ANNUAL GROUNDWATER REPORT

2023 - 2024

US GYPSUM, IMPERIAL COUNTY

September 2024

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1. INTRODUCTION

In 1999, US Gypsum (USG) began an expansion of their Plaster City Plant, located outside of Ocotillo, California. This expansion replaced the production line from 1956 with a more modern and efficient gypsum wallboard manufacturing facility. An environmental impact report and study (EIR/EIS) of the expansion was approved in 2008. This EIR/EIS showed that groundwater levels were declining in the Coyote Wells Valley Basin (**Figure 1**) prior to the Plaster City Plant expansion, and it suggested that the Plant expansion and operations could exacerbate the groundwater level declines. In 2015, USG developed a Groundwater Monitoring Program in response to the EIR/EIS (Todd, 2015). This plan was updated in 2018 following a settlement agreement with the Sierra Club (Imperial County Superior Court, 2018). As detailed in the Monitoring Program, annual reports are submitted to Imperial County by the first business day of October.

This annual report details groundwater conditions in the Coyote Wells Valley Basin and documents changes that occurred between Spring 2023 through Spring 2024. It analyzes and summarizes groundwater levels and groundwater quality measurements collected by the United States Geologic Survey (USGS) each spring, as well as additional groundwater level and groundwater quality data collected by USG.

In Spring 2024, the USGS monitored groundwater levels in 20 wells throughout the basin and sampled groundwater quality from 17 wells. USG also measured daily water levels in five of these wells and additional groundwater contaminants in three of the wells. One well had previously shown groundwater level decline over 4 years, but in 2024 has maintained a stable water level. No significant adverse trends that indicate regional groundwater level decline or groundwater quality degradation were observed.

2. PHYSICAL SETTING

2.1. DESCRIPTION OF GROUNDWATER BASIN

The Coyote Wells Groundwater Basin is located in the Yuha Desert, west of Imperial Valley, California (**Figure 1**). This Basin, DWR Groundwater Basin No. 7-29 (DWR, 2003), has an area of 64,400 acres (100 square miles). It is bounded by impermeable rocks to the north, west, and southwest, while its southern and eastern borders are political, as opposed to geologic, boundaries. **Appendix A** contains a more detailed description of the Basin's hydrogeology. Groundwater from this Basin is pumped for the Plaster City Plant, the community of Ocotillo, domestic wells, and, in 2020, dewatering of a construction project by US Customs and Border Protection. The project appears to have been abandoned.

2.2. HYDROLOGY

The Coyote Wells Valley Basin has an arid climate and receives limited natural recharge. Over the period of record from 1933-2024, the average spring to spring rainfall at the El Centro precipitation station (Western Regional Climate Center, 2022) was 2.6 inches (**Figure 2**). Annual rainfall ranges from 0.05 inches in 2001-2002 water year to 7.3 inches during the 1982-1983 water year. Annual precipitation from April 2023 through March 2024 was 4.1 inches, above average. Over seventy percent of the annual precipitation, 1.52 and 1.42 inches, occurred during August 2023 and January 2024, respectively.

2.3. GROUNDWATER PUMPING

The Plaster City Plant pumps groundwater from the Coyote Wells Valley Basin for primarily industrial use. Its three production wells (USG- 4, 5, and 6) are located near the center of the Basin (**Figure 3**). Monitoring wells, shown in **Figure 3**, observe groundwater conditions throughout the Basin. **Figure 4** provides a closer view of well locations near Ocotillo.

Figure 5 shows annual USG production, by calendar year, from 1970 to 2023. Annual production totals by well for the 2005 through 2023 calendar years are tabulated in **Table 1**. The total groundwater production reported by USG in the 2023 calendar year was 322-acre feet (AF). This is a slight decrease from the 355 AF of production in calendar year 2022.

The total water pumped by USG during the time covered by this Annual Report, from the end of Spring 2023 (Q3 and Q4 2023) through Spring 2024 (Q1 and Q2 2024), was 283 AF. **Table 2** shows pumping during this period, as well as during the first two quarters of 2023. Quarterly production between 2023 Q3 and 2024 Q2 ranged from 74 AF (2024 Q1) to 84 AF (2023 Q3).

USG-4 experienced electrical and totalizer issues in 2022 and was taken offline. It was returned to service in August 2023. Production at USG-5 was reduced in August 2023 due to a leaking seal.

USG noted discrepancies between the totalizer volumes reported by the automated chart recorder for individual wells, the inline meter data at each well, and the chart recorder values for total water received and distributed to the facility. USG installed new chart recorders in July 2024 to improve reporting accuracy. To ensure that production by each well was accurately represented, this report relied on monthly meter readings, collected manually from the inline totalizer by McCall's Meters, during 2023 and 2024.

2.4. Pumping from Other Sources

Groundwater pumping from the Basin has traditionally been for residential and industrial uses. There are no publicly available data for the annual pumping from the two mutual water companies and domestic wells in the Basin. However, a previous study estimated production from these sources to be 127 AFY as of 2004 (Todd, 2007).

3.MONITORING PROGRAM

The USGS measures water levels and water quality semi-annually and reports results publicly on the National Water Information System (NWIS) at https://waterdata.usgs.gov/. USG monitors water levels in the three production wells (USG-4, USG-5, and USG-6) and for two nearby monitoring wells (36A1/MW-2B and 36A2/ MW-2A). **Table 3** identifies all recently monitored wells within and just east of the Basin. In Spring 2024, USGS monitored quarterly water levels in 20 wells and USG monitored daily water levels in five of these wells. Four wells that were recently monitored but were not monitored in Spring 2024 are listed at the bottom of **Table 3**. If applicable, the reason why the wells were not monitored is also shown at the bottom of **Table 3.** Staff at USGS were alerted that these wells should continue to be monitored. Well 28D1 was reported dry in Spring 2023 and 2024. Its screened interval depths were requested. In September 2020, USG received a grant from the BLM to utilize land to install two additional monitoring wells. USG is currently in the process of assembling quotes for the well installation.

The USGS monitored water quality in 17 wells during April 2024. USG monitored additional contaminants, including organic constituents, in the five USG production wells.

Figure 3 shows recently monitored wells in and surrounding the Coyote Wells Valley Basin, and **Figure 4** shows monitoring wells, zoomed in on Ocotillo. In these figures blue indicates wells that have both water level (WL) and water quality (WQ) data from 2024, yellow indicates wells with water level data only and green indicates water quality data only. Wells that have been monitored recently but were not monitored in 2024 are shown with a transparent symbol.

Water level measurements in the three production wells may not be representative of regional water levels because the water level fluctuates significantly due to pumping. When the well is pumped, the groundwater levels in and near the well decline. The resultant drawdown is dependent on several variables, including the pumping rate, well efficiency, and the type of pump. Hydrographs for all wells are found in **Appendix B**, and fluctuations in the production wells due to pumping are evident in these hydrographs.

3.1. Water Levels

Appendix B contains hydrographs for all monitoring wells. The hydrographs are presented in two sets. The first set shows hydrographs for all active wells with the same scale for easy comparison. The second set shows the same water levels and wells, but with a vertical range of 25 feet (ft) to highlight subtle changes in the water levels.

Several key wells, shown with their hydrographs in **Figure 6**, were selected to show trends across the groundwater basin. These wells were chosen as key wells because they have relatively complete water level histories and locations representative of the groundwater basin. For easy comparison, the hydrographs in **Figure 6** all use the same vertical scale (40 ft). Drawdown from pumping in the USG wells is observed in the nearby monitoring Wells 31B1 and 36D2 from the 1990s through 2008. These wells show slight decreasing trends during this time, and then slight increases in response to lower pumping rates in 2008-2015. Well 36D2 shows a slight decreasing trend from 2015-2024, likely due to recent increases in USG production. Well 31B1 shows a slight decreasing trend from 2015-2024 (water levels were not measured in Spring 2023).

Wells further away from the USG wells do not show a clear response to USG pumping rates. For example, Well 24D1, north of the USG wells, shows steadily decreasing water levels over the past 30 years, while water levels in Well 16J1 have steadily increased during this time period. Towards the eastern edge of the Basin, Well 42L1 reflects seasonal variations and shows sharp increases after peak precipitation events in 1993 and 1997. Well 42L1 has shown a declining trend since 2013. After the wet spring in 2023, water levels are stable.

Table 4 lists 16 dedicated monitoring wells that were monitored in both Spring 2023 and Spring 2024 and the annual change in average water level. For the monitoring wells 36A1 (MW-2B) and 36A2 (MW-2A) and USG production wells, which are monitored by both the USGS and USG, the Spring USGS measurements were used for trend analysis to maintain consistent methodology. Whilst Well USG-4 was monitored in Spring 2024, measurements were not taken in Spring 2023, and USG-5 was also not monitored as it has been destroyed and replaced by Well 36H2 (New USG 5), therefore a differential analysis could not be calculated (Table 3). Wells 31B1 and 11H3 were monitored in Spring 2024 but could not be included in the analysis because they were not monitored in Spring 2023.

Of the 16 wells analyzed, seven wells showed declining water levels from Spring 2023 to Spring 2024. The largest decline of a monitoring well was observed at Well 24D1, which had a decline of -0.13 ft, between Spring 2023 to Spring 2024. Only USG-6 had a decline of greater than -0.1875 ft (-1.37 ft). The groundwater level reduction in USG-6 may be due to increased production at this well, in response to reductions or pauses in production at USG-4 and later USG-5 during 2023 and 2024.

Nine wells show increasing groundwater levels over the past year. Seven of these wells showed increases by greater than 0.1875 ft from Spring 2023 to Spring 2024. The three wells with the largest groundwater level increases are clustered in the central-southern portion of the Basin, east of Coyote Wells. The maximum water level increase was 0.51 ft at well 11B1, near Vista De Anza.

Monitoring wells 36A2 (MW-2A) and 36A1 (MW-2B), shown in **Figure 4**, are the closest monitoring wells to the USG production wells. **Table 4** shows that between 2023 and 2024 both 36A2 (MW-2A) and 36A1 (MW-2B) showed a water level increase and decrease of 0.06 ft and -0.13 ft, respectively.

The groundwater contours and flow direction near Ocotillo are shown in **Figure 7**. Like previous years, the groundwater flows, in general, from west to east. Several wells on the west (11H3, 25K2, 26F1, 32P2, 35M1) were not monitored in Spring 2024, due to access restrictions. In past years, lower water levels at 26F1 have indicated a pumping depression due to production at one or more private, non-USG wells. The USGS is in communication with Todd Groundwater and USG to work towards resolving these access issues.

3.2. Assessment of Groundwater Level Declines

Groundwater level declines in the Coyote Wells Valley Basin have been previously characterized as either short-term or long-term declines. Short-term drawdowns correspond to nearby pumping and quickly recover after nearby pumping has ceased. Production wells have alternating periods where the well is on and off. When the well pump is operating, groundwater levels in and around the pumping well will decline. As shown in hydrographs for the production wells USG-4, USG-5, and USG-6 (**Appendix B**), water levels vary significantly while the wells are pumping, but levels recover within days.

Short-term declines in water levels can adversely affect surrounding wells. This drawdown is called well interference. The monitoring program developed for USG addresses well interference with the following performance standard:

> *Well interference is defined as the combined pumping from all USG pumping wells so as **not to exceed 5 feet of drawdown at the nearest water-supply well.***

No private wells have reported well interference issues due to USG pumping thus far. Long-term declines do not quickly recover, and long-term declines are exacerbated by additional pumping. Several wells in the Coyote Wells Valley Basin exhibit long-term declines. The performance standard to evaluate long-term regional decline in the Coyote Wells Valley Basin is as following:

> *Water level decline is defined as four consecutive **annual** groundwater measurements (**spring only**) declining at a rate that is greater **than 0.1875 feet per year**, occurring at more than **10 percent of wells** in the regional monitoring program.*

Spring measurements are used to calculate the rate of decline to avoid seasonal effects on groundwater levels, and USGS measurements are used to maintain consistent methodology. The calculated rate of decline for the period of record (2010-2024), is listed by well in **Table 4**. Declines greater than 0.1875 feet in a year are highlighted. From 2023 to 2024, no wells met the criteria for groundwater level decline.

Well 42L1 is the only well in the monitoring program to have ever show water level declines over at least four consecutive years since annual reporting began. The well reported a water level decrease of only -0.1 ft from 2023 to 2024 which represents a level of groundwater stability between Spring 2023 and Spring 2024. A decline of greater than 0.1875 was only observed in USG-6 between Spring 2023 and Spring 2024, where a decline of 1.37 ft occurred.

The groundwater level data shown in **Table 4** and **Figure 6** indicate that the pattern and rates of groundwater level changes in Well 36A2 (MW-2A) differ from that of other monitoring wells in the Basin, including wells closer to USG wells. This suggests that local factors may be affecting water level declines in addition to regional decline. The hydrographs in **Figure 6** shows that historical water level trends in the Basin vary by location. Comparison between the Well 42L1 hydrograph on **Figure 6** and the annual rainfall amounts on **Figure 2** show that high rainfall years correspond with short-term increases in groundwater levels at Well 42L1. This well is located along Yuha Wash, which concentrates and percolates rainfall-induced runoff from surrounding uplands and may make this well's water levels susceptible to precipitation trends, despite the arid environment. This well may be particularly vulnerable to shifting precipitation trends due to climate change.

The performance standard for assessing long-term regional decline has not been exceeded. However, in subsequent annual reports, attention should be given to Well 42L1. Water levels in Well 42L1 have decreased between 2017 and 2023 by more than 0.1875 ft. However, in Spring 2024, the decrease was only by 0.1ft. Because the most recent annual groundwater level decrease was less than 0.1875 ft, this well does not meet the criteria for groundwater level decline.

4. WATER QUALITY

4.1. GROUNDWATER QUALITY

The EIR/EIS indicated that increased groundwater production can lead to groundwater quality degradation. Tertiary marine sediments have been identified in outcrops in the Ocotillo area as well as in the No Mirage area in the eastern portion of the groundwater basin. These sediments are present beneath the alluvial aquifer. Groundwater stored in these sediments has a higher natural salinity level. Increases in groundwater production could increase groundwater salinity in the Coyote Wells Valley Basin through two processes:

- lateral migration of saline water from near-surface Tertiary marine sediments
- vertical migration of saline water from the Tertiary marine sediments present at depth below the alluvial aquifer.

The monitoring program is designed to detect changes in total dissolved solids (TDS) concentrations due to increased pumping by USG wells. TDS is used as an indicator for general mineral groundwater quality. Tracking TDS changes is a simplified, but widely accepted, method to detect changes in general water quality.

4.2. POTENTIAL WATER QUALITY DEGRADATION

Table 5 shows TDS concentrations for the active USGS monitoring wells, and tables of other constituents are presented in **Appendix C.** The water quality data shows clear spatial trends in the Basin, with little change over recent years. While higher TDS concentrations exist in the eastern portion of the Basin, the stable TDS concentrations throughout the Basin suggest that saline eastern water is most likely not migrating west.

The following performance standard has been developed as an early warning of changing conditions from USG pumping and its potential effect on water quality:

> *A significant increasing trend in **total dissolved solids** (TDS) concentrations is defined as TDS concentrations in groundwater from any well in the groundwater basin whereby **four consecutive annual samples (collected each spring)** show a cumulative increase greater than **20 percent of the long-term average** for that well.*

No wells show increasing TDS concentrations, as defined by the updated 2018 USG performance standard listed above. Nine wells reported increases in TDS concentrations from 2023 to 2024. The most significant increases were observed in Well 11H3 (283 to 319 mg/L). TDS concentrations at this well had declined over the previous two years. Four wells measured lower TDS concentrations in Spring 2024 compared to Spring 2023.

Figures 8A and **8B** show springtime TDS concentrations. **Figure 8A** shows every well with a scale of 0 to 1,600 mg/L. All active wells in the monitoring network have satisfied the performance standard for TDS, meaning that cumulative 4-year increases in TDS concentrations (if any) have been less than 20 percent of the well's average TDS concentration. **Figure 8B** shows Well 31B1, a key well that has shown salinity fluctuations over the past several years. In March 2024, the TDS measurement at Well 31B1 was 297 mg/L, a slight increase from the March 2023 TDS measurement of 289 mg/L.

Figure 9 shows TDS concentrations within the groundwater basin for Spring 2024. Groundwater quality data for other major constituents are provided in **Appendix C**. Although the maximum TDS concentration is used as the metric for reporting TDS concentrations, every well in the monitoring network only had TDS concentrations measured once in Spring 2024. As documented in **Table 5**, Well 24B1, located north of Ocotillo, had the highest March 2023 TDS concentration at 1,250 mg/L, which decreased 1,230 mg/L in March 2024, the lowest concentration observed at this well since 2013. In general, TDS concentrations are decreasing or within the range of concentrations at each well.

5. SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

Pursuant to the Sustainable Groundwater Management Act (SGMA), Imperial County assumed the role of Groundwater Sustainability Agency (GSA) for all groundwater basins and sub-basins within the county. Consequently, the County has been deemed the exclusive GSA for the Coyote Wells Valley Basin.

The County has continued to work cooperatively with local agencies, water providers, and other interested stakeholders within the Basin in this role. DWR has determined Coyote Wells Valley Basin to be very low priority basin and is therefore not required to prepare a Groundwater Sustainability Plan (GSP). Should the County choose to prepare a GSP for the Basin, the County will consider the interests of all beneficial uses and users of groundwater, as directed by California Water Code section 10723.2. USG is a beneficial user of groundwater and should remain aware of and participate in any GSP process; groundwater management may change how groundwater is monitored, reported, or allocated in the Basin. As of September 2024, there is still no initial notification for a GSP of Coyote Wells Valley Basin and there are no other indications that the County is moving ahead in the process (DWR, 2023).

6. CONCLUSIONS

The USG monitoring program meets every objective established in the EIR/EIS. Continued data collection by the USGS is crucial for maintaining monitoring. The current monitoring network and program is sufficient to identify the occurrence of regional water level declines and identify regional water level declines related to the Plaster City Plant production. From 2023 to 2024, no wells in the monitoring network experienced water level decline or a significant increasing trend of TDS, as defined by the USG Groundwater Monitoring Program performance standards.

The current monitoring program meets the objectives set forth in EIR/EIS, noting the importance of continued USGS data collection. The water level data collected are sufficient to identify increases in the rate of water-level decline and for potential water quality degradation. In summary, none of the performance standards have been exceeded, and no significant adverse trends have been identified.

US Gypsum will prepare the next Annual Report due to the County of Imperial by the first business day in October 2025.

7. REFERENCES

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TABLES

Table 1. Annual USG Pumping by Well (AFY)

Calendar Year Pumping	Well #4	Well #5	Well #6	Total
2005	226	199	149	575
2006	199	188	162	549
2007	192	174	135	501
2008	140	136	125	400
2009	75	84	78	237
2010	78	82	79	239
2011	81	83	82	247
2012	69	109	70	248
2013	106	66	78	250
2014	98	59	82	239
2015	87	93	91	271
2016	115	118	106	339
2017	93	148	121	362
2018	154	127	92	374
2019	145	101	141	388
2020	109	108	130	347
2021	94	121	137	351
2022	59	139	157	355
2023	64	101	156	321

Table 2. Quarterly USG Pumping by Well (AF per quarter)

Year	Quarter	#4	#5	#6	TOTAL	Annual Distribution
2023	Q1[1]	0	46	33	79	--
2023	Q2	0	39	41	80	--
2023	Q3	30	17	37	84	29.6%
2023	Q4	33	0	45	78	27.6%
2024	Q1	27	0	46	74	26.0%
2024	Q2	23	0	24	47	16.8%

1. The 2022-2023 Annual Report relied on digital chart recorder readings and reported 2023 Q1 production as 78 AF.

2. The 2022-2023 Annual Report relied on digital chart recorder readings and reported 2023 Q2 production as 81 AF.

Table 3. List of Actively Monitored Wells and Available Data for 2024

Well Name	Short Name	Active WL Network	Active WQ Network	First WL Measurement	First WQ Measurement	Agency
17S10E11B1	11B1	Y		1975	*	USGS
17S10E11G1	11G1	Y		1967	1967	USGS
17S10E11G4	11G4	Y		1978	*	USGS
17S10E11H3	11H3		Y	1987	1987	USGS
17S11E22E2	22E2	Y		1975	1975	USGS
17S11E16J1	16J1	Y		1970	1972	USGS
16S11E23B1	23B1	Y		1974	1964	USGS
16S9E24B1	24B1	Y	Y	1976	1977	USGS
16S9E24D1	24D1	Y	Y	1976	1977	USGS
16S9E25K2	25K2		Y	1972	1972	USGS
16S9E26F1	26F1		Y	1998	2013	USGS
16S11E27F1	27F1	Y		1975	*	USGS
16S10E27R1	27R1	Y		1975	1975	USGS
16S10E29H1	29H1	Y		1975	1975	USGS
16S10E20R1	30R1		Y	1959	1959	USGS
16S10E31B1	31B1	Y	Y	1993	2013	USGS
16S01E32N1	32N1		Y	2018	2018	USGS
16S01E32P3	32P3		Y	2016	2016	USGS
15S11E32R1	32R1	Y		1974	1964	USGS
16S9E34B1	34B1		Y	1998	1997	USGS
16S9E36A1	36A1(MW-2B)	Y	Y	2012	2013	USGS, USG
16S9E36A2	36A2 (MW-2A)	Y	Y	2012	2013	USGS, USG
16S9E36B1	36B1 / USG-6	Y	Y	1969	1963	USGS, USG
16S9E36C2	36C2		Y	1975	1961	USGS
16S9E36D2	36D2	Y		1975	1975	USGS
16S9E36G3	36G3 / USG-4	Y	Y	1969	1963	USGS, USG
16S9E36H2	36H2 / USG-5	Y	Y	1954	1963	USGS, USG
16S10E42A8	42A8		Y	1994	1994	USGS
16S11E42L1	42L1	Y		1975	1975	USGS

Wells Not Monitored in 2024 that were recently active

Well Name	Short Name	Agency	Reason
16S10E28D1	28D1	USGS	Well is dry -- screened interval unknown
16S10E32P1	32P1	USGS	No reason given by USGS, Last monitored 2017
16S9E25M2	25M2	USGS	Well destroyed
16S9E35M1	35M1	USGS	No reason given by USGS, Last monitored 2023
16S10E32P2	32P2	USGS	No reason given by USGS, Last monitored 2024

Table 4. Water Level Trends

Well	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Maximum consecutive years of declines greater than 0.1875 ft/year
11B1	0.60	0.52	0.56	0.44	0.37	0.60	0.62	0.43	0.42	0.37	0.47	0.49	0.51	0.46	0.51	
11G1		0.83	-0.18	0.84	0.64	-0.39	1.46	-0.89			1.13	0.99	0.36	0.60	0.42	
11G4	0.62	0.29	0.30	0.60	0.55	0.42	0.62	-0.48	1.70	0.28	0.24	0.57	0.47	0.57	0.13	
11H3			-1.09	2.05	0.29	0.84	0.66	-0.05	0.79	0.24	0.39	0.37	0.22			No '23/'24 data
16J1	0.38	0.46	0.12	0.27	0.13	0.03	0.20	0.08	0.27	0.06	0.06	0.21	0.07			No '23 data
22E2	0.38	0.41	0.16	0.24	0.46	-0.27	0.20	0.71	-0.34	0.03	0.09	0.17	0.09	-0.25	0.39	
23B1	-0.30	0.26	-0.45	-0.06	-0.63	0.55	-0.10	3.74	-3.80	0.05	-0.06	-0.32	-0.12	0.08	-0.05	
24B1	-0.07	-0.23	-0.16			-0.14	-0.09	-0.10	-0.13	-0.13	-0.11	-0.01	-0.18	-0.20	-0.09	
24D1	-0.08	-0.18	-0.11			-0.51	0.30	-0.04	-0.13	-0.11	-0.14	-0.1	-0.11	-0.11	-0.13	
25K2								-0.20	-0.12			-0.17	0.03	-0.08		No '24 data
25M2		-0.88	1.17	-0.33	0.29	-0.80	0.69	-0.94					-0.41			Well Destroyed
26F1	-0.07	-0.05	-0.11	-0.07	-0.10	-0.06	-0.08	-1.21			-0.15	-0.15	-0.09	-0.08		No '24 data
27F1	-0.10	-0.25	-0.28	0.13	-0.10	-0.15	0.05	-0.08	0.13	-0.02	-0.21	0.29	-0.19	-0.12	0.22	
27R1	-0.12	0.01	-0.09	0.01	0.41	0.05	0.13	-0.13	0.22	0.30	-0.16	0.14	-0.13	-0.52	0.44	
29H1	0.35	-0.31	-0.09	-0.01	0.01	0.00	-0.02	-0.08	0.08	0.03	0.04	0.82	-0.03	-0.24	0.27	
31B1	0.35	0.27	0.18	0.03	-0.02	-0.78	-2.37	2.73	-0.35	-0.20	-0.20	-0.17	-0.14			No '23 data
32P2										-0.16	0.00	-0.52	-0.11	-0.02		No '24 data
32R1	0.01	0.02	-0.09	0.22	0.12	-0.07	-0.01			-0.26	-0.02	-0.64	0.15	0.16	0.24	
35M1				0.22	0.12	-0.07	-0.01			-0.26	-0.02	-0.64	0.15	0.16		No '24 data
36A1(MW-2B)					0.25	-0.88	-0.31	-1.22	-0.01	-1.26	-0.42	0.14	0.15	0.19	-0.13	
36A2 (MW-2A)					-0.32	3.58	-0.50	-1.03	-0.13	-1.41	0.05	-0.16	0.22	-0.22	0.06	
36D2	0.48	0.36	0.17	0.11	-0.03	0.03	-0.17	-0.25	-0.15	-0.23	-0.24	-0.14	-0.11	-0.09	-0.02	
36H2 (New USG 5)																No '23 Data
42L1	-0.97	-1.01	-0.29	3.03	0.19	-0.05	0.01	-0.43	-0.40	-0.40	-0.44	-0.48	-0.46	-0.54	-0.10	
USG-4				0.38	1.02	2.56	-1.64									No '23 data
USG-5	2.99	0.93						-3.18	0.8122							Well Destroyed
USG-6				39.93	-0.20	-2.46	2.51	-0.11							-1.37	
28D1																Dry well

Table 5: Total Dissolved Solids Concentrations (mg/L)

Date	Chem	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	42A8	USG-4	USG-5	USG-6
Mar-09	Total Dissolved Soilds	287	1210		335			517				302				365	910		305	
Mar-10	Total Dissolved Soilds	307	1200		306			498				300			349	346	1100		304	
Apr-11	Total Dissolved Soilds	280	1220		325			525				298			485	359	1220		306	
Mar-12	Total Dissolved Soilds	315	1210	486				511				303			359		886		320	
Feb-13	Total Dissolved Soilds	284	1220	497	302			530	299			306					739			
Apr-14	Total Dissolved Soilds	292	1290	499	309			543	284			314			360		728		327	
Mar-15	Total Dissolved Soilds	297	1350	492					298			315								
Mar-16	Total Dissolved Soilds	280	1350	484	291		356	559	271			303	298		362		654	362	334	309
May-17	Total Dissolved Soilds	298	1350	495	323		353	567	283			300	303	412	357		594		328	314
Mar-18	Total Dissolved Soilds	288	1310	439	304	352	342	565	274	469	612	305	291	396	350		564	343	323	
Mar-19	Total Dissolved Soilds	322	1310	503	309	373	365	583	273	477	621	322	307	423	368		575	361	331	317
Mar-20	Total Dissolved Soilds	289	1280	431	296	367	366	572	288	474		305	303	420	369		555	372	324	309
Mar-21	Total Dissolved Soilds	310	1280	464	304	359	358	598	293	472	618	319	308	409	369		556	350	335	314
Mar-22	Total Dissolved Soilds	287	1275	416	297	346	352	600	278	474	566	310	279		353		535	337	300	302
Mar-23	Total Dissolved Soilds	283	1250	437	295	Well Destroyed	346	601	289	460	550	315	296		349		551		329	305
Mar-24	Total Dissolved Soilds	319	1230	438	307		351	593	297	473	538	315	302	418	358		560	332	312	305
	Average	296	1,271	468	307	359	354	557	286	471	584	308	299	413	368	357	715	351	320	309
	One Year Change (2023-2024)	36	(20)	1	12		5	(8)	8	13	(12)	-	6		9	-	9		(17)	-
	Four Year Change (2020-2024)	(30)	50	(7)	(11)		15	(21)	(9)	1		(10)	1	2	11	-	(5)		12	4
	20 percent of average	59	254	94	61	72	71	111	57	94	117	62	60	83	74	71	143	70	64	62

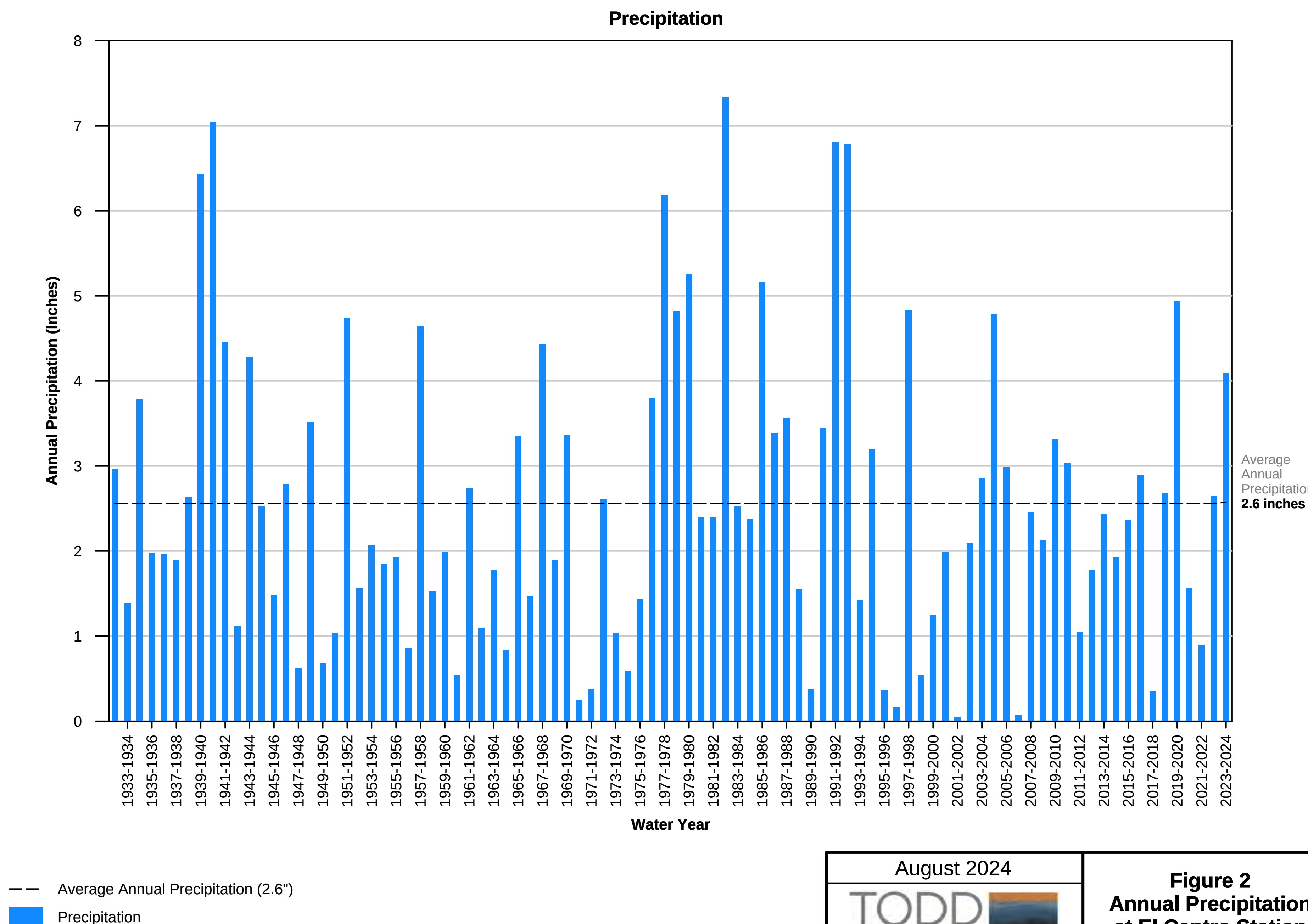
FIGURES

Coyote Wells Groundwater Basin

August 2024

TODD GROUNDWATER

Figure 1
Groundwater Basin Boundary



August 2024

TODD GROUNDWATER

Figure 2
Annual Precipitation at El Centro Station

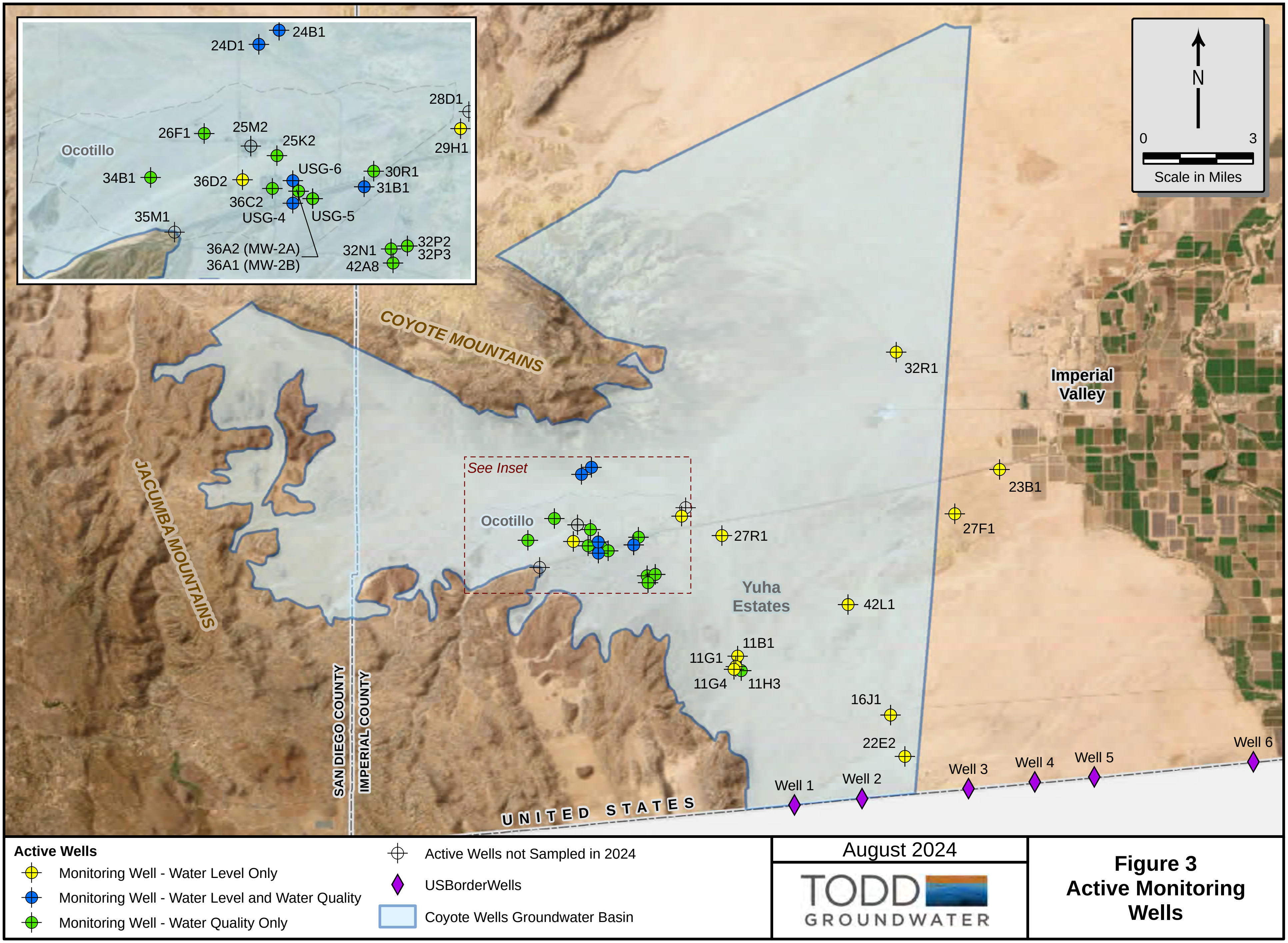
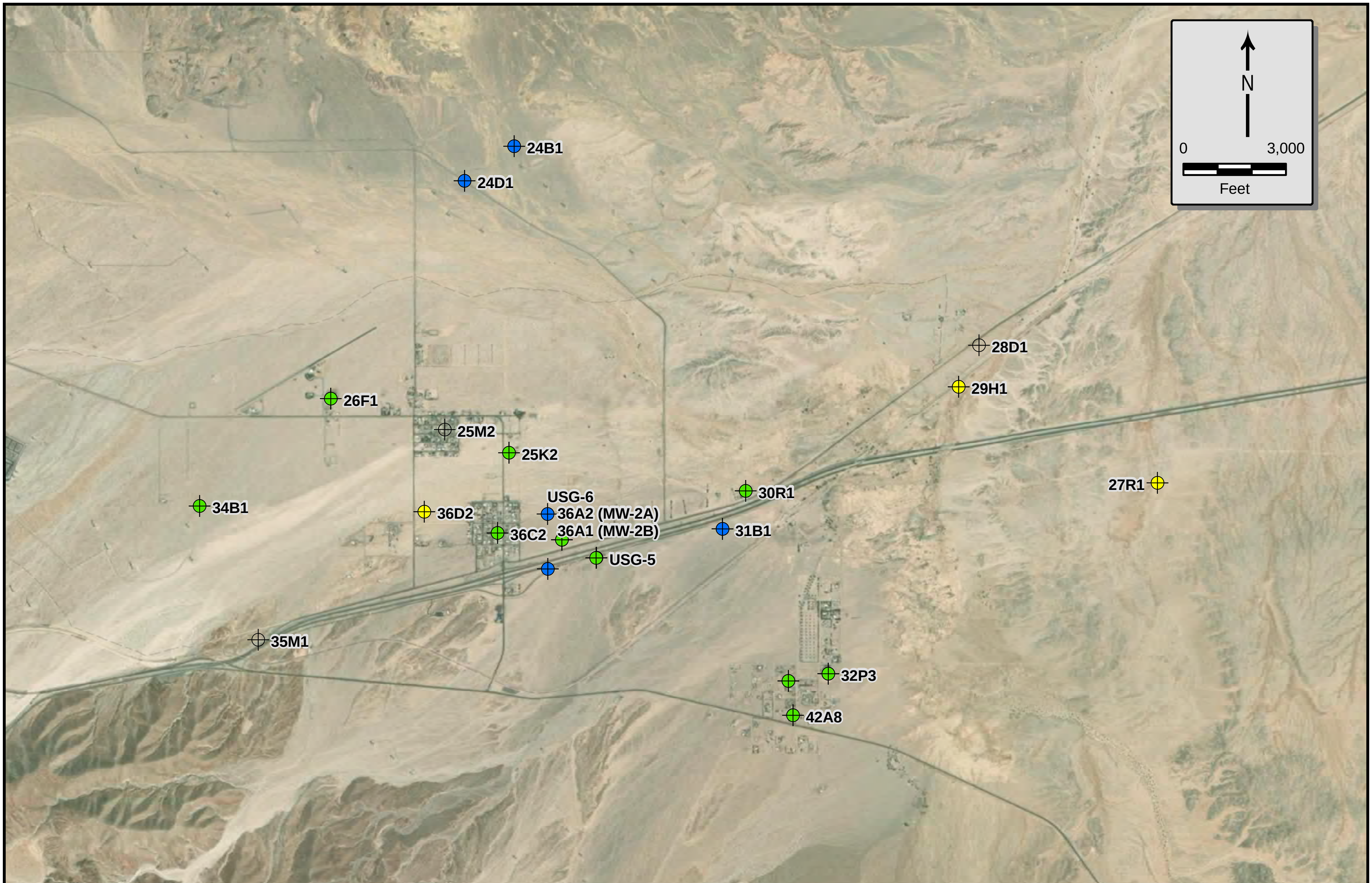


Figure 3
Active Monitoring Wells



Active Wells

Monitoring Well - Water Level Only

Monitoring Well - Water Level and Water Quality

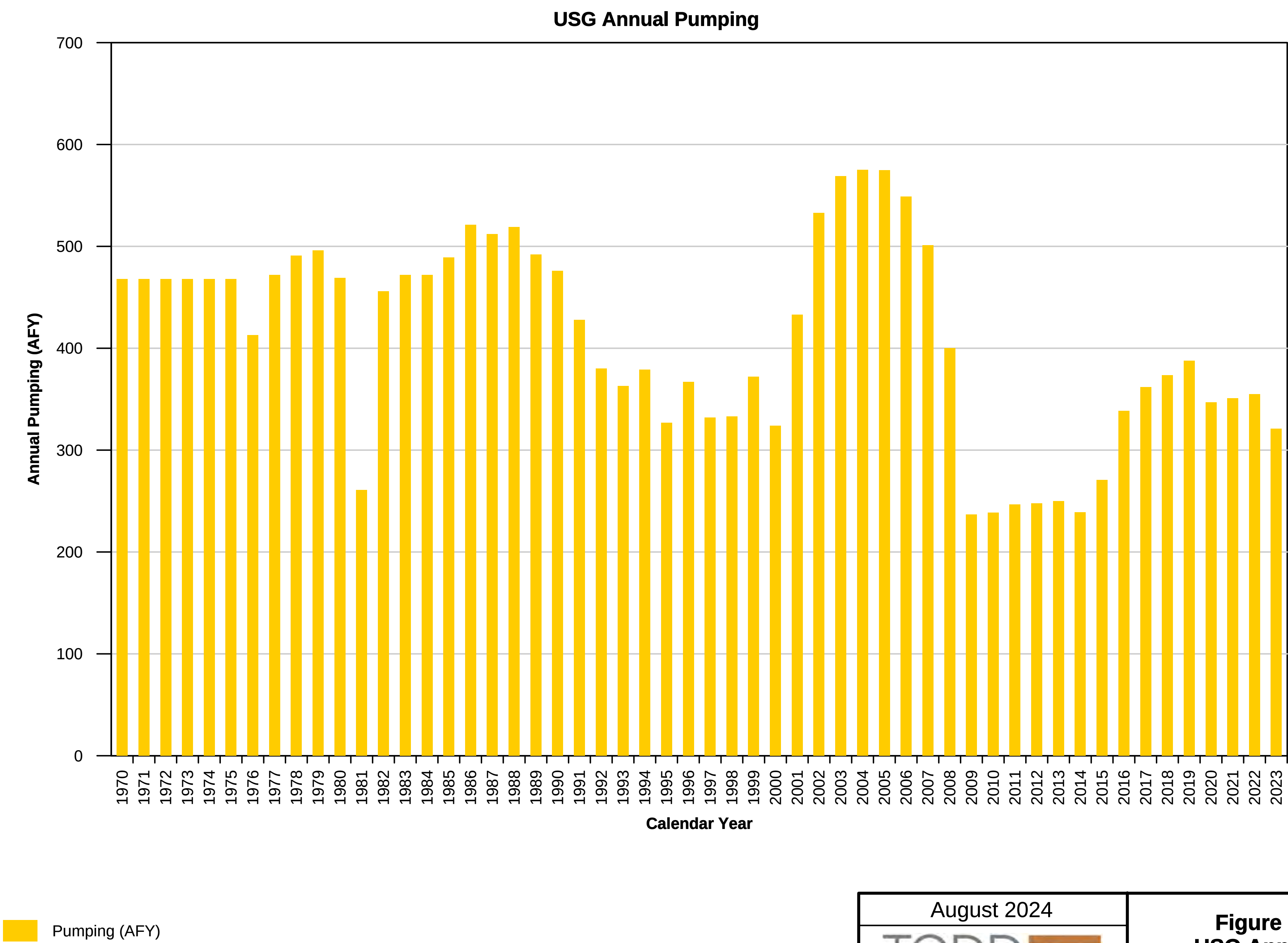
Monitoring Well - Water Quality Only

Active Wells Not Sampled In 2024

August 2024

TODD GROUNDWATER

Figure 4
Monitoring Wells Near Ocotillo



August 2024

TODD GROUNDWATER

Figure 5
USG Annual Pumping

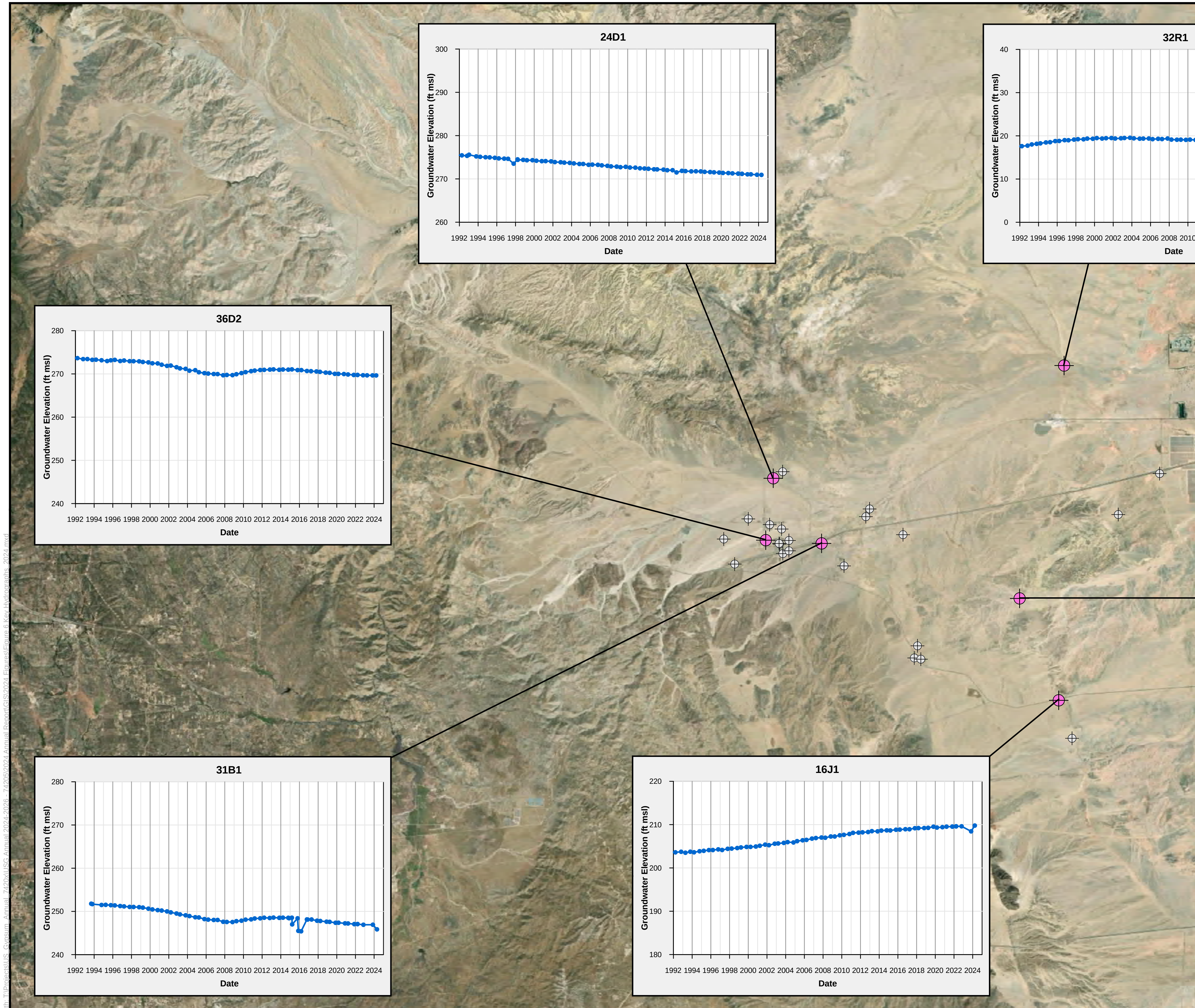
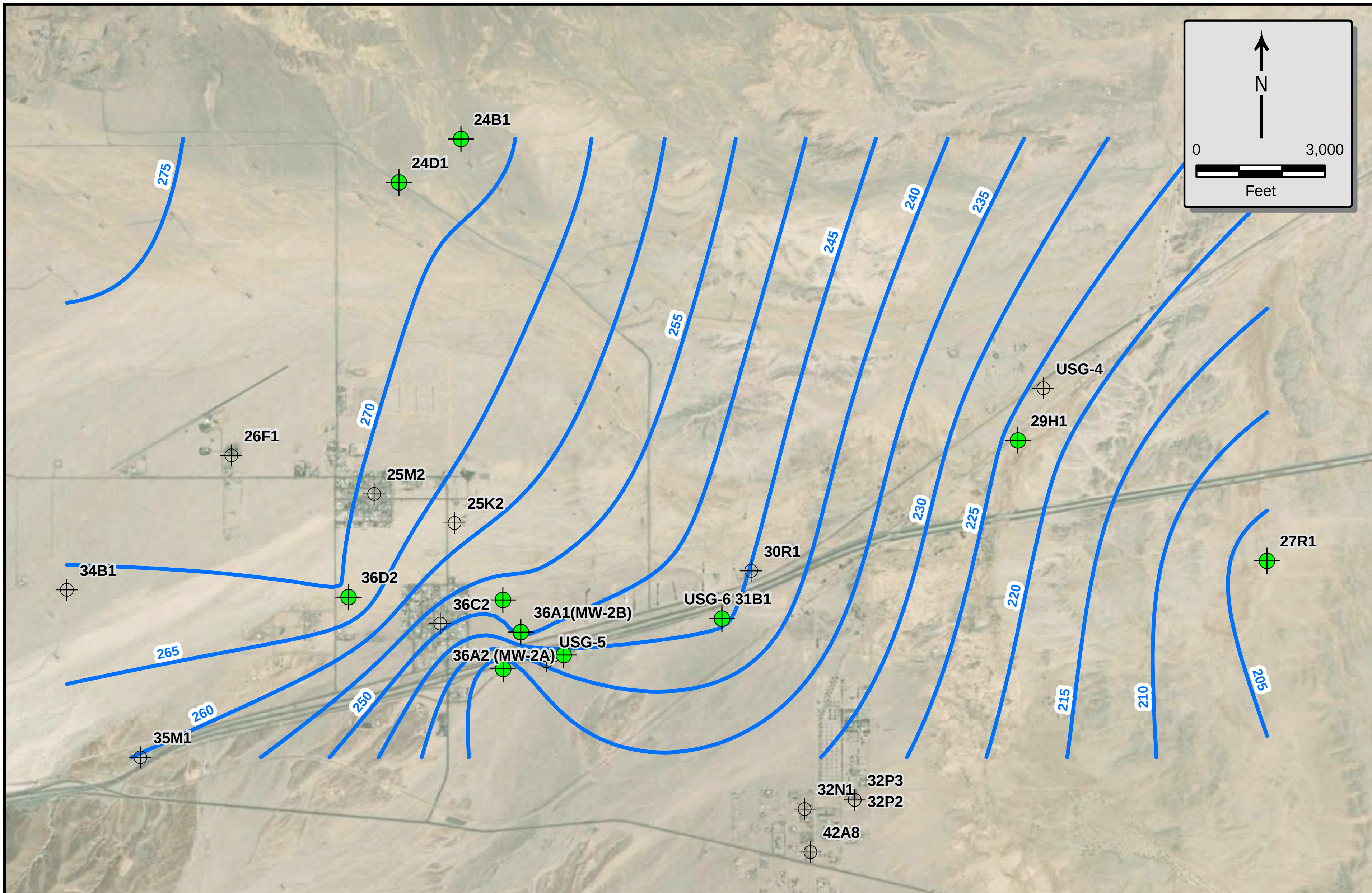


Figure 6
Key Groundwater Elevation Hydrographs



Monitoring Well

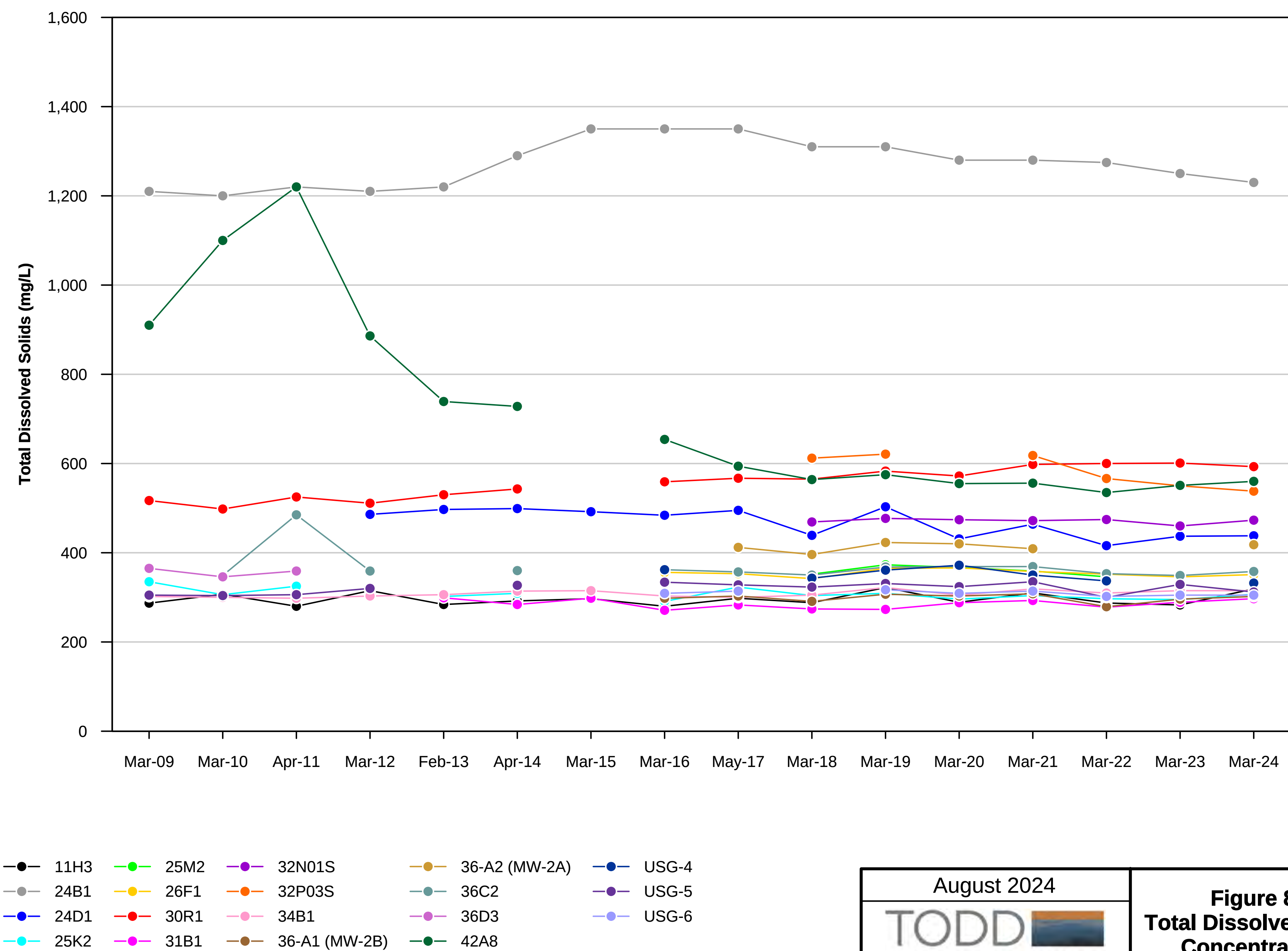
Not Monitored

Spring 2024 Groundwater Contour (feet msl)

August 2024

TODD GROUNDWATER

Figure 7
Groundwater Contours and Flow Direction
Spring 2024



August 2024

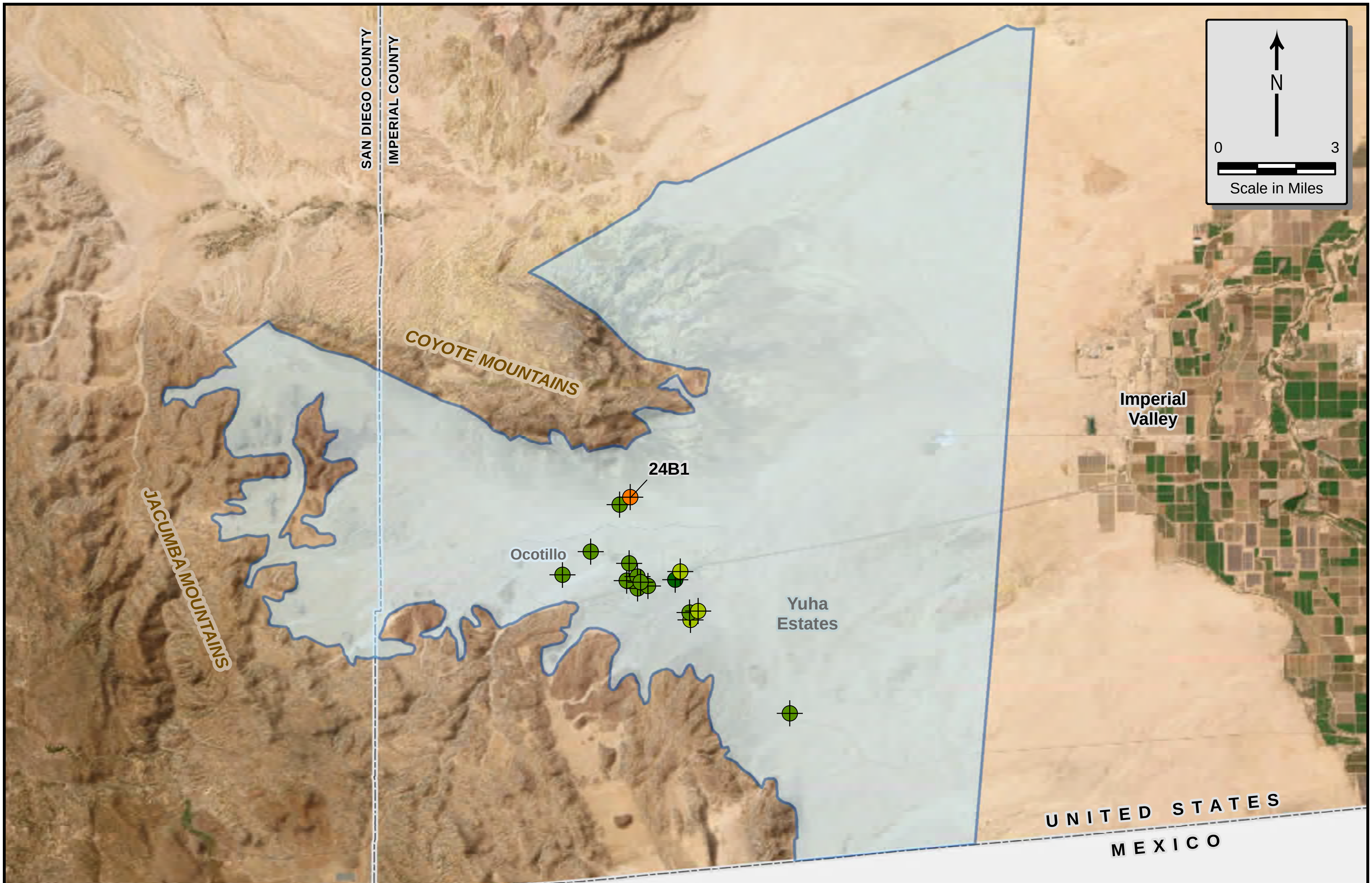
TODD GROUNDWATER

Figure 8A
Total Dissolved Solids Concentrations

August 2024

TODD GROUNDWATER

Figure 8B
Total Dissolved Solids Concentrations in Well 31B1



TDS Concentration, Spring 2024
MaxOfresul

- <300
- 300-500
- 500-700
- 700-900
- 900-1,100
- 1,100-1,300
- >1,300
- Coyote Wells Groundwater Basin

August 2024

TODD GROUNDWATER

Figure 9
Total Dissolved Solids Concentrations in Groundwater

APPENDIX A

BASIN DESCRIPTION AND HYDROGEOLOGY

Basin Description

Groundwater for the Plaster City Plant, community of Ocotillo, and local domestic wells is pumped from the Coyote Wells Valley Groundwater Basin (No. 7-29), as defined by the California Department of Water Resources (DWR, 2003)[1]. DWR generally defines groundwater basins based on the extent of alluvial deposits. As depicted in **Figure A-1,** the Basin encompasses 64,000 acres (100 square miles) in the Yuha desert west of Imperial Valley, California. It is located mostly in Imperial County, with the western edge extending into San Diego County. The Basin is bounded by the Coyote Mountains to the north and the Jacumba Mountains to the west and southwest. These boundaries correspond to the geologic contacts between alluvium and less permeable geologic formations as mapped by DWR. The southern basin boundary is the United States-Mexico border and the eastern boundary is a roughly north-south line from Superstition Mountain on the north to the international border. Part of the northeastern boundary is a surface drainage divide connecting the Coyote Mountains with Superstition Mountain.

HYDROGEOLOGY

Figure A-2 shows the surficial geology within the Coyote Wells Valley Groundwater Basin, as mapped by the USGS (Loeltz, 1975). The groundwater basin boundaries on the north, west, and southwest generally coincide with the low-permeability formations of the mountain ranges; some discrepancies reflect the scale and interpretation of geologic mapping. The main water-bearing units of the Basin are the Quaternary alluvial deposits forming the Basin floor. In many areas, alluvium and lake deposits overlie older Quaternary/Tertiary formations including the Palm Springs and Imperial formations. As shown in **Figure A-2**, these crop out to the west and east.

Figure A-3 is a general cross-section illustrating the major formations in the basin. This cross-section is reproduced from the Final EIR/EIS and shows two layers defined for groundwater flow modeling. The upper layer (Layer 1) consists of alluvial deposits (Qa/Qof) and the lower layer (Layer 2) is composed of the Palm Springs and Imperial formations (QTp/QTi), which have been uplifted in the area east of Ocotillo and are relatively near the ground surface. The water-bearing alluvial deposits (Layer 1) are primarily restricted to the center of the Basin, with thickness of 550 feet or greater in the Ocotillo area. As shown, the alluvium was previously indicated to be 650 feet thick; however, monitoring wells recently drilled near USG pumping encountered alluvium to a depth of 800 feet. The alluvial deposits thin toward the margins of the Basin where they become unsaturated. Along the Basin margins, the saturated zones occur in the Palm Springs and Imperial formations.

In brief, the alluvial Layer 1 aquifer near Ocotillo is generally characterized by relatively high permeability, good water quality, and rapid recovery from pumping. The less permeable Layer 2 (Palm Springs/Imperial formations) east of Ocotillo and in the Yuha Estates area is characterized by relatively poor water quality and greater, more persistent impacts from pumping. In the Ocotillo area, groundwater levels in Layer 1 have been indicated to be higher than those in Layer 2. However, continued groundwater level declines in Layer 1—at more rapid rates than those in Layer 2—present the potential for significant change in that

[1] The EIR/EIS refers to the area as the Ocotillo/Coyote Wells Groundwater Basin as defined by USGS.

vertical gradient. In that case, relatively poor groundwater from Layer 2 could migrate into Layer 1, resulting in water quality deterioration in Layer 1.

Geologic units in the Ocotillo/Coyote Wells Groundwater Basin can be grouped as follows:

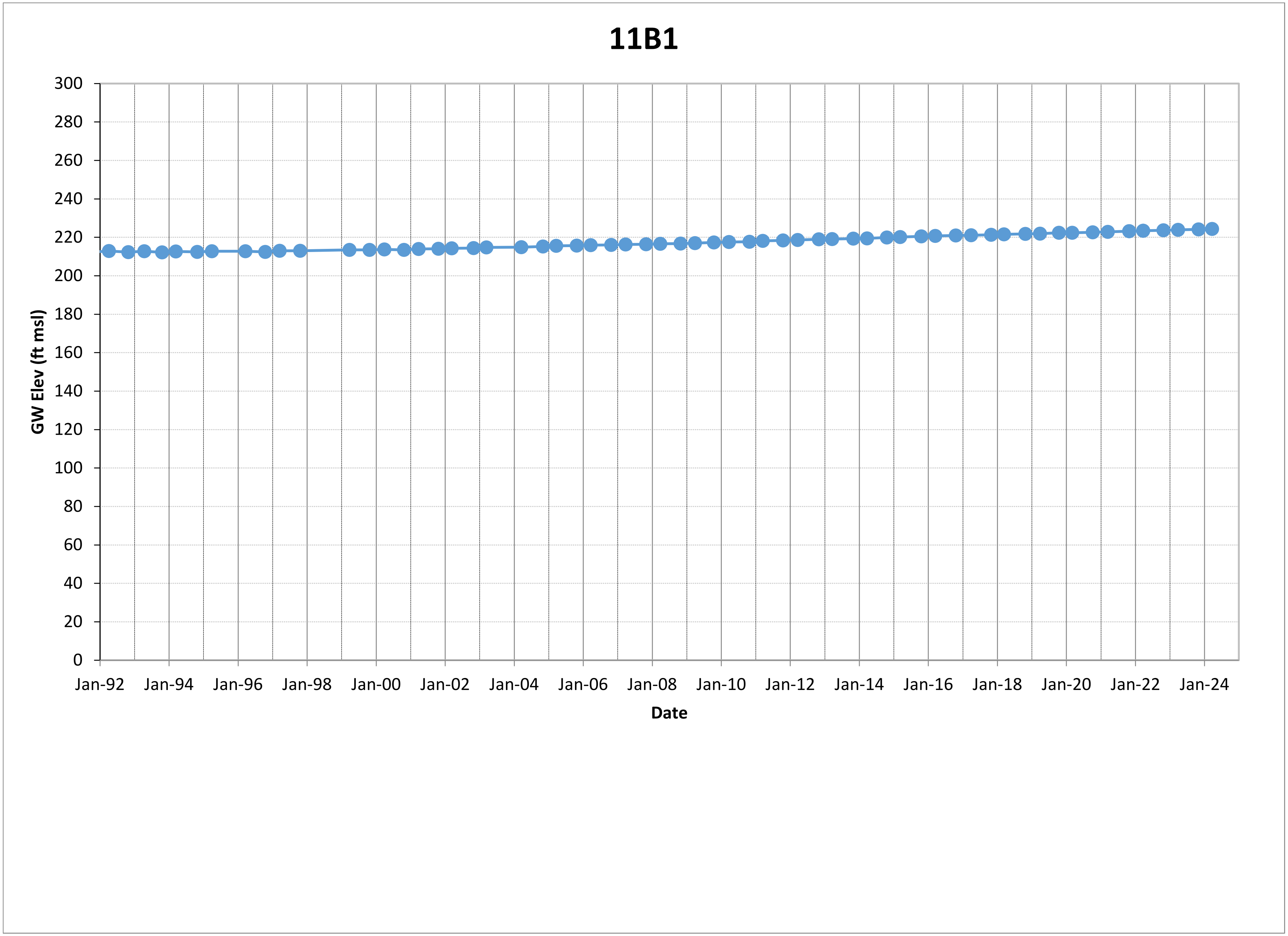
- Quaternary Alluvium (Layer 1), composed of poorly consolidated older alluvial fan deposits and sand, underlies much of the basin floor and extends locally into large canyons of the surrounding mountains. Lake deposits also are mapped by USGS. Most wells drilled in the Ocotillo area are completed within the alluvium. The alluvial wells are noted for high yields and relatively good water quality.
- The Palm Springs Formation (in Layer 2) is composed of fluvial and deltaic sand, silt, and clay deposits deposited by the ancestral Colorado River during the early Pleistocene. Thicknesses can range up to several thousand feet. No pumping test data were found for the Palm Springs Formation, but the aquifer properties (e.g., transmissivity and specific yield) are likely similar to those of the Imperial Formation.
- The Late Miocene to Pliocene Imperial Formation (in Layer 2) is generally described as interbedded claystone and sandstone of dominantly marine origin. The Imperial Formation has an exposed thickness of over 1,500 feet in the Yuha area. Wells drilled into the Imperial Formation typically have low yields and produce poor quality water.

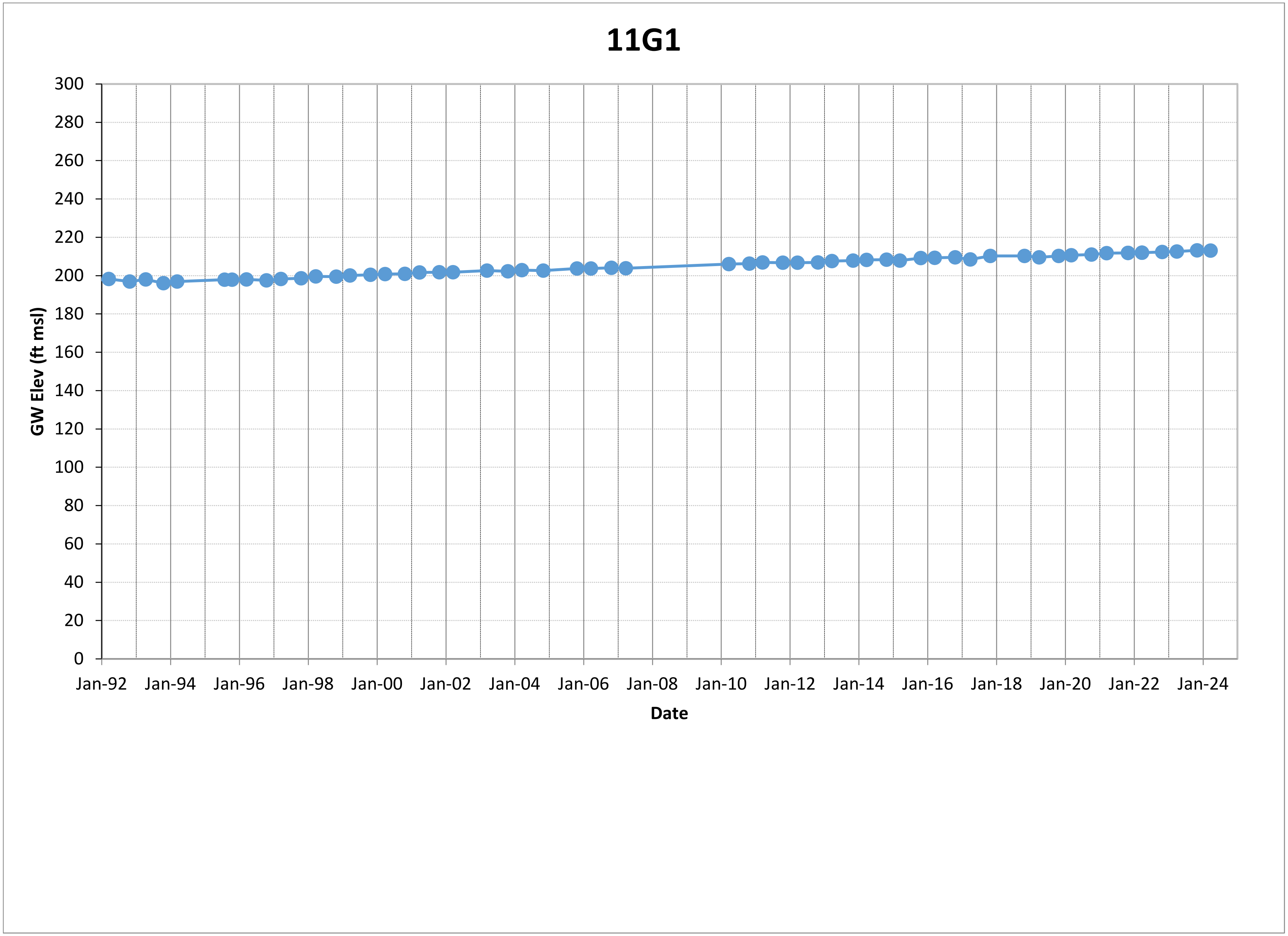
Significant differences have been noted in the hydrogeologic properties, water levels, and water quality between the area around the community of Ocotillo and areas to the east. Near Ocotillo, transmissivities (aquifer properties describing the ease with which groundwater flows through the aquifer) have been noted as significantly higher than those to the east. Transmissivities have been measured in the range of 5,800 to 6,700 ft^2/day near Ocotillo, whereas transmissivities of 34 to 957 ft^2/day have been noted in the eastern areas. These variations are reflected in groundwater gradients: shallower (flatter) hydraulic gradients have been mapped in the Ocotillo area and steeper hydrologic gradients have been mapped in the area east of Ocotillo.

While there is an occurrence of unconfined groundwater in other parts of the basin, water quality these areas are generally poor, with existing wells drilled in confined groundwater showing improved water quality. Groundwater generally flows southeast through the basin, with the principal recharge derived from percolation from precipitation and ephemeral runoff from the surrounding mountains (Skrivan, 1977).

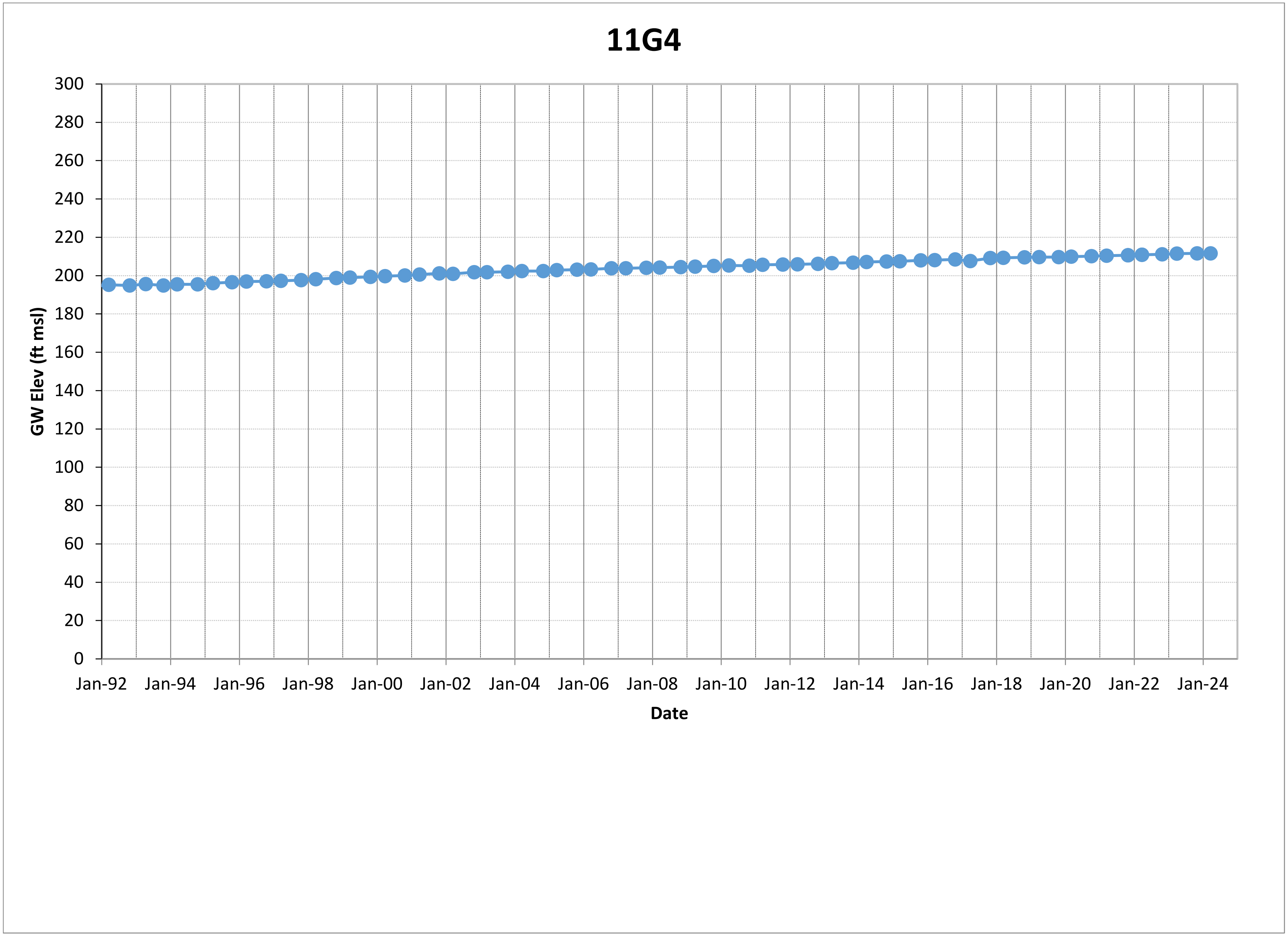
APPENDIX B

GROUNDWATER ELEVATION HYDROGRAPHS
(Same-Scale Y Axis)


11B1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



11G1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date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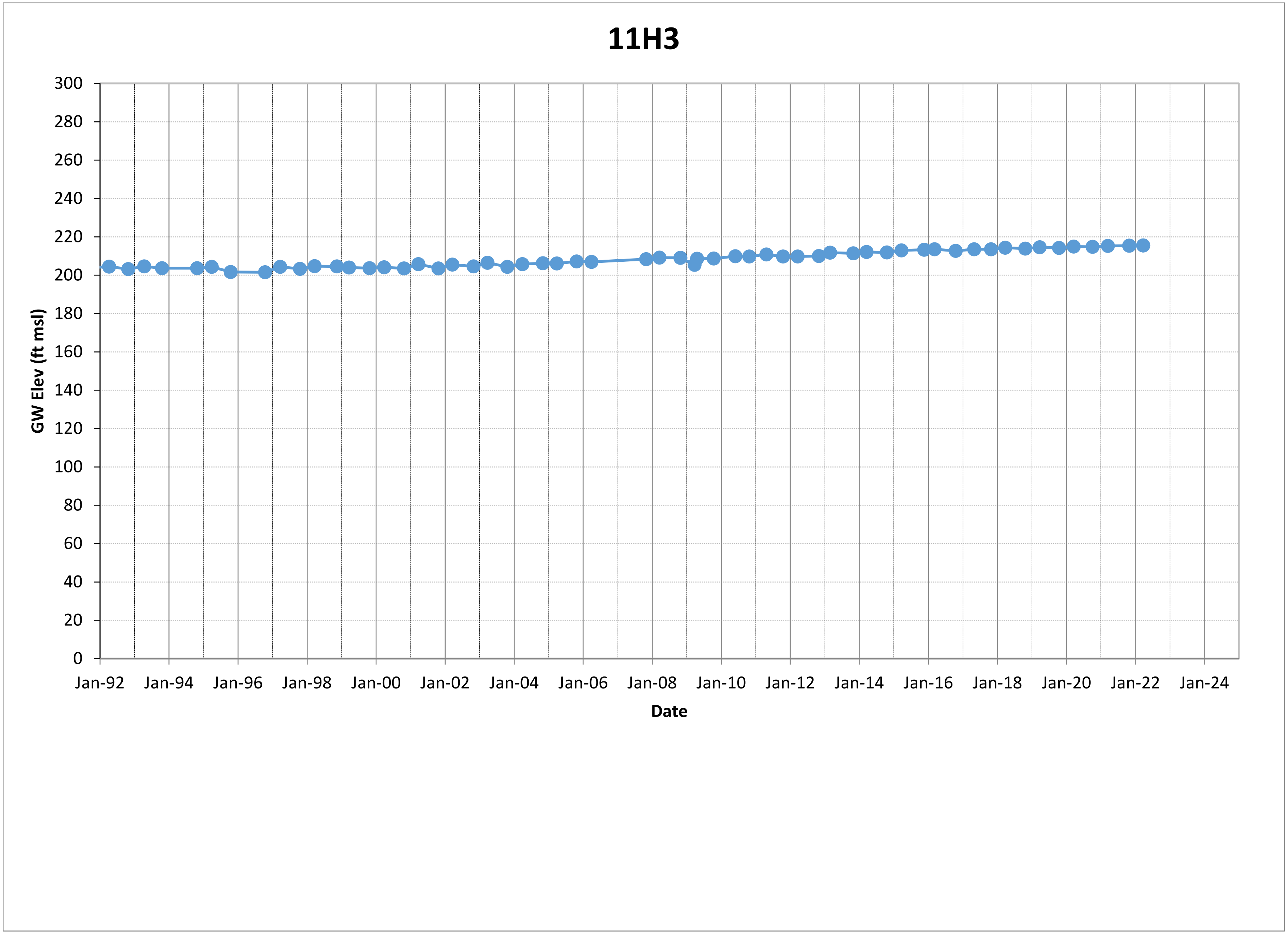
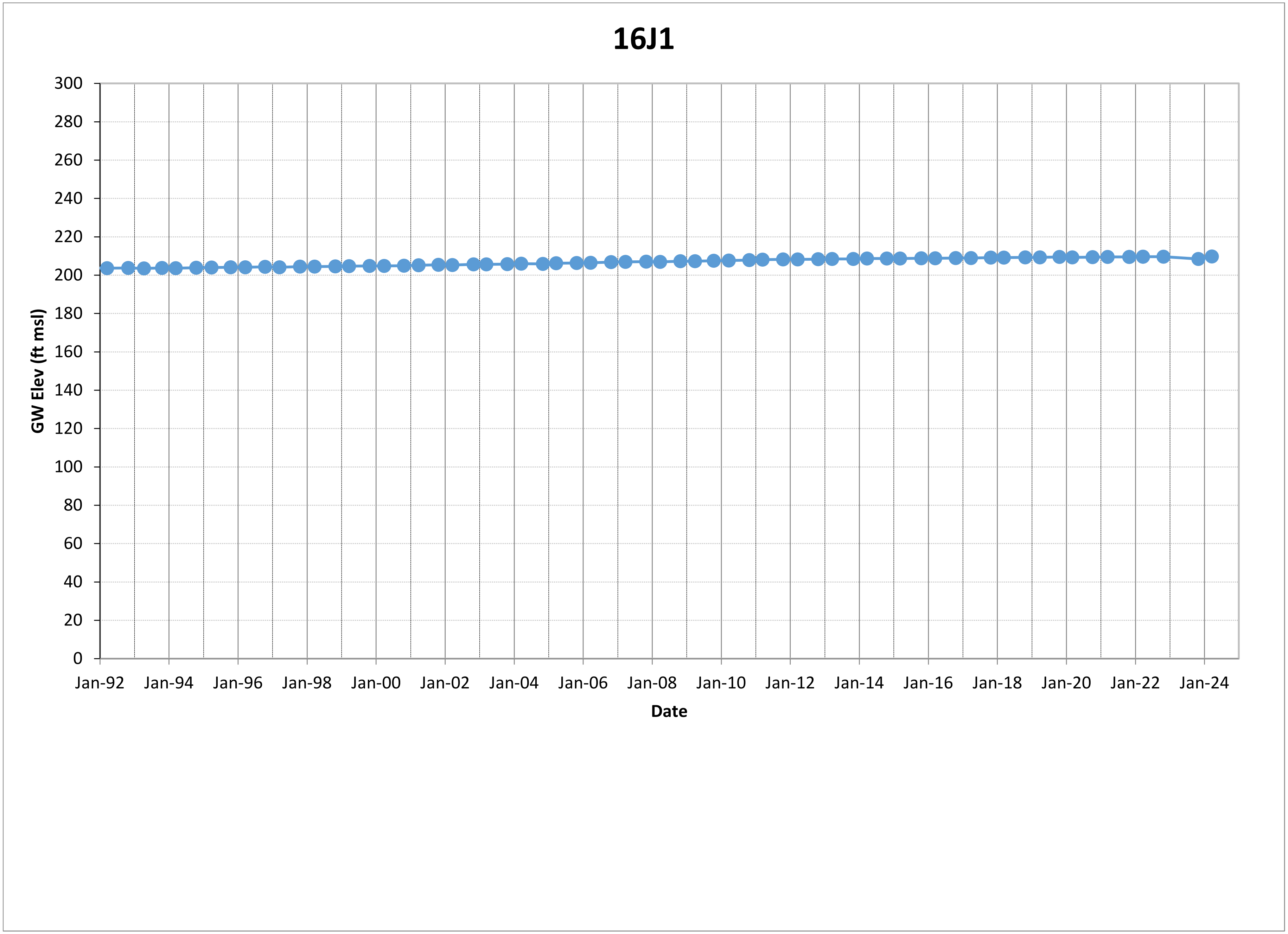
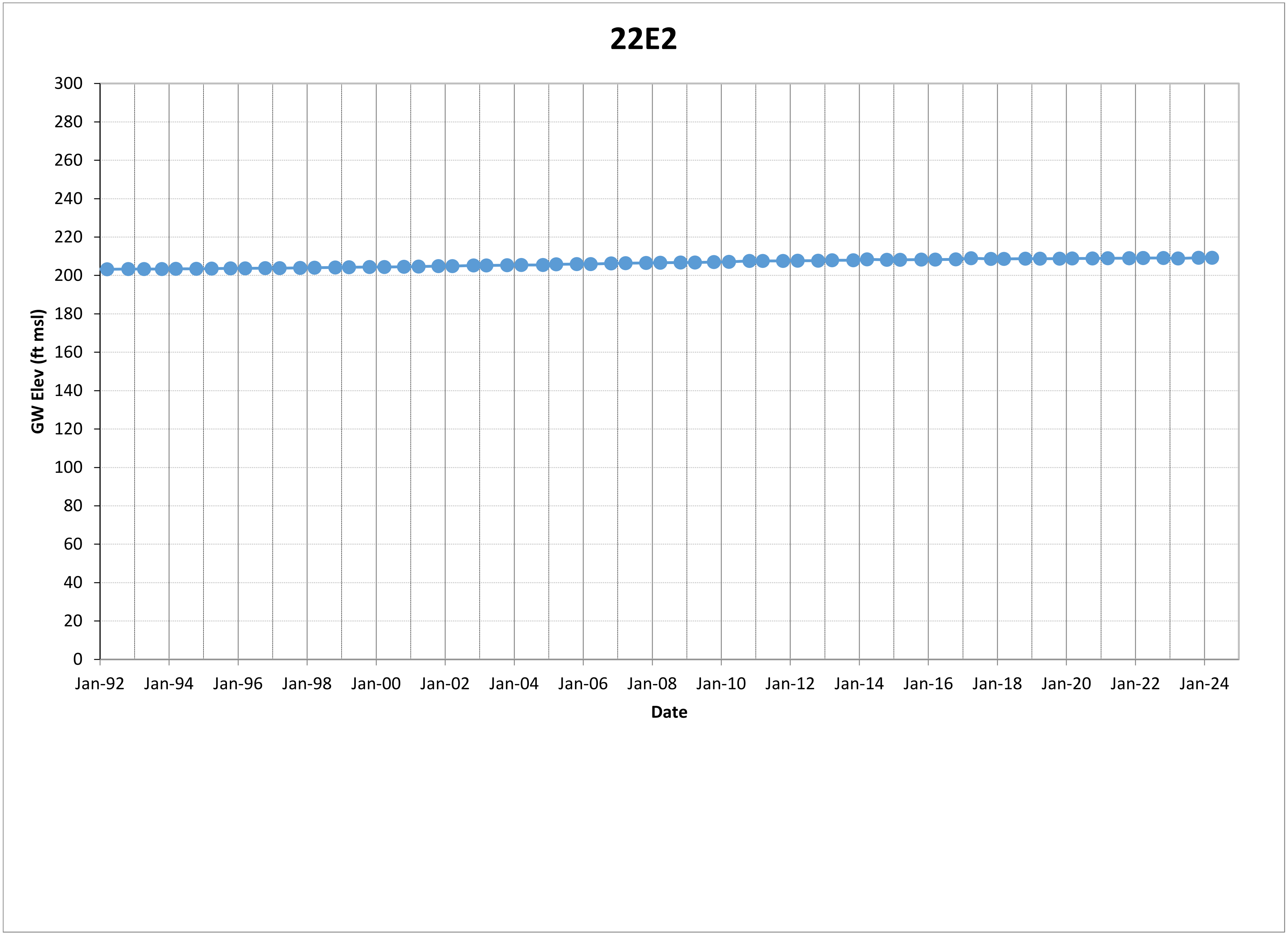
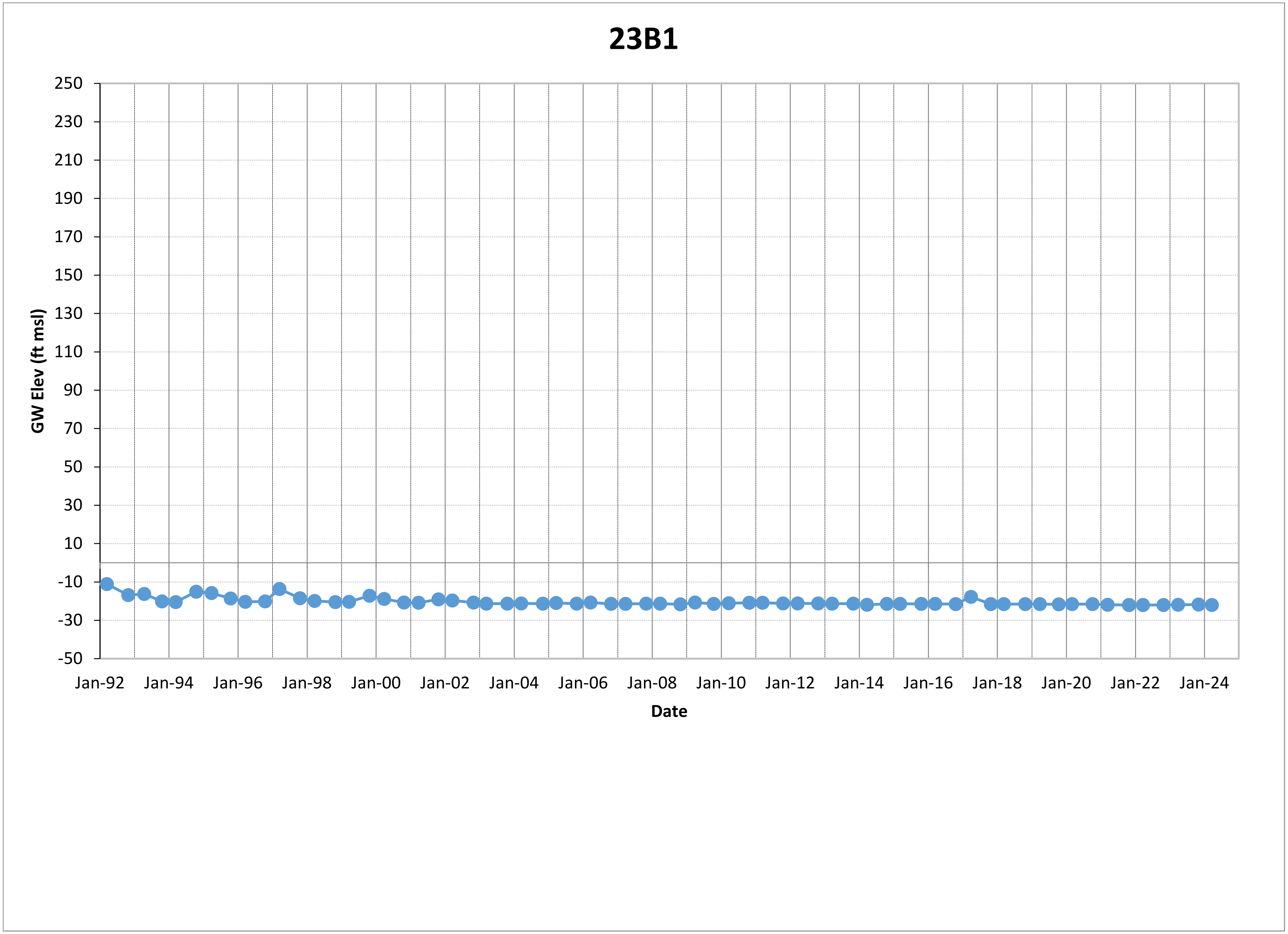
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

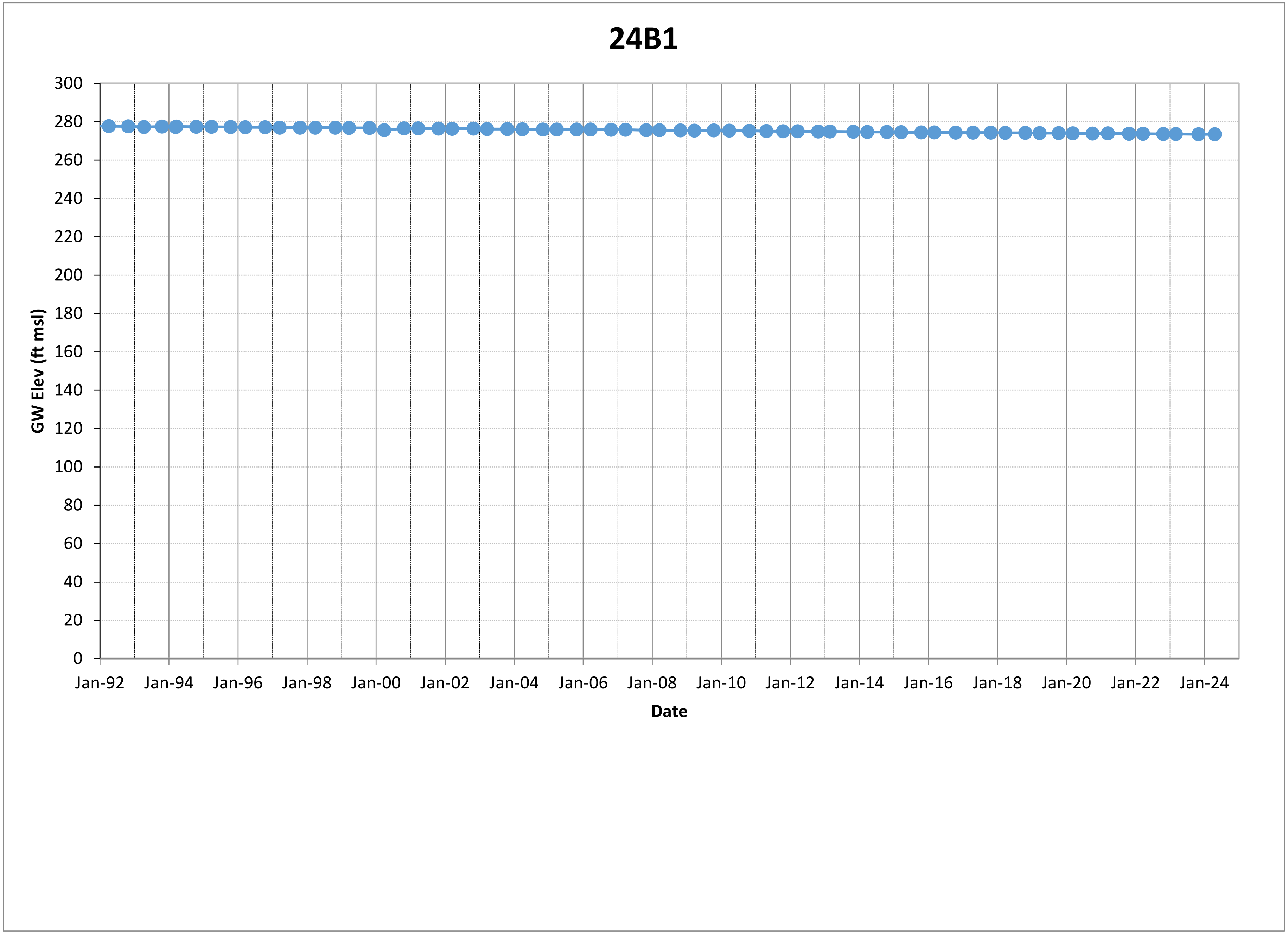

11H3
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



16J1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


22E2
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


23B1
GW Elev (ft msl)
250
230
210
190
170
150
130
110
90
70
50
30
10
-10
-30
-50
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


24B1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
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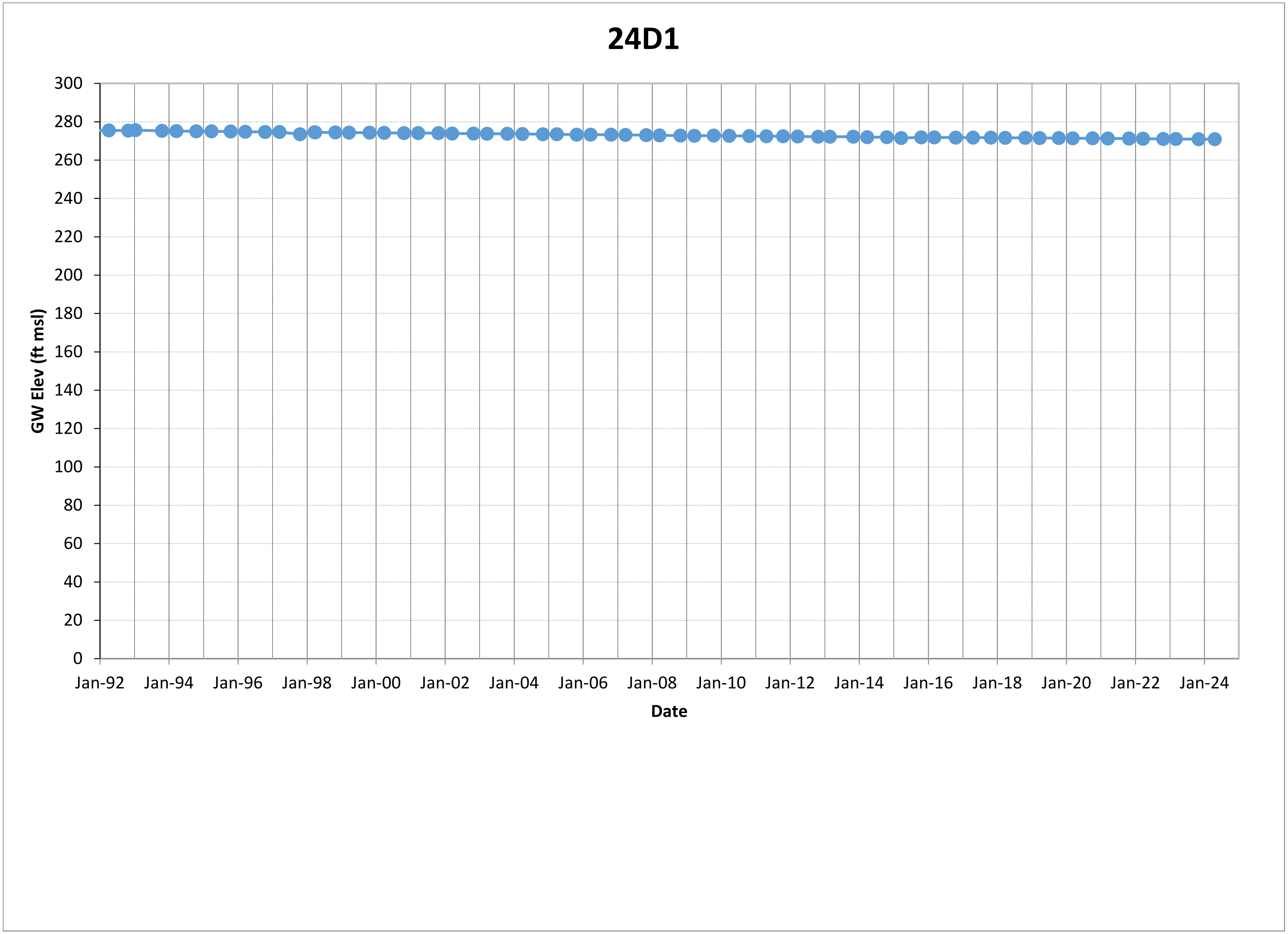
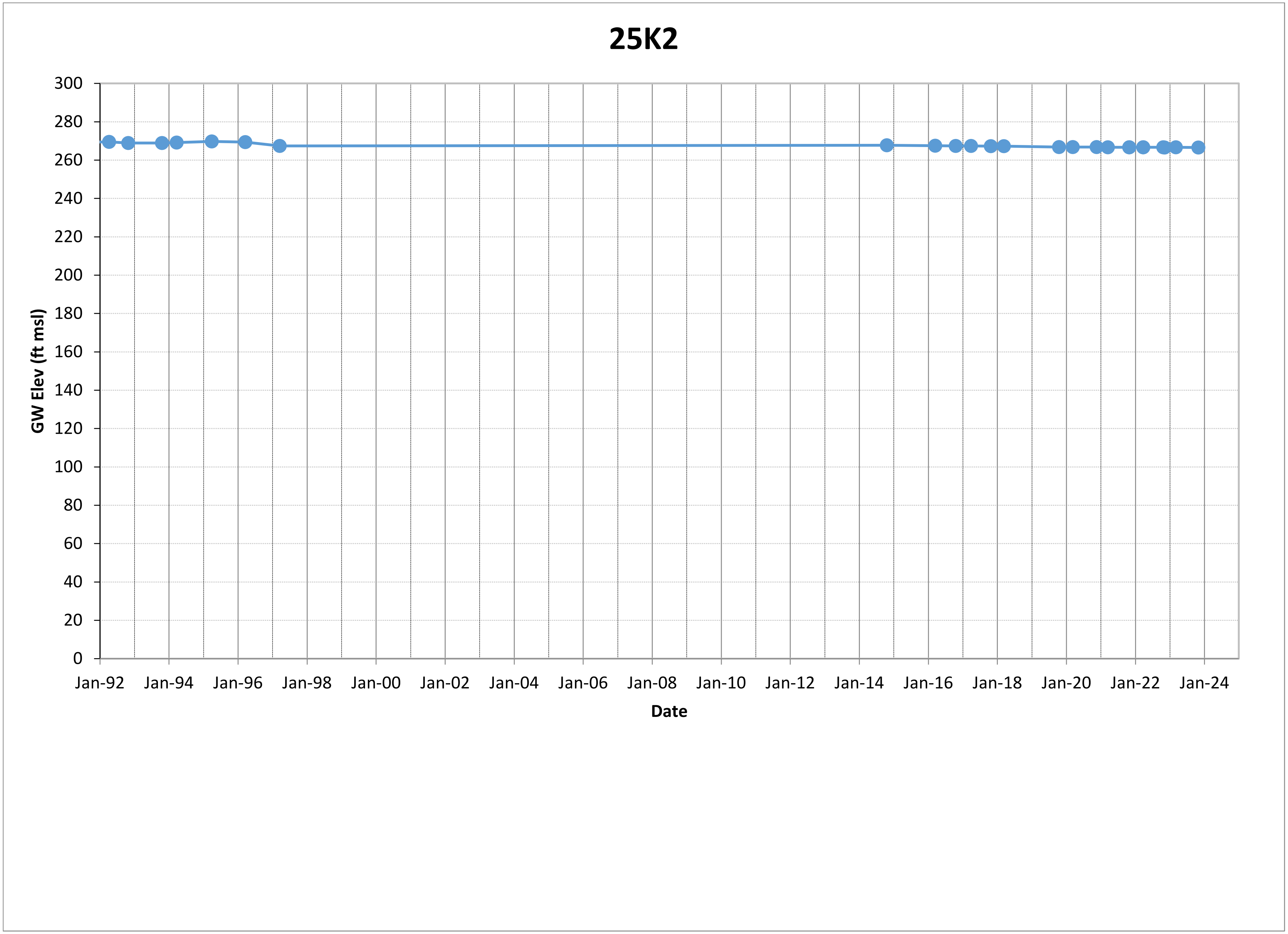
Jan-20
Jan-22
Jan-24
Date



24D1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date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GW Elev (ft msl)
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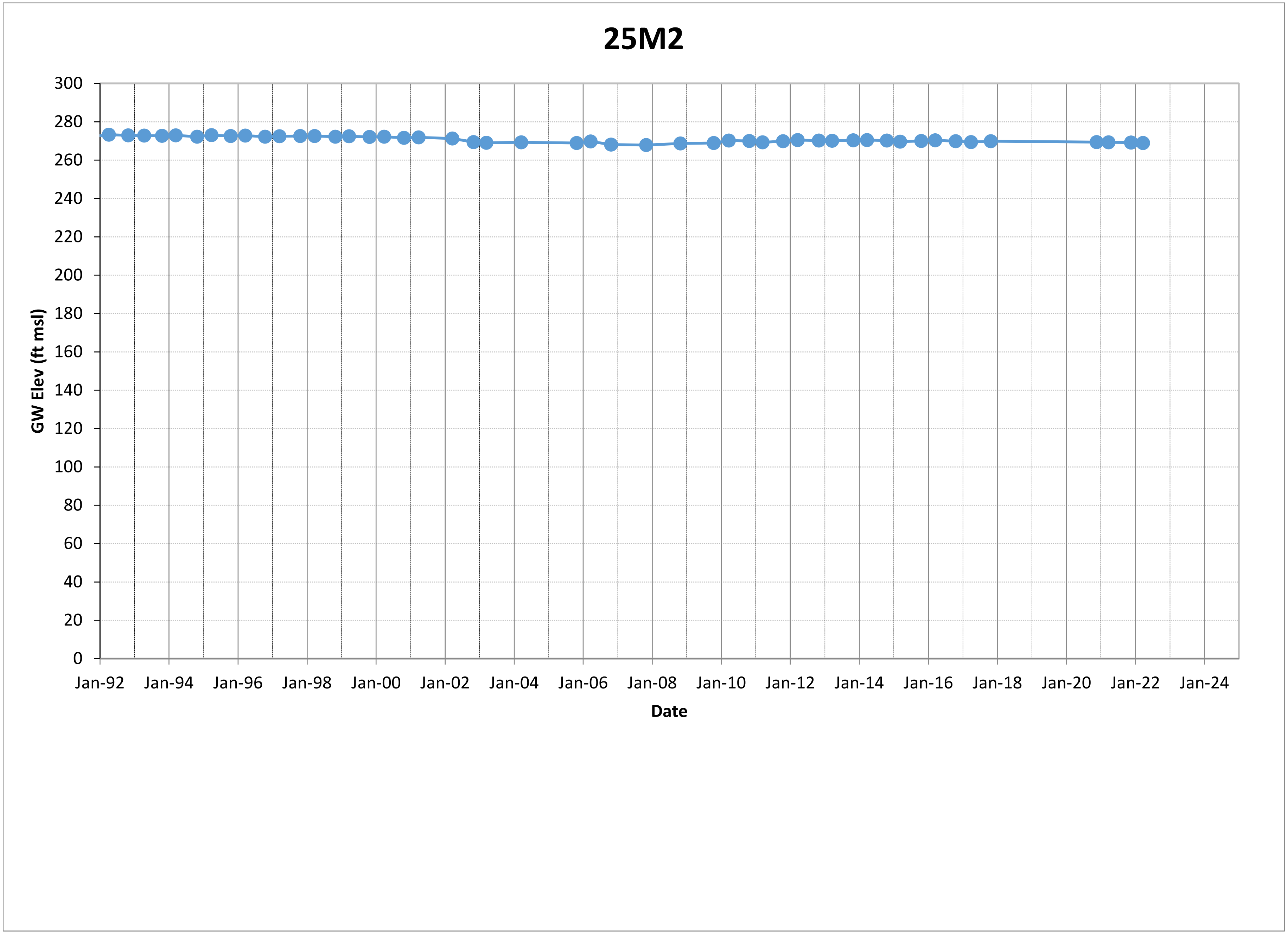
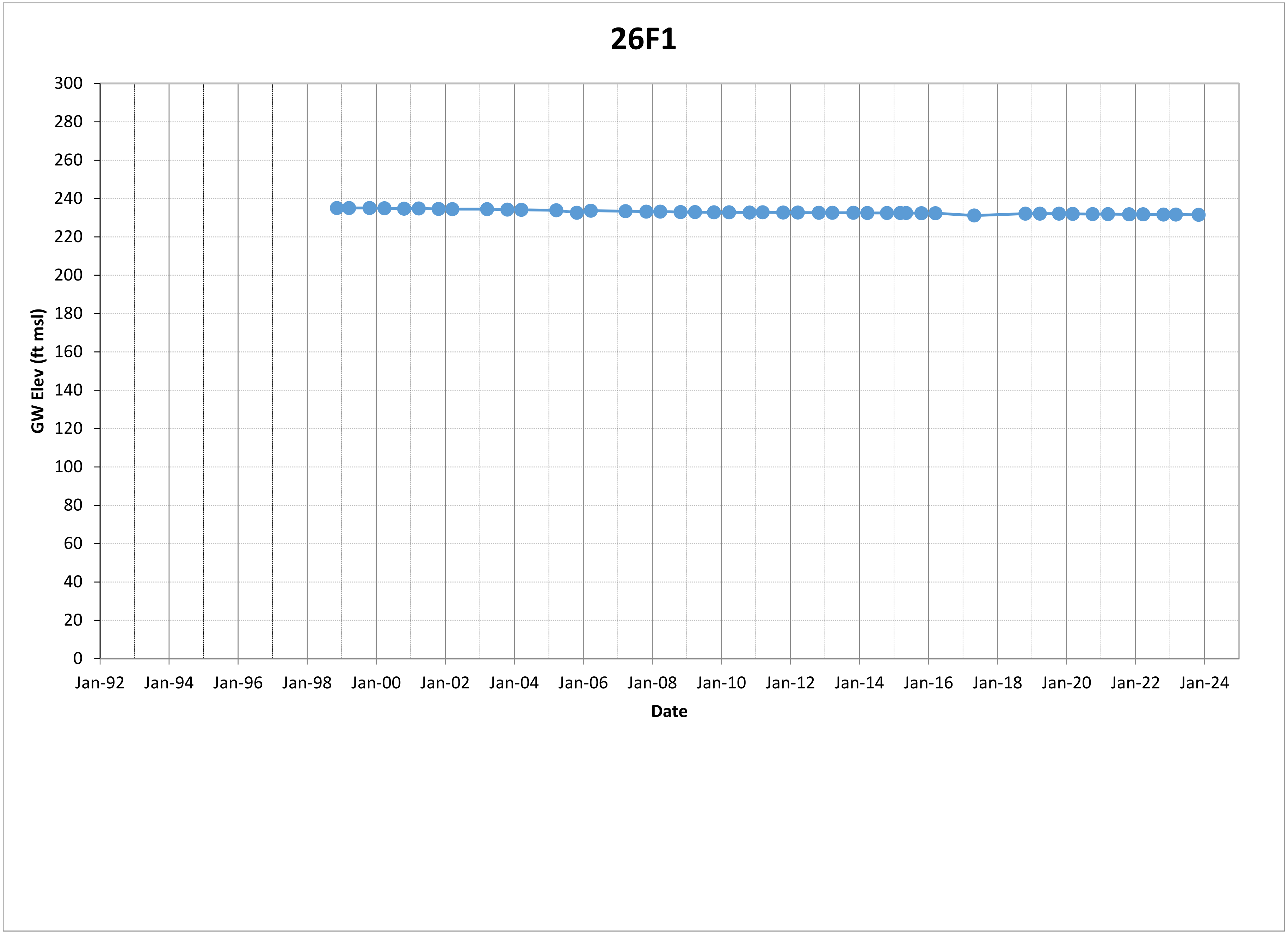
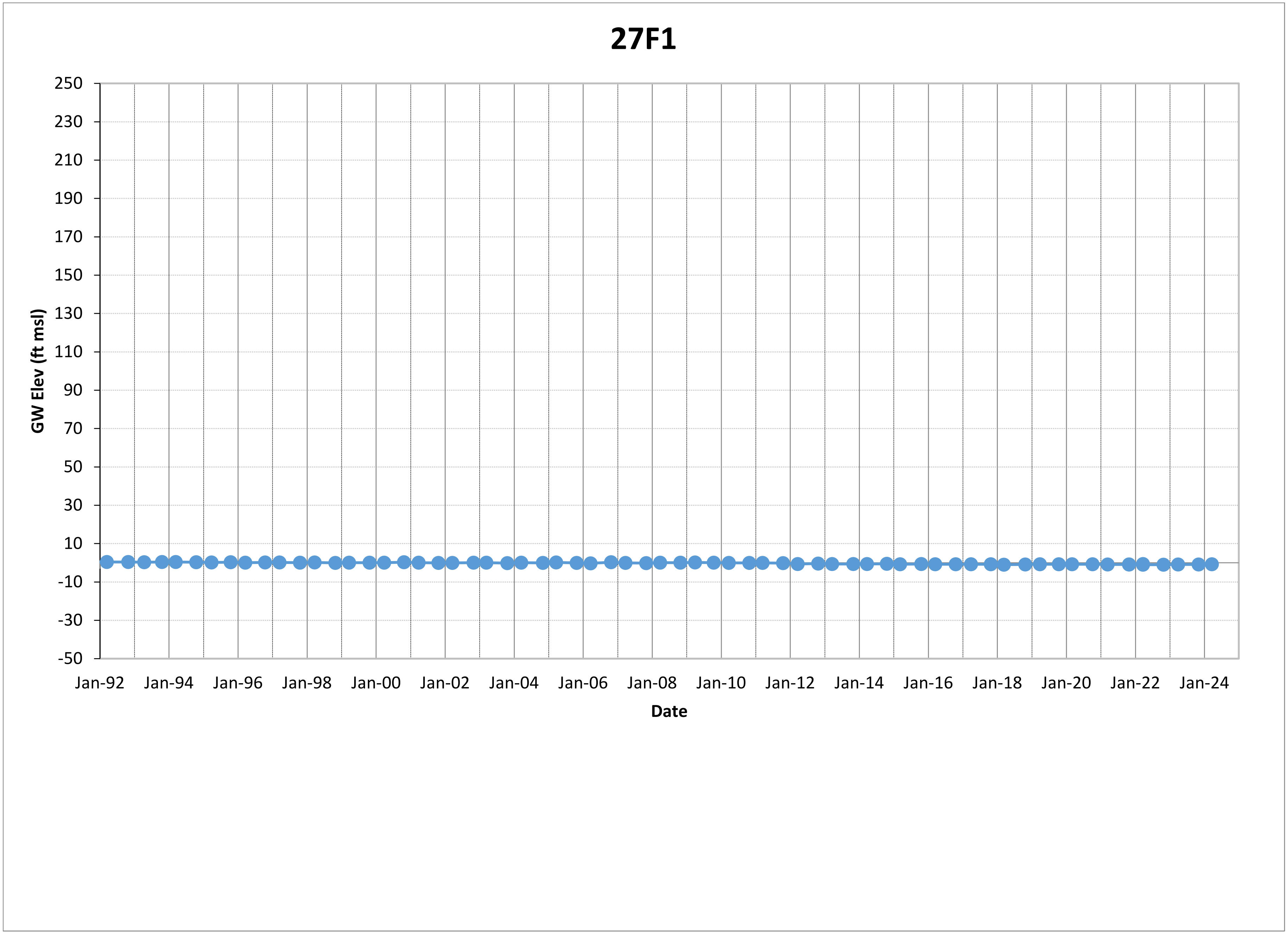
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


25M2
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


26F1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



27F1
250
230
210
190
170
150
130
110
90
70
50
30
10
-10
-30
-50
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
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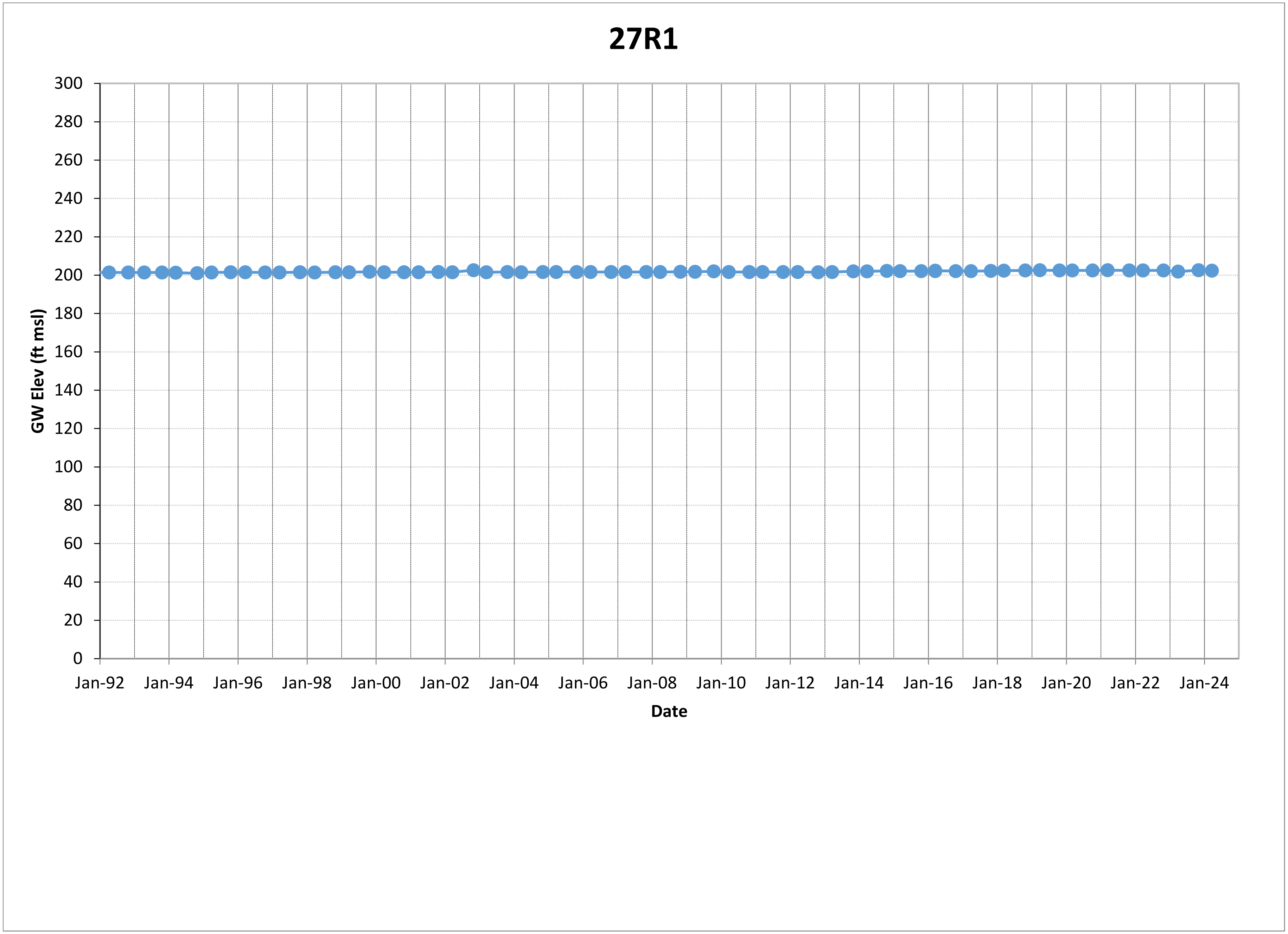
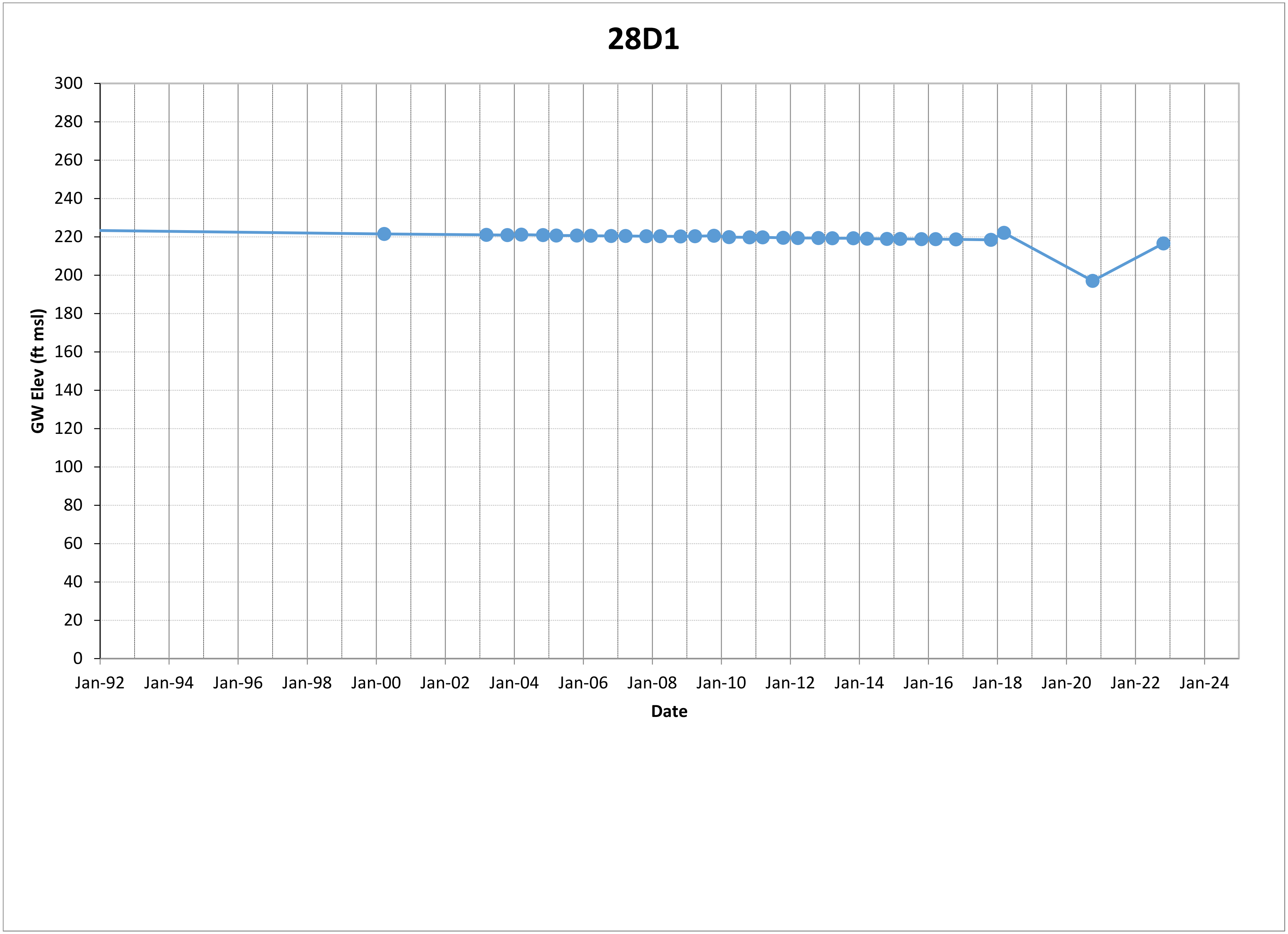
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


27R1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


28D1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
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Jan-12
Jan-14
Jan-16
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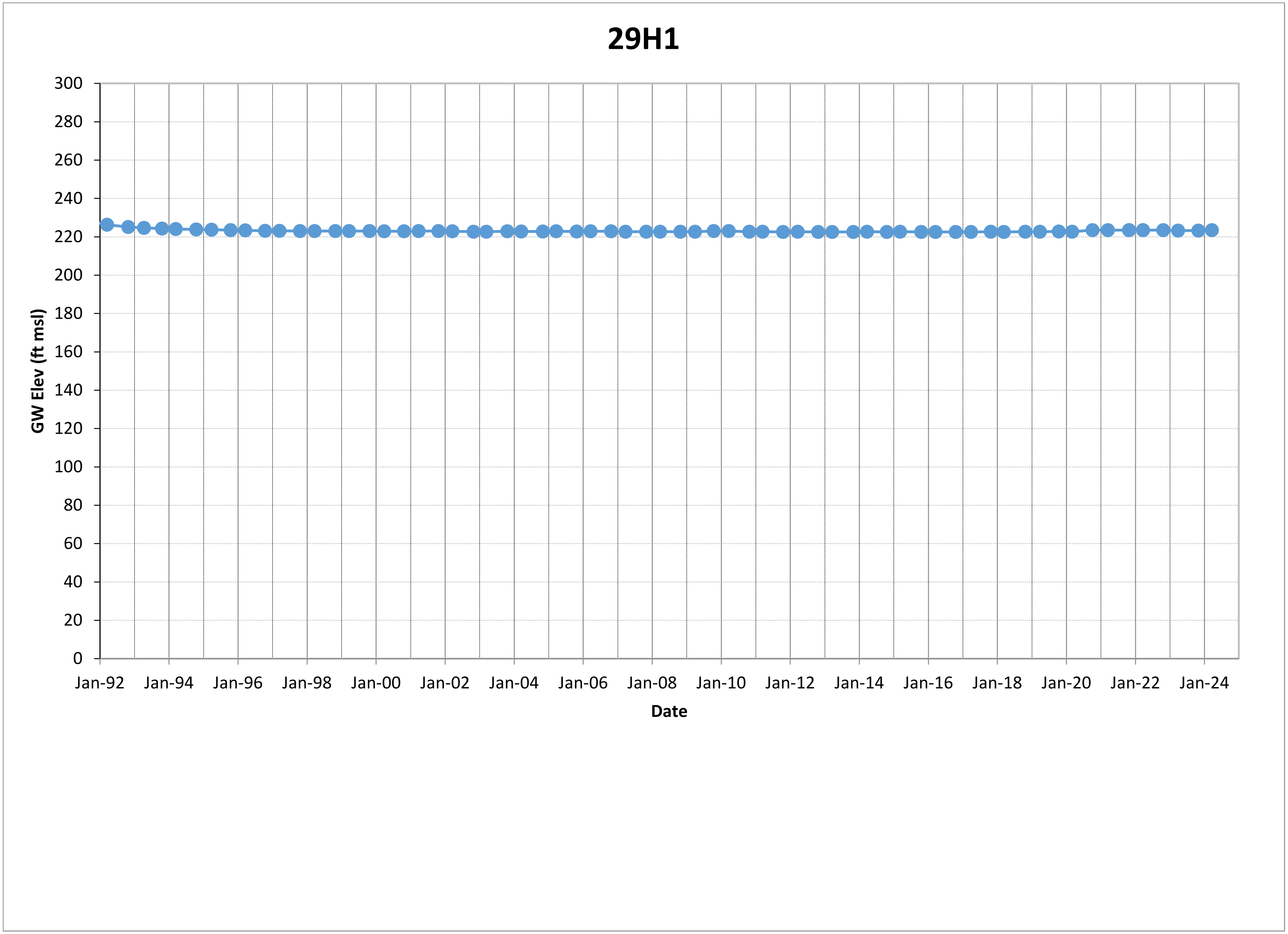
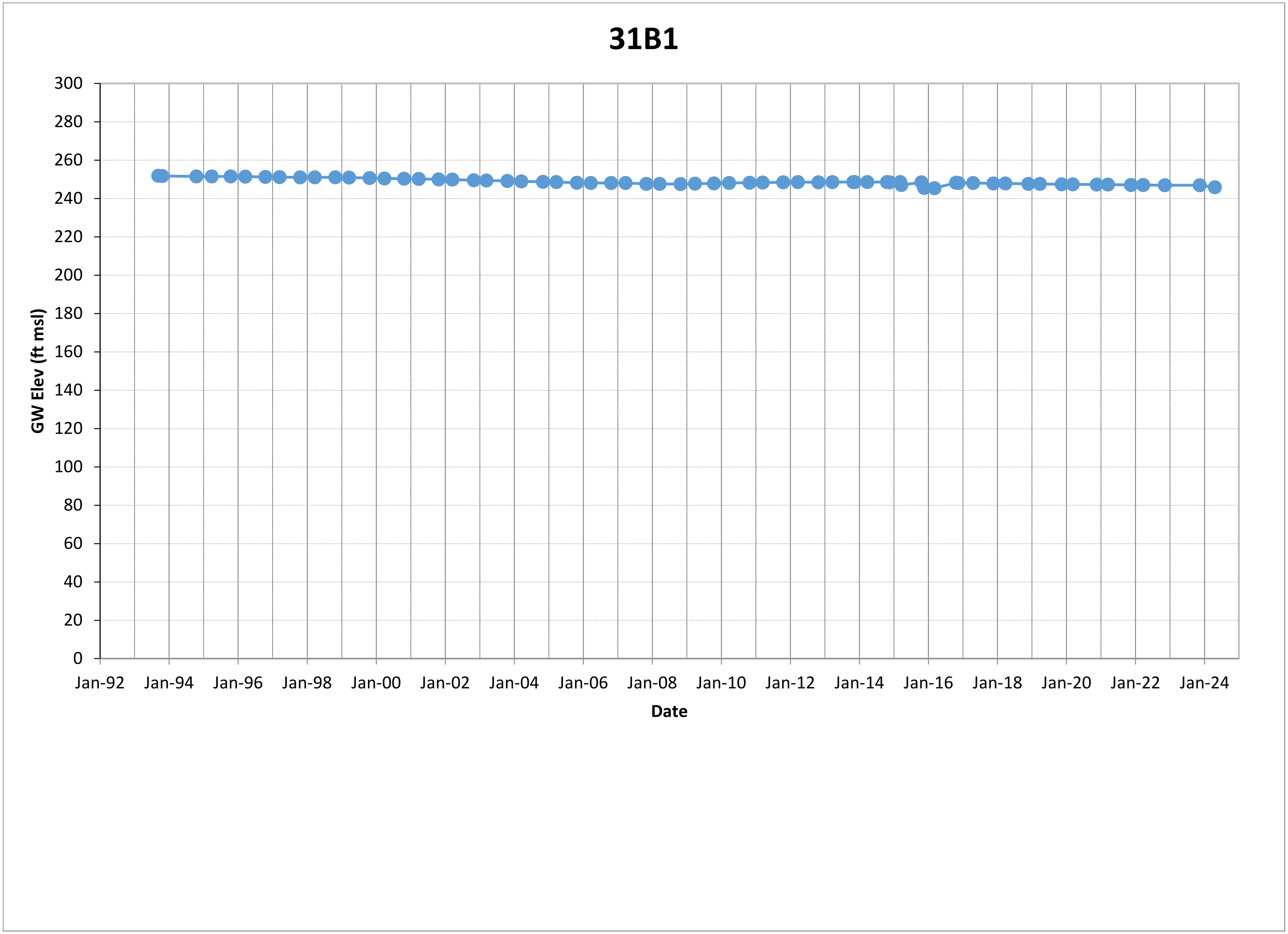
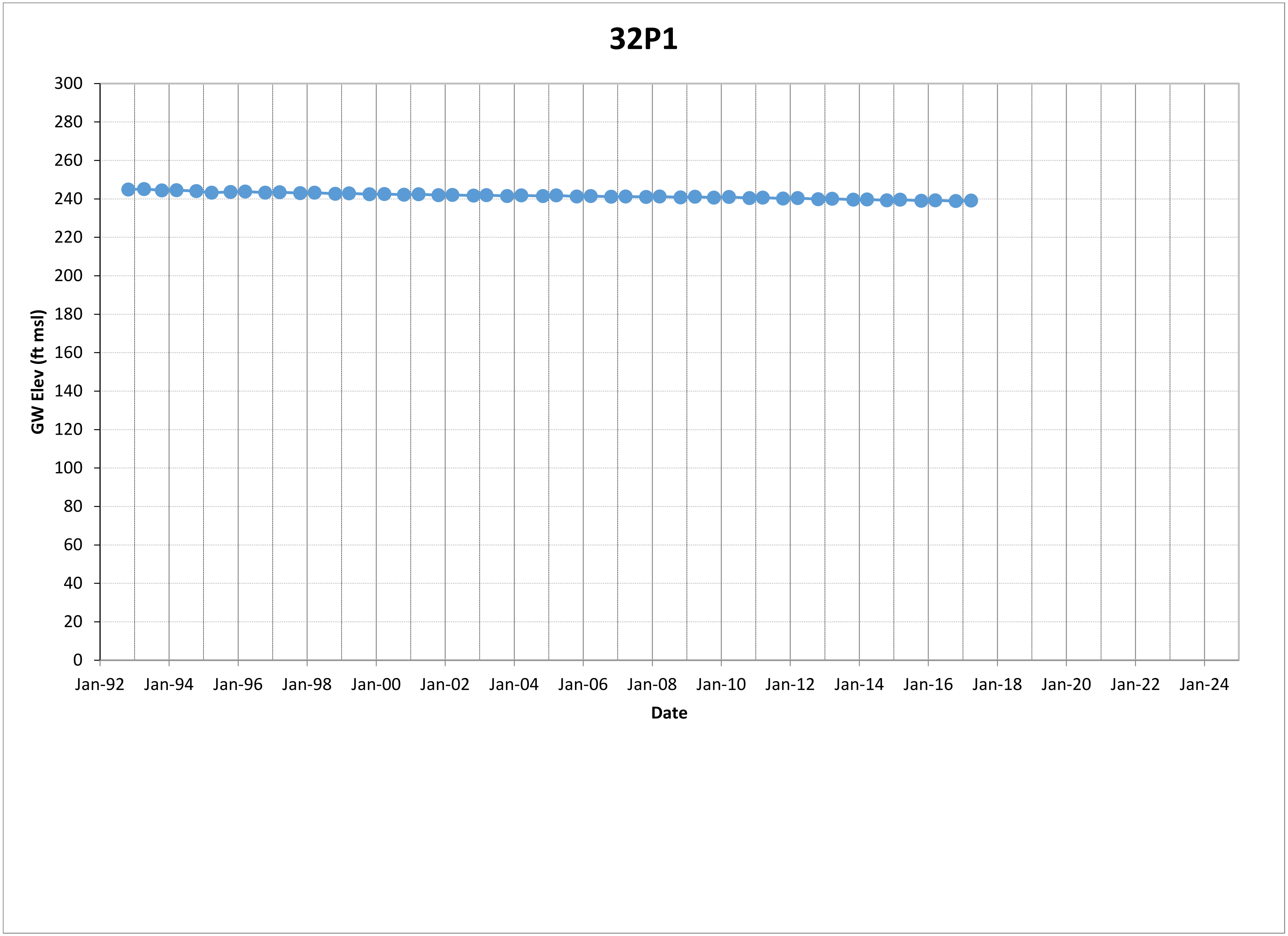
Jan-22
Jan-24
Date

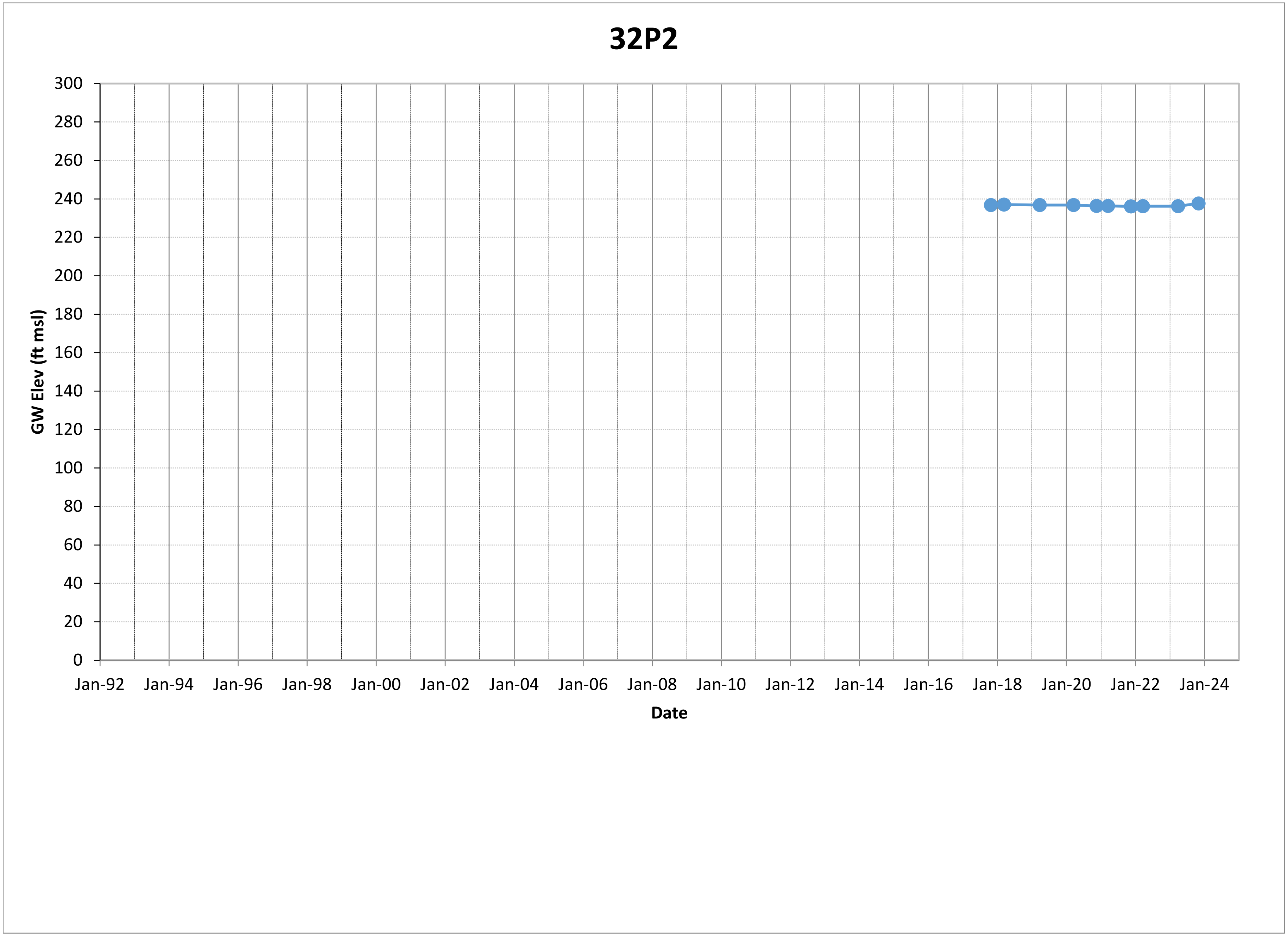


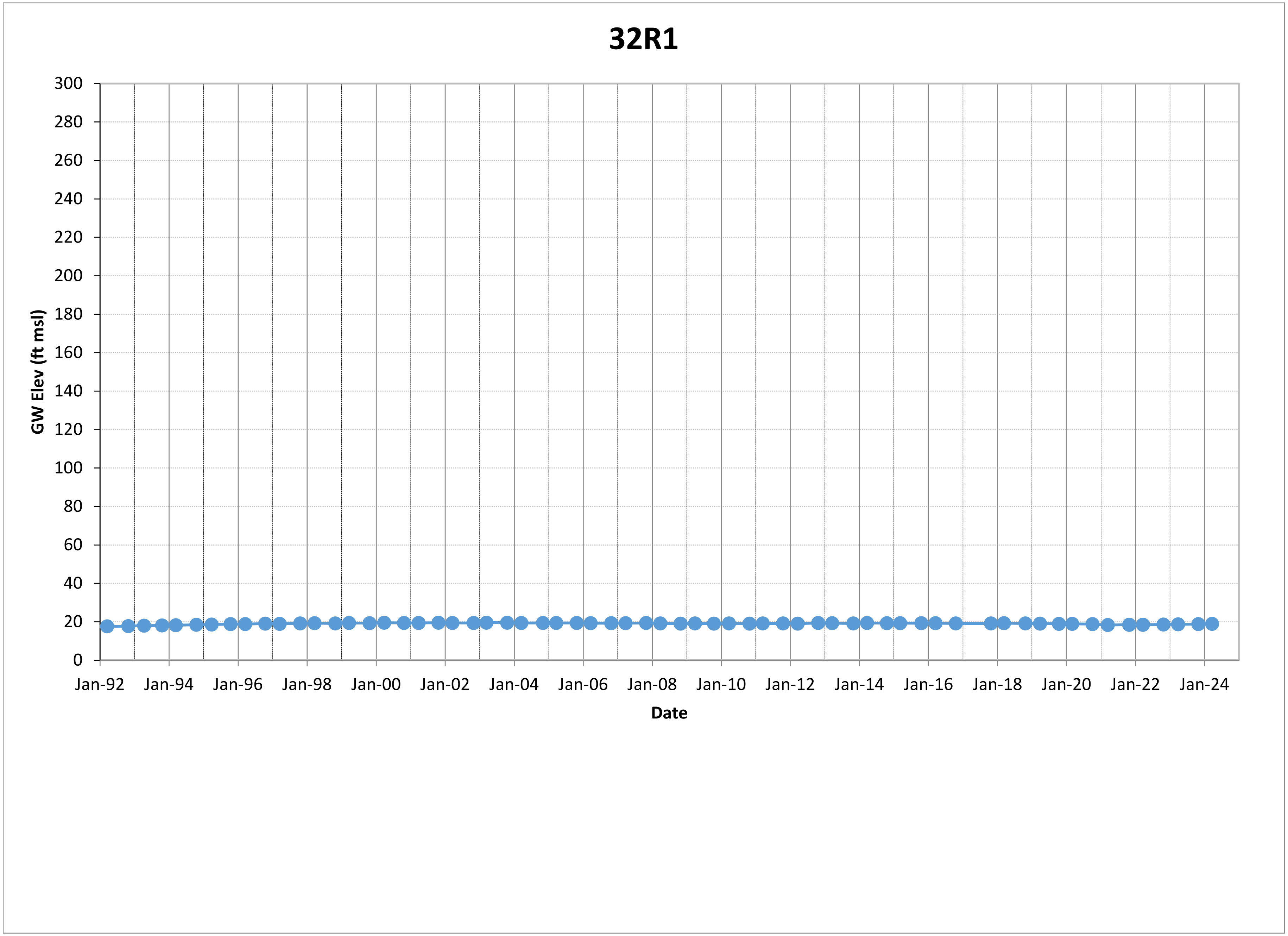
29H1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



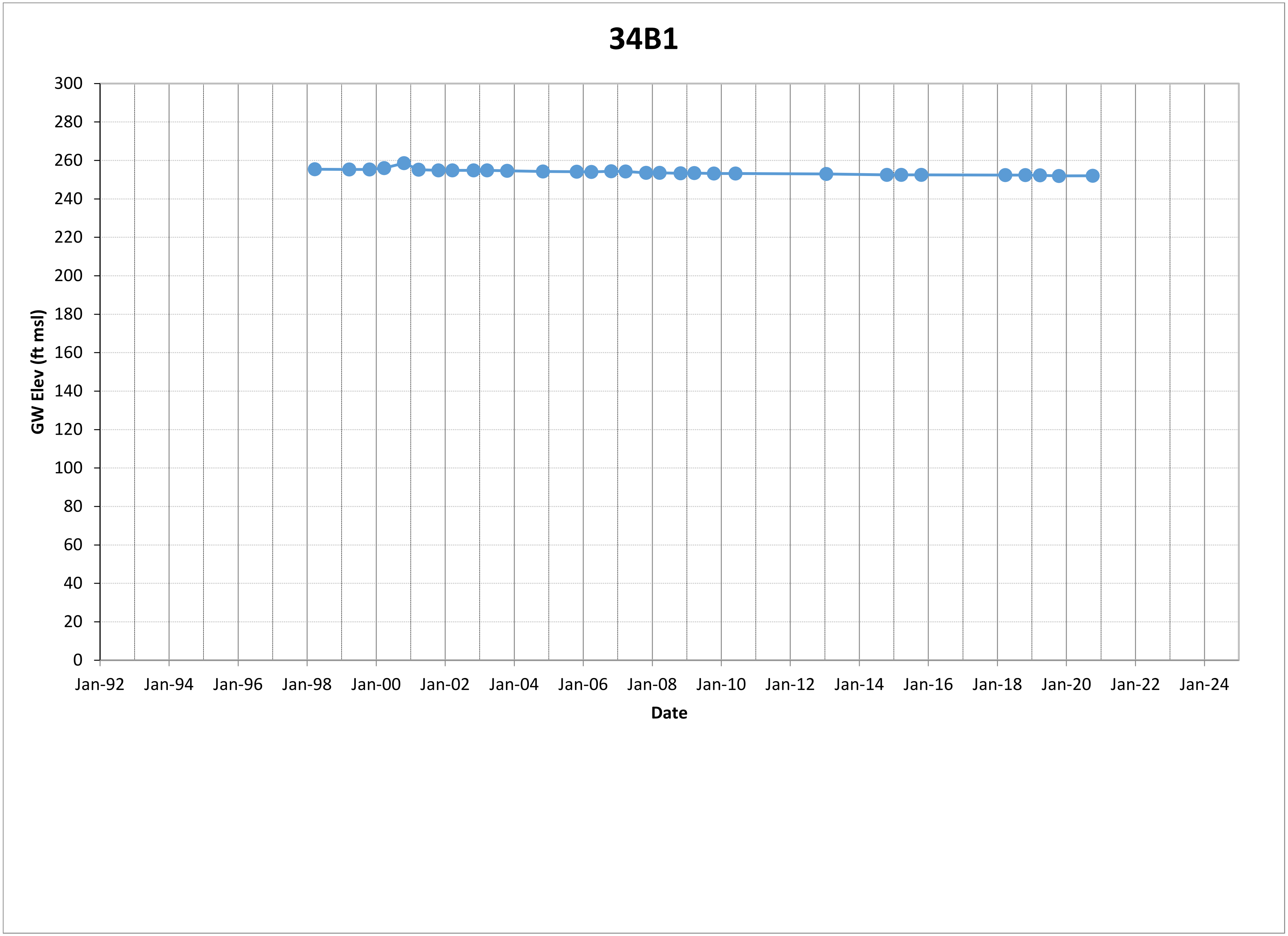
31B1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


32P1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

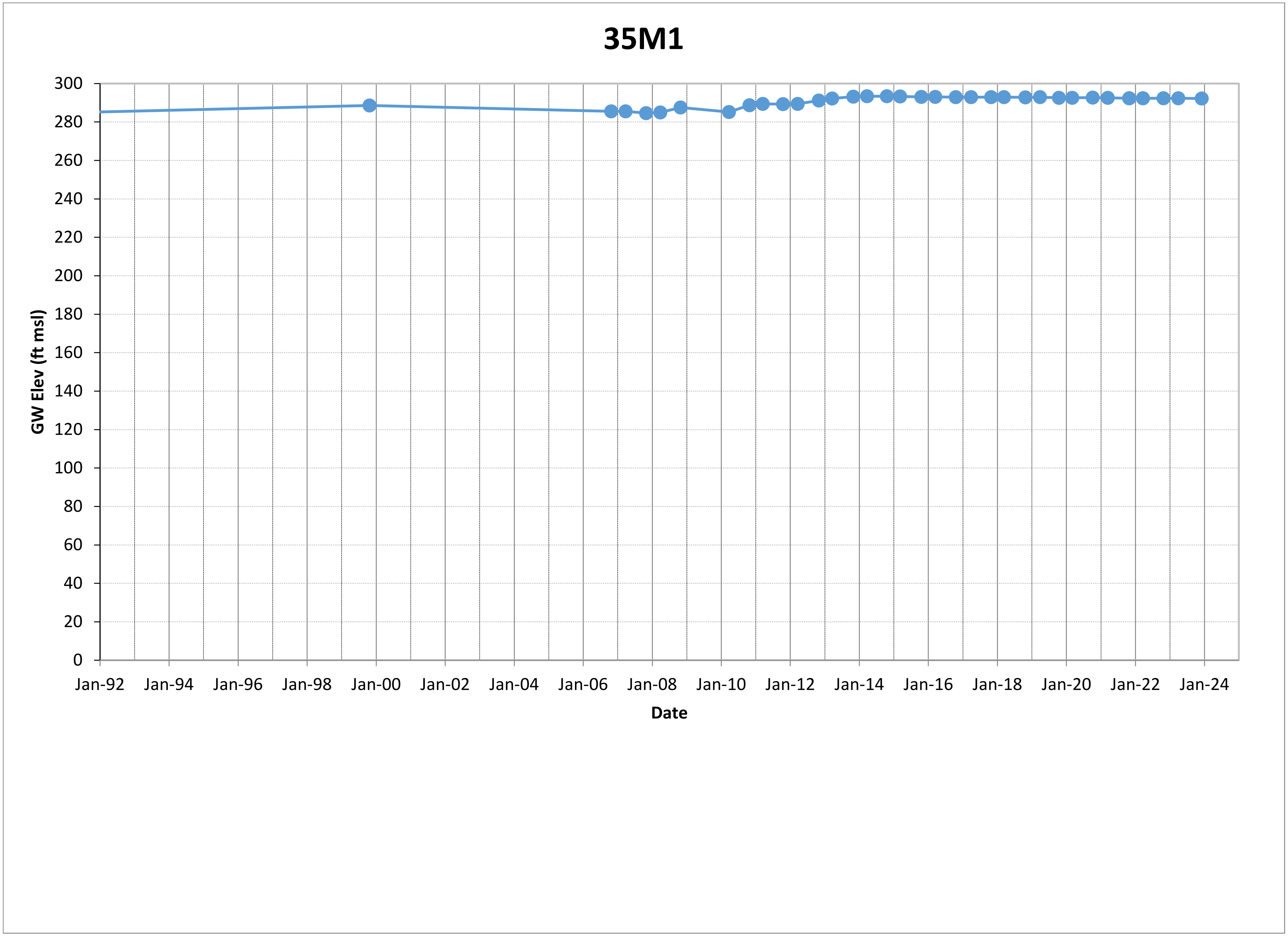

32P2
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

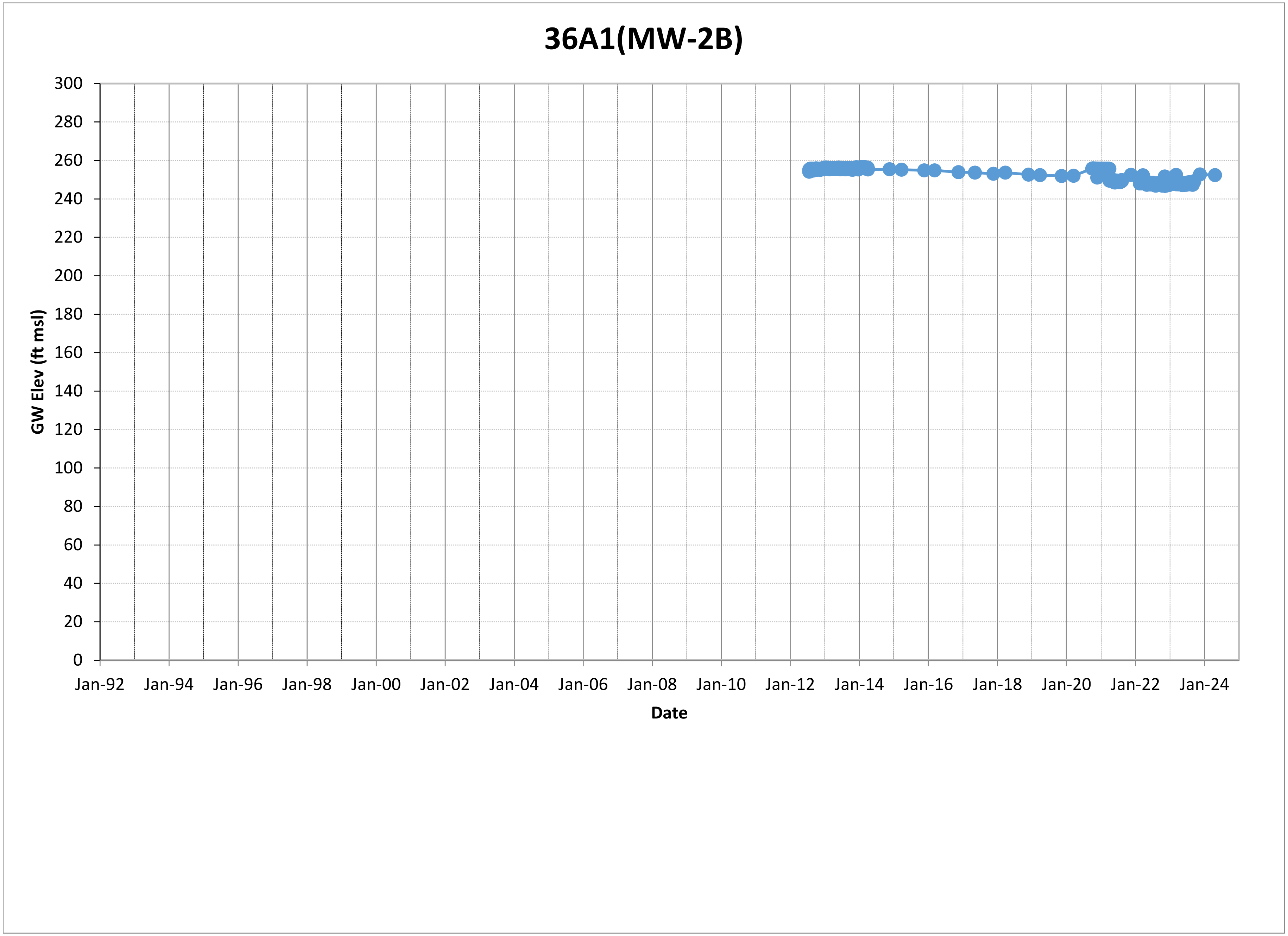


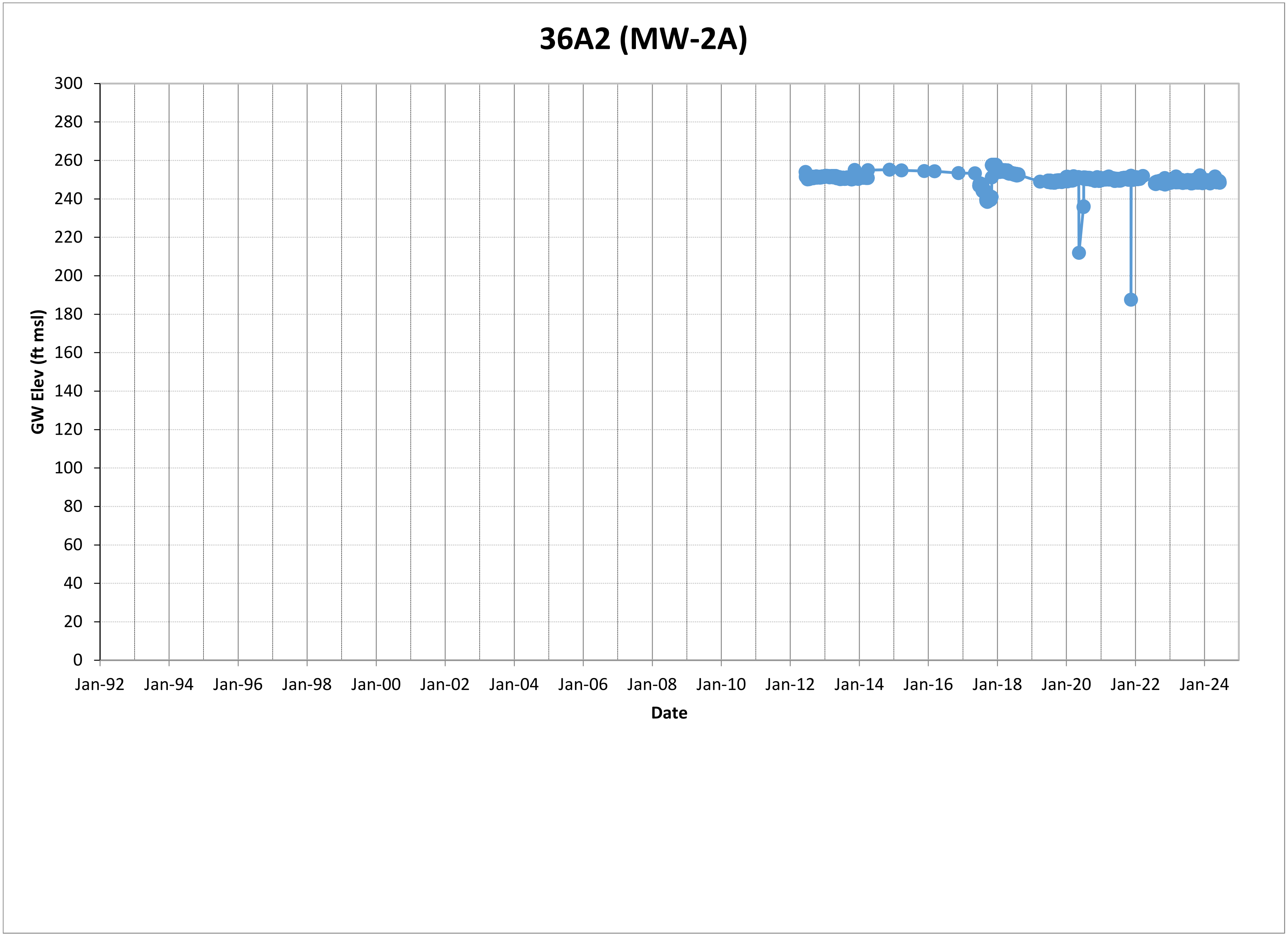
32R1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

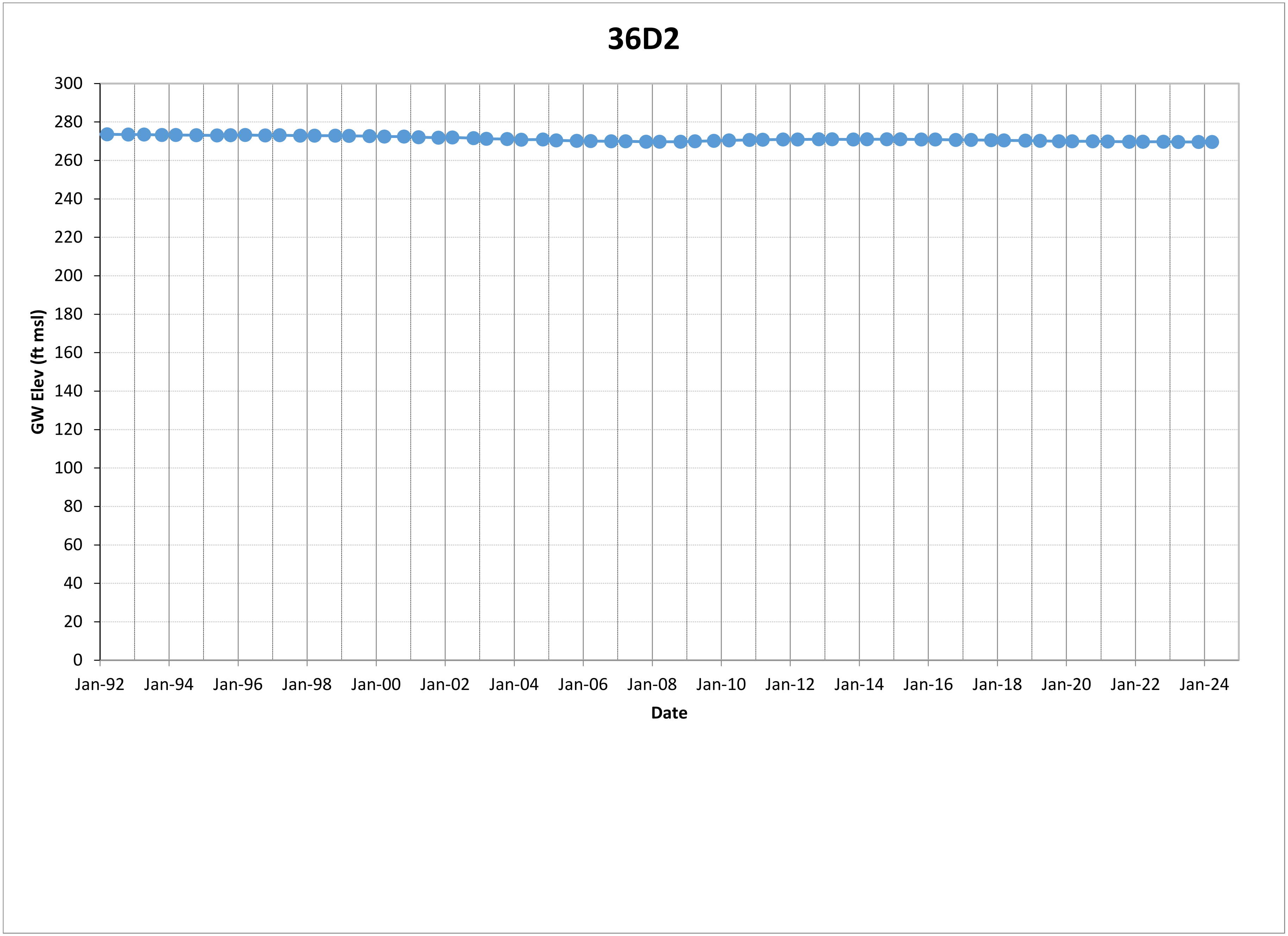


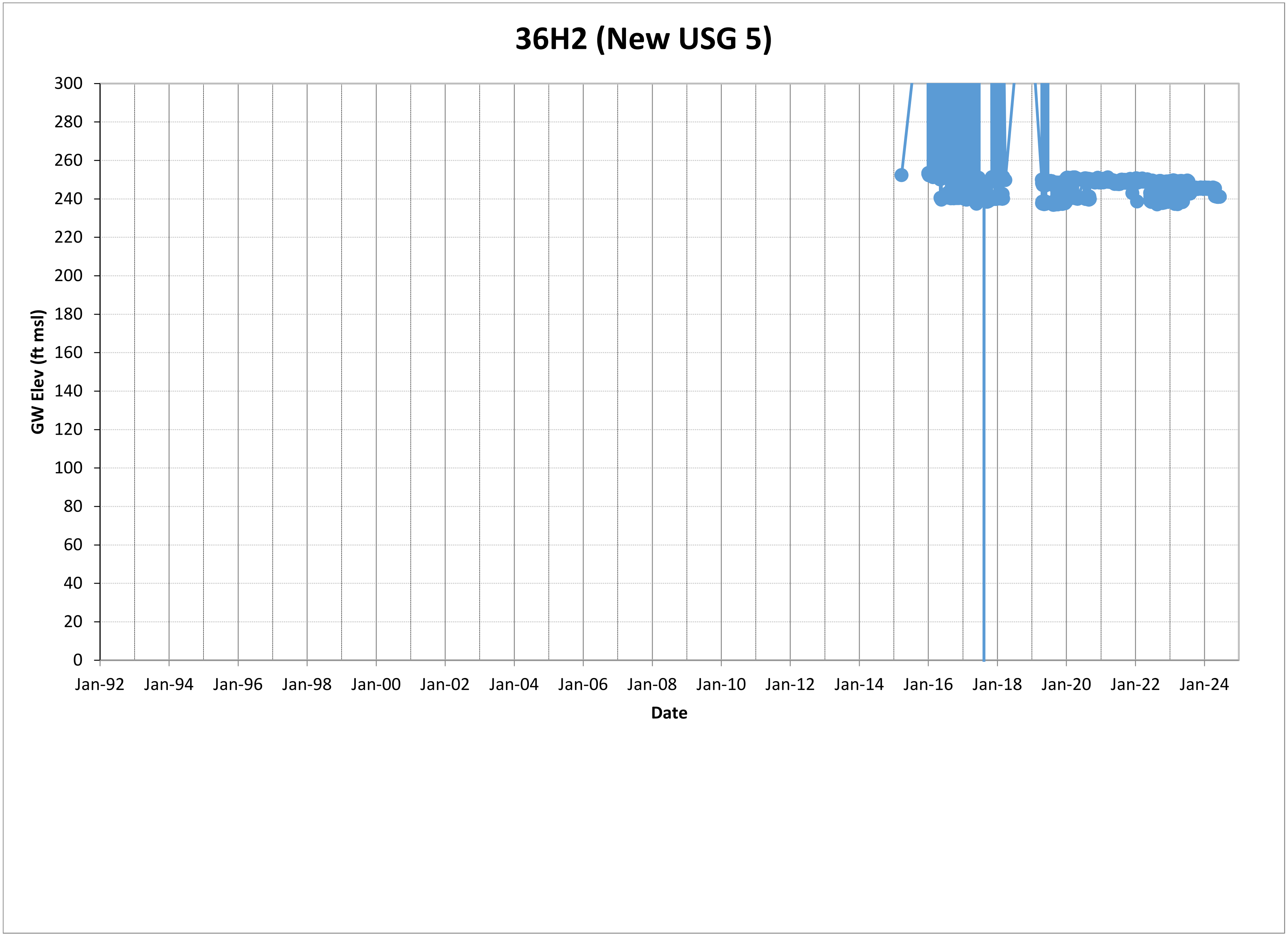
34B1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

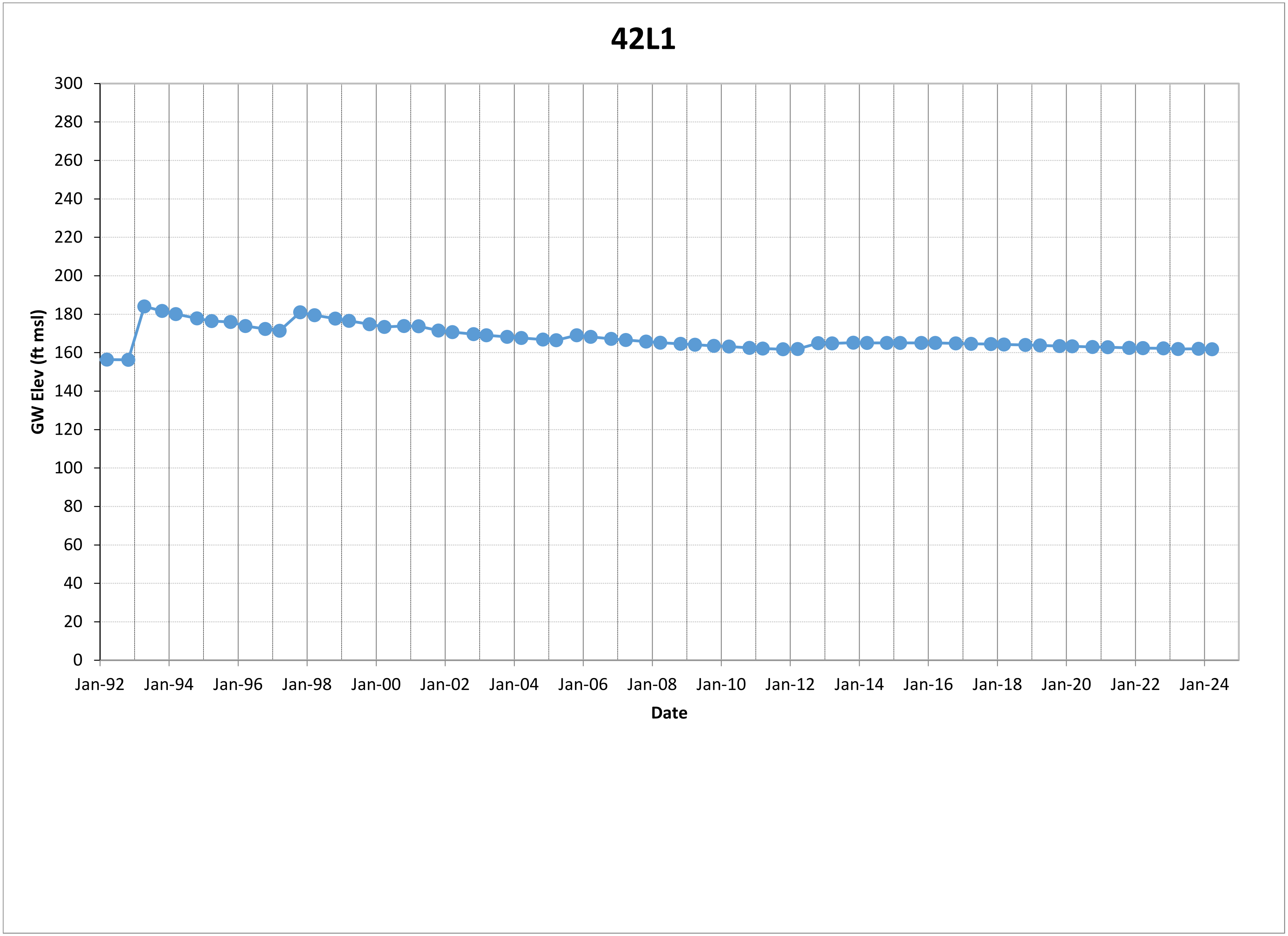

35M1
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


36A1(MW-2B)
GW Elev (ft msl)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


36A2 (MW-2A)
GW Elev (ft msl)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


36D2
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

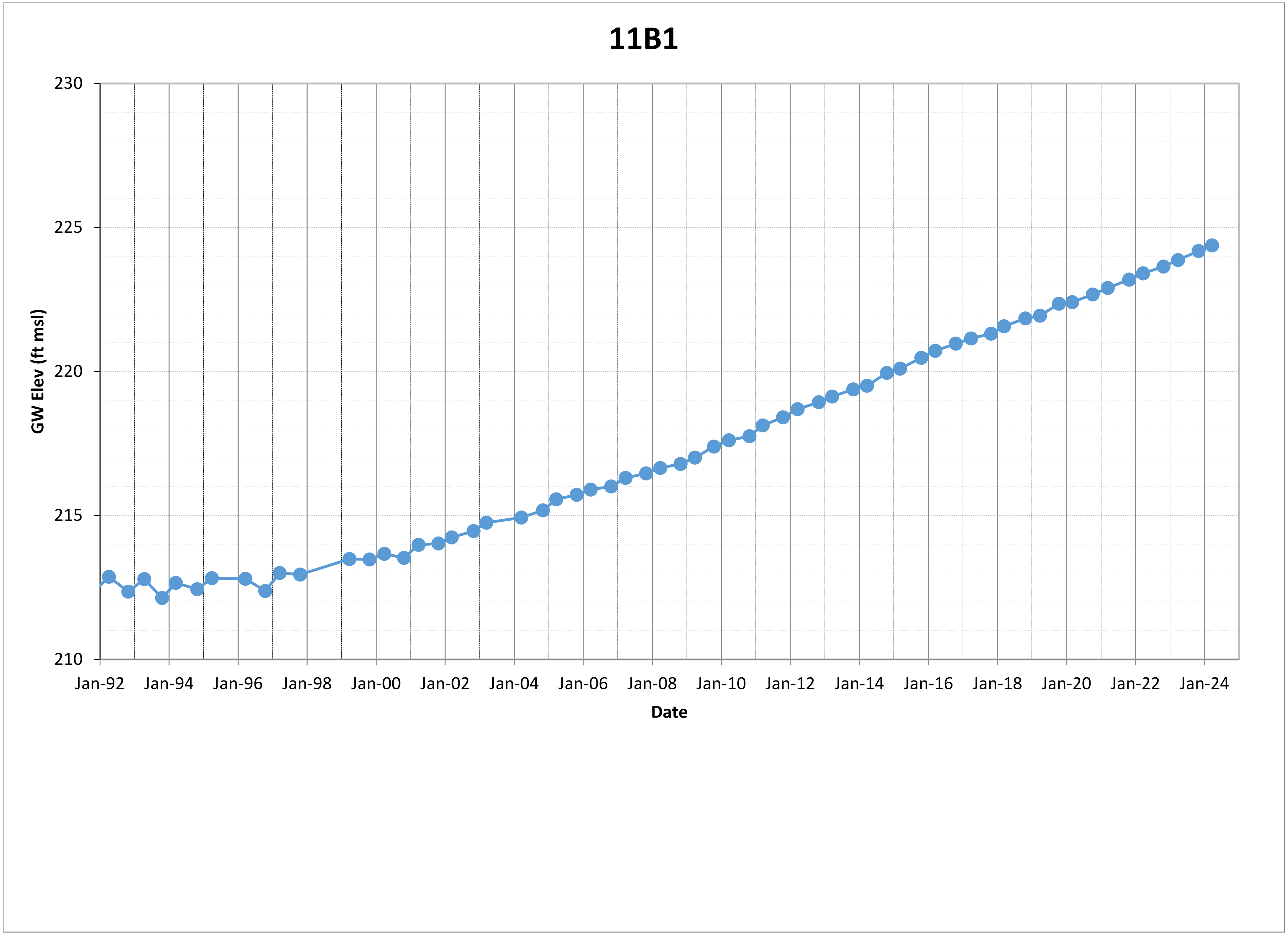

36H2 (New USG 5)
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

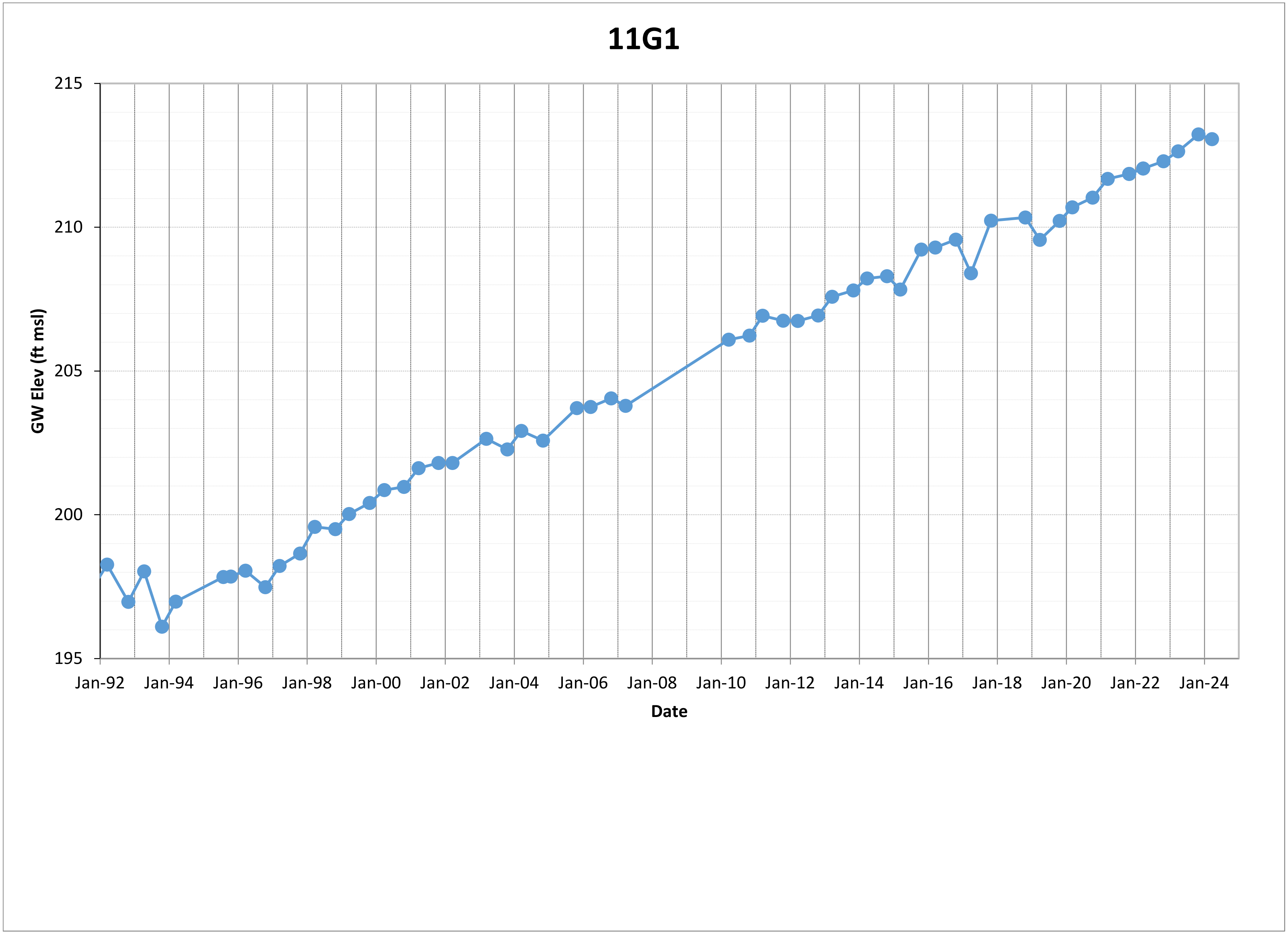


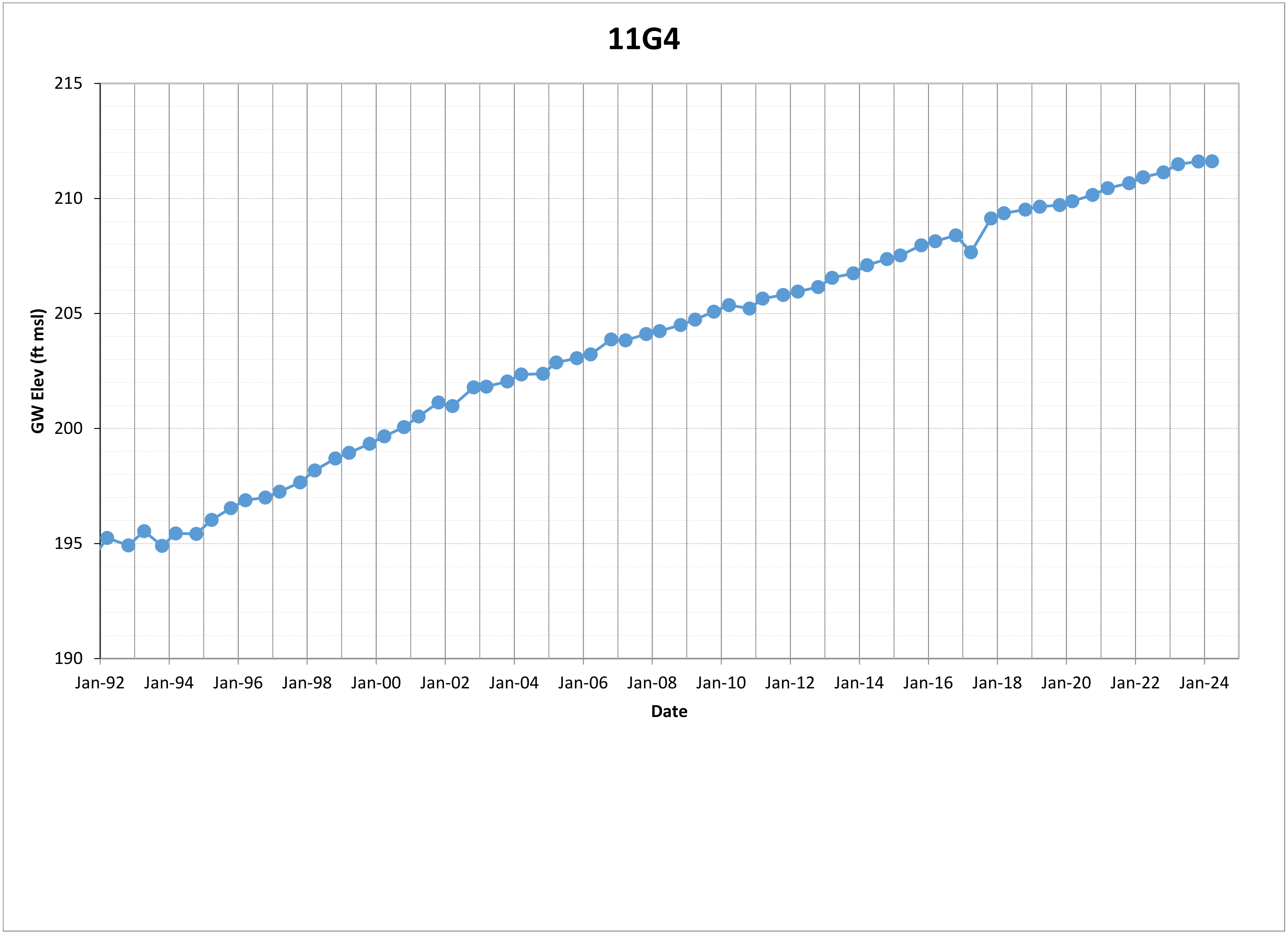
42L1
GW Elev (ft msl)
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

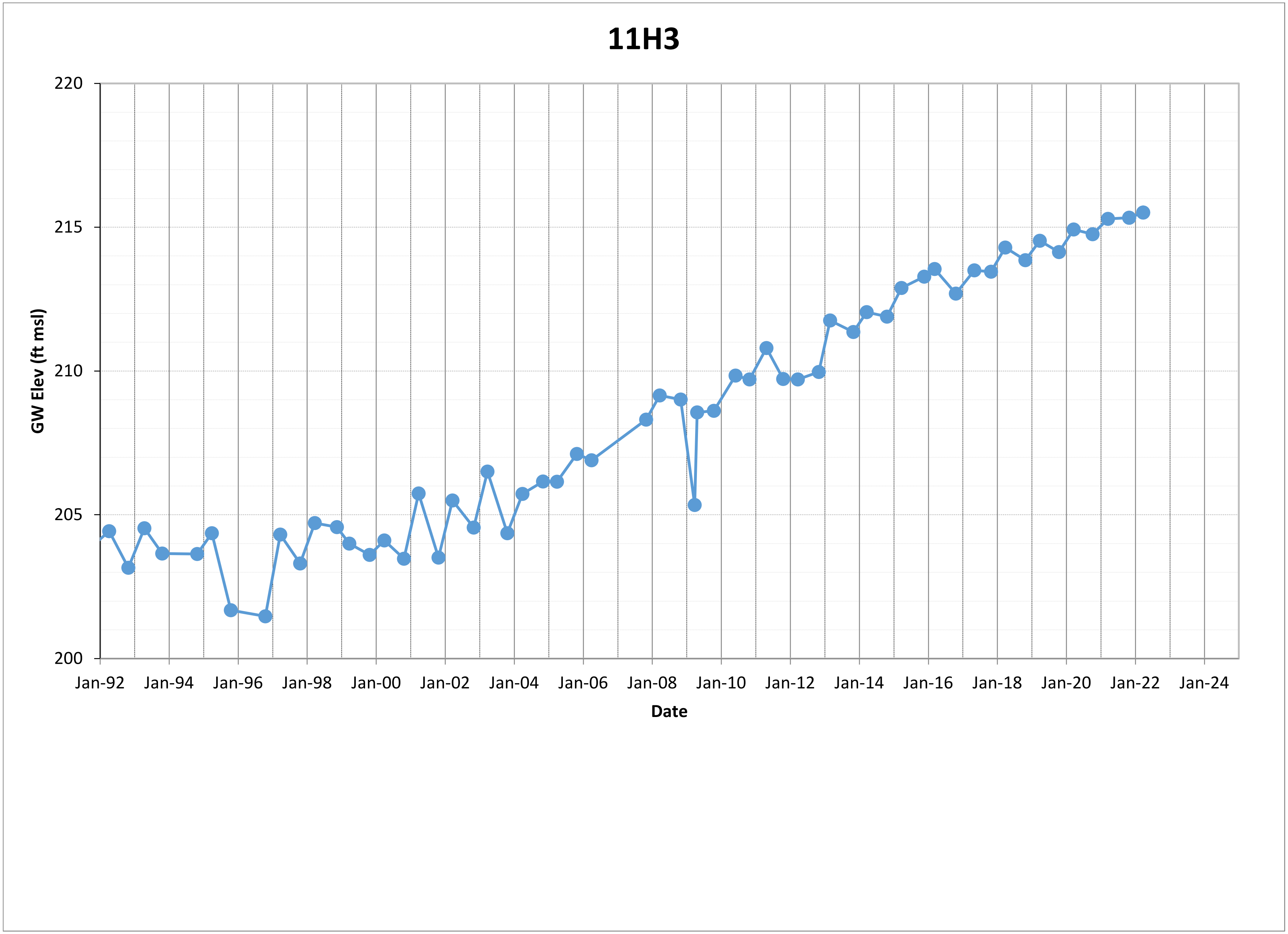
APPENDIX B

GROUNDWATER ELEVATION HYDROGRAPHS
(Zoomed-In Y Axis)


11B1
GW Elev (ft msl)
230
225
220
215
210
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


11G1
GW Elev (ft msl)
215
210
205
200
195
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


11G4
215
210
205
200
195
190
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


11H3
GW Elev (ft msl)
220
215
210
205
200
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
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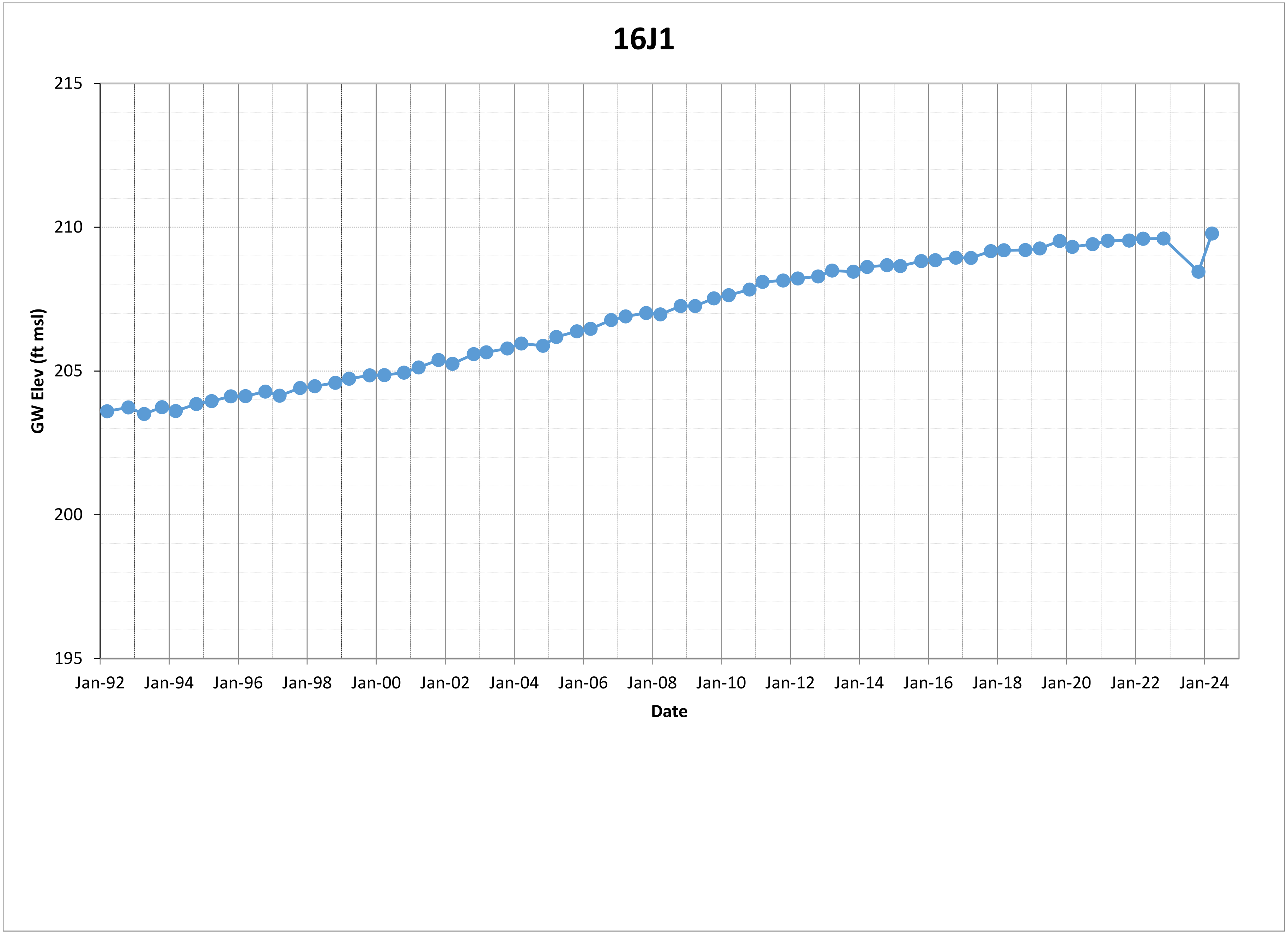
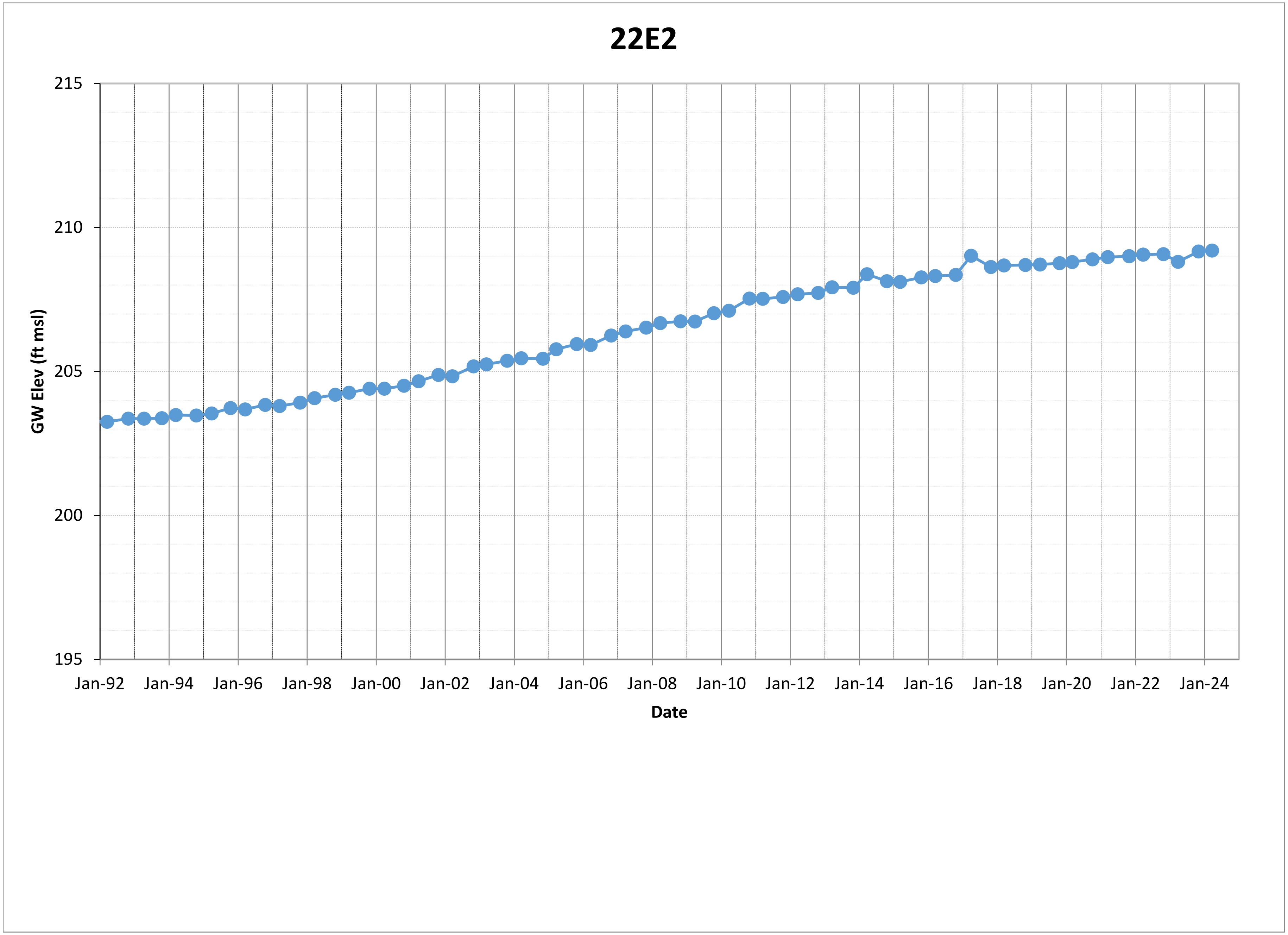
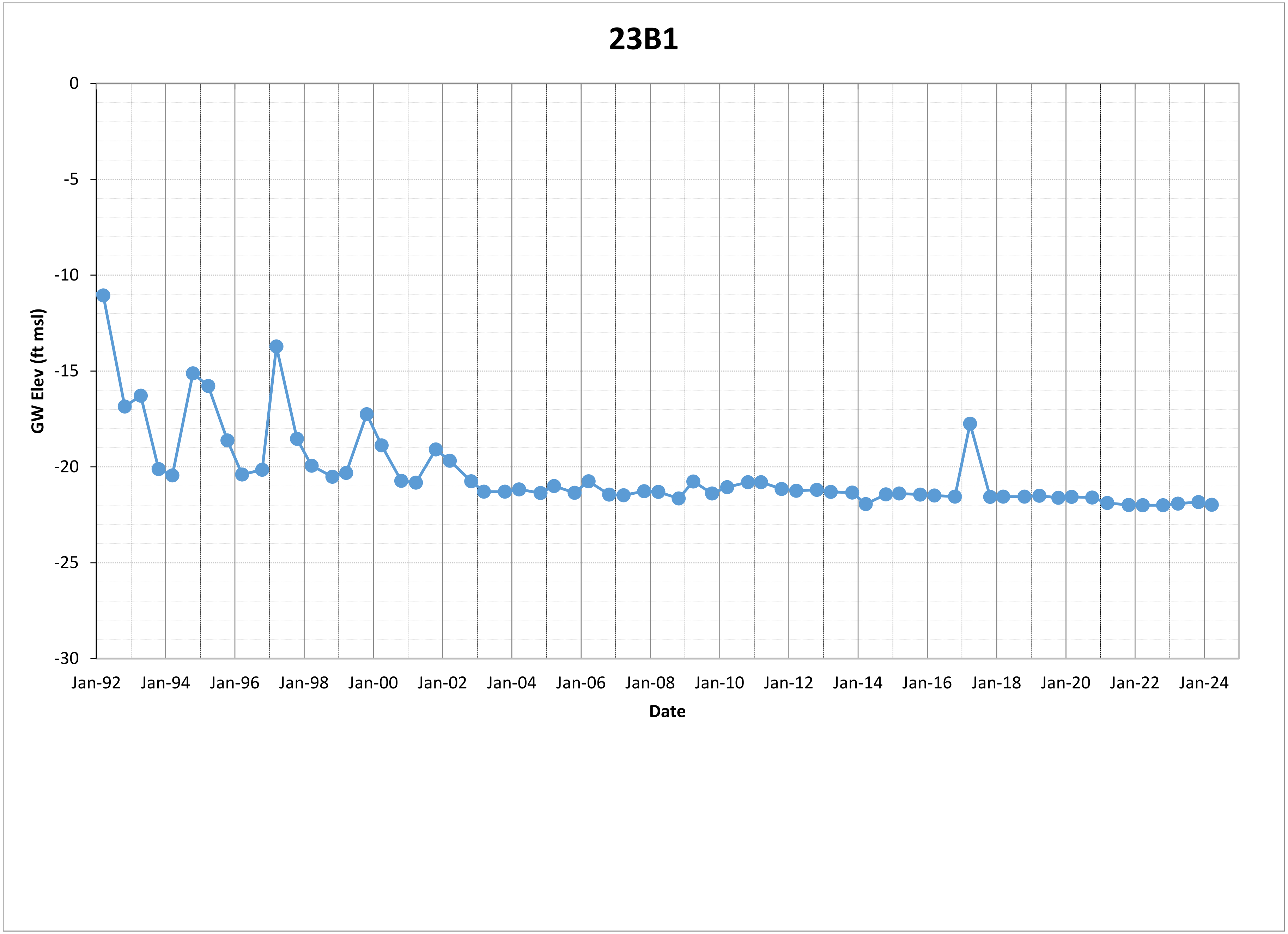
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

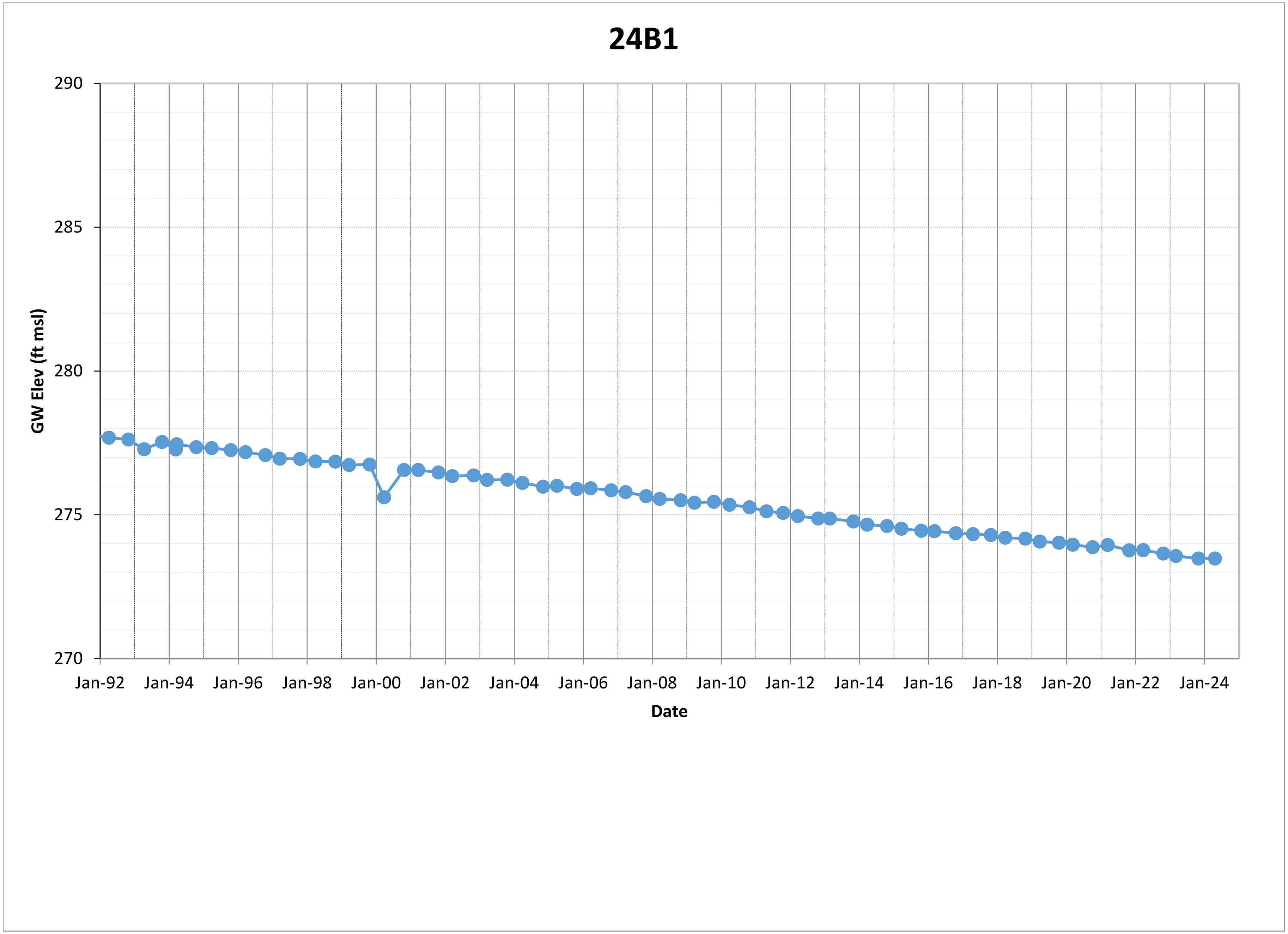

16J1
215
210
205
200
195
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

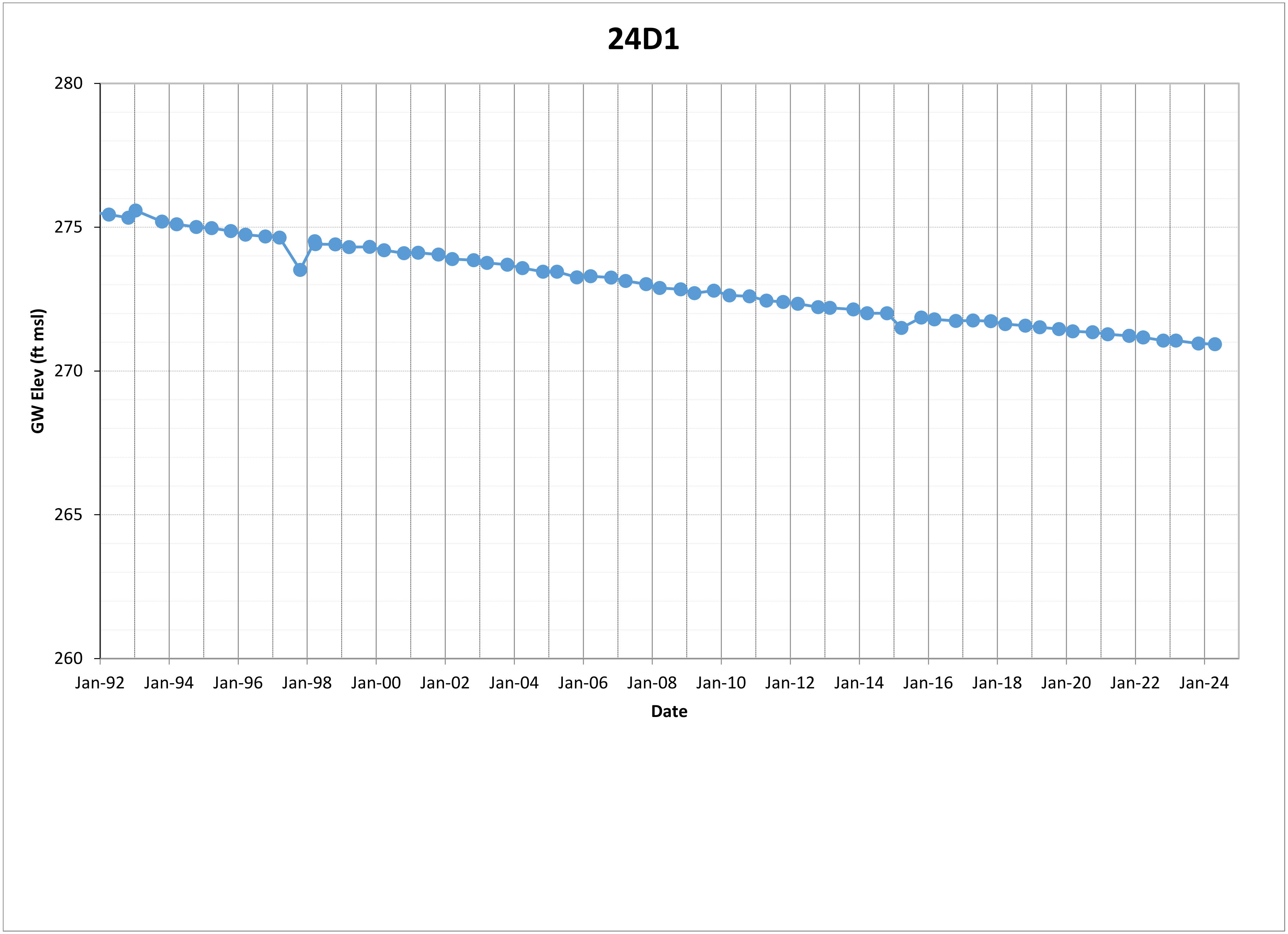


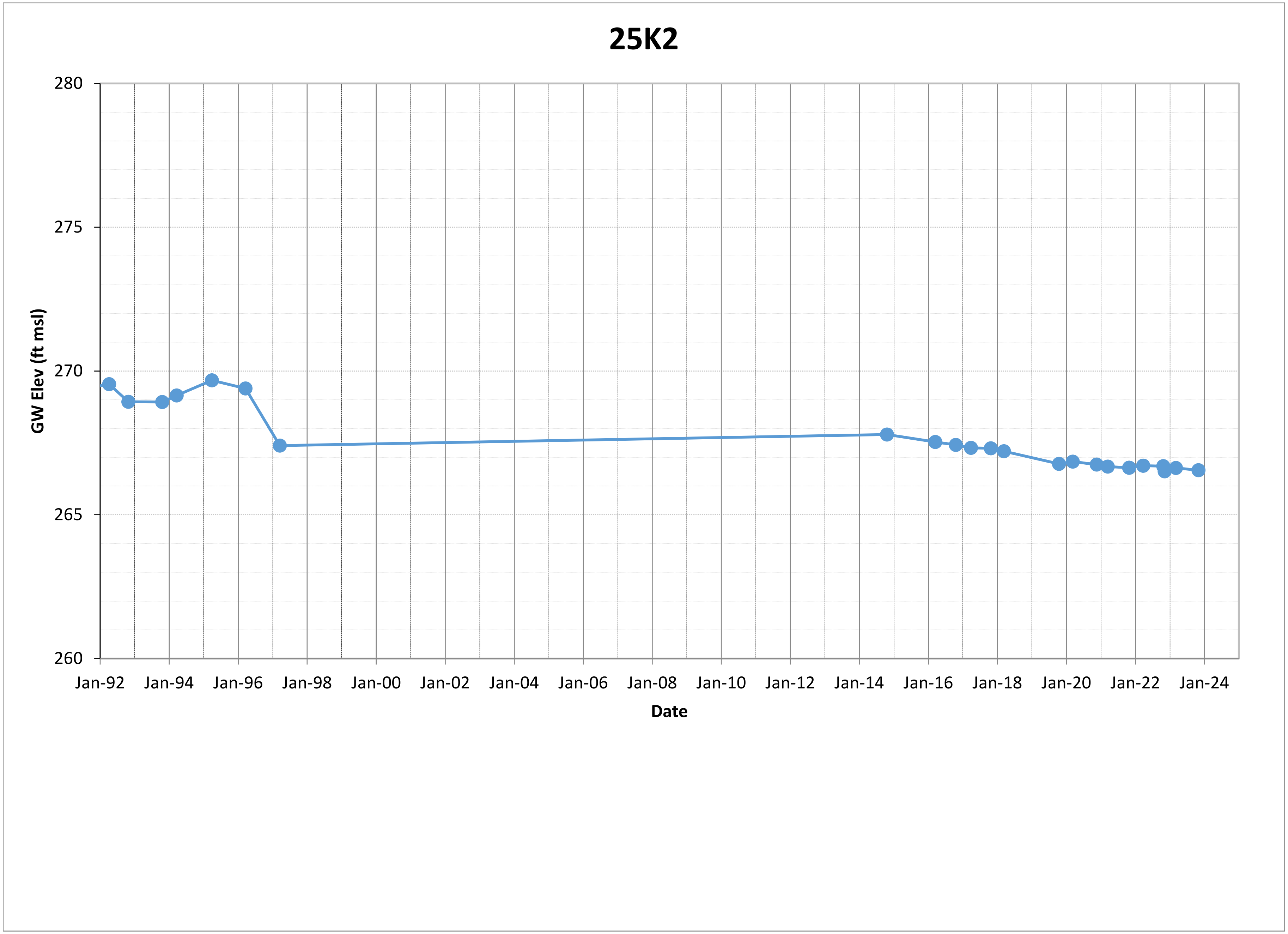
22E2
215
210
205
200
195
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



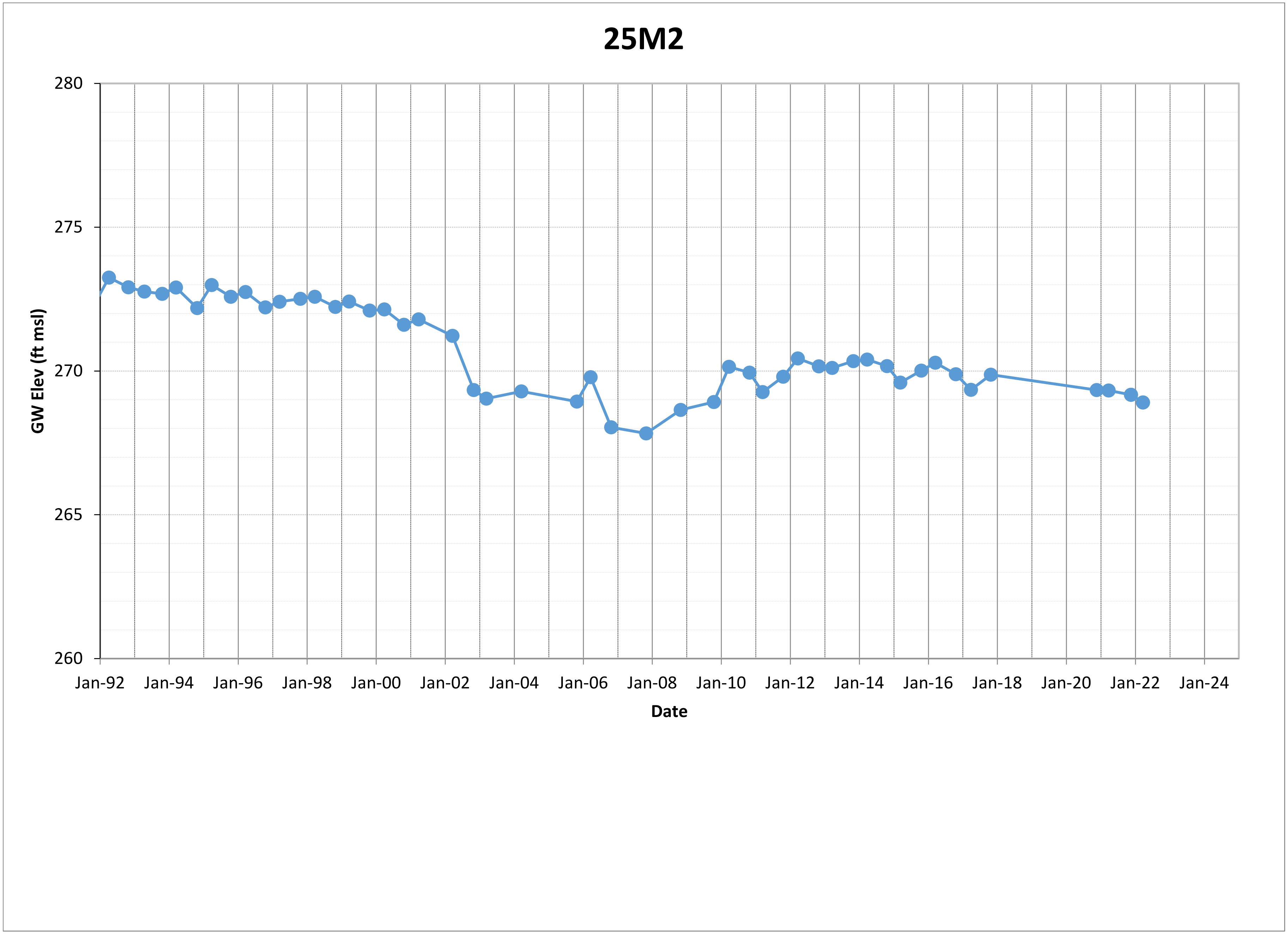
23B1
GW Elev (ft msl)
0
-5
-10
-15
-20
-25
-30
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


24B1
290
285
280
275
270
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

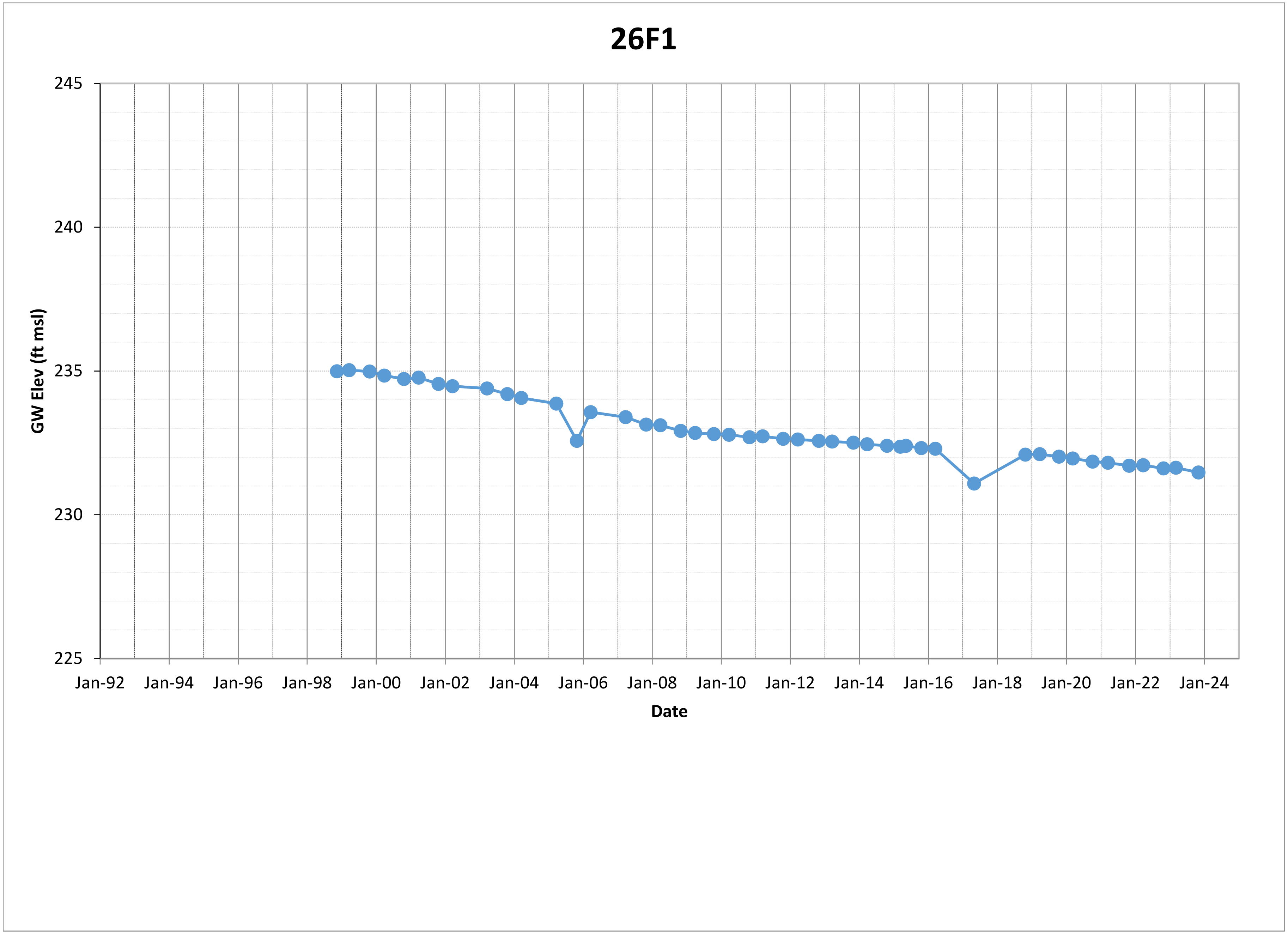

24D1
280
275
270
265
260
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

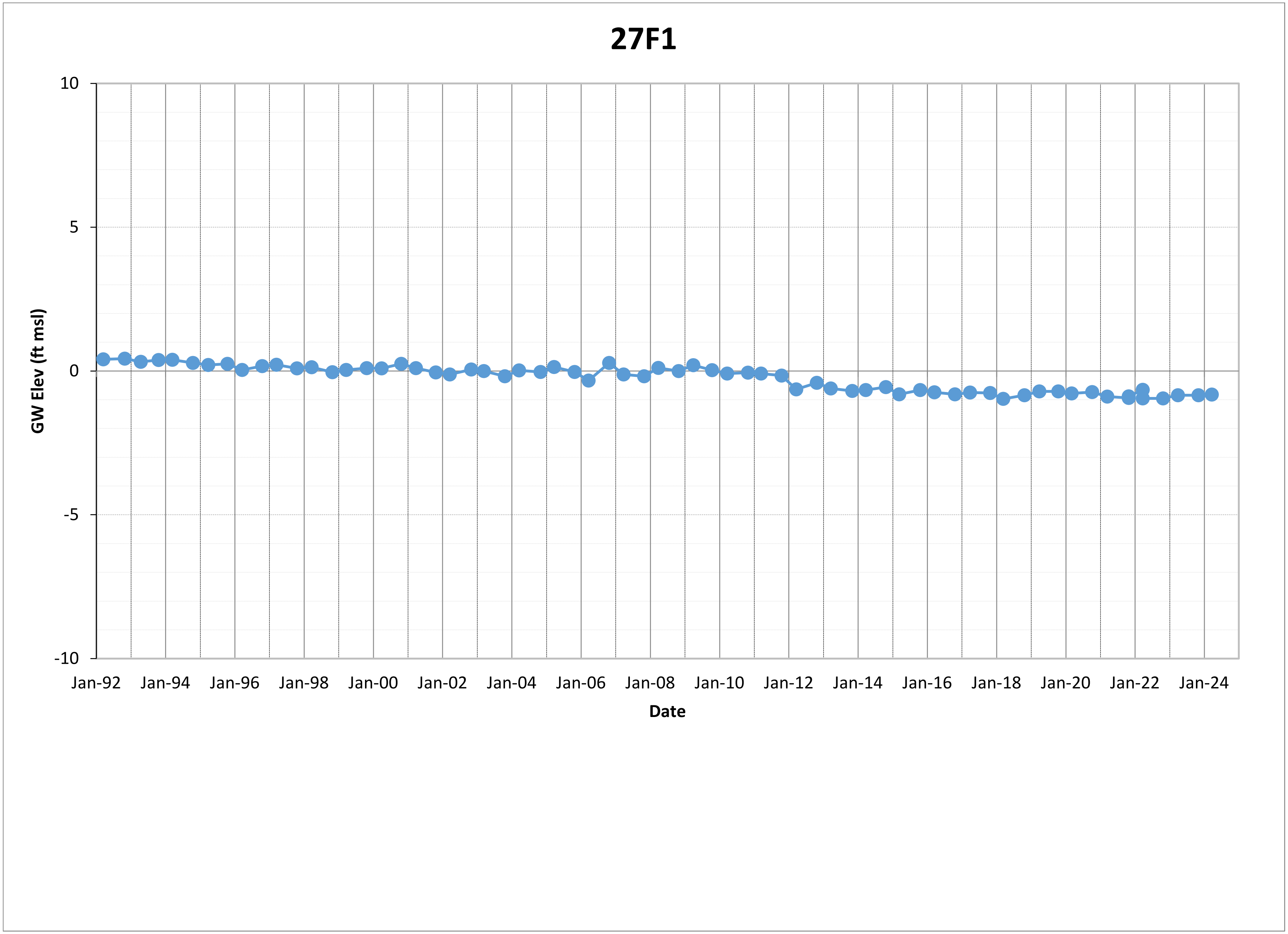


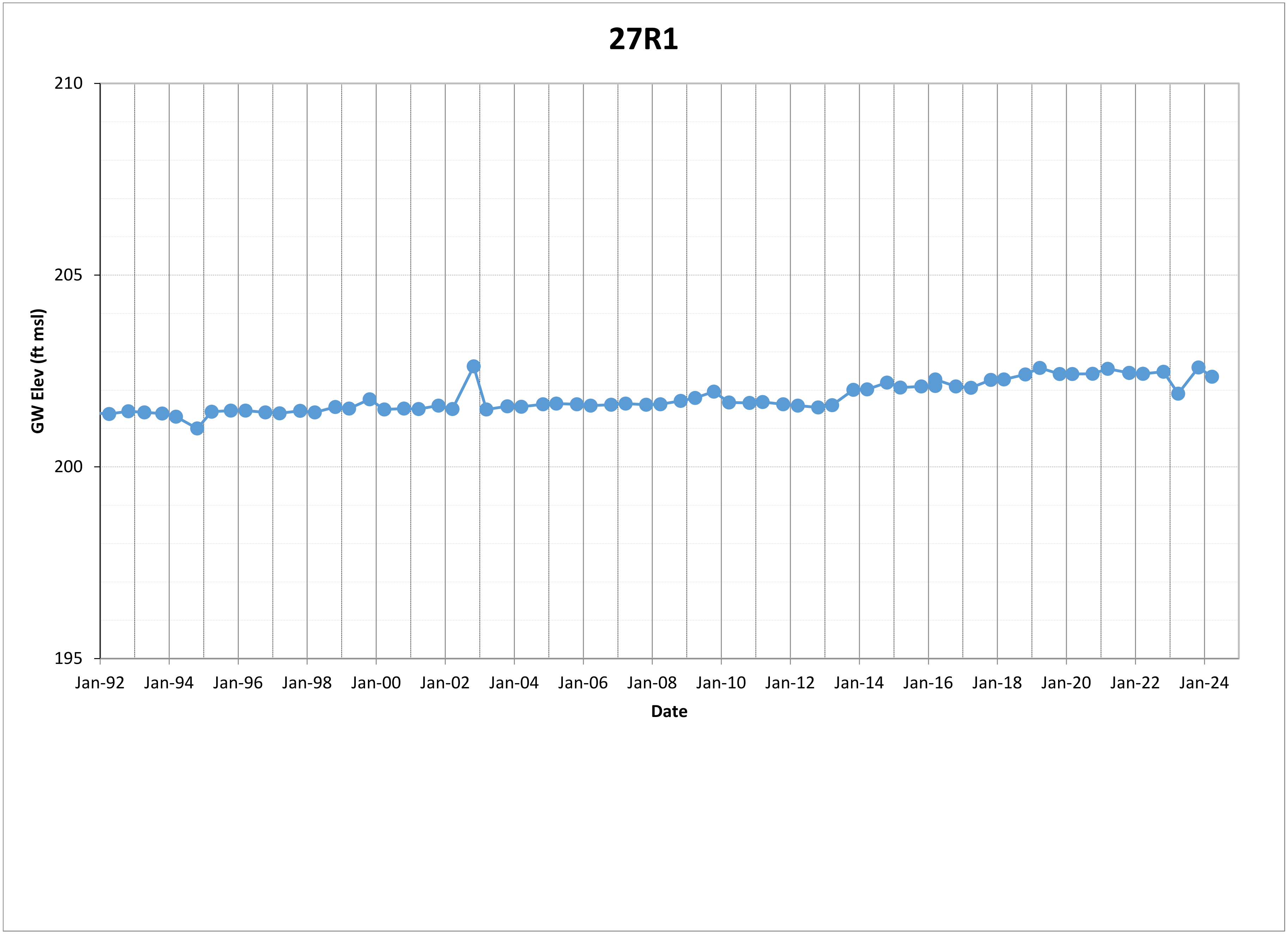
25K2
GW Elev (ft msl)
280
275
270
265
260
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

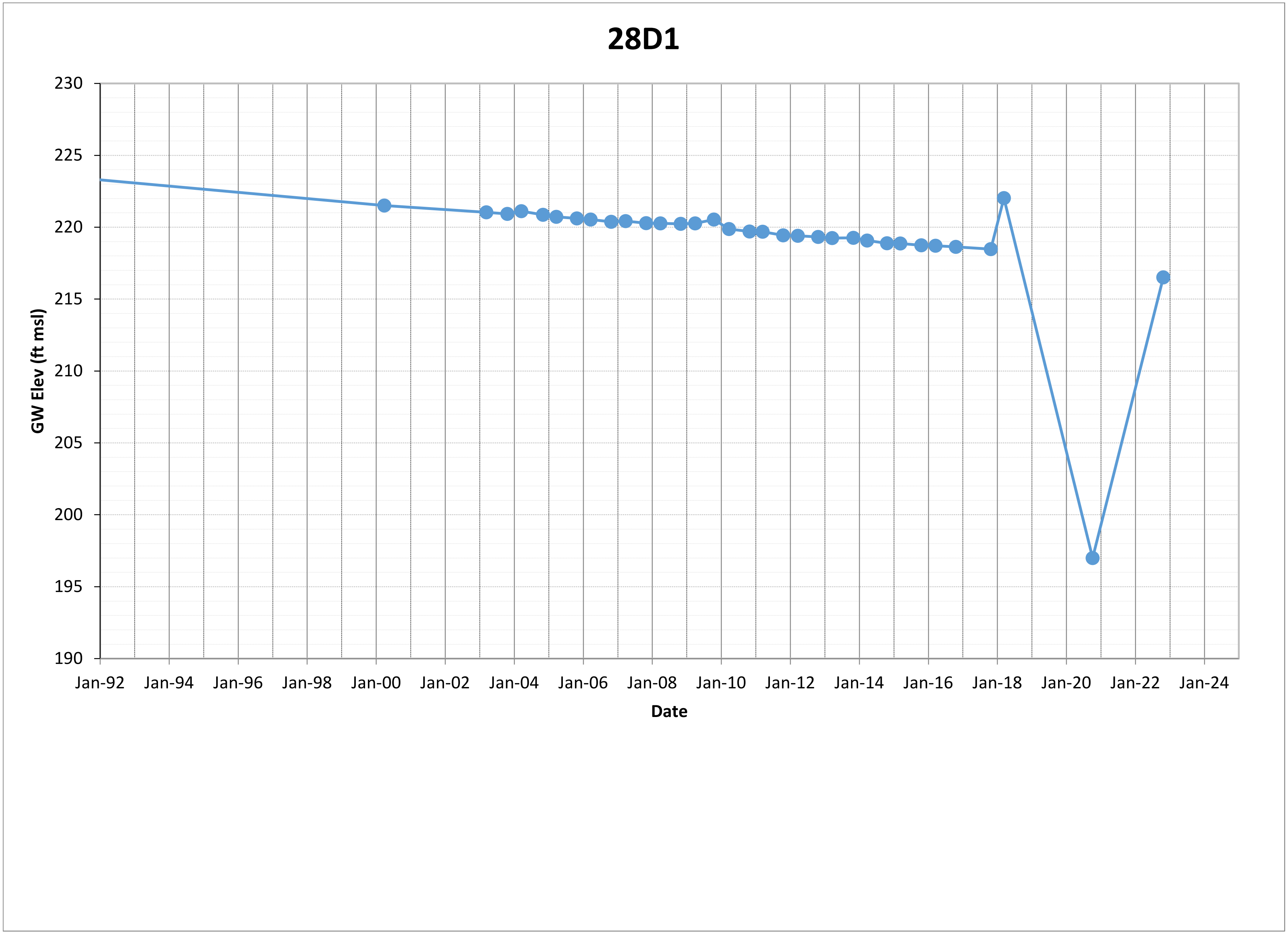


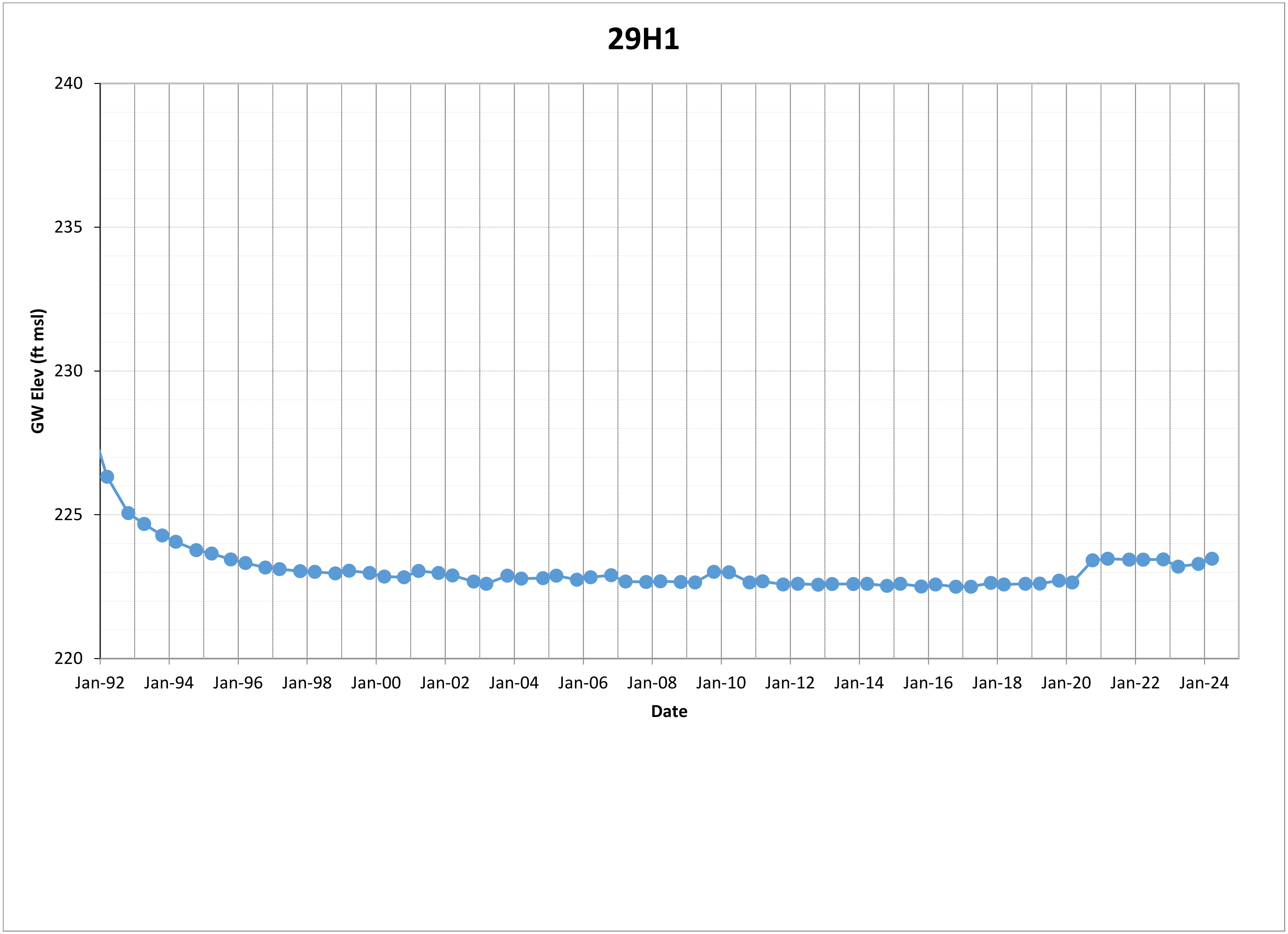
25M2
280
275
270
265
260
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

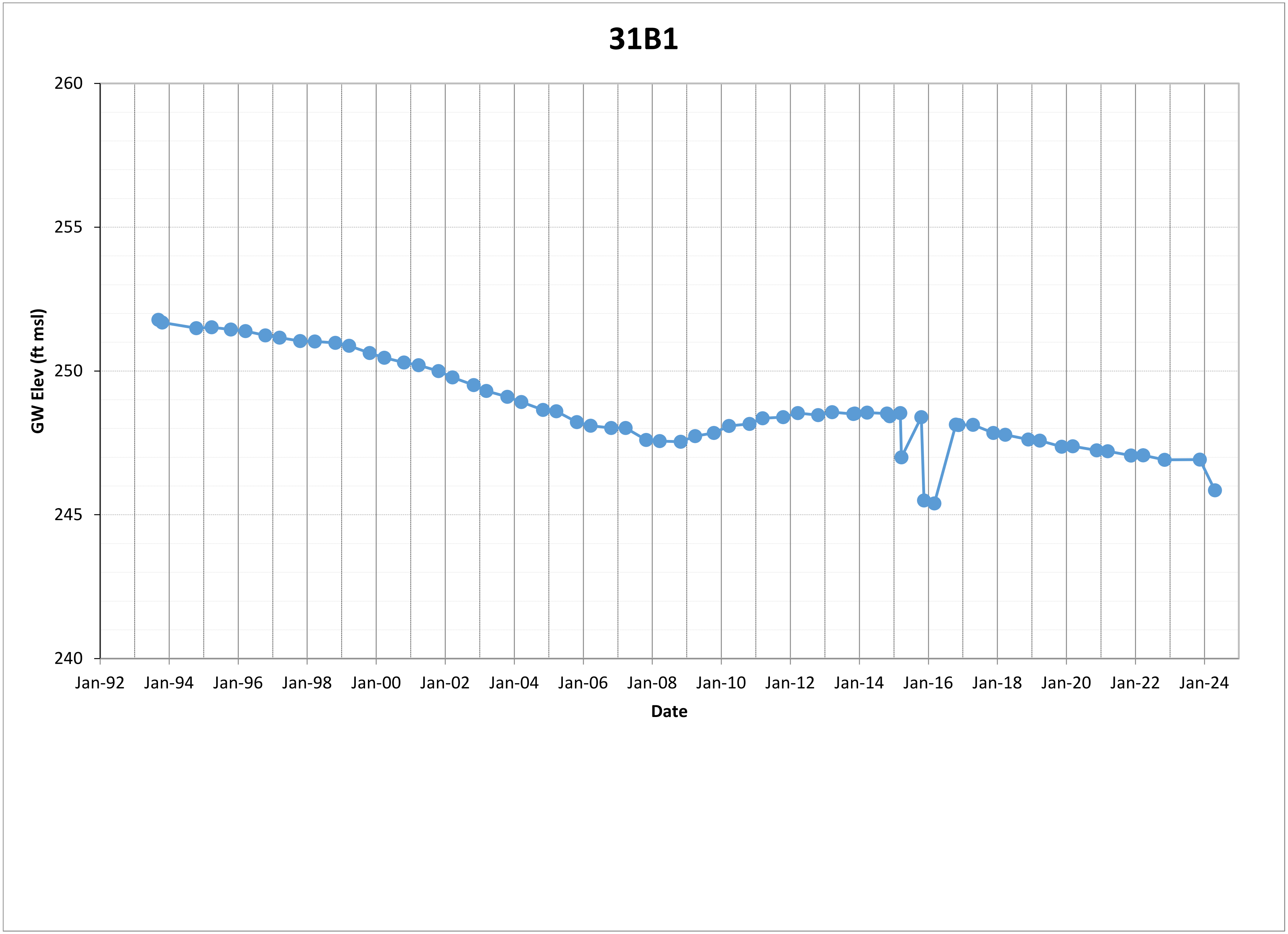

26F1
GW Elev (ft msl)
245
240
235
230
225
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


27F1
GW Elev (ft msl)
10
5
0
-5
-10
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


27R1
210
205
200
195
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


28D1
230
225
220
215
210
205
200
195
190
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


29H1
GW Elev (ft msl)
240
235
230
225
220
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


31B1
GW Elev (ft msl)
260
255
250
245
240
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
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Jan-08
Jan-10
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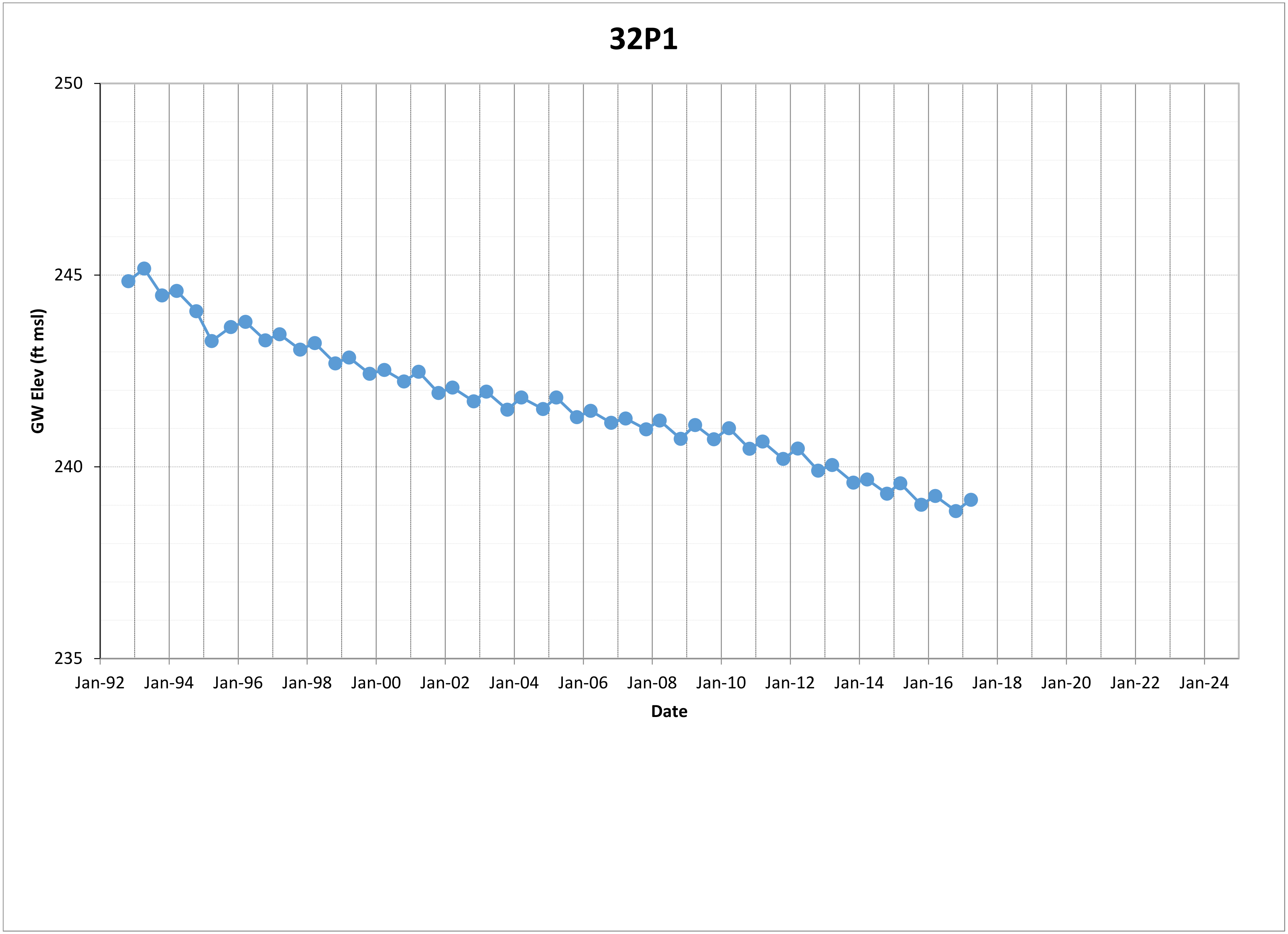
Jan-22
Jan-24
Date


32P1
GW Elev (ft msl)
250
245
240
235
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
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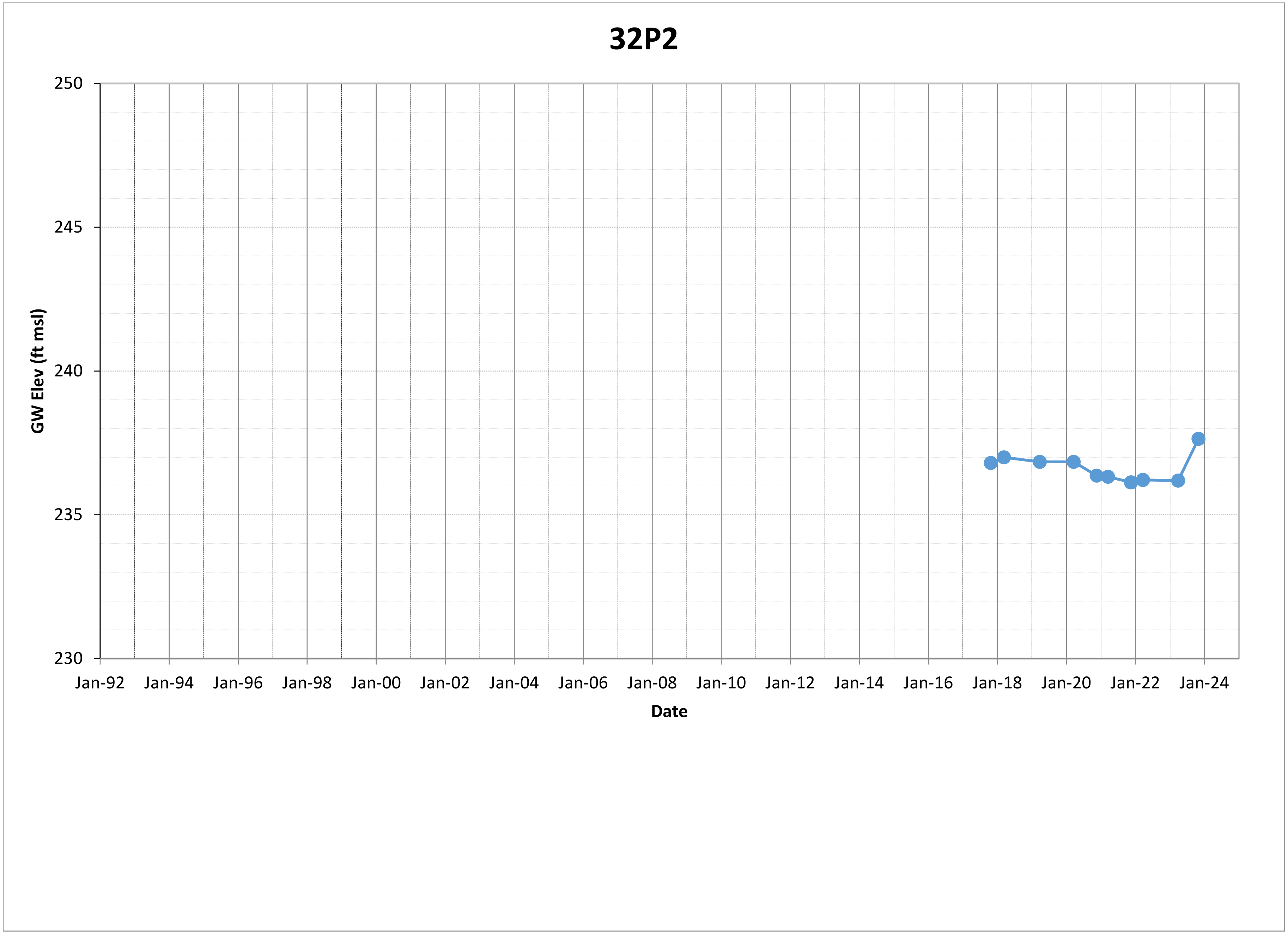
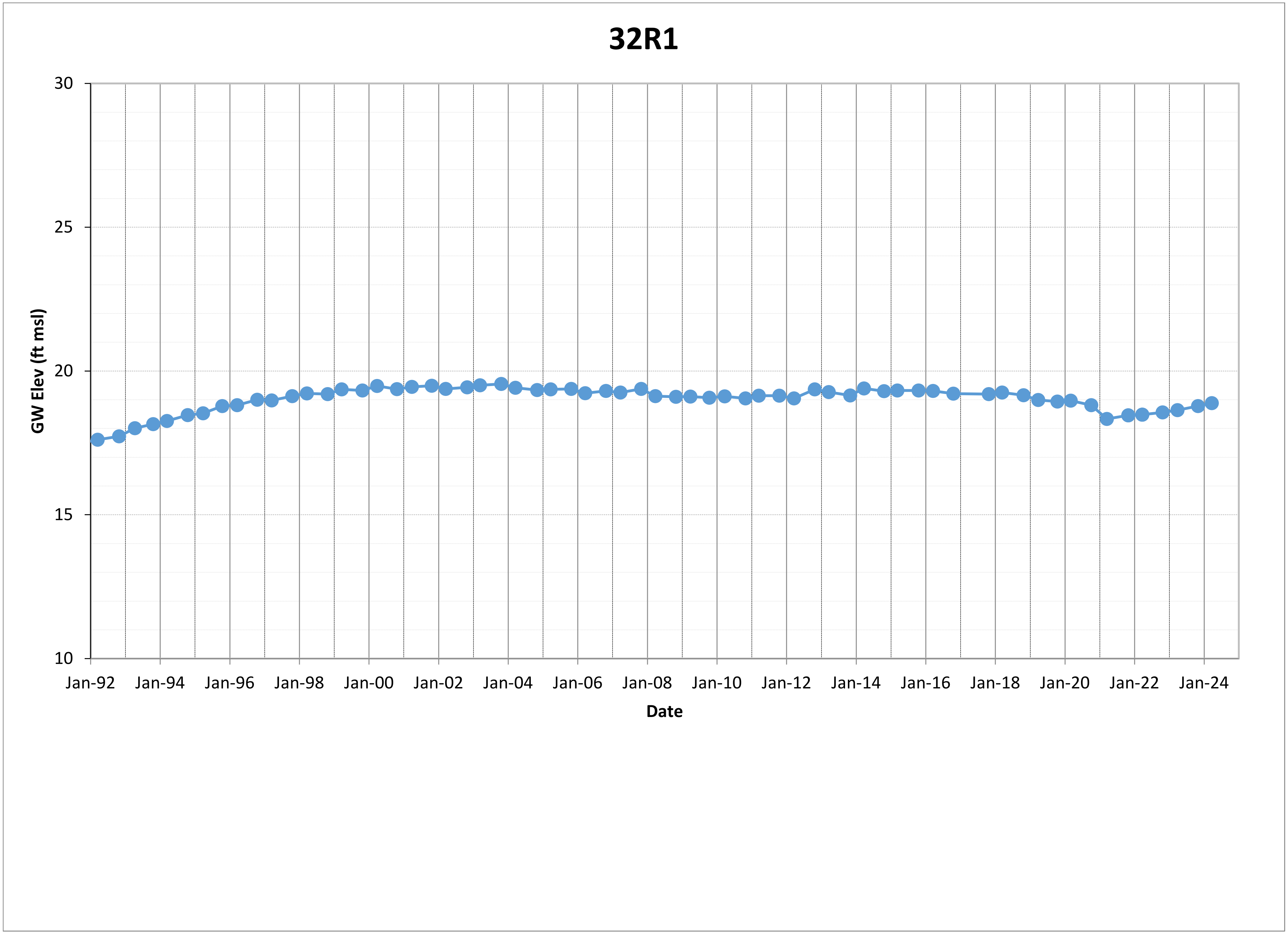
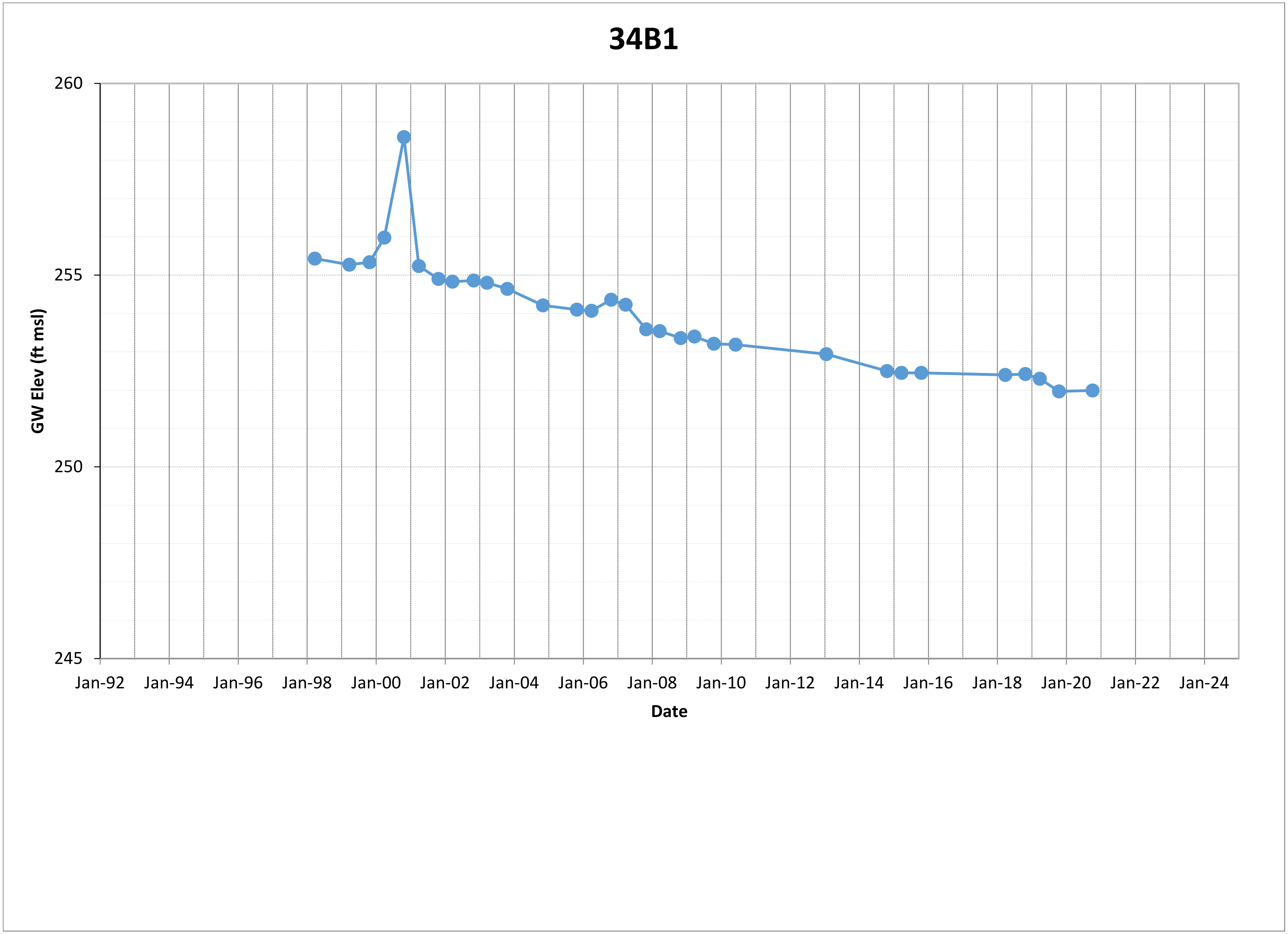
Jan-18
Jan-20
Jan-22
Jan-24
Date


32P2
GW Elev (ft msl)
250
245
240
235
230
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


32R1
GW Elev (ft msl)
30
25
20
15
10
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



34B1
GW Elev (ft msl)
260
255
250
245
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
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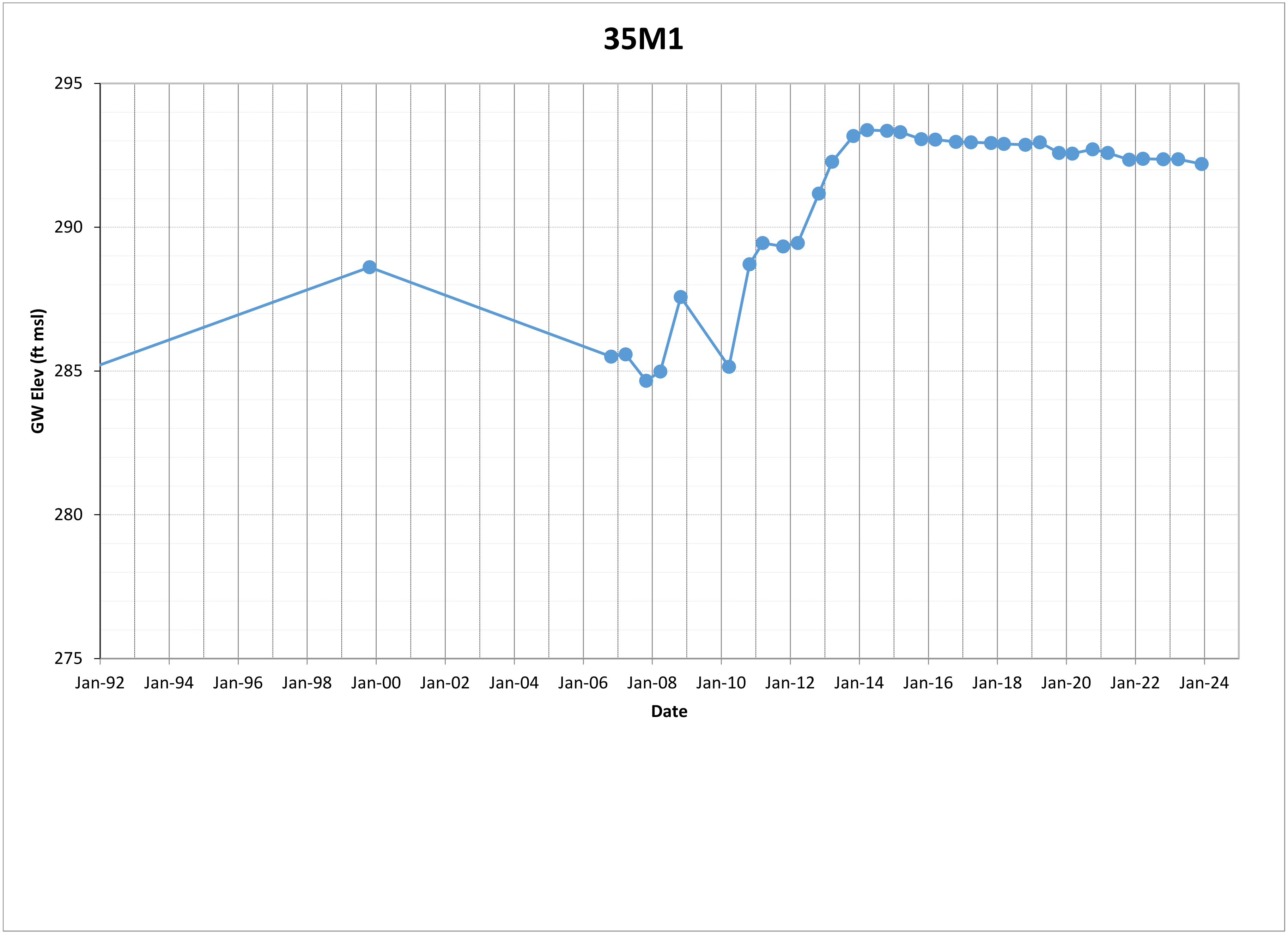
Jan-22
Jan-24
Date



35M1
GW Elev (ft msl)
295
290
285
280
275
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
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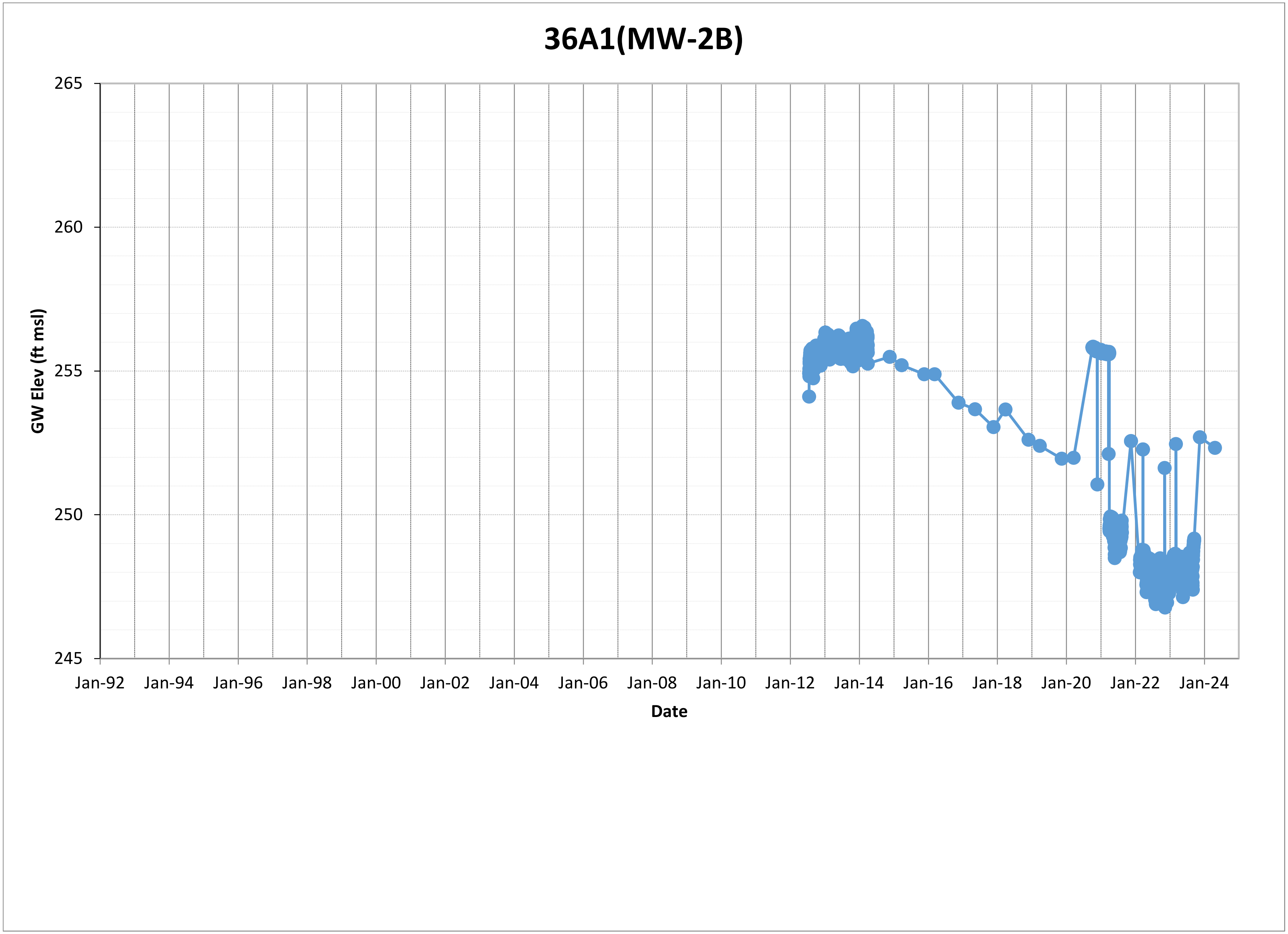
Jan-22
Jan-24
Date



36A1(MW-2B)
265
260
255
250
245
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
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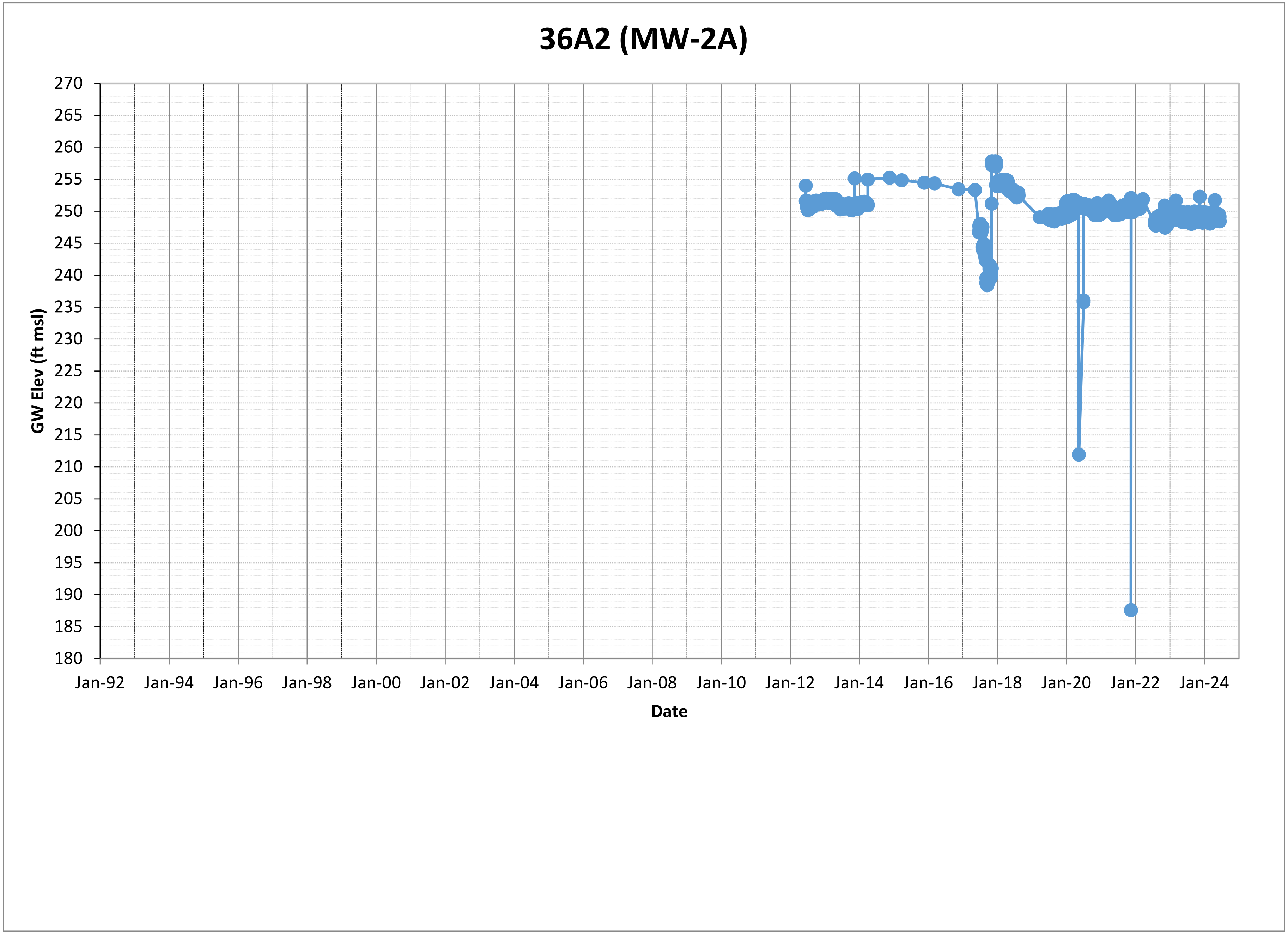
Jan-22
Jan-24
Date



36A2 (MW-2A)
GW Elev (ft msl)
270
265
260
255
250
245
240
235
230
225
220
215
210
205
200
195
190
185
180
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
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Jan-14
Jan-16
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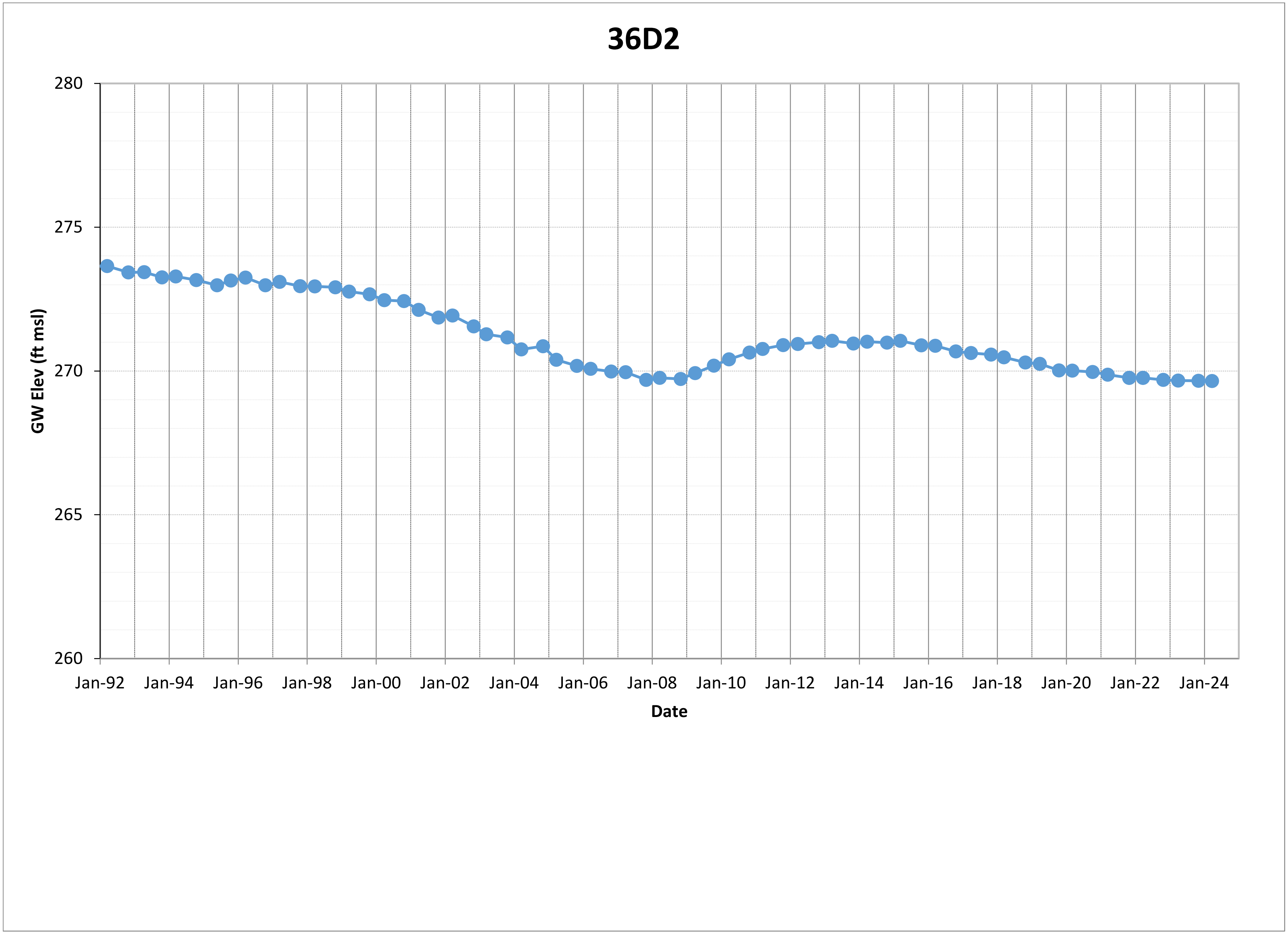
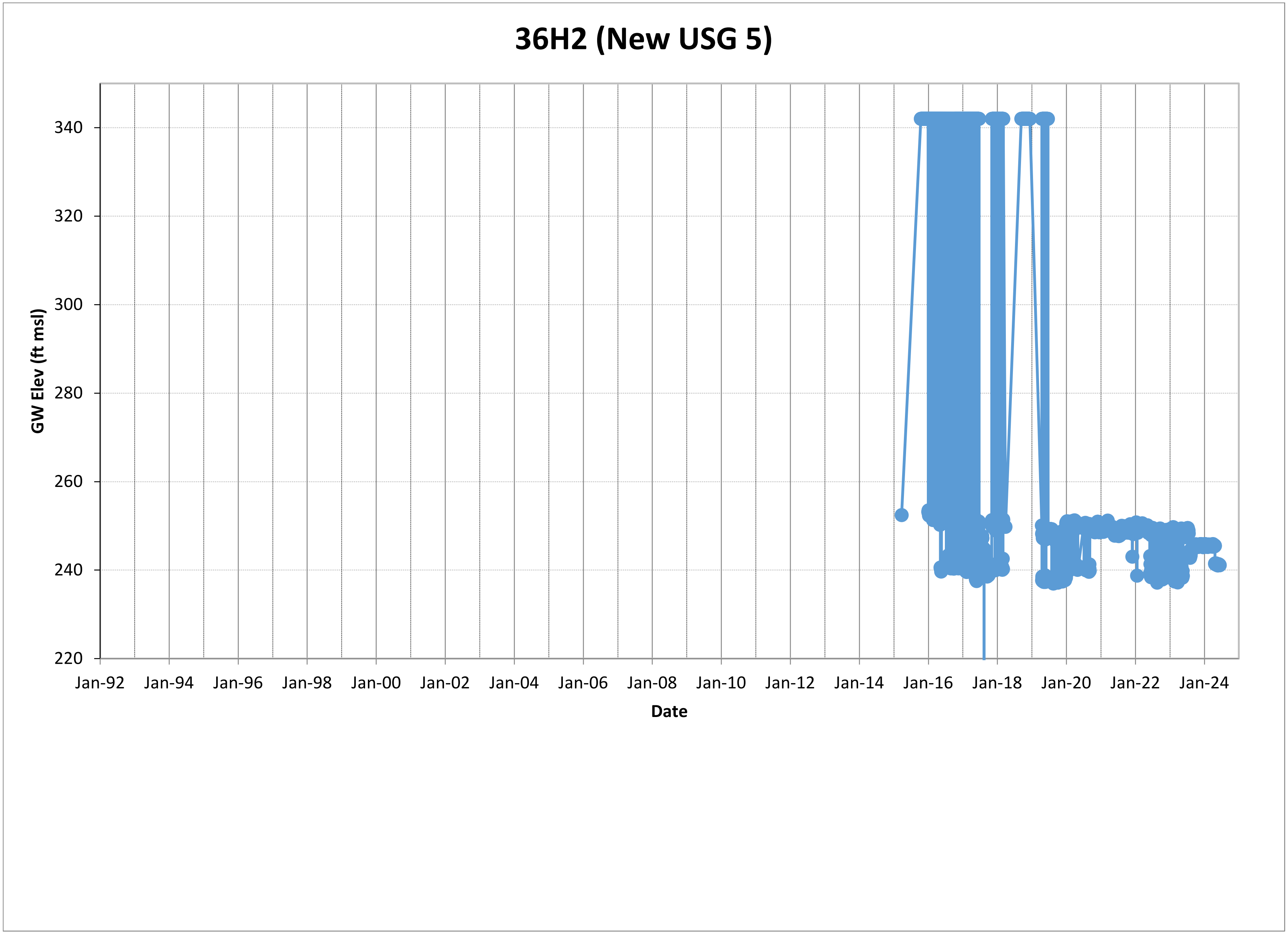
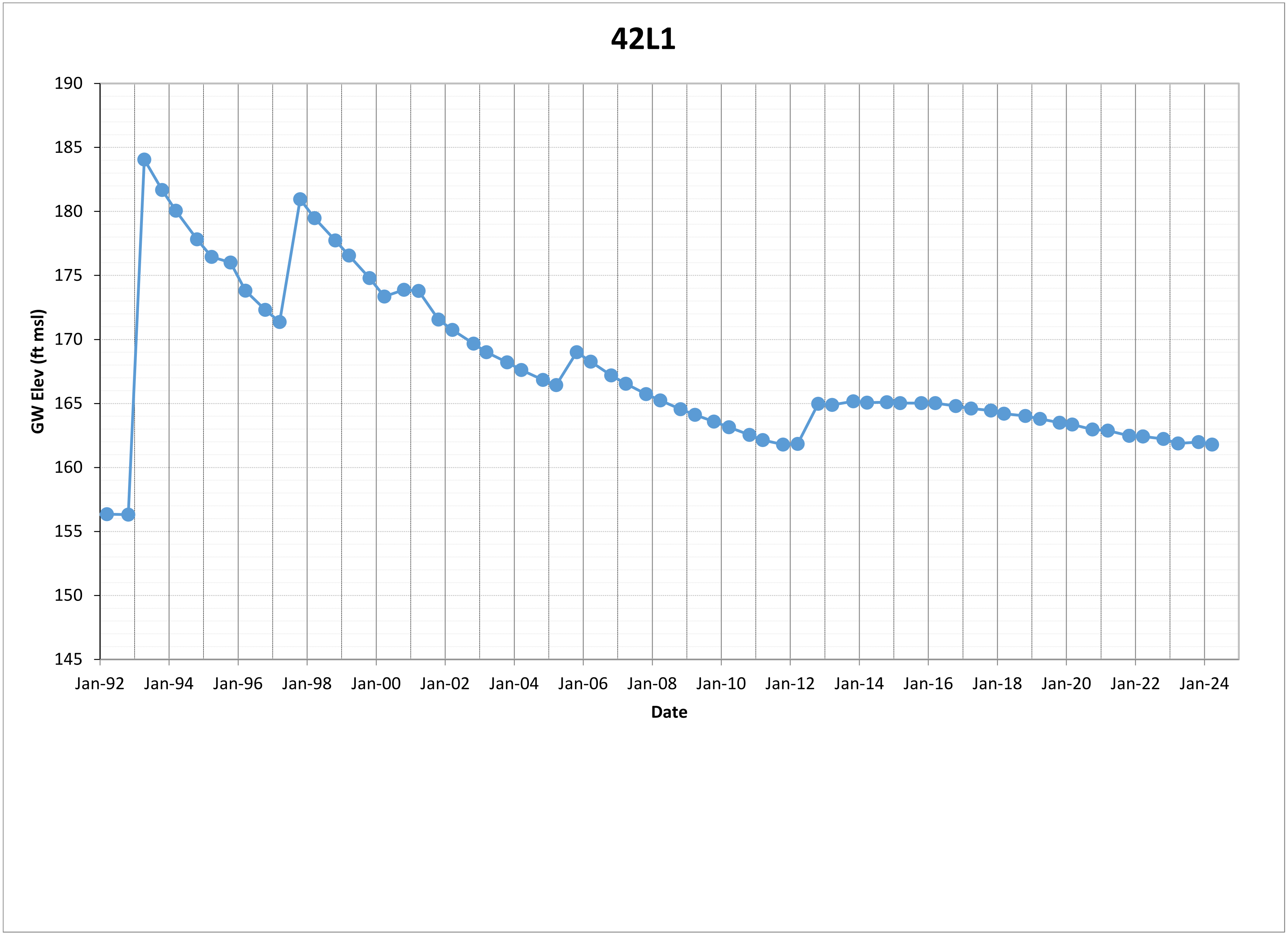
Jan-20
Jan-22
Jan-24
Date


36D2
280
275
270
265
260
GW Elev (ft msl)
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date


36H2 (New USG 5)
GW Elev (ft msl)
340
320
300
280
260
240
220
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date



42L1
GW Elev (ft msl)
190
185
180
175
170
165
160
155
150
145
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Jan-20
Jan-22
Jan-24
Date

APPENDIX C

WATER QUALITY RESULTS AND STATISTICAL ANALYSES

Table C-1. Alkalinity results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Alkalinity	122.00	173.00	101.00	126.00			131.00				109.00			131.00	157.00	107.00		218.00			
spring-10	Alkalinity	112.00	177.00	98.10	118.00			114.00				108.00			128.00	148.00	102.00		217.00			
spring-11	Alkalinity	124.00	177.00	98.90	121.00			114.00				107.00			128.00	150.00	102.00		234.00			
spring-12	Alkalinity	113.00	184.00	97.70				113.00				106.00			128.00		103.00		219.00			
spring-13	Alkalinity	126.00					127.00												208.00			
spring-14	Alkalinity	124.00	180.00	98.60	121.00		126.00	113.00	108.00			105.00	98.30	116.00	128.00		99.60		210.00	123.00		109.00
spring-15	Alkalinity	122.00	203.00	98.00	117.00		126.00	111.00	108.00			103.00	98.20	118.00	127.00				206.00	132.00	99.00	109.00
spring-16	Alkalinity	124.00	201.00	99.00	120.00		126.00	112.00	109.00			105.00	98.60	120.00	128.00				205.00	123.00	102.00	112.00
spring-17	Alkalinity	121.00	193.00	97.00	117.00		130.00	115.00	115.00			103.00	98.40	121.00	127.00				194.00		103.00	110.00
spring-18	Alkalinity	123.00	192.00	89.00	119.00	127.00	124.00	111.00	108.00	132.00	172.00	103.00	97.90	121.00	128.00				192.00	119.00	104.00	
spring-19	Alkalinity	115.00	191.00	97.80	118.00	126.00	126.00	110.00	107.00	131.00	176.00	103.00	97.10	121.00	127.00				193.00	119.00	104.00	109.00
spring-20	Alkalinity	126.00	189.00	85.20	114.00	128.00	126.00	112.00	108.00	132.00	202.00	101.00	98.80	120.00	127.00				193.00	127.00	105.00	110.00
spring-21	Alkalinity	119.00	189.00	91.60	119.00	127.00	126.00	111.00	111.00	132.00	168.00	102.00	96.10	121.00	128.00				198.00	119.00	104.00	111.00
spring-22	Alkalinity	119.60	181.00	82.30	115.00			105.90	107.00	130.00	159.10	97.52		118.00	123.10				182.40	117.65	96.00	107.90
spring-23	Alkalinity	129.00	177.00	83.40	117.00		125.00	109.00	105.00	138.00	168.00	96.50		118.00	126.00				189.00		99.60	105.00
spring-24	Alkalinity	112.00	174.00	88.10	122.00		125.00	108.00	109.00	136.00	169.00				128.00			96.60	186.00	120.00		109.00
	Mean	120.73	185.40	93.71	118.86	127.00	126.09	112.66	108.64	133.00	173.44	103.50	97.93	119.40	127.47	151.67	102.72	96.60	202.78	122.18	101.84	109.19

Table C-2. Bicarbonate results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Bicarbonate	146.00	178.00	108.00	147.00			142.00				127.00			152.00	174.00	120.00		254.00			
spring-10	Bicarbonate	128.00	188.00	113.00	139.00			136.00				127.00			152.00	170.00	120.00		262.00			
spring-11	Bicarbonate	141.00	181.00	112.00	144.00			128.00				122.00			144.00	172.00	115.00		270.00			
spring-12	Bicarbonate	132.00	192.00	113.00				132.00				123.00			150.00		121.00		262.00			
spring-13	Bicarbonate	148.00					145.00												241.00			
spring-14	Bicarbonate	145.00	180.00	110.00	142.00		147.00	127.00	126.00			120.00	105.00	136.00	147.00		116.00		243.00	144.00		126.00
spring-15	Bicarbonate	136.00	226.00	108.00	136.00		151.00	128.00	124.00			120.00	111.00	139.00	153.00				234.00	155.00	116.00	128.00
spring-16	Bicarbonate	145.00	214.00	113.00	136.00		144.00	129.00	123.00			121.00	107.00	140.00	151.00				232.00	140.00	118.00	131.00
spring-17	Bicarbonate	144.00	206.00	107.00	127.00		148.00	129.00	115.00			122.00	104.00	139.00	149.00				230.00		121.00	128.00
spring-18	Bicarbonate	140.00	200.00	102.00	139.00	147.00	150.00	131.00	124.00	157.00	201.00	120.00	104.00	142.00	150.00				220.00	137.00	125.00	
spring-19	Bicarbonate	134.00	226.00	112.00	138.00	150.00	147.00	132.00	120.00	155.00	207.00	120.00	102.00	146.00	149.00				227.00	140.50	125.00	131.50
spring-21	Bicarbonate	132.00	216.00	104.00	140.00	148.00	142.00	131.00	127.00	155.00	195.00	118.00	100.00	142.00	155.00				235.00	141.00	122.00	128.00
spring-22	Bicarbonate	144.00	184.00	97.70	140.00	149.00	146.00		132.00	156.00	196.00	119.00	102.00	141.00	151.00				233.00	130.50	109.50	119.50
spring-23	Bicarbonate	157.00	202.00	99.50	141.00		151.00	132.00	126.00	167.00	204.00	117.00		143.00	152.00				227.00		120.00	127.00
spring-24	Bicarbonate	131.00	172.00	101.00	142.00		147.00	128.00	124.00	165.00	204.00				150.00			113.00		152.00		128.00
	Mean	140.20	197.50	107.16	139.31	148.50	147.09	131.15	124.10	159.17	201.17	121.23	104.38	140.89	150.36	172.00	118.40	113.00	240.71	142.50	119.56	127.44

Table C-3. Boron results and upper confidence interval test (ug/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Boron	158.00	727.00	471.00	202.00			372.00				238.00			485.00	764.00	204.00		1360.00			
spring-10	Boron	176.00	766.00	430.00	208.00			374.00				256.00			358.00	475.00	191.00		1500.00			
spring-11	Boron	167.00	718.00	422.00	203.00			362.00				247.00			504.00	729.00	197.00		1610.00			
spring-12	Boron	166.00	761.00	421.00				347.00				262.00			499.00		192.00		1270.00			
spring-13	Boron	146.00					254.00												1010.00			
spring-14	Boron	166.00	763.00	423.00	204.00		276.00	378.00	231.00			266.00	188.00	234.00	501.00		200.00		1030.00	491.00		220.00
spring-15	Boron	176.00	818.00	402.00	240.00		286.00	342.00	229.00			258.00	210.00	282.00	454.00				864.00	500.00	229.00	249.00
spring-16	Boron	172.00	840.00	420.00	200.00		279.00	373.00	236.00			257.00	195.00	243.00	508.00				938.00	470.00	209.00	220.00
spring-17	Boron	176.00	865.00	428.00	211.00		284.00	396.00	231.00			279.00	200.00	261.00	519.00				864.00		219.00	236.00
spring-18	Boron	179.00	834.00	381.00	219.00	253.00	287.00	405.00	233.00	545.00	780.00	284.00	198.00	254.00	517.00				843.00	459.00	221.00	
spring-19	Boron	178.00	855.00	446.00	214.00	241.00	280.00	396.00	231.00	535.00	768.00	265.00	193.00	257.00	535.00				864.00	459.00	212.00	232.00
spring-20	Boron	172.00	829.00	388.00	215.00	230.00	292.00	389.00	253.00	541.00	762.00	268.00	189.00	252.00	521.00				817.00	525.00	214.00	233.00
spring-21	Boron	172.00	816.00	410.00	211.00	237.00	280.00	403.00	243.00	568.00	704.00	270.00	184.00	263.00	511.00				793.00	466.00	215.00	236.00
spring-22	Boron	175.20	823.60	381.00	216.30			400.30	238.50	579.30	721.00	0.22		139.00	514.20				793.90	485.80		234.90
spring-23	Boron	173.00	792.00	392.00	213.00		286.00	403.00	243.00	559.00	648.00	261.00	186.00	267.00	512.00				776.00		212.00	241.00
spring-24	Boron	182.00	828.00	398.00	219.00		287.00	416.00	248.00	589.00	707.00				526.00			189.00	850.00	484.00		242.00
	Mean	170.89	802.37	414.20	212.52	240.25	281.00	383.75	237.86	559.47	727.14	243.66	193.67	245.20	497.61	656.00	196.80	189.00	1011.43	482.20	216.38	234.39

Table C-4. Calcium results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Calcium	18.70	3.62	12.00	23.30			36.10				8.00			18.00	7.36	18.40		36.30			
spring-10	Calcium	18.90	2.96	11.50	21.30			34.70				7.91			16.90	6.66	18.20		55.80			
spring-11	Calcium	19.40	2.87	11.60	22.10			37.00				7.20			17.70	7.12	19.40		60.70			
spring-12	Calcium	19.70	3.73	11.60				36.30				8.15			17.90		20.60		34.10			
spring-13	Calcium	18.70					19.90												22.70			
spring-14	Calcium	19.50	3.01	11.20	20.70		20.10	39.90	18.10			8.39	6.99	30.50	17.40		21.10		21.20	19.10		20.50
spring-15	Calcium	20.70	5.27	12.20	22.40		20.70	41.30	21.60			8.56	8.08	34.40	19.10				19.80	22.40	23.20	22.10
spring-16	Calcium	21.40	4.11	12.10	21.00		21.70	42.50	19.20			8.03	6.76	34.50	18.40				18.60	19.40	24.50	22.40
spring-17	Calcium	20.40	3.66	11.90	20.90		20.50	43.20	12.40			8.39	6.25	33.50	18.00				14.70		23.10	22.10
spring-18	Calcium	18.60	3.36	10.10	19.60	26.10	19.90	42.70	16.90	19.90	23.20	8.62	5.99	30.90	17.50				13.10	17.20	21.60	
spring-19	Calcium	19.90	3.97	11.30	19.90	27.70	21.20	44.60	14.80	20.50	23.90	8.61	5.48	33.10	17.90				13.50	17.95	22.20	21.70
spring-20	Calcium	19.80	4.12	10.10	20.30	27.20	20.90	44.50	22.30	20.00	29.40	8.12	5.02	33.20	18.20				12.80	19.20	21.30	21.10
spring-21	Calcium	19.70	3.94	10.90	20.40	27.10	20.90	47.20	20.90	20.50	24.60	8.35	4.86	33.80	18.20				14.10	18.00	22.20	21.40
spring-22	Calcium	20.65	2.90	10.26	21.20			47.41	19.05	19.84	21.86	8.64		3.71	18.88				13.25	17.67	22.00	21.42
spring-23	Calcium	20.80	4.23	10.40	21.30		21.00	47.70	21.40	20.50	22.90	8.69	4.63	35.00	18.10				13.40		22.50	21.60
spring-24	Calcium	20.30	2.62	10.60	21.80		20.60	47.90	22.20	20.00	19.40				17.70			18.40	13.80	17.60		21.50
	Mean	19.82	3.62	11.18	21.16	27.03	20.67	42.20	18.99	20.18	23.61	8.26	6.01	30.26	17.99	7.05	19.54	18.40	23.62	18.72	22.51	21.58

Table C-5. Carbonate results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Carbonate		11.00	3.00																		
spring-10	Carbonate	1.20	8.90	1.70	0.90			0.60				0.80			1.30	2.10	1.20		0.80			
spring-11	Carbonate	0.70	7.60	1.10	0.70			0.60				1.10			0.90	0.70	0.70		0.90			
spring-12	Carbonate	0.90	10.70	1.80								0.80			1.00		0.80		0.80			
spring-13	Carbonate	1.00					0.60												1.40			
spring-14	Carbonate	1.00	13.90	2.50	1.00		0.90	0.60	1.30			1.30	5.70	0.90	1.10		0.90		1.20	1.10		1.00
spring-15	Carbonate	0.90	7.20	1.70	0.80		0.80	0.60	0.60			0.90	3.10	0.50	1.00				1.20	0.80	0.60	0.70
spring-16	Carbonate	0.90	10.90	1.40	0.70		0.80	0.60	0.80			1.00	4.00	0.50	1.20				1.60	0.90	0.60	0.70
spring-17	Carbonate	0.80	7.00	1.60	0.50		0.60	0.50	4.00			0.70	5.10	0.60	0.90				1.40		0.70	0.80
spring-18	Carbonate	0.70	11.00	1.70	0.90	0.90	0.60	0.60	1.60	1.40	1.10	0.60	4.80	0.70	1.10				1.90	1.20	0.90	
spring-19	Carbonate	1.10	7.90	1.90	1.10	0.80	0.70	0.50	2.10	0.90	1.30	0.60	6.50	0.80	0.90				1.90	1.10	1.00	1.10
spring-21	Carbonate	0.60	6.10	0.70	0.50	0.70	0.60	0.40	0.60	0.80	1.00	0.50	5.40	0.60	1.20				1.30	0.90	0.80	1.00
spring-22	Carbonate	1.40	17.10	1.30	0.60	0.70	0.40		1.10	1.10	1.40	0.60	4.40	0.70	1.10				2.00	0.40	0.35	0.35
spring-23	Carbonate	0.40	6.80	1.00	0.80		0.60	0.40	0.70	0.80	0.80	0.50		0.40	0.80				1.20		0.50	0.40
spring-24	Carbonate	0.80	18.00	1.10	0.70		0.70	0.50	0.90	0.40	1.30				0.90			1.10		1.00		0.80
	Mean	0.89	10.29	1.61	0.77	0.78	0.66	0.54	1.37	0.90	1.15	0.78	4.88	0.63	1.03	1.40	0.90	1.10	1.35	0.93	0.68	0.76

Table C-6. Chloride results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Chloride	42.80	382.00	92.80	69.20			170.00				66.30			83.80	79.20	64.20		268.00			
spring-10	Chloride	60.90	393.00	96.60	62.50			179.00				68.50			84.60	82.90	66.90		393.00			
spring-11	Chloride	41.70	388.00	96.10	67.00			188.00				69.30			96.30	81.10	67.70		417.00			
spring-12	Chloride	60.60	392.00	95.90				181.00				69.10			85.40		71.80		262.00			
spring-13	Chloride	41.70					70.60												196.00			
spring-14	Chloride	43.70	403.00	93.60	58.20		70.30	191.00	56.20			70.80	57.80	115.00	82.00		76.60		183.00	85.00		66.00
spring-15	Chloride	46.90	398.00	92.00	58.10		71.70	189.00	63.60			72.20	59.90	109.00	83.40				149.00	97.80	86.70	68.20
spring-16	Chloride	44.10	394.00	92.70	58.30		71.70	198.00	58.20			71.50	59.50	108.00	82.50				152.00	83.00	82.30	68.20
spring-17	Chloride	47.80	408.00	94.80	56.90		70.70	206.00	57.40			70.70	58.50	118.00	81.70				130.00		76.90	67.30
spring-18	Chloride	44.70	410.00	84.00	57.20	81.30	71.10	202.00	56.40	116.00	168.00	71.90	58.40	115.00	82.10				116.00	78.80	74.70	
spring-19	Chloride	57.40	404.00	93.40	57.30	85.30	73.70	178.00	57.20	115.00	169.00	72.30	58.30	117.00	82.70				107.00	80.40	74.40	67.15
spring-20	Chloride	41.30	403.00	81.90	56.80	82.90	72.20	202.00	63.30	113.00	188.00	70.70	57.20	116.00	83.60				104.00	83.50	70.50	64.80
spring-21	Chloride	51.20	397.00	87.00	57.20	81.40	71.70	214.00	59.20	116.00	168.00	73.00	58.40	119.00	84.90				107.00	78.00	74.00	66.10
spring-22	Chloride	43.01	378.24	76.79	57.21			197.40	56.70	115.15	151.25	73.73		110.19	83.43				94.94	77.08	73.00	65.90
spring-23	Chloride	43.30	387.00	82.60	56.80		70.90	224.00	60.50	113.00	142.00	73.80	57.60	123.00	81.00				110.00		72.50	65.70
spring-24	Chloride	61.90	379.00	83.10	61.80		71.90	222.00	62.30	109.00	134.00				81.00			78.10	114.00	77.00		66.10
	Mean	48.31	394.42	89.55	59.61	82.73	71.50	196.09	59.18	113.88	160.04	70.99	58.40	115.02	83.90	81.07	69.44	78.10	181.43	82.29	76.11	66.55

Table C-7. Fluoride results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Fluoride	0.49	1.56	0.93	0.75			0.87				1.72			1.61	2.77	0.63		1.52			
spring-10	Fluoride	0.56	1.69	0.98	0.82			0.85				1.78			1.69	2.93	0.67		1.53			
spring-11	Fluoride	0.52	1.59	0.98	0.79			0.83				1.69			1.61	2.81	0.67		1.43			
spring-12	Fluoride	0.52	1.59	0.98				0.81				1.71			1.61		0.65		1.67			
spring-13	Fluoride	0.45					0.85												1.80			
spring-14	Fluoride	0.53	1.61	1.02	0.78		0.91	0.87	0.77			1.89	0.75	0.68	1.70		0.64		2.28	1.30		0.74
spring-15	Fluoride	0.48	1.48	0.94	0.72		0.90	0.76	0.73			2.00	0.69	0.60	1.77				1.91	1.27	0.63	0.70
spring-16	Fluoride	0.52	1.48	0.97	0.74		0.89	0.78	0.76			1.88	0.73	0.60	1.79				2.25	1.29	0.66	0.74
spring-17	Fluoride	0.47	1.51	0.97	0.72		0.85	0.77	0.67			1.80	0.69	0.61	1.71				2.36		0.62	0.71
spring-18	Fluoride	0.46	1.54	0.87	0.71	0.69	0.83	0.72	0.70	0.70	1.64	1.78	0.72	0.60	1.70				2.34	1.23	0.60	
spring-19	Fluoride	0.48	1.57	0.98	0.74	0.69	0.86	0.61	0.70	0.82	1.71	1.70	0.72	0.63	1.66				2.17	2.33	0.64	0.72
spring-20	Fluoride	0.48	1.58	0.85	0.75	0.66	0.89	0.73	0.76	0.83	1.49	1.84	0.66	0.63	1.79				2.28	1.25	0.61	0.70
spring-21	Fluoride	0.49	1.56	0.92	0.75	0.70	0.88	0.71	0.77	0.84	1.69	1.87	0.74	0.64	1.73				2.89	1.35	0.66	0.76
spring-22	Fluoride	0.48	1.28	0.82	0.75			0.66	0.75	0.83	1.71	1.59		0.62	1.70				2.32	1.13	0.53	0.68
spring-23	Fluoride	0.48	1.46	0.83	0.74		0.88	0.72	0.75	0.83	1.62	1.76	0.77	0.60	1.77				2.55		0.63	0.76
spring-24	Fluoride	0.50	1.61	0.89	0.79		0.90	0.81	0.79	0.88	1.80				1.76			0.53	2.57	1.31		0.79
	Mean	0.49	1.54	0.93	0.75	0.69	0.88	0.77	0.74	0.82	1.67	1.79	0.72	0.62	1.71	2.84	0.65	0.53	2.12	1.38	0.62	0.73

Table C-8. Iron results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Iron	2.80	130.00	4.40	13.10			26.60				14.20			34.40	3.40	7.70		27.30			
spring-10	Iron	-6.00	-6.00	-6.00	17.30			79.10				27.60			4.50	-6.00	4.00		73.90			
spring-11	Iron	-3.20	14.70	-3.20	-3.20			49.00				101.00			8.30	-3.20	-3.20		119.00			
spring-12	Iron	-3.20	-6.40	-3.20				61.10				16.40			5.70		13.50		57.70			
spring-13	Iron	6.90					14.50												96.60			
spring-14	Iron	-4.00	-8.00	-4.00	9.80		13.30	57.80	31.10			24.40	-4.00	6.90	8.50		6.60		83.10	5.30		4.90
spring-15	Iron	42.30	9.00	-4.00	14.80		7.50	31.50	10.30			12.90	5.70	13.20	10.20				43.20	4.40	32.70	10.00
spring-16	Iron	6.20	-8.00	-4.00	15.90		-8.00	66.50	12.30			53.70	-4.00	190.00	-8.00				22.00	-4.00	5.00	-4.00
spring-17	Iron	6.60	12.20	-5.00	17.00		-5.00	42.20	71.70			11.60	-5.00	5.00	-5.00				65.00		17.40	5.30
spring-18	Iron	-5.00	-10.00	-5.00	21.50	-5.00	-5.00	73.00	75.00	118.00	14.30	23.40	-5.00	-5.00	-5.00				87.10	-5.00	12.40	
spring-19	Iron	-10.00	-20.00	-10.00	12.10	-10.00	-10.00	48.40	176.00	18.20	-10.00	19.50	-10.00	10.80	-10.00				61.50	-30.00	75.00	745.00
spring-20	Iron	-10.00	-20.00	-10.00	29.80	-10.00	13.40	66.10	-10.00	104.00	58.00	34.30	-10.00	16.20	-10.00				56.40	-10.00	22.80	-10.00
spring-21	Iron	5.00	10.00	5.00	20.20	5.10	6.90	37.10	5.00	69.10	8.20	14.00	7.50	16.80	10.90				78.80	5.00	14.30	5.00
spring-22	Iron	7.70	0.00	0.00	21.86			42.65	19.29	233.00	0.00	11.42		0.00	0.00				31.64	0.00	0.00	0.00
spring-23	Iron	5.50	0.00	0.00	12.40		0.00	65.40	8.90	78.50	35.90	11.50	5.30	18.70	0.00				17.80		0.00	8.30
spring-24	Iron	12.30			6.80			31.60	5.60	204.00	18.70							8.40	9.50			
	Mean	3.37	6.96	-3.21	14.95	-4.98	2.76	51.87	36.84	117.83	17.87	26.85	-2.17	27.26	3.18	-1.93	5.72	8.40	58.16	-4.29	19.96	84.94

Table C-9. Magnesium results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Magnesium	4.16	1.59	3.84	5.58			11.00				1.51			3.17	4.41	3.98		13.40			
spring-10	Magnesium	3.67	1.31	3.36	4.56			11.20				1.51			2.76	1.24	3.50		21.00			
spring-11	Magnesium	4.20	1.28	3.70	5.00			12.00				1.46			3.07	1.39	3.98		22.80			
spring-12	Magnesium	4.27	1.57	3.72				11.70				1.65			3.16		4.27		12.30			
spring-13	Magnesium	4.27					3.85												8.63			
spring-14	Magnesium	4.31	1.38	3.69	4.70		4.19	12.80	4.84			1.66	0.62	7.65	3.12		4.39		7.60	3.46		3.95
spring-15	Magnesium	4.55	2.04	3.80	5.16		4.17	13.00	5.25			1.68	0.80	8.20	3.70				7.03	4.06	4.61	4.15
spring-16	Magnesium	4.38	1.78	3.65	4.92		4.20	13.00	4.99			1.61	0.58	8.01	3.15				6.26	3.28	4.57	4.17
spring-17	Magnesium	4.20	1.70	3.53	4.66		4.05	13.20	3.55			1.64	0.51	7.79	2.97				5.01		4.28	3.91
spring-18	Magnesium	4.05	1.77	3.13	4.54	5.17	3.81	14.60	4.55	5.10	7.21	1.66	0.46	7.90	2.98				4.82	3.07	4.30	
spring-19	Magnesium	3.92	1.90	3.52	4.37	5.29	4.13	14.30	4.21	4.86	6.96	1.66	0.41	7.77	2.90				4.54	3.09	4.24	4.05
spring-20	Magnesium	4.12	2.03	3.21	4.71	5.38	4.22	14.40	5.65	4.91	8.60	1.58	0.36	7.76	3.06				4.44	3.35	4.17	3.88
spring-21	Magnesium	4.01	1.90	3.28	4.63	5.25	4.03	14.80	5.17	5.00	7.23	1.64	0.34	7.81	3.03				4.42	3.08	4.29	3.90
spring-22	Magnesium	4.42	1.39	3.12	4.60			15.43	4.74	5.05	6.49	1.70		0.27	3.13				4.40	3.13	4.40	4.00
spring-23	Magnesium	4.65	1.98	3.14	4.65		4.03	15.20	5.23	4.97	6.49	1.69	0.30	8.10	2.99				4.49		4.37	3.90
spring-24	Magnesium	3.97	1.17	3.17	4.67		4.10	15.20	5.30	4.87	5.75				2.92			3.68	4.64	3.06		3.94
	Mean	4.20	1.65	3.46	4.77	5.27	4.07	13.46	4.86	4.97	6.96	1.62	0.48	7.13	3.07	2.35	4.02	3.68	8.49	3.29	4.36	3.98

Table C-10. pH results and upper confidence interval test

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	pH	8.00	8.80	8.30	7.80			7.70				8.10			8.00	8.10	8.00		7.70			
spring-10	pH	8.10	8.80	8.30	8.00			7.80				8.00			8.10	8.20	8.20		7.60			
spring-11	pH	7.90	8.80	8.30	7.90			7.80				8.20			8.00	8.10	8.00		7.60			
spring-12	pH	8.00	8.80	8.40				7.90				8.00			8.00		8.00		7.60			
spring-13	pH	8.00					7.90												7.90			
spring-14	pH	8.10	9.00	8.60	8.10		8.00	7.90	8.30			8.20	9.00	8.00	8.10		8.10		7.90	8.10		8.10
spring-15	pH	8.00	8.60	8.40	8.00		7.90	7.80	7.90			7.90	8.60	7.70	8.00				7.80	7.90	7.90	7.90
spring-16	pH	8.10	8.80	8.50	8.20		7.80	7.80	8.20			8.30	8.70	7.80	8.00				7.90	8.00	8.00	8.00
spring-17	pH	8.00	8.60	8.40	7.80		7.80	7.80	8.70			8.00	9.00	7.90	8.00				8.00		8.10	8.10
spring-18	pH	7.90	8.80	8.40	8.00	8.00	7.80	7.80	8.30	8.20	7.90	7.90	8.80	8.00	8.10				8.10	8.10	8.00	
spring-19	pH	8.10	8.70	8.40	8.20	7.90	7.90	7.80	8.40	8.00	7.80	8.00	8.90	7.80	8.20				8.10	8.16	8.10	8.21
spring-20	pH	8.10	8.70	8.40	8.35	8.05	8.00	7.90	8.05	8.10	8.00	8.35	8.95	7.90	8.25				8.25	8.05	8.05	8.05
spring-21	pH	8.00	8.70	8.10	7.90	7.90	7.90	7.80	7.90	7.90	8.00	7.90	9.00	7.80	8.10				7.90	8.00	8.00	8.10
spring-22	pH	7.90	9.20	8.50	8.20	8.00	7.80	7.60	8.30	8.10	7.90	8.00	8.90	7.90	8.10				8.00	8.15	8.10	7.85
spring-23	pH	8.07	9.00	8.40	8.30		8.13	7.90	8.23	8.20	8.13	8.13	8.93	7.93	8.23				8.23		8.00	8.20
spring-24	pH	8.20	9.30	8.25	8.00		8.00	7.90	7.95	8.20	8.10				8.10			8.25	8.15	8.15		8.05
	Mean	8.03	8.84	8.38	8.05	7.97	7.91	7.81	8.20	8.10	7.98	8.07	8.88	7.87	8.09	8.13	8.06	8.25	7.92	8.07	8.03	8.06

Table C-11. Potassium results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Potassium	3.97	2.70	4.02	4.87			4.87				3.28			4.18	2.53	4.44		4.58			
spring-10	Potassium	3.98	2.63	3.85	4.67			4.77				3.38			3.98	2.36	4.21		5.28			
spring-11	Potassium	3.74	2.74	3.68	4.48			5.07				3.22			3.92	2.42	4.17		5.49			
spring-12	Potassium	3.96	2.44	3.59				4.89				3.16			3.97		4.35		4.20			
spring-13	Potassium	3.90					4.59												3.47			
spring-14	Potassium	3.96	2.68	3.76	4.51		4.58	5.06	4.06			3.29	2.05	5.82	3.91		4.46		3.46	3.92		4.44
spring-15	Potassium	4.08	3.11	3.81	4.73		4.82	5.26	4.27			3.62	2.19	6.16	4.14				3.56	4.37	4.70	4.78
spring-16	Potassium	4.22	3.19	3.89	4.82		5.07	5.52	4.25			3.58	1.89	6.06	4.19				3.51	4.01	4.72	4.81
spring-17	Potassium	3.92	2.87	3.72	4.48		4.82	5.27	3.85			3.41	1.67	5.82	3.97				3.12		4.32	4.57
spring-18	Potassium	4.03	3.50	3.39	4.57	5.26	4.62	5.53	4.19	4.07	3.87	3.61	1.69	5.94	4.08				3.24	4.09	4.46	
spring-19	Potassium	3.78	2.76	3.68	4.51	5.28	4.83	5.29	3.91	3.90	3.62	3.45	1.55	5.83	3.95				2.92	3.83	4.31	4.79
spring-20	Potassium	3.88	2.79	3.34	4.39	5.02	4.86	5.26	4.10	3.80	3.97	3.29	1.40	5.81	3.96				2.96	3.89	4.33	4.62
spring-21	Potassium	3.80	2.81	3.33	4.37	5.11	4.75	5.28	3.98	3.76	3.48	3.27	1.48	5.81	3.91				3.14	3.87	4.24	4.46
spring-22	Potassium	3.97	2.84	3.22	4.35			5.43	3.98	3.94	3.28	3.41		1.00	3.97				3.01	3.75	4.50	4.60
spring-23	Potassium	4.06	2.72	3.25	4.37		4.73	5.43	3.99	3.69	3.26	3.40	1.31	5.99	3.88				2.95		4.38	4.54
spring-24	Potassium	3.87	2.71	3.38	4.52		4.63	5.28	3.99	3.74	3.16				3.92			3.90	3.00	3.76		4.55
	Mean	3.95	2.83	3.59	4.55	5.17	4.75	5.21	4.05	3.84	3.52	3.38	1.69	5.42	4.00	2.44	4.33	3.90	3.62	3.94	4.44	4.62

Table C-12. Sodium results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Sodium	75.00	434.00	153.00	80.50			122.00				88.50			99.50	119.00	75.70		265.00			
spring-10	Sodium	77.00	408.00	136.00	68.40			106.00				83.90			90.40	104.00	73.20		276.00			
spring-11	Sodium	72.30	438.00	151.00	80.40			124.00				90.00			99.90	118.00	73.90		335.00			
spring-12	Sodium	84.90	426.00	142.00				118.00				89.50			99.50		79.70		247.00			
spring-13	Sodium	71.30					94.20												218.00			
spring-14	Sodium	75.50	448.00	152.00	77.20		93.90	130.00	67.50			97.00	95.10	90.90	102.00		78.10		221.00	100.00		73.70
spring-15	Sodium	79.90	498.00	155.00	83.50		94.80	131.00	69.80			96.30	99.40	103.00	110.00				227.00	114.00	88.30	81.10
spring-16	Sodium	83.40	474.00	156.00	77.90		102.00	130.00	70.80			95.00	96.20	98.10	104.00				210.00	102.00	88.00	78.90
spring-17	Sodium	73.80	444.00	144.00	71.10		94.40	130.00	74.90			93.60	91.70	94.40	98.60				183.00		79.10	74.20
spring-18	Sodium	76.20	470.00	135.00	74.90	87.30	94.20	133.00	72.60	133.00	187.00	96.60	95.30	94.00	104.00				182.00	97.70	81.80	
spring-19	Sodium	80.90	453.00	148.00	74.40	87.80	93.90	131.00	70.90	126.00	180.00	94.10	92.30	94.40	101.00				178.00	94.30	79.20	76.40
spring-20	Sodium	72.00	455.00	133.00	76.10	86.70	96.60	130.00	72.30	128.00	197.00	94.90	92.30	93.30	102.00				172.00	101.00	77.40	74.30
spring-21	Sodium	80.70	458.00	142.00	76.70	87.00	94.60	136.00	71.80	132.00	179.00	95.80	93.40	95.40	103.00				170.00	96.70	80.60	75.50
spring-22	Sodium	74.94	451.10	132.30	74.68			134.00	69.85	127.40	168.80	95.95		67.28	103.50				170.00	97.51	80.00	76.60
spring-23	Sodium	73.60	439.00	135.00	75.70		96.50	135.00	70.60	131.00	162.00	95.90	94.50	97.50	100.00				174.00		79.90	75.60
spring-24	Sodium	85.80	437.00	136.00	77.30		93.00	136.00	69.60	129.00	161.00				100.00			82.10	175.00	94.10		75.70
	Mean	76.76	449.72	143.88	76.27	87.20	95.51	127.86	71.11	129.57	178.97	93.36	94.47	92.83	101.24	113.67	76.12		215.20	100.40	81.59	76.26

Table C-13. Specific Conductance results and upper confidence interval test (µS/cm)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Specific conductance	491.50	2120.00	840.00	624.00			920.50				518.50			613.50	608.50	505.50		1575.00			
spring-10	Specific conductance	537.00	2110.00	828.00	520.50			894.50				510.50			598.50	597.50	501.50		1960.00			
spring-11	Specific conductance	475.50	2090.00	833.50	553.00			890.50				491.50			603.00	596.00	493.50		2110.00			
spring-12	Specific conductance	537.00	2135.00	825.00				887.50				504.00			604.00		526.50		1480.00			
spring-13	Specific conductance	504.50					590.00												1290.00			
spring-14	Specific conductance	474.00	2210.00	819.50	501.50		589.50	937.00	462.00			502.50	477.50	689.00	597.50		530.00		1190.00	621.50		519.50
spring-15	Specific conductance	494.50	2350.00	841.50	510.00		595.00	969.50	493.00			519.00	485.00	697.00	600.00				1150.00	682.50	571.50	515.50
spring-16	Specific conductance	483.50	2330.00	836.50	508.00		593.50	979.50	472.50			510.00	488.00	710.50	604.50				1105.00	603.00	569.00	521.00
spring-17	Specific conductance	542.50	2275.00	828.50	508.00		594.50	999.50	470.00			519.50	488.50	717.50	602.50				979.00		560.50	524.50
spring-18	Specific conductance	499.50	2200.00	718.50	494.00	599.50	596.00	1015.00	465.50	771.00	1045.00	519.50	482.50	699.50	604.50				944.00	585.00	542.00	
spring-19	Specific conductance	514.00	2265.00	842.00	505.50	634.00	609.00	1025.00	462.50	782.00	1055.00	526.50	488.50	718.50	611.00				949.50	591.00	550.50	517.67
spring-20	Specific conductance	478.00	2245.00	718.50	492.50	603.50	602.00	1010.00	497.50	756.50	1140.00	513.50	476.00	711.00	605.50				876.50	636.00	521.50	508.50
spring-21	Specific conductance	502.50	2175.00	753.00	494.00	600.00	581.00	1030.00	475.00	758.50	987.50	510.50	476.50	709.50	607.50				898.00	576.50	537.00	510.00
spring-22	Specific conductance	489.06	2240.45	726.37	506.15	584.00	597.00	1038.00	472.29	775.17	497.01	520.99	487.00	726.20	616.29				873.67	573.74	534.00	513.88
spring-23	Specific conductance	489.33	2150.00	736.33	498.67		593.00	1060.00	485.67	755.33	919.33	521.00	474.67	728.00	591.33				899.00		540.00	515.00
spring-24	Specific conductance	550.50	2180.00	710.00	528.50		593.50	1075.00	496.50	766.50	915.00				599.00			535.50	932.50	575.50		520.50
	Mean	503.93	2205.03	790.48	517.45	604.20	594.50	982.10	477.50	766.43	936.98	513.39	482.42	710.67	603.91	600.67	511.40	535.50	1200.76	604.97	547.33	516.61

Table C-14.Sulfate results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	Sulfate	49.80	261.00	149.00	40.50			47.40				21.90			32.90	20.80	34.30		144.00			
spring-10	Sulfate	58.50	273.00	154.00	38.70			44.80				21.40			33.30	20.40	34.30		171.00			
spring-11	Sulfate	48.60	266.00	151.00	37.60			44.20				20.50			151.00	19.80	34.00		189.00			
spring-12	Sulfate	55.40	260.00	147.00				42.80				20.30			31.60		33.50		146.00			
spring-13	Sulfate	49.50					49.10												120.00			
spring-14	Sulfate	51.50	306.00	154.00	35.10		50.10	46.90	30.40			21.70	35.80	43.90	34.50		36.30		119.00	40.20		30.00
spring-15	Sulfate	52.50	306.00	146.00	41.20		50.00	45.20	31.80			21.40	36.20	42.40	34.50				100.00	42.20		29.90
spring-16	Sulfate	52.00	300.00	147.00	39.40		50.10	47.20	30.20			21.00	36.50	40.30	34.60				108.00	38.00		29.80
spring-17	Sulfate	52.60	301.00	150.00	39.60		48.70	48.10	24.60			20.90	35.50	44.60	33.80				96.70			29.50
spring-18	Sulfate	51.80	297.00	133.00	37.50	33.80	49.10	46.20	28.40	64.30	80.60	21.10	35.80	44.10	34.20				89.50	36.30		
spring-19	Sulfate	58.10	293.00	148.00	38.70	34.50	50.20	39.90	27.30	64.80	83.10	21.40	35.60	43.90	34.50				86.00	34.60	34.00	28.30
spring-20	Sulfate	49.40	290.00	129.00	39.10	33.80	49.90	47.20	31.20	63.40	79.90	20.30	35.10	41.50	34.10				83.70	36.60		29.20
spring-21	Sulfate	55.00	285.00	137.00	39.60	33.80	48.70	47.90	30.80	66.00	73.40	21.40	35.70	42.90	35.10				88.60	36.00		29.80
spring-22	Sulfate	50.45	269.06	120.83	39.01			42.33	29.75	66.44	73.08	21.14		43.63	33.37				77.85	34.66		28.71
spring-23	Sulfate	50.00	262.00	129.00	39.10		47.70	46.00	30.50	63.90	65.90	21.20	35.60	42.90	33.90				90.00		36.80	29.60
spring-24	Sulfate	59.20	262.00	131.00	37.70		48.60	48.50	31.30	64.40	69.80				34.60			35.20	93.40	35.60		30.30
	Mean	52.77	282.07	141.72	38.77	33.98	49.29	45.64	29.66	64.75	75.11	21.12	35.76	43.01	41.73	20.33	34.48	35.20	112.67	37.13	35.40	29.51

Table C-15-Total Dissolved Solids results and upper confidence interval test (mg/L)

Season-Yr	Simple_Name	11H3	24B1	24D1	25K2	25M2	26F1	30R1	31B1	32N1	32P3	34B1	36A1 (MW-2B)	36A2 (MW-2A)	36C2	36D3	36H1	36H2 (New USG-5)	42A8	USG-4	USG-5	USG-6
spring-09	TDS	287.00	1230.00	508.00	338.00			523.00				310.00			359.00	364.00	307.00		943.00			
spring-10	TDS	322.00	1260.00	492.00	322.00			516.00				310.00			363.00	349.00	299.00		1170.00			
spring-11	TDS	278.00	1240.00	490.00	325.00			506.00				284.00			350.00	357.00	289.00		1240.00			
spring-12	TDS	320.00	1260.00	484.00				502.00				295.00			355.00		309.00		891.00			
spring-13	TDS	276.00					375.00												747.00			
spring-14	TDS	285.00	1320.00	502.00	310.00		361.00	552.00	284.00			321.00	312.00	409.00	363.00		338.00		731.00	388.00		318.00
spring-15	TDS	283.00	1390.00	489.00	303.00		342.00	553.00	291.00			308.00	296.00	409.00	359.00				674.00	406.00	334.00	302.00
spring-16	TDS	280.00	1350.00	484.00	291.00		356.00	559.00	271.00			303.00	298.00	399.00	362.00				654.00	362.00	334.00	309.00
spring-17	TDS	298.00	1350.00	495.00	323.00		347.50	567.00	283.00			300.00	303.00	412.00	357.00				594.00		328.00	314.00
spring-18	TDS	288.00	1310.00	439.00	304.00	352.00	342.00	565.00	274.00	469.00	612.00	305.00	291.00	396.00	350.00				564.00	343.00	323.00	
spring-19	TDS	322.00	1310.00	503.00	309.00	373.00	365.00	583.00	273.00	477.00	621.00	322.00	307.00	423.00	368.00				575.00	361.00	331.00	317.00
spring-20	TDS	289.00	1280.00	431.00	296.00	367.00	366.00	572.00	288.00	474.00	697.00	305.00	303.00	420.00	369.00				555.00	372.00	324.00	309.00
spring-21	TDS	310.00	1280.00	464.00	304.00	359.00	358.00	598.00	293.00	472.00	618.00	319.00	308.00	409.00	369.00				556.00	350.00	335.00	314.00
spring-22	TDS	287.29	1274.70	415.86	296.90			600.03	278.29	474.45	566.35	309.71		420.24	353.11				534.92	336.88	300.00	302.08
spring-23	TDS	283.00	1250.00	437.00	295.00		346.00	601.00	289.00	460.00	550.00	315.00	296.00	416.00	349.00				551.00		329.00	305.00
spring-24	TDS	319.00	1230.00	438.00	307.00		351.00	593.00	297.00	473.00	538.00				358.00			312.00	560.00	332.00		305.00
	Mean	295.46	1288.98	471.46	308.85	362.75	355.41	559.34	283.75	471.35	600.34	307.62	301.56	411.32	358.94	356.67	308.40	312.00	721.25	361.21	326.44	309.51

APPENDIX D

Pumping Data 2022-2024

Appendix D Meter Readings from in-line meter

	Total Wells	#4 Well[1]	#5 Well[2]	#6 Well
12/26/2022		254751	143052	452373
Acreft/wk	**0**			
1/2/2023		254751	143052	452373
Acreft/wk	**0**	0	0	0
1/9/2023		254751	144756	454471
Acreft/wk	**12**	0	5.22938856	6.43853122
1/16/2023		254751	145650	455391
Acreft/wk	**6**	0	2.74358766	2.8233788
1/23/2023		254751	146492	456313
Acreft/wk	**5**	0	2.58400538	2.82951658
1/30/2023		254751	147323	457145
Acreft/wk	**5**	0	2.55024759	2.55331648
2/6/2023		254751	147323	457145
Acreft/wk	**0**	0	0	0
2/13/2023		254751	149331	459143
Acreft/wk	**12**	0	6.16233112	6.13164222
2/20/2023		254751	149331	459143
Acreft/wk	**0**	0	0	0
2/27/2023		254751	152135	460495
Acreft/wk	**13**	0	8.60516756	4.14913928
3/6/2023		254751	153182	461585
Acreft/wk	**7**	0	3.21312783	3.3450901
3/13/2023		254751	154864	462000
Acreft/wk	**6**	0	5.16187298	1.27358935
3/20/2023		254751	156721	462000
Acreft/wk	**6**	0	5.69892873	0
3/27/2023		254751	157802	463172
Acreft/wk	**7**	0	3.31747009	3.59673908
4/3/2023		254751	158704	464006
Acreft/wk	**5**	0	2.76813878	2.55945426
4/10/2023		254751	159590	464990
Acreft/wk	**6**	0	2.71903654	3.01978776
4/17/2023		254751	160562	465913
Acreft/wk	**6**	0	2.98296108	2.83258547
4/24/2023		254751	161374	466638
Acreft/wk	**5**	0	2.49193868	2.22494525
5/1/2023		254751	162367	467762
Acreft/wk	**6**	0	3.04740777	3.44943236
5/8/2023		254751	163563	469187
Acreft/wk	**8**	0	3.67039244	4.37316825
5/15/2023		254751	164615	470709
Acreft/wk	**8**	0	3.22847228	4.67085058
5/22/2023		254751	165490	471649
Acreft/wk	**6**	0	2.68527875	2.8847566

Appendix D Meter Readings from in-line meter

	Total Wells	#4 Well[1]	#5 Well[2]	#6 Well
5/29/2023		254751	166478	472665
Acreft/wk	**6**	0	3.03206332	3.11799224
6/5/2023		254751	167562	473765
Acreft/wk	**7**	0	3.32667676	3.375779
6/12/2023		254751	168555	474789
Acreft/wk	**6**	0	3.04740777	3.14254336
6/19/2023		254751	169458	475794
Acreft/wk	**6**	0	2.77120767	3.08423445
6/26/2023		254751	170379	476735
Acreft/wk	**6**	0	2.82644769	2.88782549
7/3/2023		254751	171000	477349
Acreft/wk	**4**	0	1.90578069	1.88429846
7/10/2023		254751	171965	478365
Acreft/wk	**6**	0	2.96147885	3.11799224
7/17/2023		254751	173181	479614
Acreft/wk	**8**	0	3.73177024	3.83304361
7/24/2023		254751	173995	480419
Acreft/wk	**5**	0	2.49807646	2.47045645
7/31/2023		254751	175592	481703
Acreft/wk	**9**	0	4.90101733	3.94045476
8/7/2023		254751	175643	483385
Acreft/wk	**5**	0	0.15651339	5.16187298
8/14/2023		254751	175643	485567
Acreft/wk	**7**	0	0	6.69631798
8/21/2023		261906	175643	485567
Acreft/wk	**22**	21.95790795	0	0
8/28/2023		262598	175643	488571
Acreft/wk	**11**	2.12367188	0	9.21894556
9/4/2023		264157	175643	488571
Acreft/wk	**5**	4.78439951	0	0
9/11/2023		266335	175643	488571
Acreft/wk	**7**	6.68404242	0	0
9/18/2023		268922	175643	488571
Acreft/wk	**8**	7.93921843	0	0
9/25/2023		271309	175643	488571
Acreft/wk	**7**	7.32544043	0	0
10/2/2023		273396	175645	488571
Acreft/wk	**6**	6.40477343	0.00613778	0
10/9/2023		274166	175645	490053
Acreft/wk	**7**	2.3630453	0	4.54809498
10/16/2023		274876	175645	491333
Acreft/wk	**6**	2.1789119	0	3.9281792
10/23/2023		275596	175645	492783
Acreft/wk	**7**	2.2096008	0	4.4498905

Appendix D Meter Readings from in-line meter

	Total Wells	#4 Well[1]	#5 Well[2]	#6 Well
10/30/2023		276167	175650	493976
Acreft/wk	**5**	1.75233619	0.01534445	3.66118577
11/6/2023		276884	175650	495397
Acreft/wk	**7**	2.20039413	0	4.36089269
11/13/2023		278292	175650	496382
Acreft/wk	**7**	4.32099712	0	3.02285665
11/20/2023		278436	175650	496685
Acreft/wk	**1**	0.44192016	0	0.92987367
11/27/2023		279495	175650	498564
Acreft/wk	**9**	3.24995451	0	5.76644431
12/4/2023		280317	175660	500295
Acreft/wk	**8**	2.52262758	0.0306889	5.31224859
12/11/2023		281127	175660	501867
Acreft/wk	**7**	2.4858009	0	4.82429508
12/18/2023		281698	175660	502843
Acreft/wk	**5**	1.75233619	0	2.99523664
12/25/2023		282194	175660	503854
Acreft/wk	**5**	1.52216944	0	3.10264779
1/1/2024		282817	175669	505007
Acreft/wk	**5**	1.91191847	0.02762001	3.53843017
1/8/2024		283699	175669	506623
Acreft/wk	**8**	2.70676098	0	4.95932624
1/15/2024		284396	175669	507974
Acreft/wk	**6**	2.13901633	0	4.14607039
1/22/2024		285079	175669	509278
Acreft/wk	**6**	2.09605187	0	4.00183256
1/29/2024		285792	175669	510607
Acreft/wk	**6**	2.18811857	0	4.07855481
2/5/2024		286373	175700	511820
Acreft/wk	**6**	1.78302509	0.09513559	3.72256357
2/12/2024		287149	175700	513384
Acreft/wk	**7**	2.38145864	0	4.79974396
2/19/2024		287791	175700	514533
Acreft/wk	**5**	1.97022738	0	3.52615461
2/26/2024		288333	175700	516274
Acreft/wk	**7**	1.66333838	0	5.34293749
3/4/2024		289043	175700	517549
Acreft/wk	**6**	2.1789119	0	3.91283475
3/11/2024		289231	175700	518060
Acreft/wk	**2**	0.57695132	0	1.56820279
3/18/2024		290415	175700	518079
Acreft/wk	**4**	3.63356576	0	0.05830891
3/25/2024		291010	175700	518079
Acreft/wk	**2**	1.82598955	0	0

Appendix D Meter Readings from in-line meter

	Total Wells	#4 Well[1]	#5 Well[2]	#6 Well
4/1/2024		291456	175700	518097
Acreft/wk	**1**	1.36872494	0	0.05524002
4/8/2024		292505	175700	518102
Acreft/wk	**3**	3.21926561	0	0.01534445
4/15/2024		293044	175700	518104
Acreft/wk	**2**	1.65413171	0	0.00613778
4/22/2024		293714	175700	518106
Acreft/wk	**2**	2.0561563	0	0.00613778
4/29/2024		294608	175700	518107
Acreft/wk	**3**	2.74358766	0	0.00306889
5/6/2024		295363	175712	518109
Acreft/wk	**2**	2.31701195	0.03682668	0.00613778
5/13/2024		296213	175712	518109
Acreft/wk	**3**	2.6085565	0	0
5/20/2024		296917	175712	518109
Acreft/wk	**2**	2.16049856	0	0
5/27/2024		297514	175712	518320
Acreft/wk	**2**	1.83212733	0	0.64753579
6/3/2024		297514	175712	518320
Acreft/wk	**0**	0	0	0
6/10/2024		298340	175712	519956
Acreft/wk	**8**	2.53490314	0	5.02070404
6/17/2024		298340	175712	522410
Acreft/wk	**8**	0	0	7.53105606
6/24/2024		298340	175712	524152
Acreft/wk	**5**	0	0	5.34600638
7/1/2024		298390	175712	526474

1. Well #4 was down due to electrical issues from January 2023 through August 2023

2. Well #5 has been down due to mechanical seal issues since August 2023

McCalls Meters Monthly Production Report

Data are measured by McCalls Meters monthly. This data was used in this Annual Report.

Date	Well #4 Meter	Well #5 Meter	Well #6 Meter
12/29/2022	261061000	142606000	452239000
1/31/2023	261061000	146695000	456512000
2/28/2023	261061000	151192000	459458000
3/31/2023	261061000	157614000	463005000
4/28/2023	261061000	161272000	466556000
5/31/2023	261061000	165751000	471929000
6/29/2023	261061000	170168000	476527000
7/28/2023	261061000	173963000	480409000
8/31/2023	261061000	175643000	488155000
9/29/2023	270925000	175645000	488521000
11/1/2023	275904000	175650000	493491000
11/30/2023	279039000	175660000	497581000
12/28/2023	281795000	175669000	503063000
1/31/2024	285369000	175671000	509640000
2/29/2024	288296000	175700000	515540000
3/28/2024	290739000	175700000	518083000
4/30/2024	293857000	175712000	518106000
5/31/2023	297383000	175712000	518110000
6/28/2024	298340000	175712000	525926000