TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
HEADQUARTERS: P.O. BOX 33695 DENVER, COLORADO 80233-0695 303-452-6111

December 21, 2020

Mrs. Janet Binns
Division of Reclamation, Mining and Safety
1313 Sherman Street, RM 215
Denver, Colorado 80203

RE: Annual Hydrology Report
New Horizon North Mine
Mine Permit No. C-2010-089

Dear Mrs. Binns:

Enclosed please find the Annual Hydrology Report for the 2020 Water Year (October 2019 – September 2020) for Elk Ridge Mining and Reclamation, LLC (Elk Ridge) New Horizon North Mine. Tri-State Generation and Transmission Association, Inc. (Tri-State) is the parent to Elk Ridge, and in accordance with Rule 4.05.13(4)(c) is submitting the Annual Hydrology Report on behalf of the New Horizon North Mine.

If you have any questions about the enclosed report, please contact Tony Tennyson at (970) 824-1232.

Sincerely,

DocuSigned by:
Daniel Casiraro
B70D69F114324DE...

Daniel J. Casiraro
Senior Manager
Environmental Services

DJC:TT:der

Enclosure

cc: Frank Ferris (via email)
G474.11.3(21)c-6

2020 Annual Hydrology Report

Water Year October 1, 2019 to September 30, 2020

Elk Ridge Mining and Reclamation, LLC

New Horizon North Mine

Permit No. C-2010-089

Table of Contents

RULE 4.05.13(4)(C) ANNUAL HYDROLOGY REPORT REQUIREMENTS

(i) Water quantity monitoring data for the water year is presented Appendices 1 and 3 of this report.

(ii) Water quality monitoring data for the water year is presented in Appendices 1 and 3 of this report. Discharge monitoring reports (DMR) are submitted to the Colorado Department of Public Health and Environment. Copies of each DMR are provided quarterly to the Division during the report year and are included in this report by reference only.

(iii) A written interpretation of the data has been requested by the Division in accordance with Rule 4.05.13(4)(c)(iii) and is included within this annual hydrology report.

The monitoring timeframe for this annual hydrology report is from October 1, 2019 through September 30, 2020.

A description of the surface and ground water monitoring plan including the monitoring frequency is located in Appendix 2.05.6(3)-3. All monitoring locations are shown on Maps 2.04-7-1 and 2.04.7-10. This information can be located in Permit No. C-2010-089.

Surface Water

Surface water monitoring sites are comprise of several sites, which comprise the current, upstream, and downstream condition and are briefly described below. Please see Map 2.04.7-1 for monitoring locations.

- SW-N1 is located on Tuttle Draw and represents the down gradient condition below mining.
- SW-N3 is located on Tuttle Draw and represents the down gradient condition below mining.
- SW-N202 is located on Meehan Draw and represents the downstream condition below mining.
- SW-N207 is located on Meehan Draw and represents and up gradient condition.
- SW-N208 is located on Meehan Draw and represents and up gradient condition.
- SW-N209 is located at the inlet of the North Lateral and represents up gradient condition.
- SW-N210 is located at an inlet of an irrigation pipe and represents the up gradient condition.
- SW-N213 is located on Nygren Draw and represents the up gradient condition.

- SW-N214 is located on Nygren Draw and represents the down gradient condition.

- SW-N215 is located on an unnamed draw upstream of the Meehan Draw Confluence and represents the up gradient condition.

- SW-N216 is located on unnamed draw downstream of the Meehan Draw Confluence and represents the down gradient condition.

- SW-N217 is located on the San Miguel River upstream of the Tuttle Draw Confluence and represents up gradient condition.

- SW-N218 is located on the San Miguel River downstream at Coal Canyon Confluence and represents a down gradient condition.

- SS-1 is located at the toe of the backfill of the old Nucla Mine (NH1), and represents a pre-mine and down gradient condition for NHN.

- SS-2 is located 50 yards upstream of SS-1, at the toe of the backfill of the old Nucla Mine, and represents a pre-mine and down gradient condition for NHN.

New Horizon North currently samples each surface water site for a variety of quality parameters. Of all the parameters that are analyzed for, several key indicator parameters have been identified and are addressed annually for the hydrology report. These parameters are lab pH, lab conductivity, TDS, sulfate, calcium, iron, magnesium, and sodium. Surface water monitoring data for the water year can be found in Appendix 1, and surface water summary graphs of the indicator parameters for all monitoring locations are provided in Appendix 2.

SW-N1 and NW-N3 - Tuttle Draw

Data for sites SW-N1 (up gradient) and SW-N3 (down gradient) have been complied and are shown on the summary tables below and graphically. Summary tables for indicator parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available.

SW-N1							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.3	0.3	1.4	8.5	7.1	2/18/11	11/13/18
Lab Cond. (umhos/cm)	946	606	2,613	2,910	297	9/26/12	6/5/19
TDS (mg/l)	714	568	2,509	2,690	181	9/26/12	8/24/07
Sulfate (mg/l)	323	300	1,653	1,700	48	9/26/12	6/5/19
Calcium (mg/l)	119	77	455	496	41	9/26/12	6/5/19
Iron (tot rec ug/l)[1]	1,258	1,763	8,890	9,050	160	8/16/07	2/24/06
Magnesium (mg/l)	54	50	196	204	8	9/26/12	8/17/07
Sodium (mg/l)	21	17	61	66	5	2/17/06	8/20/07

SW-N3							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.2	0.2	1.4	8.6	7.2	9/4/08	8/16/02
Lab Cond. (umhos/cm)	1,843	937	3,240	3,640	400	2/10/15	8/13/07
TDS (mg/l)	1,594	981	3,208	3,440	232	2/10/15	8/24/17
Sulfate (mg/l)	910	612	2,130	2,220	90	2/10/15	8/17/07
Calcium (mg/l)	253	136	504	558	54	8/31/02	8/17/07
Iron (tot rec ug/l)[1]	1,140	1,726	10,470	10,600	130	8/16/07	5/17/08
Magnesium (mg/l)	113	74	246	259	13	2/10/15	11/21/07
Sodium (mg/l)	59	46	204	212	8	2/20/12	8/20/07

[1] Iron has been historically reported as total recoverable and it has been analyzed as total dissolved for this water year. This discrepancy will be corrected in future hydrology monitoring reports and with the laboratory. The indicator graphs in Appendix 4 provide historical data for iron in total recoverable and total dissolved.

A review of the water year data indicates that all sample results trended within previous results, with the mean of all the indicator parameters remaining relatively constant. As shown on the graphs for all indicator parameters, SW-N3 is showing slight increases in laboratory conductivity, TDS, sulfate, and sodium, which is consistent with mining related impacts down gradient of a mining operation. New Horizon Mine (Permit No. C-1981-008) is more likely to be influencing Tuttle Draw than New Horizon North Mine. Monitoring results also show normal seasonal fluctuations, including influences from local irrigation water.

SW-N202, SW-N207, and SW-N208 – Meehan Draw

Data for sites SW-N202 (down gradient), SW-N207 (up gradient), and SW-N208 (up gradient), have been complied and are shown on the summary tables below and graphically. Summary tables for indicator parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available.

SW-N202							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.9	0.4	1.3	8.4	7.1	6/5/19	2/12/15
Lab Cond. (umhos/cm)	1,216	431	1,852	2,040	188	2/21/18	2/18/20
TDS (mg/l)	988	431	1,443	1,880	437	2/21/18	5/22/14
Sulfate (mg/l)	581	354	1,092	1,260	168	3/20/12	5/16/17
Calcium (mg/l)	199	76	245	351	106	3/20/12	5/16/17
Iron (tot rec ug/l)	1,708	1,721	9,520	9,770	250	2/21/18	5/23/16
Magnesium (mg/l)	54	23	83	108	26	3/3/10	5/22/14
Sodium (mg/l)	19	6	19	29	11	2/21/18	5/22/14

SW-N207							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.4	0.1	0.6	8.6	8.0	6/16/09	2/11/14
Lab Cond. (umhos/cm)	808	159	548	1,070	522	11/18/15	8/11/12
TDS (mg/l)	530	133	444	760	316	11/13/18	8/23/12
Sulfate (mg/l)	180	69	240	340	100	11/27/12	8/25/20
Calcium (mg/l)	110	22	97	149	53	11/27/12	2/11/14
Iron (tot rec ug/l)	389	336	1,350	1,410	60	6/7/10	12/1/10
Magnesium (mg/l)	38	13	51	65	14	10/23/08	8/14/12
Sodium (mg/l)	14	4	17	23	7	11/27/12	8/14/12

SW-N208							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.3	0.1	0.3	8.5	8.2	6/16/09	5/12/11
Lab Cond. (umhos/cm)	583	143	422	767	345	6/17/09	5/11/12
TDS (mg/l)	371	108	319	527	208	6/24/09	5/21/12
Sulfate (mg/l)	128	45	150	210	60	6/11/09	5/16/17
Calcium (mg/l)	91	24	67	119	52	5/22/14	5/16/12
Iron (tot rec ug/l)	403	346	1,238	1,300	62	5/17/12	5/19/20
Magnesium (mg/l)	18	8	26	34	8	6/11/09	5/16/12
Sodium (mg/l)	8	3	13	18	5	6/11/09	5/16/12

A review of the water year data indicates a minimum level for laboratory electrical conductivity occurred at SW-N202, a minimum for sulfate occurred at SW-N207, and minimum for iron occurred at SW-N208. As shown on the graphs for SW-N202, SW-N207, and SW-N208, all indicator parameters indicates that up gradient and drown gradient sampling results are tending to track in in a similar manner for pre and post mining. Sampling results indicate that down gradient impacts from mining have been minimized and sampling result show normal seasonal fluctuations including influences by annual irrigation.

SW-N215 and SW-N216 – Confluence Meehan Draw

Data for sites SW-N215 (up gradient) of Meehan confluence with Coal Creek Canyon and SW-N216 (down gradient) of confluence of Meehan Draw with Coal Creek Canyon have been complied and are shown on the summary tables below and graphically. Summary tables for indicator parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available.

SW-N215							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.3	0.1	0.2	8.4	8.2	8/24/16	2/12/14
Lab Cond. (umhos/cm)	1,402	799	1,789	2,370	581	5/27/14	5/23/16
TDS (mg/l)	1,061	674	1,503	1,860	357	5/27/14	5/23/16
Sulfate (mg/l)	593	454	987	1,130	143	5/27/14	5/23/16
Calcium (mg/l)	183	102	249	320	71	2/12/14	5/23/16
Iron (tot rec ug/l)	773	1,380	3,740	3,870	130	11/25/13	5/26/16
Magnesium (mg/l)	88	68	146	169	23	5/27/14	5/26/16
Sodium (mg/l)	24	17	40	50	9	5/27/14	5/23/16

SW-N216							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.1	0.2	0.5	8.3	7.8	8/11/12	11/17/14
Lab Cond. (umhos/cm)	1,744	705	2,026	2,810	784	2/12/15	5/29/13
TDS (mg/l)	1,518	786	2,144	2,660	516	3/27/12	5/29/13
Sulfate (mg/l)	920	566	1,640	1,880	240	2/11/16	5/29/13
Calcium (mg/l)	271	123	348	453	105	3/20/12	5/29/13
Iron (tot rec ug/l)	1,453	620	3,010	3,580	570	2/6/17	5/28/15
Magnesium (mg/l)	104	58	176	211	35	3/20/12	5/29/13
Sodium (mg/l)	24	9	26	37	11	3/20/12	5/29/13

A review of the water year data for these two sites indicates no maximum and minimum sample results occurred. As shown on the graphs and in the water year data SW-N215 tend to be dry. SW-N216 all the indicator parameters are remaining at a constant level or are slightly decreasing. This indicates that mining impacts have been minimized, and demonstrates normal seasonal fluctuations including influences by annual irrigation.

SW-N209 and SW-N210 – Irrigation Water

Data for sites SW-N209 (up gradient) and SW-N210 (up gradient) have been complied and are shown on the summary tables below and graphically. Summary tables for indicator parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available.

SW-N209							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.3	0.1	0.5	8.6	8.1	8/19/14	5/22/14
Lab Cond. (umhos/cm)	333	71	203	433	230	11/24/10	5/30/13
TDS (mg/l)	193	50	179	284	105	8/25/20	5/16/17
Sulfate (mg/l)	75	32	119	120	2	8/25/20	5/16/17
Calcium (mg/l)	53	13	41	75	34	8/24/09	6/5/19
Iron (tot rec ug/l)	1,467	1,265	4,107	4,150	43	5/30/13	8/25/20
Magnesium (mg/l)	6.2	1.2	4.8	8.7	3.9	11/30/10	5/30/13
Sodium (mg/l)	4.5	1.0	3.8	6.6	2.8	11/30/10	5/30/13

SW-N210							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.2	0.1	0.1	8.2	8.1	8/24/16	8/19/13
Lab Cond. (umhos/cm)	383	25	36	401	365	8/24/16	8/19/13
TDS (mg/l)	236	12	17	244	227	8/24/16	8/19/13
Sulfate (mg/l)	104	3	4	106	102	8/19/13	8/24/16
Calcium (mg/l)	62	4	6	65	59	8/24/16	8/19/13
Iron (tot rec ug/l)	165	92	130	230	100	8/24/16	8/19/13
Magnesium (mg/l)	6.7	0.9	1.3	7.3	6.0	8/24/16	8/19/13
Sodium (mg/l)	4.7	0.4	0.6	5.0	4.4	8/24/16	8/19/13

SW-N209 and SW-N210 provides an overview of the water quality utilized for irrigation at New Horizon North Mine, and it is representative of the quality of irrigation water utilized by every water user in the vicinity of the New North Horizon Mine. There are no trends or impacts associated with this data set as is it not impacted by mining activities, and New Horizon North Mine does not have any control on the quality of water delivered through the Colorado Cooperative Company Ditch for irrigation purposes.

SW-N213 and SW-N214 - Nygren Draw

Data for sites SW-N213 (up gradient) and SW-N214 (down gradient) have been complied and are shown on the summary tables below and graphically. Summary tables for indicator parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available.

SW-N213							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.4	0.1	0.2	8.5	8.3	5/27/15	5/22/14
Lab Cond. (umhos/cm)	946	009	839	1,390	551	11/18/15	5/22/14
TDS (mg/l)	646	204	746	1,060	314	11/18/15	5/22/14
Sulfate (mg/l)	249	93	367	471	104	11/18/15	5/22/14
Calcium (mg/l)	123	28	97	175	78	8/25/20	5/22/14
Iron (tot rec ug/l)	144	111	390	400	10	8/21/12	11/26/13
Magnesium (mg/l)	44.7	15.5	67.0	87.4	20.4	11/18/15	5/22/14
Sodium (mg/l)	22.2	8.3	32.2	42.7	10.5	11/18/15	5/22/14

SW-N214							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.4	0.1	0.2	8.5	8.3	5/13/11	5/22/14
Lab Cond. (umhos/cm)	940	227	826	1,380	554	11/18/15	5/22/14
TDS (mg/l)	642	199	718	1,040	322	8/25/20	5/22/14
Sulfate (mg/l)	246	89	333	436	103	11/18/15	5/22/14
Calcium (mg/l)	122	28	95	174	79	8/25/20	5/22/14
Iron (tot rec ug/l)	210	166	660	670	10	5/31/13	11/26/13
Magnesium (mg/l)	43.3	15.8	66.4	87.3	20.9	11/18/15	5/22/14
Sodium (mg/l)	22.0	8.3	31.8	42.5	10.7	11/18/15	5/22/14

A review of the water year data indicates a maximum for calcium occurred at up gradient site SW-N213, and two maximums for TDS and calcium occurred at the down gradient site SW-N214 during the same sampling event. As shown on the graphs for indicator parameters, no significant trending has occurred for either location, and both locations track almost exactly the same. Sampling results indicate normal seasonal fluctuations also including influences by annual irrigation, and further indicate impacts from mining down gradient from New Horizon North Mine have been minimized.

SW-N217 and SW-N218 – San Miguel River

Data for sites SW-N217 (up gradient) and SW-N218 (down gradient) have been complied and are shown on the summary tables below and graphically. Please note that at SW-N217 and SW-N218 are sampled in accordance with the parameters specified in Rule 2.04.7-2.

Summary tables for all parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available. Please see Appendix 2.05.6(3)-3 for additional information.

SW-N217							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab Ph	8.4	0.1	0.8	8.7	7.9	5/12/12	11/27/12
Lab Cond. (umhos/cm)	687	234	864	1,140	273	9/18/19	5/29/13
TDS (mg/l)	487	187	706	876	170	9/18/19	5/29/13
Iron, diss (mg/l)	0.03	0.04	0.21	0.22	0.005	5/27/15	11/18/19
Iron, total (mg/l)	3.2	10.01	54.07	54.10	0.03	8/27/13	9/18/19
Acidity CaCO3 (mg/l)	5.7	2.6	10	12.0	2.0	6/6/18	2/19/20
Manganese (mg/l)	0.118	0.200	1.150	1.160	0.010	8/27/13	9/18/19
TSS (mg/l)	170.2	639.7	3647.5	3650.0	2.5	8/27/13	2/12/15

SW-N218							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.4	0.1	0.8	8.7	7.9	8/21/12	11/27/12
Lab Cond. (umhos/cm)	792	288	1,164	1,490	326	8/29/18	5/29/13
TDS (mg/l)	577	244	970	1,180	210	8/29/18	5/29/13
Iron, diss (mg/l)	0.05	0.08	0.38	0.38	0.01	8/19/14	2/27/13
Iron, total (mg/l)	2.04	5.53	31.55	31.60	0.05	8/27/13	2/21/18
Acidity CaCO3 (mg/l)	5.7	2.6	10	12.0	2.	6/6/19	2/19/20
Manganese (mg/l)	0.114	0.140	0.797	0.817	0.020	8/27/13	11/18/19
TSS (mg/l)	91.4	271.8	1,567.5	1,570.0	2.5	8/27/13	8/21/12

A review of the water year data indicated two minimums for dissolved iron and acidity occurred at SW-N217, and two minimums for total iron and manganese occurred at SW-N218. As shown on the graphs for indicator parameters both monitoring locations track identical to each other. Given the distance of these two monitoring sites from New Horizon North Mine, it is impossible to demonstrate if any impacts were to be occurring that they would be from New Horizon North Mine. There are many additional surface and groundwater water sources down gradient of New Horizon North Mine that contribute water also to these two sampling locations, and any potential impacts associated with those waters cannot be quantified.

SS-1 and SS-2 – Spoil Springs

Data for sites SS-1 (toe of backfill NH1 mine) and SS-2 (up gradient of SS-1) have been complied and are shown on the summary tables below and graphically. Summary tables for indicator parameters are provide below for each site and include data from 2008 to the end of September of 2020 if available.

SS-1							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.0	0.1	0.5	8.2	7.7	11/25/13	5/22/14
Lab Cond. (umhos/cm)	3,142	504	2,916	3,430	514	2/12/15	11/25/13
TDS (mg/l)	2,782	556	2.970	3,280	310	11/17/14	11/25/13
Sulfate (mg/l)	1,653	412	2,009	2,150	141	11/17/14	11/25/13
Calcium (mg/l)	481	91	511	586	75	11/17/14	11/25/13
Iron (tot rec ug/l)	1,431	2,159	10,091	10,400	309	11/27/12	5/8/18
Magnesium (mg/l)	204	46	245	259	14	2/12/15	11/25/13
Sodium (mg/l)	41.1	9.2	46.3	53.7	7.4	5/8/18	11/25/13

SS-2							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	-	-	-	-	-	-	-
Lab Cond. (umhos/cm)	-	-	-	-	-	-	-
TDS (mg/l)	-	-	-	-	-	-	-
Sulfate (mg/l)	-	-	-	-	-	-	-
Calcium (mg/l)	-	-	-	-	-	-	-
Iron (tot rec ug/l)	-	-	-	-	-	-	-
Magnesium (mg/l)	-	-	-	-	-	-	-
Sodium (mg/l)	-	-	-	-	-	-	-

A review of the water year indicates a no minimum or maximum values occurred at SS-1. SS-2 was did not flow for the entire water year. As shown on the graphs for indicator parameters SS-1 is trending upward in electrical conductivity, TDS, sodium, and magnesium. SS-1 and SS-2 are located in the saturated backfill of a pre-law mine; therefore, the increases seen with SS-1 and any potential impacts are going to be a result of water flowing through backfill of a pre-law mine adjacent to New Horizon North Mine. It is highly likely these higher values and trends are associated with the pre-law mine and not New Horizon North Mine.

Ground Water

Ground water monitoring sites are comprised of several sites which comprise the current, upstream and downstream condition and are briefly described below. Please see Map 2.04.7-1 for monitoring locations.

- GW-N50 monitors the underburden aquifer and represents the up gradient condition.
- GW-N51 monitors the Dakota coal aquifer and represents the up gradient condition.
- GW-N52 monitors the overburden aquifer and represents the up gradient condition.
- GW-N53 monitors the underburden aquifer and represents the down gradient condition.
- GW-N54 monitors the Dakota coal aquifer which represents the down gradient condition.
- GW-N55 monitors the overburden aquifer which represents the down gradient condition.
- GW-N56 monitors the underburden aquifer down-dip of the mining area.
- GW-N57 monitors the Dakota coal aquifer down-dip of the mining area.
- GW-N58 monitors the overburden aquifer down-dip of the mining area.

New Horizon currently samples each groundwater site for a variety of quality parameters. Of all the parameters that are analyzed for, several key indicator parameters are identified and are addressed annually for the hydrology report. These are lab pH, lab conductivity, TDS, sulfate, calcium, iron, magnesium, sodium and elevation. Ground water monitoring data for the water year can be found in Appendix 1, and ground water summary graphs of the indicator parameters for all monitoring locations are provided in Appendix 2.

Wells GW-N50, GW-N51, and GW-N52

GW-N50 monitors the overburden aquifer, GW-N51 monitors the Dakota coal aquifer, and GW-N52 monitors the underburden aquifer. This cluster of wells provides groundwater data representative of the up gradient condition above where mining occurred.

Summary of the indicator parameters for all data acquired for each well is provided as follows:

GW-N50							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.7	0.2	0.8	8.1	7.3	6/3/10	8/25/09
Lab Cond. (umhos/cm)	2,567	396	1,620	3,330	1,710	6/8/20	9/23/19
TDS (mg/l)	2,217	370	1,630	3,020	1,390	6/8/20	9/23/19
Sulfate (mg/l)	1,349	1,1196	8,476	9,180	704	9/23/19	5/15/19
Calcium (mg/l)	331	50	198	413	215	3/1/11	11/30/09
Iron (toc rec ug/l)	7,331	3,765	15,670	17,500	1,830	5/21/14	2/18/14
Manganese (mg/l)	0.93	0.29	1.08	1.55	0.47	3/3/10	2/14/18
Sodium (mg/l)	119.8	29.6	106.3	163.0	56.7	3/10/20	9/23/19
Magnesium (mg/l)	175	46	228	246	18	6/8/20	12/9/19

GW-N51							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	6.8	0.6	2.3	7.9	5.6	2/20/13	11/15/17
Lab Cond. (umhos/cm)	1,036	118	564	1,410	846	5/22/09	2/14/18
TDS (mg/l)	756	112	535	1,100	565	5/28/09	5/21/14
Sulfate (mg/l)	455	114	469	700	231	5/26/09	5/21/14
Calcium (mg/l)	114	20	83	167	84	8/25/11	2/9/17
Iron (toc rec ug/l)	19,361	13,080	56,340	57,200	860	5/17/18	5/21/14
Manganese (mg/l)	1.00	0.40	1.36	1.96	0.60	8/29/11	11/15/17
Sodium (mg/l)	26.8	7.1	35.7	50.3	14.6	5/20/09	2/10/16
Magnesium (mg/l)	50.7	9.8	50.1	85.7	35.6	5/20/09	2/10/16

GW-N52							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.7	0.2	1.3	8.3	7.0	8/26/11	11/15/17
Lab Cond. (umhos/cm)	881	137	597	1,250	653	11/23/11	8/23/17
TDS (mg/l)	622	119	600	1,030	430	12/2/11	5/21/12
Sulfate (mg/l)	283	83	412	580	168	12/1/11	5/15/12
Calcium (mg/l)	165	33	162	279	117	11/22/11	8/23/17
Iron (toc rec ug/l)	195	778	4,463	4,470	7	3/10/20	7/24/18
Manganese (mg/l)	0.06	0.23	1.41	1.41	0.01	3/10/20	5/28/11
Sodium (mg/l)	7.6	1.6	9.4	15.1	5.7	3/10/20	8/23/17
Magnesium (mg/l)	18.8	4.6	22.8	34.8	12.0	3/10/20	8/23/17

A review of the water year for this series of wells indicates maximum values for electrical conductivity, TDS, sodium and magnesium occurred at GW-N50, while one minimum value for magnesium was also recorded. Sampling results for GW-N52 recorded four maximum values for iron, manganese, sodium and magnesium. These wells are up gradient of mining and represent groundwater conditions that are not influenced by mining activities.

Wells GW-N53, GW-N54, and GW-N55

GW-N53 monitors the underburden aquifer, GW-N54 monitors the Dakota coal aquifer, and GW-N55 monitors the overburden aquifer. This cluster of wells provides data representative of the down gradient condition below where mining occurred.

Summary of the indicator parameters for each well are provided as follows:

GW-N53							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	8.0	0.1	0.5	8.2	7.7	10/18/08	11/13/13
Lab Cond. (umhos/cm)	3,296	154	700	3,550	2,850	12/19/19	7/25/18
TDS (mg/l)	2,848	209	700	3,270	2,570	3/4/20	5/28/09
Sulfate (mg/l)	1,579	98	430	1,830	1,400	2/25/15	5/26/09
Calcium (mg/l)	306	19	79	344	265	3/4/20	12/1/10
Iron (toc rec ug/l)	465	568	2,160	2,180	20	7/25/18	3/23/10
Manganese (mg/l)	0.056	0.045	0.135	0.140	0.005	11/19/16	12/1/09
Sodium (mg/l)	200	22	73	238	165	8/25/11	11/28/17
Magnesium (mg/l)	248	15	73	281	208	11/23/11	12/1/10

GW-N54							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.9	0.1	0.5	8.1	7.6	10/18/08	8/20/14
Lab Cond. (umhos/cm)	4,696	949	3,960	6,100	2,140	8/20/14	11/24/10
TDS (mg/l)	4,702	1,125	5,280	6,940	1,660	2/25/15	12/8/10
Sulfate (mg/l)	2,969	919	4,518	5,030	512	2/25/15	9/16/20
Calcium (mg/l)	437	82	333	534	201	11/17/15	9/1/10
Iron (toc rec ug/l)	4,436	4,523	20,300	21,000	700	8/20/14	5/17/12
Manganese (mg/l)	0.482	0.216	0.740	0.870	0.130	11/13/13	6/2/10
Sodium (mg/l)	168	36	146	213	67	8/24/09	8/31/10
Magnesium (mg/l)	573	150	654	880	226	11/17/15	12/1/10

GW-N55							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.8	0.1	0.4	8.1	7.5	2/27/10	3/4/20
Lab Cond. (umhos/cm)	8,985	2,477	7,900	13,000	5,100	9/16/20	8/26/15
TDS (mg/l)	10,985	3,787	10,800	16,500	5,700	9/16/20	8/26/15
Sulfate (mg/l)	7,422	2,735	8,900	12,600	3,700	3/4/20	11/30/09
Calcium (mg/l)	454	23	75	496	421	3/3/10	9/16/20
Iron (toc rec ug/l)	825	965	3,750	3,800	50	8/26/15	3/2/10
Manganese (mg/l)	0.34	.26	.81	0.82	0.02	9/16/20	8/25/11
Sodium (mg/l)	345	37	137	444	307	8/25/11	12/9/19
Magnesium (mg/l)	1,694	734	2,190	2,840	650	9/16/20	2/18/14

A review of the water year data indicates three maximum values for electrical conductivity, TDS and calcium occurred at GW-N53. GW-N54 exhibited one minimum value for sulfate. GW-N55 exhibited maximum values during the water year for electrical conductivity, TDS, sulfate, manganese, and sodium. GW-N55 also exhibited minimums during the water year for pH, calcium, and sodium. GW-N55 is trending upward for several of the indicator parameters including TDS, sulfate, manganese, magnesium, and electrical conductivity. With the upwards trends in this well, pre-mining sample results were high compared to up-gradient location (GW-N52) and the other wells in this series. GW-N53 and GW-N54 tend to track similar with sampling results indicating normal seasonal fluctuations including influences for seasonal irrigation.

Wells GW-N56, GW-N57, and GW-N58

GW-N56 monitors the overburden aquifer, GW-N57 monitors the Dakota coal, and GW-N58 monitors the underburden aquifer. This cluster of wells provides groundwater data representative of the up gradient condition above where mining occurred.

Summary of the indicator parameters for each well are provided as follows:

GW-N56							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.8	0.1	0.4	8.0	7.6	8/14/13	11/27/12
LabCond. (umhos/cm)	3,981	263	990	4,440	3,450	8/14/13	8/26/15
TDS (mg/l)	3,736	339	1,330	4,450	3,120	3/25/19	8/29/12
Sulfate (mg/l)	2,242	218	700	2,600	1,900	5/28/13	5/26/15
Calcium (mg/l)	481	80	288	606	318	5/17/16	8/29/12
Iron (toc rec ug/l)	7,927	12,157	49,750	49,900	150	5/9/18	5/21/14
Manganese (mg/l)	0.29	0.24	1.19	1.20	0.01	5/9/18	5/21/14
Sodium (mg/l)	176	47	254	395	141	11/27/12	5/17/16
Magnesium (mg/l)	150	164	397	416	19	3/25/19	8/29/12

GW-N57							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.7	0.1	0.5	8.0	7.5	12/11/19	5/17/16
Lab Cond. (umhos/cm)	4,661	256	1,090	4,980	3,890	8/9/17	8/26/15
TDS (mg/l)	4,729	336	1,440	5,280	3,840	9/21/16	5/26/15
Sulfate (mg/l)	3,050	237	1,160	3,650	2,490	9/21/16	5/26/15
Calcium (mg/l)	500	85	493	548	55	7/24/18	12/11/19
Iron (toc rec ug/l)	4,004	5,779	31,310	32,400	1,090	2/26/15	11/14/14
Manganese (mg/l)	0.68	0.20	0.73	0.99	0.26	8/9/17	8/20/14
Sodium (mg/l)	145	19	73	174	101	2/17/14	5/26/15
Magnesium (mg/l)	514	39	184	574	390	11/9/16	5/26/15

GW-N58							
Parameter	**Mean**	**Std dev**	**Range**	**Max.**	**Min.**	**Max at**	**Min at**
Lab pH	7.5	0.3	1.1	7.9	6.8	5/28/18	5/28/13
Lab Cond. (umhos/cm)	8,501	3,091	11,410	16,000	4,590	5/28/13	2/14/18
TDS (mg/l)	10,156	4,262	15,150	20,000	4,850	5/28/13	2/14/18
Sulfate (mg/l)	7,010	3,553	11,940	15,000	3,060	5/28/13	2/14/18
Calcium (mg/l)	469	25	102	532	430	11/27/12	5/21/14
Iron (toc rec ug/l)	30,307	40,967	116,950	117,000	50	11/27/12	11/17/15
Manganese (mg/l)	2.07	2.08	5.99	6.15	0.16	11/27/12	5/9/18
Sodium (mg/l)	290	264	1,308	1,460	152	5/28/13	8/29/12
Magnesium (mg/l)	1,581	836	2,636	3,150	514	11/13/13	2/14/18

A review of the water year data indicates a maximum occurred for laboratory pH and a minimum occurred for calcium at GW-N57. None of the other wells in this series exhibited any maximums or minimums. As shown on the graphs for indicator parameters, GW-N56 is strongly trending down for a majority of the indicator parameters indicating the high results if they were due to mining activities are being minimized and would be expected to stabilize. GW-N57 and GW-N58 are trending steadily the same as one another with sampling results indicating normal seasonal fluctuations including influences for seasonal irrigation.

Appendix 1
Surface Water Monitoring Data

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SS-1

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Alkalinity, lab, mg/L		430.			432			457.			440.	
As, diss, mg/L		0.000500			<0.0			0.000400			0.000400	
B, diss, mg/L		0.230			0.26			0.250			0.240	
Ca, diss, mg/L		456.			490			522.			445.	
Cation-Anion Bal, %		0.000			-4.3			2.200			-1.200	
Cd, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Cl, diss, mg/L		18.5			20.2			18.5			20.0	
CO3, mg/L		<0.0			<0.0			<0.0			<0.0	
Cr, hex, diss, mg/L		<0.005			<0.0			<0.0			<0.0	
Cr, tri, diss, ug/L		<0.01			<0.0			<0.0			<0.0	
Cu, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Fe, diss, mg/L		0.210			0.2			0.250			0.131	
Fe, tot rec, ug/L		860.			950			790.			875.	
FlowStreamInst, cfs	0.080	0.130	0.01	0.02	0.06	0.04	0.03	0.050	0.006	0.060	0.020	0.040
Hardness, mg/L		1920.			2090			2240.			1870.	
HCO3, mg/L		430.			432			457.			440.	
Hg, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
K, diss, mg/L		8.90			8.6			9.40			8.80	
Mg, diss, mg/L		190.			210			227.			184.	
Mn, diss, mg/L		0.560			0.48			0.520			0.700	
Mn, tot rec, ug/L		610.			530			570.			750.	
Mo, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Na, diss, mg/L		42.8			44.4			48.4			43.0	
NH3 as N, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Ni, diss, mg/L		0.00900			<0.0			<0.0			0.00900	
NO2 + NO3, diss, mg/L		<0.0			<0.0			0.0900			<0.0	
NO2, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
NO3, diss, mg/L		<0.0			<0.0			0.0900			<0.0	
OH, mg/L		<0.0			<0.0			<0.0			<0.0	
Pb, diss, mg/L		<0.0			<0.0			0.000500			<0.0	
pH (field), pH	6.790	6.930	7.47	7.57	7.3	7.23	7.21	6.400	7.110	7.220	7.600	7.550
pH (lab), pH		8.000			8			7.900			7.900	
PO4, tot, mg/L		0.0300			<0.03			0.03			0.160	
PO4, total soluble, mg/L		*			<0.0			0.0300			*	
SAR, ratio		0.430			0.43			0.450			0.440	
Se, diss, mg/L		0.000900			0.0002			<0.0			0.000200	
SO4, diss, mg/L		1520.			1840			1670.			1510.	
Spec. Cond. (field), umhos/cm	3170	3010	3190	3190	3140	3280	3130	3220	3030	2948	2890	2990
Spec. Cond. (lab), umhos/cm		2960.000			3180			3220.000			2960.000	
SS, mL/L/hr		<0.000			<0.000			<0.000			<0.000	
Sulfide, tot, mg/L		<0.0			<0.0			<0.0			<0.0	
Sum Anions, meq/L		41.000			48			45.000			41.000	
Sum Cations, meq/L		41.000			44			47.000			40.000	
TDS (calculated), mg/L		2500.			2880			2780.			2480.	
TDS (ratio-measured/calc), rat		1.150			1.07			1.150			1.130	
TDS, mg/L		2880.			3070			3210.			2810.	
Temp (Celcius), degrees C	13.800	13.100	12.5	11.7	12.7	12.1	11.9	15.600	16.100	19.800	16.300	14.300
U, diss, mg/L		0.00470			0.005			0.00470			0.00450	
Zn, diss, mg/L		<0.0			<0.0			<0.0			0.230	

*Due to laboratory error PO4, total soluble was not analyzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SS-2

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Alkalinity, lab, mg/L												
As, diss, mg/L												
B, diss, mg/L												
Ca, diss, mg/L												
Cation-Anion Bal, %												
Cd, diss, mg/L												
Cl, diss, mg/L												
CO3, mg/L										`		
Cr, hex, diss, mg/L												
Cr, tri, diss, ug/L												
Cu, diss, mg/L												
Fe, diss, mg/L												
Fe, tot rec, ug/L												
FlowStreamInst, cfs												
Hardness, mg/L												
HCO3, mg/L												
Hg, diss, mg/L												
K, diss, mg/L												
Mg, diss, mg/L												
Mn, diss, mg/L												
Mn, tot rec, ug/L												
Mo, diss, mg/L												
Na, diss, mg/L												
NH3 as N, diss, mg/L												
Ni, diss, mg/L												
NO2 + NO3, diss, mg/L												
NO2, diss, mg/L												
NO3, diss, mg/L												
OH, mg/L												
Pb, diss, mg/L												
pH (field), pH												
pH (lab), pH												
PO4, total soluble, mg/L												
SAR, ratio												
Se, diss, mg/L												
SO4, diss, mg/L												
Spec. Cond. (field), umhos/cm												
Spec. Cond. (lab), umhos/cm												
SS, mL/L/hr												
Sulfide, tot, mg/L												
Sum Anions, meq/L												
Sum Cations, meq/L												
TDS (calculated), mg/L												
TDS (ratio-measured/calc), rat												
TDS, mg/L												
Temp (Celcius), degrees C												
U, diss, mg/L												
Zn, diss, mg/L												

New Horizon North Mine
Analysis Results by
Date Range: 10/01/2019
Site: SW-N1

	10/7/2019	11/18/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/26/2020	6/18/2020	7/30/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		<0.000050			<0.000050			<0.000050			<0.000050	
Alkalinity, lab, mg/L		410.			370			130.			300.	
As, diss, mg/L		0.00060			0.0004			0.00080			0.0016	
B, diss, mg/L		0.11			0.14			0.030			0.050	
Ca, diss, mg/L		180.			170			60.			110.	
Cation-Anion Bal, %		-2.700			-2.7			-4.200			-4.800	
Cd, diss, mg/L		<0.000025			<0.000025			<0.000025			<0.000025	
Cl, diss, mg/L		16.			19			4.4			7.4	
CO3, mg/L		6.8			6.4			6.8			18.	
Cr, hex, diss, mg/L		<0.0025			<0.0025			<0.0025			<0.0025	
Cr, tri, diss, ug/L		<5.0			<10.			<5.0			<5.0	
Cu, diss, mg/L		<0.00040			<0.00040 mfm			0.0013			0.00090	
Fe, tot rec, ug/L		430.			460			500.			570.	
FlowStreamInst, cfs	0.161	0.130	0.1	0.08	0.16	0.02	0.01	2.800	6.280	7.660	0.350	6.020
Hardness, mg/L		830.			840			210.			420.	
HCO3, mg/L		400.			360			120.			280.	
Hg, diss, mg/L		<0.00010			<0.00010			<0.00010			<0.00010	
K, diss, mg/L		3.2			3.4			1.6			3.0	
Mg, diss, mg/L		93.			99			15.			34.	
Mn, diss, mg/L		0.30			0.3			<0.0050			0.060	
Mn, tot rec, ug/L		290.			340			70.			160.	
Mo, diss, mg/L		<0.010			<0.020			<0.010			<0.010	
Na, diss, mg/L		31.			32			8.2			13.	
NH3 as N, diss, mg/L		<0.025			<0.025			<0.025			<0.025	
Ni, diss, mg/L		<0.0040			<0.010			<0.0040			<0.0040	
NO2 + NO3, diss, mg/L		<0.010			<0.010			0.050			<0.010	
NO2, diss, mg/L		<0.0050			<0.0050			<0.0050			<0.0050	
NO3, diss, mg/L		<0.010			<0.010			0.050			<0.010	
OH, mg/L		<1.0			<1.0			<1.0			<1.0	
Pb, diss, mg/L		<0.000050			<0.000050			0.00030			<0.000050	
pH (field), pH	8.030	7.630	8.3	7.82	7.54	7.83	7.61	7.900	8.550	7.680	8.500	8.670
pH (lab), pH		8.300			8.3			8.500			8.400	
PO4, tot, mg/L		0.030			0.030			0.060			0.030	
PO4, total soluble, mg/L		*			0.03			0.030			*	
SAR, ratio		0.480			0.49			0.250			0.270	
Se, diss, mg/L		0.00020			0.0003			0.00050			0.00020	
SO4, diss, mg/L		480.			560			110.			190.	
Spec. Cond. (field), umhos/cm	1072.000	1446.000	1430	1524	1453	1557	1735	463.000	376.000	388.000	798.000	489.000
Spec. Cond. (lab), umhos/cm		1470.000			1550			469.000			825.000	
SS, mL/L/hr		<0.050			<0.050			<0.050			<0.050	
Sum Anions, meq/L		19.000			19			5.000			9.900	
Sum Cations, meq/L		18.000			18			4.600			9.000	
TDS (ratio-measured/calc), rat		1.100			1.09			1.090			1.090	
TDS, mg/L		1200.			2400			300.			580.	
Temp (Celcius), degrees C	9.200	3.000	1.2	0.8	1.5	5.6	4.3	11.800	15.800	18.700	18.000	11.900
U, diss, mg/L		0.0045			0.0049			0.0012			0.0020	
Zn, diss, mg/L		<0.0050			<0.010			<0.010			<0.010	

*Due to laboratory error, PO4, total soluble was not analyzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N3

	10/7/2019	11/18/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/26/2020	6/18/2020	7/29/2020	8/25/2020	8/26/2020	9/28/2020
Ag, diss, mg/L		<0.00010			<0.00010 mfm			<0.000050				<0.000050	
Alkalinity, lab, mg/L		430.			410			190.				300.	
As, diss, mg/L		<0.00020			<0.00020			0.00060				0.00060	
B, diss, mg/L		0.33			0.32			0.080				0.18	
Ca, diss, mg/L		440.			420			110.				270.	
Cation-Anion Bal, %		10.500			-2.4			-4.800				-2.000	
Cd, diss, mg/L		<0.000050			<0.000050			<0.000025				<0.000025	
Cl, diss, mg/L		17.			19			6.5				12.	
CO3, mg/L		<1.0			<1.0			12.				<1.0	
Cr, hex, diss, mg/L		<0.0025			<0.0025			<0.0025				<0.0025	
Cr, tri, diss, ug/L		<10.			<10.			<5.0				<5.0	
Cu, diss, mg/L		<0.0010			<0.0010			0.0014				<0.00040	
Fe, tot rec, ug/L		250.			290			380.				280.	
FlowStreamInst, cfs	0.969	0.930	0.43	0.66	0.71	0.56	0.51	3.350	5.775	5.183	1.500	1.504	3.900
Hardness, mg/L		1900.			1900			460.				1100.	
HCO3, mg/L		430.			410			180.				300.	
Hg, diss, mg/L		<0.00010			<0.00010			<0.00010				<0.00010	
K, diss, mg/L		16.			14			3.7				7.9	
Mg, diss, mg/L		190.			190			42.				110.	
Mn, diss, mg/L		0.53			0.58			0.050				0.33	
Mn, tot rec, ug/L		1000.			630			240.				480.	
Mo, diss, mg/L		<0.020			<0.020			<0.010				<0.010	
Na, diss, mg/L		92.			90			22.				52.	
NH3 as N, diss, mg/L		0.94			0.72			<0.025				0.39	
Ni, diss, mg/L		<0.010			<0.010			<0.0040				0.0090	
NO2 + NO3, diss, mg/L		0.35			0.28			0.090				0.19	
NO2, diss, mg/L		0.020			<0.0050			<0.0050				0.020	
NO3, diss, mg/L		0.32			0.28			0.090				0.17	
OH, mg/L		<1.0			<1.0			<1.0				<1.0	
Pb, diss, mg/L		<0.00010			<0.00010 mfm			0.00020				0.00010	
pH (field), pH	8.090	7.800	8.96	8.16	8.1	7.9	7.79	7.820	8.190	8.130	9.150	9.200	8.240
pH (lab), pH		8.200			8.3			8.500				8.200	
PO4, tot, mg/L		<0.015			<0.015			0.060				<0.015	
PO4, total soluble, mg/L		*			<0.015			0.090				*	
SAR, ratio		0.930			0.93			0.450				0.680	
Se, diss, mg/L		<0.00010			<0.00010 mfm			0.00050				0.00020	
SO4, diss, mg/L		1200.			1700			350.				930.	
Spec. Cond. (field), umhos/cm	2740.000	3020.000	3060	3060	3020	3010	3130	947.000	704.000	1019.000	1896.000	1896.000	1739.000
Spec. Cond. (lab), umhos/cm		3000.000			3040			965.000				1940.000	
SS, mL/L/hr		<0.050			<0.050			<0.050				<0.050	
Sum Anions, meq/L		34.000			43			11.000				25.000	
Sum Cations, meq/L		42.000			41			10.000				24.000	
TDS (ratio-measured/calc), rat		1.310			1.09			1.100				1.110	
TDS, mg/L		2900.			2900			710.				1700.	
Temp (Celcius), degrees C	11.400	6.700	3.4	2.2	3.6	7.3	5.6	11.500	15.900	22.100	17.400	17.400	11.500
U, diss, mg/L		0.0038			0.0039			0.0016				0.0031	
Zn, diss, mg/L		<0.010			<0.010			<0.010				0.030	

*Due to laboratory error, PO4, total soluble was not analyzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N202

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Alkalinity, lab, mg/L		108.			51.7			207.			266.	
As, diss, mg/L		0.000300			0.0002			0.000700			0.00100	
B, diss, mg/L		0.190			0.23			0.0800			0.110	
Ca, diss, mg/L		237.			295			108.			146.	
Cation-Anion Bal, %		0.000			-2.1			-2.400			-4.300	
Cd, diss, mg/L		0.000190			0.00053			<0.0			<0.0	
Cl, diss, mg/L		7.20			10.3			6.50			7.40	
CO3, mg/L		<0.0			<0.0			3.20			<0.0	
Cr, hex, diss, mg/L		<0.005			<0.005			<0.005			<0.005	
Cr, tri, diss, ug/L		<0.01			<0.10			<0.10			<0.10	
Cu, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Fe, diss, mg/L		0.277			0.643			0.0460			0.0620	
Fe, tot rec, ug/L		1230.			4000			512.			1020.	
FlowStreamInst, cfs	2.470	1.720	0.07	0.03	0.28	0.01	0.03	1.370	6.140	3.500	3.420	3.040
Hardness, mg/L		841.			1050			387.			521.	
HCO3, mg/L		108.			51.7			204.			266.	
Hg, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
K, diss, mg/L		3.00			3.5			3.50			3.10	
Mg, diss, mg/L		60.4			77.1			28.6			38.1	
Mn, diss, mg/L		0.750			1.05			0.0600			0.250	
Mn, tot rec, ug/L		820.			1250			80.0			330.	
Mo, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Na, diss, mg/L		23.1			27.1			11.4			15.7	
NH3 as N, diss, mg/L		0.0900			0.25			<0.05			<0.05	
Ni, diss, mg/L		0.0190			0.03			<0.0			<0.0	
NO2 + NO3, diss, mg/L		0.0700			0.06			<0.0			<0.0	
NO2, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
NO3, diss, mg/L		0.0700			0.06			<0.0			<0.0	
OH, mg/L		<0.0			<0.0			<0.0			<0.0	
Pb, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
pH (field), pH	7.080	7.320	7.48	7.95	8.01	7.79	7.73	7.830	7.870	7.910	8.100	8.180
pH (lab), pH		7.800			7.3			8.300			8.300	
PO4, tot, mg/L		0.0300			<0.03			0.03			<0.03	
PO4, total soluble, mg/L		*			<0.03			0.0300			*	
SAR, ratio		0.350			0.37			0.250			0.300	
Se, diss, mg/L		<0.0			<0.0			0.000400			0.000200	
SO4, diss, mg/L		763.			1090			209.			299.	
Spec. Cond. (field), umhos/cm	1125	1463	1409	1564	1854	2050	1474	749	733	727	980	952
Spec. Cond. (lab), umhos/cm		1500.000			1880			757.000			999.000	
SS, mL/L/hr		<0.000			<0.000			<0.000			<0.000	
Sulfide, tot, mg/L		<0.0			<0.0			<0.0			<0.0	
Sum Anions, meq/L		18.000			24			8.700			12.000	
Sum Cations, meq/L		18.000			23			8.300			11.000	
TDS (calculated), mg/L		1160.			1540			493.			672.	
TDS (ratio-measured/calc), rat		1.140			1.1			1.100			1.130	
TDS, mg/L		1320.			1690			544.			756.	
Temp (Celcius), degrees C	7.700	3.800	3	2.7	3	4.5	2.8	14.500	15.200	21.700	16.900	10.300
U, diss, mg/L		0.000600			0.0001			0.00430			0.00110	
Zn, diss, mg/L		0.0600			0.12			<0.0			<0.0	

*Due to a lab error PO4, total soluble was not analyzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N207

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		Dry		Dry	Dry	Dry	Dry	<0.0			<0.0	
Alkalinity, lab, mg/L								209.			426.	
As, diss, mg/L								0.000900			0.00400	
B, diss, mg/L								0.0500			0.0700	
Ca, diss, mg/L								90.3			117.	
Cation-Anion Bal, %								-2.900			-4.800	
Cd, diss, mg/L								<0.0			<0.0	
Cl, diss, mg/L								5.30			8.60	
CO3, mg/L								<0.0			8.80	
Cr, hex, diss, mg/L								<0.0			<0.0	
Cr, tri, diss, ug/L								<0.0			<0.0	
Cu, diss, mg/L								0.000900			<0.0	
Fe, diss, mg/L								0.0220			0.0470	
Fe, tot rec, ug/L								87.0			295.	
FlowStreamInst, cfs	0.160		0.01					0.850	1.107	0.770	0.320	0.360
Hardness, mg/L								318.			466.	
HCO3, mg/L								208.			418.	
Hg, diss, mg/L								<0.0			<0.0	
K, diss, mg/L								2.70			4.20	
Mg, diss, mg/L								22.5			42.2	
Mn, diss, mg/L								0.0100			0.180	
Mn, tot rec, ug/L								30.0			620.	
Mo, diss, mg/L								<0.0			<0.0	
Na, diss, mg/L								8.90			15.1	
NH3 as N, diss, mg/L								<0.0			<0.0	
Ni, diss, mg/L								<0.0			<0.0	
NO2 + NO3, diss, mg/L								<0.0			<0.0	
NO2, diss, mg/L								<0.0			<0.0	
NO3, diss, mg/L								<0.0			<0.0	
OH, mg/L								<0.0			<0.0	
Pb, diss, mg/L								<0.0			<0.0	
pH (field), pH	8.000		8.05					8.020	7.950	7.990	8.100	8.190
pH (lab), pH								8.300			8.300	
PO4, total soluble, mg/L								0.0900			0.430	
SAR, ratio								0.220			0.310	
Se, diss, mg/L								0.000500			0.000400	
SO4, diss, mg/L								137.			100.	
Spec. Cond. (field), umhos/cm	942		1035					624	622	619	892	840
Spec. Cond. (lab), umhos/cm								626.000			894.000	
SS, mL/L/hr								<0.000			<0.000	
Sulfide, tot, mg/L								<0.0			<0.0	
Sum Anions, meq/L								7.200			11.000	
Sum Cations, meq/L								6.800			10.000	
TDS (calculated), mg/L								394.			548.	
TDS (ratio-measured/calc), rat								1.110			1.090	
TDS, mg/L								438.			596.	
Temp (Celcius), degrees C	9.000		2.9					15.000	16.300	22.600	18.800	11.600
U, diss, mg/L								0.00370			0.00200	
Zn, diss, mg/L								<0.0			<0.0	

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N208

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		Dry	Dry	Dry	Dry	Dry	Dry	<0.0			Dry	
Alkalinity, lab, mg/L								223.				
As, diss, mg/L								0.000400				
B, diss, mg/L								0.0300				
Ca, diss, mg/L								102.				
Cation-Anion Bal, %								-2.100				
Cd, diss, mg/L								<0.0				
Cl, diss, mg/L								4.80				
CO3, mg/L								<0.0				
Cr, hex, diss, mg/L								<0.0				
Cr, tri, diss, ug/L								<0.0				
Cu, diss, mg/L								0.00100				
Fe, diss, mg/L								0.0120				
Fe, tot rec, ug/L								62.0				
FlowStreamInst, cfs	1.1							0.160	0.004	0.050		0.12
Hardness, mg/L								339.				
HCO3, mg/L								223.				
Hg, diss, mg/L								<0.0				
K, diss, mg/L								1.80				
Mg, diss, mg/L								20.4				
Mn, diss, mg/L								<0.0				
Mn, tot rec, ug/L								<0.0				
Mo, diss, mg/L								<0.0				
Na, diss, mg/L								7.10				
NH3 as N, diss, mg/L								<0.0				
Ni, diss, mg/L								<0.0				
NO2 + NO3, diss, mg/L								<0.0				
NO2, diss, mg/L								<0.0				
NO3, diss, mg/L								<0.0				
OH, mg/L								<0.0				
Pb, diss, mg/L								<0.0				
pH (field), pH	8.29							7.900	7.950	8.140		8.23
pH (lab), pH								8.300				
PO4, total soluble, mg/L								0.0600				
SAR, ratio								0.170				
Se, diss, mg/L								0.000700				
SO4, diss, mg/L								131.				
Spec. Cond. (field), umhos/cm	873							634	638	742		666
Spec. Cond. (lab), umhos/cm								651.000				
SS, mL/L/hr								<0.000				
Sulfide, tot, mg/L								<0.0				
Sum Anions, meq/L								7.400				
Sum Cations, meq/L								7.100				
TDS (calculated), mg/L								403.				
TDS (ratio-measured/calc), rat								1.120				
TDS, mg/L								452.				
Temp (Celcius), degrees C	12.4							14.300	16.400	24.000		12.9
U, diss, mg/L								0.00290				
Zn, diss, mg/L								<0.0				

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N209

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L	Dry	Dry	Dry	Dry	Dry	Dry	Dry	<0.0			<0.0	
Alkalinity, lab, mg/L								70.7			93.8	
As, diss, mg/L								0.000700			0.000900	
B, diss, mg/L								<0.0			<0.0	
Ca, diss, mg/L								39.6			67.4	
Cation-Anion Bal, %								0.000			-2.300	
Cd, diss, mg/L								0.0000600			<0.0	
Cl, diss, mg/L								2.10			3.50	
CO3, mg/L								<0.0			2.10	
Cr, hex, diss, mg/L								<0.0			<0.0	
Cr, tri, diss, ug/L								<0.0			<0.0	
Cu, diss, mg/L								0.00190			0.00130	
Fe, diss, mg/L								0.0220			0.00800	
Fe, tot rec, ug/L								668.			43.0	
FlowStreamInst, cfs								1.240	24.210	23.620	9.530	8.310
Hardness, mg/L								117.			198.	
HCO3, mg/L								70.7			91.7	
Hg, diss, mg/L								<0.0			<0.0	
K, diss, mg/L								0.800			1.20	
Mg, diss, mg/L								4.40			7.30	
Mn, diss, mg/L								<0.0			<0.0	
Mn, tot rec, ug/L								50.0			10.0	
Mo, diss, mg/L								<0.0			<0.0	
Na, diss, mg/L								3.40			5.80	
NH3 as N, diss, mg/L								<0.0			<0.0	
Ni, diss, mg/L								<0.0			<0.0	
NO2 + NO3, diss, mg/L								0.0800			<0.0	
NO2, diss, mg/L								<0.0			<0.0	
NO3, diss, mg/L								0.0800			<0.0	
OH, mg/L								<0.0			<0.0	
Pb, diss, mg/L								0.000500			0.000200	
pH (field), pH								8.300	8.410	8.490	8.500	8.490
pH (lab), pH								8.200			8.400	
PO4, total soluble, mg/L								0.0300			0.190	
SAR, ratio								0.140			0.180	
Se, diss, mg/L								0.000400			0.000400	
SO4, diss, mg/L								50.4			120.	
Spec. Cond. (field), umhos/cm								252	251	291	426	447
Spec. Cond. (lab), umhos/cm								258.000			433.000	
SS, mL/L/hr								<0.000			<0.000	
Sulfide, tot, mg/L								<0.0			<0.0	
Sum Anions, meq/L								2.500			4.500	
Sum Cations, meq/L								2.500			4.300	
TDS (calculated), mg/L								144.			262.	
TDS (ratio-measured/calc), rat								1.170			1.080	
TDS, mg/L								168.			284.	
Temp (Celcius), degrees C								15.000	16.200	21.100	19.100	11.400
U, diss, mg/L								0.000200			0.000500	
Zn, diss, mg/L								<0.0			0.0900	

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N210

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry
Alkalinity, lab, mg/L												
As, diss, mg/L												
B, diss, mg/L												
Ca, diss, mg/L												
Cation-Anion Bal, %												
Cd, diss, mg/L												
Cl, diss, mg/L												
CO3, mg/L												
Cr, hex, diss, mg/L												
Cr, tri, diss, ug/L												
Cu, diss, mg/L												
Fe, diss, mg/L												
Fe, tot rec, ug/L												
FlowStreamInst, cfs										0.813		
Hardness, mg/L												
HCO3, mg/L												
Hg, diss, mg/L												
K, diss, mg/L												
Mg, diss, mg/L												
Mn, diss, mg/L												
Mn, tot rec, ug/L												
Mo, diss, mg/L												
Na, diss, mg/L												
NH3 as N, diss, mg/L												
Ni, diss, mg/L												
NO2 + NO3, diss, mg/L												
NO2, diss, mg/L												
NO3, diss, mg/L												
OH, mg/L												
Pb, diss, mg/L												
pH (field), pH										7.45		
pH (lab), pH												
PO4, total soluble, mg/L												
SAR, ratio												
Se, diss, mg/L												
SO4, diss, mg/L												
Spec. Cond. (field), umhos/cm										329		
Spec. Cond. (lab), umhos/cm												
SS, mL/L/hr												
Sulfide, tot, mg/L												
Sum Anions, meq/L												
Sum Cations, meq/L												
TDS (calculated), mg/L												
TDS (ratio-measured/calc), rat												
TDS, mg/L										27.3		
Temp (Celcius), degrees C												
U, diss, mg/L												
Zn, diss, mg/L												

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N213

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		Dry	Dry	Dry	Dry	Dry	Dry	<0.0			<0.0	
Alkalinity, lab, mg/L								275.			469.	
As, diss, mg/L								0.00100			0.00130	
B, diss, mg/L								0.140			0.170	
Ca, diss, mg/L								125.			174.	
Cation-Anion Bal, %								0.000			-3.000	
Cd, diss, mg/L								<0.0			<0.0	
Cl, diss, mg/L								13.2			14.2	
CO3, mg/L								9.30			38.7	
Cr, hex, diss, mg/L								<0.0			<0.0	
Cr, tri, diss, ug/L								<0.0			<0.0	
Cu, diss, mg/L								0.00110			<0.0	
Fe, diss, mg/L								0.0110			0.0190	
Fe, tot rec, ug/L								28.0			34.0	
FlowStreamInst, cfs	0.680							0.070	7.340	4.650	2.070	1.020
Hardness, mg/L								504.			707.	
HCO3, mg/L								266.			430.	
Hg, diss, mg/L								<0.0			<0.0	
K, diss, mg/L								9.00			5.30	
Mg, diss, mg/L								46.7			66.2	
Mn, diss, mg/L								<0.0			0.0200	
Mn, tot rec, ug/L								<0.0			40.0	
Mo, diss, mg/L								<0.0			<0.0	
Na, diss, mg/L								20.0			37.6	
NH3 as N, diss, mg/L								<0.0			<0.0	
Ni, diss, mg/L								<0.0			<0.0	
NO2 + NO3, diss, mg/L								<0.0			<0.0	
NO2, diss, mg/L								<0.0			<0.0	
NO3, diss, mg/L								<0.0			<0.0	
OH, mg/L								<0.0			<0.0	
Pb, diss, mg/L								<0.0			<0.0	
pH (field), pH	8.200							8.040	8.090	8.100	8.300	8.240
pH (lab), pH								8.400			8.400	
PO4, total soluble, mg/L								0.120			0.250	
SAR, ratio								0.390			0.620	
Se, diss, mg/L								0.000400			0.000400	
SO4, diss, mg/L								265.			340.	
Spec. Cond. (field), umhos/cm	1511							973	1163	1047	1323	1356
Spec. Cond. (lab), umhos/cm								985.000			1360.000	
SS, mL/L/hr								<0.000			<0.000	
Sulfide, tot, mg/L								<0.0			<0.0	
Sum Anions, meq/L								11.000			17.000	
Sum Cations, meq/L								11.000			16.000	
TDS (calculated), mg/L								647.			923.	
TDS (ratio-measured/calc), rat								1.130			1.120	
TDS, mg/L								732.			1030.	
Temp (Celcius), degrees C	6.900							13.300	12.500	19.600	15.300	8.500
U, diss, mg/L								0.00510			0.00280	
Zn, diss, mg/L								<0.0			<0.0	

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N214

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		Dry	Dry	Dry	Dry	Dry	Dry	<0.0			<0.0	
Alkalinity, lab, mg/L								290.			454.	
As, diss, mg/L								0.00100			0.00130	
B, diss, mg/L								0.150			0.170	
Ca, diss, mg/L								124.			175.	
Cation-Anion Bal, %								-4.300			-3.000	
Cd, diss, mg/L								<0.0			<0.0	
Cl, diss, mg/L								13.3			14.6	
CO3, mg/L								13.2			50.7	
Cr, hex, diss, mg/L								<0.0			<0.0	
Cr, tri, diss, ug/L								<0.0			<0.0	
Cu, diss, mg/L								0.00110			<0.0	
Fe, diss, mg/L								0.00900			0.0160	
Fe, tot rec, ug/L								41.0			40.0	
FlowStreamInst, cfs	0.010							0.020	0.030	0.550	0.160	0.030
Hardness, mg/L								504.			709.	
HCO3, mg/L								277.			404.	
Hg, diss, mg/L								<0.0			<0.0	
K, diss, mg/L								9.10			5.20	
Mg, diss, mg/L								47.3			66.1	
Mn, diss, mg/L								<0.0			<0.0	
Mn, tot rec, ug/L								<0.0			<0.0	
Mo, diss, mg/L								<0.0			<0.0	
Na, diss, mg/L								20.1			37.5	
NH3 as N, diss, mg/L								<0.0			<0.0	
Ni, diss, mg/L								<0.0			<0.0	
NO2 + NO3, diss, mg/L								<0.0			<0.0	
NO2, diss, mg/L								<0.0			<0.0	
NO3, diss, mg/L								<0.0			<0.0	
OH, mg/L								<0.0			<0.0	
Pb, diss, mg/L								<0.0			<0.0	
pH (field), pH	8.360							8.110	8.190	8.280	8.400	8.320
pH (lab), pH								8.400			8.500	
PO4, total soluble, mg/L								0.120			0.280	
SAR, ratio								0.390			0.620	
Se, diss, mg/L								0.000400			0.000300	
SO4, diss, mg/L								264.			339.	
Spec. Cond. (field), umhos/cm	1489							997	1182	1058	1322	1376
Spec. Cond. (lab), umhos/cm								987.000			1350.000	
SS, mL/L/hr								<0.000			<0.000	
Sulfide, tot, mg/L								<0.0			<0.0	
Sum Anions, meq/L								12.000			17.000	
Sum Cations, meq/L								11.000			16.000	
TDS (calculated), mg/L								655.			914.	
TDS (ratio-measured/calc), rat								1.110			1.140	
TDS, mg/L								728.			1040.	
Temp (Celcius), degrees C	7.300							13.000	12.400	19.200	16.000	9.000
U, diss, mg/L								0.00500			0.00290	
Zn, diss, mg/L								<0.0			0.130	

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N215

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L	Dry	Dry	Dry	Dry	Dry	Dry	Dry	<0.0			Dry	Dry
Alkalinity, lab, mg/L								182.				
As, diss, mg/L								0.00170				
B, diss, mg/L								0.0500				
Ca, diss, mg/L								117.				
Cation-Anion Bal, %								-0.600				
Cd, diss, mg/L								<0.0				
Cl, diss, mg/L								9.70				
CO3, mg/L								<0.0				
Cr, hex, diss, mg/L								<0.0				
Cr, tri, diss, ug/L								<0.0				
Cu, diss, mg/L								0.00140				
Fe, diss, mg/L								0.0270				
Fe, tot rec, ug/L								170.				
FlowStreamInst, cfs								0.950	0.018	0.013		
Hardness, mg/L								406.				
HCO3, mg/L								182.				
Hg, diss, mg/L								<0.0				
K, diss, mg/L								10.9				
Mg, diss, mg/L								27.7				
Mn, diss, mg/L								<0.0				
Mn, tot rec, ug/L								<0.0				
Mo, diss, mg/L								<0.0				
Na, diss, mg/L								9.80				
NH3 as N, diss, mg/L								<0.0				
Ni, diss, mg/L								<0.0				
NO2 + NO3, diss, mg/L								0.0800				
NO2, diss, mg/L								<0.0				
NO3, diss, mg/L								0.0800				
OH, mg/L								<0.0				
Pb, diss, mg/L								<0.0				
pH (field), pH								7.700	8.000	7.570		
pH (lab), pH								8.300				
PO4, total soluble, mg/L								0.160				
SAR, ratio								0.210				
Se, diss, mg/L								0.000300				
SO4, diss, mg/L								237.				
Spec. Cond. (field), umhos/cm								804	689	1459		
Spec. Cond. (lab), umhos/cm								814.000				
SS, mL/L/hr								<0.000				
Sulfide, tot, mg/L								<0.0				
Sum Anions, meq/L								8.900				
Sum Cations, meq/L								8.800				
TDS (calculated), mg/L								524.				
TDS (ratio-measured/calc), rat								1.160				
TDS, mg/L								610.				
Temp (Celcius), degrees C								13.100	14.200	18.700		
U, diss, mg/L								0.00400				
Zn, diss, mg/L								<0.0				

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N216

	10/7/2019	11/13/2019	12/17/2019	1/14/2020	2/18/2020	3/18/2020	4/15/2020	5/19/2020	6/18/2020	7/29/2020	8/25/2020	9/28/2020
Ag, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Alkalinity, lab, mg/L		169.			150			206.			268.	
As, diss, mg/L		<0.0			<0.0			0.000600			0.000700	
B, diss, mg/L		0.200			0.24			0.100			0.120	
Ca, diss, mg/L		332.			399			122.			171.	
Cation-Anion Bal, %		1.800			-4.3			0.500			0.000	
Cd, diss, mg/L		0.000100			0.00019			<0.0			<0.0	
Cl, diss, mg/L		8.20			9.5			6.80			7.50	
CO3, mg/L		<0.0			<0.0			<0.0			3.70	
Cr, hex, diss, mg/L		<0.005			<0.0			<0.0			<0.0	
Cr, tri, diss, ug/L		<0.01			<0.0			<0.0			<0.0	
Cu, diss, mg/L		<0.0			<0.0			0.000900			<0.0	
Fe, diss, mg/L		0.170			0.44			0.0560			0.104	
Fe, tot rec, ug/L		1310.			1780			871.			1510.	
FlowStreamInst, cfs	0.360	0.010	0.190 JC	0.100 JC	0.13	0.1	0.12	2.760	1.075	3.860	1.080	0.730
Hardness, mg/L		1310.			1580			450.			631.	
HCO3, mg/L		169.			150			206.			264.	
Hg, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
K, diss, mg/L		3.40			3.5			5.40			3.20	
Mg, diss, mg/L		116.			141			35.2			49.5	
Mn, diss, mg/L		0.710			0.55			0.0700			0.250	
Mn, tot rec, ug/L		820.			590			150.			430.	
Mo, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Na, diss, mg/L		27.3			29.6			13.2			16.9	
NH3 as N, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
Ni, diss, mg/L		0.0150			<0.0			<0.0			0.009	
NO2 + NO3, diss, mg/L		0.0600			0.14			<0.0			0.0300	
NO2, diss, mg/L		<0.0			<0.0			<0.0			<0.0	
NO3, diss, mg/L		0.0600			0.14			<0.0			0.0300	
OH, mg/L		<0.0			<0.0			<0.0			<0.0	
Pb, diss, mg/L		<0.0			<0.0			<0.0			0.000100	
pH (field), pH	7.830	7.700	7.76	8.04	7.18	7.89	7.64	7.640	8.000	8.050	8.020	8.210
pH (lab), pH		8.000			7.9			8.300			8.300	
PO4, tot, mg/L		0.0600			<0.03			0.06			0.0600	
PO4, total soluble, mg/L		*			<0.0			0.0600			*	
SAR, ratio		0.330			0.33			0.270			0.300	
Se, diss, mg/L		0.000600			0.0002			0.000400			0.000300	
SO4, diss, mg/L		1110.			1540			254.			422.	
Spec. Cond. (field), umhos/cm	1701	2120	2114	2240	2500	2680	2183	862	971	783	1156	1100
Spec. Cond. (lab), umhos/cm		2140.000			2520			865.000			1180.000	
SS, mL/L/hr		<0.000			<0.000			<0.000			0.200	
Sulfide, tot, mg/L		<0.0			<0.0			<0.0			<0.0	
Sum Anions, meq/L		27.000			36			9.600			14.000	
Sum Cations, meq/L		28.000			33			9.700			14.000	
TDS (calculated), mg/L		1700.			2220			562.			834.	
TDS (ratio-measured/calc), rat		1.200			1.09			1.160			1.090	
TDS, mg/L		2040.			2410			650.			906.	
Temp (Celcius), degrees C	7.900	3.200	1.5	1.4	2.1	4.1	2.3	13.400	14.200	19.100	16.500	9.800
U, diss, mg/L		0.00180			0.0019			0.00440			0.00130	
Zn, diss, mg/L		0.0300			0.05			<0.0			<0.0	

*Due to a laboratory error PO4, total soluble was not anaylzed.

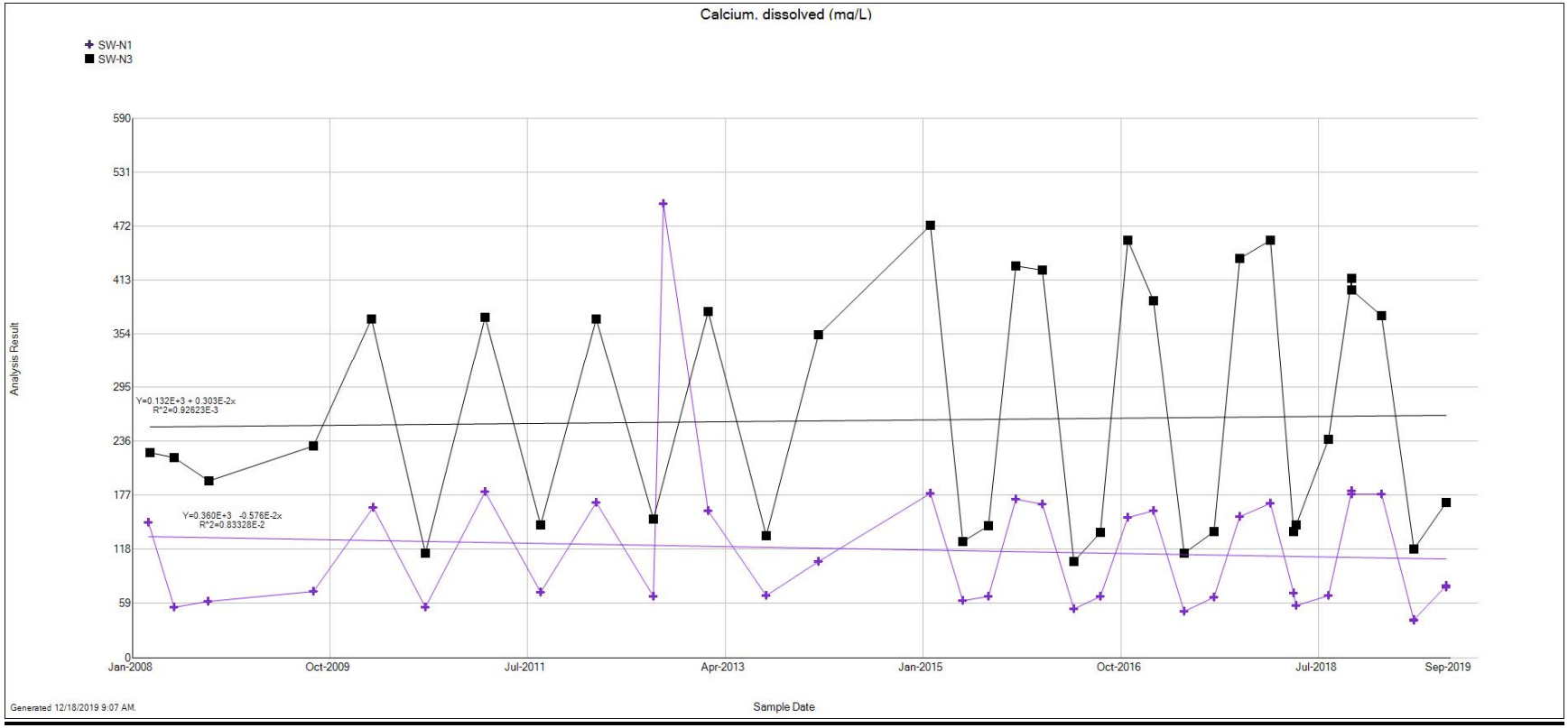
New Horizon North Mine
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N217

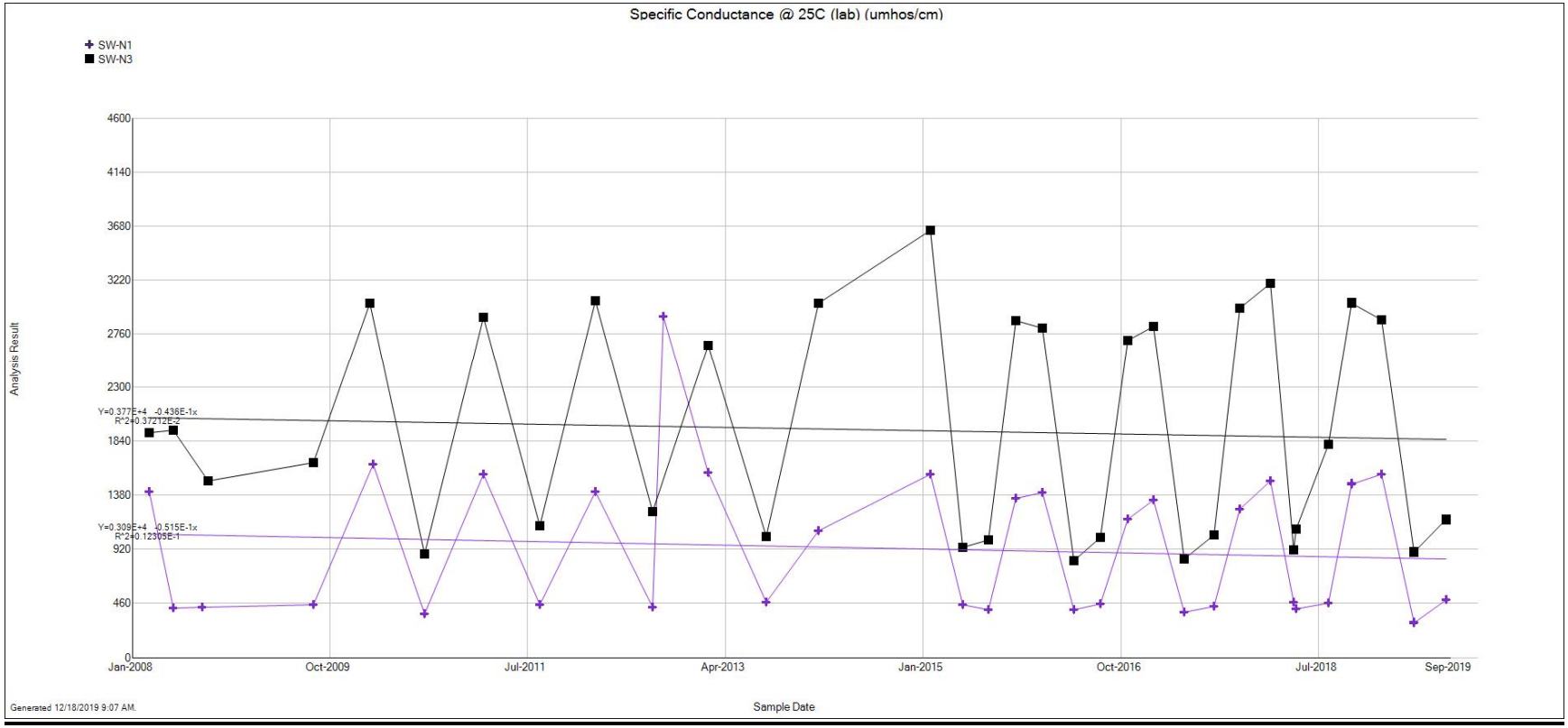
	10/7/2019	11/18/2019	12/18/2019	1/14/2020	2/19/2020	3/18/2020	4/15/2020	5/26/2020	6/18/2020	7/29/2020	8/26/2020	9/28/2020
Fe, diss, mg/L		<0.005			0.011			<0.007			0.01	
Fe, total, mg/l		0.056			0.09			0.236			0.03	
FlowStreamInst, cfs	75.0	60.3	1.79	2.15	1.91	76.8	130	179	248	104	4.1	3.9
pH (field), pH	8.6	8	8.08	8.54	8.49	85	8.4	8.2	8.5	8.1	8.7	8.4
pH (lab), pH		8.4			8.3			8.3			8.3	
Spec. Cond. (field), umhos/cm	580.0	688	892	622	598			378	3520	408	1136	1134
Spec. Cond. (lab), umhos/cm		831			600	600	520	383			1110	
TDS, mg/L		594			404			248			860	
Temp (Celcius), degrees C	13.3	4.3	0.00	1.8	2.1	6.8	5.5	12.7	17	19.500	20.200	12.8
Acidity, CaCO3		<0.0			<0.0			<0.0			<0.0	
Mn, total, mg/l		0.03			0.03			0.06			0.01	
Total Suspended Solids		<5.0			<5.0			14.0			<5.0	

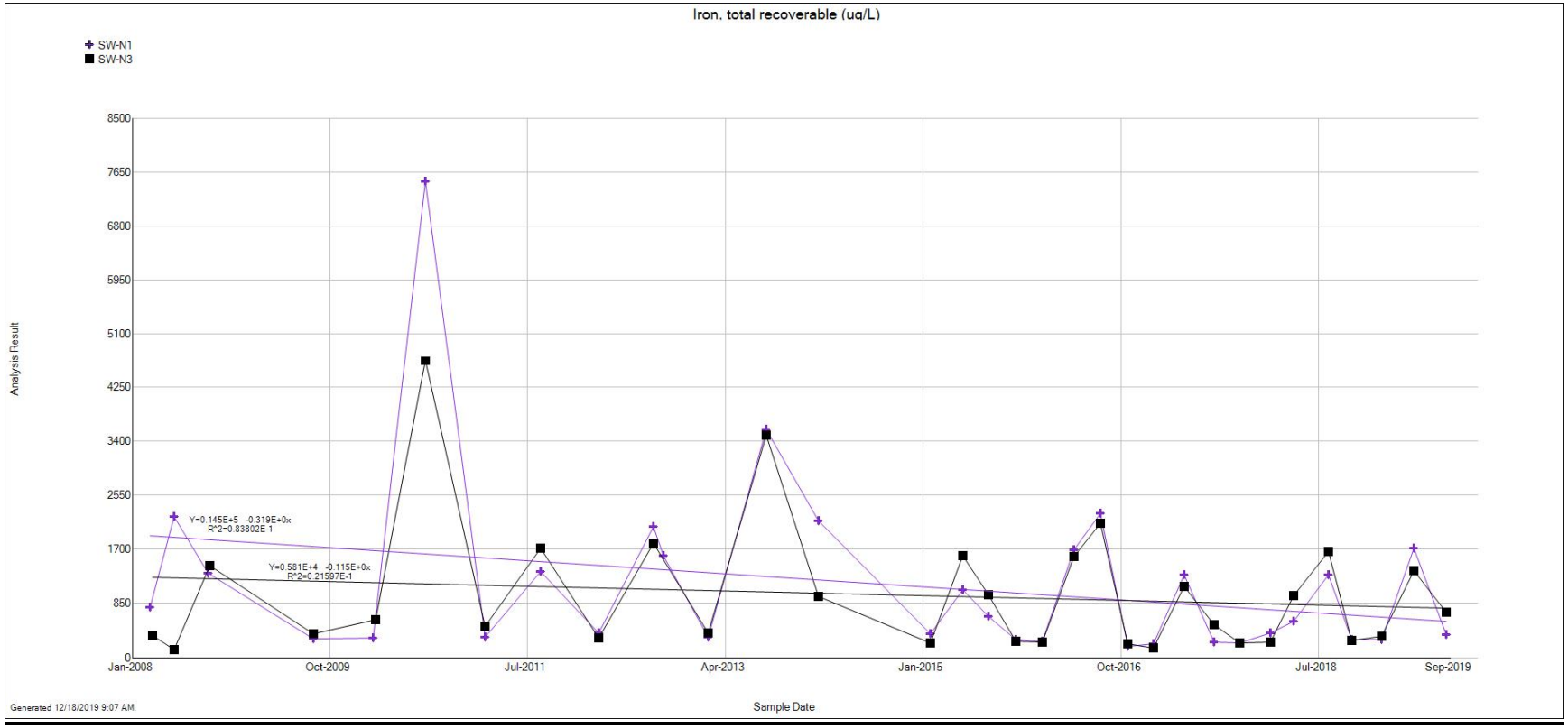
New Horizon North Mine
Date Range: 10/01/2019 to 09/30/2020
Site: SW-N218

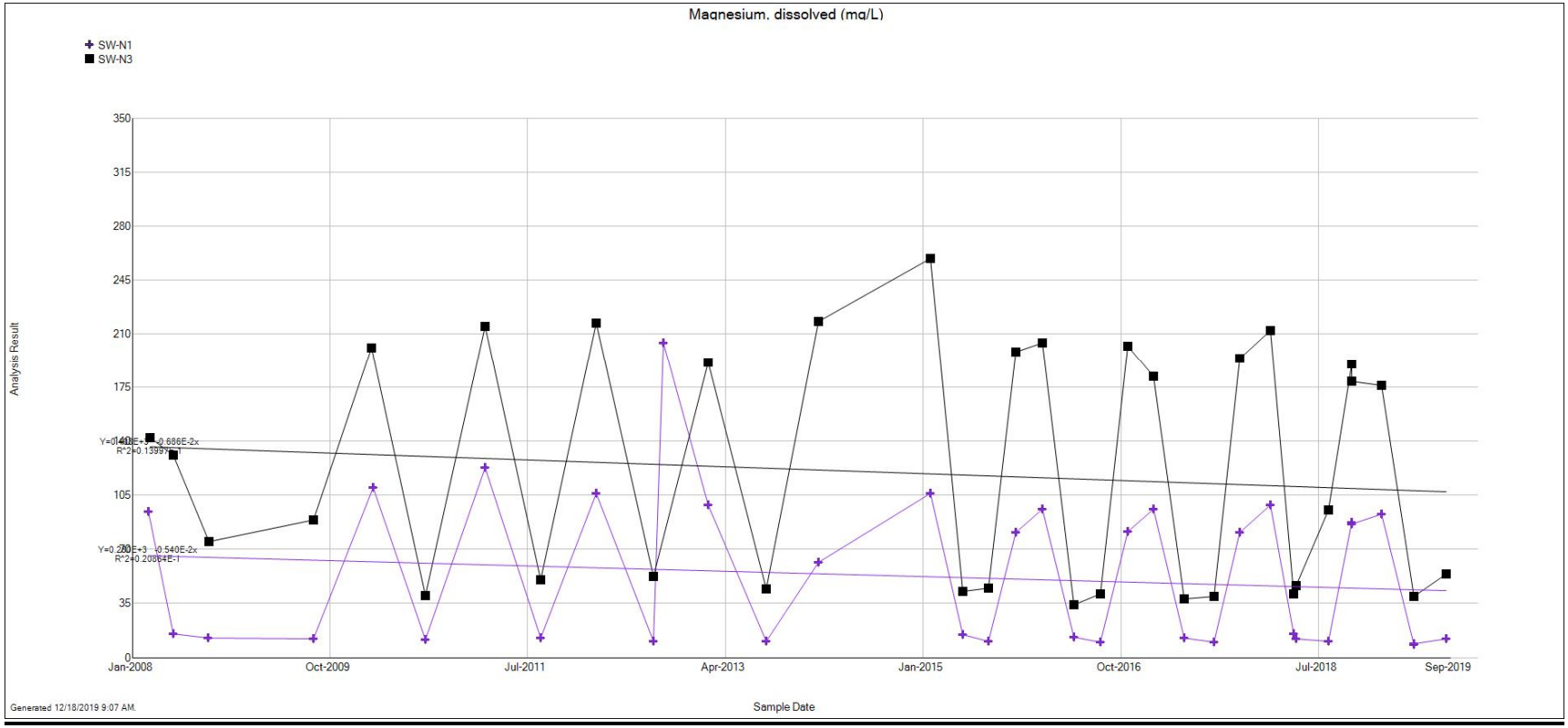
	10/7/2019	11/18/2019	12/18/2019	1/14/2020	2/19/2020	3/18/2020	4/15/2020	5/26/2020	6/18/2020	7/29/2020	8/26/2020	9/28/2020
Fe, diss, mg/L		<0.0			0.011			0.014			0.012	
Fe, total, mg/l		0.035			0.115			0.242			0.047	
FlowStreamInst, cfs	75	60.3	1.79	2.15	1.91	76.8	126	179	248	104	4.1	3.9
pH (field), pH	8.5	8.2	8.6	8.5	8.4	8.5	8.4	7.8	8.6	8.3	8.6	8.4
pH (lab), pH		8.4			8.3			8.3			8.3	
Spec. Cond. (field), umhos/cm	759	804	1001	676	662	681	571	448		508	1438	1444
Spec. Cond. (lab), umhos/cm		680			668			452			1410	
TDS, mg/L		468			462			302			1170	
Temp (Celcius), degrees C	12.5	4	0	1.3	0.7	7.4	5.3	13.2	17.6	20.5	20.4	13.4
Acidity, CaCO3		12			<0.0			<0.0			<2	
Mn, total, mg/l		0.02			0.04			0.06			0.02	
Total Suspended Solids		<0.0			6			16			<5.0	

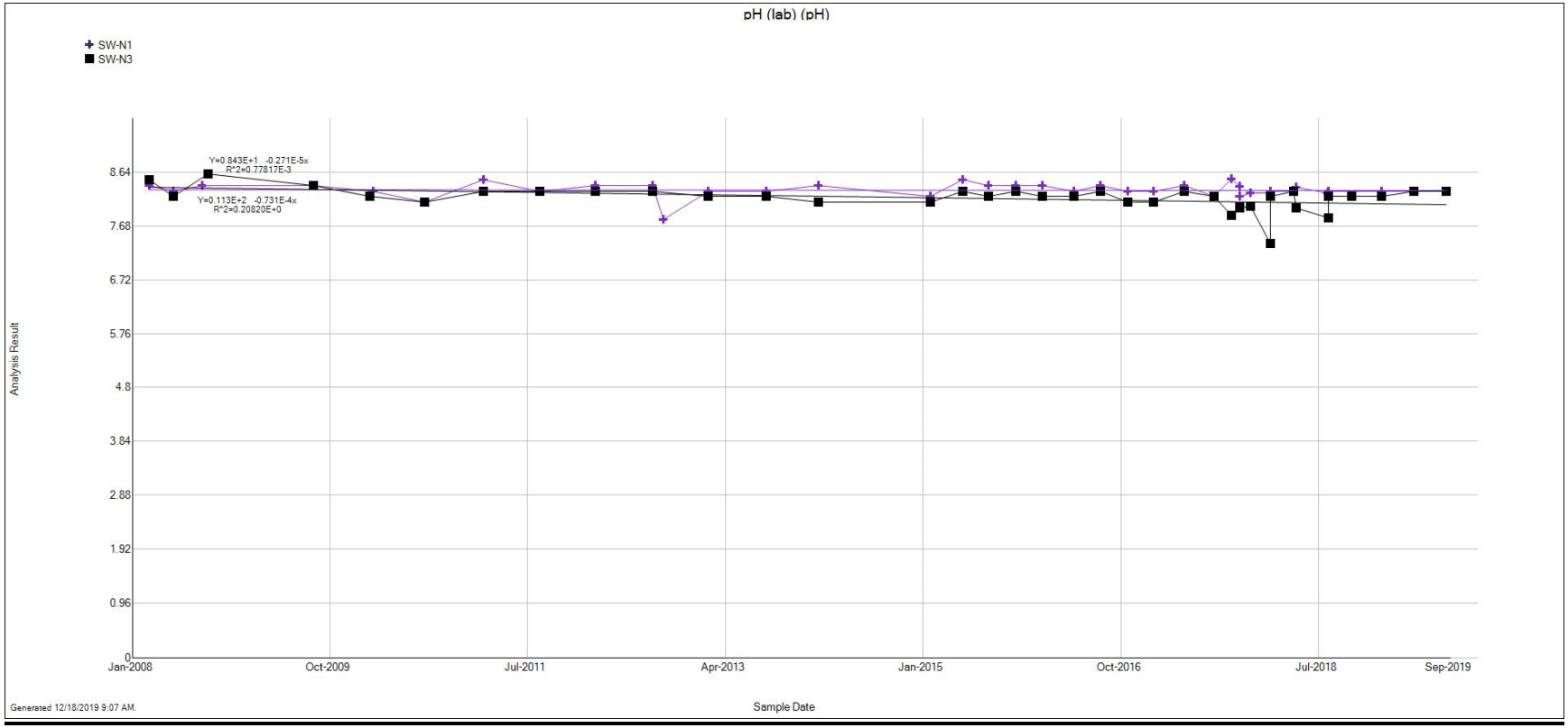
Appendix 2
Surface Water Monitoring Graphs

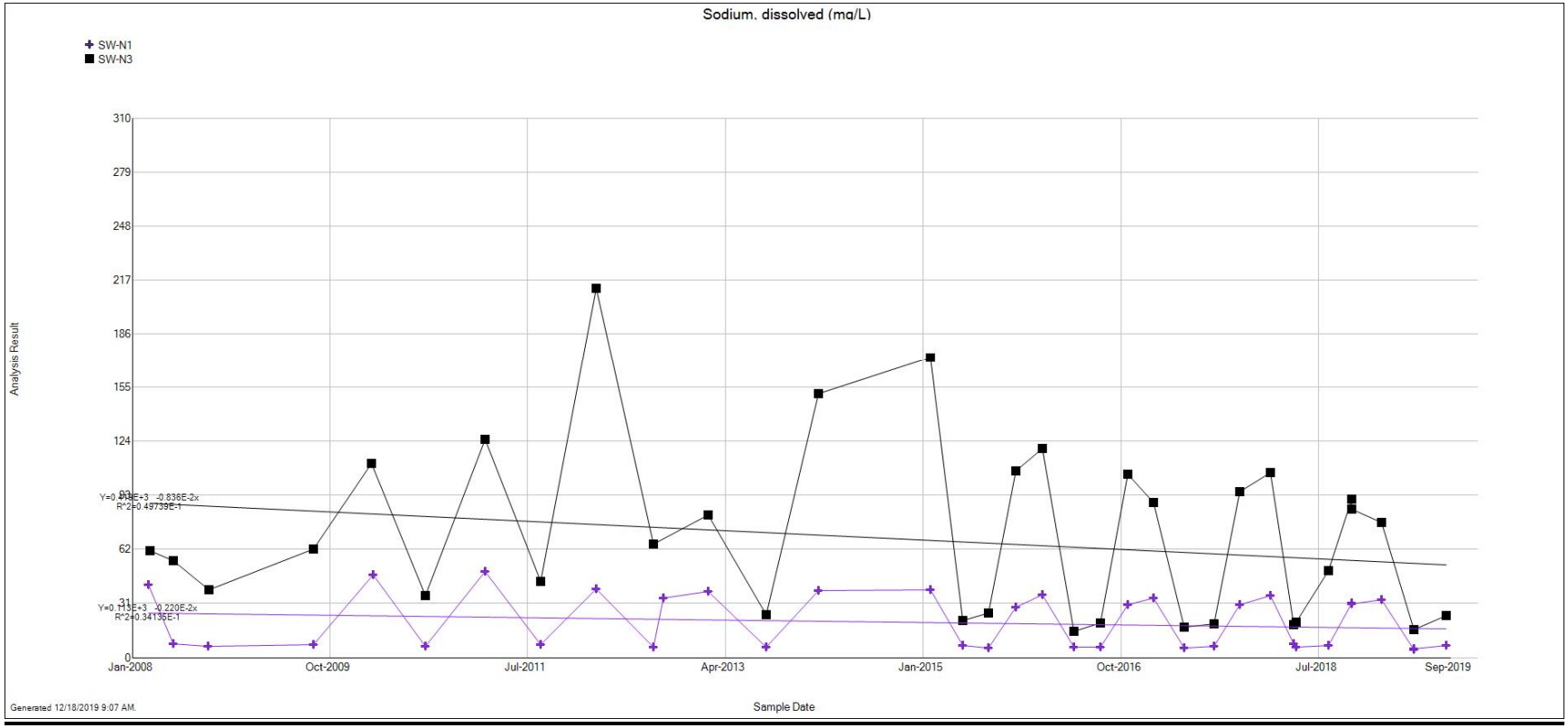

Calcium, dissolved (mg/L)
SW-N1
SW-N3
Analysis Result
590
531
472
413
354
295
236
177
118
59
0
Y=0.132E+3 + 0.303E-2x
R^2=0.92623E-3
Y=0.360E+3 -0.576E-2x
R^2=0.83328E-2
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Generated 12/18/2019 9:07 AM.
Sample Date

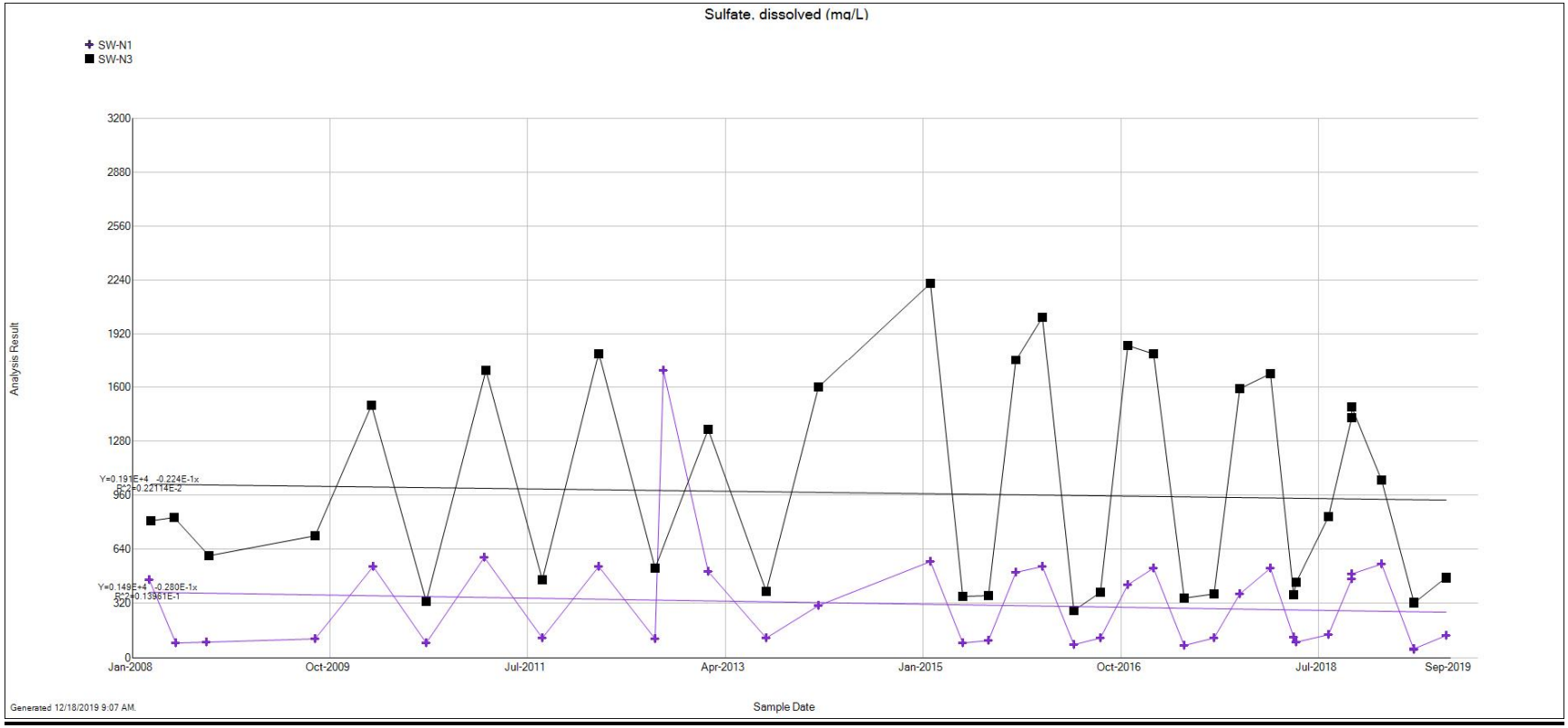

Specific Conductance @ 25C (lab) (umhos/cm)
SW-N1
SW-N3
Analysis Result
4600
4140
3680
3220
2760
2300
1840
1380
920
460
0
Y=0.377E+4 -0.436E-1x
R^2=0.37212E-2
Y=0.309E+4 -0.515E-1x
R^2=0.12305E-1
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Sample Date
Generated 12/18/2019 9:07 AM.

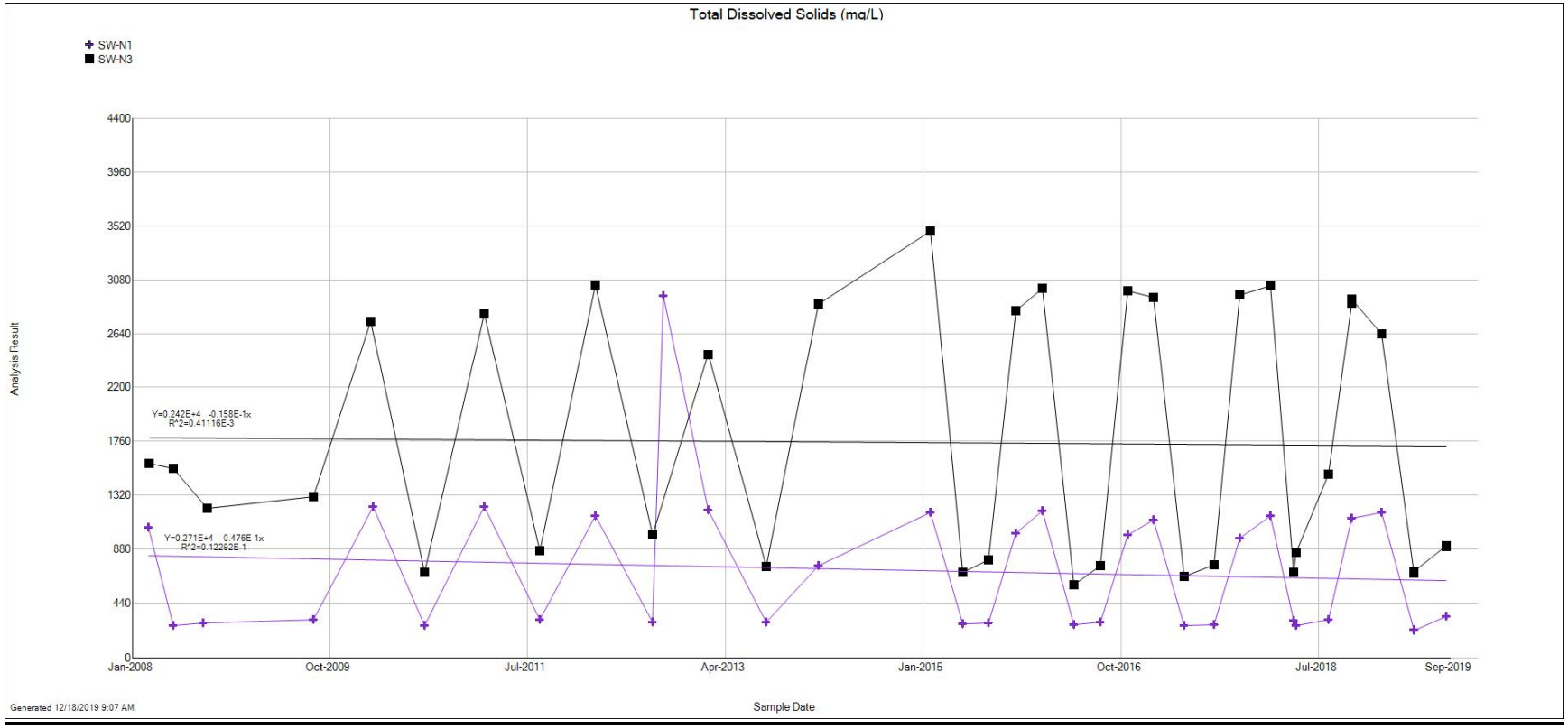

Iron, total recoverable (ug/L)
SW-N1
SW-N3
Analysis Result
8500
7650
6800
5950
5100
4250
3400
2550
1700
850
0
Y=0.145E+5 -0.319E+0x
R^2=0.83802E-1
Y=0.581E+4 -0.115E+0x
R^2=0.21587E-1
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Sample Date
Generated 12/18/2019 9:07 AM.

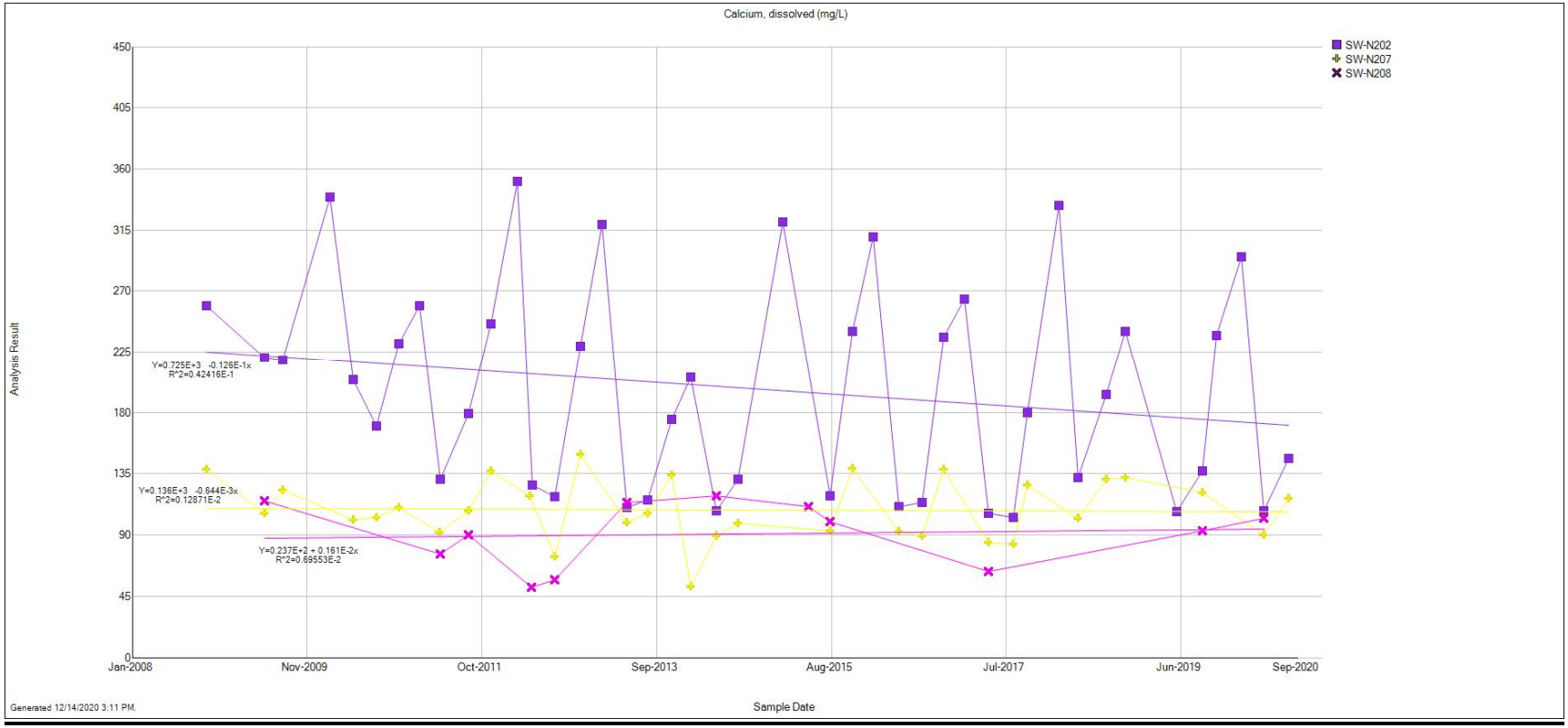

Magnesium, dissolved (mg/L)
SW-N1
SW-N3
Analysis Result
350
315
280
245
210
175
140
105
70
35
0
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Sample Date
Generated 12/18/2019 9:07 AM.

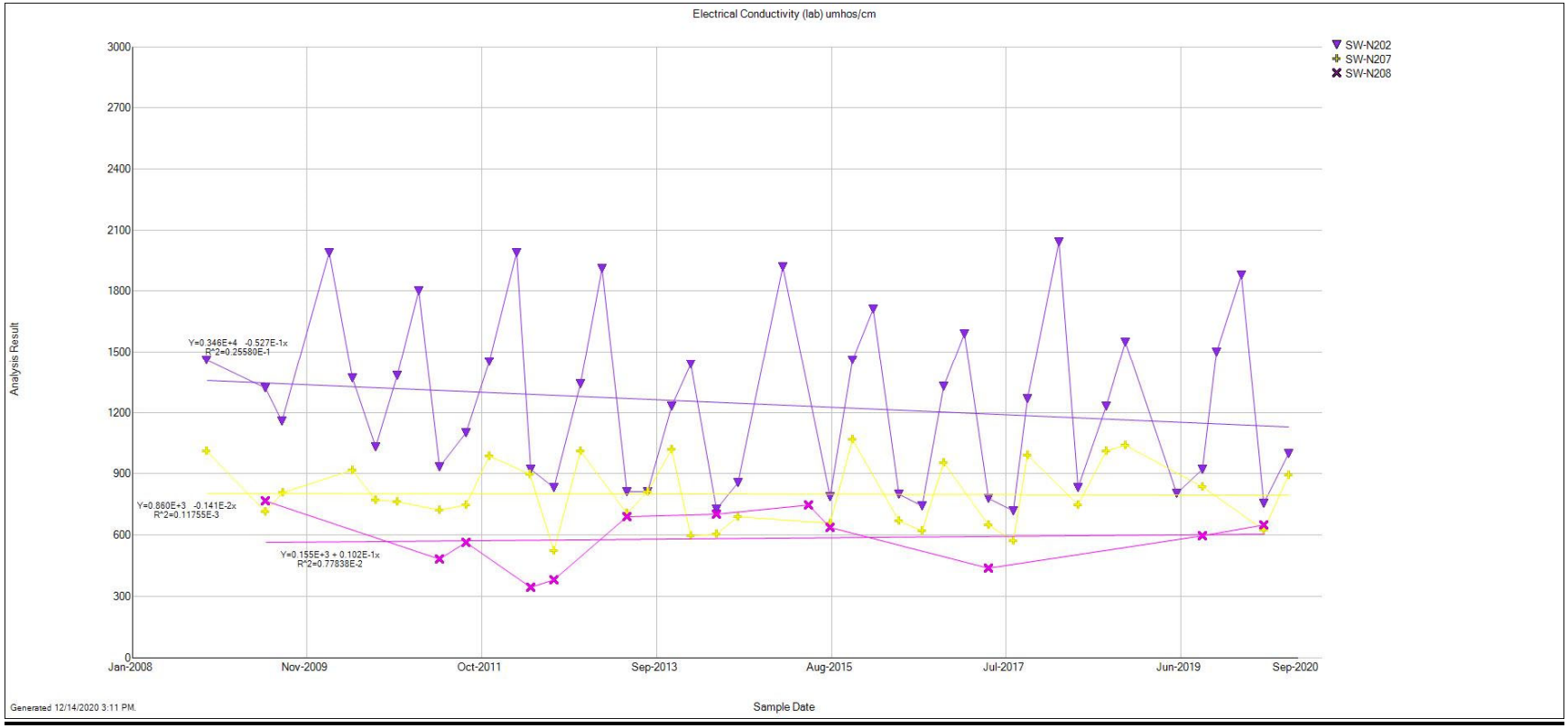

pH (lab) (pH)
SW-N1
SW-N3
Y=0.843E+1 -0.271E-5x
R^2=0.77817E-3
Y=0.113E+2 -0.731E-4x
R^2=0.20820E+0
8.64
7.68
6.72
5.76
4.8
3.84
2.88
1.92
0.96
0
Analysis Result
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Sample Date
Generated 12/18/2019 9:07 AM.

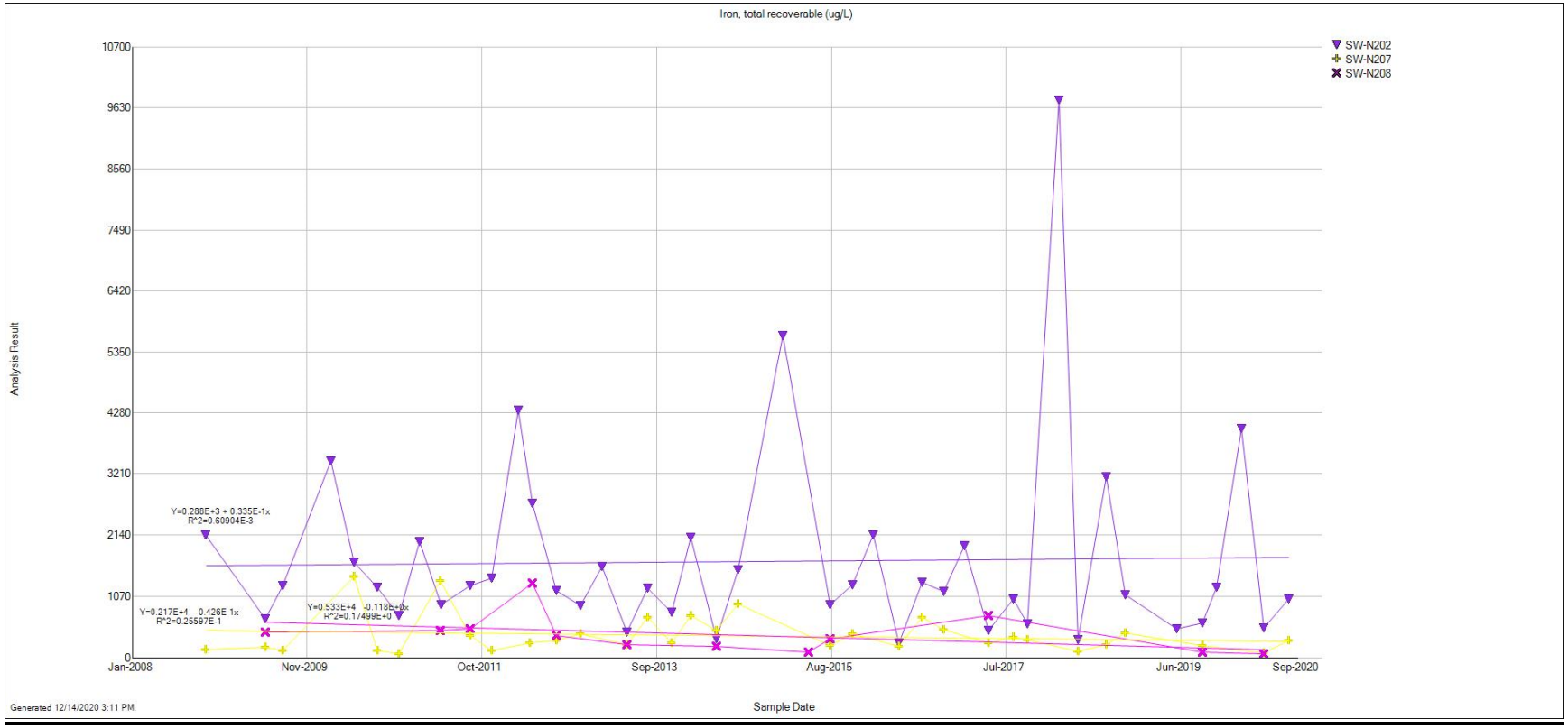

Sodium, dissolved (mg/L)
SW-N1
SW-N3
Analysis Result
310
279
248
217
186
155
124
62
31
0
Y=0.418E+3 -0.836E-2x
R^2=0.49739E-1
Y=0.113E+3 -0.220E-2x
R^2=0.34135E-1
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Generated 12/18/2019 9:07 AM.
Sample Date

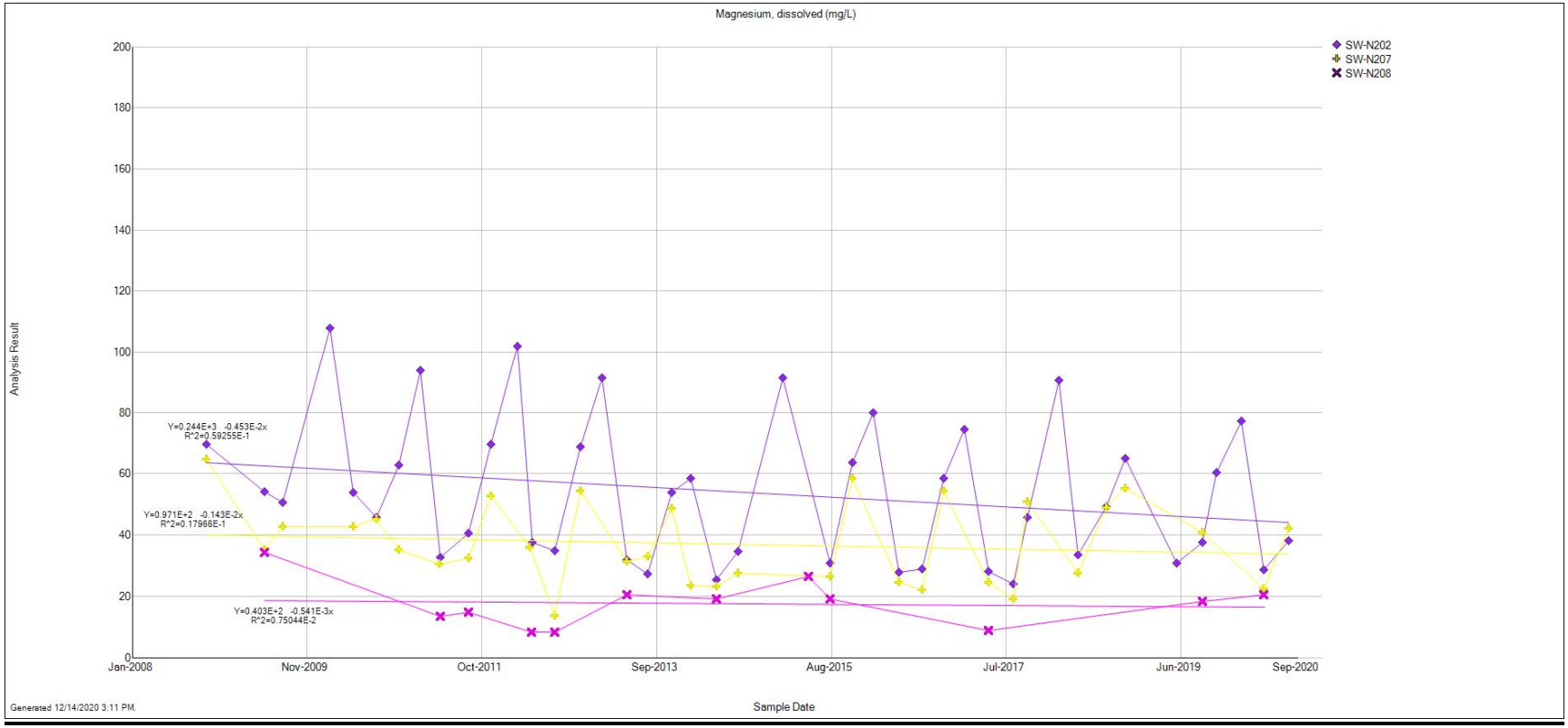

Sulfate, dissolved (mg/L)
SW-N1
SW-N3
Analysis Result
3200
2880
2560
2240
1920
1600
1280
960
640
320
0
Y=0.191E+4 -0.224E-1x
R^2=0.22114E-2
Y=0.149E+4 -0.280E-1x
R^2=0.13381E-1
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Generated 12/18/2019 9:07 AM.
Sample Date

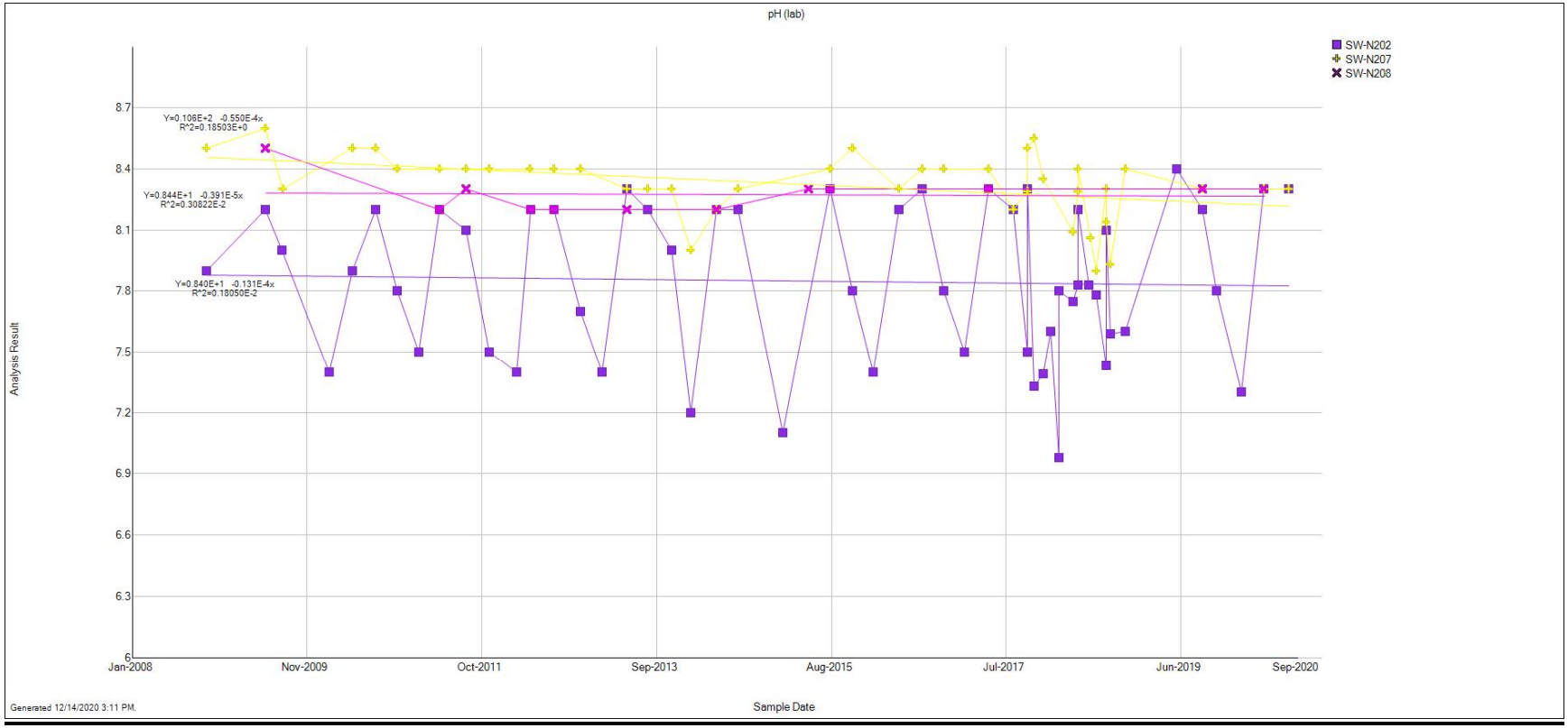

Total Dissolved Solids (mg/L)
SW-N1
SW-N3
Analysis Result
4400
3960
3520
3080
2640
2200
1760
1320
880
440
0
Y=0.242E+4 -0.158E-1x
R^2=0.41116E-3
Y=0.271E+4 -0.476E-1x
R^2=0.12292E-1
Jan-2008
Oct-2009
Jul-2011
Apr-2013
Jan-2015
Oct-2016
Jul-2018
Sep-2019
Generated 12/18/2019 9:07 AM.
Sample Date

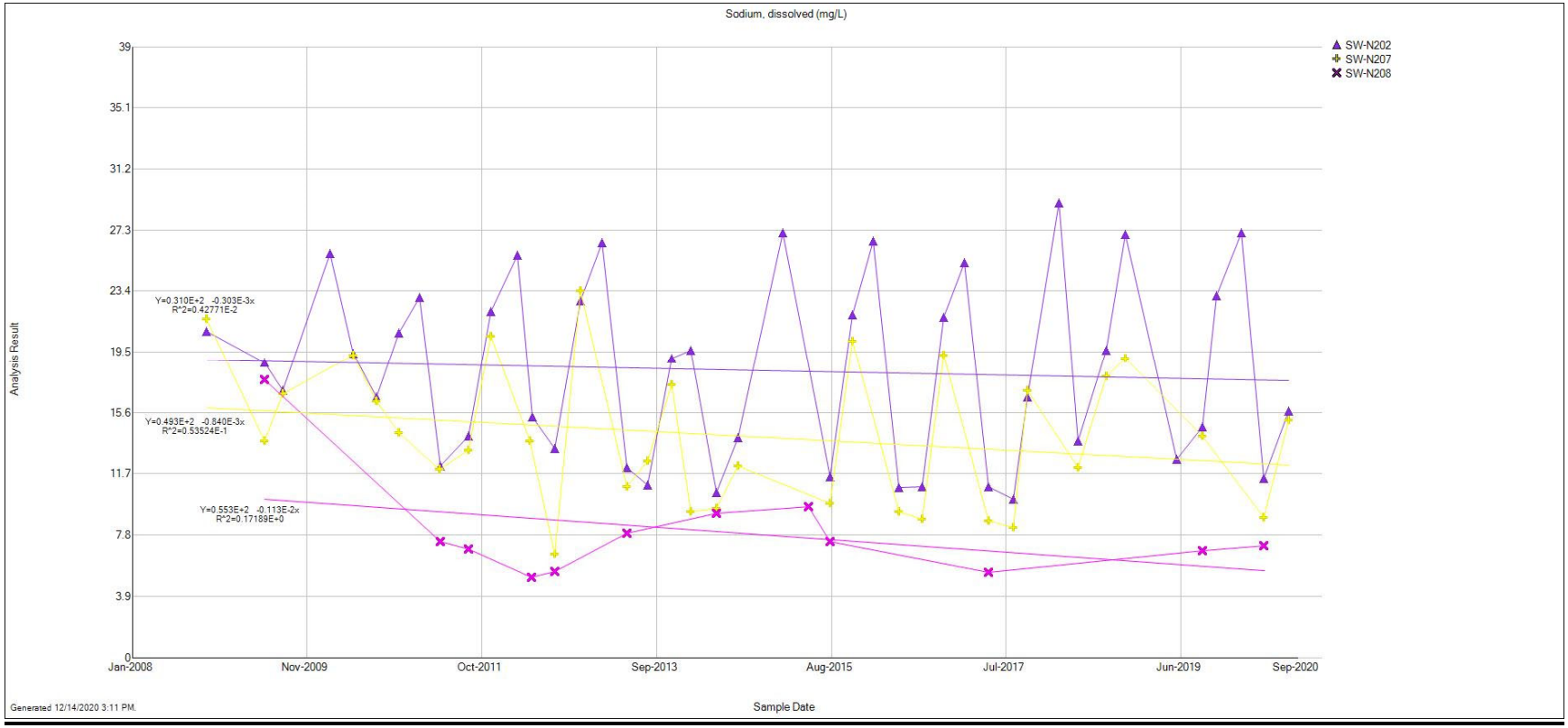

Calcium, dissolved (mg/L)
SW-N202
SW-N207
SW-N208
Analysis Result
450
405
360
315
270
225
180
135
90
45
0
Y=0.725E+3 -0.126E-1x
R^2=0.42416E-1
Y=0.136E+3 -0.844E-3x
R^2=0.12871E-2
Y=0.237E+2 + 0.161E-2x
R^2=0.89553E-2
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 3:11 PM.
Sample Date

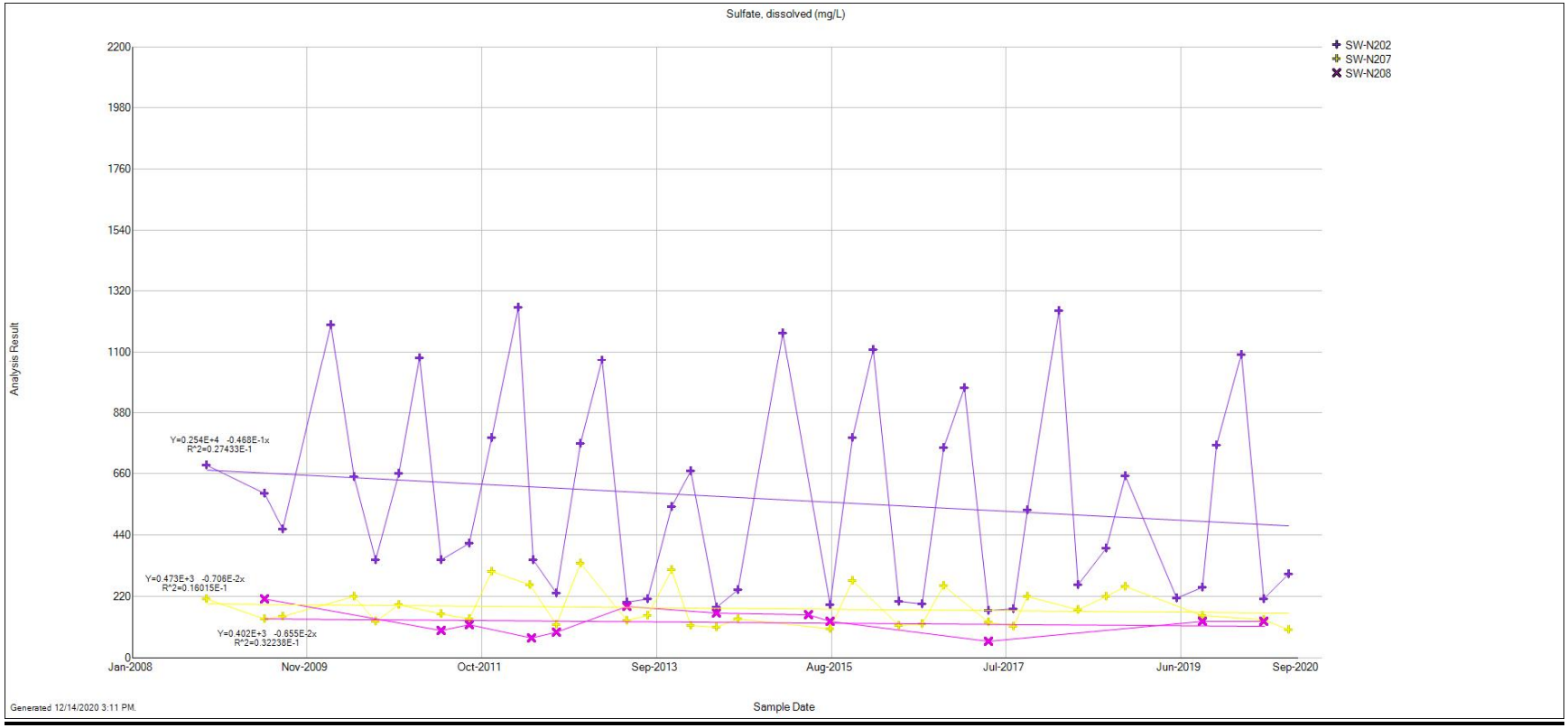

Electrical Conductivity (lab) umhos/cm
SW-N202
SW-N207
SW-N208
Analysis Result
3000
2700
2400
2100
1800
1500
1200
900
600
300
0
Y=0.346E+4 -0.527E-1x
R^2=0.25580E-1
Y=0.860E+3 -0.141E-2x
R^2=0.11755E-3
Y=0.155E+3 + 0.102E-1x
R^2=0.77838E-2
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 3:11 PM.
Sample Date

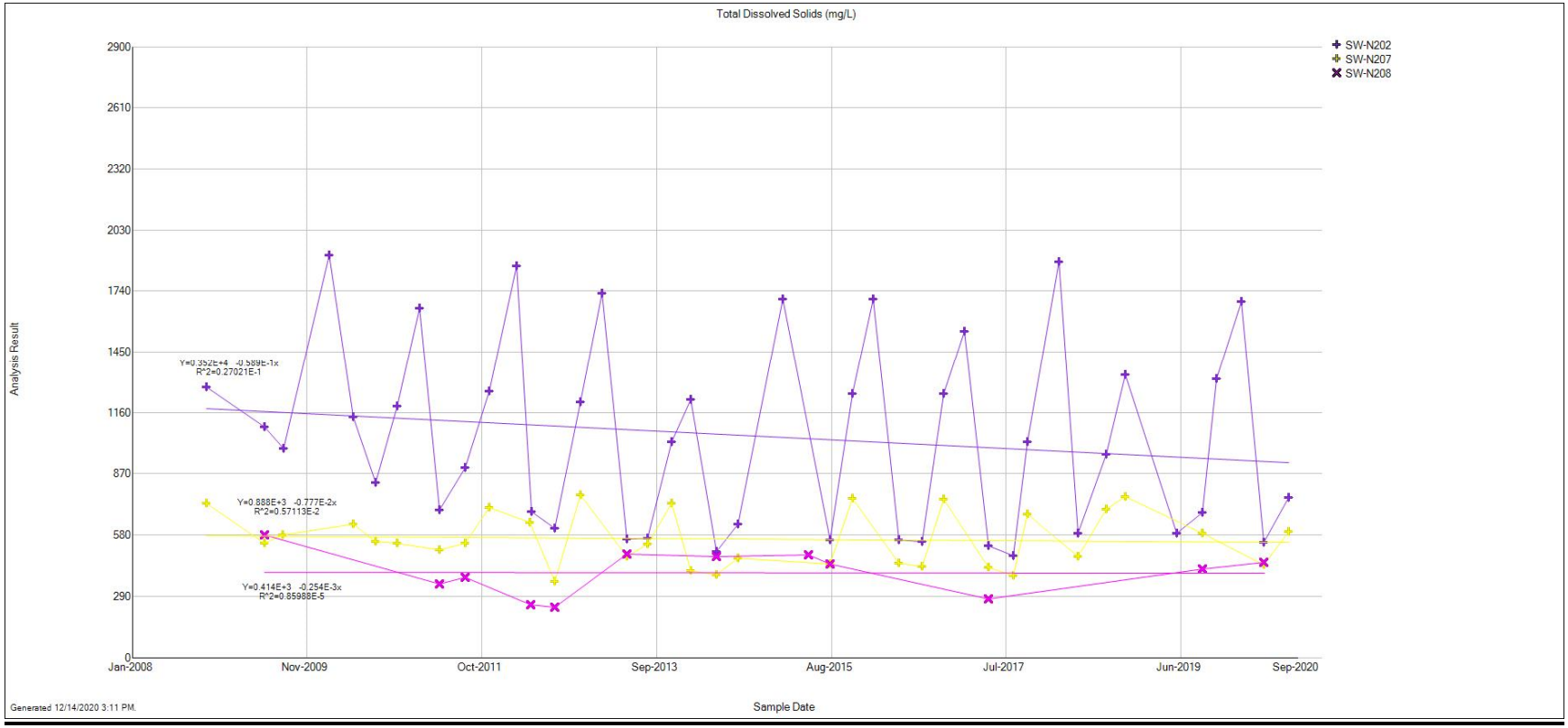

Iron, total recoverable (ug/L)
SW-N202
SW-N207
SW-N208
Y=0.288E+3 + 0.335E-1x
R^2=0.80904E-3
Y=0.217E+4 -0.426E-1x
R^2=0.25597E-1
Y=0.533E+4 -0.118E+0x
R^2=0.17499E+0
10700
9630
8560
7490
6420
5350
4280
3210
2140
1070
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 3:11 PM.

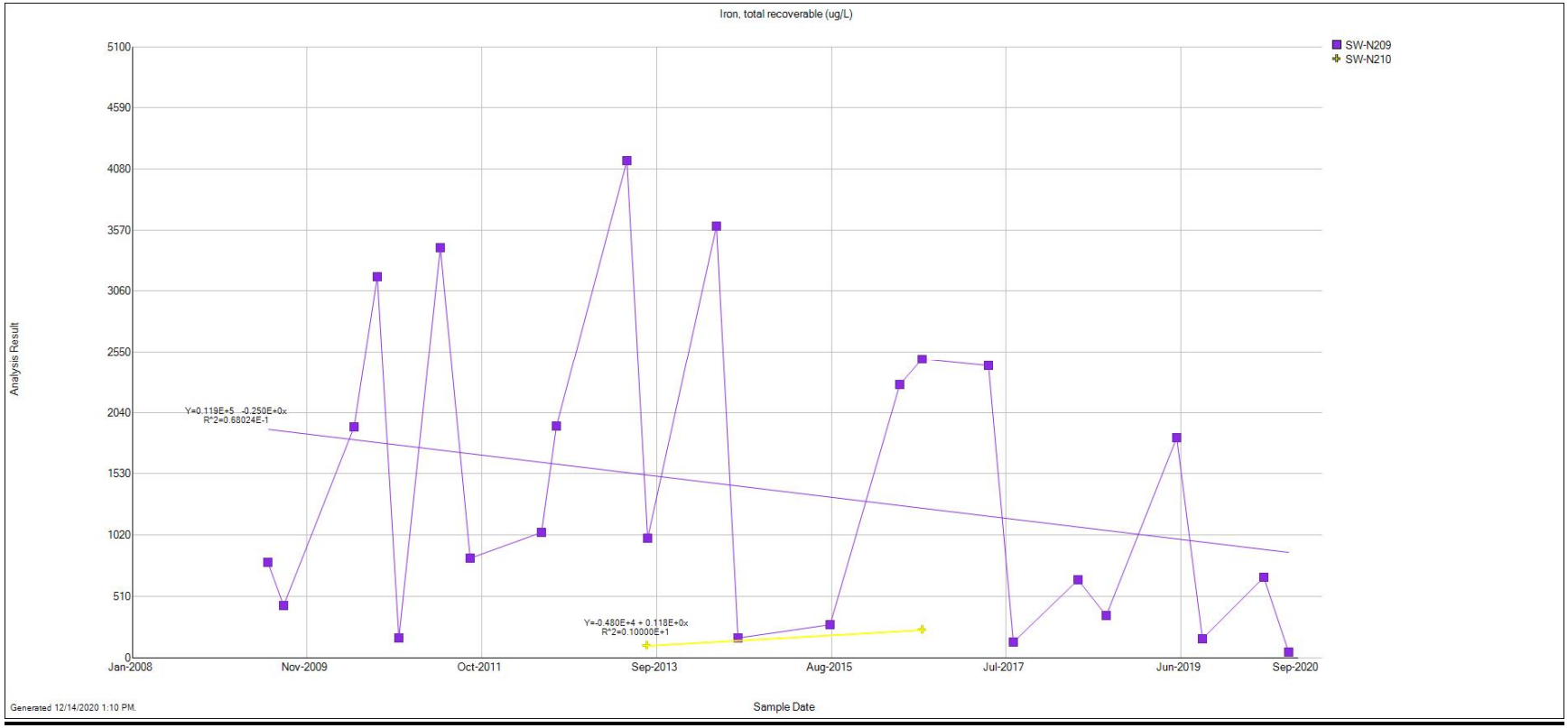

Magnesium, dissolved (mg/L)
SW-N202
SW-N207
SW-N208
Y=0.244E+3 -0.453E-2x
R^2=0.59255E-1
Y=0.971E+2 -0.143E-2x
R^2=0.17986E-1
Y=0.403E+2 -0.541E-3x
R^2=0.75044E-2
Analysis Result
200
180
160
140
120
100
80
60
40
20
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 3:11 PM.

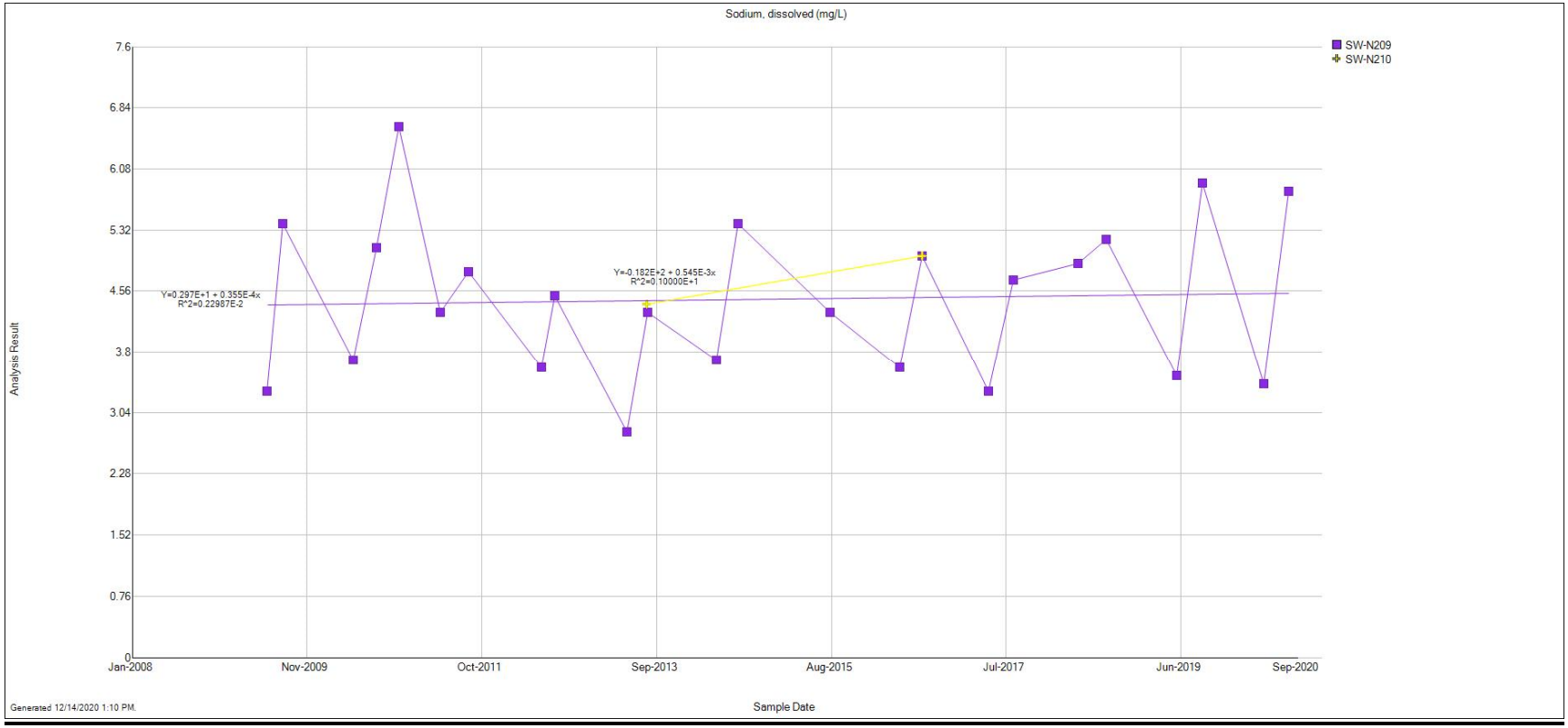

pH (lab)
SW-N202
SW-N207
SW-N208
Y=0.106E+2 -0.550E-4x
R^2=0.18503E+0
Y=0.844E+1 -0.391E-5x
R^2=0.30822E-2
Y=0.840E+1 -0.131E-4x
R^2=0.18050E-2
Analysis Result
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 3:11 PM.
Sample Date

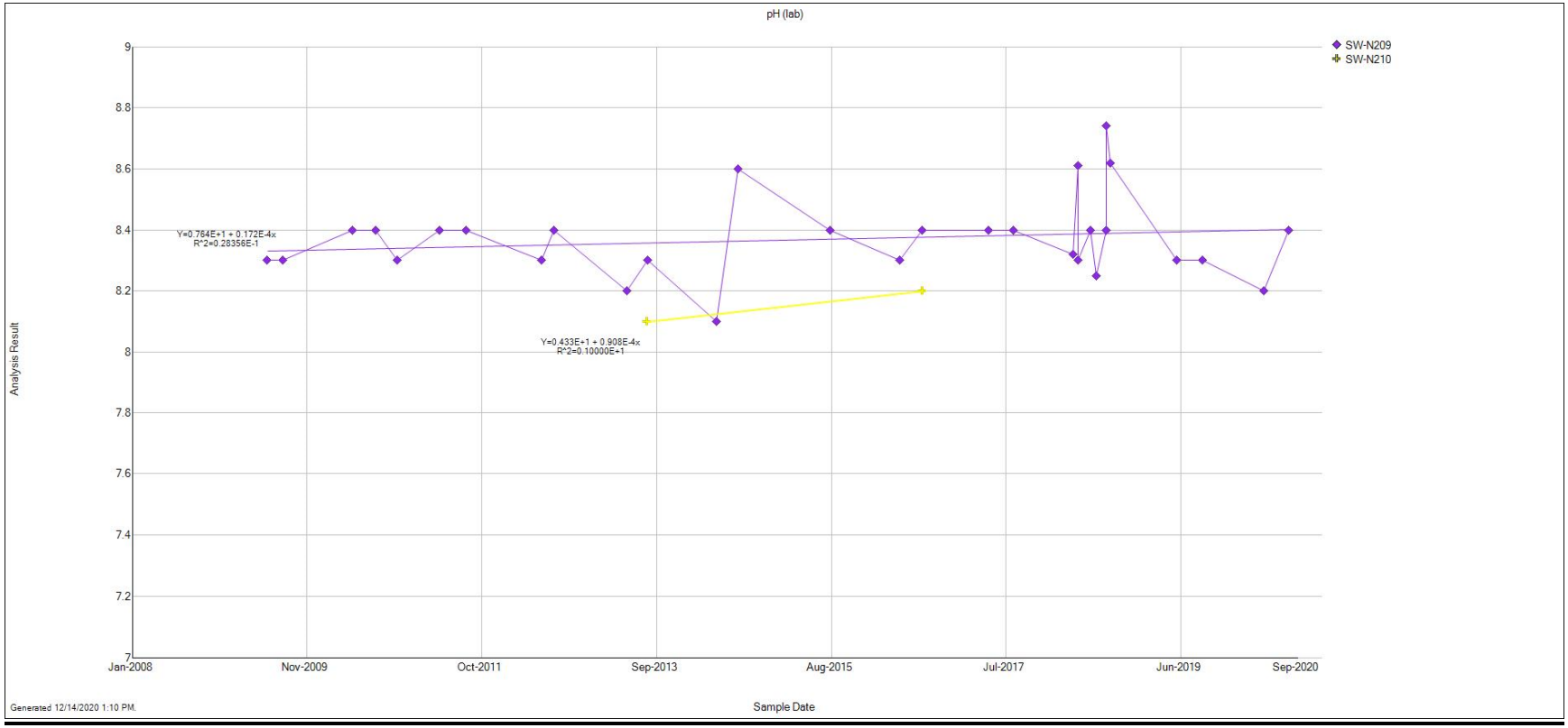

Sodium, dissolved (mg/L)
SW-N202
SW-N207
SW-N208
Y=0.310E+2 -0.303E-3x
R^2=0.42771E-2
Y=0.493E+2 -0.840E-3x
R^2=0.53524E-1
Y=0.553E+2 -0.113E-2x
R^2=0.17189E+0
39
35.1
31.2
27.3
23.4
19.5
15.6
11.7
7.8
3.9
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 3:11 PM.

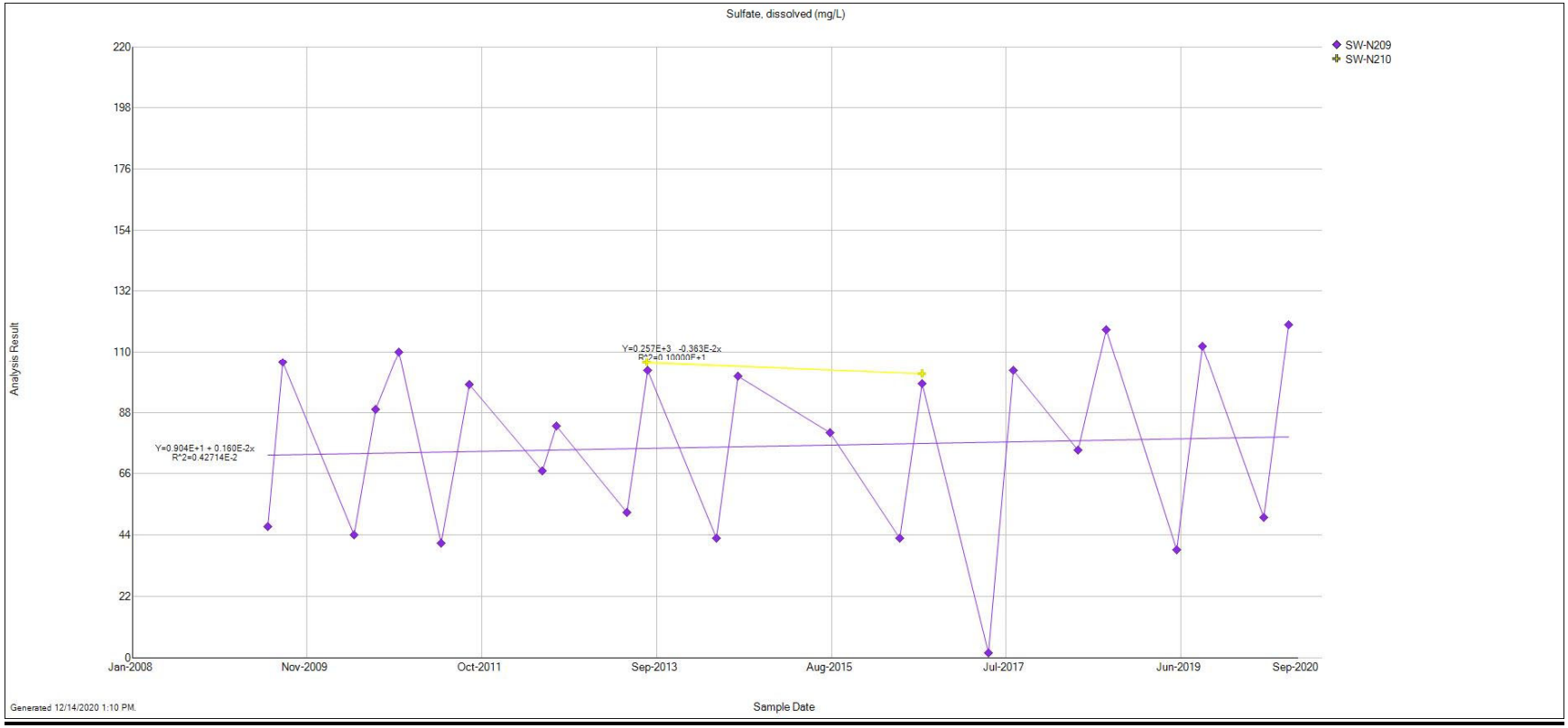

Sulfate, dissolved (mg/L)
SW-N202
SW-N207
SW-N208
Analysis Result
2200
1980
1760
1540
1320
1100
880
660
440
220
0
Y=0.254E+4 -0.468E-1x
R^2=0.27433E-1
Y=0.473E+3 -0.706E-2x
R^2=0.16015E-1
Y=0.402E+3 -0.655E-2x
R^2=0.32238E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 3:11 PM.
Sample Date

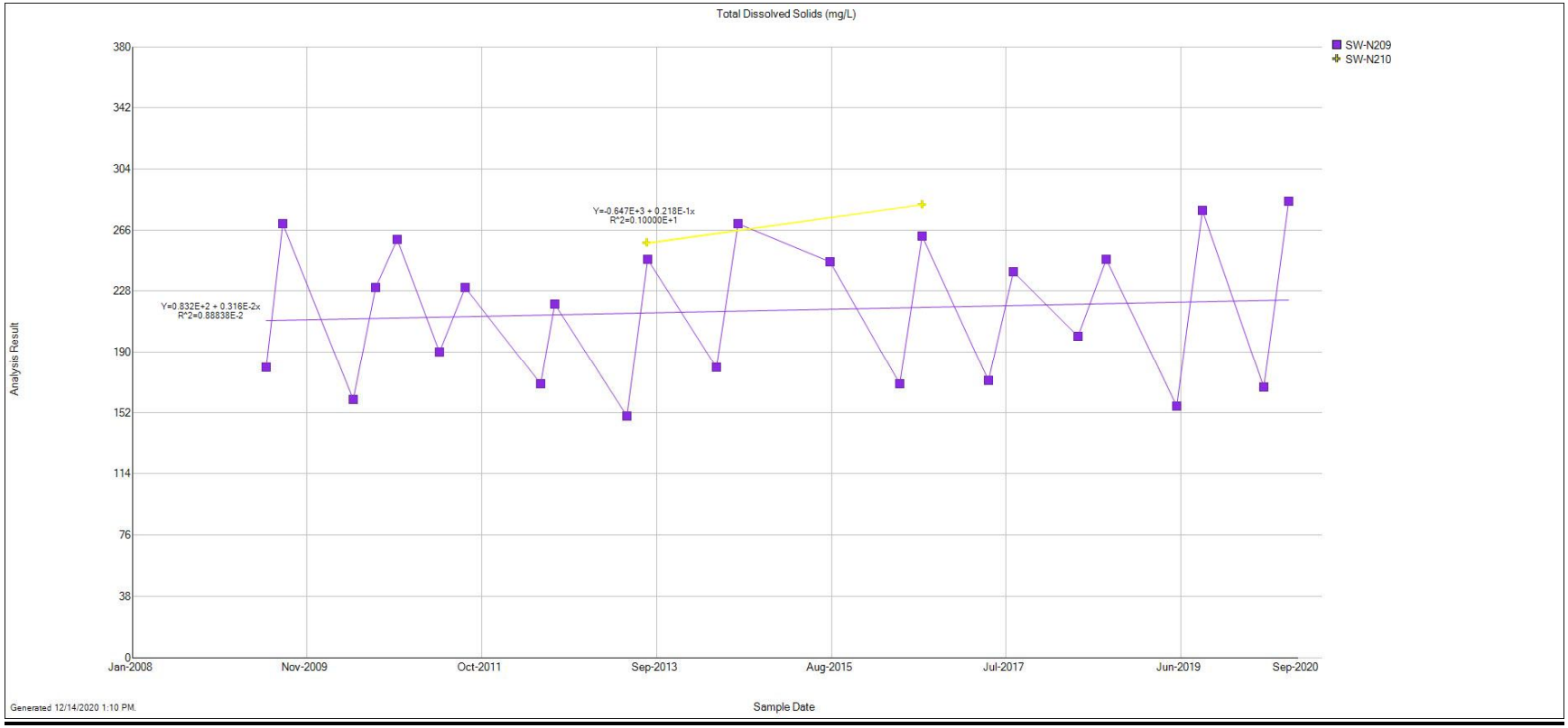

Total Dissolved Solids (mg/L)
SW-N202
SW-N207
SW-N208
Y=0.352E+4 -0.589E-1x
R^2=0.27021E-1
Y=0.888E+3 -0.777E-2x
R^2=0.57113E-2
Y=0.414E+3 -0.254E-3x
R^2=0.85988E-5
Analysis Result
2900
2610
2320
2030
1740
1450
1160
870
580
290
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 3:11 PM.

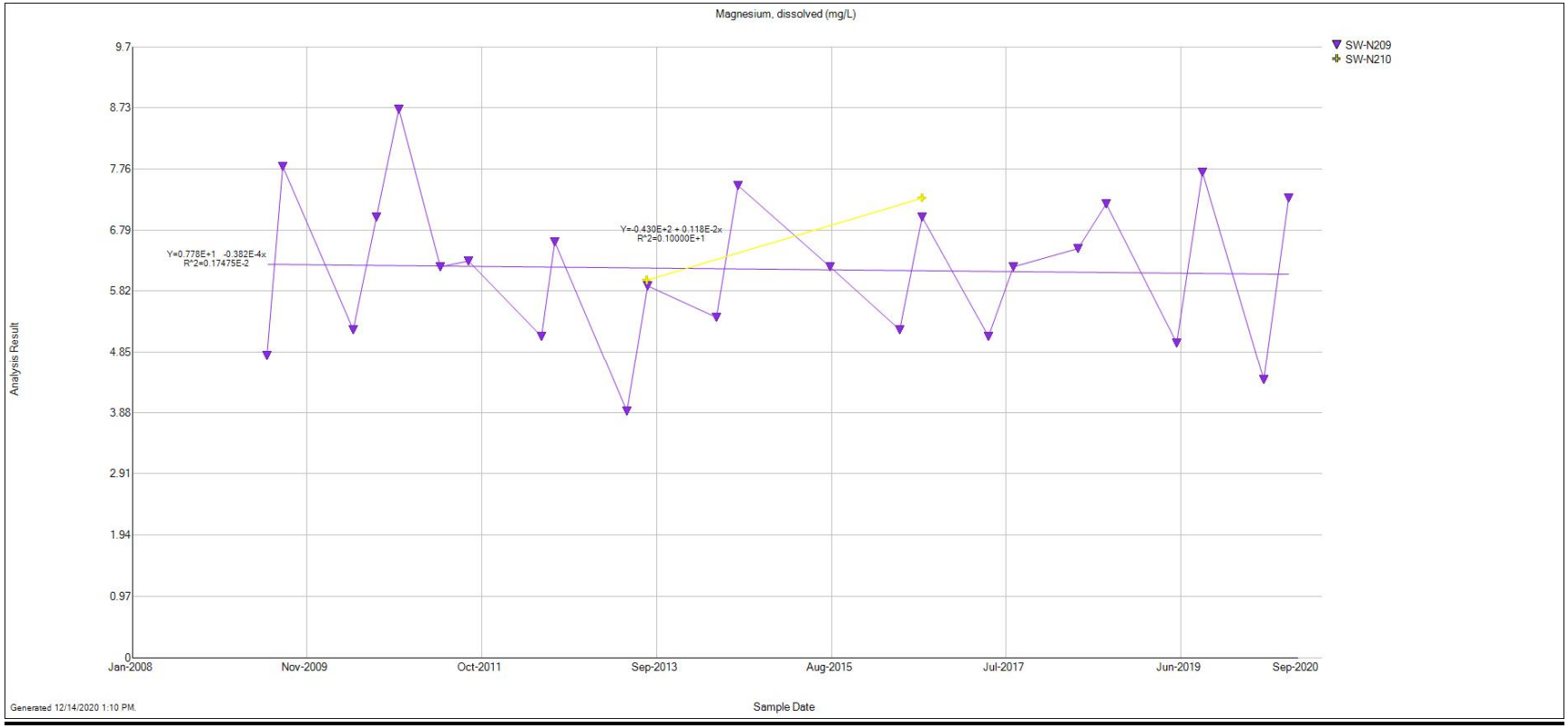

Iron, total recoverable (ug/L)
SW-N209
SW-N210
Analysis Result
5100
4590
4080
3570
3060
2550
2040
1530
1020
510
0
Y=0.119E+5 -0.250E+0x
R^2=0.68024E-1
Y=-0.480E+4 + 0.118E+0x
R^2=0.10000E+1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

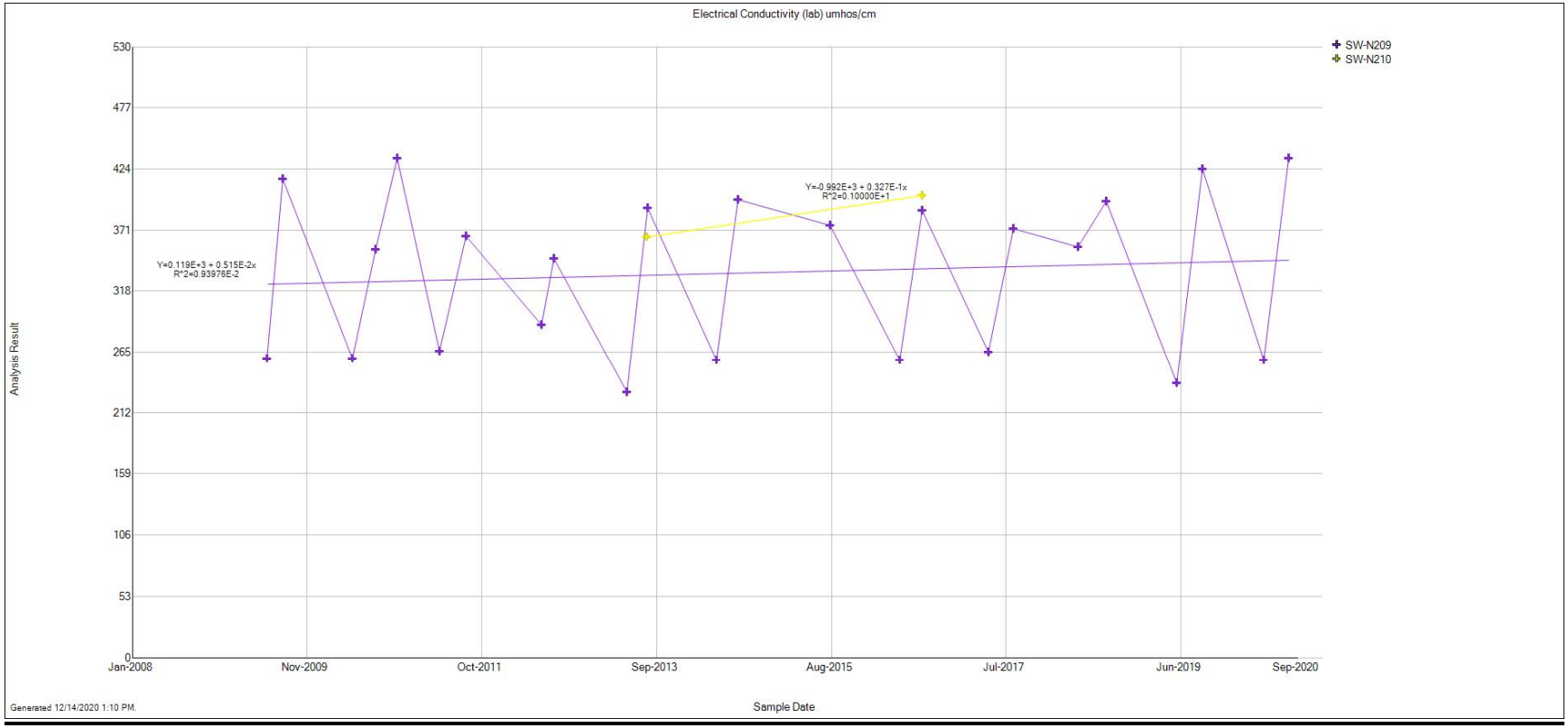

Sodium, dissolved (mg/L)
SW-N209
SW-N210
Y=0.297E+1 + 0.355E-4x
R^2=0.22987E-2
Y=-0.182E+2 + 0.545E-3x
R^2=0.10000E+1
Analysis Result
7.6
6.84
6.08
5.32
4.56
3.8
3.04
2.28
1.52
0.76
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

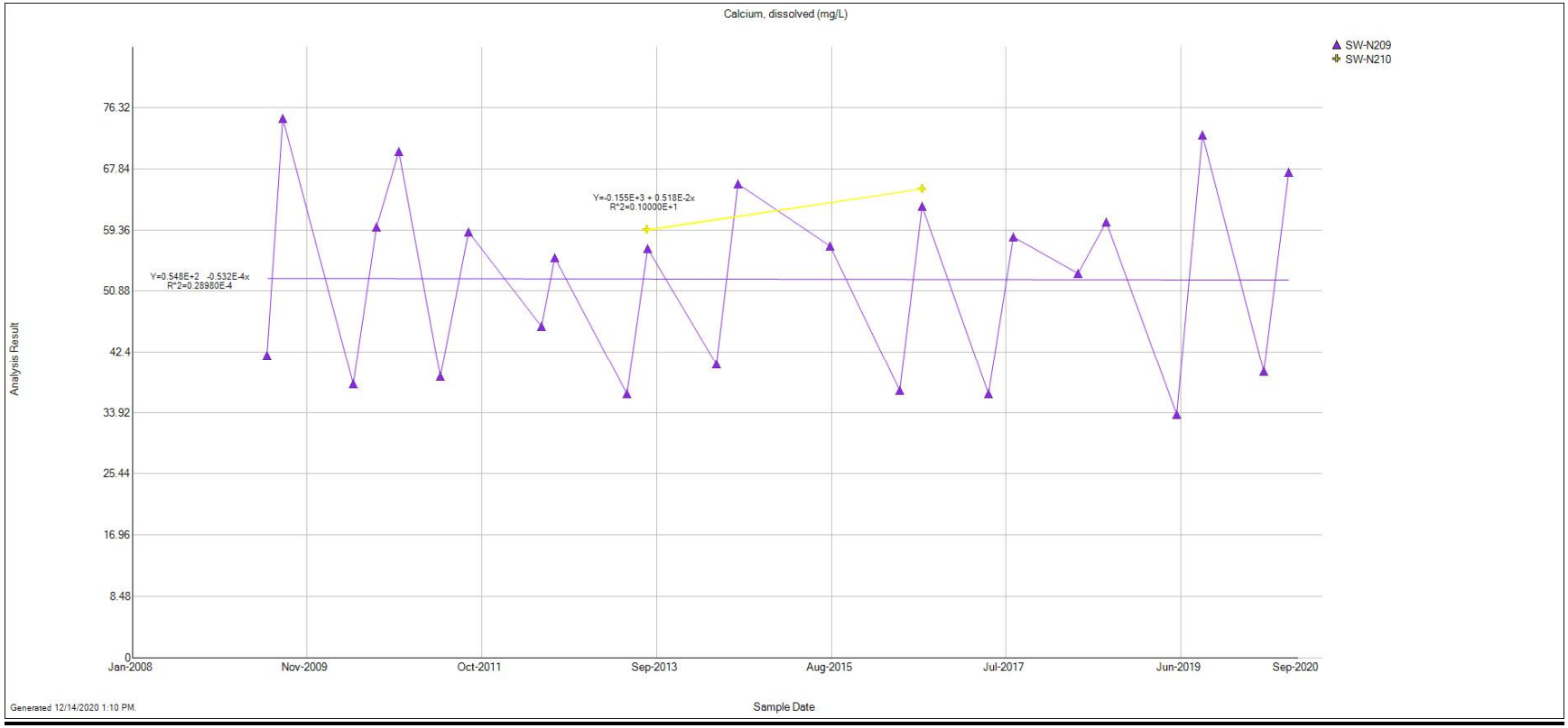

pH (lab)
SW-N209
SW-N210
Y=0.764E+1 + 0.172E-4x
R^2=0.28356E-1
Y=0.433E+1 + 0.908E-4x
R^2=0.10000E+1
Analysis Result
9
8.8
8.6
8.4
8.2
8
7.8
7.6
7.4
7.2
7
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

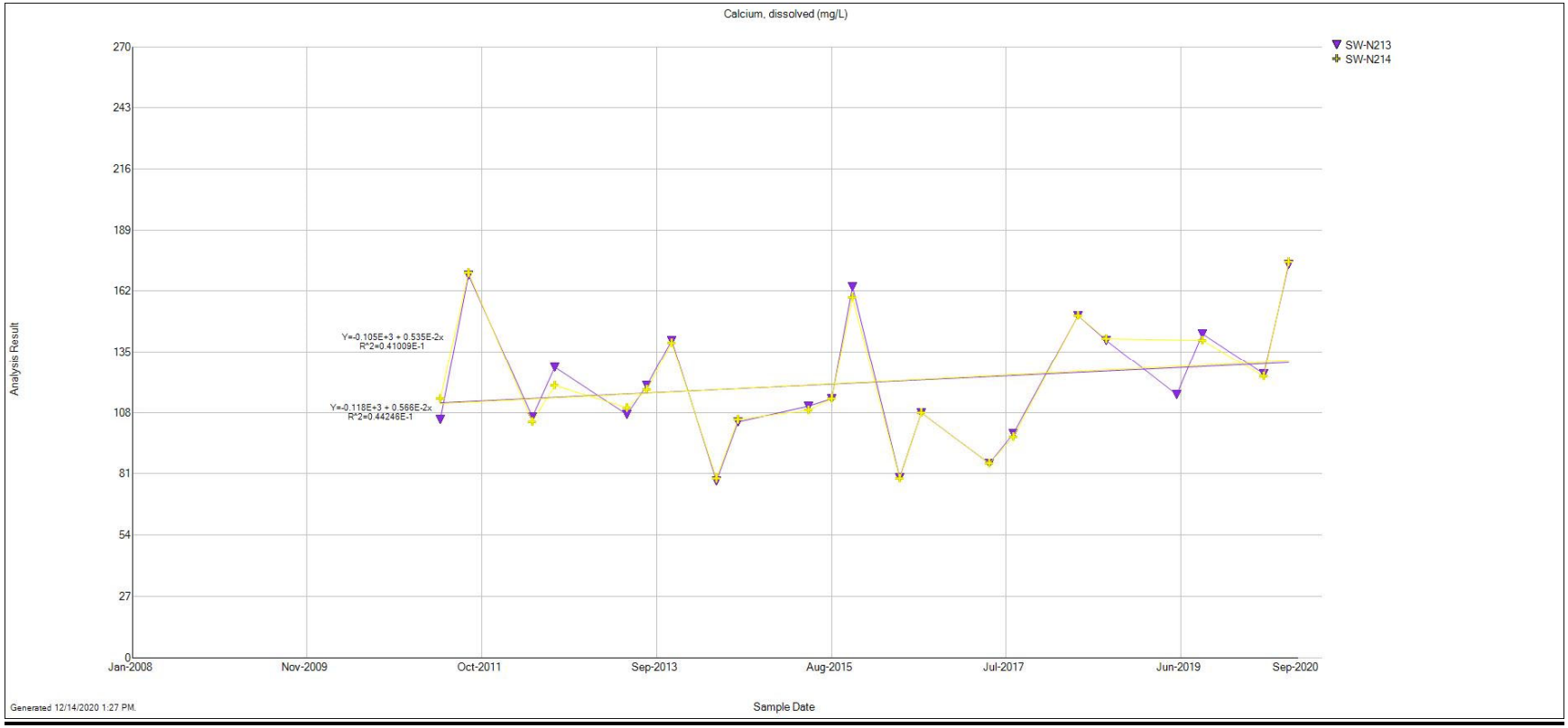

Sulfate, dissolved (mg/L)
SW-N209
SW-N210
Analysis Result
220
198
176
154
132
110
88
66
44
22
0
Y=0.257E+3 + -0.383E-2x
R^2=0.10000E+1
Y=0.904E+1 + 0.160E-2x
R^2=0.42714E-2
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

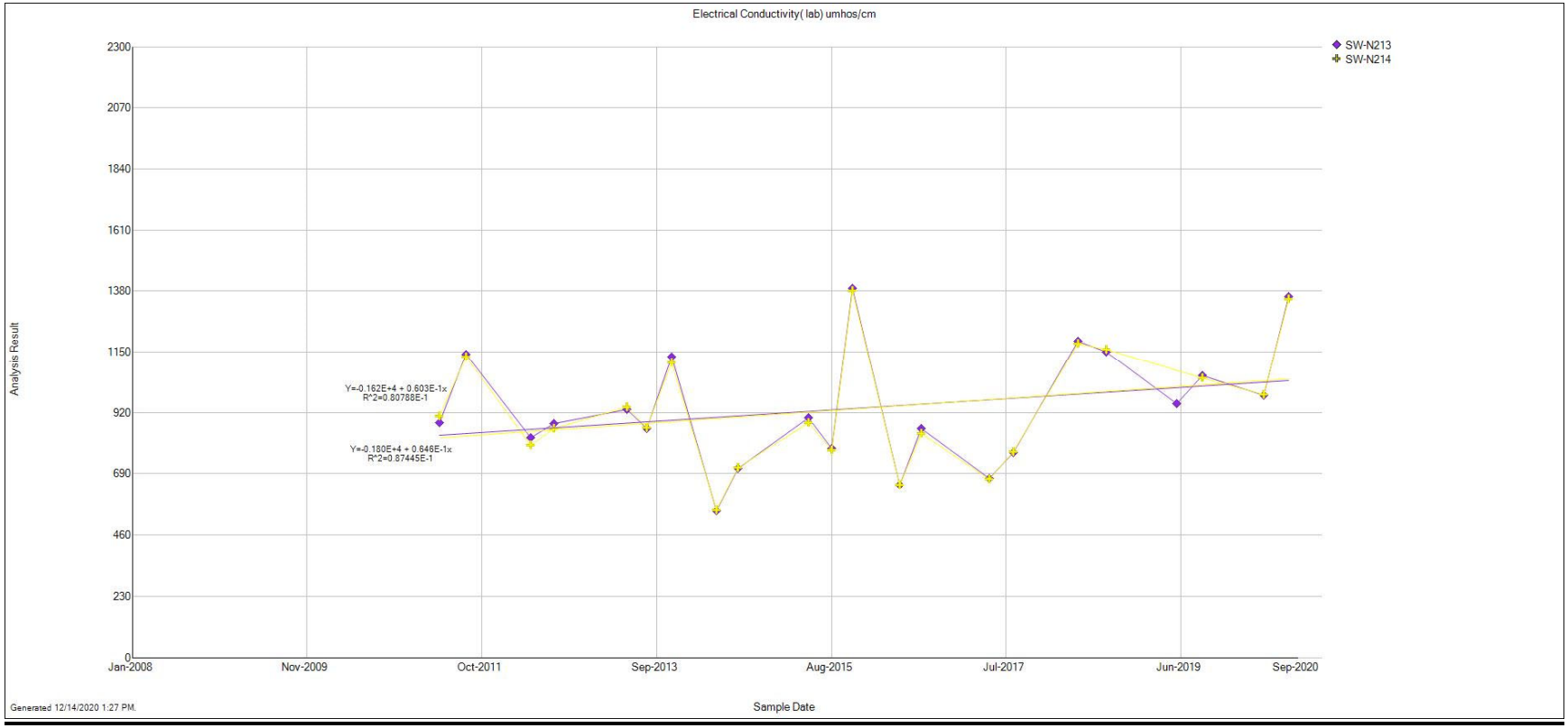

Total Dissolved Solids (mg/L)
SW-N209
SW-N210
Y=-0.647E+3 + 0.218E-1x
R^2=0.10000E+1
Y=0.832E+2 + 0.316E-2x
R^2=0.88838E-2
Analysis Result
380
342
304
266
228
190
152
114
76
38
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

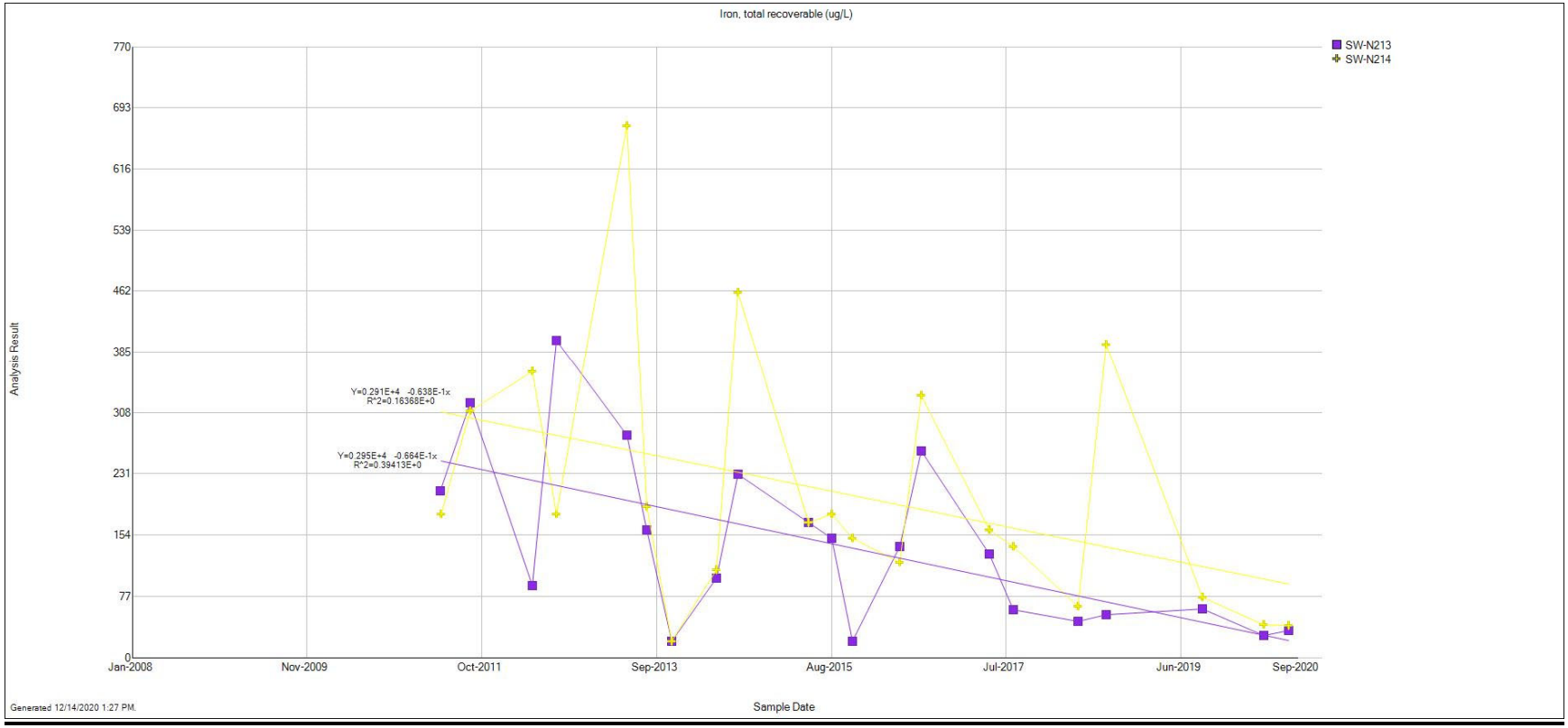

Magnesium, dissolved (mg/L)
SW-N209
SW-N210
Y=0.778E+1 -0.382E-4x
R^2=0.17475E-2
Y=-0.430E+2 + 0.118E-2x
R^2=0.10000E+1
Analysis Result
9.7
8.73
7.76
6.79
5.82
4.85
3.88
2.91
1.94
0.97
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

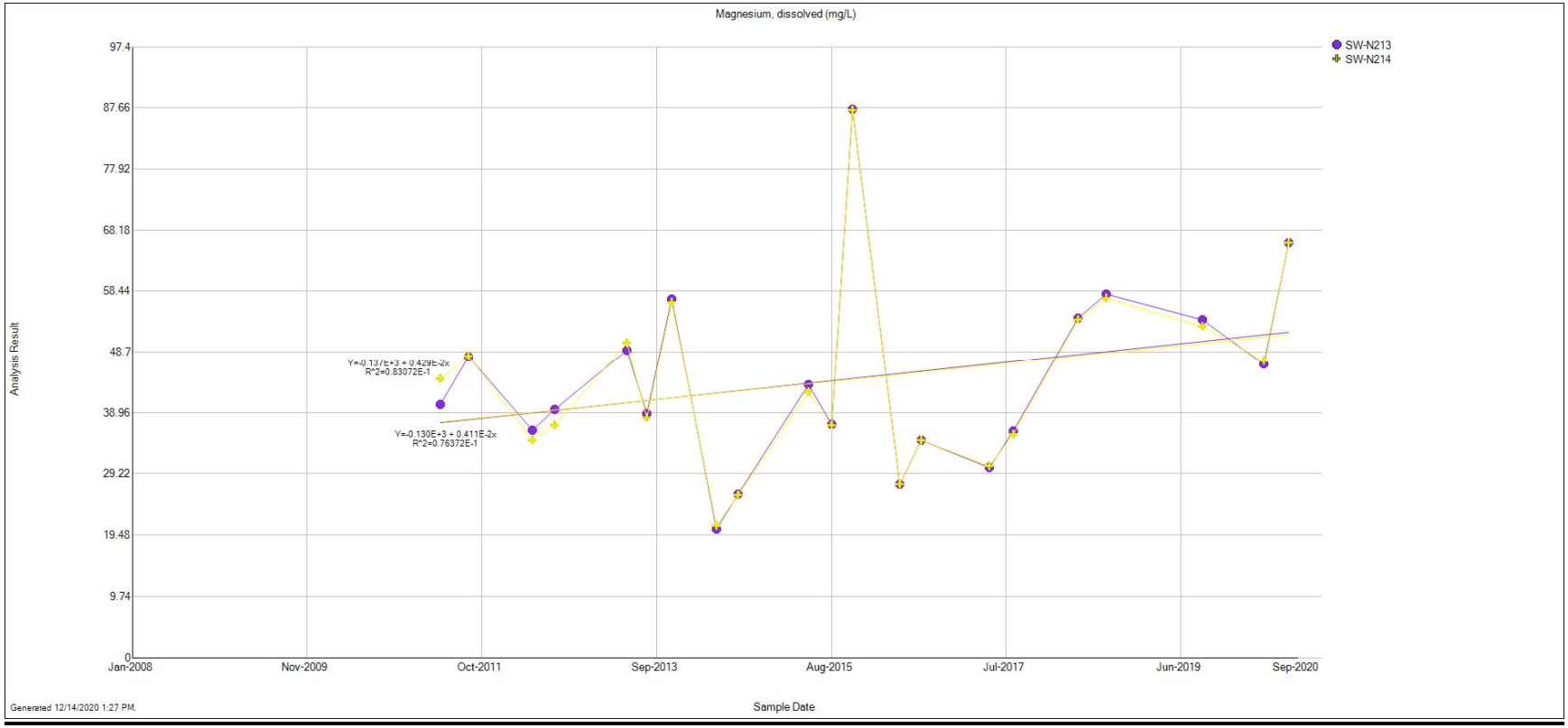

Electrical Conductivity (lab) umhos/cm
SW-N209
SW-N210
Y=0.119E+3 + 0.515E-2x
R^2=0.93976E-2
Y=-0.982E+3 + 0.327E-1x
R^2=0.10000E+1
Analysis Result
530
477
424
371
318
265
212
159
106
53
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:10 PM.
Sample Date

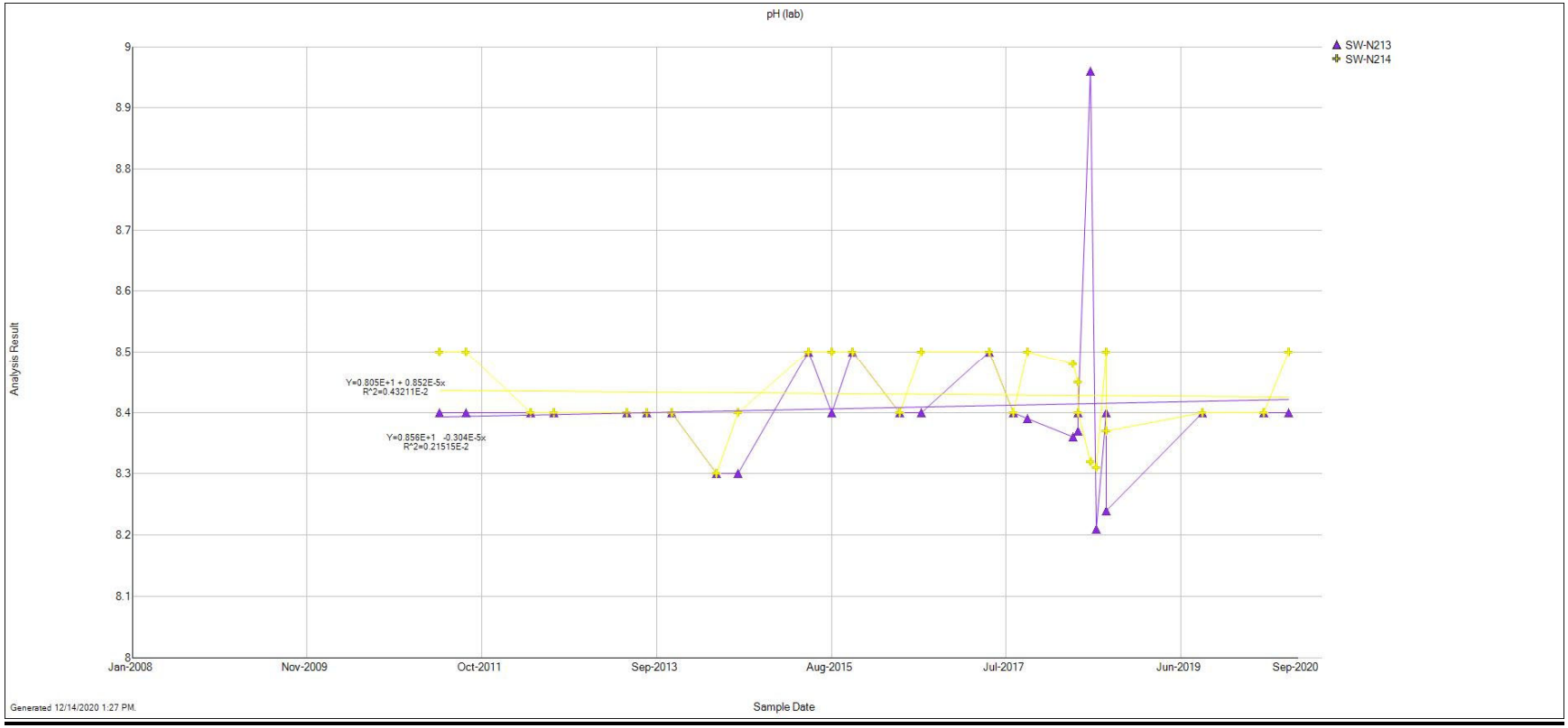

Calcium, dissolved (mg/L)
SW-N209
SW-N210
Y=0.548E+2 -0.532E-4x
R^2=0.28980E-4
Y=-0.155E+3 + 0.518E-2x
R^2=0.10000E+1
76.32
67.84
59.36
50.88
42.4
33.92
25.44
16.96
8.48
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 1:10 PM.

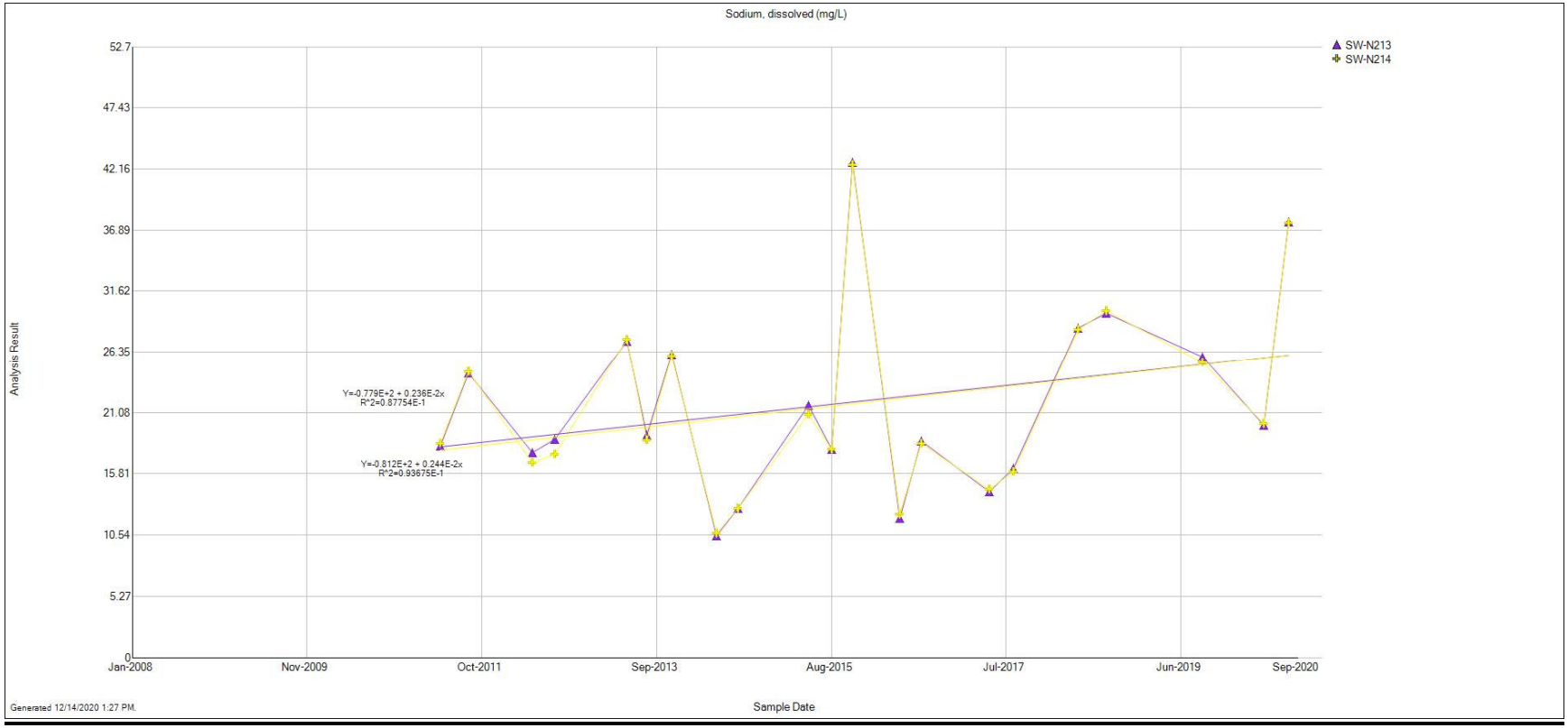

Calcium, dissolved (mg/L)
SW-N213
SW-N214
Y=-0.105E+3 + 0.535E-2x
R^2=0.41009E-1
Y=-0.118E+3 + 0.586E-2x
R^2=0.44246E-1
Analysis Result
270
243
216
189
162
135
108
81
54
27
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:27 PM.
Sample Date

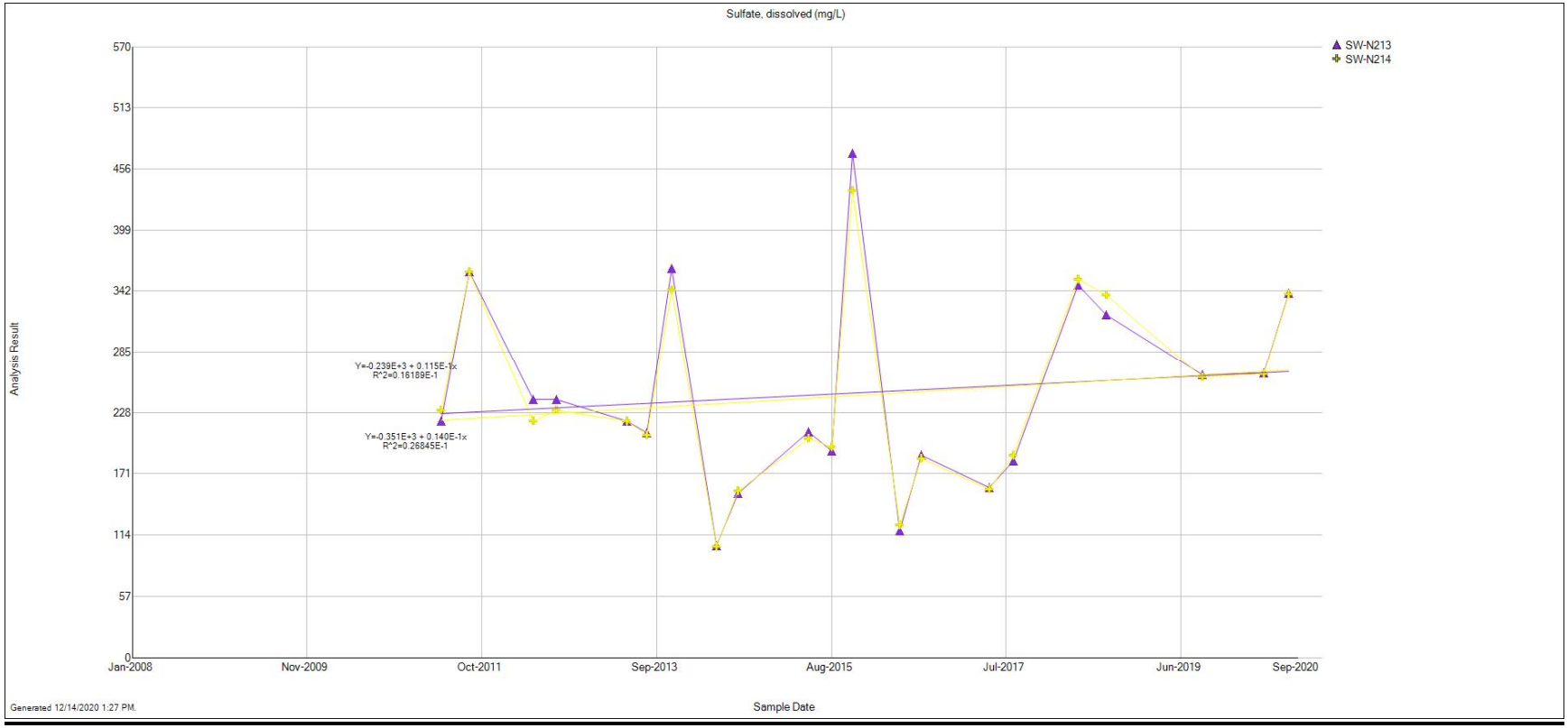

Electrical Conductivity(lab) umhos/cm
SW-N213
SW-N214
Analysis Result
2300
2070
1840
1610
1380
1150
920
690
460
230
0
Y=-0.162E+4 + 0.603E-1x
R^2=0.80788E-1
Y=-0.180E+4 + 0.646E-1x
R^2=0.87445E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:27 PM.
Sample Date

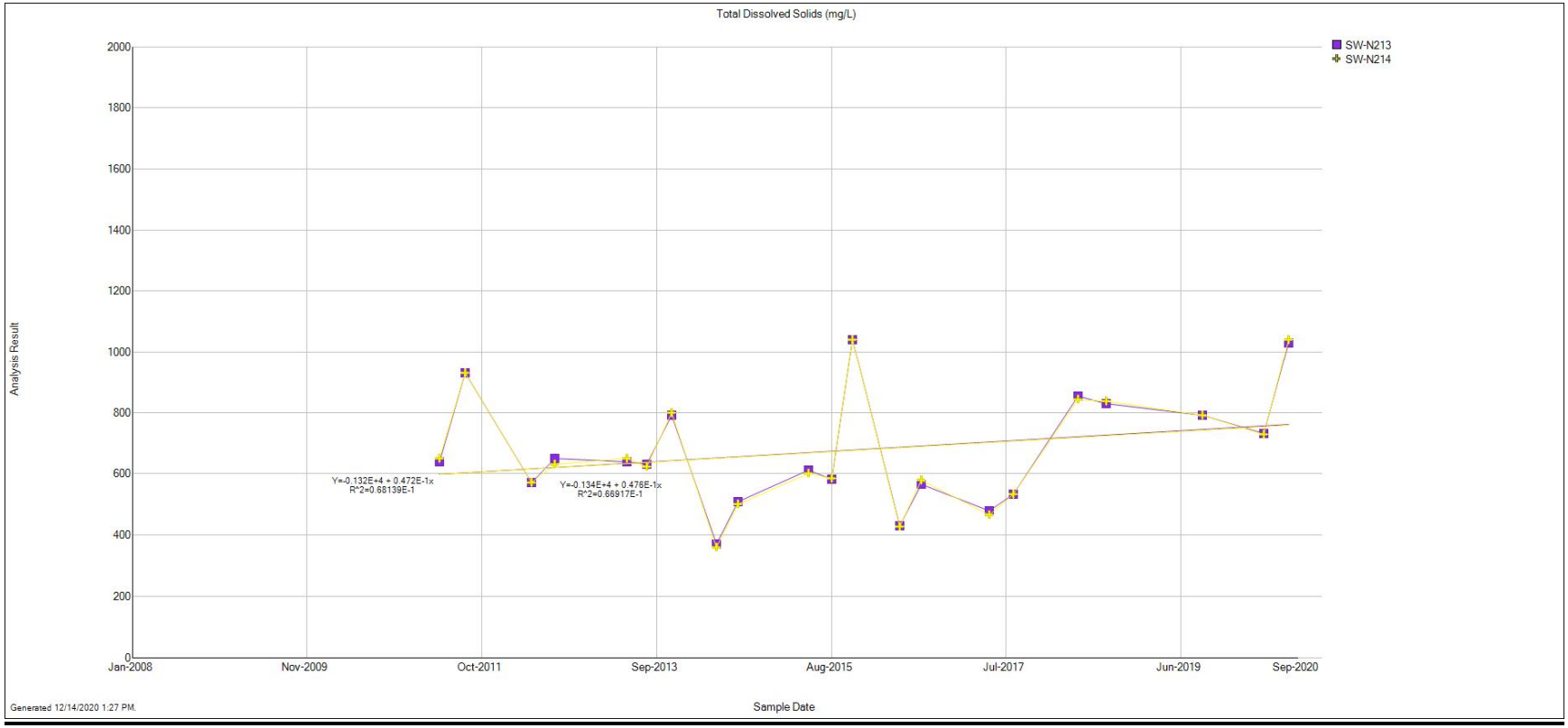

Iron, total recoverable (ug/L)
SW-N213
SW-N214
Y=0.291E+4 -0.638E-1x
R^2=0.16368E+0
Y=0.295E+4 -0.664E-1x
R^2=0.39413E+0
770
693
616
539
462
385
308
231
154
77
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 1:27 PM.

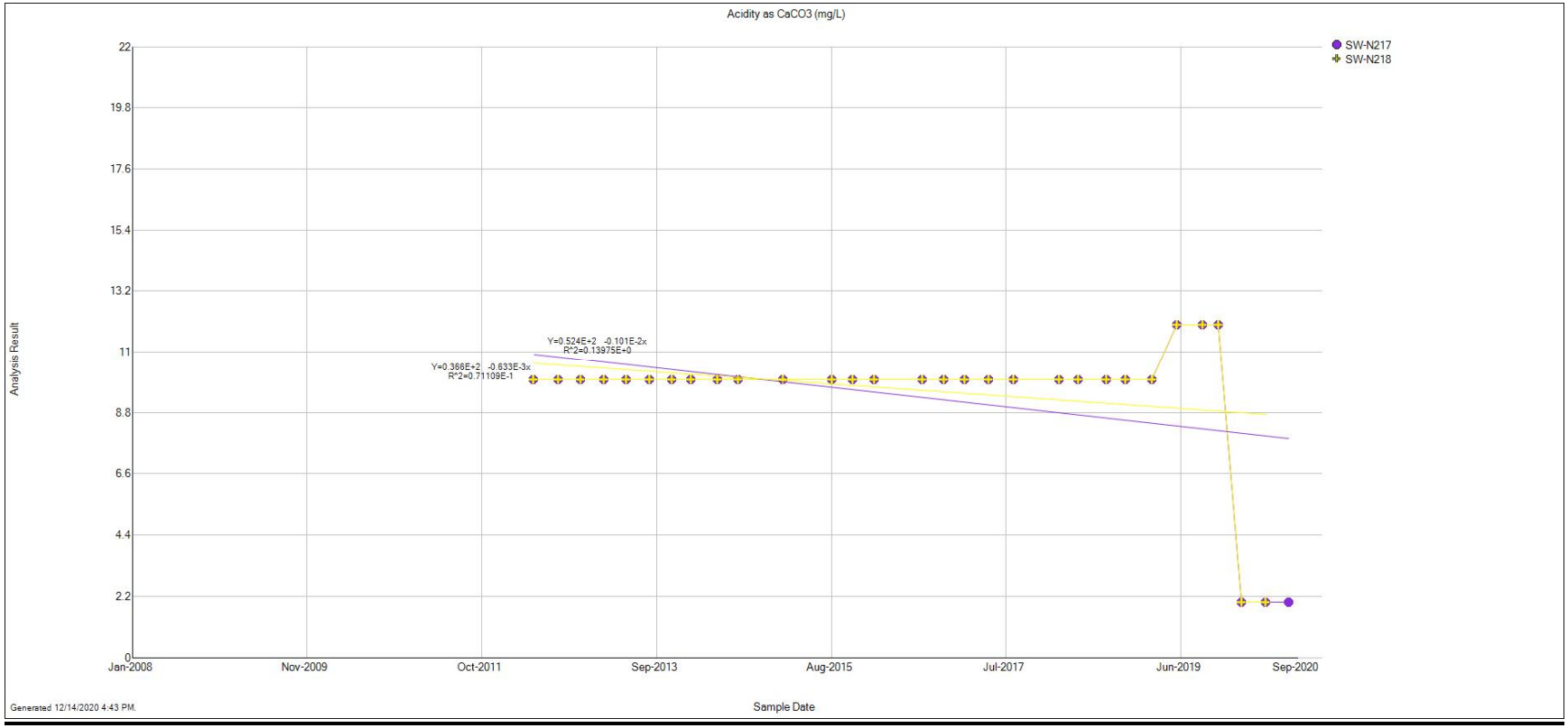

Magnesium, dissolved (mg/L)
SW-N213
SW-N214
Analysis Result
97.4
87.66
77.92
68.18
58.44
48.7
38.96
29.22
19.48
9.74
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Y=-0.13/E+3 + 0.429E-2x
R^2=0.83072E-1
Y=-0.130E+3 + 0.411E-2x
R^2=0.76372E-1
Generated 12/14/2020 1:27 PM.
Sample Date

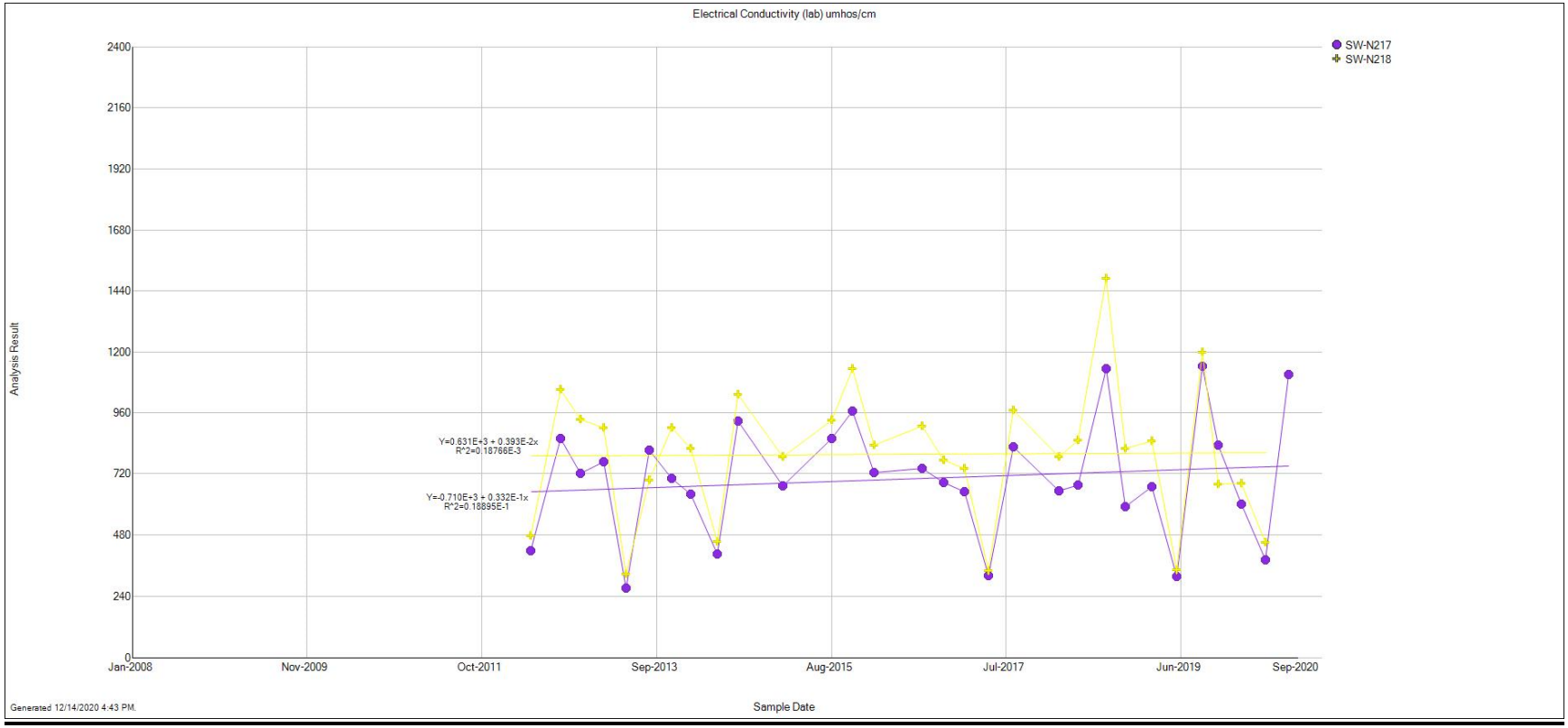

pH (lab)
SW-N213
SW-N214
Analysis Result
9
8.9
8.8
8.7
8.6
8.5
8.4
8.3
8.2
8.1
8
Y=0.805E+1 + 0.852E-5x
R^2=0.43211E-2
Y=0.856E+1 -0.304E-5x
R^2=0.21515E-2
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:27 PM.
Sample Date

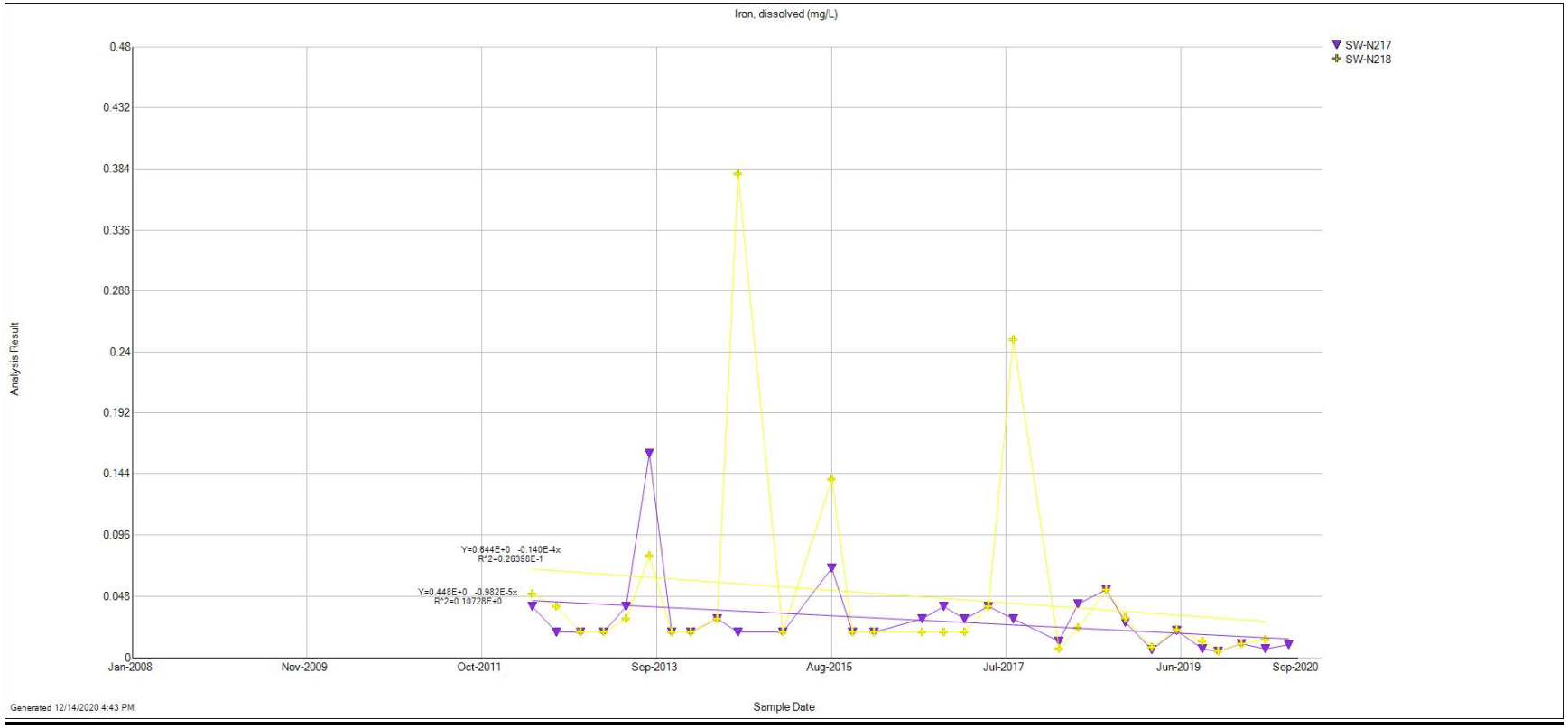

Sodium, dissolved (mg/L)
SW-N213
SW-N214
52.7
47.43
42.16
36.89
31.62
26.35
21.08
15.81
10.54
5.27
0
Analysis Result
Y=-0.779E+2 + 0.236E-2x
R^2=0.87754E-1
Y=-0.812E+2 + 0.244E-2x
R^2=0.93675E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 1:27 PM.
Sample Date

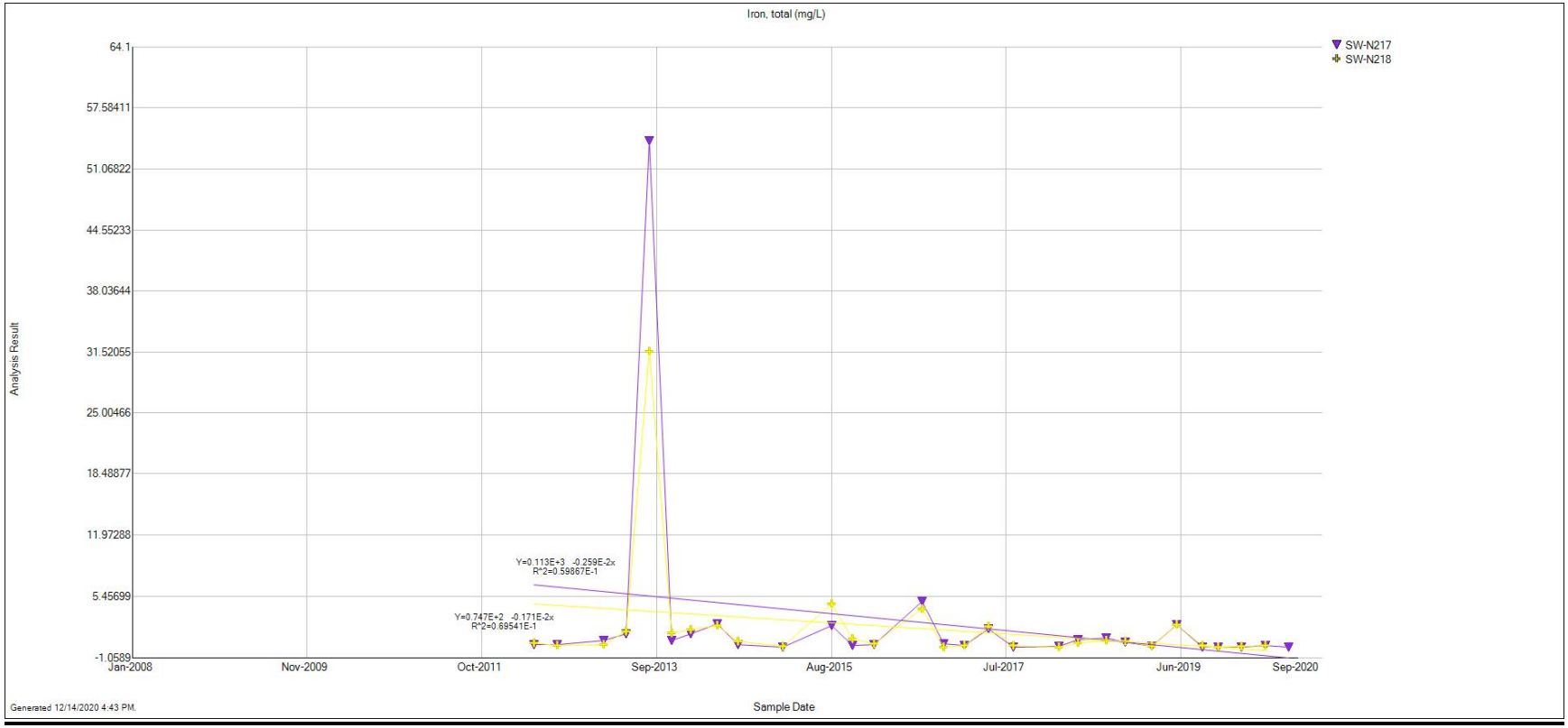

Sulfate, dissolved (mg/L)
SW-N213
SW-N214
Analysis Result
570
513
456
399
342
285
228
171
114
57
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Y=-0.239E+3 + 0.115E-1x
R^2=0.16189E-1
Y=-0.351E+3 + 0.140E-1x
R^2=0.26845E-1
Generated 12/14/2020 1:27 PM.
Sample Date

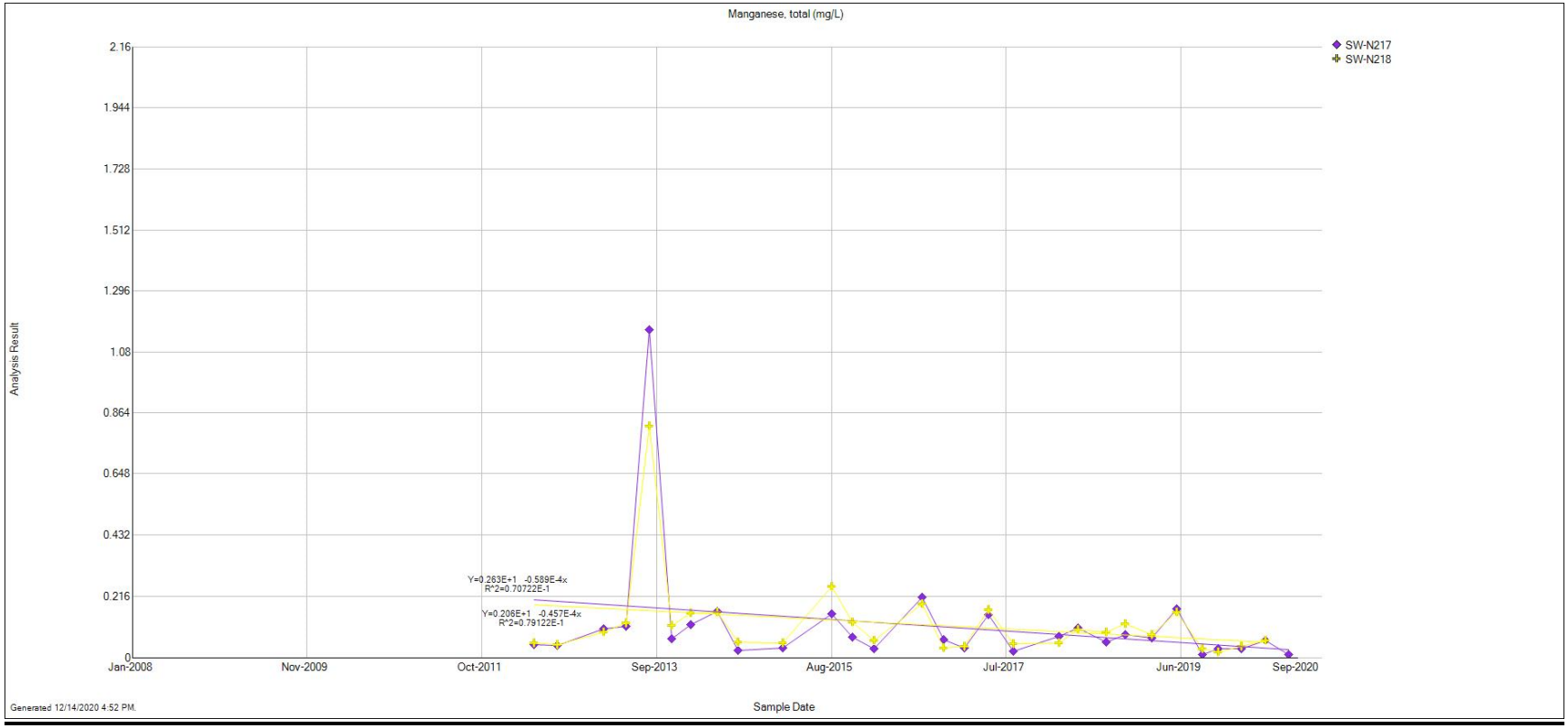

Total Dissolved Solids (mg/L)
SW-N213
SW-N214
Analysis Result
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Y=-0.132E+4 + 0.472E-1x
R^2=0.68139E-1
Y=-0.134E+4 + 0.476E-1x
R^2=0.66917E-1
Generated 12/14/2020 1:27 PM.
Sample Date

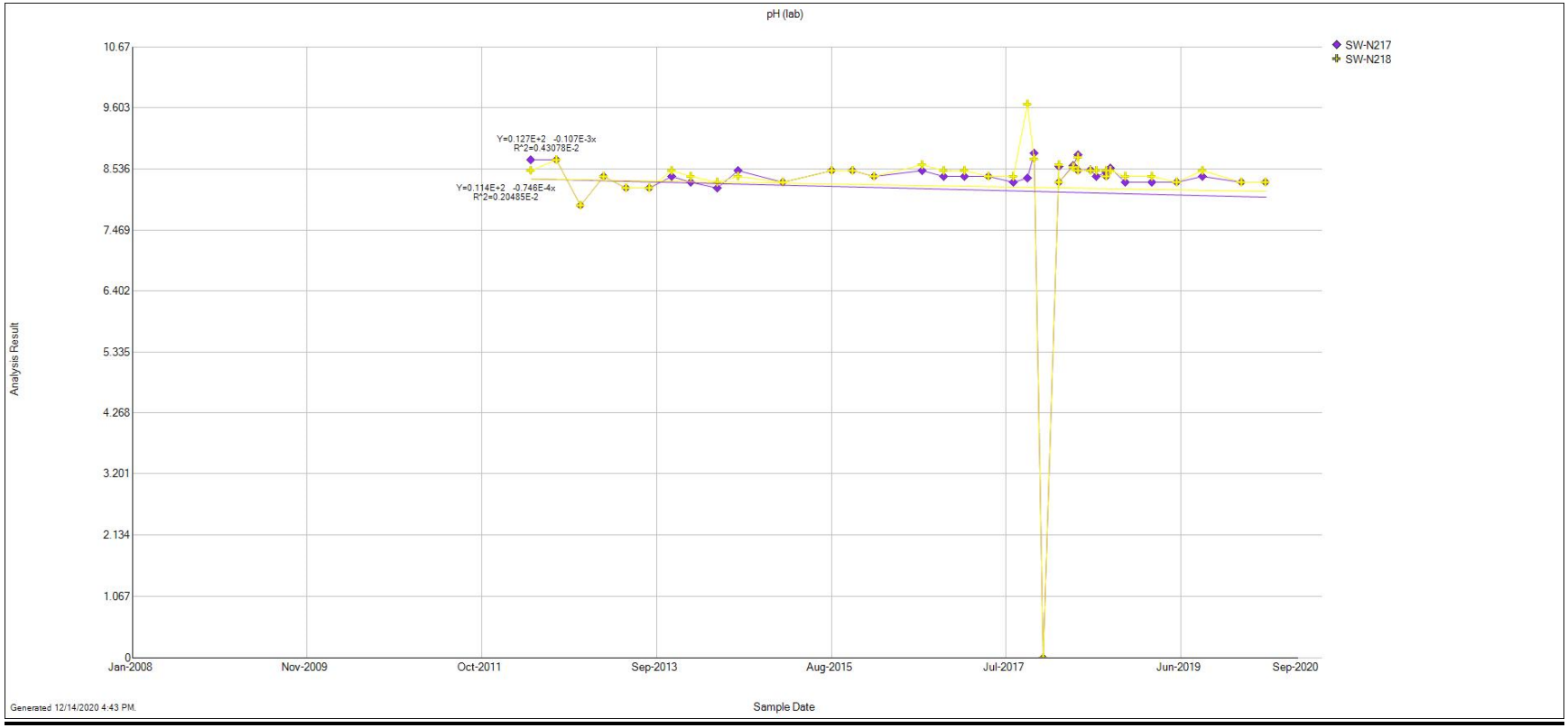

Acidity as CaCO3 (mg/L)
SW-N217
SW-N218
Y=0.524E+2 -0.101E-2x
R^2=0.13975E+0
Y=0.366E+2 -0.633E-3x
R^2=0.71109E-1
22
19.8
17.6
15.4
13.2
11
8.8
6.6
4.4
2.2
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Analysis Result
Sample Date
Generated 12/14/2020 4:43 PM.

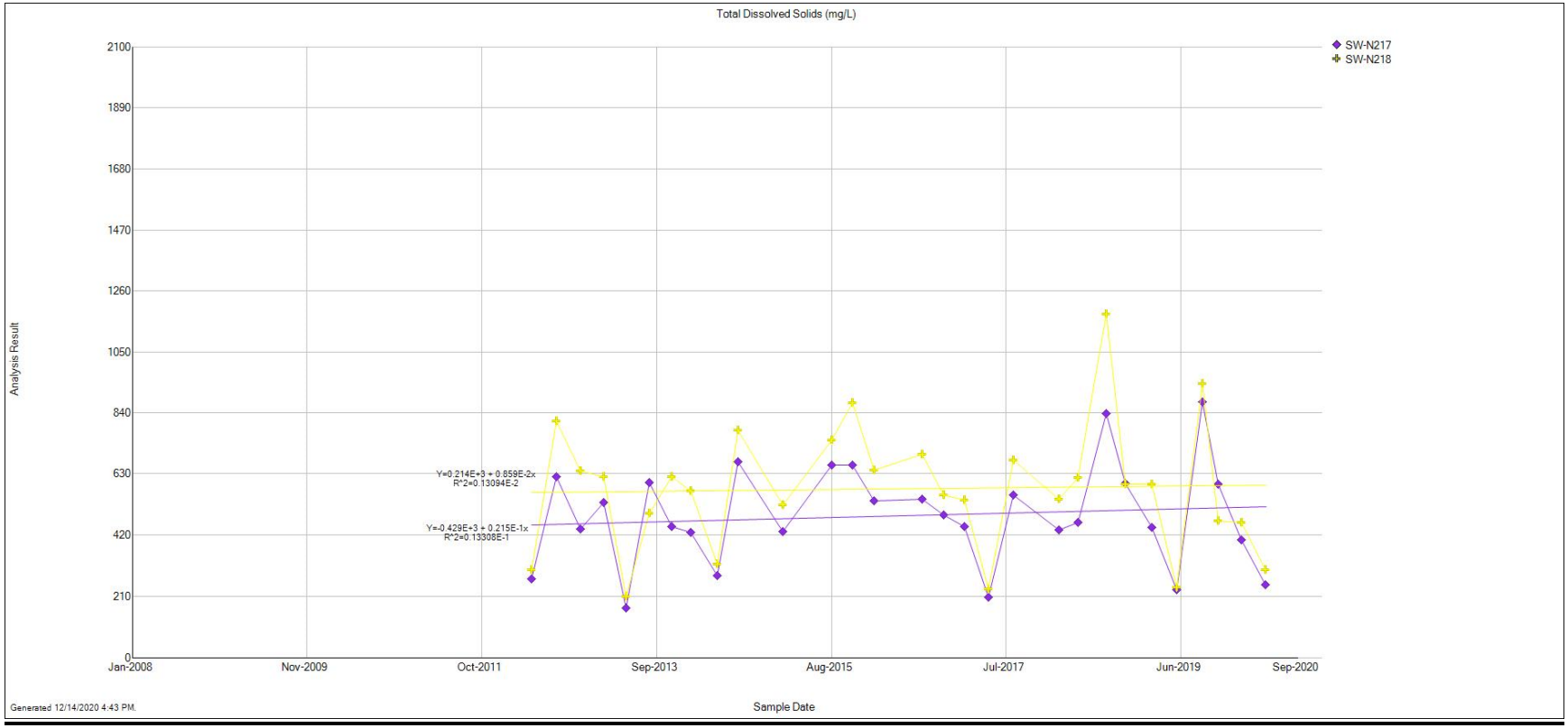

Electrical Conductivity (lab) umhos/cm
SW-N217
SW-N218
Analysis Result
2400
2160
1920
1680
1440
1200
960
720
480
240
0
Y=0.831E+3 + 0.393E-2x
R^2=0.18766E-3
Y=-0.710E+3 + 0.332E-1x
R^2=0.18895E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 4:43 PM.
Sample Date

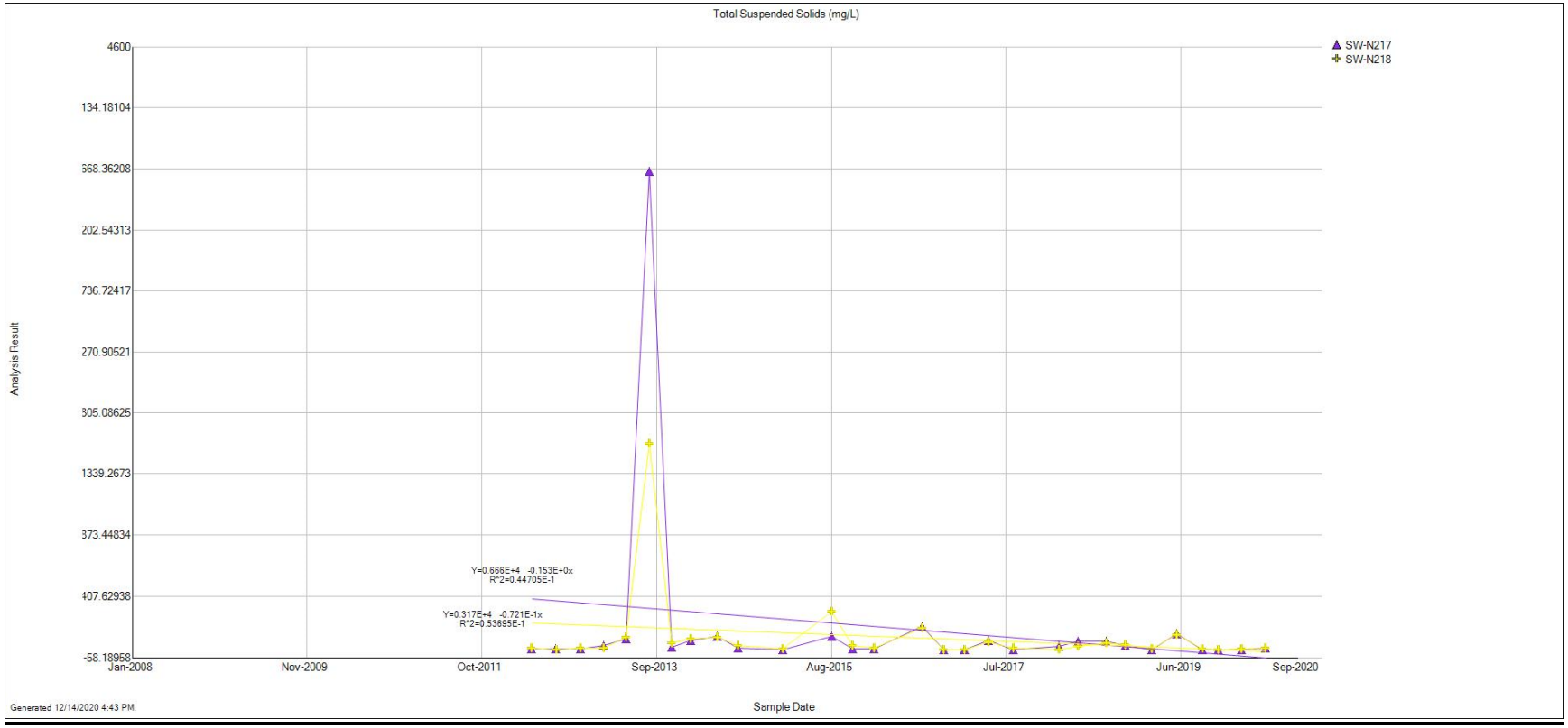

Iron, dissolved (mg/L)
SW-N217
SW-N218
Analysis Result
0.48
0.432
0.384
0.336
0.288
0.24
0.192
0.144
0.096
0.048
0
Y=0.644E+0 -0.140E-4x
R^2=0.26398E-1
Y=0.448E+0 -0.982E-5x
R^2=0.10728E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 4:43 PM.
Sample Date

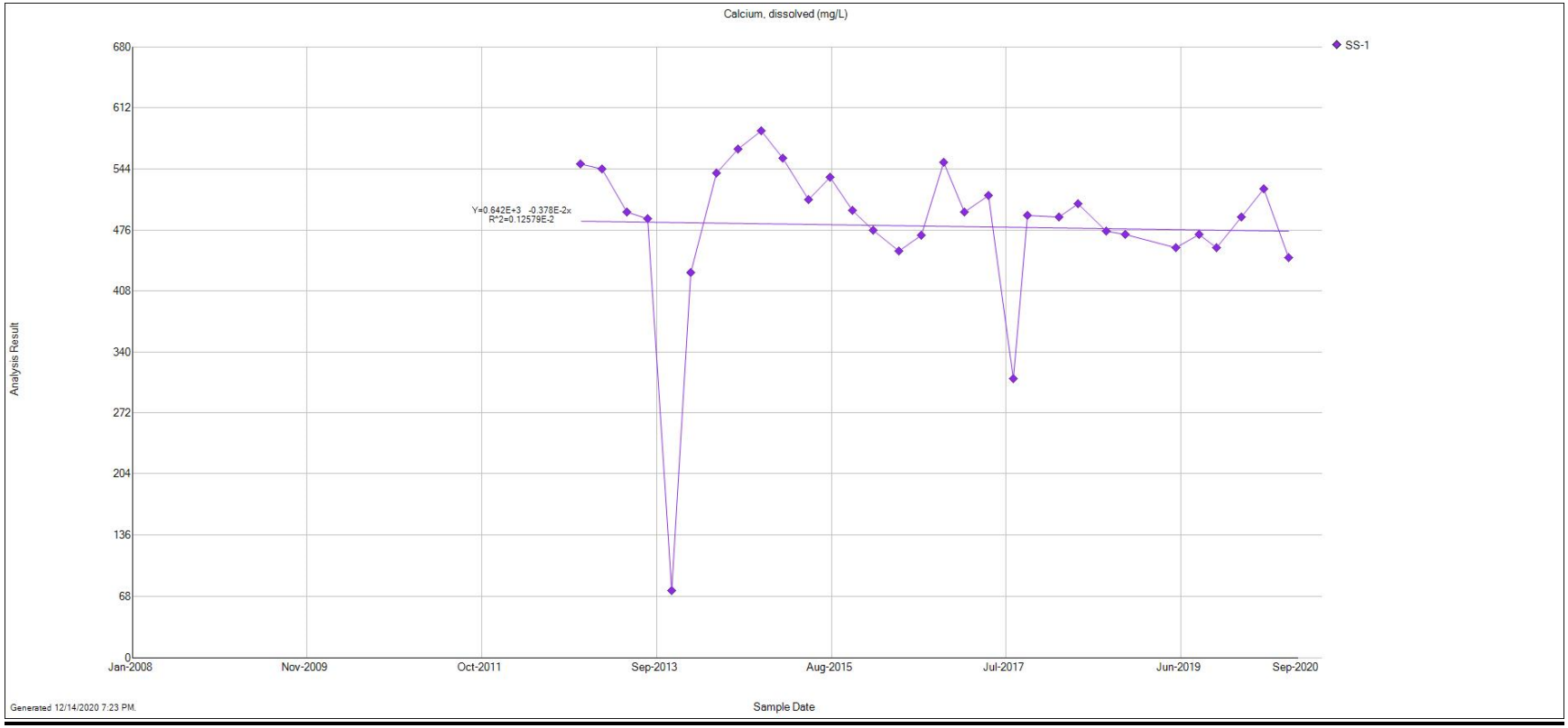

Iron, total (mg/L)
SW-N217
SW-N218
64.1
57.58411
51.06822
44.55233
38.03644
31.52055
25.00466
18.48877
11.97288
5.45699
-1.0589
Analysis Result
Y=0.113E+3 -0.259E-2x
R^2=0.59867E-1
Y=0.747E+2 -0.171E-2x
R^2=0.69541E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 4:43 PM.

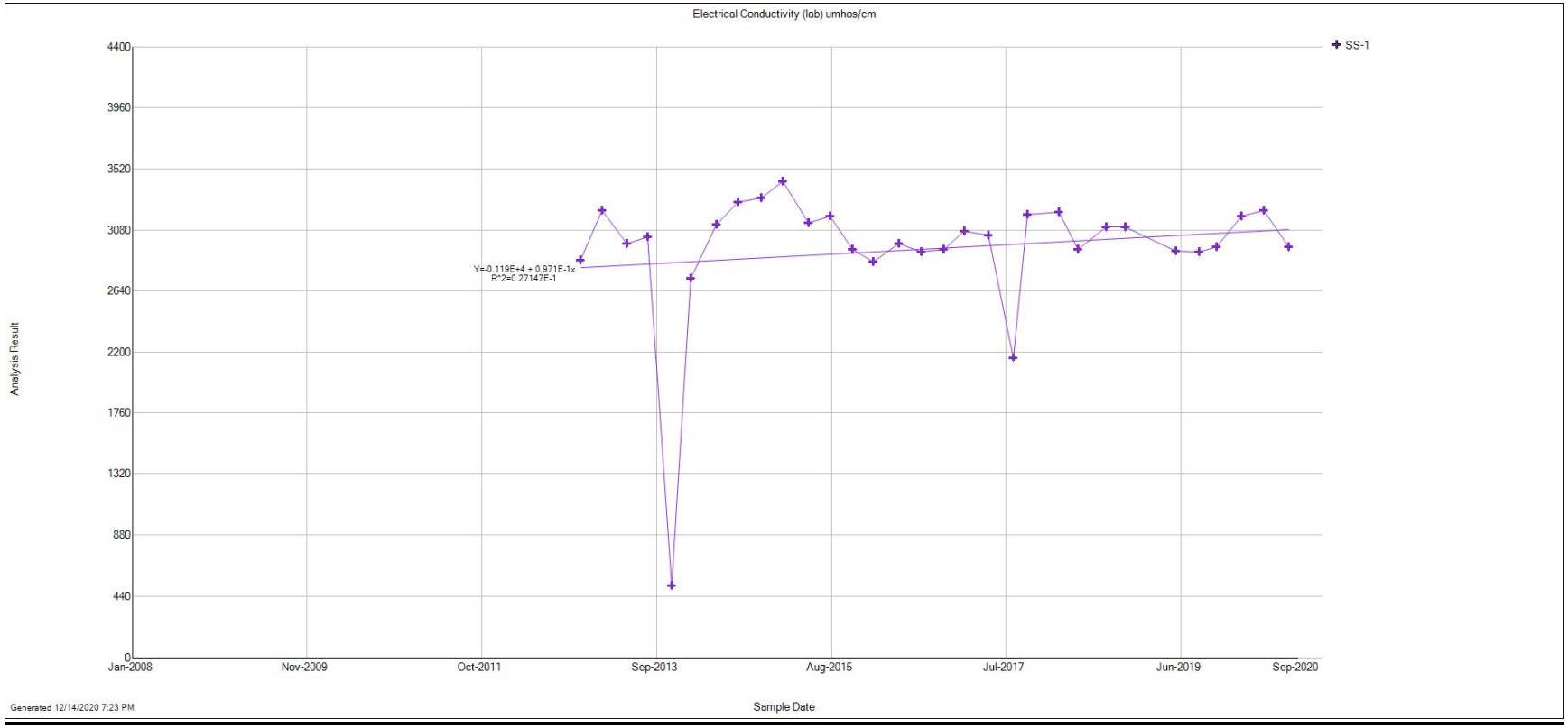

Manganese, total (mg/L)
SW-N217
SW-N218
2.16
1.944
1.728
1.512
1.296
1.08
0.864
0.648
0.432
0.216
0
Analysis Result
Y=0.263E+1 -0.589E-4x
R^2=0.70722E-1
Y=0.206E+1 -0.457E-4x
R^2=0.79122E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 4:52 PM.

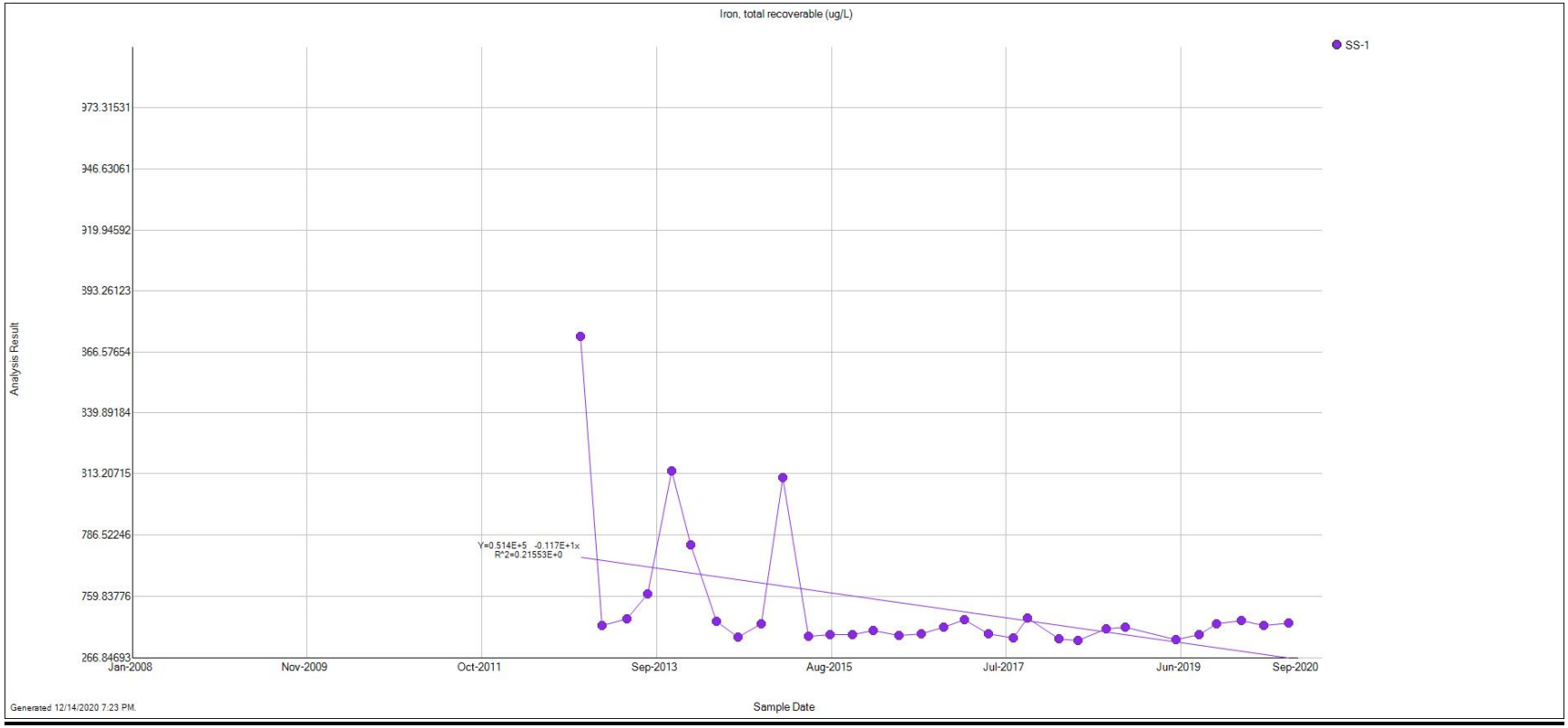

pH (lab)
SW-N217
SW-N218
Y=0.127E+2 -0.107E-3x
R^2=0.43078E-2
Y=0.114E+2 -0.746E-4x
R^2=0.20485E-2
10.67
9.603
8.536
7.469
6.402
5.335
4.268
3.201
2.134
1.067
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 4:43 PM.

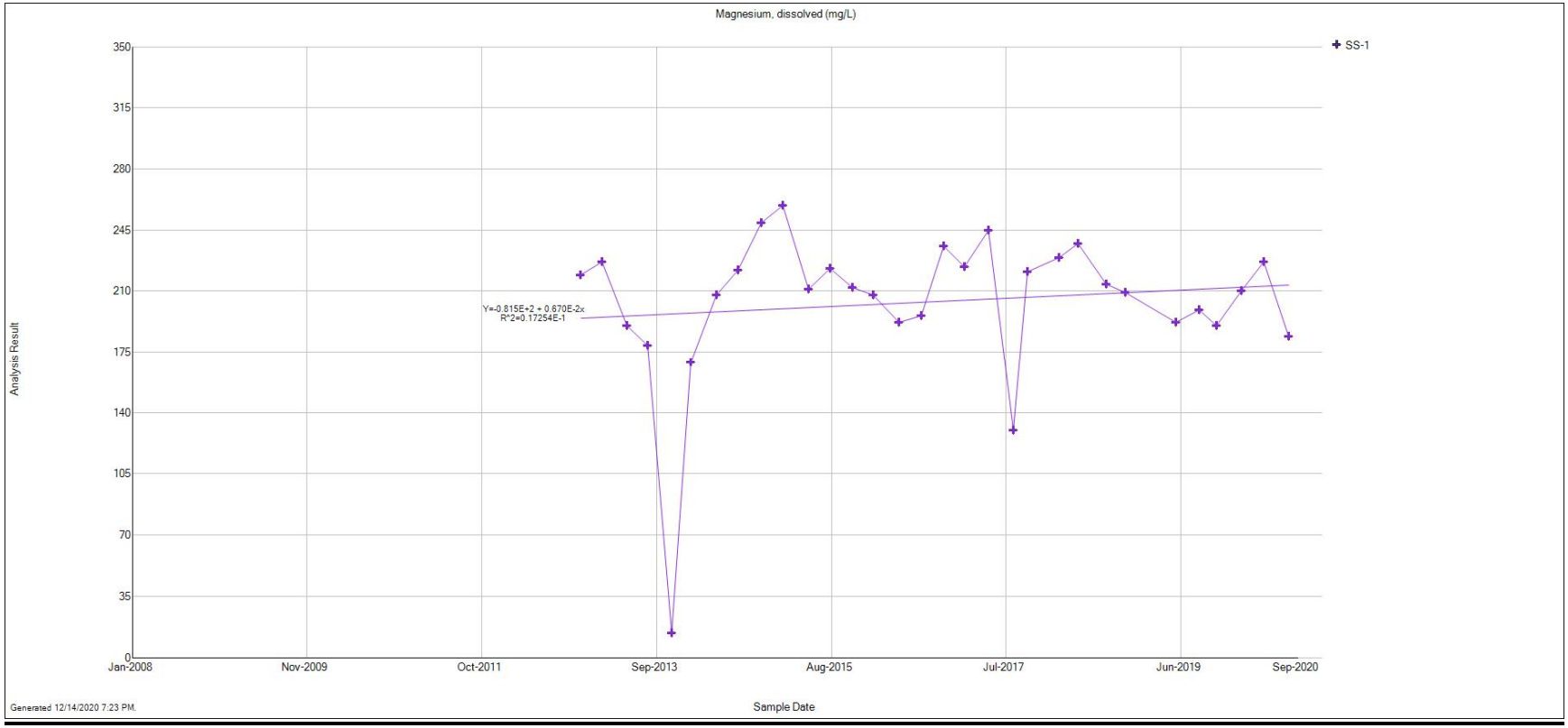

Total Dissolved Solids (mg/L)
SW-N217
SW-N218
Analysis Result
2100
1890
1680
1470
1260
1050
840
630
420
210
0
Y=0.214E+3 + 0.859E-2x
R^2=0.13094E-2
Y=-0.429E+3 + 0.215E-1x
R^2=0.13308E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 4:43 PM.
Sample Date

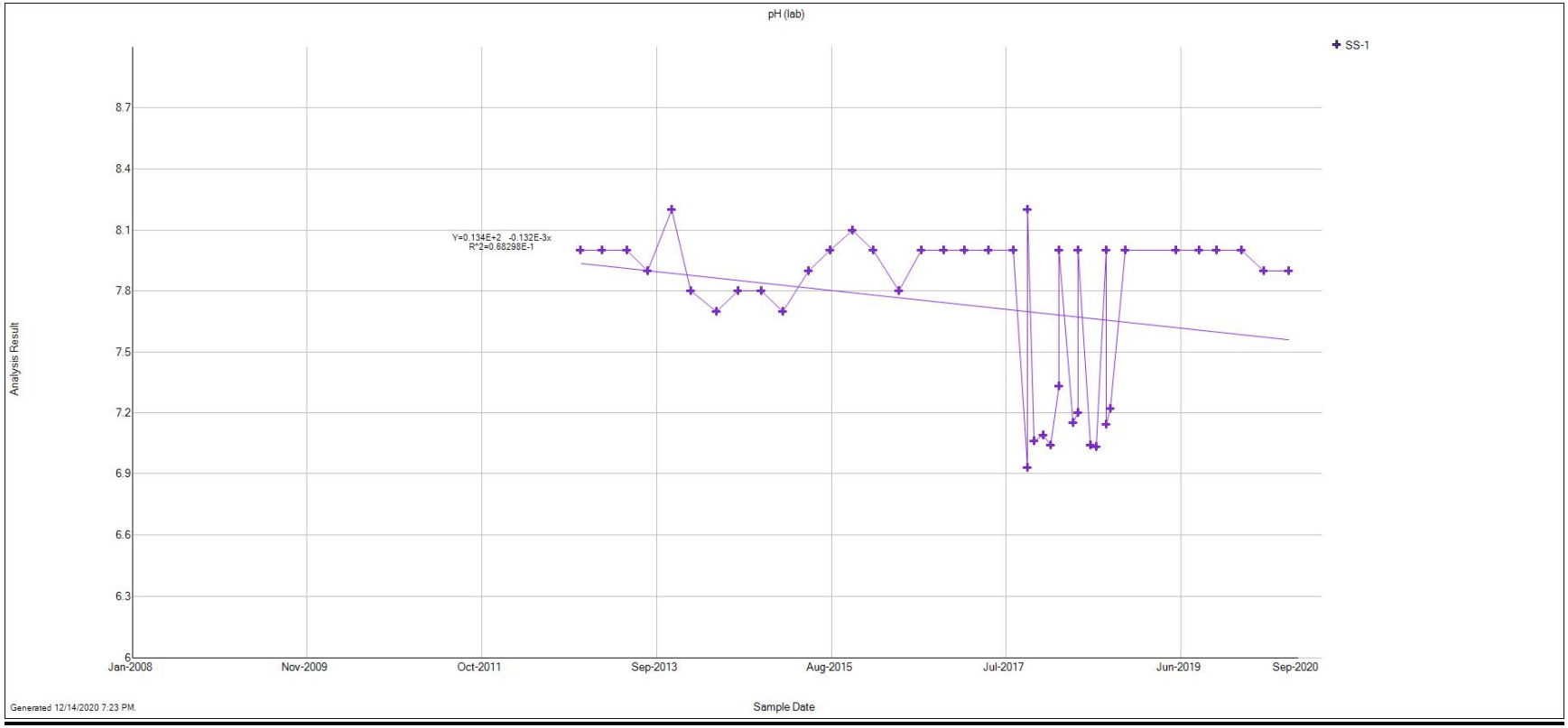

Total Suspended Solids (mg/L)
SW-N217
SW-N218
4600
134.18104
368.36208
202.54313
736.72417
270.90521
305.08625
1339.2673
373.44834
407.62938
-58.18958
Analysis Result
Y=0.666E+4 -0.153E+0x
R^2=0.44705E-1
Y=0.317E+4 -0.721E-1x
R^2=0.53895E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 4:43 PM.
Sample Date

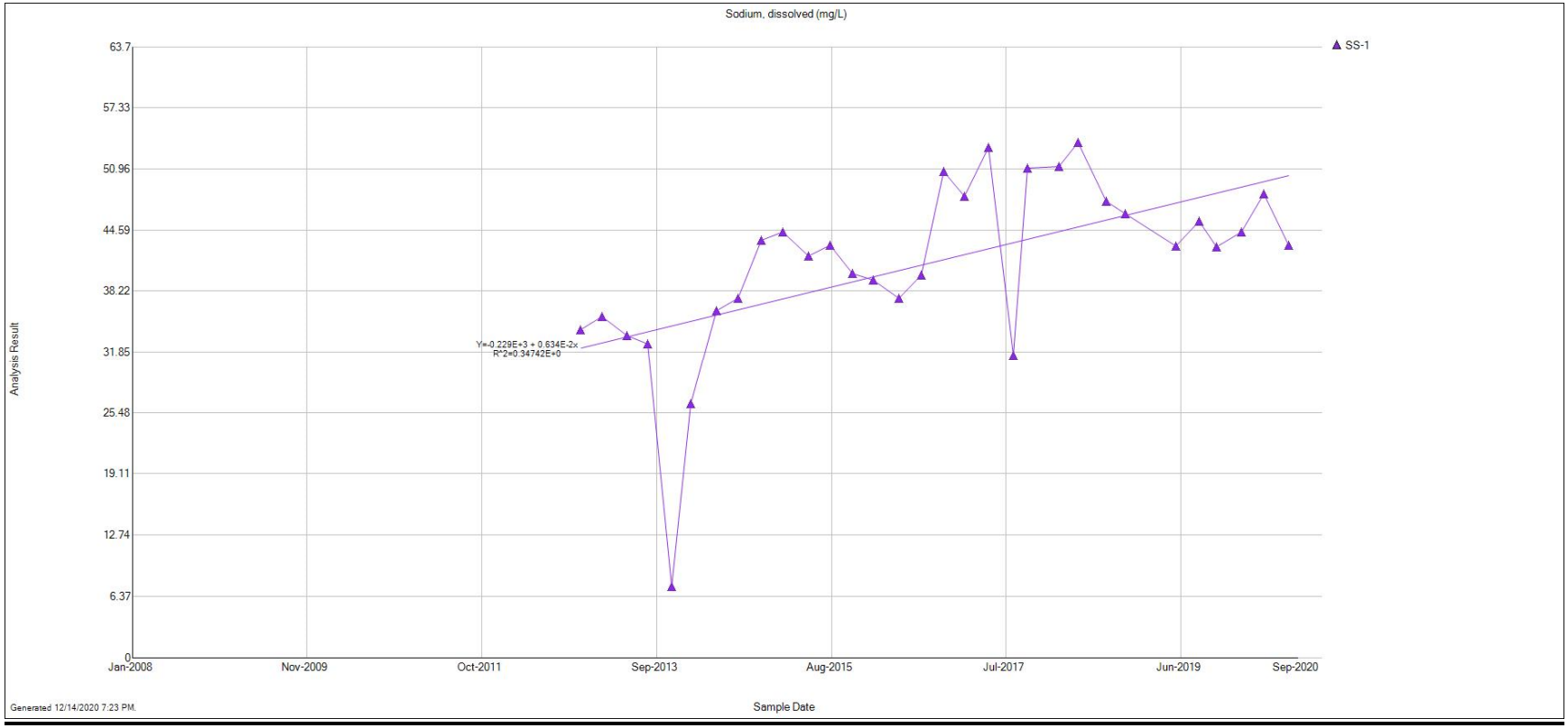

Calcium, dissolved (mg/L)
SS-1
Y=0.642E+3 -0.378E-2x
R^2=0.12579E-2
680
612
544
476
408
340
272
204
136
68
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 7:23 PM.

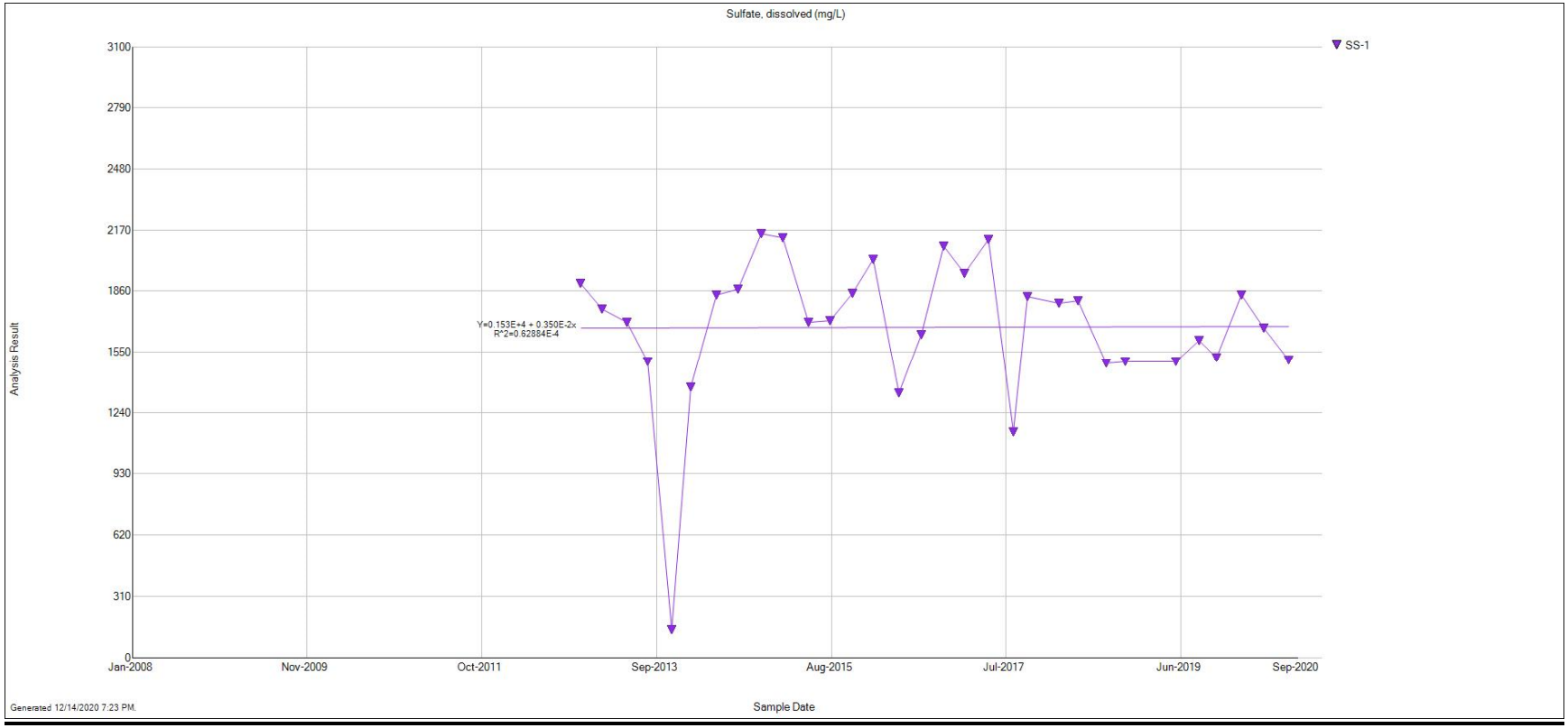

Electrical Conductivity (lab) umhos/cm
SS-1
Y=-0.119E+4 + 0.971E-1x
R^2=0.27147E-1
4400
3960
3520
3080
2640
2200
1760
1320
880
440
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Analysis Result
Sample Date
Generated 12/14/2020 7:23 PM.

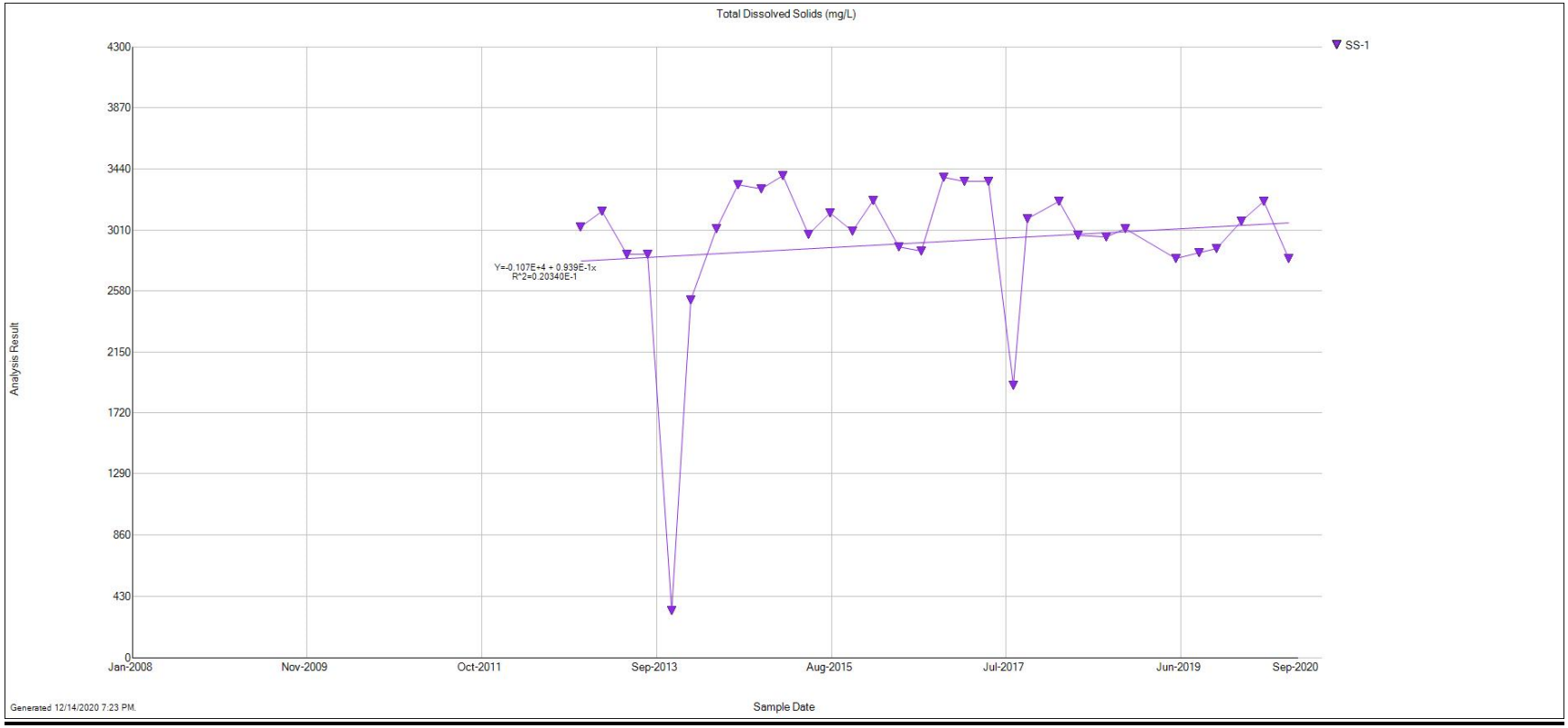

Iron, total recoverable (ug/L)
SS-1
973.31531
946.63061
919.94592
893.26123
866.57654
839.89184
813.20715
786.52246
759.83776
266.84693
Analysis Result
Y=0.514E+5 -0.117E+1x
R^2=0.21553E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 7:23 PM.


Magnesium, dissolved (mg/L)
SS-1
Y=-0.815E+2 + 0.670E-2x
R^2=0.17254E-1
Analysis Result
350
315
280
245
210
175
140
105
70
35
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 7:23 PM.
Sample Date


pH (lab)
SS-1
Y=0.134E+2 -0.132E-3x
R^2=0.68298E-1
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 7:23 PM.


Sodium, dissolved (mg/L)
SS-1
63.7
57.33
50.96
44.59
38.22
31.85
25.48
19.11
12.74
6.37
0
Analysis Result
Y=-0.229E+3 + 0.634E-2x
R^2=0.34742E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/14/2020 7:23 PM.


Sulfate, dissolved (mg/L)
SS-1
Y=0.153E+4 + 0.350E-2x
R^2=0.62884E-4
Analysis Result
3100
2790
2480
2170
1860
1550
1240
930
620
310
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 7:23 PM.
Sample Date


Total Dissolved Solids (mg/L)
SS-1
Y=-0.107E+4 + 0.939E-1x
R^2=0.20340E-1
Analysis Result
4300
3870
3440
3010
2580
2150
1720
1290
860
430
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/14/2020 7:23 PM.
Sample Date

Appendix 3
Groundwater Monitoring Data

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N50

	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/10/2020	4/15/2020	5/19/2020	6/8/2020	7/29/2020	8/27/2020	9/22/2020
Ag, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			709			503.			747.			704.
As, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Ca, diss, mg/L			336			380.			404.			388.
Cation-Anion Bal, %			-5			9.800			0.000			4.500
Cd, diss, mg/L			0.0002			0.000600			0.000100			0.000200
Cl, diss, mg/L			55.9			50.5			60.2			57.9
CO3, mg/L			<0.0			<0.0			<0.0			<0.0
Fe, diss, mg/L			0.93			0.940			<0.0			0.540
Fe, tot rec, ug/L			5600			7690.			7170.			12400.
GW Depth (TOC), ft	12.900	16.270	19.090	19.650	24.880	25.760	16.530	8.070	4.800	4.410	4.610	5.450
Hardness, mg/L			1590			1850.			2020.			1910.
HCO3, mg/L			709			503.			747.			704.
Hg, diss, mg/L			<0.0			<0.0			<0.0			<0.0
K, diss, mg/L			22.9			27.6			29.0			27.7
Mg, diss, mg/L			183			220.			246.			228.
Mn, diss, mg/L			0.83			0.470			0.510			0.484
Mo, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Na, diss, mg/L			123			163.			160.			154.
NH3 as N, diss, mg/L			1.46			1.55						1.36
NO2 + NO3, diss, mg/L			<0.00			<0.0			<0.0			<0.0
NO2, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
OH, mg/L			<0.0			<0.0			<0.0			<0.0
Pb, diss, mg/L			0.0004			<0.0			<0.0			<0.0
pH (field), pH	6.410	6.440	6.620	6.480	6.920	6.740	6.900	7.010	6.640	6.370	6.380	6.900
pH (lab), pH			7.7			7.700			7.800			7.500
PO4, tot, mg/L			*			*			<0.0			<0.0
PO4, total soluble, mg/L			<0.0			0.0300			*			*
SAR, ratio			1.4			1.700			1.600			1.600
Se, diss, mg/L			<0.0			<0.0			<0.0			<0.0
SO4, diss, mg/L			1240			1200.			1480.			1260.
Spec. Cond. (field), umhos/cm	1658	1675	1700	1566	1636	3220	1669	1666	1959	1645	1656	3250
Spec. Cond. (lab), umhos/cm			3130			2380.000			3330.000			3270
SS, mL/L/hr			<0.000			<0.000			<0.000			<0.000
Sulfide, tot, mg/L			<0.0			<0.0			<0.0			<0.0
Sum Anions, meq/L			42			37.000			48.000			42.000
Sum Cations, meq/L			38			45.000			48.000			46.000
TDS (calculated), mg/L			2400			2350.			2840.			2550.
TDS (ratio-measured/calc), rat			1.15			0.860			1.060			1.090
TDS, mg/L			2760			2010.			3020.			2790.
Temp (Celcius), degrees C	15.000	13.300	12.2	12.700	11.800	12.700	12.300	12.200	13.700	19.200	19.400	13.800
Zn, diss, mg/L			<0.0			0.0300			0.0200			0.0450

*Due to laboratory error this parameter was not anaylzed.

New Horizon North
Analysis Results by
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N51

	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/10/2020	4/15/2020	5/19/2020	6/8/2020	7/29/2020	8/27/2020	9/22/2020
Ag, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			47.9			192.			41.0			24.9
As, diss, mg/L			0.0012			0.00120			0.000400			0.000800
Ca, diss, mg/L			97.4			105.			126.			96.7
Cation-Anion Bal, %			0			-0.500			3.700			0.000
Cd, diss, mg/L			0.00053			0.000260			0.000260			0.000500
Cl, diss, mg/L			8			7.00			9.70			8.60
CO3, mg/L			<0.0			<0.0			<0.0			<0.0
Fe, diss, mg/L			8.7			2.22			7.32			4.42
Fe, tot rec, ug/L			16700. bsu			7160.			18400.			31300.
GW Depth (TOC), ft	7.450	17.300	15.730	20.560	26.020	26.960	14.380	5.560	5.500	4.410	5.400	5.360
Hardness, mg/L			429			418.			586.			444.
HCO3, mg/L			47.9			192.			41.0			24.9
Hg, diss, mg/L			<0.0			<0.0			<0.0			<0.0
K, diss, mg/L			6.5			5.20			8.50			7.00
Mg, diss, mg/L			45.1			37.9			66.0			49.3
Mn, diss, mg/L			0.75			1.02			0.800			0.654
Mo, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Na, diss, mg/L			24.5			19.0			34.3			27.2
NH3 as N, diss, mg/L			3.07			2.66						3.05
NO2 + NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO2, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
OH, mg/L			<0.0			<0.0			<0.0			<0.0
Pb, diss, mg/L			0.003			0.000500			<0.0			0.00170
pH (field), pH	5.260	5.640	5.620	6.260	6.280	6.410	7.360	7.050	5.800	5.550	5.950	5.700
pH (lab), pH			6.6			7.200			6.900			6.100
PO4, tot, mg/L			*			*			<0.0			<0.0
PO4, total soluble, mg/L			<0.0			<0.0			*			*
SAR, ratio			0.52			0.410			0.620			0.570
Se, diss, mg/L			<0.0			<0.0			<0.0			<0.0
SO4, diss, mg/L			453			276.			568.			472.
Spec. Cond. (field), umhos/cm	963	972	985	863	875	876	787	893	1098	1070	1071	1015
Spec. Cond. (lab), umhos/cm			995			875.000			1200.000			990.000
SS, mL/L/hr			<0.000			<0.000			<0.000			0.300
Sulfide, tot, mg/L			<0.0			<0.0			<0.0			0.390
Sum Anions, meq/L			11			9.800			13.000			11.000
Sum Cations, meq/L			11			9.700			14.000			11.000
TDS (calculated), mg/L			677			573.			850.			685.
TDS (ratio-measured/calc), rat			1.16			1.110			1.140			1.140
TDS, mg/L			788			634.			968.			780.
Temp (Celcius), degrees C	17.300	13.400	12.4	11.300	11.700	12.900	12.000	12.700	13.700	18.300	18.800	13.200
Zn, diss, mg/L			0.38			0.190			0.600			0.465

*Due to laboratory error this parameter was not anaylzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N52

	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/10/2020	3/17/2020	4/15/2020	5/19/2020	6/8/2020	7/29/2020	8/27/2020	9/21/2020
Ag, diss, mg/L			<0.0				<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			246				294.			224.			216.
As, diss, mg/L			<0.0				0.000400			<0.0			<0.0
Ca, diss, mg/L			155				151.			178.			155.
Cation-Anion Bal, %			0				-8.300			0.000			0.500
Cd, diss, mg/L			0.0001				0.000100			0.0000900			0.0000800
Cl, diss, mg/L			5				6.30			4.90			3.90
CO3, mg/L			<0.0				<0.0			<0.0			<0.0
Fe, diss, mg/L			0.015				0.348			0.00700			<0.0
Fe, tot rec, ug/L			56				4470.			14.0			155.
GW Depth (TOC), ft	11.450	22.120	11.190	23.780	24.190	24.270	23.620	20.370	8.180	8.820	6.790	8.710	7.470
Hardness, mg/L			465				520.			526.			453.
HCO3, mg/L			246				294.			224.			216.
Hg, diss, mg/L			<0.0				<0.0			<0.0			<0.0
K, diss, mg/L			0.8				2.60			1.00			0.840
Mg, diss, mg/L			18.9				34.8			19.7			16.1
Mn, diss, mg/L			<0.0				1.41			<0.0			<0.0
Mo, diss, mg/L			<0.0				<0.0			<0.0			<0.0
Na, diss, mg/L			9.1				15.1			7.60			7.43
NH3 as N, diss, mg/L			<0.0				1.08						<0.0
NO2 + NO3, diss, mg/L			0.33				0.0800			0.140			<0.0
NO2, diss, mg/L			<0.0				<0.0			<0.0			<0.0
NO3, diss, mg/L			0.33				0.0800			0.140			<0.0
OH, mg/L			<0.0				<0.0			<0.0			<0.0
Pb, diss, mg/L			0.0024				0.000200			0.000100			0.00100
pH (field), pH	6.730	6.850	6.5	6.870	6.460	6.960	7.000	7.300	7.180	6.600	6.720	7.320	6.710
pH (lab), pH			7.7				7.700			7.700			7.400
PO4, tot, mg/L			*				<0.0			<0.0			0.0300
PO4, total soluble, mg/L			<0.0				<0.0			0.150			*
SAR, ratio			0.19				0.290			0.00120			0.150
Se, diss, mg/L			0.0005				0.000100			310.			0.000200
SO4, diss, mg/L			218				310.			908			233.
Spec. Cond. (field), umhos/cm	722	1115	877	1117	1149	1171	1022	828	894	906.000	811	771	803
Spec. Cond. (lab), umhos/cm			853				1070.000			<0.000			837.000
SS, mL/L/hr			<0.000				0.200			<0.0			<0.000
Sulfide, tot, mg/L			<0.0				<0.0			11.000			<0.0
Sum Anions, meq/L			9.7				13.000			11.000			9.300
Sum Cations, meq/L			9.7				11.000			658.			9.400
TDS (calculated), mg/L			558				702.			1.020			548.
TDS (ratio-measured/calc), rat			1.11				1.130			670.			1.020
TDS, mg/L			620				792.			12.700			560.
Temp (Celcius), degrees C	17.100	13.500	13.1	12.300	11.800	12.200	13.600	13.200	12.900	<0.0	17.500	18.100	15.300
Zn, diss, mg/L			<0.0				<0.0						<0.0

*Due to laboratory error this parameter was not anaylzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N53

	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/4/2020	4/15/2020	5/19/2020	6/2/2020	7/29/2020	8/27/2020	9/16/2020
Ag, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			558			575.			566.			550.
As, diss, mg/L			<0.0			0.000500			<0.0			<0.0
Ca, diss, mg/L			343			344.			339.			331.
Cation-Anion Bal, %			2.1			2.000			2.100			-1.100
Cd, diss, mg/L			0.0001			0.000100			0.000100			<0.0
Cl, diss, mg/L			70.4			68.9			69.4			69.1
CO3, mg/L			<0.0			<0.0			<0.0			<0.0
Fe, diss, mg/L			0.08			0.140			0.0200			0.0500
Fe, tot rec, ug/L			570			1140.			2080.			1230.
GW Depth (TOC), ft	82.180	82.150	82.040	81.980	82.210	82.260	82.400	82.550	82.700	82.520	82.180	105.5
Hardness, mg/L			1960			2020.			1960.			1920.
HCO3, mg/L			558			575.			566.			550.
Hg, diss, mg/L			<0.0			<0.0			<0.0			<0.0
K, diss, mg/L			35.3			35.7			34.9			34.3
Mg, diss, mg/L			269			281.			271.			265.
Mn, diss, mg/L			0.06			0.0700			0.0700			0.0700
Mo, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Na, diss, mg/L			194			189.			192.			179.
NH3 as N, diss, mg/L			2.52			2.07						2.59
NO2 + NO3, diss, mg/L			0.14			0.0300			0.130			0.280
NO2, diss, mg/L			<0.0			<0.0			0.0100			0.210
NO3, diss, mg/L			0.14			0.0300			0.120			0.0700
OH, mg/L			<0.0			<0.0			<0.0			<0.0
Pb, diss, mg/L			0.0006			<0.0			<0.0			<0.0
pH (field), pH	7.110	7.130	7	7.230	7.270	7.000	7.310	7.290	7.000	7.000	7.350	7.800
pH (lab), pH			8.1			7.800			7.900			8.100
PO4, tot, mg/L			*			*			<0.0			0.0300
PO4, total soluble, mg/L			0.03			<0.0			*			*
SAR, ratio			1.9			1.900			1.900			1.800
Se, diss, mg/L			<0.0			<0.0			<0.0			<0.0
SO4, diss, mg/L			1630			1620.			1610.			1650.
Spec. Cond. (field), umhos/cm	3440	3520	3630	3580	3660	3540	3520	3480	3570	3490	3480	3550
Spec. Cond. (lab), umhos/cm			3550			3520.000			3480.000			3540.000
SS, mL/L/hr			<0.000			<0.000			<0.000			<0.000
Sulfide, tot, mg/L			<0.0			<0.0			<0.0			<0.0
Sum Anions, meq/L			47			48.000			47.000			48.000
Sum Cations, meq/L			49			50.000			49.000			47.000
TDS (calculated), mg/L			2890			2890.			2870.			2870.
TDS (ratio-measured/calc), rat			1.11			1.130			1.130			1.120
TDS, mg/L			3220			3270.			3240.			3220.
Temp (Celcius), degrees C	14.200	12.900	12	11.400	11.400	13.400	13.800	14.500	15.100	15.000	14.100	12.900
Zn, diss, mg/L			<0.0			0.0400			<0.0			<0.0

*Due to laboratory error this parameter was not anaylzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N54

	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/10/2020	4/15/2020	5/19/2020	6/2/2020	7/29/2020	8/27/2020	9/21/2020
Ag, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			552			553.			557.			542.
As, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Ca, diss, mg/L			430			441.			443.			465.
Cation-Anion Bal, %			-6.2			0.000			0.700			50.000
Cd, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Cl, diss, mg/L			109			111.			95.2			88.0
CO3, mg/L			<0.0			<0.0			<0.0			<0.0
Fe, diss, mg/L			0.1			0.0600			<0.0			0.180
Fe, tot rec, ug/L			2120			3230.			2730.			8700.
GW Depth (TOC), ft	63.290	65.420	66.180	66.720	67.620	67.740	66.250	67.070	65.700	63.910	63.700	63.310
Hardness, mg/L			2980			3040.			3070.			3170.
HCO3, mg/L			552			553.			557.			542.
Hg, diss, mg/L			<0.0			<0.0			<0.0			<0.0
K, diss, mg/L			26.4			26.0			26.0			27.4
Mg, diss, mg/L			462			470.			477.			488.
Mn, diss, mg/L			0.25			0.270			0.290			0.238
Mo, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Na, diss, mg/L			177			170.			176.			175.
NH3 as N, diss, mg/L			2.59			2.90						2.09
NO2 + NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO2, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
OH, mg/L			<0.0			<0.0			<0.0			<0.0
Pb, diss, mg/L			0.0005			<0.0			<0.0			<0.0
pH (field), pH	6.930	7.050	6.9	7.060	7.110	7.000	7.310	7.190	6.920	6.960	7.430	7.100
pH (lab), pH			7.8			7.700			7.800			7.700
PO4, tot, mg/L			*			*			<0.0			<0.0
PO4, total soluble, mg/L			<0.0			0.0600			*			*
SAR, ratio			1.4			1.400			1.400			1.400
Se, diss, mg/L			<0.0			<0.0			<0.0			<0.0
SO4, diss, mg/L			2970			2630.			2640.			512.
Spec. Cond. (field), umhos/cm	4730	4500	4830	4590	4610	4770	4500	4310	4570	3360	2320	4700
Spec. Cond. (lab), umhos/cm			4610			4700.000			4590.000			4770.000
SS, mL/L/hr			<0.000			<0.000			<0.000			<0.000
Sulfide, tot, mg/L			<0.0			<0.0			<0.0			<0.0
Sum Anions, meq/L			77			69.000			69.000			24.000
Sum Cations, meq/L			68			69.000			70.000			72.000
TDS (calculated), mg/L			4510			4190.			4200.			2090.
TDS (ratio-measured/calc), rat			1.04			1.110			1.110			2.280
TDS, mg/L			4700			4660.			4680.			4760.
Temp (Celcius), degrees C	13.800	12.900	12.2	11.800	12.100	12.300	12.700	14.500	14.600	14.600	14.100	15.900
Zn, diss, mg/L			<0.0			0.320			<0.0			<0.0

*Due to laboratory error this parameter was not analyzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N55

	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/10/2020	4/15/2020	5/19/2020	6/8/2020	7/29/2020	8/27/2020	9/21/2020
Ag, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			750			783.			754.			784.
As, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Ca, diss, mg/L			429			454.			426.			421.
Cation-Anion Bal, %			1.4			-4.000			1.200			8.200
Cd, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Cl, diss, mg/L			90.5			83.0			96.5			94.2
CO3, mg/L			<0.0			<0.0			<0.0			<0.0
Fe, diss, mg/L			0.06			<0.0			<0.0			<0.0
Fe, tot rec, ug/L			270			60.0			410.			84.9
GW Depth (TOC), ft	63.640	60.240	57.210	57.880	56.570	56.610	62.610	62.130	61.990	63.990	63.210	59.410
Hardness, mg/L			12000			12300.			11500.			12700.
HCO3, mg/L			750			783.			754.			784.
Hg, diss, mg/L			<0.0			<0.0			<0.0			<0.0
K, diss, mg/L			35			36.0			36.9			35.8
Mg, diss, mg/L			2650			2720.			2530.			2840.
Mn, diss, mg/L			0.69			0.700			0.600			0.820
Mo, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Na, diss, mg/L			307			315.			311.			312.
NH3 as N, diss, mg/L			2.2			1.96						2.10
NO2 + NO3, diss, mg/L			0.28			0.100			1.24			0.370
NO2, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO3, diss, mg/L			0.28			0.100			1.24			0.370
OH, mg/L			<0.0			<0.0			<0.0			<0.0
Pb, diss, mg/L			0.002			<0.0			0.00100			<0.0
pH (field), pH	6.780	6.800	6.7	6.970	7.000	6.800	7.110	7.110	7.000	6.790	7.160	6.920
pH (lab), pH			7.7			7.500			7.600			7.500
PO4, tot, mg/L			*			*			<0.0			<0.0
PO4, total soluble, mg/L			<0.0			<0.0			*			*
SAR, ratio			1.2			1.300			1.300			1.200
Se, diss, mg/L			<0.0			<0.0			<0.0			0.00100
SO4, diss, mg/L			10900			12600.			10500.			9980.
Spec. Cond. (field), umhos/cm	12140	12900	13010	12760	13000	12700	12340	12020	11480	12050	12210	12870
Spec. Cond. (lab), umhos/cm			12500			12600.000			12000.000			13000.000
SS, mL/L/hr			<0.000			<0.000			<0.000			<0.000
Sulfide, tot, mg/L			<0.0			<0.0			<0.0			<0.0
Sum Anions, meq/L			246			283.000			238.000			228.000
Sum Cations, meq/L			253			261.000			244.000			269.000
TDS (calculated), mg/L			14900			16700.			14400.			14200.
TDS (ratio-measured/calc), rat			1.04			0.960			1.070			1.160
TDS, mg/L			15500			16100.			15400.			16500.
Temp (Celcius), degrees C	14.100	12.900	12.4	11.300	12.300	12.600	13.000	14.600	15.600	16.400	14.500	13.800
Zn, diss, mg/L			<0.0			<0.0			0.130			0.0820

*Due to laboratory errors this parameter was not analyzed.

New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N56

	10/7/2019	11/18/2019	12/11/2019	1/14/2020	2/26/2020	3/18/2020	4/15/2020	5/19/2020	6/2/2020	7/29/2020	8/27/2020	9/16/2020
Ag, diss, mg/L			<0.0		<0.0				<0.0			<0.0
Alkalinity, lab, mg/L			563.		592				586.			605.
As, diss, mg/L			<0.0		<0.0				0.000500			<0.0
Ca, diss, mg/L			421.		406				394.			424.
Cation-Anion Bal, %			-4.800		-3.3				1.800			-2.400
Cd, diss, mg/L			<0.0		0.0001				0.000100			<0.0
Cl, diss, mg/L			60.3		61.1				62.0			51.2
CO3, mg/L			<0.0		<0.0				<0.0			<0.0
Fe, diss, mg/L			0.100		0.07				0.0200			0.0400
Fe, tot rec, ug/L			3230.		1940				11300.			3830.
GW Depth (TOC), ft	77.330	77.540	76.920	77.890	79.430	79.21	79.510	79.840	80.230	80.020	79.550	79.820
Hardness, mg/L			2530.		2470				2360.			2670.
HCO3, mg/L			563.		592				586.			605.
Hg, diss, mg/L			<0.0		<0.0				<0.0			<0.0
K, diss, mg/L			33.5		34.5				33.9			31.4
Mg, diss, mg/L			359.		354				335.			391.
Mn, diss, mg/L			0.240		0.24				0.180			0.500
Mo, diss, mg/L			<0.0		<0.0				<0.0			<0.0
Na, diss, mg/L			164.		171				173.			162.
NH3 as N, diss, mg/L			2.61		2.63							2.62
NO2 + NO3, diss, mg/L			0.0300		0.05				<0.0			0.0700
NO2, diss, mg/L			<0.0		0.01				<0.0			<0.0
NO3, diss, mg/L			0.0300		0.04				<0.0			0.0700
OH, mg/L			<0.0		<0.0				<0.0			<0.0
Pb, diss, mg/L			<0.0		<0.0				<0.0			<0.0
pH (field), pH	6.950	7.130	6.800	7.120	6.9	7.31	7.340	6.600	6.900	6.980	7.540	7.700
pH (lab), pH			7.900		7.9				7.900			7.900
PO4, tot, mg/L			*		*				<0.0			0.0300
PO4, total soluble, mg/L			<0.0		0.03				*			*
SAR, ratio			1.400		1.5				1.600			1.400
Se, diss, mg/L			<0.0		0.0003				0.000500			<0.0
SO4, diss, mg/L			2490.		2300				1950.			2420.
Spec. Cond. (field), umhos/cm	3940	4030	4230	4130	4010	4020	3890	3890	3980	3740	3860	4230
Spec. Cond. (lab), umhos/cm			4100.000		3950				3810.000			4430.000
SS, mL/L/hr			<0.000		<0.000				5.200			<0.000
Sulfide, tot, mg/L			<0.0		0.02				<0.0			<0.0
Sum Anions, meq/L			65.000		62				54.000			64.000
Sum Cations, meq/L			59.000		58				56.000			61.000
TDS (calculated), mg/L			3870.		3690				3310.			3850.
TDS (ratio-measured/calc), rat			1.030		1.02				1.120			1.110
TDS, mg/L			4000.		3750				3700.			4280.
Temp (Celcius), degrees C	14.300	14.500	13.400	12.700	12.4	11.7	13.800	15.500	15.400	15.800	14.300	13.400
Zn, diss, mg/L			<0.0		<0.0				0.0900			<0.0

*Due to a laboratory error parameter was not analyzed.

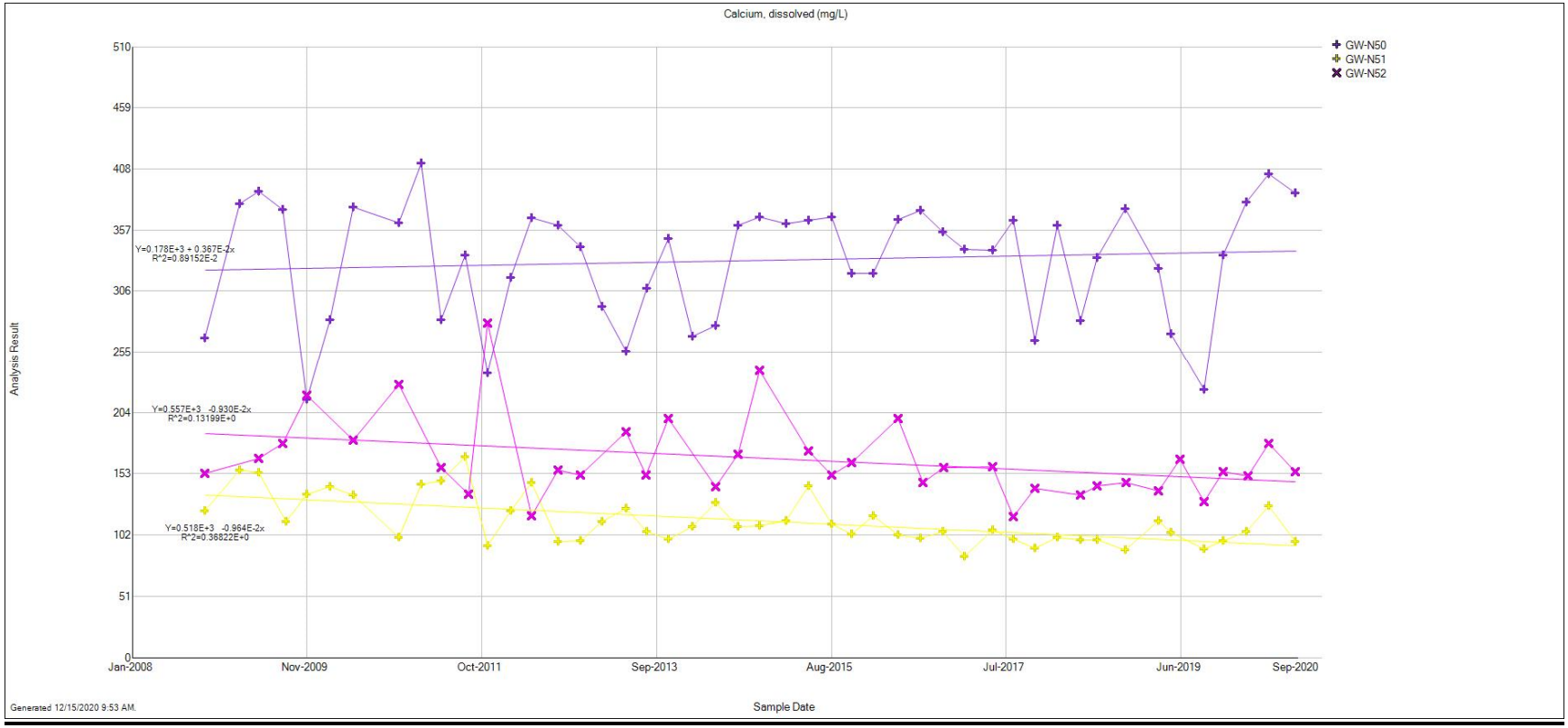
New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N57

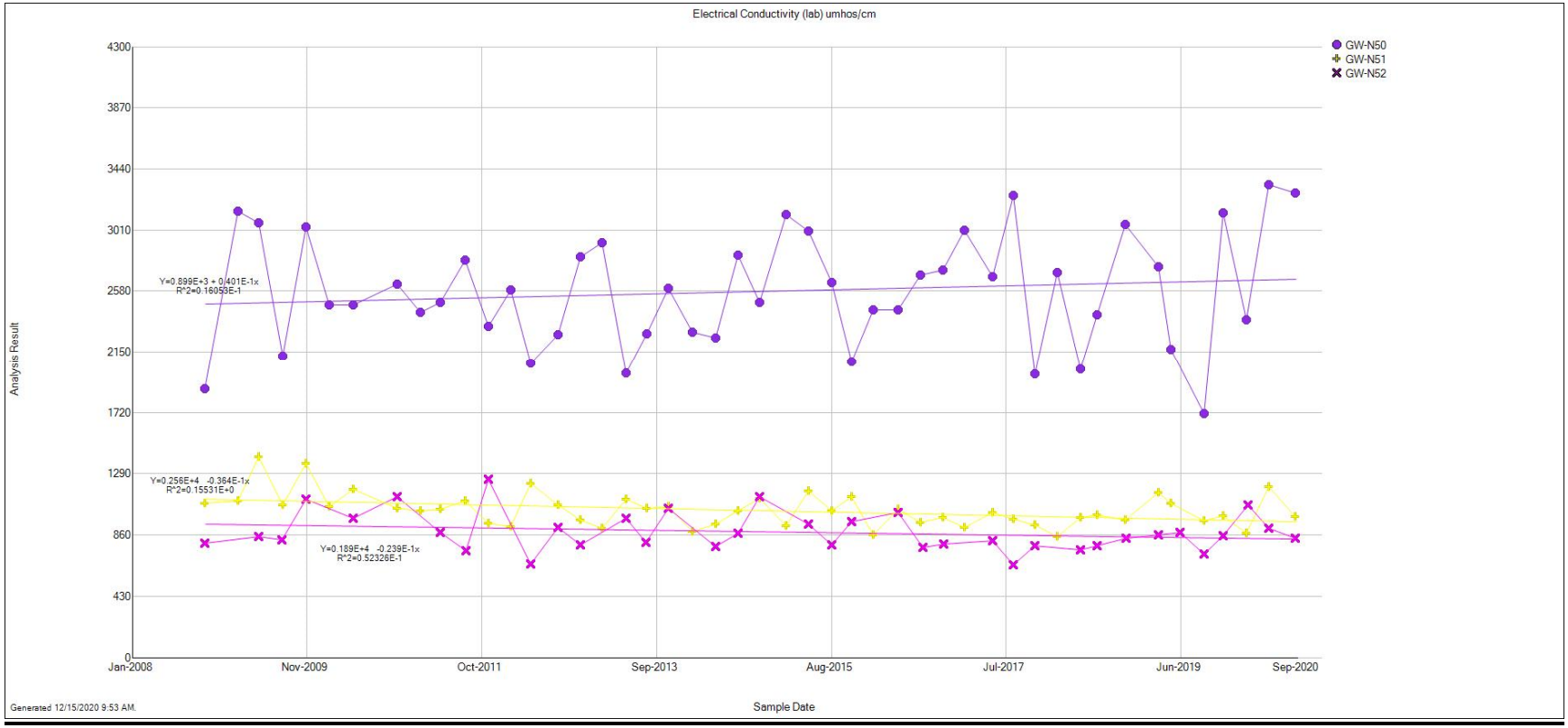
	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/18/2020	4/15/2020	5/19/2020	6/2/2020	7/29/2020	8/27/2020	9/15/2020
Ag, diss, mg/L			<0.0		<0.0				<0.0			<0.0
Alkalinity, lab, mg/L			621		662				645.			659.
As, diss, mg/L			<0.0		<0.0				<0.0			<0.0
Ca, diss, mg/L			550		545				536.			520.
Cation-Anion Bal, %			0		1.9				-0.600			-1.900
Cd, diss, mg/L			<0.0		0.0001				<0.0			<0.0
Cl, diss, mg/L			31.4		32.6				33.3			33.2
CO3, mg/L			<0.0		<0.0				<0.0			<0.0
Fe, diss, mg/L			0.15		0.22				0.120			0.380
Fe, tot rec, ug/L			1510		1320				1490.			1560.
GW Depth (TOC), ft	49.620	50.330	50.57	50.020	50.82	51.16	51.520	51.460	51.170	50.110	48.850	48.610
Hardness, mg/L			3590		3600				3510.			3490.
HCO3, mg/L			621		662				645.			659.
Hg, diss, mg/L			<0.0		<0.0				<0.0			<0.0
K, diss, mg/L			30		29				28.0			28.1
Mg, diss, mg/L			538		544				528.			532.
Mn, diss, mg/L			0.77		0.7				0.720			0.690
Mo, diss, mg/L			<0.0		<0.0				<0.0			<0.0
Na, diss, mg/L			154		154				153.			152.
NH3 as N, diss, mg/L			3.03		3.16				3.30			2.88
NO2 + NO3, diss, mg/L			<0.0		<0.0				<0.0			<0.0
NO2, diss, mg/L			<0.0		<0.0				<0.0			<0.0
NO3, diss, mg/L			<0.0		<0.0				<0.0			<0.0
OH, mg/L			<0.0		<0.0				<0.0			<0.0
Pb, diss, mg/L			0.0006		<0.0				<0.0			<0.0
pH (field), pH	6.780	6.850	6.630	6.870	6.44	6.96	7.040	6.920	6.900	6.680	7.220	6.900
pH (lab), pH			8		7.8				7.700			7.800
PO4, total soluble, mg/L			0.03		<0.0				0.0300			0.0300
SAR, ratio			1.1		1.1				1.100			1.100
Se, diss, mg/L			<0.0		<0.0				<0.0			<0.0
SO4, diss, mg/L			3170		3000				3080.			3120.
Spec. Cond. (field), umhos/cm	4870	4910	5060	5410	5040	5070	4950	4900	6100	4976	5000	4920
Spec. Cond. (lab), umhos/cm			4980		4970				4900.000			4980.000
SS, mL/L/hr			<0.000		<0.000				<0.000			<0.000
Sulfide, tot, mg/L			<0.0		<0.0				<0.0			<0.0
Sum Anions, meq/L			80		77				79.000			80.000
Sum Cations, meq/L			80		80				78.000			77.000
TDS (calculated), mg/L			4860		4710				4760.			4790.
TDS (ratio-measured/calc), rat			1.03		1.08				1.060			1.060
TDS, mg/L			5020		5100				5060.			5090.
Temp (Celcius), degrees C	14.200	13.600	12.1	12.400	11.4	12	13.600	14.900	15.400	14.900	13.900	14.400
Zn, diss, mg/L			<0.0		<0.0				<0.0			<0.0

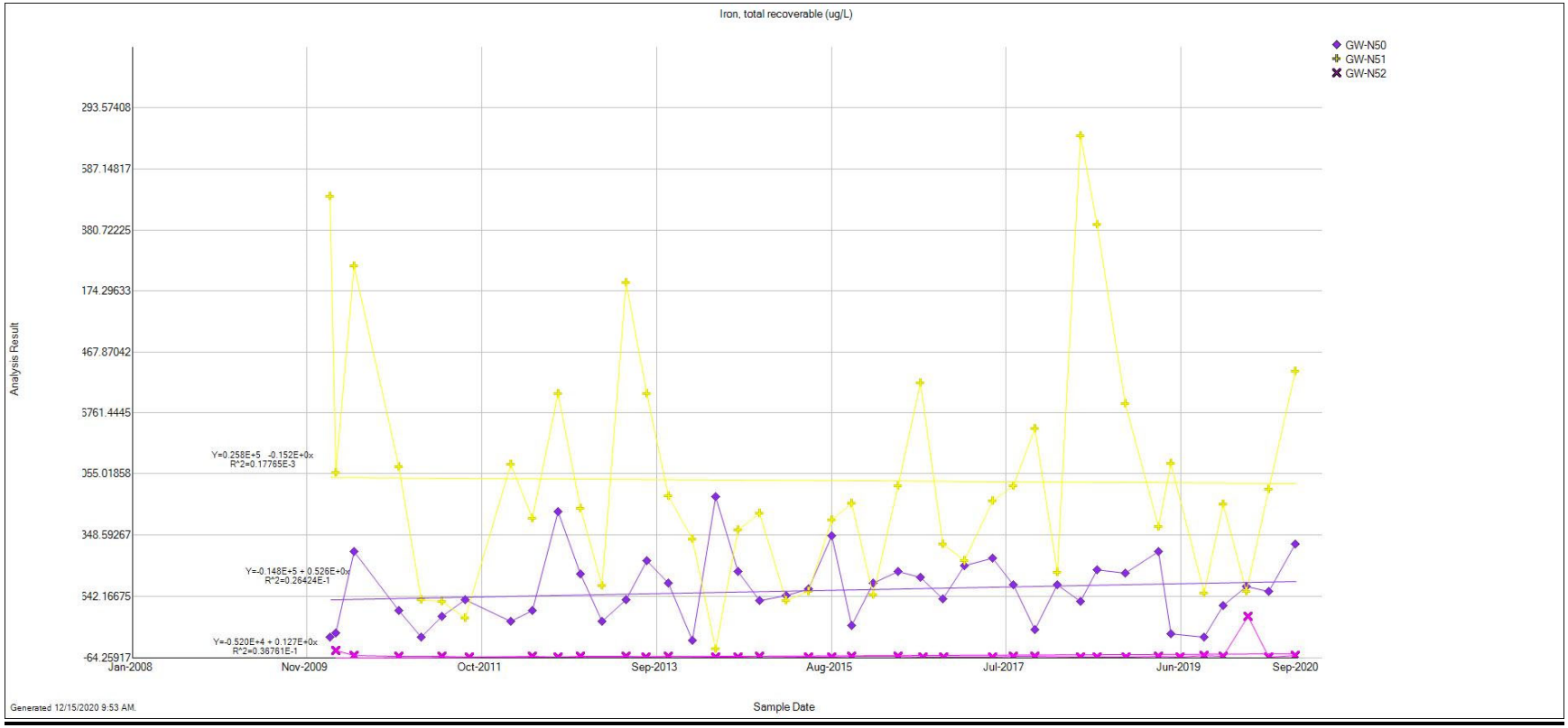
New Horizon North Mine
Analysis Results by Date (column) and Parameter (row)
Date Range: 10/01/2019 to 09/30/2020
Well: GW-N58

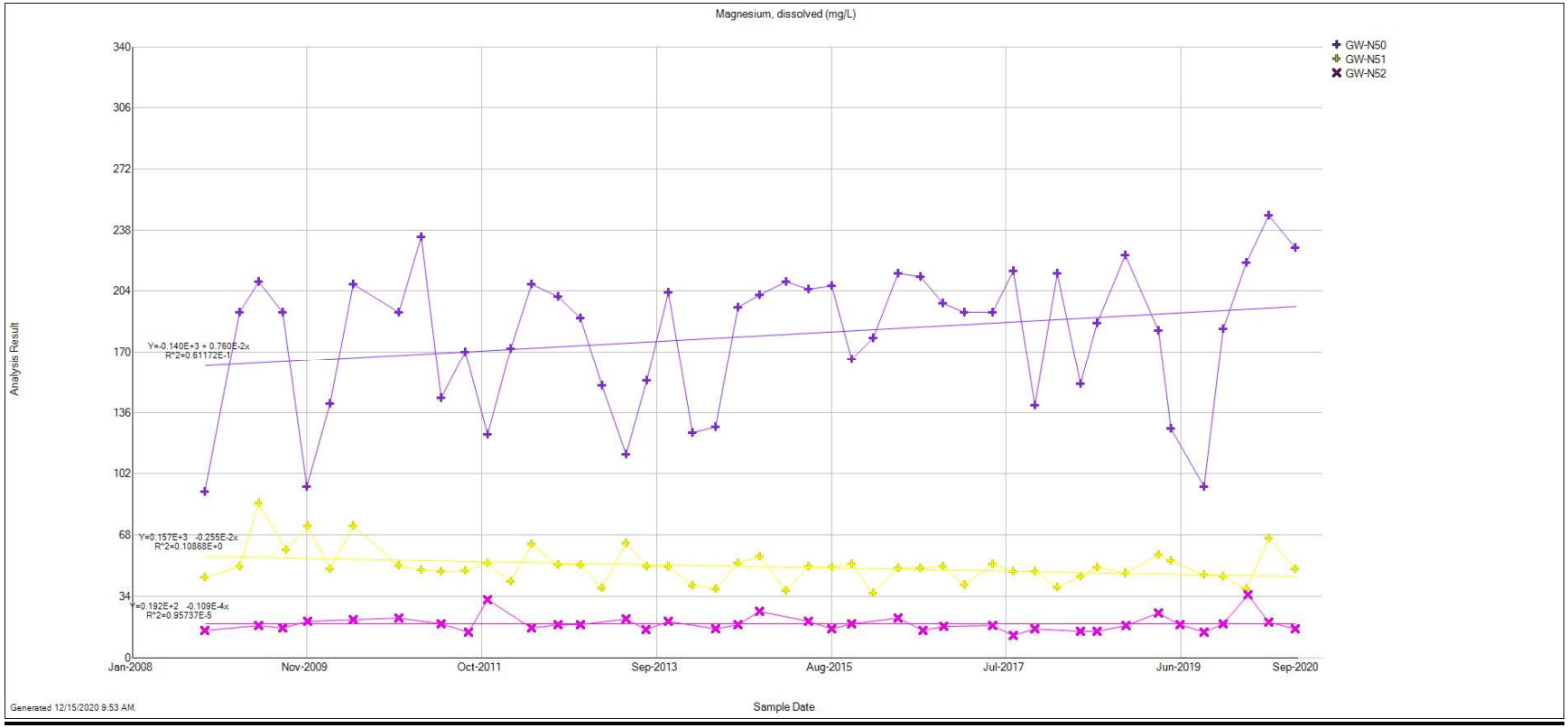
	10/7/2019	11/18/2019	12/9/2019	1/14/2020	2/26/2020	3/4/2020	4/15/2020	5/19/2020	6/2/2020	7/29/2020	8/27/2020	9/15/2020
Ag, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Alkalinity, lab, mg/L			580			585.			603.			604.
As, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Ca, diss, mg/L			481			479.			471.			452.
Cation-Anion Bal, %			3.1			2.500			2.000			0.500
Cd, diss, mg/L			<0.0			0.000100			<0.0			<0.0
Cl, diss, mg/L			43.7			42.6			46.0			43.0
CO3, mg/L			<0.0			<0.0			<0.0			<0.0
Fe, diss, mg/L			1.18			0.810			9.83			3.40
Fe, tot rec, ug/L			9540			10000.			9970.			9990.
GW Depth (TOC), ft	49.410	49.320	49.520	49.720	50.650	50.640	51.050	51.320	51.170	49.450	48.540	48.260
Hardness, mg/L			4560			4710.			4590.			4440.
HCO3, mg/L			580			585.			603.			604.
Hg, diss, mg/L			<0.0			<0.0			<0.0			<0.0
K, diss, mg/L			24			25.0			24.0			23.7
Mg, diss, mg/L			816			854.			829.			805.
Mn, diss, mg/L			0.94			0.970			0.970			0.990
Mo, diss, mg/L			<0.0			<0.0			<0.0			<0.0
Na, diss, mg/L			176			172.			175.			164.
NH3 as N, diss, mg/L			1.97			2.04			2.20			1.92
NO2 + NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO2, diss, mg/L			<0.0			<0.0			<0.0			<0.0
NO3, diss, mg/L			<0.0			<0.0			<0.0			<0.0
OH, mg/L			<0.0			<0.0			<0.0			<0.0
Pb, diss, mg/L			<0.0			<0.0			0.00340			0.000300
pH (field), pH	6.770	6.980	6.6	6.910	6.980	6.600	7.230	6.910	6.700	6.740	7.100	6.900
pH (lab), pH			7.9			7.600			7.600			7.700
PO4, total soluble, mg/L			<0.0			<0.0			<0.0			0.0300
SAR, ratio			1.1			1.100			1.100			1.100
Se, diss, mg/L			<0.0			<0.0			<0.0			<0.0
SO4, diss, mg/L			3840			3980.			3980.			3950.
Spec. Cond. (field), umhos/cm	5670	5450	5880	5410	5200	6030	5450	5250	6100	5339	5290	5770
Spec. Cond. (lab), umhos/cm			5990			5970.000			5930.000			5850.000
SS, mL/L/hr			<0.000			<0.000			<0.000			<0.000
Sulfide, tot, mg/L			<0.0			<0.0			<0.0			<0.0
Sum Anions, meq/L			94			97.000			97.000			96.000
Sum Cations, meq/L			100			102.000			101.000			97.000
TDS (calculated), mg/L			5740			5910.			5910.			5810.
TDS (ratio-measured/calc), rat			1.11			1.090			1.120			1.090
TDS, mg/L			6350			6420.			6620.			6360.
Temp (Celcius), degrees C	14.000	12.900	12.4	12.700	12.200	13.700	13.300	14.300	14.400	15.900	13.600	14.600
Zn, diss, mg/L			0.07			0.0800			<0.0			0.0500

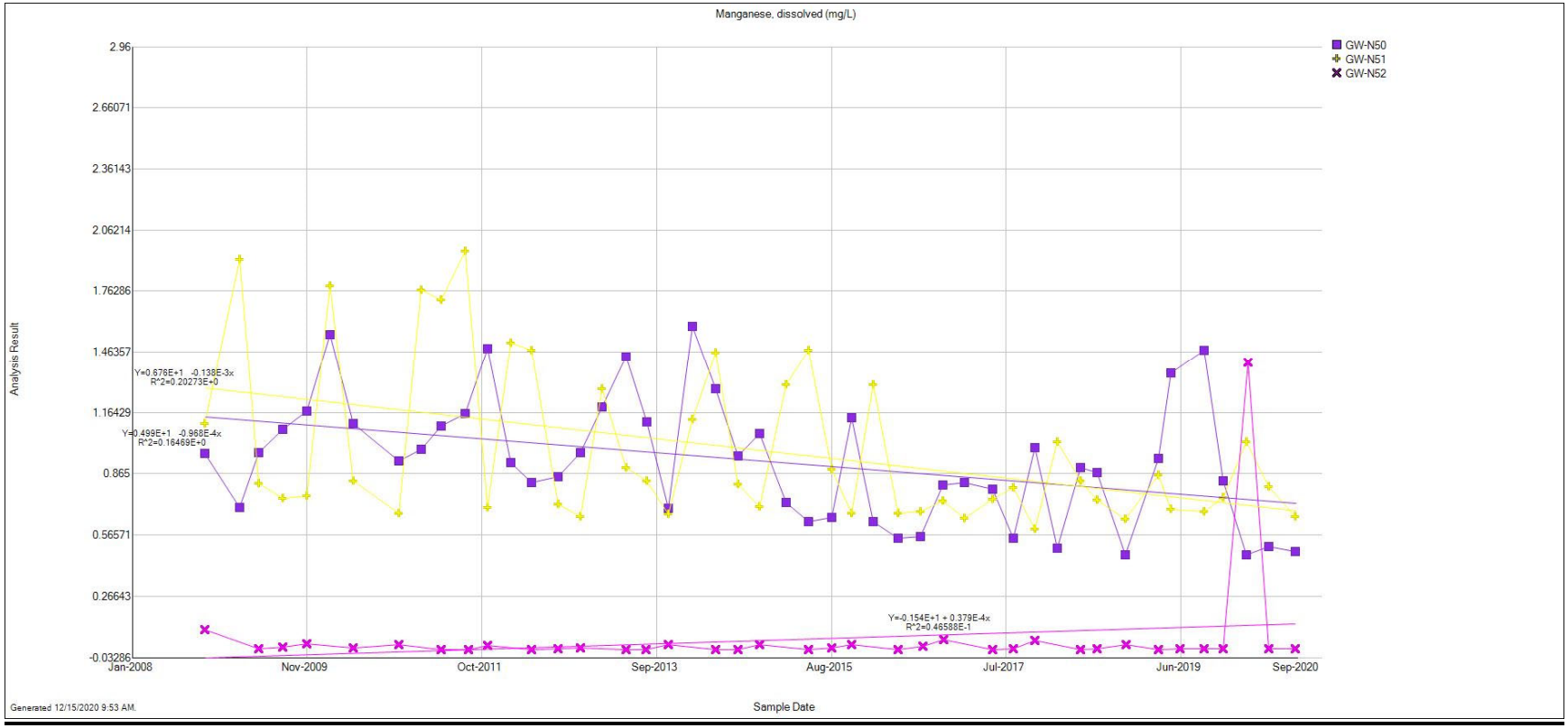
Appendix 4
Groundwater Monitoring Graphs

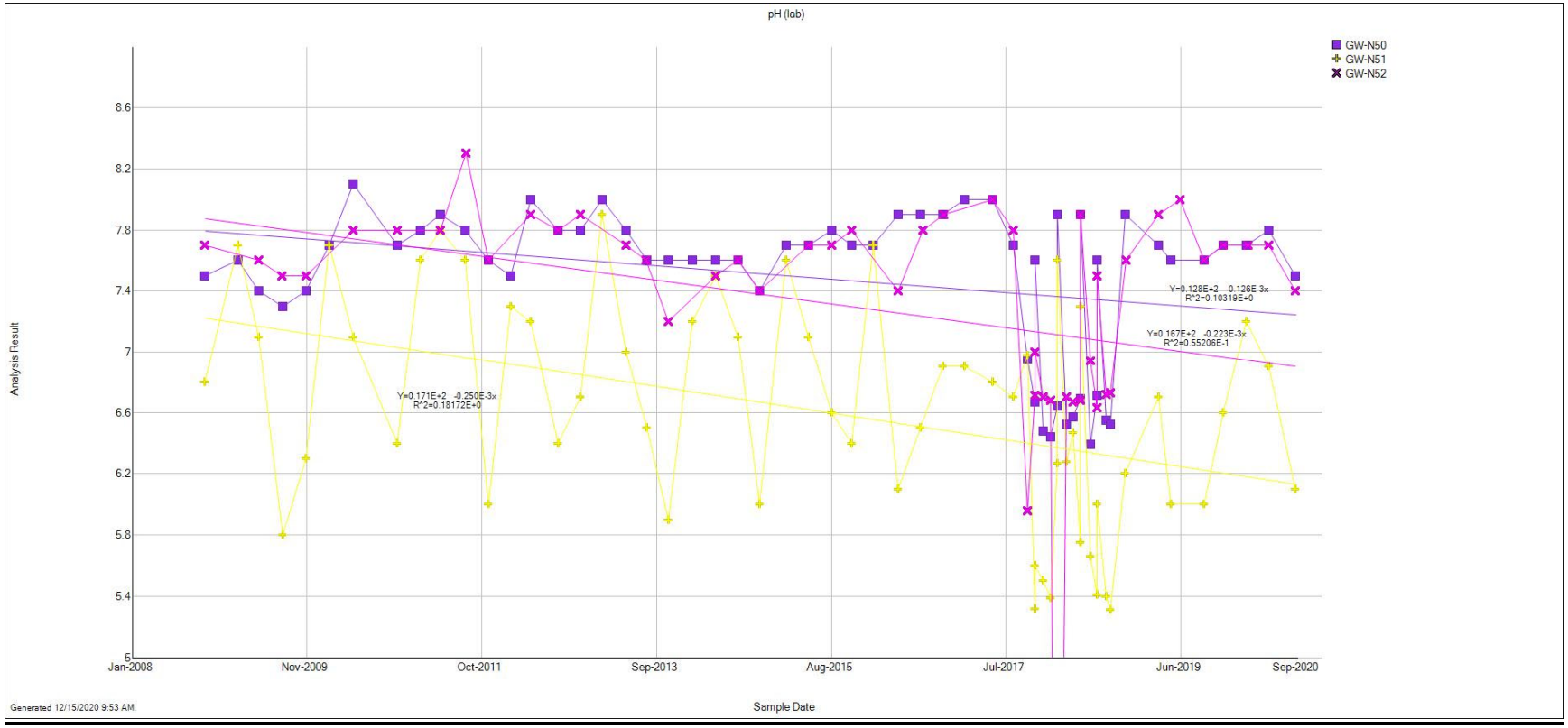

Calcium, dissolved (mg/L)
GW-N50
GW-N51
GW-N52
Y=0.178E+3 + 0.367E-2x
R^2=0.89152E-2
Y=0.557E+3 -0.930E-2x
R^2=0.13199E+0
Y=0.518E+3 -0.964E-2x
R^2=0.36822E+0
Analysis Result
510
459
408
357
306
255
204
153
102
51
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

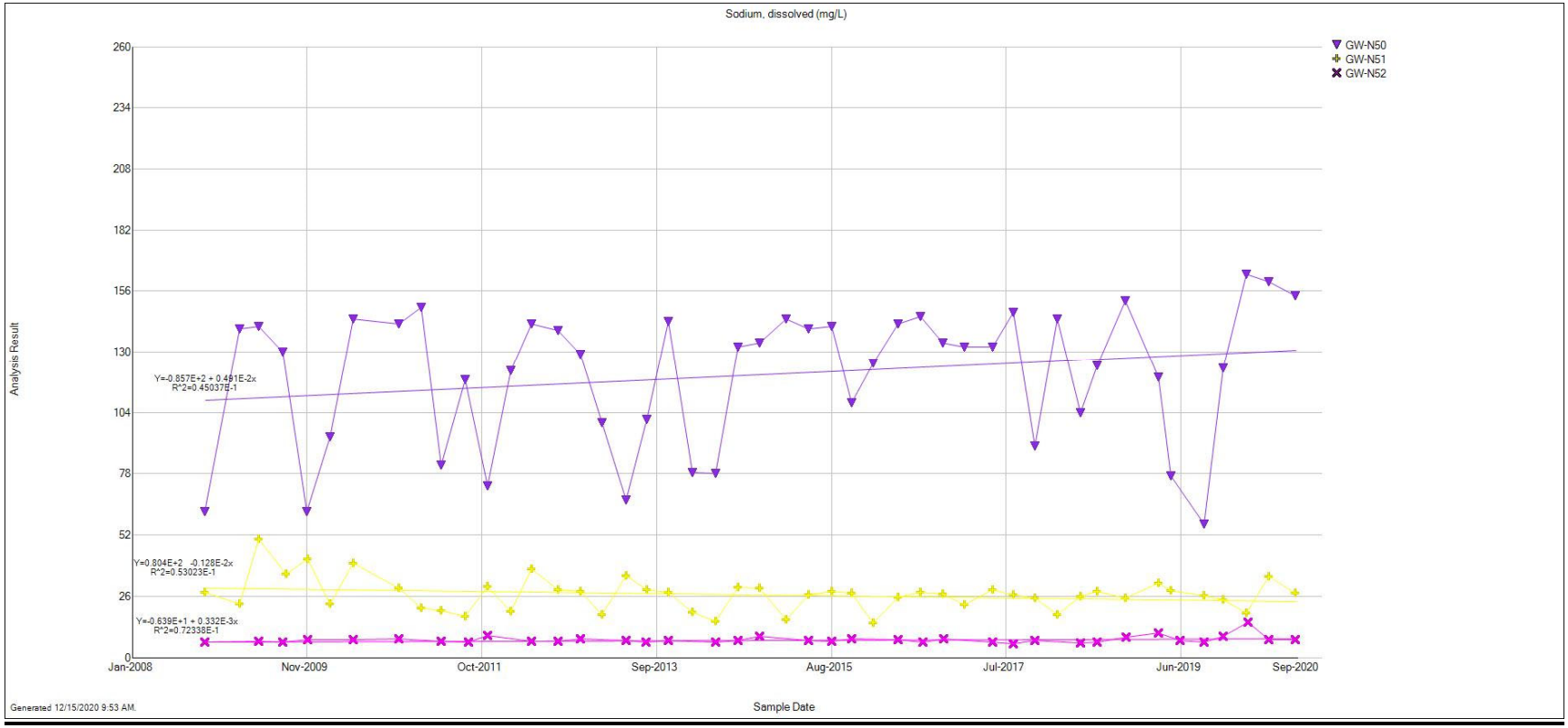

Electrical Conductivity (lab) umhos/cm
GW-N50
GW-N51
GW-N52
Y=0.899E+3 + 0.401E-1x
R^2=0.16053E-1
Y=0.256E+4 -0.364E-1x
R^2=0.15531E+0
Y=0.189E+4 -0.239E-1x
R^2=0.52326E-1
Analysis Result
4300
3870
3440
3010
2580
2150
1720
1290
860
430
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

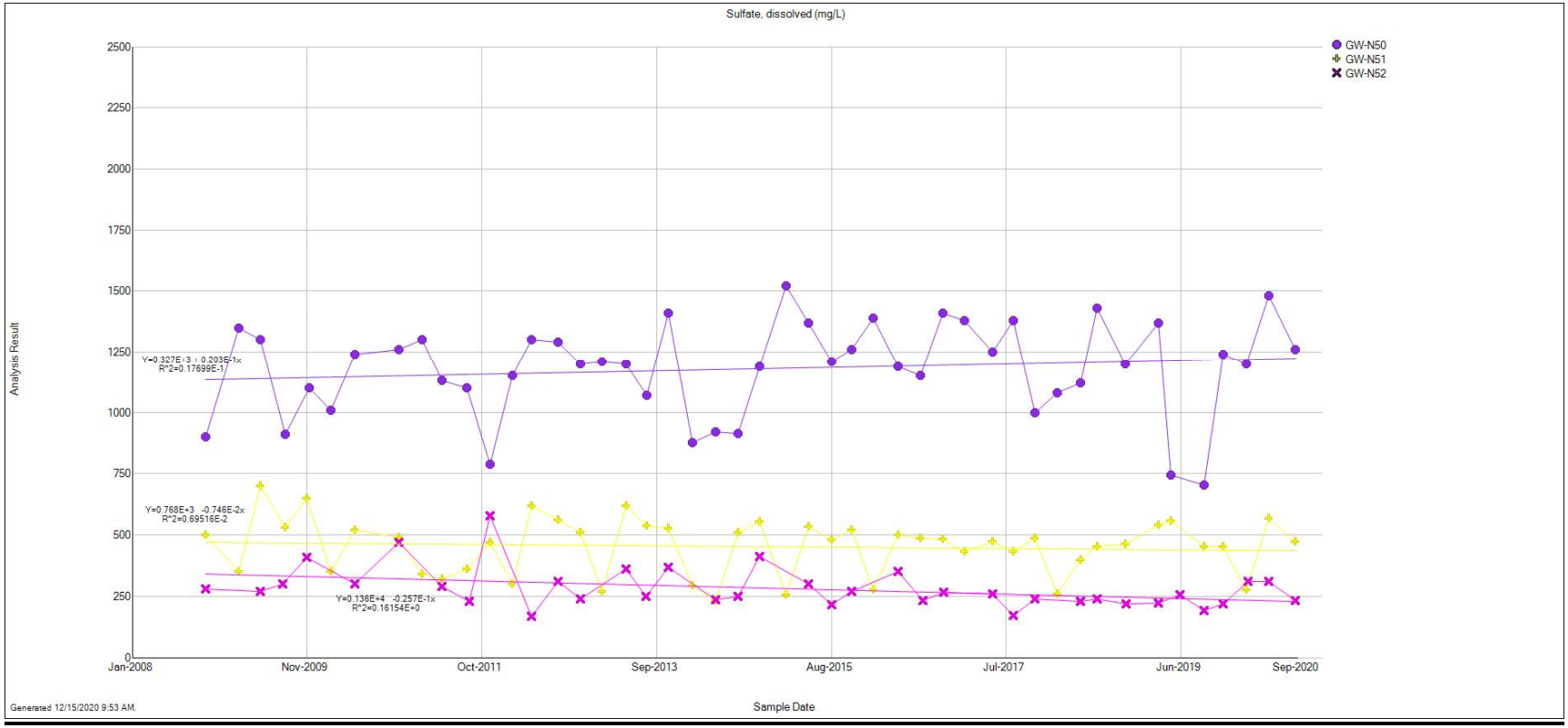

Iron, total recoverable (ug/L)
GW-N50
GW-N51
GW-N52
293.57408
587.14817
880.72225
1174.29633
1467.87042
1761.4445
2055.01858
2348.59267
2642.16675
2935.74083
-64.25917
Analysis Result
Y=0.258E+5 -0.152E+0x
R^2=0.17765E-3
Y=-0.148E+5 + 0.526E+0x
R^2=0.26424E-1
Y=-0.520E+4 + 0.127E+0x
R^2=0.36761E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/15/2020 9:53 AM.

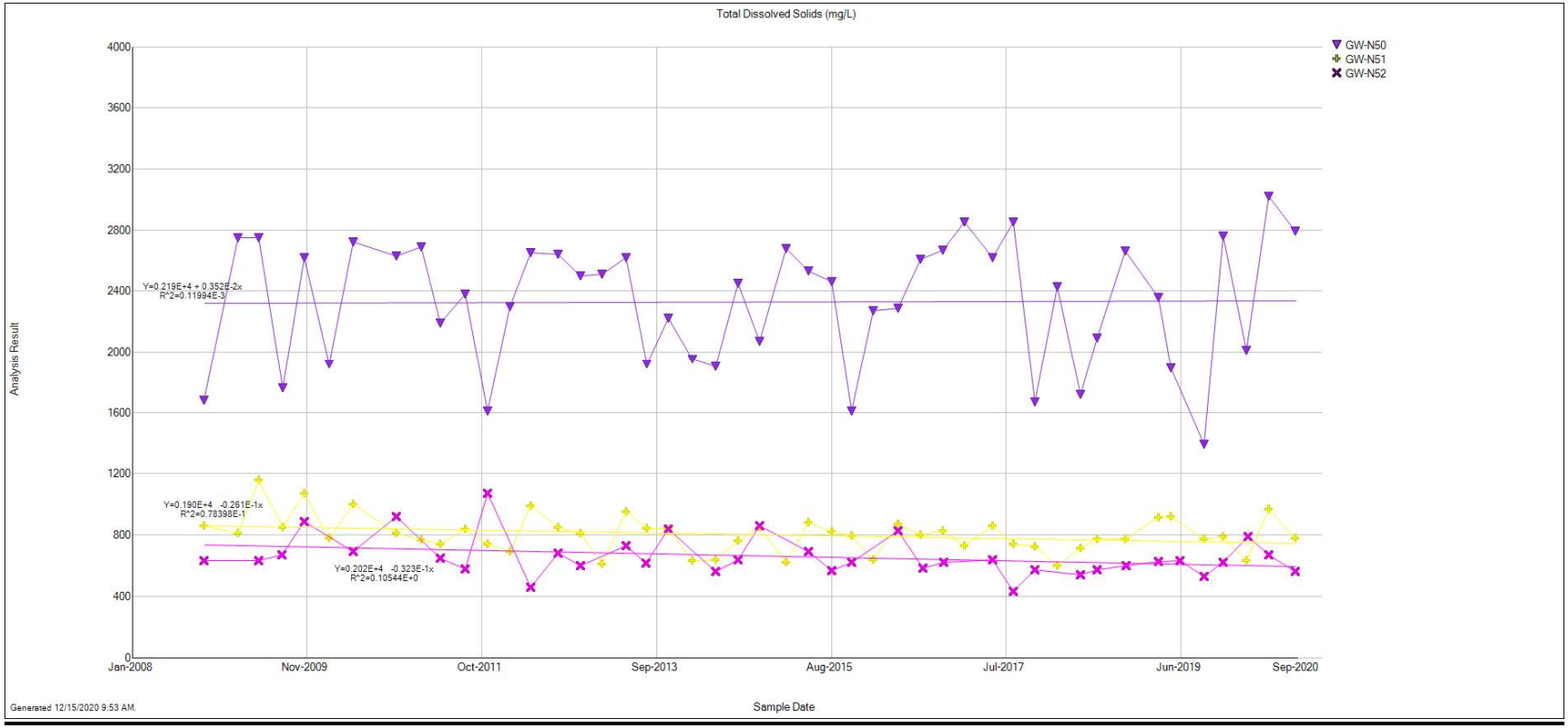

Magnesium, dissolved (mg/L)
GW-N50
GW-N51
GW-N52
Analysis Result
340
306
272
238
204
170
136
102
68
34
0
Y=-0.140E+3 + 0.760E-2x
R^2=0.61172E-1
Y=0.157E+3 ... -0.255E-2x
R^2=0.10868E+0
Y=0.192E+2 ... -0.109E-4x
R^2=0.95737E-5
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

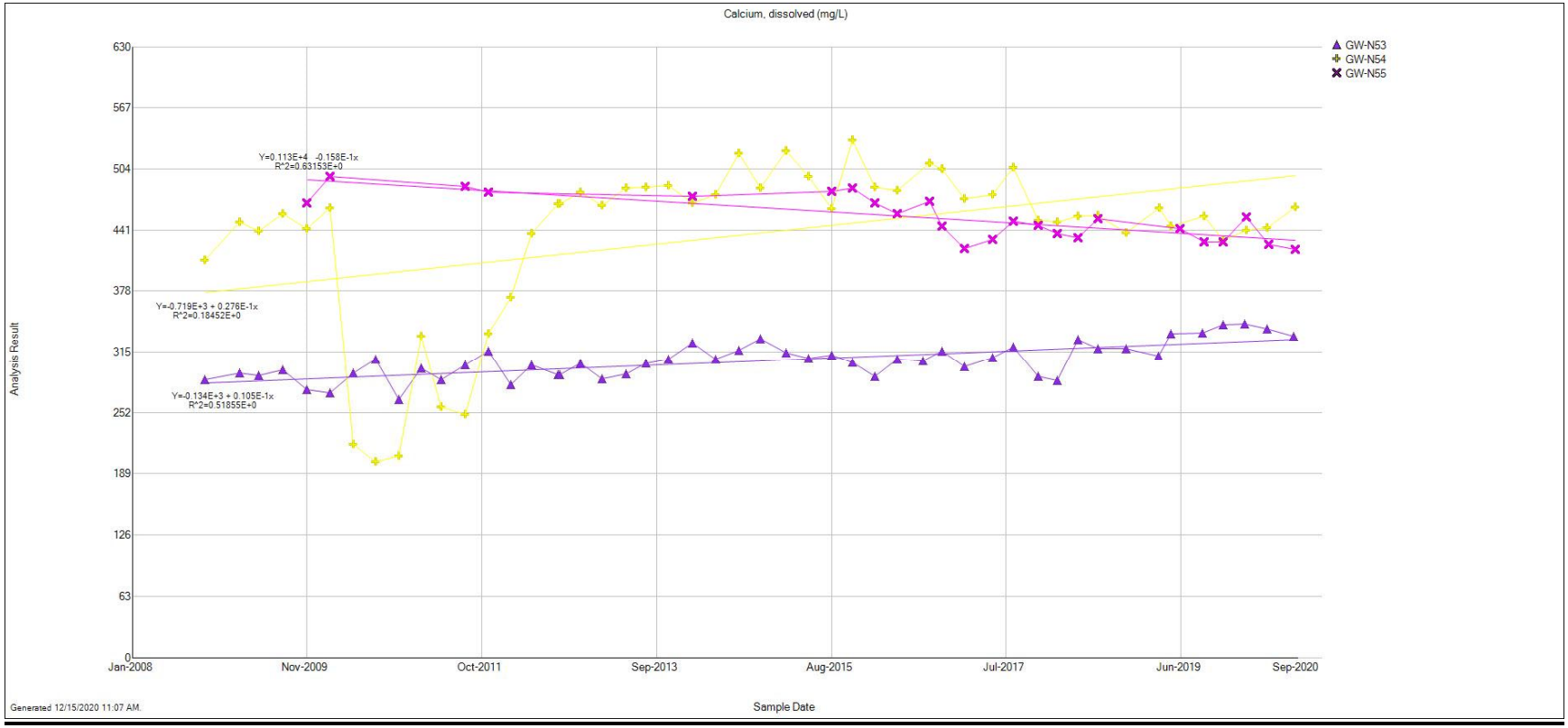

Manganese, dissolved (mg/L)
GW-N50
GW-N51
GW-N52
2.96
2.66071
2.36143
2.06214
1.76286
1.46357
1.16429
0.865
0.56571
0.26643
-0.03286
Analysis Result
Y=0.676E+1 -0.138E-3x
R^2=0.20273E+0
Y=0.499E+1 -0.968E-4x
R^2=0.16469E+0
Y=-0.154E+1 + 0.379E-4x
R^2=0.46588E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

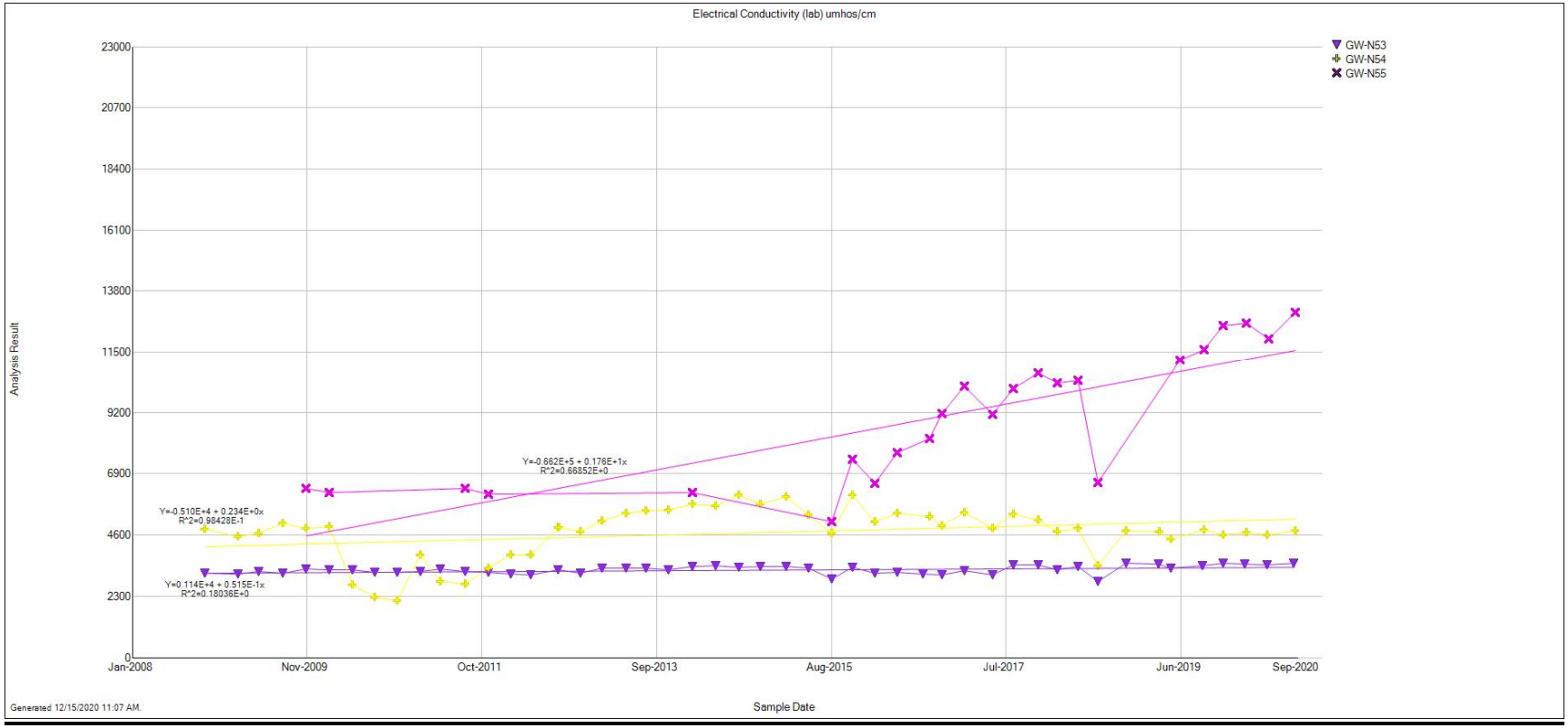

pH (lab)
GW-N50
GW-N51
GW-N52
Analysis Result
8.6
8.2
7.8
7.4
7
6.6
6.2
5.8
5.4
5
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Y=0.171E+2 -0.250E-3x
R^2=0.18172E+0
Y=0.128E+2 -0.126E-3x
R^2=0.10319E+0
Y=0.167E+2 -0.223E-3x
R^2=0.55206E-1
Generated 12/15/2020 9:53 AM.
Sample Date

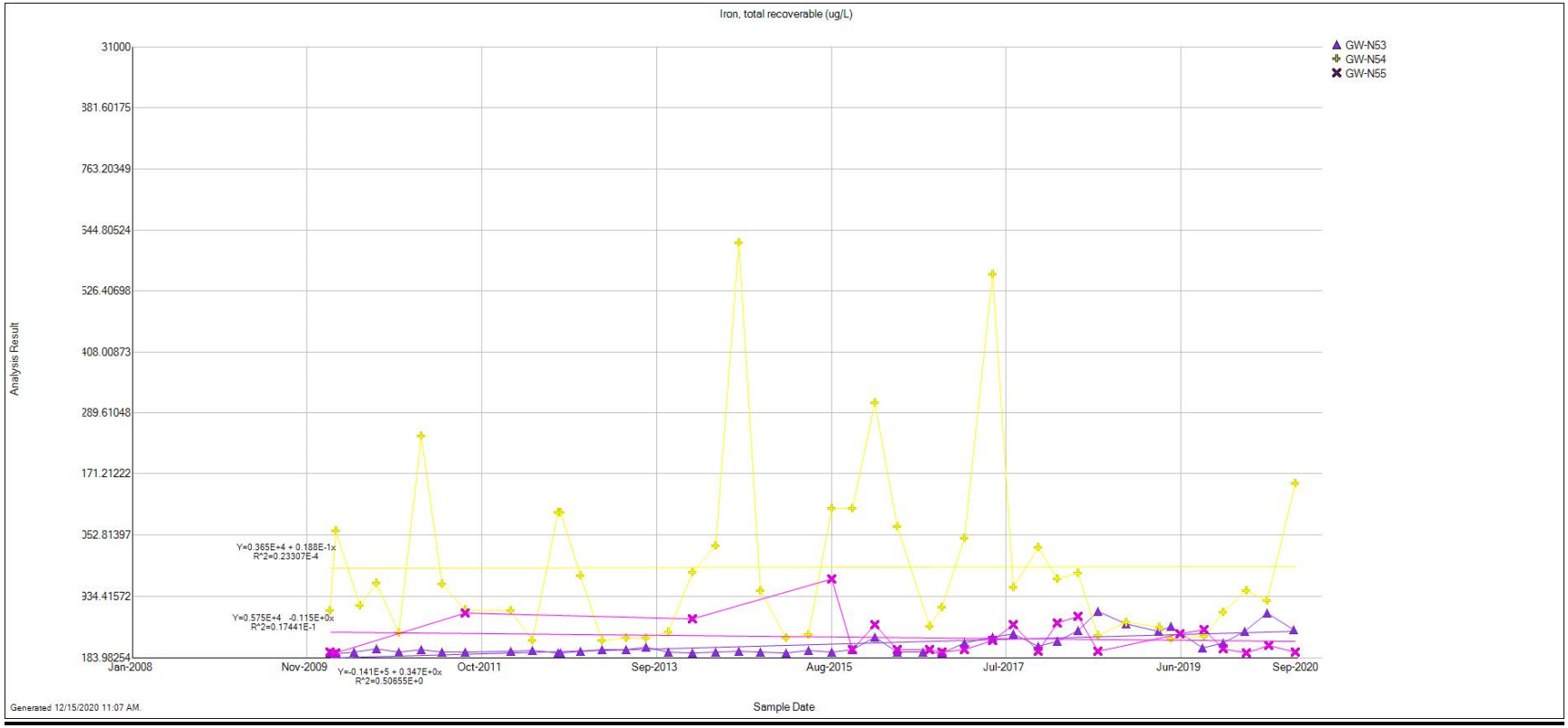

Sodium, dissolved (mg/L)
GW-N50
GW-N51
GW-N52
Y=-0.857E+2 + 0.491E-2x
R^2=0.45037E-1
Y=0.804E+2 -0.128E-2x
R^2=0.53023E-1
Y=-0.639E+1 + 0.332E-3x
R^2=0.72338E-1
Analysis Result
260
234
208
182
156
130
104
78
52
26
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

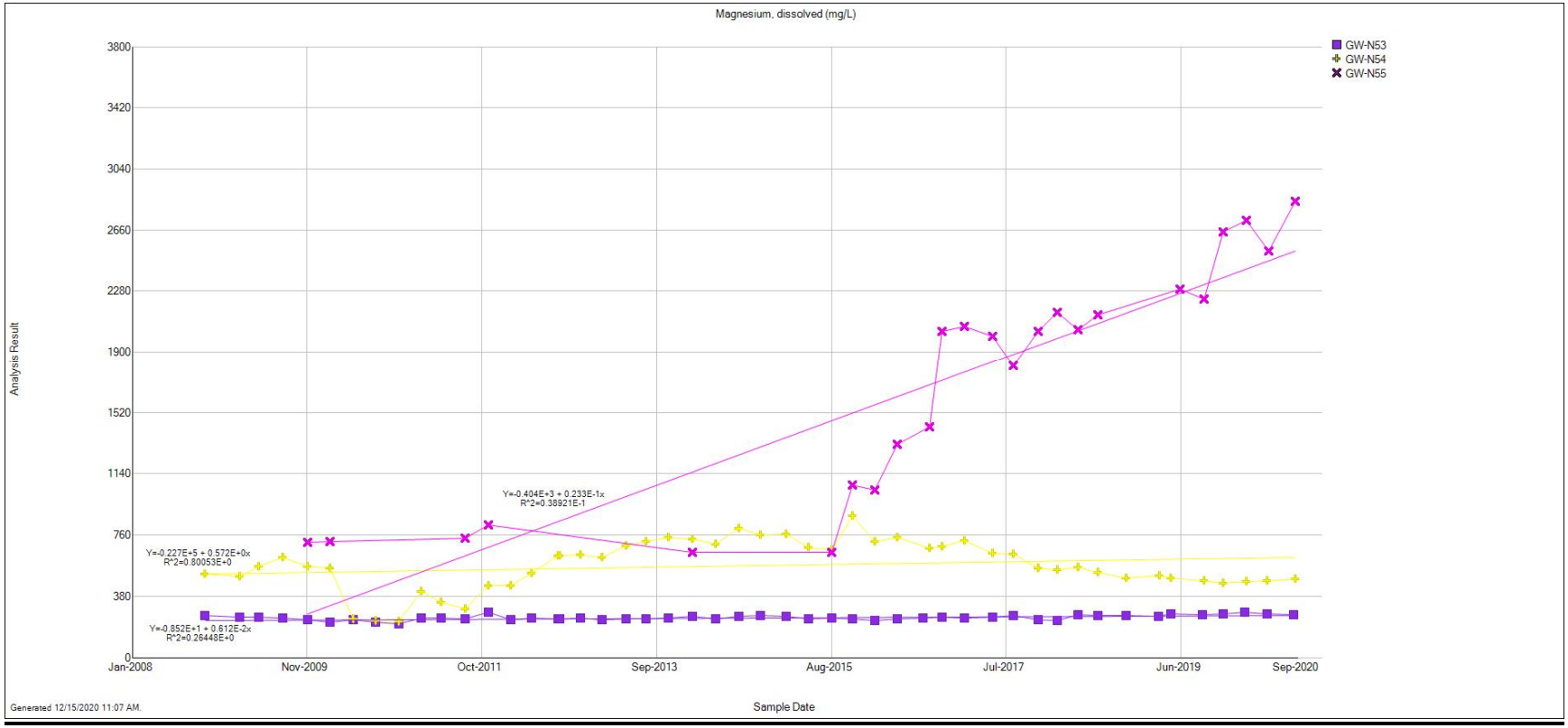

Sulfate, dissolved (mg/L)
GW-N50
GW-N51
GW-N52
Y=0.327E+3 + 0.203E-1x
R^2=0.17699E-1
Y=0.768E+3 -0.746E-2x
R^2=0.69516E-2
Y=0.136E+4 -0.257E-1x
R^2=0.16154E+0
Analysis Result
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

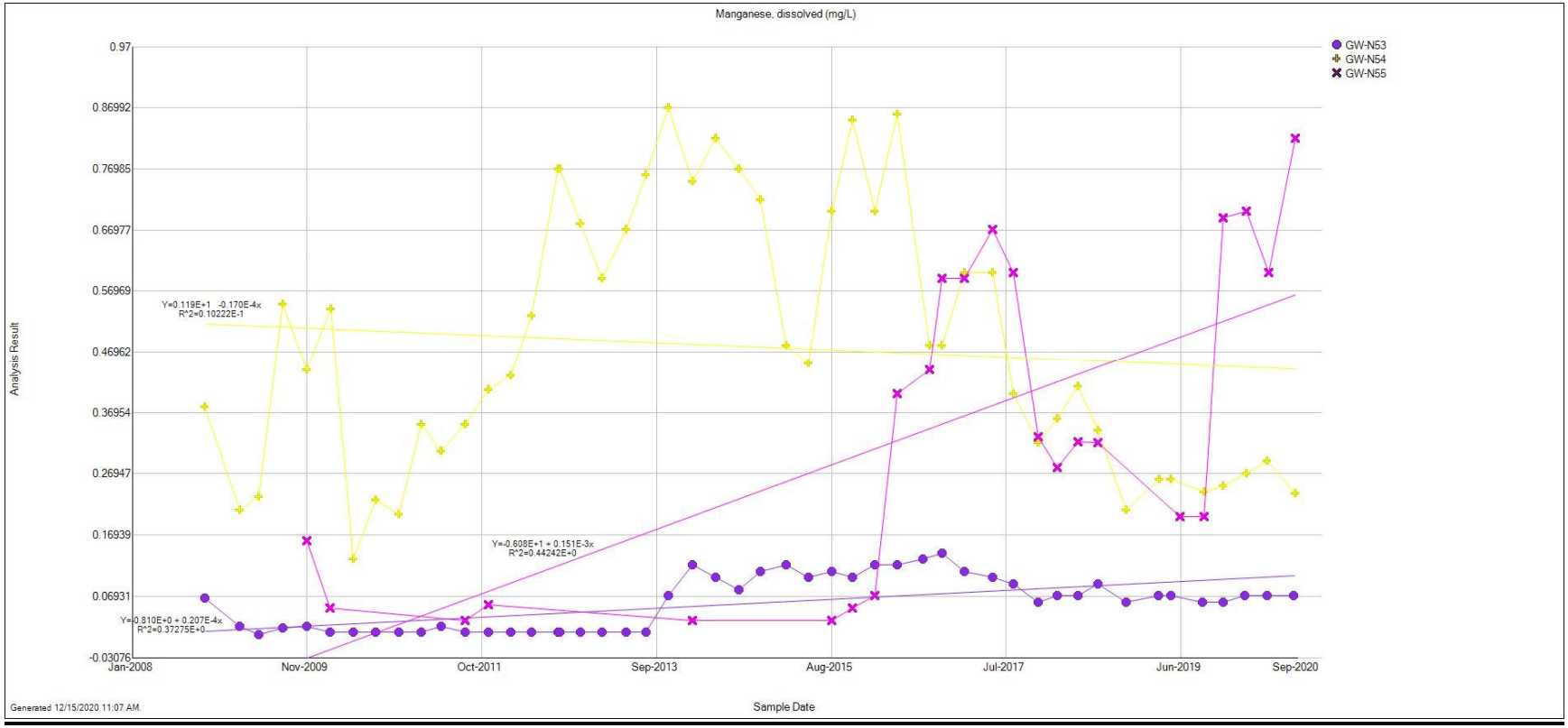

Total Dissolved Solids (mg/L)
GW-N50
GW-N51
GW-N52
Y=0.219E+4 + 0.352E-2x
R^2=0.11994E-3
Y=0.190E+4 -0.261E-1x
R^2=0.78398E-1
Y=0.202E+4 -0.323E-1x
R^2=0.10544E+0
Analysis Result
4000
3600
3200
2800
2400
2000
1600
1200
800
400
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 9:53 AM.
Sample Date

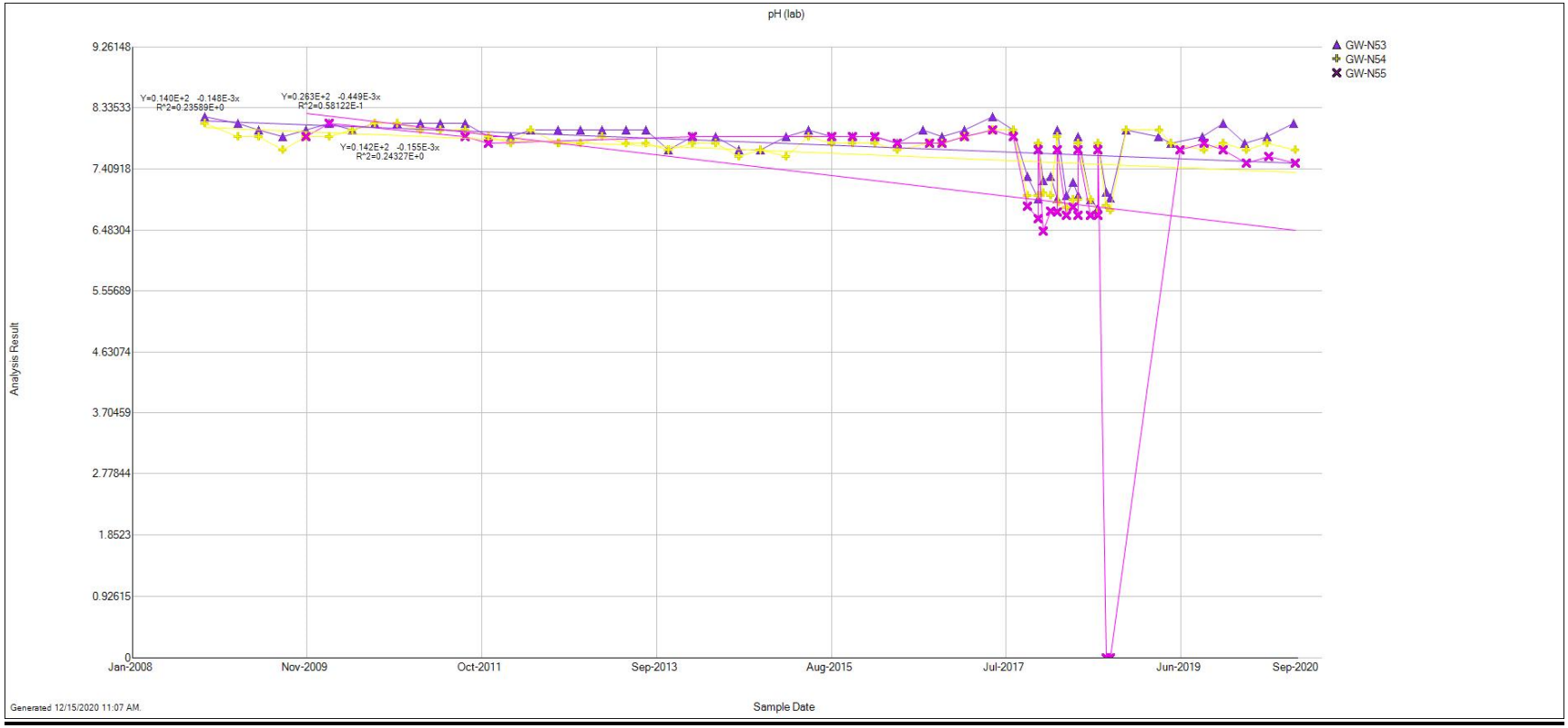

Calcium, dissolved (mg/L)
GW-N53
GW-N54
GW-N55
Y=0.113E+4 -0.158E-1x
R^2=0.63153E+0
Y=-0.719E+3 + 0.276E-1x
R^2=0.18452E+0
Y=-0.134E+3 + 0.105E-1x
R^2=0.51855E+0
630
567
504
441
378
315
252
189
126
63
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/15/2020 11:07 AM.

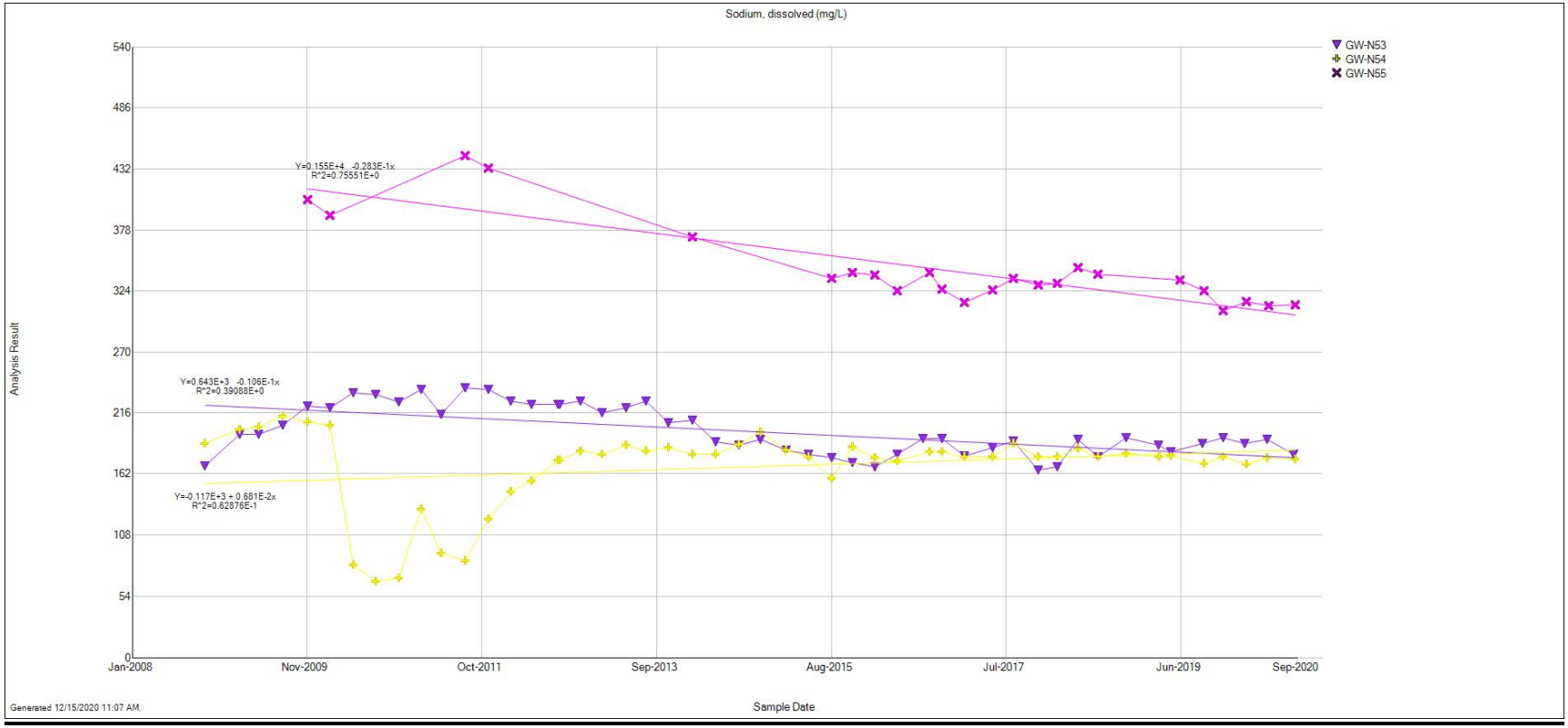

Electrical Conductivity (lab) umhos/cm
GW-N53
GW-N54
GW-N55
Analysis Result
23000
20700
18400
16100
13800
11500
9200
6900
4600
2300
0
Y=-0.682E+5 + 0.176E+1x
R^2=0.66852E+0
Y=-0.510E+4 + 0.234E+0x
R^2=0.98428E-1
Y=0.114E+4 + 0.515E-1x
R^2=0.18036E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:07 AM.
Sample Date

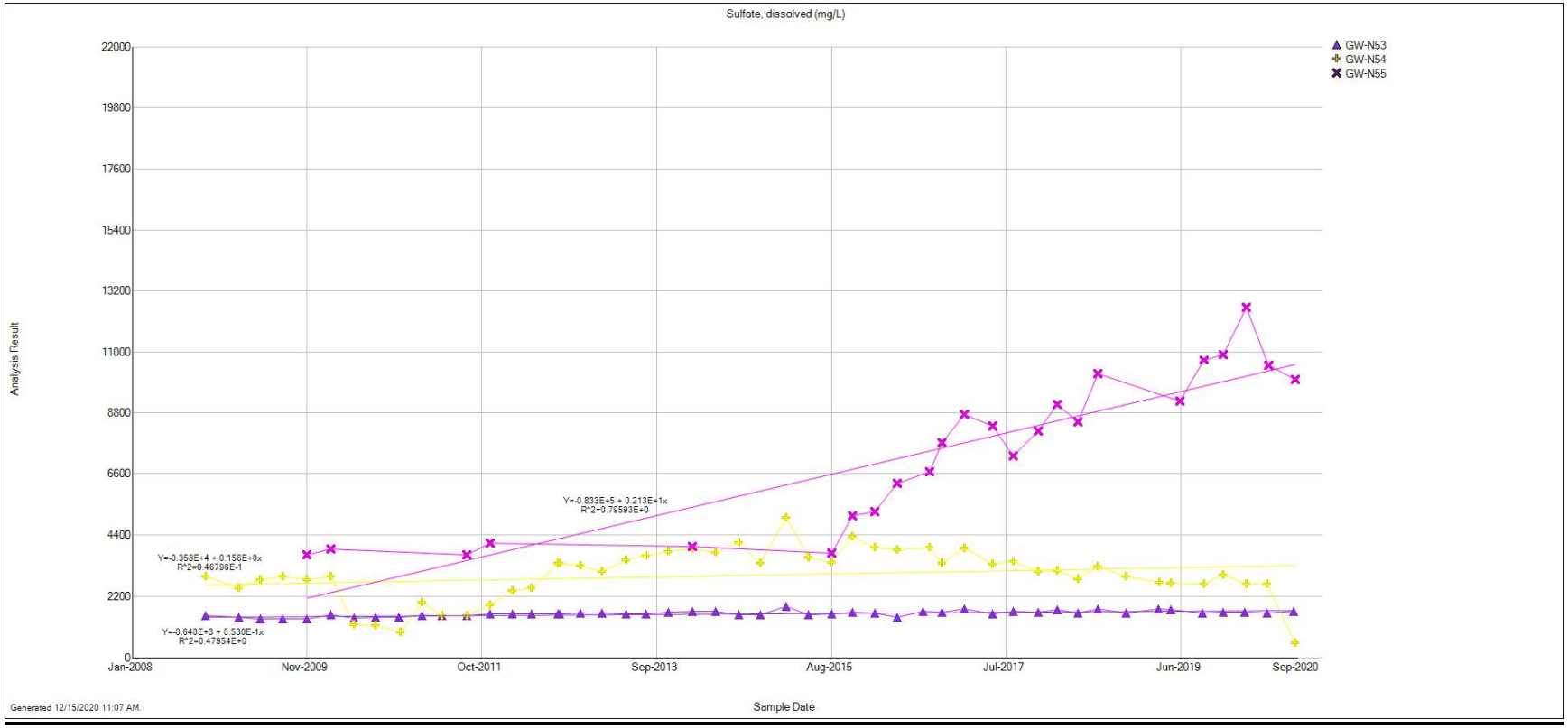

Iron, total recoverable (ug/L)
GW-N53
GW-N54
GW-N55
31000
381.60175
763.20349
544.80524
526.40698
408.00873
289.61048
171.21222
052.81397
934.41572
183.98254
Analysis Result
Y=0.365E+4 + 0.188E-1x
R^2=0.23307E-4
Y=0.575E+4 -0.115E+0x
R^2=0.17441E-1
Y=-0.141E+5 + 0.347E+0x
R^2=0.50655E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:07 AM.
Sample Date

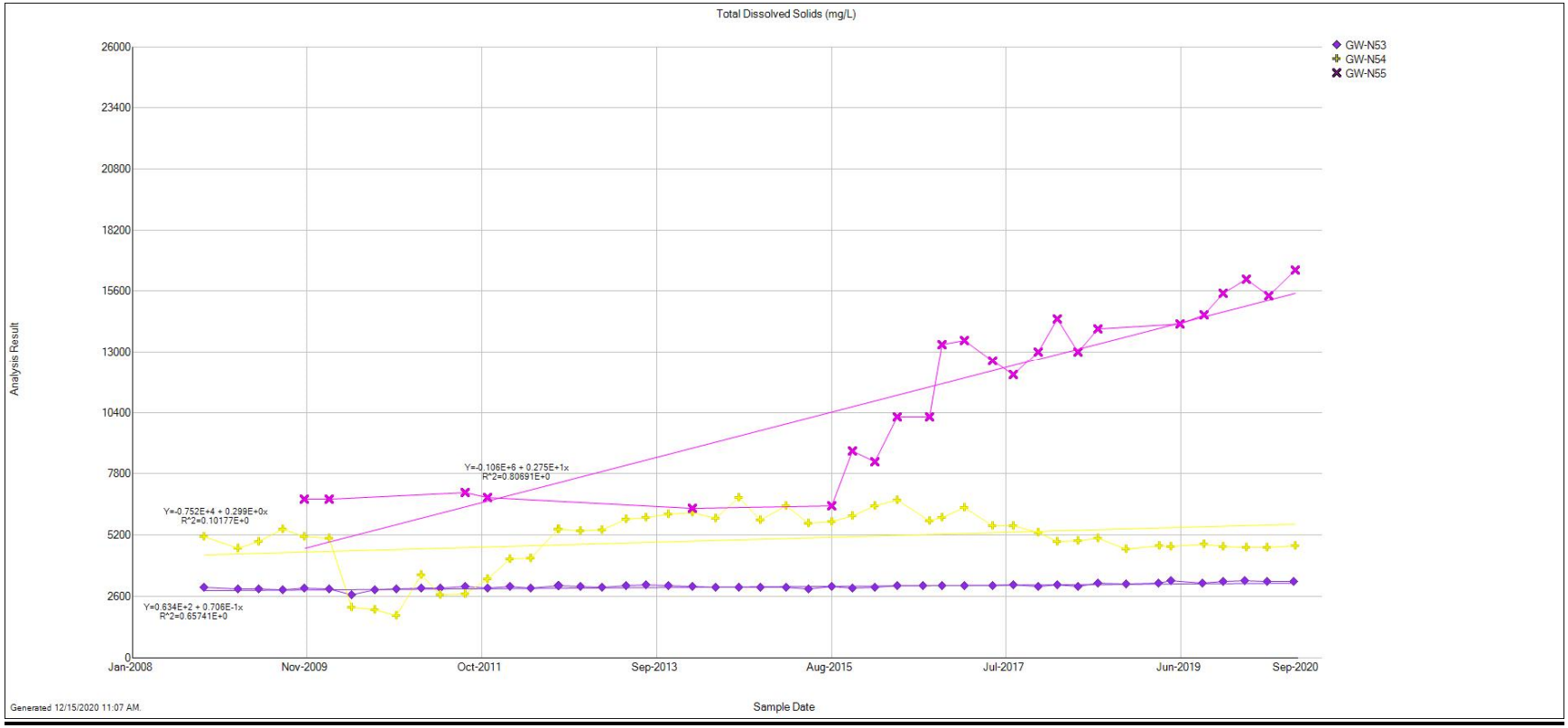

Magnesium, dissolved (mg/L)
GW-N53
GW-N54
GW-N55
Analysis Result
3800
3420
3040
2660
2280
1900
1520
1140
760
380
0
Y=-0.404E+3 + 0.233E-1x
R^2=0.38921E-1
Y=-0.227E+5 + 0.572E+0x
R^2=0.80053E+0
Y=-0.852E+1 + 0.612E-2x
R^2=0.26448E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:07 AM.
Sample Date

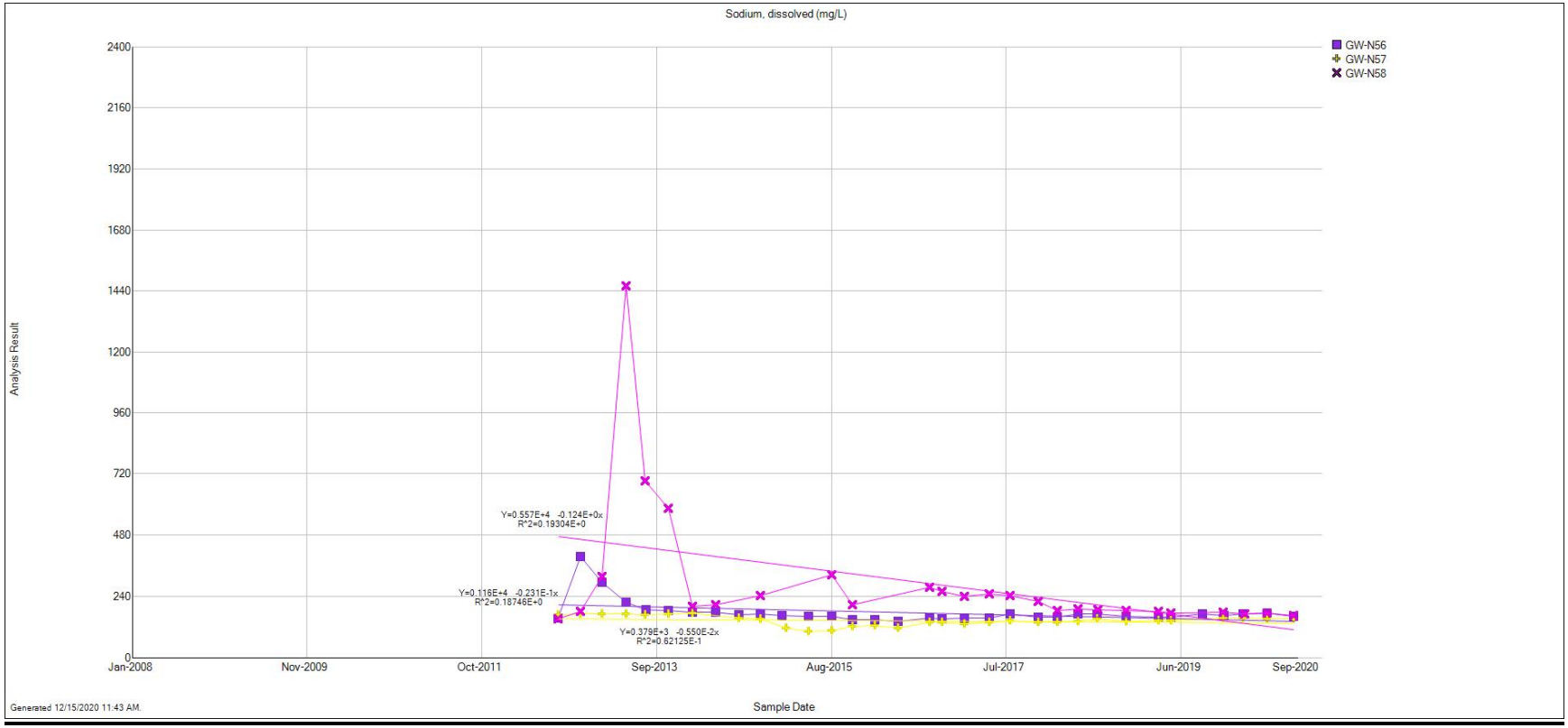

Manganese, dissolved (mg/L)
GW-N53
GW-N54
GW-N55
0.97
0.86992
0.76985
0.66977
0.56969
0.46962
0.36954
0.26947
0.16939
0.06931
-0.03076
Analysis Result
Y=0.119E+1 -0.170E-4x
R^2=0.10222E-1
Y=-0.608E+1 + 0.151E-3x
R^2=0.44242E+0
Y=-0.810E+0 + 0.207E-4x
R^2=0.37275E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:07 AM.
Sample Date

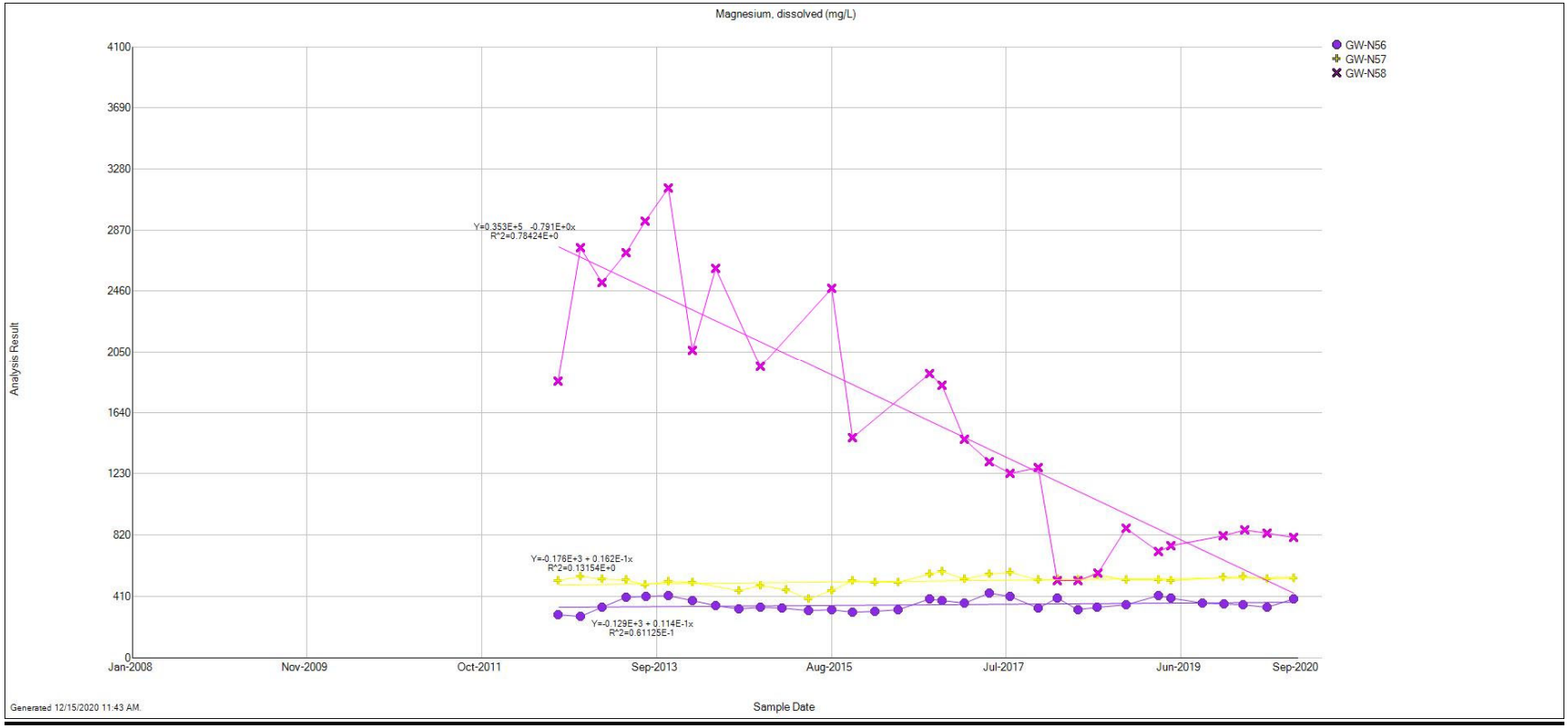

pH (lab)
GW-N53
GW-N54
GW-N55
Y=0.140E+2 -0.148E-3x
R^2=0.23589E+0
Y=0.283E+2 -0.449E-3x
R^2=0.58122E-1
Y=0.142E+2 -0.155E-3x
R^2=0.24327E+0
9.26148
8.33533
7.40918
6.48304
5.55689
4.63074
3.70459
2.77844
1.8523
0.92615
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/15/2020 11:07 AM.

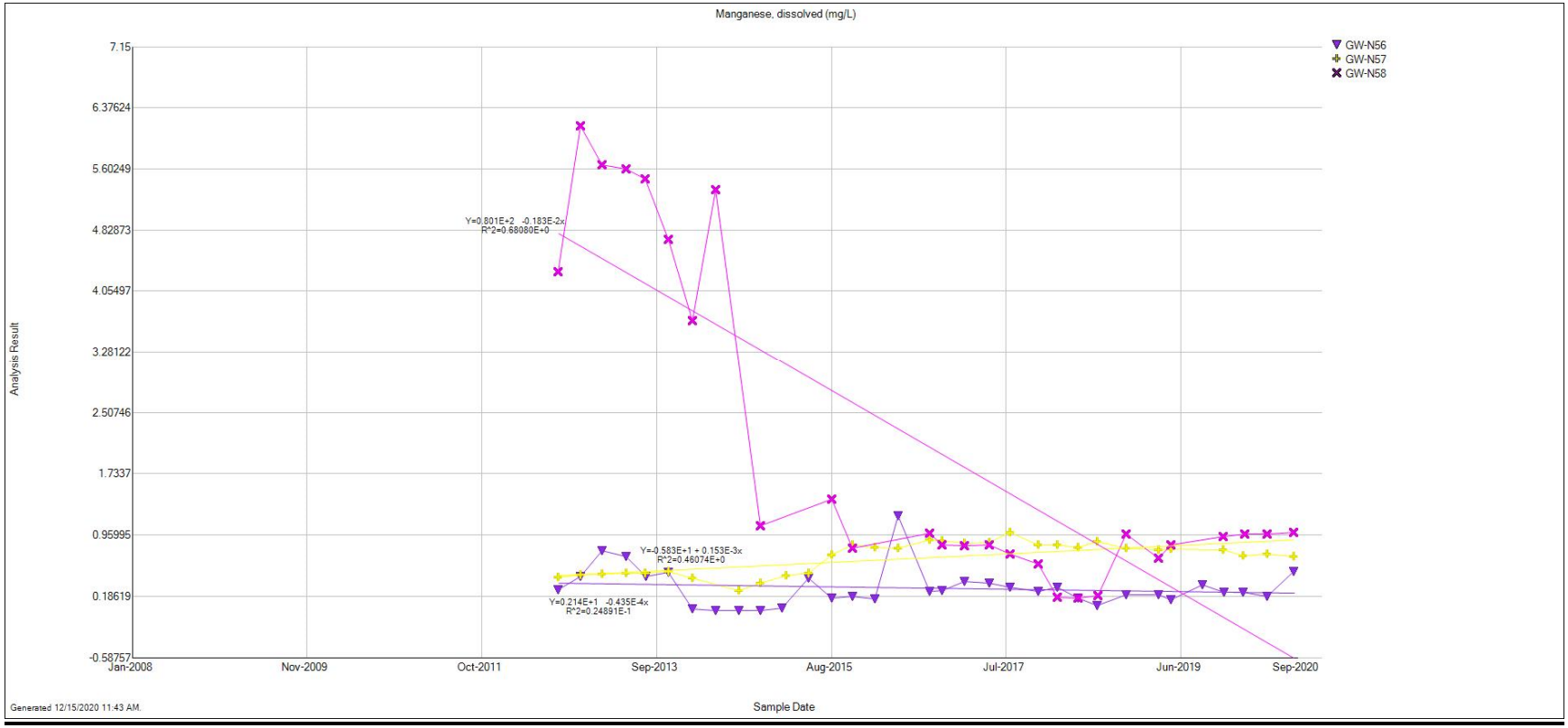

Sodium, dissolved (mg/L)
GW-N53
GW-N54
GW-N55
Y=0.155E+4 -0.283E-1x
R^2=0.75551E+0
Y=0.643E+3 -0.106E-1x
R^2=0.39088E+0
Y=-0.117E+3 + 0.681E-2x
R^2=0.62876E-1
Analysis Result
540
486
432
378
324
270
216
162
108
54
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/15/2020 11:07 AM.

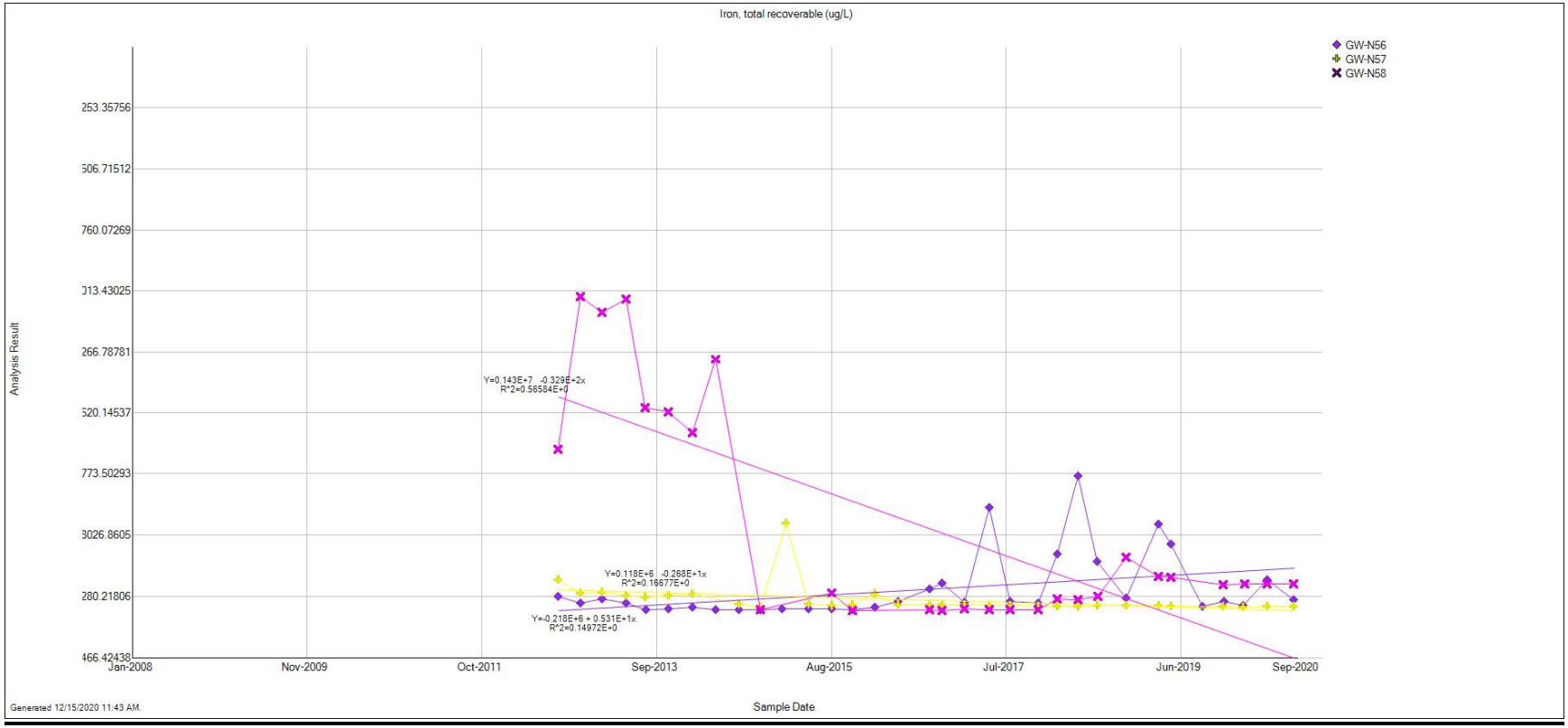

Sulfate, dissolved (mg/L)
GW-N53
GW-N54
GW-N55
Analysis Result
22000
19800
17600
15400
13200
11000
8800
6600
4400
2200
0
Y=-0.833E+5 + 0.213E+1x
R^2=0.79593E+0
Y=-0.358E+4 + 0.156E+0x
R^2=0.46798E-1
Y=-0.640E+3 + 0.530E-1x
R^2=0.47954E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:07 AM.
Sample Date

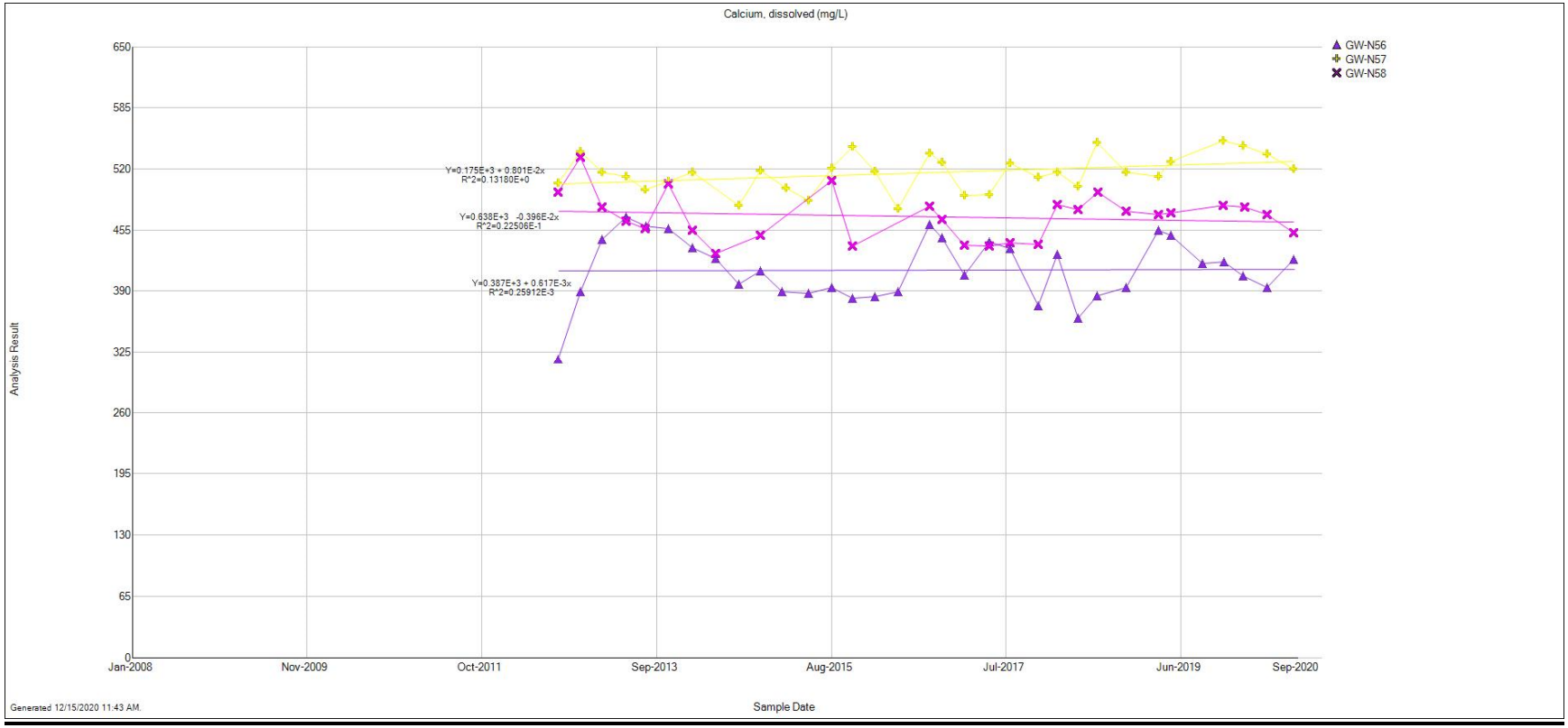

Total Dissolved Solids (mg/L)
GW-N53
GW-N54
GW-N55
Analysis Result
26000
23400
20800
18200
15600
13000
10400
7800
5200
2600
0
Y=-0.106E+6 + 0.275E+1x
R^2=0.80691E+0
Y=-0.752E+4 + 0.299E+0x
R^2=0.10177E+0
Y=0.634E+2 + 0.706E-1x
R^2=0.65741E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:07 AM.
Sample Date

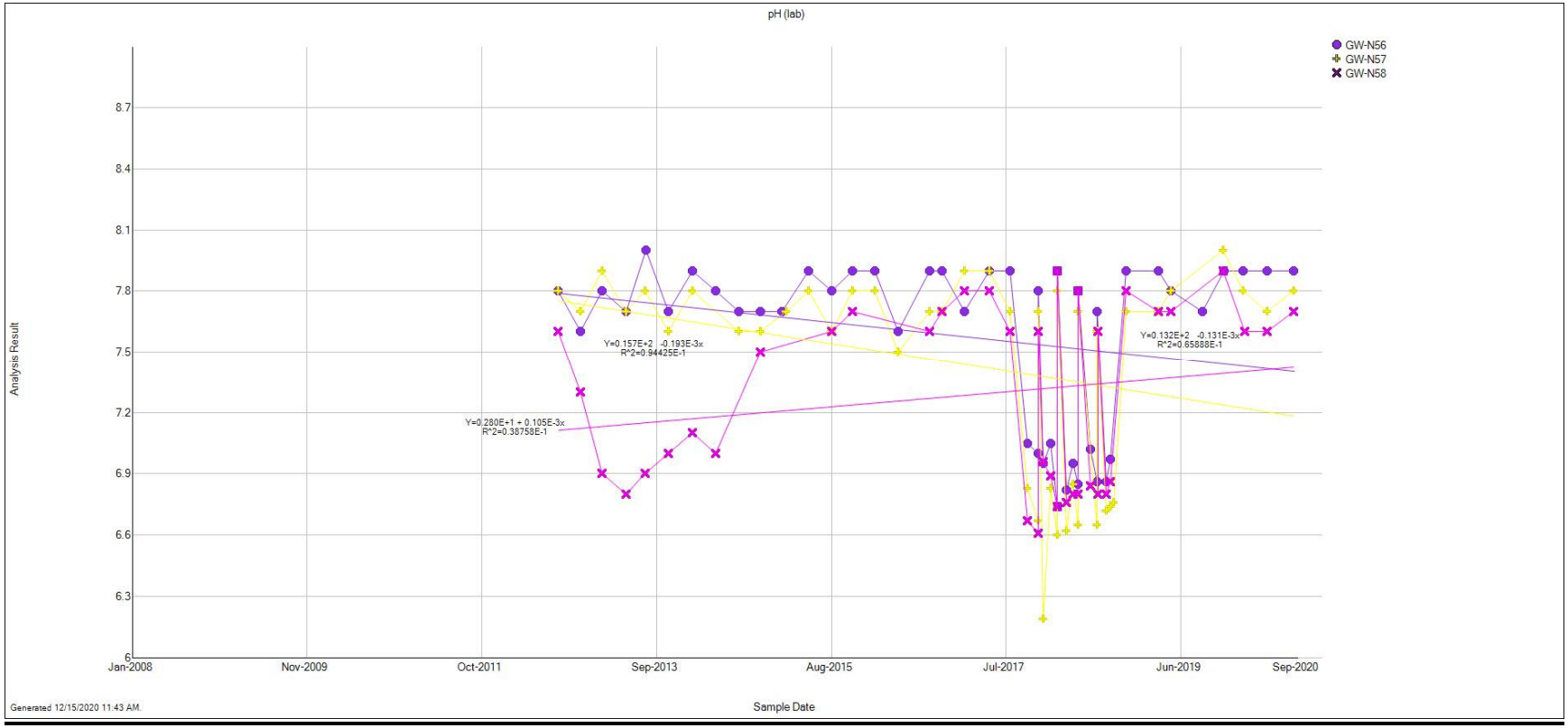

Sodium, dissolved (mg/L)
GW-N56
GW-N57
GW-N58
Analysis Result
2400
2160
1920
1680
1440
1200
960
720
480
240
0
Y=0.557E+4 -0.124E+0x
R^2=0.19304E+0
Y=0.116E+4 -0.231E-1x
R^2=0.18746E+0
Y=0.379E+3 -0.550E-2x
R^2=0.62125E-1
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:43 AM.
Sample Date

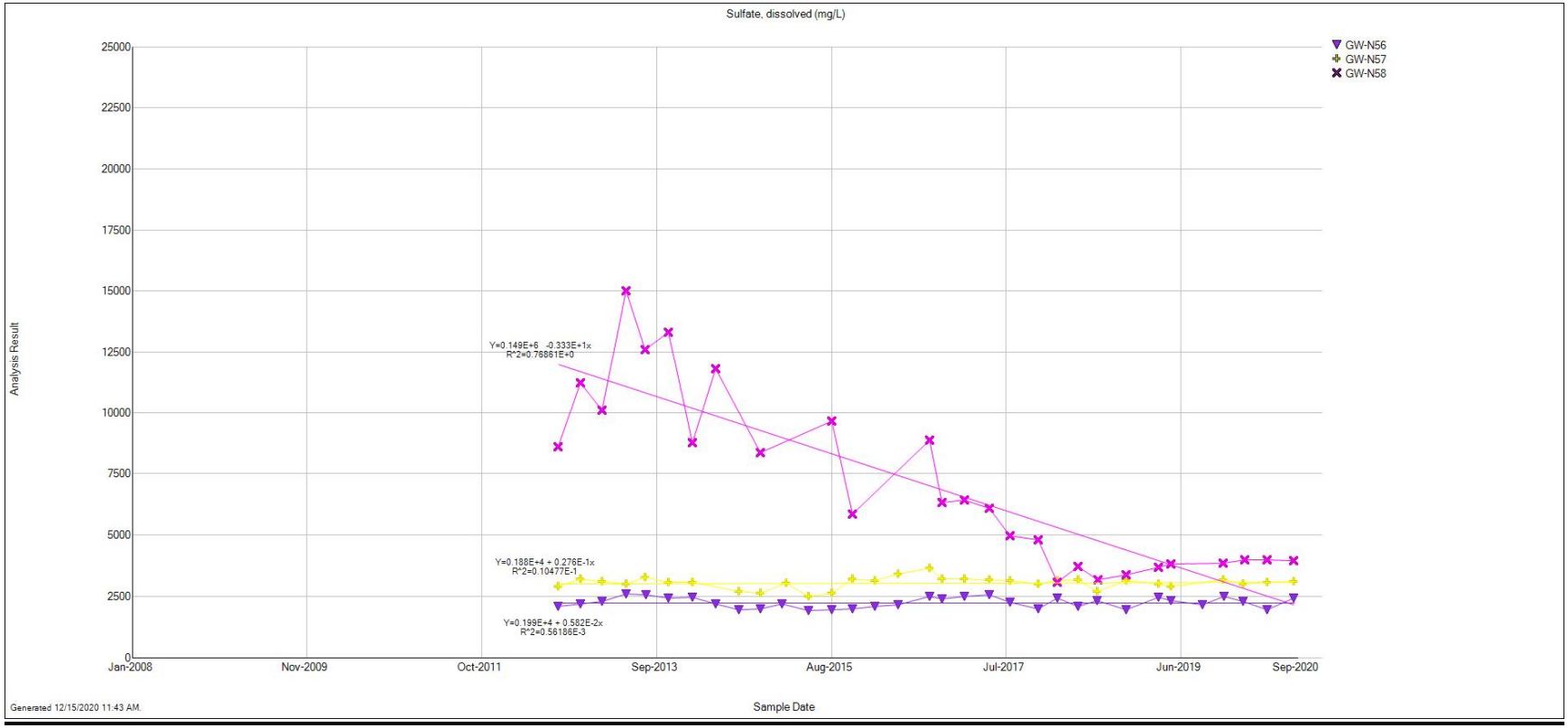

Magnesium, dissolved (mg/L)
GW-N56
GW-N57
GW-N58
Y=0.353E+5 -0.791E+0x
R^2=0.78424E+0
Y=-0.176E+3 + 0.162E-1x
R^2=0.13154E+0
Y=-0.129E+3 + 0.114E-1x
R^2=0.61125E-1
Analysis Result
4100
3690
3280
2870
2460
2050
1640
1230
820
410
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:43 AM.
Sample Date

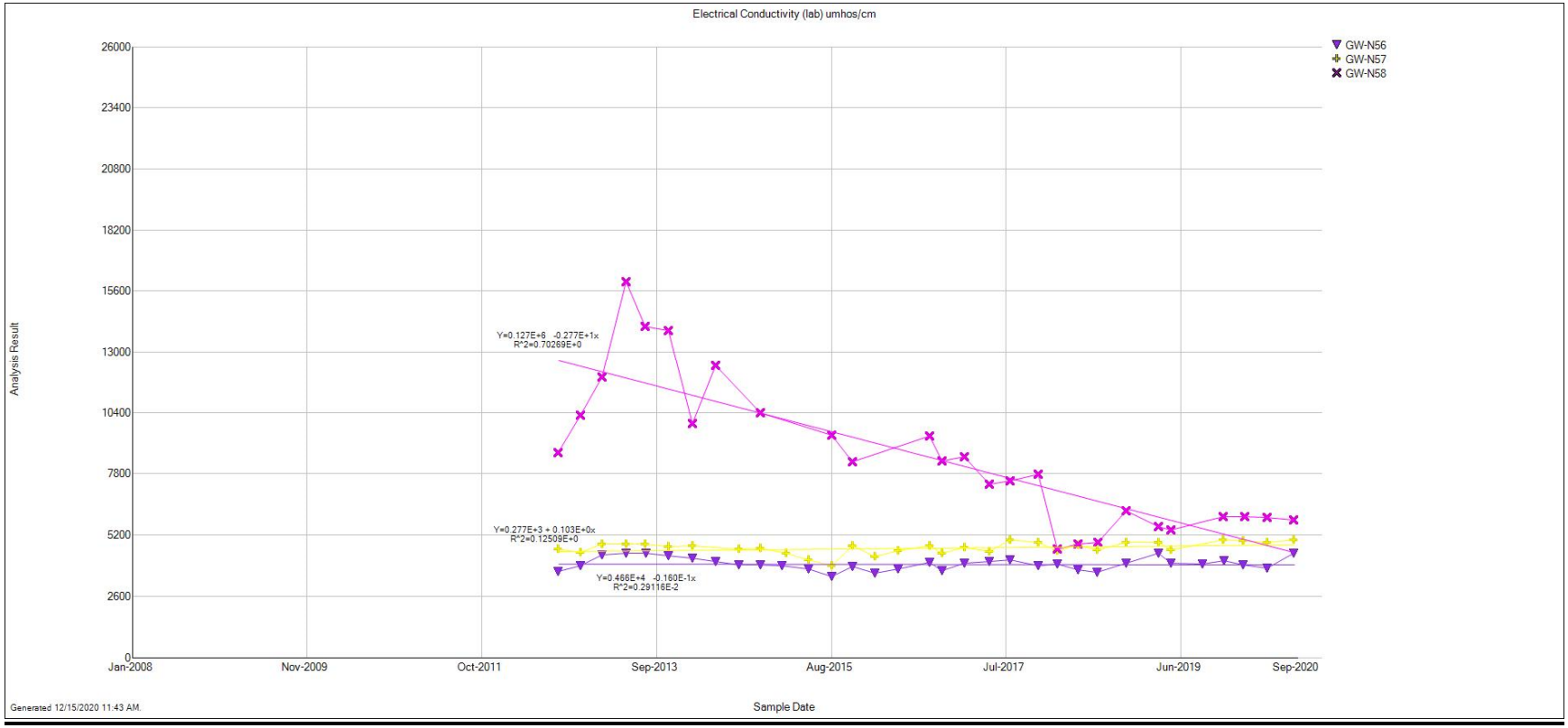

Manganese, dissolved (mg/L)
GW-N56
GW-N57
GW-N58
Y=0.801E+2 -0.183E-2x
R^2=0.68080E+0
Y=-0.583E+1 + 0.153E-3x
R^2=0.46074E+0
Y=0.214E+1 -0.435E-4x
R^2=0.24891E-1
7.15
6.37624
5.60249
4.82873
4.05497
3.28122
2.50746
1.7337
0.95995
0.18619
-0.58757
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/15/2020 11:43 AM.

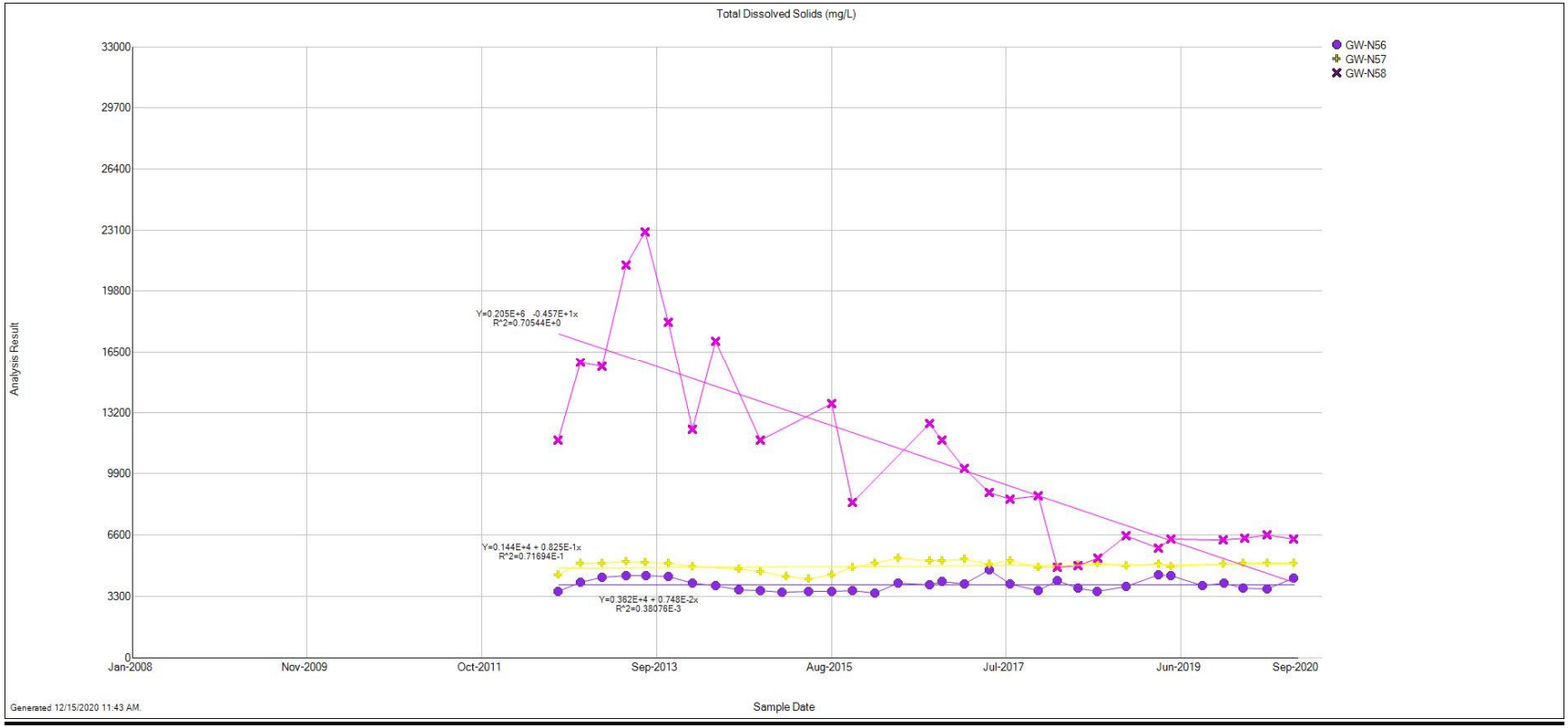

Iron, total recoverable (ug/L)
GW-N56
GW-N57
GW-N58
Analysis Result
253.35756
506.71512
760.07269
013.43025
266.78781
520.14537
773.50293
3026.8605
280.21806
466.42438
Y=0.143E+7 -0.329E+2x
R^2=0.56584E+0
Y=0.118E+6 -0.268E+1x
R^2=0.16677E+0
Y=-0.218E+6 + 0.531E+1x
R^2=0.14972E+0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:43 AM.
Sample Date


Calcium, dissolved (mg/L)
GW-N56
GW-N57
GW-N58
Y=0.175E+3 + 0.801E-2x
R^2=0.13180E+0
Y=0.638E+3 -0.396E-2x
R^2=0.22506E-1
Y=0.387E+3 + 0.617E-3x
R^2=0.25912E-3
650
585
520
455
390
325
260
195
130
65
0
Analysis Result
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Sample Date
Generated 12/15/2020 11:43 AM.


pH (lab)
GW-N56
GW-N57
GW-N58
Analysis Result
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Y=0.157E+2 -0.193E-3x
R^2=0.94425E-1
Y=0.132E+2 -0.131E-3x
R^2=0.65888E-1
Y=0.280E+1 + 0.105E-3x
R^2=0.38758E-1
Generated 12/15/2020 11:43 AM.
Sample Date


Sulfate, dissolved (mg/L)
GW-N56
GW-N57
GW-N58
Y=0.149E+6 -0.333E+1x
R^2=0.76861E+0
Y=0.188E+4 + 0.276E-1x
R^2=0.10477E-1
Y=0.199E+4 + 0.582E-2x
R^2=0.56186E-3
Analysis Result
25000
22500
20000
17500
15000
12500
10000
7500
5000
2500
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:43 AM.
Sample Date


Electrical Conductivity (lab) umhos/cm
GW-N56
GW-N57
GW-N58
Y=0.127E+6 -0.277E+1x
R^2=0.70269E+0
Y=0.277E+3 + 0.103E+0x
R^2=0.12509E+0
Y=0.466E+4 -0.160E-1x
R^2=0.29116E-2
Analysis Result
26000
23400
20800
18200
15600
13000
10400
7800
5200
2600
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:43 AM.
Sample Date


Total Dissolved Solids (mg/L)
GW-N56
GW-N57
GW-N58
Y=0.205E+6 ..-0.457E+1x
R^2=0.70544E+0
Y=0.144E+4 + 0.825E-1x
R^2=0.71694E-1
Y=0.362E+4 + 0.748E-2x
R^2=0.38076E-3
Analysis Result
33000
29700
26400
23100
19800
16500
13200
9900
6600
3300
0
Jan-2008
Nov-2009
Oct-2011
Sep-2013
Aug-2015
Jul-2017
Jun-2019
Sep-2020
Generated 12/15/2020 11:43 AM.
Sample Date