GROUNDWATER MONITORING REPORT ANNUAL REPORT CALANDER YEAR 2015

DANSKAMMER POINT GENERATING STATION HISTORIC ASH CELL

Prepared for

Danskammer Energy, LLC
Newburgh, New York

January 2016

Prepared by



Synapse Risk Management, LLC
360 Erie Blvd. East
Syracuse, New York 13202

Project DANSK 01.15.04

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EXECUTIVE SUMMARY

Dynegy Northeast Generation, Inc. formerly operated the Danskammer Generating Station located in Newburgh, New York. The Danskammer Generating Station has been offline since October 2012 after sustaining damage during Hurricane Sandy. Prior to October 2012 coal combustion wastes generated by the coal-fired generating units were transported off site for beneficial reuse, or alternatively placed within the on-site Solid Waste Management Facility (SWMF) Phase III cell. The Danskammer Generating Station was sold in November 2013 to Danskammer Energy, LLC with the intent to repowering the facility.

Prior to the construction of the permitted Danskammer SWMF, an earthen-lined cell was reportedly used to receive combustion ash from the Danskammer Generating Station. This cell is referred to as the Historic Ash Cell (HAC). Currently the HAC is more than fifty percent (50%) capped with various SWMF structures and features including pavement and lined sedimentation basins. Vegetative cover is in place over the remainder of the HAC surface.

At the request of the New York State Department of Environmental Conservation (NYSDEC), IT Corporation prepared a Corrective Measures Assessment (CMA) for the HAC (IT Corporation, August 2000) In a response letter dated December 7, 2004, NYSDEC requested that the CMA be updated to reflect current site conditions and that a public informational meeting be conducted to summarize the key elements of the CMA, as well as to address public concerns.

In response to the NYSDEC request, an updated CMA was submitted by Dynegy in association with its consultant Shaw EMCON/OWT, Inc. (January 2005). The CMA summarized historical monitoring and engineering work performed in the HAC area, assessed the feasibility of various corrective measures alternatives that might be pursued, and recommended a specific corrective measure to be implemented. A public informational meeting was held in March 2005. Following that meeting Dynegy received NYSDEC approval of the CMA, including approval of the recommended alternative which focused on long term monitoring of ash-related constituents down gradient of the HAC and continued monitoring of the bedrock water-bearing unit underlying the HAC.

The purpose of this annual report is to summarize HAC groundwater quality in the overburden and the bedrock units during the calendar year 2015 and present results in accordance with the requirements of the HAC Monitoring Plan. The key findings are summarized as follows:

- The review of the time trend plots prepared for ash indicator parameters indicate that the majority of the indicator parameters are stable with some seasonal fluctuation and variation identified in some parameters;

- Groundwater quality data collected during 2015 indicate some exceedances of New York State Groundwater Quality Standards (GWQS) for three parameters (sulfate, TDS and turbidity); and

- The evaluations performed on the data collected during 2015 continue to indicate no impact to groundwater quality attributable to the HAC.

1 INTRODUCTION

1.1 General

This report presents an annual summary of the results for the Historic Ash Cell (HAC) groundwater monitoring program at the Danskammer Generating Station in Newburgh, New York. This document has been prepared to satisfy the annual reporting requirements set forth in the NYSDEC - approved HAC Monitoring Plan (Synapse, 2005) and includes discussions of groundwater quality results and trends since the inception of the program in January 2007 through December 2015.

Beginning with the completion of the fourth quarter 2009 sampling event, three years of representative analytical data from each monitoring well was compiled into a database for the development of Operation Trigger Values (OTV). The Existing water quality or OTV was calculated as the arithmetic mean of three prior years of data on an individual monitoring well basis. The Statistical Trigger Value (STV) is defined as three standard deviations above the average existing water quality of each parameter at each well. This methodology establishes a STV, the exceedance of which would initiate implementation of the contingency water quality monitoring plan if the owner/operator determines there was a significant increase relative to existing water quality. This HAC report, therefore presents a summary of the groundwater quality associated with the HAC monitoring well network for calendar year 2015 utilizing the 2009-developed OTV and STV.

The HAC monitoring program provides for routine monitoring of wells downgradient of the HAC to identify changes in concentrations of key parameters in groundwater including: arsenic, bicarbonate, boron, calcium, carbonate, chlorides, iron, potassium, sodium, sulfur, and total dissolved solids (TDS). Analytical results are tracked using time-trend comparisons, OTV and STV relative to individual monitoring wells.

1.2 Monitoring Network

Four monitoring wells (three overburden wells and one bedrock well) comprise the groundwater monitoring network at the Danskammer HAC. The network includes wells screened in the overburden units and in the underlying bedrock as summarized on Figure 1-1 – HAC Groundwater Monitoring Plan and in Table 1-1 – Monitoring Well Network. The following summarizes the groundwater monitoring network relative to the screened unit location, and vertical and horizontal position of each well relative to the HAC.

Overburden Monitoring Wells

- HAC – 1 Crossgradient - Southeast
- HAC – 2 Downgradient - South
- NW – 1 Downgradient - South

Bedrock Monitoring Wells

- DW – 3R Vertical

1.3 Water Quality Monitoring Program

Water quality sampling is performed on a quarterly frequency, occurring during the months of March, June, September, and December of 2015. The HAC sampling and analysis is scheduled to coincide with the sampling activities associated with other Danskammer groundwater monitoring programs.

Beginning with this 2010 Annual HAC Monitoring Report, operational water quality values were formulated from historical water quality results utilizing time trend analysis, OTV and STV intrawell methodologies.

Evaluation Methodology

The existing water quality was calculated for selected parameters as the mean of five years of data (2007 through 2012) on an individual monitoring well basis. STVs will be calculated as three standard deviations of the existing water quality of each parameter per well. This methodology will establish intra-well STV thresholds which, if exceeded, may invoke the contingency monitoring.

1.4 2015 Monitoring Status

Table 1-1 summarizes groundwater elevations (as field measured) for the monitored HAC locations and their associated sampling status during calendar year 2015. Each quarterly event included accessing the four groundwater monitoring wells for sampling. Samples for the 2014 monitoring period were obtained from the groundwater monitoring wells at the HAC that containing sufficient volume for water sampling.

Based on a review of field conditions observed during the 2015 sampling events, certain HAC monitoring wells demonstrated variability in groundwater elevation. All HAC monitoring wells contained sufficient water volume for sampling during 2015, with the exception of HAC-1 and HAC-2 during the December 2015 sampling event.

1.5 Tables

1-1 2015 Monitoring Status

Table 1-1
MONITORING STATUS
DECEMBER 2015
DANSKAMMER ENERGY, LLC.
DANSKAMMER SOLID WASTE MANAGEMENT FACILITY

Sample ID	Screened Interval	Sampling Status	Water Level Elevation (ft-amsl)
DW-3P	P	SAMPLED	100.07
DW-4P	P	DRY	NA
DW-7P	P	DRY	NA
DW-2D	P	DRY	NA
DW-3D	D	DRY	NA
DW-4D	D	DRY	NA
DW-5D	D	DRY	NA
DW-6D	D	SAMPLED	62.63
DW-7D	D	SAMPLED	55.60
DW-1R	R	DRY	NA
DW-2R	R	DRY	NA
DW-3R	R	SAMPLED	35.50
DW-4R	R	SAMPLED	33.96
DW-5R	R	SAMPLED	38.44
DW-6R	R	SAMPLED	53.95
DW-7R	R	SAMPLED	67.75
DW-8R	R	DRY	NA
DW-9R	R	SAMPLED	151.55
PLCS	--------	NA	NA
SLCS-E	--------	NA	NA
SLCS-W	--------	NA	NA
P3-PLCS	--------	NA	NA
PI-SB	--------	NA	NA
PII-SB	--------	NA	NA
SSS	--------	NA	NA
GID	--------	NA	NA
P1-UD	--------	NA	NA

NOTES:

PLCS - Primary Leachate Collection System
SLCS-E - Secondary Leachate Collection System, East
SLCS-W - Secondary Leachate Collection System, West
PI-SB - Phase I Sedimentation Basin
PII-SB - Phase II Sedimentation Basin
SSS - Subgrade Stabilization System
GID - Groundwater Interceptor Drain
PI-UD - Phase I Under Drain
P3-PLCS - Phase III Primary Leachate Collection System
NA - not applicable
ND - Data not collected/unavailable
ft-amsl - feet above mean sea level

* = Denotes upgradient well
* * = Insufficient sample volume
P = Perched Overburden Well
D = Deep Overburden Well
R = Bedrock Well

1.6 Figures

1-1 HAC Groundwater Monitoring Plan



LEGEND:

- 70 TOPOGRAPHIC CONTOUR
- ACCESS ROADWAY
- DRAINAGE CHANNEL
- GUIDERAIL
- FENCE
- PROPERTY BOUNDARY
- CULVERT
- STRUCTURES/TANKS
- POWER POLE
- NW-1 OVERBURDEN MONITORING WELL
- W-3R BEDROCK MONITORING WELL

NOTES:

1. BASE MAP MODIFIED FROM ELECTRONIC FILE BY SHAW EMCON/OWT, INC. DRAWING ENTITLED "GROUNDWATER MONITORING SYSTEM", 2003.

0 300' 600'

GRAPHIC SCALE

X: DYNX05.DWG
7/28/15
SYNAPSE/WIP/DANSK 01-13/DANSK-0113-B18.DWG

synapse
connect. advise. insure.

SYNAPSE RISK MANAGEMENT, LLC
360 ERIE BLVD. EAST
SYRACUSE, NEW YORK 13202

HAC MONITORING PROGRAM

DANSKAMMER GENERATING STATION
DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

HAC GROUNDWATER MONITORING PLAN

PROJECT NO.: DANSK 01.15.01
DATE: JULY 2015
FIGURE NO.: 1-1

1.7 Tables

2-1 Overburden/Bedrock Groundwater Quality Data December 2015

TABLE 2-1

OVERBURDEN/BEDROCK GROUNDWATER QUALITY DATA
DECEMBER 2015
HISTORIC ASH CELL
DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

Monitoring Well ID		**HAC-1**			**HAC-2**			**NW-1**			**W-3R**		
HAC Parameters	**NYSDEC Standard**	**Operational**	**STV**	**12/14/2015**	**Operational**	**STV**	**12/14/2015**	**Operational**	**STV**	**12/14/2015**	**Operational**	**STV**	**12/14/2015**
Arsenic	0.025	0.005	0.006	DRY	0.005	0.009	<0.005	0.005	DRY	<0.005	0.005	0.01	<0.005
Boron	1	0.479	2.83	DRY	0.639	1.37	**0.718**	0.11	DRY	0.317	0.65	0.89	**0.743**
Calcium	-	177	509	DRY	251	610	227	121	DRY	137	95	191	**181**
Iron	0.3	1.74	9.05	DRY	0.67	2.6	<0.050	2.27	DRY	0.196	0.69	2.8	<0.050
Potassium	-	1.66	6.18	DRY	6	14	**6.34**	4	DRY	1.07	2	4	0.97
Alkalinity	-	257	712	DRY	318	665	**347**	254	DRY	**356**	232	404	**318**
Chloride	250	17	54	DRY	12	38	<1	4	DRY	**6.85**	22	38	21
Hardness	-	577	1505	DRY	717	1538	647	352	DRY	**356**	428	588	**632**
Sodium	20	14	43	DRY	9	28	**9.6**	4	DRY	**4.54**	11	17	**11.7**
Sulfate	250	334	949	DRY	391	896	44.1	35	DRY	**89.5**	178	290	**163**
Sulfur	-	103	273	DRY	129	298	14.7	102	DRY	29.9	63	86	54.4
Total Dissolved Solids	500	711	1824	DRY	869	1952	**950**	399	DRY	**430**	552	783	500
Carbonate	-	0.83	2	DRY	0.92	1.78	<7	0.83	DRY	<1	0.83	2	<1
Bicarbonate	-	286	725	DRY	340	689	**347**	305	DRY	**356**	230	397	**318**
Conductivity	-	920	2350	DRY	1161	2509	1149	1042	DRY	788	759	1177	**916**
Turbidity	5	27	123	DRY	29	186	16*	29	DRY	<1	36	85	<1

Notes:
1. Operational = Existing Water Quality, the mean of prior three years (2007-2009) of analytical data, where available.
2. STV = Statistical Trigger Values: Calculated value of three standard deviations above the average analytical value.
3. NYSDEC Standard = Groundwater Quality Standards per NYCRR Part 703.
4. Overburden and bedrock monitoring wells to be accessed utilizing Intrawell comparison.
5. Bolded cells indicate that the concentration is above the Operational Trigger Value.
6. Shaded cells indicate that the concentration is above the Statistical Trigger Value.
7. Concentrations reported in milligrams per liter (mg/L), approximately equivalent to parts per million.
8. NA = Not Available, due to limited data from dry monitoring wells, or incomplete historical data.
* - Exceedance of the GWQS.

2 TREND ANALYSIS

As set forth in the HAC Monitoring Plan, trend plots of concentration versus time for boron, sulfate, sulfur, iron, calcium, potassium, sodium, chloride, bicarbonate and TDS concentrations were prepared for each HAC monitoring well. Those trends are described and presented in Appendix C.

Overburden and Bedrock Monitoring Wells

An analysis of the concentration versus time plots for the three overburden monitoring wells HAC-1, HAC-2 and NW-1, and one bedrock monitoring well W-3R, yielded the following observations for each intrawell location:

Monitoring Well	Constituent	Overburden Trend Observation
HAC-1	Arsenic	Arsenic is considered stable with concentrations below the method detection limit (MDL).
	Sulfur	No apparent trend is associated with sulfur. Sulfur concentrations range between 90 and 180 mg/L, just above the OTV.
	TDS	No apparent trend is associated with TDS. TDS concentrations range between 600 and 1200 mg/L.
	Sulfate	Sulfate is considered stable with concentrations ranging from 270 mg/L to 550 mg/L.
	Boron	No apparent trend is associated with boron. Boron was below the method detection limit during all quarterly events, with the exception of October 2007.
	Iron	No apparent trend is associated with iron. Iron was elevated above the OTV during the third quarter 2008 and the first quarter 2009.
	Calcium	Calcium exhibits seasonal fluctuation above the OTV with the highest concentrations typically observed during the third quarter.
	Potassium	The July 2007 sampling result was elevated in comparison to the OTV, otherwise potassium is considered stable, with no apparent trend. .
	Sodium	Sodium is considered stable, with concentrations fluctuating above the OTV.
	Chloride	No apparent trend is associated with chloride. Chloride is considered stable with concentrations ranging from 10 mg/L to 35 mg/L.
	Bicarbonate	Bicarbonate is elevated above the OTV. Bicarbonate concentrations have increased during the prior three quarters.

Monitoring Well	Constituent	Overburden Trend Observation
HAC-2	Arsenic	Arsenic is considered stable with concentrations below the MDL.
	Sulfur	Sulfur exhibits seasonal fluctuation with the highest concentrations typically observed in the first quarter.
	TDS	No apparent trend is associated with TDS. TDS concentrations range between 900 and 1200 mg/L.
	Sulfate	Sulfate is considered stable with concentrations ranging from 375 mg/L to 650 mg/L.
	Boron	Boron was above the OTV during 2015.
	Iron	No apparent trend is associated with iron. Iron remained below the OTV during all four quarters of 2015.
	Calcium	Calcium exhibits seasonal fluctuation with the highest concentrations typically observed in the second quarter.
	Potassium	No apparent trend is associated with potassium. Potassium is considered stable with concentrations within the OTV range.
	Sodium	Sodium demonstrates a seasonal trend during with some OTV exceedances. The highest sodium concentrations were observed during the third quarter.
	Chloride	No apparent trend is associated with chloride with two detections above OTV during the second and third quarter 2015. The highest chloride concentration was observed during the third quarter of 2010.
	Bicarbonate	Bicarbonate is considered stable with concentrations around the OTV.

Monitoring Well	Constituent	Overburden Trend Observation
NW-1	Arsenic	Arsenic is considered stable with concentrations below the MDL.
	Sulfur	Sulfur is considered stable, with concentrations below the OTV during 2010.
	TDS	No apparent trend is associated with TDS. TDS had OTV exceedances during the second and fourth quarter of 2015.
	Sulfate	Sulfate is considered stable with concentrations ranging from 20 mg/L to 30 mg/L. The highest concentration was measured in July 2007 at 196 mg/L.
	Boron	No apparent trend is associated with boron. Boron was below the OTV during 2015.
	Iron	No apparent trend is associated with iron. Iron remained below the OTV during 2015. .
	Calcium	No apparent trend is associated with calcium. Calcium is considered stable with concentrations near the OTV.
	Potassium	Potassium remained below the OTV during 2015.
	Sodium	Sodium is considered stable, with one OTV exceedance observed during the fourth quarter 2015.
	Chloride	No apparent trend is associated with chloride. Chloride concentrations were above the OTV during the second and third quarter of 2015.
	Bicarbonate	No apparent trend is associated with bicarbonate. Bicarbonate is considered stable with concentrations above the OTV during the first, second and third quarter 2015.

Monitoring Well	Constituent	Bedrock Trend Observation
W-3R	Arsenic	Arsenic is considered stable with concentrations below the MDL during 2015.
	Sulfur	Sulfur is considered stable with a downward trend since January 2007.
	TDS	TDS demonstrates a seasonal fluctuation with the highest concentrations typically observed during the fourth quarter.
	Sulfate	Sulfate is considered stable with concentrations ranging from 55 mg/L to 200 mg/L.
	Boron	No apparent trend is associated with boron. Boron was at or above the OTV during 2015.
	Iron	No apparent trend is associated with iron. Iron was below the OTV during 2015.
	Calcium	Calcium exhibits seasonal fluctuation with the highest concentrations typically observed in the third quarter.
	Potassium	Potassium demonstrates a seasonal fluctuation with concentrations below the OTV during 2015.
	Sodium	Sodium exhibits seasonal fluctuation with the highest concentrations typically observed in the fourth quarter. Sodium is considered stable with concentrations near the OTV.
	Chloride	No apparent trend is associated with chloride. Chloride concentrations were below the OTV during 2015.
	Bicarbonate	Bicarbonate exhibits seasonal fluctuation with the highest concentrations typically observed in the fourth quarter.

3 CONCLUSIONS

Groundwater Quality

Based on the evaluation of the HAC groundwater data collected during 2015, no significant impact on groundwater quality as a result of the HAC was identified. The data evaluation included the comparison of groundwater analytical results, time trend analysis, as well as NYSDEC Groundwater Quality Standards and Guidance Values. The review of the time trend plots prepared for ash indicator parameters indicate that the majority of the parameters are stable with some seasonal fluctuation and variation identified in some parameters.

The key findings are summarized as follows:

- The review of the time trend plots prepared for ash indicator parameters indicate that the majority of the parameters are stable with some seasonal fluctuation and variation identified in some parameters.

- Groundwater quality data collected during 2015 indicate some exceedances of New York State Groundwater Quality Standards for three parameters (sulfate, TDS and turbidity).

- The evaluations performed on the data collected during 2015 continue to indicate no impact to groundwater quality attributable to the HAC.

4 REFERENCES

New York State Department of Environmental Conservation, Division of Solid Waste. 6 NYCRR Part 360.

Synapse Risk Management, LLC. March 2005. HAC Monitoring Plan, Danskammer Point Solid Waste Management Facility.

APPENDIX A
LABORATORY ANALYSIS & FIELD DATA REPORTS FOURTH QUARTER 2015

2015 ANNUAL REPORT
HISTORIC ASH CELL

DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

JANUARY 2016

Experience is the solution
314 North Pearl Street ♦ Albany, New York 12207
(800) 848-4983 ♦ (518) 434-4546 ♦ Fax (518) 434-0891

December 29, 2015

Roger Creighton
Synapse Rick Management, LLC
360 Erie Blvd East
Syracuse, NY 13202

TEL: (315) 475-3700
FAX: (315) 475-3780

Work Order No: 151214020

RE: Quarterly GW
Historic Ash Cell

Dear Roger Creighton:

Adirondack Environmental Services, Inc received 4 samples on 12/14/2015 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Christopher Hess
QA Manager

Adirondack Environmental Services, Inc — CASE NARRATIVE

CLIENT:	Synapse Rick Management, LLC	**Date:**	*29-Dec-15*
Project:	Quarterly GW		
Lab Order:	151214020		

The sampling was performed in accordance with the AES field sampling procedures and/or the client specified sampling procedures. Sample containers were supplied by Adirondack Environmental Services.

Qualifiers:

	C - Details are above in Case Narrative
ND - Not Detected at reporting limit	S - LCS Spike recovery outside acceptable limits(+ is over - is under)
J - Analyte detected below quantitation limit	R - Duplication outside acceptable limits
B - Analyte detected in Blank	T - Tentatively Identified Compound-Estimated
X - Exceeds maximum contamination limit	E -Above quantitation range-Estimated
H - Hold time exceeded	M - Matrix Spike outside acceptable limits(+ is over - is under)

Note : All Results are reported as wet weight unless noted

The results relate only to the items tested. Information supplied by the client is assumed to be correct.

Adirondack Environmental Services, Inc

Date: *29-Dec-15*

CLIENT:	Synapse Rick Management, LLC	**Client Sample ID:**	NW-1
Work Order:	151214020	**Collection Date:**	12/14/2015
Reference:	Quarterly GW / Historic Ash Cell	**Lab Sample ID:**	151214020-001
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
FIELD-PH, RES CL2, AND TEMP ARE NOT ELAP CERTIFIABLE						Analyst: **FLD**
Conductivity	***788***	1.0		umhos/cm		12/14/2015
Dissolved Oxygen	***5.21***	0.10		mg/L		12/14/2015
eH	***217.6***			mV		12/14/2015
pH	***6.6***			S.U.		12/14/2015
Temperature	***11***			deg C		12/14/2015
Turbidity	***< 1***	1.0		NTU		12/14/2015
HARDNESS - EPA 200.7 REV 4.4 (Prep: SW3010A - 12/15/2015)						Analyst: **SM**
Total Hardness (As CaCO3)	***524***	5		mg/L CaCO3	1	12/22/2015
ICP METALS - EPA 200.7 REV 4.4 (Prep: SW3010A - 12/15/2015)						Analyst: **SM**
Arsenic	***< 0.005***	0.005		mg/L	1	12/22/2015 2:20:59 PM
Boron	***0.317***	0.050		mg/L	1	12/22/2015 2:20:59 PM
Calcium	***137***	0.500		mg/L	10	12/22/2015 2:25:47 PM
Iron	***0.196***	0.050		mg/L	1	12/22/2015 2:20:59 PM
Magnesium	***43.6***	0.050		mg/L	1	12/22/2015 2:20:59 PM
Manganese	***< 0.020***	0.020		mg/L	1	12/22/2015 2:20:59 PM
Potassium	***1.07***	0.050		mg/L	1	12/22/2015 2:20:59 PM
Sodium	***4.54***	0.050		mg/L	1	12/22/2015 2:20:59 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	***6.85***	2.00		mg/L	2	12/28/2015 5:33:29 PM
Sulfate	***89.5***	4.00		mg/L	2	12/28/2015 5:33:29 PM
ALKALINITY - SM 2320B-97,-11						Analyst: **AS**
Alkalinity, Bicarbonate (As CaCO3)	***356***	1.0		mg/L CaCO3	1	12/23/2015 7:45:00 AM
Alkalinity, Carbonate (As CaCO3)	***< 1.0***	1.0		mg/L CaCO3	1	12/23/2015 7:45:00 AM
Alkalinity, Total (As CaCO3)	***356***	1.0		mg/L CaCO3	1	12/23/2015 7:45:00 AM
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	***29.9***	0.6		mg/L	1	12/29/2015
TOTAL DISSOLVED SOLIDS - SM 2540C-97,-11						Analyst: **CS**
TDS (Residue, Filterable)	***430***	5		mg/L	1	12/17/2015

Adirondack Environmental Services, Inc

Date: *29-Dec-15*

CLIENT:	Synapse Rick Management, LLC	**Client Sample ID:**	HAC-1
Work Order:	151214020	**Collection Date:**	12/14/2015
Reference:	Quarterly GW / Historic Ash Cell	**Lab Sample ID:**	151214020-002
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
FIELD-PH, RES CL2, AND TEMP ARE NOT ELAP CERTIFIABLE						Analyst: **FLD**
Observation	***Dry***			NA		12/14/2015

Adirondack Environmental Services, Inc

Date: *29-Dec-15*

CLIENT:	Synapse Rick Management, LLC	**Client Sample ID:**	HAC-2
Work Order:	151214020	**Collection Date:**	12/14/2015
Reference:	Quarterly GW / Historic Ash Cell	**Lab Sample ID:**	151214020-003
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
FIELD-PH, RES CL2, AND TEMP ARE NOT ELAP CERTIFIABLE						Analyst: **FLD**
Observation	***Dry***			NA		12/14/2015

Adirondack Environmental Services, Inc

Date: *29-Dec-15*

CLIENT:	Synapse Rick Management, LLC	**Client Sample ID:**	W-3R
Work Order:	151214020	**Collection Date:**	12/14/2015
Reference:	Quarterly GW / Historic Ash Cell	**Lab Sample ID:**	151214020-004
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
FIELD-PH, RES CL2, AND TEMP ARE NOT ELAP CERTIFIABLE						Analyst: **FLD**
Conductivity	***916***	1.0		umhos/cm		12/14/2015
Dissolved Oxygen	***0.30***	0.10		mg/L		12/14/2015
eH	***111.6***			mV		12/14/2015
pH	***7.1***			S.U.		12/14/2015
Temperature	***14***			deg C		12/14/2015
Turbidity	***< 1***	1.0		NTU		12/14/2015
HARDNESS - EPA 200.7 REV 4.4 (Prep: SW3010A - 12/15/2015)						Analyst: **SM**
Total Hardness (As CaCO3)	***632***	5		mg/L CaCO3	1	12/22/2015
ICP METALS - EPA 200.7 REV 4.4 (Prep: SW3010A - 12/15/2015)						Analyst: **SM**
Arsenic	***< 0.005***	0.005		mg/L	1	12/22/2015 2:30:36 PM
Boron	***0.743***	0.050		mg/L	1	12/22/2015 2:30:36 PM
Calcium	***181***	0.500		mg/L	10	12/22/2015 2:35:31 PM
Iron	***< 0.050***	0.050		mg/L	1	12/22/2015 2:30:36 PM
Magnesium	***43.5***	0.050		mg/L	1	12/22/2015 2:30:36 PM
Manganese	***0.055***	0.020		mg/L	1	12/22/2015 2:30:36 PM
Potassium	***0.966***	0.050		mg/L	1	12/22/2015 2:30:36 PM
Sodium	***11.7***	0.050		mg/L	1	12/22/2015 2:30:36 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	***21.0***	2.00		mg/L	2	12/28/2015 5:44:08 PM
Sulfate	***163***	4.00		mg/L	2	12/28/2015 5:44:08 PM
ALKALINITY - SM 2320B-97,-11						Analyst: **AS**
Alkalinity, Bicarbonate (As CaCO3)	***318***	1.0		mg/L CaCO3	1	12/23/2015 7:45:00 AM
Alkalinity, Carbonate (As CaCO3)	***< 1.0***	1.0		mg/L CaCO3	1	12/23/2015 7:45:00 AM
Alkalinity, Total (As CaCO3)	***318***	1.0		mg/L CaCO3	1	12/23/2015 7:45:00 AM
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	***54.4***	0.6		mg/L	1	12/29/2015
TOTAL DISSOLVED SOLIDS - SM 2540C-97,-11						Analyst: **CS**
TDS (Residue, Filterable)	***500***	5		mg/L	1	12/17/2015

Adirondack Environmental Services Inc.®
314 North Pearl Street
Albany, New York 12207
518-434-4546♦ Fax: 518-434-0891

CHAIN OF CUSTODY RECORD

AES Work Order#: 15121402O

EXPERIENCE IS THE SOLUTION

A full service analytical research laboratory offering solutions to environmental concerns

Client Name: Synapse	Address:	
Send Report to:	Project Name (Location): Historic Ash Cell	Samplers Name: Paul Bart
Client Phone No:	PO #:	Samplers Signature: Paul Bart
Client Fax No:		

AES Sample ID	Client Sample ID:	Date Sampled	Time A=am P=pm		Sample Type Matrix	C	G	# of Cont's	Analysis
001	NW-1	12/14/15	10:10	A/P	GW		G	3	As,B,Ca,Fe,Mg,Mn,K,Na —
				A P					Carbonate, Bicarbonate,
				A P					Chlorides,Sulfate,Sulfur,TDS
				A P					Hardness "
				A P					Field: pH,Temp,sCond, DO,
				A P				(pH)	EH, Turbidity
002	HAC-1	12/14/15	—	A P	GW		G	3	Observation Only "
003	HAC-2	12/14/15	—	A P	GW		G	3	Observation Only "
004	W-3R	12/14/15	10:50	A/P	GW		G	3	"
				A P					
				A P					
				A P					

Shipment Arrived Via:
FedEx UPS Client (AES) Other:_____

Special Instructions/Remarks:

Turnaround Time Requested:
☐ 1 Day ☐ 3 Day ☐ Normal
☐ 2 -Day ☐ 5 Day

Relinquished by: (Signature) Paul Bart	Date 12/14/15	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	**Received for Laboratory by:** (Signature)	Date 12/14	Time 4:29pm

Sample Temperature
Ambient Chilled (Chilled)
Chilling Process begun 14°
Notes: _____

Properly Preserved
(Y) N
Notes: _____

Received Within Holding Times
(Y) N
Notes: _____

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Experience is the solution
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TERMS, CONDITIONS & LIMITATIONS

All service rendered by the **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or nonperformance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed or irrevocably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees, agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

(f) Results pertain only to items analyzed. Information supplied by client is assumed to be correct. This information may be used on reports and in calculations and **Adirondack Environmental Services, Inc.** is not responsible for the accuracy of this information.

(g) Payments by Credit Card/Purchase Cards are subject to a 3% additional charge.

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site:	Historic Ash Cell	Well ID:	NW-1
Project No.	DYNE 01.07.04	Sample ID:	NW-1
Date:	12/14/2015	Sampler:	Mike Wisley
Weather:	Overcast, 30 F	Signature:	

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Yes
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2
Depth to Water (ft):	55.26
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)	PURGE VOLUME (liters)
1:10	30	5	10	200	17.6	6.3	8	781	7.5	72.8	10	
1:13	30	5	10	200	17.8	6.5	9	780	5.4	72.6	5	
1:17	30	5	10	200	17.9	6.5	11	780	5.3	72.5	4	
1:22	30	5	10	200	18	6.5	11	780	5.2	72	4	
1:34	30	5	10	200	18	6.5	11	788	5.21	73.8	4	
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)	Total Purge
Stabilization Achieved (Y/N)				y	y	y	y	y	y	y	n	

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Containers			
Container	Preservative	#	Analysis
8-OZ P	HNO3	1	Metals/Hardness
4-OZ P/G	None	1	Alk/Bicard/Card
32-OZ P	None	1	Br, Cl, SO4, TDS, SU, Turbidity

Sample Collection Time	Start	End
	1:50	

Comments:

Synapse Risk Management, LLC

GROUNDWATER SAMPLING FIELD FORM

Site:	Historic Ash Cell	Well ID:	W-3R
Project No.	DYNE 01.07.04	Sample ID:	W-3R
Date:	12/14/2015	Sampler:	Mike Wisley
Weather:	Overcast 30 F	Signature:	

Well Condition Observations	
Protective Casing:	Good
Lock:	Yes
Label:	Yes
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2
Depth to Water (ft):	56.26
Total Depth (ft):	105.35
Well Volume (gal):	

TIME	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)	PURGE VOLUME (gallons)
13:30	58.2	7.3	13	763	<1	-5.6	3	

Laboratory Analyses/Containers

Container	Preservative	#	Analysis
8-OZ P	HNO3	1	Metals/Hardness
4-OZ P/G	None	1	Alk/Bicard/Card
32-OZ P	None	1	Br, Cl, SO4, TDS, SU, Turbidity
16-OZ P	NaOH	1	Sulfide
8-OZ P	NaOH	1	Cyanide

Sample Collection Time	Start	End
	13:35	

Comments:

APPENDIX B
QUARTERLY WATER QUALITY DATA

2015 ANNUAL REPORT
HISTORIC ASH CELL

DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

JANUARY 2016

TABLE 1
OVERBURDEN/BEDROCK GROUNDWATER QUALITY DATA
JUNE 2015
DYNEGY DANSKAMMER, LLC
HISTORIC ASH CELL

Monitoring Well ID		**HAC-1**	**HAC-2**	**NW-1**	**W-3R**
Routine Parameters	**NYSDEC Standard**	**6/29/2015**	**6/29/2015**	**6/29/2015**	**6/30/2015**
Arsenic	0.025	<0.005	<0.005	0.005	<0.005
Boron	1	1.56	0.591	0.146	0.655
Calcium	-	205	323	105	99.2
Iron	0.3	<0.050	<0.050	<0.050	0.138
Potassium	-	0.38	4.74	0.803	1.29
Alkalinity	-	290	460	500	307
Chloride	250	38.1	16	4.98	25.8
Hardness	-	664	884	428	417
Sodium	20	19.9	10.7	2.81	12.2
Sulfur	-	111	193	19.2	58.1
Sulfate	-	333	577	57.5	174
Total Dissolved Solids	500	**960**	**1220**	430	**540**
Carbonate	-	<10	<10	<10	<7
Bicarbonate	-	290	460	500	307
Conductivity	-	1260	1360	698	907
Turbidity	5	4	3	5	**7**

Notes:

1. NYSDEC Standard = Groundwater Quality Standards per NYCRR Part 703.
2. Concentrations reported in milligrams per liter (mg/L), approximately equivalent to parts per million.
3. NA = Not Analyzed

TABLE 1
OVERBURDEN/BEDROCK GROUNDWATER QUALITY DATA
SEPTEMBER 2015
DANSKAMMER ENERGY, LLC
HISTORIC ASH CELL

Monitoring Well ID		**HAC-1**	**HAC-2**	**NW-1**	**W-3R**
Routine Parameters	**NYSDEC Standard**	**9/21/2015**	**9/21/2015**	**9/21/2015**	**9/21/2015**
Arsenic	0.025	<0.005	<0.005	<0.005	0.005
Boron	1	**4.24**	0.833	0.116	0.745
Calcium	-	227	350	79.7	112
Iron	0.3	0.289	0.312	0.455	<0.050
Potassium	-	1.45	3.96	0.838	0.907
Alkalinity	-	327	393	336	313
Chloride	250	46.1	22.9	2.89	22.4
Hardness	-	822	985	372	471
Sodium	20	**25.5**	16.3	2.82	12.4
Sulfur	-	222	2.9	11.5	62.1
Sulfate	-	666	625	34.6	186
Total Dissolved Solids	500	**960**	**1300**	350	**525**
Carbonate	-	<4	<4	<4	13
Bicarbonate	-	327	393	336	300
Conductivity	-	1610	1576	318	927
Turbidity	5	**7**	**5**	**48**	**<1**

Notes:

1. NYSDEC Standard = Groundwater Quality Standards per NYCRR Part 703.
2. Concentrations reported in milligrams per liter (mg/L), approximately equivalent to parts per million.
3. NA = Not Analyzed

TABLE 1
OVERBURDEN/BEDROCK GROUNDWATER QUALITY DATA
MARCH 2015
DYNEGY DANSKAMMER, LLC
HISTORIC ASH CELL

Monitoring Well ID		**HAC-1**	**HAC-2**	**NW-1**	**W-3R**
Routine Parameters	**NYSDEC Standard**	**3/31/2015**	**3/31/2015**	**3/31/2015**	**3/31/2015**
Arsenic	0.025	<0.005	0.007	0.005	0.008
Boron	1	<0.050	0.847	<0.050	0.596
Calcium	-	142	355	59	113
Iron	0.3	0.087	0.059	0.145	<0.050
Potassium	-	1.09	5.56	0.712	1.08
Alkalinity	-	205	355	300	320
Chloride	250	32.2	30.2	<2	22.6
Hardness	-	474	981	277	467
Sodium	20	19.9	18	0.984	14.3
Sulfur	-	89.8	197	5	57.7
Sulfate	-	269	591	15.1	173
Total Dissolved Solids	500	**745**	**1330**	335	**565**
Carbonate	-	10	<5	10	<5
Bicarbonate	-	195	355	290	320
Conductivity	-	1050	1751	452	1037
Turbidity	5	**5**	<1	<1	**6**

Notes:

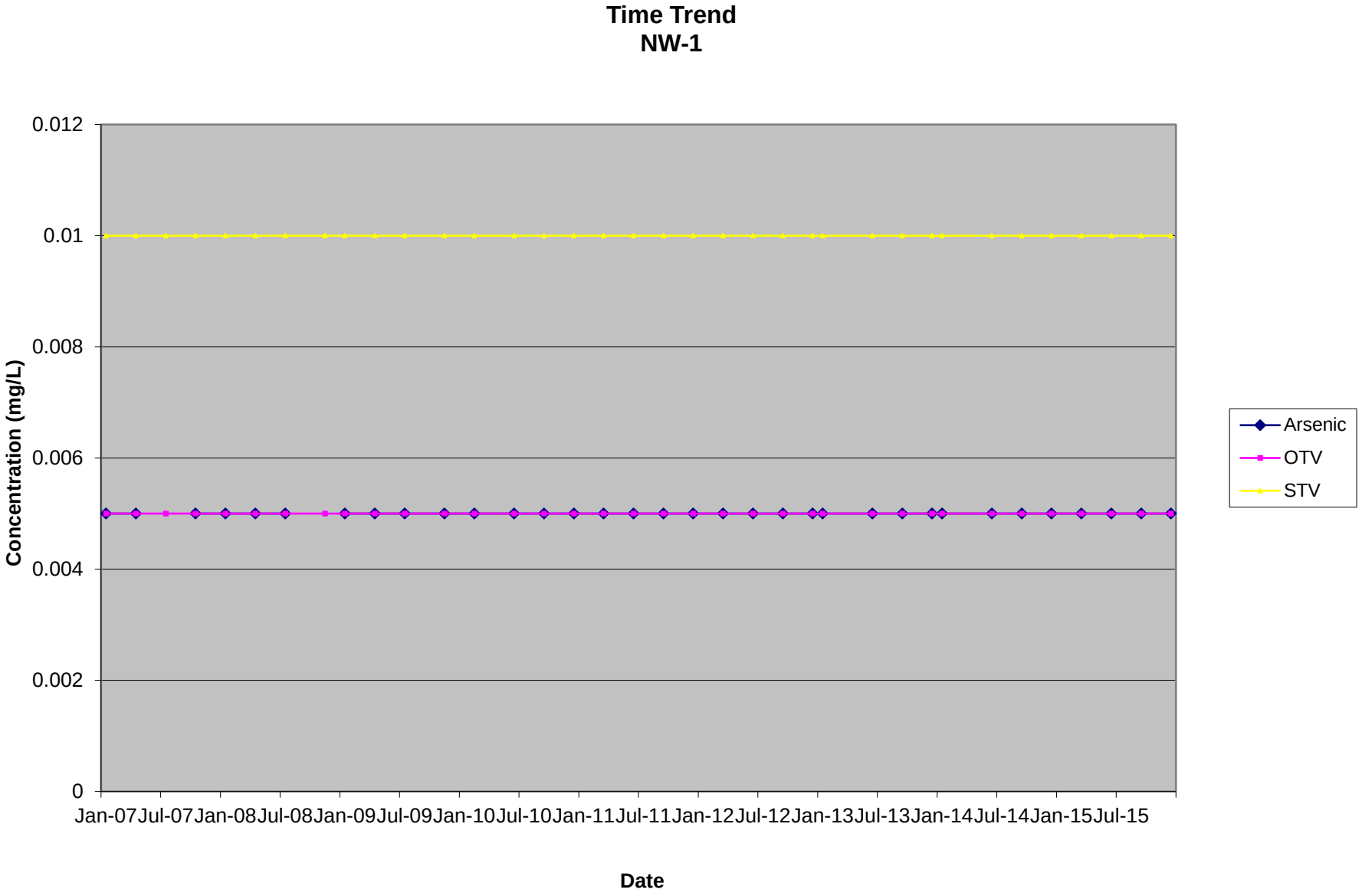
1. NYSDEC Standard = Groundwater Quality Standards per NYCRR Part 703.
2. Concentrations reported in milligrams per liter (mg/L), approximately equivalent to parts per million.
3. NA = Not Analyzed

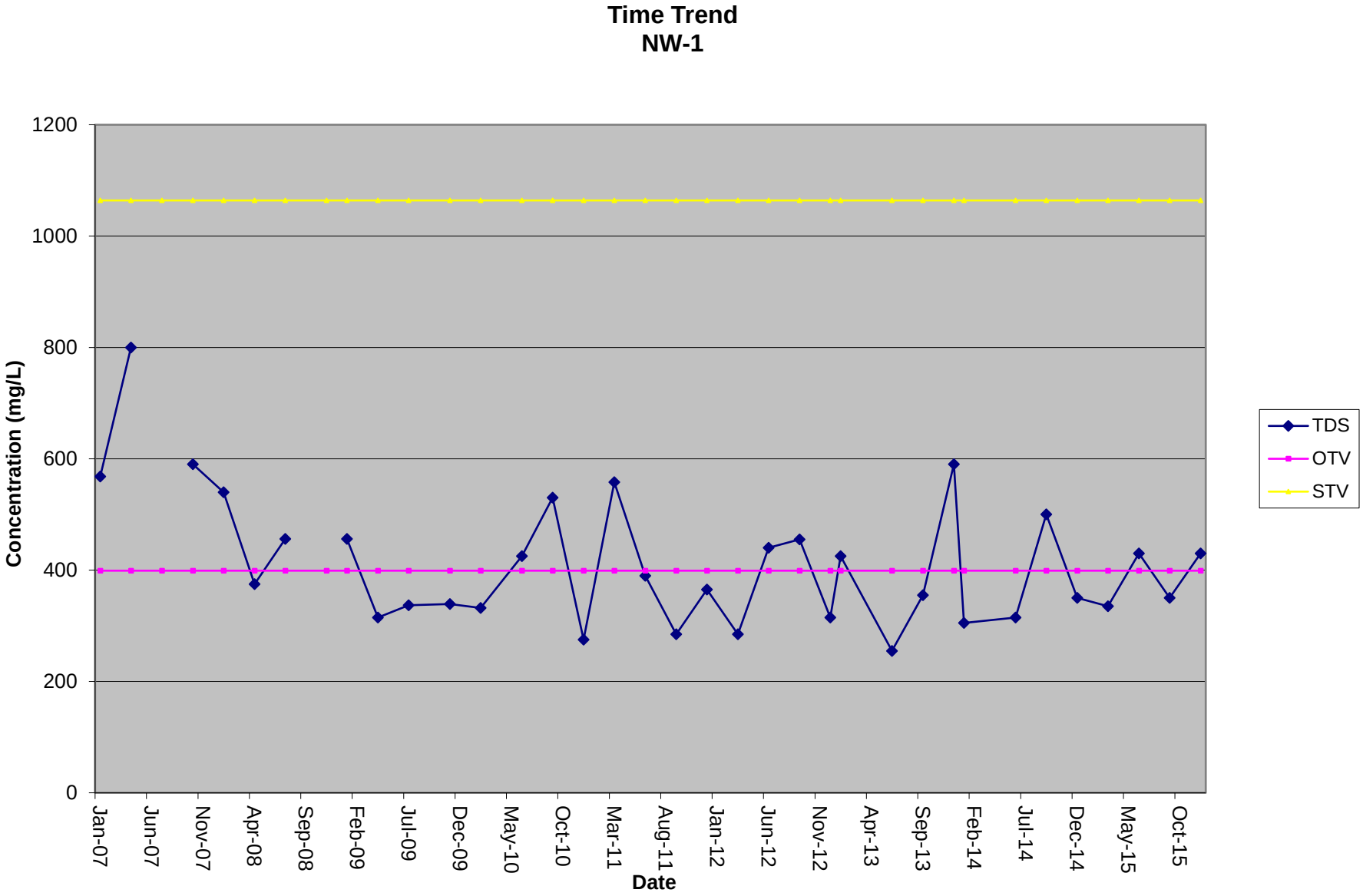
APPENDIX C
INDICATOR PARAMETER TIME TREND PLOTS

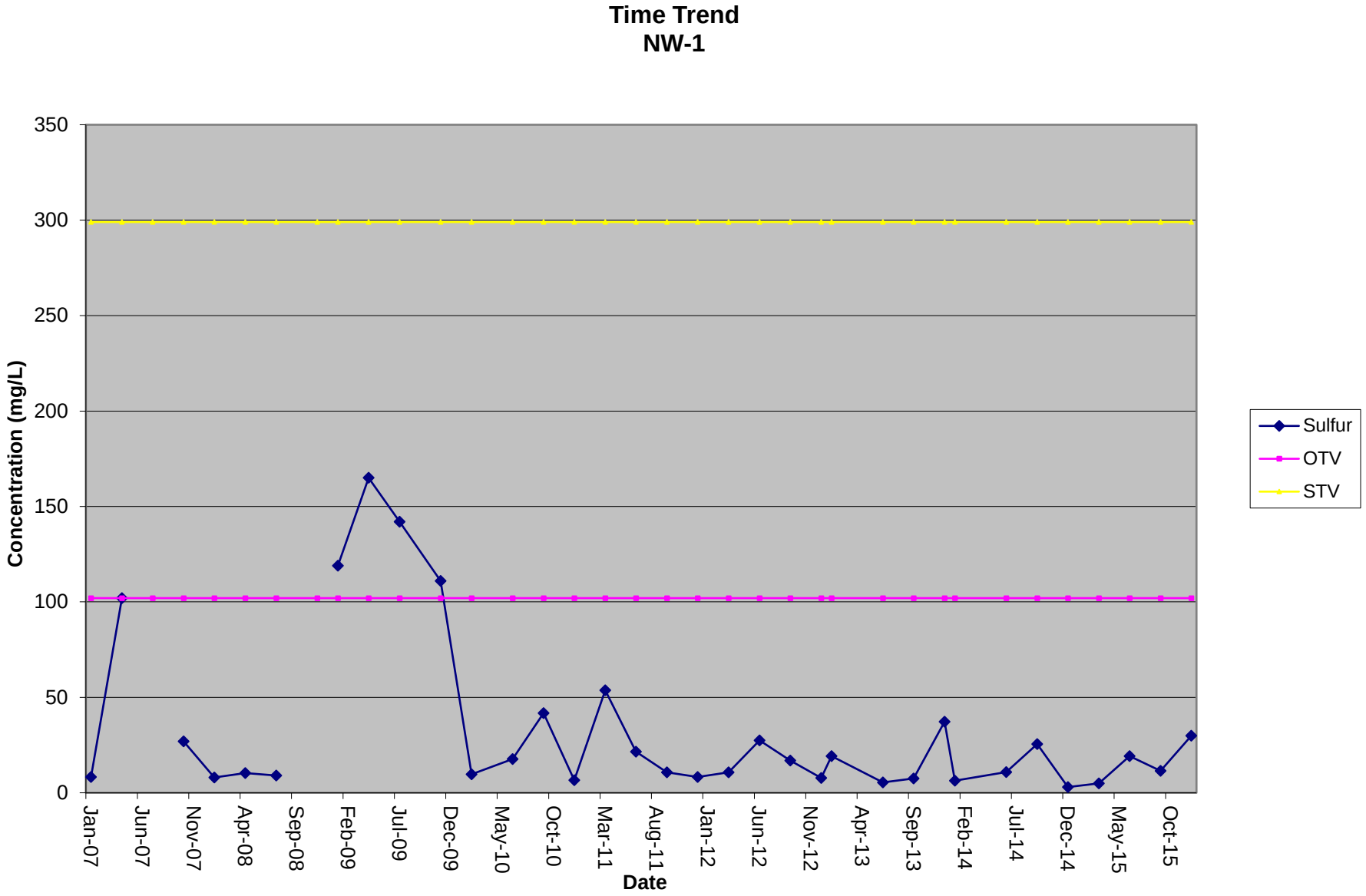
2015 ANNUAL REPORT
HISTORIC ASH CELL

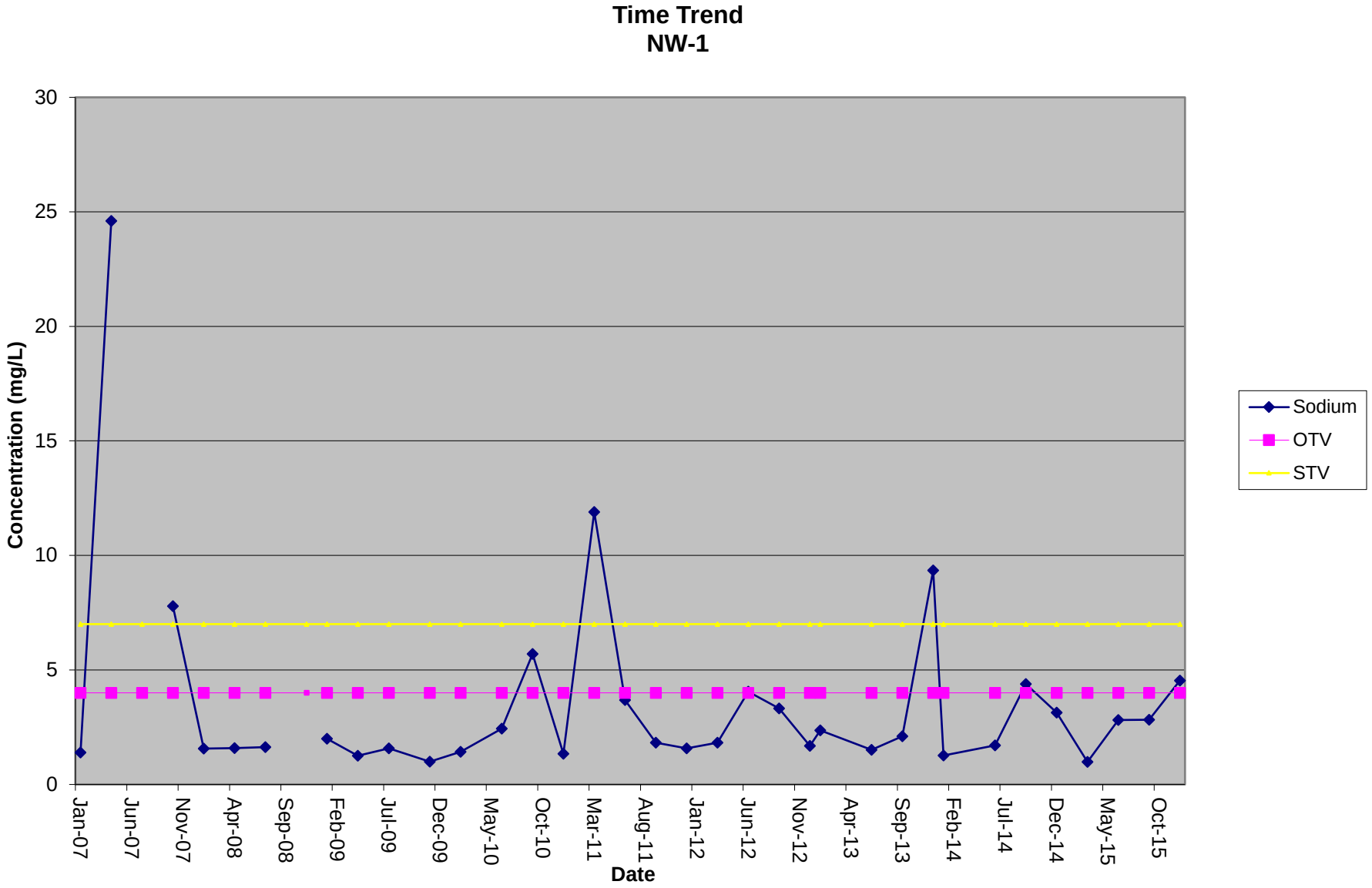
DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

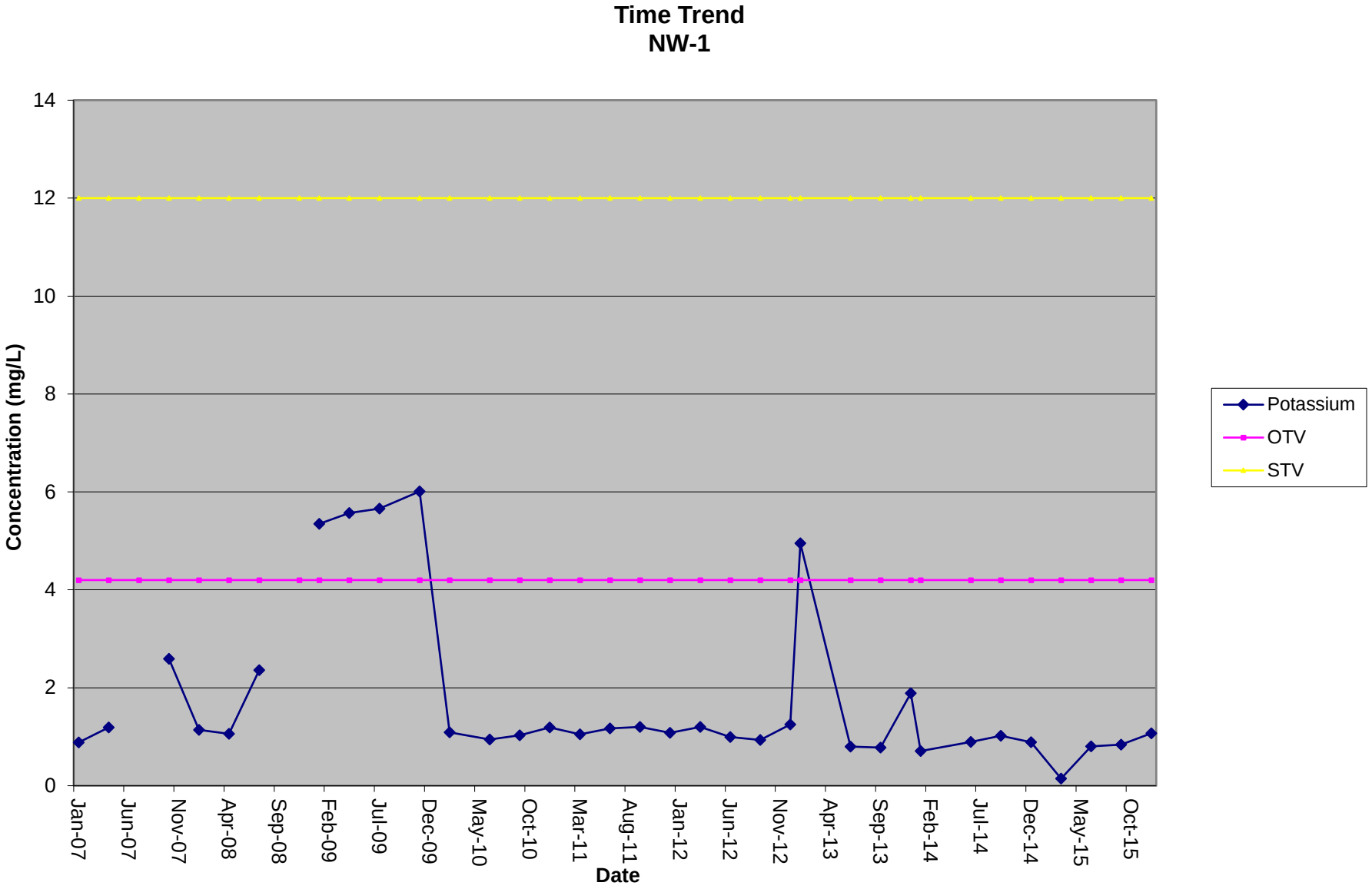
JANUARY 2016

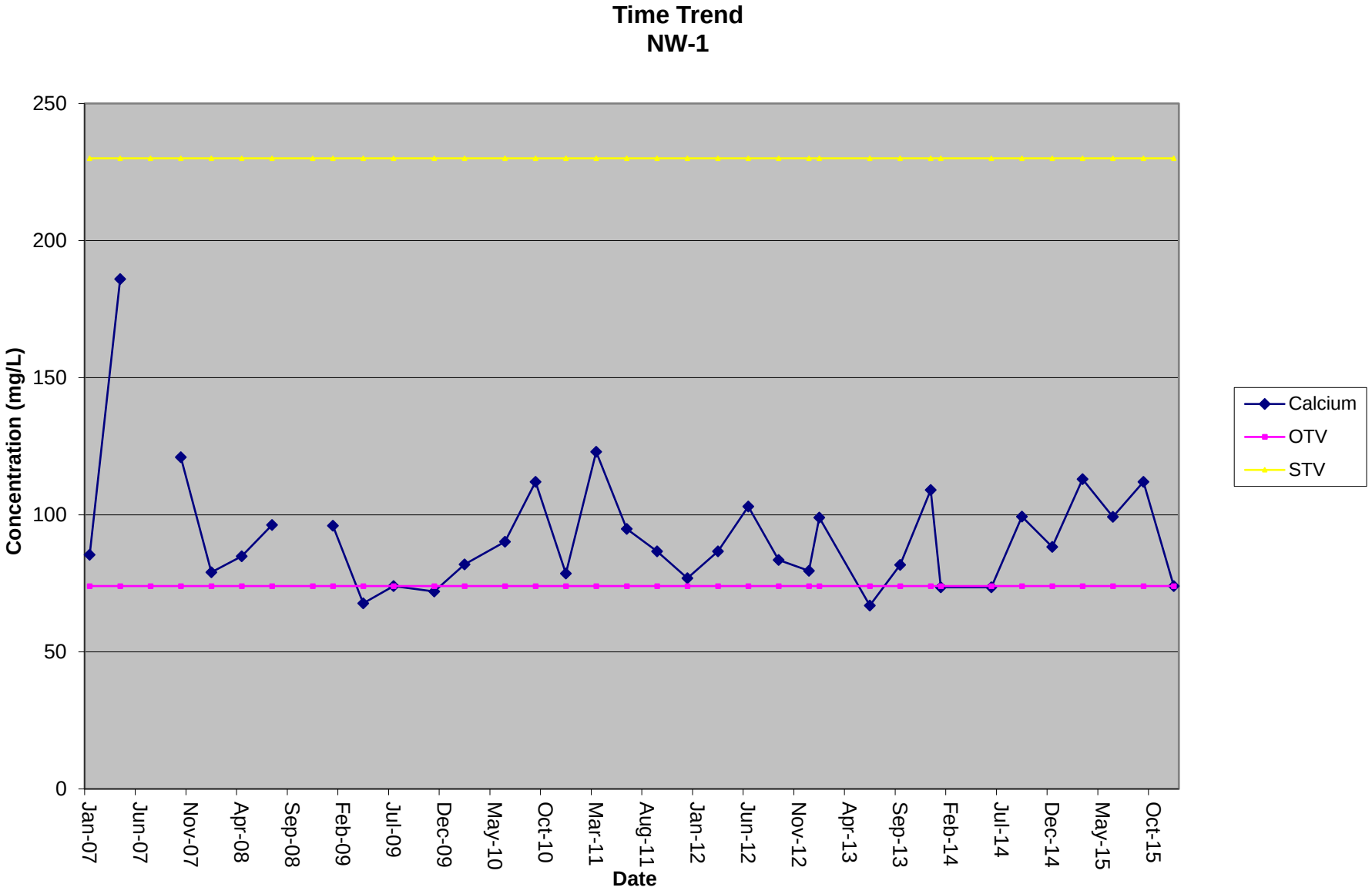

Time Trend
NW-1
0.012
0.01
0.008
0.006
0.004
0.002
0
Concentration (mg/L)
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Date
Arsenic
OTV
STV


Time Trend
NW-1
Concentration (mg/L)
1200
1000
800
600
400
200
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
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Jul-14
Dec-14
May-15
Oct-15
Date
TDS
OTV
STV

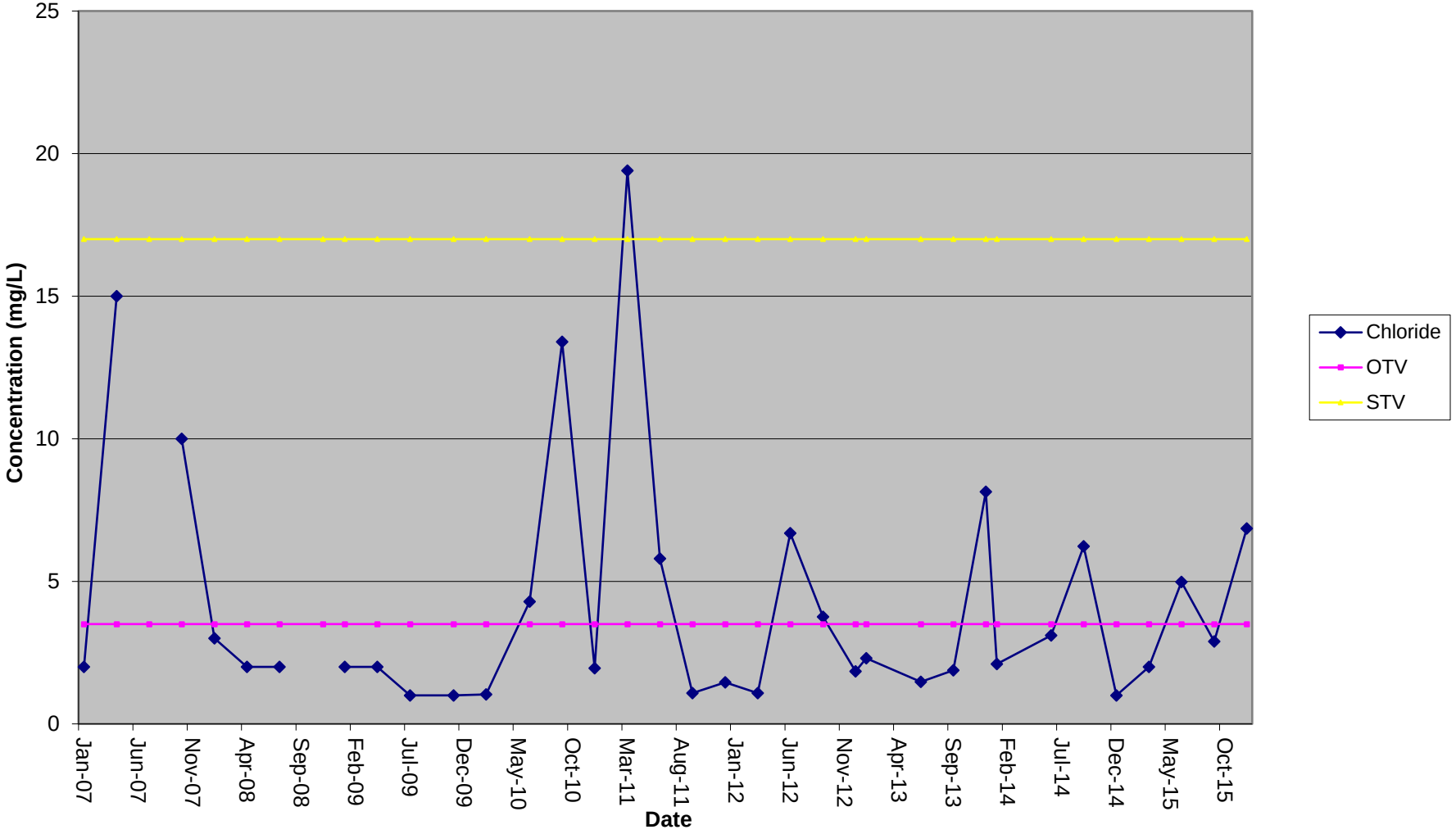

Time Trend
NW-1
Concentration (mg/L)
350
300
250
200
150
100
50
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Sulfur
OTV
STV

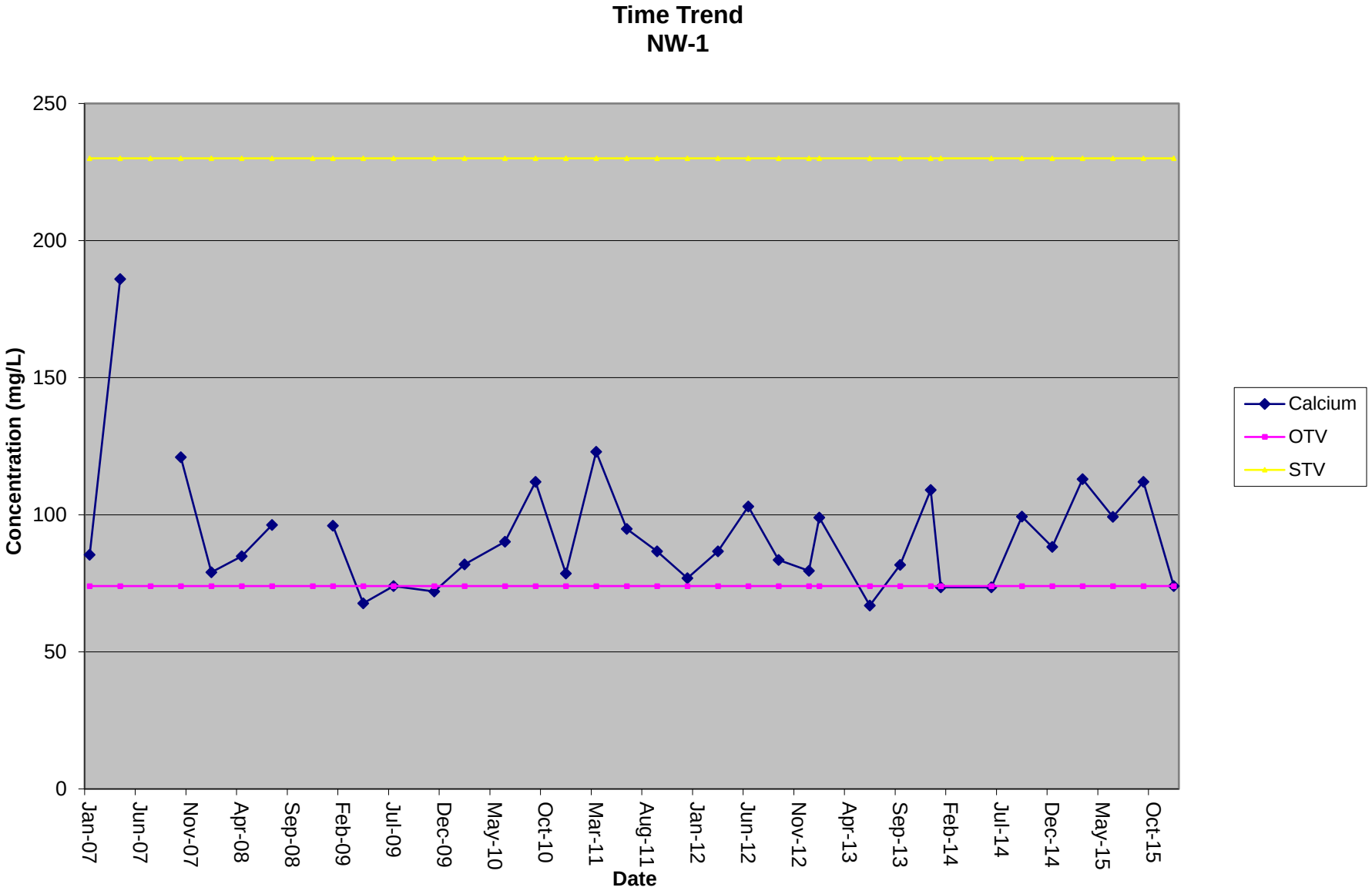

Time Trend
NW-1
Concentration (mg/L)
30
25
20
15
10
5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Sodium
OTV
STV

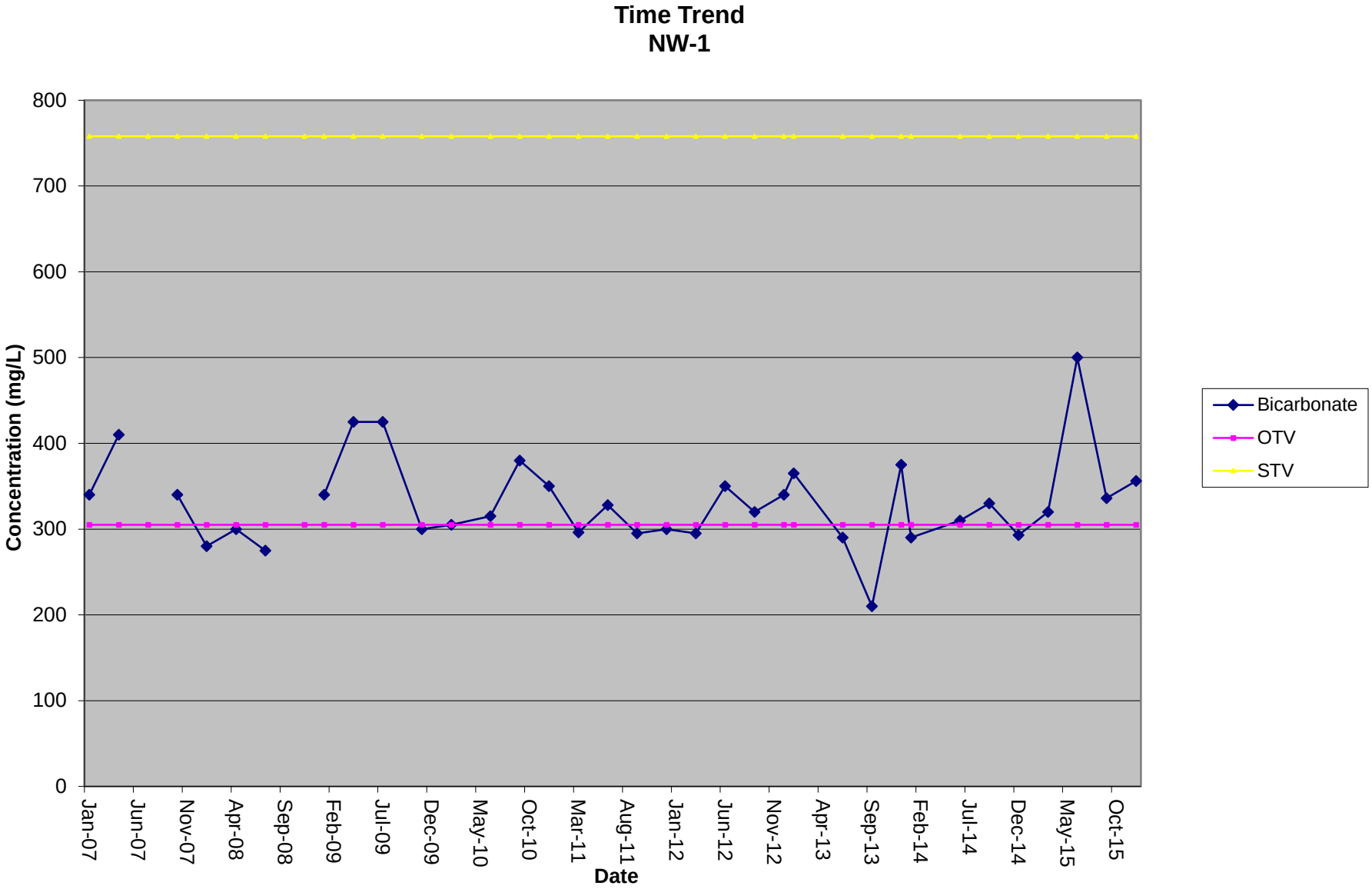

Time Trend
NW-1
Concentration (mg/L)
14
12
10
8
6
4
2
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Potassium
OTV
STV

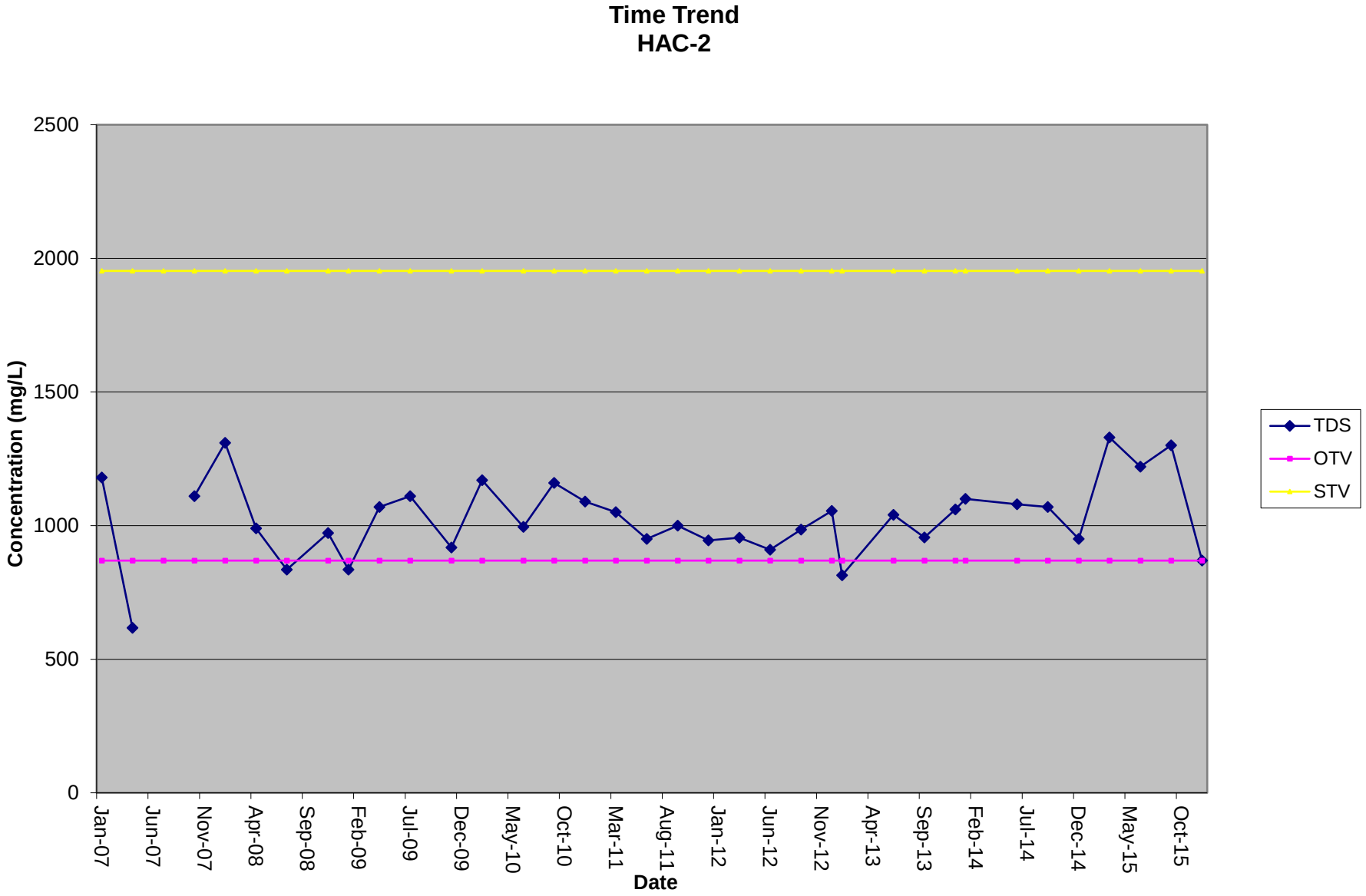

Time Trend
NW-1
Concentration (mg/L)
250
200
150
100
50
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Calcium
OTV
STV

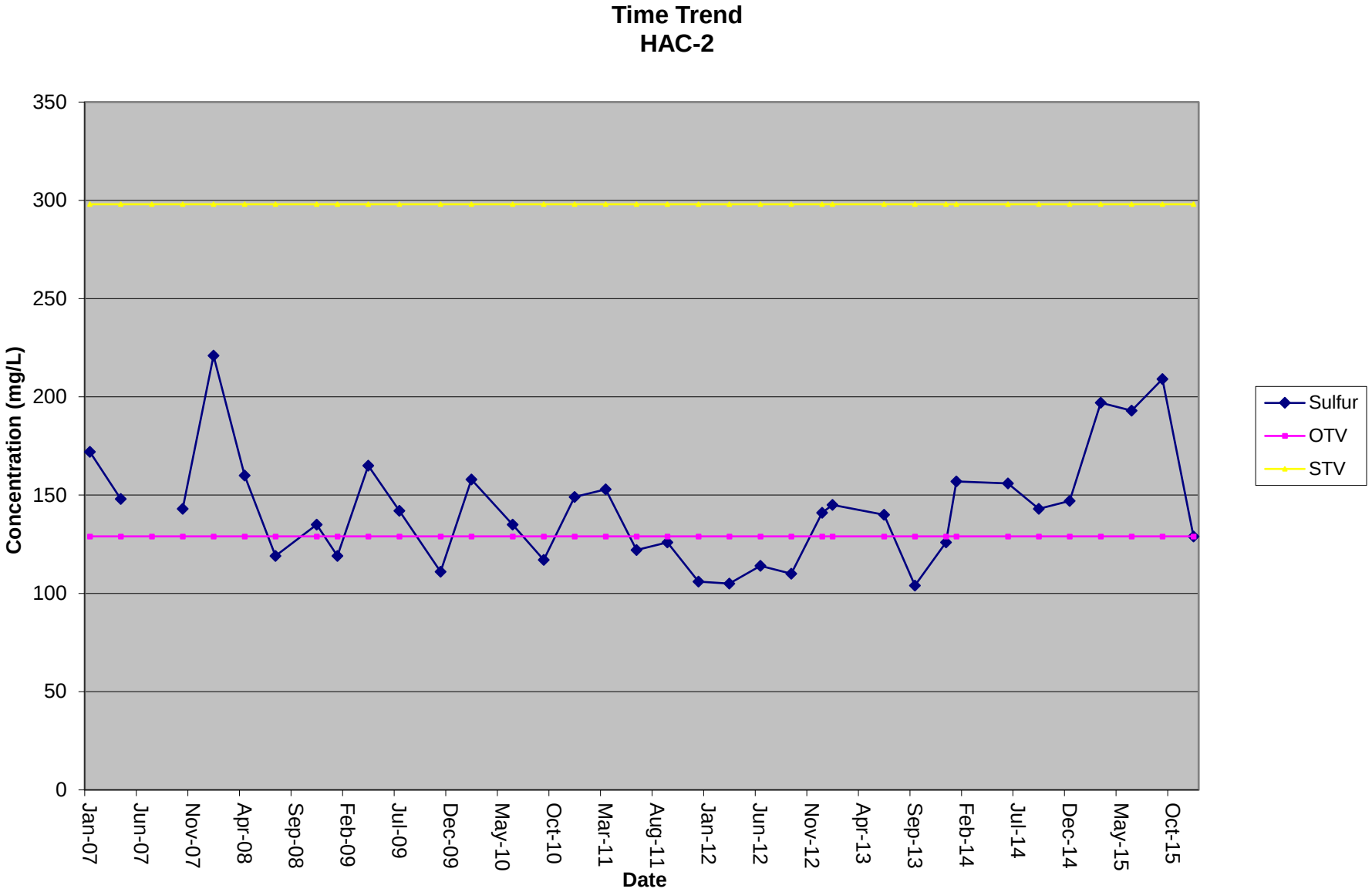
Time Trend
NW-1

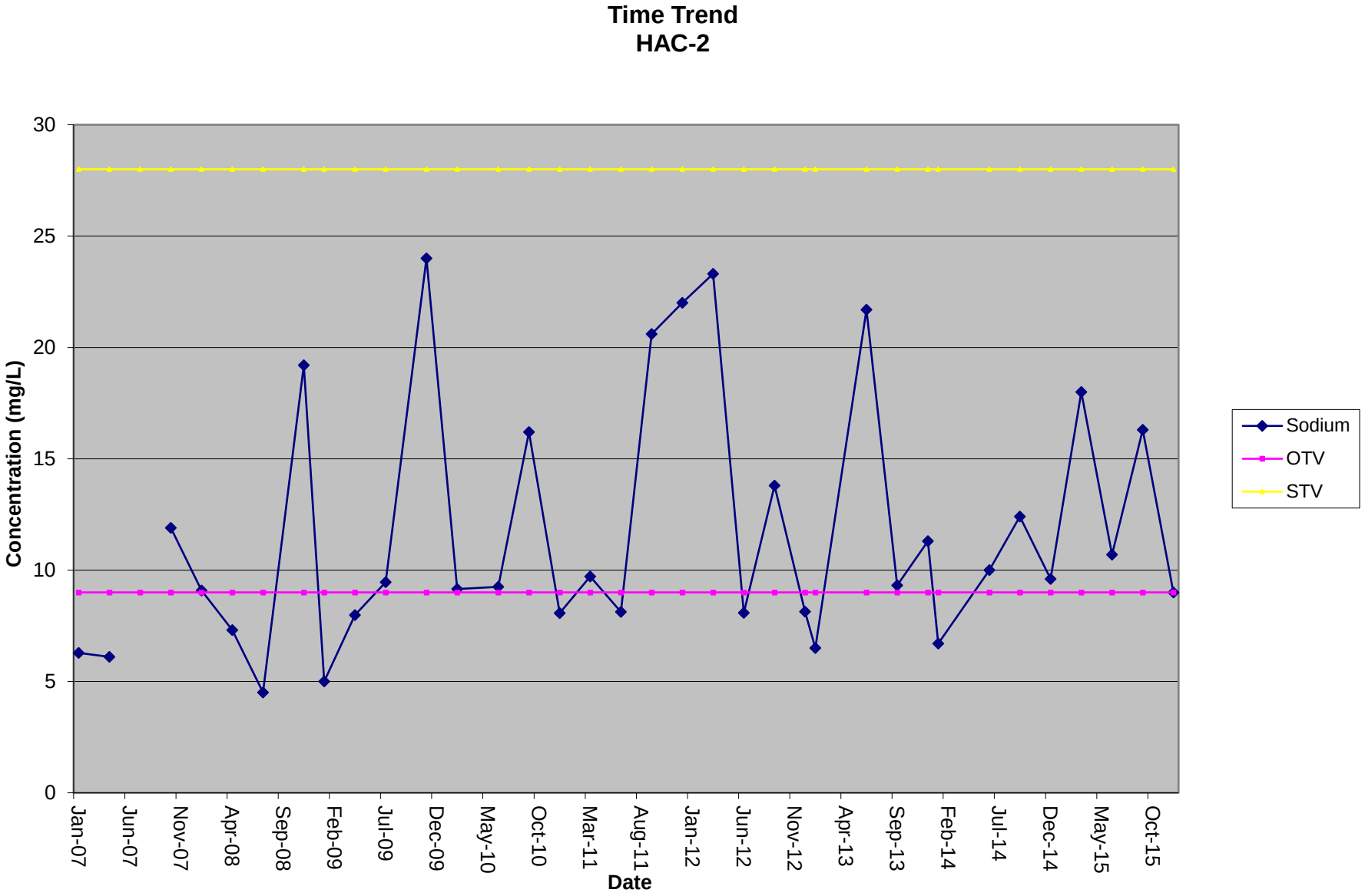



Time Trend
NW-1
Concentration (mg/L)
250
200
150
100
50
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
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May-15
Oct-15
Date
Calcium
OTV
STV

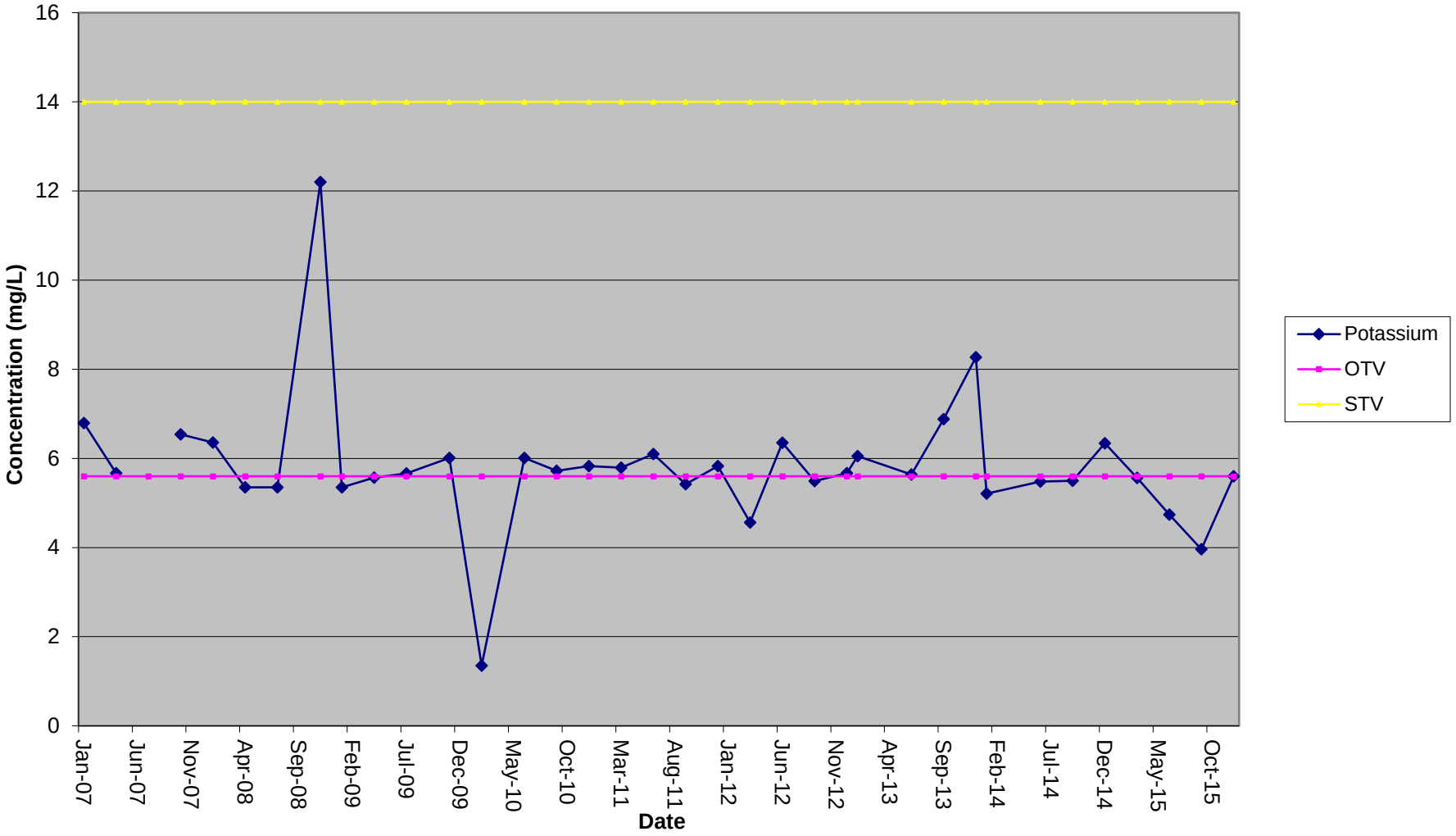

Time Trend
NW-1
Concentration (mg/L)
800
700
600
500
400
300
200
100
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Bicarbonate
OTV
STV


Time Trend
HAC-2
Concentration (mg/L)
2500
2000
1500
1000
500
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
TDS
OTV
STV

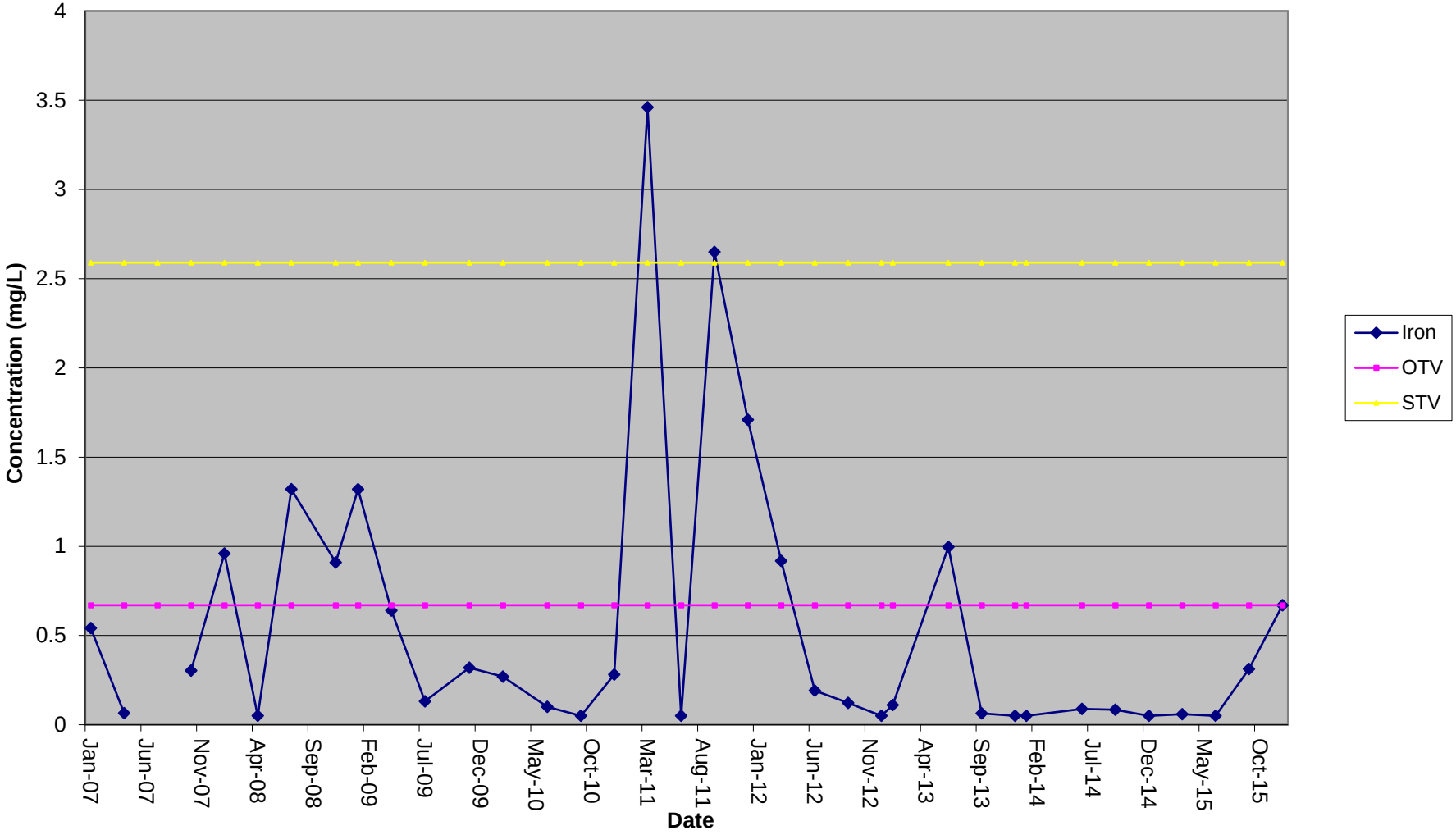

Time Trend
HAC-2
Concentration (mg/L)
350
300
250
200
150
100
50
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Sulfur
OTV
STV

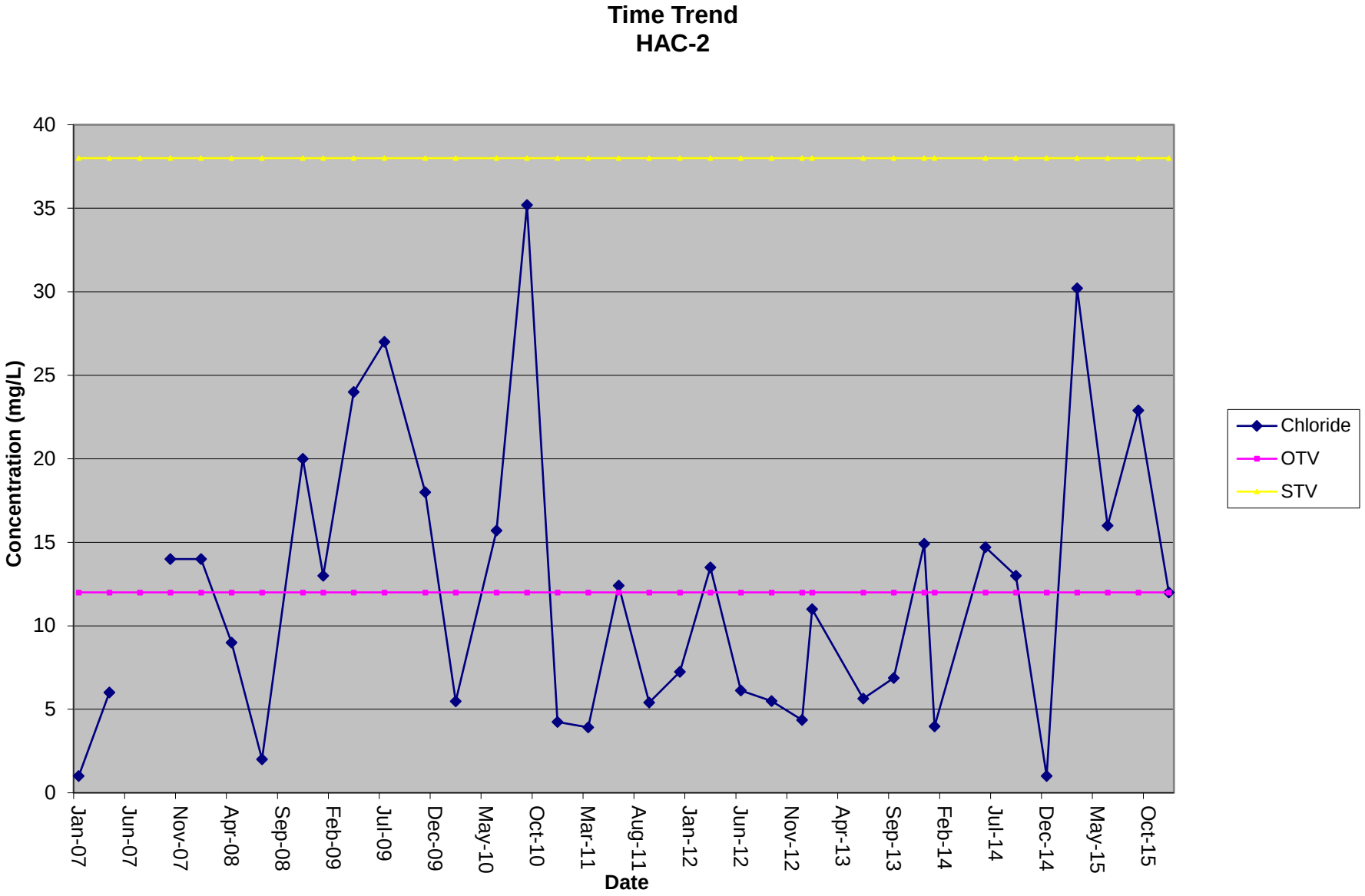

Time Trend
HAC-2
Concentration (mg/L)
30
25
20
15
10
5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Sodium
OTV
STV

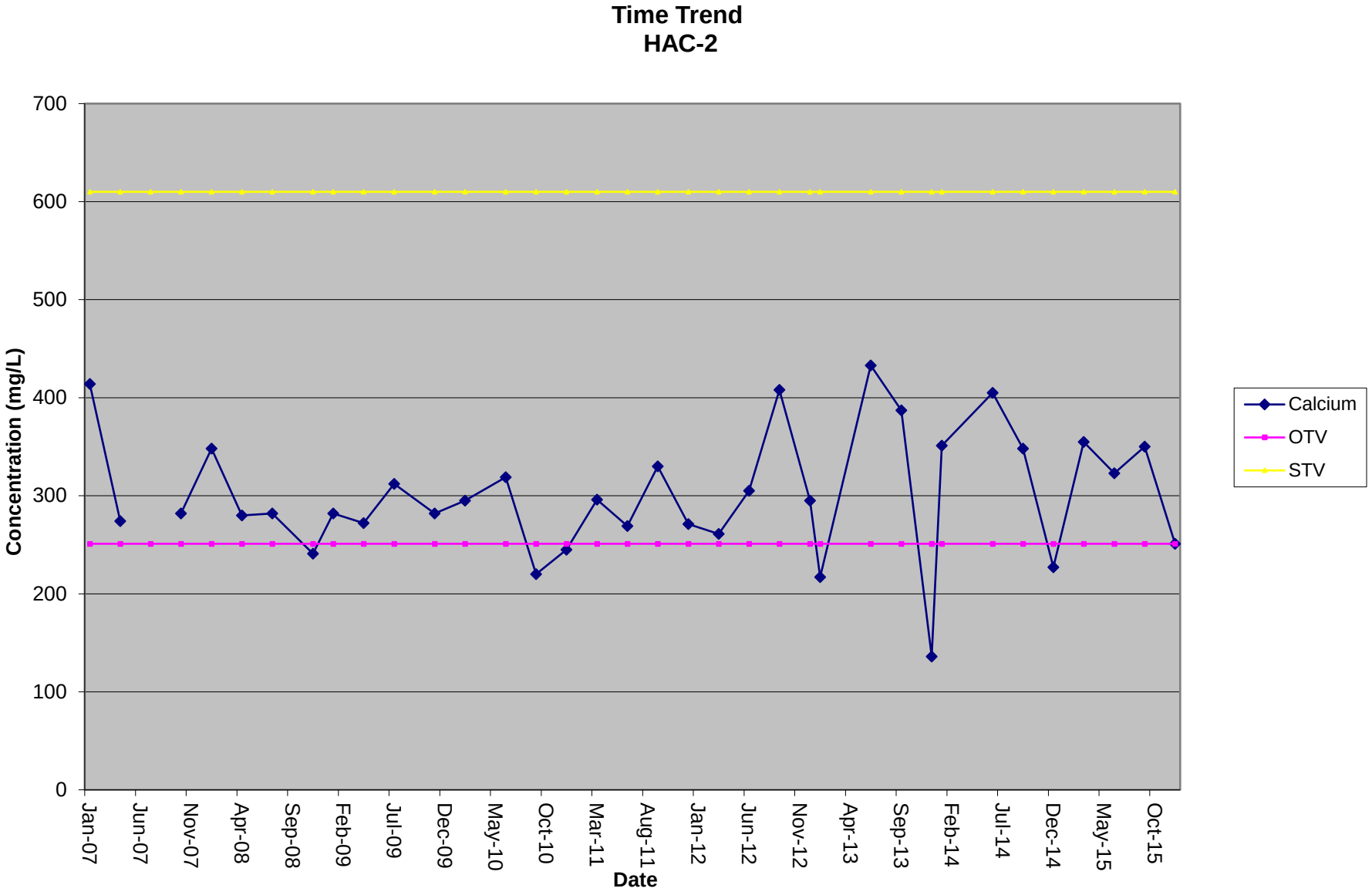
Time Trend
HAC-2

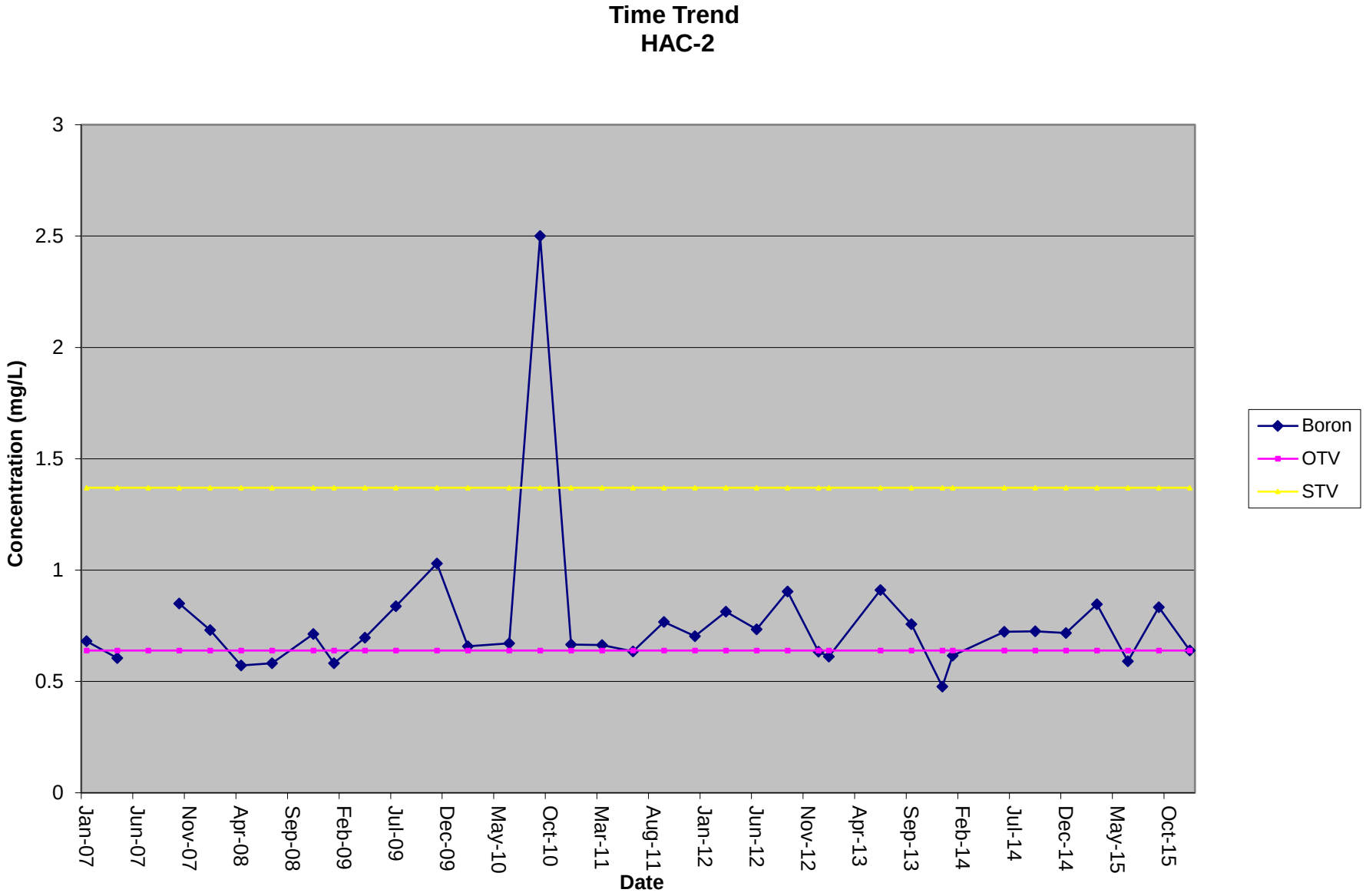


Time Trend
HAC-2

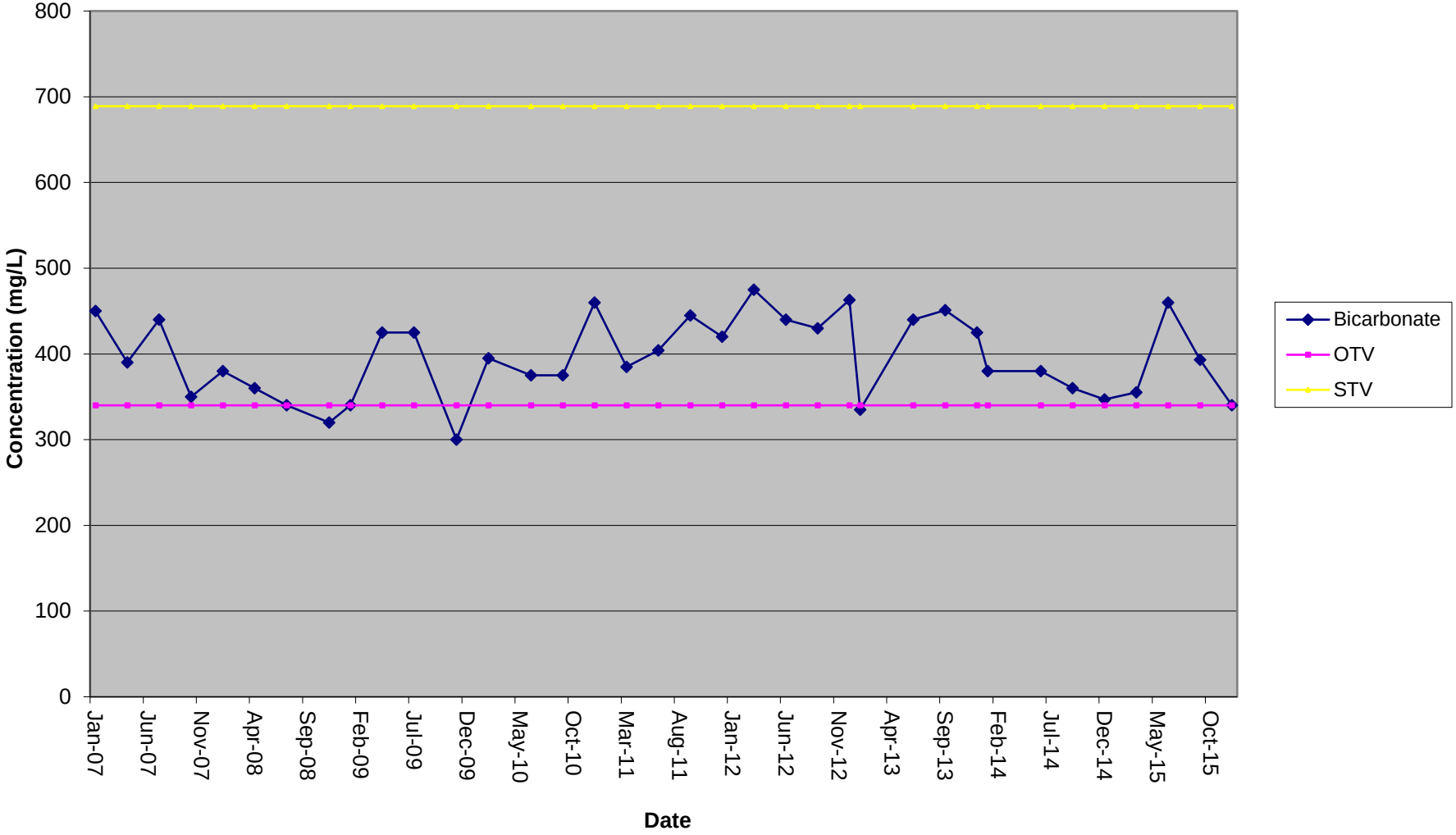


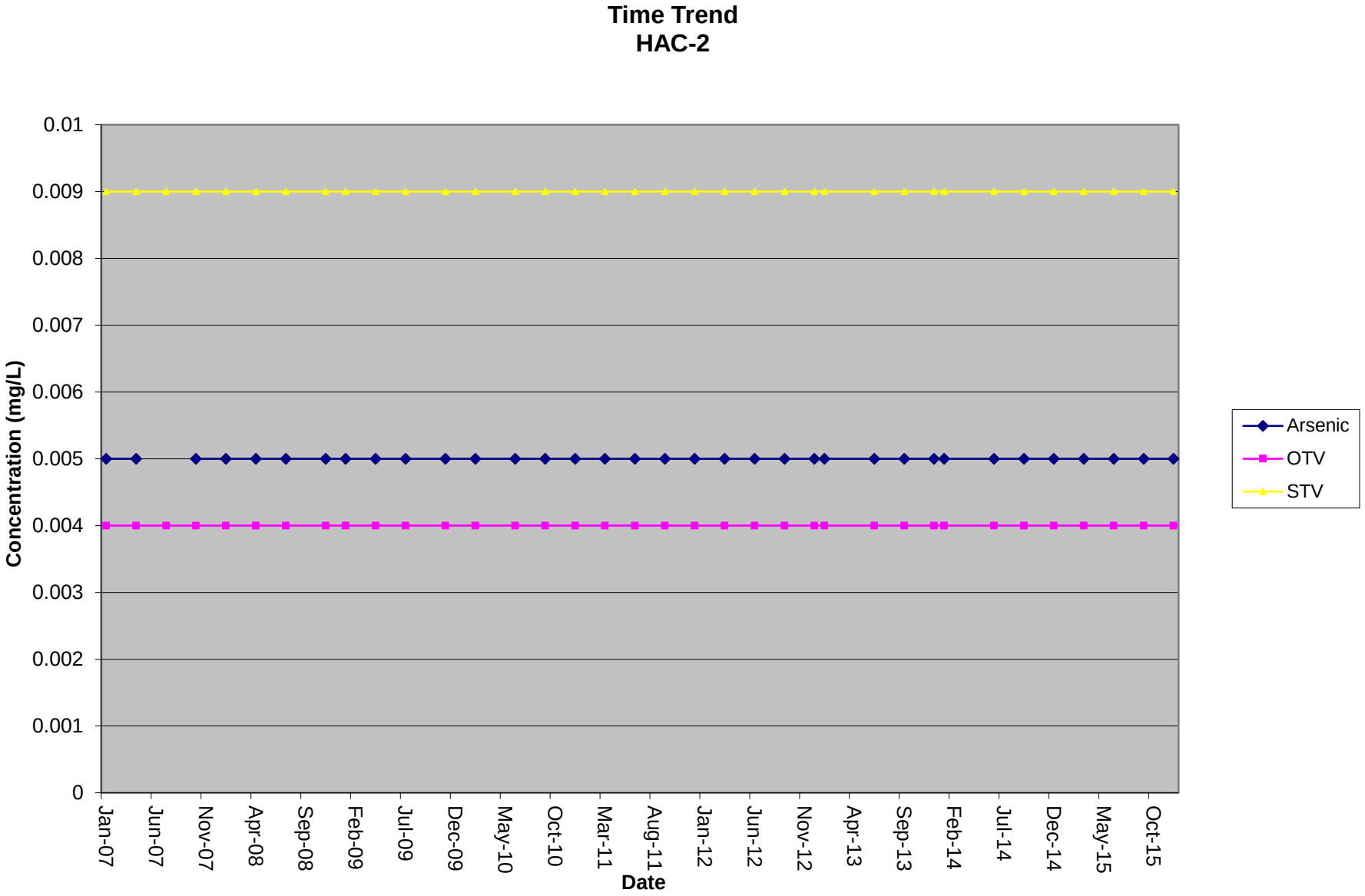

Time Trend
HAC-2
Concentration (mg/L)
40
35
30
25
20
15
10
5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Chloride
OTV
STV

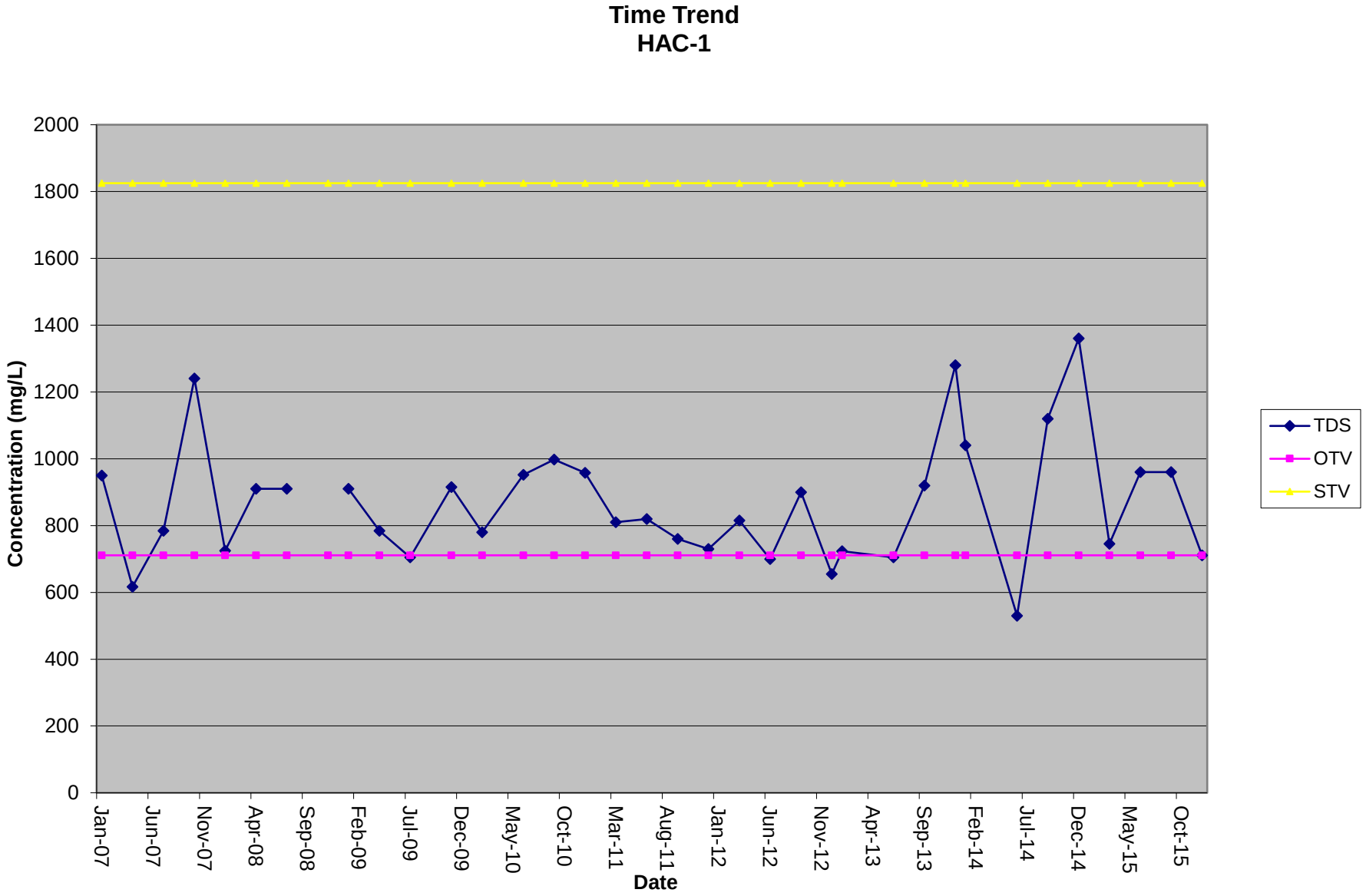

Time Trend
HAC-2
Concentration (mg/L)
700
600
500
400
300
200
100
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Calcium
OTV
STV


Time Trend
HAC-2
Concentration (mg/L)
3
2.5
2
1.5
1
0.5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Boron
OTV
STV

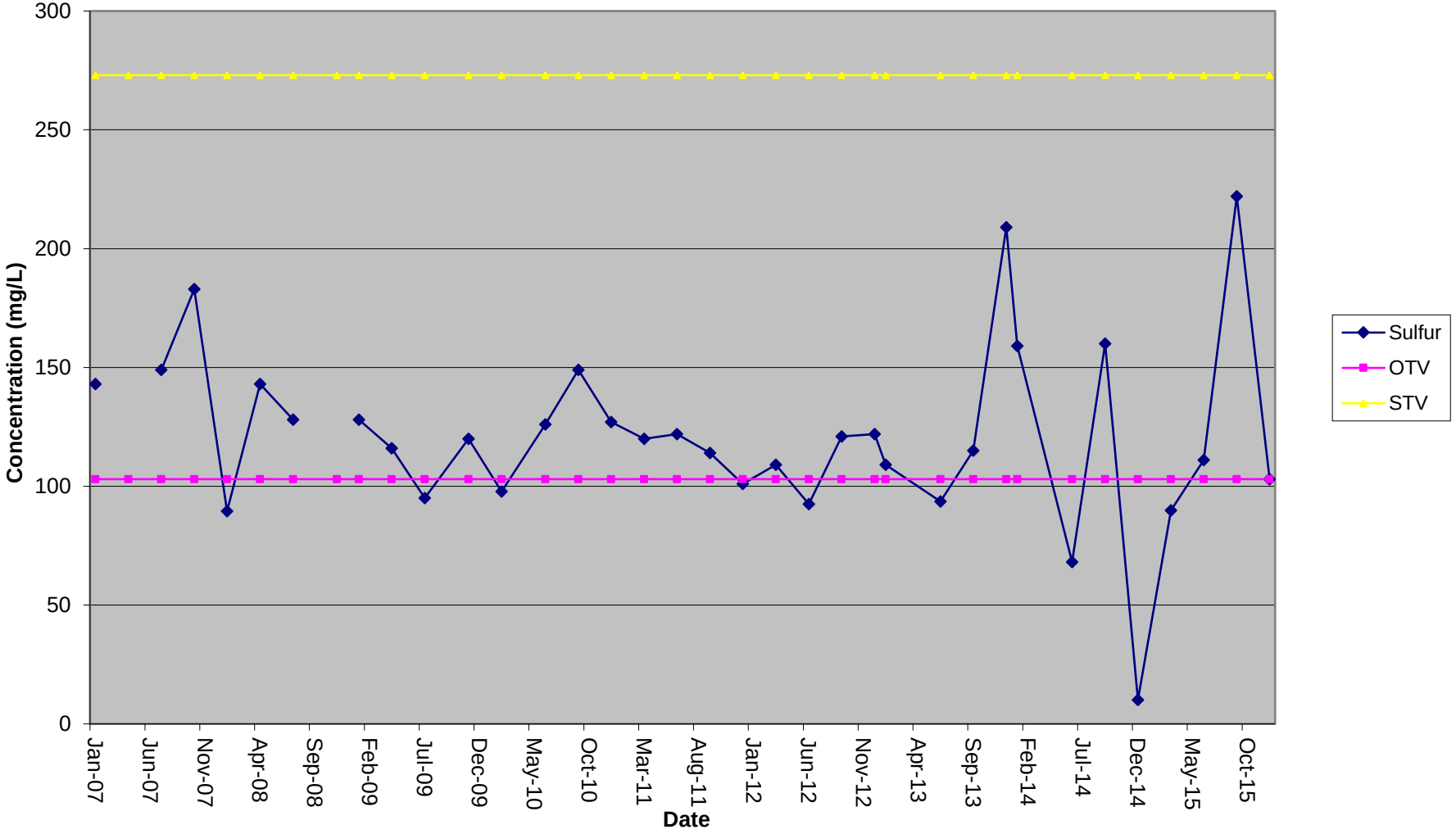
Time Trend
HAC-2



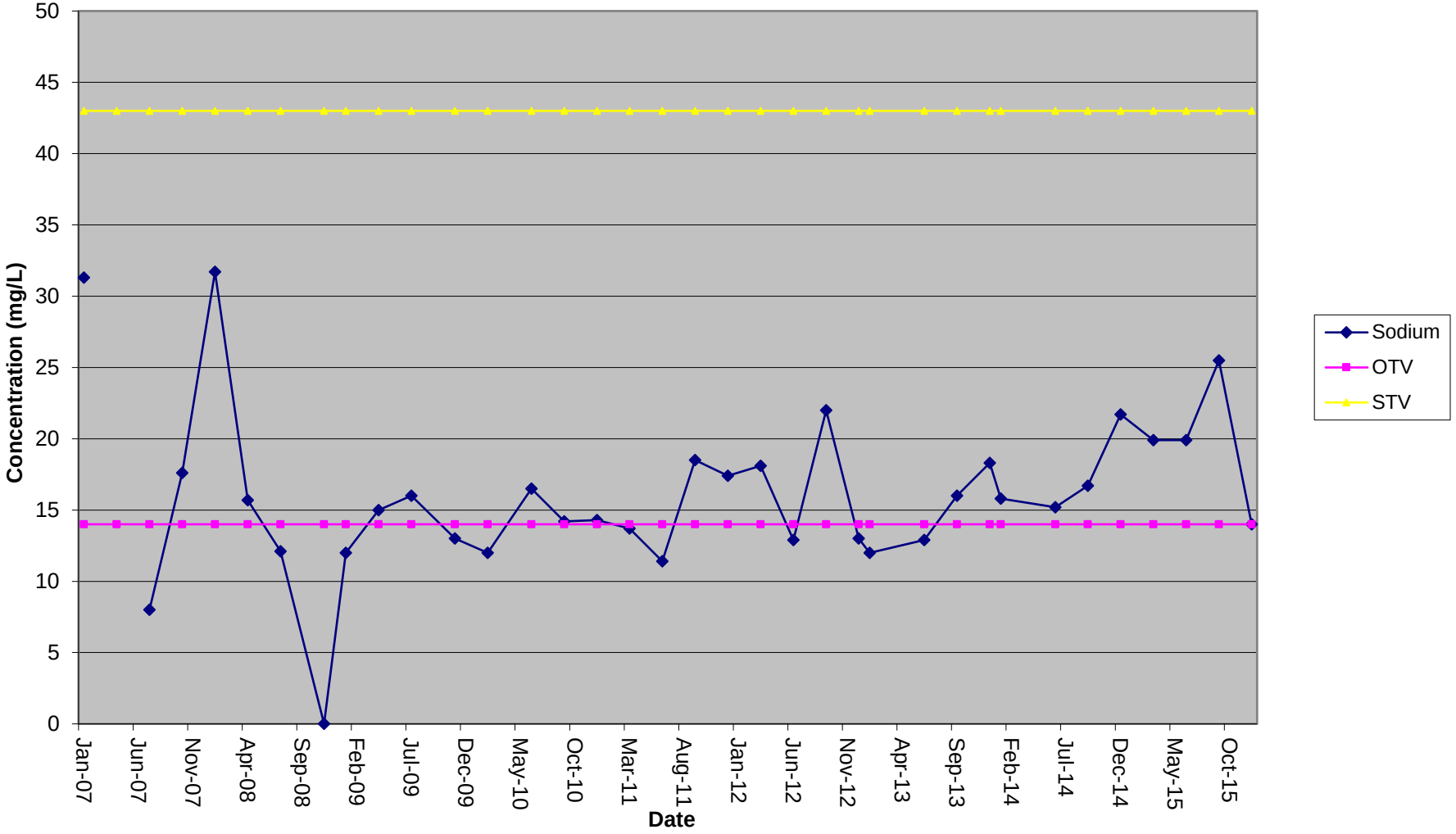

Time Trend
HAC-2
Concentration (mg/L)
0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Arsenic
OTV
STV

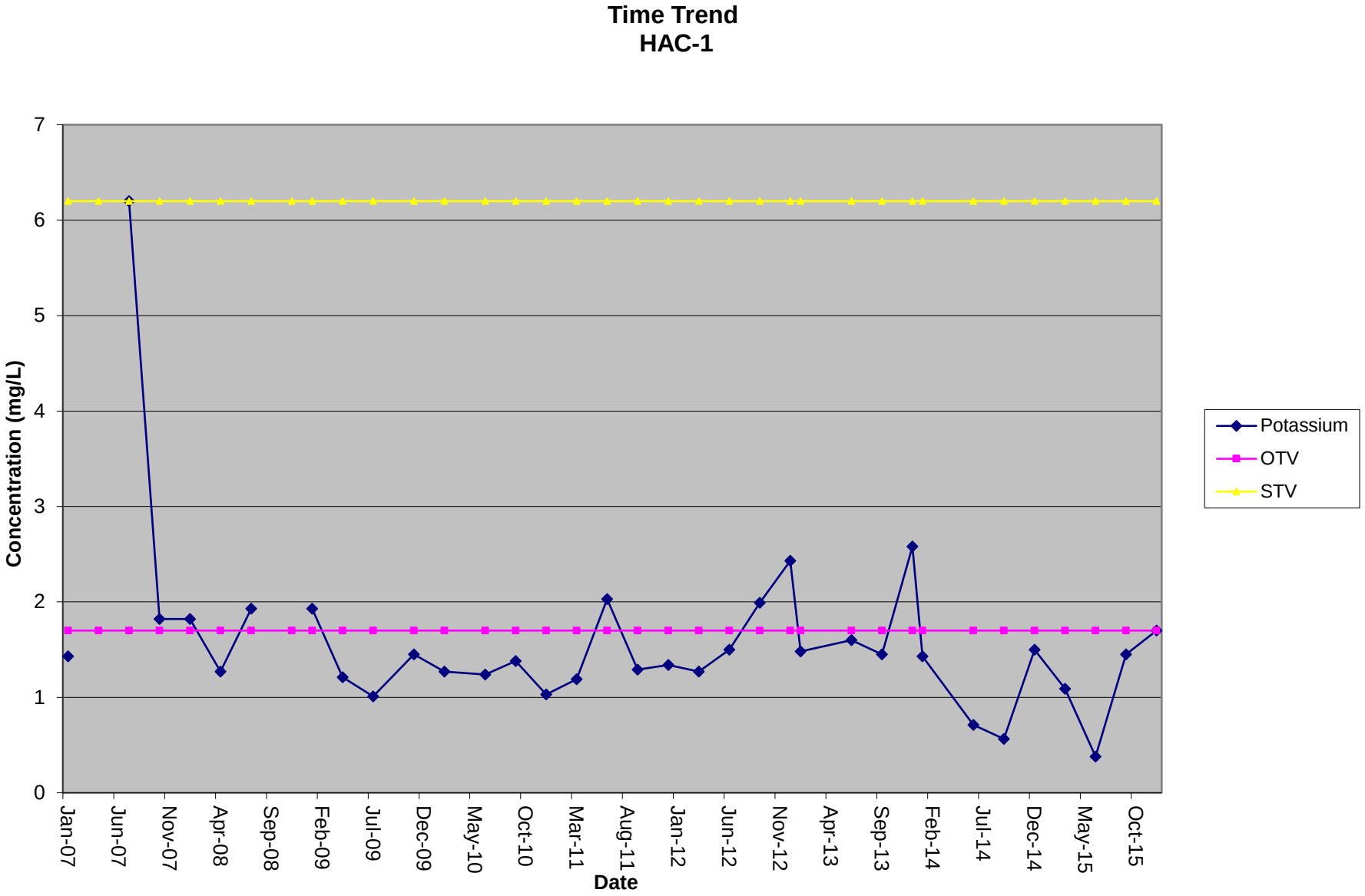

Time Trend
HAC-1
Concentration (mg/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
TDS
OTV
STV

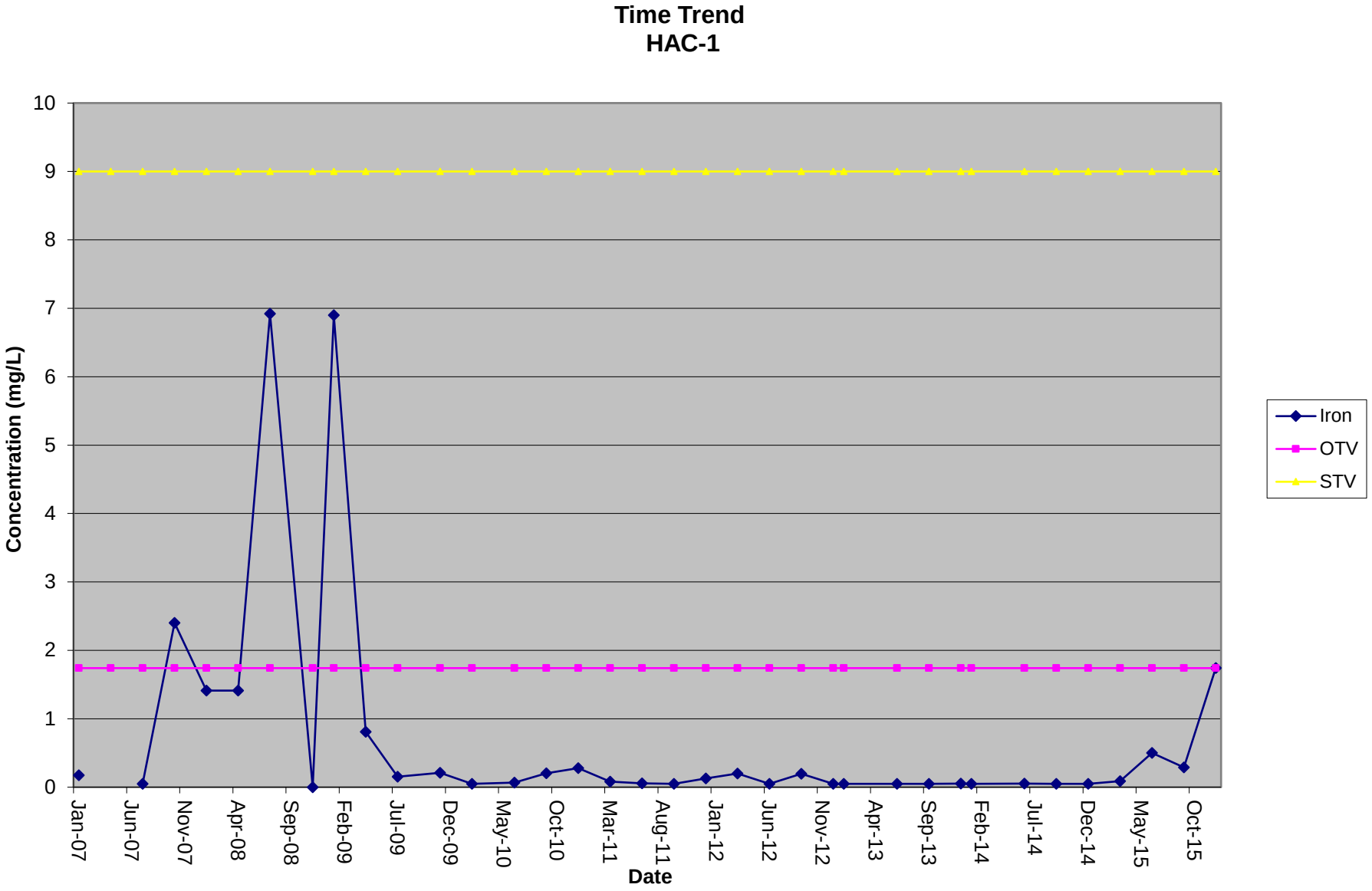
Time Trend
HAC-1

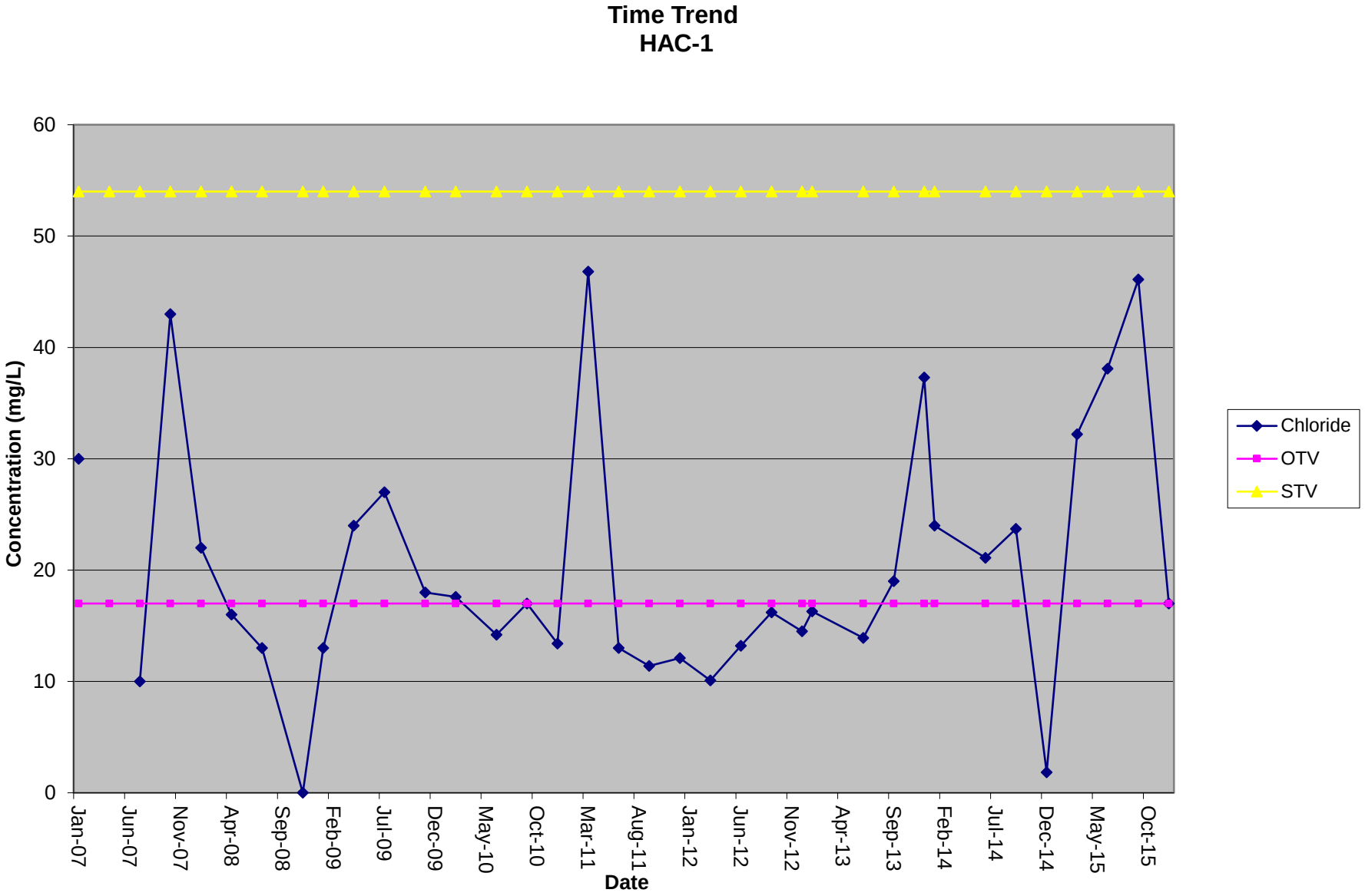


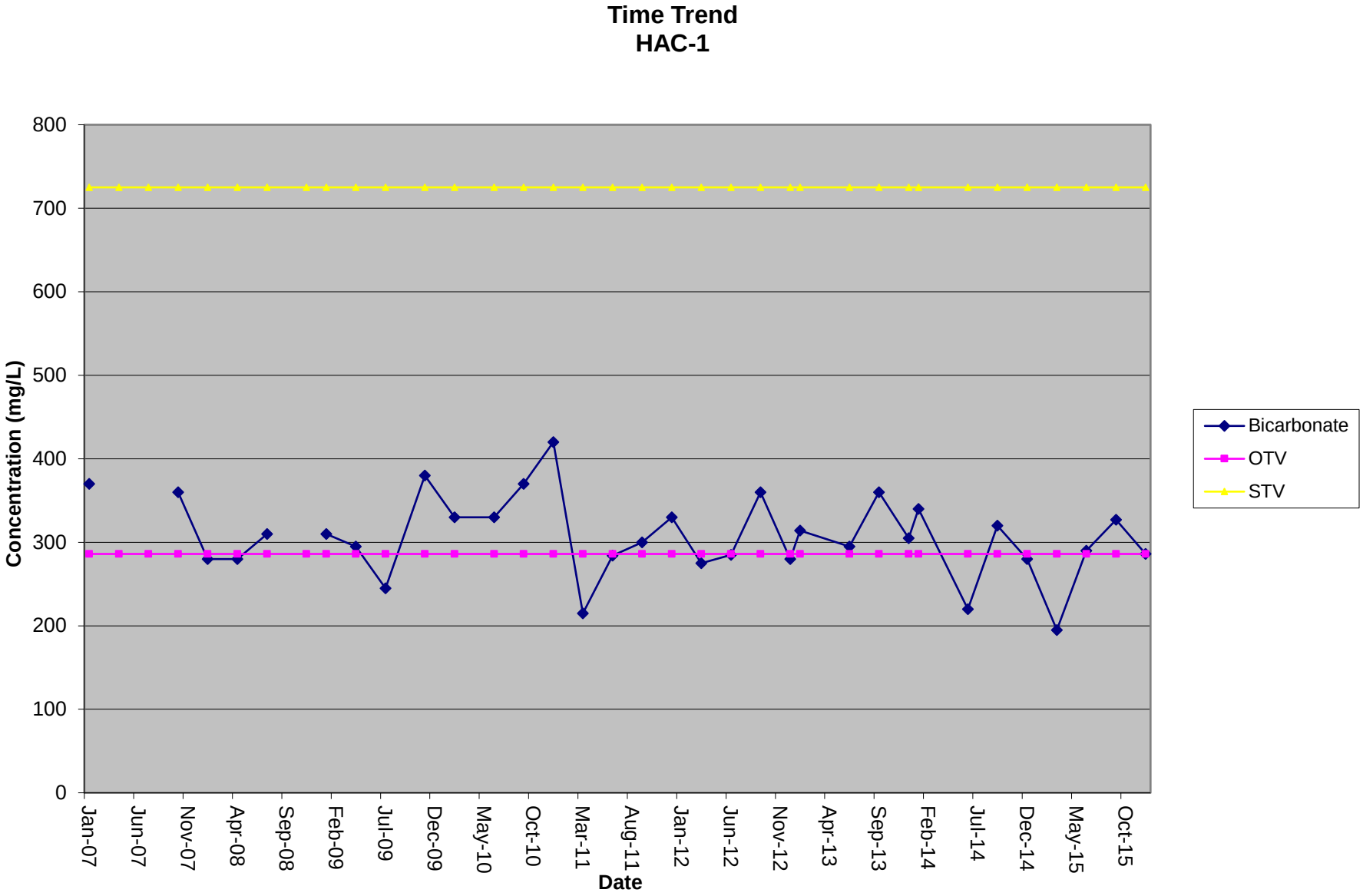
Time Trend
HAC-1

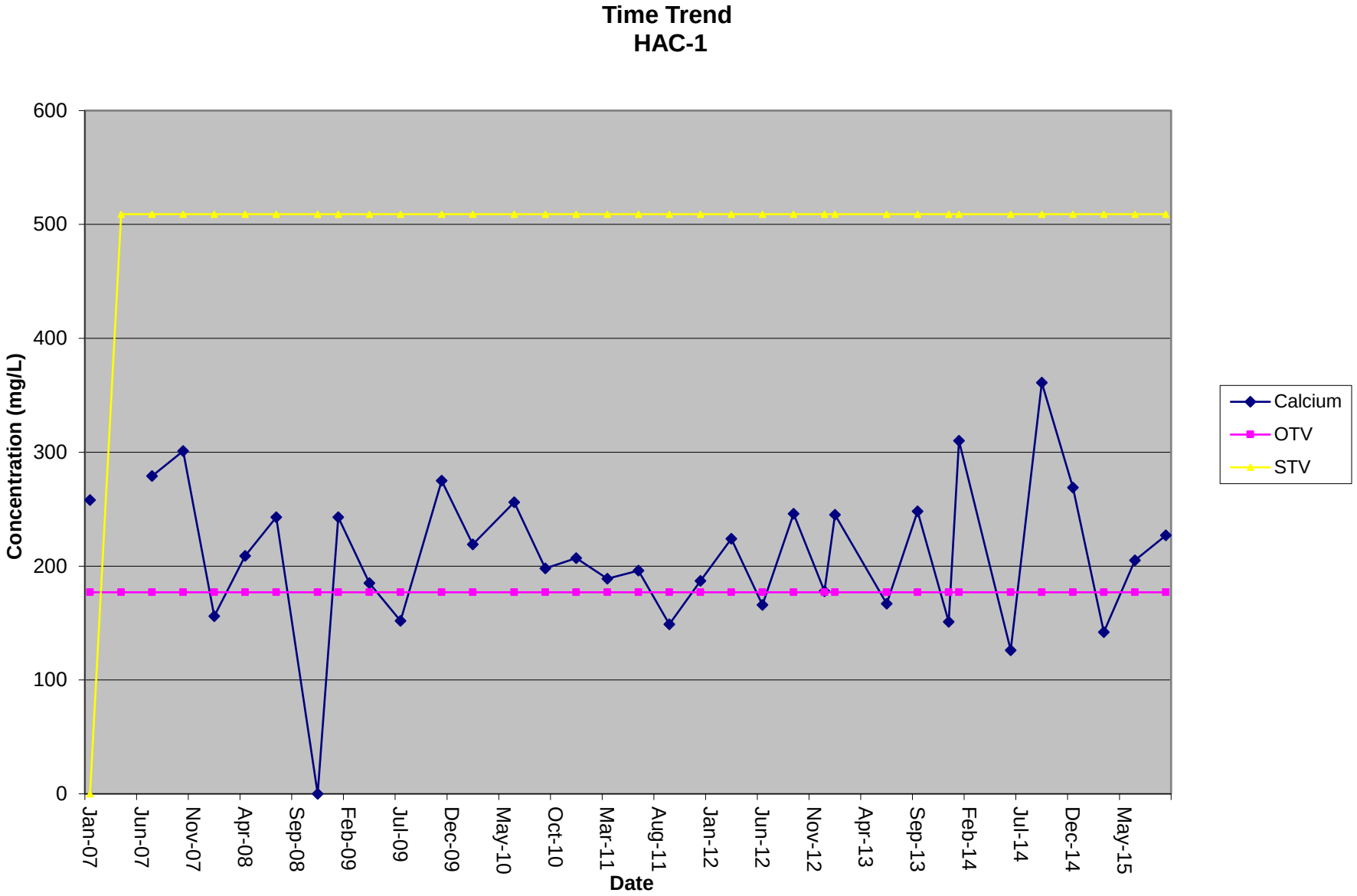



Time Trend
HAC-1
Concentration (mg/L)
0
1
2
3
4
5
6
7
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Potassium
OTV
STV

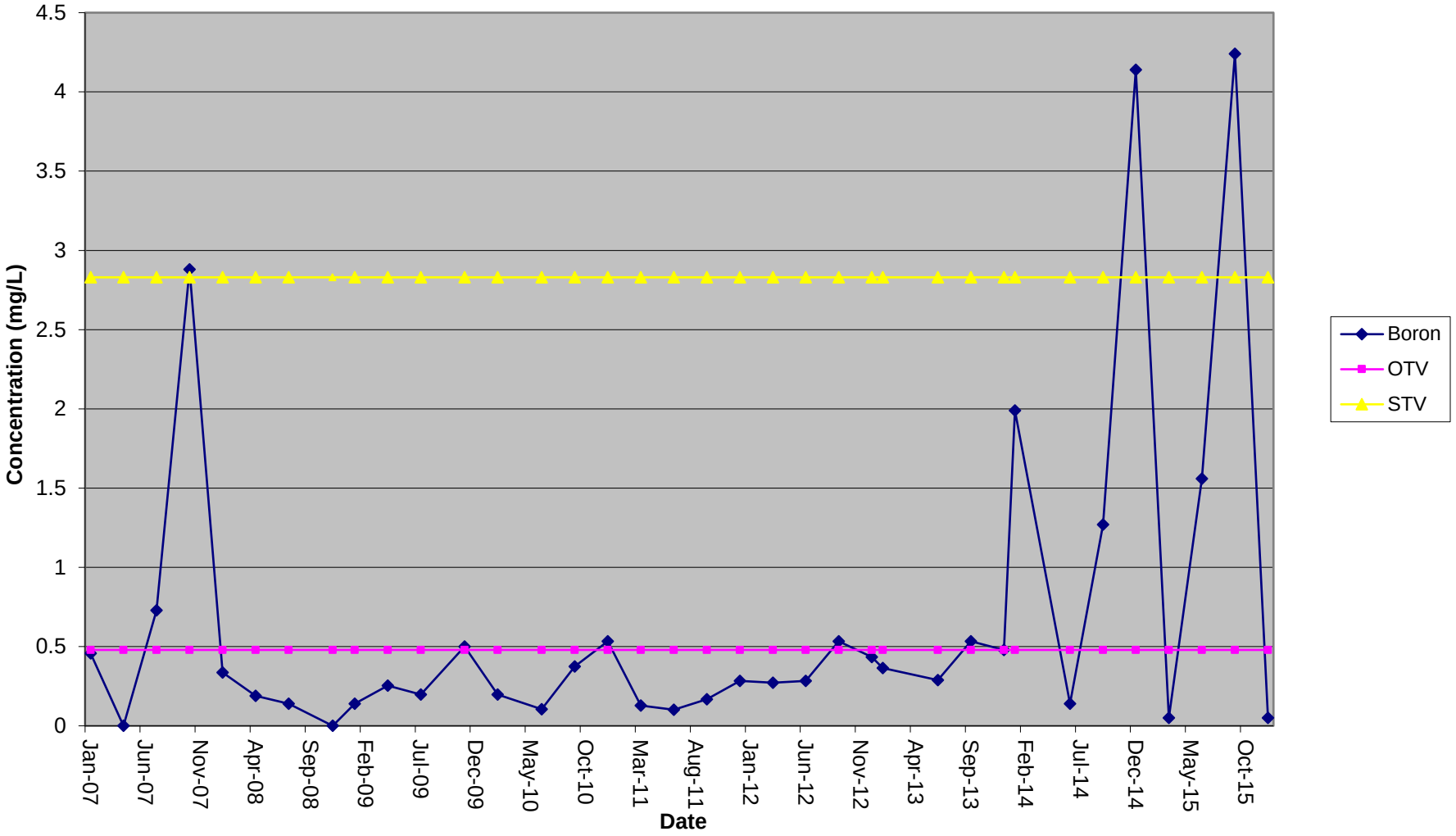

Time Trend
HAC-1
Concentration (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Iron
OTV
STV

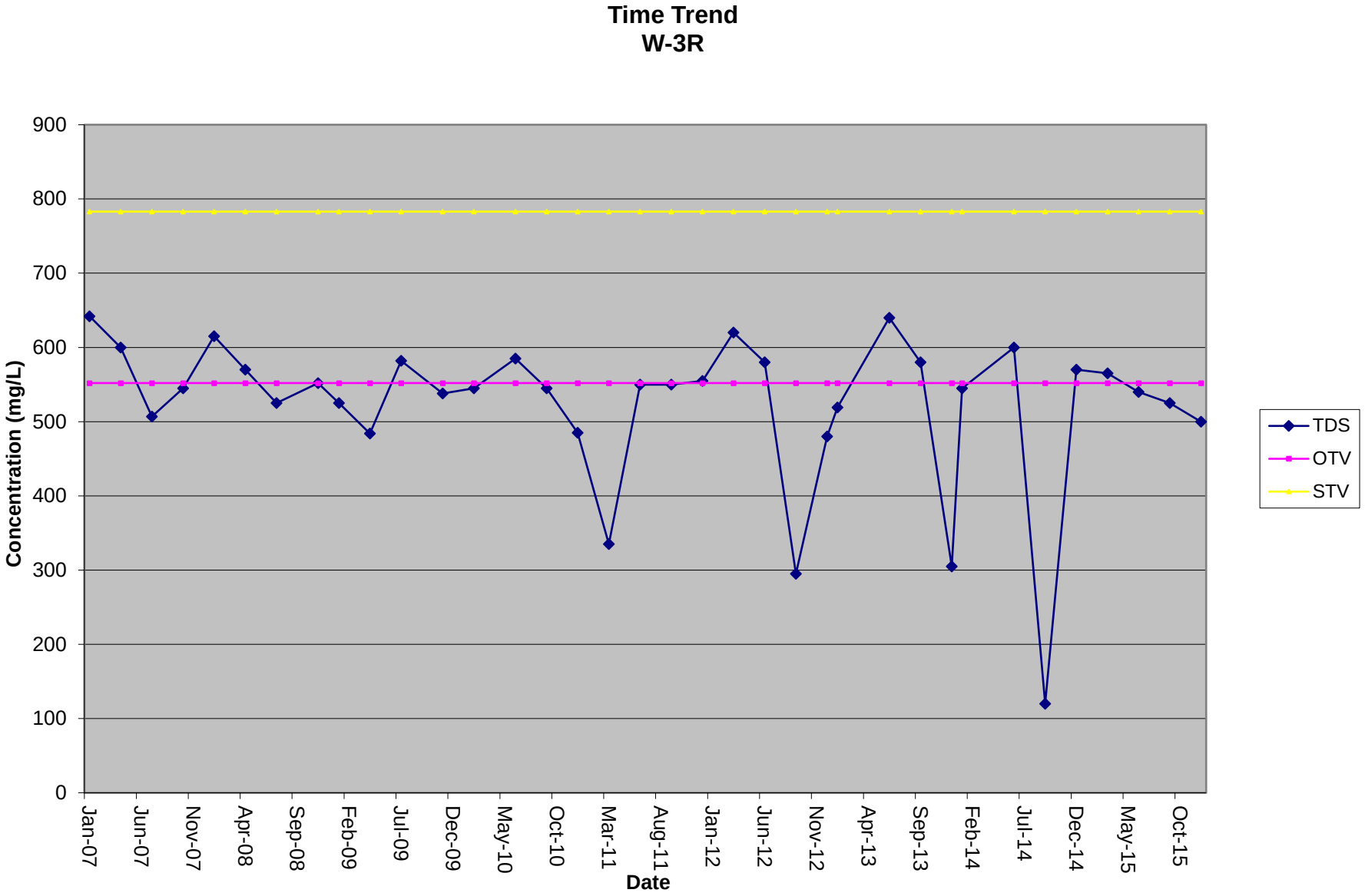

Time Trend
HAC-1
Concentration (mg/L)
60
50
40
30
20
10
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Chloride
OTV
STV


Time Trend
HAC-1
Concentration (mg/L)
800
700
600
500
400
300
200
100
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Bicarbonate
OTV
STV

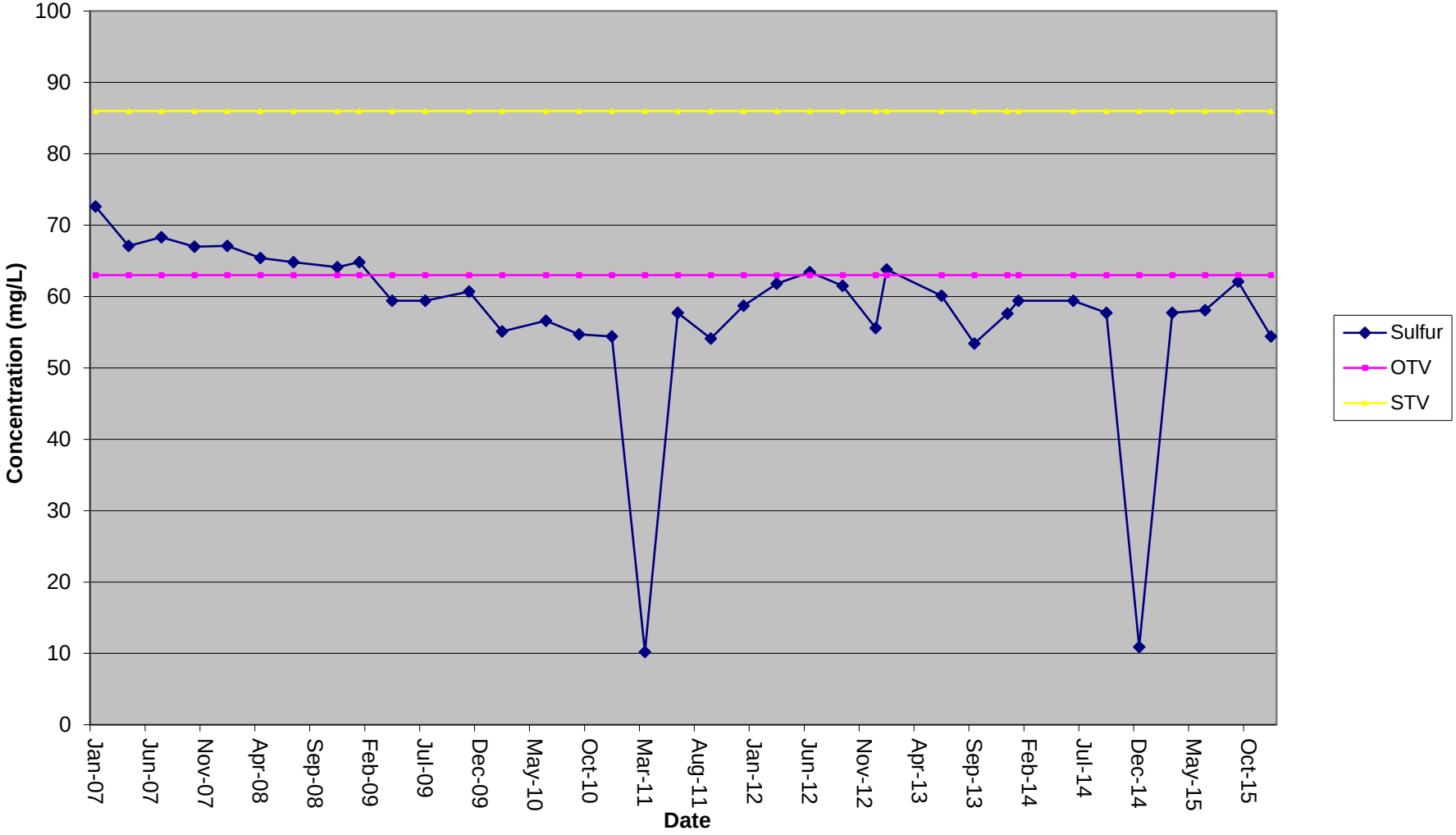

Time Trend
HAC-1
600
500
400
300
200
100
0
Concentration (mg/L)
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Date
Calcium
OTV
STV

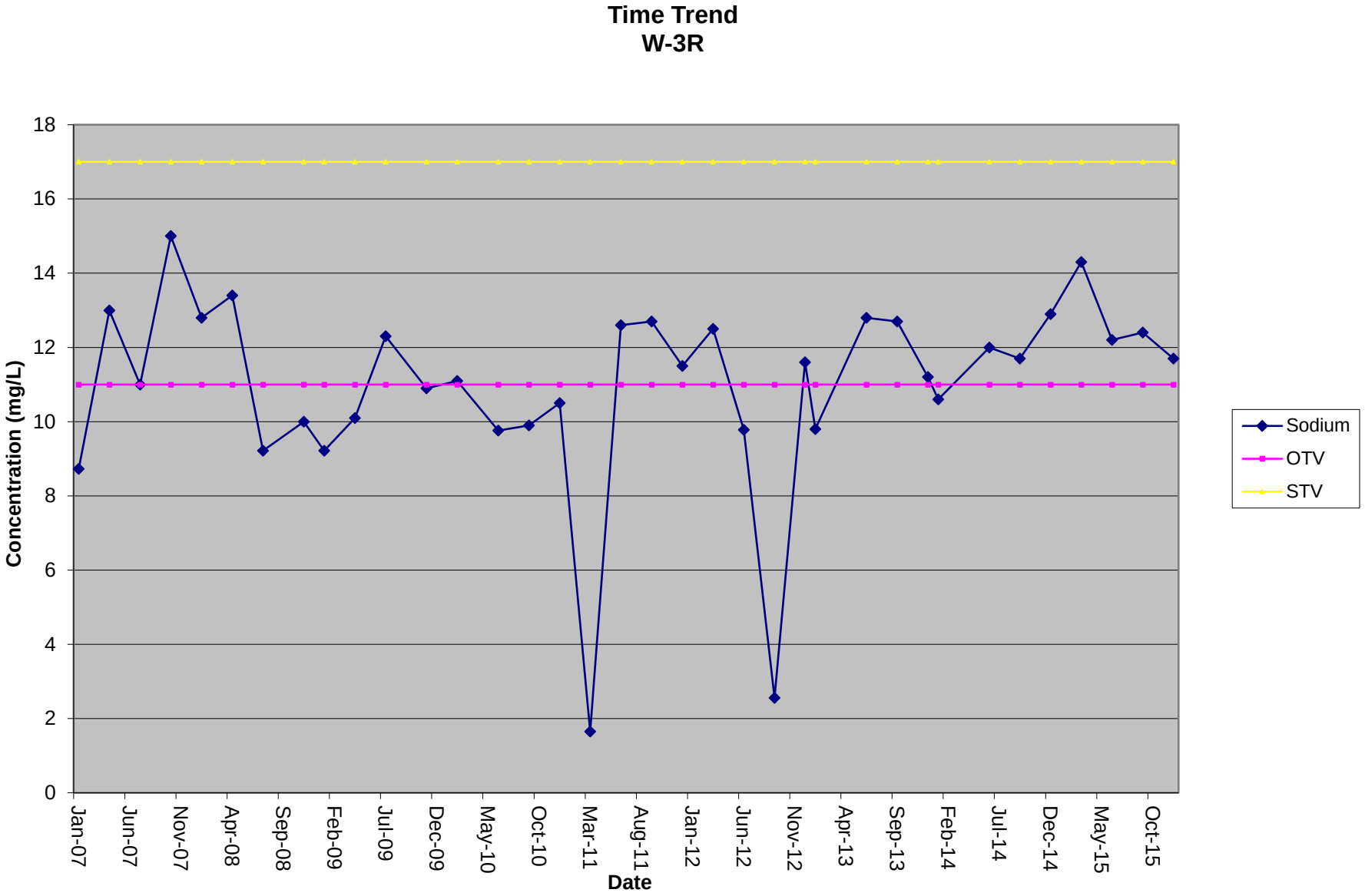
Time Trend
HAC-1

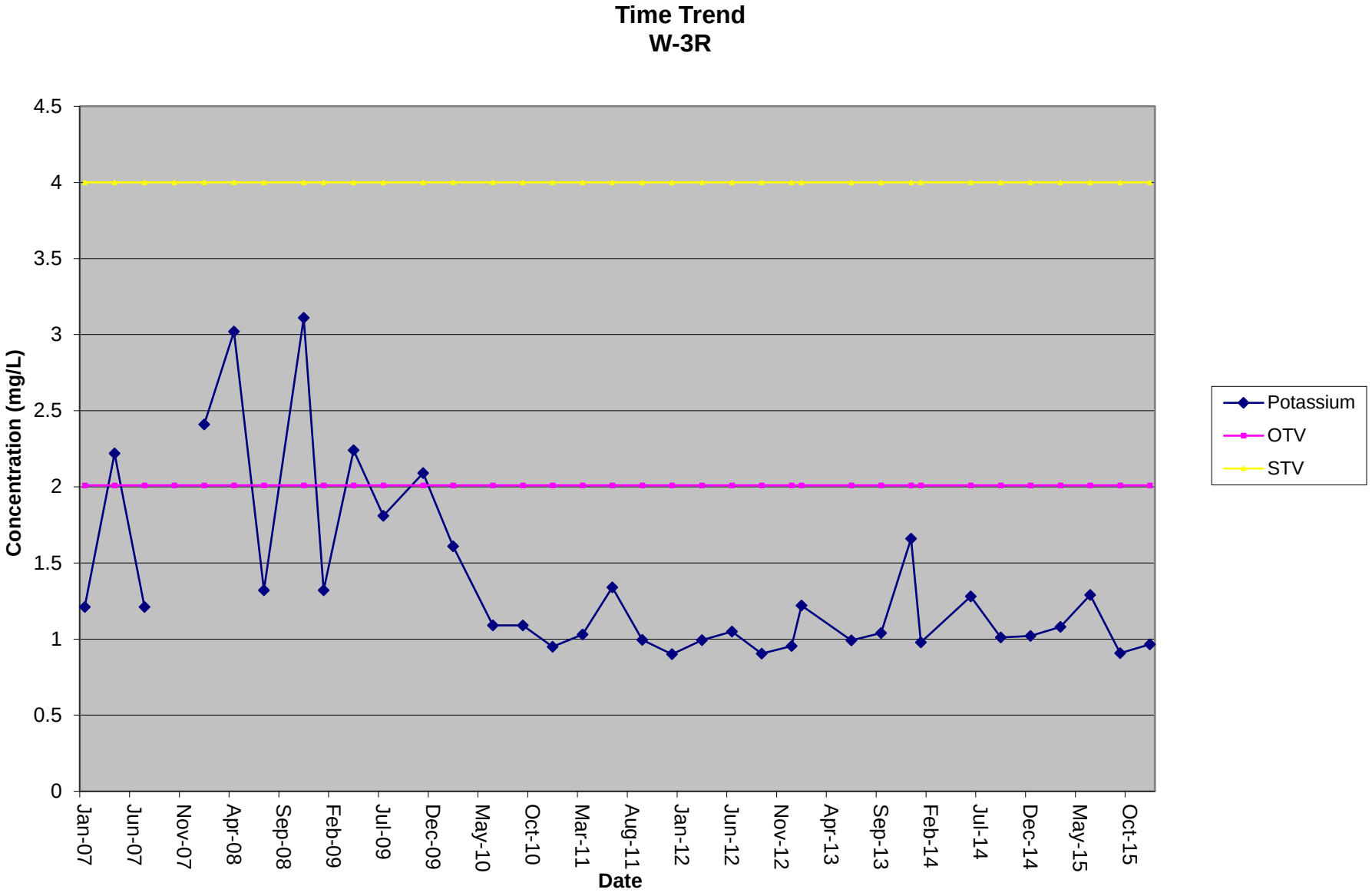


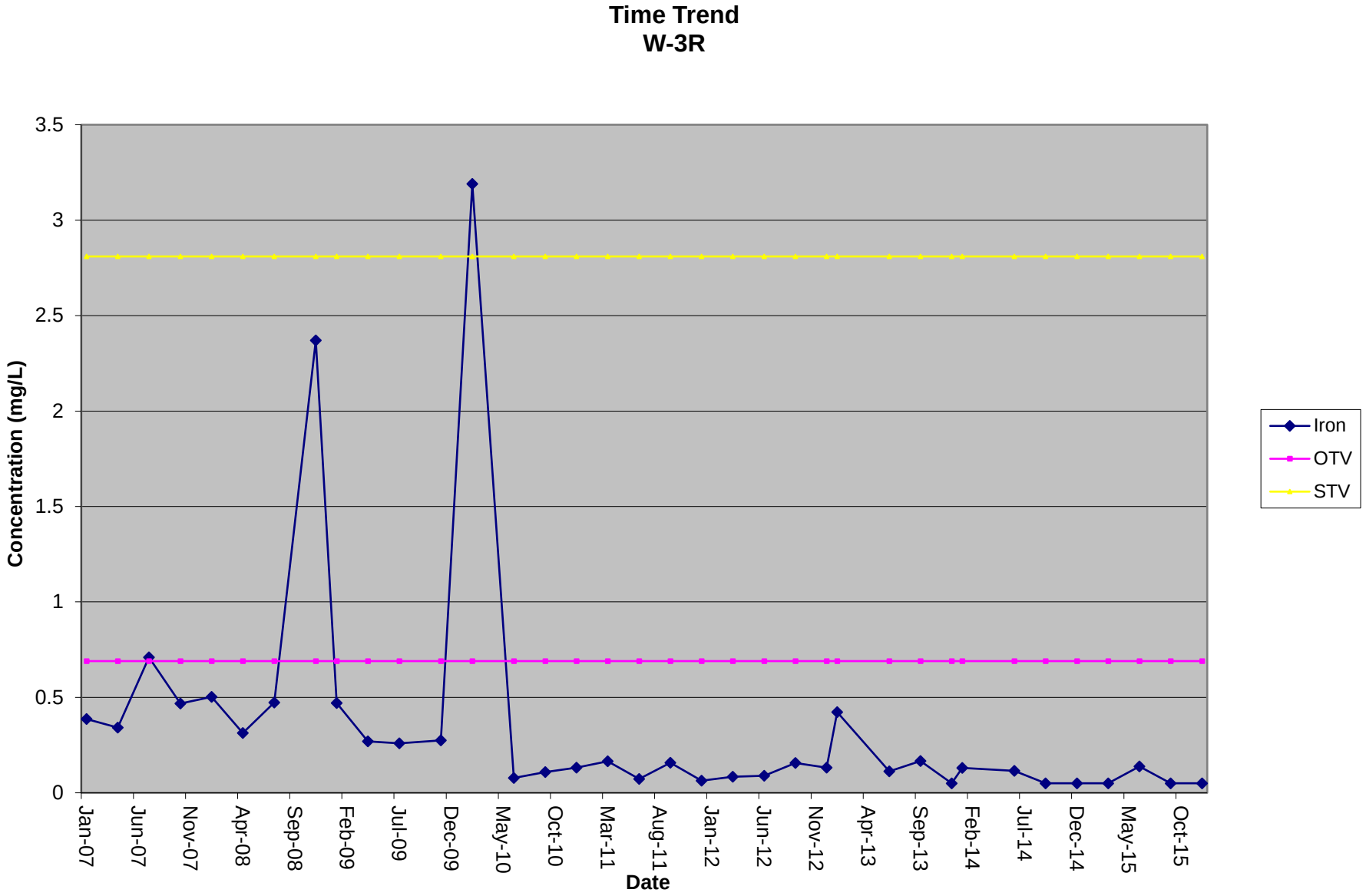

Time Trend
W-3R
Concentration (mg/L)
900
800
700
600
500
400
300
200
100
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
TDS
OTV
STV

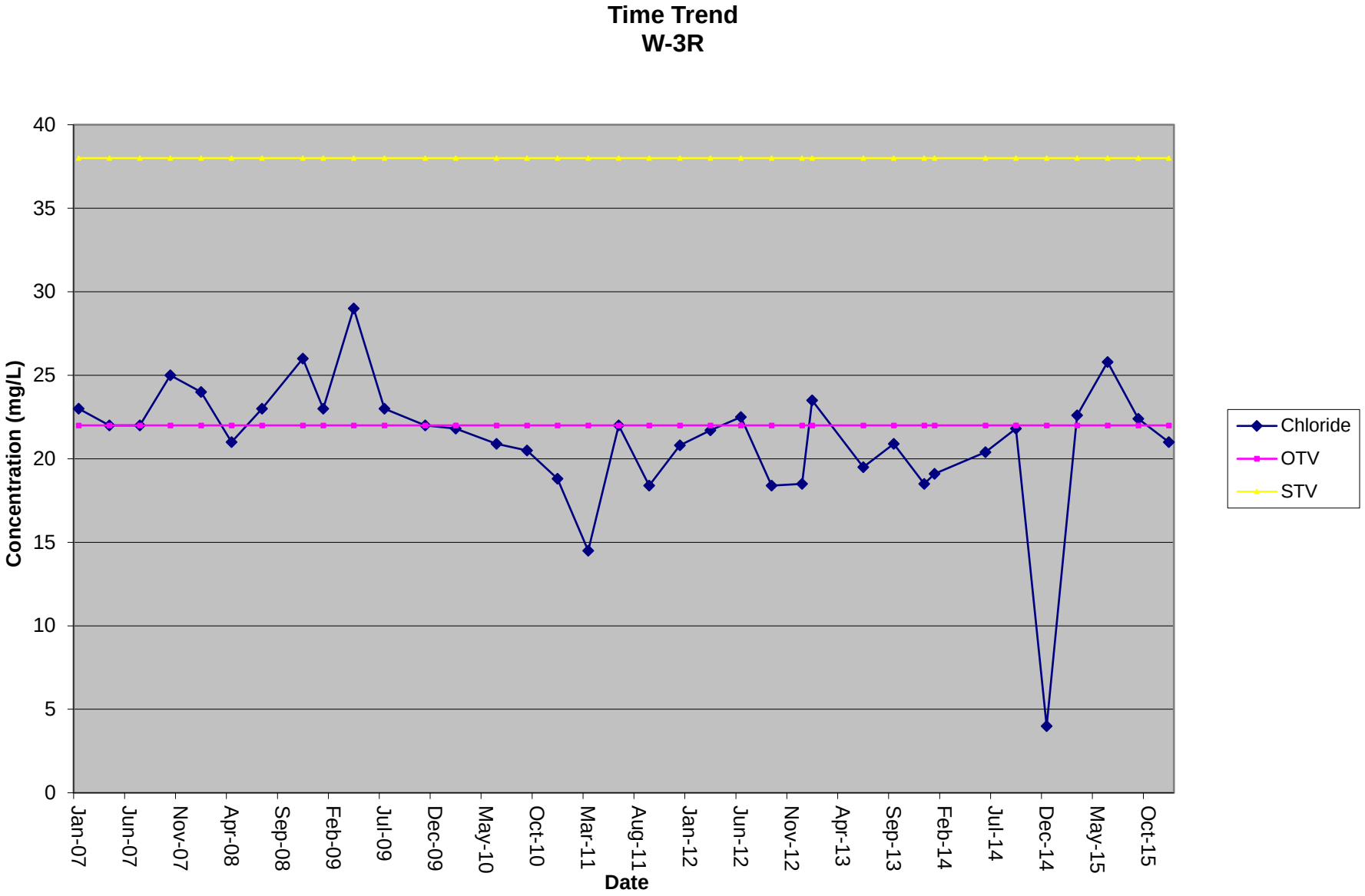
Time Trend
W-3R

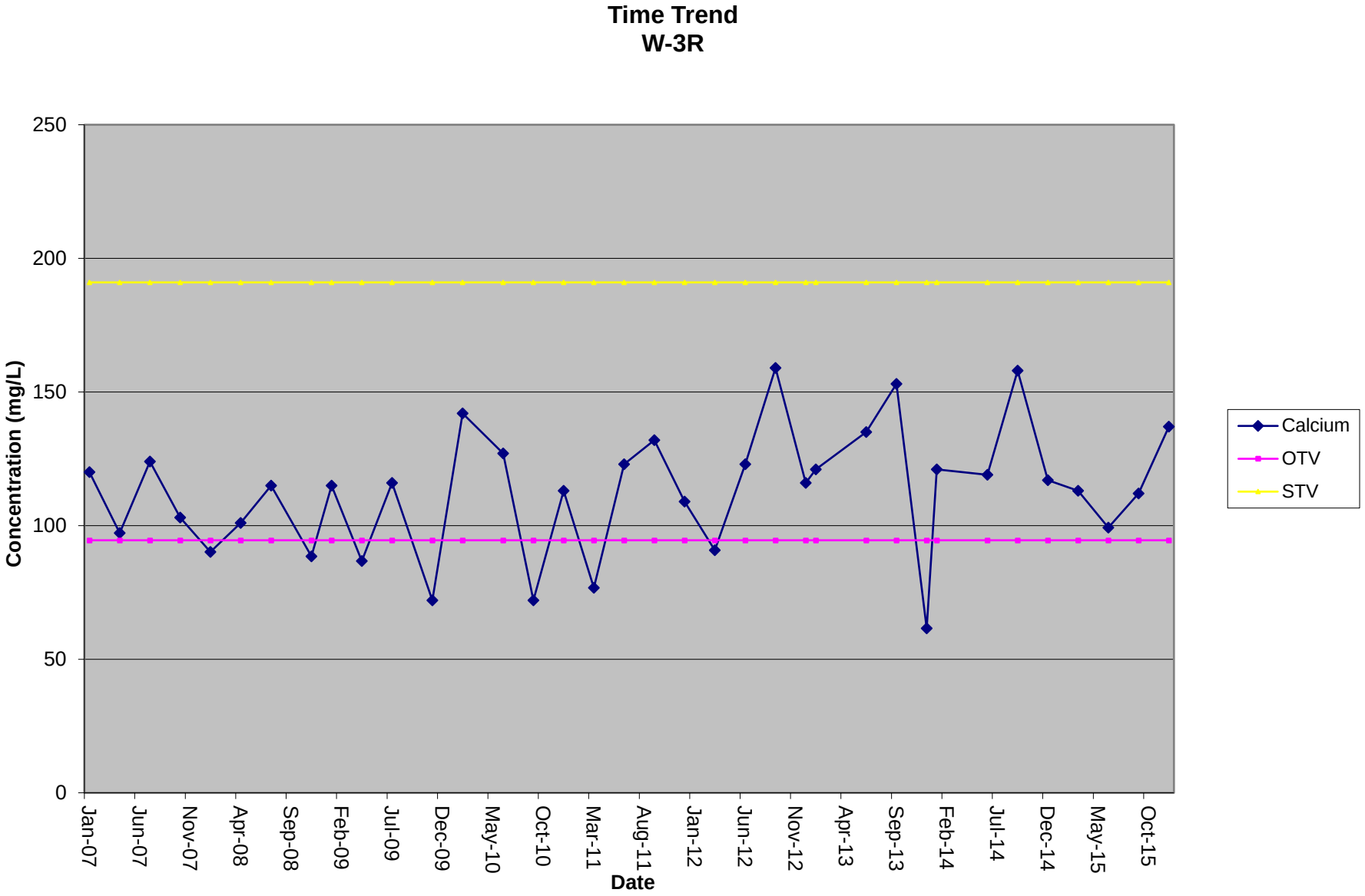


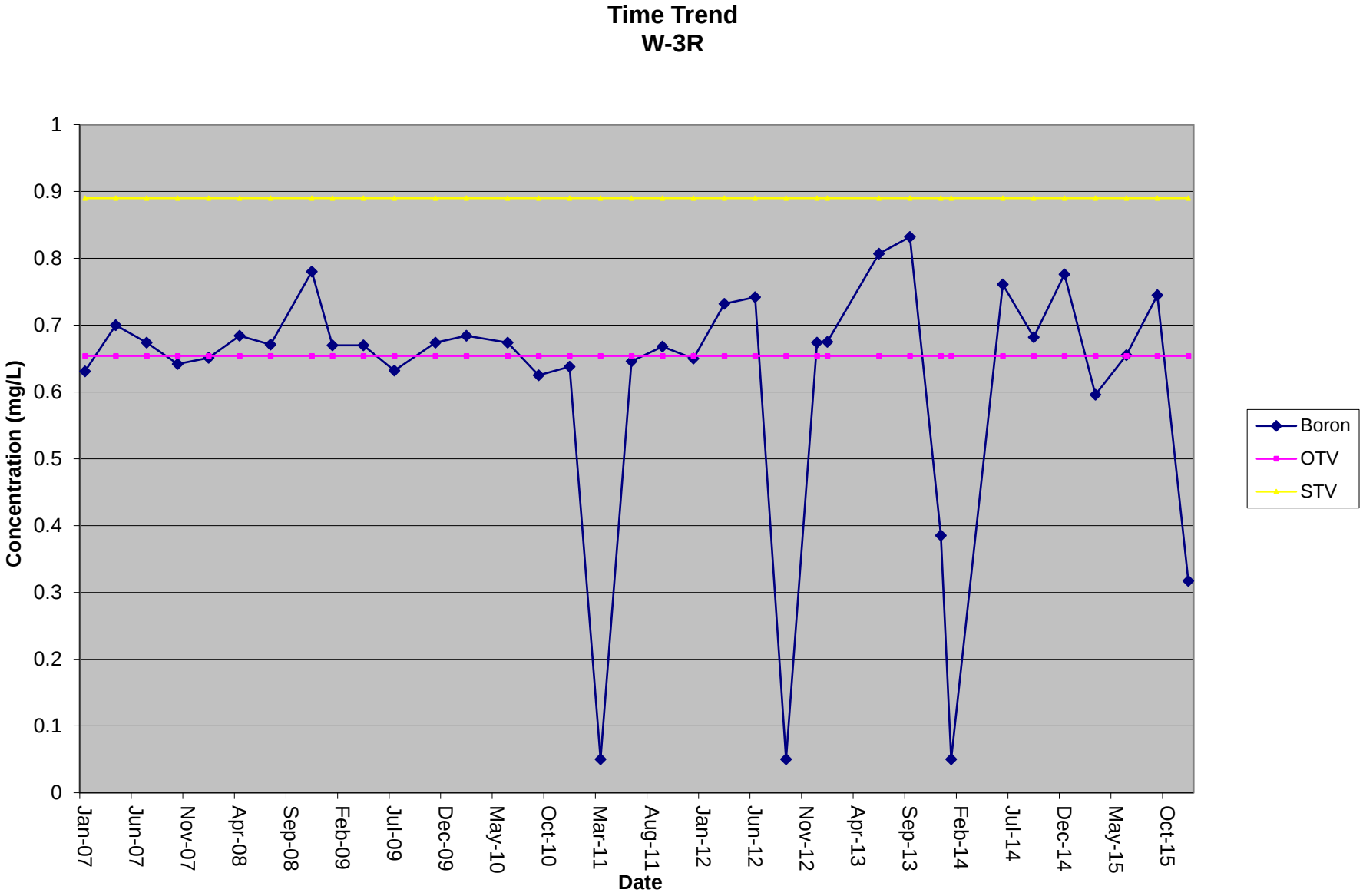

Time Trend
W-3R
Concentration (mg/L)
18
16
14
12
10
8
6
4
2
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Sodium
OTV
STV

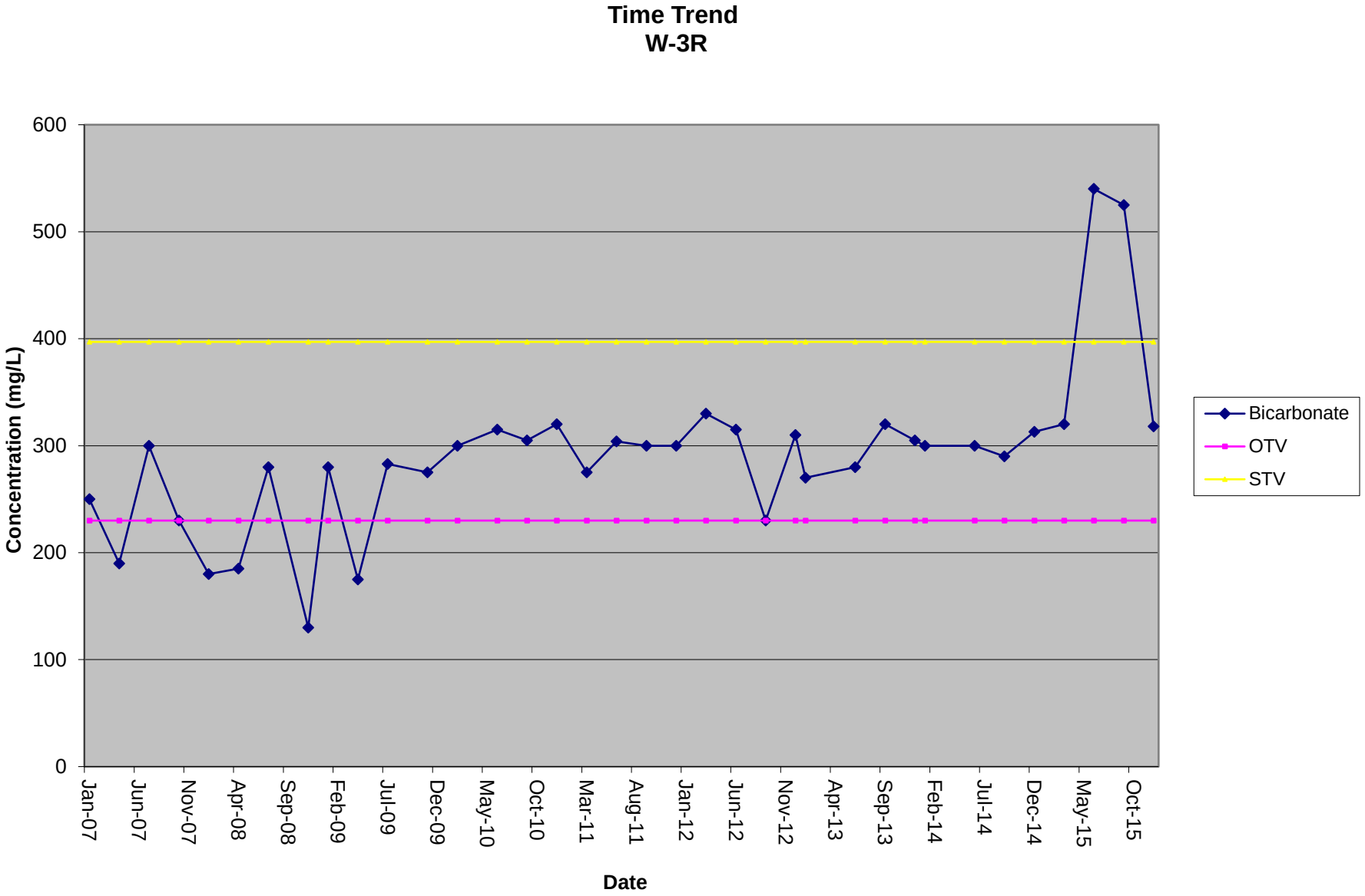

Time Trend
W-3R
Concentration (mg/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Potassium
OTV
STV

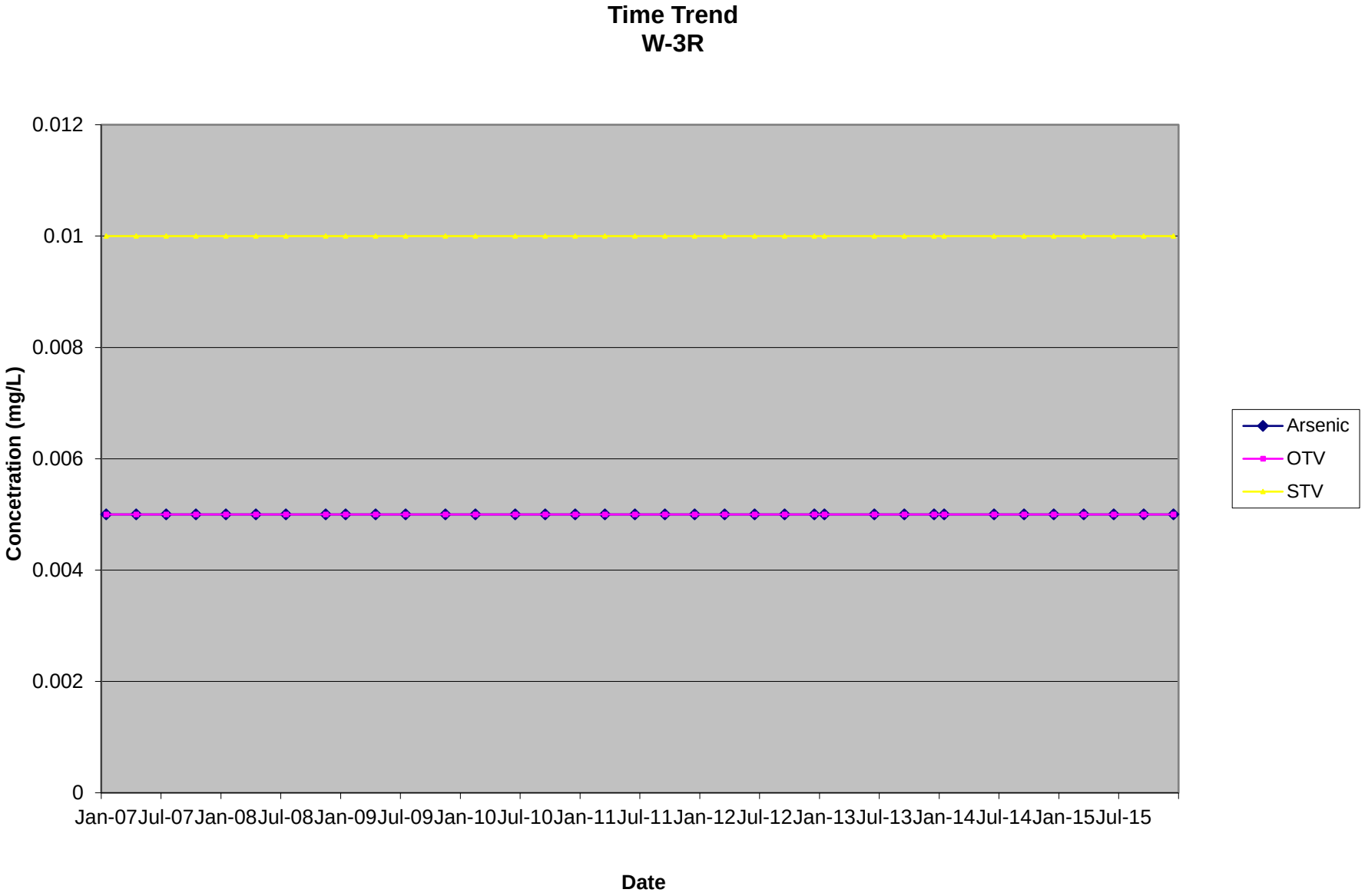

Time Trend
W-3R
Concentration (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Iron
OTV
STV

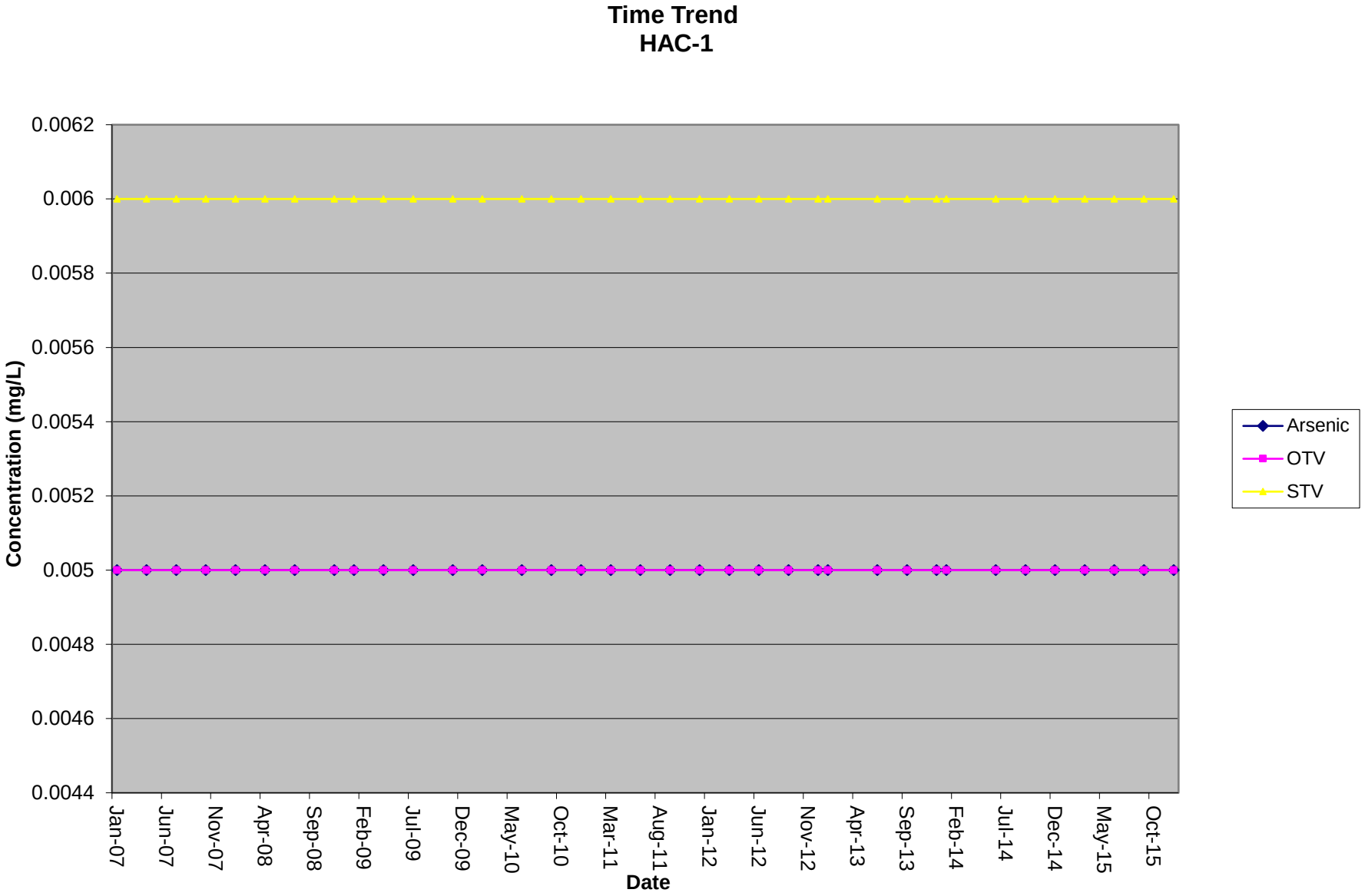

Time Trend
W-3R
Concentration (mg/L)
40
35
30
25
20
15
10
5
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Chloride
OTV
STV


Time Trend
W-3R
Concentration (mg/L)
250
200
150
100
50
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Calcium
OTV
STV


Time Trend
W-3R
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Boron
OTV
STV


Time Trend
W-3R
Concentration (mg/L)
600
500
400
300
200
100
0
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Bicarbonate
OTV
STV


Time Trend
W-3R
0.012
0.01
0.008
0.006
0.004
0.002
0
Concetration (mg/L)
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Date
Arsenic
OTV
STV


Time Trend
HAC-1
Concentration (mg/L)
0.0062
0.006
0.0058
0.0056
0.0054
0.0052
0.005
0.0048
0.0046
0.0044
Jan-07
Jun-07
Nov-07
Apr-08
Sep-08
Feb-09
Jul-09
Dec-09
May-10
Oct-10
Mar-11
Aug-11
Jan-12
Jun-12
Nov-12
Apr-13
Sep-13
Feb-14
Jul-14
Dec-14
May-15
Oct-15
Date
Arsenic
OTV
STV