2015 SANTA PAULA BASIN ANNUAL REPORT

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PREPARED BY:

SANTA PAULA BASIN TECHNICAL ADVISORY COMMITTEE

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(UWCD PROFESSIONAL PAPER 2017-01)

FOREWORD

In March 1996, the Superior Court of the State of California for the County of Ventura entered a stipulated judgment to establish pumping allocations and establish a management plan for the Santa Paula groundwater basin (*United Water Conservation District vs. City of San Buenaventura,* original March 7, 1996, amended August 24, 2010 [hereinafter "Judgment"]). Detailed background information on the Santa Paula basin settlement and pumping allocations are included in the Judgment. The Judgment recognized that all of the parties have an interest in the Santa Paula basin, and in the proper management and protection of both the quantity and quality of this significant water resource in Ventura County. Members of the Santa Paula Basin Pumpers Association (SPBPA) and the City of San Buenaventura exercise rights to pump groundwater from the basin for reasonable and beneficial uses. United Water Conservation District (UWCD) does not produce groundwater from the basin, but the basin is located within its boundaries and the UWCD is authorized to engage in groundwater management and replenishment activities and to commence actions to protect the water supplies which are of common benefit to the lands within the UWCD or its inhabitants.

The Judgment provides for the creation of a Santa Paula Basin Technical Advisory Committee (TAC) with equal representation from UWCD, the SPBPA, and the City of San Buenaventura. The TAC is charged with establishing a program to "monitor conditions in the basin, including but not necessarily limited to verification of future pumping amounts, measurements of groundwater levels, estimates of inflow to and outflow from the basin, increases and decreases in groundwater storage, and analyses of groundwater quality." The Judgment also allows for the development of a management plan for the operation of the basin and empowers the TAC to determine the safe yield of the basin.

The Judgment requires annual reports summarizing results of the monitoring program, and further specifically provides that "United Water Conservation District shall have the primary responsibility for collecting, collating, and verifying the data required under the monitoring program, and shall present the results thereof in annual reports to the Technical Advisory Committee." The UWCD submits the draft annual reports to the TAC members for review, comment, and approval. The primary groundwater management objective in the Santa Paula basin is to ensure that production from the basin does not exceed the long-term sustainable yield of suitable quality groundwater for current and anticipated future uses (i.e., municipal, domestic, agricultural, and industrial). The TAC's specialty studies and annual monitoring reports provide data and analysis intended to support this objective.

In 2010 the Judgment was amended to join various pumpers that were not previously included as parties to the settlement, and to clarify certain provisions pertaining to shortage conditions, the responsibilities of the SPBPA and groundwater production by its members, and water-rights transfer procedures. Also in 2010, a Santa Paula Basin TAC Working Group was established consisting of technical experts from the UWCD, the SPBPA, and the City of San Buenaventura. Since its formation, the Working Group has completed a series of specialty studies to better understand the factors that affect safe yield in the Santa Paula basin, and anticipates completing both a revised safe-yield study and an evaluation of basin-yield enhancement options in 2017.

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EXECUTIVE SUMMARY / STATUS OF BASIN

Although annual precipitation totals approached, and in some cases exceeded, historic averages in northern California during 2015, precipitation totals in much of southern California, including the Santa Paula basin, were below average for the fourth consecutive year. Key hydrologic indicators for Santa Paula basin during water year (WY) and calendar year (CY) 2015 (the reporting period) are summarized and compared to long-term averages in Table 1, below. The annual rainfall total in Santa Paula for WY 2015 was 10.63 inches (measured at the Santa Paula-UWCD gauging station), which was an improvement compared to WYs 2013 and 2014, with less than 7 inches of rainfall each. However, the four-year moving-average precipitation rate (ending in WY 2015) at Santa Paula of 8.24 inches was the lowest on record. Annual discharges from the Santa Clara River at Freeman Diversion and Santa Paula Creek at Steckel Park Bridge during WY 2015 were the second lowest on record (Table 1); slightly lower annual discharges were reported for the Santa Clara River at Freeman Diversion in WY 1961 and for Santa Paula Creek at Mupu Bridge in WY 1951, more than 50 and 60 years ago, respectively.

The total groundwater pumpage from the Santa Paula basin during CY 2015 was 25,856 acre-feet (AF), which is slightly greater than the average throughout the period of record (CY 1980 to 2015) of 25,773 acre-feet per year (AF/yr), and slightly less than the median pumping rate 26,126 AF/yr during the period of record. Approximately 5,000 AF of groundwater is estimated to have been imported in CY 2015 to the stipulated area of the Santa Paula Basin Judgment, over 80 percent extracted from wells located east of the stipulated area (in the transition area between the Santa Paula and Fillmore basins), and less than 20 percent from wells in the Oxnard Forebay sub-basin. Net imports of groundwater from the area just east of the stipulated area increased from an average of 217 AF/yr prior to CY 2011 to 4,208 AF/yr in CY 2015; this increase likely mitigated the need for higher groundwater extraction rates from Santa Paula basin during the current drought. Exports from the Santa Paula basin are more difficult to quantify than the imports. Approximately 1,000 AF of groundwater are estimated to have been exported to the Mound basin in CY 2015 from the Farmer's Irrigation Company (FICO) distribution system, which is supplied from wells in both the Santa Paula and Fillmore basins. The City of San Buenaventura's (Ventura) water-supply conveyance system distributes surface water and groundwater from various supply sources to customers in both the Santa Paula and Mound basins. Ventura has not determined the net volume of water exported from or imported to the Santa Paula basin via their conveyance system.

The groundwater-level index (GLI) for Santa Paula basin rose slightly from spring 2014 to spring 2015 (from 171.06 to 171.20 feet above mean sea level [ft msl], respectively). Although this trend is

positive, it should be noted that the 2015 GLI remains about 10 feet below the average for the period of record, and is lower than the GLI reported for spring 1991 (171.60 ft msl), during the last major drought in the basin. The GLI is calculated as the average of groundwater elevations measured at nine wells in the basin that were selected based on their relatively long and continuous records, and their distribution across the basin. Comparison groundwater elevation measurements at all wells across the basin from spring 2014 to spring 2015 indicates that, on average, groundwater levels declined by 1.15 ft within the limits of the unconsolidated alluvial deposits in Santa Paula basin, despite the small increase in the GLI. The change in groundwater storage in the aquifer associated with this basin-wide groundwater level decline is calculated to be in the range from 15 to 150 AF, which may be within the margin of error for the method of analysis.

Table 1. Significant Hydrologic Indicators in Santa Paula Basin

Hydrologic Indicator	2015	Average During Period of Record	Median During Period of Record	Period of Record
Water-Year[a] Precipitation at Santa Paula-UWCD[b] (inches)	10.63	17.22	14.89	1890 through 2015
Calendar-Year Precipitation at Santa Paula-UWCD[b] (inches)	6.51	17.03	15.48	1890 through 2015
Water-Year Discharge in Santa Paula Creek at Mupu Bridge[b] (AF/yr)	1,028	18,220	8,184	1928 through 2015
Water-Year Discharge in Santa Clara River at Freeman Diversion[b] (AF/yr)	6,670	212,062	118,599	1956 through 2015
Calendar-Year Reported Groundwater Extractions in Santa Paula Basin (AF/yr)	25,856	25,773	26,126	1980 through 2015
Groundwater Level Index (ft msl)	171. 20	181.71	181.88	1983 through 2015
Change in Groundwater Storage from Previous Year (AF)	-150	Not applicable	Not applicable	Spring 2014 – Spring 2015

Notes:

[a] A water year (WY) is defined as the period from October 1 of the previous year through September 30 of the year indicated. For example, WY 2015 includes the period from 10/1/2014 through 9/30/2015.

[b] Locations and identification numbers for rain and stream gages are indicated on Figure 1.

Concentrations of selected major groundwater quality constituents (chloride, nitrate, total dissolved solids [TDS], and sulfate) in the Santa Paula basin during the reporting period remained within historical ranges. As noted in past annual reports, concentrations of chloride, TDS, and sulfate generally increase from east to west in the basin. Groundwater samples obtained from two irrigation wells in the eastern part of the basin during the reporting period contained nitrate concentrations in excess of the Primary MCL, similar to past years. Neither the magnitude nor the extent of these two nitrate exceedances in groundwater appear to be increasing. Hardness, alkalinity, iron, and manganese concentrations in groundwater in the Santa Paula basin during the reporting period also remained within the range of previously detected levels. Elevated hardness and alkalinity historically present in groundwater in the basin pose a "severe plugging hazard" to micro-irrigation systems, while iron and manganese pose a "moderate plugging hazard" according to guidelines developed by Pitts and Peterson (undated) and the University of California (2015).

Based on the findings presented in this annual report, the TAC recommends implementing or continuing the following data collection and evaluation efforts:

- Complete the ongoing safe yield evaluation for the Santa Paula basin (currently in progress by Daniel B. Stephens & Associates, Inc., under contract to UWCD);
- Complete the study of groundwater-yield-enhancement options for Santa Paula basin (currently in progress by Dr. Steven Bachman under contract to the SPBPA);
- Complete the remaining specialty studies that have been initiated by TAC, with priority given to those that will provide key information in support of the safe-yield evaluation, including:
    - Evaluation of groundwater confinement in the Santa Paula basin and differentiation of wells by aquifer (currently in progress by Kenneth D. Schmidt and Associates, under contract to the SPBPA);
    - Investigation of groundwater storage change in the Santa Paula basin (planned to be conducted by GEI Consultants, Inc., under contract to the SPBPA).

The pressure transducer program (see TAC Activities section) should continue and additional wells, as appropriate, should be equipped with this technology. The transducer data allow an understanding of the magnitude of interference drawdown between wells and more accurately record maximum and minimum groundwater levels in the basin than manual groundwater elevation measurements. This level of understanding could prove important for future studies and monitoring of basin yield.

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INTRODUCTION

This is the nineteenth annual report presenting key climatic, hydrologic, and hydrogeologic data to support management of groundwater resources in the Santa Paula Basin. Data for calendar-year (CY) and water-year (WY) 2015 (the reporting period) are included in this report. This annual report provides the TAC—which consists of representatives from United Water Conservation District (UWCD), the City of San Buenaventura (Ventura), and the Santa Paula Basin Pumpers Association (SPBPA)—with monitoring results and other data to be used for management of the basin in accordance with the 1996 Santa Paula basin stipulated judgment by the Superior Court of the State of California for the County of Ventura (*United Water Conservation District vs. City of San Buenaventura,* original March 7, 1996, amended August 24, 2010 [hereinafter "Judgment"]). This annual report includes background on the hydrogeologic setting of the basin, together with annual precipitation, streamflow, surface water quality, production well installations and destructions, groundwater extractions and pumping allocations, groundwater levels, change in groundwater storage, and groundwater quality in the Santa Paula basin during the reporting period.

REPORT ORGANIZATION

The information presented in this annual report is organized as follows:

- Introduction—Describes the objectives and scope of the annual report, TAC activities during the reporting period, and the methods used to collect the monitoring data presented.
- Description of Basin—Provides background information on the hydrogeologic setting of the Santa Paula basin.
- Data Summary and Evaluation—Presents the monitoring data collected during the current reporting period, including tables, graphs, and maps to aid in interpretation.
- Findings and Recommendations—Summarizes key findings from the reporting period and provides recommendations for future monitoring and evaluation activities that will provide information useful for managing groundwater resources in the Santa Paula basin.
- References—Lists the documents cited in this annual report.
- Appendices—Includes supplemental tables, graphs, and maps of selected historical and recent data that support the analyses presented in this annual report.

TAC ACTIVITIES DURING THE REPORTING PERIOD

TAC specialty studies completed or in progress during the reporting period are summarized in Table 2, below. Completion of these studies is intended to advance understanding of the hydrogeology and recharge mechanisms of the Santa Paula basin, in support of determination of safe yield.

Table 2. TAC Investigations Completed or in Progress During the Reporting Period

Investigation or Report	Lead Entity/Author	Status/Reference
"Memorandum—Santa Paula Basin: Rainfall" and associated "Responses to Comments on Draft GEI Memoranda"	SPBPA/GEI Consultants	Completed (GEI Consultants, 2012a and 2015)
"Memorandum—Santa Paula Basin: Streamflow" and associated "Responses to Comments on Draft GEI Memoranda"	SPBPA/GEI Consultants	Completed (GEI Consultants, 2012b and 2015)
"Memorandum--Re: Underflow Between Fillmore and Santa Paula Basins"	SPBPA/Steven Bachman, Ph.D.	Completed (Bachman, 2015)
"Confining Bed Evaluation for Santa Paula Basin—Draft Report"	SPBPA/ Kenneth D. Schmidt and Associates	Draft submitted to TAC (Kenneth D. Schmidt and Associates, 2015), comments prepared by TAC, final draft submitted in January 2016
"Task No. 11: Groundwater Production Reporting Accuracy"	SPBPA	Draft submitted to TAC (Frank B & Associates, 2013b); final on hold
"Task No. 12 (draft): Alluvial Pumping & Surface Diversions Outside of Judgment Authority"	SPBPA	Draft submitted to TAC (Frank B & Associates, 2013c); final on hold
"Preliminary Evaluation of Historical Changes to the Santa Paula Creek Channel and Potential Effects on Santa Paula Groundwater Basin Recharge"	Ventura/Hopkins Groundwater Consultants	Draft submitted to TAC (Hopkins Groundwater Consultants, Inc., 2015), comments prepared by TAC, final draft submitted in July 2016

Table 2. TAC Investigations Completed or in Progress During the Reporting Period

Investigation or Report	Lead Entity/Author	Status/Reference
Santa Paula basin yield enhancement options	SPBPA/Steven Bachman, Ph.D.	Draft submitted to TAC (Bachman, 2016), comments prepared by TAC, final draft expected in 2017
Investigation of groundwater storage change	SPBPA/GEI Consultants	Planned
Evaluation of water-level trends in both confined and unconfined parts of the basin	Ventura/Hopkins Groundwater Consultants	On hold

Key findings of TAC specialty studies completed during CY 2015 include:

- "Memorandum—Santa Paula Basin: Rainfall" (GEI Consultants, 2012a) concluded, based on data available as of 2012, that rainfall during the period from WYs 1999 through 2009 appeared to be most representative of typical hydrologic conditions in Santa Paula basin subsequent to construction of the Freeman Diversion. The follow-up "Responses to Comments on Draft GEI Memoranda" (GEI Consultants, 2015) noted that "1999-2011 and 1999-2012 appear to be comparable and both appear to be reflective of the long-term record of rainfall at Santa Paula and streamflow for Santa Paula Creek."
- "Memorandum—Santa Paula Basin: Streamflow" (GEI Consultants, 2012b) concluded, based on data available as of 2012, that streamflow during the period from WYs 1999 through 2011 appeared to be most representative of typical hydrologic conditions in Santa Paula basin subsequent to construction of the Freeman Diversion. The follow-up "Responses to Comments on Draft GEI Memoranda" (GEI Consultants, 2015) noted that, "1999-2011 and 1999-2012 appear to be comparable and both appear to be reflective of the long-term record of rainfall at Santa Paula and streamflow for Santa Paula Creek." However, it was also noted that, "notwithstanding the apparent 'fit' with the long-term record, either period is relatively short (13 years for one and 14 years for the other). In an ideal world, the period would be much longer; however, changed conditions – such as the Freeman Diversion – impose constraints. When all is said and done, we should not forget that fact that this is a 'short' period" (GEI Consultants, 2015).
- "Memorandum--Re: Underflow Between Fillmore and Santa Paula Basins" (Bachman, 2015) estimated that during the 68-year period of evaluation (1947 through 2014), an average of 19,700 AF of groundwater underflow entered Santa Paula basin from Fillmore basin per year.

Other ongoing studies of Santa Paula basin include:

- UWCD commissioned a consulting firm (Daniel B. Stephens & Associates, Inc.) in 2014 to conduct a hydrogeologic characterization and safe yield study for Santa Paula basin; a draft report was submitted to the TAC for review in March 2016.

- The SPBPA commissioned Dr. Steven Bachman in 2014 to evaluate Santa Paula basin yield enhancement options and practical measures for increasing basin water supply; a draft report is anticipated to be submitted for TAC review in summer 2016.

The TAC has also sponsored the installation of several automated groundwater level sensors (i.e., pressure transducers) and data loggers within selected wells in the basin. During CY 2015, 20 wells selected by the TAC in the Santa Paula basin were equipped with pressure transducers and data loggers. The pressure transducer program is designed to provide more detailed information on timing and magnitude of seasonal and annual groundwater-level changes. UWCD has the lead responsibility for the installation, maintenance, and downloading of the pressure transducers and data loggers, and for processing and analyzing the resulting data. UWCD will continue to coordinate with the TAC to identify data gaps that can be filled by installation of additional pressure transducers.

DATA SOURCES

Sources of the monitoring data presented in this annual report are summarized in this section.

PRECIPITATION

Precipitation data for most rain gages in Ventura County are available from the Web-based "Hydrologic Data Server" maintained by the Ventura County Watershed Protection District (VCWPD), at http://www.vcwatershed.net/hydrodata. Precipitation has also been measured by UWCD at their offices in the City of Santa Paula. Since WY 2011, data from the current gage located on the roof of UWCD's office in downtown Santa Paula ("Santa Paula-UWCD") are no longer reviewed and reported by the VCWPD. However, UWCD still measures and records rainfall at this gage in a manner consistent with historical practices; these data are included in this annual report due to their long period of record and their use in many previous studies of the Santa Paula basin.

SURFACE WATER FLOW AND QUALITY

Flow rates in the Santa Clara River at the Freeman Diversion are estimated by UWCD operations staff. Flow rates at other stream gages in the Santa Paula basin are downloaded from the VCWPD's Web-based "Hydrologic Data Server" (http://www.vcwatershed.net/hydrodata/). UWCD collects quarterly surface-water quality samples from the Santa Clara River (at Willard Road), Santa Paula Creek, and Todd Barranca, and approximately biweekly samples (for an abbreviated analyte list) from the Santa Clara River at the Freeman Diversion. In addition, Canyon Irrigation Company

has periodically collected samples for general-constituent analysis from Santa Paula Creek at the Harvey Diversion for many years, and provides the data to UWCD.

Production Well Installations and Destructions

Information regarding production well installations and destructions in the Santa Paula basin are obtained from the VCWPD, which is the permitting agency for water wells in Ventura County.

Groundwater Extractions

Groundwater extractions are reported on semi-annual groundwater production statements filed with UWCD's Finance Department by individual pumpers, then are entered into a UWCD database. These production statements constitute all reported pumping from wells in the Santa Paula basin.

Groundwater Levels and Quality

UWCD's groundwater database includes historical groundwater-level data for approximately 150 wells in the Santa Paula basin; extensive records exist for about 90 of these wells. The groundwater-level database is a compilation of information supplied by several cooperating entities. Each of these entities has their own protocol for measuring water levels, and these protocols may vary over time. Other entities that may contribute groundwater-level data include the City of Santa Paula, Farmers Irrigation Company (FICO), Alta Mutual Water Company, and Ventura.

Groundwater levels are normally measured in wells that are not pumping; these measurements are referred to as "static." For the purpose of evaluating trends in long-term groundwater levels, static groundwater level measurements are preferred. However, the groundwater level in a non-pumping well may remain depressed for some time due to residual drawdown in the well being monitored, or as a result of pumping interference from a nearby well. Although it is not possible to completely eliminate all effects of pumping when manually measuring groundwater levels in a developed groundwater basin, manual monitoring by UWCD is only conducted when the measured well is shut off and no nearby wells are known to be pumping. When groundwater levels are measured during the low-irrigation season (winter and early spring), potential pumping effects on the measurements are typically reduced.

In addition to manual measurements, 21 wells within the Santa Paula basin were equipped with pressure transducers and data loggers during the reporting period. The exact number of pressure transducers operating in wells in the Santa Paula basin can vary over time, as the transducers are damaged, replaced, or new ones purchased and installed. Wells are selected for pressure transducer installation to provide broad geographic coverage, and to provide data from each of the major hydrogeologic units. The data loggers managed by UWCD are typically programmed to record water levels every four hours. Measurements at this frequency provide a detailed record of groundwater level changes over time. Many of the pressure transducers present in wells in the Santa Paula basin were first deployed by UWCD in spring 2011. Additional pressure transducer

data (prior to spring 2011) exist for several wells in the Santa Paula basin during specific timeframes.

Most of the groundwater quality data available for the Santa Paula basin are provided by owners and/or operators of individual wells, including FICO, Limoneira, and Thermal Belt Mutual Water Company. UWCD collects samples from its two clustered monitoring well sites SP-1 and SP-2 (nine individual wells) and from a few selected additional private wells in the basin. The VCWPD collects groundwater quality samples from several irrigation and water-supply wells in Santa Paula basin, and provides the data to UWCD. UWCD obtained groundwater quality data for City of Santa Paula and Ventura water-supply wells from the California Department of Public Health online database prior to CY 2015, and from the State Water Resources Control Board Division of Drinking Water (DDW) online database beginning in CY 2015.

DESCRIPTION OF BASIN

Key information regarding historical climate, surface water, and groundwater conditions in the Santa Paula basin are summarized in this section, to provide background information useful for interpreting data from the current reporting period.

LOCATION AND CLIMATE

The Santa Paula basin is located along the Santa Clara River, extending from near its confluence with Santa Paula Creek on the east to Ventura on the west, and from the Sulphur Mountain foothills on the north to South Mountain on the south, as shown on Figure 1. The Santa Paula groundwater basin was defined by John F. Mann Jr. and Associates (1959) as being coincident "with the alluvial and terrace deposits along the Santa Clara River." These groundwater basin extents (as defined by John F. Mann Jr. and Associates) are nearly coincident with the area of "unconsolidated deposits of the late Pleistocene and Holocene epochs" comprising the upper aquifer system as defined by Hanson and others (2003). This area is referred to herein as the "limits of unconsolidated alluvial deposits in Santa Paula basin" (Figure 1). This area is elongated in a northeast-southwest direction, approximately 10 miles long and 1.5 to 3.5 miles wide, with a surface area of approximately 13,000 acres. Within this area, land-surface elevation ranges from approximately 130 feet above mean sea level (ft msl) in the Santa Clara River channel near Ventura, to 500 ft msl along Santa Paula Creek north of the City of Santa Paula.

The area stipulated in the Santa Paula basin Judgment ("stipulated area" or "settlement boundary") is larger than the 13,000-acre area of the unconsolidated alluvial deposits in Santa Paula basin, described above, because it includes outcrops of freshwater-bearing, semi-consolidated sedimentary rock of the San Pedro Formation (discussed in more detail below). The stipulated area is approximately coincident with the "Santa Paula sub-basin" defined by the California Department of Water Resources (2003). The stipulated area is approximately 10 miles long and 2 to 3.5 miles wide, with a surface area of 22,800 acres. In this report, the term "Santa Paula basin" refers to the area stipulated in the Judgment (the area within the "Santa Paula Settlement Boundary" on Figure 1).

The Santa Paula basin has a Mediterranean-type climate, with hot, dry summers (typically moderated by an onshore breeze from the Pacific Ocean) and mild winters, which is when most rainfall occurs in the basin. Historical precipitation data for the City of Santa Paula, in the eastern part of the basin, and for Saticoy, in the western part of the basin, are shown on Figures 2 and 3. Locations for selected rain gages in the Santa Paula basin are shown on Figure 1; data from these gages were selected for inclusion in this report primarily based on location (targeting wide spatial distribution across the basin), and secondarily on period of record.

The period of record for the Santa Paula-UWCD gage is much longer (WY 1890 to present) than the combined period of record for the Saticoy Fire Station and County Yard gages (WY 1957 to present) or other rain gages in the basin. Therefore, precipitation data and summary statistics from

the Santa Paula-UWCD gage are generally used in this report for comparisons of long-term average annual rainfall to surface-water flows and groundwater elevation trends in the basin. Tabulated historical data from the Santa Paula-UWCD rain gage are provided in Appendix A, Table A-1.

The average annual rainfall in the Saticoy area (recorded at the Saticoy Fire Station and County Yard gages) for WYs 1957 through 2015 is 16.3 inches, which is approximately 1.3 inches less than average annual rainfall recorded at the Santa Paula-UWCD gage during the same period (17.6 inches). This difference likely results from the increasing land-surface elevation and narrowing of the basin eastward from Saticoy to Santa Paula. The average annual precipitation across the Santa Paula basin for WYs 1957 through 2015 is estimated to be approximately 17 inches, which is the mean of annual precipitation amounts reported for the Saticoy and Santa Paula gages.

SURFACE WATER

The major perennial streams in the Santa Paula basin include the Santa Clara River and Santa Paula Creek, which are described in more detail below.

SANTA CLARA RIVER

The Santa Clara River receives varying amounts of inflow from the following primary sources:

- rising groundwater at hydrogeologic constrictions, including one near the east boundary of the Santa Paula basin;
- ephemeral flows (typically following winter storms) in tributaries to the Santa Clara River (in addition to Santa Paula Creek, notable tributaries to the Santa Clara River within Santa Paula basin include: Fagan, Adams, Wheeler, and Aliso Creeks [John F. Mann & Associates, 1959]);
- surface water flows from upstream reaches of the Santa Clara River (in the Fillmore, Piru, and Eastern basins) that may reach the Santa Paula basin, particularly in wet years or following large winter storm events (Sespe Creek typically contributes the majority of flow in the Santa Clara River upstream from the Santa Paula basin); and
- fall conservation releases by UWCD from Lake Piru that continue as surface flows in the Santa Clara River through the Piru and Fillmore basins to reach the Santa Paula basin (however, since fall 2013 there have been no fall conservation releases from Lake Piru due to low water conditions).

Discharge rates measured in the Santa Clara River within the Santa Paula basin have been highly variable through time, as is typical for streams in southern California that are dominated by ephemeral or seasonal intermittent flows. Historical annual discharge rates for the Santa Clara River at Freeman Diversion throughout the period of record (WY 1956 through WY 2015) are shown on Figure 4. Annual discharge data are tabulated in Table A-2 of Appendix A. The long-

term average annual discharge rate for the Santa Clara River at the Freeman Diversion for the period of record is 212,000 acre-feet per year (AF/yr), and the median annual discharge rate for the period of record is 119,000 AF/yr. The maximum annual discharge in the Santa Clara River during the period of record was 1,154,000 AF (WY 2005), and the minimum was 6,200 AF (WY 1961).

Preliminary results from a draft TAC specialty study report prepared by Frank B & Associates (2013c) indicate that surface water is diverted from the Santa Clara River for irrigation use at four locations within the Santa Paula Basin, all in the eastern part of the basin, where surface flow is perennial. The estimated total of diverted streamflow as of CY 2013 was 1,900 AF/yr.

About one mile downstream of the Freeman Diversion, the channel of the Santa Clara River crosses the Oak Ridge Fault and overlies the Oxnard Forebay. Unconfined aquifer conditions in the Oxnard Forebay readily allow percolation of surface water flow in the Santa Clara River.

Santa Paula Creek

Santa Paula Creek receives varying amounts of inflow from the following primary sources:

- rising groundwater at a hydrogeologic constriction located near the northern limit of the alluvial basin-fill deposits along Santa Paula Creek north of the City of Santa Paula (Figure 1);
- perennial surface-water flows from the upper reaches of Santa Paula Creek (north of the Santa Paula basin) and from Mud Creek (the major tributary to Santa Paula Creek within the Santa Paula basin); and
- ephemeral flows (typically following winter storms) in smaller tributaries to Santa Paula Creek.

Similar to the Santa Clara River, discharge rates measured in Santa Paula Creek within the Santa Paula basin have been highly variable through time. Historical annual discharge rates for the period of record (WYs 1928 through 2015) at gauging stations located immediately upstream from the City of Santa Paula are shown on Figure 5; the location of the current gauging station on Santa Paula Creek ("Santa Paula Creek at Mupu Bridge") is shown on Figure 1. Annual discharge data are tabulated in Table A-3 of Appendix A. The long-term average annual discharge rate for Santa Paula Creek for the period of record is 18,200 AF/yr, and the median annual discharge rate for the period of record is 8,200 AF/yr. The maximum annual discharge in Santa Paula Creek during the period of record was 113,000 AF/yr (WY 1969), and the minimum was 990 AF/yr (WY 1951).

GROUNDWATER

This section briefly summarizes hydrogeologic conditions in the Santa Paula basin, including freshwater-bearing strata, basin boundaries, sources of groundwater recharge and discharge, and historical groundwater elevation and quality trends.

FRESHWATER-BEARING STRATA AND BASIN BOUNDARIES

Ongoing displacement along the Oak Ridge Fault and other faults has created a deep basin in the valley of the Santa Clara River that has been filled with sedimentary deposits (John F. Mann Jr. and Associates, 1959). Surface exposures of the major sedimentary units and faults in the basin are shown on Figure 6. The principal freshwater-bearing strata of the Santa Paula basin are (from youngest [top] to oldest [bottom]):

- Holocene river and stream sediments deposited locally along the Santa Clara River and its tributaries;
- Holocene to Pleistocene alluvial fan deposits eroded from the uplifted mountain blocks;
- Pleistocene river deposits of the ancient Santa Clara River; and
- Pleistocene marine and continental (fluvial) gravel, sand, silt, and clay layers of the San Pedro Formation.

These freshwater-bearing strata overlie relatively low-permeability Pliocene and older rocks of the Santa Barbara and Pico Formations. In addition, a thick (100 feet or more) layer of fine-grained sediments (mostly clay and silt) occur in the upper 300 feet of sediments across much of the Santa Paula basin (Kenneth D. Schmidt and Associates, 2015). These fine-grained layers likely reduce the potential for groundwater recharge and can act as a confining aquitard where present.

These strata have been warped into a syncline that is oriented in a northeast-southwest direction along the center of the basin. Faults and low-permeability bedrock units exposed in the limbs of this syncline form the northern and southern boundaries of the Santa Paula basin. To the south, the Oak Ridge Fault forms a partial barrier to groundwater movement, and the poorly permeable Santa Barbara and Pico Formations are present at a shallow depth and in outcrops on South Mountain. To the north, the Santa Barbara and Pico Formations are exposed in outcrops throughout the Sulphur Mountain foothills, and are not believed to transmit significant quantities of groundwater to the basin.

At its eastern boundary, the Santa Paula basin is in direct hydraulic communication with the Fillmore basin, which provides a significant amount of groundwater underflow to Santa Paula basin. The western boundary of the Santa Paula basin is more complex, with local uplift, artesian conditions, and faults that likely restrict groundwater underflow across this boundary. Although there is general agreement that a hydraulic connection exists between Santa Paula basin, the Oxnard Forebay basin, and the Mound basin, the degree of connection is uncertain. Ongoing studies are expected to help quantify the subsurface flow between Santa Paula basin and the adjacent Mound and Oxnard Forebay basins.

RECHARGE

Significant sources of groundwater recharge to the Santa Paula basin include:

- percolation of surface water from the Santa Clara River (and Santa Paula Creek, prior to 1998 flood-control modifications of its channel);
- deep percolation of rainfall and irrigation water (often referred to as "return flows") at land surface;
- underflow from Fillmore basin; and
- percolation of treated water from the City of Santa Paula's Water Recycling Facility.

Previous investigations of hydrogeologic conditions in the Santa Paula basin estimated that streamflow infiltration rates from the Santa Clara River ranged from approximately 4,100 AF/yr (California State Water Resources Board, 1956) to 15,700 AF/yr (John F. Mann Jr. and Associates, 1959), depending on annual surface flows and pre-existing conditions in the underlying alluvial aquifer. Qualitative results from a more recent study by the U. S. Geological Survey (USGS) using stable isotopes of hydrogen and oxygen combined with tritium analysis (Reichard and others, 1999) indicated that the Santa Paula basin receives some recharge from the Santa Clara River. However, a TAC study completed by UWCD (2013a) concluded that surface water infiltration in the reach of the Santa Clara River from Willard Road to Orr Road is "limited both currently and historically." Dry-weather stream gauging during WY 2010 (a year of average precipitation) showed infiltration ranging from approximately 200 AF per month to approximately 800 AF per month (UWCD, 2013a). Data also suggest that the dry-weather gradient away from the river in the shallower zones may have induced a greater amount of recharge in the past when wells screened in the shallowest producing aquifer zones were in operation (UWCD, 2011a and 2013a). The reach of the Santa Clara River from Willard Road to Orr Road is where the river channel generally lies north of the trace of the Oak Ridge Fault and directly overlies highly-permeable alluvial sedimentary deposits. West of Orr Road in the Santa Paula basin, the Santa Clara River crosses the Oak Ridge Fault and overlies low-permeability deposits of the Santa Barbara Formation.

Percolation of surface water from Santa Paula Creek has historically also been a source of recharge to the Santa Paula basin. However, in 1998 the U.S. Army Corps of Engineers (COE) straightened and compacted most of the reach of Santa Paula Creek that overlies Pleistocene and Holocene alluvial deposits in Santa Paula basin. Results from a recent TAC study conducted by UWCD (2013b) indicate that "recent measurements show little to no percolation in lower Santa Paula Creek, suggesting the COE flood control project in 1998 has impaired the ability of the creek to recharge the groundwater basin."

Deep percolation (also referred to as direct infiltration) of rainfall and excess irrigation water is another potentially significant source of recharge to the Santa Paula basin. Early investigators have estimated annual deep percolation rates from rainfall ranging from 0 to 26,200 AF/yr, depending on annual rainfall in the basin (California Department of Public Works, 1934; California State Water Resources Board, 1956; John F. Mann Jr. and Associates, 1959). Since the time of those early

recharge estimates, land use in the basin has changed extensively as a result of development and changes in agriculture; therefore, present recharge rates may be significantly different than in the past. Deep percolation of agricultural irrigation return flows likely also contributes recharge to the shallow aquifer in the basin, although it has not typically been quantified by previous investigators separately from deep percolation of rainfall. The quantity and areal extent of deep percolation of rainfall and irrigation water may be limited by the presence of shallow clay soils in some parts of the basin (Kenneth D. Schmidt and Associates, 2015).

Underflow of groundwater from the upgradient Fillmore basin is recognized as another significant source of recharge to the Santa Paula basin by previous workers (Kawano and Parsons, 1956; John F. Mann Jr. and Associates, 1959; California State Water Resources Board, 1956). A recent TAC specialty study estimated that from 1947 through 2014, an average of 19,700 AF of groundwater underflow entered Santa Paula basin from Fillmore basin per year (Bachman, 2015).

Effluent from the City of Santa Paula's Water Recycling Facility discharged to percolation ponds at Todd Lane (Figure 1) is believed to contribute a modest quantity of groundwater recharge in the Santa Paula basin. Recycled water was directed to the percolation ponds at an average rate of approximately 1,900 AF/yr in CY 2015 (FUGRO Consultants, Inc., 2015a, 2015b, and 2015c; GSI Water, Inc., 2016), down from 2,100 AF/yr in CY 2013 and 2,000 AF/yr in CY 2014 (PERC Water, 2014 and 2015).

Sources and quantities of groundwater recharge are also being evaluated as part of the UWCD-sponsored safe-yield study being conducted by Daniel B. Stephens & Associates, Inc., for the Santa Paula basin, expected to be completed in 2017.

DISCHARGE

Significant groundwater discharges from the Santa Paula basin include:

- withdrawals from water-supply wells;
- underflow to the Mound and Oxnard Forebay basins; and
- rising groundwater and evapotranspiration (including phreatophytes) in the Santa Clara River channel.

Pumping from wells (primarily for irrigation, municipal, and industrial uses) is the largest source of groundwater discharge from the Santa Paula basin. Approximately 12,000 acres of lemons, avocados, strawberries, row crops, and nurseries in the Santa Paula basin are irrigated by groundwater, and the cities of Santa Paula and Ventura both operate municipal water-supply wells in the basin. Reported groundwater extractions from the Santa Paula basin during the period of record (CYs 1980 through 2015) are summarized in Table 3 and shown on Figure 7. The extractions ranged from a low of 16,710 AF in 1983 (a very "wet" year with respect to precipitation) to a high of 33,453 AF in 1990 (the peak of the previous sustained drought in the basin).

At the western boundary of the Santa Paula basin, groundwater flows from the Santa Paula basin into the adjacent Mound and Oxnard Forebay basins, but the quantities and directions of flow are uncertain. An estimate of groundwater underflow at the western boundary of the Santa Paula basin will be included in the safe-yield study, which is expected to be completed in CY 2017.

Table 3. Historical Santa Paula Basin Groundwater Extractions

Calendar Year	Groundwater Extractions (AF)	Calendar Year	Groundwater Extractions (AF)	Calendar Year	Groundwater Extractions (AF)
1980	26,820	1992	24,355	2004	27,306
1981	27,545	1993	26,998	2005	24,700
1982	22,925	1994	26,244	2006	24,830
1983	16,710	1995	25,042	2007	28,077
1984	29,455	1996	26,008	2008	26,686
1985	26,533	1997	28,961	2009	25,820
1986	21,617	1998	21,622	2010	23,115
1987	24,852	1999	27,700	2011	24,202
1988	25,370	2000	26,798	2012	25,824
1989	29,362	2001	22,530	2013	26,485
1990	33,453	2002	27,259	2014	27,437
1991	27,056	2003	22,280	2015	25,856
				Average	**25,773**

Note: The groundwater extractions shown on this table are based on semi-annual groundwater production statements submitted to UWCD's Finance Department.

A potentially significant quantity of groundwater discharges to surface flows in the Santa Clara River from the Fillmore basin; this "rising groundwater" has been observed in the river near the western end of the Fillmore basin and the eastern boundary of the Santa Paula basin upstream of the confluence of Santa Paula Creek. However, some of the surface flows resulting from rising groundwater percolate back down through the river channel farther downstream, to recharge groundwater in the reach upstream of the Freeman Diversion (UWCD, 2013a). Groundwater present within the upper several feet of soil along the Santa Clara River is also subject to the combined effects of evaporation and transpiration (through uptake in the root zone of phreatophytes). These processes are referred to collectively as evapotranspiration. The net quantity of groundwater lost to surface water flows and evapotranspiration is uncertain, and likely

varies depending on seasonal and annual rainfall in the basin, the extent of riparian vegetation, and the depth to the water table in the vicinity of the river.

Sources and quantities of groundwater discharge are also being evaluated as part of the UWCD-sponsored safe-yield study being conducted by Daniel B. Stephens & Associates, Inc., for the Santa Paula basin, expected to be completed in CY 2017.

IMPORTS AND EXPORTS

In addition to the primary sources of groundwater recharge and discharge described above, smaller, but still significant, quantities of groundwater are imported to and exported from the Santa Paula basin. Much of the imported groundwater is used to irrigate crops, and a portion of that irrigation water may recharge the underlying aquifer via return flows. However, considering improvements over time in irrigation efficiency of applied water, the annual volume of return flows likely has changed considerably over the years.

Water is imported to the Santa Paula basin from both the Fillmore basin in the east and the Oxnard Forebay basin in the southwest. Water imports and exports are summarized in Table 4, below, and the changes in import and export quantities from CYs 2005 through 2015 are graphically illustrated on Figure 8. Groundwater pumped from wells 03N21W01N02 (Teague #6) and 03N21W12F07 (FICO #12), which are located in the Fillmore basin approximately 1,500 and 200 feet east of the boundary with the Santa Paula basin, respectively, is conveyed westward into Santa Paula basin, where it is used for irrigation. Groundwater produced by FICO #12 is transported to the west end of the Santa Paula basin via pipeline; groundwater produced by Teague #6 is used nearby in the immediate vicinity of the well, east of Santa Paula Creek. In CY 2015, the combined reported pumpage from these two wells was 4,303 AF. Limoneira staff reported that approximately 60% of the groundwater pumped from the Teague #6 well is used for irrigation in the stipulated area of the Santa Paula basin; the remaining 40% is used on land east of the stipulated area in Fillmore basin (Gunderson, 2015). Similarly, much of the groundwater pumped from wells 02N22W11A01S (Alta #3) and 02N22W02R05S (Alta #11), which are located in the Oxnard Forebay basin approximately 970 feet south of the south of the boundary with the Santa Paula basin, is conveyed northward into Santa Paula basin and beyond, in the service area of the Alta Mutual Water Company, where it is also used for irrigation. In CY 2015, the combined reported pumpage from these two wells was 1,283 AF. Approximately two-thirds of the acreage irrigated by the Alta #3 and #11 wells lies within Santa Paula basin; therefore, it is assumed that 67% of the pumpage from these wells is imported to the Santa Paula basin from the Oxnard Forebay basin.

Some of the groundwater pumped from wells in the east part of Santa Paula basin is exported westward to the Mound basin. Approximately 976 AF of water from FICO's water-distribution system in Santa Paula Basin were exported to the Mound basin for irrigation use in CY 2015, with production from both the Santa Paula Basin and the Fillmore Basin.

Ventura pumped a total of 2,318 AF of groundwater from wells 02N22W02K09 (Saticoy #2) and 02N22W02H02S (Saticoy #3) during CY 2015 for municipal and industrial use within their service

area. Groundwater from these two wells is blended with other supply sources and distributed throughout the City, including to other basins. Specific volumes of groundwater exported from these wells to other basins, and imported from other sources to the Santa Paula basin, is variable and is undetermined. However, the estimated water use by the City within Santa Paula basin is estimated to currently be in the same order of magnitude as the annual extractions from the Saticoy #2 and #3 wells. Therefore, the net import or export of water by the City to/from Santa Paula basin is assumed to be relatively small.

Inspection of Figure 8 indicates that significantly more groundwater was imported into the stipulated area of Santa Paula basin from the Fillmore basin in CYs 2012 through 2015 compared to previous years, while imports from the Oxnard Forebay basin have remained relatively stable in comparison. Net imports of groundwater from the area just east of the stipulated area increased from an average of 217 AF/yr prior to CY 2011 to 4,208 AF/yr in CY 2015; this increase likely mitigated the need for significant increases in groundwater extraction from Santa Paula basin during the current drought. Water produced from Ventura's Saticoy Wells #2 and #3 is used throughout the City's water service area. The total volume of water pumped from the aging and failing Saticoy Well #2 and Saticoy Well #3 in CY 2015 was 2,318 AF, more than double the volume pumped from Saticoy Well #2 during each of the previous 7 years, since CY 2007 (ranging from 402 AF in CY 2010 to 986 AF in CY 2008). Saticoy Well #3 was completed in CY 2015 and will be the primary source of supply. Saticoy Well #2 will be rehabilitated and maintained as a backup well.

Table 4. Summary of Groundwater Extractions, Imports, and Exports in Santa Paula Basin, CY 2015

Description	Volume (AF)
Groundwater extractions from wells in the Santa Paula basin stipulated area	25,856
Groundwater imports from Fillmore basin (assume 60% of total pumpage from Teague #6 and 100% from FICO #12)	+4,208
Groundwater imports from Oxnard Forebay basin (assume 67% of total pumpage from Alta #3 and Alta #11)	+860
Water exports to Mound basin via the FICO distribution system	-976
Net groundwater imports/exports to/from Mound basin by Ventura	Undetermined, likely small
Estimated net groundwater use in Santa Paula basin (sum of extractions plus imports, less exports)	**= 29,948***

** Does not include potential imports/exports to/from other supply sources by Ventura.*

LEVELS AND TRENDS

Groundwater levels in the majority of wells throughout the basin show a seasonal variation in the range of 10 to 20 feet. Longer-term groundwater level trends are summarized through the use of a "Groundwater Level Index" (GLI). The GLI is calculated as the average of spring-high groundwater elevations measured at nine key wells selected for their relatively long record and their geographic distribution across the basin. The GLIs for WYs 1982 through 2015 are shown on Figure 9, together with the cumulative departure from average precipitation over the same period at Santa Paula-UWCD. Following are the major trends apparent based on inspection of Figure 9:

WYs 1983 to 1991 – a declining GLI caused by a major drought, as indicated by the increasingly negative cumulative departure from average precipitation during that period;

WYs 1991 to 1998 – a rising GLI corresponding to a period of above-average precipitation (cumulative departure from average precipitation shifts from negative to positive);

WYs 1998 to 2011 – an overall gradual decline in the GLI, despite a net positive cumulative departure from average precipitation during this period (partial rebounds in the GLI are apparent during the particularly wet WYs 2005 and 2011);

WYs 2011 to 2014 – a steep decline in the GLI, corresponding to below-average precipitation since WY 2012, including the driest back-to-back water years (2013 and 2014) recorded since WYs 1898 and 1899;

WYs 2014 to 2015 – apparent stabilization in the GLI, corresponding to increased rainfall and reduced pumping in CY 2015 compared to WYs 2013 and 2014--it should be noted that this observation is based on one new data point, and is subject to significant uncertainty until additional data become available.

QUALITY

Groundwater quality generally degrades from east to west in the Santa Paula basin, with higher chloride, sulfate, and TDS concentrations detected in water samples obtained from wells located west of Peck Road. Deeper wells in the basin tend to have elevated iron and manganese concentrations, and both the City of Santa Paula and Ventura operate treatment facilities to reduce these constituents in delivered municipal water. Reported nitrate concentrations from wells throughout the basin are generally low to moderate; however, nitrate concentrations exceeding the State Primary (health-based) Maximum Contaminant Level (MCL) of 45 mg/l have been detected in groundwater samples obtained from two wells in the eastern portion of the basin during the past several years. Individual constituent concentrations vary with groundwater elevation changes in some wells. Detailed characterizations of groundwater quality in the Santa Paula basin can be found in the update of the Water Quality Control Plan (Basin Plan) for the Piru, Sespe, and Santa Paula Hydrologic Areas (California Department of Water Resources, 1989) and in the Lower Santa Clara River Salt and Nutrient Management Plan (Larry Walker Associates, 2015).

SUMMARY AND EVALUATION OF 2015 DATA

Monitoring data relevant to evaluation of groundwater conditions in the Santa Paula basin during the reporting period are summarized in this section and compared to long-term trends, where appropriate.

PRECIPITATION

Monthly precipitation at four selected rain gages distributed across Santa Paula basin during the reporting period are shown on Figure 10. The annual precipitation total measured at the Santa Paula-UWCD rain gage during WY 2015 was 10.63 inches. This total is approximately 62 percent of the long-term average annual precipitation of 17.22 inches for WYs 1890 through 2015, and 72 percent of the long-term median annual precipitation of 14.89 inches. Although 10.63 inches is not a remarkably low rainfall total for Santa Paula, the 4-year moving-average precipitation rate of 8.24 inches per year (for the year ending in WY 2015) is the lowest during the period of record. The next lowest 4-year moving-average precipitation rate in Santa Paula was 9.06 inches per year, for the year ending in WY 1900.

Precipitation at the Santa Paula-UWCD rain gage during CY 2015 was 6.51 inches, which is 38 percent of the average annual precipitation and 42 percent of the median annual precipitation for CYs 1890 through 2015. This difference between WY and CY annual precipitation totals at Santa Paula during 2015 indicates that nearly 40 percent of the rainfall reported in Santa Paula basin during WY 2015 actually occurred during October, November, or December of CY 2014.

Annual rainfall reported by the VCWPD at other selected locations in Santa Paula basin during WY 2015 were also below-average, including:

- Saticoy County Yard—10.51 inches (average of 16.26 inches);
- Santa Paula-Wilson Ranch—11.22 inches (average of 11.79 inches; however, the period of record for this station begins in WY 2011, only one year prior to the current drought); and
- Wheeler Canyon—12.22 inches (average of 22.17 inches).

SURFACE WATER FLOWS

Daily streamflow rates measured in the Santa Clara River (at Freeman Diversion) and Santa Paula Creek (at Mupu Bridge) during CY and WY 2015 are shown on Figure 11. Flow rates in the Santa Clara River during the reporting period were typically 2 to 10 times greater than flow rates in Santa Paula Creek, although the flow rate in Santa Paula Creek occasionally equaled or exceeded the flow rate measured or estimated in the Santa Clara River.

The annual discharge measured in the Santa Clara River at Freeman Diversion during WY 2015 was 6,670 AF; the long-term average annual discharge is 211,700 AF/yr and the median annual discharge is 118,400 AF/yr for the period of record (WYs 1956 through 2015). Annual discharge in

the Santa Clara River during WY 2015 was the second lowest during the 60-year period of record, likely as a result of the cumulative impacts of 4 years of drought.

The annual discharge measured in Santa Paula Creek at Mupu Bridge during WY 2015 was 1,028 AF. The long-term average annual discharge in Santa Paula Creek at Mupu Bridge (or at preceding gauging stations nearby on Santa Paula Creek) is 18,200 AF/yr, and the median annual discharge is 8,200 AF/yr, for the period of record (WYs 1928 through 2015). As occurred in the Santa Clara River, annual discharge in Santa Paula Creek in WY 2015 was the second lowest during the 88-year period of record.

SURFACE WATER QUALITY

Minimum, maximum, and average concentrations of selected major water quality constituents (chloride, nitrate, TDS, and sulfate) detected in surface water samples from the Santa Clara River at Freeman Diversion during CY 2015 are summarized in Table 5, below. It should be noted that only nine samples were obtained from the Santa Clara River at Freeman Diversion during CY 2015 (compared to 20 to 30 samples obtained during previous years), due to a lack of flow at the sampling point. Concentrations of these constituents detected throughout the historical record (CYs 1925 to 2015) are shown on Figure 12. Inspection of Figure 12 indicates that concentrations of the major water quality constituents remain similar to CY 2013 and 2014 levels, and are elevated compared to those detected during the previous decade, prior to the current drought. Chloride, TDS, and sulfate concentrations in the Santa Clara River reached record highs in CY 2014, likely as a result of drought conditions, but then declined somewhat in CY 2015. Figure 13 compares chloride, nitrate, TDS, and sulfate concentrations with streamflow at the Santa Clara River at Freeman Diversion during CY 2015. UWCD (1996) identified a strong correlation between low flows and increased concentrations of sulfate, chloride and TDS in the Santa Clara River. This relationship is discernible in the CY 2015 data, as well (Figure 13). Excluding the period of the current drought, the overall concentration trends for sulfate, chloride, TDS, and nitrate in the Santa Clara River appear to be stable to downward since the 1960s (Figure 12).

Minimum, maximum, and average concentrations of selected major water quality constituents (chloride, nitrate, TDS, and sulfate) detected in surface water samples from Santa Paula Creek near Santa Paula during CY 2015 are summarized in Table 6, below. Concentrations of these constituents detected throughout the historical record (CYs 1980 to 2015) are shown on Figure 14. Table 6 indicates that average concentrations of chloride, TDS, sulfate, and nitrate detected in Santa Paula Creek during CY 2015 were significantly higher than long-term average concentrations. Inspection of Figure 14 indicates that a trend of increasing concentrations of these constituents in Santa Paula Creek, although not as apparent as similar increasing trends in the Santa Clara River, may have also begun in CY 2012, and likely are also a result of low precipitation and streamflow during the current drought.

Table 5. Summary of Major Surface Water Quality Parameters in Santa Clara River at Freeman Diversion, CY 2015

Statistic	Concentration (mg/L)			
	Chloride	Nitrate[a]	TDS	Sulfate
Minimum	81	ND	1,240	670
Maximum	116	7.9	1,870	914
Average	96	6.0	1,560	792
Long-Term Average[b]	63	6.0	1,120	522

Notes:

[a] As nitrate

[b] Includes reported data in UWCD's database from the entire period of record: CY 1925 to present for chloride, TDS, and sulfate; CY 1936 to present for nitrate,.

Table 6. Summary of Major Surface Water Quality Parameters in Santa Paula Creek near Santa Paula, CY 2015

Statistic	Concentration (mg/L)			
	Chloride	Nitrate[a]	TDS	Sulfate
Minimum	59.6	6.2	979	392
Maximum	126	22.7	1,750	786
Average	91.6	12.3	1,340	567
Long-Term Average[b]	40.4	7.8	777	392

Notes:

[a] As nitrate

[b] Includes reported data in UWCD's database from the entire period of record: CY 1980 to present for hardness, sulfate and chloride; CY 1981 to present for nitrate.

PRODUCTION WELL INSTALLATIONS AND DESTRUCTIONS

One production well was installed and one was destroyed within the Santa Paula basin during CY 2015; these wells are listed in Table 7, below. The new production well was a replacement for an existing production well that was destroyed in CY 2015.

Table 7. Production Well Installations and Destructions During CY 2015

Production Wells Destroyed	Production Wells Drilled
03N21W09K02S, Gooding Ranch	03N21W09K05S, Gooding Ranch

GROUNDWATER EXTRACTION AND PUMPING ALLOCATIONS

Groundwater extractions reported for Santa Paula basin wells during CY 2015 are summarized in Table 8, below. The total groundwater extraction volume from Santa Paula basin during CY 2015 (25,856 AF) was slightly greater than the long-term average (CYs 1980 through 2015) of 25,773 AF/yr. The distribution of groundwater extractions across the basin during CY 2015 is shown on Figure 15.

The Judgment governs groundwater production on a seven-year rolling average, which allows parties to produce more or less than their allocation in any particular year so long as their rolling seven-year average does not exceed their allocation. Appendix D summarizes groundwater extractions for the past seven years (CYs 2009 through 2015), as well as Individual Party Allocations (IPAs) for the SPBPA (with transfers, de minimis parties, non parties) and the City of Ventura.

The Judgment also allows for “de minimis” production by landowners that are not allocated an IPA, which allows them to produce groundwater for uses on their overlying property, so long as such use does not exceed five AF in any given year. In CY 2015, there were five de minimis producers, which are identified together with their actual CY 2015 production in Appendix D, Table D-2.

The total combined pumping allocations of the SPBPA (party and non-party) and the City of San Buenaventura are now at 30,771.6 AF/yr. Amendments to the Judgment in 2010 provided the SPBPA with an additional 280.2 AF/yr of allocation, which was granted to pumpers that were not previously parties to, or identified within, the Judgment. The current allocations were calculated and granted using the lesser of the following two options: 1) the average production reported to

Table 8. Summary of Groundwater Extractions During CY 2015

Pumper	Extractions (AF)
City of San Buenaventura[a]	2,547
SPBPA Pumpers with Individual Party Allocations (adjusted by SPBPA)[b]	23,380
SPBPA Pumpers with Individual Party Allocations (reported to UWCD)[c]	23,280
Non-stipulated Parties[b]	15
De Minimis Pumpers[b]	14
Total extractions (adjusted by SPBPA[b] / reported to UWCD[c])	25,856 / 25,856

Notes:

[a] Includes pumping from well 02N/22W-03E01S (Appendix D, Table D-5)

[b] From Appendix D compiled by SPBPA

[c] From UWCD Finance Department records

UWCD from CYs 2002 through 2008; or 2) the average production reported to UWCD prior to the Judgment (CYs 1989 to 1995). Through CY 2015, Ventura has acquired an additional 260.9 AF/yr of SPBPA allocation through land purchases and water allocation transfers.

The SPBPA's CY 2015 allocations were 27,510.7 AF/yr (excluding non-parties) distributed among its members, with a seven-year rolling-average surplus of 3,370.9 AF (also excluding non-parties) from pumping below the allocation. Some parties have exceeded their 7-year-average IPAs, but the total volume of groundwater used by the SPBPA members is well below the SPBPA's seven-year-rolling-average allocation, resulting in the surplus noted above. Ventura's CY 2015 allocations were 3,000 AF/yr plus 260.9 AF/yr of prior SPBPA allocation, with a seven-year rolling average surplus of 2,046.4 AF from pumping below its allocation.

GROUNDWATER LEVELS

Groundwater elevations were monitored during CY 2015 at selected wells in and adjacent to the Santa Paula basin, as shown on Figure 16. Groundwater elevation hydrographs for selected wells are shown in Appendix B. Two hydrographs are included for each well at different scales, as follows:

- The first hydrograph for each well is scaled with a consistent vertical axis range of -60 to 380 feet so that, for most wells, the relationships between static groundwater levels, top and bottom of well screens, and RPs at different wells in the basin can be visually compared. These hydrographs also include a consistent horizontal axis of CYs 1922 to 2018 for long-term data sets, or CYs 1972 to 2015 for short-term data sets. The information provided in these hydrographs displays the relationship between the (static) water level variations and the production zones of wells in the basin.

- The second hydrograph for each well is scaled to allow easier comparison of the magnitude of the static groundwater level changes in the wells. The vertical axis range of 80 feet captures the range of water levels on an expanded scale for visual inspection of groundwater level trends and comparison between wells. These plots include annotations regarding the reference point (RP) and depth of the well screen (which is indicated in parentheses to the right of the well number).

Groundwater elevation contour maps for spring and fall of CY 2015 in Santa Paula basin are shown on Figures 17 and 18. The contours were drawn using groundwater elevation data from wells in the Santa Paula basin and in the adjacent, hydraulically-connected Fillmore, Mound, and Oxnard Forebay basins. The contours represent lines of equal groundwater elevation (total hydraulic head), and generally define the water table (in unconfined portions of the aquifer) or potentiometric surface (in confined portions of the aquifer). Most of the groundwater elevations used for contouring were measured at long-screened wells with total depths greater than 100 feet. The screened interval contoured at UWCD's cluster monitor well sites SP-1 and SP-2 are 370 to 390 feet, and 290 to 310 feet, respectively. Groundwater elevations measured at shallow wells in these clusters are typically 10 to 30 feet higher than groundwater elevations in the deeper aquifer, indicating a strong downward hydraulic gradient in this area, particularly during periods of drought. Groundwater elevations measured at shallow versus deep wells are not contoured independently in this annual report.

The groundwater elevation contour maps (Figures 17 and 18) depict a general northeast to southwest hydraulic gradient along the axis of the basin. A notable deviation from this pattern occurs at the southwest margin of the Santa Paula basin, where a steepening of the hydraulic gradient occurs (indicated by closely-spaced groundwater elevation contours). This steepening likely indicates a zone of relatively low transmissivity caused by a partial barrier to groundwater flow, such as a fault. Local-scale variations in the hydraulic gradient can result from cones of depression created by pumping wells, or from transient (short-term) changes in groundwater levels occurring at wells at approximately the same time that groundwater levels were measured, yielding a measurement that is not representative of seasonal average conditions (for example, if a nearby production well began or ceased pumping shortly before the water-level measurement was made).

CHANGE IN GROUNDWATER STORAGE

Geostatistical analysis of groundwater-elevation changes within the limits of the unconsolidated alluvial deposits in Santa Paula basin between spring of 2014 (UWCD, 2016) and spring of 2015 (Figure 17) indicates that, on average, groundwater levels declined by 1.15 ft within the aquifers. The largest declines occurred at the western and southwestern margins of the basin, while groundwater elevations remained stable or rose somewhat in most of the central and eastern portions of the basin (Figure 19). Localized groundwater-level rises and declines that extend a relatively short distance (typically ½ mile or less) from water-supply wells likely result from minor variations in pumping patterns (an irrigator pumping more in spring 2015 than spring 2014 due to timing of rainfall or a change in crops, for example). The magnitude of the decline was calculated by subtracting spring-high groundwater elevations measured at wells in 2015 from spring-high groundwater elevations measured at those same wells in 2014, then using the Kriging method to interpolate and extrapolate the estimated groundwater elevation change across the area of the unconsolidated alluvial deposits in Santa Paula basin. The area of this portion of the basin is approximately 13,000 acres, and the average storage coefficient for the aquifer, which is mostly confined, is estimated to be a range from 0.001 to 0.01. Based on these parameter estimates, the calculated change in groundwater storage within the area of the unconsolidated alluvial deposits between spring 2014 and spring 2015 is a decrease of 15 to 150 AF, which may be within the margin of error for the method of analysis.

GROUNDWATER QUALITY

Minimum, maximum, and long-term average concentrations of selected major water-quality constituents (sulfate, chloride, nitrate and TDS) detected in groundwater samples during CY 2015 are summarized in Table 9, and are discussed in more detail in the following subsections.

NITRATE

The average nitrate concentration (as NO_3) for groundwater samples obtained from Santa Paula basin in CY 2015 and reported to UWCD (Table 9) was below the long-term average of 10.3 mg/L. The California Regional Water Quality Control Board—Los Angeles Region (LARWQCB), established a water quality objective (WQO) for nitrate (as NO_3) in Santa Paula basin of 45 mg/L (LARWQCB, 1994), which is also the State Primary MCL for nitrate in public drinking-water systems. Maximum nitrate concentrations reported for wells in the Santa Paula basin during CY2015 are mapped on Figure C-1 of Appendix C. Only two samples from CY 2015 contained nitrate concentrations greater than 45 mg/L, out of 61 samples analyzed for nitrate. These exceedances occurred at Canyon Irrigation Company wells #8 and #9, in Santa Paula, as also occurred during CYs 2013 and 2014 (UWCD, 2016).

Table 9. Summary of Major Groundwater Quality Parameters, CY 2015

Statistic	Concentration (mg/L)			
	Chloride	Nitrate[a]	TDS	Sulfate
Minimum	32.0	ND	840	340
Maximum	309	52.6	3,960	1,900
Average	65.5	8.7	1,270	557
Long-Term Average[b]	69.8	10.3	1,310	538
Primary MCL	none	45	none	none
Secondary MCLR-"Recommended"	250	none	500	250
Secondary MCLR-"Upper"	500	none	1,000	500
Water Quality Objectives (East/West of Peck Rd.)	100/110	45/45	1,200/2,000	600/800

Notes:

ND = not detected
MCL = Maximum Contaminant Level
MCLR = Maximum Contaminant Level Range

[a] As NO_3.

[b] Includes reported data in UWCD's database from the entire period of record: CY 1903 to present for chloride, TDS, and sulfate; CY 1923 to present for nitrate.

CHLORIDE

The average chloride concentrations for groundwater samples obtained from Santa Paula basin in CY 2015 and reported to UWCD (Table 9) were slightly less than the long-term average of 69.8 mg/L. LARWQCB's WQOs for chloride in Santa Paula basin are 100 mg/L east of Peck Road and 110 mg/L west of Peck Road (LARWQCB, 1994); these WQOs are less than the State "Recommended" and "Upper" Secondary Maximum Contaminant Level Ranges (MCLRs) for chloride in public water supplies of 250 and 500 mg/L, respectively. All but five chloride concentrations detected in the basin during the reporting period were below the WQOs, and all were below the "Upper" Secondary MCLR. In a 1959 evaluation of the quality of irrigation waters in Ventura County, the California Department of Water Resources classified water with less than 5 milliequivalents per liter of chloride (equal to 177 mg/L chloride) as "Class 1 – Excellent to Good" for agricultural purposes (California Department of Water Resources, 1959). A more recent literature review indicated that some sensitive crops, such as avocados and strawberries, may experience

impaired yields when the chloride concentration of irrigation water exceeds 117 mg/L (CH2M HILL, 2005).

Maximum-detected chloride concentrations reported for wells in the Santa Paula basin during CY 2015 are mapped on Figure C-2 of Appendix C. Maximum chloride concentrations generally increase from east to west in the basin, with two notable exceptions. One is the shallow-screened (50 to 70 ft bgs) well in UWCD's monitoring well cluster SP-2, in Santa Paula at Teague Park, where chloride concentrations are commonly the highest detected in the basin and reflective of the typical lower quality of shallow groundwater in the basin. The other is a shallow (100 ft bgs) well located southwest (and hydraulically downgradient) of the City of Santa Paula Water Recycling Facility percolation ponds. Chloride concentrations detected in weekly 24-hour composite samples of effluent discharged from the facility during CY 2015 averaged 137 mg/l (PERC Water, 2016).

SULFATE

The average sulfate concentrations for groundwater samples obtained from Santa Paula basin in CY 2015 and reported to UWCD (Table 9) were slightly greater than the long-term average of 538 mg/L. LARWQCB's (1994) WQOs for sulfate in Santa Paula basin are 600 mg/L east of Peck Road and 800 mg/L west of Peck Road; these WQOs are greater than the State "Recommended" and "Upper" Secondary MCLRs for sulfate in community water systems of 250 and 500 mg/L, respectively, and were selected based on water quality conditions present within the basin as of 1994. The majority of sulfate concentrations detected in groundwater samples were less than the WQOs.

Maximum-detected sulfate concentrations reported for wells in the Santa Paula basin during CY 2015 are mapped on Figure C-3 of Appendix C. Maximum sulfate concentrations detected in groundwater generally increase from east to west in the basin; however, the highest sulfate concentrations in the basin commonly are detected at the shallow-screened (50 to 70 ft bgs) well in UWCD's monitoring well cluster SP-2, in Santa Paula at Teague Park. As noted previously, shallow groundwater (which is intercepted by this well) is typically of lower quality than deeper groundwater in much of the basin.

TDS

The average TDS concentrations for groundwater samples obtained from Santa Paula basin in CY 2015 and reported to UWCD (Table 9) were slightly less than the long-term average of 1,310 mg/L. LARWQCB's WQOs for TDS in Santa Paula basin are 1,200 mg/L east of Peck Road and 2,000 mg/L west of Peck Road; these WQOs are greater than the State "Recommended" and "Upper" Secondary MCLRs for TDS in public water supplies of 500 and 1,000 mg/L, respectively. The majority of groundwater samples obtained from the basin in CY 2015 contained TDS concentrations below the WQOs; however, TDS concentrations in excess of the WQOs were detected in several wells, located both east and west of Peck Road.

Maximum TDS concentrations reported for wells in the Santa Paula basin during CY 2015 are mapped on Figure C-4 of Appendix C. TDS concentrations should be approximately equal to the sum of concentrations of ionic species in solution. In the Santa Paula basin, sulfate is generally the dominant dissolved anion in groundwater; therefore, the distribution of TDS in the basin tends to reflect the distribution of sulfate. Similar to sulfate, TDS concentrations generally increase from east to west in the basin; however, also similar to sulfate, the highest TDS concentrations in the basin commonly occur at the shallow-screened (50 to 70 ft bgs) well in UWCD's monitoring well cluster SP-2, in Santa Paula at Teague Park. Again, shallow groundwater (which is intercepted by this well) is typically of lower quality than deeper groundwater in much of the basin.

Hardness, Alkalinity, Iron and Manganese

High concentrations of hardness, alkalinity, iron, and manganese can limit the suitability of water for some domestic purposes and accelerate plugging of micro-irrigation systems, which are commonly used in the Santa Paula basin to improve efficiency of irrigation. Pitts and Peterson (undated), as part of their mobile irrigation laboratory work with the Cachuma Resource Conservation District, proposed water quality criteria for plugging-hazard potential associated with use of groundwater in drip-irrigation systems in Santa Barbara County. The University of California Division of Agriculture and Natural Resources has similar criteria for determining the clogging potential of irrigation water (University of California, 2015). Minimum, maximum, and long-term average concentrations of these groundwater constituents detected in groundwater samples in the Santa Paula basin during CY 2015 are summarized in Table 10, together with Secondary MCLs for iron and manganese, and the micro-irrigation plugging hazard criteria developed by Pitts and Peterson and the University of California.

Most of the iron concentrations detected in groundwater samples from the Santa Paula basin in CY 2015 were less than the Secondary MCL of 0.3 mg/L. However, the vast majority of manganese concentrations detected in the basin exceeded the Secondary MCL of 0.05 mg/L. Iron and manganese occur naturally in groundwater, and the elevated concentrations detected in the Santa Paula basin are thought to be a result of local geochemical conditions rather than man-made sources (e.g. mining or heavy industry). Treatment to remove iron or manganese from groundwater is performed by municipal water purveyors in the Santa Paula basin where needed to achieve Secondary MCLs in delivered water. Nearly all of the detected concentrations of hardness and alkalinity in the Santa Paula basin during CY 2015 exceeded the Pitts and Peterson and the University of California criteria for a "severe plugging hazard," and many of the iron and manganese concentrations exceeded the criteria for a "moderate plugging hazard."

Table 10. Summary of Hardness, Alkalinity, Iron, and Manganese in Groundwater in the Santa Paula Basin, CY 2015

Statistic		Concentration (mg/L)			
		Hardness[a]	**Alkalinity[a]**	**Iron**	**Manganese**
Minimum		399	190	ND	ND
Maximum		1,120	360	1.90	0.760
Average		660	257	0.090	0.271
Long-Term Average[b]		646	271	0.151	0.240
Secondary MCL		NA	NA	0.3	0.05
Pitts and Peterson Plugging Hazard Potential	Moderate	150-300	100-200	0.1 - 1.0	0.1 - 1.0
	Severe	>300	>200	>1.0	>1.0
Univ. of Calif. Clogging Potential	Moderate	NA	100	0.2 - 1.5	0.1 - 1.5
	Severe	NA	NA	>1.5	>1.5

Notes:

ND = not detected

NA = not applicable or not reported

> = greater than the value shown

[a] As calcium carbonate ($CaCO_3$).

[b] Includes reported data in UWCD's database from the entire period of record: CY 1929 to present for hardness and alkalinity; CY 1937 to present for iron and manganese.

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FINDINGS AND RECOMMENDATIONS

This section summarizes key findings and recommendations resulting from evaluation of 2015 data and reporting for the Santa Paula basin.

1. Results of TAC specialty studies completed during CY 2015 indicate that:
    a. Rainfall data for WYs 1999 through 2012 all appear to be representative of typical hydrologic conditions in the Santa Paula basin (GEI Consultants, 2012a).
    b. Streamflow data for WYs 1999 through 2012 both appear to be representative of typical hydrologic conditions in the Santa Paula basin (GEI Consultants, 2012b). However, the study noted that because of changed hydrologic conditions (i.e., construction of the Freeman Diversion) this results in a relatively short study period.
    c. During the 68-year period from 1947 through 2014, an average of 19,700 AF/yr is estimated to have entered Santa Paula basin from Fillmore basin as groundwater underflow (Bachman, 2015).
2. Review of data obtained from Santa Paula basin monitoring programs indicate that:
    a. Total precipitation measured at the Santa Paula-UWCD rain gage during WY 2015 was 10.63 inches. This total is approximately 62 percent of the long-term average annual precipitation of 17.22 inches. Although 10.63 inches is not a remarkably low rainfall total for Santa Paula, the 4-year moving-average (ending in WY 2015) precipitation rate of 8.24 inches per year recorded at Santa Paula is the lowest during the period of record. Precipitation totals for other rain gages in the Santa Paula basin during the reporting period were also below average.
    b. The annual discharge measured in the Santa Clara River at Freeman Diversion during WY 2015 was 6,670 AF. This was the second lowest discharge recorded during the 60-year period of record, and was likely a result of the cumulative impacts of 4 years of drought.
    c. The annual discharge measured in Santa Paula Creek at Mupu Bridge during WY 2015 was 1,028 AF. This was the second lowest discharge recorded during the 88-year period of record, similar to the Santa Clara River.
    d. Average concentrations of chloride, sulfate, TDS, and nitrate detected in surface water samples from the Santa Clara River in CY 2015 were similar to CY 2013 and 2014 levels, and were elevated compared to those detected during the previous decade, prior to the current drought. However, excluding the current drought period, the overall concentration trends for sulfate, chloride, TDS, and nitrate in the Santa Clara River have been stable to downward since the 1960s.
    e. Average concentrations of chloride, sulfate, TDS, and nitrate detected in surface water samples from Santa Paula Creek in CY 2015 were significantly higher than long-term average concentrations. A trend of increasing concentrations of these

constituents in Santa Paula Creek appears to have begun in CY 2012, resulting from low precipitation and streamflow during the current drought, similar to the Santa Clara River.

f. The total volume of groundwater extracted from Santa Paula basin during CY 2015 was 25,856 AF, slightly greater than the long-term average (CYs 1980 through 2015) of 25,773 AF/yr, but below the total of allocations under the Judgment (currently 30,812 AF/yr).

g. Net imports of groundwater from the area just east of the stipulated area increased from an average of 217 AF/yr prior to 2011 to 4,208 AF/yr in 2015; this increase likely mitigated the need for significant increases in groundwater extraction from Santa Paula basin during the current drought.

h. Average groundwater levels in the Santa Paula basin, represented by the GLI, appear to have stabilized between spring 2014 and spring 2015, corresponding to increased rainfall and reduced pumping in CY 2015 compared to CYs 2013 and 2014.

i. As in past years, a general northeast to southwest hydraulic groundwater gradient exists along the axis of the basin, with steeper gradients along the southwest and west boundaries of the basin.

j. Geostatistical analysis of groundwater-elevation changes within the unconsolidated alluvial deposits in Santa Paula basin indicates that groundwater levels declined by an average of 1.15 ft between spring 2014 and spring 2015. The calculated change in groundwater storage within the aquifer from spring 2014 to spring 2015 is in the range of 15 to 150 AF, which may be within the margin of error for the method of analysis.

k. Basin-wide average concentrations of the major groundwater quality parameters (chloride, nitrate, TDS, and sulfate) during the reporting period were less than long-term basin-wide averages. As noted in past years, concentrations of chloride, sulfate, and TDS generally increase from east to west in the basin. Groundwater samples obtained from two irrigation wells in the eastern part of the basin during the reporting period contained nitrate concentrations exceeding the Primary MCL, similar to past years. Neither the magnitude nor the lateral extent of these nitrate exceedances in groundwater appear to be increasing.

l. Basin-wide groundwater hardness, alkalinity, iron, and manganese concentrations during the reporting period remained within the range of previously detected levels. Elevated hardness and alkalinity pose a “severe plugging hazard” to micro-irrigation systems in the basin, while iron and manganese concentrations pose a “moderate plugging hazard,” according to guidelines developed by Pitts and Peterson and the University of California.

3. Based on the findings listed above, the TAC recommends implementing or continuing the following data collection and evaluation efforts:
    a. Complete the ongoing safe-yield evaluation for the Santa Paula basin (currently in progress by Daniel B. Stephens & Associates, Inc., under contract to UWCD);
    b. Complete the ongoing study of groundwater-yield-enhancement options for Santa Paula basin (currently in progress by Dr. Steven Bachman under contract to the SPBPA);
    c. Put on hold, or assign low priority to, the remaining specialty studies that have been initiated by TAC, including:
        i. Investigation of groundwater storage change in the Santa Paula basin (planned by GEI Consultants).
        ii. "Task No. 11: Groundwater Production Reporting Accuracy" (draft prepared by Frank B & Associates, 2013b)
        iii. "Task No. 12 (draft): Alluvial Pumping & Surface Diversions Outside of Judgment Authority" (draft prepared by Frank B & Associates, 2013c)
    d. The pressure transducer program (see "TAC Activities" in the "Introduction" section) should continue and additional wells, as appropriate, should be equipped with this technology. The transducer data allow an understanding of the magnitude of interference drawdown between wells and more accurately record maximum and minimum groundwater levels in the basin than manual groundwater elevation measurements. This level of understanding could prove important for future studies and analyses of basin yield.
4. The TAC may wish to evaluate the potential benefit of the following projects which address increasing the sustainability of the basin:
    a. Source salt reduction and/or Santa Paula Water Recycling Facility effluent treatment for irrigation use within the context of the new salt and nutrient management plan for the Lower Santa Clara River (Larry Walker Associates, 2015).
    b. Increase the production and transport of better-quality groundwater from the eastern portion of the Santa Paula basin or western end of the Fillmore basin, where groundwater levels are high, to western portions of the Santa Paula basin where groundwater quality is poorer and groundwater levels are lower.

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FIGURES

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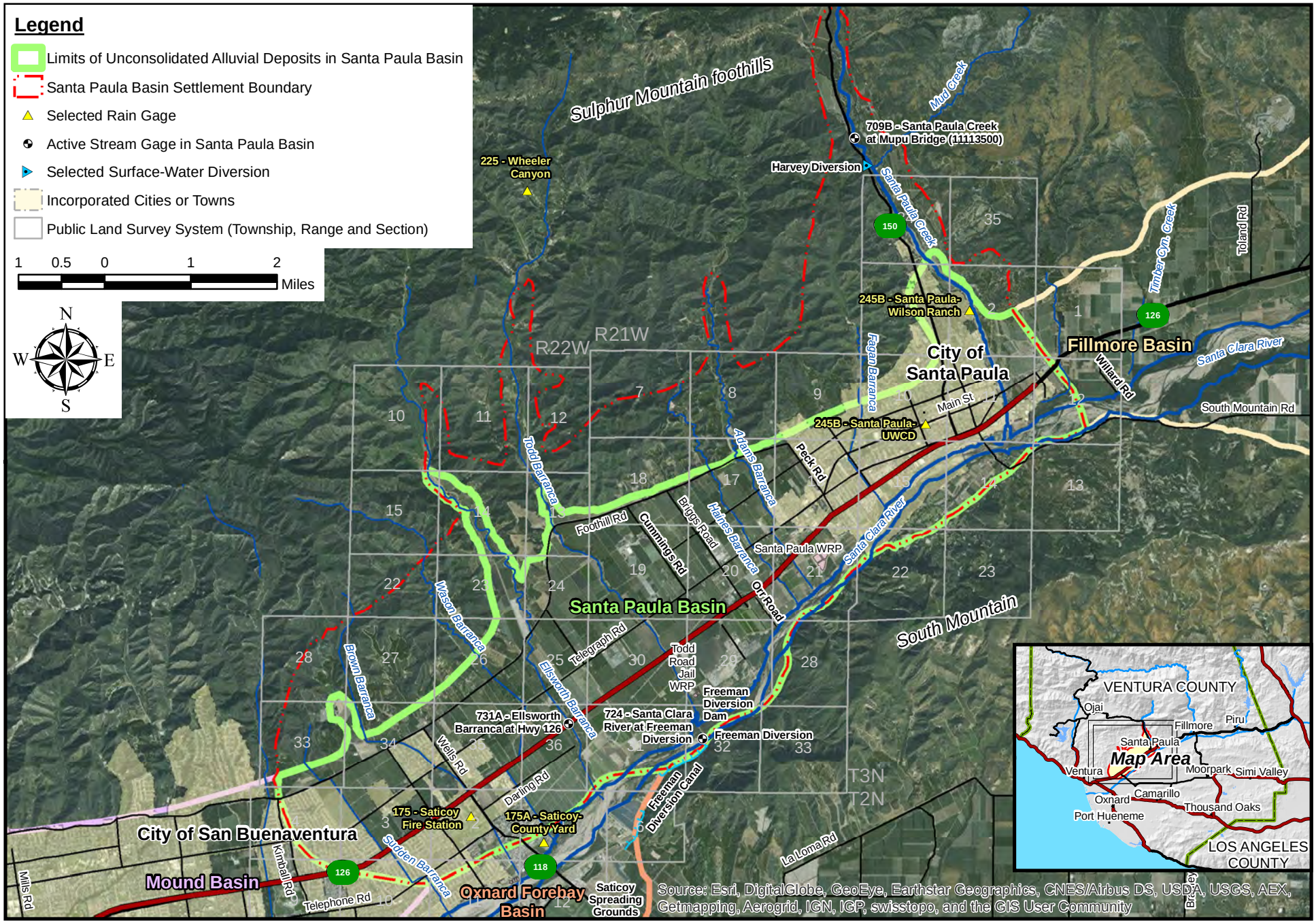

Figure 1. Santa Paula Basin Location Map

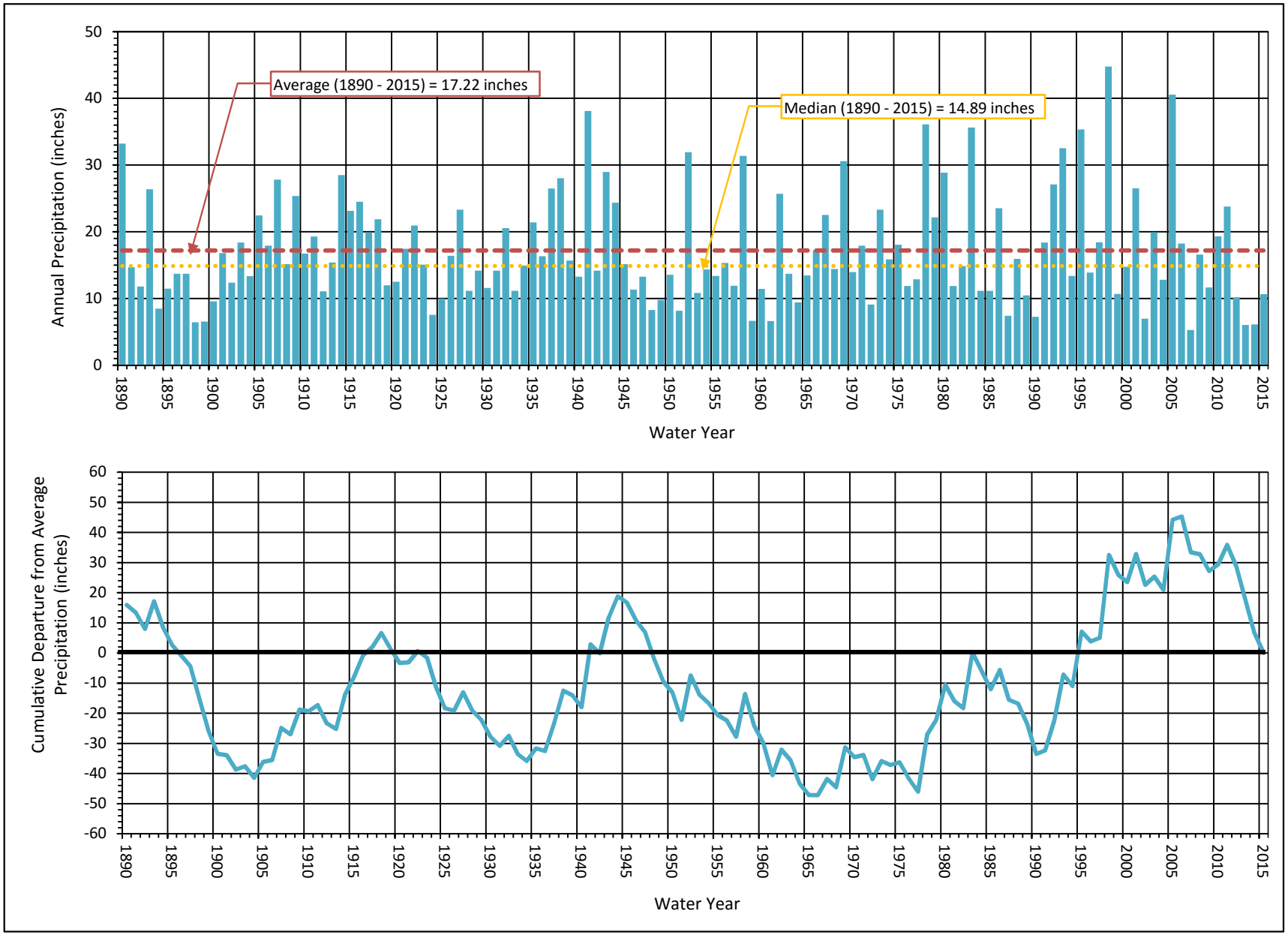

Figure 2. Annual Precipitation at Santa Paula and Departure from Average, WYs 1890 through 2015

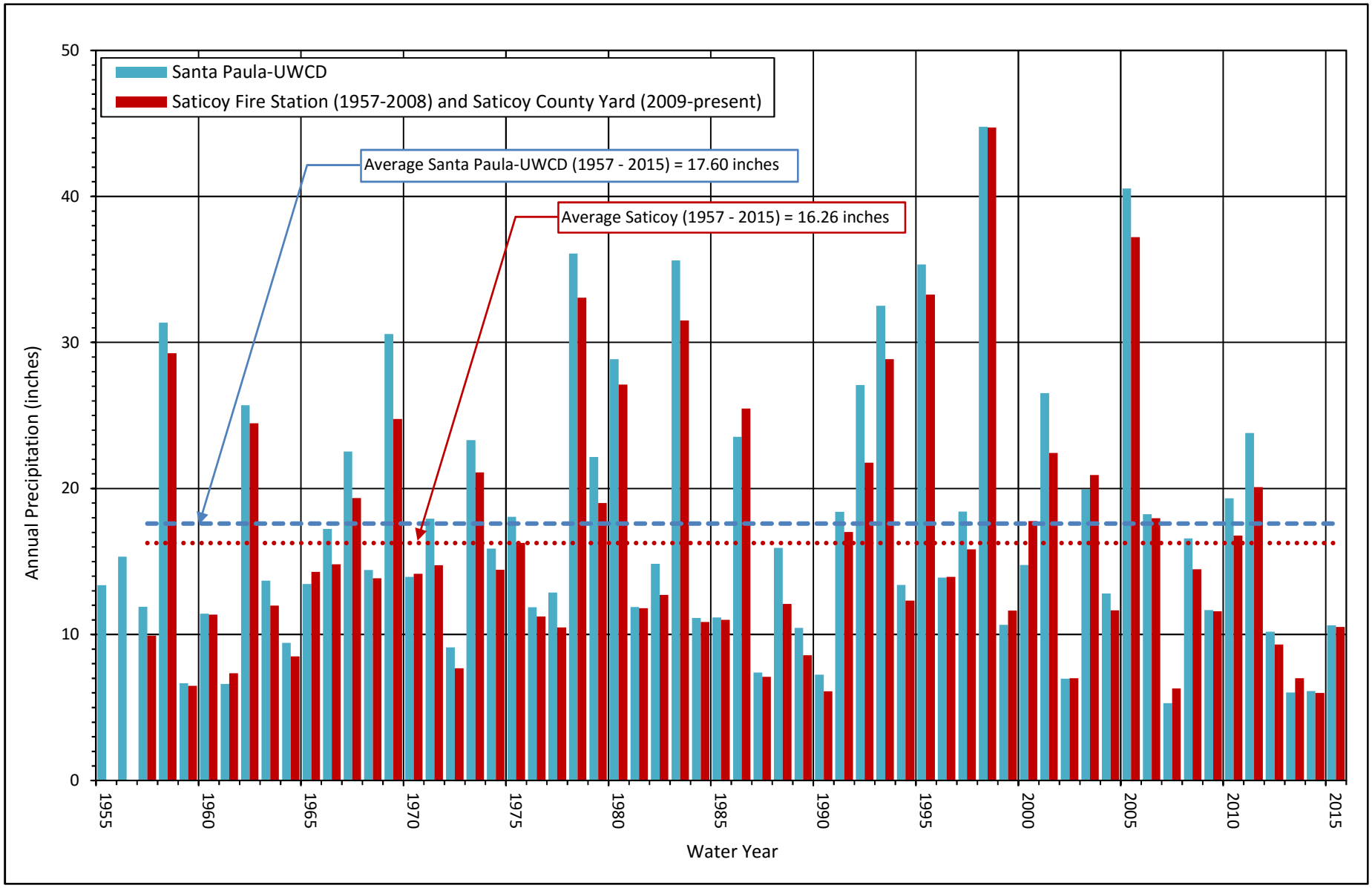

Figure 3. Annual Precipitation at Saticoy and Santa Paula, WYs 1955 through 2015

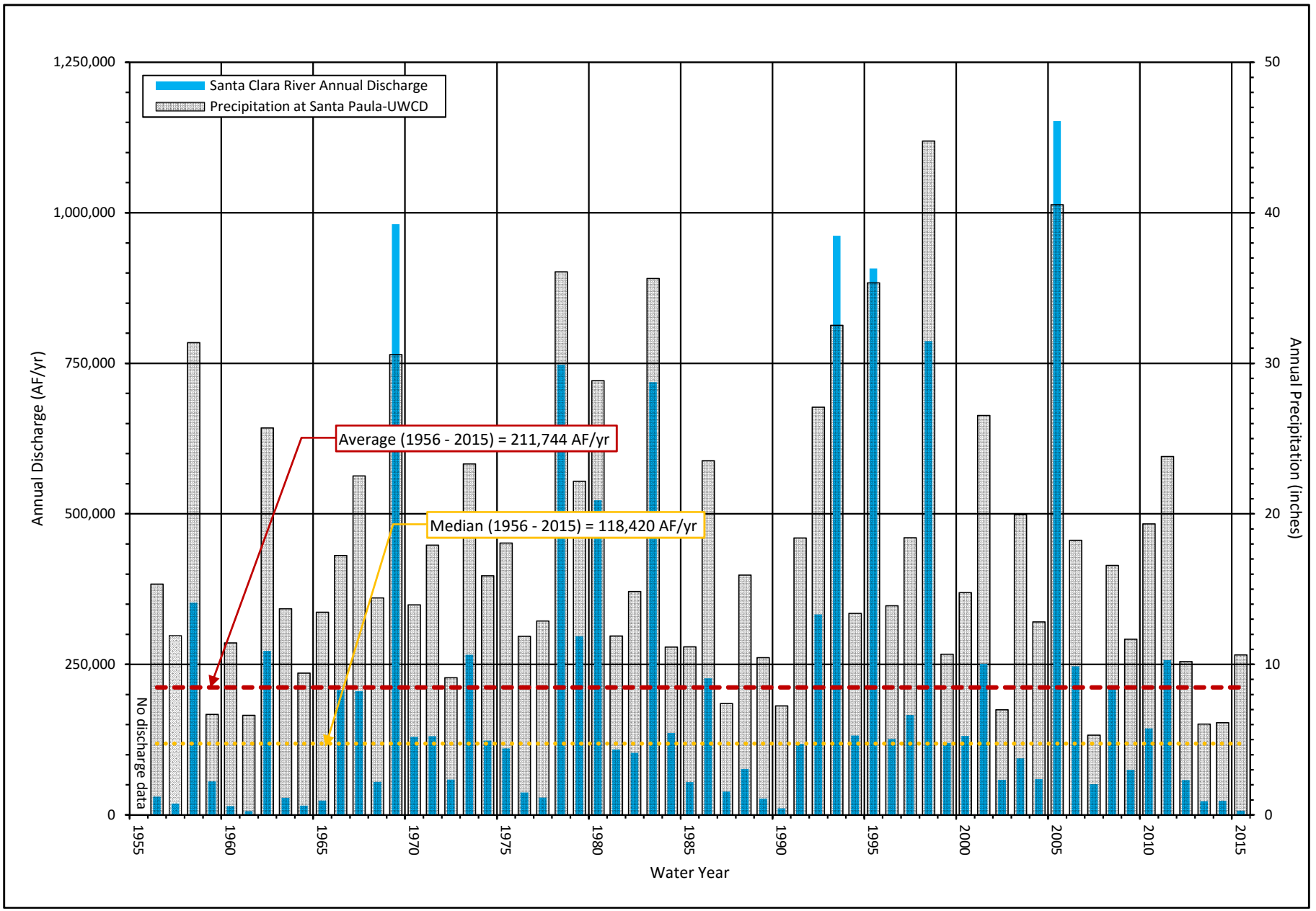

Figure 4. Annual Discharge of Santa Clara River at the Freeman Diversion, WYs 1956 through 2015

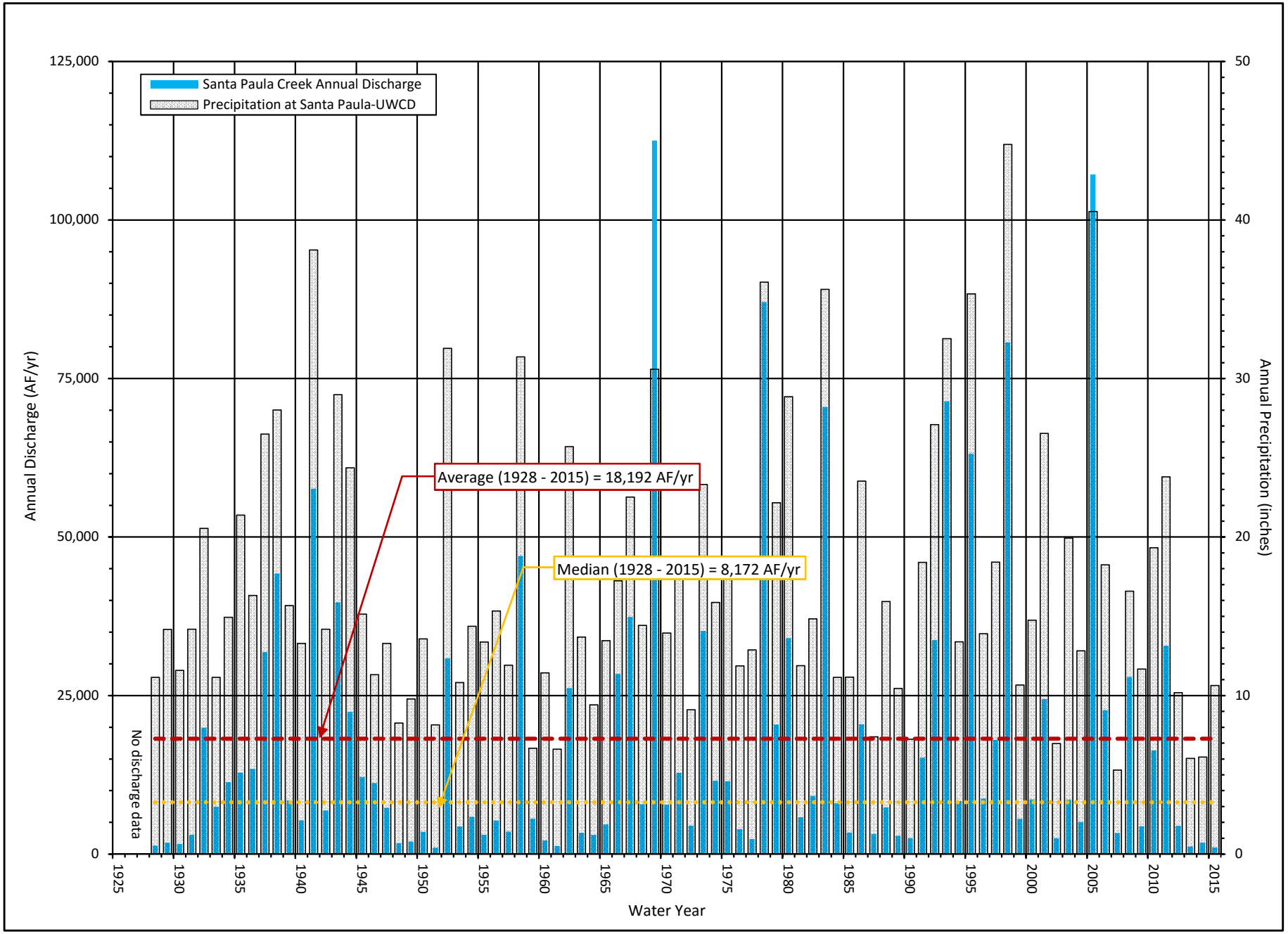

Figure 5. Annual Discharge of Santa Paula Creek Near Santa Paula, WYs 1928 through 2015

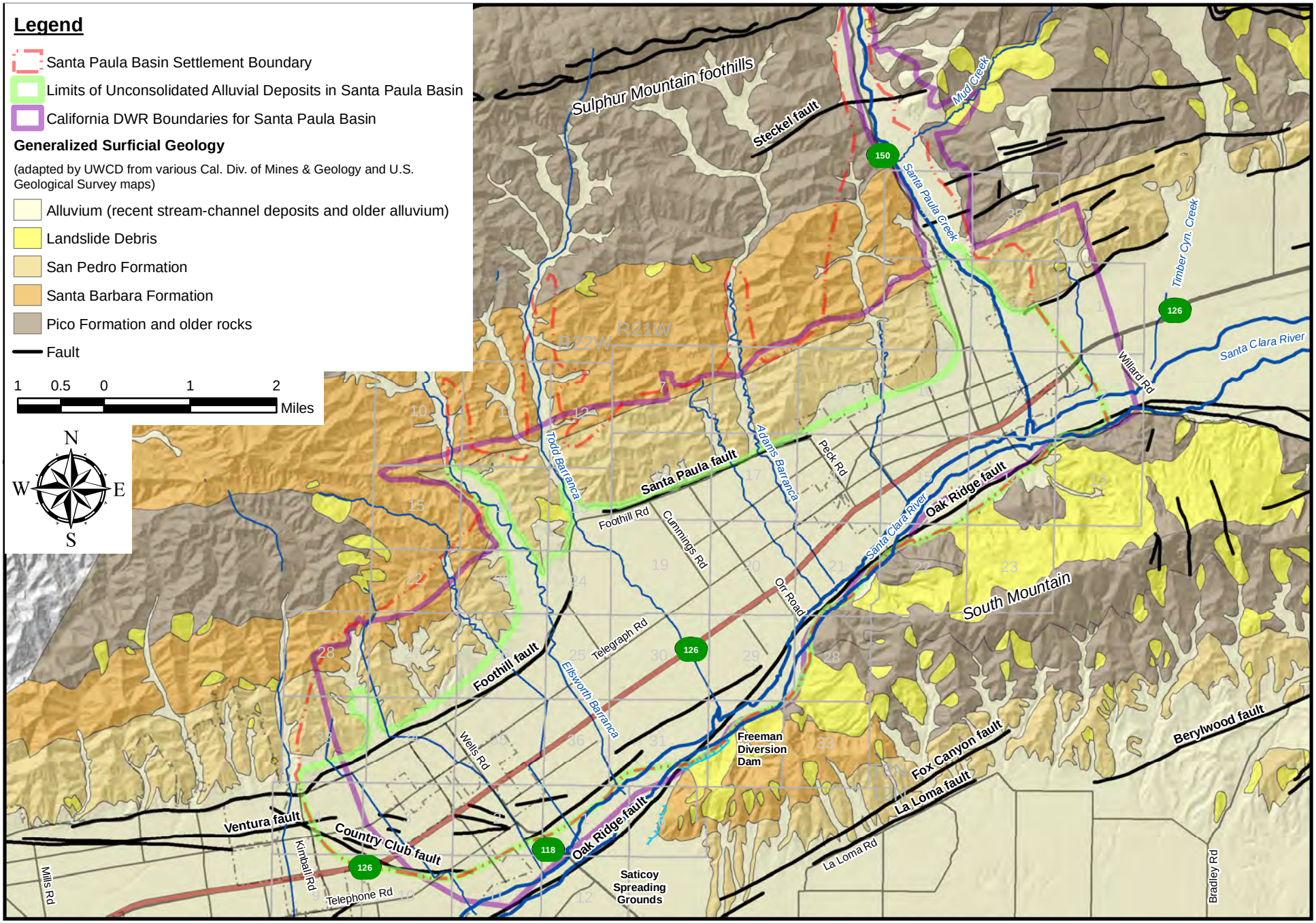

Figure 6. Generalized Geologic Map of Santa Paula Basin

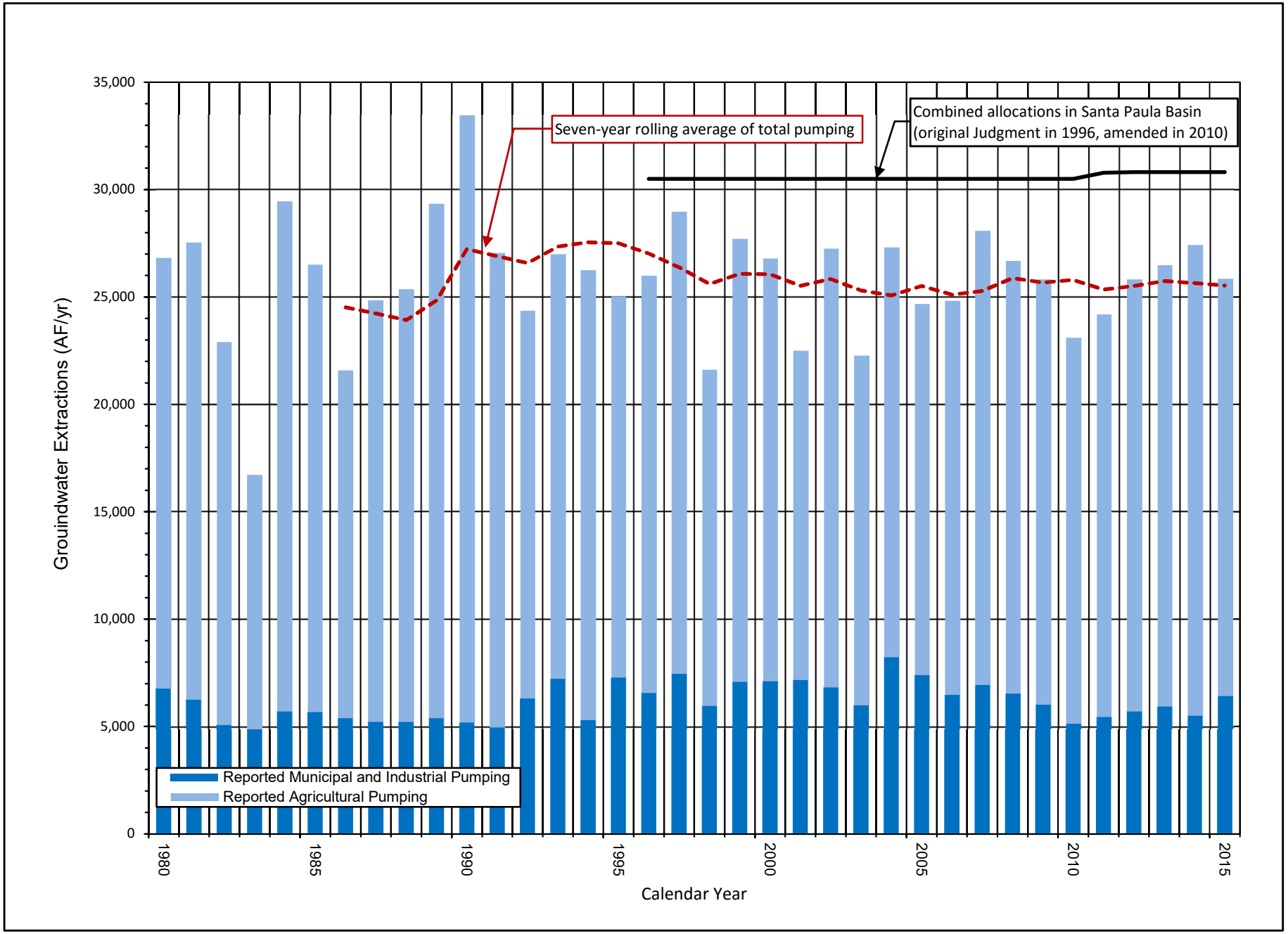

Figure 7. Historical Annual Groundwater Extractions from Santa Paula Basin, CYs 1980 through 2015

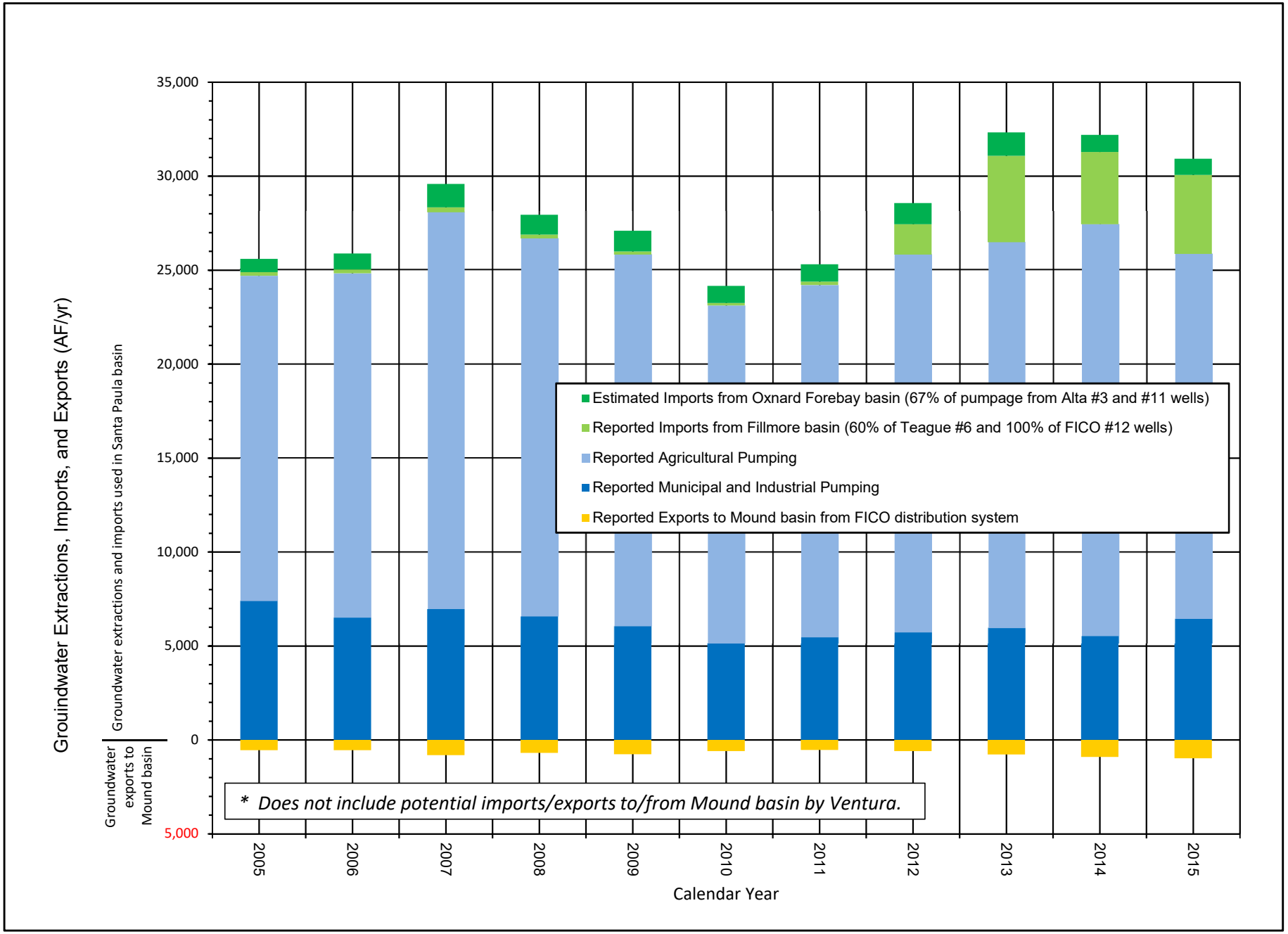

Figure 8. Annual Groundwater Extractions, Imports, and Exports from Santa Paula Basin, CYs 2005 through 2015

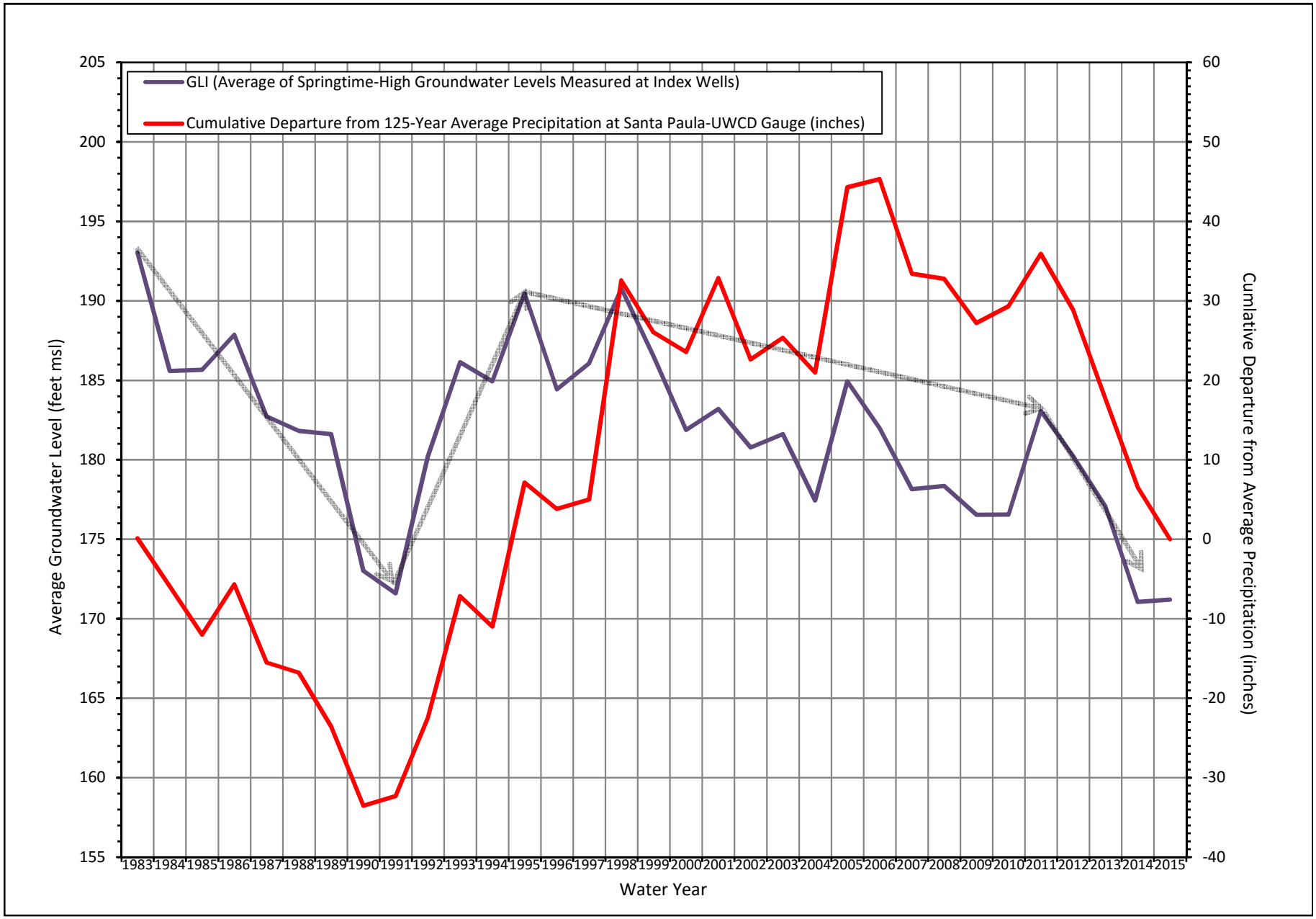

Figure 9. Groundwater Level Index and Cumulative Departure from Average Precipitation in Santa Paula Basin, WYs 1983 through 2015

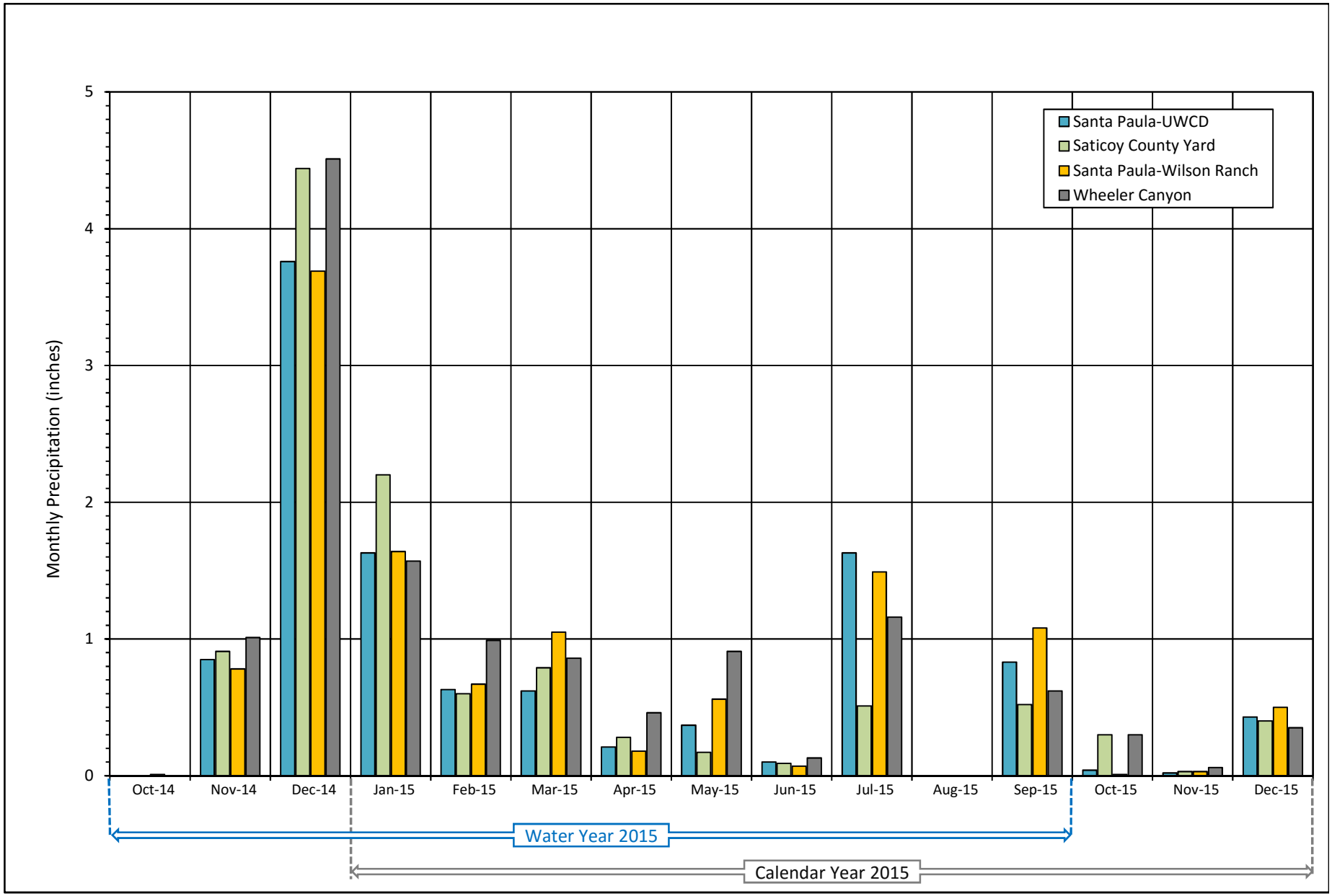

Figure 10. Monthly Precipitation in Santa Paula Basin, WY and CY 2015

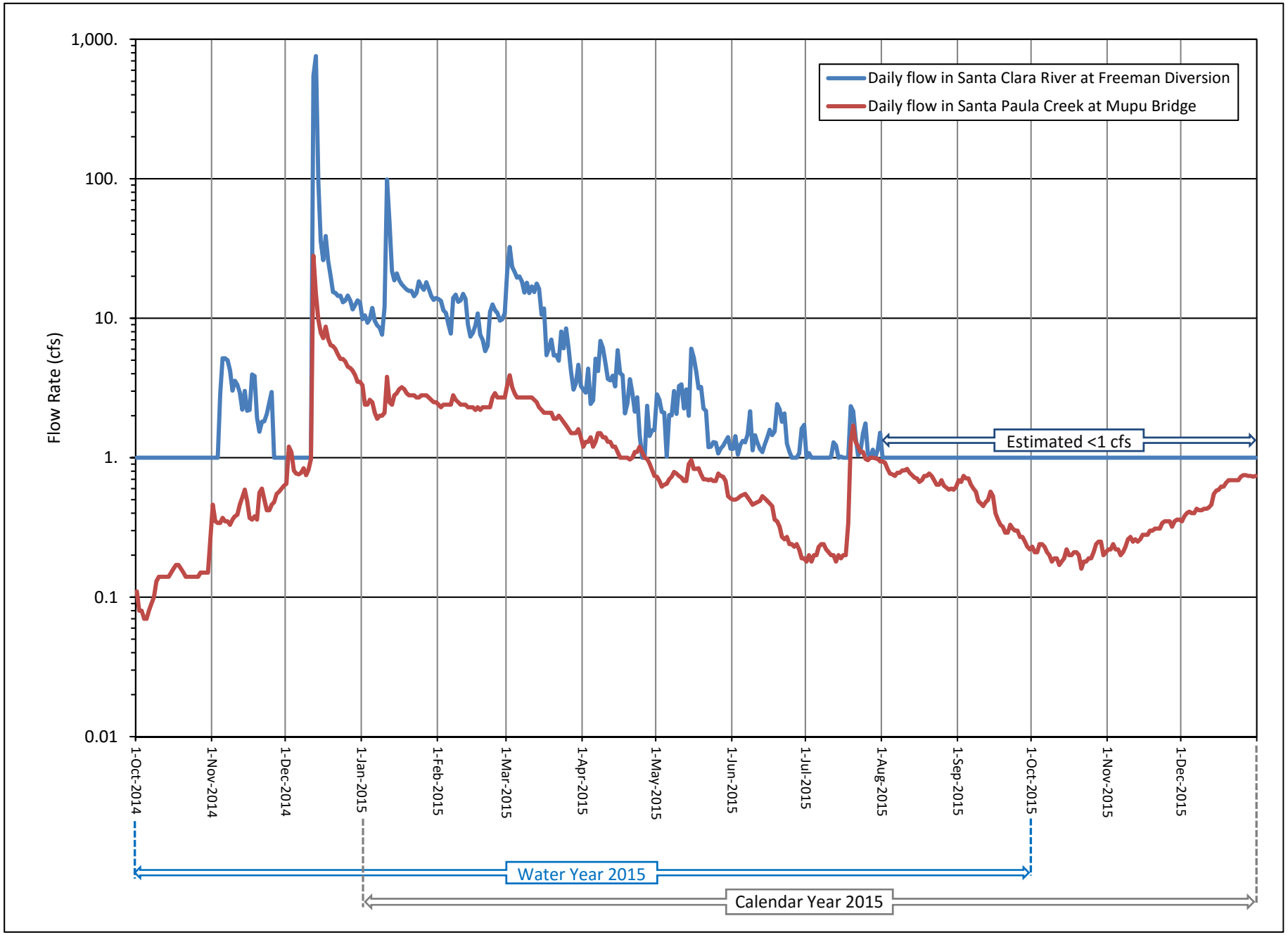

Figure 11. Daily Streamflow in Santa Paula Creek and Santa Clara River, WY and CY 2015

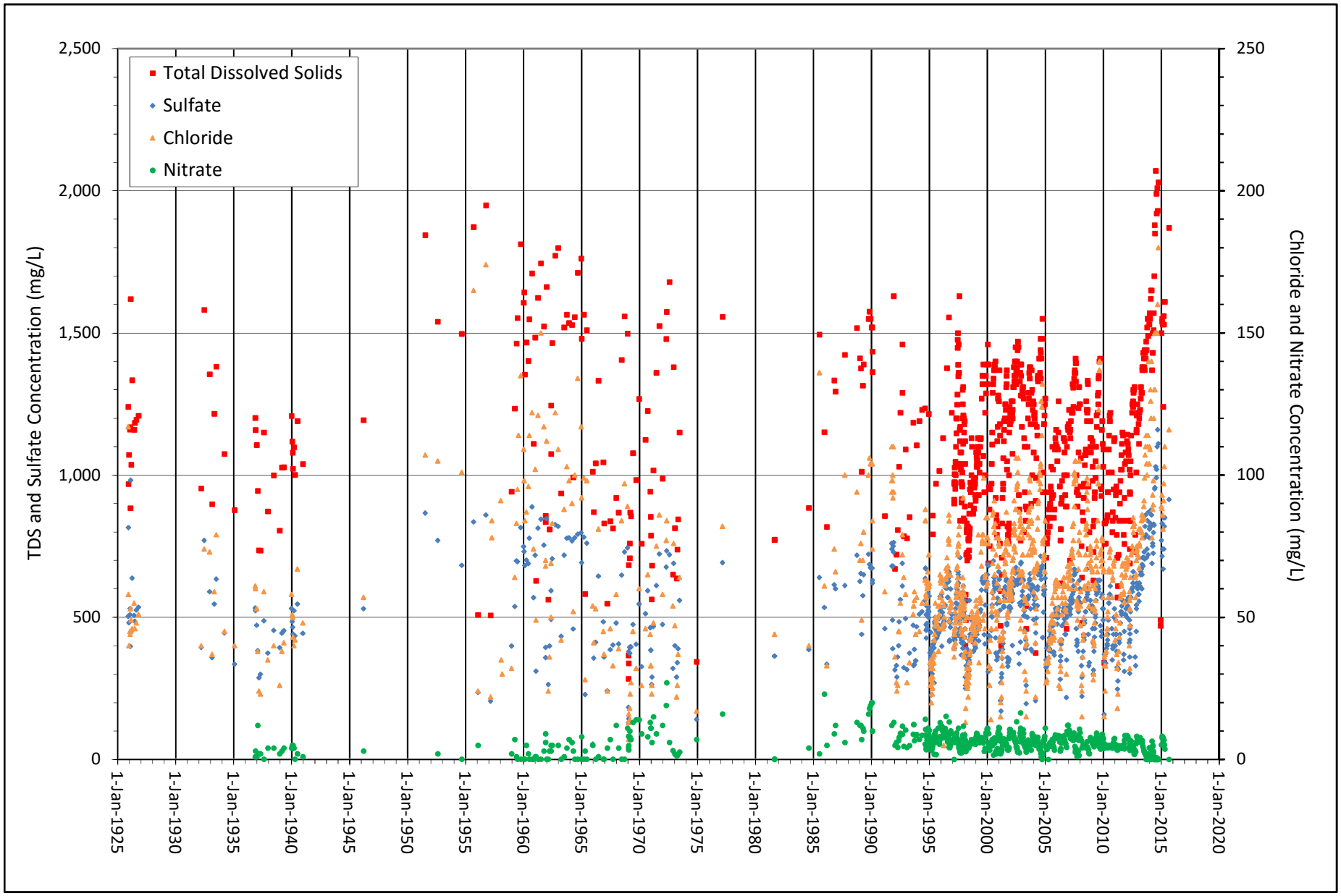

Figure 12. Concentrations of Selected Major Surface Water Quality Parameters in the Santa Clara River at Freeman Diversion, CYs 1925 through 2015

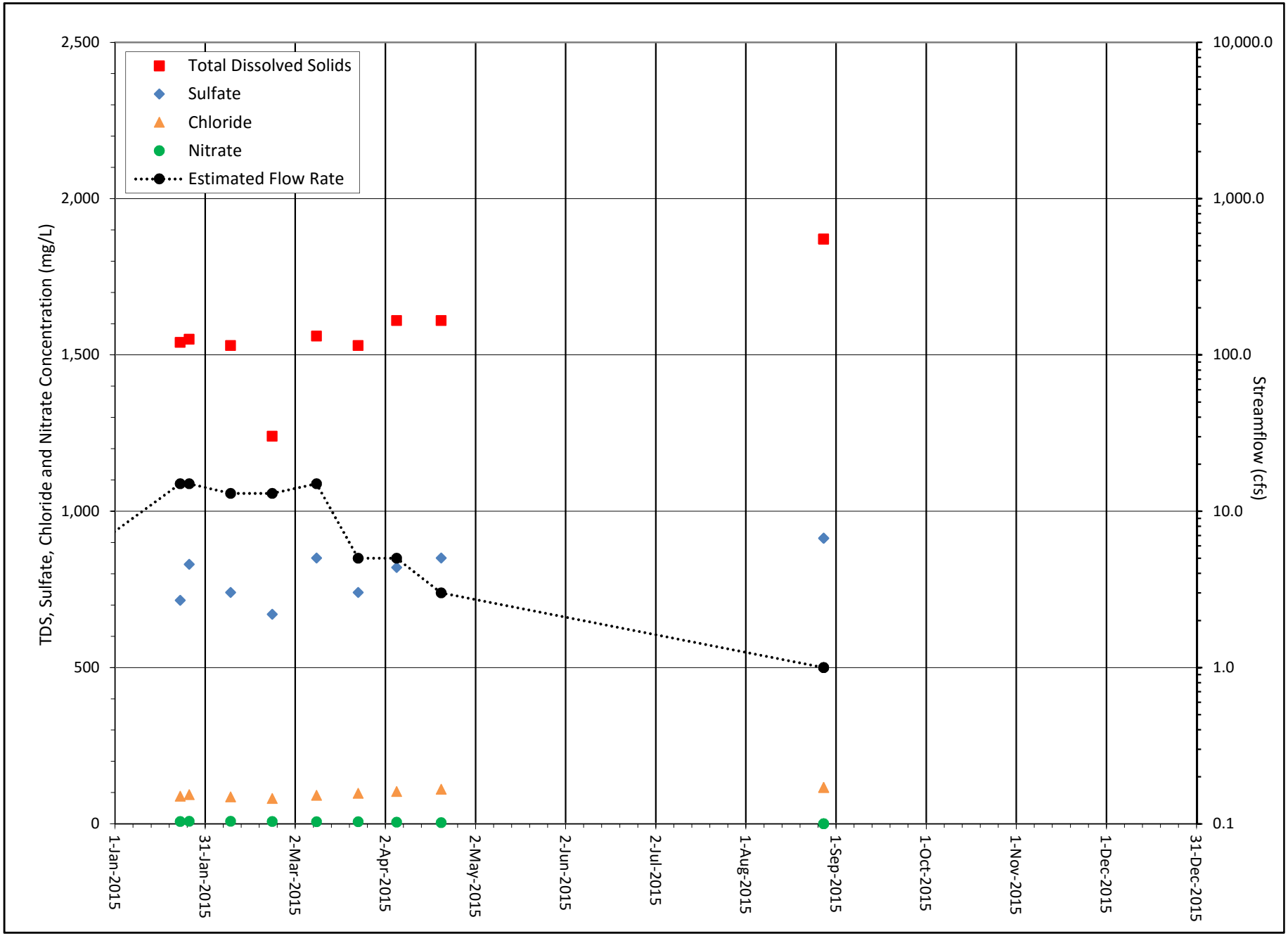

Figure 13. Water Quality and Streamflow in Santa Clara River at the Freeman Diversion, CY 2015

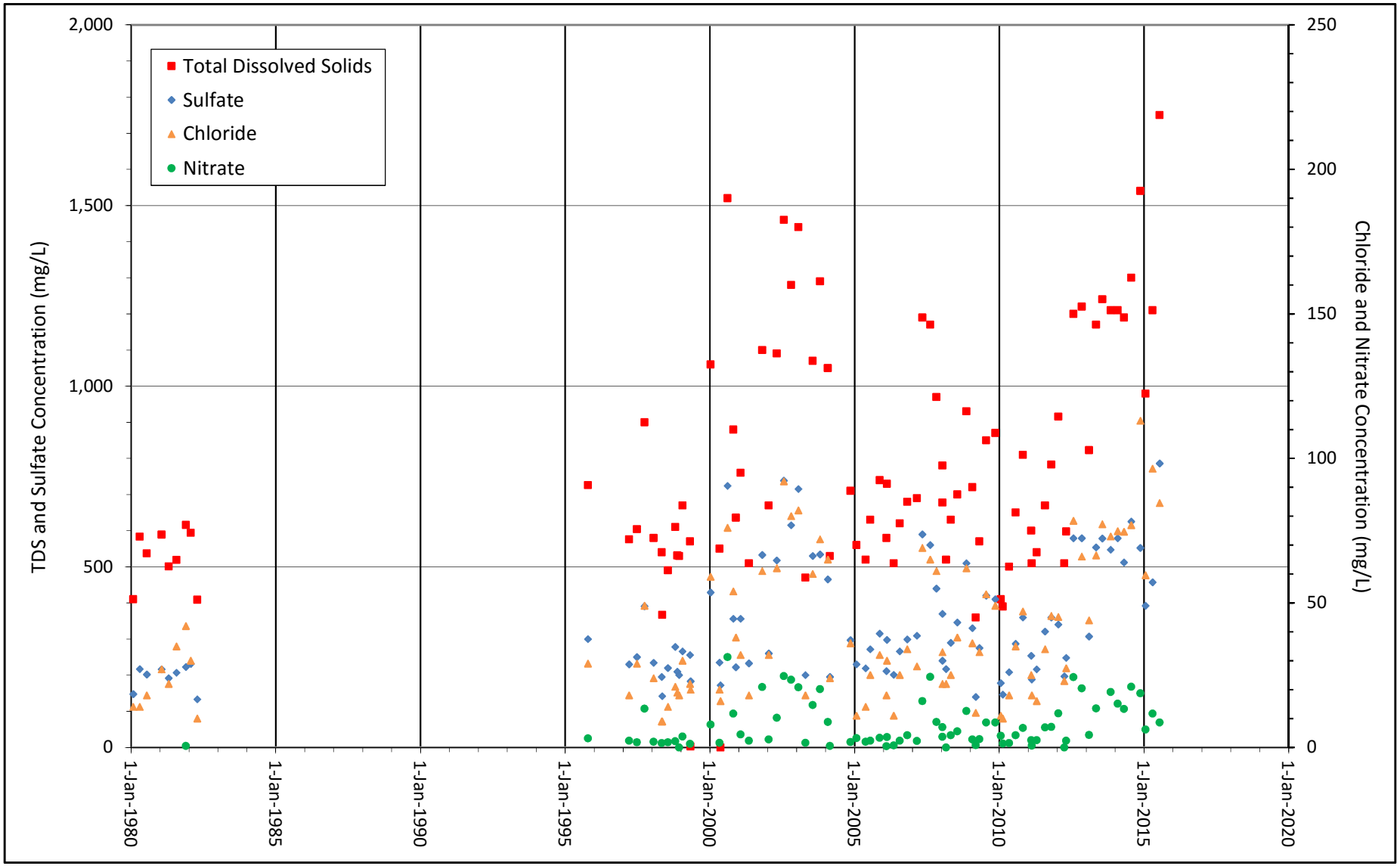

Figure 14. Concentrations of Selected Major Surface Water Quality Parameters in Santa Paula Creek Near Santa Paula, CYs 1980 through 2015

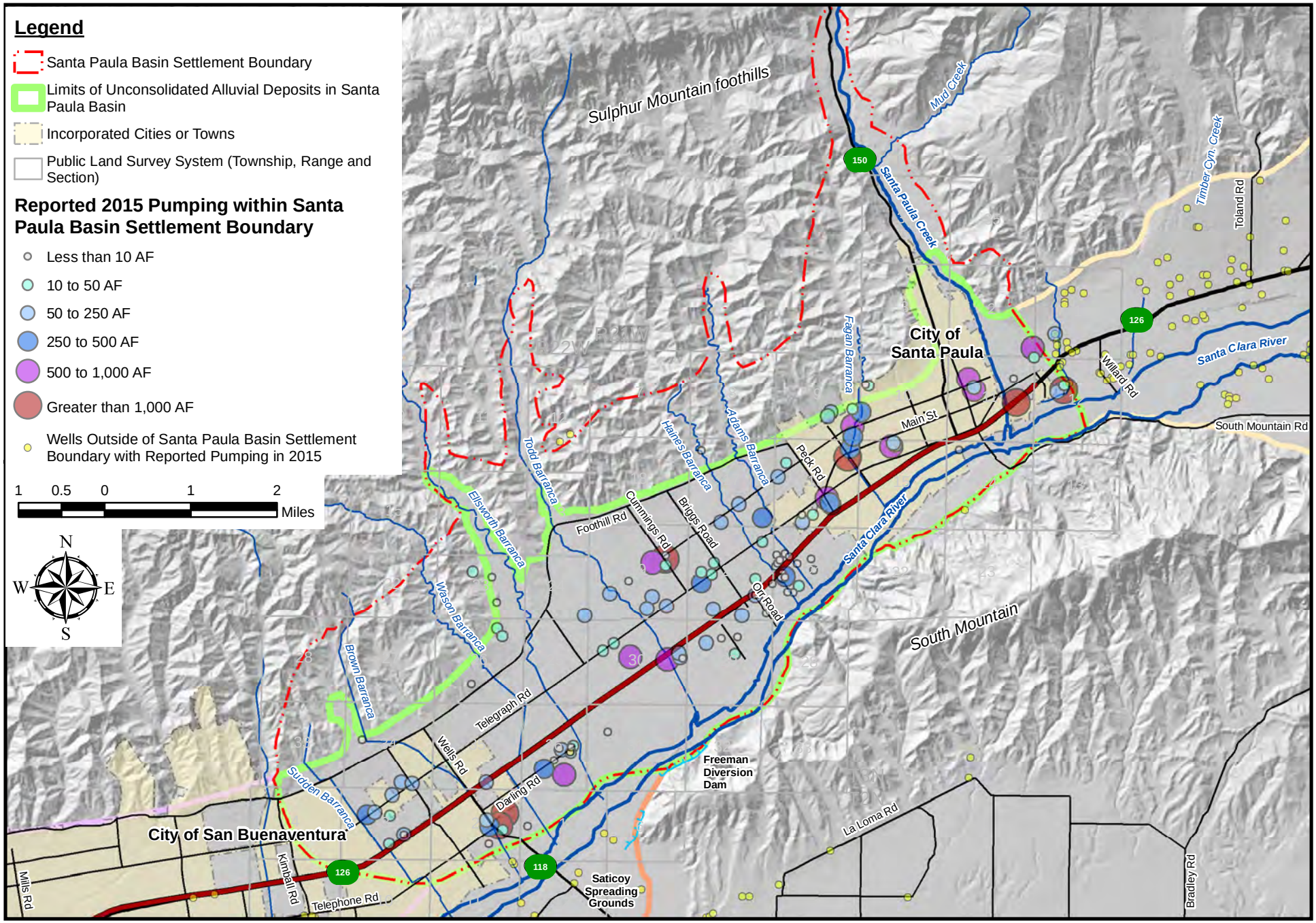

Figure 15. Santa Paula Basin Groundwater Extractions by Well, CY 2015

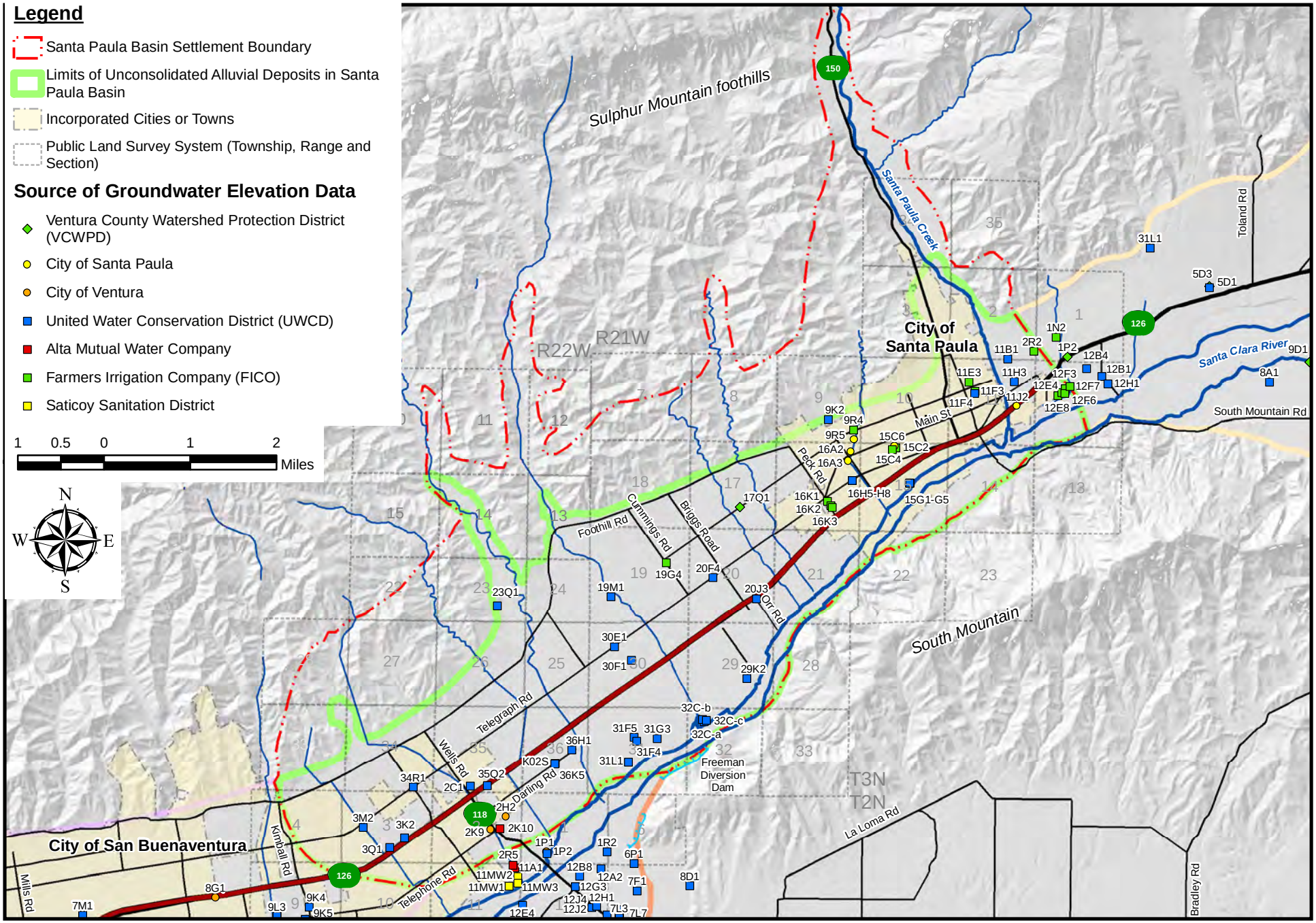

Figure 16. Locations of Wells used to Monitor Groundwater Levels in Santa Paula Basin, CY 2015

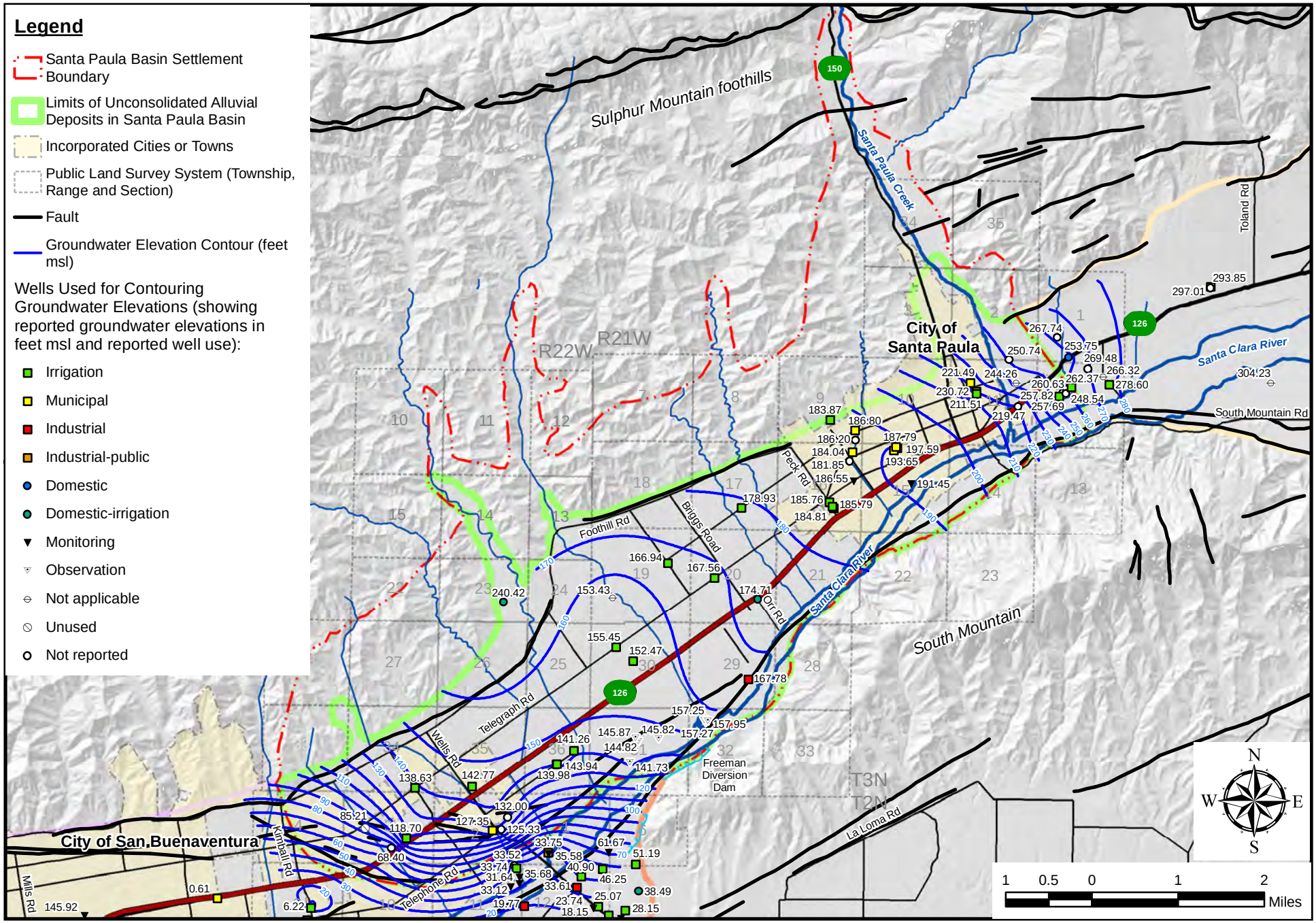

Figure 17. Santa Paula Basin Groundwater Elevation Contours, Spring 2015

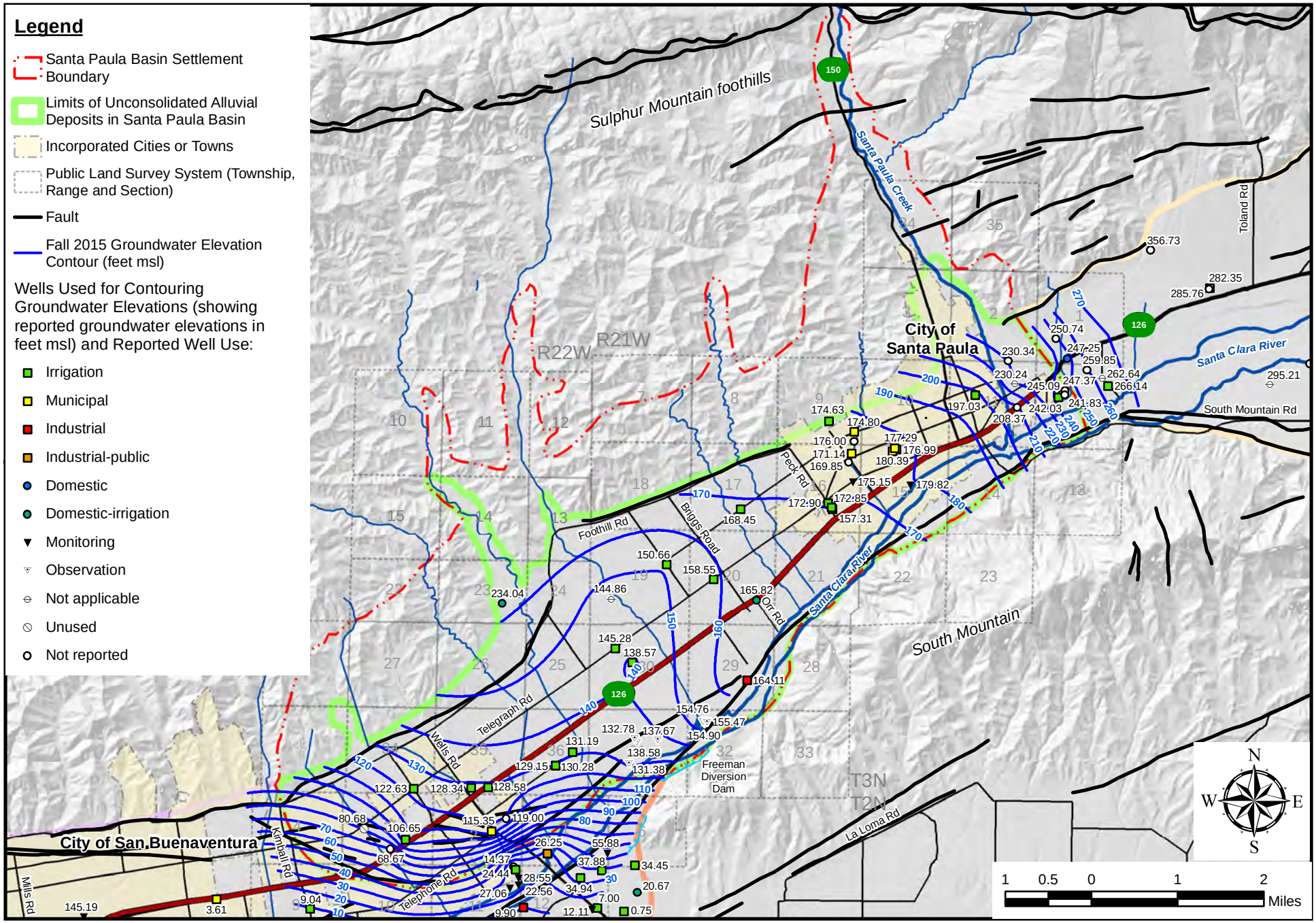

Figure 18. Santa Paula Basin Groundwater Elevation Contours, Fall 2015

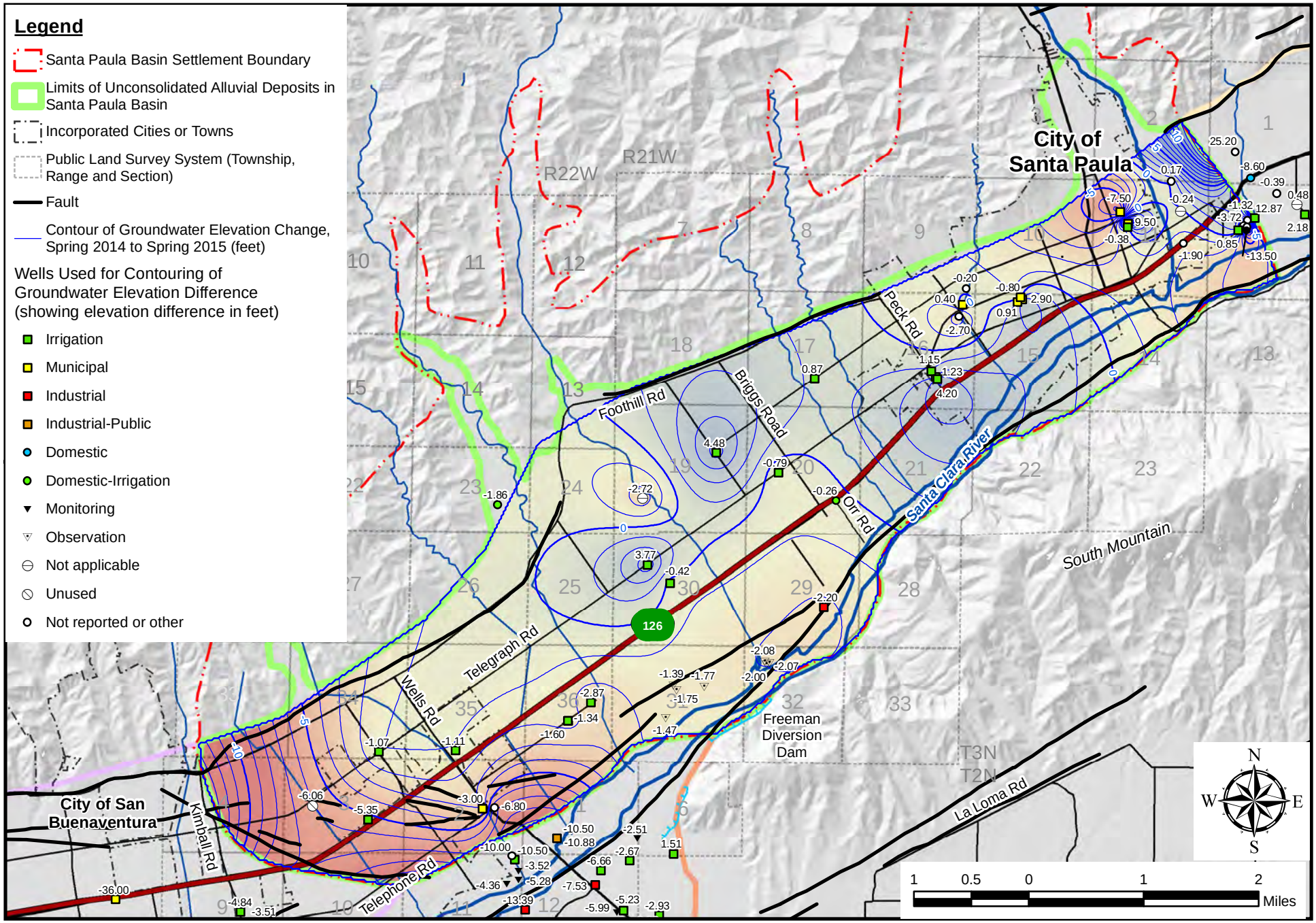

Figure 19. Change in Groundwater Elevation in Unconsolidated Alluvial Deposits of Santa Paula Basin, Spring 2014 to Spring 2015

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APPENDIX A - Historical Precipitation and Streamflow Tables

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APPENDIX A - Table A-1. Santa Paula - UWCD Historical Precipitation

WATER YEAR (WY)	MONTHLY PRECIPITATION (inches)												WY PRECIPITATION (inches)	CUMULATIVE DEPARTURE (inches)	CALENDAR YEAR PRECIPITATION (inches)
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
1890	6.30	1.81	16.55	5.40	2.00	0.47	0.05	0.00	0.00	0.00	0.00	0.62	33.20	15.98	11.46
1891	0.00	0.34	2.58	0.48	8.73	1.40	0.82	0.13	0.00	0.00	0.00	0.19	14.67	13.44	13.27
1892	0.00	0.00	1.52	0.70	3.99	3.24	0.54	1.80	0.00	0.00	0.00	0.00	11.79	8.01	24.31
1893	0.56	7.30	6.18	2.30	2.81	6.81	0.40	0.00	0.00	0.00	0.00	0.00	26.36	17.15	17.03
1894	0.87	0.20	3.64	1.04	0.55	0.42	0.23	0.46	0.00	0.10	0.00	0.98	8.49	8.42	5.05
1895	0.14	0.18	0.95	5.42	0.00	4.77	0.00	0.00	0.00	0.00	0.00	0.00	11.46	2.66	10.19
1896	0.00	0.00	0.00	5.03	4.98	3.24	0.00	0.00	0.00	0.00	0.00	0.45	13.70	-0.85	13.70
1897	0.00	0.00	0.00	5.03	4.98	3.24	0.00	0.00	0.00	0.00	0.00	0.45	13.70	-4.37	14.87
1898	1.17	0.00	0.00	0.92	0.70	1.55	0.00	1.22	0.00	0.00	0.00	0.86	6.42	-15.17	5.59
1899	0.08	0.00	0.26	3.44	0.00	2.41	0.35	0.00	0.00	0.00	0.00	0.00	6.54	-25.85	10.87
1900	1.84	1.17	1.66	1.67	0.00	1.36	0.38	1.49	0.00	0.00	0.00	0.00	9.57	-33.49	9.61
1901	0.00	4.71	0.00	4.57	4.34	0.42	0.91	1.14	0.00	0.00	0.00	0.71	16.80	-33.91	14.87
1902	2.24	0.54	0.00	1.30	4.49	3.31	0.50	0.00	0.00	0.00	0.00	0.00	12.38	-38.75	15.38
1903	0.00	4.75	1.03	1.66	1.98	6.23	2.65	0.10	0.00	0.00	0.00	0.00	18.40	-37.57	12.62
1904	0.00	0.00	0.00	0.31	3.83	5.94	1.46	0.00	0.00	0.00	0.00	1.82	13.36	-41.42	15.92
1905	0.38	0.00	2.18	2.54	8.02	5.50	0.67	3.15	0.00	0.00	0.00	0.00	22.44	-36.20	21.38
1906	0.00	1.50	0.00	3.35	3.60	9.03	0.40	0.05	0.00	0.00	0.00	0.00	17.93	-35.49	22.68
1907	0.00	0.00	6.25	13.23	1.95	6.22	0.18	0.00	0.00	0.00	0.00	0.00	27.83	-24.88	24.88
1908	2.72	0.00	0.58	5.73	4.56	0.05	0.94	0.00	0.00	0.00	0.00	0.55	15.13	-26.96	15.48
1909	0.15	2.40	1.10	10.88	5.94	4.88	0.00	0.00	0.00	0.00	0.00	0.00	25.35	-18.83	30.46
1910	0.13	1.36	7.27	2.82	0.00	2.36	0.00	0.00	0.00	0.00	0.00	2.78	16.72	-19.33	9.23
1911	0.62	0.33	0.32	9.54	2.88	5.53	0.00	0.00	0.00	0.00	0.00	0.07	19.29	-17.26	19.23
1912	0.00	0.00	1.21	0.18	0.00	7.17	1.67	0.84	0.00	0.00	0.00	0.00	11.07	-23.40	10.53
1913	0.56	0.11	0.00	3.79	9.51	0.00	0.47	0.00	0.47	0.00	0.50	0.00	15.41	-25.21	20.16
1914	0.00	3.09	2.33	12.73	8.40	0.66	0.76	0.51	0.00	0.00	0.00	0.00	28.48	-13.95	27.67
1915	0.15	0.13	4.33	5.38	9.30	0.98	1.16	1.69	0.00	0.00	0.00	0.00	23.12	-8.05	21.79
1916	0.00	0.68	2.60	18.17	1.07	0.53	0.00	0.00	0.00	0.00	0.00	1.44	24.49	-0.77	30.00
1917	2.36	0.00	6.43	3.24	7.24	0.12	0.37	0.19	0.00	0.00	0.00	0.00	19.95	1.96	11.46
1918	0.00	0.30	0.00	0.26	13.00	6.28	0.00	0.00	0.00	0.26	0.00	1.78	21.88	6.62	25.76
1919	0.00	3.01	1.17	1.33	1.89	2.65	0.00	0.22	0.00	0.00	0.00	1.71	11.98	1.38	10.43
1920	0.33	0.12	2.18	0.41	2.93	5.74	0.82	0.00	0.00	0.00	0.00	0.00	12.53	-3.30	13.39
1921	0.30	1.86	1.33	6.60	1.02	1.99	0.23	3.95	0.00	0.00	0.00	0.17	17.45	-3.07	24.96
1922	0.34	0.00	10.66	4.55	3.43	1.49	0.00	0.46	0.00	0.00	0.00	0.00	20.93	0.64	19.00
1923	0.43	1.63	7.01	1.86	1.03	0.00	2.97	0.00	0.00	0.00	0.00	0.14	15.07	-1.51	6.76
1924	0.72	0.00	0.04	1.94	0.18	3.46	1.23	0.00	0.00	0.00	0.00	0.00	7.57	-11.15	10.03
1925	1.02	1.12	1.08	0.31	1.25	2.25	2.02	0.88	0.08	0.00	0.00	0.00	10.01	-18.36	10.72
1926	0.81	0.89	2.23	2.04	4.42	0.12	5.72	0.16	0.02	0.00	0.00	0.00	16.41	-19.17	19.38
1927	0.13	5.49	1.28	1.89	10.66	2.34	1.53	0.00	0.00	0.00	0.00	0.00	23.32	-13.07	22.17
1928	1.84	1.27	2.64	0.00	2.27	2.25	0.29	0.59	0.00	0.00	0.00	0.00	11.15	-19.13	10.79
1929	0.06	2.04	3.29	2.47	2.10	1.51	1.89	0.00	0.12	0.00	0.00	0.69	14.17	-22.18	8.78
1930	0.00	0.00	0.00	6.58	0.92	3.14	0.17	0.76	0.00	0.00	0.00	0.02	11.59	-27.81	14.29
1931	0.02	2.68	0.00	3.94	4.09	0.00	2.00	1.25	0.00	0.00	0.21	0.00	14.19	-30.84	25.40
1932	0.05	3.13	10.73	5.78	0.09	0.54	0.02	0.05	0.00	0.00	0.00	0.15	20.54	-27.51	7.77
1933	0.24	0.00	0.90	8.84	0.00	0.23	0.32	0.13	0.40	0.00	0.09	0.00	11.15	-33.58	17.31
1934	0.44	0.00	6.86	3.19	3.85	0.00	0.00	0.00	0.00	0.52	0.00	0.08	14.94	-35.86	17.18
1935	1.62	3.16	4.76	3.97	0.82	3.31	3.50	0.00	0.00	0.00	0.25	0.00	21.39	-31.69	15.08
1936	0.37	1.12	1.74	0.17	10.32	1.91	0.69	0.00	0.00	0.00	0.00	0.00	16.32	-32.58	23.60
1937	4.16	0.00	6.35	3.24	7.93	4.48	0.12	0.21	0.00	0.00	0.00	0.00	26.49	-23.31	20.90
1938	0.00	0.00	4.92	0.87	9.49	11.17	1.23	0.09	0.00	0.00	0.00	0.25	28.02	-12.51	30.09
1939	0.00	0.00	6.99	2.95	1.33	2.29	0.53	0.00	0.00	0.00	0.00	1.59	15.68	-14.05	10.22
1940	0.00	0.31	1.22	3.57	5.24	0.73	2.22	0.00	0.00	0.00	0.00	0.00	13.29	-17.97	21.02
1941	1.80	0.15	7.31	5.97	10.52	8.70	3.66	0.00	0.00	0.00	0.00	0.00	38.11	2.92	36.80
1942	1.01	0.44	6.50	0.47	0.54	1.91	3.32	0.00	0.00	0.00	0.00	0.00	14.19	-0.11	8.50
1943	1.07	0.19	1.00	16.53	2.96	6.42	0.81	0.00	0.00	0.00	0.00	0.00	28.98	11.65	34.96
1944	0.14	0.20	7.90	1.44	10.02	3.49	1.18	0.00	0.00	0.00	0.00	0.00	24.37	18.81	20.28
1945	0.00	3.13	1.02	0.02	5.69	5.27	0.00	0.00	0.00	0.00	0.00	0.00	15.13	16.72	16.79
1946	1.00	0.26	4.55	0.25	1.45	3.59	0.22	0.00	0.00	0.00	0.00	0.00	11.32	10.82	16.83
1947	0.45	7.21	3.66	0.46	0.29	0.62	0.08	0.06	0.03	0.00	0.43	0.00	13.29	6.89	3.30
1948	0.05	0.00	1.28	0.00	1.22	3.83	1.79	0.06	0.04	0.00	0.00	0.00	8.27	-2.05	10.18
1949	0.00	0.00	3.24	2.39	1.43	1.54	0.07	1.06	0.06	0.00	0.00	0.00	9.79	-9.48	12.06
1950	0.00	1.18	4.33	3.17	2.59	0.93	1.11	0.00	0.00	0.02	0.00	0.24	13.57	-13.13	9.61
1951	0.45	0.94	0.16	2.53	1.32	0.86	1.89	0.00	0.00	0.00	0.00	0.00	8.15	-22.20	14.92

APPENDIX A - Table A-1. Santa Paula - UWCD Historical Precipitation

WATER YEAR (WY)	MONTHLY PRECIPITATION (inches)												WY PRECIPITATION (inches)	CUMULATIVE DEPARTURE (inches)	CALENDAR YEAR PRECIPITATION (inches)
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
1952	0.88	2.47	4.97	12.29	0.10	9.52	1.68	0.00	0.00	0.00	0.00	0.00	31.91	-7.50	31.27
1953	0.00	3.38	4.30	1.33	0.00	0.55	1.26	0.00	0.00	0.00	0.00	0.00	10.82	-13.90	5.34
1954	0.00	2.13	0.07	4.85	3.38	3.56	0.38	0.00	0.00	0.00	0.00	0.00	14.37	-16.75	14.21
1955	0.00	0.93	1.11	5.25	1.56	0.33	2.24	1.94	0.00	0.00	0.02	0.00	13.38	-20.59	15.84
1956	0.00	1.38	3.12	6.98	0.72	0.00	2.18	0.95	0.00	0.00	0.00	0.00	15.33	-22.47	11.09
1957	0.01	0.00	0.25	5.75	1.88	2.07	1.17	0.62	0.16	0.00	0.00	0.00	11.91	-27.78	19.05
1958	2.48	0.53	4.39	2.82	7.27	8.14	5.48	0.00	0.00	0.00	0.00	0.26	31.37	-13.63	24.09
1959	0.05	0.07	0.00	2.07	3.91	0.00	0.55	0.00	0.00	0.00	0.00	0.02	6.67	-24.18	8.03
1960	0.09	0.00	1.39	3.95	2.80	0.50	2.70	0.00	0.00	0.00	0.00	0.00	11.43	-29.96	14.75
1961	0.00	4.27	0.53	1.24	0.00	0.49	0.02	0.00	0.00	0.00	0.03	0.04	6.62	-40.56	6.45
1962	0.00	3.57	1.06	2.46	17.26	1.27	0.00	0.07	0.01	0.00	0.00	0.00	25.70	-32.08	21.42
1963	0.31	0.00	0.04	0.69	8.04	0.00	2.47	0.11	0.49	0.00	0.17	1.37	13.69	-35.61	17.18
1964	0.46	3.30	0.08	2.68	0.00	2.00	0.76	0.02	0.11	0.00	0.01	0.00	9.42	-43.40	12.09
1965	0.66	1.30	4.55	0.54	0.07	1.08	4.94	0.00	0.01	0.02	0.11	0.18	13.46	-47.16	21.51
1966	0.00	9.60	4.96	1.52	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.09	17.24	-47.14	12.76
1967	0.20	3.62	6.26	4.58	0.24	2.24	5.02	0.04	0.00	0.00	0.00	0.32	22.52	-41.84	20.04
1968	0.00	6.39	1.21	0.99	1.24	3.47	0.90	0.03	0.00	0.00	0.19	0.00	14.42	-44.63	9.78
1969	0.80	0.68	1.48	17.95	7.75	0.85	0.96	0.01	0.00	0.09	0.00	0.01	30.58	-31.27	29.49
1970	0.00	1.79	0.08	2.34	3.70	6.04	0.00	0.00	0.00	0.00	0.00	0.00	13.95	-34.54	26.49
1971	0.02	7.09	7.30	1.01	0.71	0.69	0.59	0.51	0.00	0.00	0.00	0.01	17.93	-33.83	12.09
1972	0.11	0.43	8.03	0.12	0.26	0.00	0.08	0.04	0.04	0.00	0.00	0.00	9.11	-41.93	6.35
1973	0.31	4.57	0.93	5.89	9.00	2.61	0.00	0.01	0.00	0.00	0.00	0.00	23.32	-35.83	20.81
1974	0.24	1.95	1.11	9.52	0.06	2.93	0.07	0.00	0.00	0.00	0.00	0.00	15.88	-37.17	20.67
1975	1.03	0.10	6.96	0.00	3.86	4.59	1.46	0.00	0.00	0.00	0.00	0.06	18.06	-36.33	10.22
1976	0.18	0.00	0.07	0.00	5.33	1.39	0.72	0.02	0.10	0.01	0.00	4.05	11.87	-41.67	12.49
1977	0.00	0.22	0.65	6.74	0.21	2.04	0.00	2.03	0.00	0.00	0.99	0.00	12.88	-46.01	16.72
1978	0.03	0.15	4.53	8.11	8.54	11.57	2.25	0.00	0.00	0.00	0.00	0.90	36.08	-27.15	35.90
1979	0.18	2.03	2.32	6.37	3.97	7.17	0.00	0.02	0.02	0.00	0.00	0.09	22.17	-22.20	20.74
1980	0.46	0.83	1.81	8.32	12.95	3.82	0.41	0.23	0.00	0.00	0.00	0.02	28.85	-10.56	27.02
1981	0.00	0.00	1.27	2.26	1.58	6.07	0.68	0.02	0.00	0.00	0.00	0.00	11.88	-15.90	13.87
1982	0.50	2.20	0.56	2.55	0.58	5.66	1.93	0.00	0.00	0.00	0.00	0.86	14.84	-18.28	19.22
1983	0.53	4.53	2.58	9.52	5.35	6.76	4.27	0.10	0.00	0.00	0.97	1.02	35.63	0.13	38.31
1984	2.96	3.36	4.00	0.00	0.00	0.37	0.09	0.00	0.00	0.00	0.04	0.33	11.15	-5.93	7.84
1985	0.22	2.86	3.93	1.84	1.06	1.18	0.00	0.01	0.00	0.02	0.00	0.04	11.16	-11.99	8.91
1986	0.43	3.62	0.71	3.60	8.72	4.59	1.21	0.00	0.00	0.00	0.00	0.65	23.53	-5.68	20.74
1987	0.03	1.64	0.30	1.85	1.02	2.16	0.21	0.02	0.05	0.09	0.00	0.03	7.40	-15.50	12.73
1988	1.48	1.18	4.64	2.63	2.07	0.67	3.22	0.00	0.04	0.00	0.00	0.00	15.93	-16.78	13.98
1989	0	1.08	4.27	0.49	3.50	0.80	0.04	0.22	0.00	0.00	0.00	0.05	10.45	-23.55	5.90
1990	0.27	0.43	0.10	2.74	2.49	0.00	0.44	0.74	0.00	0.00	0.04	0.00	7.25	-33.52	7.03
1991	0.00	0.52	0.06	1.18	2.87	13.64	0.04	0.00	0.03	0.00	0.01	0.05	18.40	-32.34	22.49
1992	0.40	0.17	4.10	2.48	12.51	7.02	0.04	0.01	0.00	0.36	0.00	0.00	27.09	-22.46	29.10
1993	1.65	0.00	5.03	10.62	10.66	3.77	0.00	0.14	0.65	0.00	0.00	0.00	32.52	-7.16	28.59
1994	0.28	0.79	1.68	0.60	6.29	2.98	0.31	0.35	0.00	0.00	0.00	0.11	13.39	-10.99	13.85
1995	0.98	1.05	1.18	19.87	1.34	9.02	0.47	1.04	0.37	0.02	0.00	0.00	35.34	7.13	34.32
1996	0.00	0.15	2.04	1.04	7.85	2.04	0.50	0.28	0.00	0.00	0.00	0.00	13.90	3.82	23.11
1997	2.47	2.57	6.36	6.67	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.12	18.41	5.01	16.10
1998	0.00	2.31	6.78	2.79	20.13	3.87	2.03	6.04	0.01	0.00	0.00	0.81	44.77	32.56	37.13
1999	0.00	0.83	0.62	2.44	1.02	2.65	2.56	0.00	0.38	0.00	0.00	0.17	10.67	26.01	9.98
2000	0.00	0.76	0	1.92	6.76	2.56	2.61	0.00	0.00	0.00	0.00	0.15	14.76	23.56	15.48
2001	1.47	0.00	0.01	7.02	9.21	7.10	1.73	0.00	0.00	0.00	0.00	0.00	26.54	32.87	30.06
2002	0.27	3.21	1.52	1.02	0.38	0.37	0.07	0.09	0.00	0.00	0.00	0.05	6.98	22.64	10.48
2003	0.00	5.22	3.28	0.00	4.75	3.53	1.77	1.30	0.09	0.00	0.00	0.00	19.94	25.36	16.02
2004	0.00	2.73	1.85	0.64	6.78	0.49	0.33	0.00	0.00	0.00	0.00	0.00	12.82	20.96	18.63
2005	4.74	0.03	5.62	15.85	10.56	2.53	0.80	0.25	0.00	0.00	0.00	0.16	40.54	44.28	32.37
2006	1.00	0.70	0.52	3.41	3.58	4.00	3.87	1.17	0.00	0.00	0.00	0.00	18.25	45.32	17.29
2007	0.27	0.10	0.89	2.04	0.79	0.07	0.84	0.00	0.00	0.00	0.00	0.30	5.30	33.40	7.90
2008	0.26	0.15	3.45	10.78	1.85	0.00	0.05	0.04	0.00	0.00	0.00	0.00	16.58	32.76	17.43
2009	0.10	2.34	2.27	0.81	5.45	0.57	0.12	0.00	0.01	0.00	0.00	0.00	11.67	27.22	13.07
2010	2.66	0.00	3.45	7.29	3.51	0.41	1.87	0.13	0.00	0.01	0.00	0.00	19.33	29.33	26.01
2011	2.11	1.07	9.61	0.30	3.64	6.03	0.00	0.89	0.14	0.00	0.00	0.01	23.80	35.91	14.62
2012	1.58	1.87	0.16	1.35	0.03	2.93	2.20	0.00	0.00	0.00	0.05	0.01	10.18	28.87	10.22
2013	0.00	1.60	2.05	1.25	0.09	0.90	0.02	0.11	0.00	0.01	0.00	0.00	6.03	17.68	3.28

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WATER YEAR (WY)	MONTHLY PRECIPITATION (inches)												WY PRECIPITATION (inches)	CUMULATIVE DEPARTURE (inches)	CALENDAR YEAR PRECIPITATION (inches)
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
2014	0.02	0.56	0.32	0.00	3.32	1.83	0.03	0.03	0.00	0.00	0.01	0.00	6.12	6.59	5.71
2015	0.00	0.85	3.76	1.63	0.63	0.62	0.21	0.37	0.10	1.63	0.00	0.83	10.63	0.00	10.83
2016	0.04	0.02	0.43	---	---	---	---	---	---	---	---	---	---	---	---
AVERAGE:	0.59	1.46	2.76	3.87	3.88	2.93	1.03	0.34	0.03	0.03	0.03	0.25	17.22	---	17.03
MEDIAN:	0.18	0.79	1.68	2.51	2.84	2.25	0.52	0.01	0.00	0.00	0.00	0.00	14.89	---	15.48

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APPENDIX A - Table A-2. Santa Clara River at Freeman Diversion Historical Annual Streamflow

WATER YEAR	ACRE-FEET	WATER YEAR	ACRE-FEET	WATER YEAR	ACRE-FEET	WATER YEAR	ACRE-FEET
1956	30,140	**1972**	58,807	**1988**	76,426	**2004**	59,397
1957	18,668	**1973**	265,962	**1989**	26,610	**2005**	1,153,883
1958	352,671	**1974**	123,279	**1990**	10,787	**2006**	246,950
1959	55,462	**1975**	110,294	**1991**	117,639	**2007**	51,065
1960	14,557	**1976**	37,116	**1992**	333,441	**2008**	214,847
1961	6,209	**1977**	28,818	**1993**	963,059	**2009**	74,645
1962	272,542	**1978**	748,780	**1994**	131,823	**2010**	143,938
1963	28,495	**1979**	297,212	**1995**	908,663	**2011**	257,205
1964	15,345	**1980**	523,154	**1996**	125,982	**2012**	57,761
1965	23,696	**1981**	108,357	**1997**	166,052	**2013**	22,696
1966	207,602	**1982**	103,255	**1998**	788,007	**2014**	23,213
1967	205,577	**1983**	719,692	**1999**	119,559	**2015**	6,670
1968	54,656	**1984**	136,205	**2000**	130,933		
1969	982,425	**1985**	54,431	**2001**	251,235		
1970	129,540	**1986**	226,857	**2002**	58,072		
1971	130,717	**1987**	38,796	**2003**	93,844		
						AVERAGE	212,062
						MEDIAN	118,599

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APPENDIX A - Table A-3. Santa Paula Creek Historical Annual Streamflow

WATER YEAR	ACRE-FEET	WATER YEAR	ACRE-FEET	WATER YEAR	ACRE-FEET	WATER YEAR	ACRE-FEET
1928	1,332	**1951**	992	**1974**	11,552	**1997**	18,015
1929	1,801	**1952**	30,882	**1975**	11,506	**1998**	80,799
1930	1,554	**1953**	4,340	**1976**	3,906	**1999**	5,562
1931	3,014	**1954**	5,861	**1977**	2,361	**2000**	8,609
1932	19,958	**1955**	3,012	**1978**	87,150	**2001**	24,461
1933	7,485	**1956**	5,257	**1979**	20,453	**2002**	2,513
1934	11,353	**1957**	3,527	**1980**	34,108	**2003**	8,563
1935	12,830	**1958**	47,074	**1981**	5,818	**2004**	5,054
1936	13,444	**1959**	5,593	**1982**	9,177	**2005**	107,309
1937	31,909	**1960**	2,123	**1983**	70,594	**2006**	22,708
1938	44,310	**1961**	1,254	**1984**	8,017	**2007**	3,305
1939	8,465	**1962**	26,203	**1985**	3,394	**2008**	27,945
1940	5,297	**1963**	3,340	**1986**	20,486	**2009**	4,393
1941	57,682	**1964**	3,026	**1987**	3,179	**2010**	16,342
1942	6,882	**1965**	4,665	**1988**	7,361	**2011**	32,887
1943	39,739	**1966**	28,458	**1989**	2,893	**2012**	4,465
1944	22,425	**1967**	37,423	**1990**	2,485	**2013**	1,168
1945	12,172	**1968**	7,866	**1991**	15,214	**2014**	1,788
1946	11,194	**1969**	112,696	**1992**	33,768	**2105**	1,028
1947	7,295	**1970**	7,779	**1993**	71,474		
1948	1,715	**1971**	12,795	**1994**	8,351		
1949	1,965	**1972**	4,492	**1995**	63,209		
1950	3,492	**1973**	35,236	**1996**	8,752		
						AVERAGE	18,220
						MEDIAN	8,184

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APPENDIX B - Groundwater Elevation Hydrographs and Map of Index Well Locations

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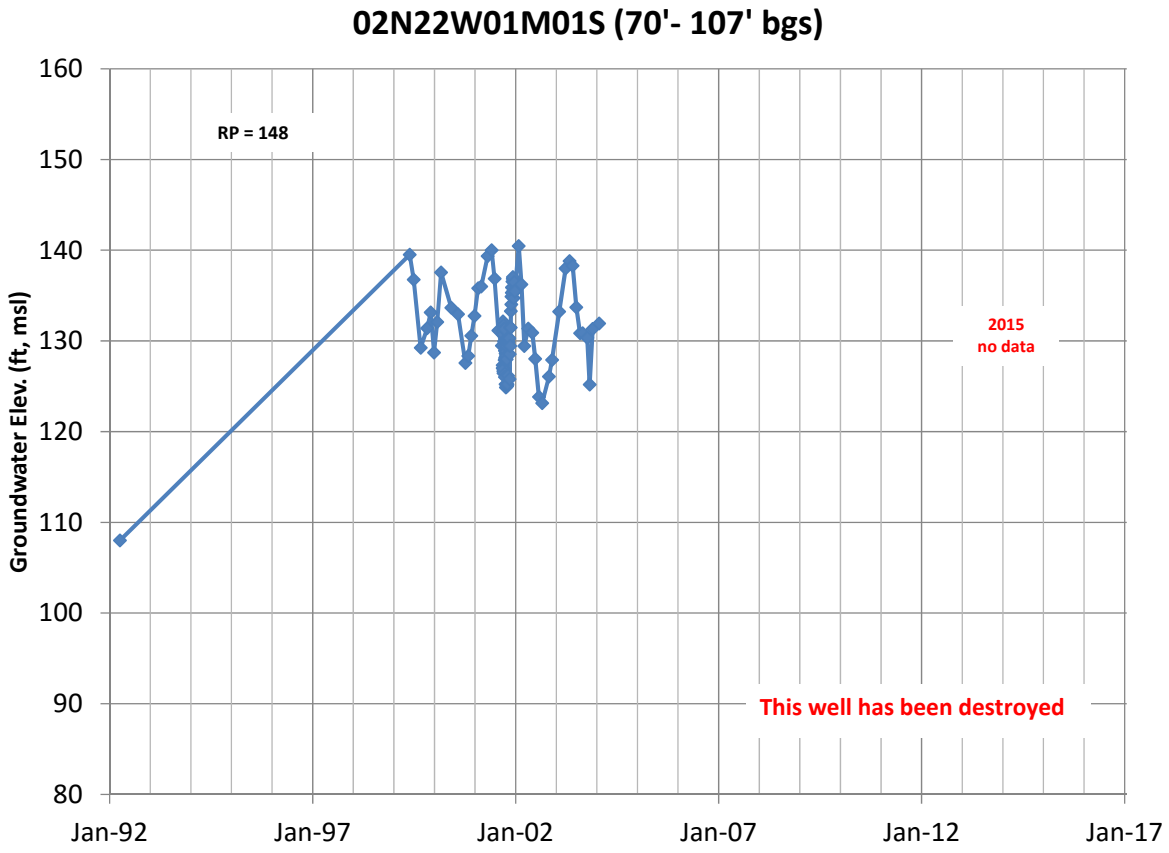

Figure B-1
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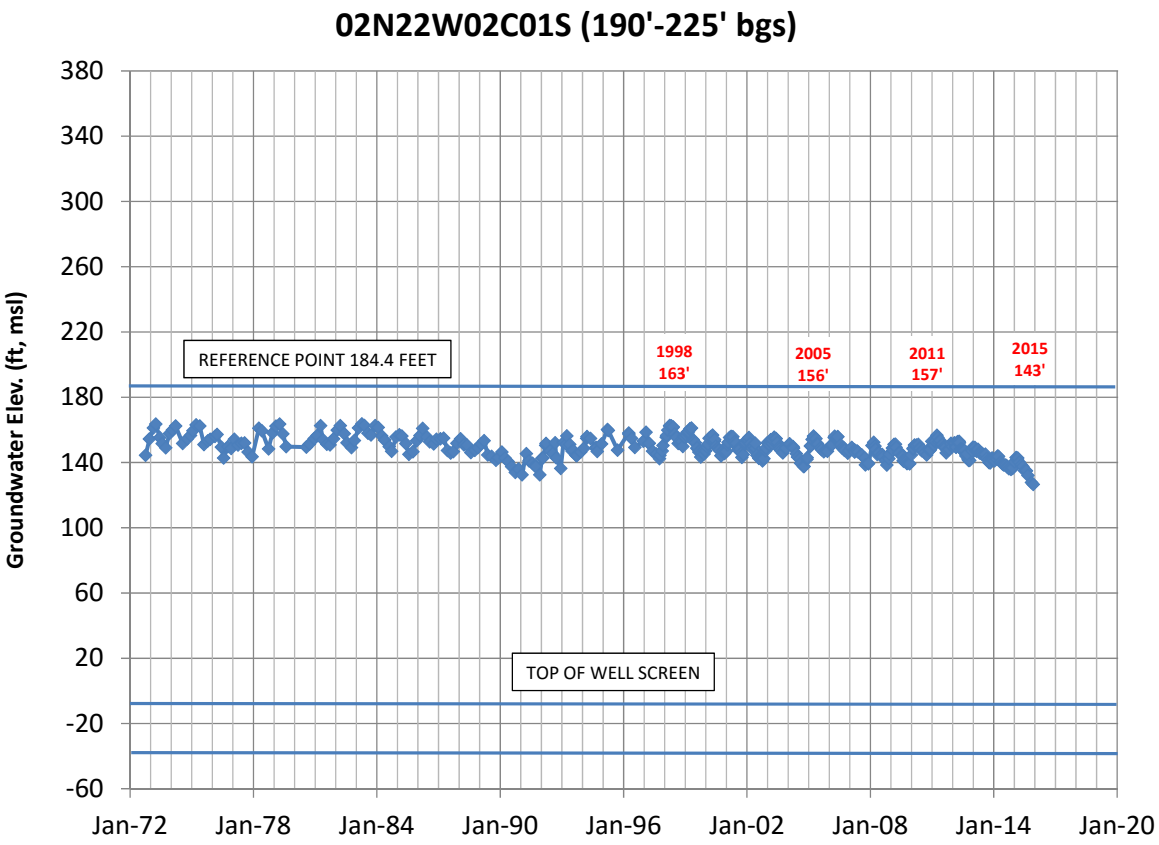

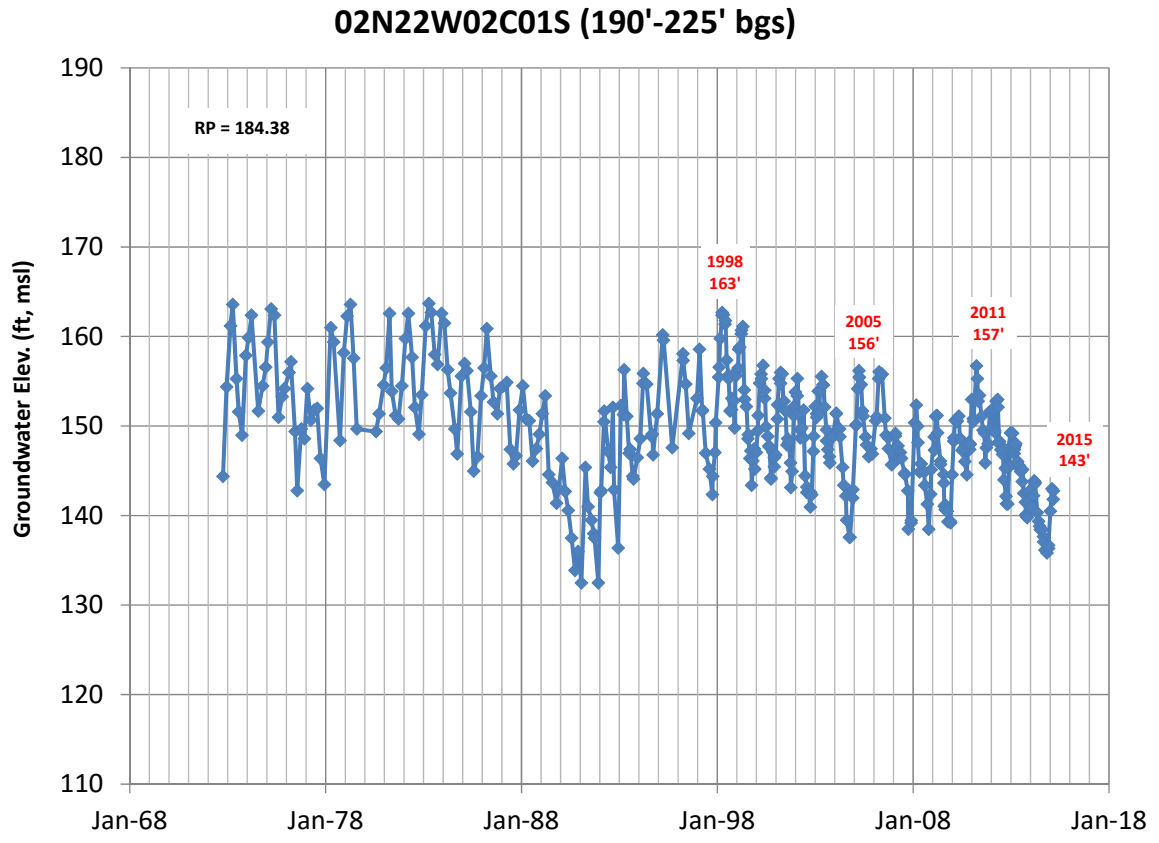

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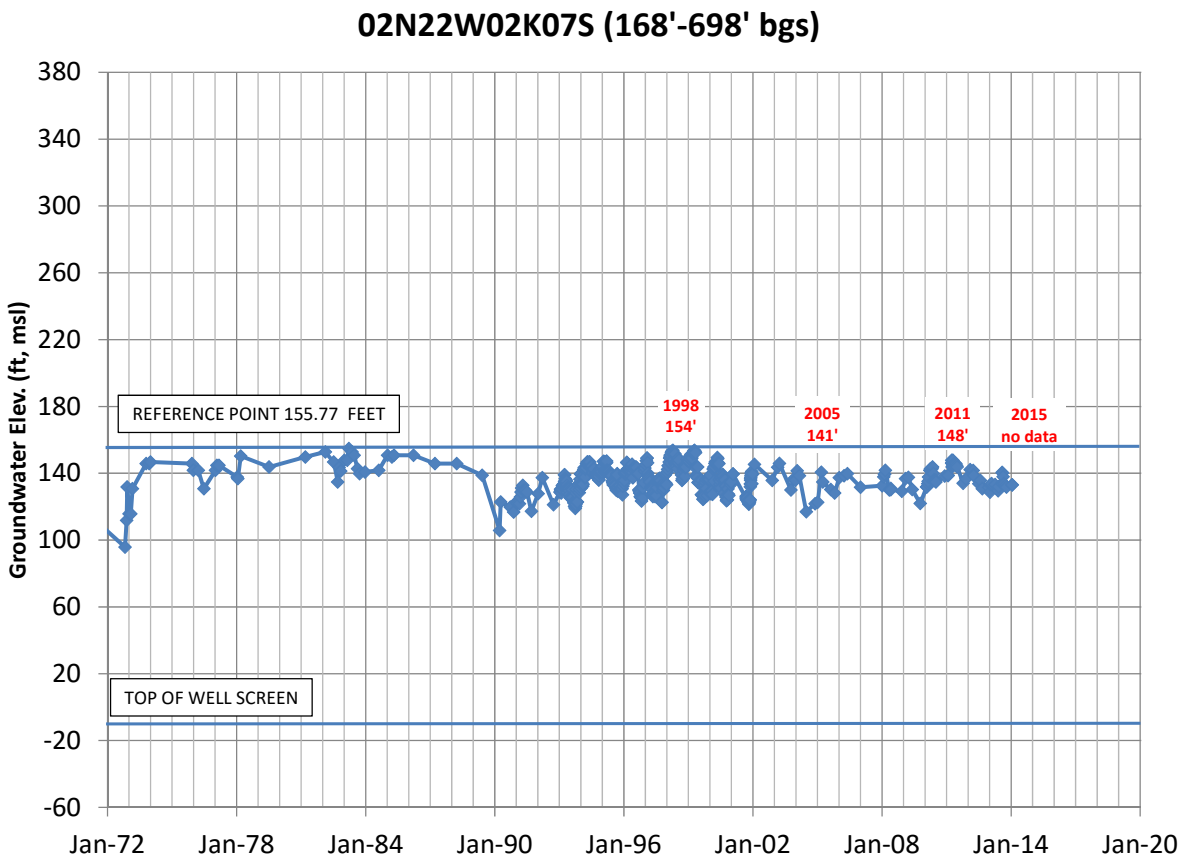

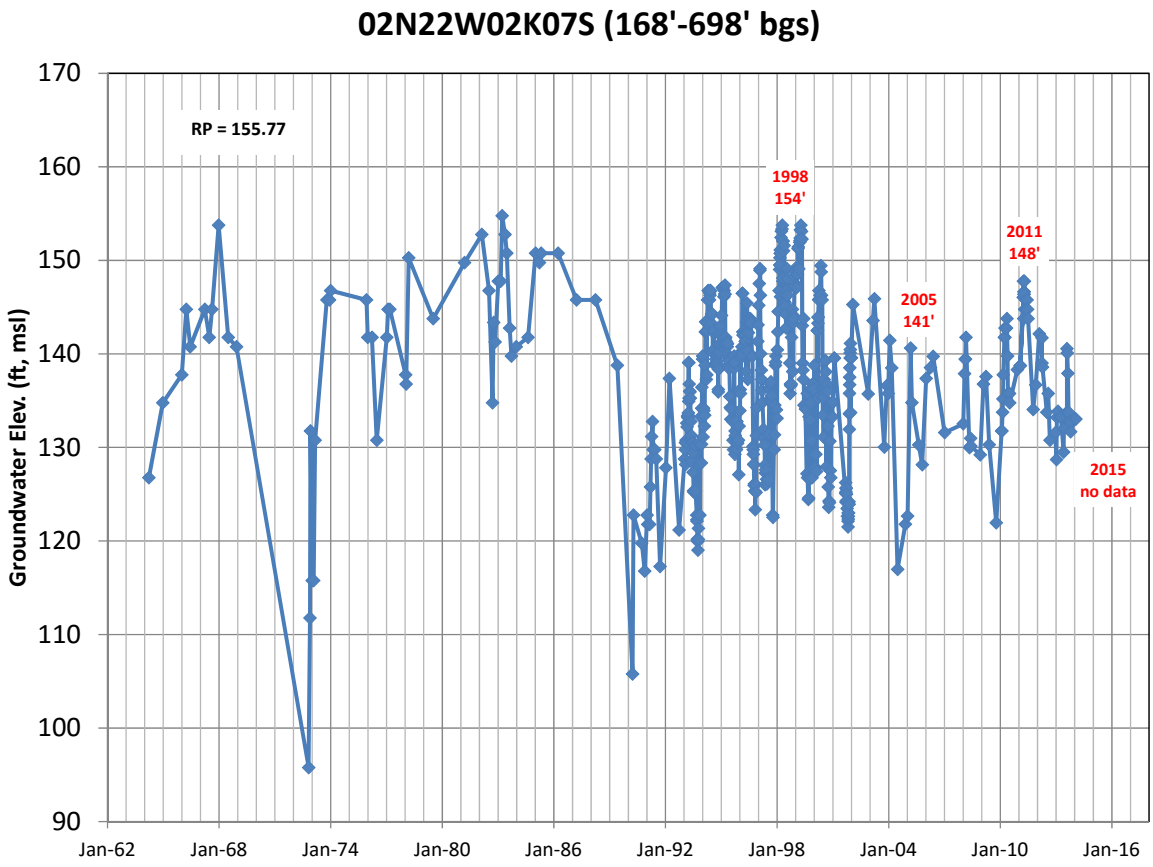

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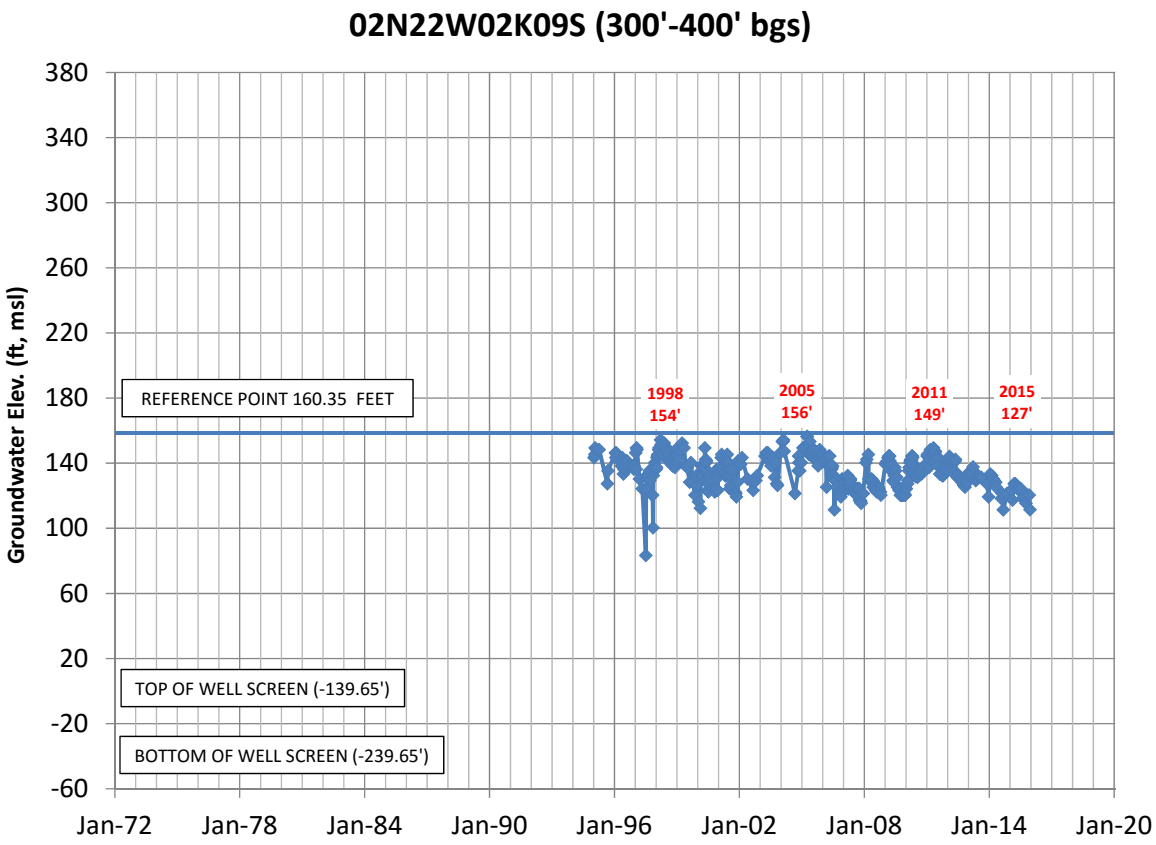

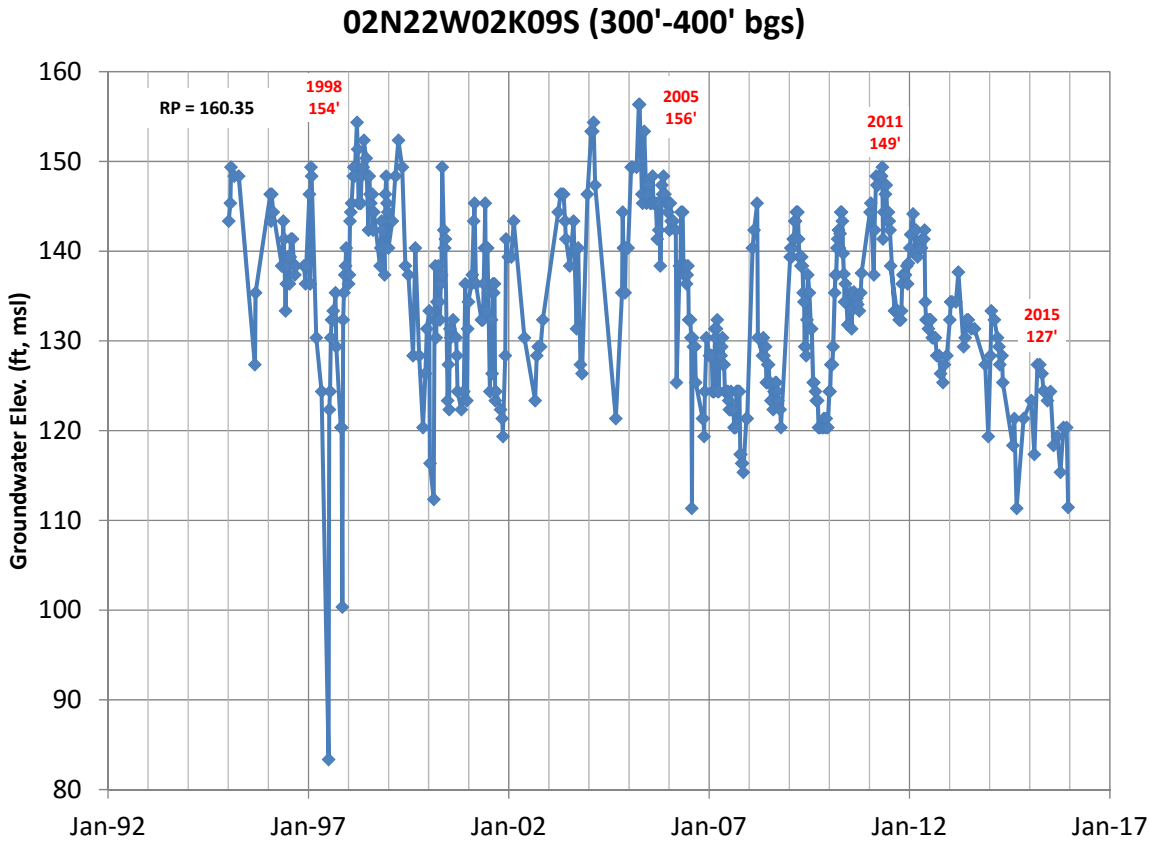

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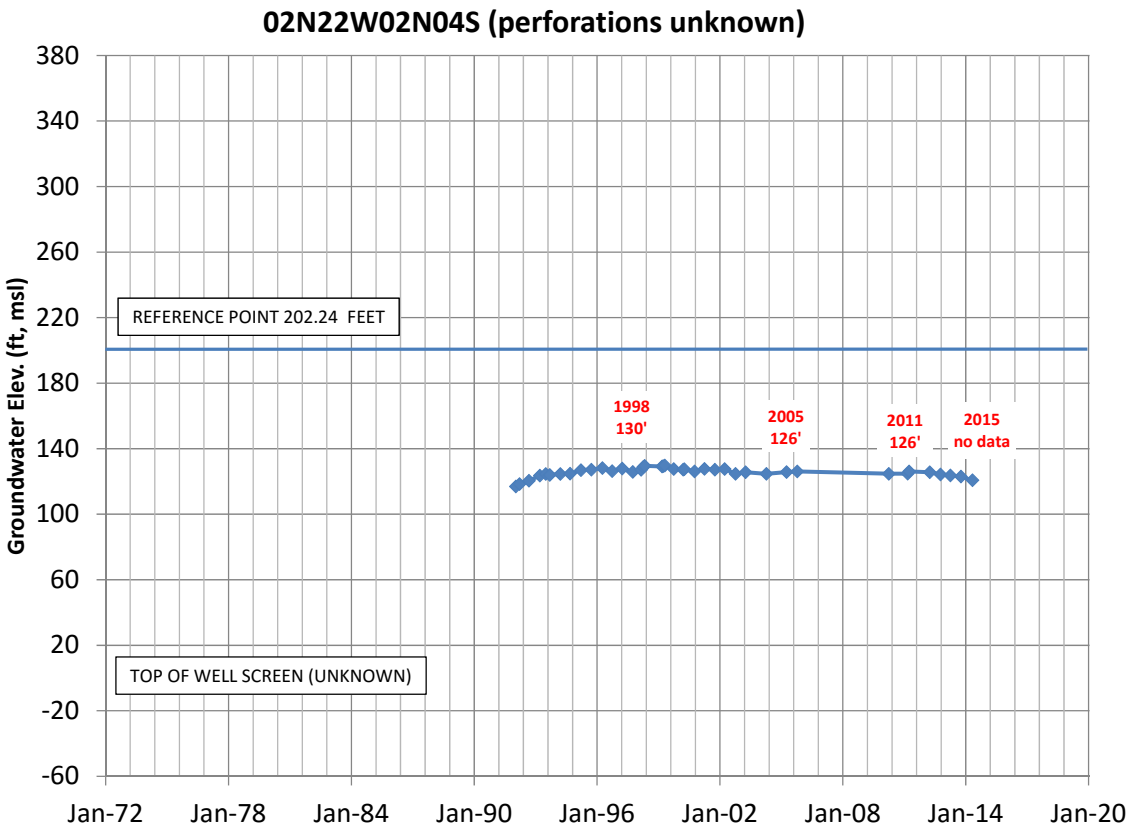

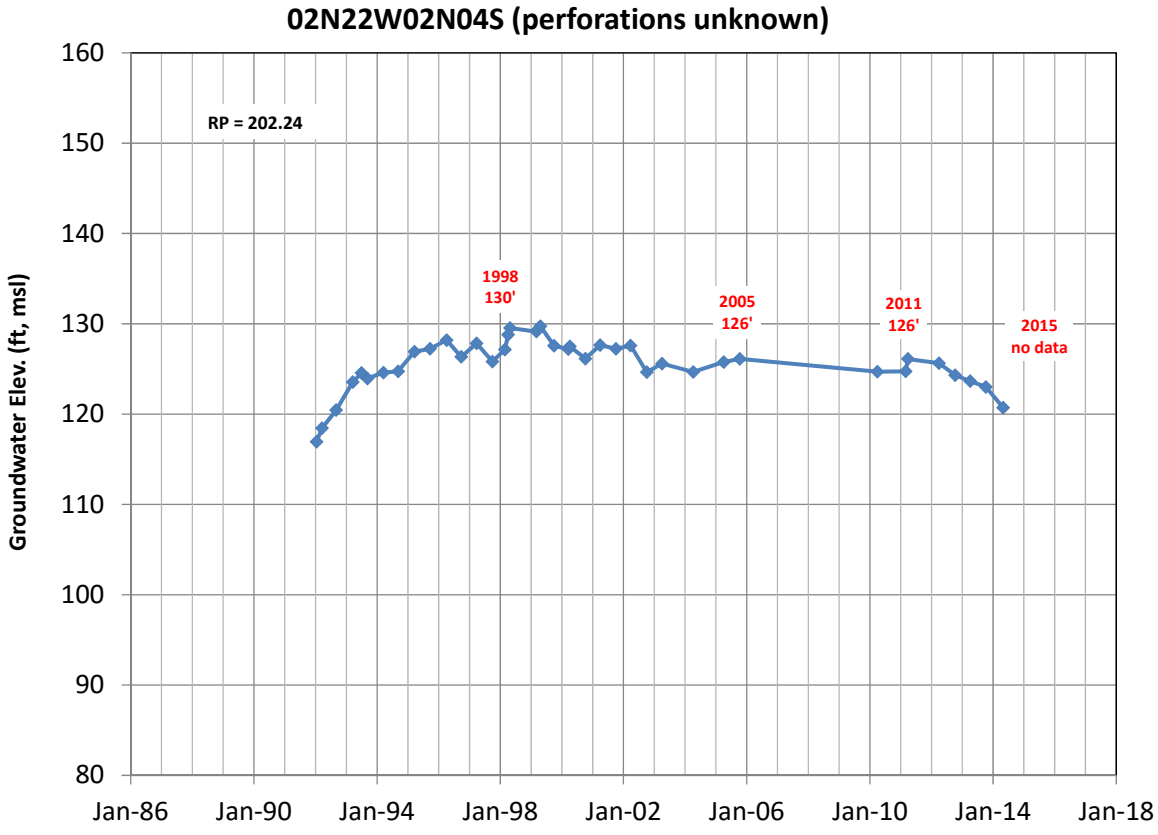

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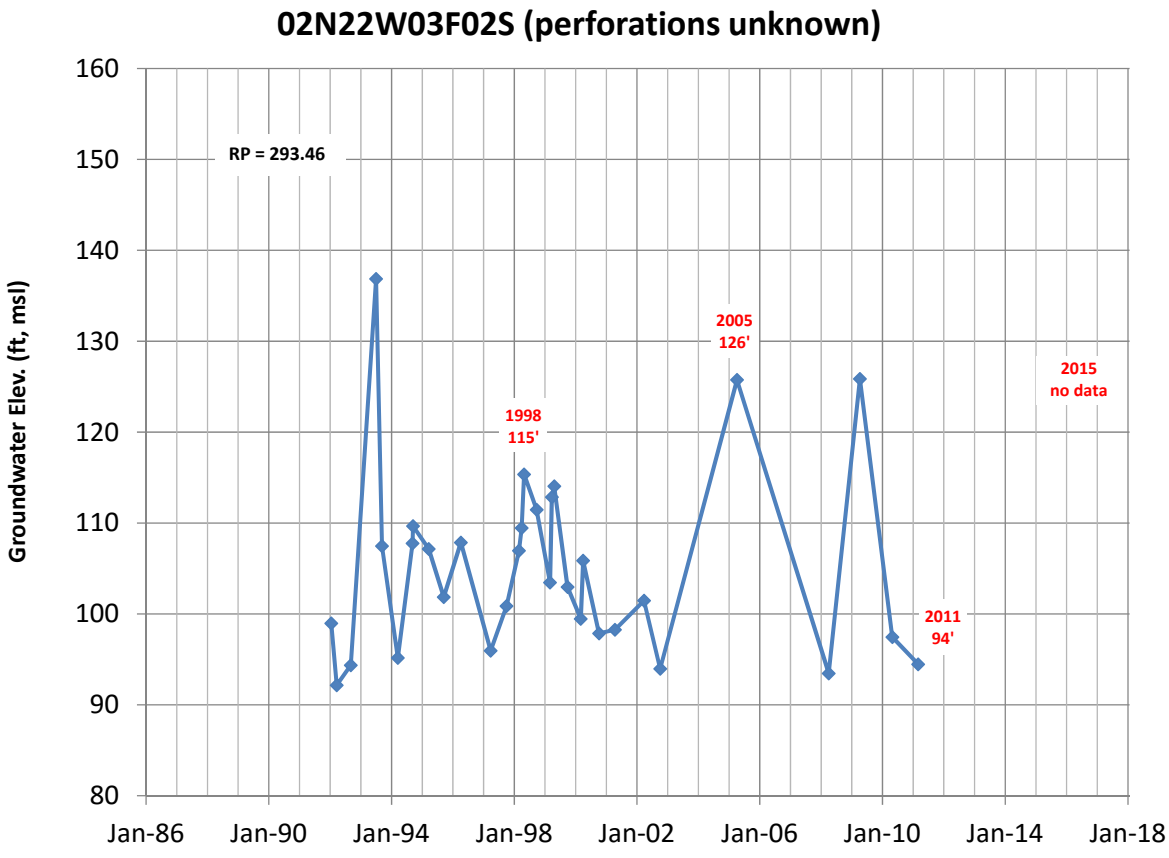

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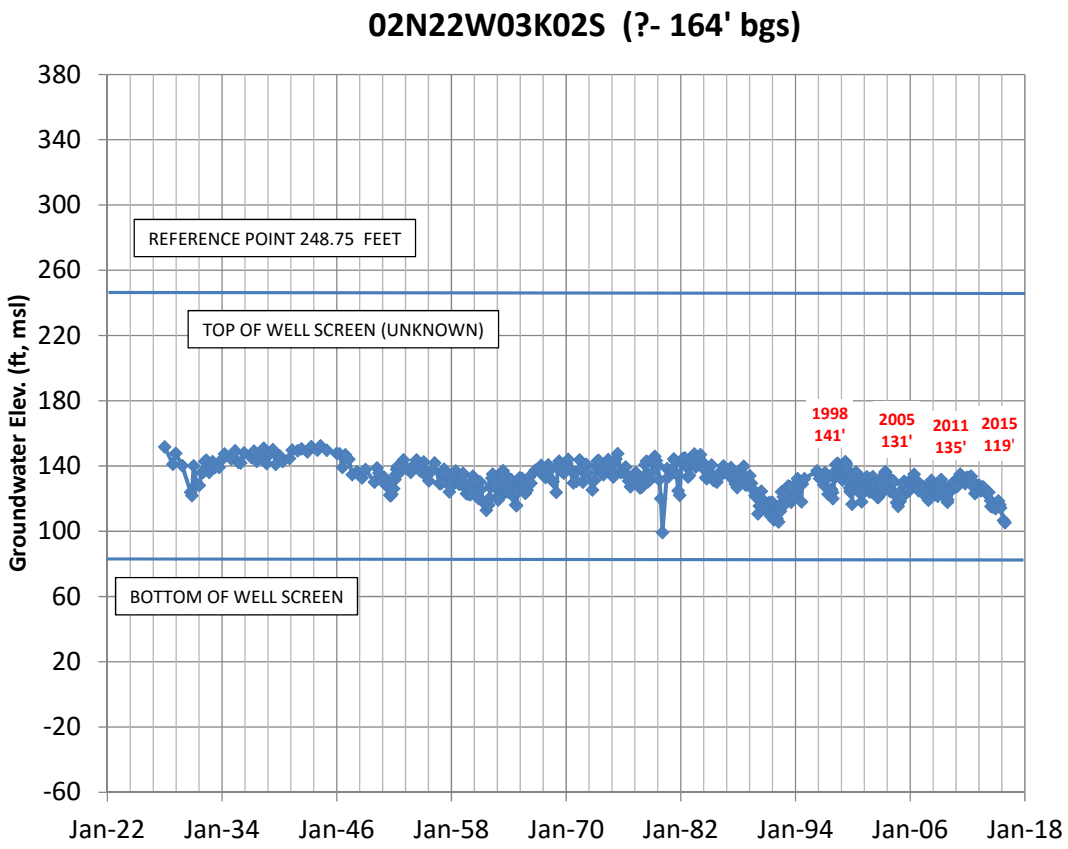

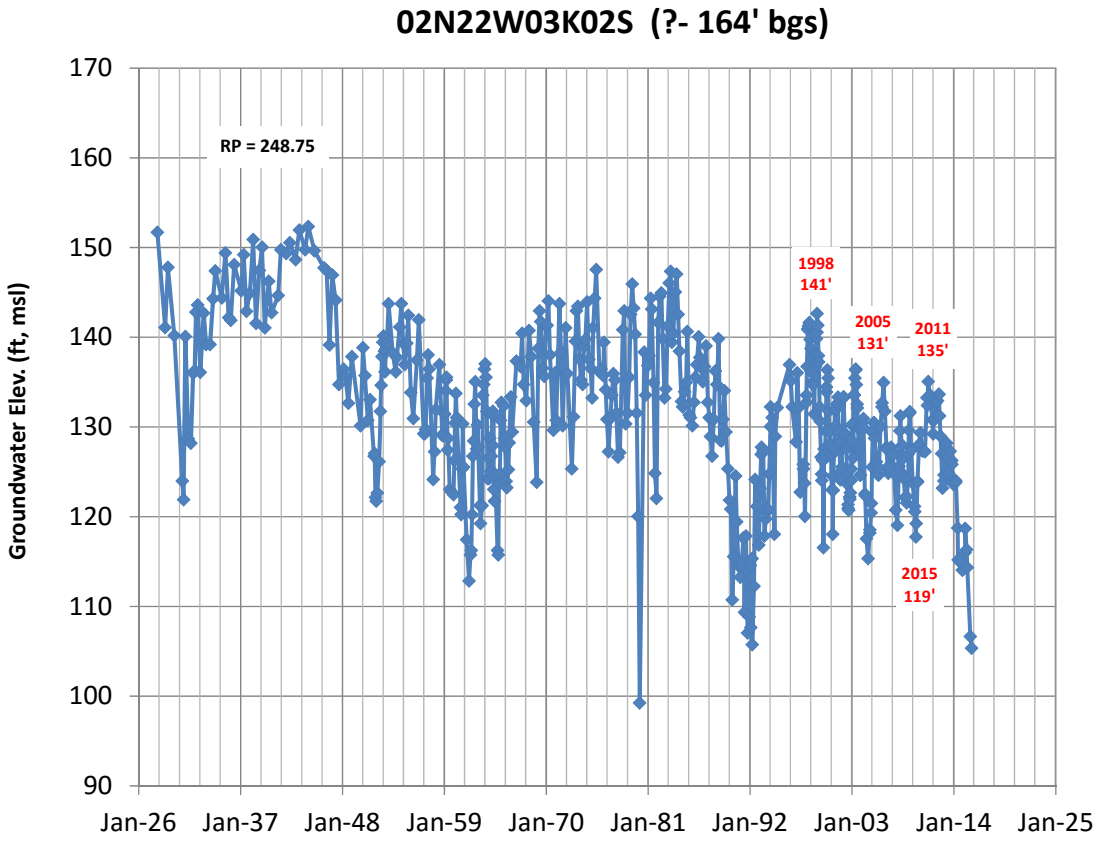

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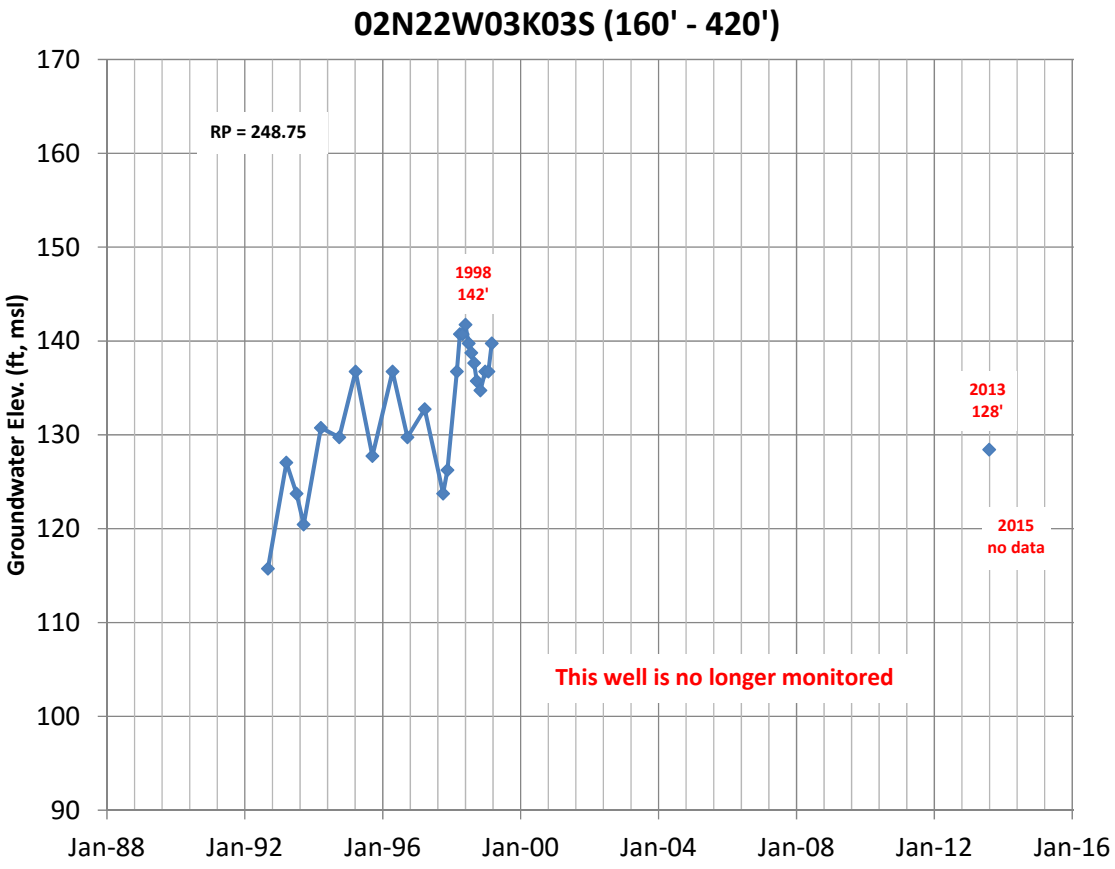

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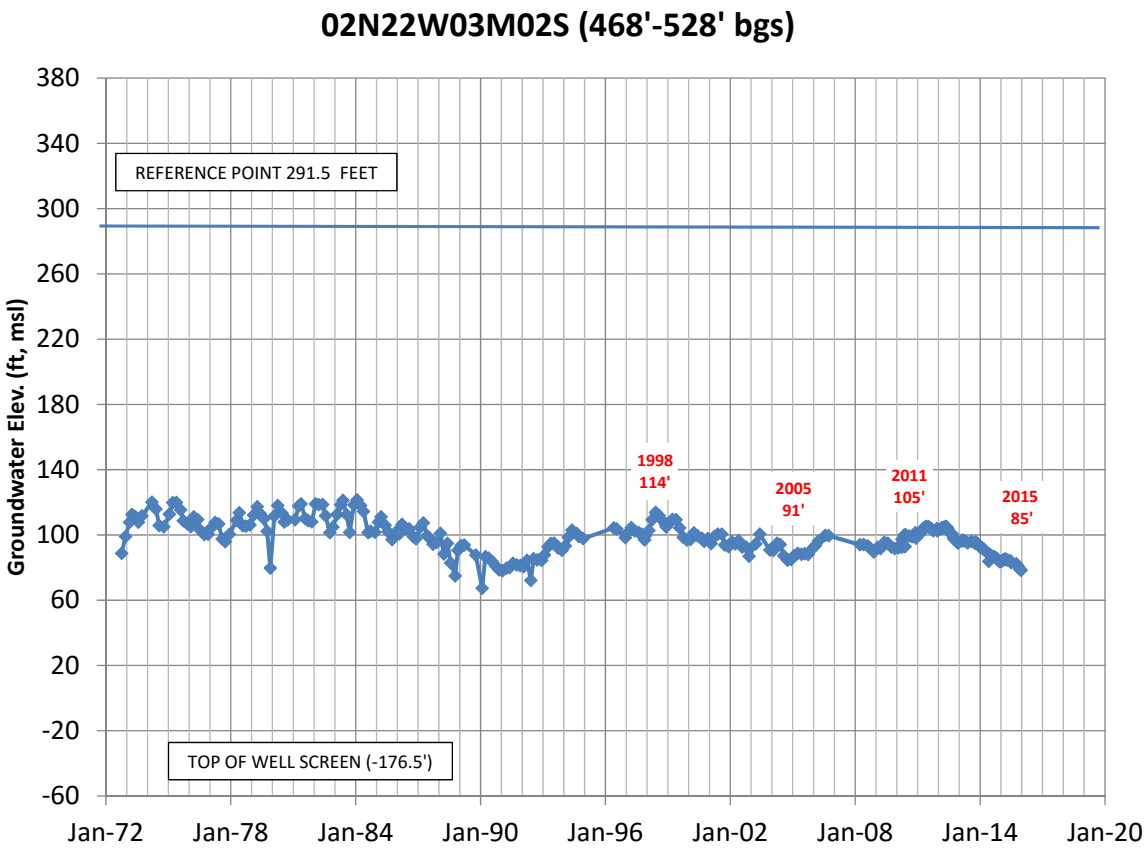

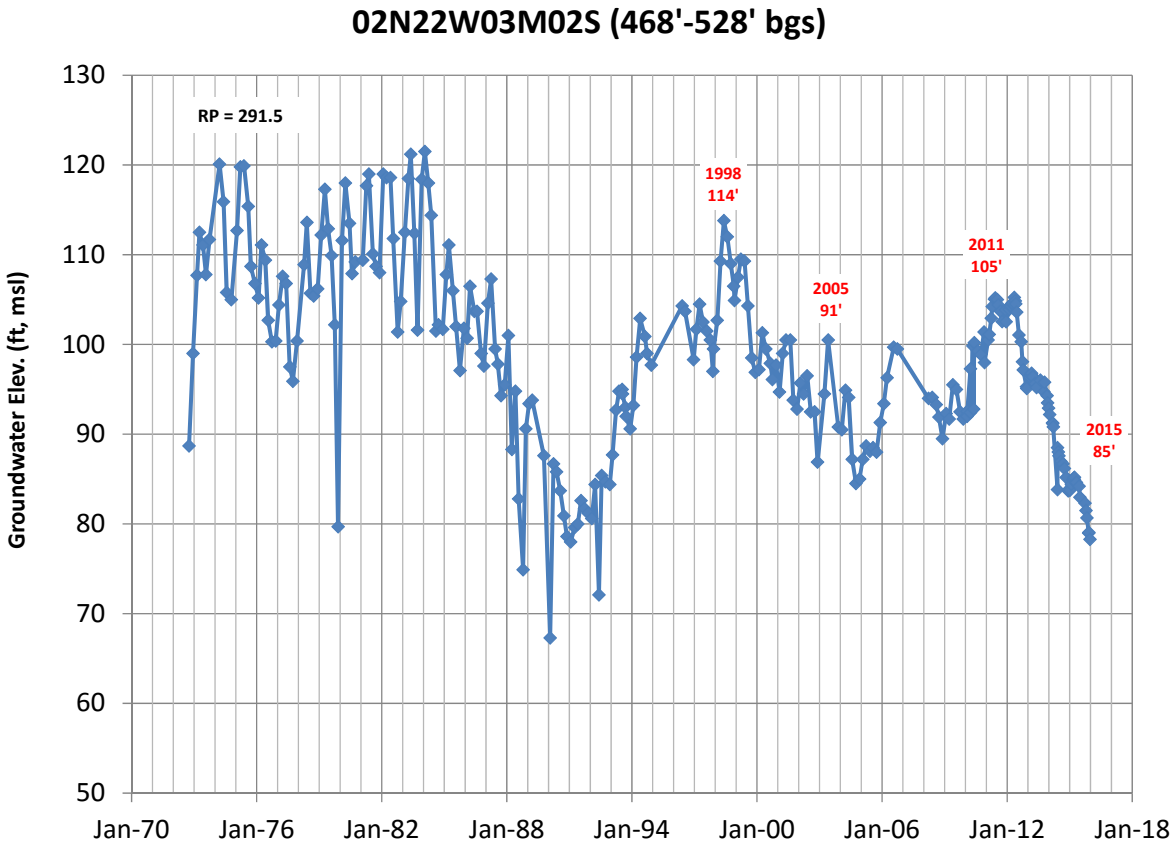

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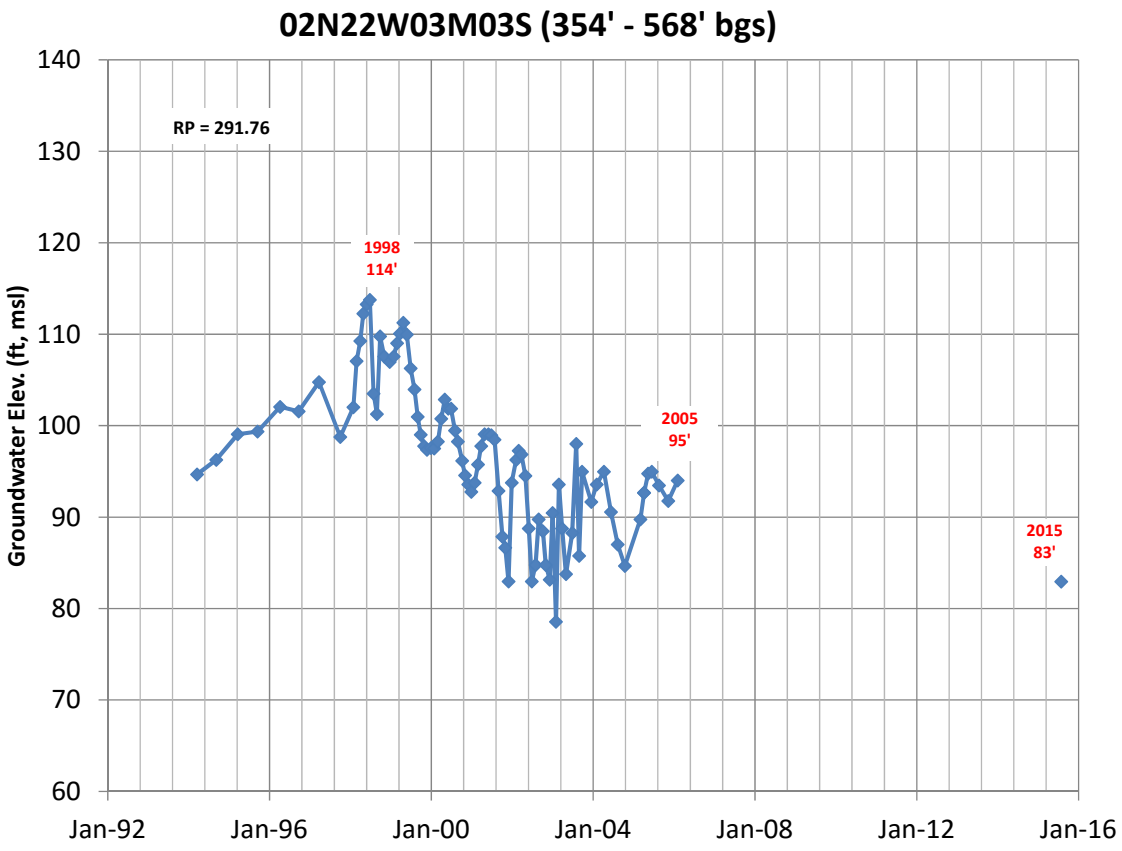

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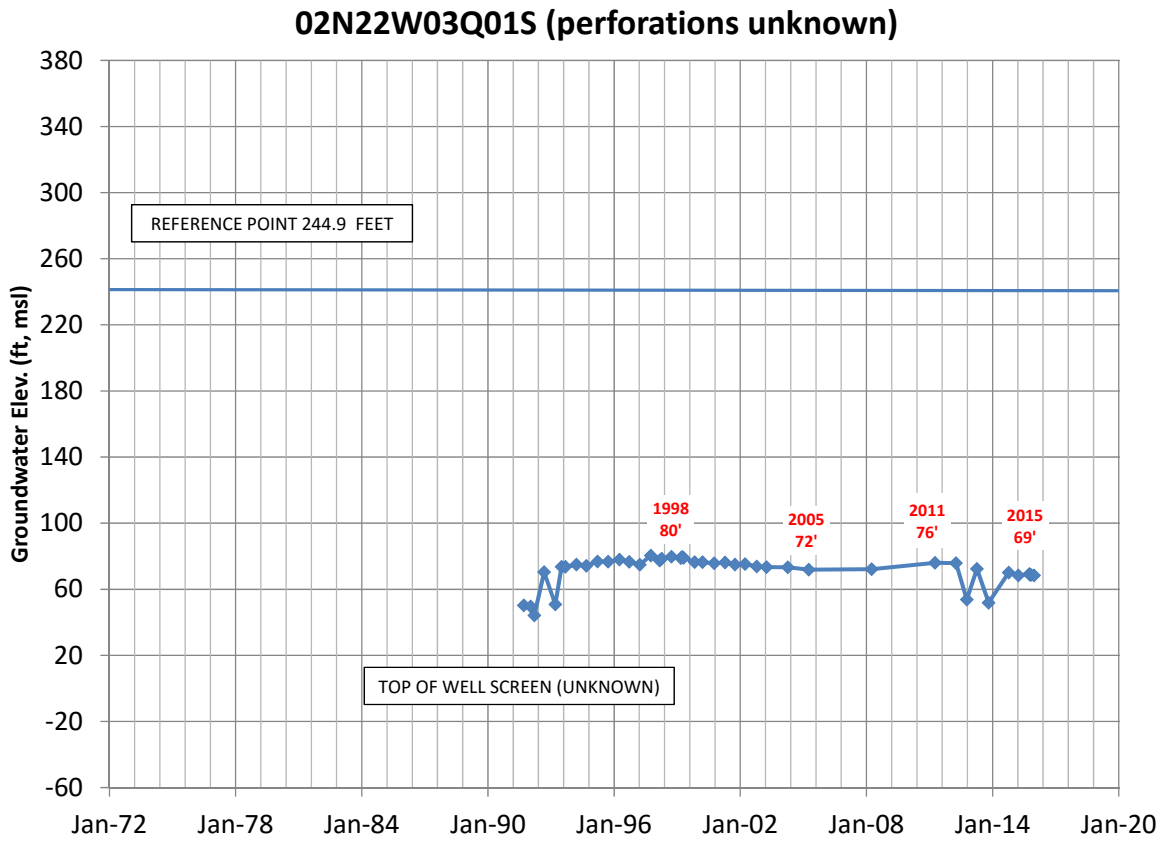

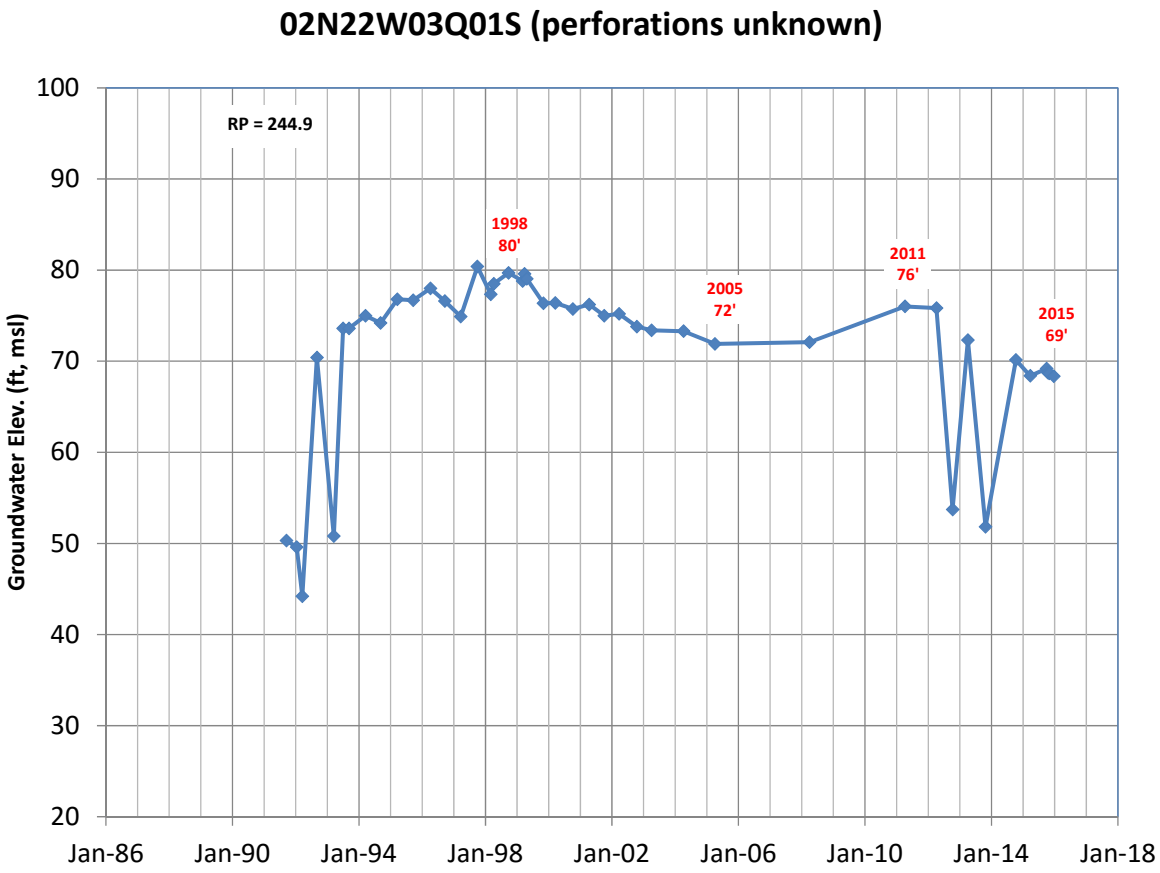

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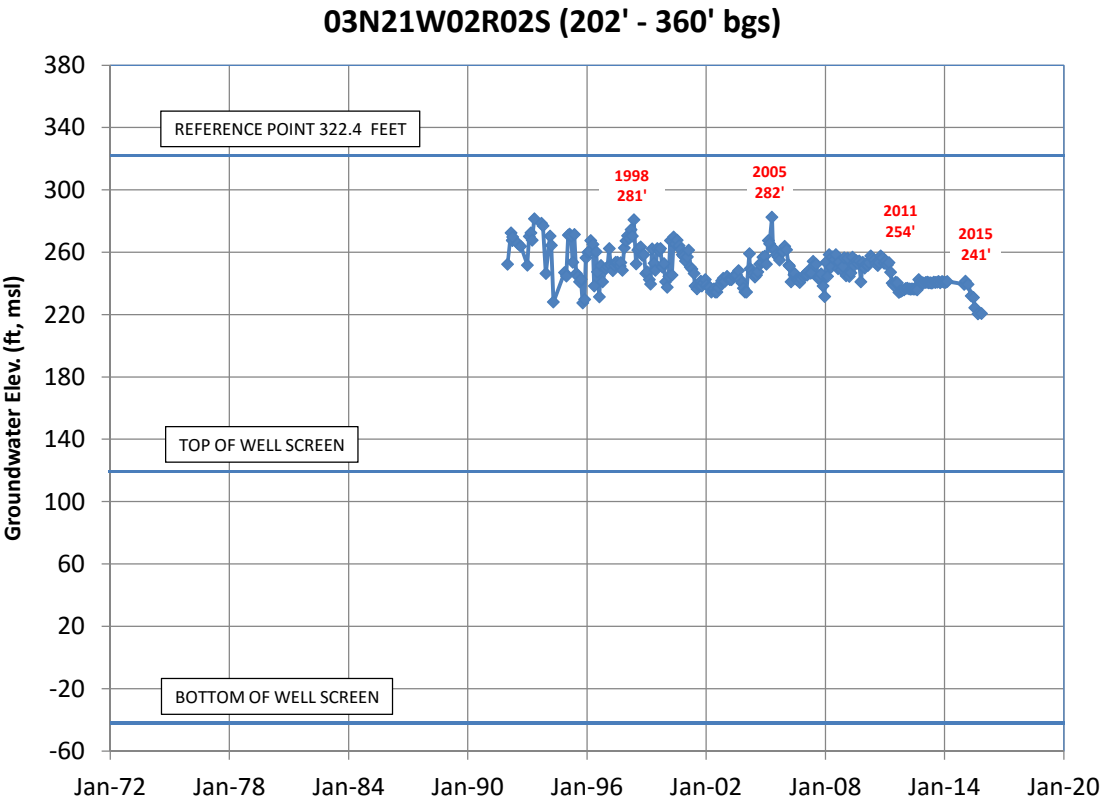

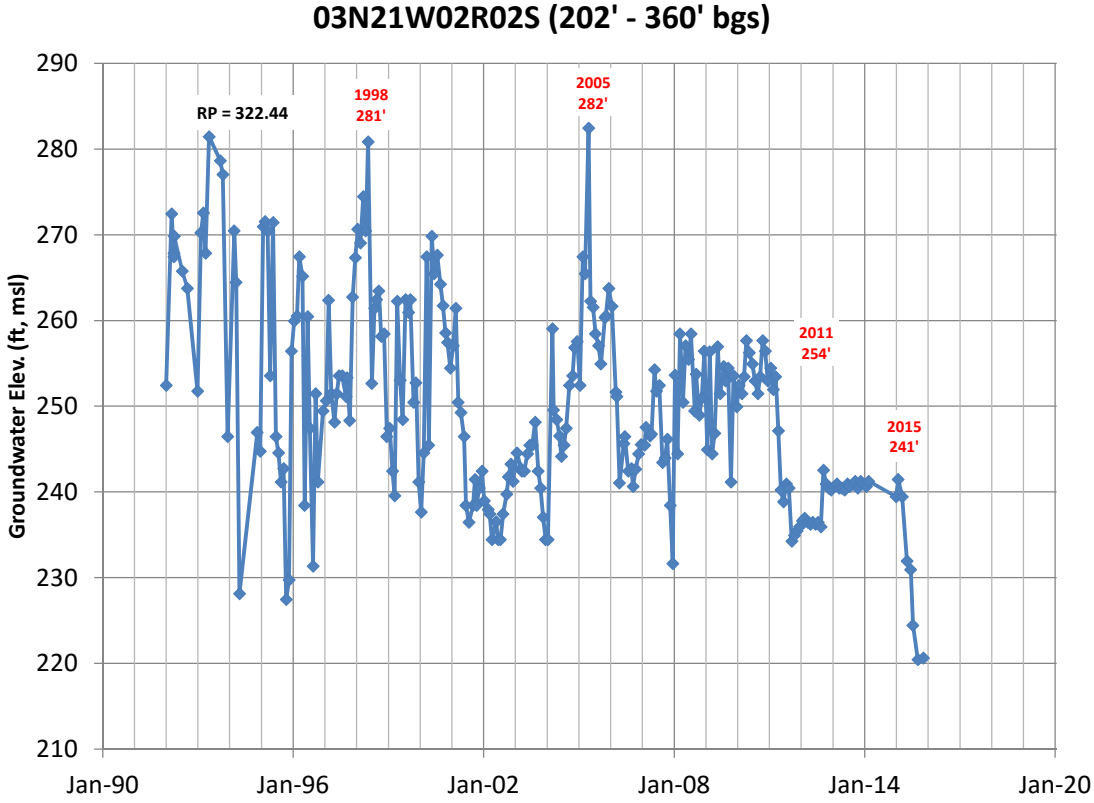

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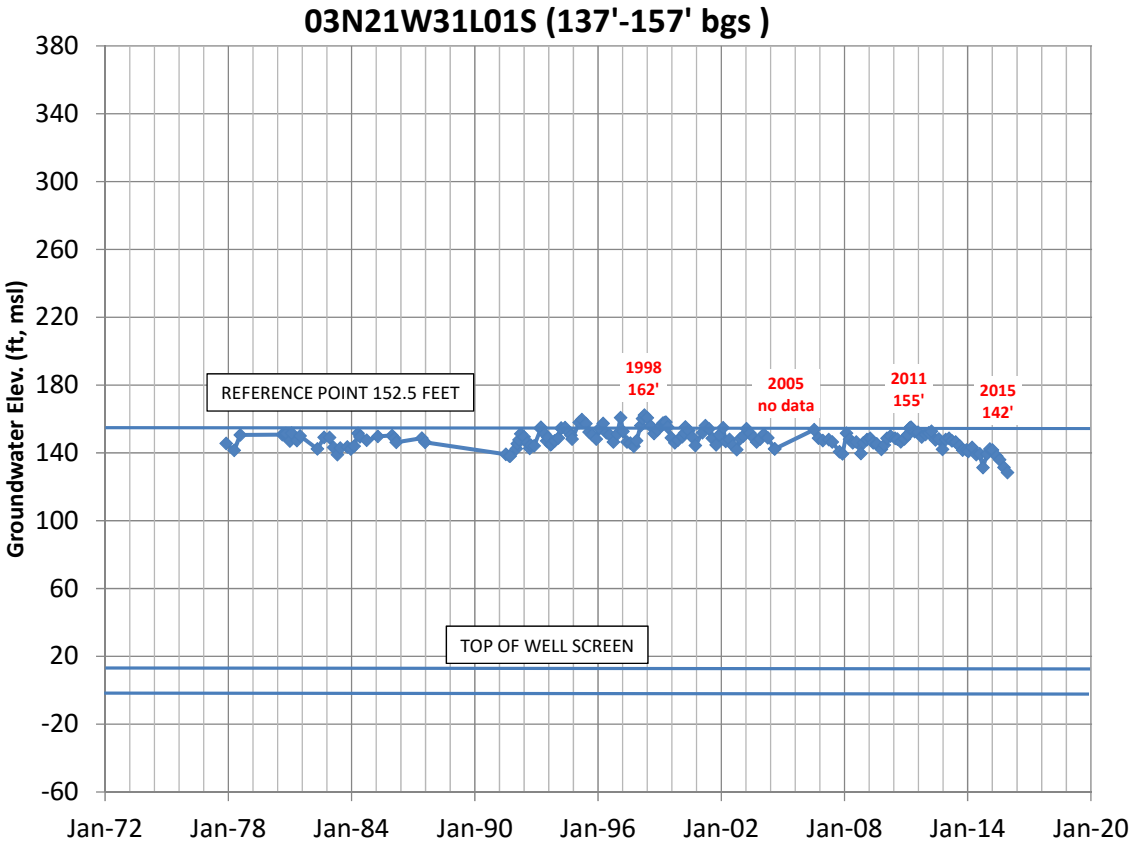

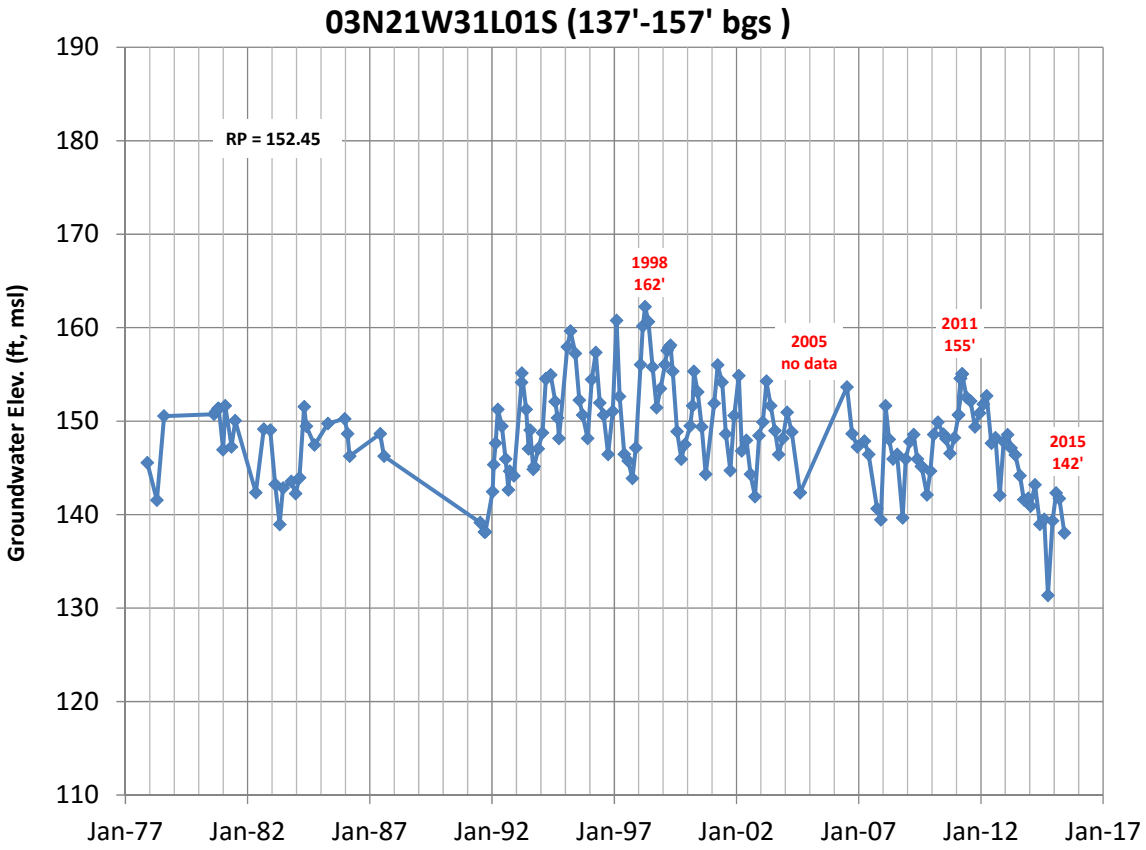

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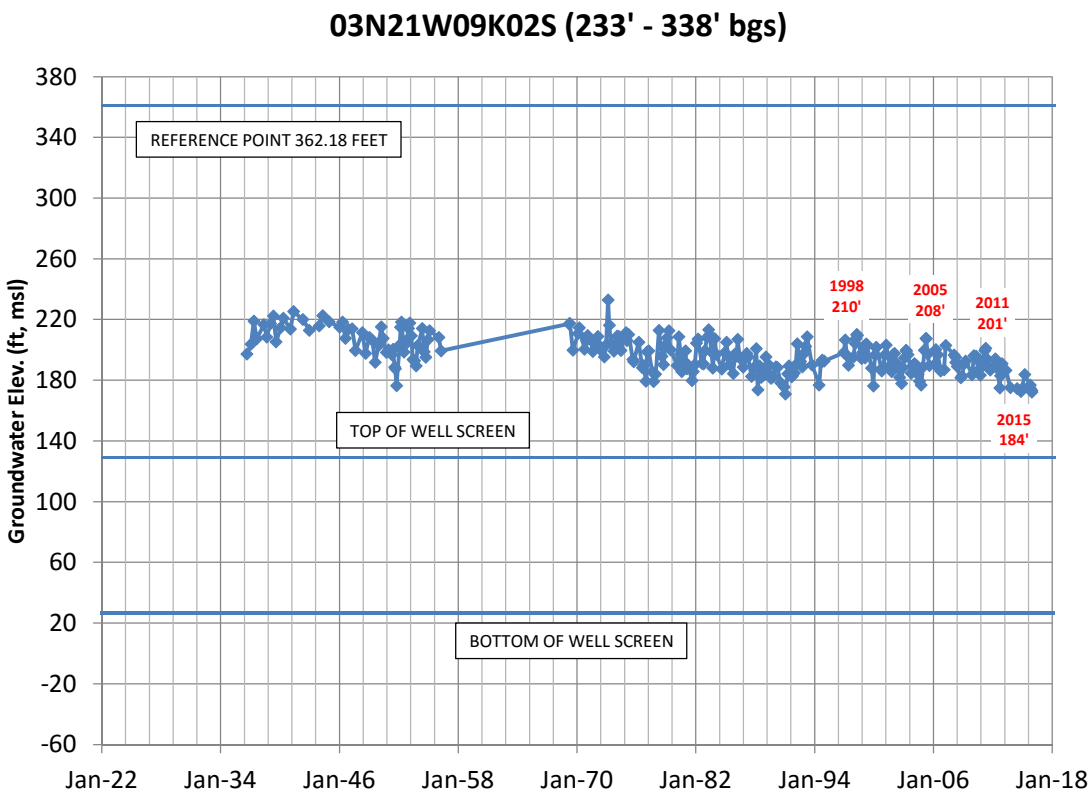

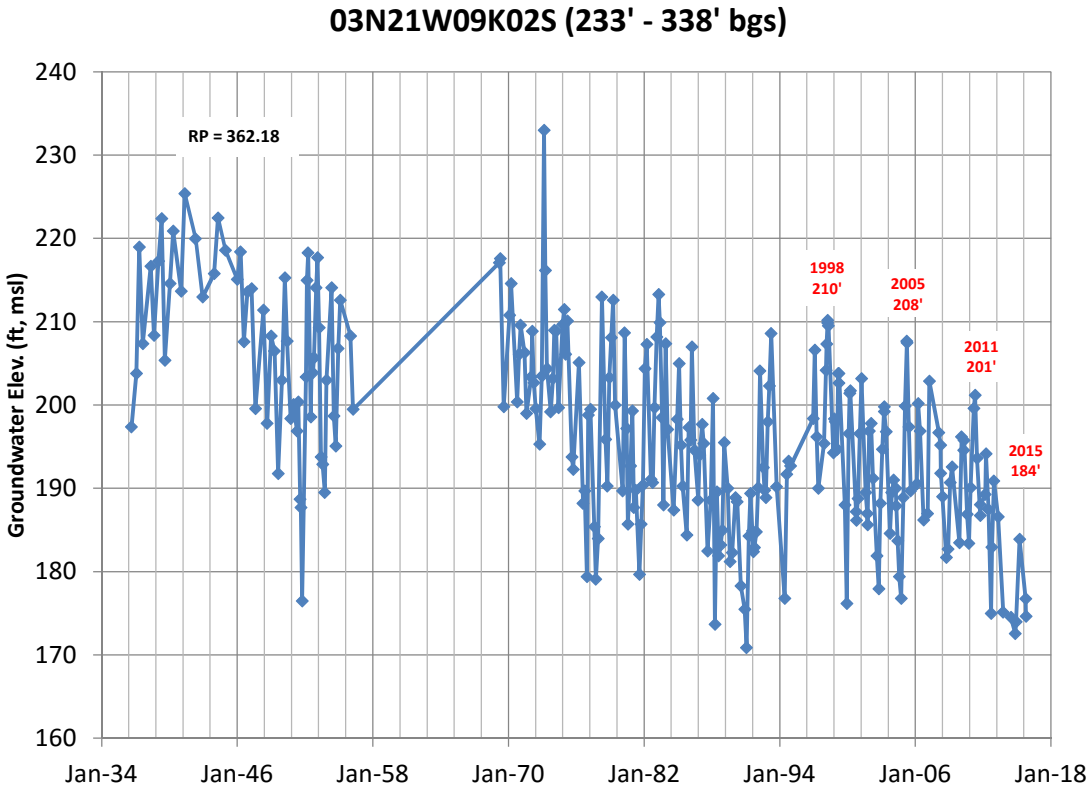

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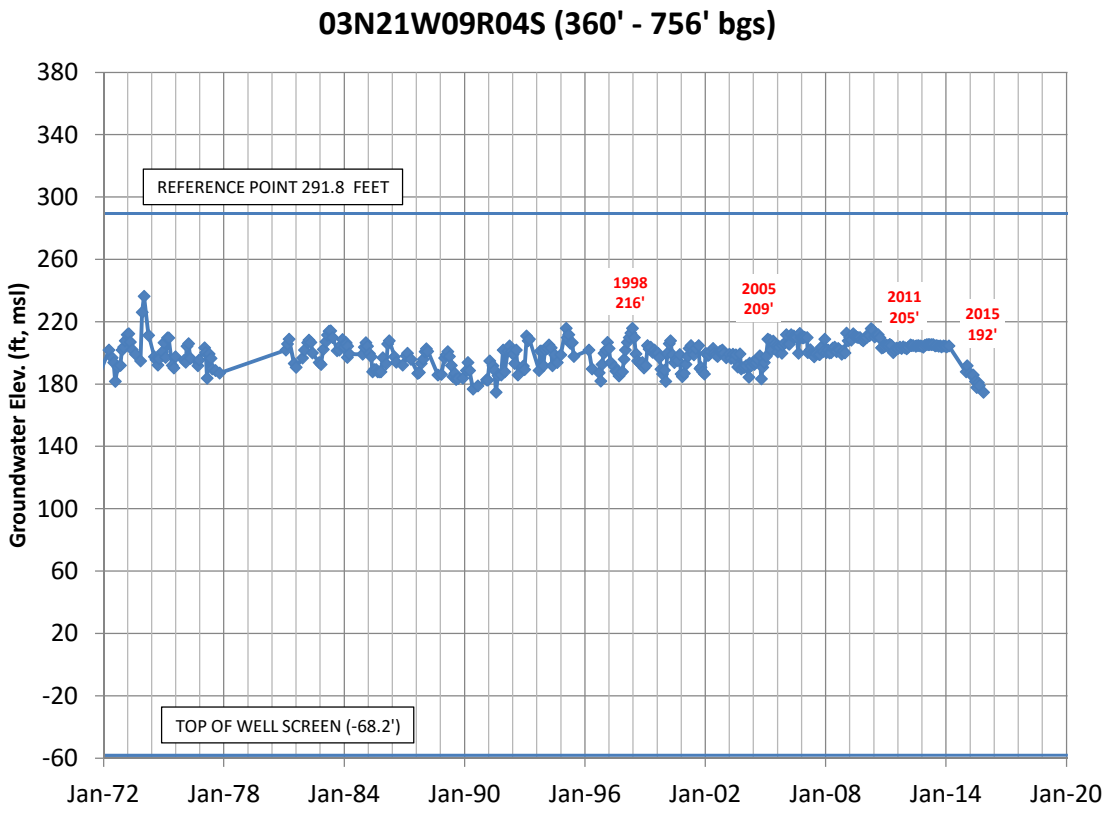

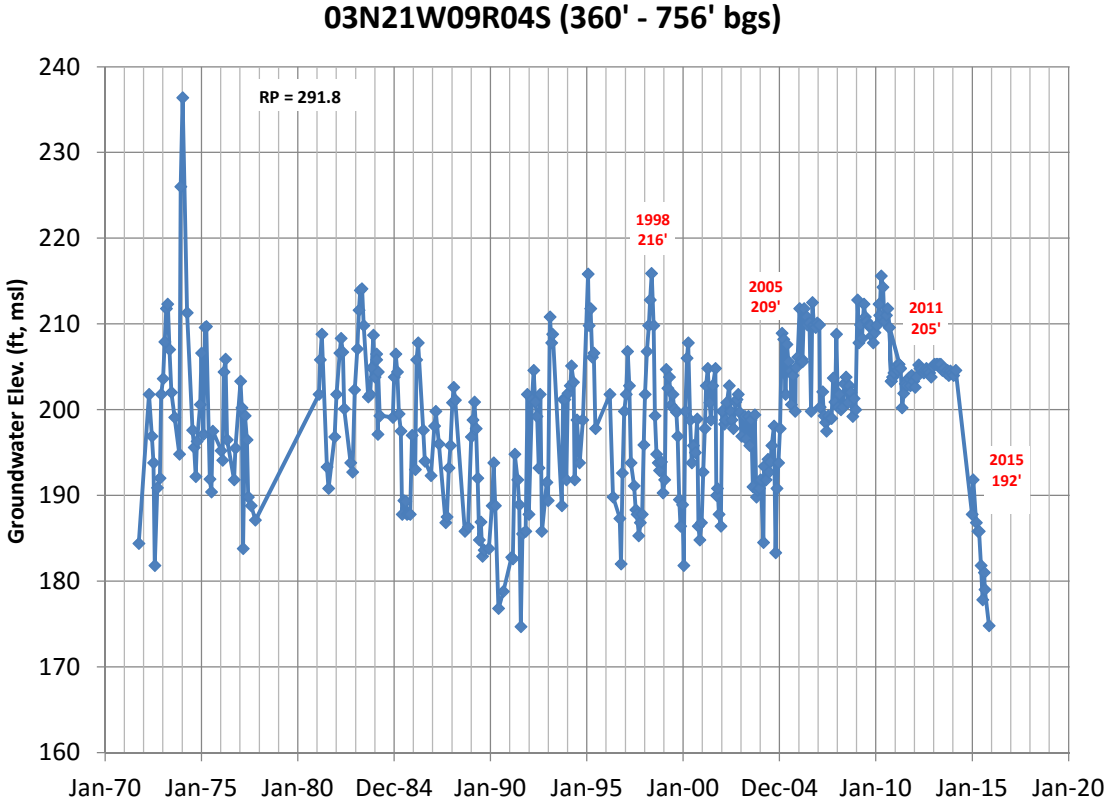

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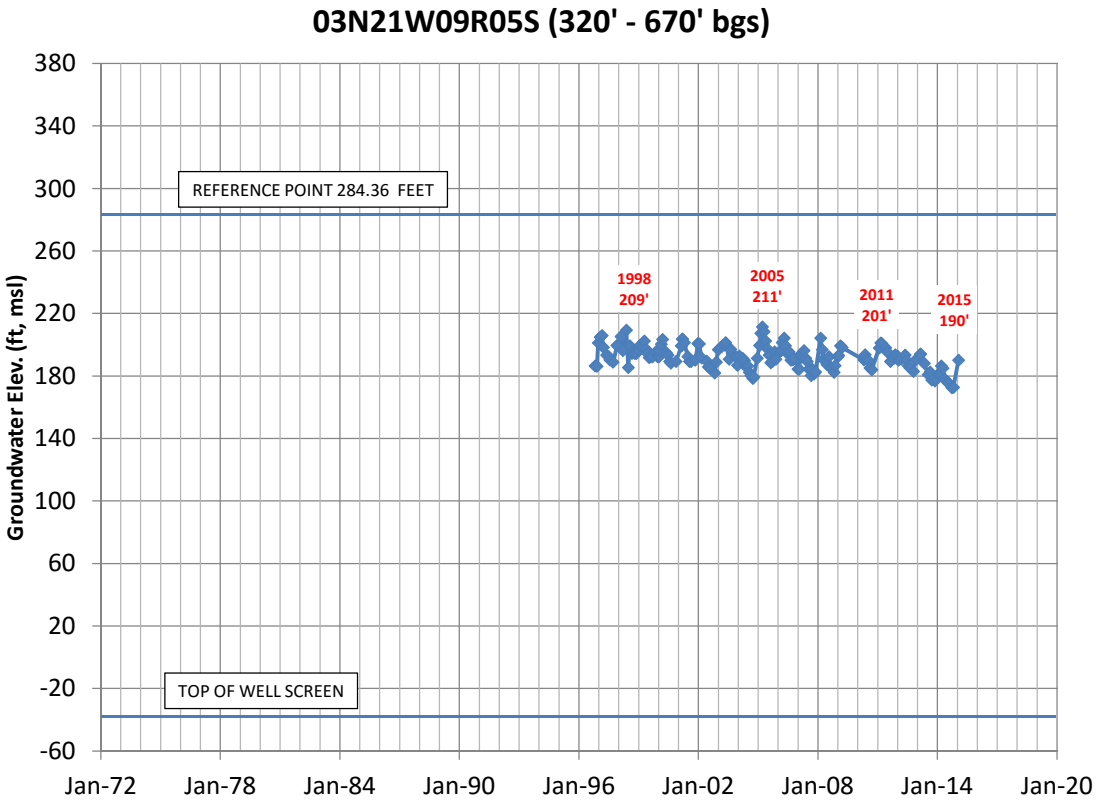

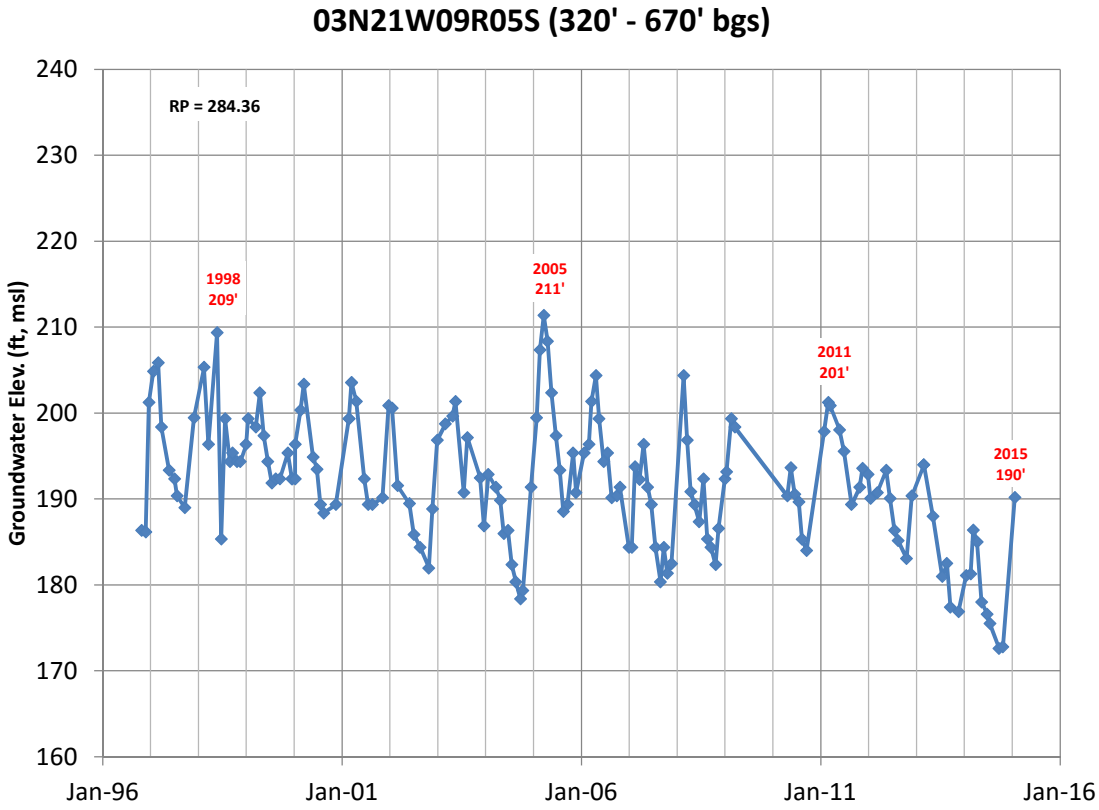

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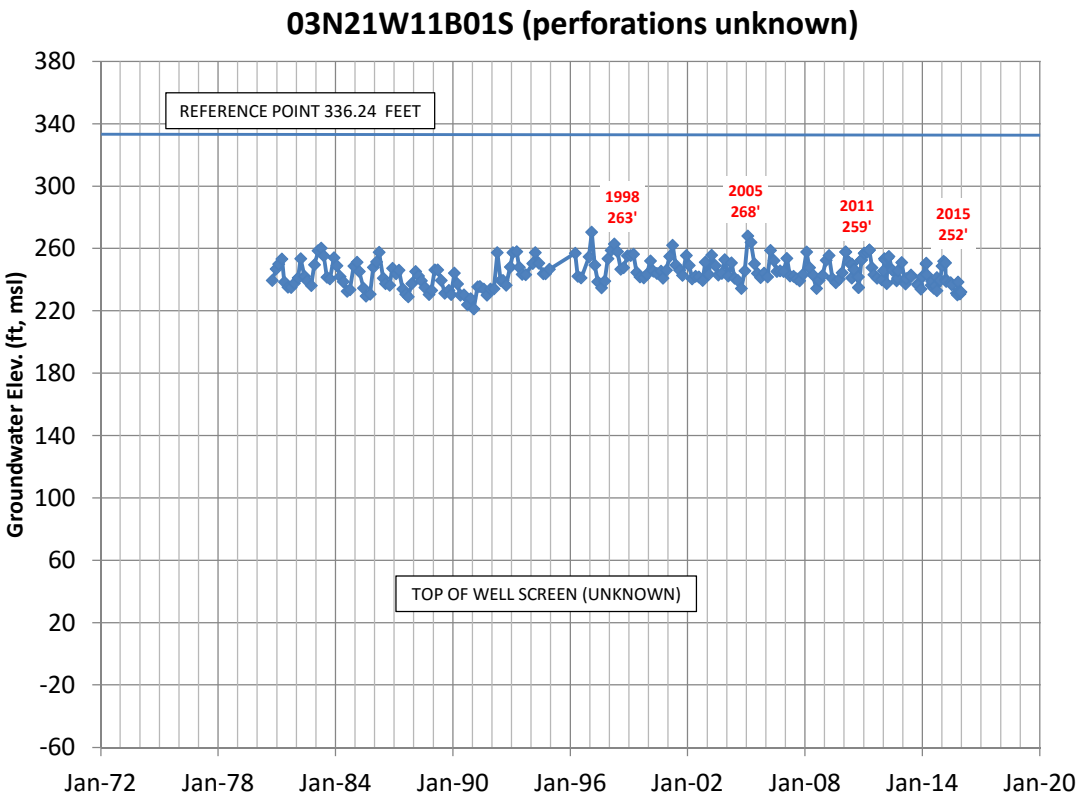

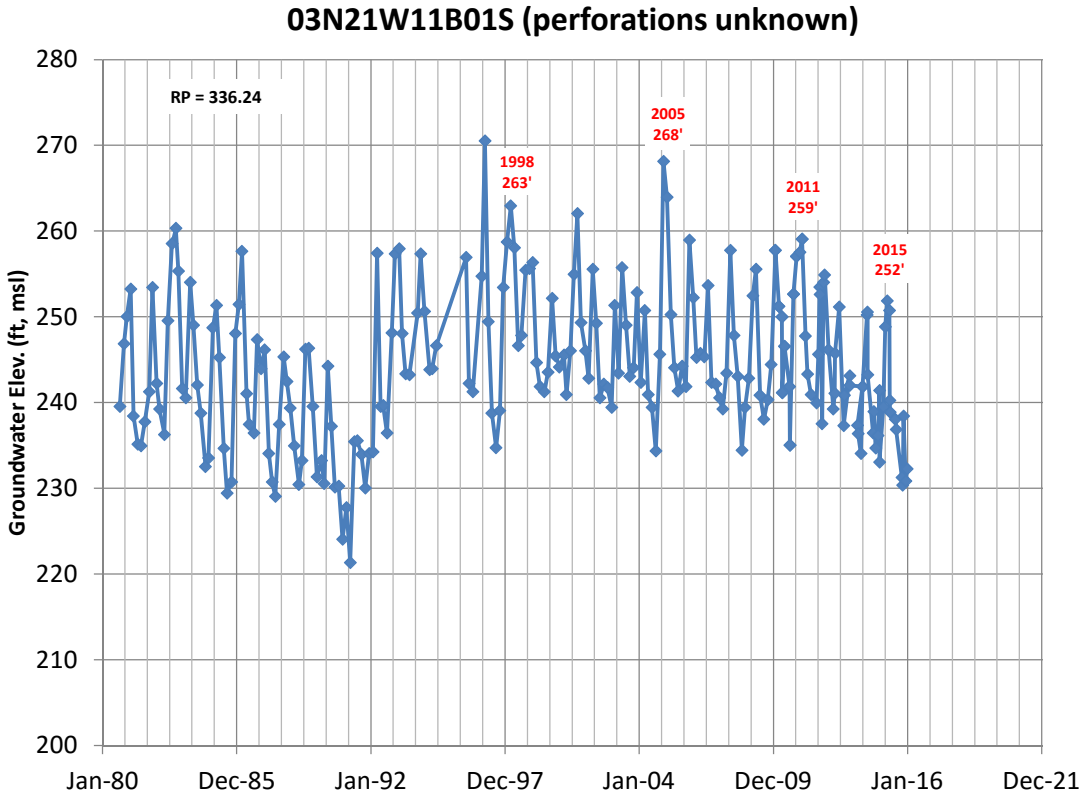

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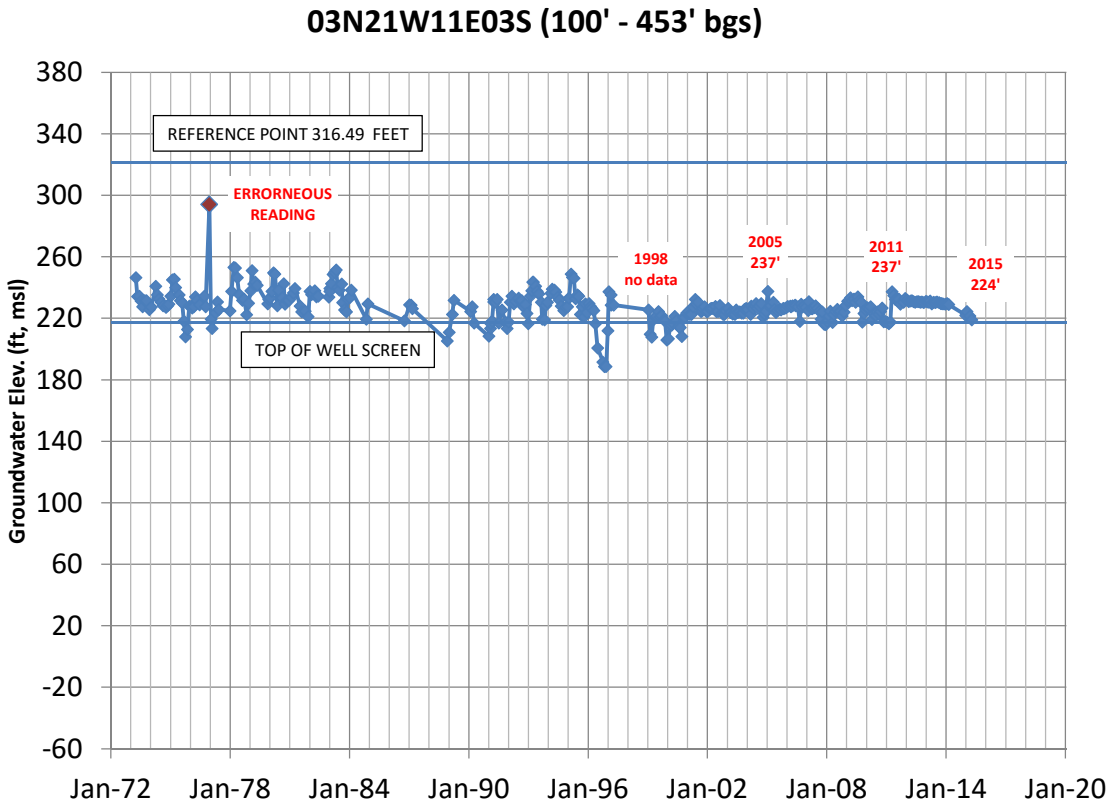

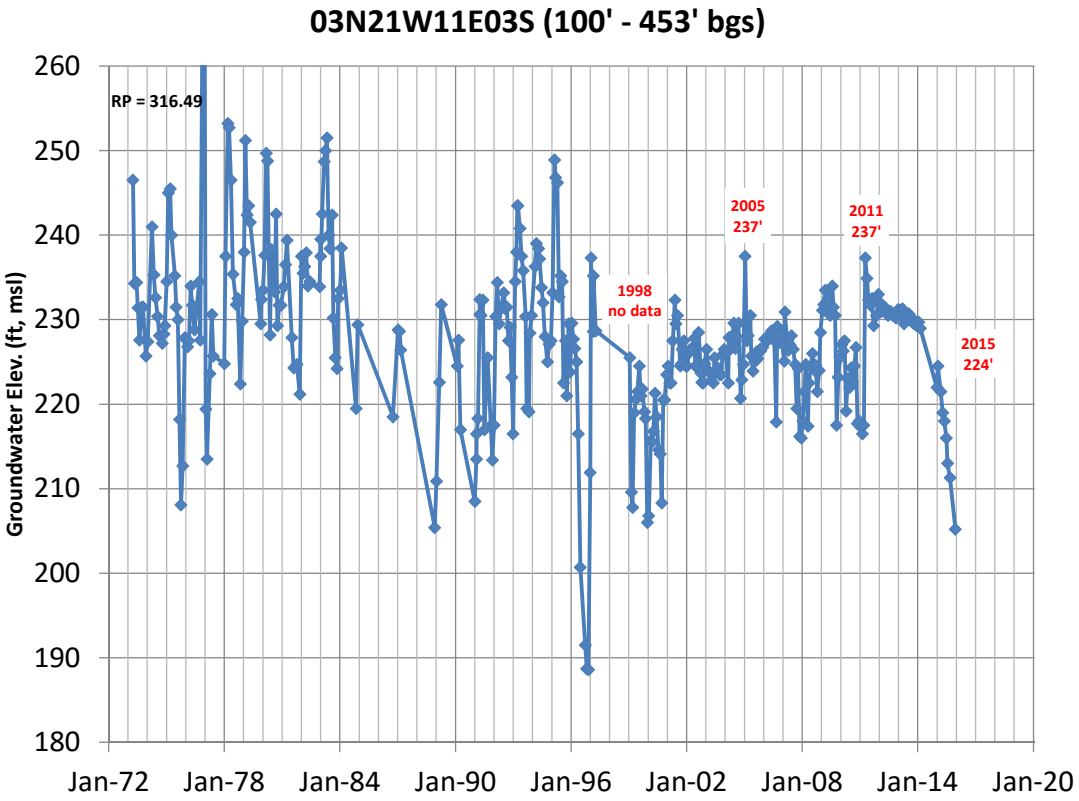

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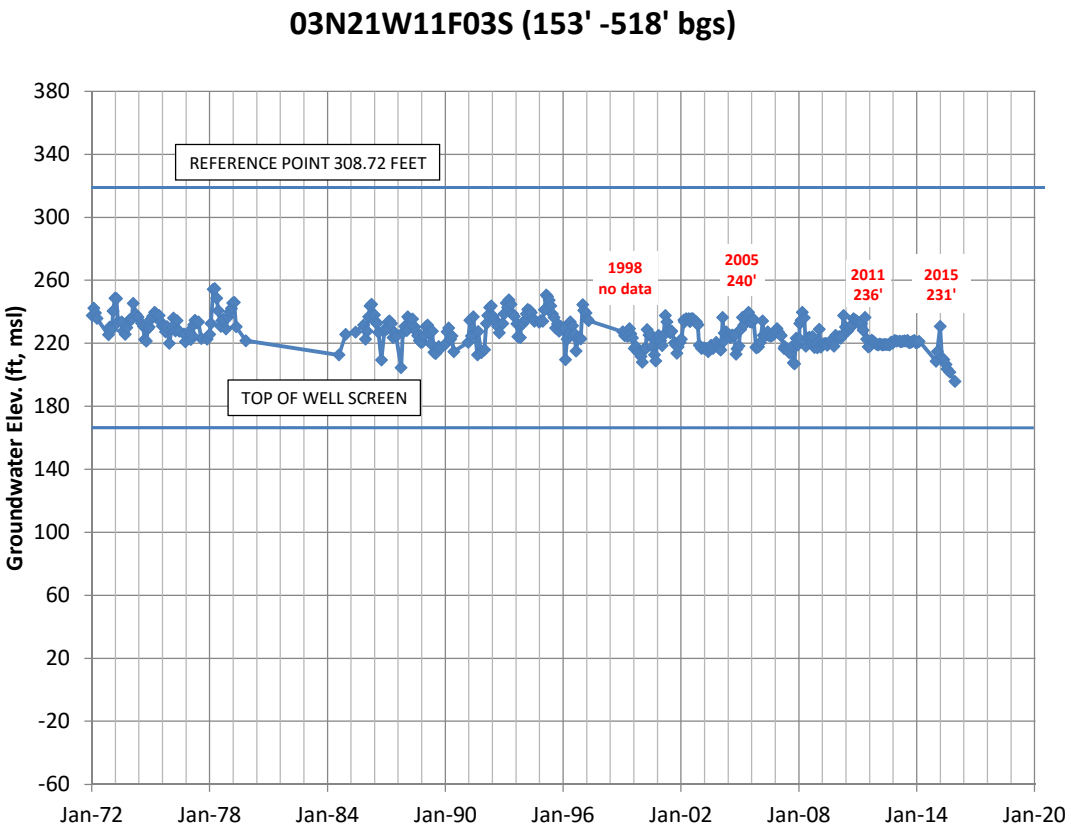

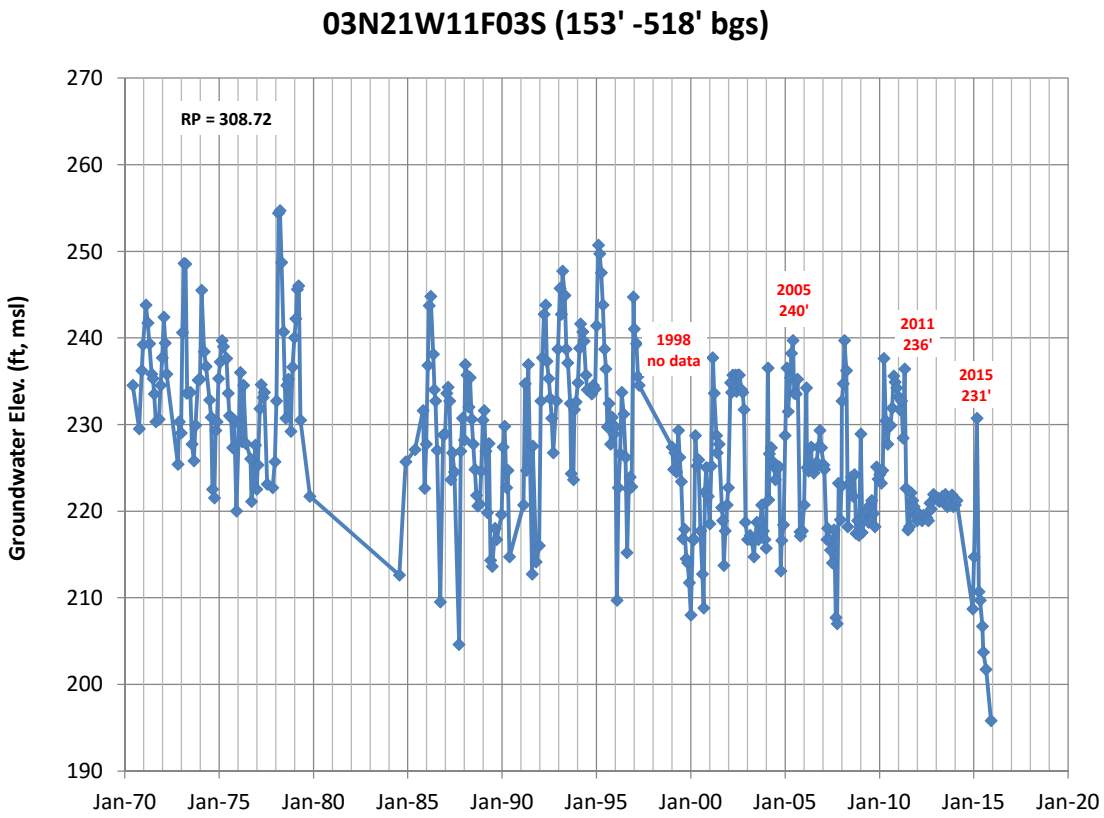

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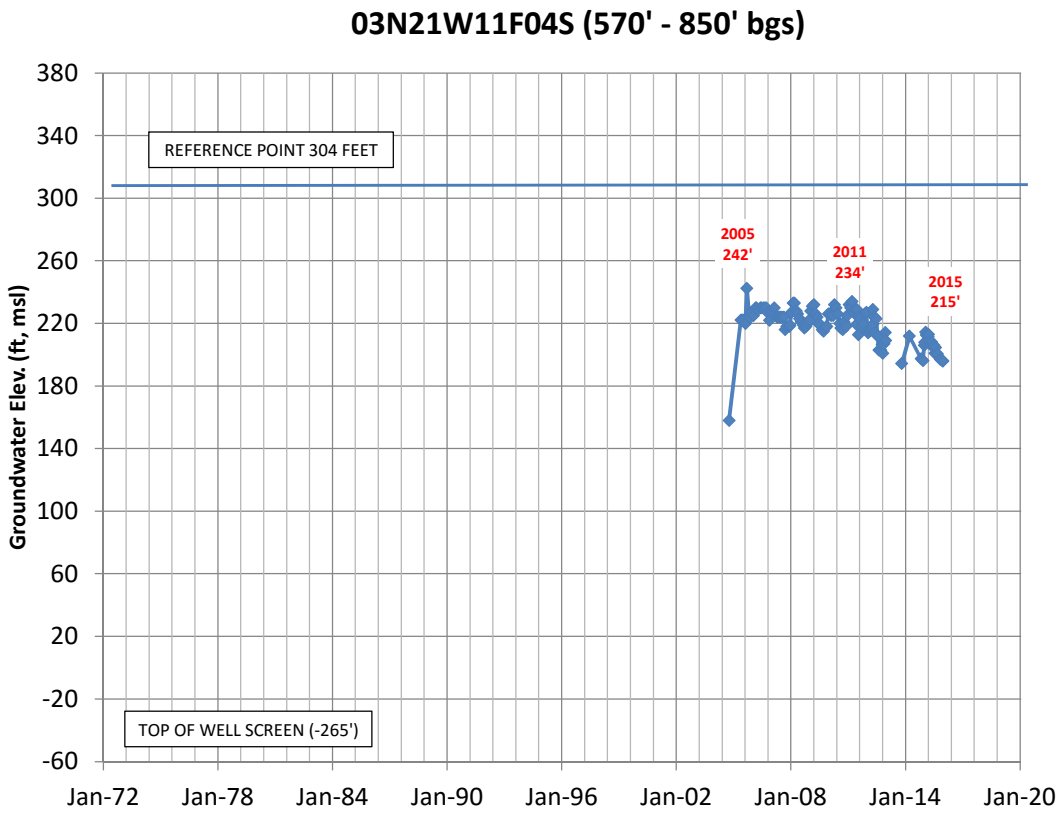

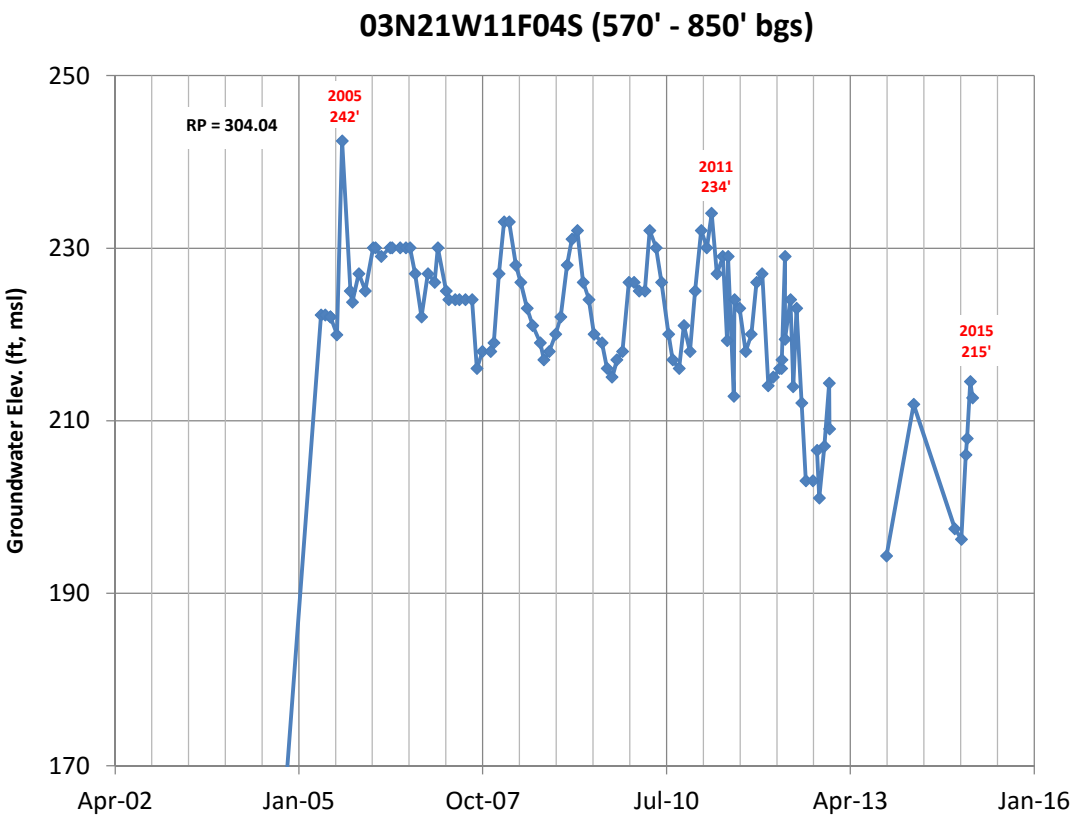

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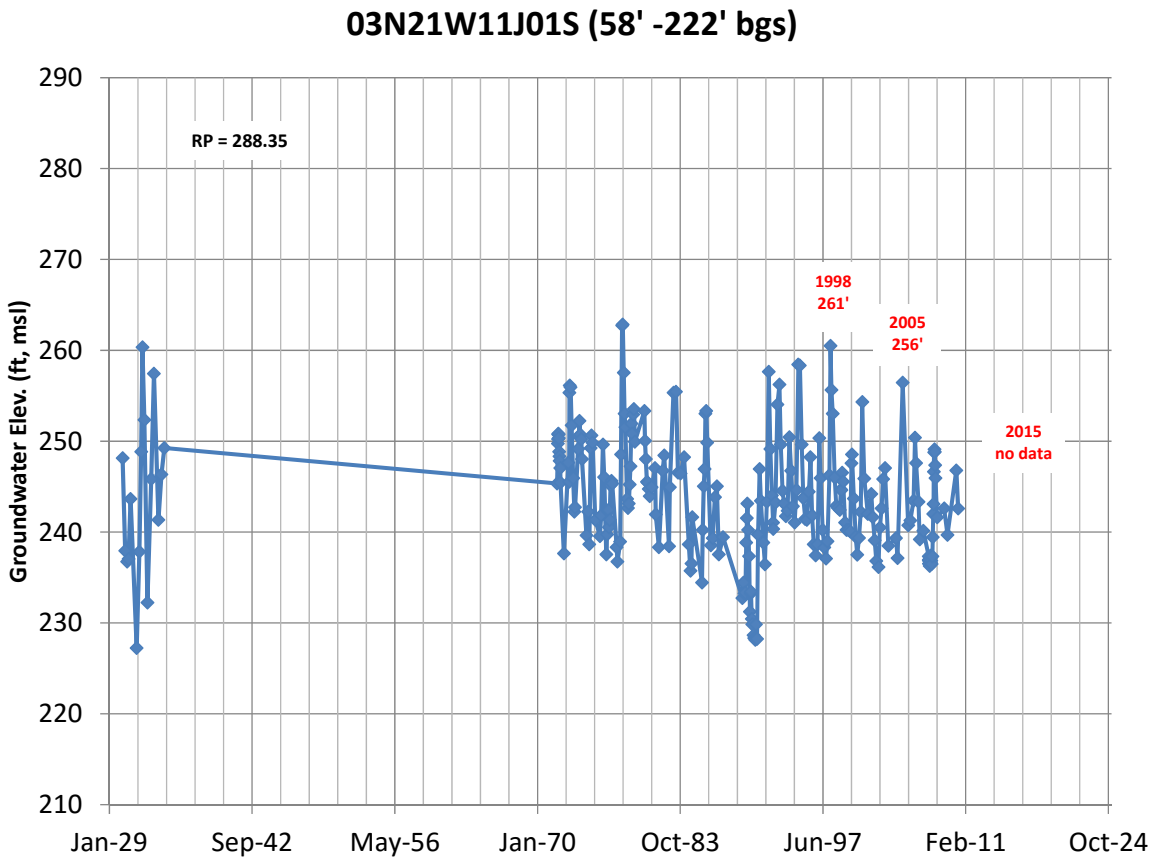

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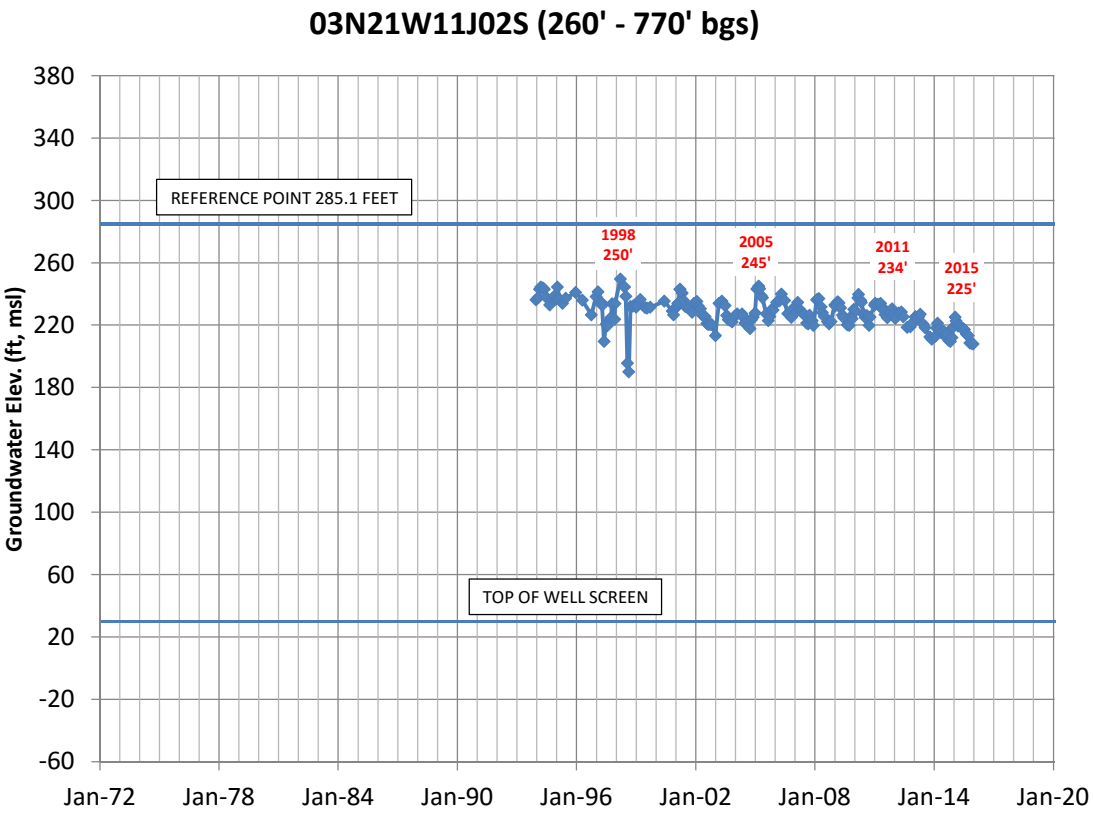

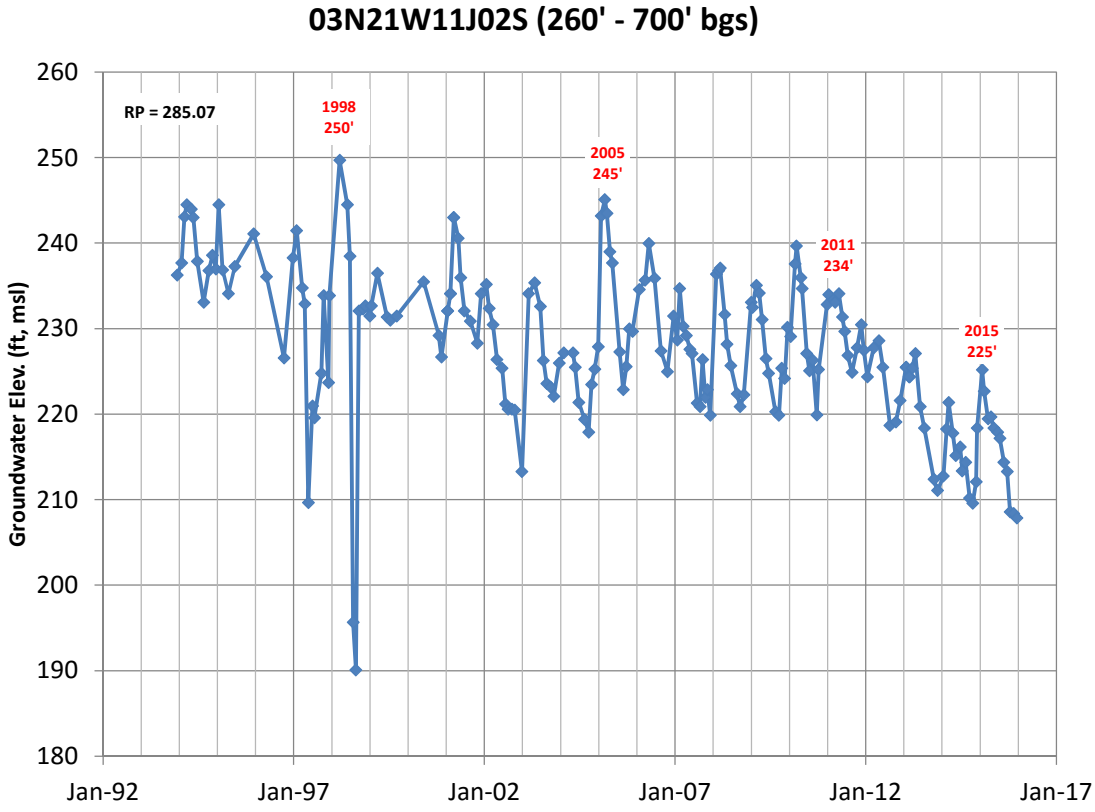

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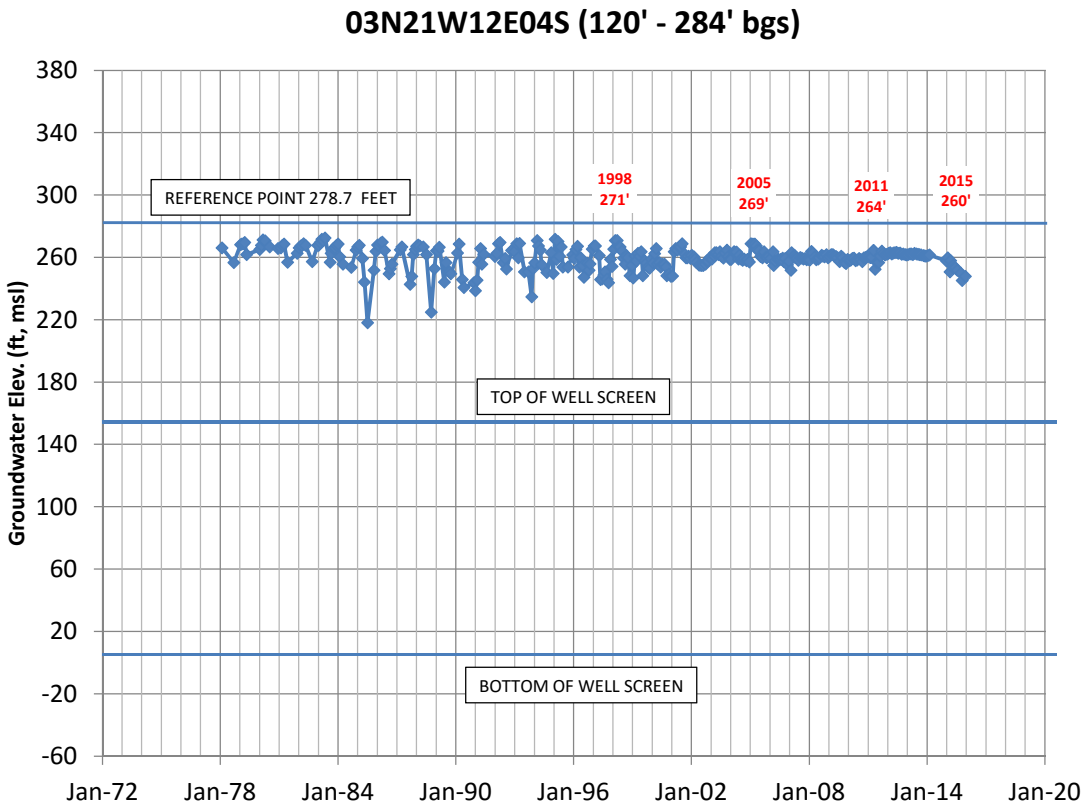

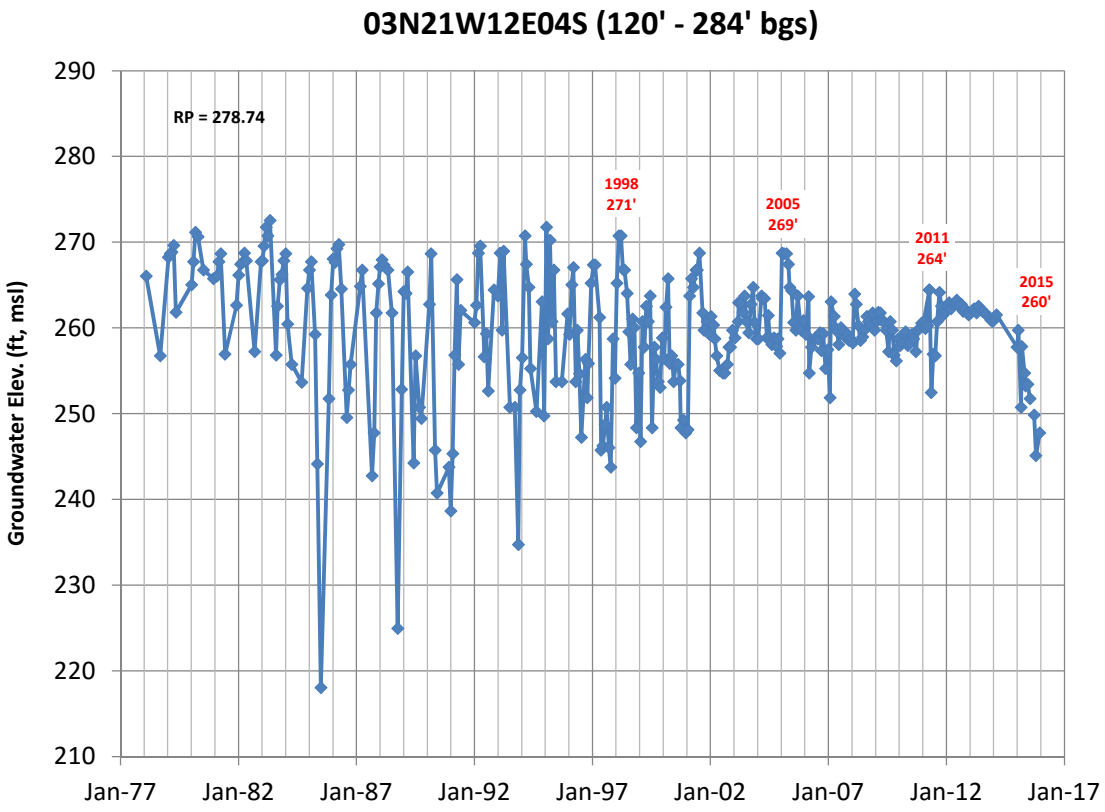

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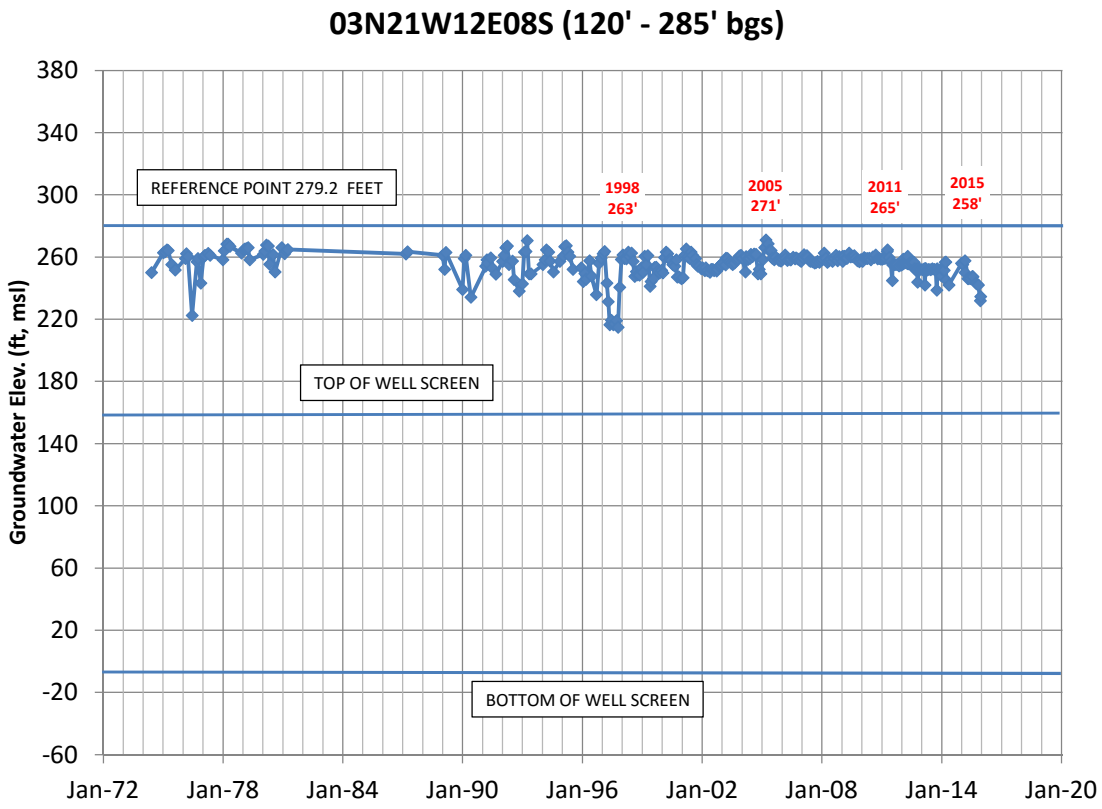

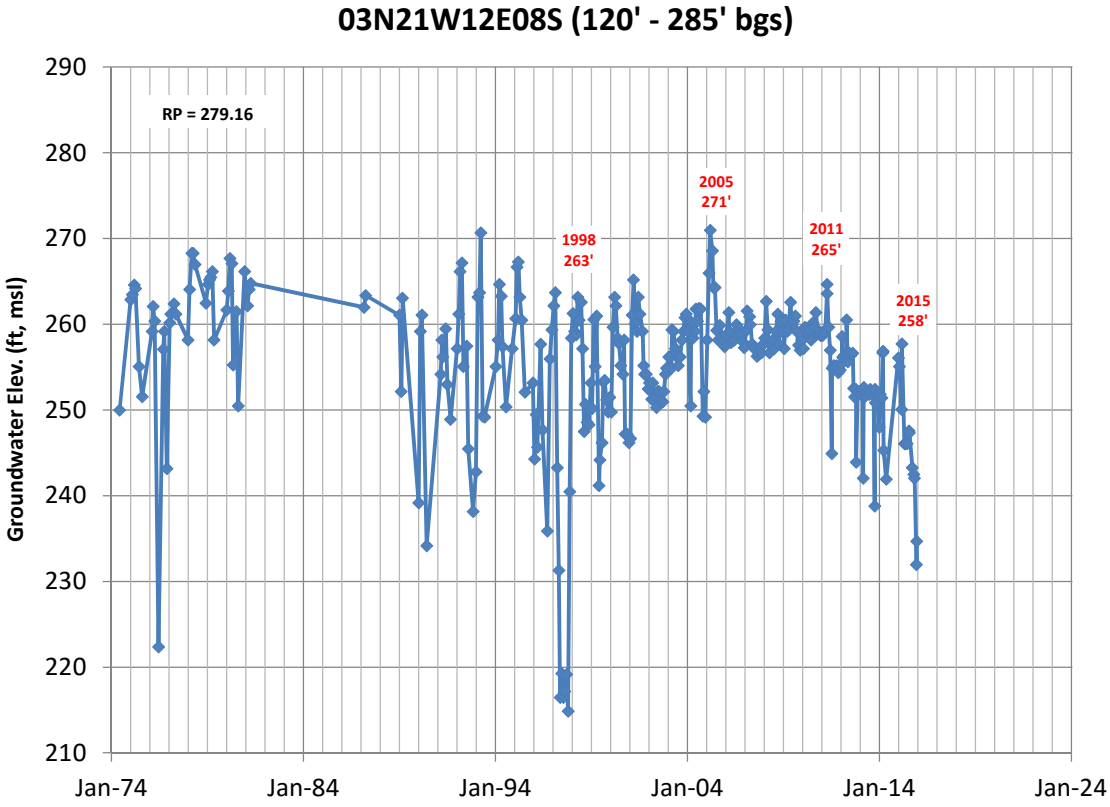

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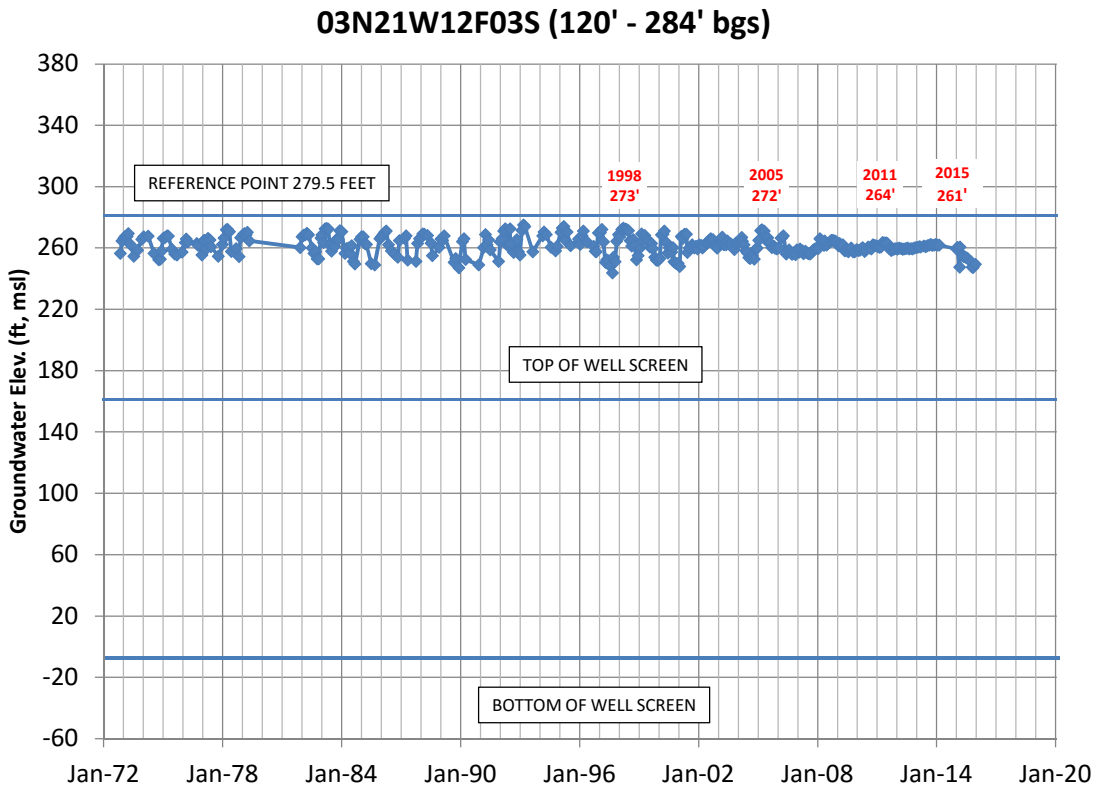

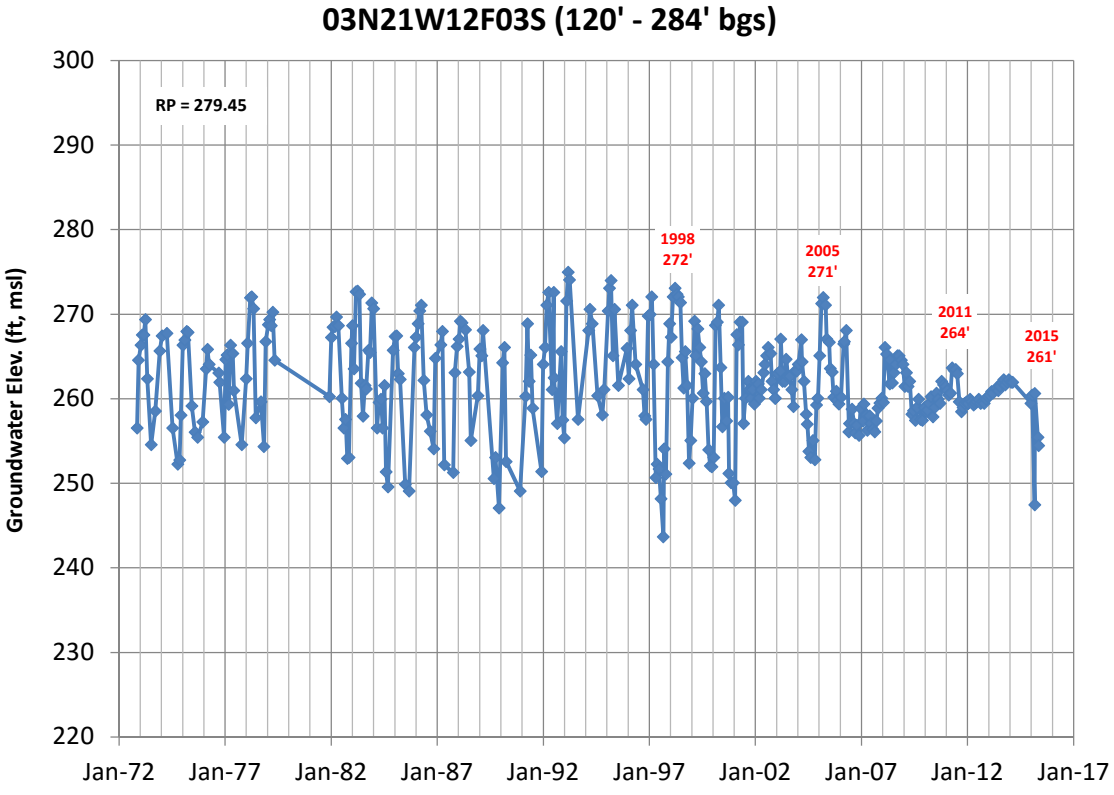

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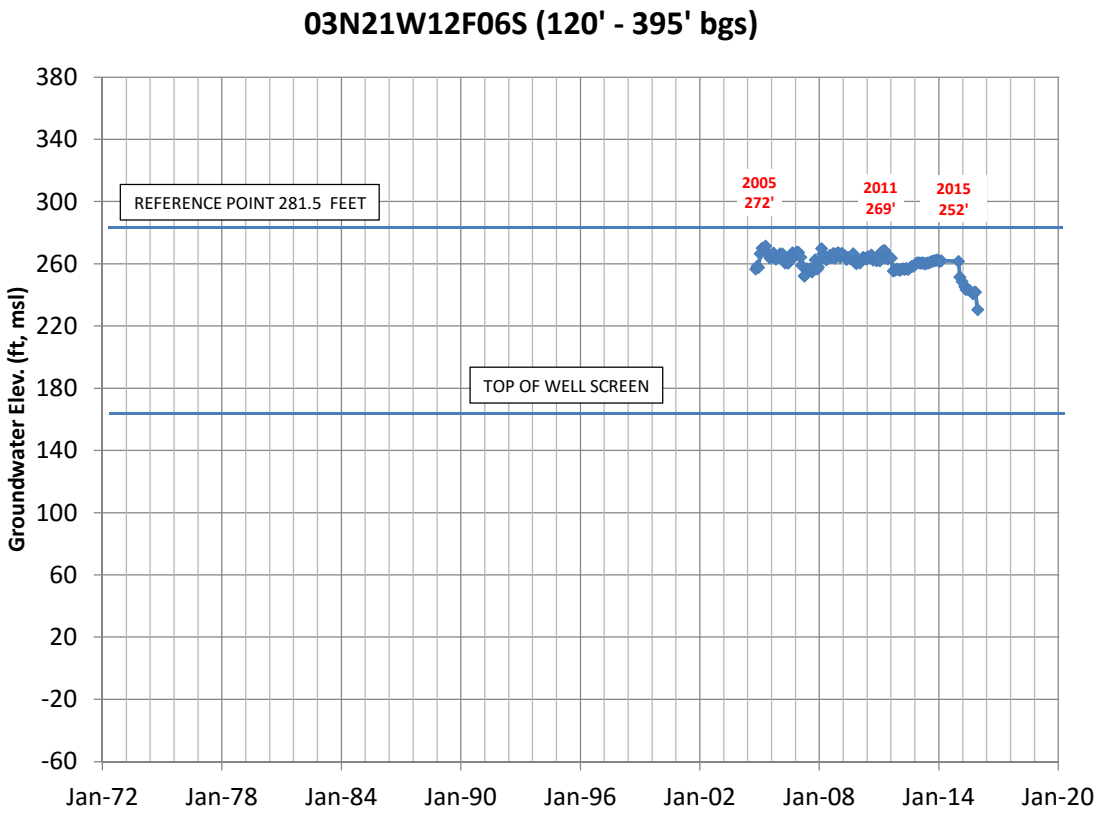

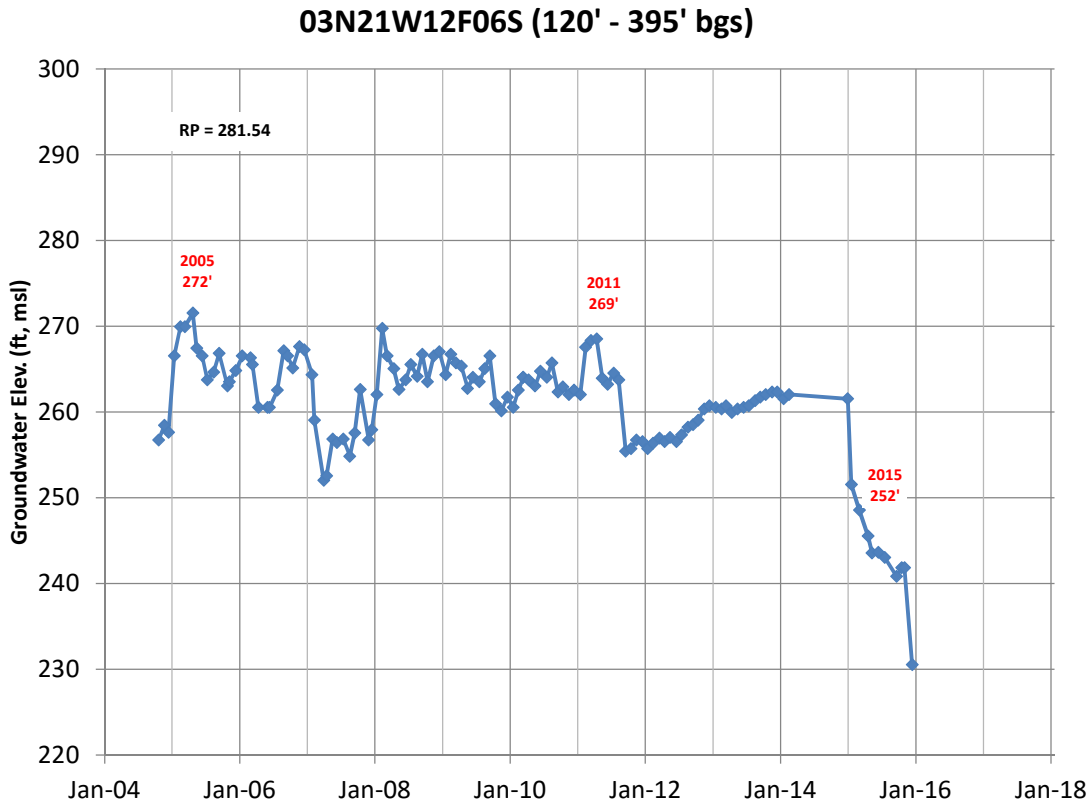

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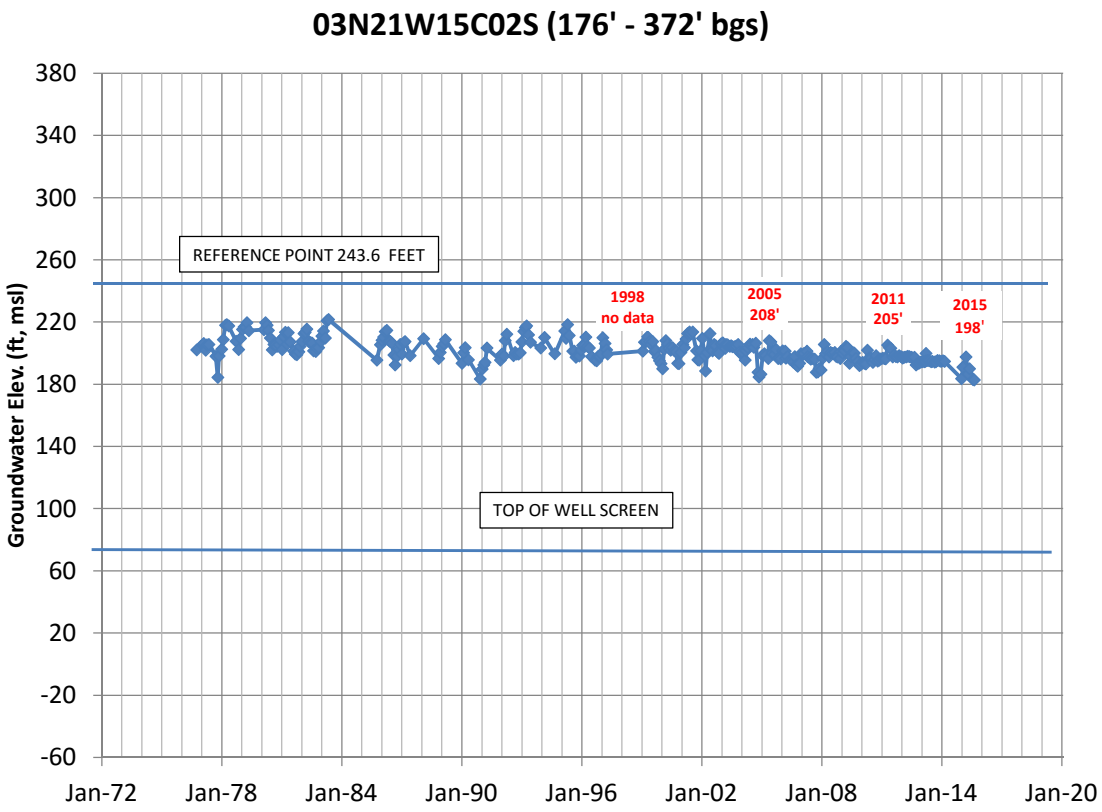

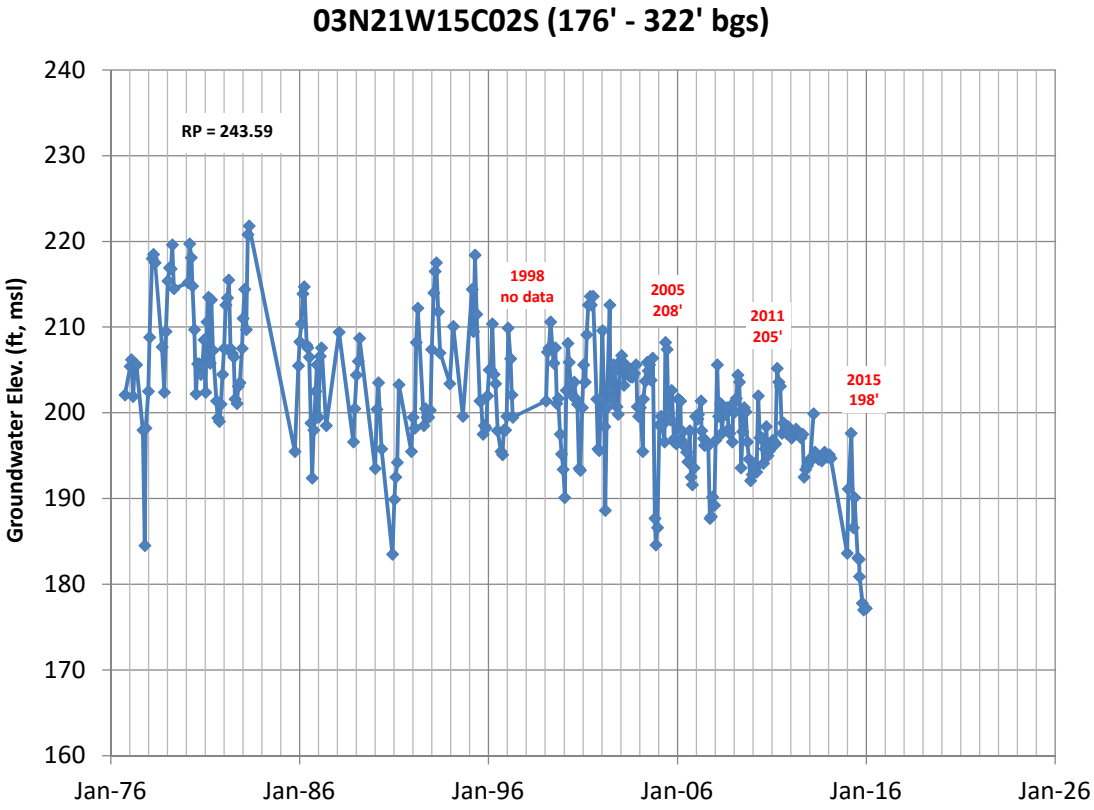

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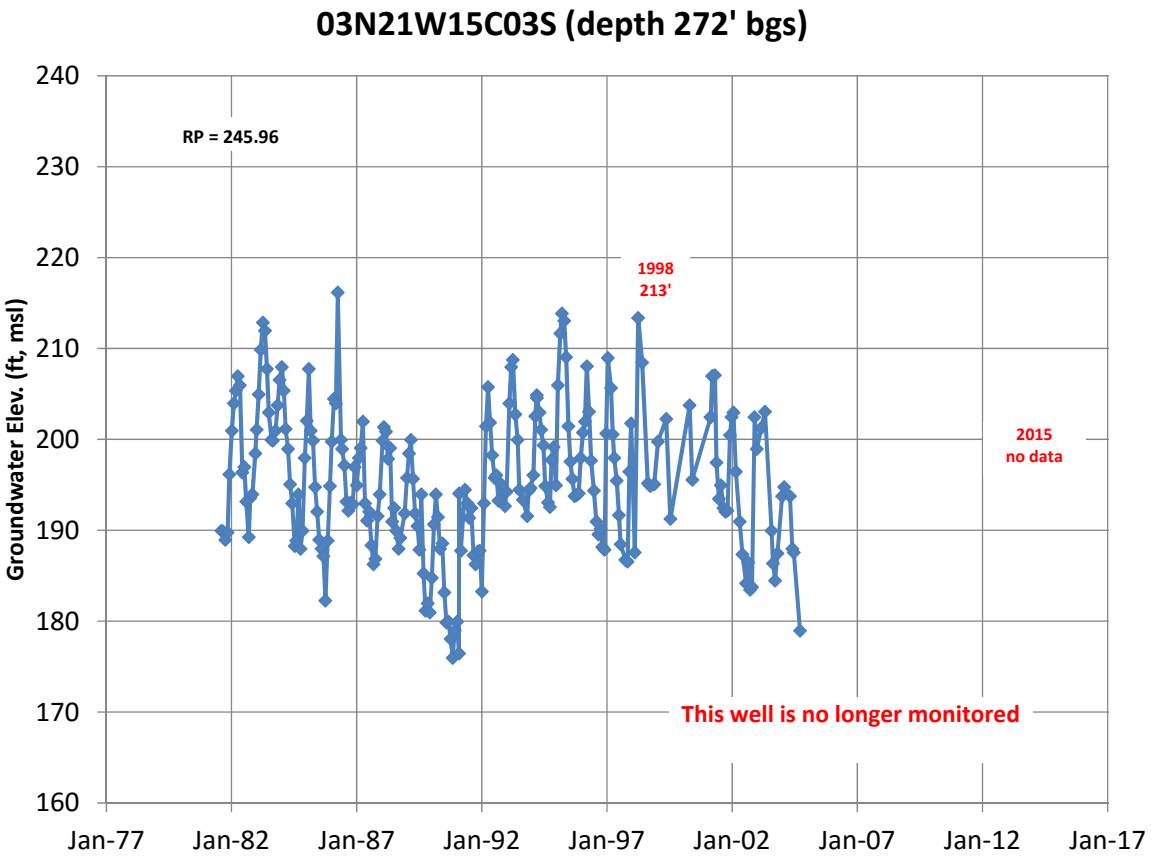

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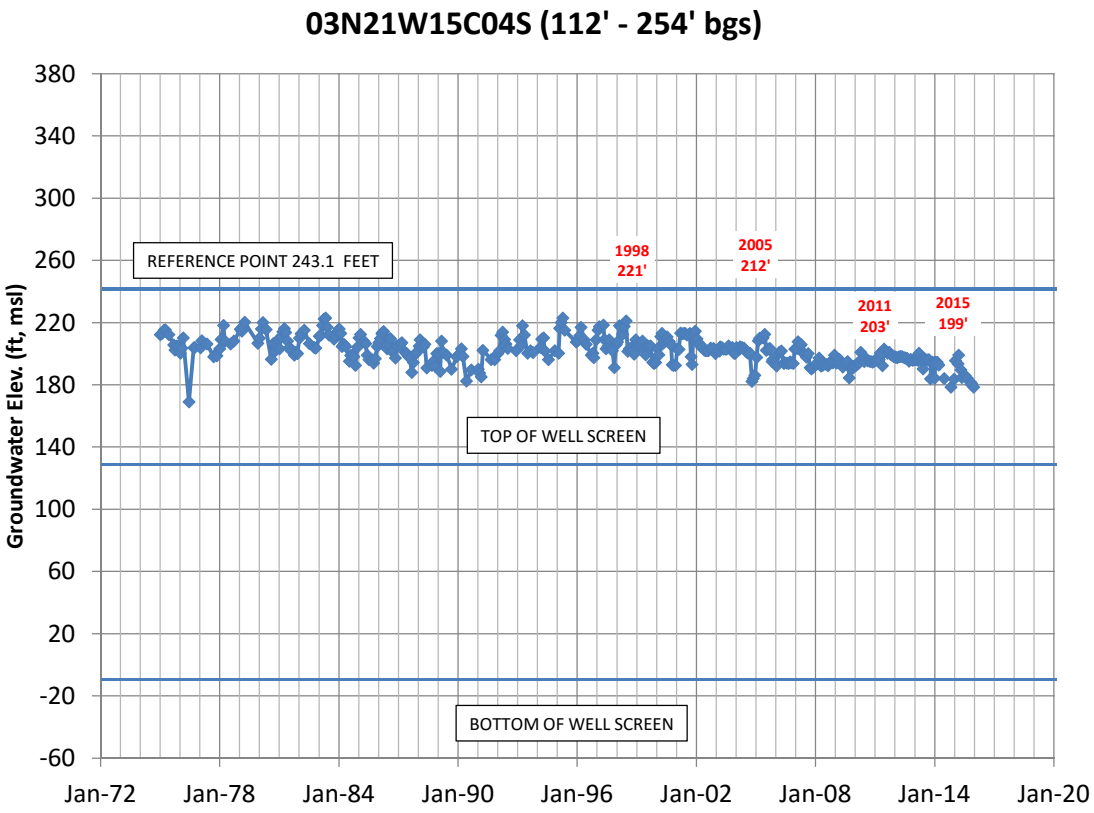

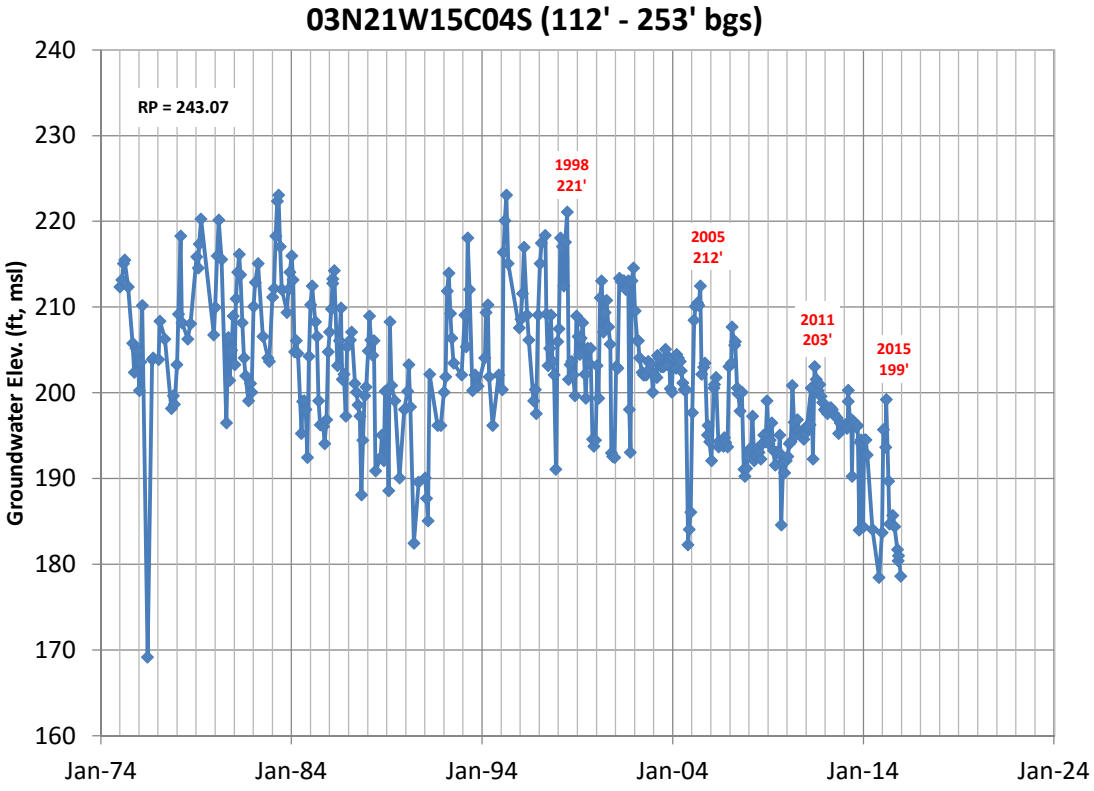

Figure B-29
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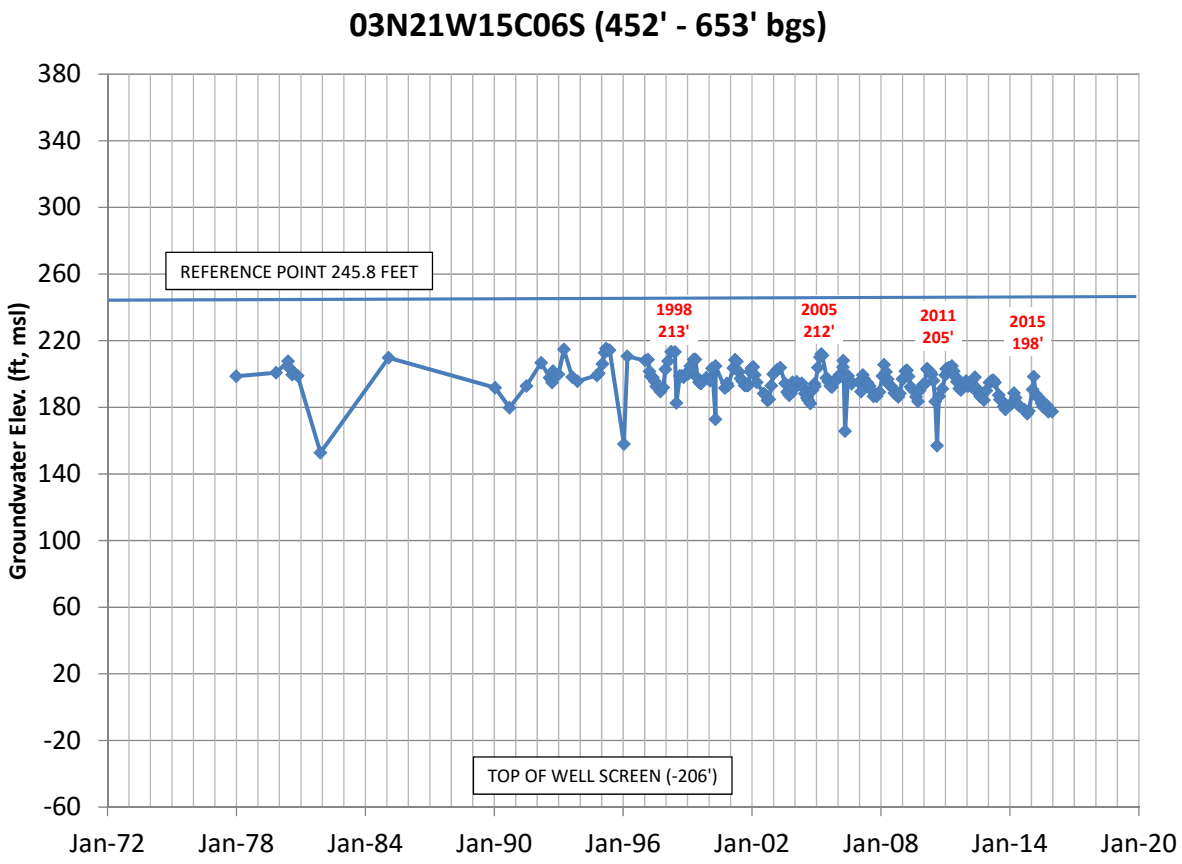

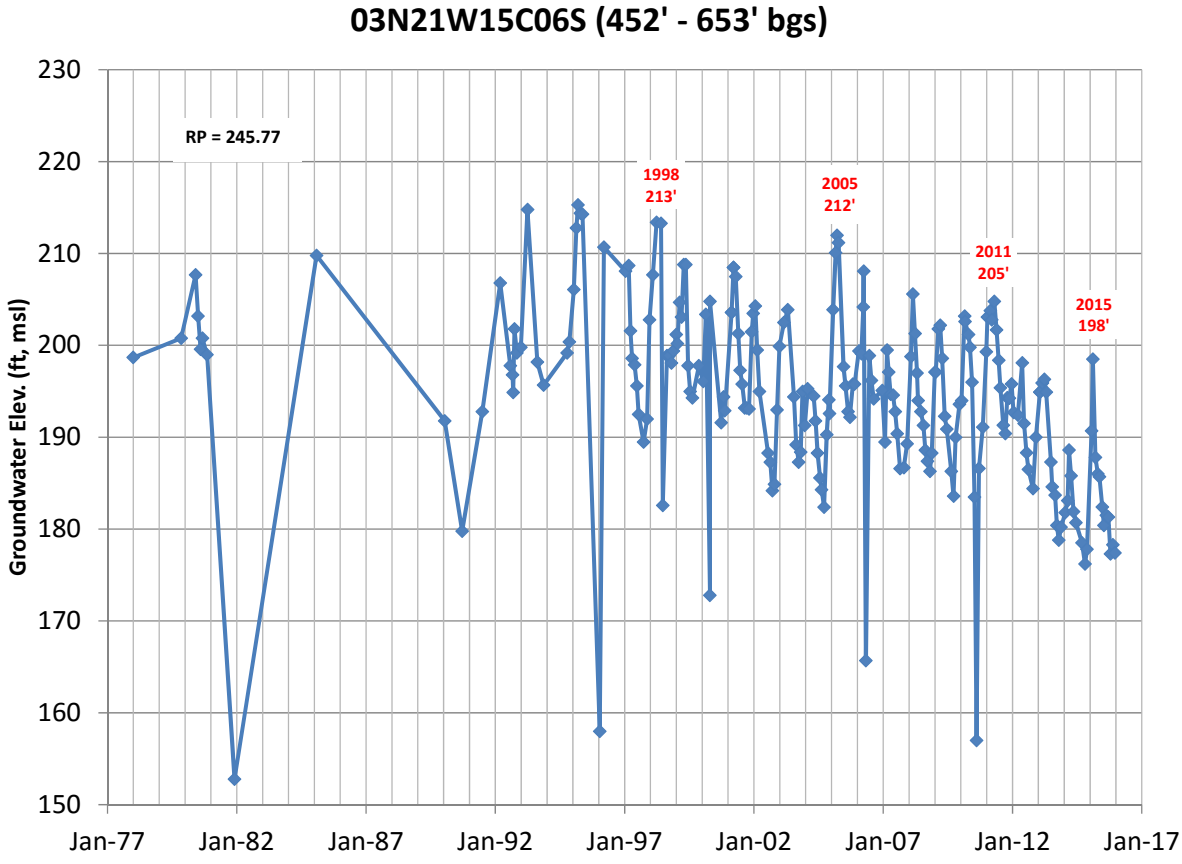

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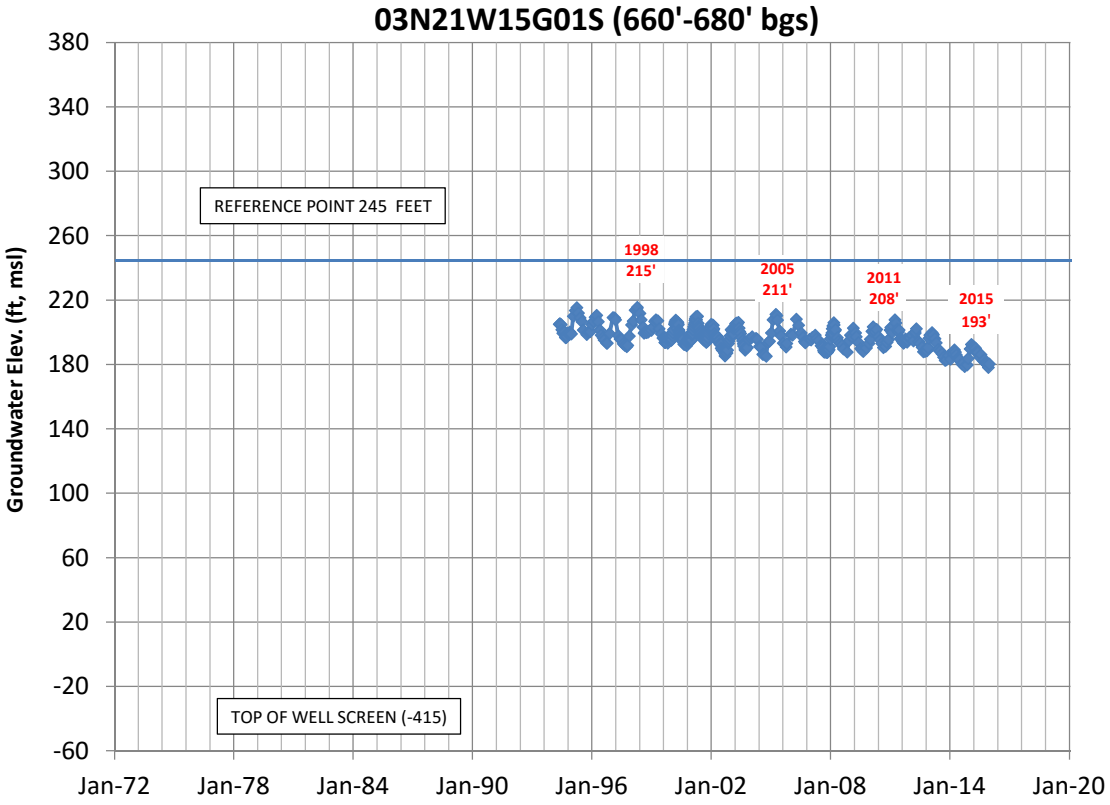

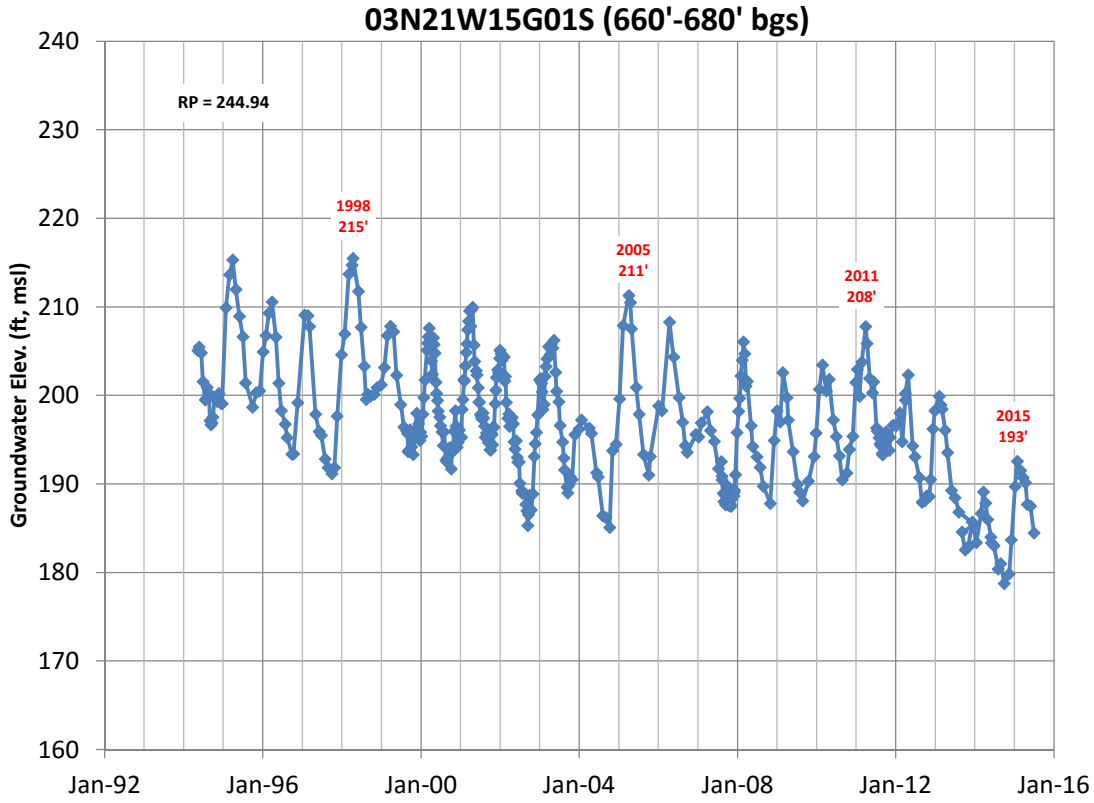

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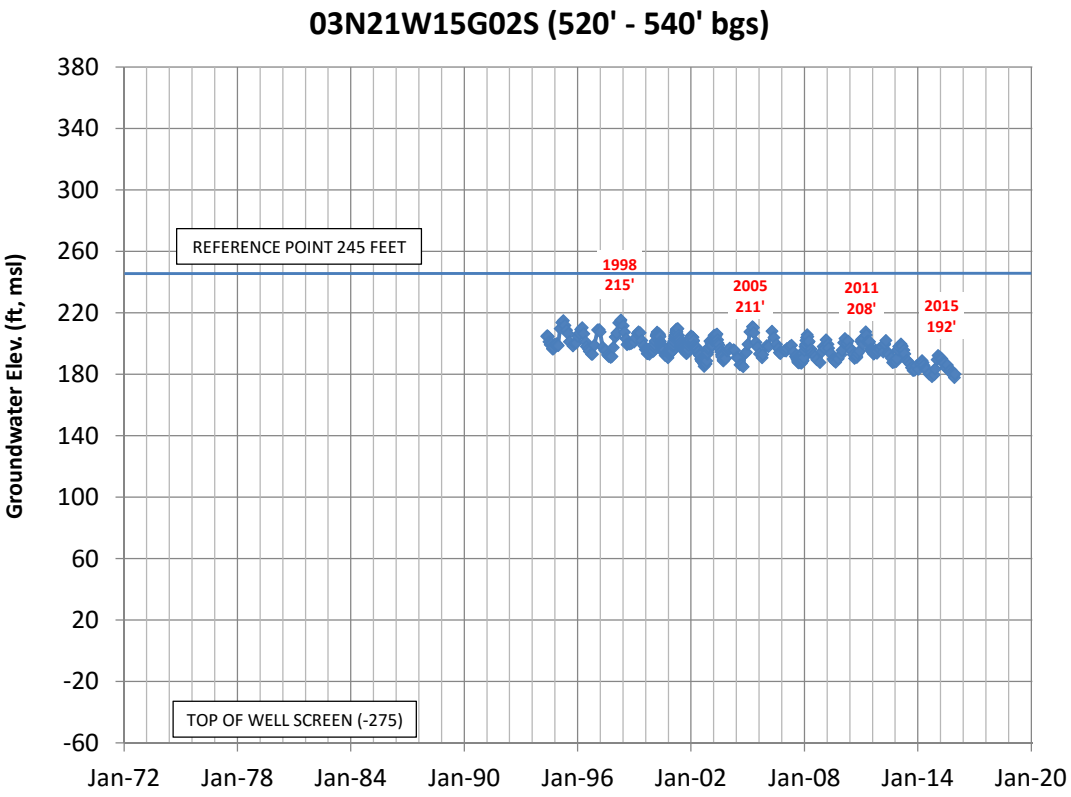

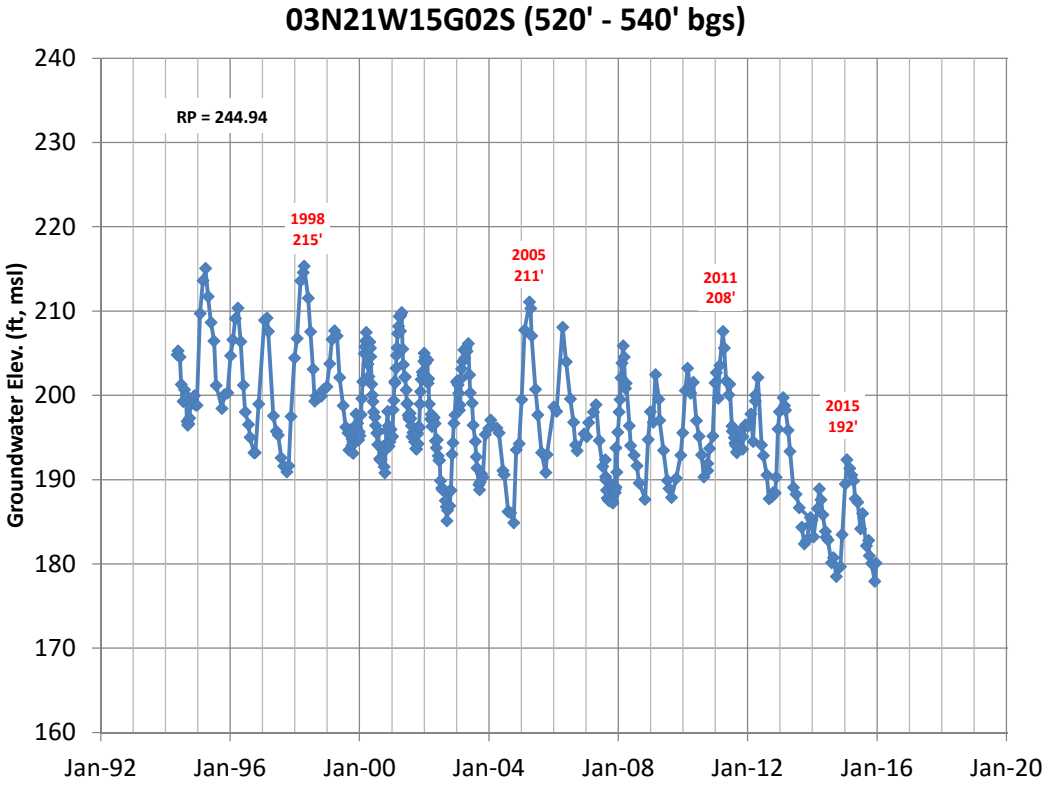

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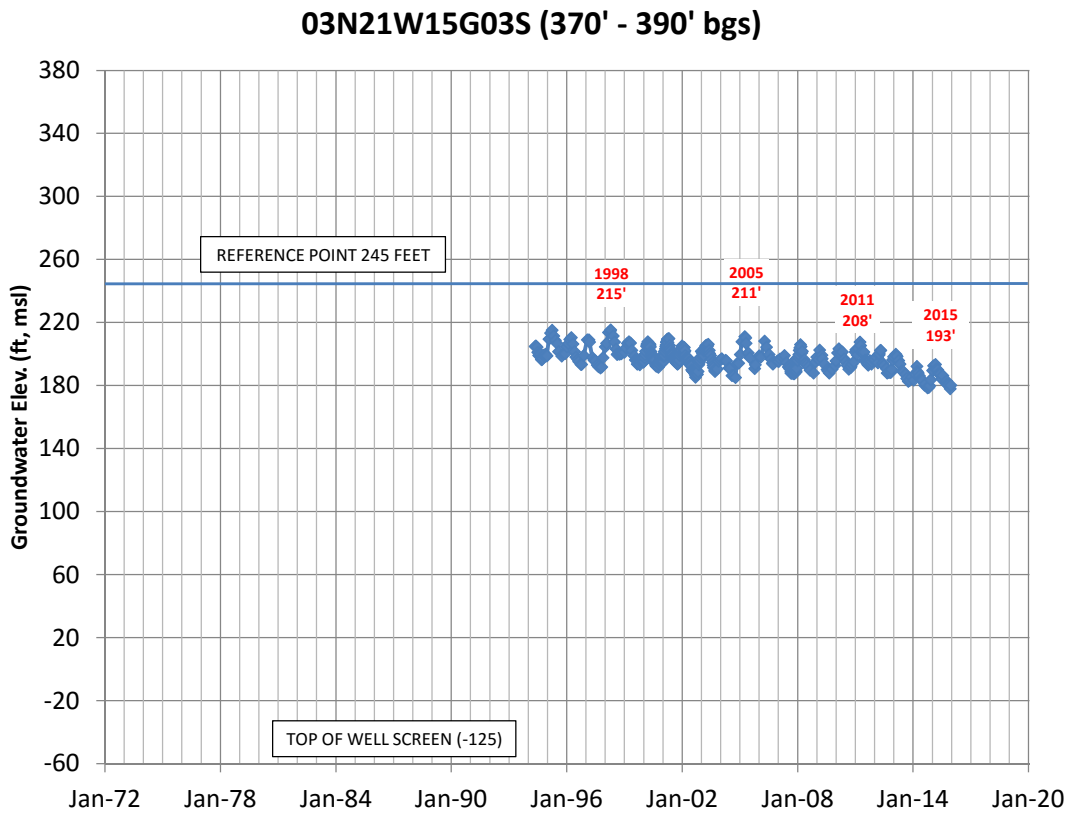

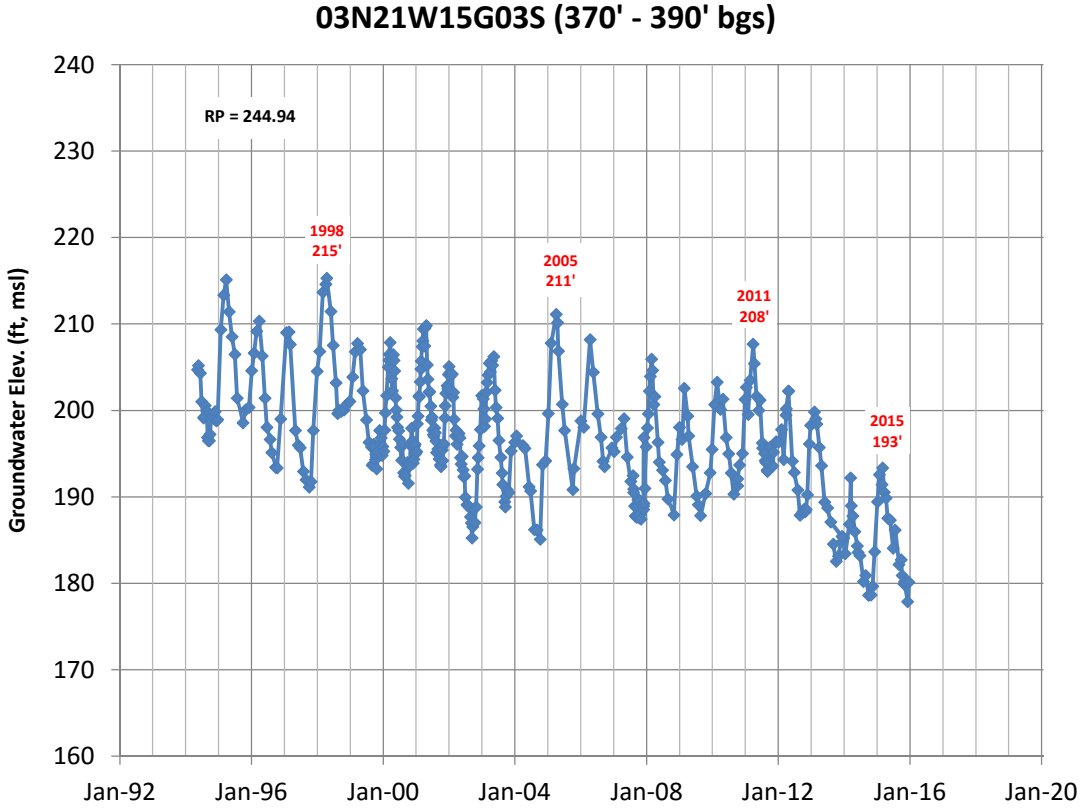

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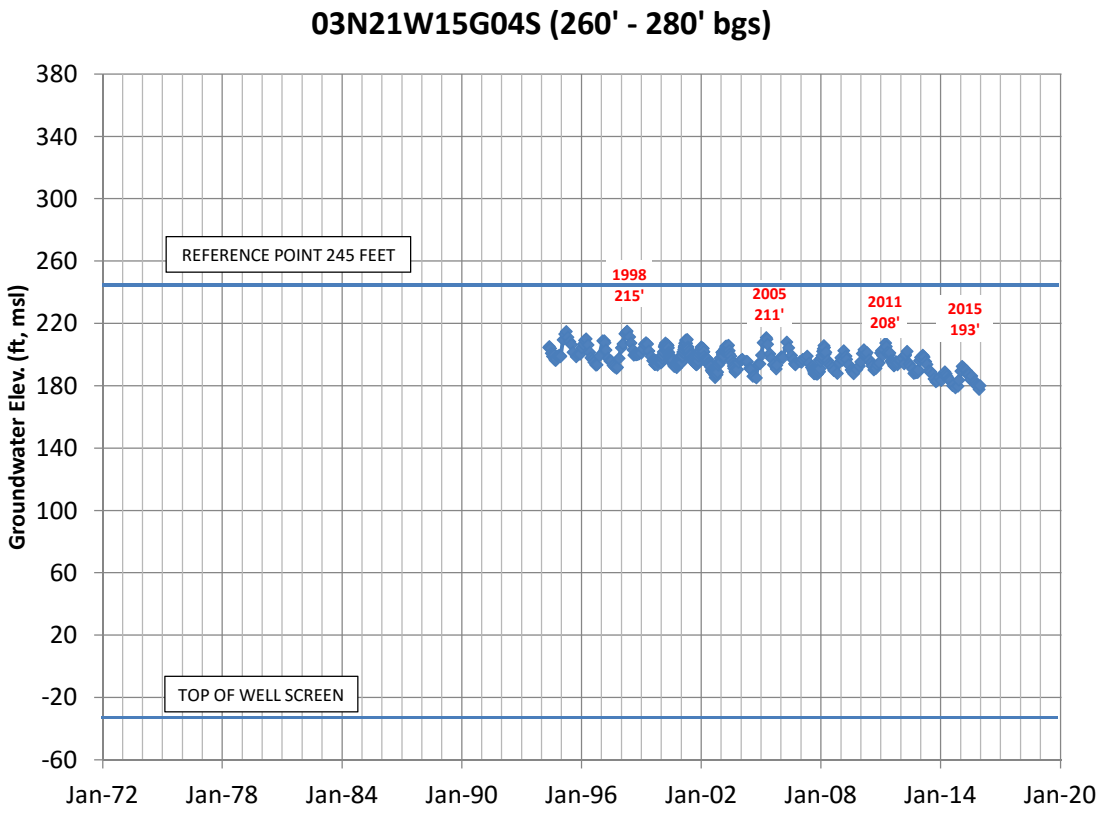

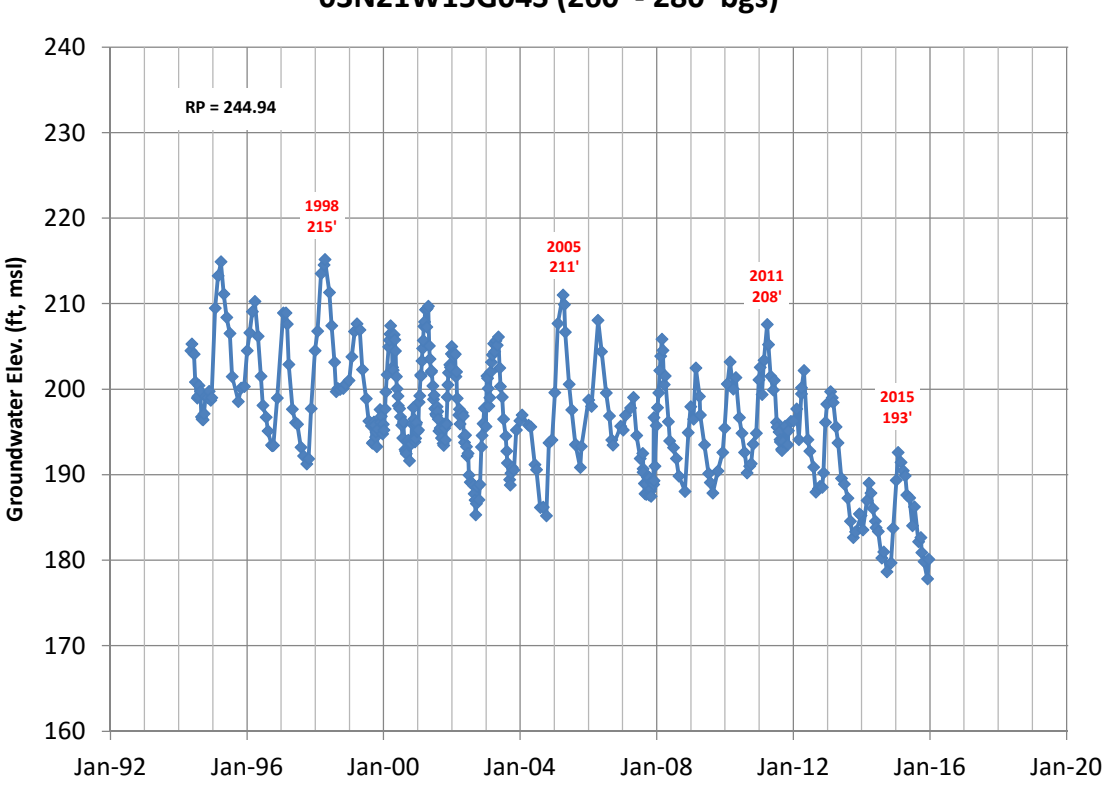

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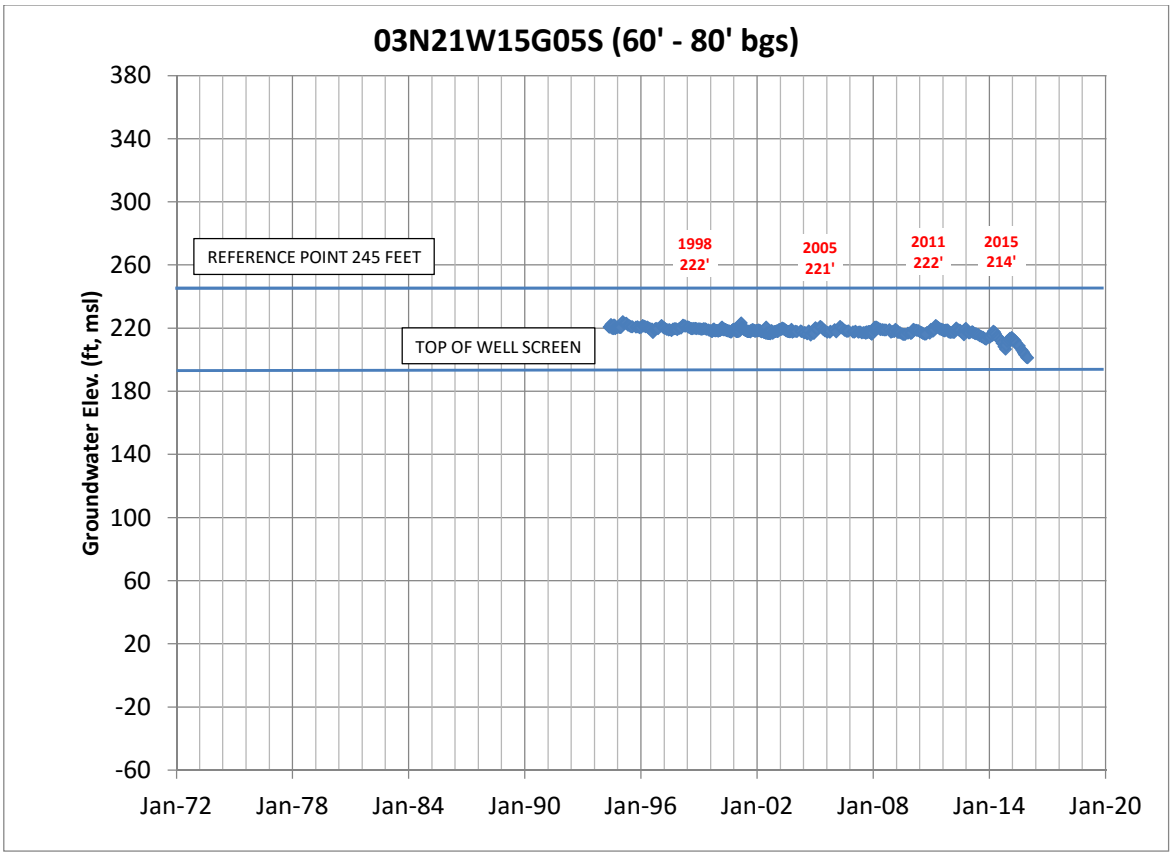

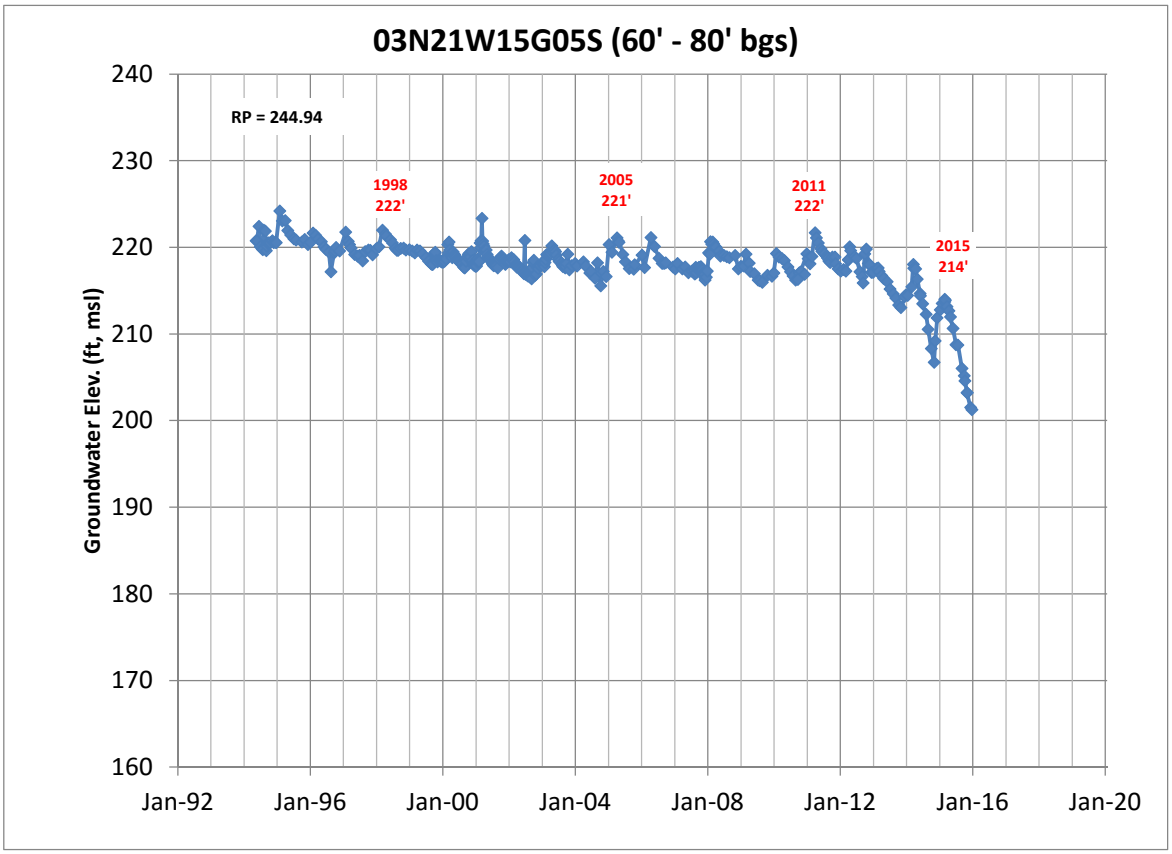

Figure B-35
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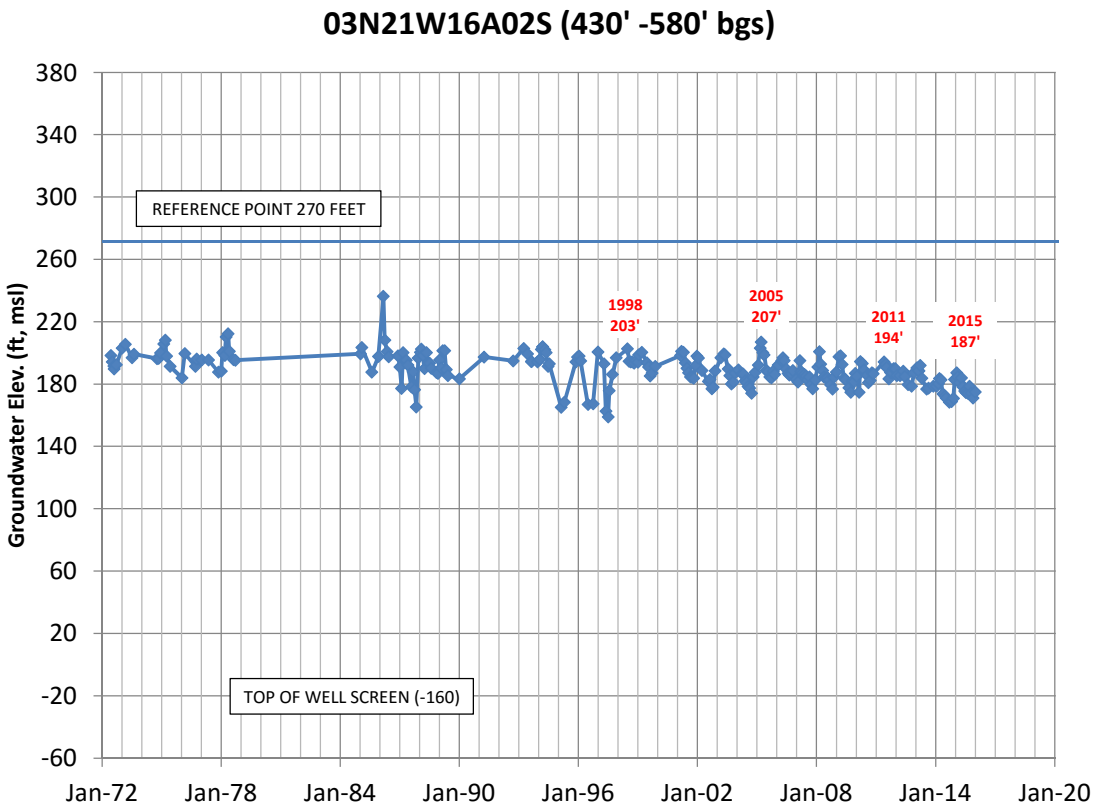

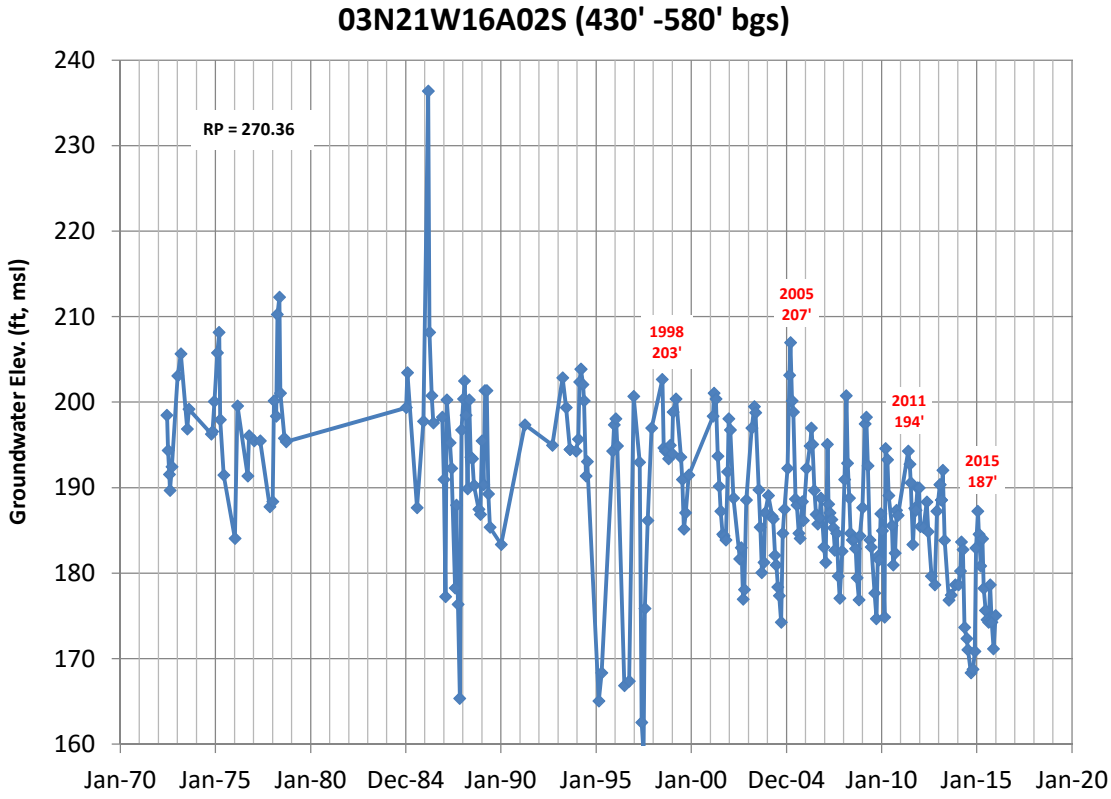

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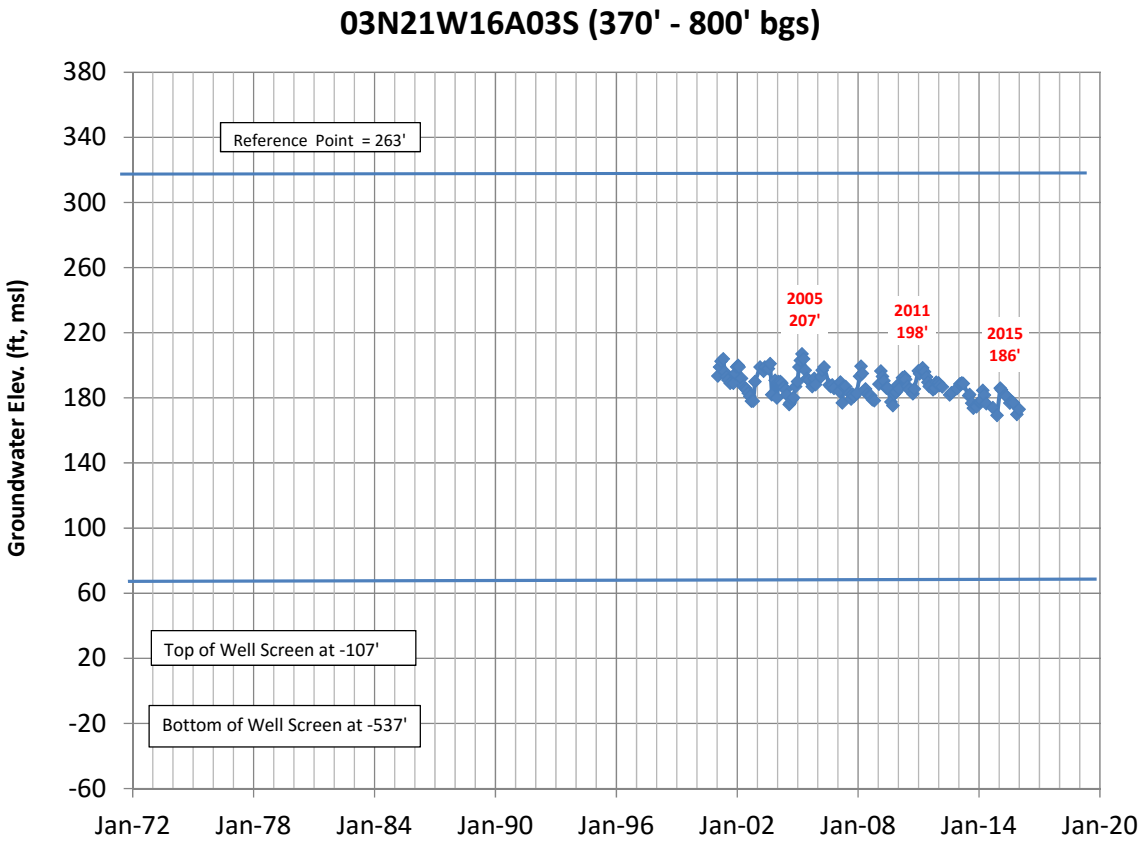

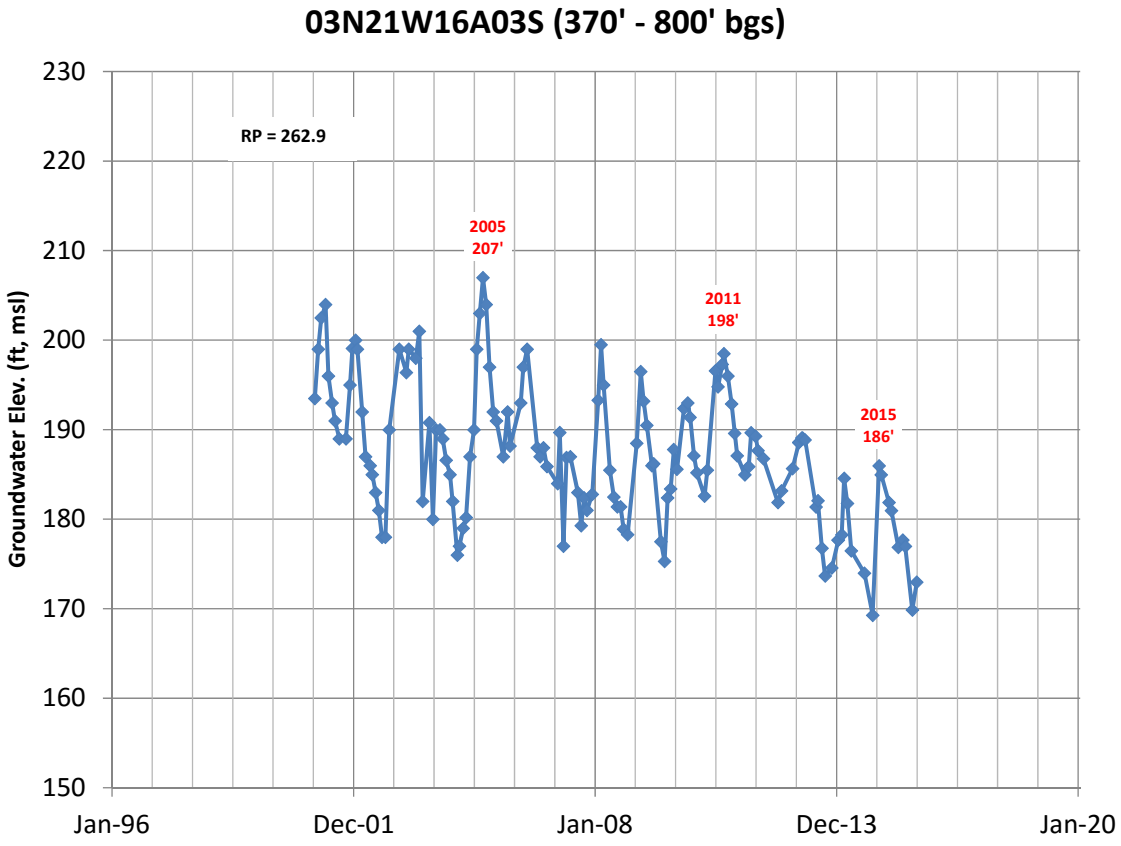

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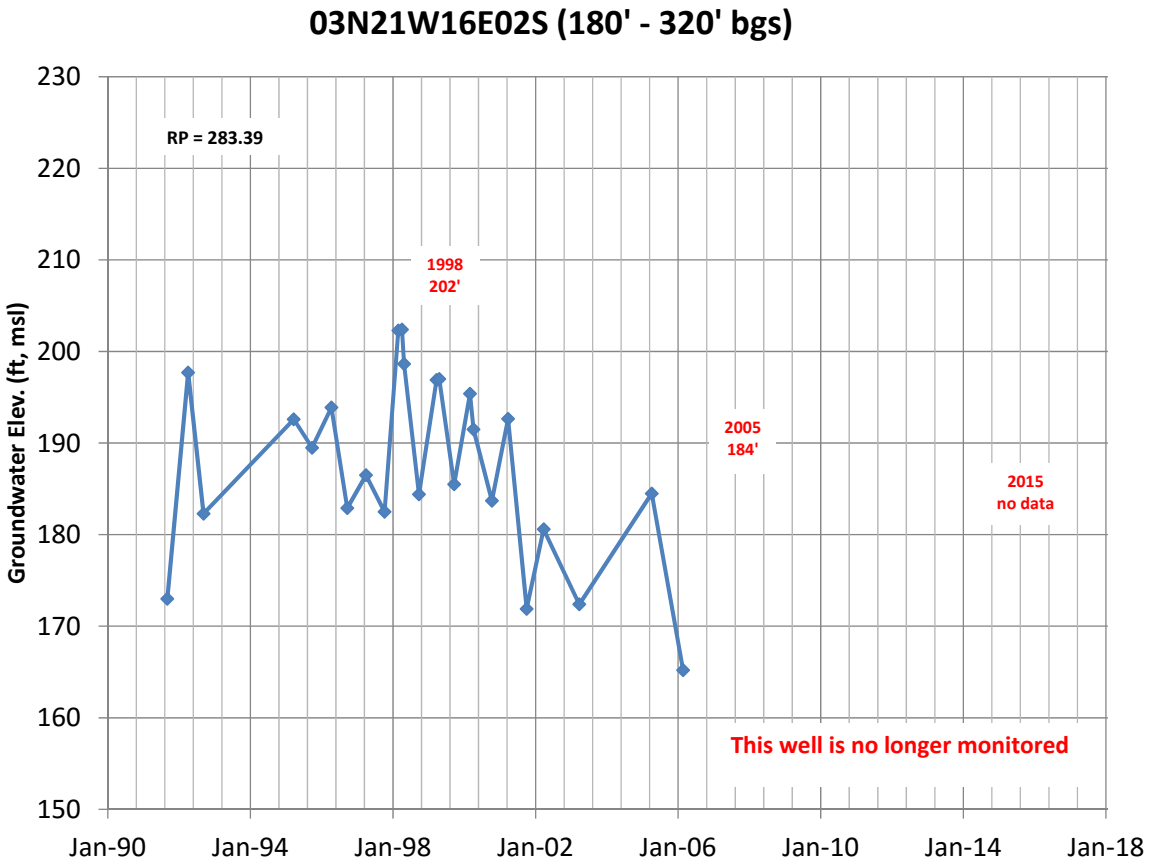

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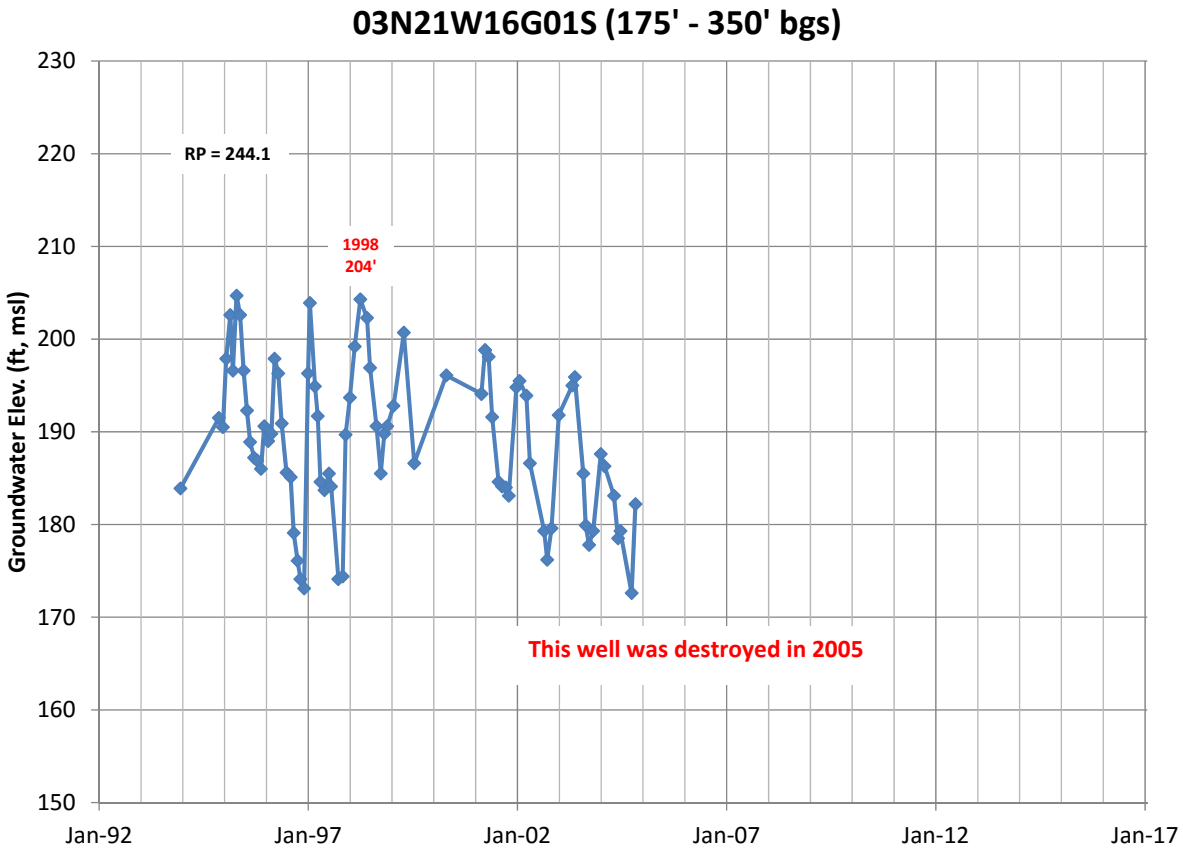

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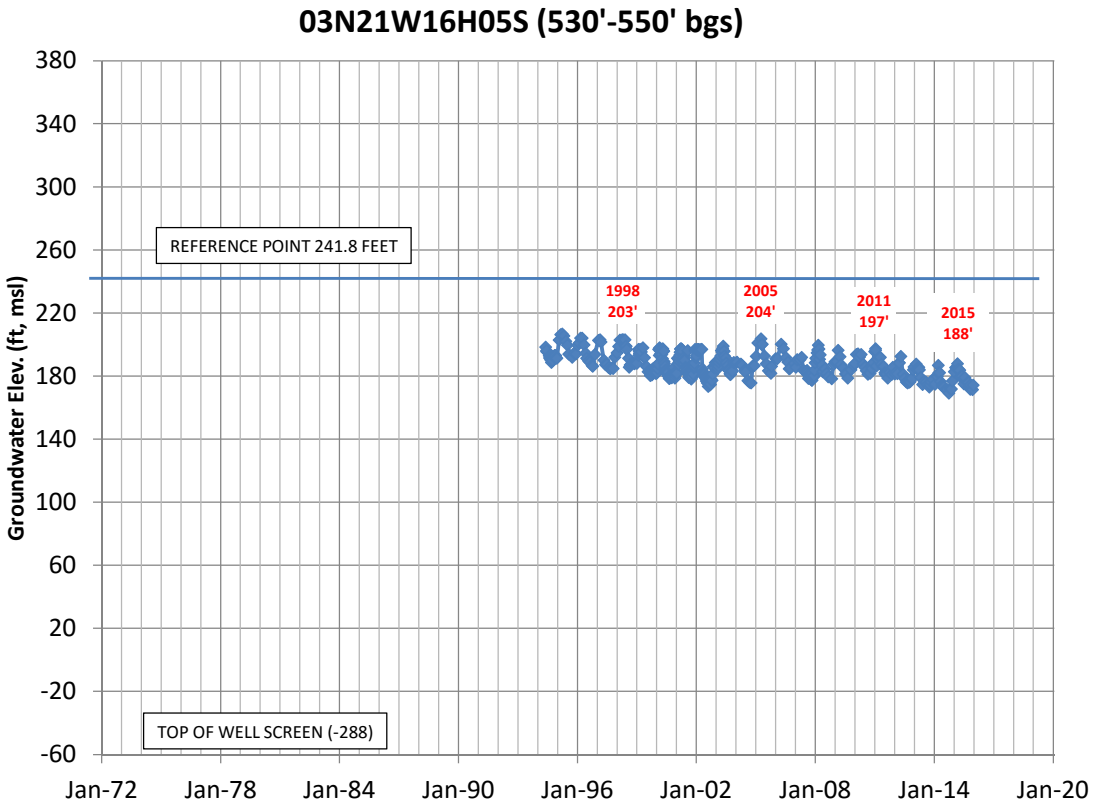

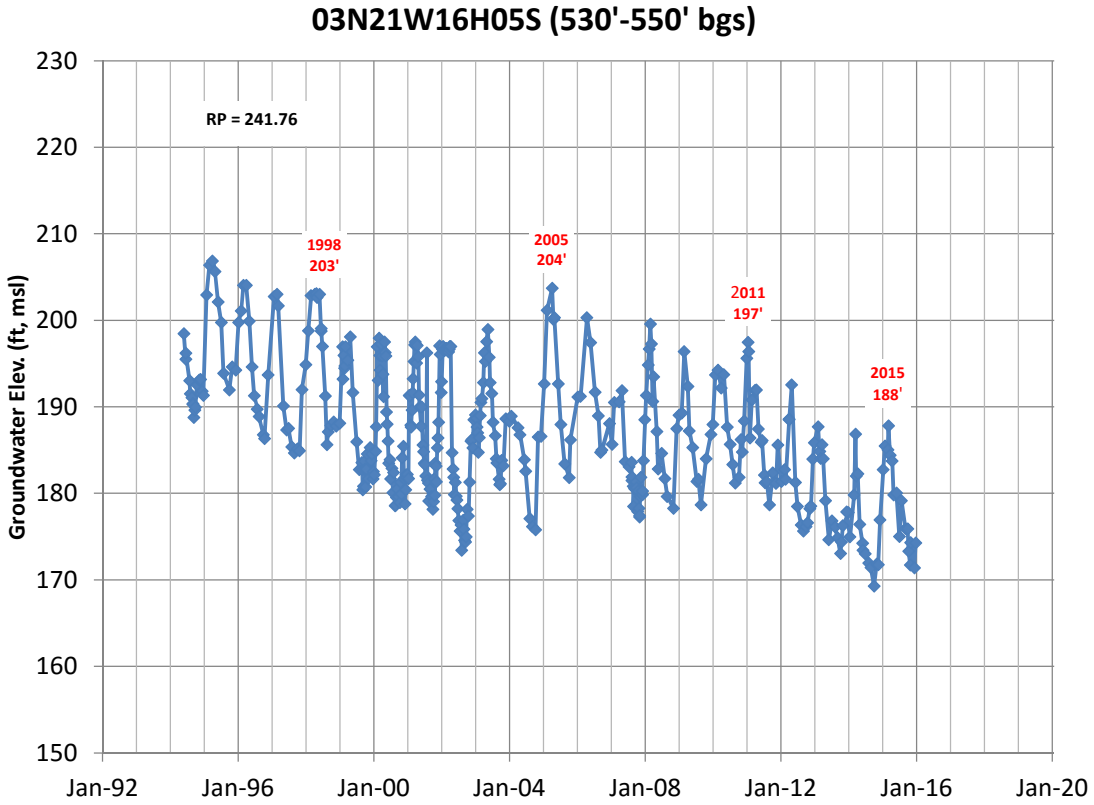

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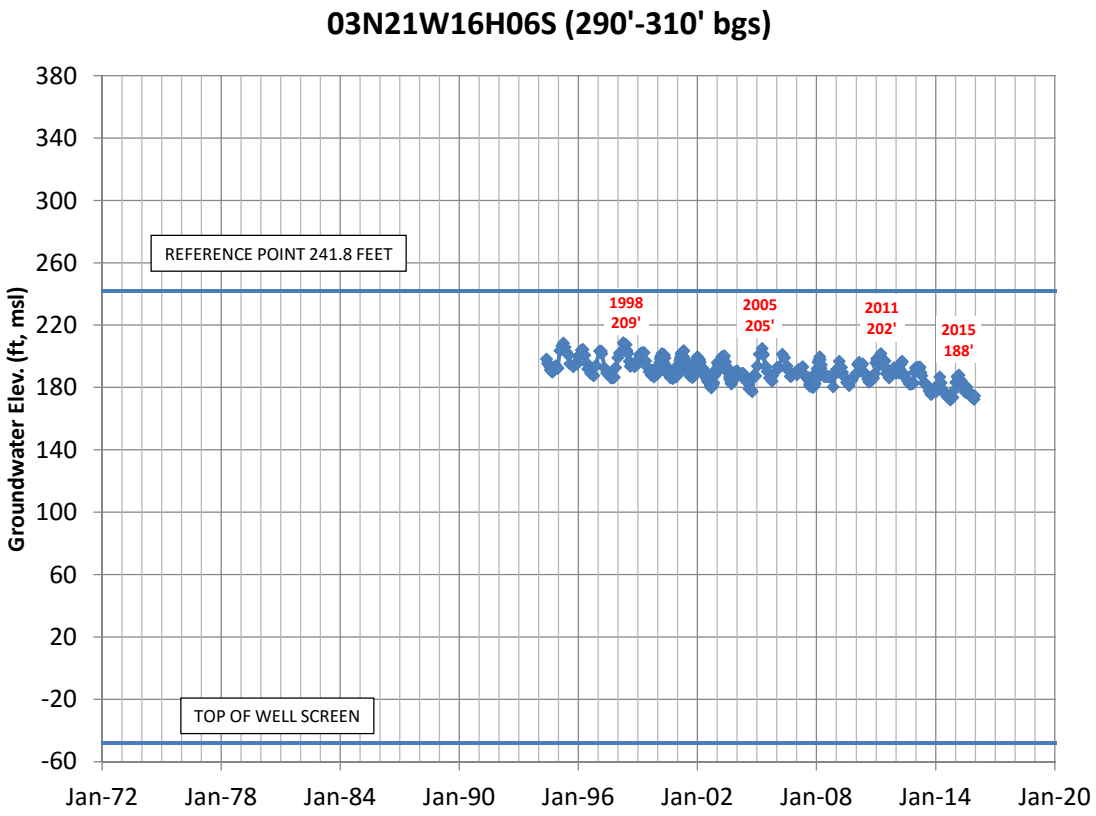

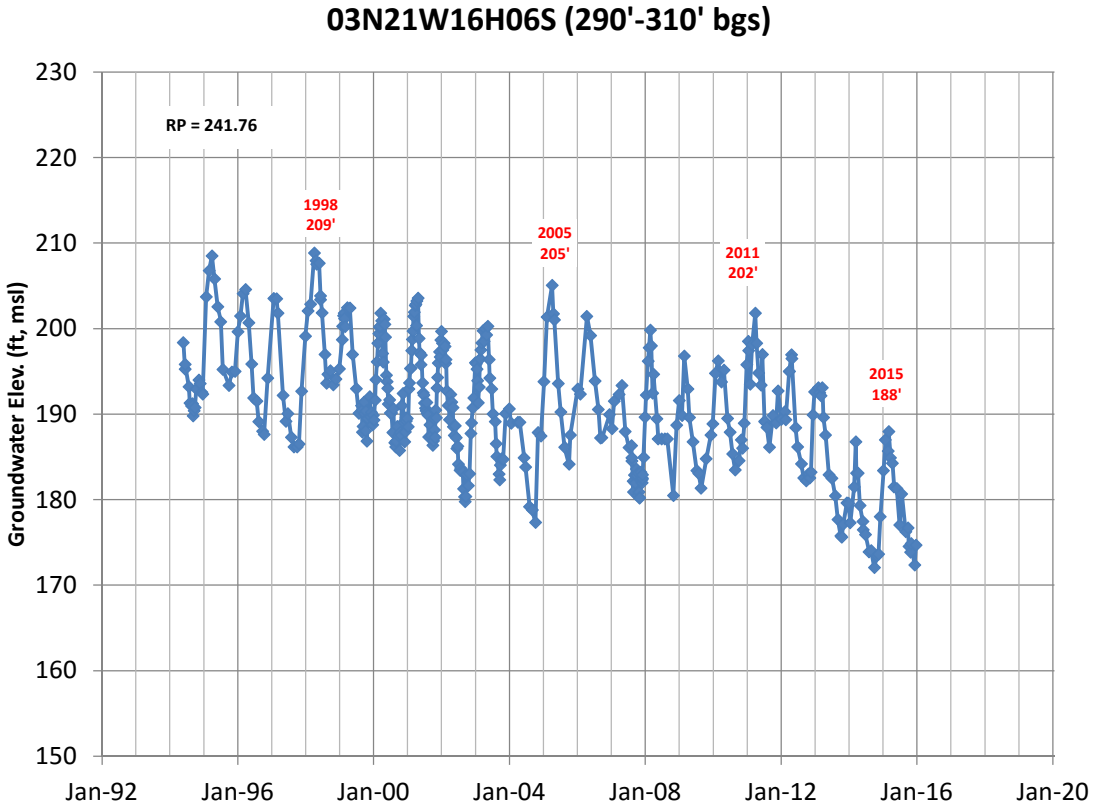

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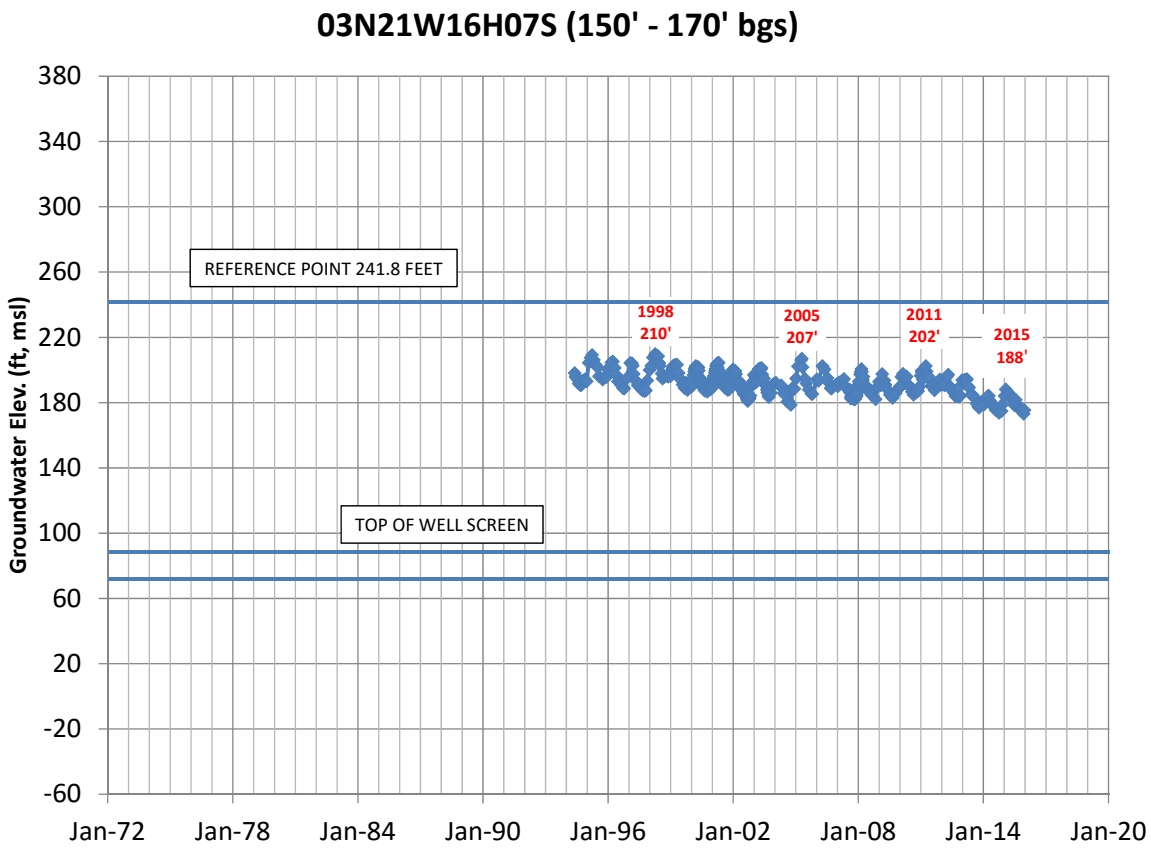

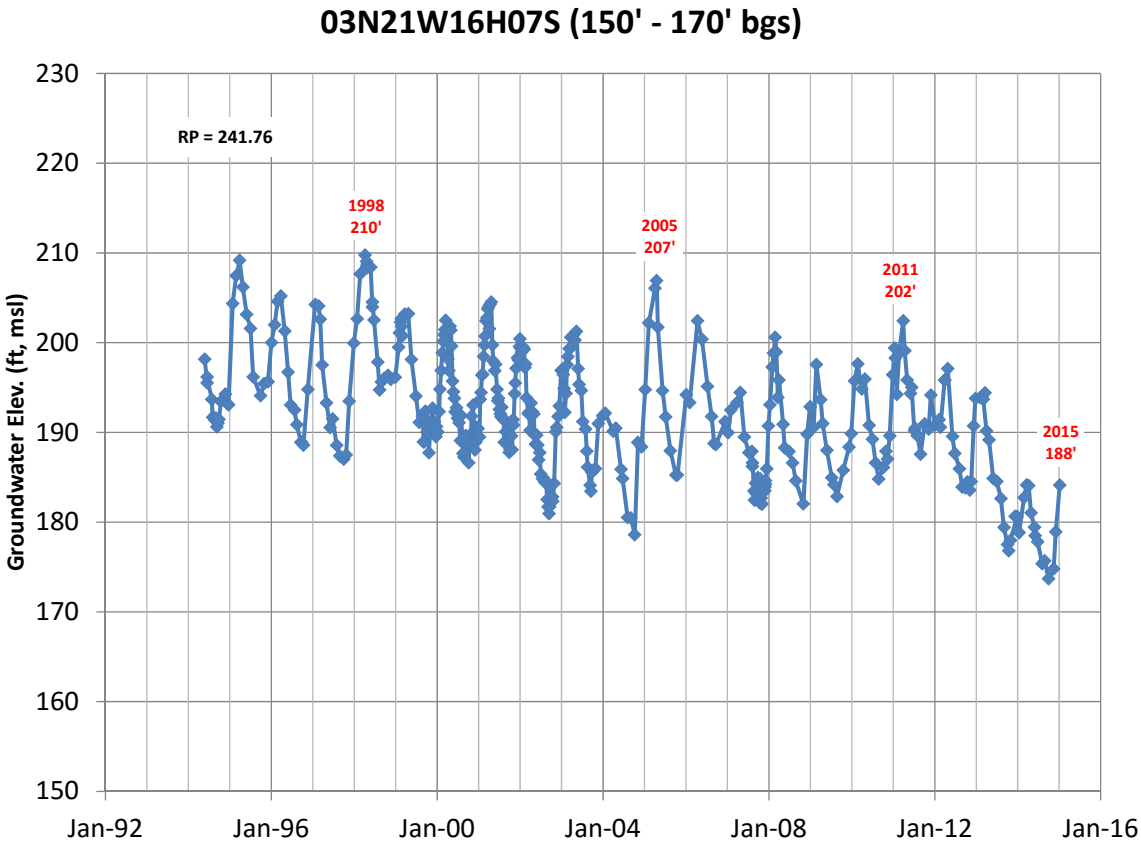

Figure B-42
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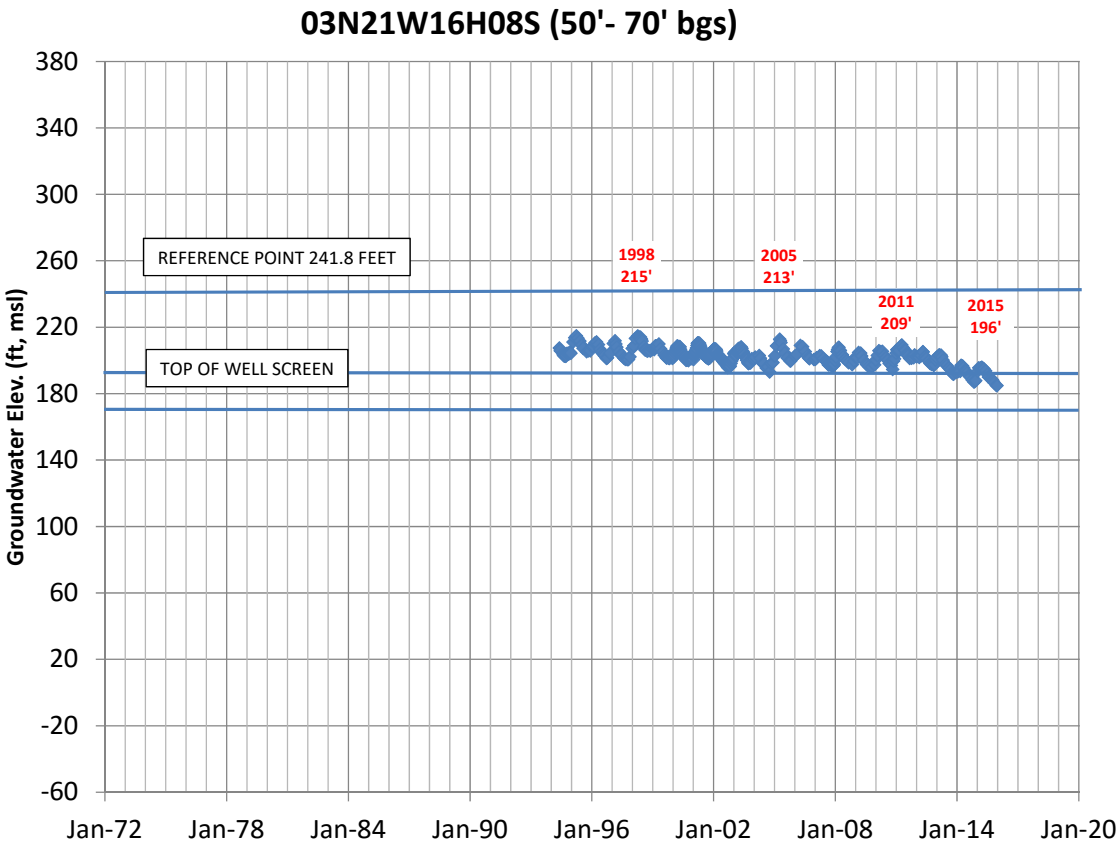

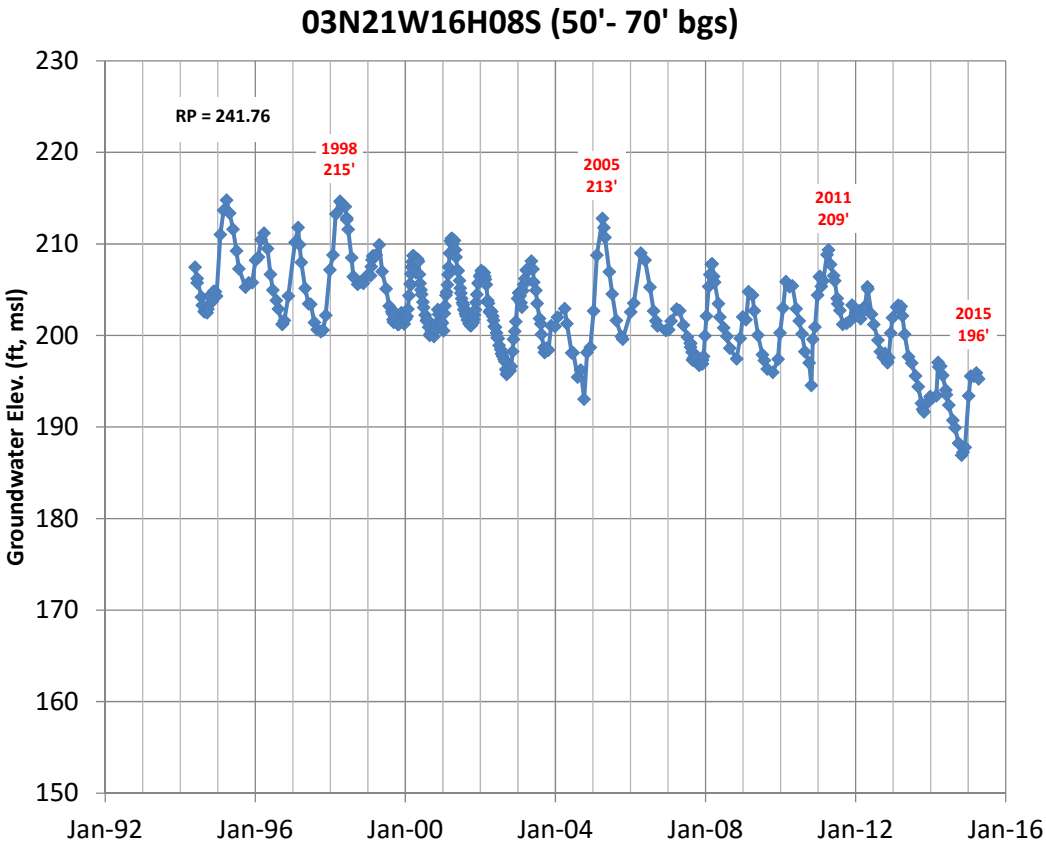

Figure B-43
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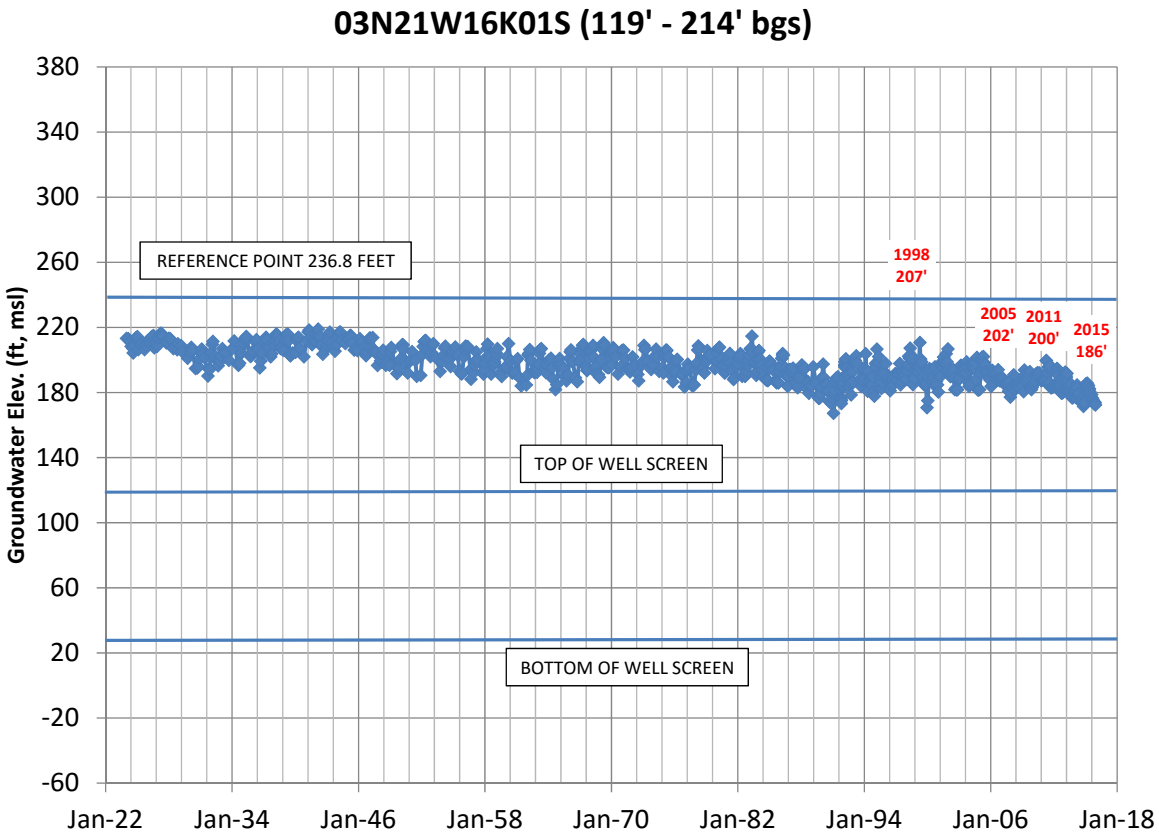

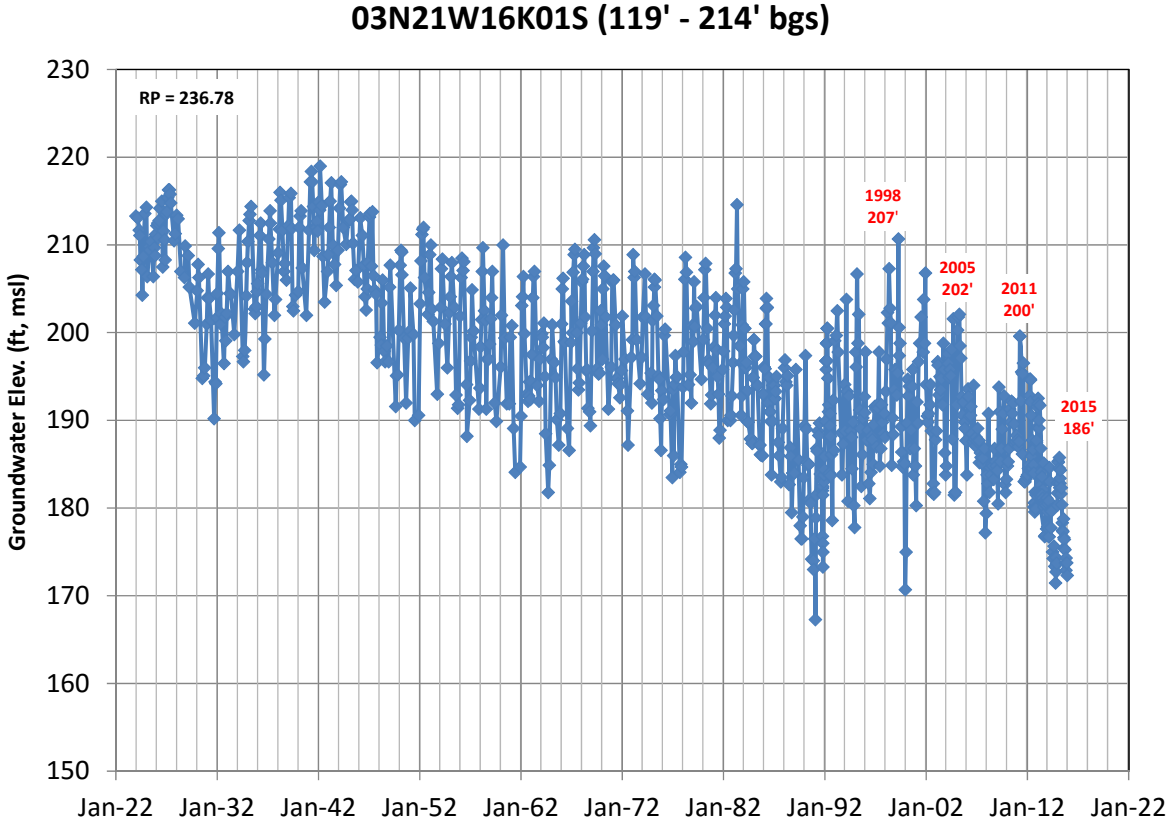

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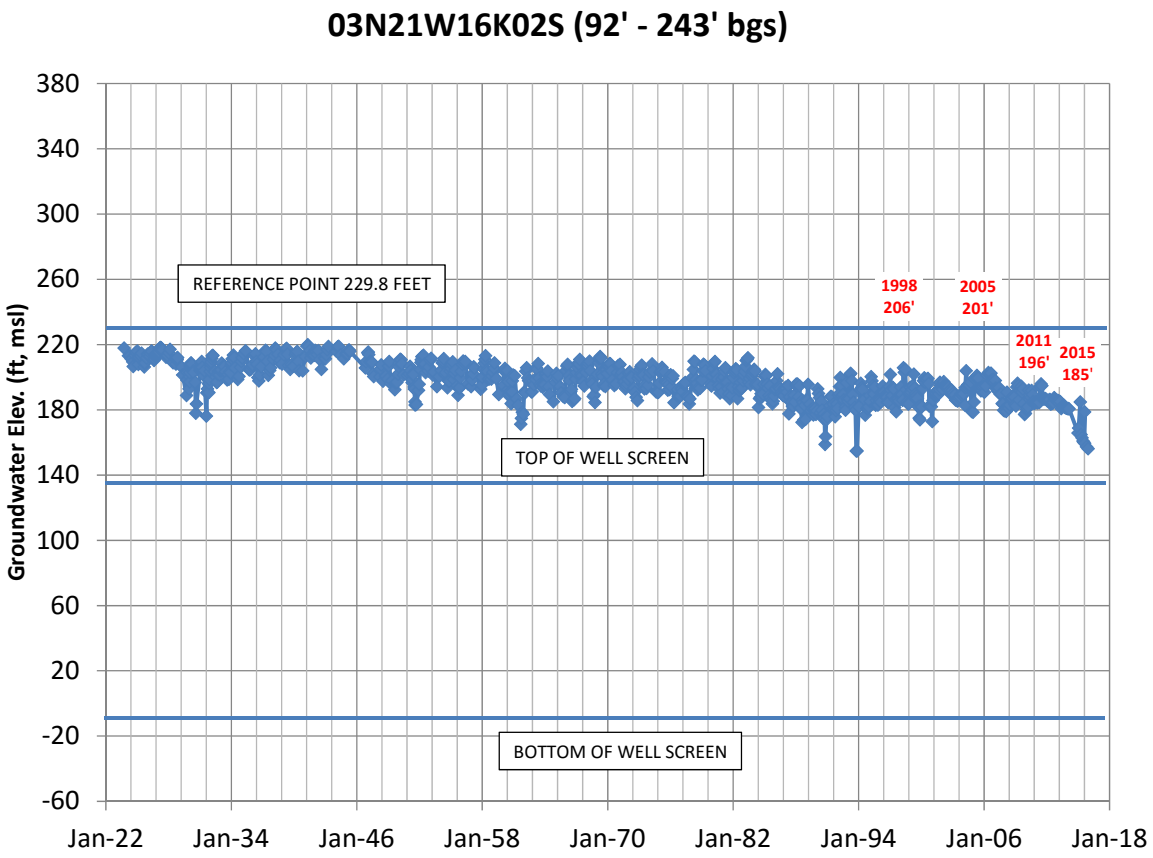

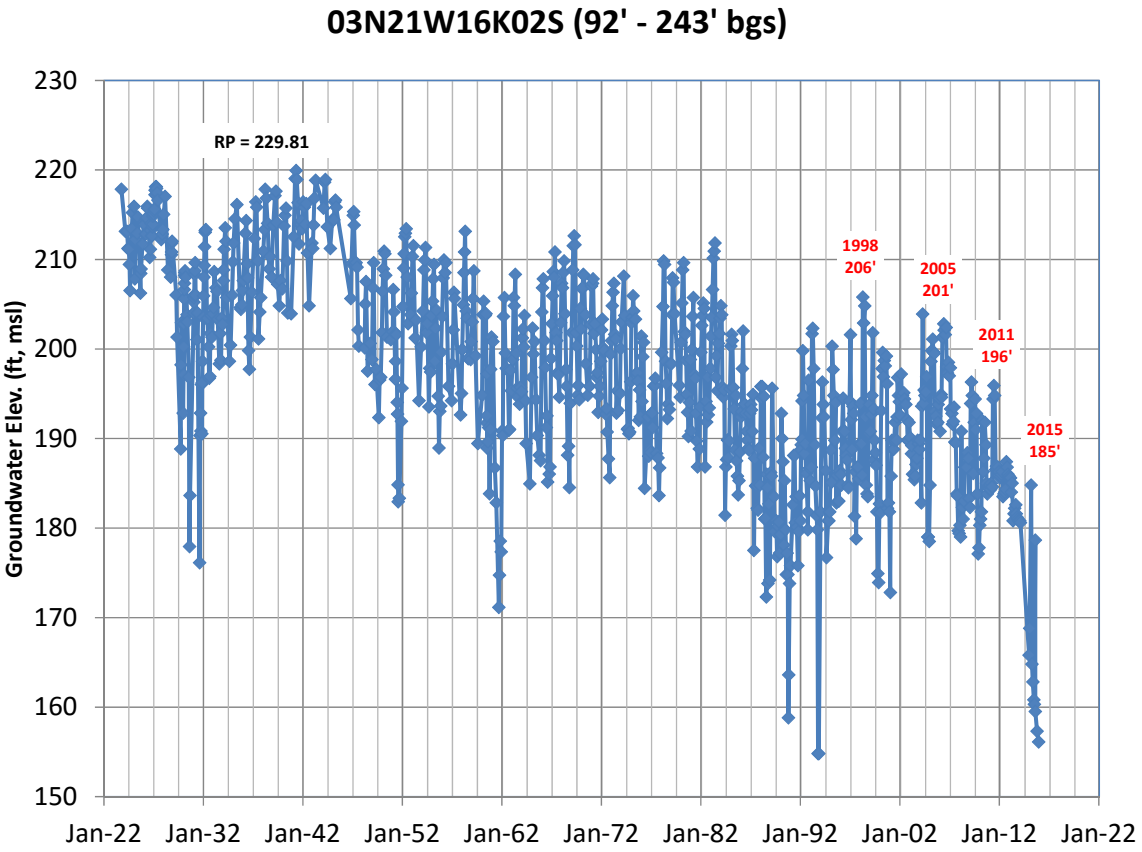

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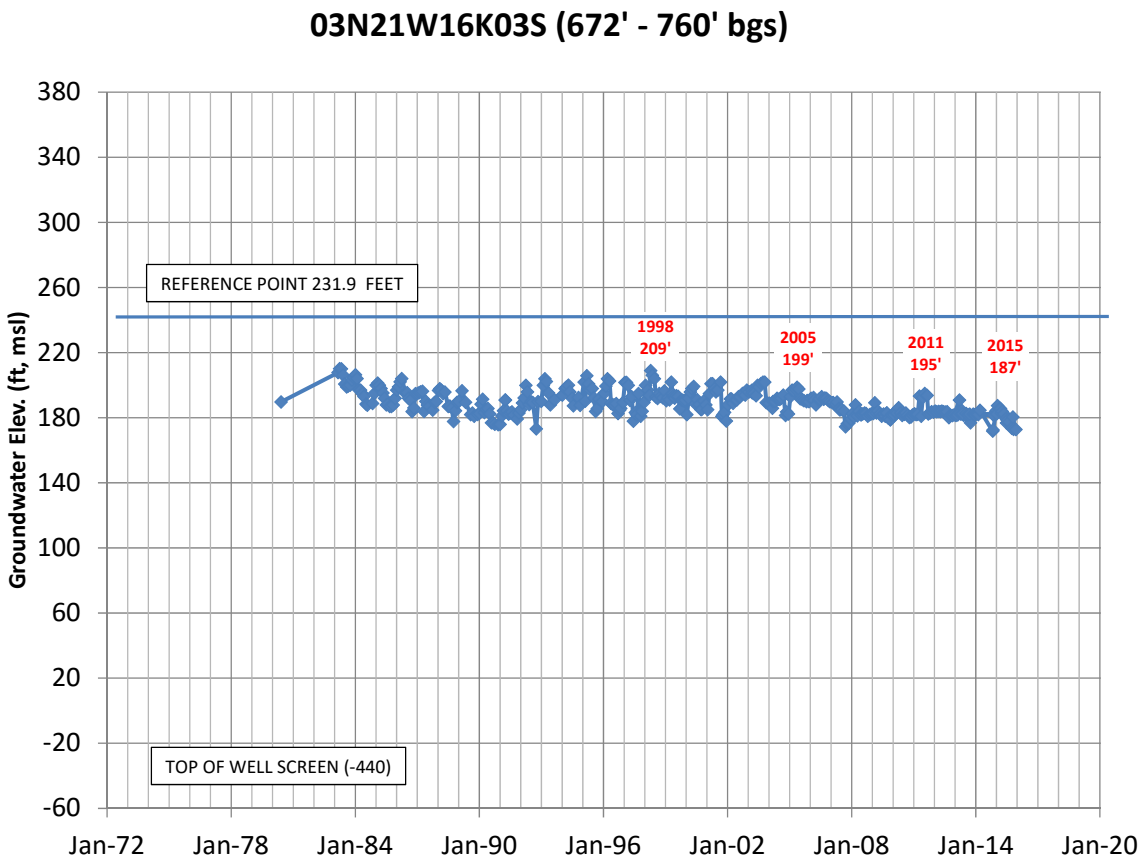

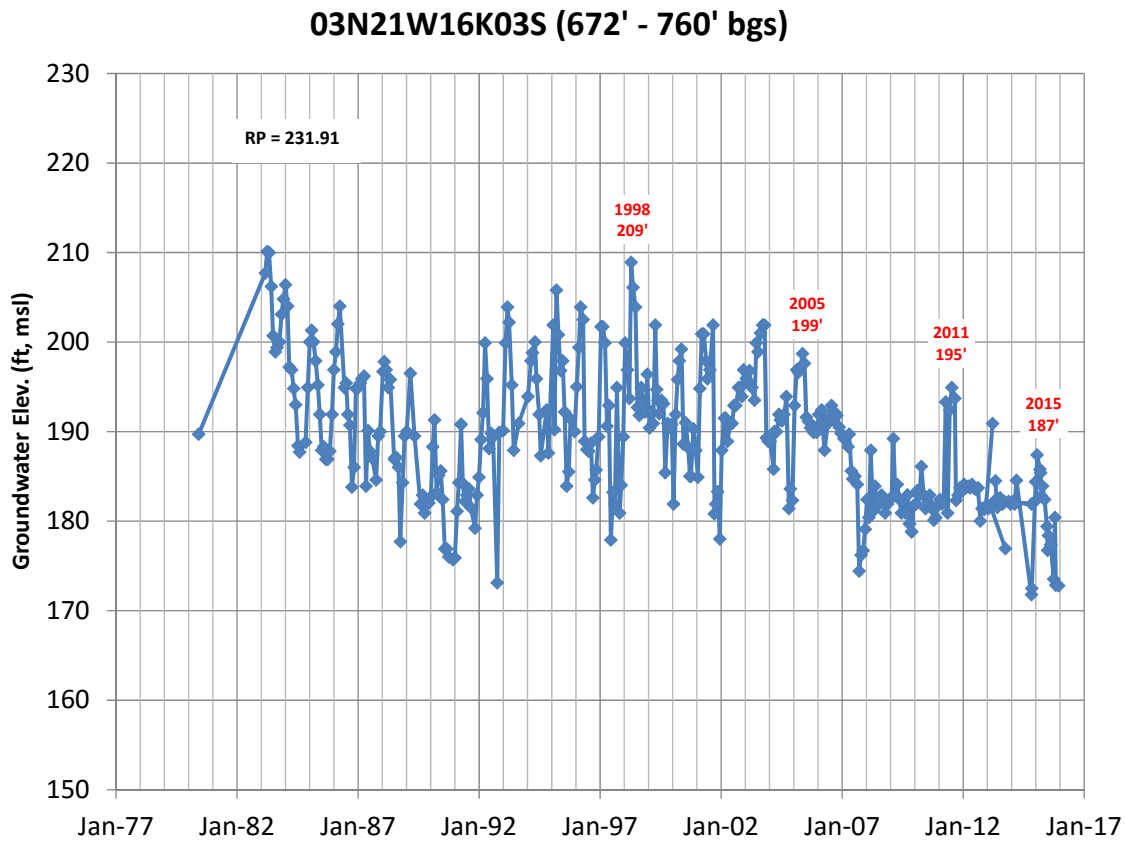

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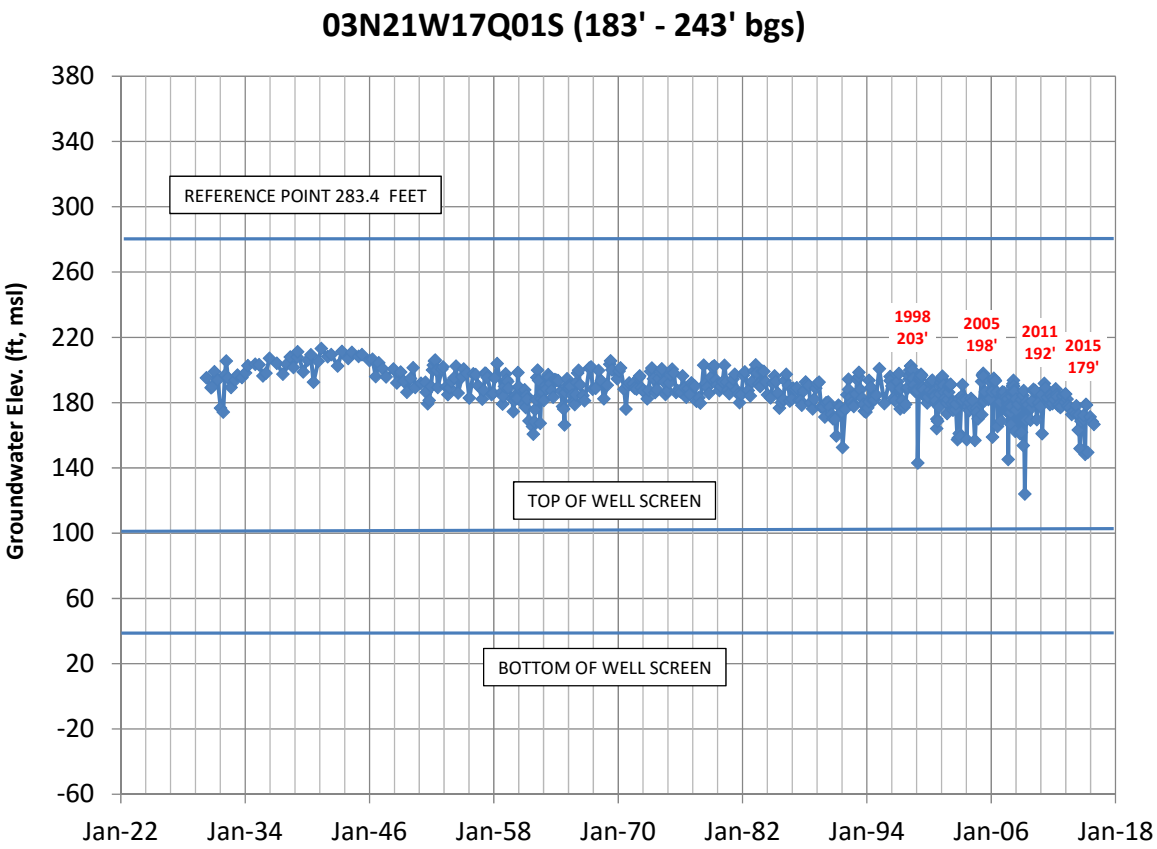

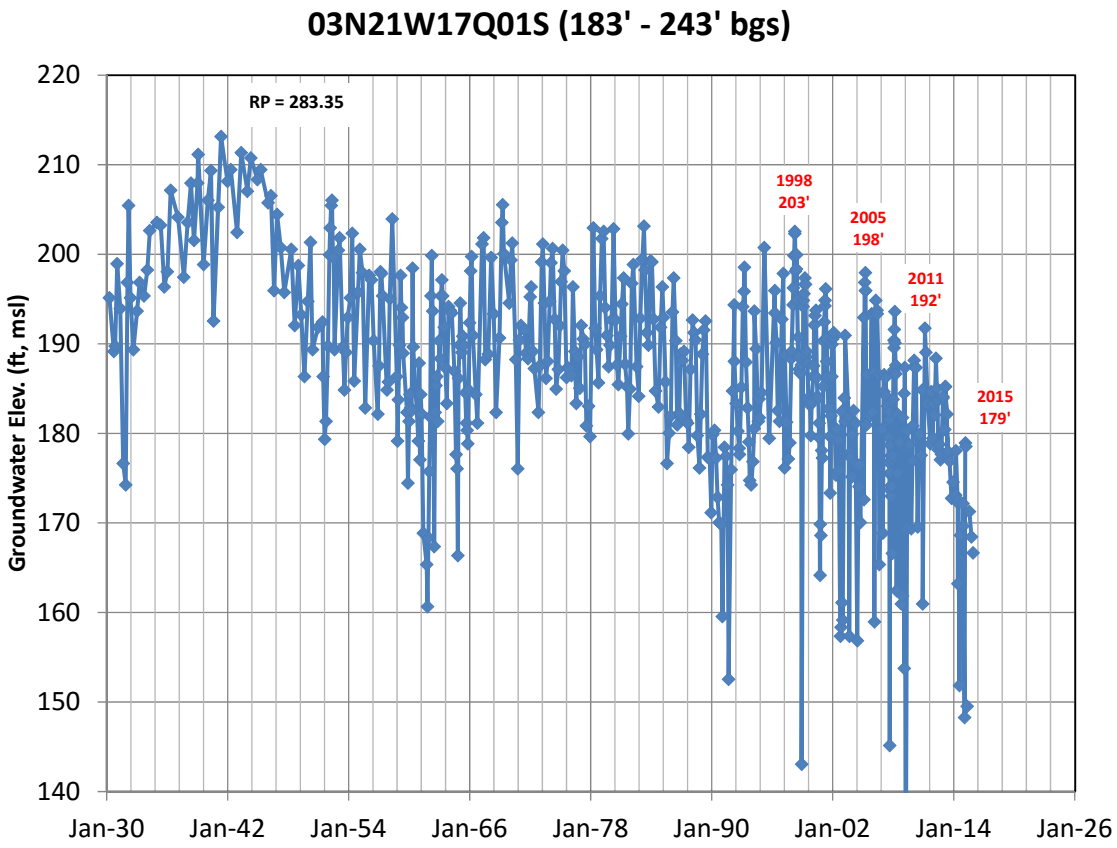

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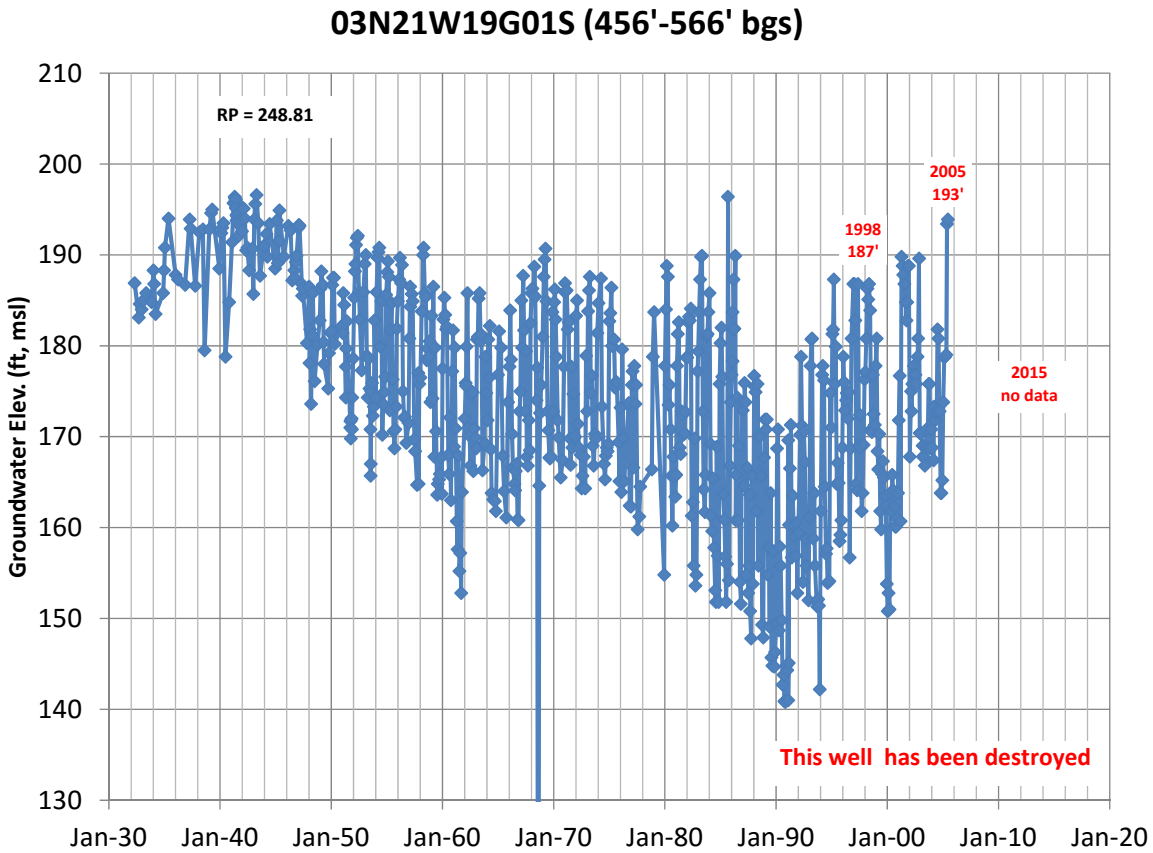

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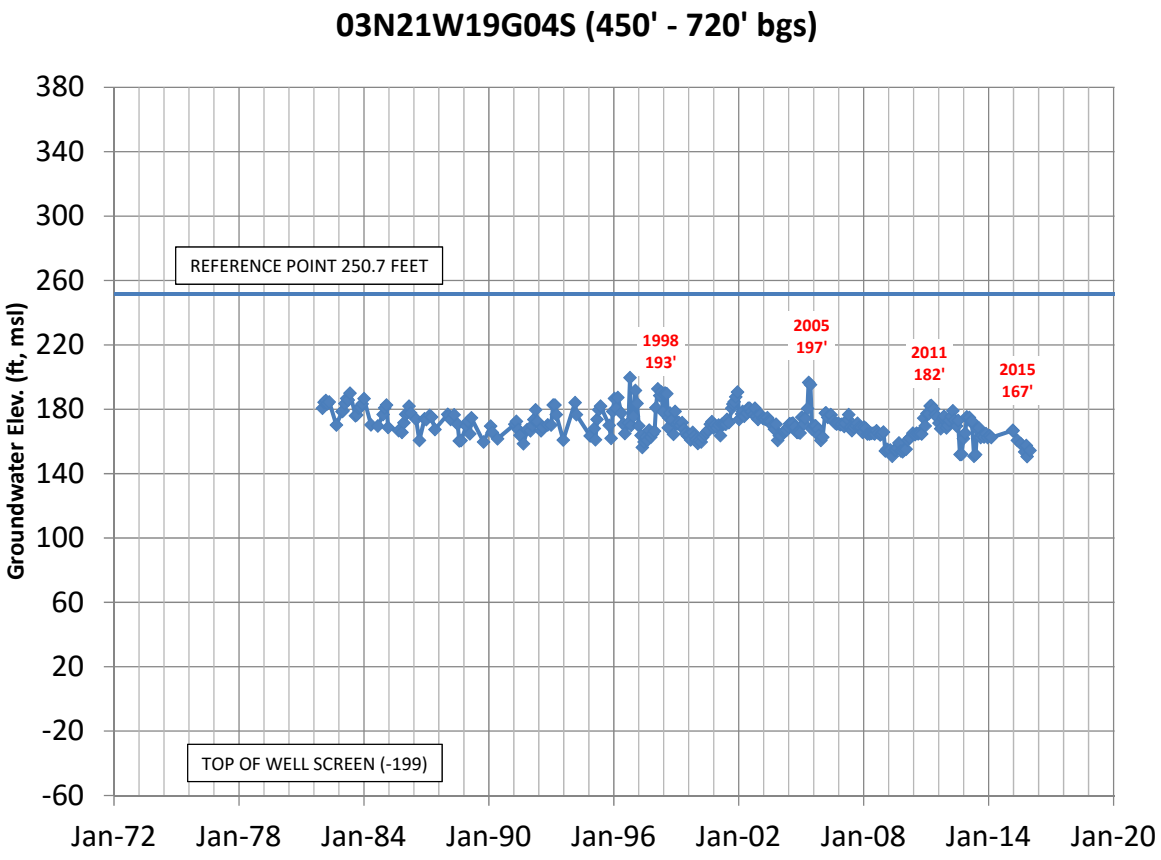

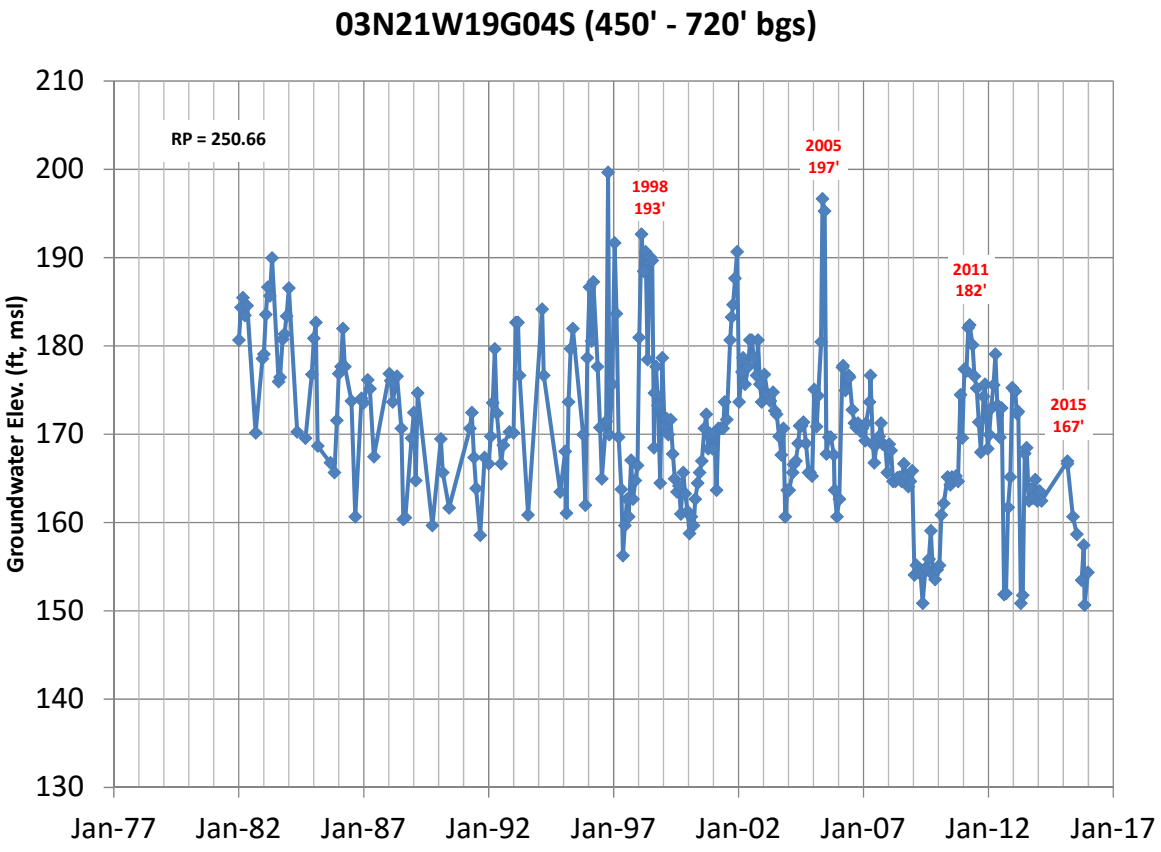

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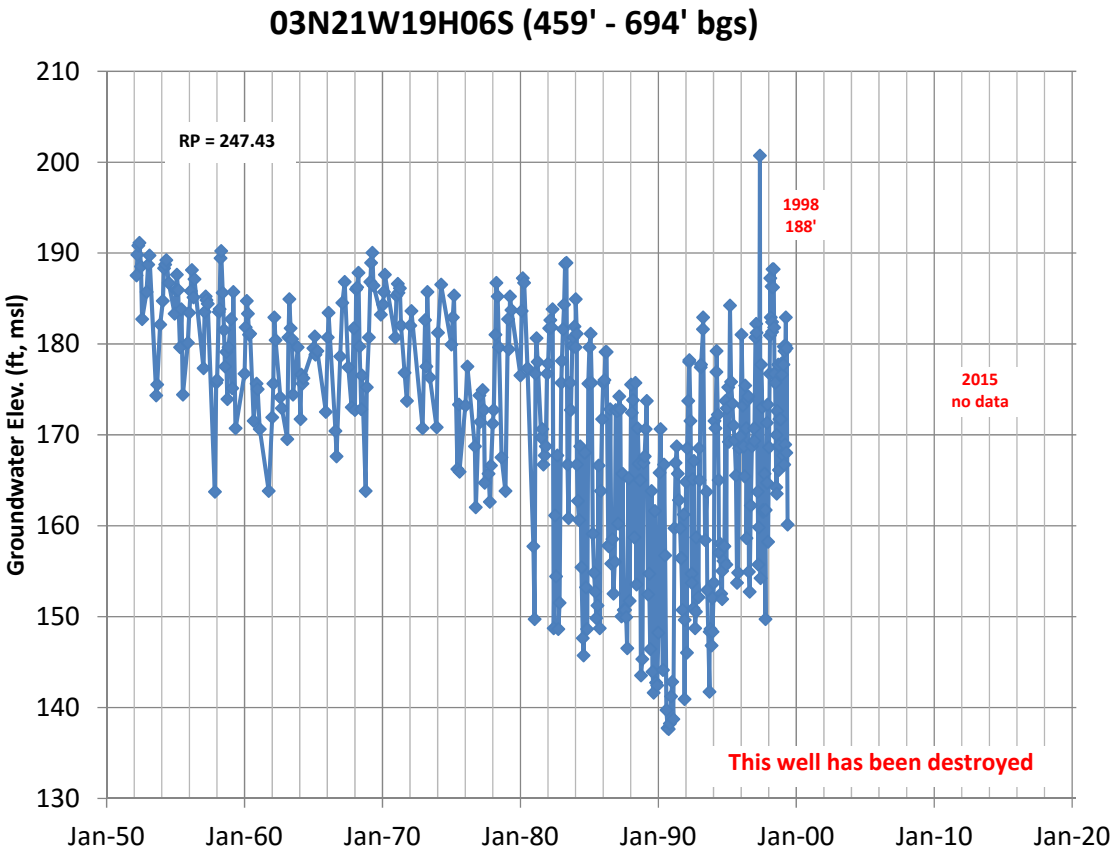

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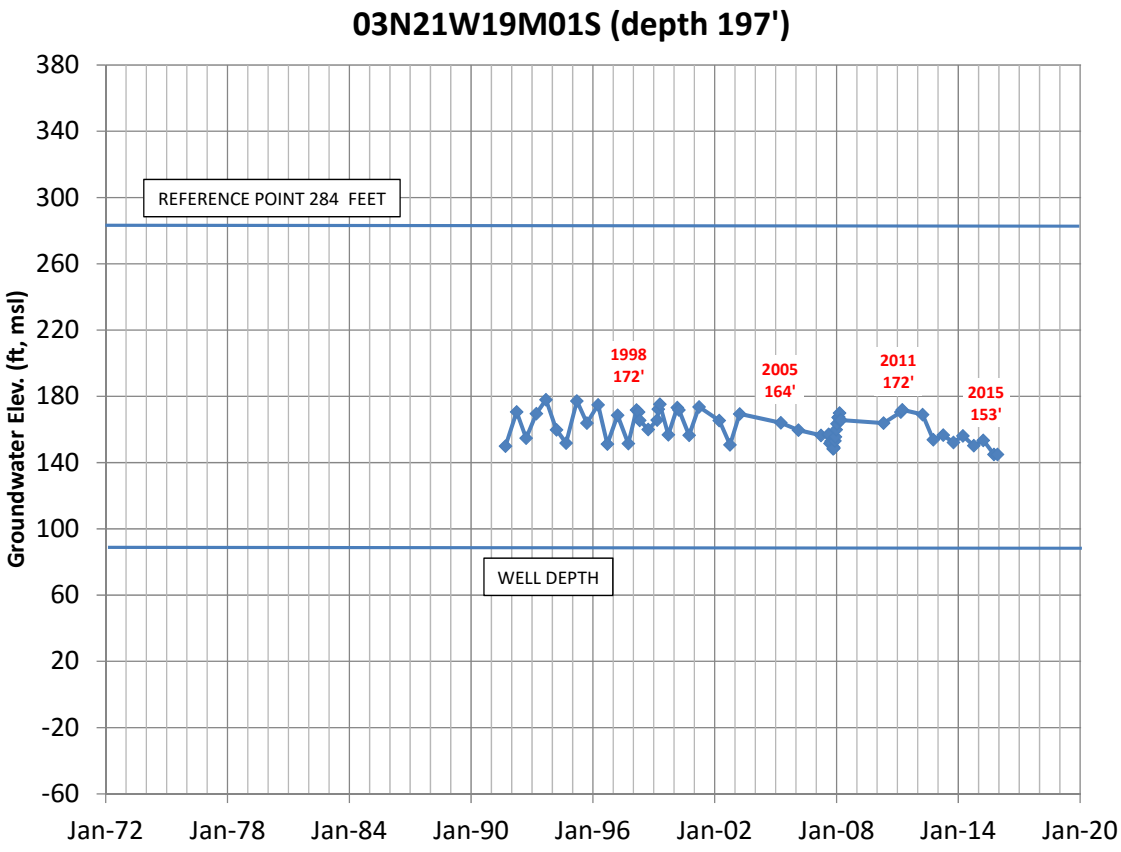

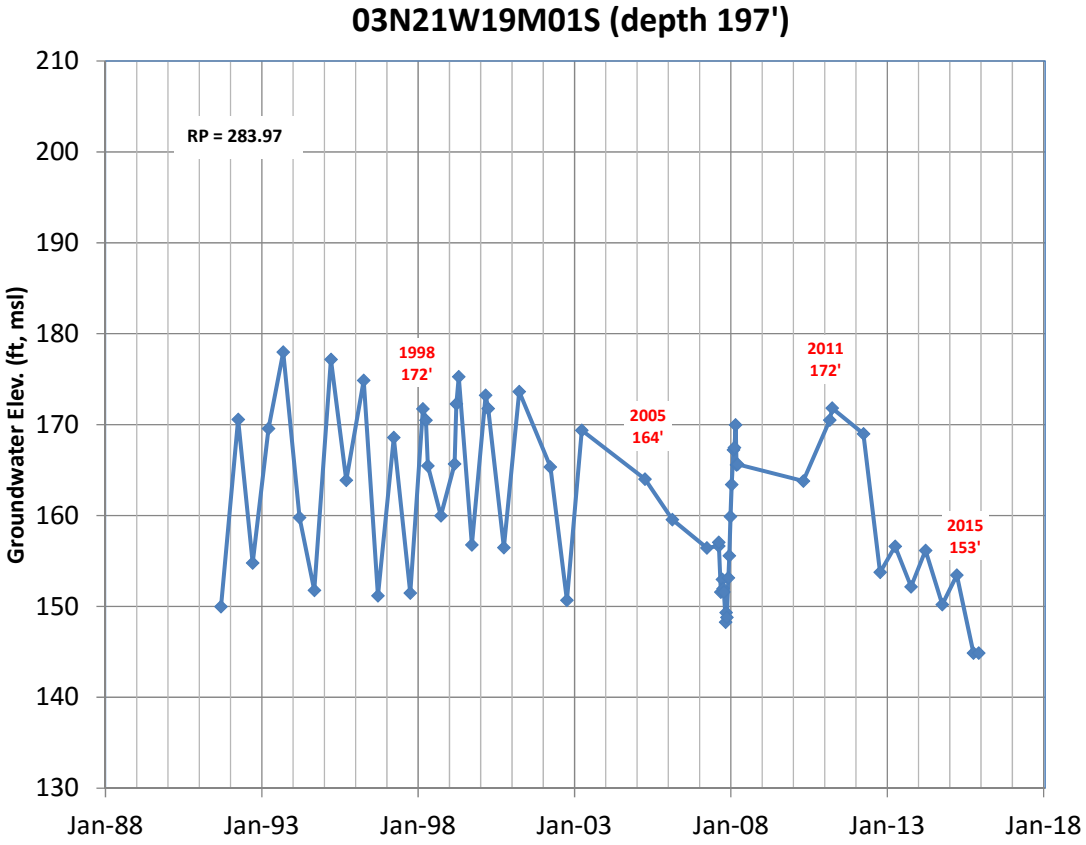

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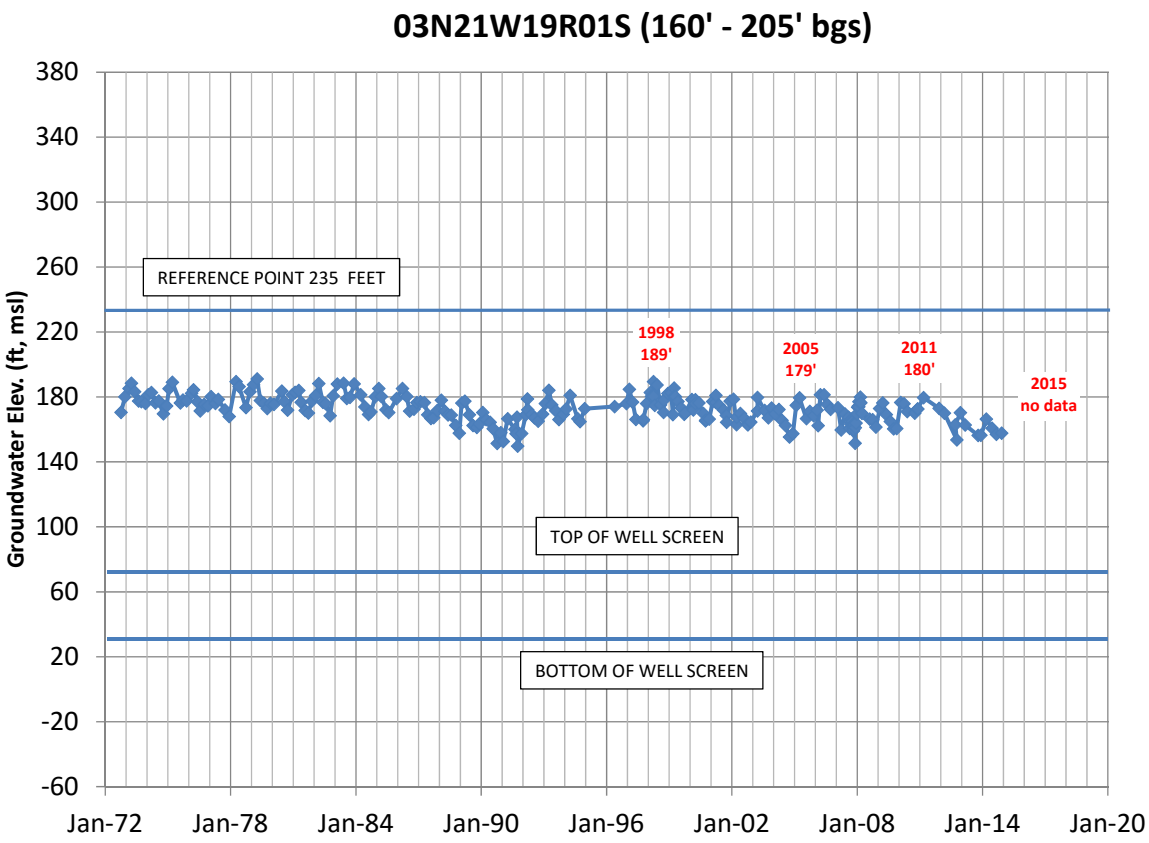

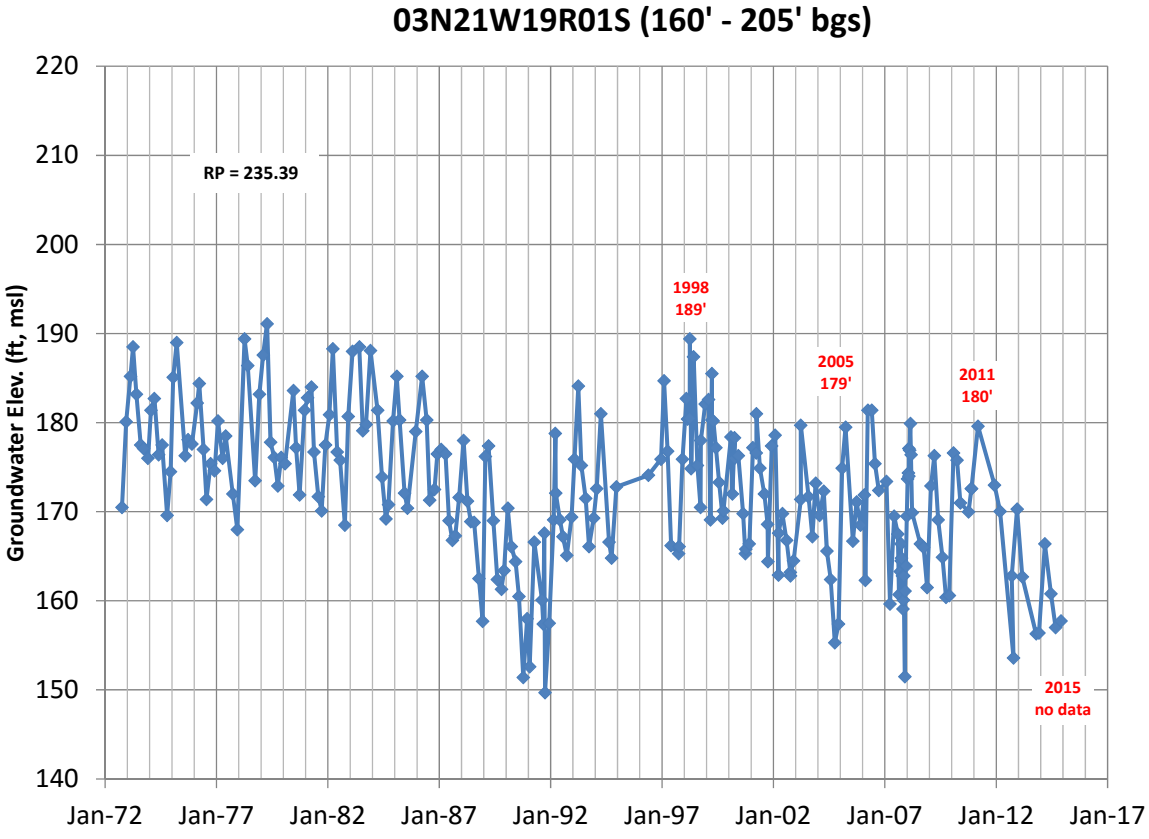

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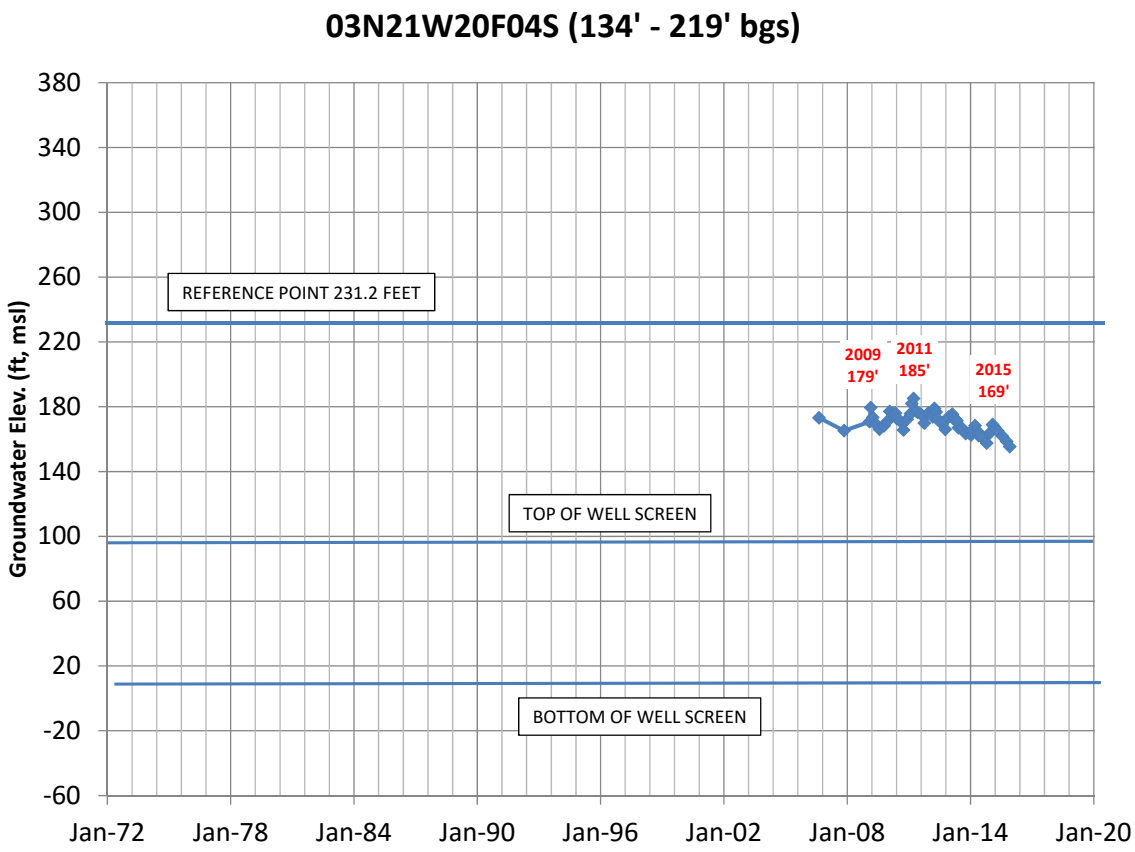

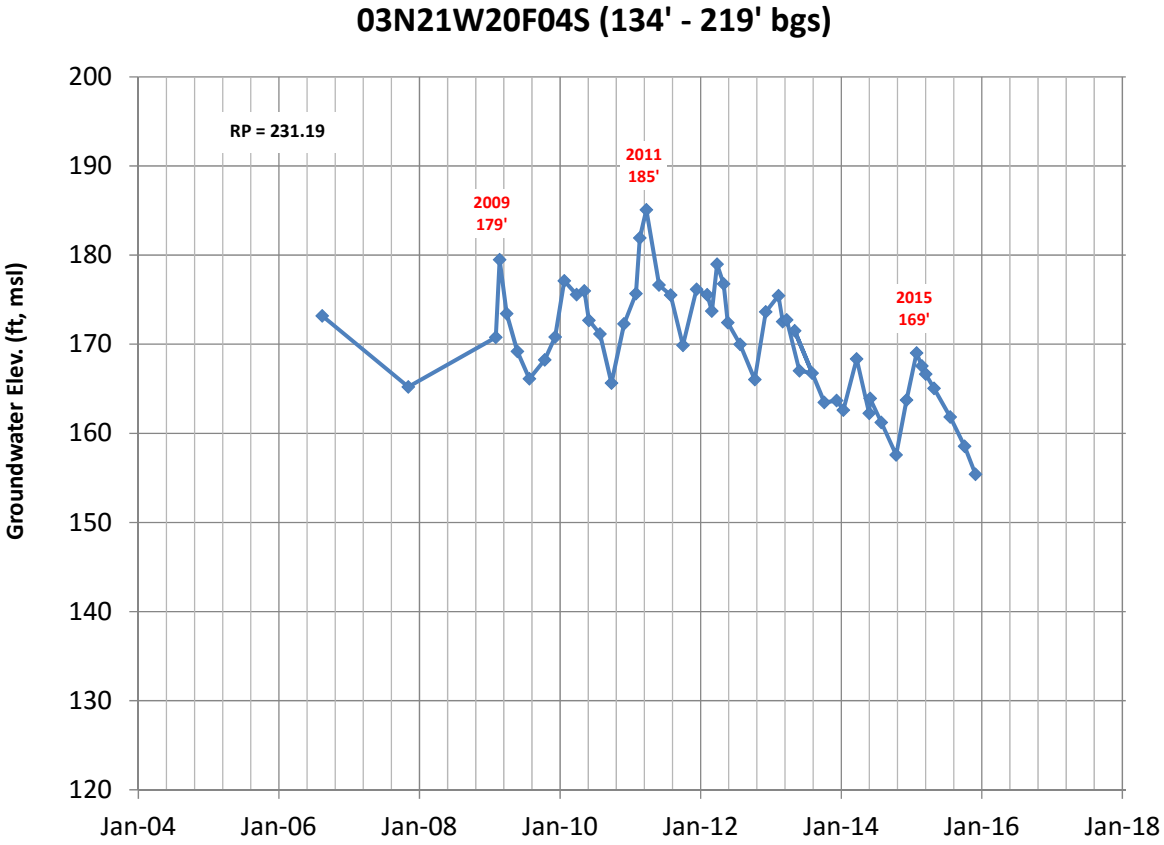

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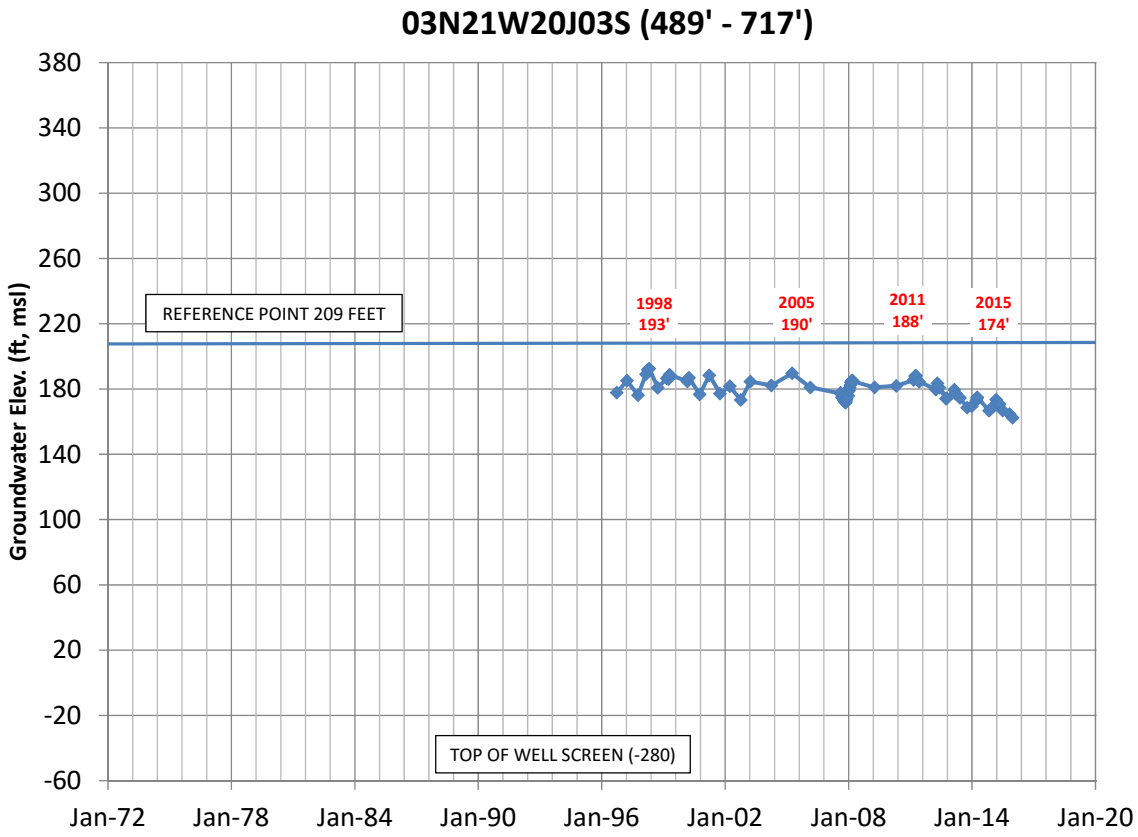

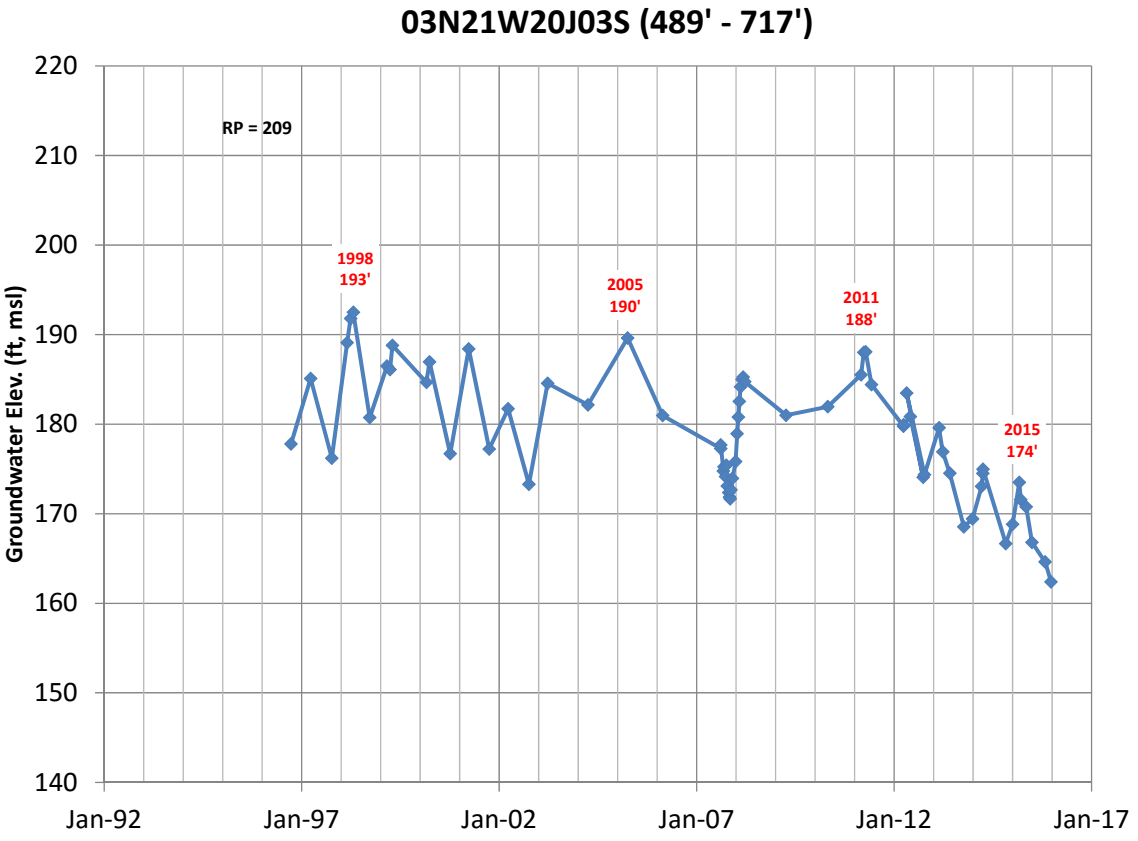

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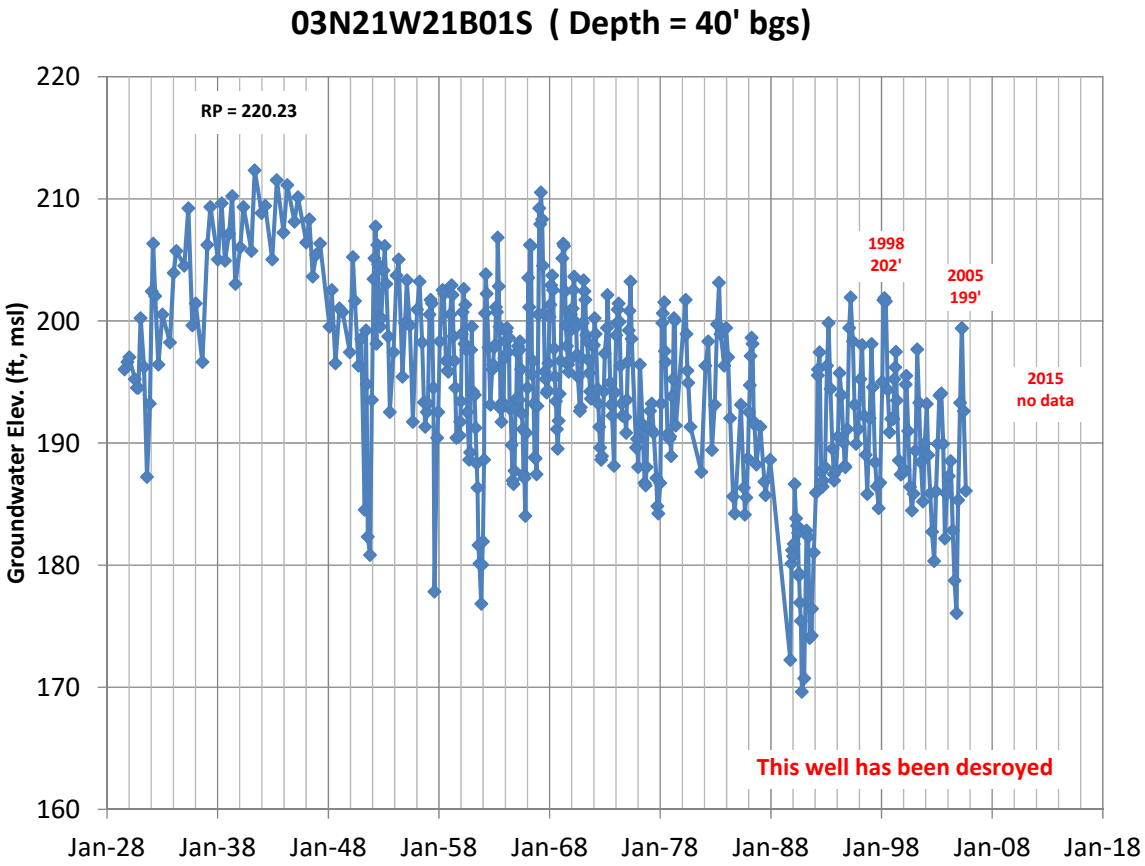

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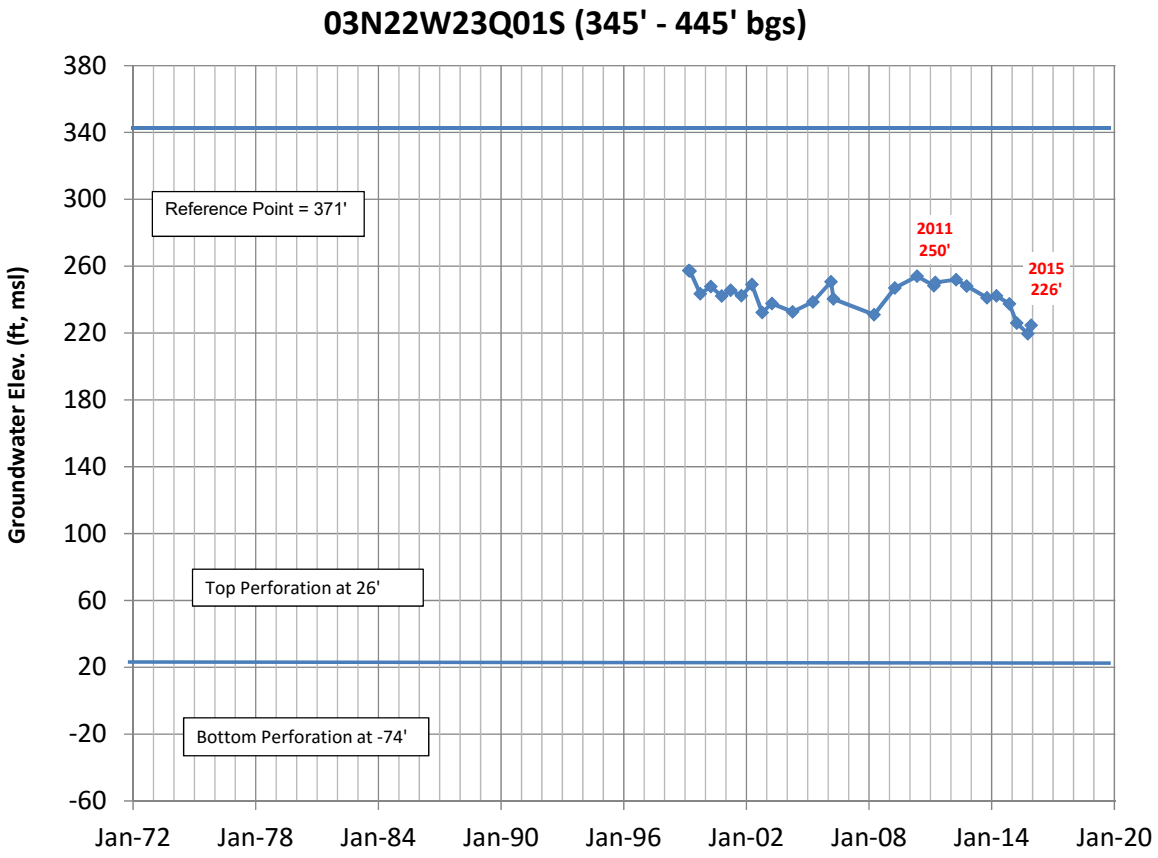

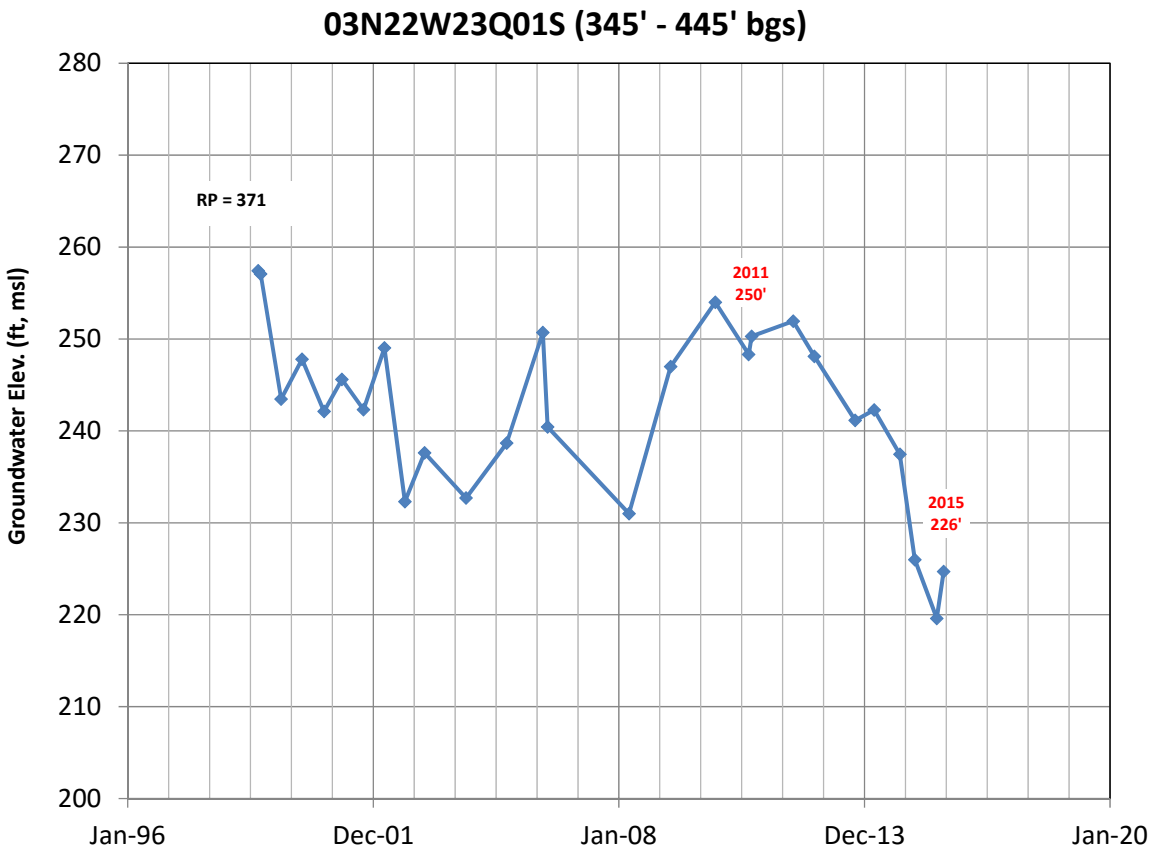

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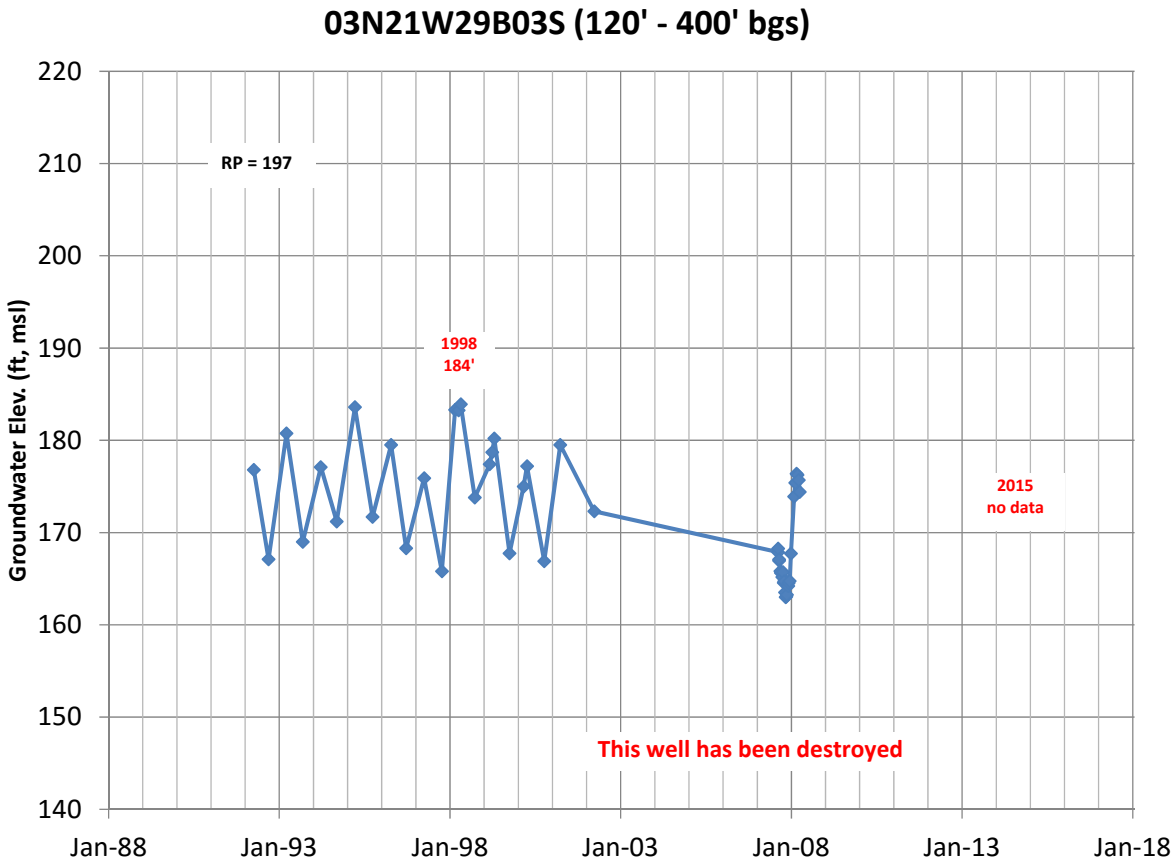

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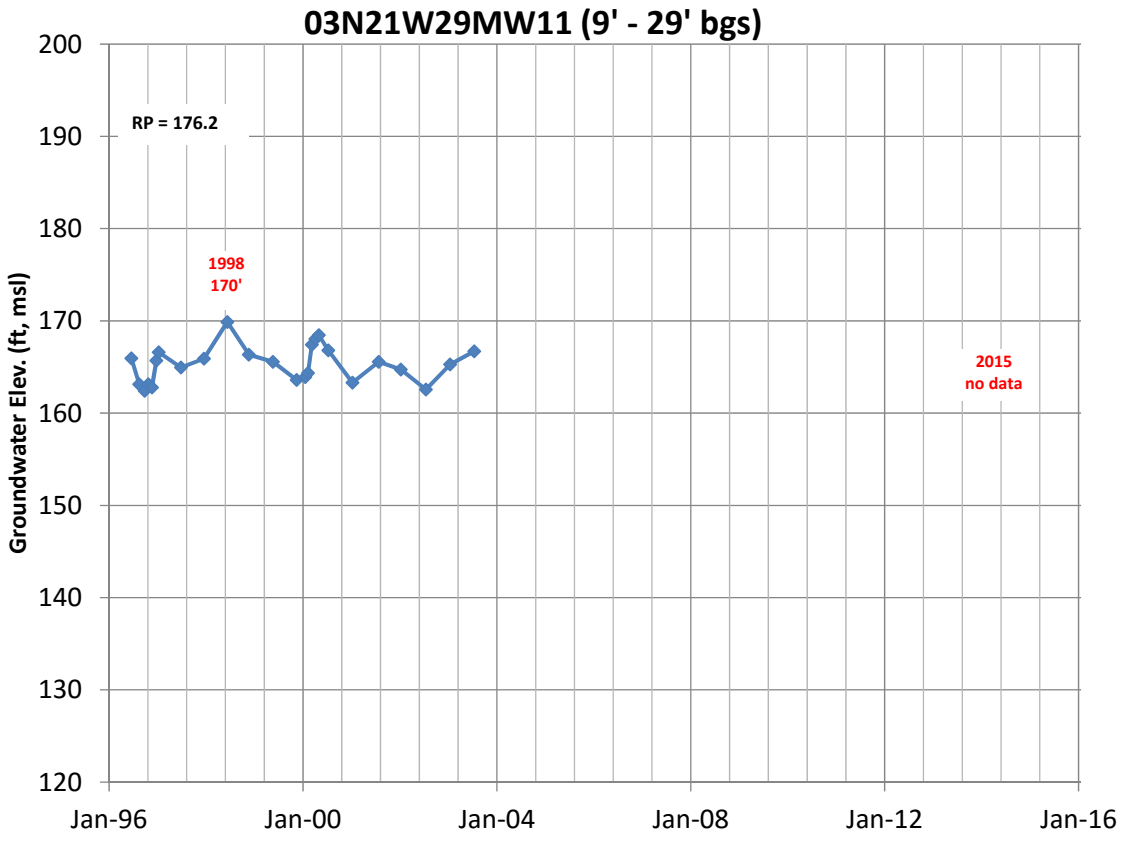

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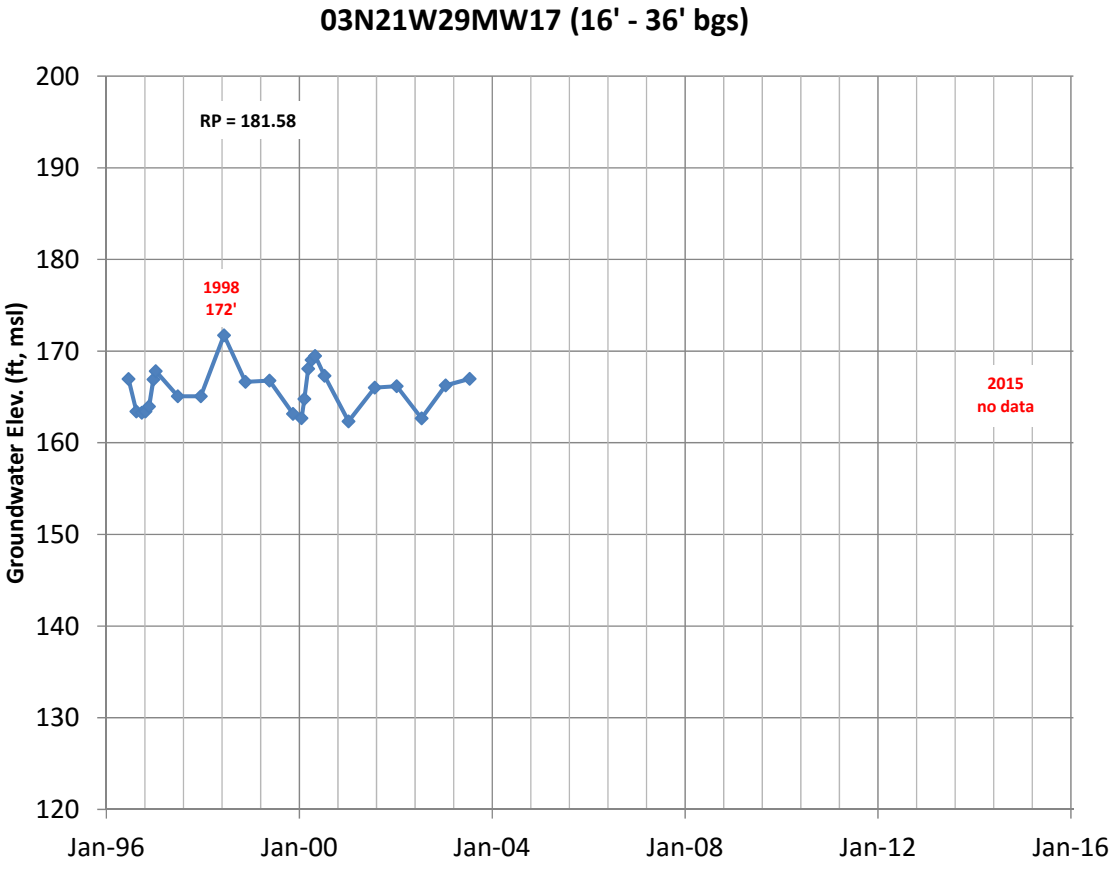

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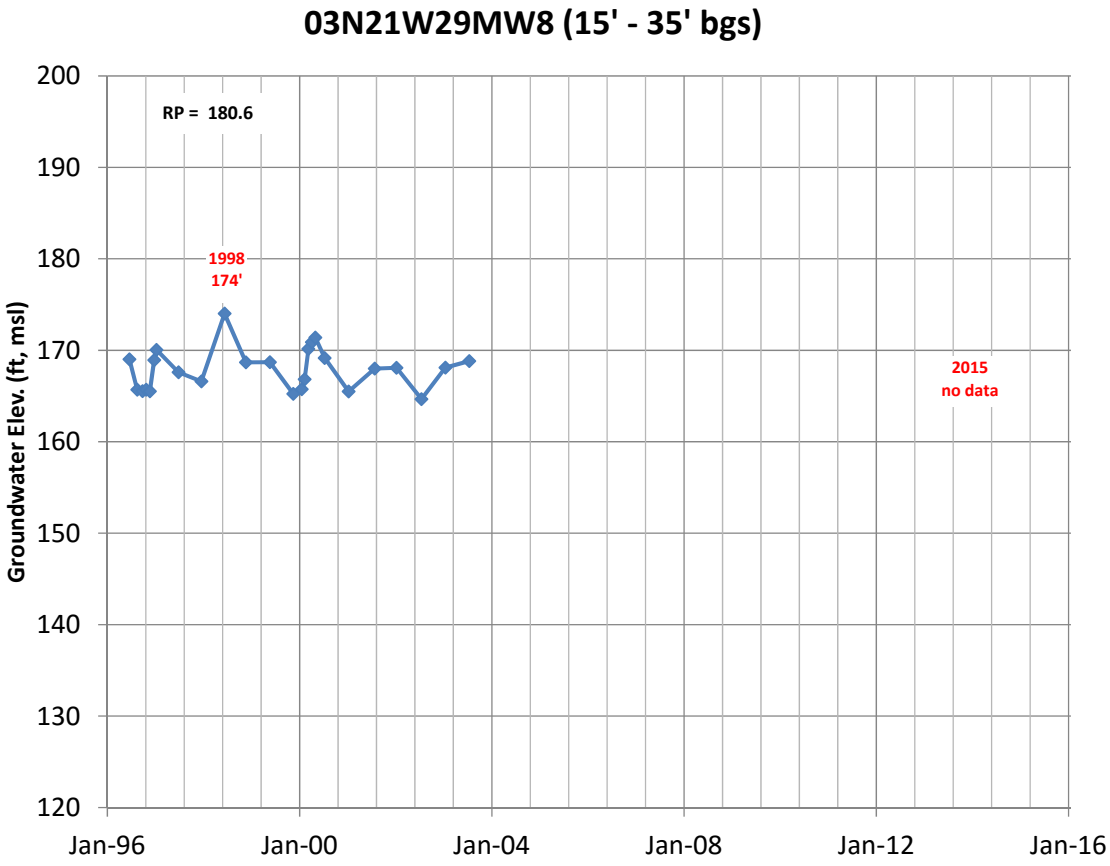

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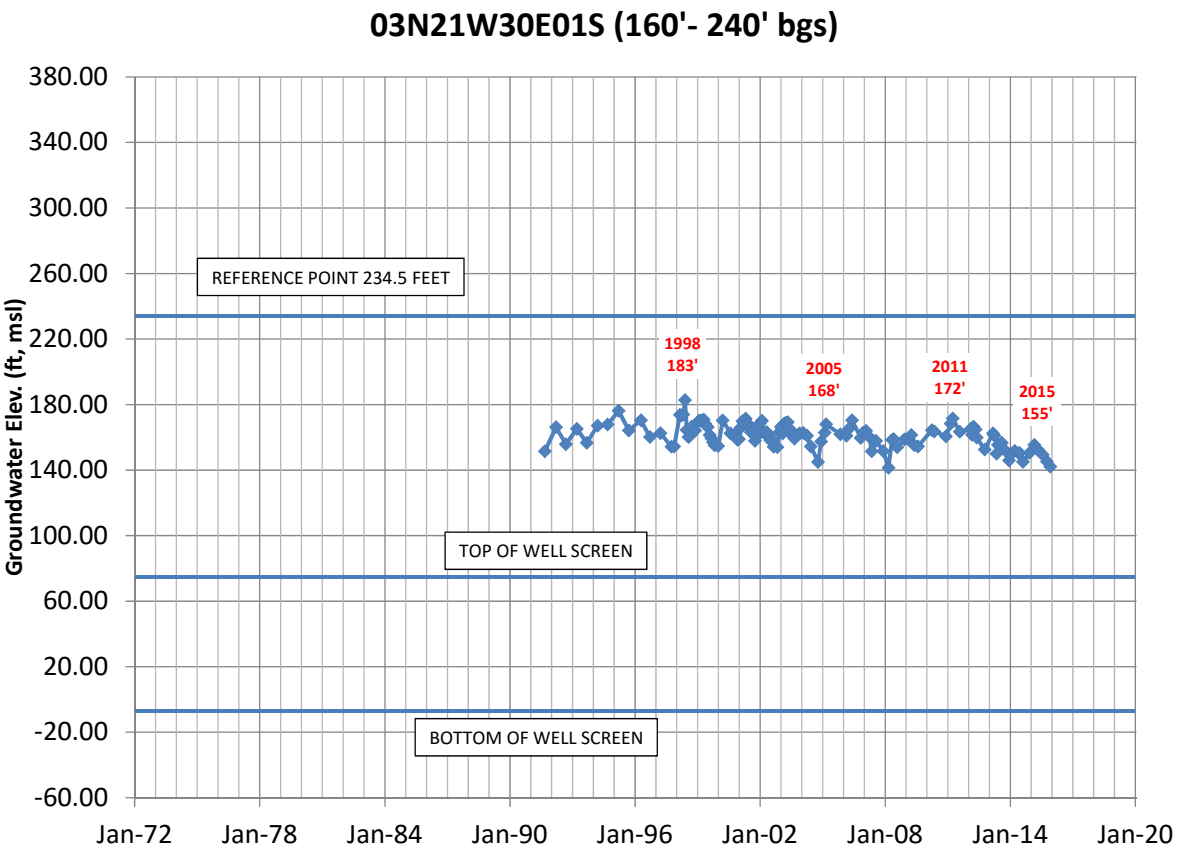

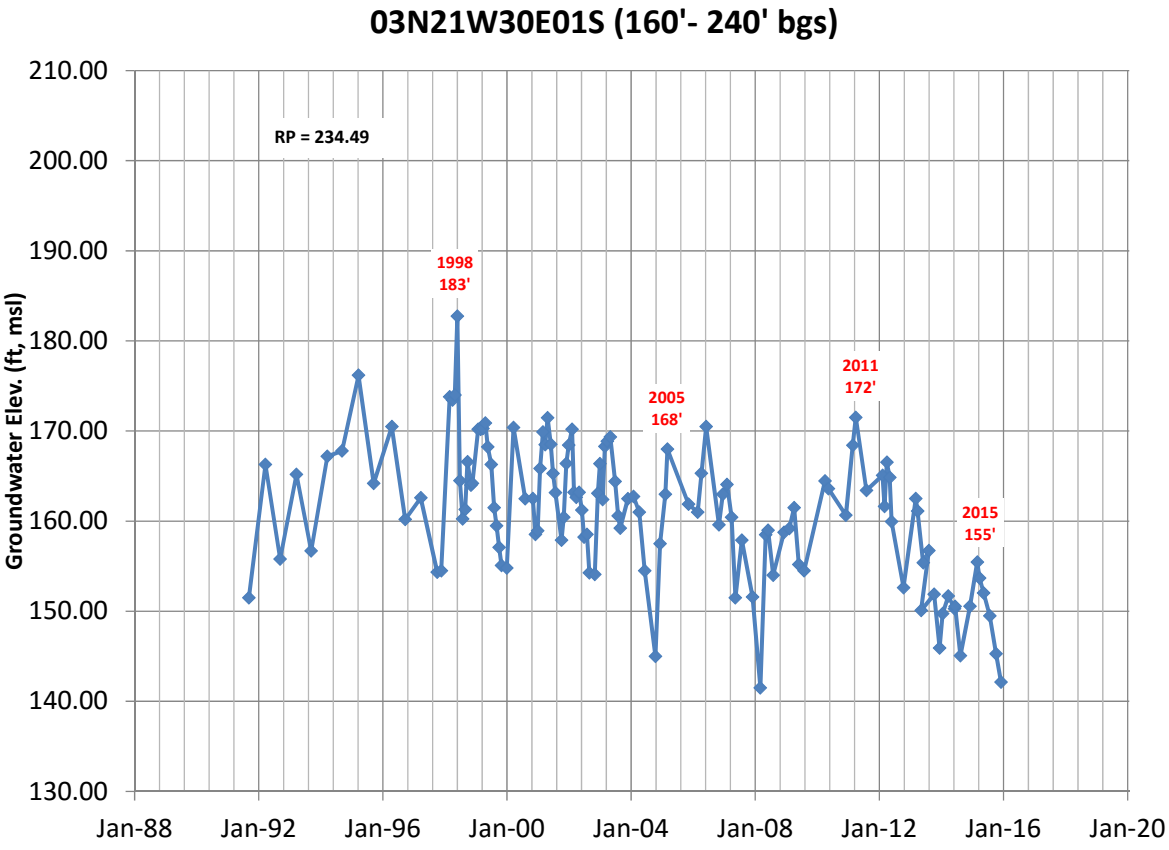

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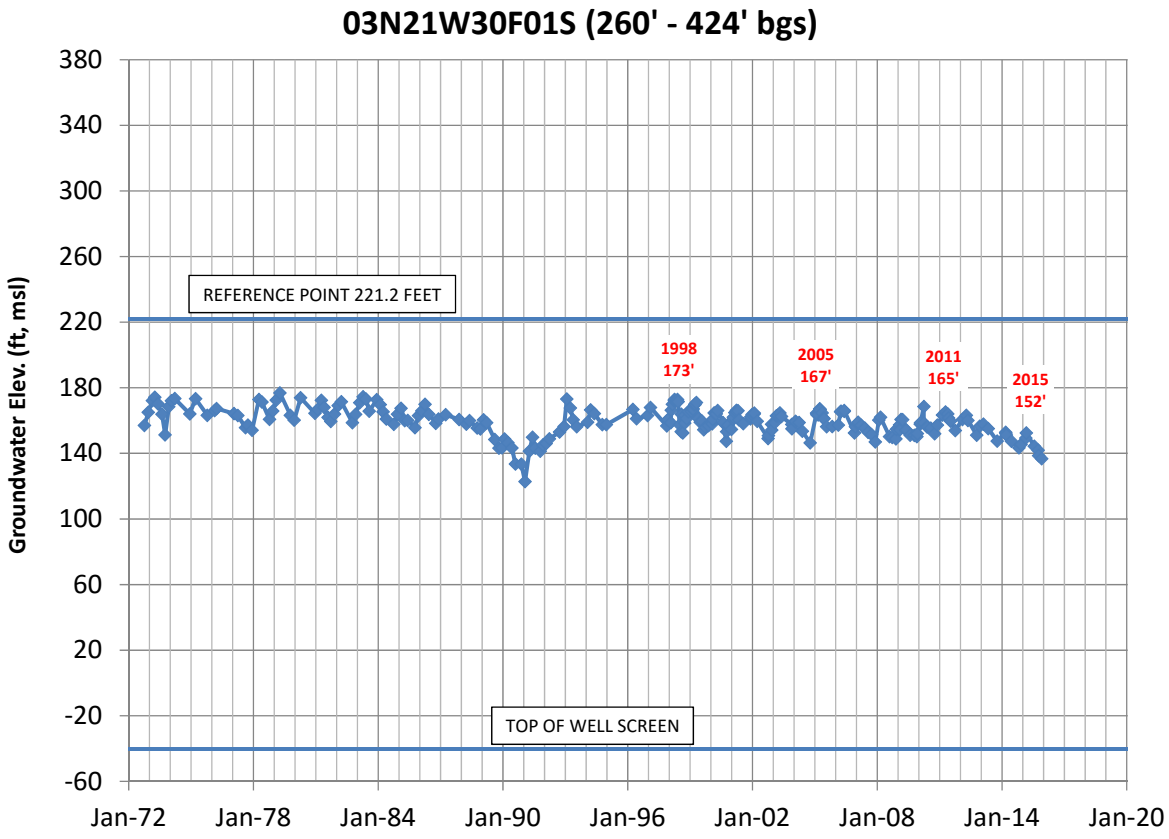

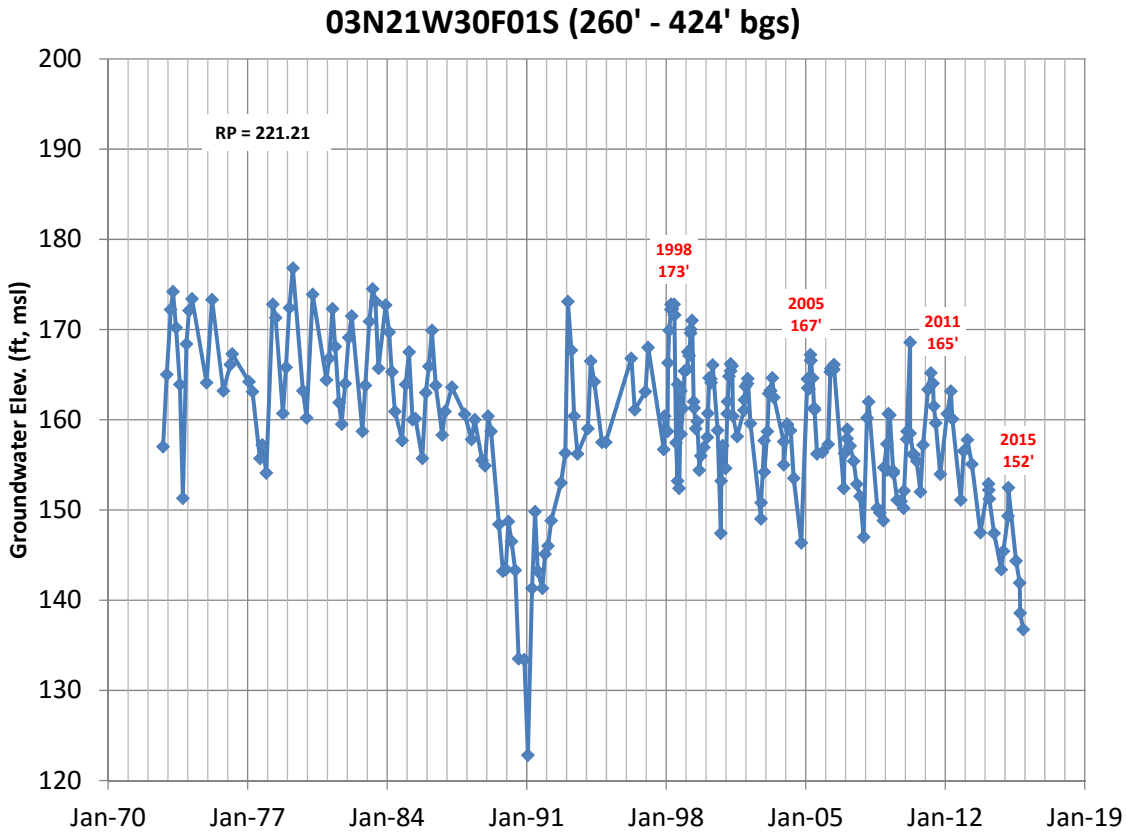

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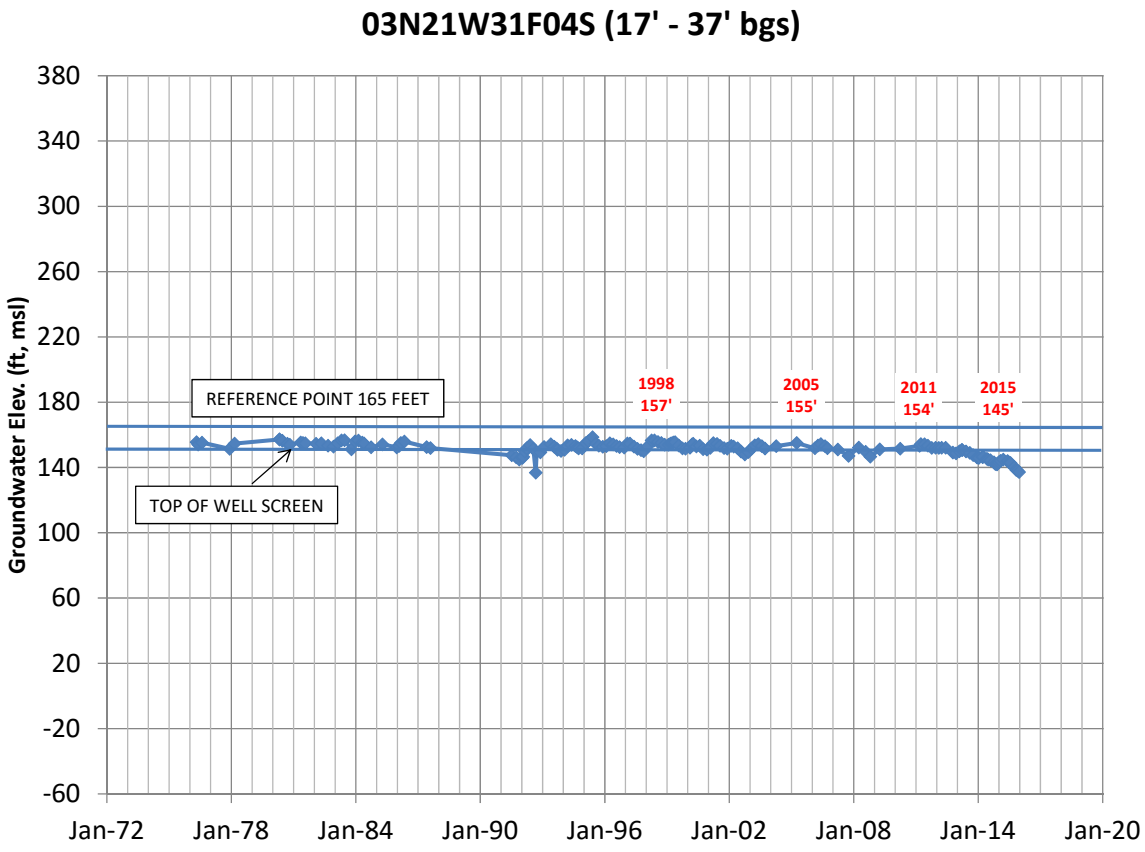

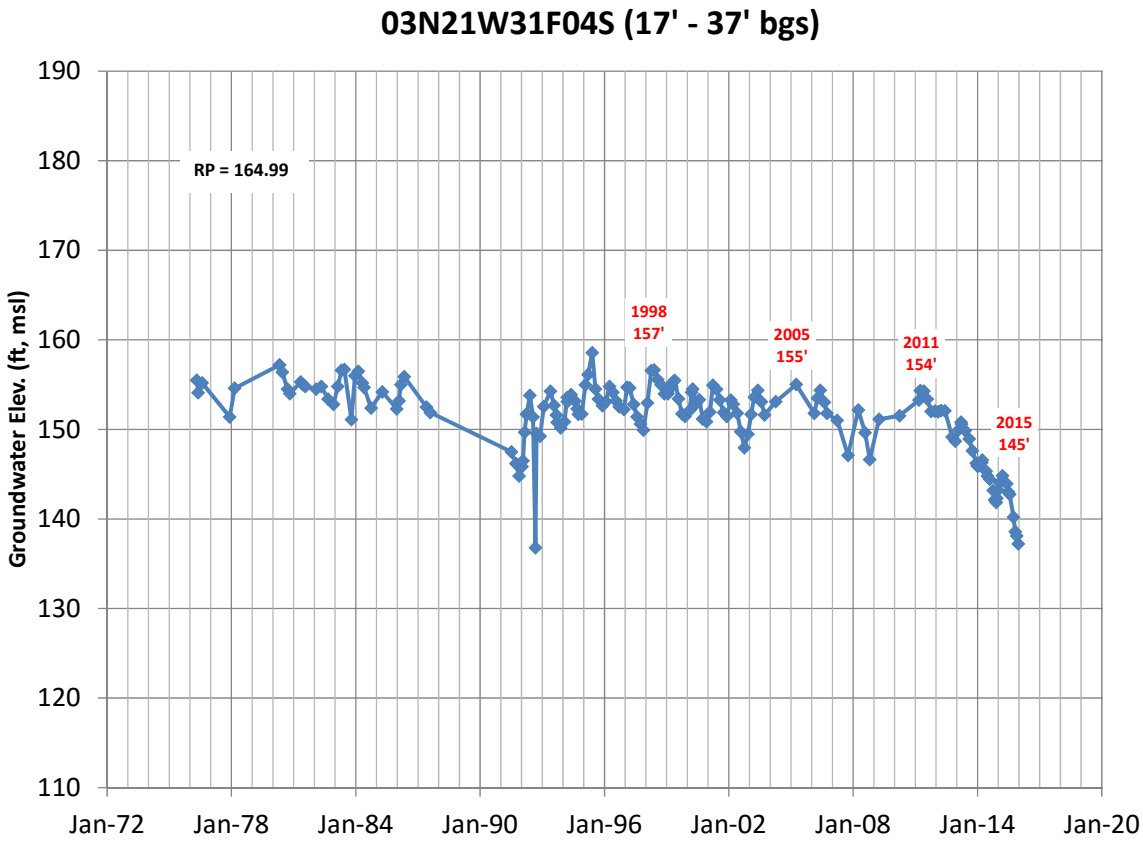

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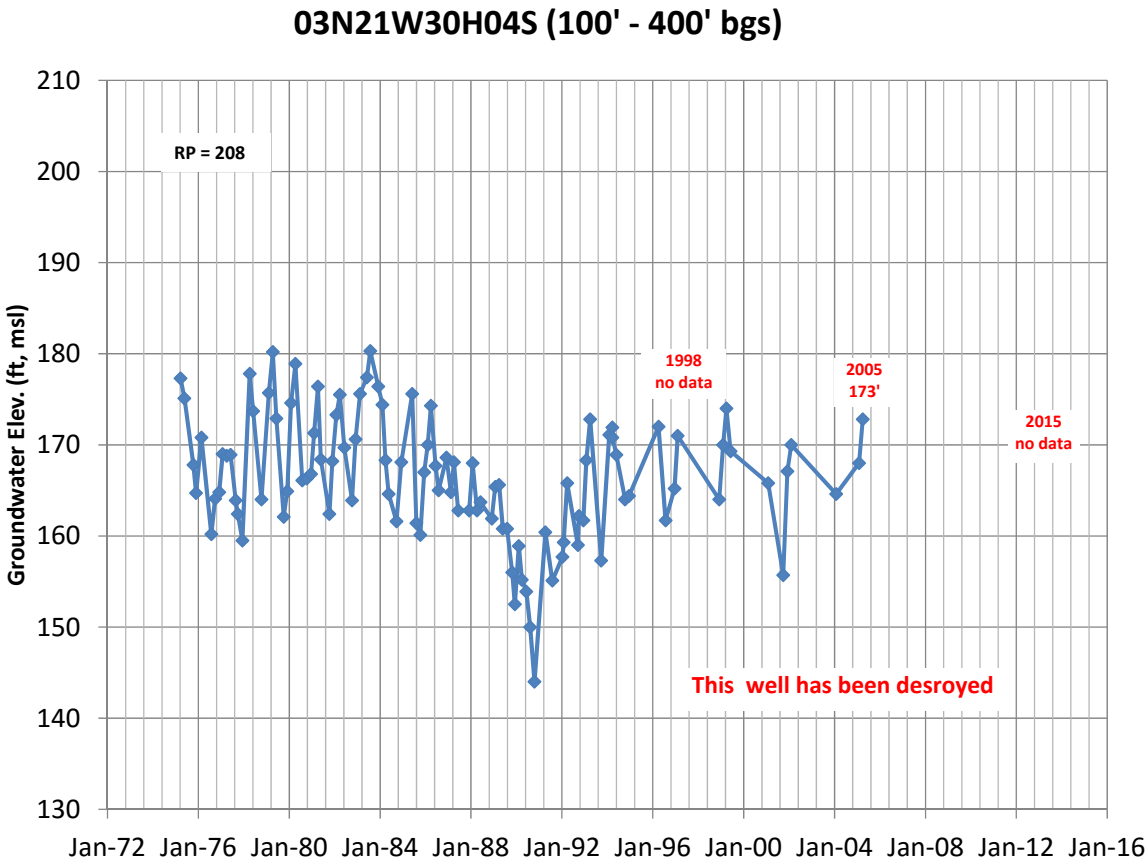

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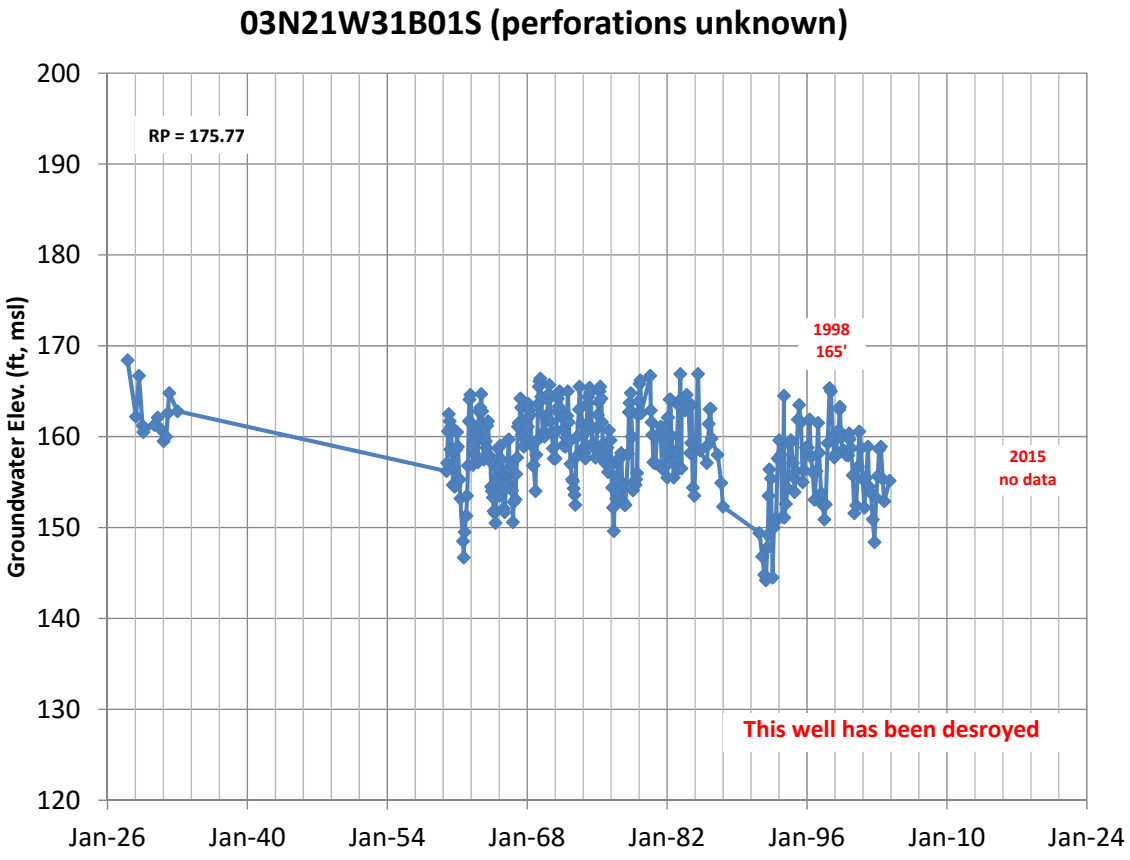

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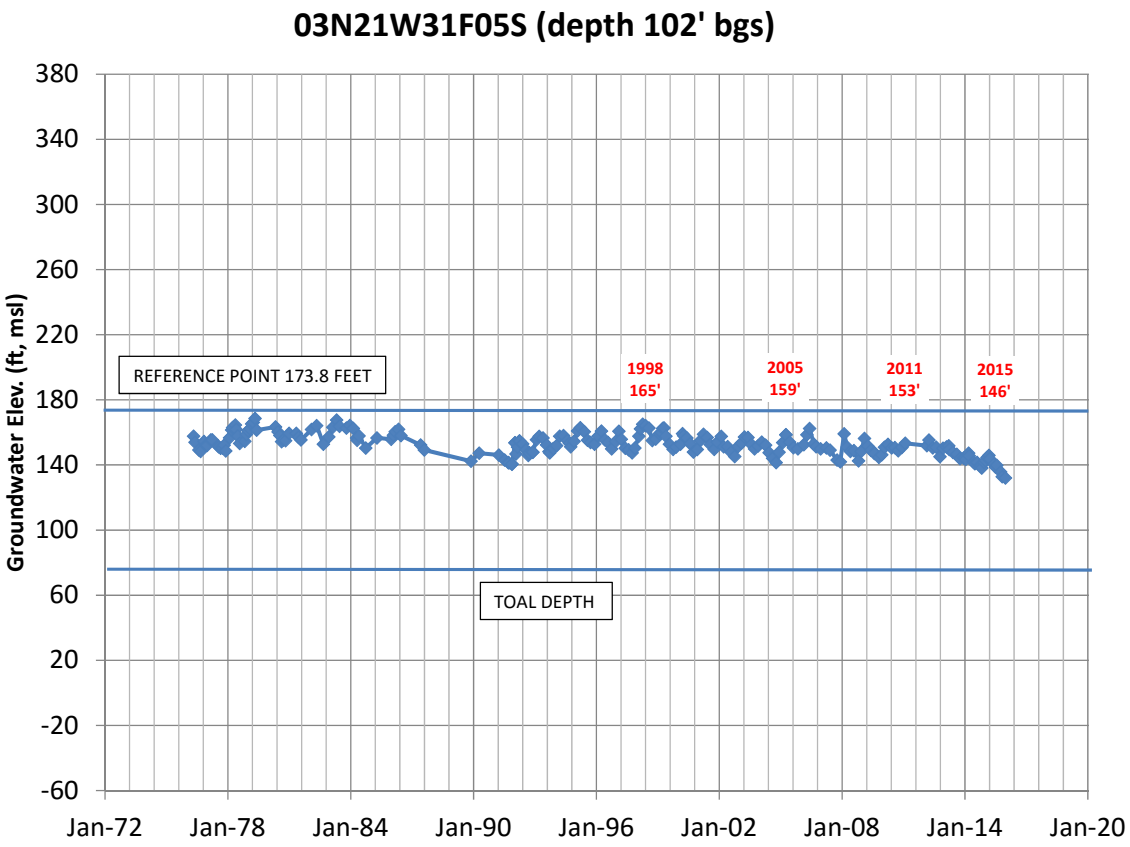

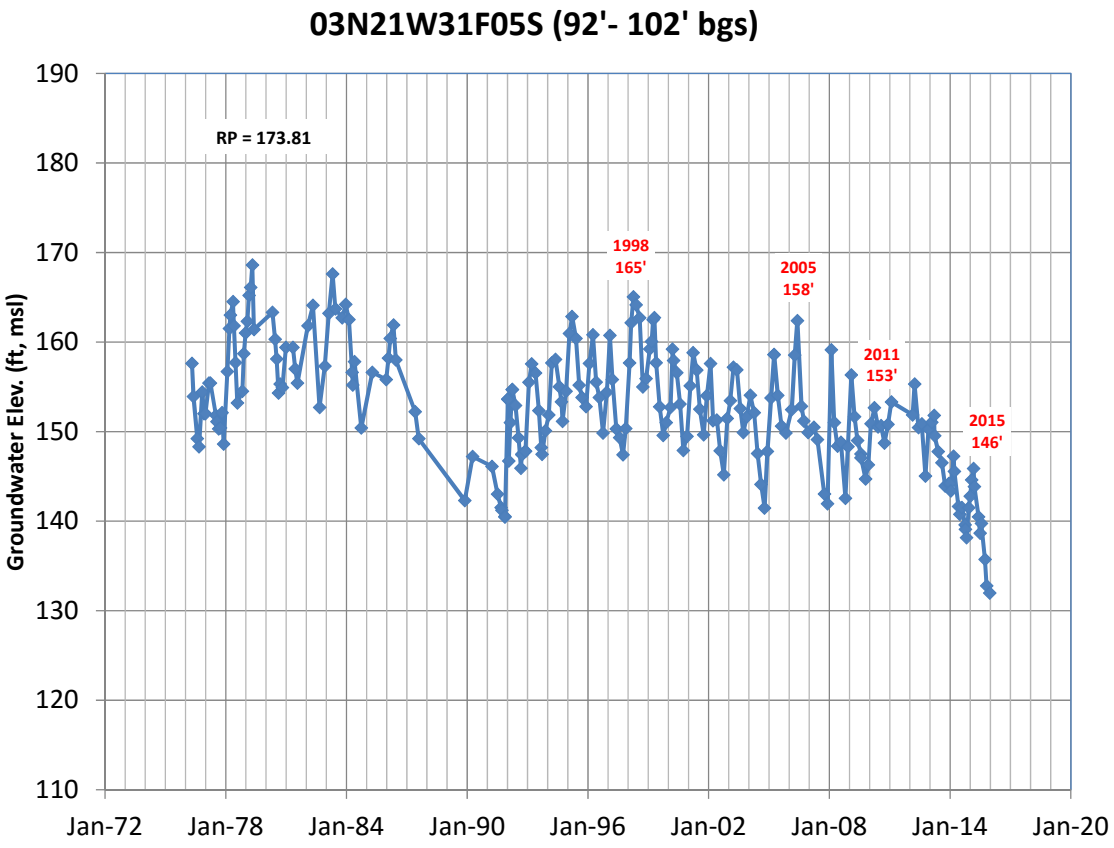

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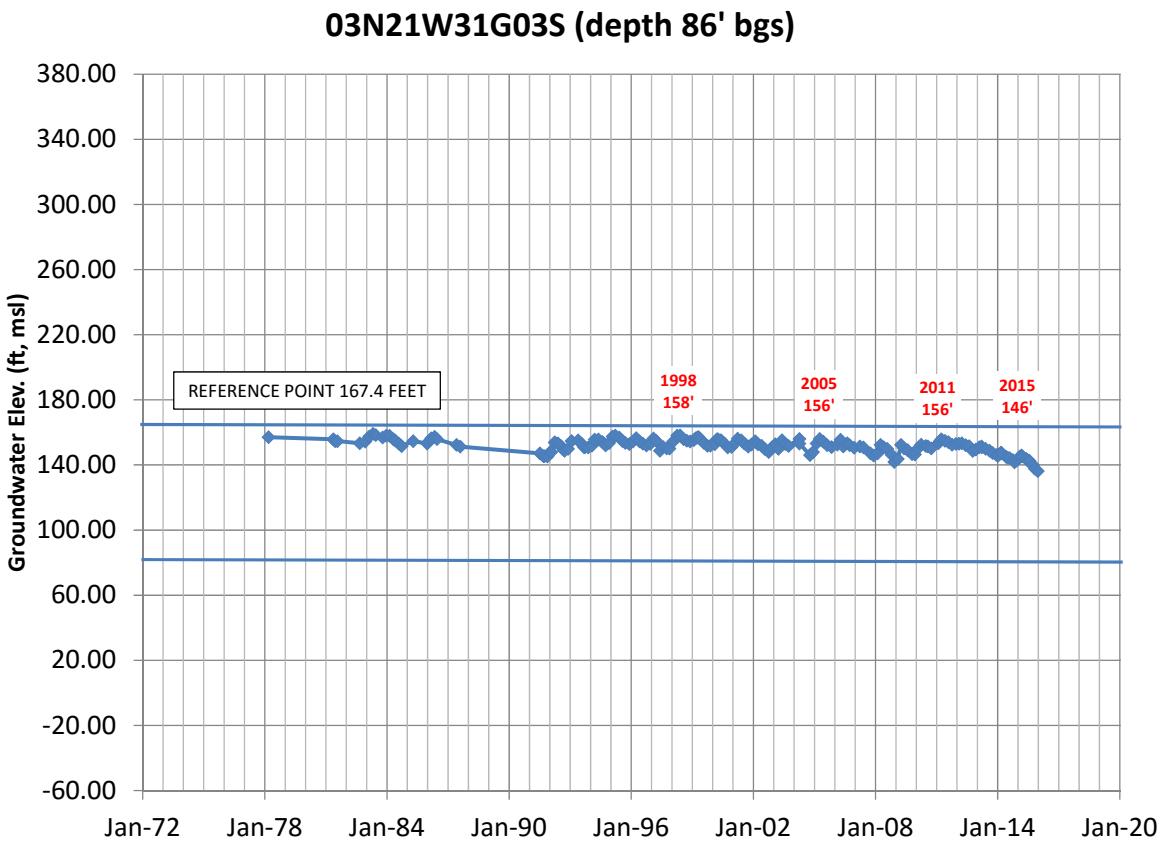

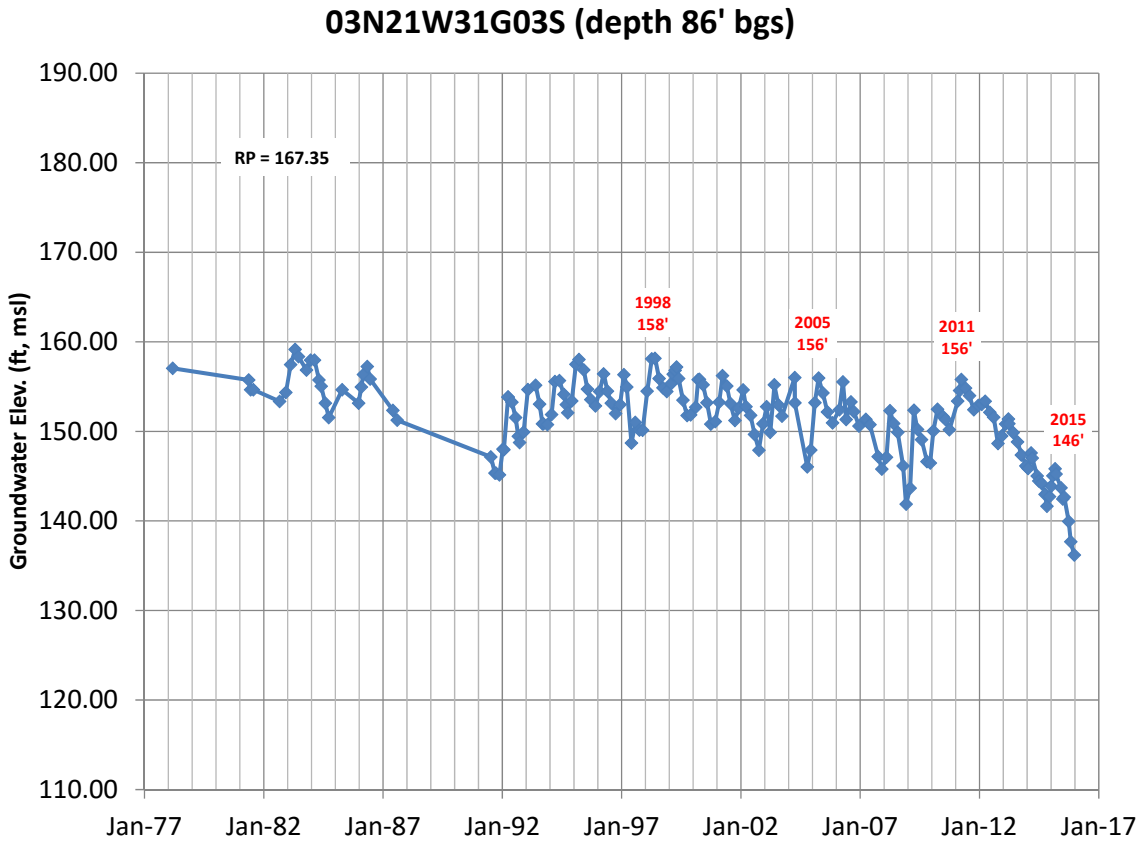

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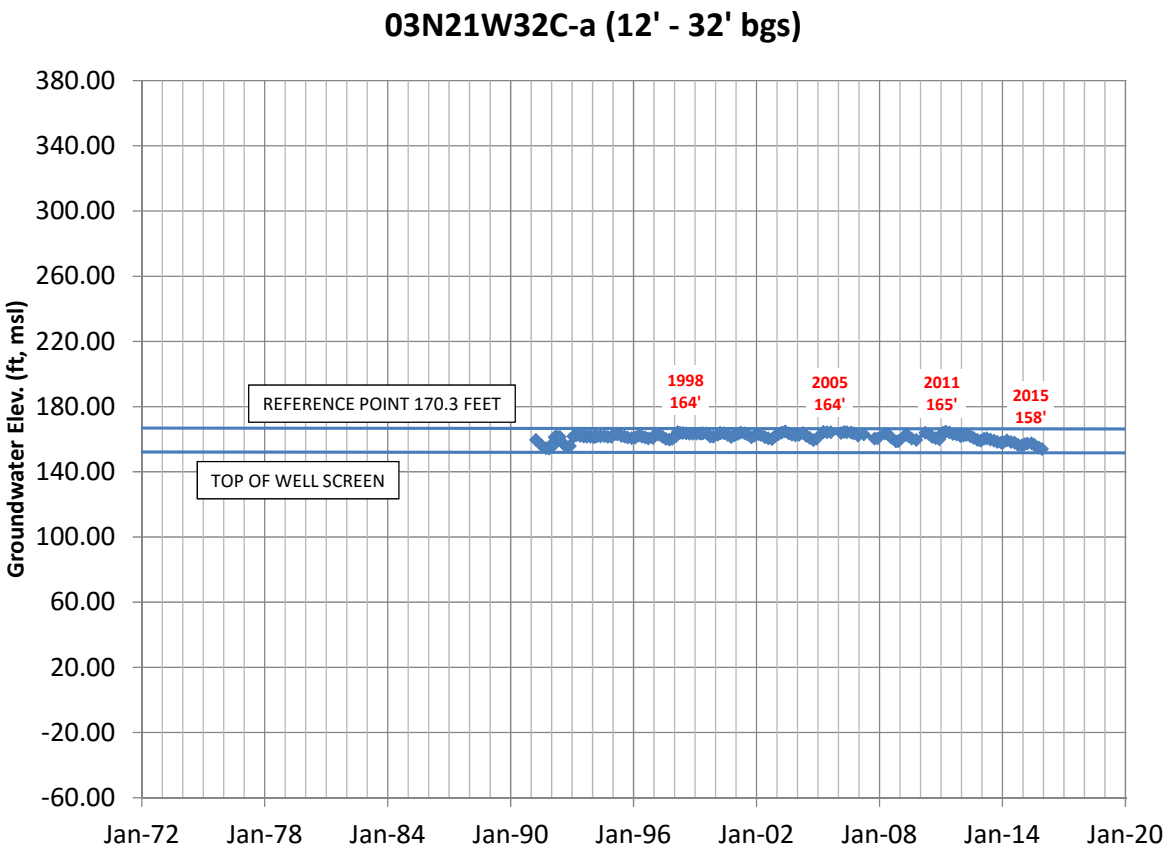

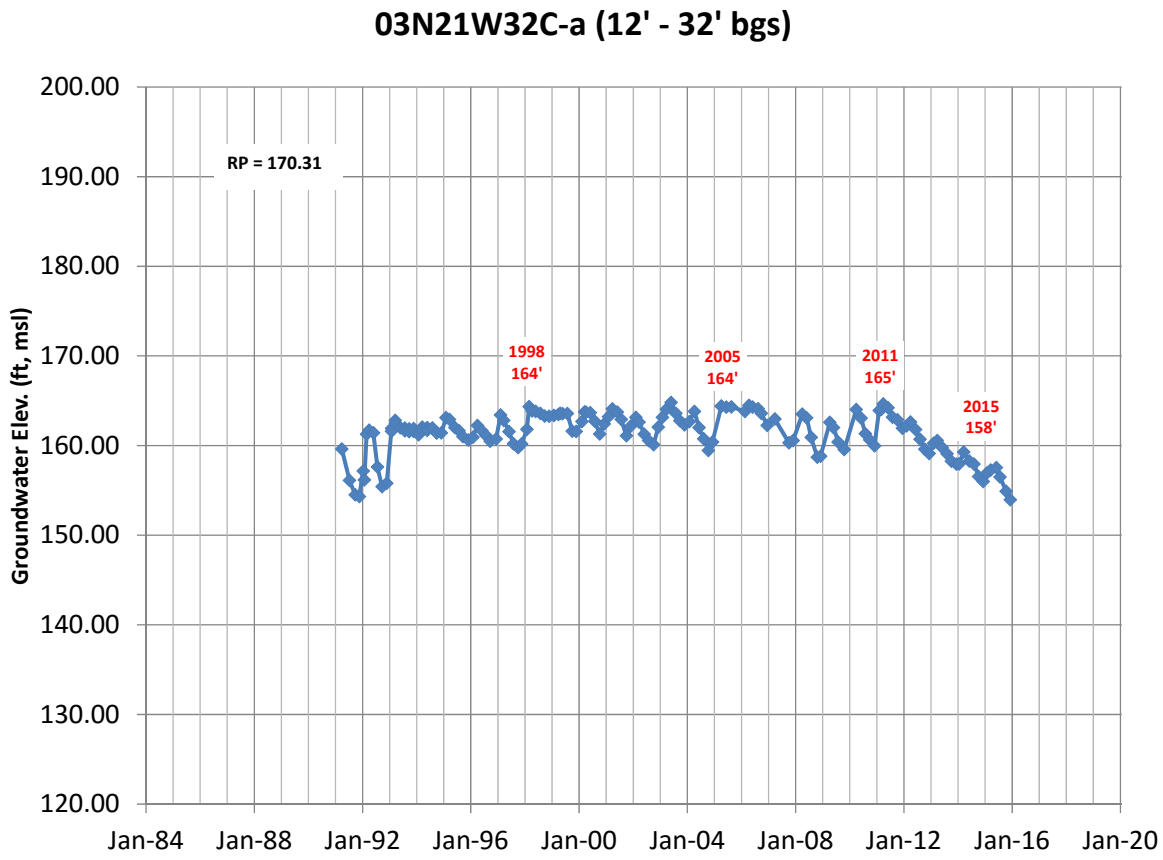

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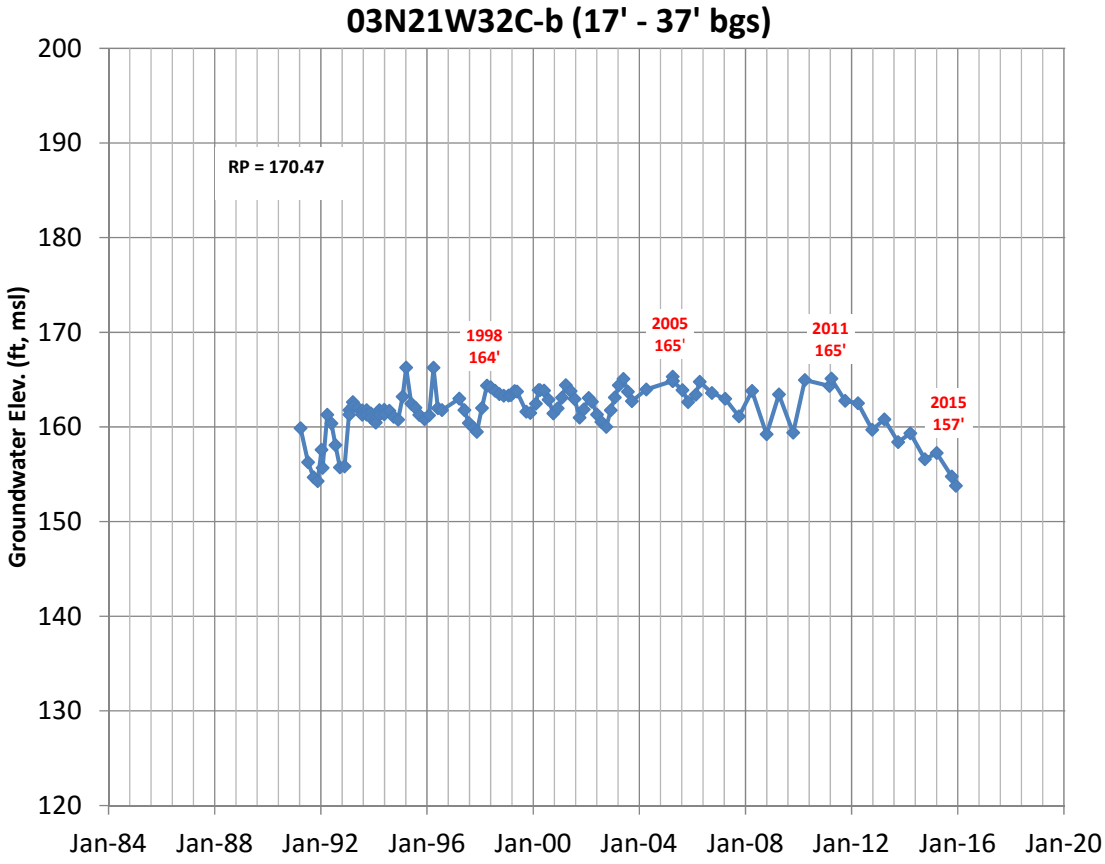

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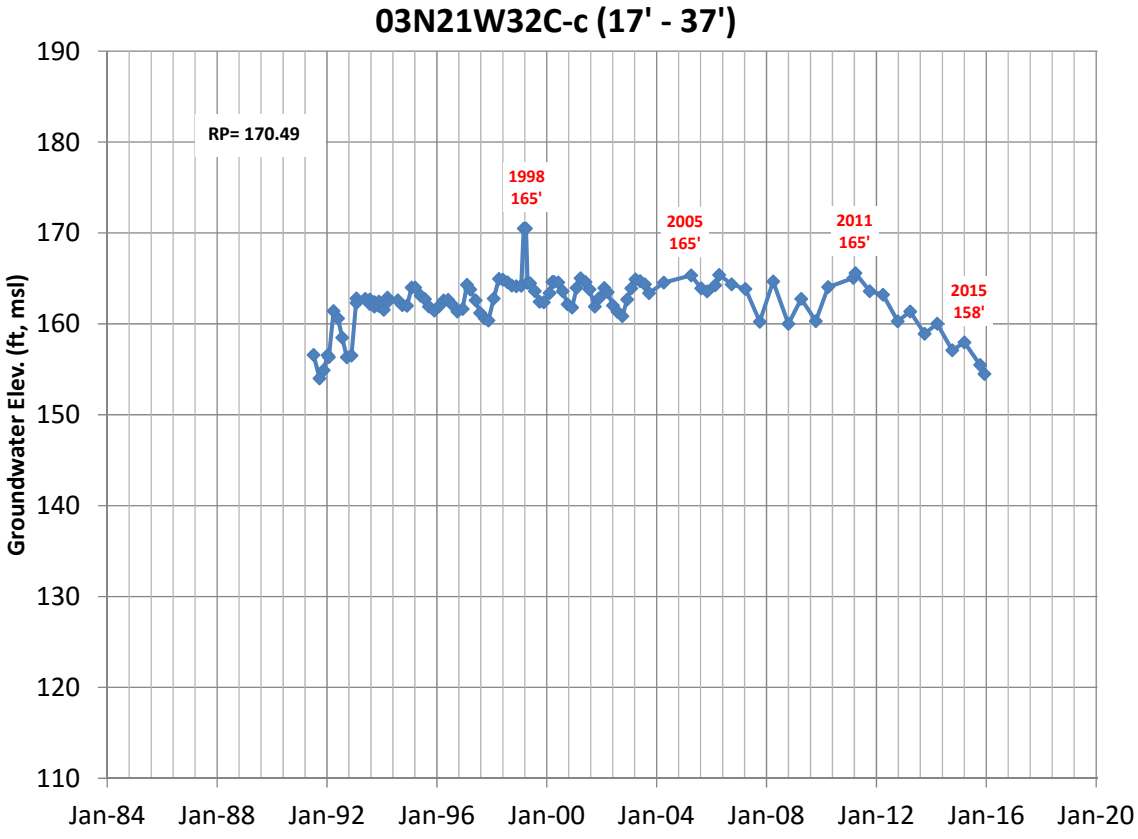

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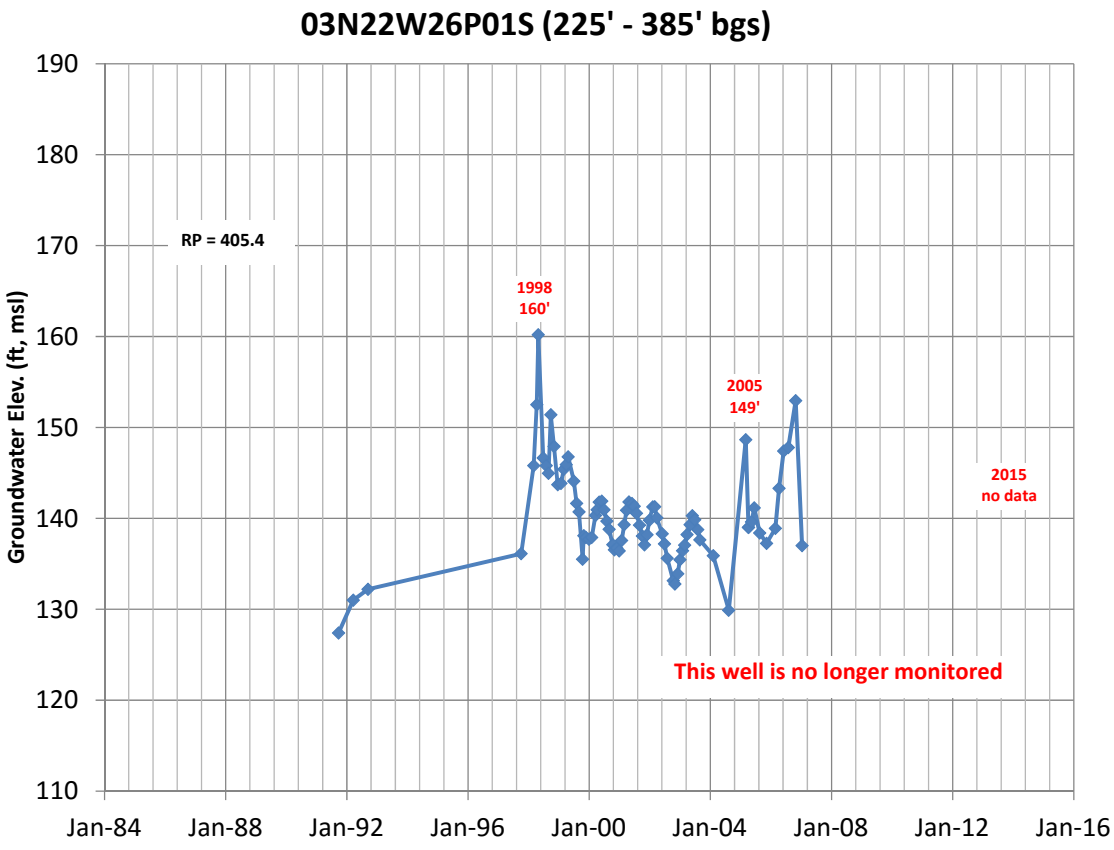

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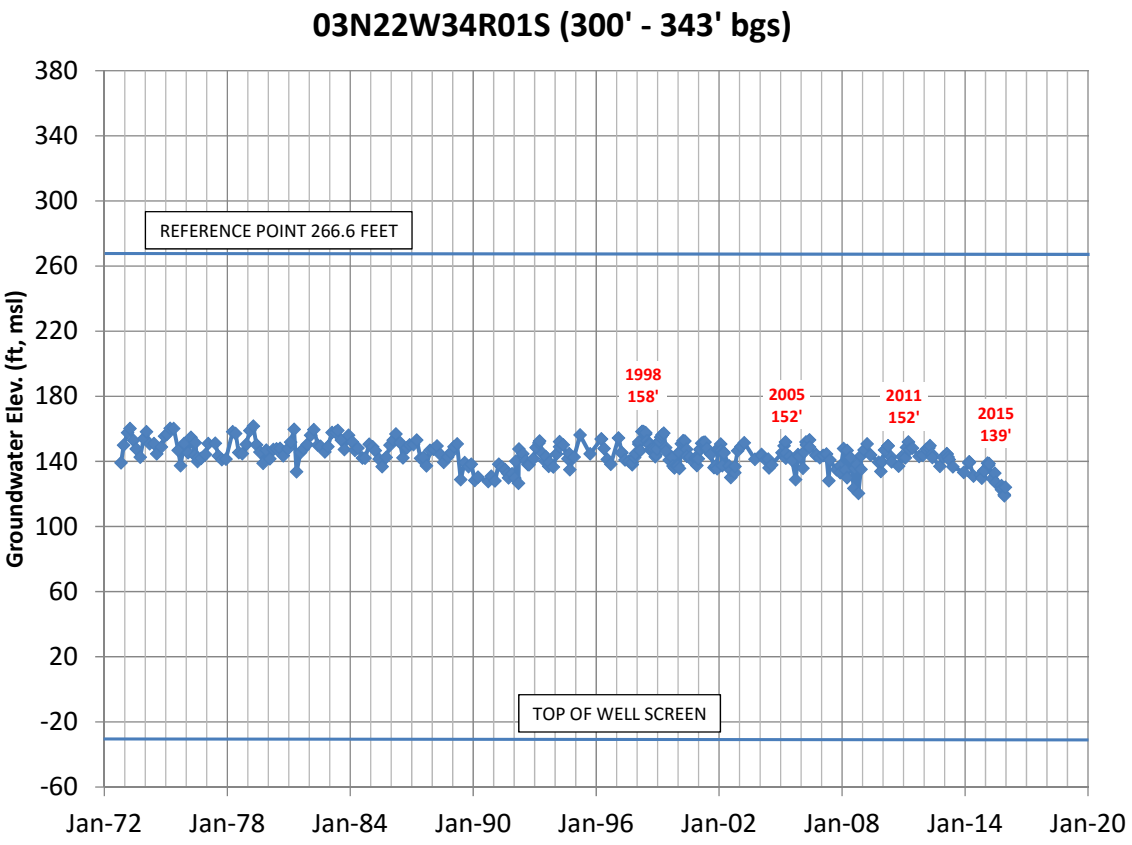

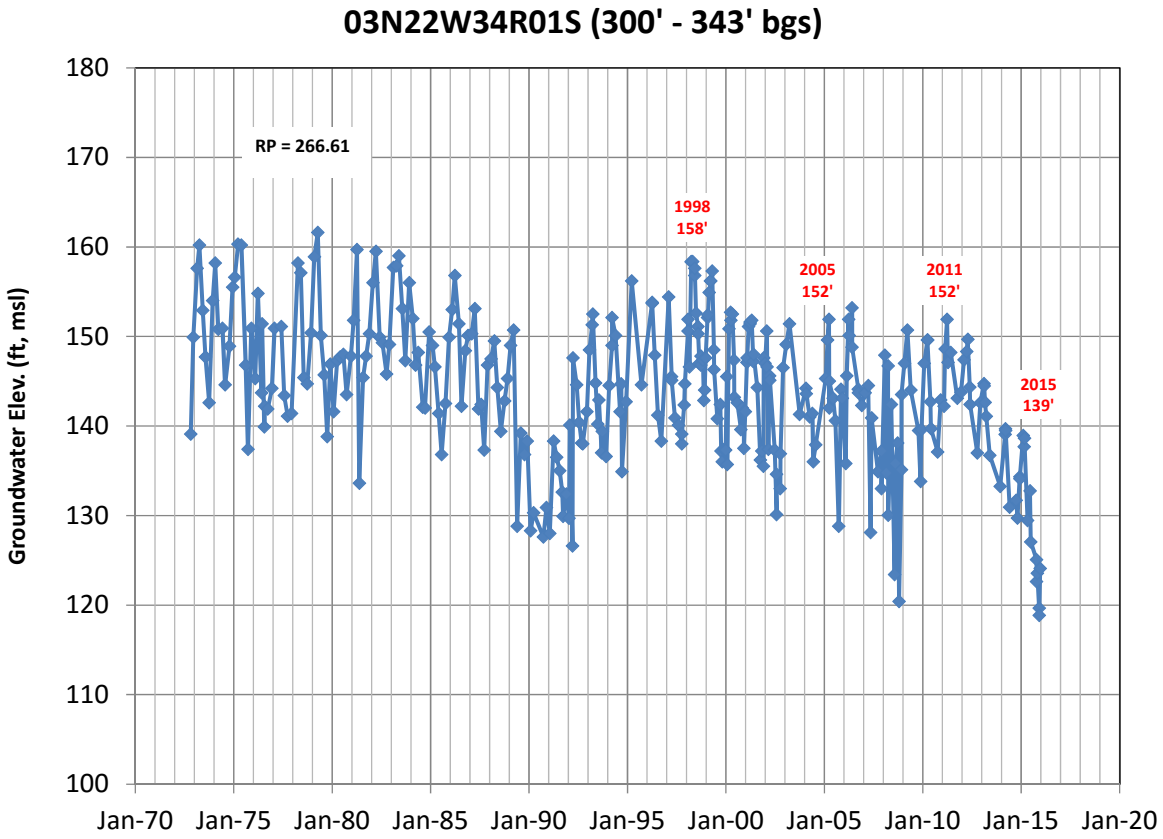

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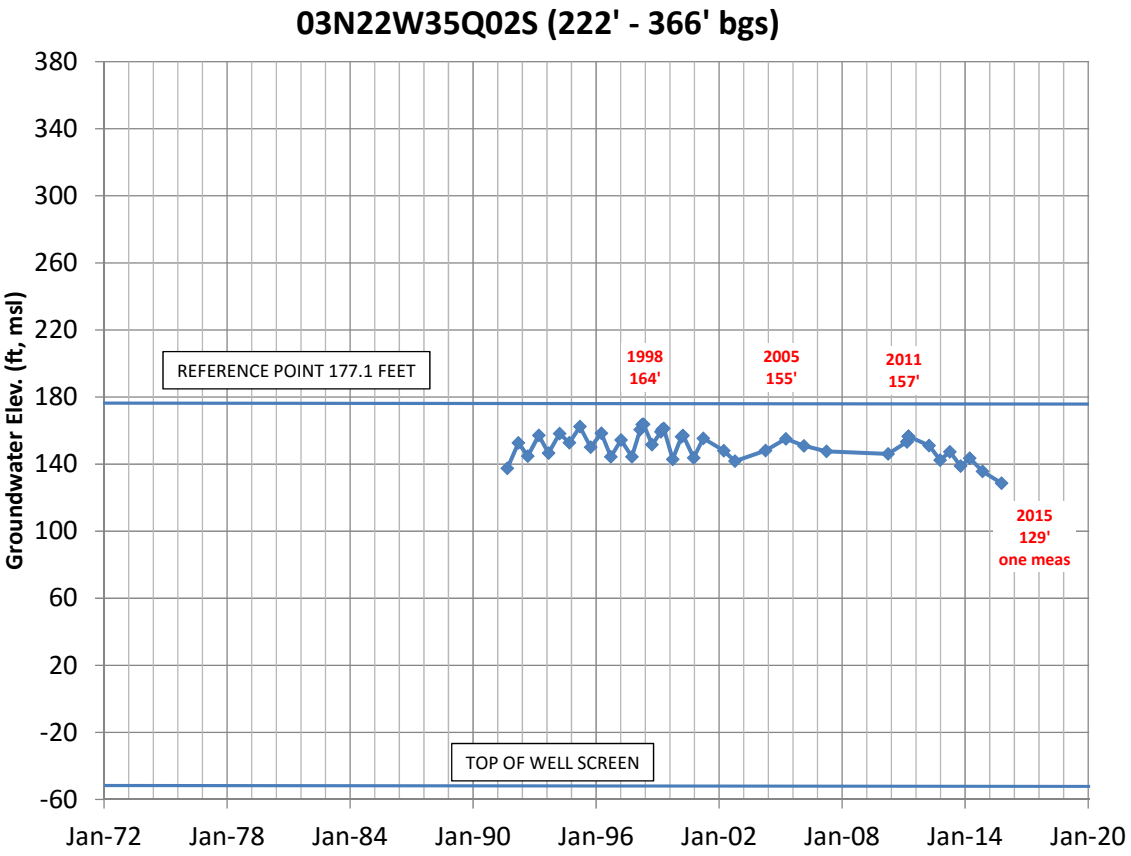

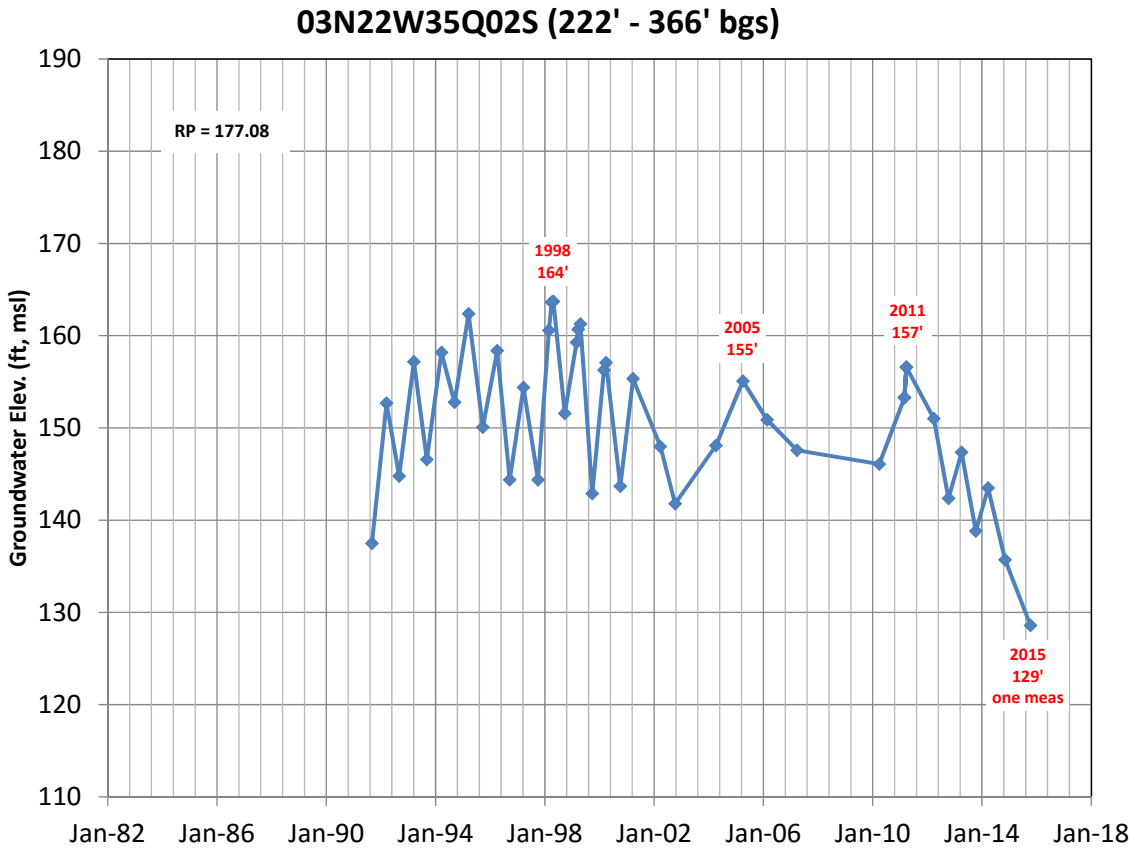

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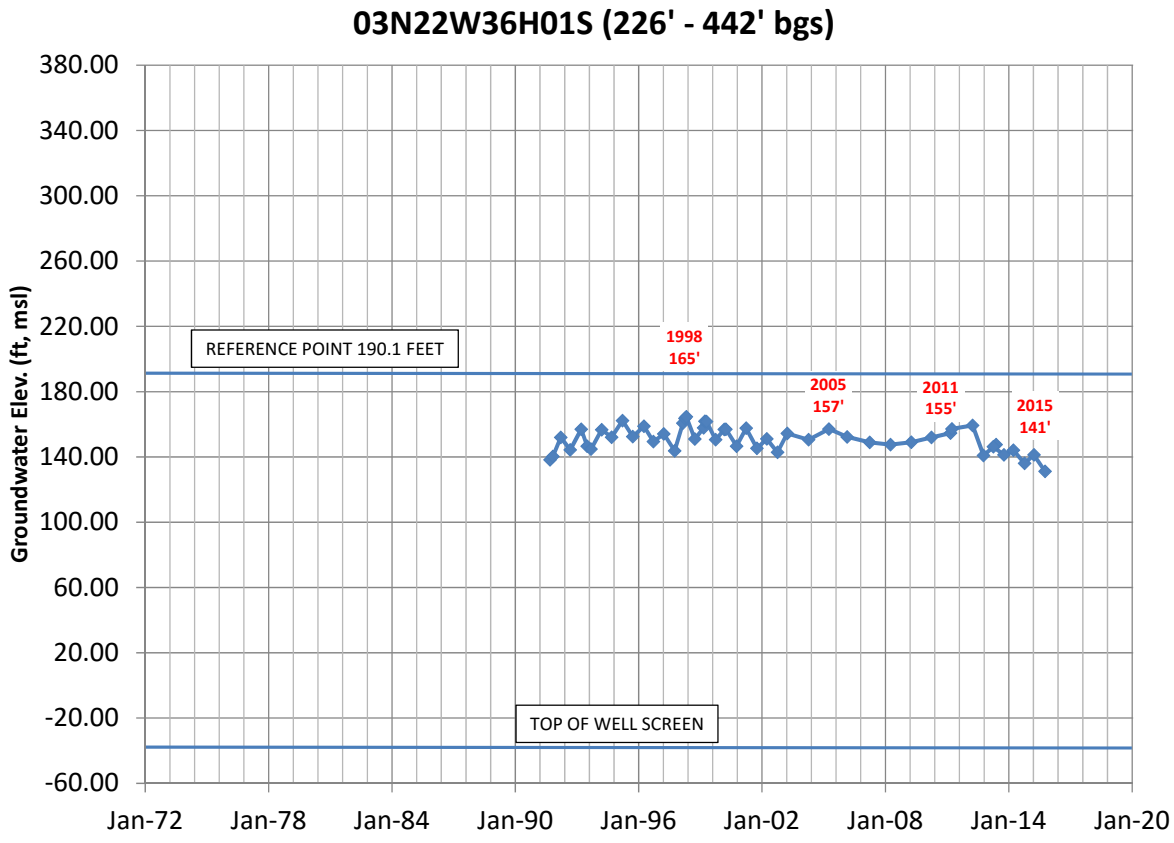

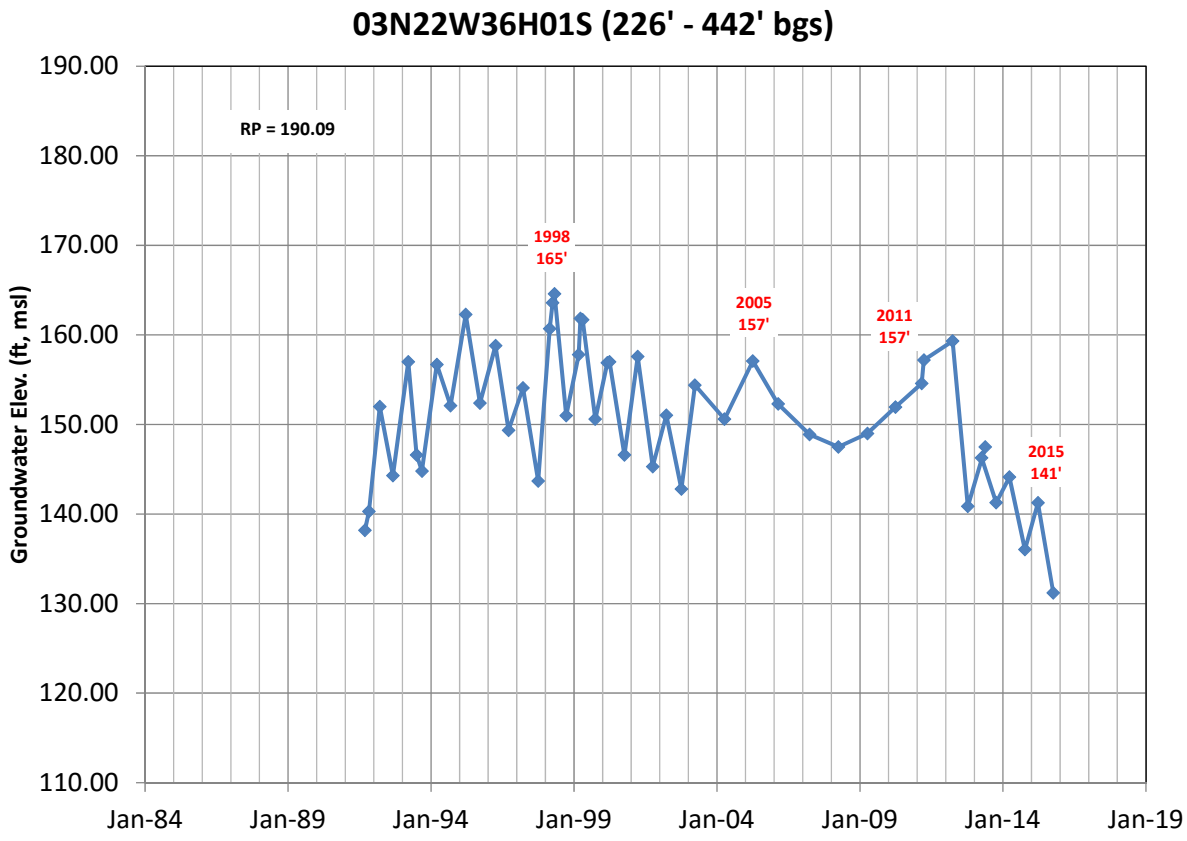

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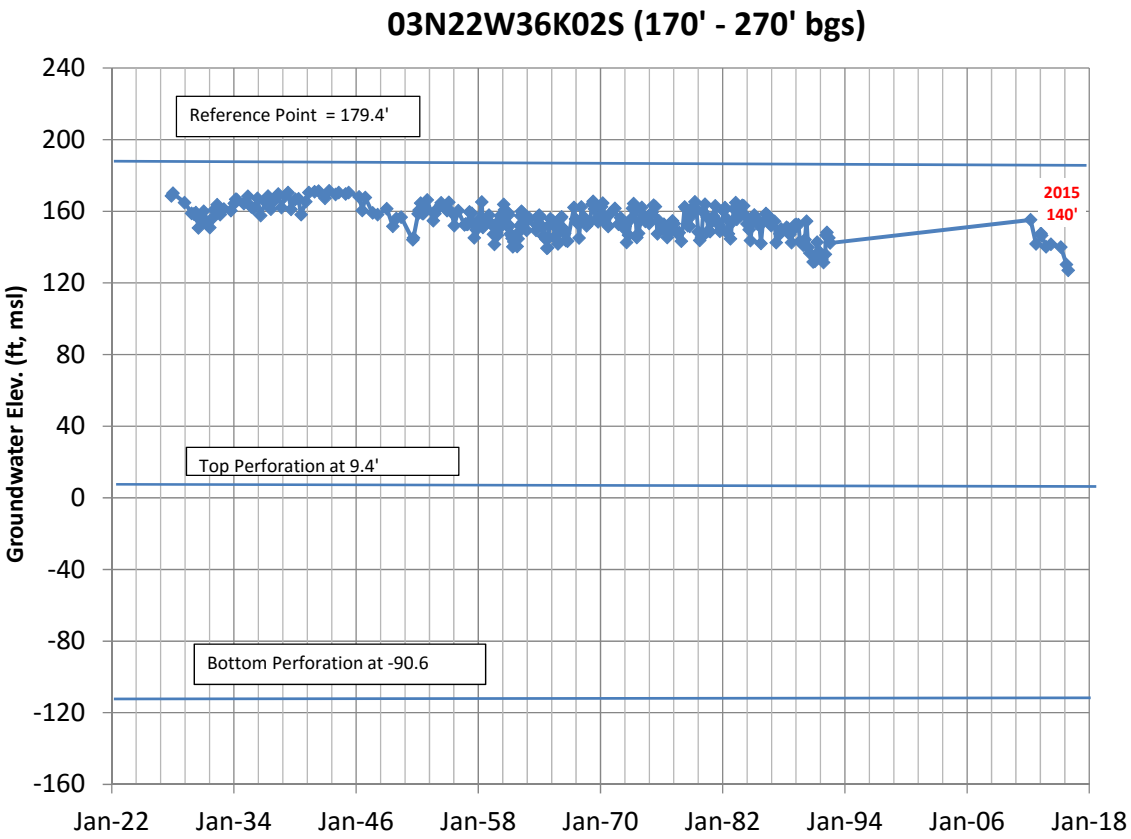

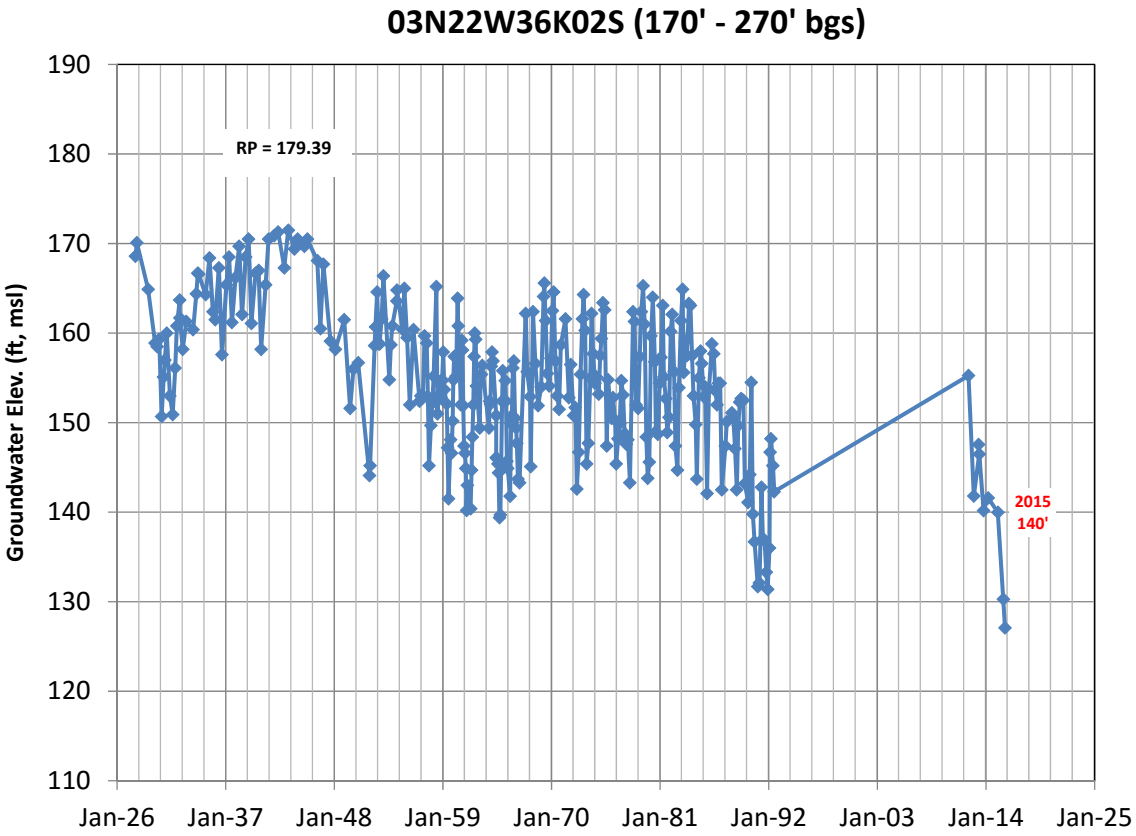

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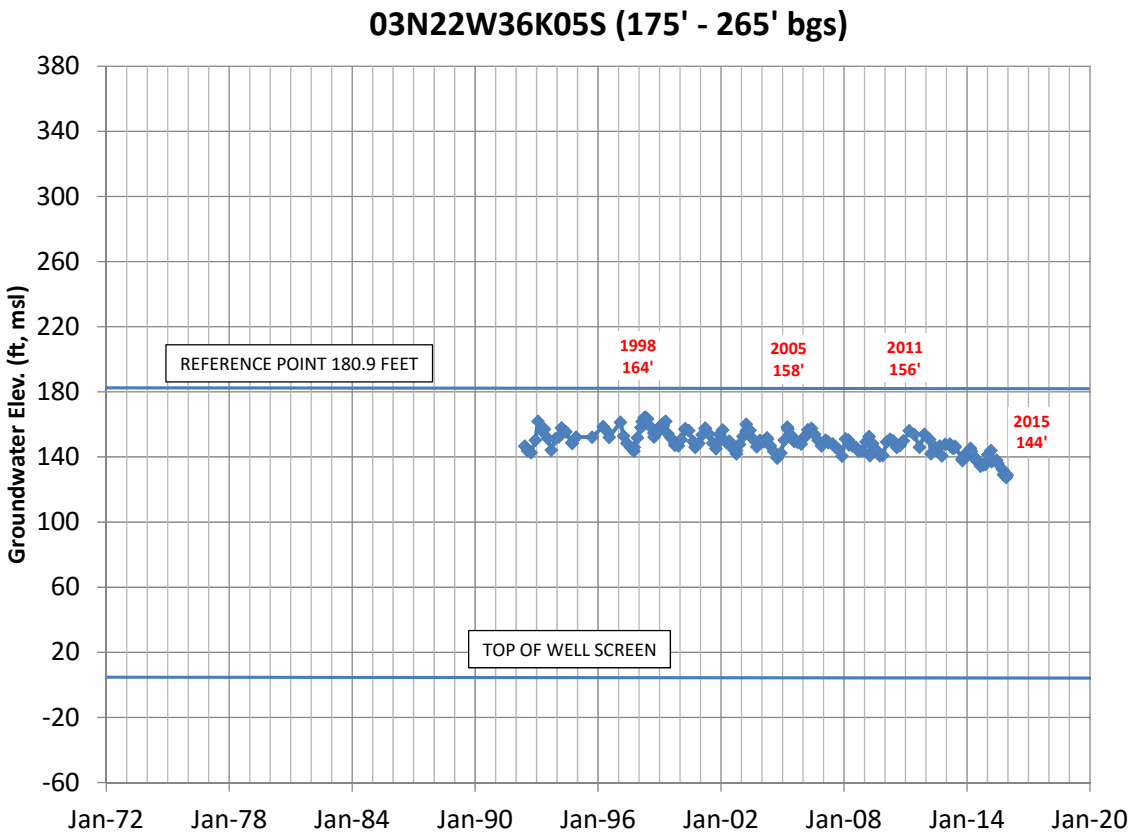

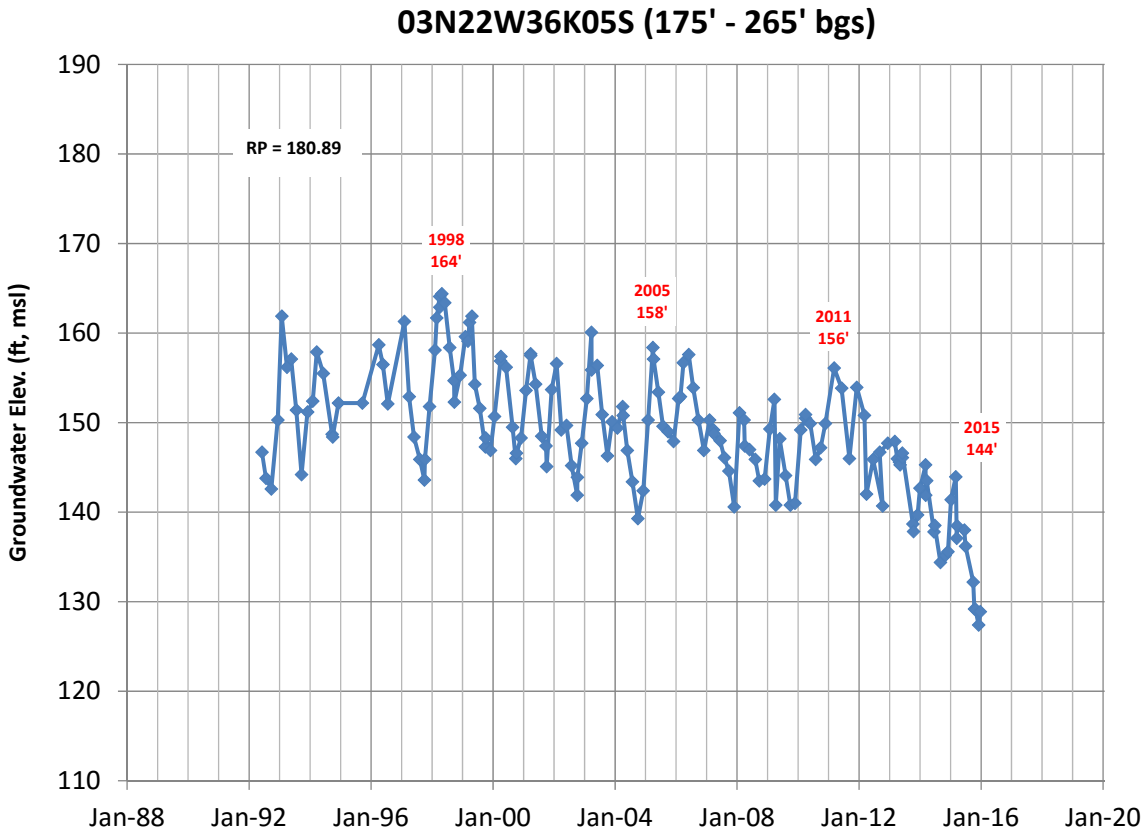

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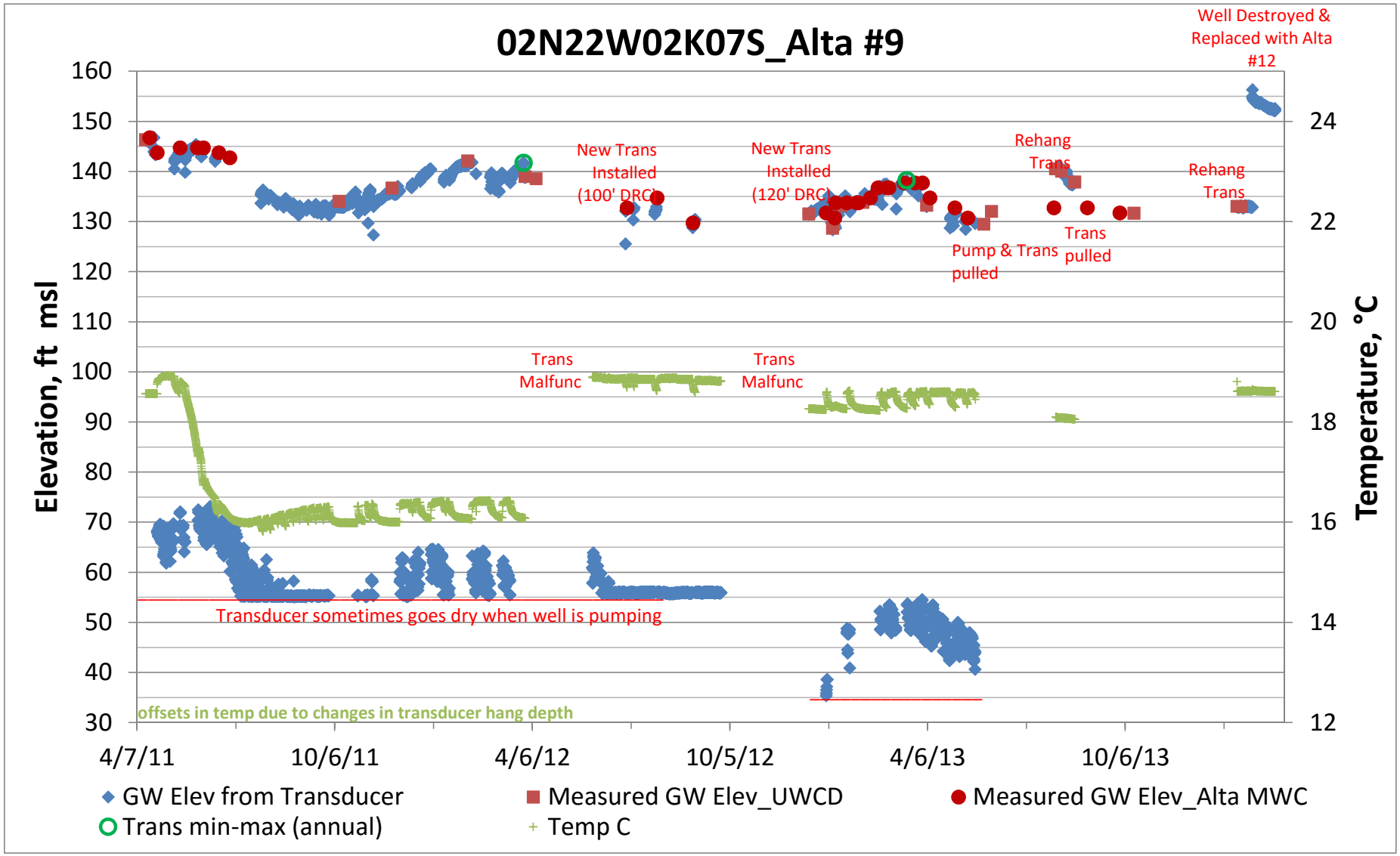

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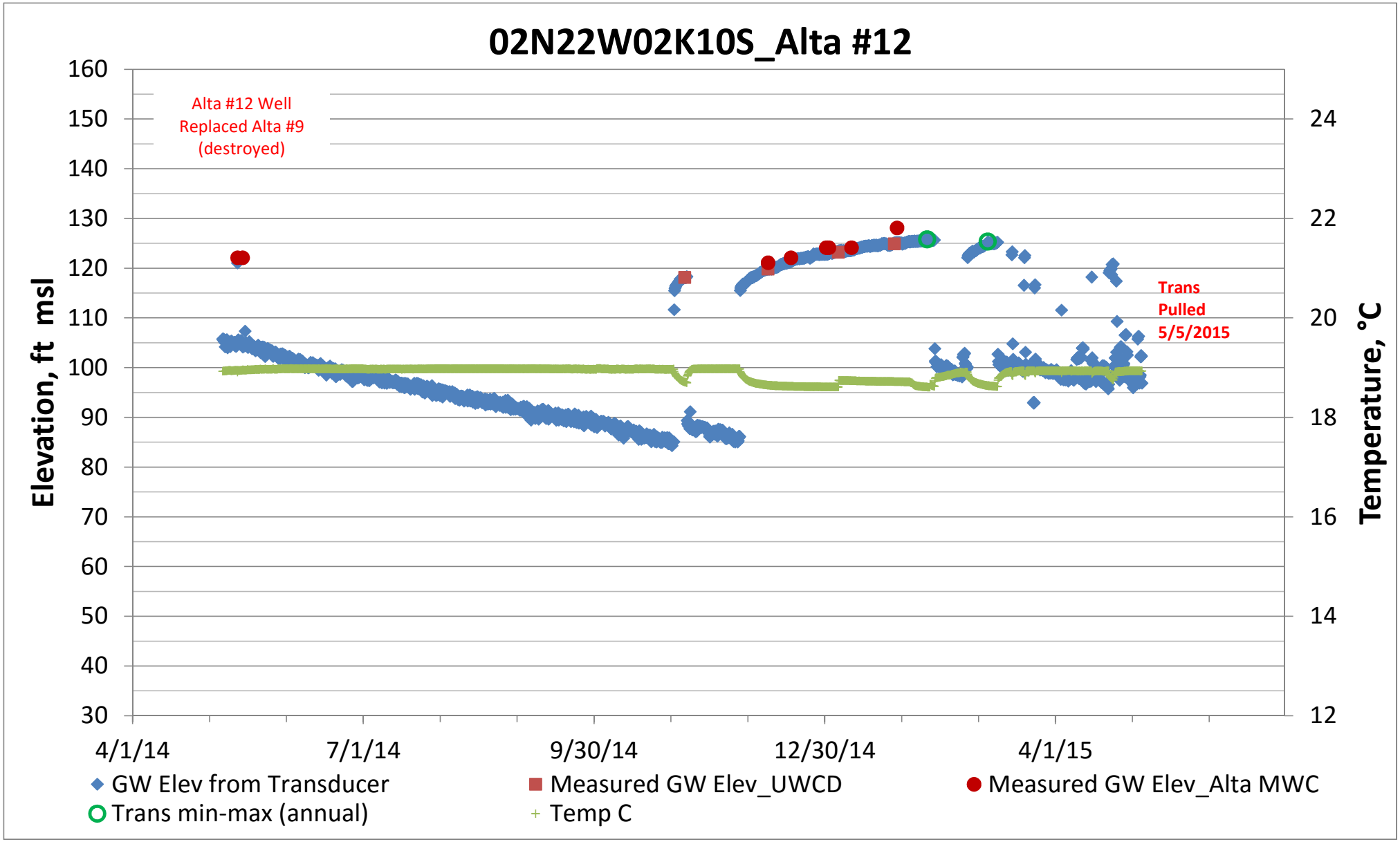

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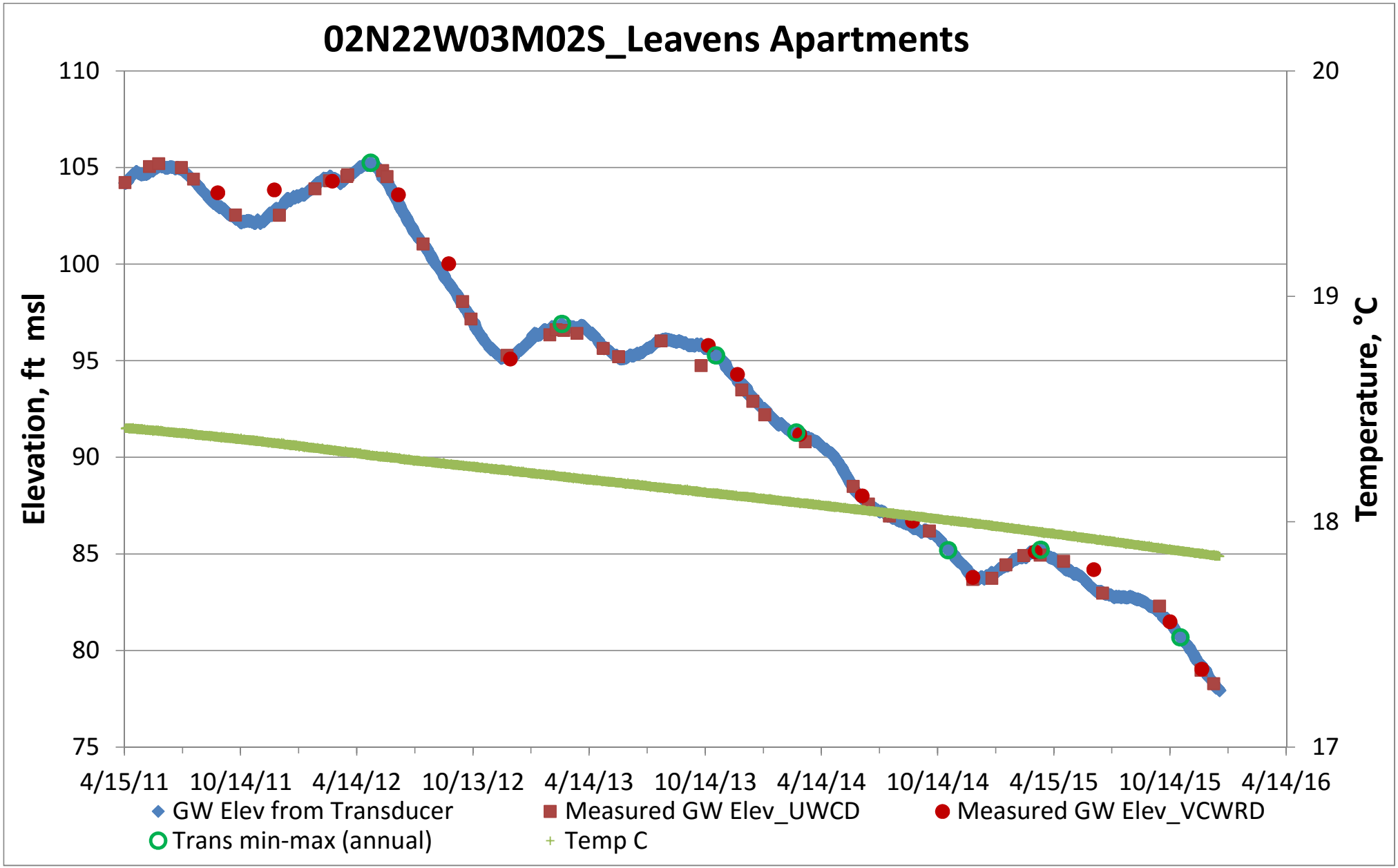

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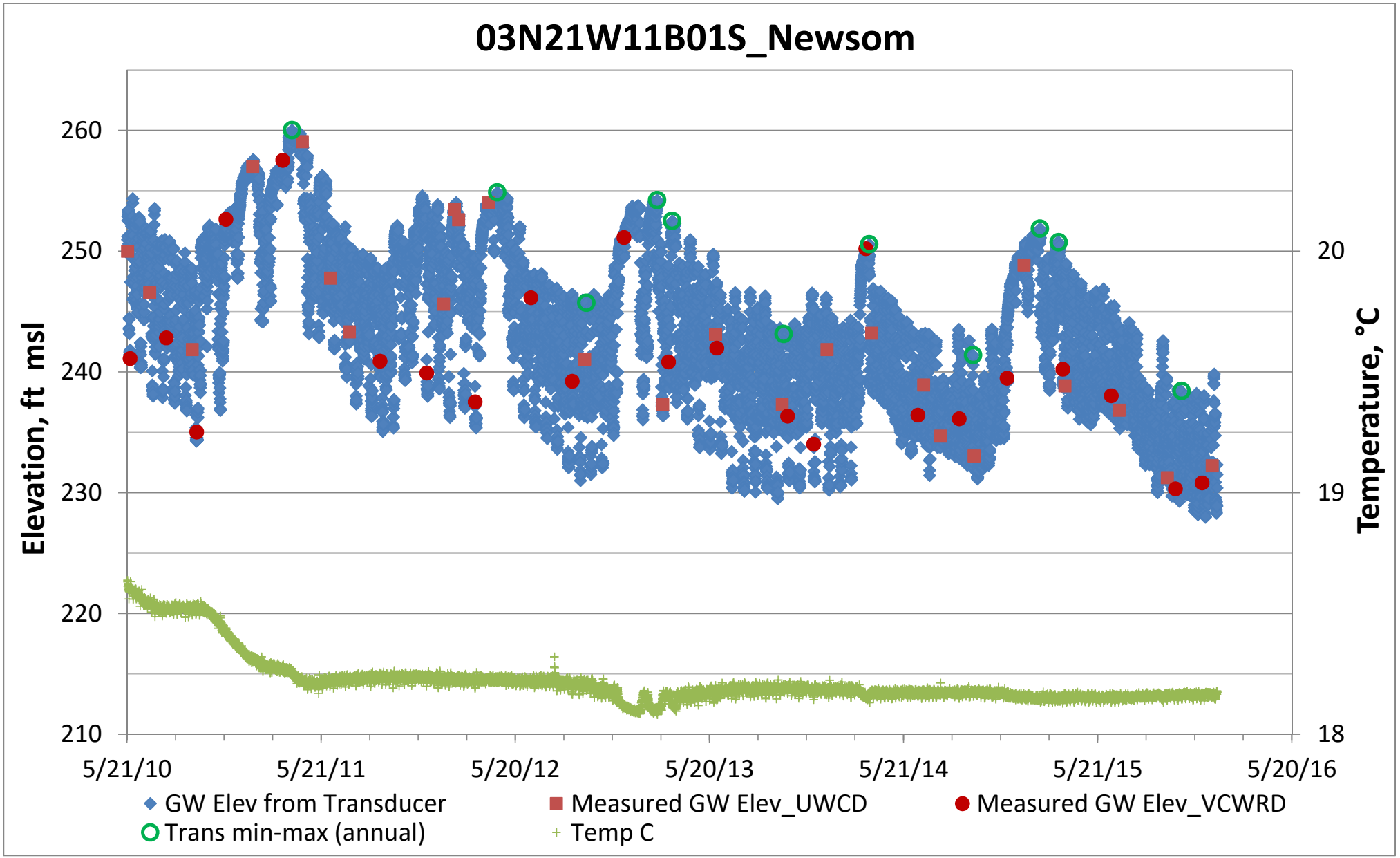

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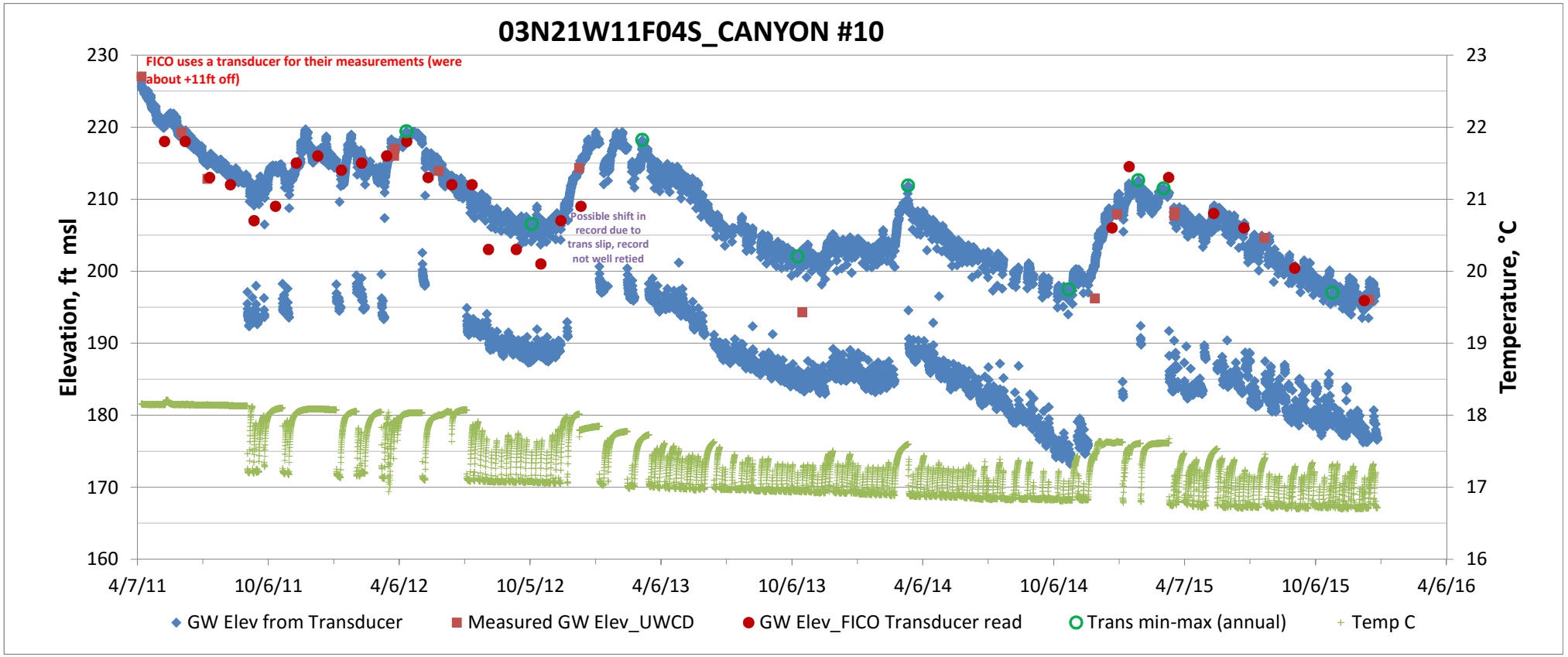

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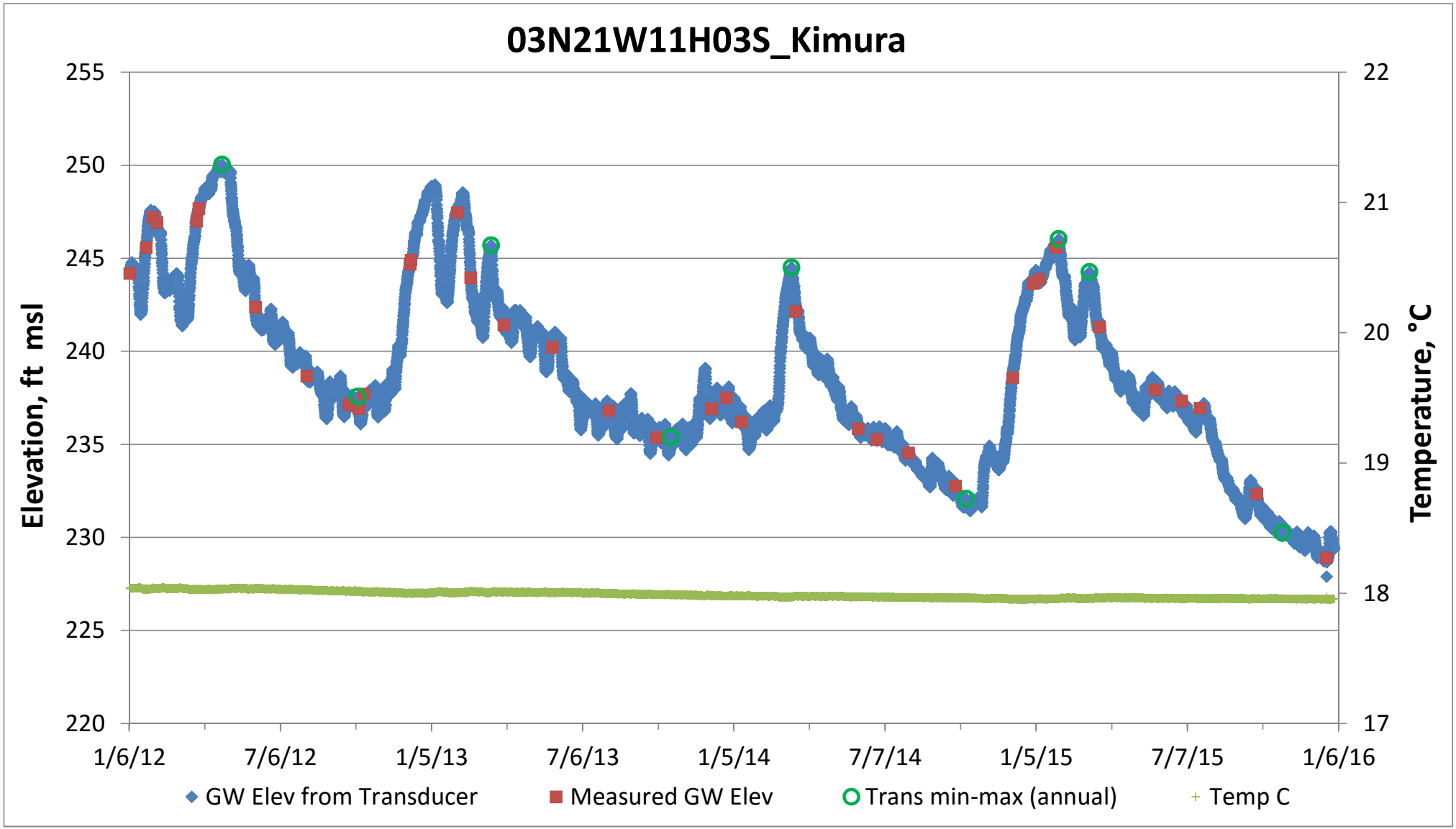

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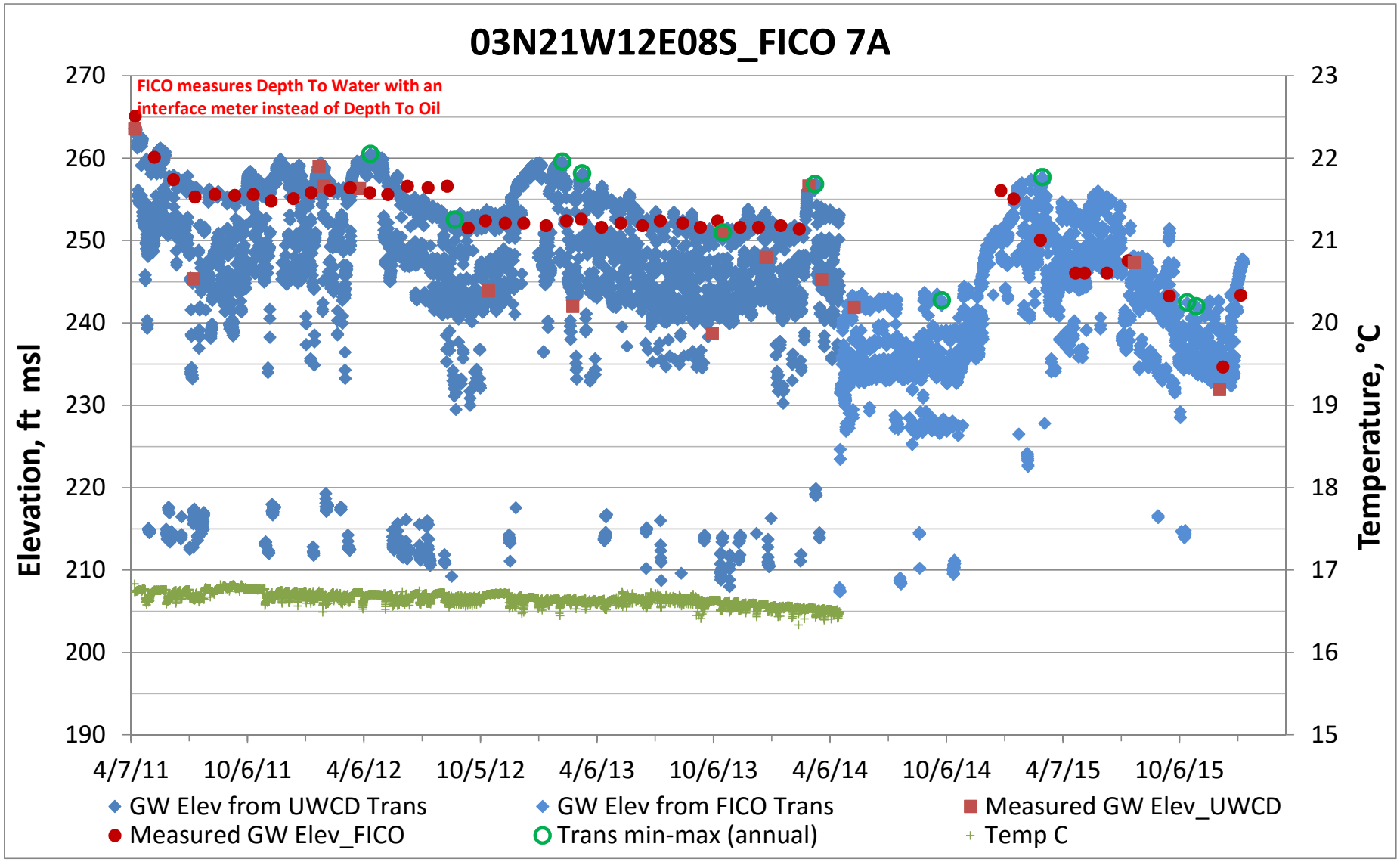

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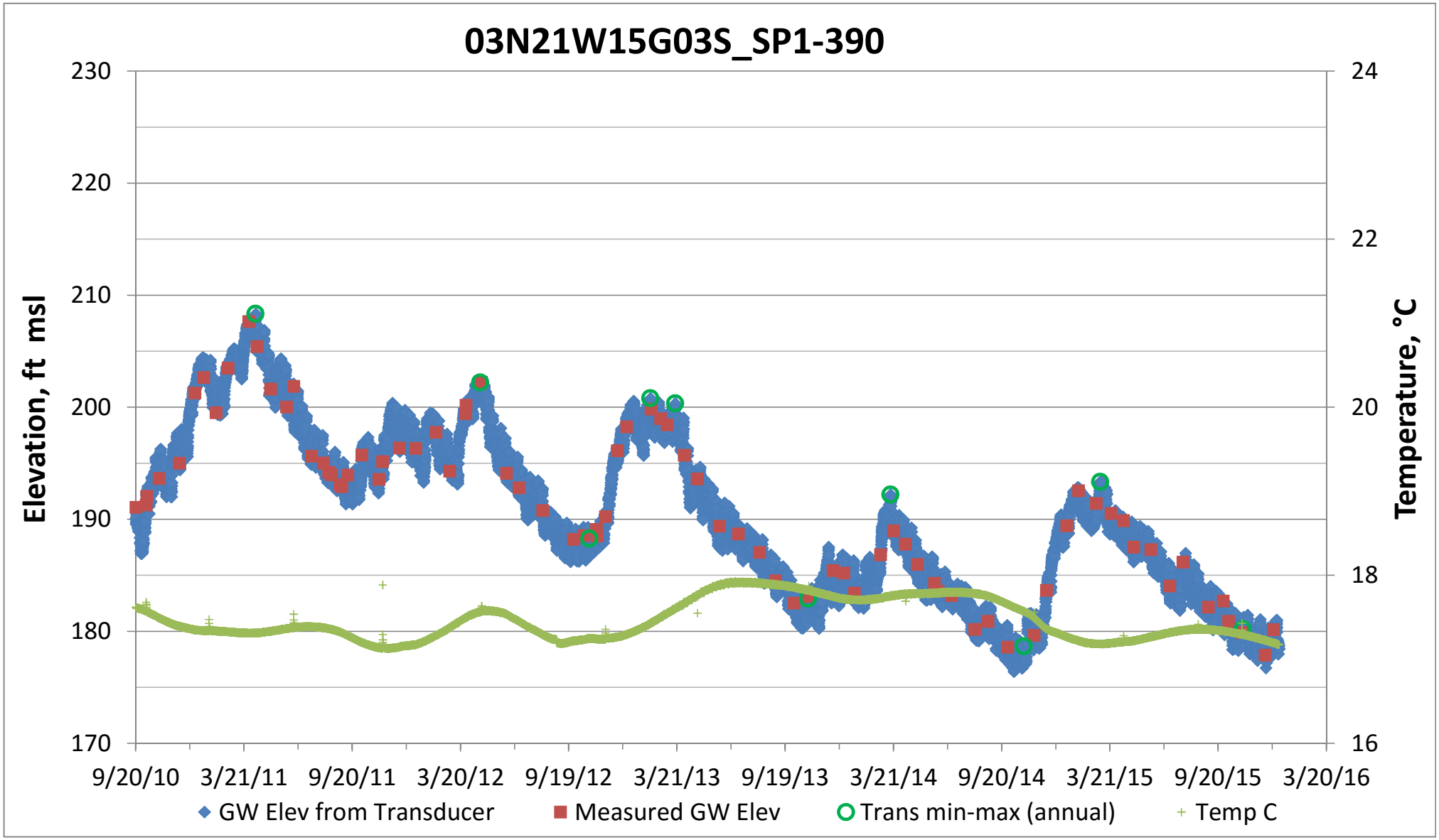

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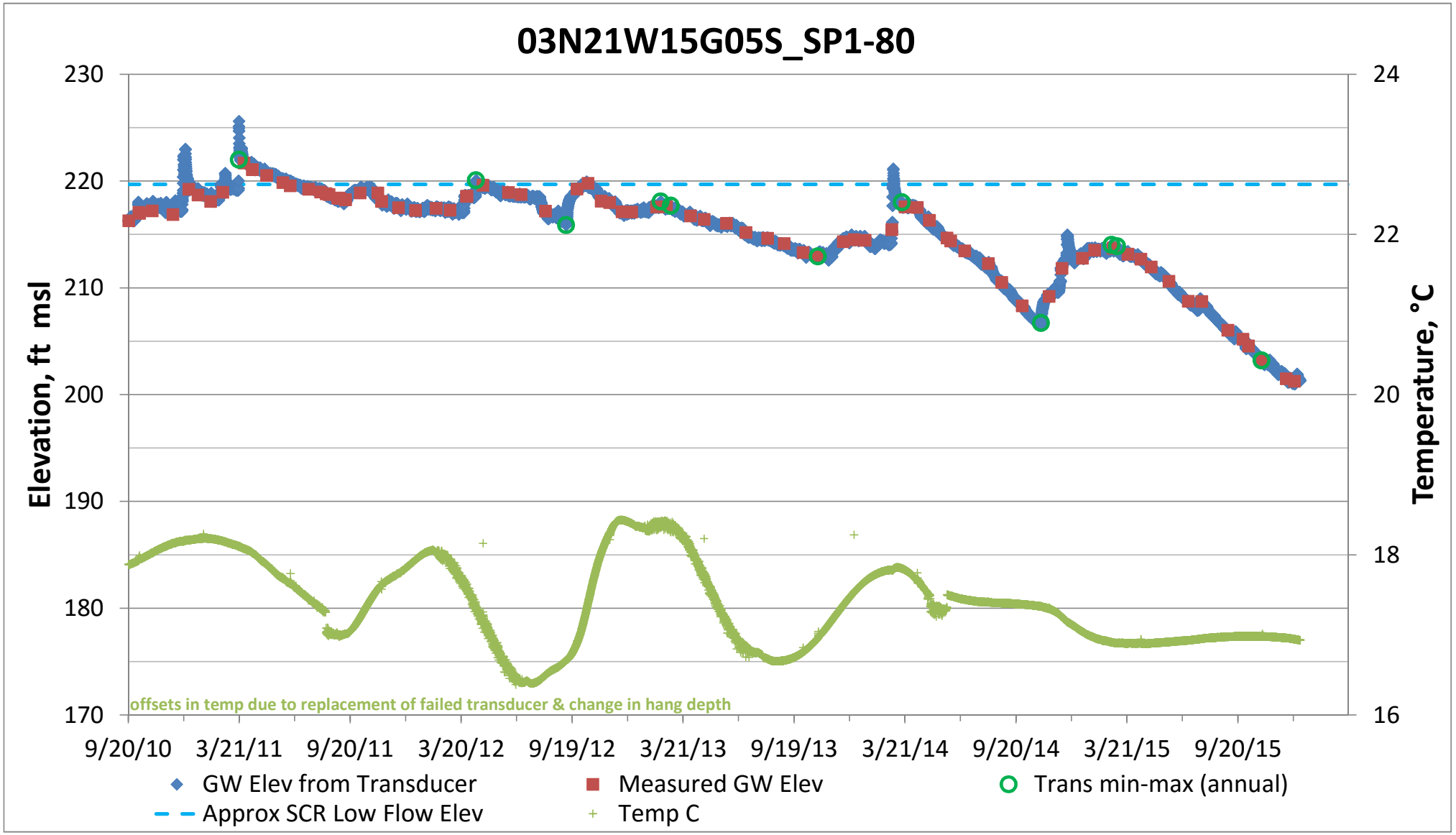

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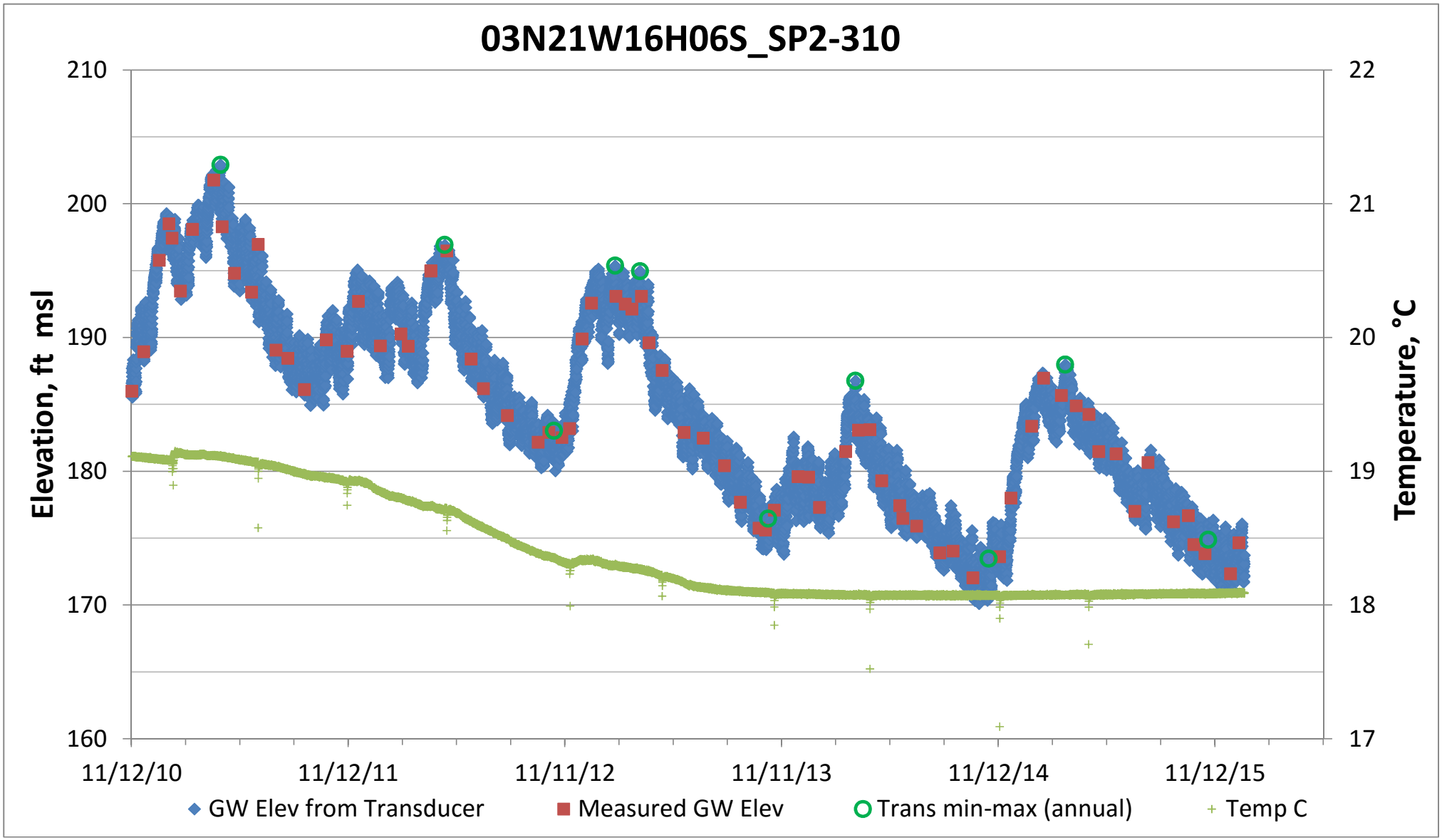

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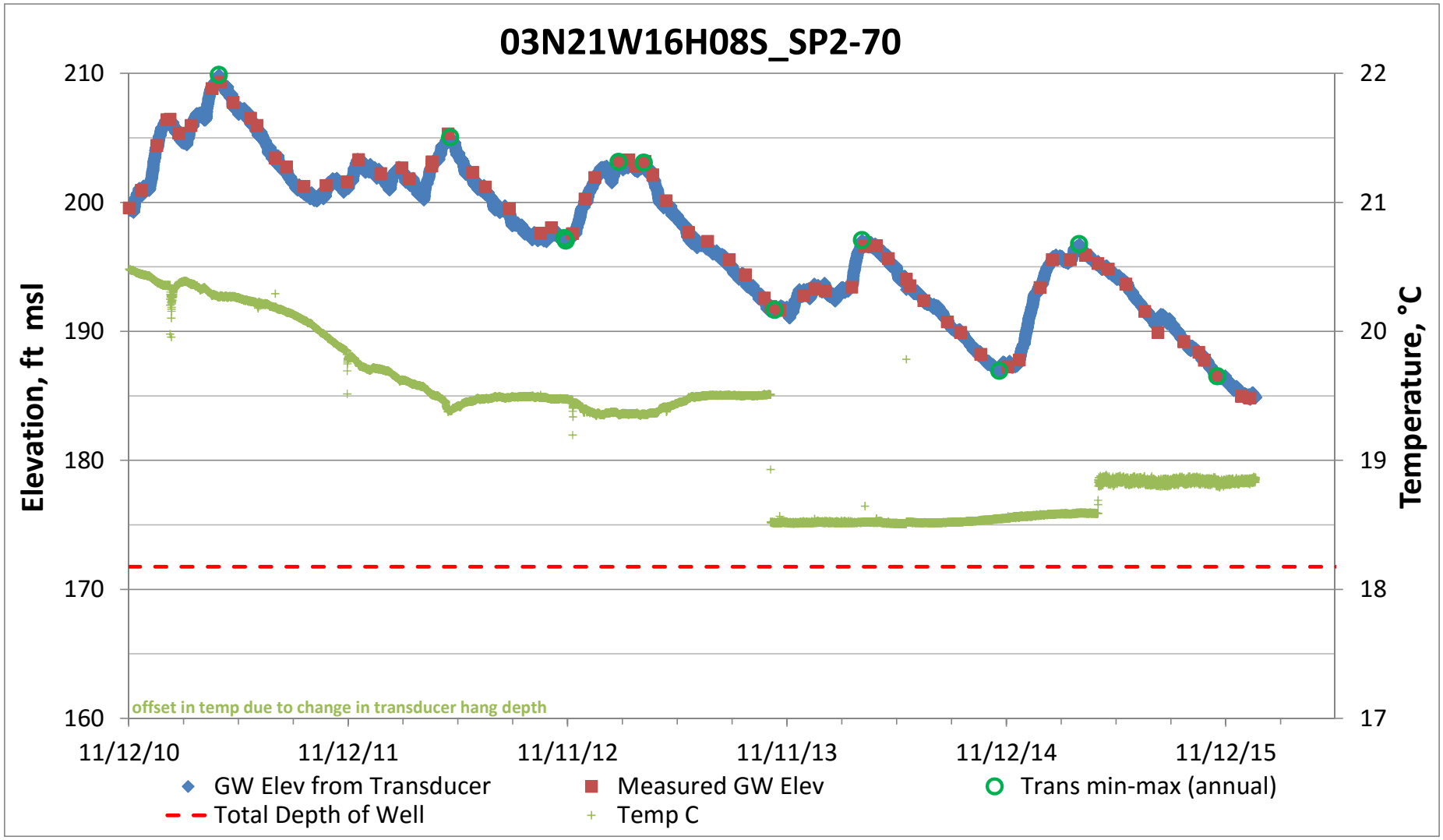

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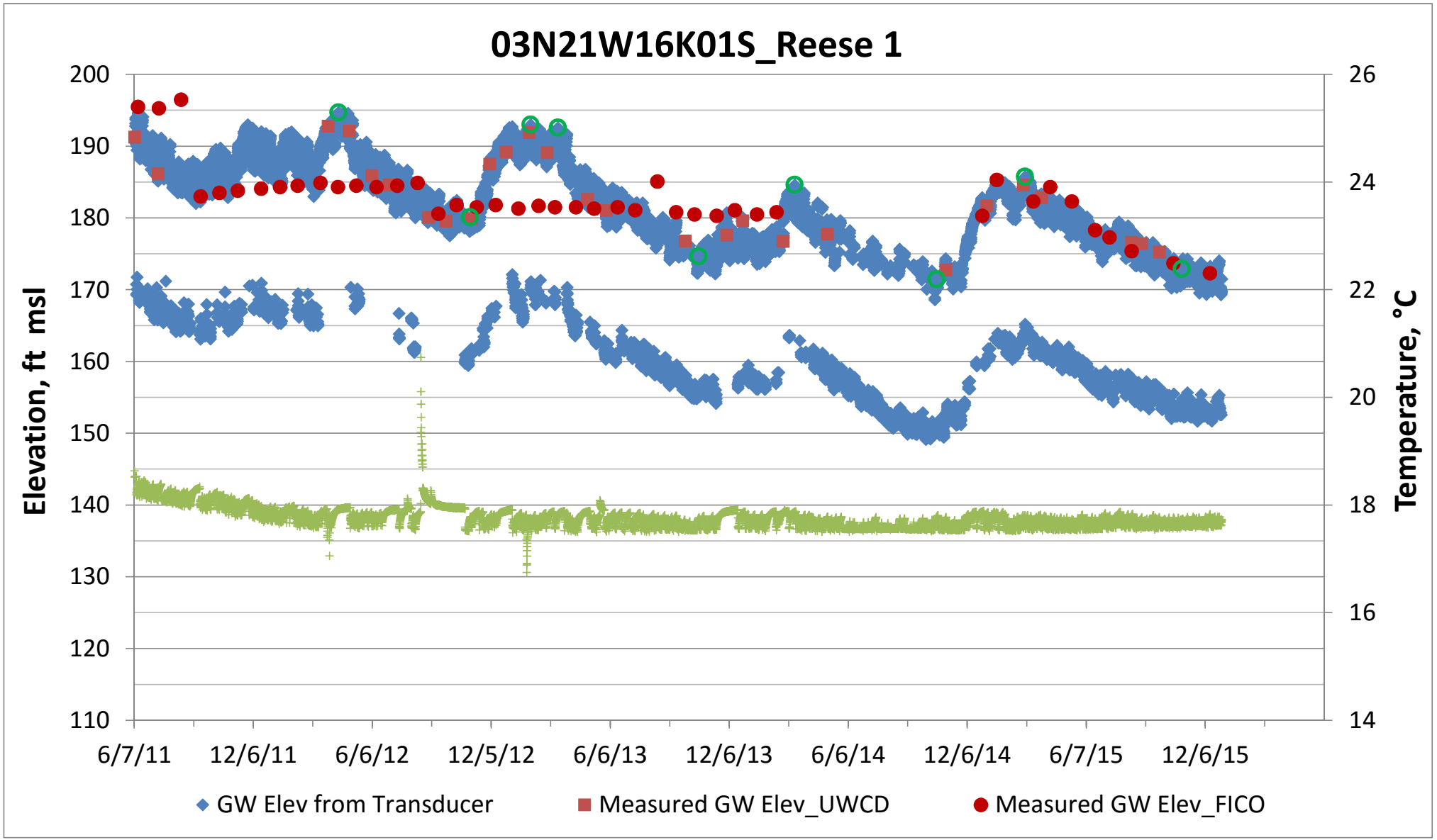

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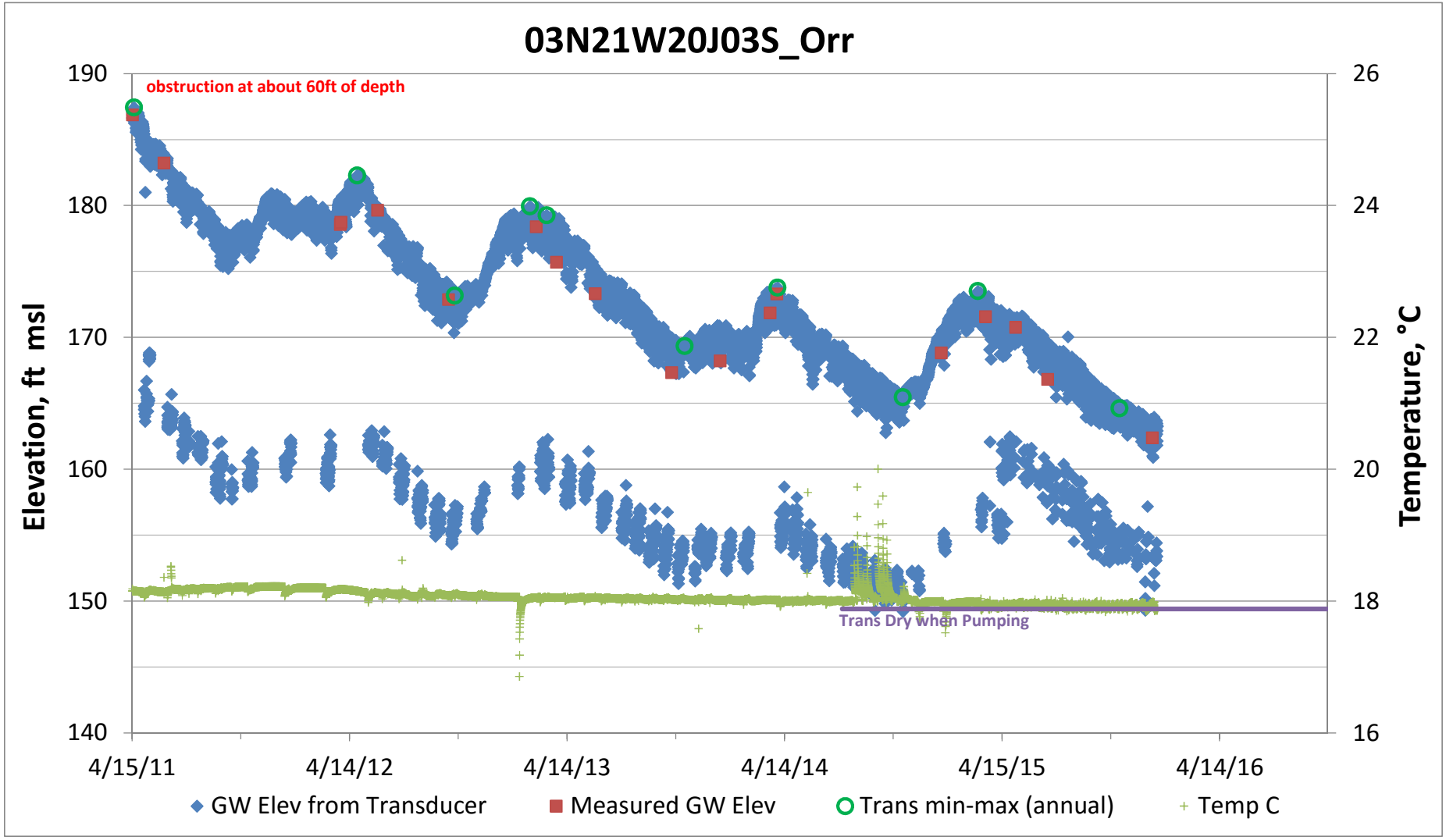

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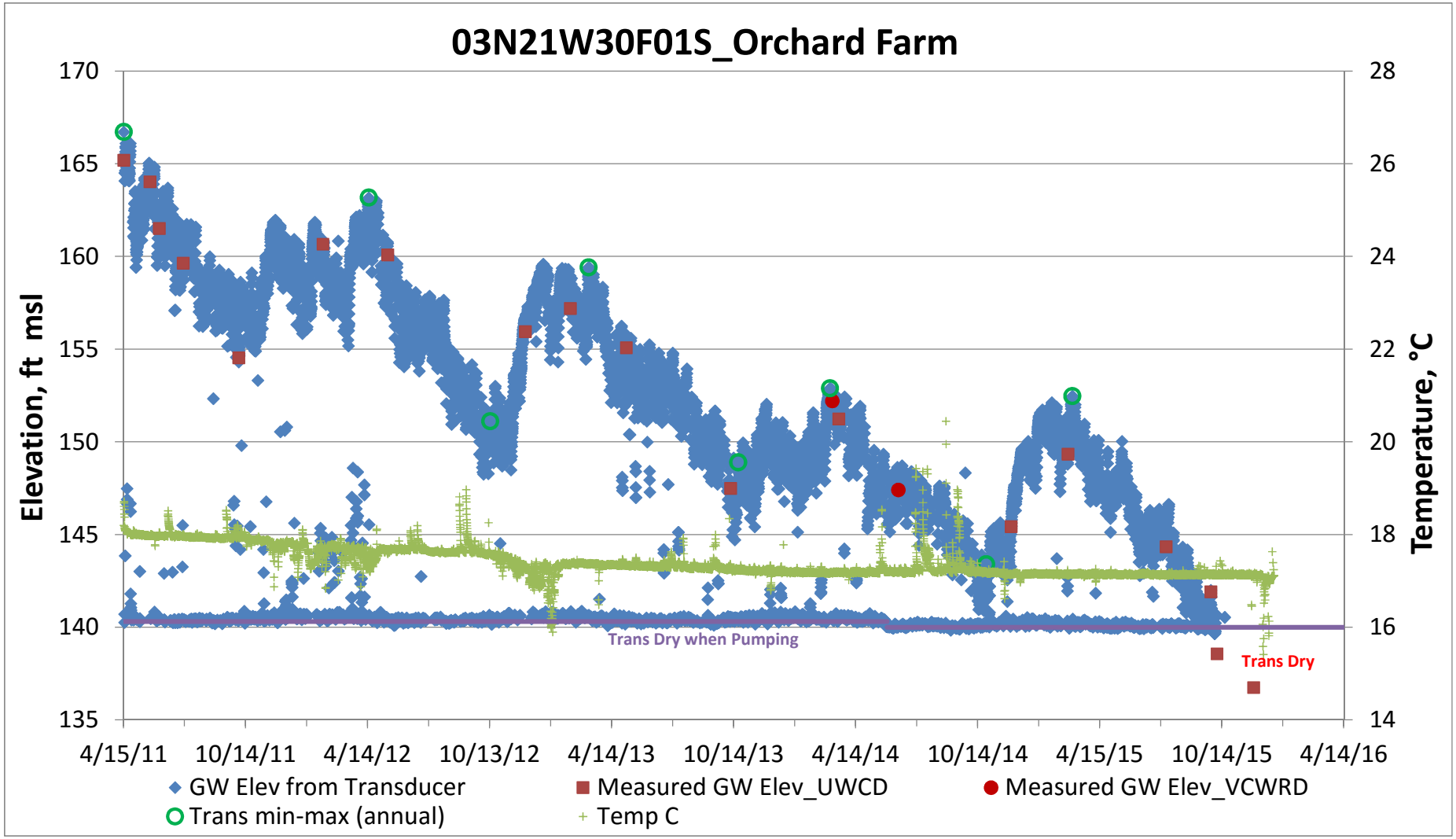

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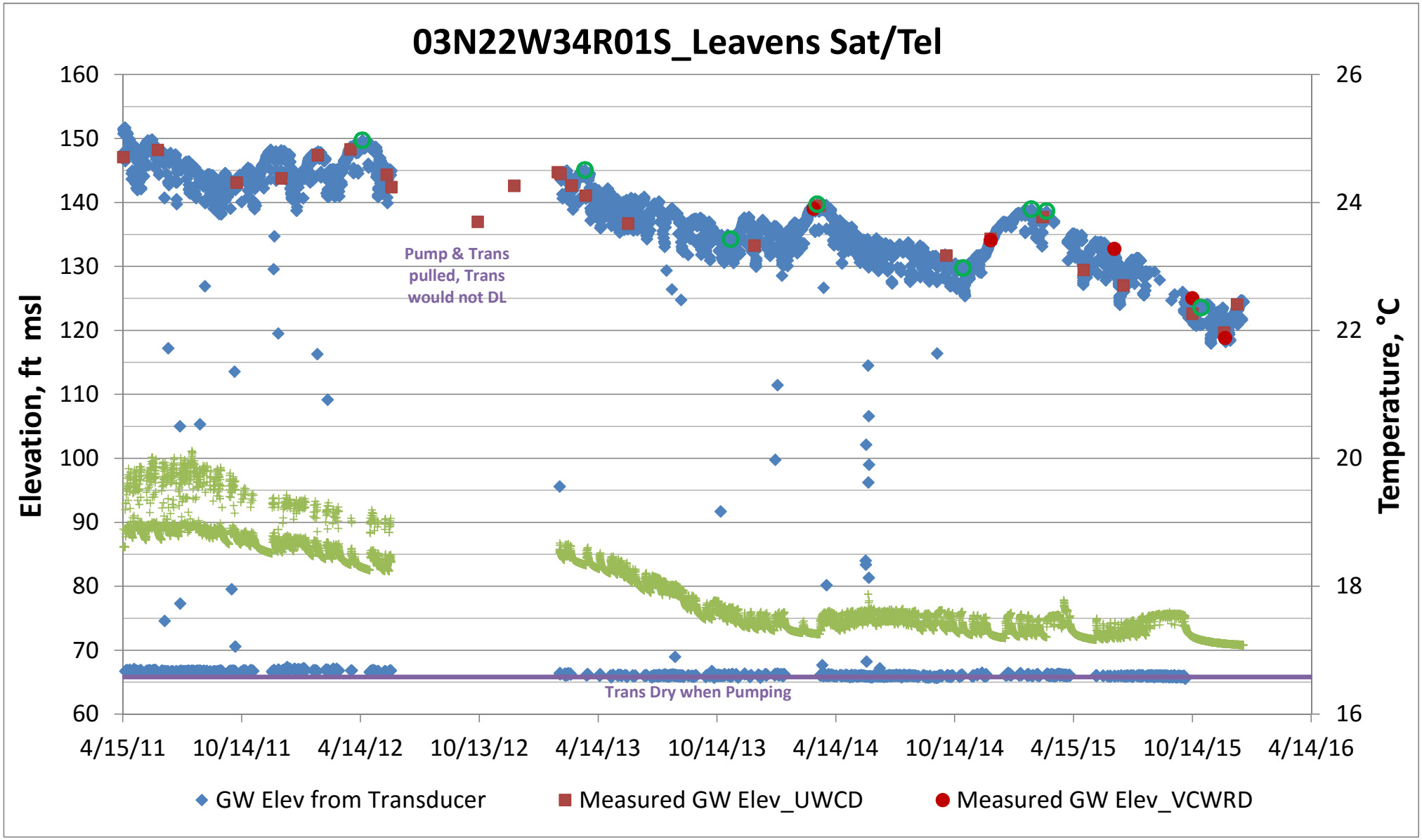

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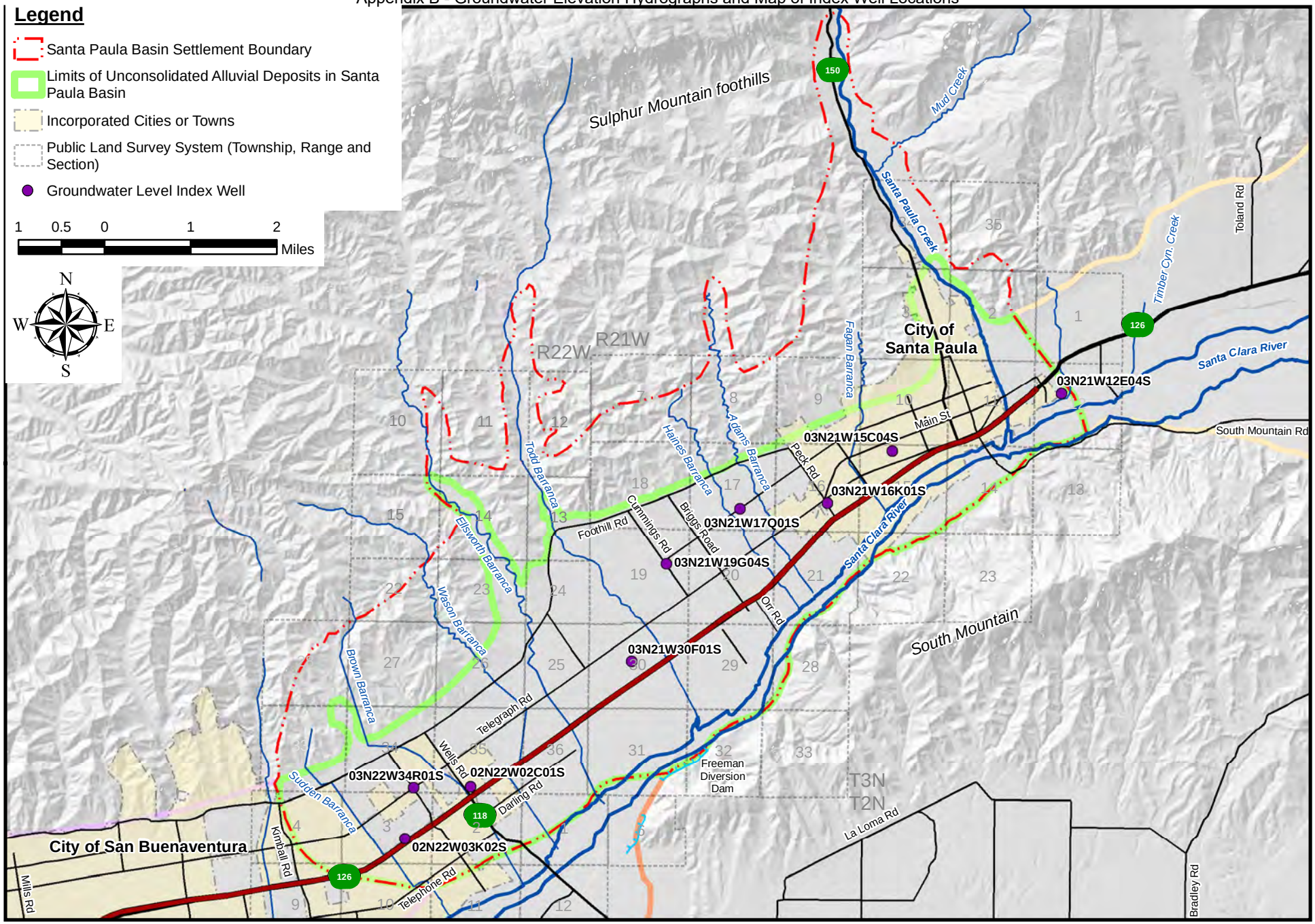

Location of Santa Paula Basin Groundwater Level Index Wells

Figure B-92
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APPENDIX C - Groundwater Quality Maps

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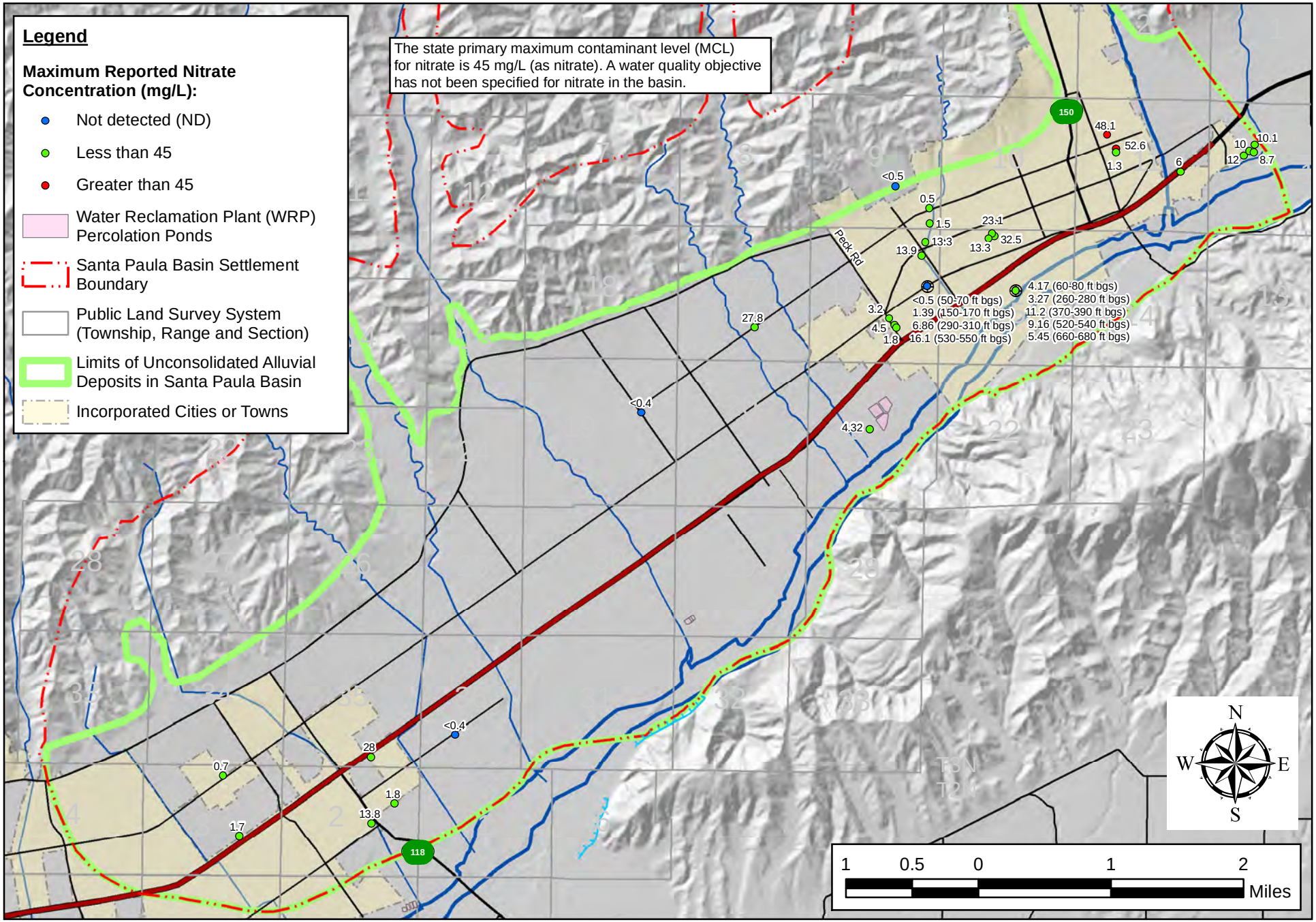

Figure C-1. Maximum Reported Nitrate Concentrations in Groundwater, CY 2015

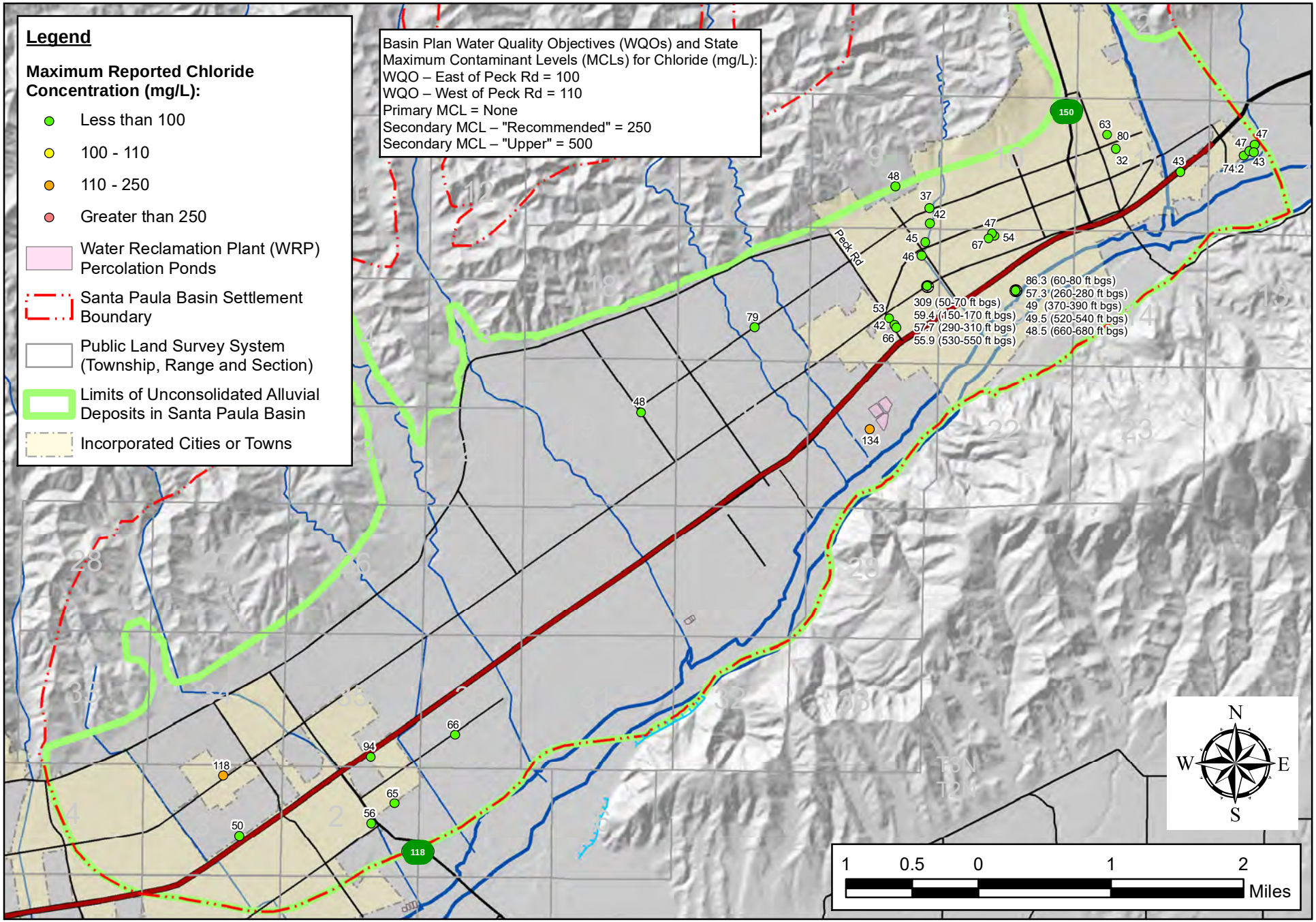

Figure C-2. Maximum Reported Chloride Concentrations in Groundwater, CY 2015

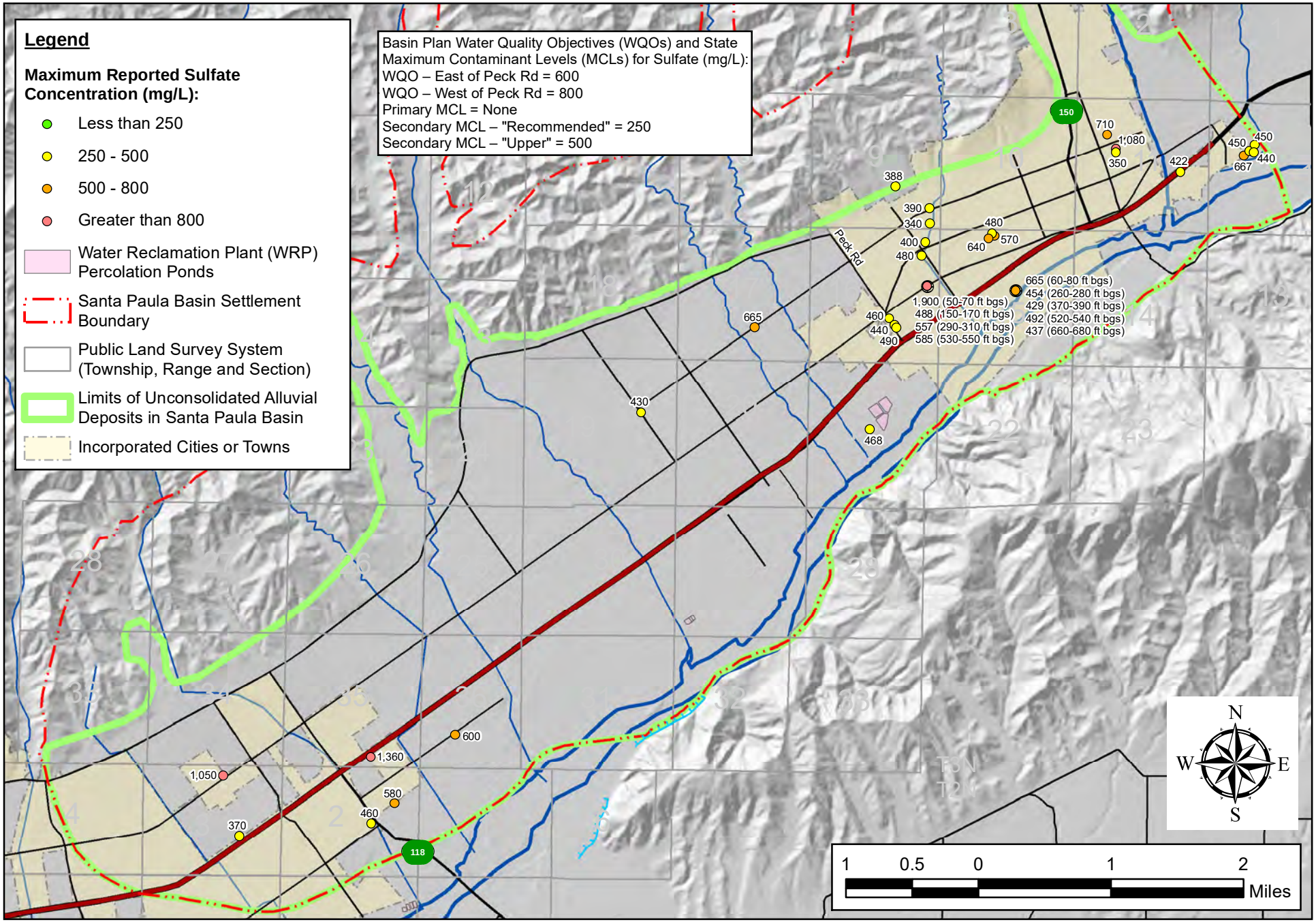

Figure C-3. Maximum Reported Sulfate Concentrations in Groundwater, CY 2015

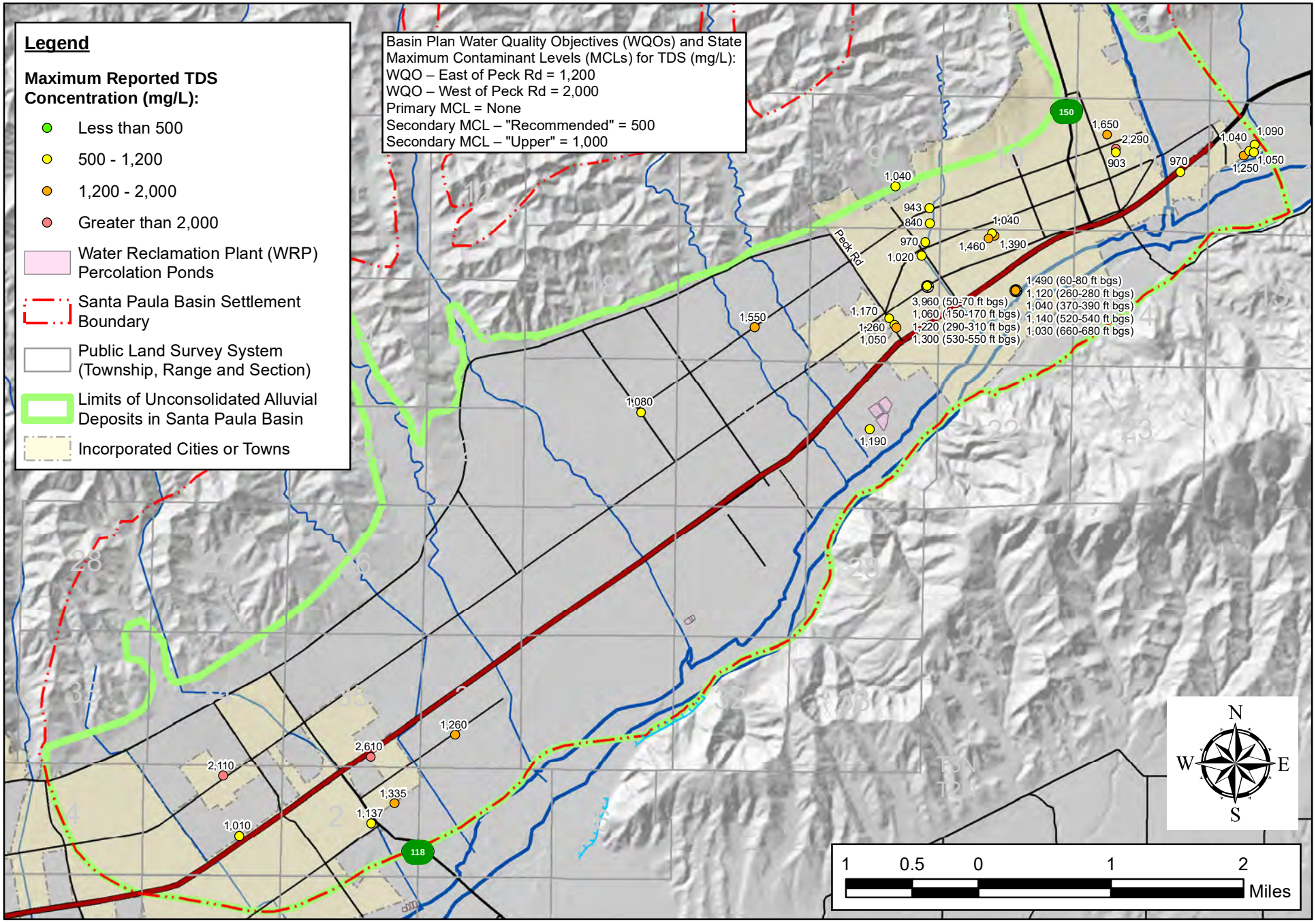

Figure C-4. Maximum Reported Total Dissolved Solids (TDS) Concentrations in Groundwater, CY 2015

APPENDIX D - Individual Party Allocations and Groundwater Extractions

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Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
37.5	18004 Telegraph Road Properties LLC (33)	03N/21W-11H03	Albert Kimura	37.5			Lance A. Boyer
0.0	ABC Rubarb Farms	03N/21W-16P01			Bender Reality Ltd	31.1	
1.8	Aliso Vista Ranch	03N/22W-23Q01					Ron Hendren
0.0	Alsono, Andrew	03N/21W-21M01			Minero Gilberto	1.1	
763.1	Alta Mutual Water Company, Inc.	02N/22W-02K07, 02N/22W-02K10	Held, Joann	5			Bob Tobias
2.9	Arambula, Pedro	03N/21W-21E02	Wallace, William	2.9			Pedro Arambula
0.0	Associated Concrete Products, Inc.	3N/21W-29K03 D			Utility Vault	5.8	
0.0	Axell, Randall as Trustee of the Dorthey E. Axell Trust	3N/21W16P02, 3N/21W16P03			Bender Reality Ltd	362.3	Ilan Bender
0	Basso Properties	03N/21W-09J01			Jamie L. Santana Family Trust	43.4	Steven Basso
0	Bender Farms (23) (29)	03N/21W-16P01	ABC Rhubarb Farms, Non-Party	31.1	City of Santa Paula	4.6	Ilan Bender
					JKJ Farms, LLC	20.5	
					Bratcher & Cutright Trusts	6	
292.56	Bender Realty LTD (19) (29)	3N/21W16P02, 3N/21W16P03, 3N21W17R01 (4)	Axell, Randall as Trustee of the Dorothy E. Axell Trust	362.3	City of Santa Paula	10.04	Ilan Bender
		03N/21W-17R01	La Mesa Partnership #1	144.8	JKJ Farms, LLC	204.5	
100.8	Billiwhack Ranch	03N/22W-23F02			OBA Family Trust dtd 12-22-92	7.9	C. E. Held
					Held. Family Trust dtd 1-16-03	7.9	
					Held, Joann	44.8	
0.0	Birky, Angie E. Trustee	3N/21W-10E01	Pear Blossom Town & Country Mkt.	33.1	Wolfang Van Cmielewski, Wolfang	33.1	
0.0	Brucker, Frank R. as Trustee of the Frank R. Brucker Trust	03N/21W-29E1, 3N/21W-29C3			Brucker Family Trust	121.8	
6.0	Bratcher Family Revocable Tr 1-24-02 & Cutright Revocable Tr 8-18-03 (22)	03N/21W-16P01	Bender Farms	6			
276.5	Brucker Family Trust (29)	3N/21W-19Q1, 3N/21W-29E1, 3N/21W-29C3	New Allocation, 2010	54.7			Michael Brucker
			JKJ Farms, LLC	100			
		03N/21W-29E1, 3N/21W-29C3	Frank R. Brucker as Trustee of the Frank R. Brucker Trust	121.8			
282.3	Campbell Dan	03N/21W-19R01	Evergreen Ranch AKA San Miguel Prod.	282.3			Peter T. Fallini
1.1	Canine Adoption and Rescue League	03N/21W-29B02	Lassich, Madeline	1.1			Sharon Clark
673.0	Canyon Irrigation Company	03N/21W-11F03, 3N/21W-11E3, 3N/21W-11F4	Santa Paula, City of	673.0			Peter T. Fallini
99.3	Casa De Oro Ranch	03N/21W-20F01					Jerry Friedrich

Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
101.4	Castaneda, Albert and Mary	03N/21W-19L01 (1), 3N21W19K01	Eva Gregory as Trustee of the Gregory Family Trust	50.7			Albert Castaneda
		03N/21W-19L01	Cummings, Paul R. and Irene & Sons	50.7			
	Coffman, Laura K. McAvoy, Successor Trustee of the Gladys Daily Coffman Trust dated June 16, 1993	03N/22W-35N01			Fam, J. LLC (2011)	97.0	Laura K. McAvoy
5,560.1	City of Santa Paula	03N/21W-21B03	John R. McConica II et al.	70.8			Public Works Director
			Limoneira Company	62.2			
		3N/21W9R5, 03N/21W11J02, 03N/21W15C06, 03N/21W16A02, 3N/21W16A3	Bender	.	Canyon Irrigation Company	673.0	
93.6	Clow, The Roger D. Clow Trust, Dated September 15, 1994	3N/21W20J04 (17)	New Allocation, 2010	60.0			Roger Clow
		03N/21W-20A02, 03N21WL02S	Clow, Nola as Trustee of the Monte Clow Estate	33.6			
158.7	Cole, Lecil E. Trustee of the Lecil E. a	3N/21W-16E02	Pinkerton, W. J. Estate Ranch	158.7			
0.0	Conklin, Patricia	03N/21W-21D02			Zimmerman, Wade & Patricia B	2.7	
9.6	The Judson T. Cook & Suzette H. Cook Revocable Trust dated December 5, 2007 (28)	3N/22W-26B1	Dabney, George and Rebecca Trust Inter Vivos	9.6			
172.2	County of Ventura, General Services Agency (26)	03N/21W-30H08, 3N/21W-30H02					Paul S. Grossgold
178.3	County of Ventura, General Services Agency	02N/22W-02G01	Frank Silva	47.3			Paul S. Grossgold
0.0	Cummings, Paul R. and Irene & Sons	03N/21W-19L01			Castaneda, Albert & Mary	50.7	
	Dabney, George & Rebecca Trust Inter Vivos	3N/22W-26B1	New Allocation, 2010	9.6	The Judson T. Cook & Suzette H. Cook Revocable Trust dated December 5, 2007	9.6	Ted Cook 805-320-7420
321.2	Dickenson, D&P Dickenson Family Revocable Trust, Louise Dickenson, Bruce E. Dickenson, Virginia Dickenson, Reed and Diana G. Dickenson as undivided co-owners	03N/21W-10M01	Flying-D Ranch	321.2			Bruce Dickenson
	Dominguez, G. (6)	03N/21W-12E07	Allocation has been moved from this schedule				
0.0	Evergreen Ranch AKA San Miguel Products	03N/21W-19R01			Campbell, Dan	282.3	
85.0	Fam, J. LLC	03N/22W-35N01	Coffman, Laura K. McAvoy, Successor Trustee of the Gladys Daily Coffman Trust dated June 16, 1993	97.0	City of Ventura	12.0	John Sashkar, Managing Partner
			Southern California Edison Co	9.5			

Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
9,913.2	Farmers Irrigation Company, Inc.	03N/21W09R04, 03N/21W12E04, 03N/21W12E08, 03N/21W12F03, 03N/21W16K01, 03N/21W16K02, 03N/21W16K03, 03N/21W19H07, 3N/21W19G4, 3N/21W12F6, 03N21W15C04, 3N21W15C02					
0.0	Fiano, Michael (21)	3N/22W26B02 & 3					
		03N/21W-15C02, 03N/21W-15C04	Thermal Belt Mutual Water Company	497.3			
213.4	Finch, J.J. & H.H.	3N/22W-34Q02, 3N22W34Q03	Mondol, JK	12			Jim Finch
0.0	Galbreaith Brothers, Inc.	03N/21W-17Q01			Jamie L. Santana Family Trust	78.4	
9.6	Garcia, Elias & Guadalupe (15)	3N/22W-26B1	New Allocation, 2010	9.6			
42.8	Gilbert, Patricia L., Trustee of the Gilbert Family Survivor's Trust	03N/21W-16E01	La Mesa Partnership #1	42.8			Patricia L. Gilbert
101.8	Gooding Ranch (John F. Gooding)	03N/21W-09K02					John F. Gooding
52.9	Grant Family Ranches, LLC (20) (30)	3N22W3E01, 3N21W20E01					
0.0	Gregory, Eva as Trustee of the Gregory Family Trust				Castaneda, Albert & Mary	50.7	
97.6	Grether, Elizabeth Broome, Ann B. Priske, John S. Broome Jr. as Trustee of the John S. Broome Jr. Trust	03N/22W-35Q02					John S. Broome
13.0	Yeisi Brayen Guzman, Trustee of the Brayen And Mesa Guzman Revocable Family Trust, dated July 24, 2015	03N/21W-19G03	Walking Beam Ranches	13			
129.2	Hadley-Williams Partnership	02N/22W-03E01 (9)					James W. Williams
	Hampton Canyon Ranch (Leslie) (32)	03N/21W-19A02			Torres, George 2013 Trust	21.9	Bill Lindsey
7.9	Held, Family Trust dtd 1-16-03	03N/22W-23F02	Billiwhack Ranch	11.9			Joann Held
33.8	Held, Joann	03N/22W-23F02	Billiwhack Ranch	44.8			Joann Held
					Pinkerton Ranch Trust	2	Bob Pinkerton
					JVP Citrus, Inc.	2	Allan M. Pinkerton
					Pinkerton, Jennifer Paulene	2	Bob Pinkerton
					Alta Mutual Water Company	5	Roger Orr
125.0	JKJ Farms, LLC (29)	3N/21W-16P01 3N/21W-16P02&3	Bender Reality, LTD&Bender Farms	225	Brucker Family Trust	100	Michael Brucker
0.0	Juanamaria Land Company	02N/22W-03E01			City of San Buenaventura	220.0	Shana Epstein
2.0	JVP Citrus, Inc.		Held, Joann				
	Kimura, Albert	03N/21W-11H03			18004 Telegraph Road Properties, LLC	37.5	Lance A. Boyer
0.0	Kimura, Tama	03N/21W-11H01			The McGaelic Group	55.9	

Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
0.0	La Mesa Partnership #1	3N/21W-17R01			Twyford	101.2	
					Bender Reality LTD	144.8	
					McGaelic Group	180.7	
0.0	Lassich, Madeline	03N/21W-29B02			Canine Adoption and Rescue League	1.1	
195.3	Leavens Ranches	03N/22W-24R01 (13), 2N22W03F02			Santana, Jamie, L. Family Trust	101.7	Leslie Leavens-Crowe
3,549.0	Limoneira Company	03N/21W-01N02, 03N/21W-02Q01, 03N/21W-02R02, 03N/21W-19G02, 03N/21W-30F01, 03N/21W-30H04, 03N/21W-31E03, 3N/21W-31L2			City of Santa Paula	62.2	Harold Edwards
		03N/21W-11A01	Newsom, Alice C. as Trustee of the Newsom Family Trust	138.1			
		See Limoneira	Wittenberg-Livingston Inc.	300.0	Rancho Attilio		
10.0	Little Clara Ranch LLC (30)	3N22W34E01	Wittenberg-Livingston Inc.	3.0	Rancho Attilio		Rob Brokaw
		3N22W34E01	Southern California Edison Co	3.0			
36.3	Malzacher, Fred H. & Elaine C., Trustees of the Fred H. Malzacher and Elaine C. Malzacher Revocable Trust dated January 16, 1992 U/D/T dated November 25, 2009, as amended		New Allocation, 2010	33.1			Fred H. Malzacher
		03N/21W-21G03	Malzacher, Fred	3.2			
34.3	Martinez, Esther	3N21W-29G02	New Allocation, 2010	34.3			
24.7	McConica, John II	2N/22W-3Q1					John McConica
	McConica, John R. et al.	3N/21W21B3	John McConica		City of San Buenaventura	5.8	Shana Epstein
	McConica, John R. II et al.	03N/21W-21B03			City of Santa Paula	70.8	
181.6	McGaelic Group	03N/21W17R01 (4), 3N/21W11H01	Tama Kimura, 55.9 Acre-Feet, La Mesa Partnership #1, 180.7 Acre-Feet	55.9			Beverly C Gutierrez
283.6	McGrath, John & Sons (18)	03N/21W21E05, 3N/21W21E11, 3N/21W-20J04 (17) & 3N/21W-20R3	Shores, John Family Partnership	126.7			Tim McGrath
	Mondol, J.K.	03N/21W-10E01, 3N/21W-10E2	Von Chmielewski, Wolfgang (15)	33.1	Shozi Ventura, LLC 6.0, JJ&HH Finch 12.0, Gary Ohst 15.1 AF	18	J.K. Mondol
0.0	Newsom, Alice C. as Trustee of the Newsom Family Trust	03N/21W-11A01			Limoneira Company	138.1	
46.7	Nichols Associates	03N/22W36H01, 03N/22W36H02					Ron Nichols
126.4	Nutwood Farms	03N/22W-36J01, 36J02 & 36J03					Samuel C. Myer

Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
7.9	Oba Family Trust dtd 12-22-92	03N/22W23F02, 3N/21W17D03(10)	Billiwhack Ranch	7.9			Ron Oba
15.1	Ohst, Gary	03N/21W-10E01, 3N/21W-10E2	JK Mondol	15.1			
	Orr, Roger as Trustee of the Orr Family Trust	03N/21W-20J03, 3N/21W-20J2					Roger Orr
193.9	Orr Ranch Co. (25)	03N/21W-20J03, 3N/21W-20J2	Orr, Roger as Trustee of the Orr Family Trust	193.9			Bryce R andElaine V Bannatyne
38.6	Ortiz Trust - Joseph & Sons (3)	03N/21W-30E01	Tri-Leaf Nursery (Bruce Arikawa)	8.8			Joe Ortiz
		3N/21W-30E2, 3N/21W-20H1	New Allocation, 2010	29.8			
410.3	Panamerican Seed, aka Ball Horticultural	3N/21W20K01, 3N/21W20M01 03N/21W20P01 & 3N/21W20F4	Panamerican Seed	410.3			Richard W. Brandon
	Pear Blossom Town & Country Marke	03N/21W-10E01, 3N/21W-10E2			Angie E. Birky Trustee	33.1	
116.0	Petty Ranch LP	03N/22W-36K04, 3N/22W-36K6	Petty & Petty	116.0			Don E. Petty Jr.
	Pinkerton, Dan C. and Susan V. Pinkerton, Co-Trustees of the Pinkerton Family Living Trust dated March 19, 1990	03N/21W-17P02	Robert L. Pinkerson & Sons	62.1	Strata Holdings LP	62.1	Dan Pinkerton
39.1	Pinkerton, Arlene	3N21W17Q01 (5)	Pinkerton, W. B. Limited Partnership	39.1			
2	Pinkerton, Jennifer Paulene		Held, Joann				
61.9	Pinkerton, Murray	03N/21W-21E01	Pinkerton, Wesley Estate	61.9			
2	Pinkerton Ranch Trust		Held, Joann				
0.0	Pinkerton, W. B. Limited Partnership	3N21W17Q01			Pinkerton, Arlene	39.1	Arlene Pinkerton
	Pinkerton, W. J. Estate Ranch 1 & 2	03N/21W-16E02, 3N/21W-29B4			WJ Pinkerton Est Rnh & TVC Pinkerton	291.2	Robert C. Pinkerton
0	Pinkerton, W. J. Estate Ranch	3N/21W-16E02	Pinkerton, W. J. Estate Ranch 1 & 2	291.2	Cole, Lecil E. Trustee of the Lecil E. and	158.7	
0.0	Pinkerton, Wesley Estate	03N/21W-21E01			Pinkerton, Murray	61.9	Murray Pinkerton
0.0	Rancho Attilio	2N/22W-2Q01			Wittenberg-Livingston, Inc.	327.8	
					Vanoni, David or Mary - Mary Vanoni	8.0	
119.6	Rancho Filoso, LLC	03N/21W-09K03, 3N/21W-9K4					Anita Tate
0.1	Ray, Richard T. and Ruth L.	03N/22W026P01	Ray, Richard	0.1			Richard Ray
0	Regents of the University of California (31)	3N/22W-34R1			WH Ventura 165 LLC		Scott Ouellette 661-600-9722
763.5	Riverbank Citrus, LLC	3N/22W36K7 & 3N/22W36Q1, 3N22W36K05	Headley Property Corporation	763.5			Rhett L. Searcy
0.0	R.F. Robertson as Trustee of the Robertson Family Trust	03N/21W-17Q01			Santana, Jamie, L. Family Trust	39.1	
	Santana, Jamie, L. Trustee of the Survivor's Trust Under the Jamima L	3N/22W-24R01 (13)	Leavens Ranches	101.7			Jamie Santana
		03N/21W-17Q01 (5)	R.F. Robertson as Trustee of the Robertson Family Trust	39.1			

Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
363.8	Survivor's Trust Under the Jannine L. Santana Family Trust dated May 30, 1984 as amended	03N/21W-17Q01 (5)	Galbreaith Brothers, Inc.	78.4			
		3N21W17R01 (4)	La Mesa - Twyford - Fides	101.2			
		3N21W9J01 (24)	Basso Properties	43.4			
		2N22W03E01	Jaunamaria Land Company				
134.0	Saticoy Foods Corp.	03N/21W-30H05 (7), 3N/21W-30H6, 3N/21W-30H9					Jerry Hensley
167.3	Sharp, J. M. Company	03N/21W-19M01					Greg Patterson
	Shores, John Family Partnership	03N/21W-20J04 (17), 3N/21W-20R2			McGrath, John & Sons	126.7	Tim McGrath
72.2	Shozi Ventura, LLC	02N/22W-03B01, 02N/22W-03B02	Shozi Brothers, 66.2, & JK Mondal 6.0	72.2			Dennis Schozi
61.3	Silva, Frank	02N/22W-01M03, 02N/22W-01M04			County of Ventura	47.3	
0.0	Southern California Edison Co.	3N/22W-27M02 D			Farmers Irrigation Company, Inc.	9.5	
					Little Clara Ranch LLC	3.0	
62.1	Strata Holdings LP	03N/21W-17P02	Pinkerton, Dan C. and Susan V.	62.1			Dan Pinkerton
107.5	The Nature Conservency	3N/21W29K1, 29K02 & 29K4	Southern Pacific Milling	107.5			Rich Hadley
0.0	Thermal Belt Mutual Water Co. Inc.	03N/21W-15C02, 03N/21W-15C04			Farmers Irrigation Company, Inc.	497.3	
21.9	Torres, George 2013 Trust (32)	03N/21W-19A02	Hampton Canyon Ranch	21.9			
0.0	Tri-Leaf Nursery (Bruce Arikawa)	3N/21W-30E01			Ortiz Trust - Joseph & Sons	8.8	
68.0	Tucker Ranch	02N/22W-03K02, 2N/22W-3K3					Kathleen Gisler
132.5	TVC Pinkerton Ranch LLC	3N21W-29B4	Pinkerton, W. J. Estate Ranch 1 & 2	291.2			Duda Ranch
	Twyford Plant Laboratories, Inc Fedes	03N/21W-17R01	La Mesa Partnership #1	101.2	Santana, Jamie L. Family Trust	101.2	
5.8	Utility Vault (Newbasis is Parent Co)	3N/21W-29K03 D (8)	Associated Concrete Products, Inc.	5.8			Linda Gerardy
8.0	Vanoni, David or Mary - Mary Vanoni	02N/22W-02Q01	Rancho Attilio	8.0			David Vanoni
0.0	Walking Beam Ranches	03N/21W-19G03			Yeisi Brayen Guzman, Trustee of the Brayen And Mesa Guzman Revocable Family Trust, dated July 24, 2015	13	Ralph B. Busch
0.0	Wallace, William	3N/21W-21E01			Arambula, Pedro	2.9	
9.8	We 5 Properties (35)	02N/22W-02J03					Charles Vanoni
	WH Ventura 165 LLC (30)	3N/22W-34R1, 3N21W20F04	Regents of the University of California		City of Ventura	23.1	
27.6	Williams, James W. III	03N/22W-23G01					James W. Williams
	Wittenberg-Livingston Inc. (30)	02N/22W-02Q01	Rancho Attilio	327.8	Limoneira Company	300.0	Fran Gitsham
					Grant Family Ranches LLC	20.8	David Grant
					Little Clara Ranch LLC	7.0	

Exhibit "B" to Judgment

Table "A" Santa Paula Groundwater Basin Individual Party Allocations

11/17/2016

Acre Feet	Party Name	Well Number	Predecessor	Acre Feet	Successor	Acre Feet	Contact Person
	Von Chmielewski, Wolfgang (15)	03N/21W-10E01, 3N/21W-10E2	Birky, Angie E. Trustee	33.1	Mondol, J.K.	33.1	Van Chmielewski 648-5757
31.0	Yoon Family Trust, (Soo Han Yoon)	2N/22W-3L01	New Allocation, 2010	31.0			
20.8	Zimmerman, Wade N. III and Patricia B. Zimmerman Trust	3N/21W-21E08	New Allocation, 2010	18.1			
		03N/21W-21D02	Conklin, Patricia	2.7			Wade Zimmerman
27,510.7	**Total Basin IPA Stipulated Parties**		**New Allocation, 2010**	**280.2**			

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Table "D-1"
IPA's 2009 - 2015 Production & Averages

11/17/2016

2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
15.2	13.3	17.1	20.4	19.8	16.5	4.6	15.3	(22.2)	37.5	18004 Telegraph Road Properties LLC (33)	03N/21W-11H03
									0.0	ABC Rubarb Farms	03N/21W-16P01
0.7	0.7	0.7	0.7	1.0	0.8	0.6	0.7	(1.1)	1.8	Aliso Vista Ranch	03N/22W-23Q01
									0.0	Alsono, Andrew	03N/21W-21M01
684.5	563.3	595.9	757.6	241.0	1,018.4	1,175.1	719.4	(43.7)	763.1	Alta Mutual Water Company, Inc.	02N/22W-02K07, 02N/22W-02K10
10.7	10.7	10.7	10.3	10.3	6.2	4.4	9.0	6.1	2.9	Arambula, Pedro	03N/21W-21E02
									0.0	Associated Concrete Products, Inc.	3N/21W-29K03 D
									0.0	Axell, Randall as Trustee of the Dorthey E. Axell Trust	3N/21W16P02, 3N/21W16P03
0.0	0.0	0.0	0.0	0.0			0.0	0.0	0	Basso Properties	03N/21W-09J01
-9.4	-8.2	-8.2	-8.2	-3.6			0.7	0.7	0	Bender Farms (23) (29)	03N/21W-16P01
204.4	297.7	241.3	306.5	391.1	273.7	247.8	280.4	(12.2)	292.56	Bender Realty LTD (19) (29)	3N/21W16P02, 3N/21W16P03, 3N21W17R01 (4)
											03N/21W-17R01
76.8	93.0	33.0	61.6	70.6	62.1	46.5	63.4	(37.4)	100.8	Billiwhack Ranch	03N/22W-23F02
									0.0	Birky, Angie E. Trustee	3N/21W-10E01
									0.0	Brucker, Frank R. as Trustee of the Frank R. Brucker Trust	03N/21W-29E1, 3N/21W-29C3
1.2	2.4	2.4	2.4	2.4	2.5	2.5	2.3	(3.7)	6.0	Bratcher Family Revocable Tr 1-24-02 & Cutright Revocable Tr 8-18-03 (22)	03N/21W-16P01
437.0	409.0	388.0	379.0	363.0	561.9	237.0	396.4	119.9	276.5	Brucker Family Trust (29)	3N/21W-19Q1, 3N/21W-29E1, 3N/21W-29C3
											03N/21W-29E1, 3N/21W-29C3
164.7	105.2	101.5	76.1	128.8	137.0	165.6	125.6	(156.7)	282.3	Campbell Dan	03N/21W-19R01
6.9	6.2	3.9	0.9	0.8	0.6	0.4	2.8	1.7	1.1	Canine Adoption and Rescue League	03N/21W-29B02
901.9	407.6	238.7	1,442.4	2,069.1	2,013.9	1,526.5	1,228.6	555.6	673.0	Canyon Irrigation Company	03N/21W-11F03, 3N/21W-11E3, 3N/21W-11F4

Table "D-1"
IPA's 2009 - 2015 Production & Averages

11/17/2016

2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
34.4	19.7	28.1	35.6	40.1	46.5	42.3	35.2	(64.1)	99.3	Casa De Oro Ranch	03N/21W-20F01
85.0	85.0	85.0	44.7	63.8	88.0	140.0	84.5	(16.9)	101.4	Castaneda, Albert and Mary	03N/21W-19L01 (1), 3N21W19K01 03N/21W-19L01
										Coffman, Laura K. McAvoy, Successor Trustee of the Gladys Daily Coffman Trust dated June 16, 1993	03N/22W-35N01
4,950.5	4,505.3	4,523.1	4,771.4	5,054.0	4,691.7	4,012.9	4,644.1	(916.0)	5,560.1	City of Santa Paula	03N/21W-21B03 3N/21W9R5, 03N/21W11J02, 03N/21W15C06, 03N/21W16A02, 3N/21W16A3
99.1	63.8	51.6	63.6	26.4	39.0	50.8	56.3	(37.3)	93.6	Clow, The Roger D. Clow Trust, Dated September 15, 1994	3N/21W20J04 (17) 03N/21W-20A02, 03N21WL02S
108.5	103.4	110.4	111.1	142.5	127.2	74.2	111.0	(47.7)	158.7	Cole, Lecil E. Trustee of the Lecil E. a	3N/21W-16E02
									0.0	Conklin, Patricia	03N/21W-21D02
11.5	11.6	6.4	5.94	9.87	8.85	18.51	10.4	0.8	9.6	The Judson T. Cook & Suzette H. Cook Revocable Trust dated December 5, 2007 (28)	3N/22W-26B1
179.7	154.7	155.0	70.1	175.2	168.2	142.3	149.3	(22.9)	172.2	County of Ventura, General Services Agency (26)	03N/21W-30H08, 3N/21W-30H02
157.6	134.5	100.2	67.6	142.4	134.6	115.7	121.8	(56.5)	178.3	County of Ventura, General Services Agency	02N/22W-02G01
									0.0	Cummings, Paul R. and Irene & Sons	03N/21W-19L01
										Dabney, George & Rebecca Trust Inter Vivos	3N/22W-26B1
212.4	212.5	212.5	212.5	212.5	295.5	286.6	234.9	(86.3)	321.2	Dickenson, D&P Dickenson Family Revocable Trust, Louise Dickenson, Bruce E. Dickenson, Virginia Dickenson, Reed and Diana G. Dickenson as undivided co-owners	03N/21W-10M01
										Dominguez, G. (6)	03N/21W-12E07
									0.0	Evergreen Ranch AKA San Miguel Products	03N/21W-19R01

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IPA's 2009 - 2015 Production & Averages

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2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
46.4	31.8	31.2	28.5	33.7	9.3		25.8	(59.2)	85.0	Fam, J. LLC	03N/22W-35N01
9,644.9	8,202.5	9,567.0	9,443.5	8,294.6	9,542.8	7,431.2	8,875.2	(1,038.0)	9,913.2	Farmers Irrigation Company, Inc.	03N/21W09R04, 03N/21W12E04, 03N/21W12E08, 03N/21W12F03, 03N/21W16K01, 03N/21W16K02, 03N/21W16K03, 03N/21W19H07, 3N/21W19G4, 3N/21W12F6, 03N21W15C04, 3N21W15C02
		75.0	27.2	44.7	33.8	43.3	32.0	32.0	0.0	Fiano, Michael (21)	3N/22W26B02 & 3
											03N/21W-15C02, 03N/21W-15C04
216.0	206.9	129.4	154.5	205.4	211.3	193.1	188.1	(25.3)	213.4	Finch, J.J. & H.H.	3N/22W-34Q02, 3N22W34Q03
									0.0	Galbreaith Brothers, Inc.	03N/21W-17Q01
11.5	11.6	3.1	13.31	13.45	13.89		9.6	(0.0)	9.6	Garcia, Elias & Guadalupe (15)	3N/22W-26B1
25.0	25.0	25.0	25.0	25.0	18.4	18.8	23.2	(19.6)	42.8	Gilbert, Patricia L., Trustee of the Gilbert Family Survivor's Trust	03N/21W-16E01
135.0	143.8	152.5	115.6	128.9	136.3	125.1	133.9	32.1	101.8	Gooding Ranch (John F. Gooding)	03N/21W-09K02
33.1	58.8	60.0	60.0	36.6	41.5	31.4	45.9	(7.0)	52.9	Grant Family Ranches, LLC (20) (30)	3N22W3E01, 3N21W20E01
									0.0	Gregory, Eva as Trustee of the Gregory Family Trust	
65.7	46.9	62.7	55.7	59.4	62.2	83.2	62.3	(35.3)	97.6	Grether, Elizabeth Broome, Ann B. Priske, John S. Broome Jr. as Trustee of the John S. Broome Jr. Trust	03N/22W-35Q02
13.4	13.0	10.8	12.3	12.9	11.1	8.2	11.7	(1.3)	13.0	Yeisi Brayen Guzman, Trustee of the Brayen And Mesa Guzman Revocable Family Trust, dated July 24, 2015	03N/21W-19G03
128.2	128.2	128.2	128.2	128.2	91.4	128.9	123.0	(6.2)	129.2	Hadley-Williams Partnership	02N/22W-03E01 (9)
										Hampton Canyon Ranch (Leslie) (32)	03N/21W-19A02
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(7.9)	7.9	Held, Family Trust dtd 1-16-03	03N/22W-23F02
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(33.8)	33.8	Held, Joann	03N/22W-23F02
125.0	125.0	125.0	125.0	125.0	125.0	34.0	112.0	(13.0)	125.0	JKJ Farms, LLC (29)	3N/21W-16P01 3N/21W-16P02&3

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IPA's 2009 - 2015 Production & Averages

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2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
									0.0	Juanamaria Land Company	02N/22W-03E01
									2.0	JVP Citrus, Inc.	
										Kimura, Albert	03N/21W-11H03
									0.0	Kimura, Tama	03N/21W-11H01
									0.0	La Mesa Partnership #1	3N/21W-17R01
									0.0	Lassich, Madeline	03N/21W-29B02
170.5	168.5	161.6	178.5	176.5	236.5	288.7	197.3	2.0	195.3	Leavens Ranches	03N/22W-24R01 (13), 2N22W03F02
1,661.4	1,655.5	2,138.8	2,348.2	2,808.2	2,419.4	2,723.0	2,250.6	(1,298.4)	3,549.0	Limoneira Company	03N/21W-01N02, 03N/21W-02Q01, 03N/21W-02R02, 03N/21W-19G02, 03N/21W-30F01, 03N/21W-30H04, 03N/21W-31E03, 3N/21W-31L2
											03N/21W-11A01
											See Limoneira
0.0	0.0	0.5	3.8	1.2	1.1	0.5	1.0	(9.0)	10.0	Little Clara Ranch LLC (30)	3N22W34E01
											3N22W34E01
37.5	32.6	30.3	30.3	30.3	7.2	8.9	25.3	(11.0)	36.3	Malzacher, Fred H. & Elaine C., Trustees of the Fred H. Malzacher and Elaine C. Malzacher Revocable Trust dated January 16, 1992 U/D/T dated November 25, 2009, as amended	
											03N/21W-21G03
31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	(2.8)	34.3	Martinez, Esther	3N21W-29G02
26.0	25.3	20.9	20.3	22.3	23.8	17.3	22.3	(2.4)	24.7	McConica, John II	2N/22W-3Q1
										McConica, John R. et al.	3N/21W21B3
										McConica, John R. II et al.	03N/21W-21B03
292.0	168.9	122.9	176.5	149.6	124.8	162.9	171.1	(10.5)	181.6	McGaelic Group	03N/21W17R01 (4), 3N/21W11H01
343.1	351.2	288.9	356.8	570.6	392.0	479.9	397.5	113.9	283.6	McGrath, John & Sons (18)	03N/21W21E05, 3N/21W21E11, 3N/21W-20J04 (17) & 3N/21W-20R3

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IPA's 2009 - 2015 Production & Averages

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2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
										Mondol, J.K.	03N/21W-10E01, 3N/21W-10E2
									0.0	Newsom, Alice C. as Trustee of the Newsom Family Trust	03N/21W-11A01
42.1	28.6	20.9	23.3	31.8	27.4	35.8	30.0	(16.7)	46.7	Nichols Associates	03N/22W36H01, 03N/22W36H02
28.9	24.3	31.1	25.9	33.5	28.1	25.5	28.2	(98.2)	126.4	Nutwood Farms	03N/22W-36J01, 36J02 & 36J03
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	(7.8)	7.9	Oba Family Trust dtd 12-22-92	03N/22W23F02, 3N/21W17D03(10)
12.5	12.5	12.5	9.4	12.5	6.3	12.3	11.1	(4.0)	15.1	Ohst, Gary	03N/21W-10E01, 3N/21W-10E2
0.0	0.0	0.0	0.0	0.0			0.0	0.0		Orr, Roger as Trustee of the Orr Family Trust	03N/21W-20J03, 3N/21W-20J2
160.2	160.3	159.9	159.9	159.9	261.3	108.5	167.1	(26.8)	193.9	Orr Ranch Co. (25)	03N/21W-20J03, 3N/21W-20J2
159.7	99.3	92.40	116.32	95.01	89.82	101.97	107.8	69.2	38.6	Ortiz Trust - Joseph & Sons (3)	03N/21W-30E01 3N/21W-30E2, 3N/21W-20H1
422.8	225.6	255.4	303.4	406.7	445.8	392.7	350.3	(60.0)	410.3	Panamerican Seed, aka Ball Horticultural	3N/21W20K01, 3N/21W20M01 03N/21W20P01 & 3N/21W20F4
										Pear Blossom Town & Country Marke	03N/21W-10E01, 3N/21W-10E2
75.0	44.6	66.0	73.1	85.5	86.8	63.6	70.7	(45.3)	116.0	Petty Ranch LP	03N/22W-36K04, 3N/22W-36K6
							0.0			Pinkerton, Dan C. and Susan V. Pinkerton, Co-Trustees of the Pinkerton Family Living Trust dated March 19, 1990	03N/21W-17P02
17.2							2.5	(36.6)	39.1	Pinkerton, Arlene	3N21W17Q01 (5)
									2	Pinkerton, Jennifer Paulene	
50.0	38.7	25.5	46.5	41.1	59.2	41.5	43.2	(18.7)	61.9	Pinkerton, Murray	03N/21W-21E01
									2	Pinkerton Ranch Trust	
									0.0	Pinkerton, W. B. Limited Partnership	3N21W17Q01
										Pinkerton, W. J. Estate Ranch 1 & 2	03N/21W-16E02, 3N/21W-29B4
							0.0	0.0	0	Pinkerton, W. J. Estate Ranch	3N/21W-16E02
									0.0	Pinkerton, Wesley Estate	03N/21W-21E01
									0.0	Rancho Attilio	2N/22W-2Q01
115.2	93.2	116.5	130.2	157.9	160.6	172.6	135.2	15.6	119.6	Rancho Filoso, LLC	03N/21W-09K03, 3N/21W-9K4
1.0	2.0	2.4	2.4	0.5	0.5	0.5	1.3	1.2	0.1	Ray, Richard T. and Ruth L.	03N/22W026P01

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IPA's 2009 - 2015 Production & Averages

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2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0	Regents of the University of California (31)	3N/22W-34R1
1,222.0	1,151.8	1,252.6	1,225.2	1,017.1	1,092.2	1,114.4	1,153.6	390.1	763.5	Riverbank Citrus, LLC	3N/22W36K7 & 3N/22W36Q1, 3N22W36K05
									0.0	R.F. Robertson as Trustee of the Robertson Family Trust	03N/21W-17Q01
198.5	210.2	229.5	185.1	439.2	245.4	232.0	248.6	(115.2)	363.8	Santana, Jamie, L. Trustee of the Survivor's Trust Under the Jamime L. Santana Family Trust dated May 30, 1984 as amended	3N/22W-24R01 (13) 03N/21W-17Q01 (5) 03N/21W-17Q01 (5) 3N21W17R01 (4) 3N21W9J01 (24) 2N22W03E01
106.2	91.5	89.5	119.9	101.1	75.9	63.5	92.5	(41.5)	134.0	Saticoy Foods Corp.	03N/21W-30H05 (7), 3N/21W-30H6, 3N/21W-30H9
198.1	145.3	81.1	80.0	115.2	114.4	95.5	118.5	(48.8)	167.3	Sharp, J. M. Company	03N/21W-19M01
										Shores, John Family Partnership	03N/21W-20J04 (17), 3N/21W-20R2
76.0	20.2	59.7	69.9	85.1	87.6	80.4	68.4	(3.8)	72.2	Shozi Ventura, LLC	02N/22W-03B01, 02N/22W-03B02
0.0							0.0	(61.3)	61.3	Silva, Frank	02N/22W-01M03, 02N/22W-01M04
									0.0	Southern California Edison Co.	3N/22W-27M02 D
57.4	57.5	54.7	51.4	64.1	103.6	72.9	65.9	3.8	62.1	Strata Holdings LP	03N/21W-17P02
0.0							0.0	(107.5)	107.5	The Nature Conservency	3N/21W29K1, 29K02 & 29K4
									0.0	Thermal Belt Mutual Water Co. Inc.	03N/21W-15C02, 03N/21W-15C04
8.5	6.9	7.0	4.2	3.6	8.3	5.0	6.2	(15.7)	21.9	Torres, George 2013 Trust (32)	03N/21W-19A02
									0.0	Tri-Leaf Nursery (Bruce Arikawa)	3N/21W-30E01
55.8	146.3	93.3	103.6	162.3	134.4	148.1	120.5	52.5	68.0	Tucker Ranch	02N/22W-03K02, 2N/22W-3K3
210.8	187.6	102.1	206.3	315.4	206.0	247.6	210.8	78.3	132.5	TVC Pinkerton Ranch LLC	3N21W-29B4
										Twyford Plant Laboratories, Inc Fedes	03N/21W-17R01
0.0							0.0	(5.8)	5.8	Utility Vault (Newbasis is Parent Co)	3N/21W-29K03 D (8)
1.0	1.0	1.0	1.1	1.2	1.2	1.2	1.1	(6.9)	8.0	Vanoni, David or Mary - Mary Vanoni	02N/22W-02Q01

Table "D-1"
IPA's 2009 - 2015 Production & Averages

11/17/2016

2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Walking Beam Ranches	03N/21W-19G03
									0.0	Wallace, William	3N/21W-21E01
15.0	15.0	11.3	11.5	46.8	23.87	28.22	21.7	11.9	9.8	We 5 Properties (35)	02N/22W-02J03
										WH Ventura 165 LLC (30)	3N/22W-34R1, 3N21W20F04
2.7	3.0	1.8	1.3	2.0	2.2	1.5	2.1	(25.5)	27.6	Williams, James W. III	03N/22W-23G01
										Wittenberg-Livingston Inc. (30)	02N/22W-02Q01
										Von Chmielewski, Wolfgang (15)	03N/21W-10E01, 3N/21W-10E2
4.8	4.8	4.8	4.8	4.8	2.4	16.7	6.2	(24.8)	31.0	Yoon Family Trust, (Soo Han Yoon)	2N/22W-3L01
24.9	24.5	13.6	13.2	11.7	15.0	15.7	16.9	(3.9)	20.8	Zimmerman, Wade N. III and Patricia B. Zimmerman Trust	3N/21W-21E08 03N/21W-21D02
24,615.2	**21,421.0**	**22,855.2**	**24,743.0**	**25,456.5**	**26,504.2**	**23,181.8**	**24,111.0**	(3,370.8)	**27,510.7**	**Total Basin IPA Stipulated Parties**	
27,500.0	**27,554.4**	**27,554.4**	**27,586.5**	**27,586.5**	**27,586.5**	**27,586.5**	**27,565.0**		**27,551.4**	**Historical Association IPA With Non-Parties (40.7 AF)**	
							19	**1,487.4**		**IPA Over Production**	
							54	(4,880.41)		**IPA Under Production**	
25,820	**22,189**	**23,947**	**25,823**	**26,462**	**27,426**	**25,856**	**25,360**			**Total IPA, Ventura, Non-Parties and De Minimus**	
25,820	**23,115**	**24,202**	**25,823**	**26,479**	**27,445**	**25,856**				**United Water Conservation District Totals**	
0.00	(926.16)	(254.21)	(0.00)	(16.94)	(19.14)	(0.00)				**Over/Under Amounts (1) (3) (19)**	

(1) Albert and Mary Casteneda (03N21W19L01S) used the UWCD crop factor estimating 2011 production at 271.25 ac-ft. Subsequent to 2011 they installed a water meter which indicates that their production is likely much lower. The SPBPA then lowered their 2011 production by 186.25 ac-ft to 85 ac-ft which they feel more accurately reflects 2011 production. UWCD does not accept the reduction of the 2011 production for Albert and Mary Castaneda as they did not have a meter installed in 2011.

(2) Source of production data for 2011, 2012, 2013, 2014 and 2015 was the United Water Conservation District, reviewed by the Association.

(3) Ortiz-Trust – Joseph and Sons (03N21W30E01S, 03N21W30E02S, 03N21W20H01S) according to the SPBPA used the wrong meter readings and over reported 2011 production by 131.08 ac-ft . UWCD accepts only 63.8 ac-ft the reduction of the 2011 production for Ortiz Trust-Joseph and Sons for a total 2011 production of 159.68 ac-ft.

(4) Shared well amoung Bender Realty LTD, Santana, Jamie L. and McGaelic Group. Production is split in accorance with each parties metered use.

(5) Shared well need to determine how to allocate production between Santana and Pinkerton, Arlene.

(6) G. Dominguez was a listed non-party in the original Judgment and the 0.9 acre-feet has been removed from this list reducing the total by 0.9 acre-feet.

(7) Well number 3N/21W-30H3 should be changed to 3N/21W-30H5.

Table "D-1"
IPA's 2009 - 2015 Production & Averages

11/17/2016

2009 (12) (14)	2010 (16) (19)	2011 (2)	2012 (2)	2013 (2)	2014 (2)	2015 (2)	7 Year Average	Avg Over + Under (-)	Acre Feet	Party Name	Well Number

(8) Newbasis is the reporting party, Utility Vault is parent.

(9) Shared well allocated 356.0 AF/Year of production for 2007 to 2013 between City of San Buenaventura and Hadley Williams Partnership by 64/36% of allocation, production meter should be installed to allocate produced water.

(10) Well number was added Oba.

(12) Source of well productin data for 2009: United Water Conservation District 2009SPbasinbywell.xls

(13) Shared well (3N/22W-24R01) between Leavens Ranches and Jamie Santana Family Trust. Production is reported separately.

(15) Spelling correction

(17) Roger Clow is a 1/3 owner of the Shores well; however, Clow used 100% of the water for 2007 and 2008. Clow's usage totals 30.5 AF for 2007 and 61 AF for 2008 were reallocated from Shores.

(19) Bender Reality 2010 production (03N21W16P02S, 03N21W16P03S) has been reduced by the SPBPA from 1,356.63 ac-ft (UWCD records) to 532.7 ac-ft for a reduction of 823.93 ac-ft. UWCD does not accept the reduction of the 2010 production of Bender Reality as no documentation was presented to UWCD within 6 month adjustment period.

(21) Michael Fiano stipulated in 2012 and will be leasing all water pumped annually going forward, transfers to date have been estimated and any remaining balances will be made current with 2014 recorded production.

(22) Bratcher Cutright IPA From Bender Farms, 6 acre-feet

(23) Bender Reality and Bender Farms are owned by the same person, Bender Farms transferred 4.6 AF to the City of Santa Paula in 2012 and 6.0 AF to Bratcher in 2014, minus numbers reflect remaining allocation for prior years, plus Bratcher reported production for the years reported to United Water Conservation District.

(24) Basso Properties Sold to Jaime Santana Trust 43.4 acre-feet with property

(25) Roger Orr as Trustee of the Orr Family Trust so the Orr Ranch Co. to Bryce R. and Elaine V. Bannatyne Co Trustees of the Bannatyne Trust

(26) County of Ventura over reported 158.62 acre-feet in 2013, (331.2+2.67-158.62=175.2) United Water Conservation Distrcit did not recognize that production correction in their records.

(27) Pinkerton, W. J. Estate Ranch 1 & 2, Sold to Pinkerton W. J. Estate Ranch 158.7 AF of IPA and 132.5 AF of IPA to TVC Pinkerton Ranch LLC in 2014, combined over production is reflected on TVC Pinkerton

(28) The Judson T. Cook & Suzette H. Cook Revocable Trust dated December 5, 2007 Purchased the Dabney, George and Rebecca Trust Inter Vivos in January 2015

(29) Bender Reality and Bender Farms sold property to JKJ Farms LLC with 225 acre-feet of allocation and JKJ later transferred 100 acre-feet to Brucker Family Trust

(30) Wittenberg-Livingston, Inc. sold 4 acre-feet to Little Clara Ranch and 20.8 acre-feet to Grant Family Ranches

(31) Regents of California sold property and water rights to WH Ventura 165 LLC

(32) Hampton Canyon Ranch Sold property and water rights to Torres, George 2013 Turst, 21.9 acre-feet

(33) Albert Kimura sold property and water rights to 18004 Telegraph Road Properties, LLC 37.5 acre-feet

(34) Silva allocation of 108 Acre-Feet was distributed to County of Ventura 47.3

Table "D-2"

De Minimus 2009-2015 Production & Averages

(Production Not to Exceed 5 AFY)

2009 (2)	2010 (3)	2011	2012	2013	2014	2015	7 Year Average	Party Name	Well Number
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Chapman, Kenneth	3N/21W21F1
3.4	3.5	3.5	3.5	3.5	3.4	2.2	3.3	Chavez, Joel and Carmen	3N/21W21E07
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Loza, Jesus and Veronica	Not yet assigned
8.6	8.7	4.3	8.6	4.3	4.3	3.3	6.0	Rogers, Charles W., Jason C. Rogers, and Aaron W. Rogers	2N/22W-1M2
10.0	10.0	3.6	3.6	3.6	4.1	4.2	5.6	Santa Paula Airport Association	3N21W14D01
3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	Sullivan, Russell J.	3N21W21L1
26.4	**26.7**	**15.9**	**20.2**	**15.9**	**16.3**	**14.2**	**19.4**	**Total De Minimus Producers**	

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Table "D-3"

Non-Party 2009-2015 Production & Averages

2009 (4)	2010 (6)	2011 (7)	2012 (7)	2013 (7)	2014 (7)	2015 (7)	2009-15 Average AFY Production	Name	Well Number
4.0	2.0	4.0	4.0	3.2	3.2	3.2	3.4	Davis, Linda Trust	3N21W21E04, 3N/21W-21E10 (2)
								Dominguez, G.(5) (0.9 AF)	03N/21W-12E07
						Stipulated in 2012		Fiano, Michael	3N/22W26B02 & 3
1.0	1.0	0.0	0.0	0.0		0.0	0.3	Garman, William (5) (2.0 AF)	02N/22W-02N04
						Stipulated in 2012		Grant Family Ranches, LLC	3N22W3E01 (1), 3N21W20E01 (2)
2.0	2.0	1.3	1.5	1.4	2.0	1.6	1.7	Minero, Gilbert (5) (1.1 AF)	03N/21W-21M01
4.0	2.0	3.6	3.6	3.8	4.4	6.3	4.0	Sanchez, Martin	3N/21W-21E6
								Sullivan, Russell J.	3N21W21L1
								Ventura Unified School District (5) (30.8 AF)	02N/22W-03P01
2.0	1.0	1.0	2.0	1.0	2.0	1.8	1.5	Vint, Thomas H. (5) (4.9 AF)	03N/21W-21E03
6.0	5.5	5.0	5.0	5.0	5.0	1.6	4.7	Westerdale Trust (5) 1.0 AF)	03N/21W-21G01
19.0	**13.5**	**14.9**	**16.1**	**14.4**	**16.6**	**14.5**	**15.6**	**Total Average AFY Production (Average 2009-2015)**	

Footnotes to Non-Stipulating Pumpers

40.7 Acre-Feet for Non Parties from original Judgment

(1) Incorrect well number.
(2) Added well number.
(3) Source of well production data: Santa Paula Basin 2008 Annual Report, Appendix D - Groundwater Allocations and Pumpage, Table D-1 and Table D-2.
(4) Source of well production data: United Water Conservation District 2009SPbasinbywell.xls
(5) Non-party individuals named in the Original Judgment, 40.7 Acre-Feet 7/28/2011
(6) Source of well productin data: United Water Conservation District SP 10-1 and SP 10-2
(7) Source of production data for 2011, 2012, 2013, 2014 and 2015 was the United Water Conservation District, reviewed by the Association.

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Table "D-4"
Temporary Water Transfers

11/17/2016

2008 For Reference	2009	2010	2011	2012	2013	2014	2015	7 Year Average	Avg Over + Under (-)	AF Annual Allocation	Transfering Parties
1,911	1,661	1,655	2,139	2,348	2,808	2,419	2,723	2,250.6	(1,298)	3,549	**From: Limoneira Company**
		118.6		689.5	1,242.0	674.0	756.2				**To:** Canyon Irrigation Company
				72.5	120.4	136.1	79.8				**To:** Canyon Irrigation Company for Rancho La Cuesta
		109.0	394.0	413.0	160.7	231.0					**To:** Riverbank Citrus LLC
			20.0		37.0	49.0					**To:** Fiano, Michael J. Trust
						135.1					**To:** Leavens Ranches
						74.5					**To:** Regents of the University of Californnia
				2.0							**To:** Dabney
					146.2	90.0	132.0				**To:** Tucker Ranch
					28.1	35.0					**To:** Gooding Ranch
1911.3	1661.4	1883.1	2552.8	3525.2	4,514.5	3,844.0	3,691.0	3,096.0	(453)	3,549	**Limoneira Company Balance**
			75.0	27.2	44.7	33.8	43.3	32.0	32	-	**Fiano, Michael J. Trust**
				-20.0	-37.0	-49.0	-43.3				**From:** Limoneira Company
0.0	0.0	0.0	75.0	7.2	7.7	-15.2	0.0	10.7	11	-	**Fiano, Michael J. Trust Balance**
9,261.2	9,644.9	8,202.5	9,567.0	9,443.5	8,294.6	9,542.8	7,431.2	8,875.2	(1,038)	9,913	**From: Farmers Irrigation Company**
113.6	75.3	328.2	214.9				33.0				**To:** Canyon Irrigation Company
			4.0			185.4	5.6				**To:** Brucker Family Trust
			53.9	77.7	56.4	51.2	64.4				**To:** Ortiz Trust - Joseph & Sons
					98.9						**To:** Bender Reality LTD
					32.9						**To:** Rancho Filoso, LLC
				190.0	306.0	150.0					**To:** McGrath, John & Sons
					3.9	3.3					**To:** Aramblua, Pedro
						100.0	100.0				**To:** Strata Holdings LP
					4.5	9.4					**To:** Grant Family Ranches
					113.4						**To:** TVC Pinkerton Ranch LLC
9,374.8	9,720.2	8,530.7	9,839.8	9,711.2	8,910.6	10,042.1	7,634.1	9,198.4	(714.8)	9,913	**Farmers Irrigation Company Balance**
690.1	901.9	407.6	238.7	1442.4	2069.1	2013.9	1,526.5	1,228.6	556	673	**Canyon Irrigtion Company**
-113.6	-75.3	-328.2	-214.9	0.0	0.0	0.0					**To:** City of Santa Paula
				0.0	0.0	0.0					**Returned to Creek**
113.6	75.3	328.2	214.9	0.0	0.0	0.0					**From:** Farmers Irrigation Company
				-72.5	-120.4	-136.1	-79.83				**From:** Limoneira Company for La Cuesta over use
		-118.6		-689.5	-1242.0	-674.0	-756.2				**From:** Limoneira Company
690.1	901.9	289.0	238.7	680.4	706.6	1203.8	690.5	673.0	(0.0)	673	**Canyon Irrigation Company Balance**
5352.8	4950.5	4505.3	4523.1	4771.4	5054.0	4691.7	4012.9	4,644.1	(916)	5,560	**City of Santa Paula**
-113.6	-75.3	-328.2	-214.9				-33.0				**From:** Canyon Irrigation Company
5239.2	4875.2	4177.1	4308.2	4771.4	5054.0	4691.7	3979.9	4,551.1	(1,009)	5,560	**City of Santa Paula Balance**
225	212.4	212.5	212.5	212.5	212.5	295.51	286.57	234.9	(86)	321.2	**From:** Dickenson, D&P Dickenson Family Revocable Tr.

Table "D-4"
Temporary Water Transfers

11/17/2016

2008 For Reference	2009	2010	2011	2012	2013	2014	2015	7 Year Average	Avg Over + Under (-)	AF Annual Allocation	Transfering Parties
		34.5	51.0	13.8							**To:** Gooding Ranch (John F. Gooding)
225	212.4	247	263.5	226.3	212.5	295.51	286.57	249.1	(72)	321.2	**Dickenson, D&P Dickenson Family Rev. Tr Balance**
135	135	143.75	152.5	115.6	128.9	136.29	125.06	133.9	32	101.8	**Gooding Ranch (John F. Gooding)**
		-34.5	-51.0	-13.8							**From:** Dickeson, D&P Dickenson Family Rev. Tr.
					-28.1	-35.0	-24.0				**From:** Limoneira Company
135	135	109.25	101.5	101.8	100.8	101.29	101.06	107.2	5.4	101.8	**Gooding Ranch (John F. Gooding) Balance**
151.5	292.0	168.9	122.9	176.5	149.6	124.8	162.9	171.1	(11)	181.6	**From: McGaelic Group (1)**
						48.8					**To:** McGrath, John & Sons (Permanent Transfer of 55.9)
151.5	292.0	168.9	122.9	176.5	149.6	173.6	162.9	178.1	(4)	181.6	**McGaelic Group Balance**
0	0	0	0	0	0	0		-	-	0.0	**From: Shores, John Family Partnership**
113.4	120.5	120.4	0.0	85.4	-439.7						**To:** McGrath, John & Sons (Permanent Transfer of 126.7)
113.4	120.5	120.4	0.0	85.4	-439.7	0.0		(0.0)	(0)	0.0	**Shores, John Family Partnership Balance**
377.4	343.1	351.2	288.9	356.8	570.6	392.0	479.9	397.5	114	283.6	**McGrath, John & Sons**
						-48.8					**From:** McGaelic Group
											From: Shores, John Family Partnership
				-190	-306.0	-150.0	-170.0	(116.6)			**From:** Farmers Irrigation Company
377.4	343.1	351.2	288.9	166.8	264.6	193.2	309.9	273.9	(9.7)	283.6	**McGrath, John & Sons Balance**
0.0	0.0	0.0	0.0	0.0	0.0	0.0		-	-	0.0	**Regents of the University of California**
		0	0.0	0.0	0.0	0.0					**From:** Leavens Ranches
0.0	0.0	0.0	0.0	0.0	0.0	0.0		-	-	0.0	**Regents of the University of California Balance**
97.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	**WH Ventura 165 LLC (Regents)**
		-73.9	-60.0	-60.0	-52.0			(35.1)			**From: Leavens Ranches**
						-74.5	0.0	(10.6)			**From: Limoneira Company**
97.3	0.0	-73.9	-60.0	-60.0	-52.0	-74.5	0.0	(45.8)	(46)	0.0	**WH Ventura 165 LLC**
164.1	170.5	168.5	161.6	178.5	176.5	236.5	288.7	197.3	2	195.3	**From: Leavens Ranches**
		73.9	0.0	0.0	0.0						**To:** Regents of the University of California
						-135.1					**From:** Limoneira Company
164.1	170.5	242.4	161.6	178.5	176.5	101.4	288.7	188.5	(6.8)	195.3	**Leavens Ranches Balance**
1330.3	1222.0	1151.8	1252.6	1225.2	1017.1	1092.2	1114.4	1,153.6	390	763.5	**Riverbank Citrus LLC**
		-109.0	-394.0	-413.0	-160.7	-231.0	-250.0				**From:** Limoneira Company
-97.7	-97.5	-102.1	-95.3	-48.7	-141.9	-98.3	-100.9				**From:** Nutwood Farms
1232.6	1124.5	940.7	763.3	763.5	714.5	762.9	763.5	833.3	69.8	763.5	**Riverbank Citrus LLC Balance**
28.7	28.9	24.3	31.1	25.9	33.5	28.1	25.5	28.2	(98)	126.4	**Nutwood Farms**
97.7	97.5	102.1	95.3	48.7	141.9	98.3	100.9				**To:** Riverbank Citrus LLC
126.4	126.4	126.4	126.4	74.6	175.4	126.4	126.4	126.0	(0)	126.4	**Nutwood Farms Balance**

Table "D-4"
Temporary Water Transfers

11/17/2016

2008 For Reference	2009	2010	2011	2012	2013	2014	2015	7 Year Average	Avg Over + Under (-)	AF Annual Allocation	Transfering Parties
0.0	0.0	0.0	0.5	3.8	1.2	1.1	0.5	1.0	(9)	10.0	**From: Little Clara Ranch LLC**
		5.2									**To:** We 5 Properties
0.0	0.0	5.2	0.5	3.8	1.2	1.1	0.5	1.7	(8)	10.0	**Little Clara Ranch Balance**
15.0	15.0	15.0	11.3	11.5	46.8	23.9	28.2	21.7	12	9.8	**We 5 Properties**
		-5.2									**From:** Little Clara Ranch LLC
					-30.2	-14.1	-18.4				**From:** Alta Mutual Water Company
15.0	15.0	9.8	11.3	11.5	16.6	9.8	9.8	12.0	2	9.8	**We 5 Properties Balance**
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	(108)	107.5	**From: The Nature Conservency**
			107.5	107.5	107.5	100.0					**To:** Brucker Family Trust
0.0	0.0	0.0	107.5	107.5	107.5	100.0	0.0	60.4	(47.1)	107.5	**The Nature Conservancy Balance**
518.0	437.0	409.0	388.0	379.0	363.0	561.9	237.0	396.4	120	276.5	**Brucker Family Trust**
			-107.5	-107.5	-107.5	-100					**From:** The Nature Conservency
			-4.0			-185.4	-5.6				**From:** Farmers Irrigation Company
518.0	437.0	409.0	276.5	271.5	255.5	276.5	231.5	308.2	32	276.5	**Brucker Family Trust Balance**
188.2	159.7	99.3	92.4	116.3	95.0	89.8	102.0	107.8	69	38.6	**Ortiz Trust - Joseph & Sons**
			-53.8	-77.7	-56.4	-51.2	-63.4				**From:** Farmers Irrigation Company
188.2	159.7	99.3	38.6	38.6	38.6	38.6	38.6	64.6	26	38.6	**Ortiz Trust - Joseph & Sons Balance**
11.5	11.5	11.6	6.4	5.9	9.9	8.9	18.5	10.4	1	9.6	**The Judson T. Cook & Suzette H. Cook Revocable Tru**
				-2.0							From: Limoneira Company
11.5	11.5	11.6	6.4	3.9	9.9	8.9	18.5	10.1	0.5	9.6	**The Judson T. Cook & Suzette H. Cook Revocable Trust da**
684.4	684.5	563.3	595.9	757.6	241.0	1018.4	1175.1	719.4	(44)	763.1	**From: Alta Mutual Water Company**
					30.2						**To:** We 5 Properties
684.4	684.5	563.3	595.9	757.6	271.2	1018.4	1175.1	723.7	(39.4)	763.1	**Alta Mutual Water Company Balance**
19.91	55.8	146.29	93.31	103.6	162.34	134.36	148.11	120.5	53	68.0	**Tucker Ranch**
					-146.2	-90.0	-132.0				From: Limoneira Company
19.91	55.8	146.29	93.31	103.6	16.1	44.4	16.1	67.9	(0.1)	68.0	**Tucker Ranch Balance**
10.7	10.65	10.7	10.7	10.3	10.3	6.21	4.43	9.0	6	2.9	**Arambula, Pedro**
					-3.9	-3.3	-1.5				From: Farmers Irrigation Company
					-3.5						From: Correction of Reporting to United (3)
10.7	10.65	10.7	10.7	10.3	2.9	2.9	2.9	7.3	4	2.9	**Arambula, Pedro Balance**
363.8	195.0	289.5	233.1	298.3	387.5	273.7	247.8	275.0	(18)	292.6	**Bender Reality, LTD & Bender Farms**
					-98.9						From: Farmers Irrigation Company
363.76	195	289.49	233.09	298.28	288.6	273.7	247.8	260.9	(32)	292.6	**Bender Reality, LTD & Bender Farms**
11.5	11.5	11.6	3.1	13.3	13.5	13.9	0.0	9.6	(0)	9.6	**Garcia, Elias & Guadalupe**

Table "D-4"
Temporary Water Transfers

11/17/2016

2008 For Reference	2009	2010	2011	2012	2013	2014	2015	7 Year Average	Avg Over + Under (-)	AF Annual Allocation	Transfering Parties
					-3.9	-4.3					From: Castaneda, Albert & Mary
11.5	11.5	11.6	3.14	13.31	9.6	9.6	0.0	8.4	(1.2)	9.6	**Garcia, Elias Balance**
85.0	85.0	85.0	85.0	44.7	63.8	88.0	140.0	84.5	(17)	101.4	**Castaneda, Albert & Mary**
					3.9	4.3					To: Garcia, Elias & Guadalupe
85	85	85	84.95	44.67	67.7	92.3	140.0	85.6	(16)	101.4	**Castaneda, Albert & Mary**
46.4	33.1	58.8	60.0	60.0	36.6	41.5	31.4	45.9	(7)	52.9	**Grant Family Ranches**
					-4.5						From:Farmers Irrigation Company
46.43	33.1	58.75	60	60	32.1	41.5	31.4	45.3	(8)	52.9	**Grant Family Ranches Balance**
107.6	115.2	93.2	116.5	130.2	157.9	160.6	172.6	135.2	16	119.6	**Rancho Filoso, LLC**
						-11.2	-65.0				From: JM Sharp Company
					-32.9						From:Farmers Irrigation Company
107.55	115.2	93.21	116.52	130.22	125.0	149.4	107.6	119.6	(0.0)	119.6	**Ranch Filoso, LLC Balance**
214.66	198.1	145.28	81.09	79.99	115.15	114.37	95.47	118.5	(48.8)	167.3	**Sharp, JM Compnay**
						11.2	65.0				To: Rancho Filloso
214.66	198.1	145.28	81.09	79.99	115.15	125.57	160.47	129.4	(37.9)	167.3	**Sharp, JM Company Balance**
171.99	210.8	187.55	102.11	206.31	315.42	206.04	247.64	210.8	78.3	132.5	**TVC Pinkerton Ranch LLC**
-40.17	-50.2	-55.26	-48.31	-47.65	-16.23	-31.47					From: Pinkerton, W. J. Estate Ranch
					-113.4	-69.8	-115.1				From: Farmers Irrigation Company
131.82	160.6	132.29	53.8	158.66	185.79	104.77	132.50	132.6	0.1	132.5	**TVC Pinkerton Ranch LLC Balance**
118.53	108.5	103.44	110.39	111.05	142.47	127.23	0	100.4	58.3	158.7	**Pinkerton W. J. Estate Ranch**
40.17	50.2	55.26	48.31	47.65	16.23	31.47		289.3			**To: TVC Pinkerton Ranch LLC**
158.7	158.7	158.7	158.7	158.7	158.7	158.7	0.0	136.0	(22.67143)	158.7	**TVC Pinkerton Ranch LLC Balance**
57.5	57.4	57.5	54.67	51.44	64.07	103.6	72.93	65.9	0.0	62.1	**Strata Holdings LP**
						-100.0	-100.0				From: Farmers Irrigation Company
57.5	57.4	57.5	54.67	51.44	64.07	3.6	-27.07	37.4	(24.7)	62.1	**Strata Holding LP Balance**

The amounts reflected in Red above represent amounts that need to be leased to be compliant

(2) Shores Family Partnership permanently transferred 126.7 and that was retroactively applied whipping out the temporary transfer

(3) A flow meter was installed in June 2013 to record production versus crop factor, during the first year 6.8 acre-feet was recorded so that amount was used for 2013 production and the 3.5 acre-feet reduction represents the over reported amount that United did not adjust to actual.

Table "D-5"

Original and Acquired Allocation of the City of San Buenaventura

2009 (5)	2010 (6)	2011 (7)	2012 (7)	2013 (7)	2014 (7)	2015 (7)	7 Year Average	Over (+) Under (-)	Acre Feet	Party Name	Well Number	Predecessor
227.8	227.8	227.8	227.8	227.8	162.4	229.1	218.67	(1.3)	220.0	City of San Buenaventura	02N/22W-03E01 (1)	Juanamaria Land Company
									5.8	City of San Buenaventura	3N/21W-21B3	McConica, John R. et al. (3)
112.4	97.8	100.5	61.0	74.5	97.6	97.8	91.7	68.6	23.1	City of San Buenaventura	3N/22W-34R1, 3N21W20F04	WH Ventura 165 LLC (10)
									12.0	City of San Buenaventura	03N/22W-35N01	Fam, J LLC (9)
340.2	325.7	328.3	288.8	302.3	260.0	326.9	310.32	49.4	**260.9**	**Total Aquired by City of San Buenaventura**		

818.9	402.0	733.2	754.7	672.9	629.0	2,318.3	904.14	(2,095.9)	3,000.0	City of San Buenaventura	02N/22W-02K09 (2) 2N/22W-02H02 (8)	
1,159.1	727.7	1,061.5	1,043.5	975.2	889.0	2,645.2	1,214.47	(2,046.4)	**3,260.9**	**Total City of San Buenaventura**		

(1) Shared well allocated 356.0 AF/Year of production for 2007 to 2013 between City of San Buenaventura and Hadley Williams Partnership by 64/36% of allocation a production meter should be used.
(2) Well number was added.
(3) McConica allocation transfer.
(4) Source of well production data: Santa Paula Basin 2008 Annual Report (2004-2008), Appendix D - Groundwater Allocations and Pumpage, Table D-1 and Table D-2.
(5) Source of well productin data for 2009: United Water Conservation District 2009SPbasinbywell.xls
(6) Source of well production data for 2010: United Water Conservation District SP 10-1 and SP 10-2.
(7) Source of production data for 2011, 2012, 2013, 2014 and 2015 was the United Water Conservation District, reviewed by the Association.
(8) New well put online in 2015.
(9) Permanent water transfer from J Fam, LLC to City of Ventura in 2015
(10) Permanent water transfer from WH Ventura 165 LLC to City of Ventura, 2016

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