Aquatic Effects Monitoring Program
- ARD – Acid Rock Drainage
- DFO – Fisheries and Oceans Canada
- EC – Environment Canada
- ENR – Department of Environment and Natural Resources, GNWT
- GNWT – Government of the Northwest Territories
- MVLWB – Mackenzie Valley Land and Water Board
- PK – Processed Kimberlite
- SLEMA – Snap Lake Environmental Monitoring Agency
- SNP – Surveillance Network Program
- TDS – Total Dissolved Solids
- WEMP – Wildlife Effects Monitoring Program
- WTP – Water Treatment Plant
- WMP – Water Management Pond



# 1.1 Mine Update – September 2013 (I)

- Production rate: 103 % of its capacity (97,355 tonnes of kimberlite processed)
- 2,491 m<sup>3</sup> of water withdrawn from Snap Lake
- 1,008,284 m<sup>3</sup> of treated water discharged into Snap Lake
- 83,417 tonnes of coarse reject and 60,027 m<sup>3</sup> of slimes deposited in the North Pile, and 4,803 m<sup>3</sup> of paste deposited in the underground
- 2 surface spills (1 reportable)
  - 173 hydrocarbon spills in the underground mine (6,472 liters). The underground spills are contained and routed through the sumps. The majority of the spills underground are mainly due to worn or damaged hydraulic hose or fitting failures



# 1.1 Mine Update – September 2013 (II)

- Water sampled in 10 monitoring stations
  - The monthly average for all parameters met compliance except
    - Chloride (314 mg/L) which exceeded the monthly average limit of 310 mg/L
    - Additional sampling has been implemented for chloride analysis to determine if the exceedances are chronic or due to mining methodology. Activities will be adjusted accordingly to control chloride at source
    - Ammonia and nitrate in the runoff at emulsion plant area (SNP 02-09.4 and 5) remain high
- A second diffuser was successfully installed approximately 20 feet north of the existing diffuser. Measures were taken to avoid adverse effects on fish, fish habitat and the aquatic environment. At no time did the TSS exceed effluent water quality



# 1.1 Mine Update – September 2013 (III)

## ➤ Quarterly Toxicity Testing Results for SNP 02-17B

- Submitted on October 31, 2013
- Water Treatment Plant (WTP) effluent samples taken on September 8 were tested
  - By HydroQual Laboratories Ltd. (Calgary) during September 2013
- Standard biological test methods used
- 4 analysis reports submitted
  - Algae tests – inhibitory effects did not occur
  - Ceriodaphnia tests – no effect occurred
  - Trout tests – no effect occurred
  - Daphania tests – no effect occurred

## ➤ Comments from the Environmental Analyst

- No concerns are raised



# 1.2 Spill Reporting in October 2013

Date	Location	Waste Spilled	Amount (L)	Cause
October 2	Underground sewage vacuum truck, outside Sewage Treatment Plan	Sewage	500	Shattered sight glass on the rear of the tank



# 1.3 Water Management Plan

- Submitted on October 1, 2013
  - Required by the Water Licence MV2011L2-0004
  - The plan describes water management activities during the operational phase, which commenced in 2007 and will continue through to closure. The Plan applies to all operations
  - The Plan updates prior water management information presented in the Environmental Assessment Report (EAR) for the Project (De Beers 2002) in accordance with the previously approved 2009 Water Management Plan



# 1.4 Legal Opinion on TDS Amendment (I)

- Dated October 7, 2013
  - De Beers was requested by the MVLWB to submit a legal opinion as to whether the MVLWB has legal authority to amend the TDS limit in De Beers' Type A Water License without any additional regulatory process before MVEIRB
  - De Beers legal counsel provided a memorandum
    - Confirmed that the MVLWB has the jurisdiction to amend the TDS limit in De Beers' Type A Water Licence for the Snap Lake Mine without any additional regulatory process before the MVEIRB



# 1.4 Legal Opinion on TDS Amendment (II)

## ➤ Background

- Current TDS limit is 350 mg/L, which was based on predictions as opposed to a guideline value or toxicity data
- De Beers has now concluded the comprehensive and robust studies referred to above for TDS. The work undertaken by De Beers establishes that a Snap Lake TDS site specific water quality objective of 684 mg/L will be protective of Snap Lake and will not result in any significant adverse environmental effects



# 1.4 Legal Opinion on TDS Amendment (III)

## ➤ Memorandum Conclusion

- “In conclusion, no preliminary screening is required because the amendment which seeks to vary the current TDS limit does not constitute a “development”. In any event, the amendment is exempted from preliminary screening as a result of the *Exemption List Regulations*. Finally, we note that the work done by De Beers establishes that there will not be any significant adverse effects to Snap Lake if the amendment application is granted by the MVLWB. For all of these reasons, no regulatory review by the MVEIRB is required.
- Our conclusions are consistent with the practical reality which is that the expertise to assess whether an increase in the TDS limit will have any significant environmental effects on Snap Lake resides with the MVLWB and not the MVEIRB. If the MVEIRB were required to assess this matter, which it is not, it would simply recommend that the MVLWB determine whether the proposed TDS limit is acceptable.”



# 1.5 Chronic Toxicity Testing (I)

## Embryo-Alevin Early Life Stages (ELS) Testing

- Dated October 9, 2013
  - On September 17, 2013 De Beers contacted the MVLWB to advise that two attempts (September 3 and 10) at completing the aforementioned test by Hydroqual laboratories were invalidated due to a failure in the control (reference) test
  - On September 24, De Beers initiated a third test with a second lab, Nautilus Environmental, which has had success with developing site specific benchmarks for the Mine site in support of the Water License Amendment. After 7 days, this test was invalidated again due to a failure in the control test



# 1.5 Chronic Toxicity Testing (II)

- Due to safety concerns the test cannot be performed a fourth time during open water, as the test is run for 4 consecutive weeks, with water being shipped to accommodate the test regularly
- De Beers strives for regulatory excellence and requests that the Board provide guidance on how to carry out this activity
  - 3 options proposed
  - Option 2, to initiate the test under ice is the preferred option
- De Beers also requests clarity on a maximum numbers of attempts to complete this work that would be deemed acceptable



# 1.6 Exceedance of Chloride Monthly Average at SNP 02-17B

- Dated October 30, 2013
  - The monthly average for September was 314 mg/L, exceeding the Effluent Quality Criterion for Chloride (310 mg/L)
  - De Beers already informed the AANDC Inspector, and he will travel to the site for sampling
  - De Beers will take samples on Monday, Wednesday and Thursday for the next 30 days to further determine if the exceedance is of temporary or chronic concern

**Table 1: Chloride Values at 02-17B**

Station	Date	Result
02-17B	September 1	300 mg/L
02-17B	September 8	354 mg/L
02-17B	September 13	311 mg/L
02-17B	September 19	282 mg/L
02-17B	September 25	276 mg/L
Average	September	Sum of Above / 5 = 314 mg/L

## 2. Inspection Update

- AANDC Inspector – Patrick Kramers
- Water Licence Inspection
  - October 2/3, 2013



## 2.1 Notification that Information Provided in Reference to Inspectors Direction Satisfies Requirements

- Dated October 10, 2013
  - Tracy Covey issued the Inspectors Direction relating to the "Chronic Exceedance of Effluent Quality Criteria (EQC) Requirements at the Snap Lake Mine" on 15 November, 2012
  - Patrick Kramers advised De Beers that upon review of information supplied in relation to the abovementioned Inspectors Direction, the Inspector on file considers the concerns within the Direction addressed and therefore the Direction is hereby considered as satisfied



## 2.2 Water Licence Inspection

- Dated October 2&3, 2013
- Inspected Fuel Tank Farms, Environment Shop, Water Management Pond, Waste Management Area, Incinerators, Laydown Area, Temporary Sump #4 (Crane), Landfill, Perimeter Sumps, Ammonium Nitrate Storage Facility, New Diffuser
  - The new Sewage Treatment Plant within the Water Treatment Plant is in the process of being commissioned for service
  - Food waste and associated plastics on-site has been successfully managed, and incinerators are now fully functional
  - The floor of the Ammonium Nitrate Storage Facility is experiencing significant degradation by the liquefied ammonium nitrate causing apparent pitting. De Beers informed the inspector the renovation is upcoming



# PS-3 repairs are very neat completion



The crane that overturned at TS-4 has been removed and sampling results indicating no residual hydrocarbons were submitted to the Inspector for review and approval



Installation of the second diffuser was completed with no apparent adverse environmental effects such as turbid waters



Excavation advanced to removed hydrocarbon impacted materials at the Main Bulk Transfer Station.  
No off-site migrations concerns were present



North Pile Starter Cell minimum containment observed. Note lack of construction equipment signifying a delay in construction of the Board approved Phase IV Raise



# 3. Regulators' Update – MVLWB

- Solicited input on availability for the first Quarterly Meeting on October 2, 2013
  - Due on October 4
  - De Beers replied that October 17 is the best date due to flight constrictions to and from site
  - ENR verified the attendance of Sean Whitaker, Industrial Specialist – Mining, Environment Division on October 4
- The first Working Group Quarterly meeting set for Wednesday morning October 30



# 3. Regulators' Update – MVLWB

- Invited reviewers to submit comments on **MV2011L2-0004 - De Beers Snap Lake - Comments regarding the De Beers' Submission on the ability to amend the TDS limit set during the Environmental Assessment (EA) process**, on October 15
  - Due on November 5, 2013
- Requested reviewers comments on De Beers' letter on **30 day ELS test – invalidations and the options provided**, on October 18
  - Due on October 31



# 3.1 Snap Lake Working Group Meeting

- Held on October 30, 2013
- Participants:
  - Staff from MVLWB, AANDC, DFO, EC, ENR
  - Staff from De Beers, Golder Associates
  - Staff from NSMA, YKDFN, Lutsel Ke, SLEMA
- De Beers made presentation for Paste Research Update and North Pile Management Plan, followed by questions and discussions



## 4. Aboriginal Update

- No comments received from the Aboriginal groups



# 5. Stakeholders' Update

- Comments on Revised ARD Plan by
  - AANDC on October 4, 2013
  - Environment and Natural Resources (ENR), GNWT on October 4
  - Environment Canada (EC) on October 4



# 5.1 AANDC Comments on Revised ARD Plan

- 0.17% is suggested by DeBeers as the sulphur concentration cut-off above which material may generate acidity. AANDC notes that several samples of granite with sulphur concentrations less than 0.17% returned a Net Acid Generation test pH of less than 4.5. The sulphur cut-off at Diavik is 0.08% sulphur and the sulphur cut-off recommended for the Fortune NICO project is 0.1%
  - AANDC suggests that a lower cut-off number may be appropriate if additional samples continue to show potential for acid generation at a sulphur content below 0.17



## 5.2 ENR Comments on Revised ARD Plan (I)

- Please clarify whether the metavolcanic or granite/metavolcanic waste rock will or will not materially influence the leachate of metals in water quality, and address the contradiction between the 2012 Annual Report and the current Plan with respect to North Pile water quality



## 5.2 ENR Comments on Revised ARD Plan (II)

- As the historic underground water inflow rate is at or has exceeded the EAR predicted levels, provide rationale for the use of the EAR predicted values in comparing the current rate for underground water inflow. How will the mass loading in the underground inflow be affected if the mine production increases, or if the mine life is extended?
- Provide the anticipated completion dates for all mass loading studies currently conducted as stated in the Plan; *Section 5- Source Loadings and Effects on Receiving Water Chemistry*



## 5.2 ENR Comments on Revised ARD Plan (I)

- The proponent states “Based on the test results to date, it is not expected that small amounts of metavolcanic rock contained within other rock types used for construction will materially change the leachate characteristics or acid generation potential of those materials.”
  - EC recommends to treat the metavolcanic rocks with sulphides minerals contained in other rock types with caution and confirm this with ongoing monitoring



## 5.2 ENR Comments on Revised ARD Plan (II)

- EC recommends the proponent clarify if the reduction in TDS in 2010 was due to reduced inflow or to some other factor
- EC requests an opportunity to review the results of the modeling (TDS mass load from the North Pile) when it is available. In addition EC requests clarification on the effect on water quality in the future should there be an upward trend in mass load to Snap Lake
- EC requests opportunity to review the modeling results (water quality in Snap Lake). Also EC recommends that the proponent implement adaptive measures to remedy the increasing TDS in Snap Lake



# 5.3 EC Comments on Revised ARD Plan

- EC recommends to treat the metavolcanic rocks with sulphides minerals contained in other rock types with caution and confirm this with ongoing monitoring
- EC recommends the proponent clarify if the reduction in TDS in 2010 was due to reduced inflow or to some other factor
- EC requests an opportunity to review the results of the modeling when it is available. EC Also recommends that the proponent implement adaptive measures to remedy the increasing TDS in Snap Lake. In addition requests clarification on the effect on water quality in the future should there be an upward trend in mass load to Lake



## 6. Agency's Activities

- Dave White left SLEMA and Yellowknife, and moved to Nelson BC for good. Philippe di Pizzo took over the position of Executive Director in October 2013
- SLEMA Executive Meeting held on October 25



# 7. SLEMA Reviews

- Vegetation Monitoring Program 2012 Annual Report
- Air Quality, Meteorological Monitoring, and Emission Reporting 2012 Annual Report
- 2012 Environmental Agreement Annual Report

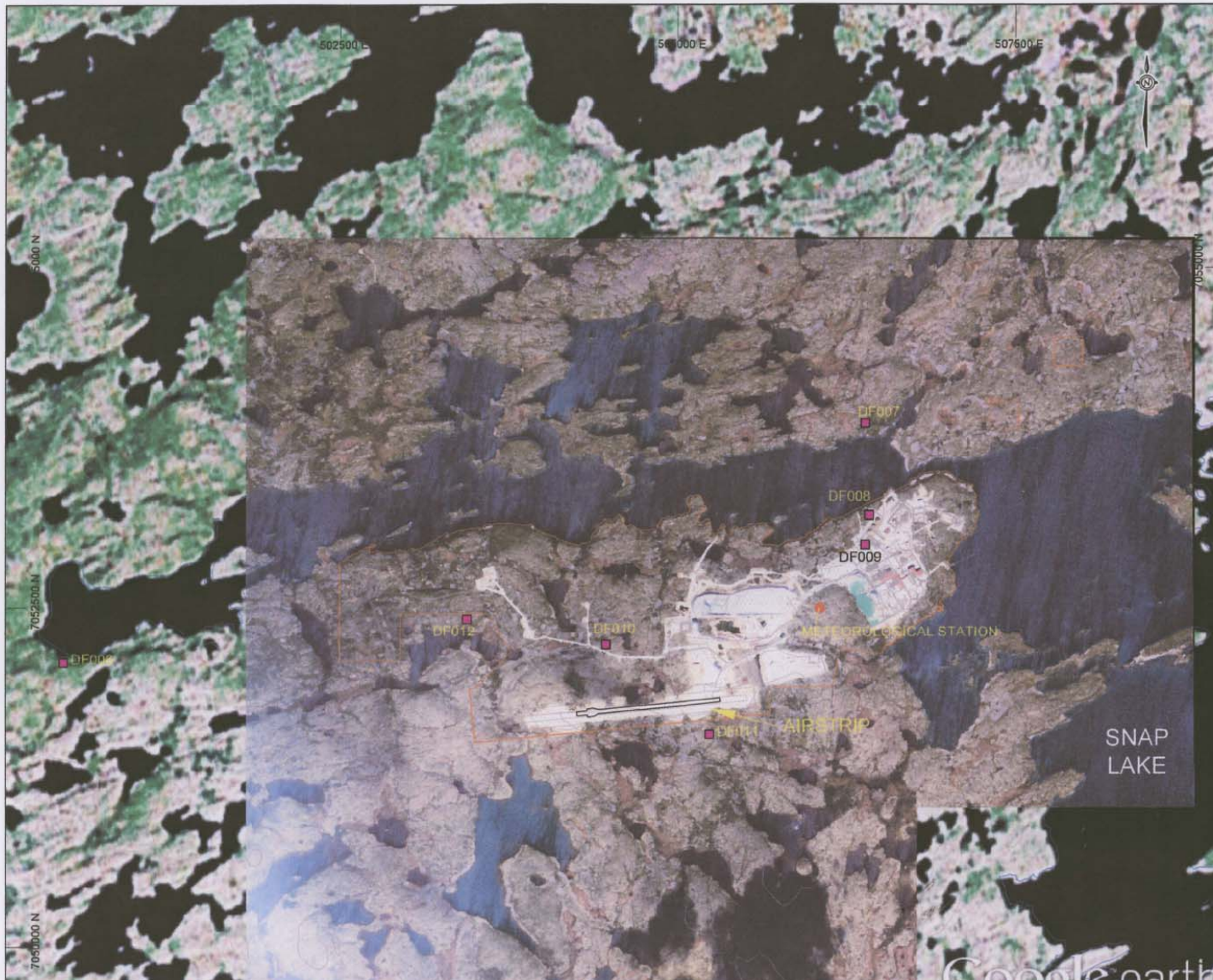


# 7.1 Vegetation Monitoring Program 2012 Annual Report

- Submitted on June 26, 2013
  - Required by the Environmental Agreement
  - No annual monitoring was conducted in 2012. Annual monitoring program are to be completed at five-year intervals with the next program scheduled for the summer of 2013



# Dustfall Monitoring Stations

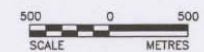


## LEGEND

- DUST FALL SAMPLING LOCATION
- METEOROLOGICAL MONITORING STATION
- SNAP LAKE MINE FOOTPRINT

## REFERENCE

DIGITAL IMAGERY OBTAINED FROM DIGITAL GLOBE (QUICK BIRD, AUGUST 2008), USED UNDER LICENCE.  
 ORIGINAL DATA WAS CORRECTED TO LANDSAT7 SATELLITE IMAGE 45/15 FROM SEPT 2, 2000 PROVIDED BY GEOBASE.  
 SATELLITE IMAGE OBTAINED FROM GOOGLE EARTH PRO. USED UNDER LICENSE.  
 GOOGLE EARTH IMAGE IS NOT TO SCALE.



PROJECT

DE BEERS  
 GROUP OF COMPANIES

TITLE

DUSTFALL AND METEOROLOGICAL  
 MONITORING STATIONS

# Dustfall Monitoring Results

- The total dustfall deposition rates were relatively high in July/August 2012
  - On-site samples exceeded the Alberta Ambient Air Quality Objective ( the 158 mg/dm<sup>2</sup>/30d guideline for commercial and industrial properties) in July/August
  - Off-site samples exceeded the 53 mg/dm<sup>2</sup>/30d guideline for residential and recreational areas in June/July, July/August, and September/October



# De Beers Data Interpretation

- “These results cannot be used solely to ascertain whether dustfall is affecting vegetation communities. The Alberta dustfall criteria were developed in 1975 to address aesthetic concerns associated with elevated dustfall levels. There are no scientifically defensible relationships between these dustfall criteria and discernible effects on vegetation communities. Vegetation is inspected visually to assess possible impacts of dustfall on vegetation. Structured and focused visual inspection of dustfall on vegetation are conducted every five years (next in 2013), unless De Beers observes notable dust accumulation, and/or stressed vegetation in the interim.”



# Interval Monitoring

- Interval monitoring criteria were assessed in 2008 and are scheduled to be assessed in 2013
  - Area of Impact – 155.4 hectares or 11% of the Local Study Area (LSA)
  - Ecological Land Classification Area Monitoring – overall, the disturbance covers 11% of the LSA, which is below the predicted 15%
  - Reclamation Monitoring – 11 permanent sample plots (PSPs) for reclamation will be surveyed in 2013



# Comments from the Environmental Analyst (I)

- It is stated in the Executive Summary that “(A) VMP was first prepared for the Mine in 2005. A subsequent VMP was prepared in 2008, following which VMPs are to be prepared at five year intervals. The next VMP will be prepared in 2013”. It is approaching the end of the year, the updated VMP is expected



# Comments from the Environmental Analyst (II)

- The dustfall levels of exceedances in 2012 are much higher than those in 2011 and 2010. It is recommended that De Beers further investigate the elevated dustfall levels

Year	2010		2011		2012	
	On-site	Off-site	On-site	Off-site	On-site	Off-site
Dustfall Range, mg/dm <sup>2</sup> /30d	174-248 >158	53.6-191 >53	165	55.7-107	179-389	63.2-318



## 7.2 Air Quality, Meteorological Monitoring, and Emission Reporting 2012 Annual Report

- Submitted on July 8, 2013
- Required by the Environmental Agreement



# Particulate Monitoring in 2012

- Consolidation of the 2012 particulate monitoring data indicates notable challenges with the particulate monitoring program in 2012
  - In January 2013, the dichotomous PM10/PM2.5 Partisol located south of the runway was replaced to improve the quality of data
- Only one occurrence recorded above the GNWT Ambient Air Quality Standard (AAQS)
  - TSP 24-hour Concentration of  $145.2 \mu\text{g}/\text{m}^3 > 120 \mu\text{g}/\text{m}^3$



Figure 3-6 Action Levels for Annual Ambient Total Suspended Particulate Concentrations

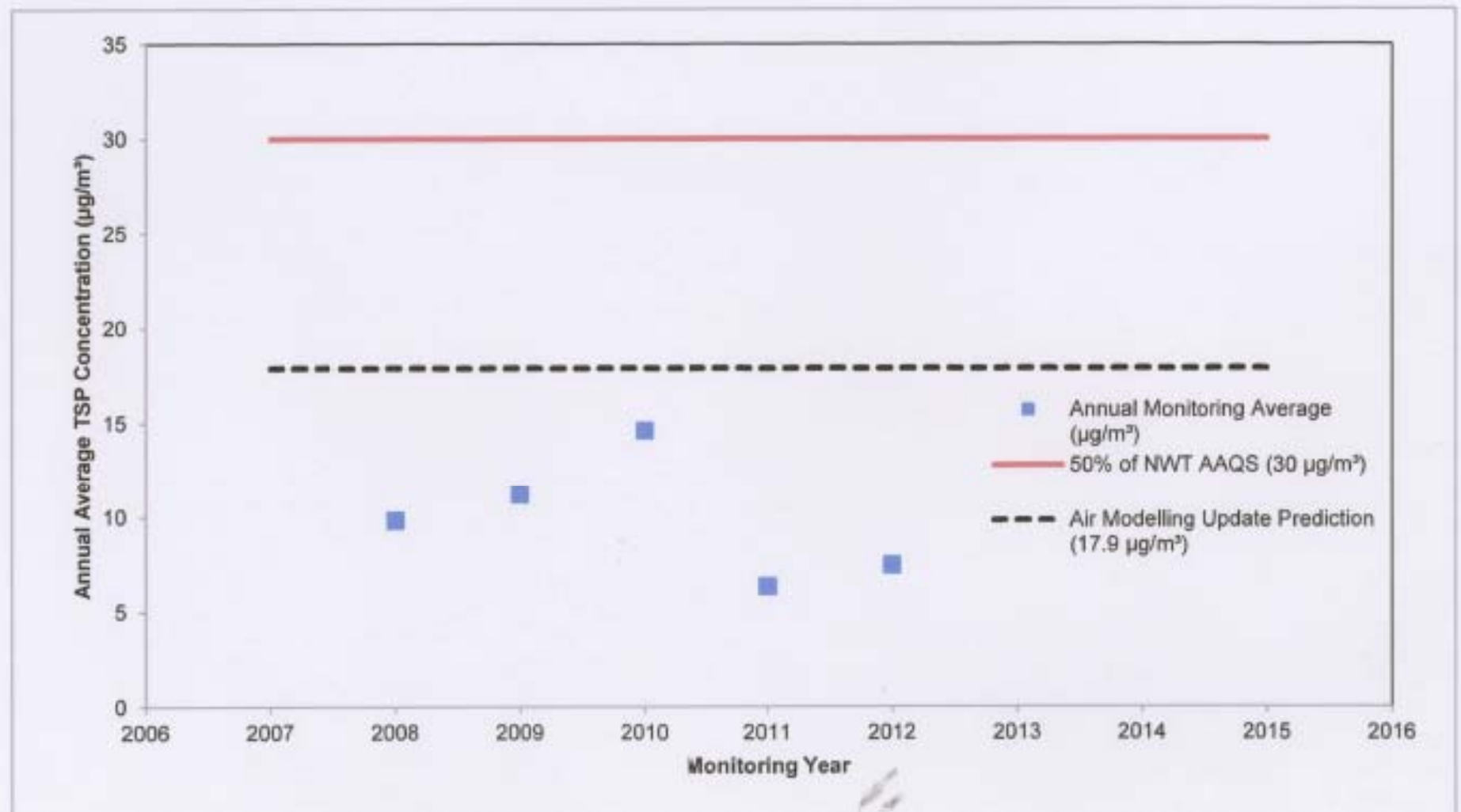
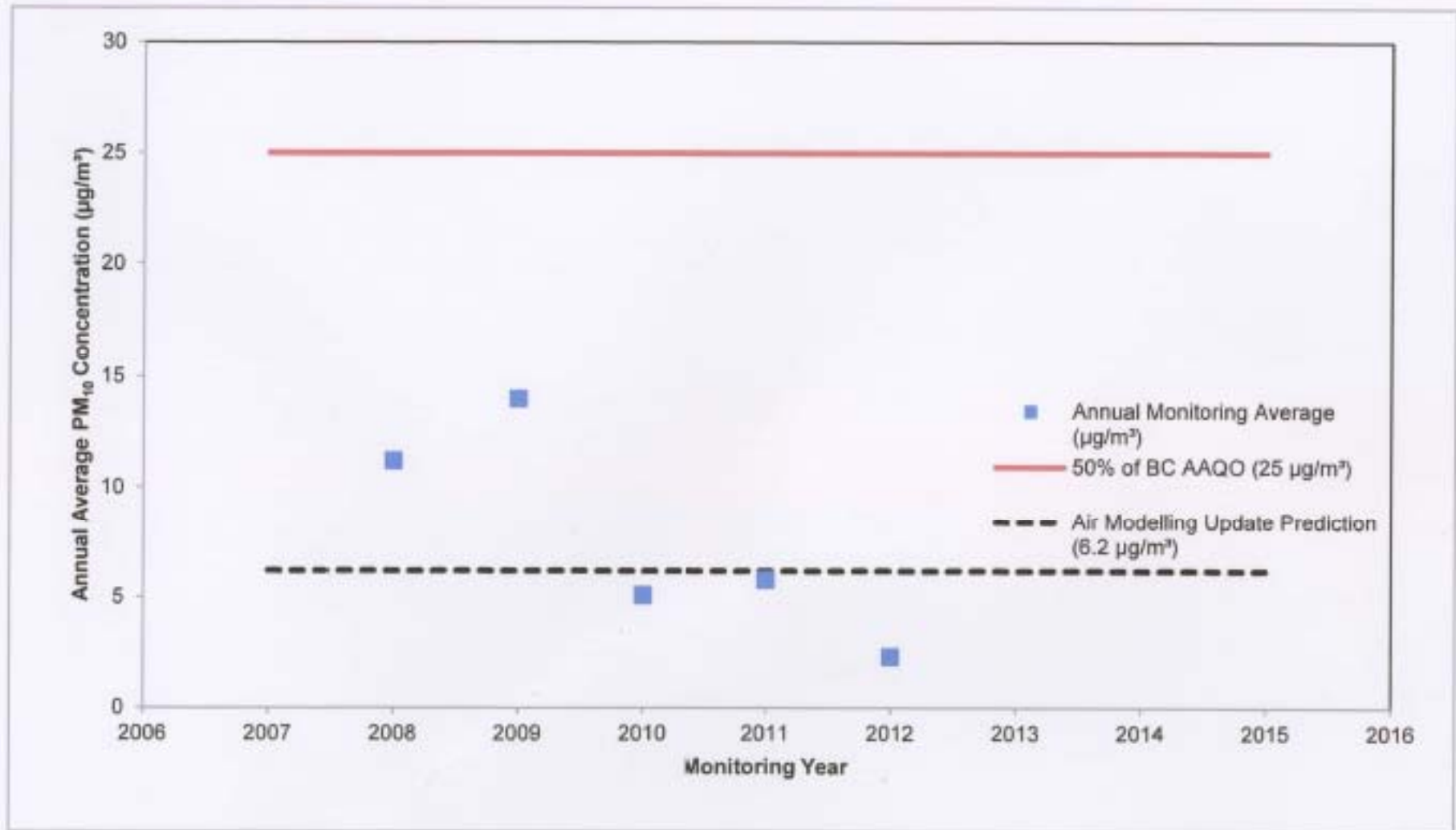
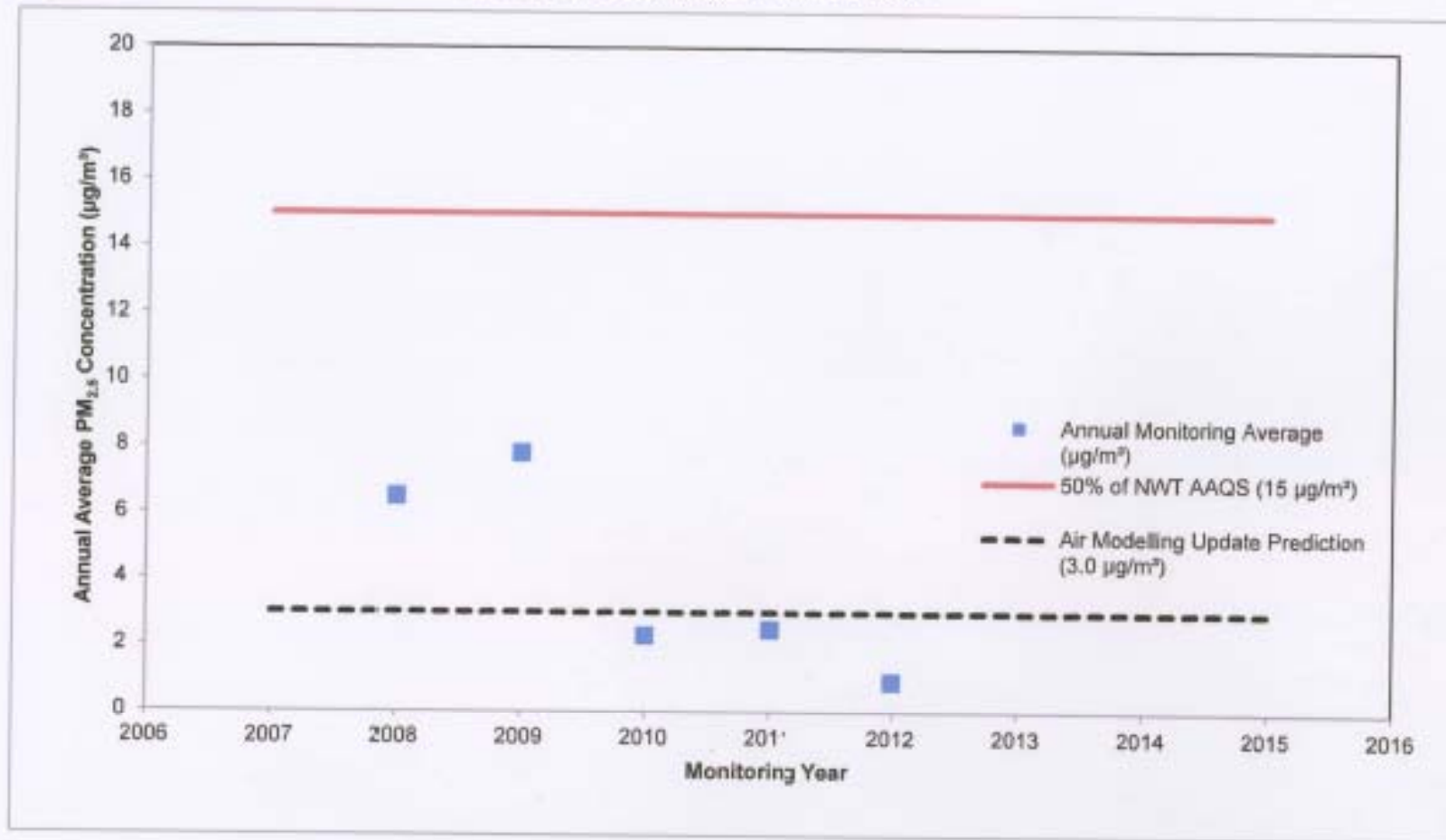


Figure 3-9 Action Levels for Annual Ambient PM<sub>10</sub> Concentrations



µg/m<sup>3</sup> = micrograms per cubic metre; PM<sub>10</sub> = particulate matter nominally less than or equal to 10 microns (µm) aerodynamic diameter; BC AAQO = British Columbia Ambient Air Quality Objective.

Figure 3-12 Action Levels for Annual Ambient PM<sub>2.5</sub> Concentrations



µg/m<sup>3</sup> = micrograms per cubic metre; PM<sub>2.5</sub> = particulate matter nominally less than or equal to 2.5 microns (µm) aerodynamic diameter; NWT AAQS = Northwest Territories Ambient Air Quality Standard.

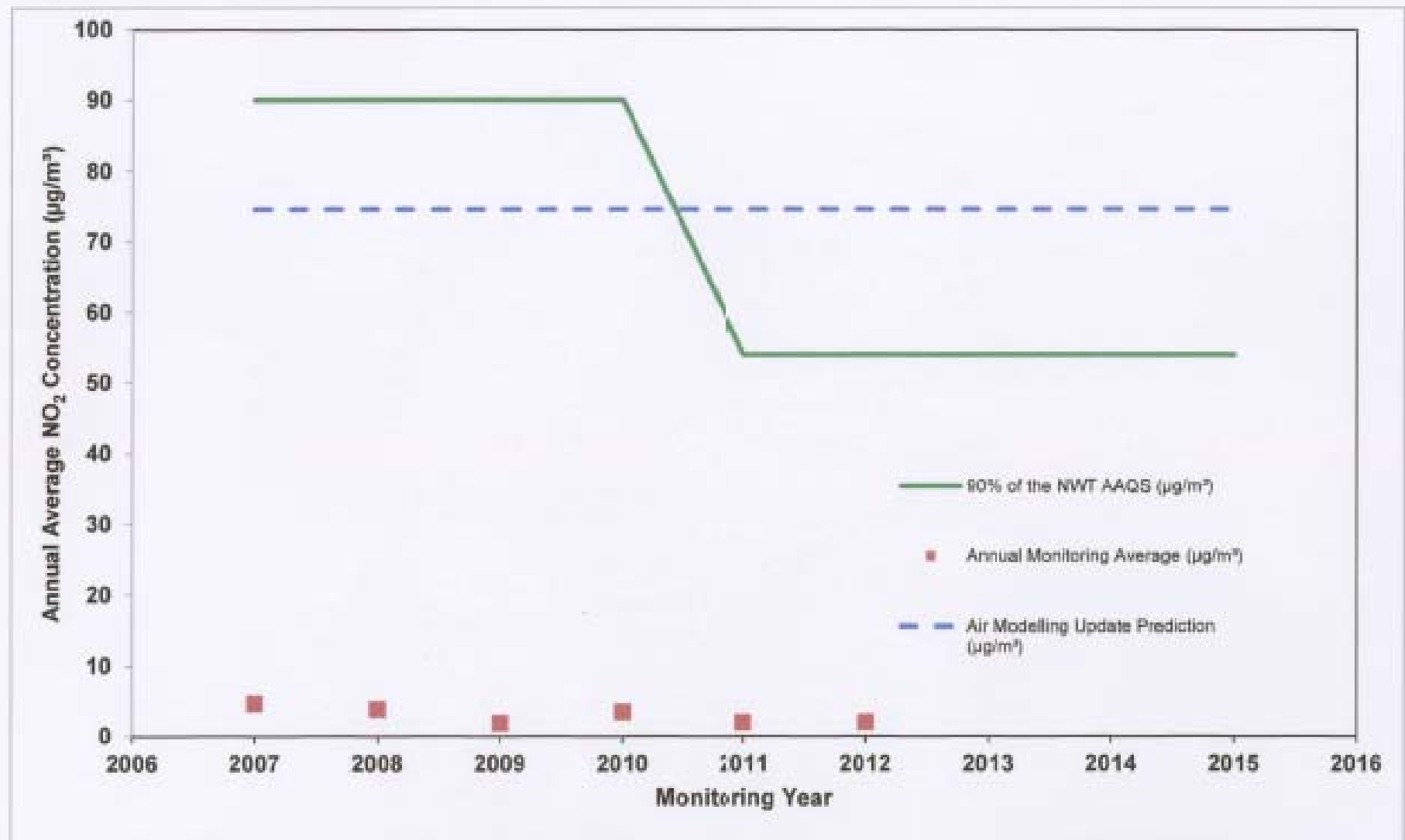


# Passive Monitoring in 2012

- The highest monthly  $\text{NO}_2$  concentration was  $13.0 \mu\text{g}/\text{m}^3$ , well below  $60 \mu\text{g}/\text{m}^3$  (GNWT AAQS)
- The highest monthly  $\text{SO}_2$  concentration was  $0.8 \mu\text{g}/\text{m}^3$ , well below  $30 \mu\text{g}/\text{m}^3$  (GNWT AAQS)

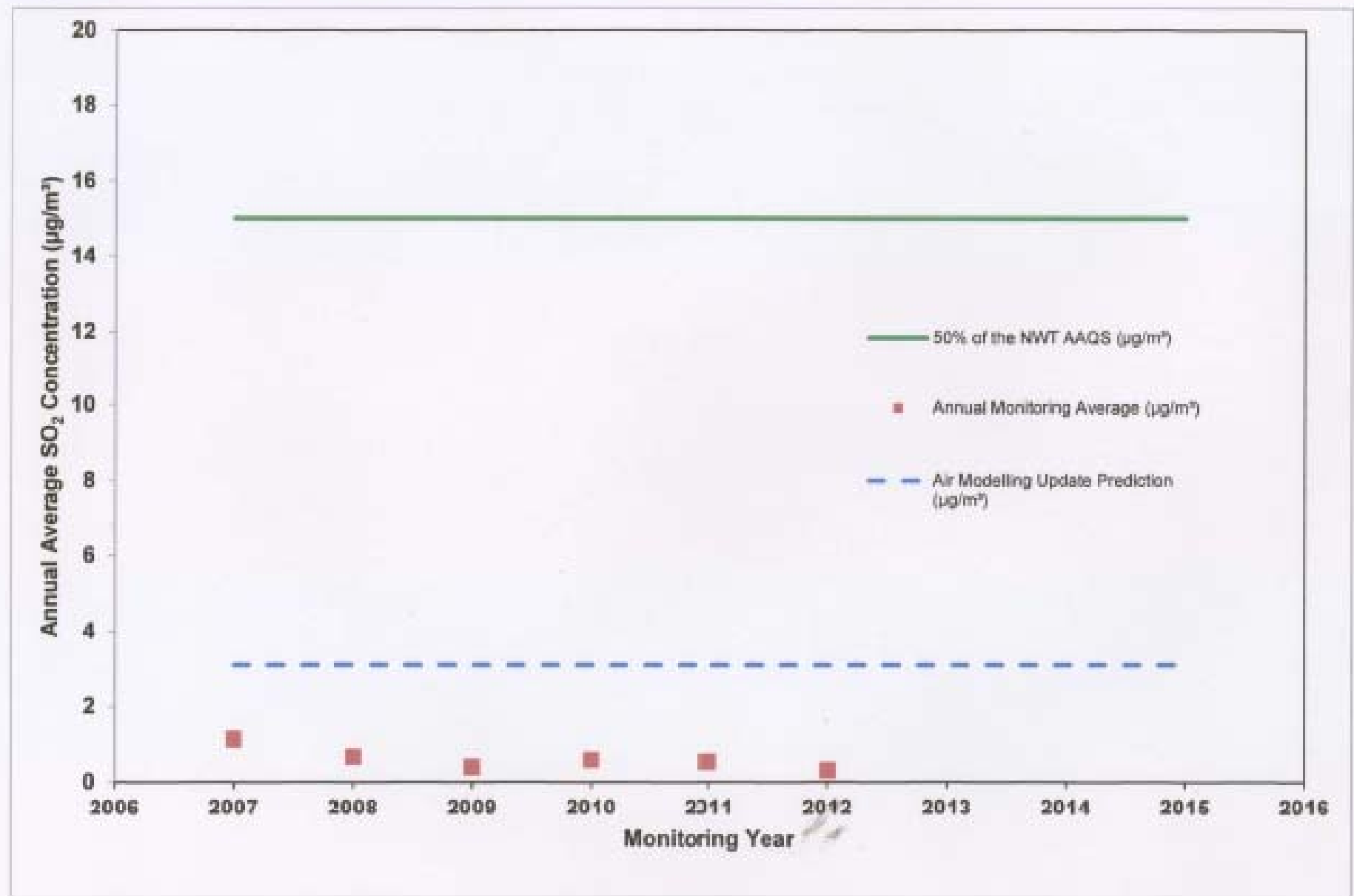


Figure 3-2 Annual Ambient NO<sub>2</sub> Concentrations



µg/m<sup>3</sup> = micrograms per cubic metres; %= percent; NO<sub>2</sub> = nitrogen dioxide; NAAQO = National Ambient Air Quality Objective.

Figure 3-1 Annual Ambient SO<sub>2</sub> Concentrations



# Mine Emissions in 2012

- Emission rates were lower in 2012 than 2011 despite an increase in fuel consumption, and remained below the 2007 Air Modeling Update
  - The emission reduction was primarily due to increased fuel consumption in equipment that has lower emission ratings and decreased fuel consumption in equipment with higher emission ratings
  - 31,769 m<sup>3</sup> of diesel with a sulphur content of no more than 15 parts per million by weight
  - The furnaces did not burn waste oil in 2012, but rather diesel fuel



# Greenhouse Gas Emissions in 2012

- The carbon dioxide equivalent (CO<sub>2</sub>e) releases in 2012 were 88.63 kilotonnes
- Greenhouse Gas emissions have increased since 2005 due to increased fuel consumption and were highest in 2012



# Dioxins and Furans in 2012

- The total dioxins and furans measured in the on-site incinerators was 17,787 picograms of international toxicity equivalents per reference cubic meters (pg I-TEQ/Rm<sup>3</sup>)
  - The result is above the Canada-Wide Standard (CWS) of 80 pg I-TEQ/Rm<sup>3</sup>
  - The incinerators have been locked out and are no longer in use
    - A replacement pair of incinerators capable of meeting the CWS has been installed and is operational in 2013



# Comments from the Environmental Analyst

- It is noted that De Beers made efforts in 2013 to improve air quality monitoring and management
  - New air quality monitors have been trialed and/or under review to improve data quality
  - New incinerators capable of meeting the CWS replaced old ones to reduce the emissions of dioxins and furans
- No other concerns are raised



## 7.3 2012 Environmental Agreement Annual Report (Draft)

- Required by the Environmental Agreement
- The submission summarizes the monitoring activities and results from 2012



# Comments from the Environmental Analyst (I)

- It is stated that “(A) summary of the De Beers response to the Inspector requests is also provided (Table 5-1)” (page 60 of the 2012 EAAR). However, no De Beers responses are found. It is recommended that De Beers add related responses into Table 5-1
- It is noted that Section 4 of the 2010 EAAR, 2011 EAAR and 2012 EAAR summarizes the annual reports submitted in the current years, 2010, 2011 and 2012. However, Section 4 of the 2009 EAAR summarizes the annual reports for 2008. Then, where is the summary of the annual reports for 2009?



# Comments from the Environmental Analyst (II)

- In the comment letters dated March 4, 2013 on 2010 and 2011 EAARs, SLEMA pointed out that *“(A)lthough the document conforms to all the articles, it does very little to go beyond the basic requirements. The document is lacking in illustrative presentation. Apart from the cover page and one map there are no images to help the reader understand what the Snap Lake Mine is like and what type of footprint it exhibits. Although this is not required, it would be nice to see photographs and illustrations aiding and complimenting the text in future versions of this report”*. There is no improvements in illustrative presentation in the 2012 EAAR. It is recommended that De Beers improve its reporting in illustrative presentation



# De Beers Responses

- Comments sent to De Beers via e-mail on October 9, 2013
- Responded in the same day
  - “The summary report is intended to do just that with all of our management plans and it is suggested that stakeholders review those documents for illustrative purposes rather than repeat information within the summary report
  - We will revise the Inspector table. There were also a number of typos that have been rectified with the new report as well as missed dates”



# 8. SLEMA Modeling Update

## ➤ TDS

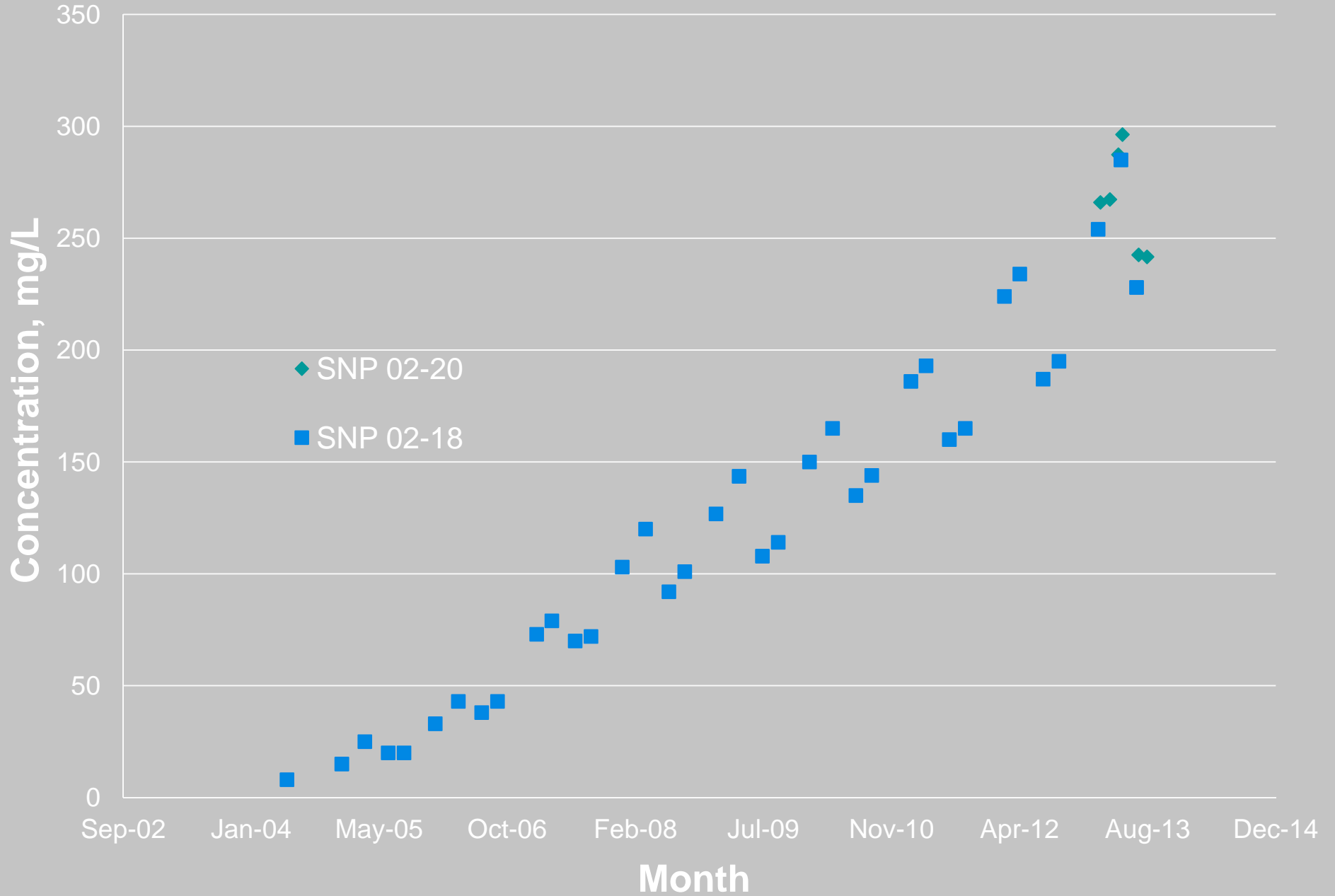
- TDS levels at the edge of the mixing zone (SNP 02-20) are lower than the Water Licence limit (350 mg/L)
- Whole Lake Average levels of TDS (SNP 02-18) are lower than the Water Licence limit (350 mg/L)

## ➤ Chloride

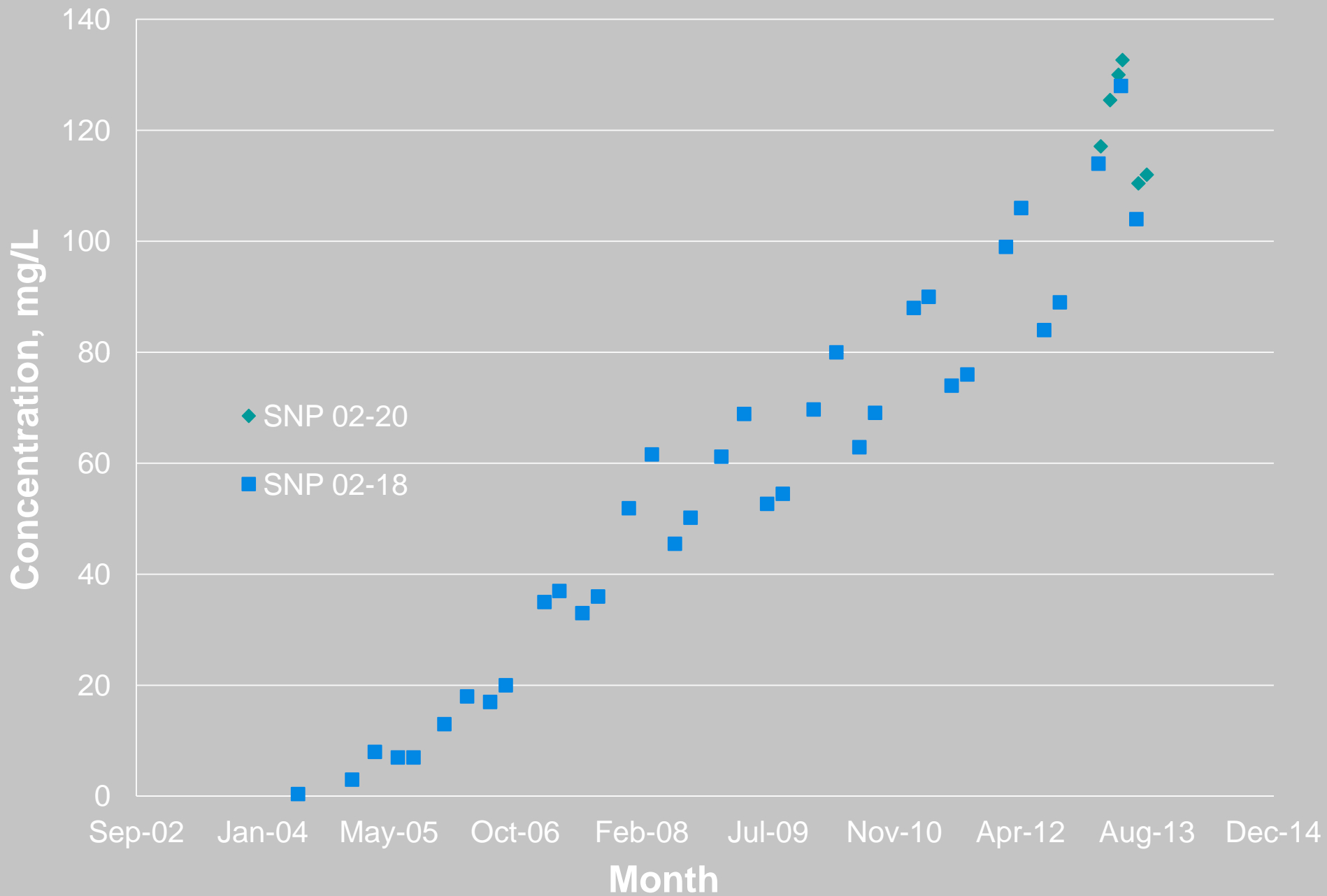
- Chloride levels at the edge of the mixing zone (SNP 02-20) are higher than the CCME Guideline (120 mg/L) from March to May 2013
- Whole Lake Average levels of Chloride (SNP 02-18) are higher than the CCME Guideline (120 mg/L) from March to May 2013



# TDS Levels in Snap Lake



# Chloride Levels in Snap Lake

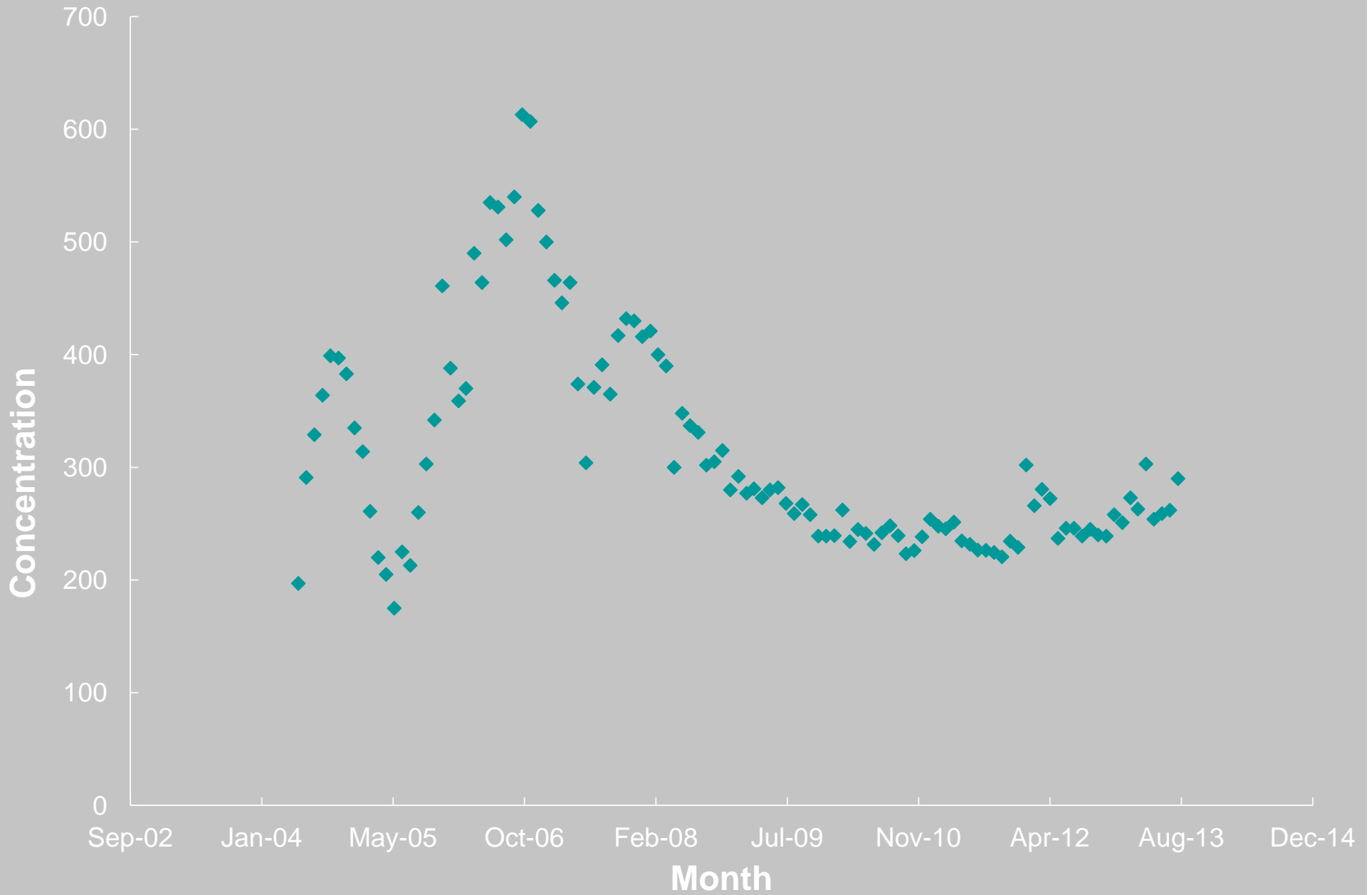


# Chloride in the WTP effluent

- The monthly average concentration of Chloride at SNP 02-17B (WTP effluent) in April 2013 is 303 mg/L, which is very close to the Water Licence limit – Effluent Quality Criterion (EQC, 310 mg/L)
- The monthly average concentration of Chloride at SNP 02-17B in September was 314 mg/L



# Chloride Concentrations Discharged to Snap Lake

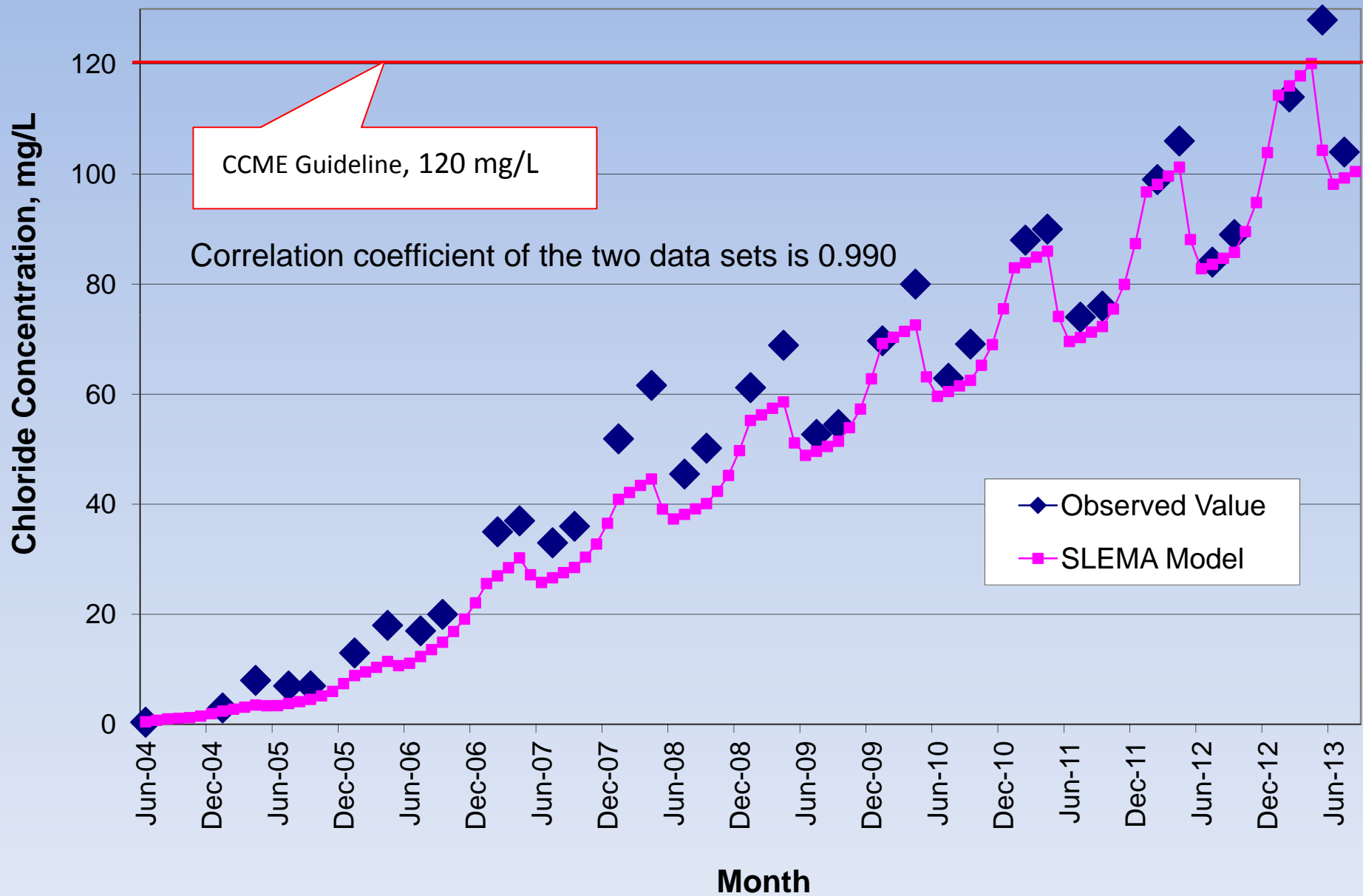


# Chloride Modeling

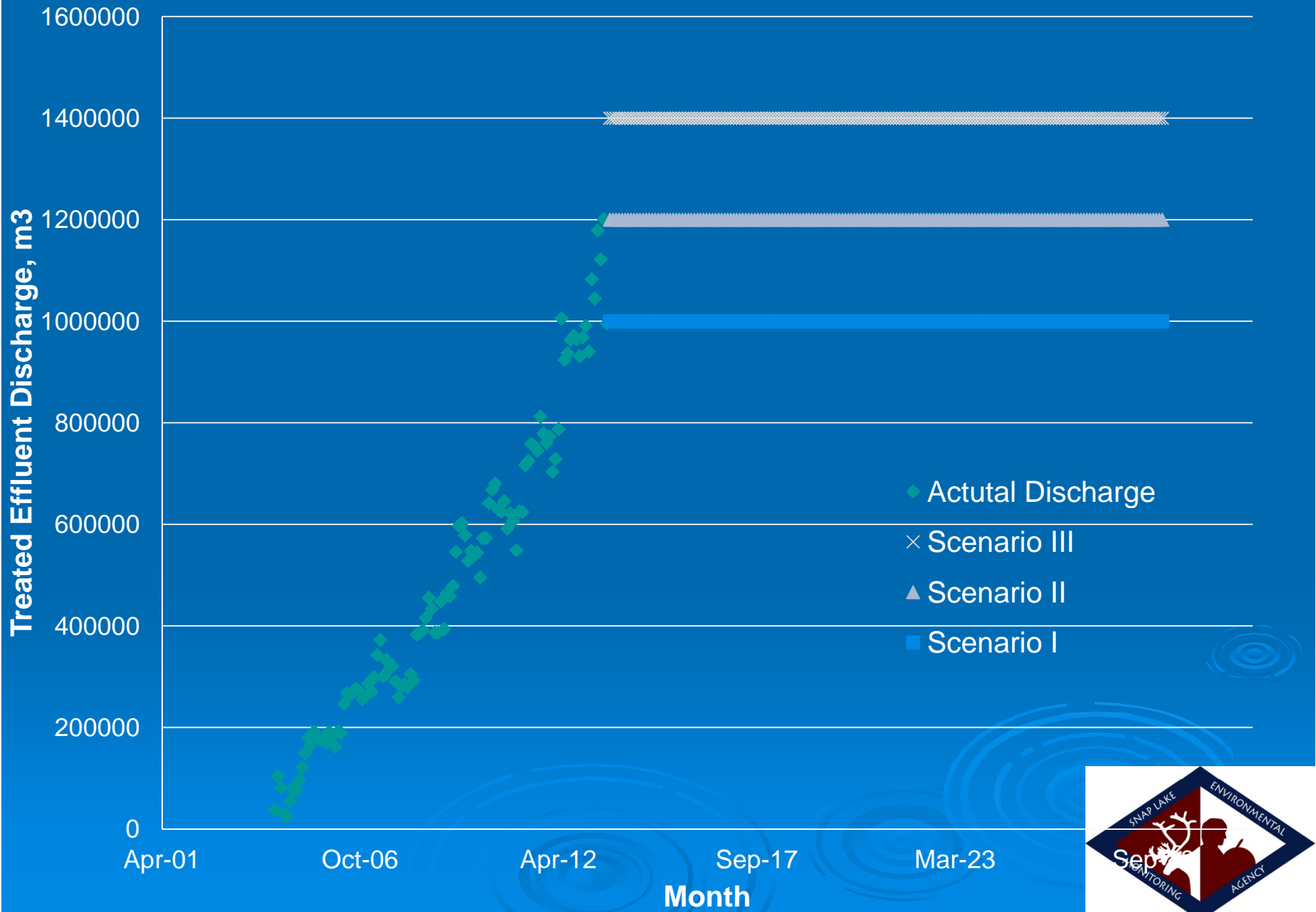
- Back test demonstrates the Chloride modeling works well
  - Correlation coefficient of the two data sets (observed values and modeling results) is 0.990
  - Modeling results show that whole lake average of Chloride concentration in April 2013 (120.1 mg/L) is above the CCME Guideline
    - Observed value in May 2013 is 128 mg/L
  - **Prediction in 2012 proved to be right**
    - **“the exceedance of WQO for Chloride is imminent”**
- New predictions are made



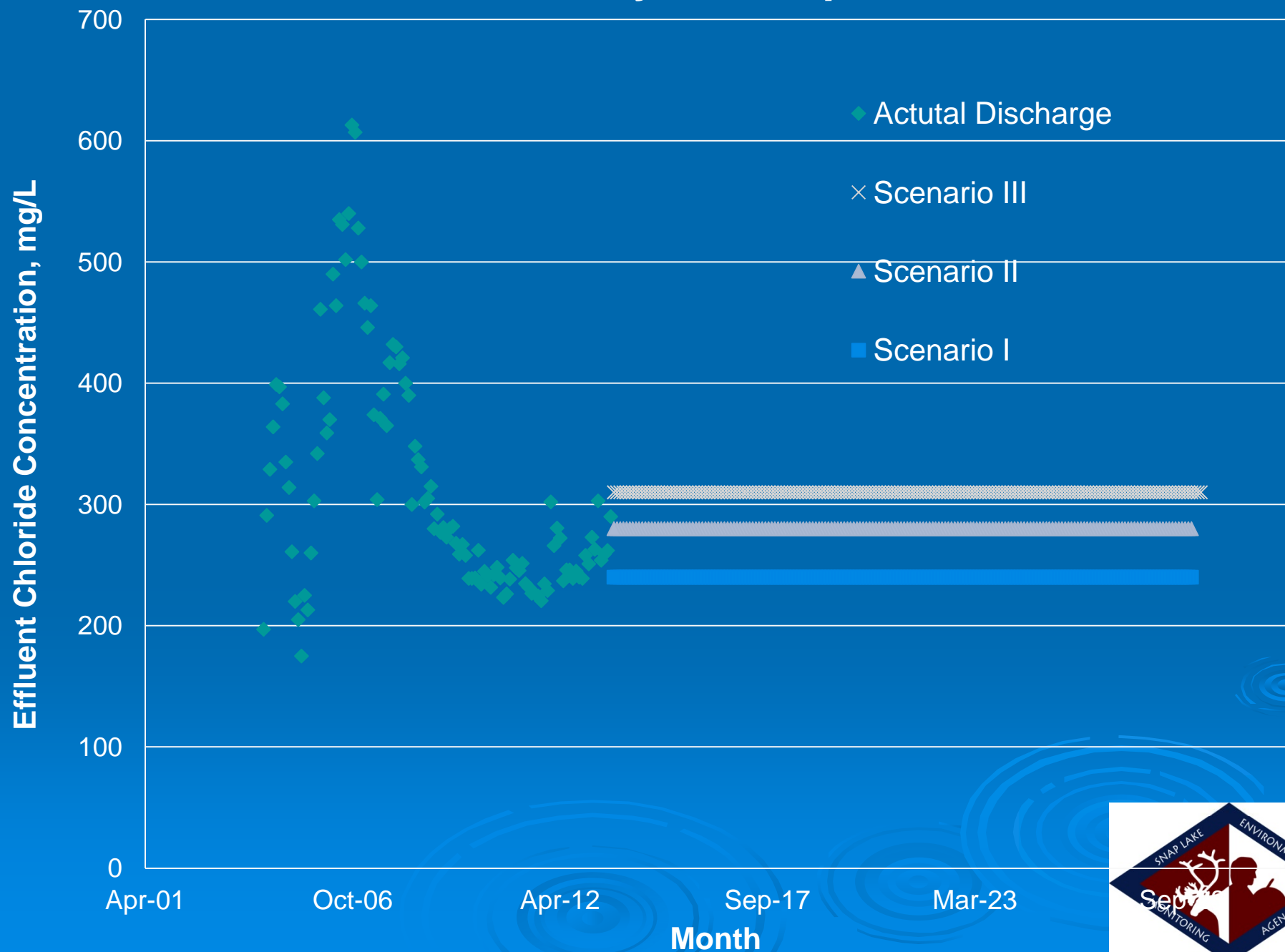
# Simulation of Chloride Concentrations in Snap Lake



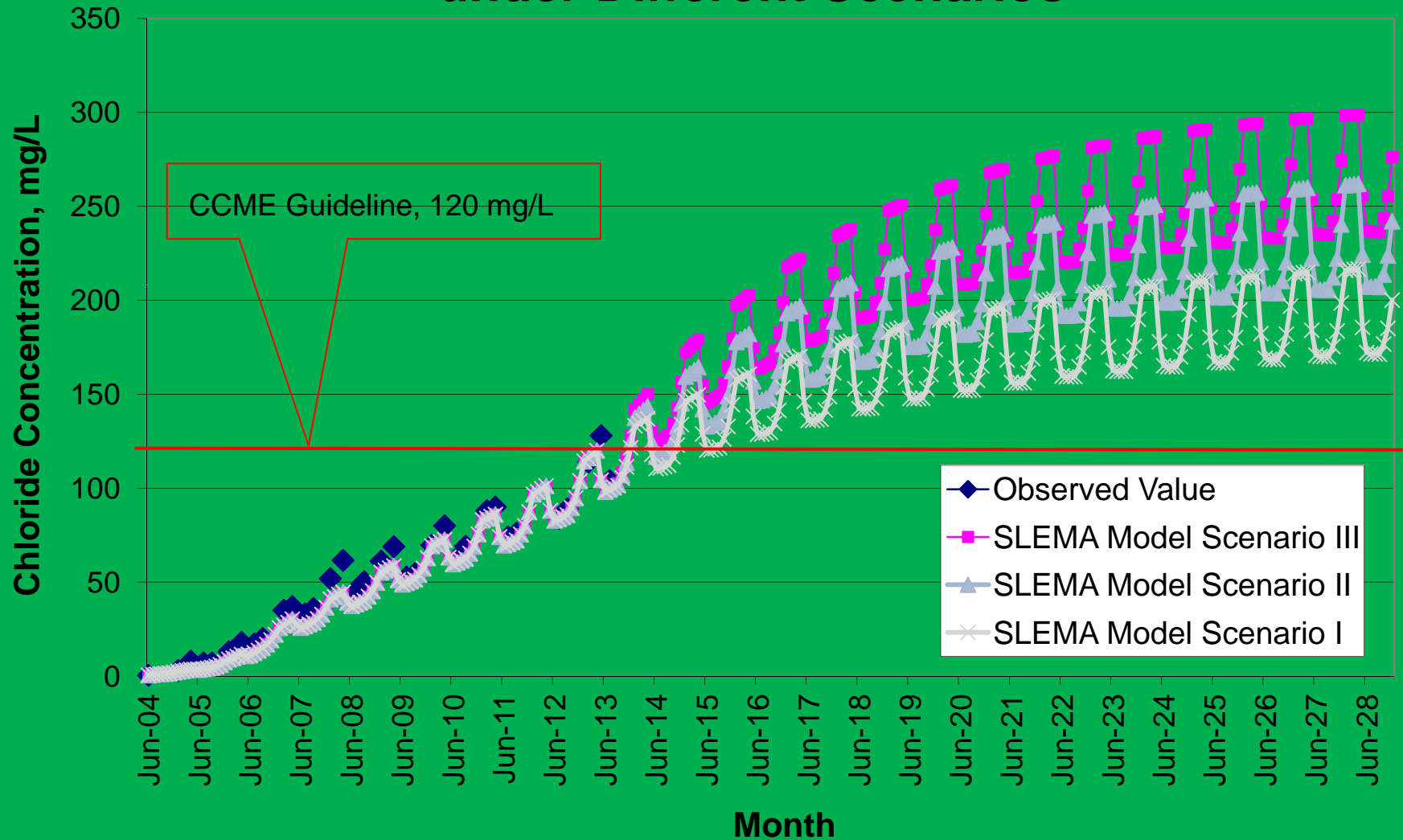
# Water Quantity Assumptions



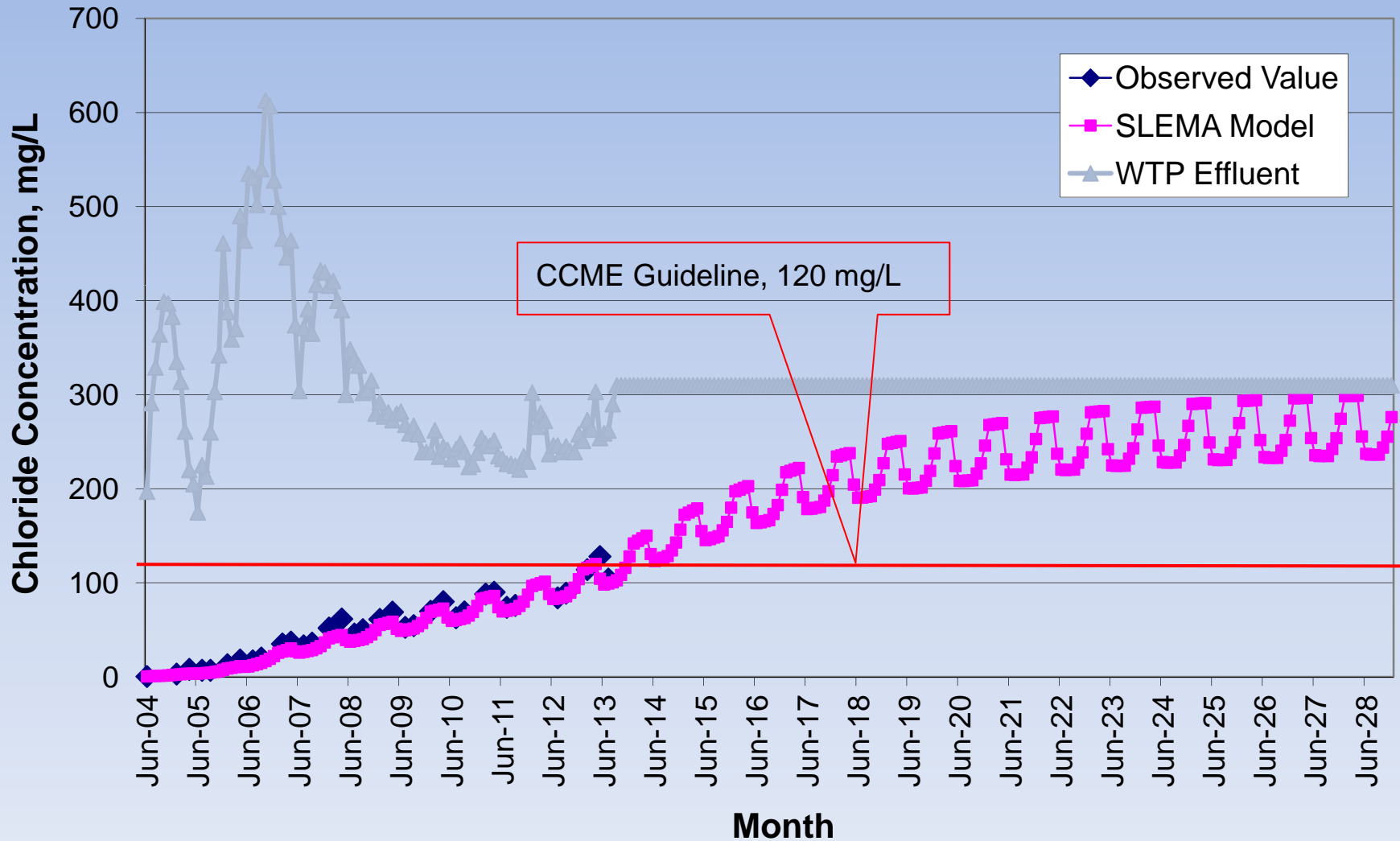
# Water Quality Assumptions



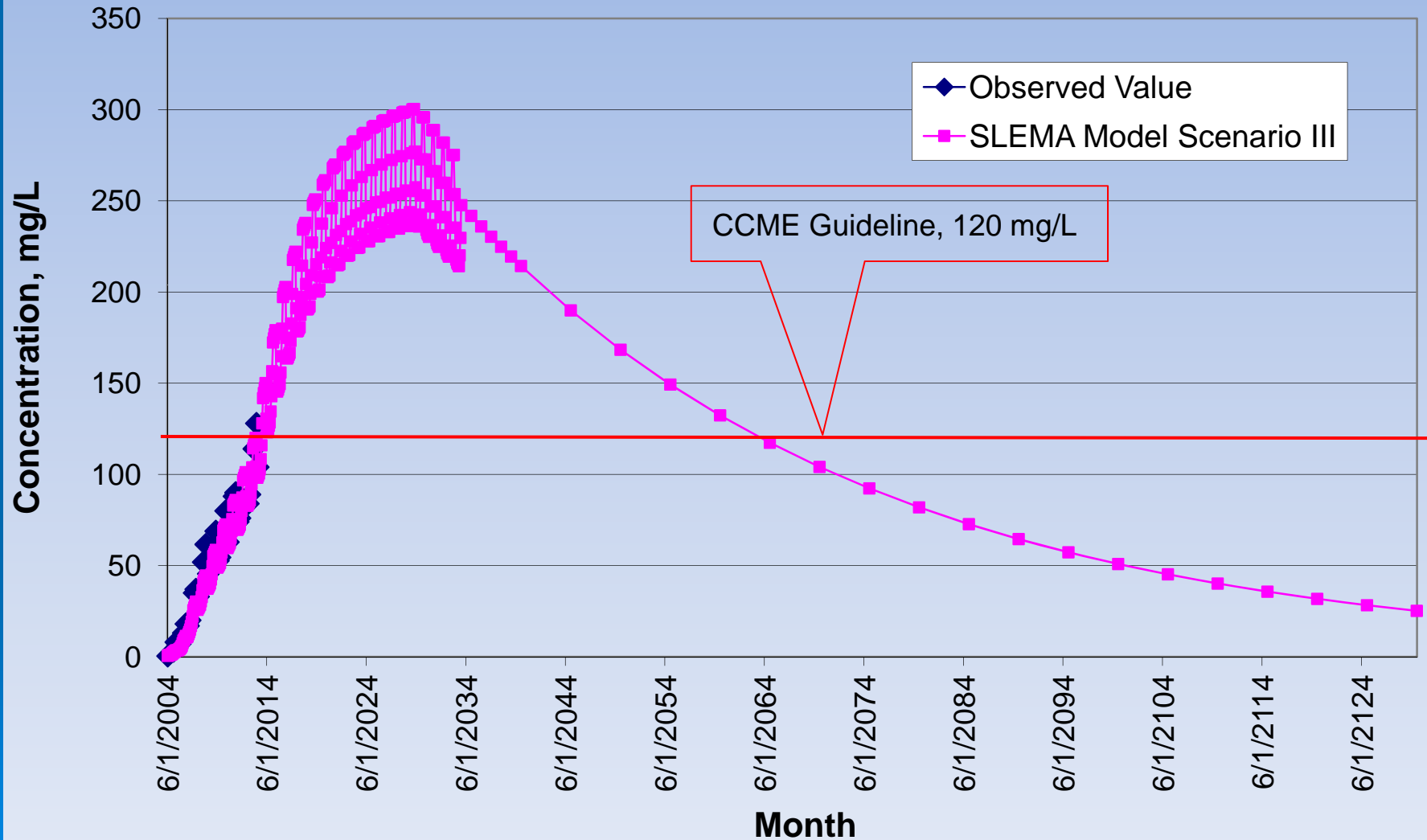
# Water Quality Prediction of Snap Lake under Different Scenarios



# Water Quality Prediction of Snap Lake under Scenario III



## Chloride Concentrations in Snap Lake after 100 Years under Scenario III



# TDS Modeling

## ➤ Back test

- Correlation coefficient of the two data sets (observed values and modeling results) is 0.992

## ➤ New prediction is made

- If the discharge amount and concentration are 1,400,000 m<sup>3</sup>/month and 650 mg/L, Whole Lake Average TDS level will be 378 mg/L in January 2015, exceeding the Water Licence limit (350 mg/L)



# Water Quality Prediction of Snap Lake under Scenario III

