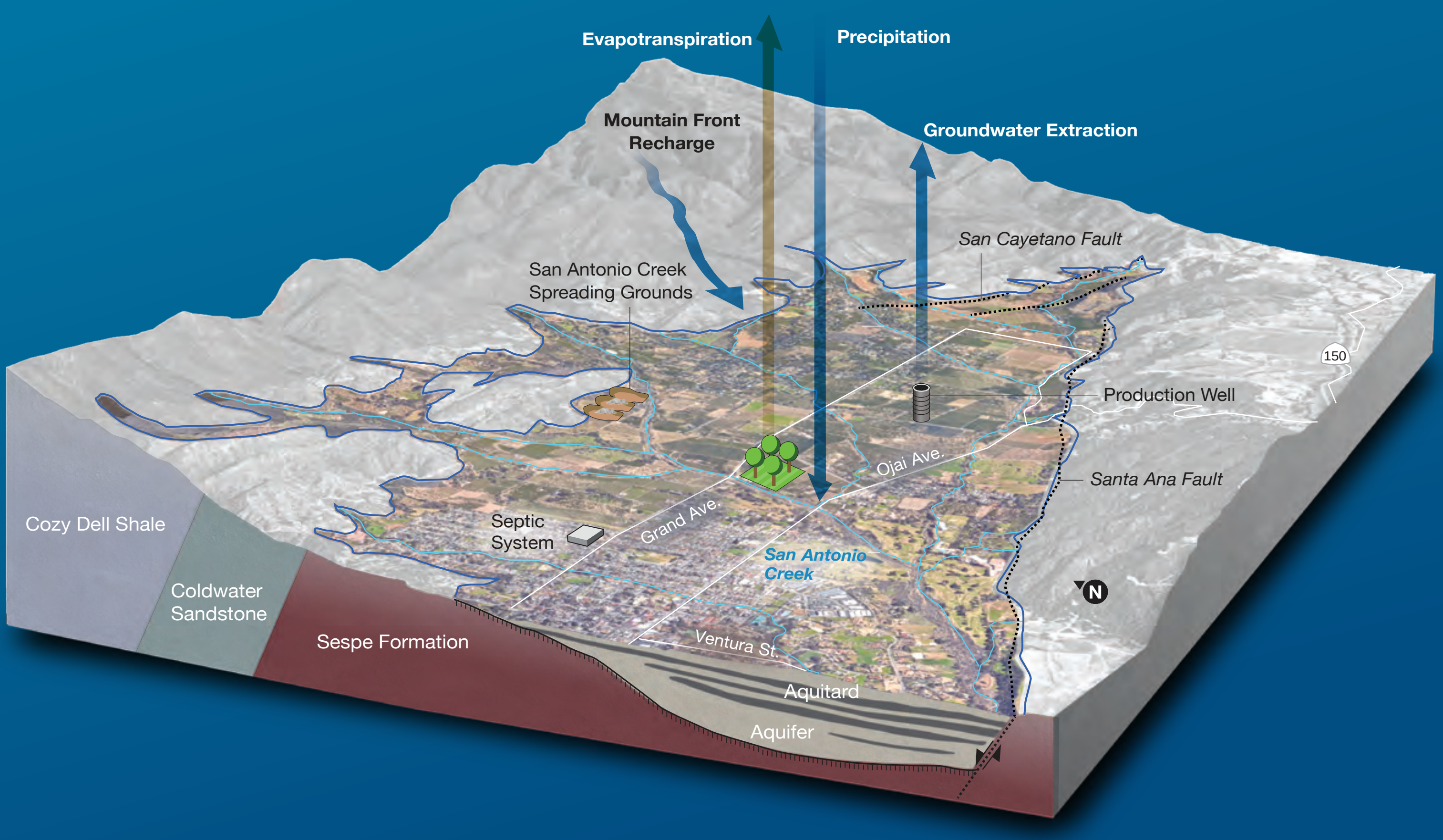
OJAI BASIN
Groundwater Management Agency

FINAL

Groundwater Sustainability Plan for the

OJAI VALLEY GROUNDWATER BASIN



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January 2022

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SIGNATURE PAGE

This Draft Final Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin has been prepared under the direction of a professional geologist licensed in the State of California as required per California Code of Regulations, Title 23 Section 354.12 consistent with professional standards of practice.

Arthur Storer Driscoll, III (Trey)
PG No. 8511, CHG No. 936

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APPENDICES

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
AF	acre-feet
AFY	acre-feet per year
AGR	agriculture supply
amsl	above mean sea level
bgs	below ground surface
BMP	best management practice
Ca	calcium
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFD	Community Facilities District
cfs	cubic feet per second
CGPS	continuous global positioning system
CIMIS	California Irrigation Management Information System
Cl	chloride
CMWD	Casitas Municipal Water District
COCs	contaminants of concern
CWC	California Water Code
DAC	disadvantaged community
DDMW	depth-discrete monitoring well
DDW	Division of Drinking Water
DPWM	Distributed Parameter Watershed Model
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
ET	evapotranspiration
ETo	reference evapotranspiration
EVT1	MODFLOW Evapotranspiration Package
F	Fahrenheit
ft^2/min	square feet per minute
FUDS	Formerly Used Defense Sites Database
GAMA	Groundwater Ambient Monitoring and Assessment Program
GDE	groundwater dependent ecosystem
GIS	geographic information system
GPS	global positioning system
GSA	Groundwater Sustainability Agency
GSP, Plan	Groundwater Sustainability Plan
GWMP	groundwater management plan
HCM	hydrogeologic conceptual model
HCO_3	bicarbonate
ILRP	Irrigated Lands Regulatory Program
IND	industrial service supply

Acronym/Abbreviation	Definition
INSAR	interferometric synthetic aperture radar
IRWM	Integrated Regional Water Management
K	potassium
Los Angeles Basin Plan	*Water Quality Control Plan for the Los Angeles Region*
LTCP	Low-Threat Closure Policy
LUST	leaking underground storage tank
MCL	maximum contaminant limit
Mg	magnesium
mg/L	milligrams per liter
mm	millimeter
MTBE	methyl tert-butyl ether
MUN	municipal and domestic supply
MWC	Mutual Water Company
Na	sodium
NCCAG	Natural Communities Commonly Associated with Groundwater
NDMI	Normalized Difference Moisture Index
NDVI	Normalized Difference Vegetation Index
NHD	National Hydrography Dataset
NO_3	nitrate
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NWIS	National Water Information System
OBGM	Ojai Basin Groundwater Model
OBGMA	Ojai Basin Groundwater Management Agency
OVGB, Ojai Valley Basin	Ojai Valley Groundwater Basin
OVSD	Ojai Valley Sanitary District
OWCD	Ojai Water Conservation District
OWS	Ojai Water System
OWTS	on-site wastewater treatment system
PMA	Projects and Management Action
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PRISM	Parameter-Elevation Regressions on Independent Slopes Model
PROC	industrial process supply
RMP	representative monitoring point
RWQCB	Regional Water Quality Control Board
SACSG	San Antonio Creek Spreading Grounds
SB	Senate Bill
SCAG	Southern California Association of Governments
SGMA	Sustainable Groundwater Management Act
SMCL	secondary maximum contaminant level
SO_4	sulfate
SWN	state well number
SWP	State Water Project

Acronym/Abbreviation	Definition
SACSGRP	San Antonio Creek Spreading Grounds Rehabilitation Project
SWRCB	State Water Resources Control Board
TBA	thiobarbituric acid
TDS	total dissolved solids
TNC	The Nature Conservancy
TPH	total petroleum hydrocarbons
USGS	U.S. Geological Survey
UST	underground storage tank
UVRGB	Upper Ventura River Groundwater Basin
UWMP	urban water management plan
VCEHD	Ventura County Environmental Health Division
VCRMA	Ventura County Resource Management Agency
VCWPD	Ventura County Watershed Protection District
WCVC	Watersheds Coalition of Ventura County
WDR	Waste Discharge Requirement
WSIP	Water Storage Investment Program
WY	Water Year

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EXECUTIVE SUMMARY

The Ojai Basin Groundwater Management Agency (OBGMA), acting as the Groundwater Sustainability Agency (GSA) for the Ojai Valley Groundwater Basin (OVGB; California Department of Water Resources [DWR] Basin No. 4-002), developed this Groundwater Sustainability Plan (GSP) to enable stakeholders to sustainably manage groundwater and surface water resources and to comply with the requirements of the Sustainable Groundwater Management Act (SGMA).

ES 1.0 INTRODUCTION

The OBGMA has groundwater management responsibilities within its jurisdictional boundary, as defined in the original enabling legislation, Senate Bill 534, approved on October 8, 1991. The OBGMA boundary covers the majority of the OVGB and, as further described in Chapters 1 and 2, the areas outside the OBGMA boundary but within the OVGB are effectively managed.

The overarching objective of SGMA is to establish and achieve the sustainability goal for the OVGB through the development and implementation of a GSP. In enacting SGMA, the Legislature also set forward more specific purposes underlying the legislation, which include providing for sustainable management of groundwater, avoiding six designated undesirable results to groundwater resources that could occur without proper management, enhancing the ability of local agencies to take action to protect groundwater resources, and preserving the security of water rights to the greatest extent possible consistent with sustainable management of groundwater.

The intent of this GSP is to meet the requirements of SGMA. To this end, this GSP includes the scientific and other background information about the OVGB required by SGMA and its implementing regulations. The GSP is also intended to provide a roadmap for how sustainability is to be maintained in the OVGB, including through projects and management actions (PMAs) to be taken, as well as the financial implications of implementing the GSP. At the same time, the GSP recognizes that while some management actions can be taken early on in the GSP implementation process, other actions, including those requiring grant funding and collaboration between stakeholders, are to be implemented over time.

SGMA mandates that steps be taken to ensure the broadest possible public participation in the GSP development process. From its inception, the OBGMA has been focused on soliciting and receiving input from a wide variety of stakeholders regarding OVGB issues. As part of the OBGMA's effort to consider the interests of all beneficial uses and users of groundwater, the OBGMA Board of Directors is made up of key stakeholders from the Ojai community including representatives of each of the following entities: Ojai Water Conservation District, City of Ojai, Casitas Municipal Water District, Communities Facility District No. 2013-1, and mutual water companies.

ES 2.0 SUMMARY OF BASIN SETTING AND CONDITIONS

DWR has designated the 9.2-square-mile OVGB as high priority[1]. Recharge to the OVGB occurs through percolation of surface waters through alluvial channels, infiltration of precipitation that falls directly on the valley floor, subsurface flow, and septic and irrigation return flow. Land uses consist primarily of private land under County jurisdiction, the City of Ojai, and public land owned and managed by the U.S. Forest Service. The developed land uses in the OVGB include in general residential, agricultural, recreational, and commercial.

As represented in the "Hydrogeologic Conceptual Model" developed for this GSP, the unconsolidated alluvial sediments that fill the OVGB are composed of 50 to 100 feet thick units of sand, gravel, and clay that pinch out toward the northern and eastern lateral edges of the OVGB. The maximum total thickness of the alluvial deposits is approximately 715 feet. The primary storage units for groundwater are approximately four discrete sand and gravel units on the order of up to 100 feet thick each, which are sourced near the alluvial fan heads in the northeast side of the Ojai Valley. The coarse-grained sand and gravel aquifer units are thickest in the northern, central, and eastern areas of the OVGB and thinnest in the south and west where fine grained lacustrine and floodplain deposits predominate. The fine grained deposits act as confining and perching layers, separating the water bearing zones into multiple aquifer units. The total groundwater storage capacity of the OVGB is estimated to be upwards of 85,000 acre-feet (AF).

Groundwater level trends in the OVGB are correlated with mountain front recharge, precipitation, return flows, and groundwater extraction. The direction of regional groundwater flow in the OVGB is away from the Topatopa Mountains towards the southwest, except near major centers of groundwater extraction where the hydraulic gradient is locally toward the pumping wells. Over the past 70 years, groundwater levels have declined and recovered in response to changes in climatic conditions and groundwater extraction. Groundwater level declines of approximately 200 feet occurred between 1958 and 1962, and 2011 and 2016, coincident with periods of drought. However, groundwater levels recovered in subsequent average and wet water years, and significant and unreasonable impacts to beneficial uses and users were not observed. Local Ventura River watershed surface flows are sourced from Ventura River tributaries and from the Ventura River itself through a diversion canal and stored in Lake Casitas, all of which are located outside of the OVGB. The Casitas Municipal Water District distributes Lake Casitas stored water to wholesale

[1] Basin prioritization classifies the California's 515 basins and subbasins into priorities based on components identified in the California Water Code. The priority process consists of applying datasets and information in a consistent, statewide manner in accordance with the provisions in California Water Code, Section 10933(b). Further information on DWR's basin prioritization process can be found on the following website: https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization.

accounts, retail municipal and industrial accounts, and retail agricultural accounts. A portion of Lake Casitas storage is distributed to wholesale and retail accounts inside the boundaries of the OBGMA. The conjunctive use of surface water and groundwater in the OVGB has occurred since at least 1949 and is key to meeting the total water demand of users located within the OVGB.

The water budget for the OVGB provides an accounting and assessment of the average annual volume of groundwater and surface water entering (i.e., inflow) and leaving (i.e., outflow) the OVGB. Annual change in groundwater in storage is summed to determine the cumulative change in groundwater in storage over time. Results from the Ojai Basin Groundwater Model (OBGM) indicate that groundwater in storage decreased at an average annual rate of approximately 15 acre-feet per year (AFY) between water years 1971 and 2019. Over this 49-year period, groundwater in storage declined by a total of approximately 750 AF, which is within the predictive uncertainty of the numerical model and indicates that the OVGB has not experienced overdraft conditions. Different periods of records would present different average annual decreases, increases, or stability. The sustainable yield of the OVGB has been estimated to range from approximately 4,100 AFY to 5,000 AFY.

Groundwater quality in the OVGB is currently good and generally meets California drinking water maximum contaminant levels (MCLs) without treatment. The primary constituents of concern (COCs) in the OVGB include total dissolved solids, sulfate, chloride, boron, nitrate, iron, and manganese. At times concentrations of COCs in groundwater from certain wells in the OVGB have exceeded California drinking water MCLs; however, concentrations have exhibited a stable or improving trend over time.

ES 3.0 OVERVIEW OF SUSTAINABILITY INDICATORS, MINIMUM THRESHOLDS, AND MEASURABLE OBJECTIVES

To maintain a viable water supply for current and future beneficial uses and users of groundwater in the OVGB, the OBGMA's sustainability goal is to preserve the quantity and quality of groundwater in the Ojai Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the Basin. This GSP is intended to ensure that the OVGB continues to operate within its sustainable yield and does not experience undesirable results within the planning and implementation horizon of this GSP (50 years). The OBGMA has established minimum thresholds for the following sustainability indicators determined to be a potential future undesirable result.

Groundwater Levels

The minimum thresholds for groundwater levels are based on the record low static groundwater level that occurred in well 04N22W05L008S at approximately 312 feet below ground surface in September 1951. The minimum thresholds represent groundwater elevations in the OVGB that, if exceeded at multiple wells for a duration of greater than one year, may cause undesirable results. The one-year criterion is based on the rapid recovery of groundwater levels and groundwater in storage observed in average and wet water years. The one-year period provides the OBGMA sufficient time to implement management actions to reduce groundwater extraction and conserve groundwater supplies. The primary measurable objective for groundwater levels is for groundwater levels at representative monitoring points (RMPs) to remain above established minimum thresholds, and for groundwater levels to stabilize and recover after each drought period in average and wet water years. Numeric measurable objectives for groundwater levels will be developed as part of the proposed conjunctive management plan PMA No 2 – Protect and Manage the Basin.

Groundwater in Storage

As groundwater in storage cannot be measured directly, the minimum threshold for groundwater in storage is based on the record low static groundwater levels that occurred in the OVGB in 1951 as previously described, and rapidly recovered in subsequent wet years. The estimated remaining groundwater in storage in 1951 was approximately 37,179 AF, which is about 10% lower than the recent historical low of 41,310 AF that occurred in 2016. The minimum threshold represents a volume of groundwater in storage in the OVGB that, if exceeded for a duration of greater than one year, may cause undesirable results. Numeric measurable objectives for groundwater in storage will be developed as part of the proposed conjunctive management plan PMA No 2 – Protect and Manage the Basin.

Groundwater Quality

To protect and maintain water quality in the OVGB, the primary measurable objective is for the identified COCs to exhibit stable or improving trend. The OBGMA recognizes that varying degree of water quality is required for potable, non-potable, and environmental beneficial uses. To that end, the drinking water standards specified in Title 22 of the California Code of Regulations (CCR) are established as the minimum thresholds for groundwater quality for potable supply wells, provided there is a nexus with groundwater extraction and the groundwater quality impairment. In addition, the Los Angeles Basin Plan water quality objectives are established as the measurable objectives for groundwater quality, provided there is a nexus with groundwater extraction and the groundwater quality impairment. Groundwater quality monitoring will occur throughout GSP implementation.

ES 4.0 OVERVIEW OF PROJECTS AND MANAGEMENT ACTIONS

Since the OBGMA's initial groundwater management plan, five PMAs have been developed to address sustainability goals, minimum thresholds, and data gaps identified for the OVGB. The proposed PMAs, mirroring the previous OBGMA GMPs, are organized under five primary goals to manage the OVGB, each with a number of action elements described as follows:

Management Action No. 1 – Understand the Basin

The OBGMA recognizes that a comprehensive understanding of the hydrogeology of the OVGB is necessary for the long-term sustainability of the groundwater resource. The proposed PMAs developed to support this management action include: 1) conduct groundwater level, groundwater quality, and streamflow monitoring; 2) conduct groundwater extraction monitoring; 3) prepare a sampling and analysis plan and a quality assurance project plan; 4) prepare a groundwater dependent ecosystems assessment; 5) develop a data management system; and 6) simulate extreme climate scenarios.

Management Action No. 2 – Protect and Manage the Basin

To ensure that the OVGB continues to operate within its sustainable yield and does not experience undesirable results within the planning and implementation horizon of this GSP, the OBGMA may take direct management actions to reduce groundwater extraction and conserve groundwater supplies. The proposed PMAs developed to support this management action include: 1) develop a comprehensive conjunctive management plan; 2) develop a groundwater allocation; 3) develop a water conservation program; and 4) encourage voluntary pumping reductions.

Management Action No. 3 – Encourage Supporting Activities

The OBGMA has a long history of working cooperatively with other agencies, stakeholders, and water users to protect and maintain groundwater and local surface water supply for the common benefit of the water users of the OVGB. The OBGMA will continue to support and work collectively on projects with other entities to ensure the sustainability goals of this GSP are achieved. The proposed PMAs developed to support this management action include: 1) develop a salt and nutrient management plan; 2) evaluate the feasibility of recycled water production for non-potable reuse; 3) explore opportunities to implement focused recharge; and 4) explore access to water sources outside the Ventura River watershed through branch pipeline connections to the California Aqueduct.

Management Action No. 4 – Communicate Effectively

Effective communication between the OBGMA, stakeholders, and water users is a required component of SGMA and key to successful groundwater sustainability planning and implementation of projects and management actions. The proposed PMAs developed to support this management action include: 1) evaluate the settlement management plan provisions; 2) implement the public outreach and engagement plan; and 3) complete the groundwater sustainability plan annual reports and 5-year updates.

Management Action No. 5 – Administrate Efficiently

The resources available to the OBGMA to sustainably manage the OVGB include extraction fees charged to groundwater users and grant funding. Therefore, it is essential that the OBGMA administrates efficiently and pursue alternative funding opportunities to implement the PMAs described in this GSP and keep extraction fees low. The OBGMA will continue to explore grant funding opportunities that are within its purview to pay management and administration costs, operations and monitoring costs, and to fund continuation of the existing, and implementation of the proposed, PMAs identified in this GSP.

ES 5.0 PLAN IMPLEMENTATION

The deadline for the OBGMA to adopt this GSP is January 31, 2022. The OBGMA is responsible for implementing the GSP over SGMA's planning and implementation horizon (50 years). The OBGMA will submit annual reports by April 1 of each year. The annual reports will document new data being collected to track groundwater conditions within the OVGB, monitor progress on implementation of PMAs, and present an evaluation of measured data in comparison to interim milestones for each sustainability indicator. In addition to the annual reports, the OBGMA will submit more detailed 5-year evaluations to DWR by April 1 of 2027, 2032, 2037, and 2042. The 5-year evaluations provide the GSA an opportunity to assess the success and/or challenges in GSP implementation, including reporting on the effectiveness of PMAs. If knowledge of OVGB conditions has changed based on updated data, if management criteria (e.g., sustainable yield, minimum thresholds, or interim milestones) need to be modified, or if PMAs need to be modified or added, revisions to the GSP may be proposed and the necessary steps will be taken by the GSA. California Environmental Quality Act (CEQA) review would be completed prior to implementation of the PMAs that require CEQA.

The OBGMA has performed substantial work toward estimating the cost of GSP implementation. Chapter 5, Plan Implementation, contains a breakdown of tasks and associated cost estimates for management/administration, office expenses, training and memberships, GSP costs; operations and monitoring, annual and periodic (i.e., 5-year) reporting; PMAs. The estimated GSP implementation cost for the anticipated 20-year implementation period is approximately $8,114,000. This estimate does not include the implementation of all PMAs, or final costs incurred by OBGMA. Additional budget may be required to implement PMAs once they have been developed. In general, the OBGMA plans to fund GSP implementation using a combination of groundwater extraction fees and/or grants.

CHAPTER 1
INTRODUCTION

1.1 PURPOSE OF THE GROUNDWATER SUSTAINABILITY PLAN

The Ojai Basin Groundwater Management Agency (OBGMA), acting as the Groundwater Sustainability Agency (GSA) for the Ojai Valley Groundwater Basin (OVGB; DWR Basin No. 4-002),[1] developed this Groundwater Sustainability Plan (GSP, Plan) in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code Section 10720–10737.8, et al.) and the Department of Water Resources (DWR) GSP Regulations (California Code of Regulations, Title 23, Section 350 et seq.). Among the legislative purposes of SGMA are for California's groundwater basins to be managed sustainably, "to manage groundwater basins through the actions of local government agencies to the maximum extent feasible," and to provide local public agencies acting as GSAs with the authority and technical and financial assistance necessary to achieve basin sustainability (California Water Code Section 10720.1). Appendix A includes the Preparation Checklist for GSP Submittal, which identifies where in this GSP each of the statutory requirements under SGMA are addressed.

The GSA jurisdictional boundary includes the majority of the OVGB as defined in the original enabling legislation, Senate Bill (SB) 534, approved on October 8, 1991. The boundaries of the management agency are defined in Article 2, Section 201. Figure 1-1 shows the OBGMA boundary and the boundary of the OVGB. A few small areas of the OVGB are not located within the OBGMA boundary. These areas outside the OBGMA boundary total 143.7 acres and include narrow, shallow alluvial filled stream channels along the southern flank of the Topatopa Mountains (northern boundary of OVGB), and an approximately 134.5-acre strip of land along the western margin of the OVGB. As further described in Chapter 2, the areas outside the OBGMA boundary but within the OVGB are effectively managed. The Ojai Valley Basin is designated by DWR as high priority[2]. The presence and potential interconnectedness of groundwater basins adjacent to the Ojai Valley Basin, including the Upper Ventura River Groundwater Subbasin (DWR Basin No. 4-003.01) and Upper Ojai Valley Groundwater Basin (DWR Basin No. 4-001), are described and considered in this GSP, though the focus of the GSP is on defining the criteria under which the OVGB will continue to be managed sustainably.

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1 The Ojai Valley Groundwater Basin is abbreviated as the "Ojai Valley Basin" or OVGB in this document.

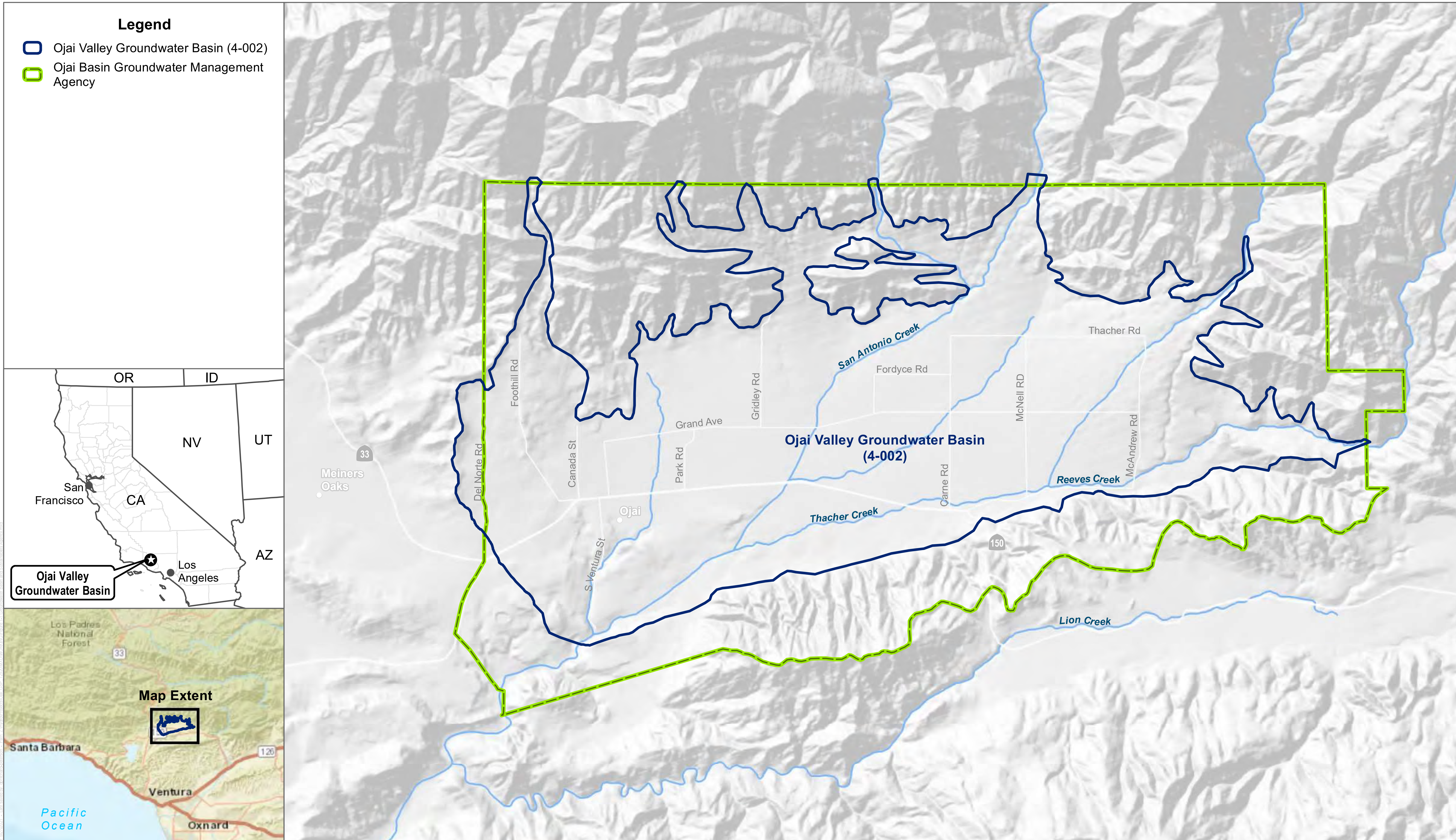
2 Basin prioritization classifies the California's 515 basins and subbasins into priorities based on components identified in the California Water Code. The priority process consists of applying datasets and information in a consistent, statewide manner in accordance with the provisions in California Water Code, Section 10933(b). Further information on DWR's basin prioritization process can be found on the following website: https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization.

SGMA defines sustainable groundwater management as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results" (California Water Code Section 10721). "Undesirable results" are defined in SGMA and are summarized here as any of the following effects caused by groundwater conditions occurring throughout the basin.[3]

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable degraded water quality
- Significant and unreasonable seawater intrusion
- Significant and unreasonable land subsidence
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

As described in Chapter 2, Plan Area and Basin Setting, undesirable results within the Ojai Valley Basin have not occurred historically. Groundwater levels and groundwater in storage in the OVGB fluctuate primarily in response to climatic variability where groundwater levels decline during dry periods and recover during wet periods. The water budget indicates that over the 48-year period from 1971 to 2019 the OVGB has operated within its sustainable yield based on available data. Water quality of the principal aquifers is suitable for beneficial uses. Localized areas of degraded water quality are primarily attributable to septic effluent or water from deeper aquifers with higher total dissolved solids concentrations. Water quality degradation is currently not an undesirable result in the OVGB. Seawater intrusion is not applicable to this inland basin. Both elastic land subsidence and rebound are documented to occur in the OVGB. Land subsidence is currently not an undesirable result in the OVGB. Available data do not indicate a direct nexus of groundwater extractions with depletions of interconnected surface water. However, this finding is based on limited data and a preliminary hydrogeological conceptual model that suggests surface waters in San Antonio Creek are sustained by a perched upper aquifer that is disconnected from the deep producing aquifers. The OBGMA conducts ongoing studies to further build the datasets regarding groundwater – surface water interactions.

3 "Basin" as defined in SGMA, means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to California Water Code Section 10722, et seq. (Basin Boundaries).



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS

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FIGURE 1-1

Ojai Valley Groundwater Basin and Groundwater Sustainability Agency

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The publication of this GSP represents a key milestone in defining the criteria under which the OVGB will continue to be managed sustainably. This GSP characterizes groundwater conditions, trends, and the cumulative impacts of groundwater pumping for each of the SGMA-defined sustainability indicators (Chapter 2); establishes minimum thresholds, measurable objectives, and interim milestones by which sustainability can be measured and tracked (Chapter 3, Sustainable Management Criteria); identifies projects and management actions to be implemented by the GSA and/or stakeholders (Chapter 4, Projects and Management Actions); and outlines a plan for annual reporting and periodic (i.e., 5-year) evaluations (Chapter 5, Plan Implementation). The GSP documents necessary steps, determined by the GSA in collaboration with stakeholders, and informed by the best available information, to continue sustainable management of the OVGB.

1.2 SUSTAINABILITY GOAL

The mission of the OBGMA, which is derived from the Legislative findings of the Agency Act, is to preserve the quantity and quality of groundwater in the Ojai Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the Basin (SB 534, October 1991). This GSP is intended to also meet the overarching sustainability goal of SGMA to operate the OVGB within its sustainable yield without causing an undesirable result.

1.3 AGENCY INFORMATION

The OBGMA is the single GSA responsible for managing the supply and demand of the Ojai Valley Basin for the protection and common benefit of agricultural, municipal, and industrial water users of the Basin.

The contact name and mailing address of the GSP Manager for the OBGMA is as follows:

John Mundy, General Manager
Ojai Basin Groundwater Management Agency
417 Bryant Circle, Suite 112
Ojai, California 93024
Mailing: P.O. Box 1779, Ojai California 93024
805.640.1207

1.3.1 Organization and Management Structure of the Groundwater Sustainability Agency

The OBGMA Board of Directors comprises five members and their alternates representing: (1) Ojai Water Conservation District, (2) City of Ojai, (3) Casitas Municipal Water District, (4) small water companies, and (5) Casitas – Ojai Community Facilities District (formerly Golden State Water Company). Board Members are appointed by their respective governing bodies for an undefined term. The OBGMA Board convenes approximately monthly, in conformance with the Brown Act. Additional special meetings were held as-needed and a special hearing was held to review and approve this GSP.

Appendix B contains documentation, in reverse chronological order, of the formation of the GSA and initiation of the GSP in compliance with SGMA. Appendix B also includes the GSA's notices to DWR regarding its intent to develop a GSP. Appendix C provides the Public Outreach and Engagement Plan and list of Public Meetings held by the OBGMA where information on the GSP was presented and public comment accepted.

1.3.2 Legal Authority of the Groundwater Sustainability Agency

OBGMA was created in 1991 by a special act of the California legislature, SB 534. OBGMA is one of only 15 special act districts with legislative authority to manage groundwater in California. As outlined in SB 1168, Chapter 4, Section 10723. (c), SGMA identifies the OBGMA as the "exclusive local agency" within its statutory boundaries for the purposes of implementing the SGMA. On December 2014, the Board of Directors of the OBGMA passed Resolution 2014-4 wherein the OBGMA elected to become a GSA as defined by SB 1168.

On September 16, 2014, Governor Brown signed into law Senate Bills 1168 and 1319 and Assembly Bill 1739 as part of the SGMA legislation, which provides among other powers, local groundwater agencies the authority and the technical and financial assistance necessary to sustainably manage groundwater. The GSA has statutory authorities that are essential to groundwater management as well as SGMA compliance.

Section 10720.7 of SGMA requires that all basins designated in Bulletin 118 as high or medium priority be managed under a GSP. Pursuant to Section 10727 of SGMA, the GSA is required to develop, adopt, and implement this GSP to manage the basin and intend on using the authorities granted to them to memorialize the roles and responsibilities for developing and implementing the GSP.

1.3.3 Notice and Communication

In 2020, the GSA prepared a Draft Public Outreach and Engagement Plan to provide individual stakeholders, stakeholder organizations, and other interested parties an opportunity to be involved in the development and evaluation of this GSP. To this end, the Public Outreach and Engagement Plan, included as Appendix C of this GSP, describes the steps the GSA has taken, and will continue to take, to achieve broad, enduring and productive public involvement during the development and implementation phases of this GSP. The Public Outreach and Engagement Plan includes a list of identified stakeholders as of 2020 and describes the methods and avenues in which the GSA has continued to identify additional stakeholders, continued to solicit public involvement and feedback, and considered and/or incorporated stakeholder comments and concerns into the development and future implementation of this GSP. In addition to the Public Outreach and Engagement Plan, Appendix C also includes a list of public meetings that have been held to date as a means to document the level of public outreach that has occurred thus far. Table 1-1 provides a summary of the stakeholder categories in the Ojai Valley Basin.

Table 1-1
Stakeholder Categories in the OVGB

Category of Interest	Examples of Stakeholder Groups	Engagement Purpose
General Public	General Public	Inform to improve public awareness of sustainable groundwater management
Land Use	County of Ventura (Resource Management Agency and Planning Division) City of Ojai	Consult and involve to ensure land use policies are supporting GSP and vice-versa
Private Users	Domestic users	Inform and involve to avoid negative impact to these users
Urban/Agriculture/Recreational Users	Casitas Municipal Water District Small Water Systems Golf Courses and Recreational Facilities	Collaborate to ensure sustainable management of groundwater
Environmental and Ecosystem	California Department of Fish and Wildlife National Marine Fisheries Service The Nature Conservancy	Inform and involve to sustain a vital ecosystem
Economic Development	City of Ojai Mayor Betsy Stix State Assembly Member Steve Bennett State Senator Monique Limón County District 1 Supervisor Matt LaVere	Inform and involve to support a stable economy
Human Right to Water	Domestic water users Disadvantaged Communities Chumash Barbareño/Ventureño Band of Mission Indians	Inform and involve to provide a safe and secure groundwater supplies to DACs
Integrated Water Management	Regional water management groups (IRWM regions)	Inform, involve, and collaborate to improve regional sustainability

Notes: DAC = disadvantaged community; IRWM = Integrated Regional Water Management.

1.3.3 Estimated Cost of Implementing the Groundwater Sustainability Plan and the Groundwater Sustainability Agency's Approach to Meet Costs

Annual implementation costs may vary from year to year as a result of the status of project and management actions (PMAs), significance of new data, and increased milestone reporting requirements every fifth year of implementation. However, the estimated GSP implementation cost for the next 21 years is approximately $8,114,000. Estimated total GSP implementation costs assume the following general components:

- Management and Administration

- Office Expenses
- Training & Memberships
- Regular Professional Support Services
- Operations & Monitoring Costs
- 5-year review assessments and reporting
- Projects and Management Actions

1.4 GROUNDWATER SUSTAINABILITY PLAN ORGANIZATION

This GSP is organized as follows:

- The **Executive Summary** is a plain language summary that provides an overview of the GSP and a description of groundwater conditions in the basin.
- **Chapter 1, Introduction**, includes the purpose of the GSP, sustainability goals, and agency information and outlines document organization.
- **Chapter 2, Plan Area and Basin Setting,** consists of two main parts. This first part provides a general overview of the OVGB, including agency jurisdiction, relevant water resources monitoring and management plans, a description of land uses and land use policies, and an overview of GSP notice and communication activities. The second part describes the hydrogeologic setting of the OVGB, including a description of current and historical conditions related to each undesirable result defined under SGMA. The second part also provides a summary of the groundwater modeling and water budgets established for the OVGB.
- **Chapter 3, Sustainable Management Criteria**, describes criteria by which the GSA has defined conditions that constitute sustainable groundwater management for the OVGB, including the process by which the GSA has characterized undesirable results, and established minimum thresholds and measurable objectives for each applicable sustainability indicator.
- **Chapter 4, Projects and Management Actions**, consists of a description of the projects and management actions the GSA has determined will achieve the sustainability goal for the OVGB, including projects and management actions to respond to changing conditions in the OVGB.
- **Chapter 5, Plan Implementation**, provides an estimate of GSP implementation costs, a schedule for implementation, and a plan for annual reporting and periodic (5-year) evaluations.

1.5 REFERENCES CITED

DWR (California Department of Water Resources). 2019. *Sustainable Groundwater Management Act 2018 Basin Prioritization Process and Results*. January 2019.

OBGMA (Ojai Basin Groundwater Management Agency). 2014. Resolution 2014-4. A Resolution of the Ojai Basin Groundwater Management Agency requesting authorization form the Department of Water Resources to Become the Groundwater Sustainable Agency of the Ojai Basin as stated in California Water Code Section 10723(c)(3). December 4, 2014.

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CHAPTER 2
PLAN AREA AND BASIN SETTING

This Chapter of the Ojai Valley Groundwater Basin (OVGB)[1] Groundwater Sustainability Plan (GSP) is organized into four major parts. Section 2.1, Description of the plan area, covers administrative, statutory, and policy issues, as well as aspects of the built environment related to water supply and demand. Specifically, Section 2.1 describes administrative boundaries, land use and population characteristics, and identifies existing water resources monitoring and management plans and programs. Section 2.2, Basin Setting, covers the general geographic and climatic setting of the OVGB. Section 2.3, Hydrogeologic Conceptual Model, describes the geologic and hydrogeologic setting, as well as the historical and current groundwater conditions in the OVGB. Finally, Section 2.4, Water Budget, covers the groundwater budget including groundwater flux, alternative water supplies, and quantification of historical, current, and future water budget conditions. A list of references cited, as well as all figures, are provided at the end of the chapter.

2.1 DESCRIPTION OF THE PLAN AREA

As described in Chapter 1, Introduction, the Groundwater Sustainability Agency (GSA) boundary includes all but 143.7 acres of the OVGB as defined by the California Department of Water Resources (DWR). The OBGMA was granted a basin boundary modification to more closely align basin delineation with geology and hydrogeologic conditions in 2016, resulting in the current Bulletin 118 delineation. The OBGMA jurisdiction, as defined in the original enabling legislation, Senate Bill (SB) 534, known as the Ojai Basin Groundwater Management Agency (OBGMA) Act, differs slightly from the DWR defined extent of the OVGB. Areas outside the OBGMA boundary include narrow, shallow alluvial filled stream channels along the southern flank of the Topatopa Mountains (northern boundary of the OVGB) and a strip of land along the western margin of the OVGB (Figure 1-1). There is no known groundwater extraction in these areas of the OVGB. Therefore, the areas outside the OBGMA boundary but within the OVGB are effectively managed under this GSP. The boundary of the OVGB as defined by the DWR is used as the boundary of the plan area in this GSP. The GSA consists solely of the OBGMA. This GSP therefore consists of a "single plan covering the entire basin developed and implemented by one groundwater sustainability agency," per California Water Code Section 10727(b)(1) and applies to the 5,913.4 acres within the OVGB.

The Ojai Valley Basin is designated by the DWR as one of California's 46 high priority[2] alluvial basins (DWR 2020a). The Ojai Valley Basin (DWR Basin No. 4-002) has a surface area of approximately 5,913.4 acres, or 9.2 square miles, and underlies the City of Ojai in the central part of

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1 The Ojai Valley Groundwater Basin is abbreviated as the "Ojai Valley Basin" or OVGB in this document.

2 Basin prioritization classifies the California's 515 basins and subbasins into priorities based on components identified in the California Water Code. The priority process consists of applying datasets and information in a consistent, statewide manner in accordance with the provisions in California Water Code, Section 10933(b). Further information on DWR's basin prioritization process can be found on the following website: https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization.

Ventura County (County). The OVGB's boundaries are formed by Tertiary age[3] consolidated rocks associated with the Topatopa Mountains of California's Transverse Ranges to the north and east, the Upper Ojai Valley Groundwater Basin (DWR Basin No. 4-001) to the east, the Santa Ana Fault and Black Mountain to the south, and the Upper Ventura River Groundwater Subbasin (DWR Basin No. 4-003.01) to the west (Figure 2-1, Plan Area and Contributing Watershed; DWR 2004). The eastern and western boundaries of the OVGB correspond to recognized bedrock highs that limit groundwater exchange flow between the OVGB and adjacent basins. The potential flow of groundwater between the OVGB and Upper Ventura River Subbasin is considered likely to be very small due to the low hydraulic conductivity of the geologic materials (bedrock) that form the boundary between the two groundwater basins (DWR 2004; Kear 2005).

Although the plan area is defined as the OVGB, information applicable to the Upper Ojai Valley Basin and Upper Ventura River Subbasin, as well as the hydrologic characteristics of the sub-watersheds contributing to the Ojai Valley Basin, is also provided in this chapter. DWR has designated the Upper Ojai Valley Basin as having a very low priority, because there is less than 2,000 acre-feet[4] per year (AFY) of extraction from the basin (DWR 2020a). DWR has designated the Upper Ventura River Subbasin as having a medium priority, because total groundwater extraction is greater than 2,000 AFY and adverse impacts to streamflow and habitat have been identified (DWR 2020a; Hopkins 2013; NMFS 2005; LARWQCB 1998). Evaluation of the validity and relevance of instream flow recommendations for the Ventura River (CDFW 2021) to the GSP is ongoing.

Recharge to the OVGB occurs through percolation of surface waters through alluvial channels, infiltration of precipitation that falls directly on the valley floor, subsurface flow, and septic and irrigation return flow (DWR 2004). The San Antonio Creek watershed upstream of the OVGB is the major contributing watershed to the OVGB, which is a subwatershed of the Ventura River watershed. The San Antonio Creek watershed is approximately 32,743.1 acres, or 51.2 square miles and completely encompasses the OVGB (Figure 2-1). The portion of the San Antonio Creek watershed that contributes recharge to the OVGB is approximately 20,340.8 acres, or 31.8 square miles (Figure 2-1). A summary of the groundwater basins, contributing watershed, and DWR designations is provided in Table 2-1.

[3] Geologic period from 66 million to 2.6 million years ago. The geologic timescale classifies this time period as the Cenozoic Era that includes the Paleogene and Neogene Periods.

[4] The volume of water required to cover 1 acre of land (43,560 square feet) to a depth of 1 foot; equal to 325,851 gallons or 1,233 cubic meters.

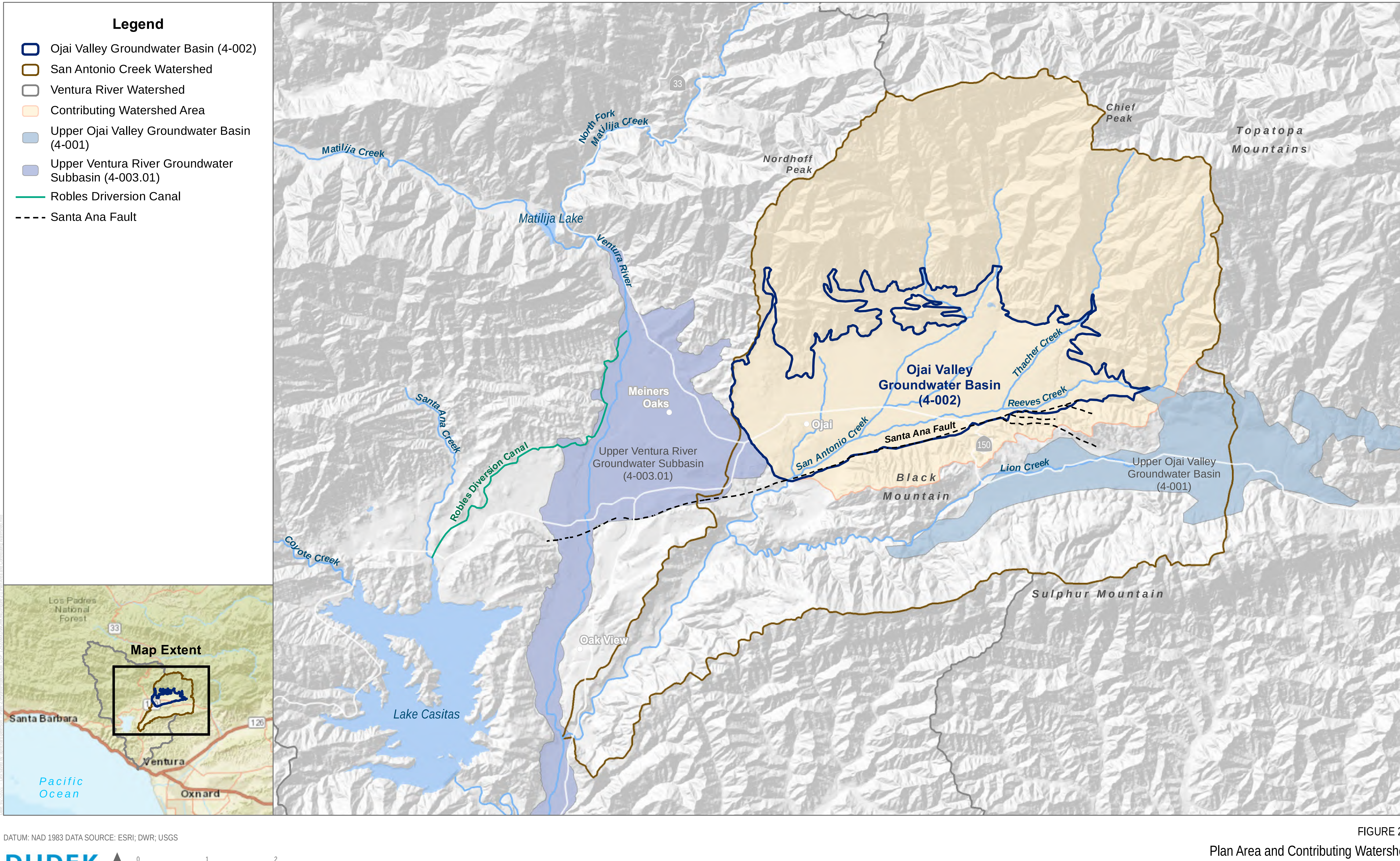

FIGURE 2-1

Plan Area and Contributing Watershed

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Table 2-1
Summary of the OVGB, Adjacent Basins, and Contributing Watershed Area

Basin/Watershed Name	Area			DWR Designations		Previous Groundwater Management Plan	GSP Required per SGMA
	Acres	*Square Miles*	*Basin Number*	*Critically Overdrafted*	*Basin Priority*		
Ojai Valley Groundwater Basin	5,913.4	9.2	4-002	No	High	Yes	Yes
Adjacent Basins							
Upper Ojai Valley Groundwater Basin	3,806.3	5.9	4-001	No	Very low	No	No
Upper Ventura River Groundwater Subbasin	5,278.1	8.2	4-003.01	No	Medium	No	Yes
Watershed Contributing to the Ojai Valley Groundwater Basin							
San Antonio Creek Watershed	32,743.1	51.2	Not applicable, but relevant for recharge to the OVGB and the water budget.				
Area Contributing to OVGB	20,340.8	31.8					

Source: DWR 2020a.
Notes: DWR = Department of Water Resources; GSP = Groundwater Sustainability Plan; SGMA = Sustainable Groundwater Management Act.

2.1.1 Summary of Jurisdictional Areas and Other Features

2.1.1.1 Land Use Jurisdictions within the OVGB

The OVGB consists primarily of private land under County jurisdiction, the City of Ojai, and public land owned and managed by the U.S. Forest Service. The developed land uses in the OVGB include in general residential, agricultural, recreational, and commercial. Approximately 67% of the OVGB consists of private land under County jurisdiction, 31% of the OVGB consists of the City of Ojai, and 2% of the OVGB consists of a portion of the Los Padres National Forest. The Los Padres National Forest intersects the OVGB on the northern border and occupies the mountain regions above the Ojai Valley. The land uses in the contributing watershed include primarily open space and recreation, and some agriculture (Figure 2-2, Jurisdictional Boundaries). Table 2-2 summarizes the land ownership and jurisdiction in the OVGB.

Table 2-2
Summary of Land Ownership in the OVGB

Ownership Type	Agency	Description	Acres / % of Total
Private	Private	Mixed land use including primarily residential, agriculture, and undevelopable or protected land under Ventura County jurisdiction	3,963.5 / 67%
City	City of Ojai	Mixed land use including primarily residential, commercial/industrial, and open space and recreation within Ojai City limits	1,847.2[a] / 31%

Table 2-2
Summary of Land Ownership in the OVGB

Ownership Type	Agency	Description	Acres / % of Total
Federal	U.S. Forest Service	Los Padres National Forest public land	102.7 / 2%
		Grand Total	5,913.4

Source: Geographic information system analysis of jurisdictional boundaries.
Note:
[a] Acreage includes Soule Park which is owned by the County of Ventura.

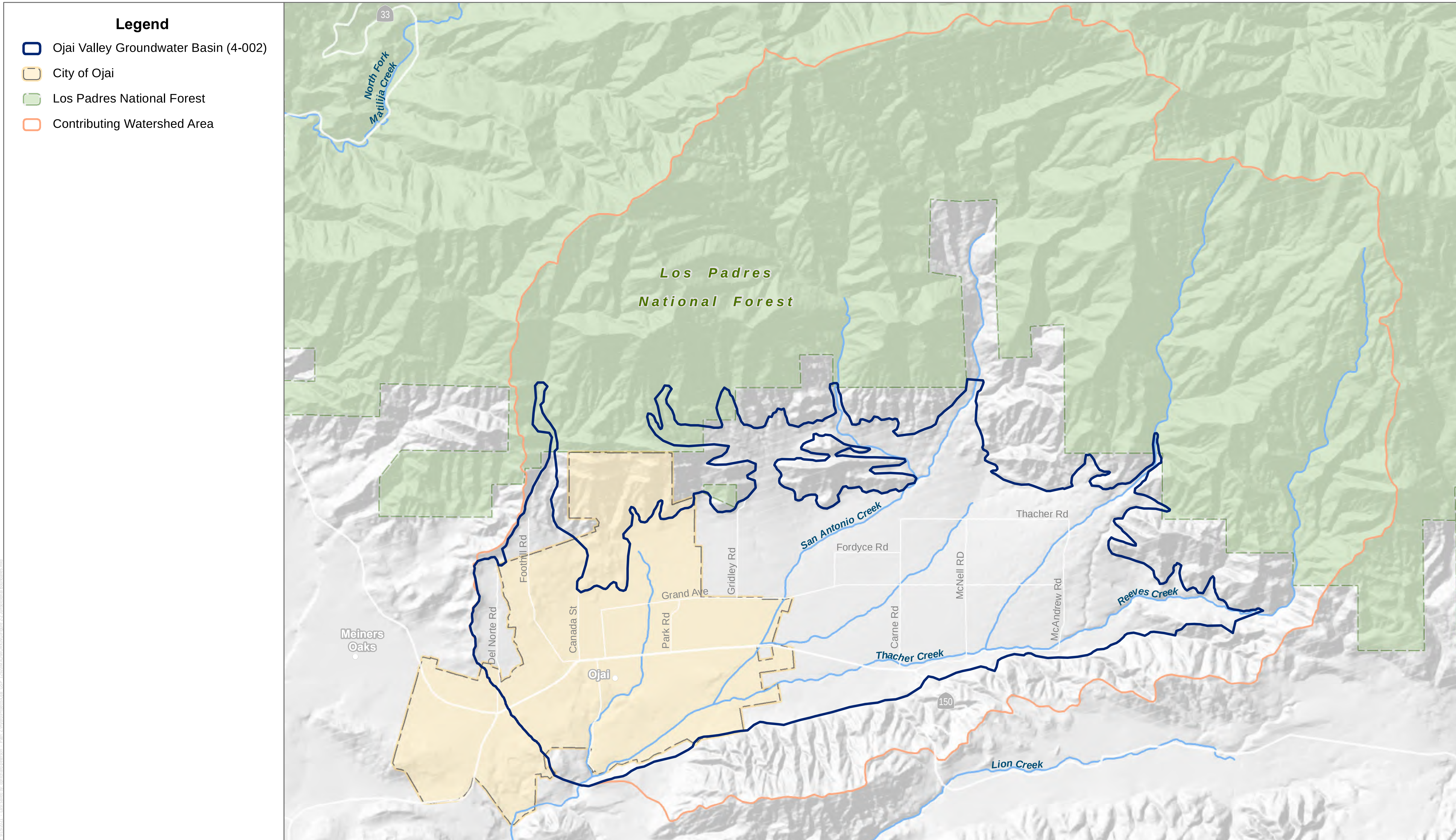
2.1.1.2 Water Agencies Relevant to the Plan Area

The primary water agency serving the OVGB is the Casitas Municipal Water District (CMWD). In addition to CMWD, there are multiple small private water companies that provide water service within the OVGB, including the Siete Robles Mutual Water Company, Senior Canyon Mutual Water Company, Hermitage Mutual Water Company, Gridley Road Water Group, and Ventura County Property Administrator. Additional water agencies relevant to the OVGB include the Ojai Valley Sanitary District (OVSD), which provides sewer service, and the Ojai Water Conservation District (OWCD), which is a water reclamation district. Each water agency relevant to the OVGB is described below and shown on Figure 2-3, Water Purveyors.

Casitas Municipal Water District

The public water district serving the OVGB is the CMWD, which provides water service to 6,130 agricultural, commercial, and residential customers (population of approximately 64,000) in western Ventura County including the developed portions of the Ojai Valley within its service area (CMWD 2021). CMWD's service area is approximately 87,022 acres in size and covers the entire OVGB, with the exception of approximately 9 acres in the northern part of the OVGB (CMWD 2021).

CMWD was formed in 1952 to help communities in western Ventura County overcome water shortage issues by increasing local water supply reliability. In 1959 the Ventura River Project was completed, which included construction of Lake Casitas, an approximately 254,000-acre-foot (AF) reservoir (more recently calculated to have a storage capacity of approximately 238,000 AF) on Coyote Creek and Santa Ana Creek, and the Robles Diversion Canal, a pipeline used to convey 500 cubic feet per second (cfs) of water from the Ventura River to Lake Casitas (Figure 2-1). CMWD operates and maintains Lake Casitas, which is the District's main source of water supply, one municipal supply well (Mira Monte Well) located outside of the OVGB with a capacity of approximately 300 AFY, the Robles Diversion Canal, and approximately 97-miles of water distribution pipelines (CMWD 2021; Milner 2016). The planned operational yield from Lake Casitas is 14,865 AFY, and from Mira Monte Well is 145 AFY, for a combined yield of 15,010 AFY (CMWD 2021). In addition, CMWD owns and operates the Ojai potable water system, which serves approximately 2,953 residences and businesses within Community Facilities District (CFD) No. 2013-1 (Ojai). CFD No. 2013-1 encompasses approximately 2,150 acres of land in the City of Ojai and unincorporated Ventura County (Figure 2-3; CMWD 2021).



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS

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FIGURE 2-2

Jurisdictional Boundaries

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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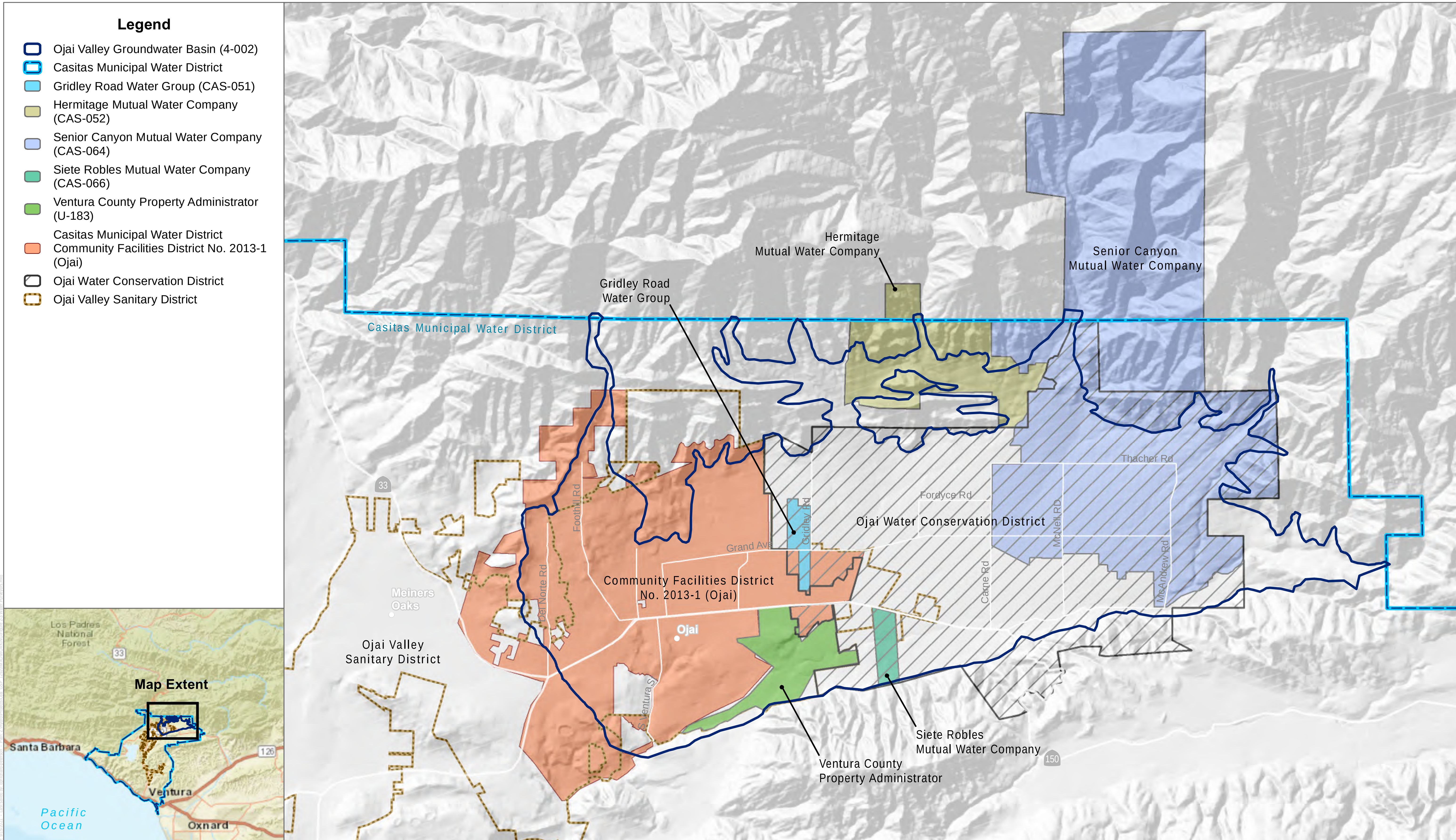

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; Ventura County

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FIGURE 2-3

Water Purveyors

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Community Facilities District No. 2013-1 was formed by CMWD at the request of members of the community in March 2013 pursuant to the Mello-Roos Community Facilities Act of 1982, as amended (Sections 53311 et seq. of the Government Code of the State of California), to finance the acquisition of the Ojai Water System facilities from Golden State Water Company (David Taussig & Associates 2013). In June 2017, CMWD acquired the Ojai Water System. The Ojai Water System consists of a network of 45 miles of pipeline, six storage reservoirs with a capacity of 1.99 million gallons, five booster pump stations, and six groundwater wells. The six groundwater wells include San Antonio Well 3, San Antonio Well 4, Gorham Well, Mutual Well 4, Mutual Well 5, and Mutual Well 6 (CMWD 2021; WSC 2018). Groundwater production from the Ojai Water System wellfield from 1994 to 2016 averaged approximately 1,800 AFY (CMWD 2021).

Ojai Valley Sanitary District

The Ojai Valley Sanitary District was formed in 1985 and provides sewer service to about 20,000 residents in the City of Ojai, the north Ventura Avenue area, and the unincorporated Ojai Valley. The OVSD's service area is approximately 8,629 acres in size and covers approximately 33% of the OVGB. The OVSD's wastewater treatment plant is located along the Ventura River in the north Ventura Avenue area downstream of the OVGB. The treatment plant has a rated capacity of 3.0 million gallons per day average dry weather flow and is operated to comply with the requirements of the OVSD's National Pollution Discharge Elimination System (NPDES) Permit, which was renewed in 2013 (OVSD 2017). Highly treated effluent is primarily discharged in accordance with the NPDES Permit requirements to the Ventura River (at approximately river mile 5) with a limited quantity of treated effluent reclaimed for irrigation use at the treatment plant. No additional reclaimed water is currently available in the Ojai Valley.

Ojai Water Conservation District

The OWCD is a water reclamation district formed in 1949. Originally named San Antonio Water Conservation District, the primary purpose of the OWCD is to divert water from San Antonio Creek into settling ponds for groundwater recharge. The OWCD's service area is approximately 3,727 acres in size and generally covers the unincorporated portion of the OVGB to the east of the City of Ojai.

Ventura County Watershed Protection District

Ventura County Watershed Protection District (VCWPD) was originally established on September 12, 1944 as the Ventura County Flood Control District. VCWPD's mission is to protect life, property, watercourses, watersheds, and public infrastructure from the dangers and damages associated with flood and stormwaters. VCWPD emphasizes integrated watershed management to solve flood control problems with environmentally sound approaches. VCWPD owns and operates the San Antonio Creek Spreading Grounds Rehabilitation Project in collaboration with OBGMA and CMWD. Between 1963 and 1985, the spreading basins were used to divert excess flows from San Antonio Creek to recharge groundwater in the OVGB. The Wheeler Fire of 1985 prompted the VCWPD to purchase the spreading grounds property to construct a debris basin to protect the properties adjacent to San Antonio Creek. The construction of the debris basin resulted in the spreading basins being filled with excavated material and abandoned. Eventually, VCWPD secured funding to reconstruct the basins, and a new spreading facility was completed in 2014. The spreading grounds are anticipated to recharge an average of 126 AFY, and up to a maximum of 914 AFY, of water to the OVGB depending on hydrology, permitting issues, and water rights of downstream users (Walter 2015).

Private Water Purveyors

In addition to CMWD, multiple small private water companies provide water service within the OVGB. Siete Robles Mutual Water Company (MWC) was formed in 1940 and serves CMWD water, in addition to groundwater from a single production well, to approximately 300 people within its service area of approximately 50.4 acres. Senior Canyon MWC was formed in 1929 and serves CMWD water, in addition to groundwater from 6 production wells, to approximately 800 people within its service area of approximately 3,229.6 acres. Hermitage MWC was formed in 1979 and serves CMWD water to approximately 23 people within its service area of approximately 476.5 acres. Gridley Road Water Group was formed in 1930 and serves groundwater from a single production well to approximately 44 people within its service area of approximately 48.6 acres. Lastly, Ventura County Property Administrator, which is a County water purveyor managed by the General Services Agency Parks Department, serves groundwater from at least one production well to Soule Park Golf Course, an approximately 890.4 acre service area (VCWPD 2006).

2.1.2 Water Resources Monitoring and Management Programs

2.1.2.1 Groundwater Monitoring

Groundwater Elevations

In response to SB X7-6, passed by the State Legislature in 2009, DWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) Program to encourage collaboration between local monitoring parties and DWR, and to collect statewide groundwater elevations for the purpose of tracking seasonal and long-term groundwater elevation trends in groundwater basins statewide. DWR works cooperatively with local agencies, referred to as CASGEM monitoring entities, to collect and maintain groundwater elevation data in a manner that is readily and widely available to the public through the CASGEM online reporting system.

The VCWPD acts as the CAGSEM umbrella monitoring entity for Ventura County. VCWPD collects water level data quarterly or semi-annually, compiles the data it collects along with groundwater level measurements taken by other agencies, and uploads it to the CASGEM website a minimum of two times per year. A total of 39 wells in the OVGB have been monitored for groundwater levels as part of the CASGEM monitoring program with data available from as early as 1927. Currently, VCWPD monitors groundwater levels in 18 wells located throughout the OVGB on a quarterly basis (the number of wells monitored by VCWPD is based on accessibility). In addition, OBGMA measures groundwater levels using automated data loggers in seven wells. These include five privately owned production wells and the San Antonio Creek Spreading Grounds Rehabilitation Project (SACSGRP) depth-discrete monitoring well (DDMW) that consists of a nested series of four 2-inch diameter PVC casings and one 4-inch-diameter PVC casing. These also include the South-Central DDMW that consists of four nested 2-inch-diameter casings located in the southern portion of the Ojai Basin in an easement granted to the OBGMA by the City of Ojai. Both the VCWPD and OBGMA monitor well 04N22W04Q001S.

The pressure transducer data collected from the OBGMA monitored wells have been used to assess trends in groundwater levels in response to precipitation. Wells that are routinely monitored for groundwater levels are shown in Figure 2-4, Current Groundwater Elevation Monitoring Network and Table 2-3.

Table 2-3
Current Groundwater Elevation Monitoring Network

Well Name	SWN	CASGEM ID	Well Use	Data Logger Installed	Data Record	
					Start	*End*
—	04N22W05L008S	2816	Agricultural	No	10/4/1949	Present
—	04N22W06D001S	2818	Agricultural	No	10/28/1949	Present
Topa Topa Ranch Well No. 5[a]	04N22W04Q001S	2813	Agricultural	Yes	2/25/1966	Present
—	04N23W01K002S	2837	Domestic	No	12/6/1972	Present
—	04N22W07G001S	2826	Agricultural	No	10/5/1972	Present
—	04N22W08B002S	26333	Industrial	No	10/5/1972	Present
—	04N22W05H004S	39777	Agricultural	No	10/13/1972	Present
—	04N22W05M001S	2817	Agricultural	No	12/6/1972	Present
—	04N22W07B002S	2824	Agricultural	No	10/5/1972	Present
—	04N22W05D003S	2814	Agricultural	No	12/6/1972	Present
—	04N22W06M001S	2822	Agricultural	No	12/6/1972	Present
—	04N23W02K001S	46068	Agricultural	No	12/6/1972	Present
Mutual Well 4	04N22W06K003S	—	Municipal	No	12/6/1972	Present
—	05N22W32J002S	38094	Agricultural	No	11/18/1949	Present
—	04N23W12L002S	26381	Agricultural	No	12/4/1981	Present
—	04N22W06K012S	26330	Agricultural	No	12/19/1994	Present

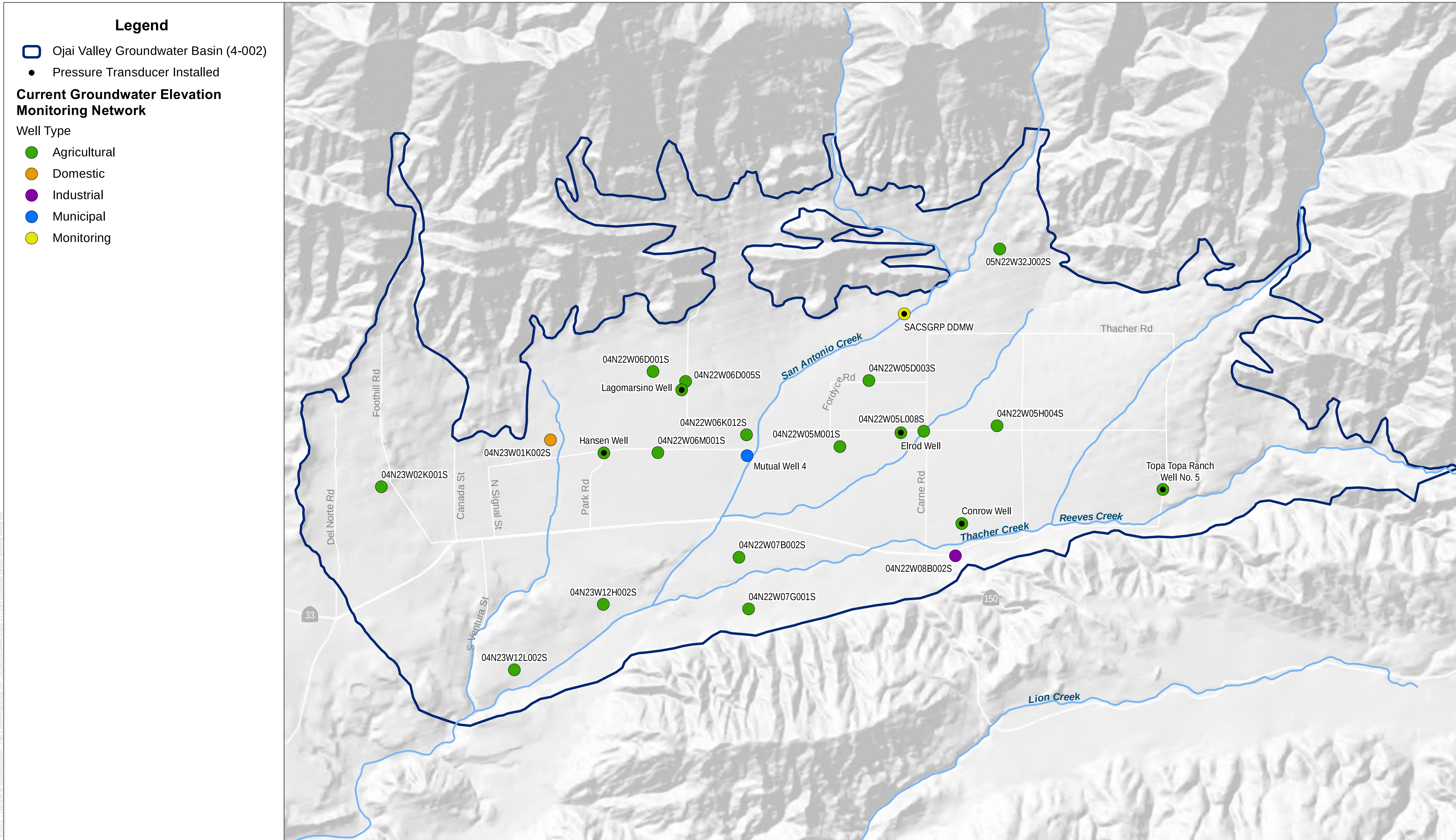
Table 2-3
Current Groundwater Elevation Monitoring Network

Well Name	SWN	CASGEM ID	Well Use	Data Logger Installed	Data Record	
					Start	*End*
—	04N23W12H002S	26380	Agricultural	No	12/19/1994	Present
—	04N22W06D005S	46108	Agricultural	No	1/31/1995	Present
SACSGRP DDMW	05N22W32P002S –P006S	—	Monitoring	Yes	2/21/2017	Present
South-Central DDMW	TBD	TBD	Monitoring	Yes	6/1/2021	Present
Lagomarsino Well	04N22W06E006S	—	Agricultural	Yes	10/25/2013	1/11/2019
Hansen Well	04N23W01J003S	—	Agricultural	Yes	8/15/2014	Present
Elrod Well	04N22W05L003S	—	Agricultural	Yes	2/14/2017	Present
Conrow Well	04N22W05Q001S	—	Agricultural	Yes	8/22/2014	4/19/2017

Source: OBGMA 2018; Dorrington pers. comm. 2021.
Notes: — = not available or not applicable; SWN = state well number; CASGEM = California Statewide Groundwater Elevation Monitoring Program. TBD = to be determined.
[a] The pressure transducer in Topa Ranch Well No. 5 had the surface cable cut and is currently suspended. The instrument is in the process of being recovered. The Conrow Well has changed ownership and is in need of update. The Lagomarsino Well logger may have had the cable cut by a contractor and has not been recovered, but is in the process of being replaced.

Groundwater Quality

SWRCB's Groundwater Ambient Monitoring and Assessment (GAMA) Program conducts comprehensive monitoring of California's groundwater quality, compiles and standardizes groundwater quality data across several different sources and regulatory programs and makes that data readily accessible to the public. In addition, GAMA conducts groundwater studies related to groundwater vulnerability, groundwater quality in domestic wells, and groundwater impacts associated with non-point sources of contamination. GAMA also contains a collection of scientific assessment reports that contain results of regionally specific groundwater quality investigations (GAMA 2020). Groundwater quality data from the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) is included in GAMA, including information on cleanup sites with the potential to impair water quality. The Regional Water Quality Control Boards (RWQCBs) also oversee several regulatory programs that collect and report water quality data, such as the Irrigated Lands Regulatory Program. Some of these data are accessible in GAMA. In addition, the VCWPD collects annual groundwater quality data from several wells in the OVGB and produced annual reports of groundwater quality between 2010 and 2015. Groundwater quality data for the OVGB from both the SWRCB's GAMA online database and VCWPD's annual reports, as well as groundwater quality data provided by VCWPD in electronic format (Dorrington pers. comm. 2021), was used in the preparation of the GSP (see Section 2.3.4.4, Groundwater Quality).



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD; OBGMA

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FIGURE 2-4

Current Groundwater Elevation Monitoring Network

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Groundwater Extraction

The OBGMA is mandated by its enabling act to monitor groundwater extractions from all active wells within the OVGB. The OBGMA requires well operators to accurately measure and report extractions as precisely as possible, regardless of volume extracted, using flow meters and a standardized Groundwater Extraction Form in January, April, July, and October of each year. Additionally, because groundwater extractions are self-reported, OBGMA requests photographs or field verifies well meters when reported production rates appear anomalous. The number of active wells varies from year to year due to construction and destruction of wells, well owners not pumping due to changes in agricultural use, or well owners obtaining water from other sources. Currently, there are approximately 184 active wells in the OVGB (Figure 2-5, Groundwater Well Locations and Density per Square Mile). The reported total annual groundwater extraction from the OVGB between 1985 and 2020 ranged from 3,239 AF in 2016 to 7,697 AF in 1992, for an average of approximately 4,893 AFY[5] (OBGMA 2018, 2021a; Figure 2-6, Historical Groundwater Extraction and Estimated Water Use by Sector). Over the 33-year period of record, private well production accounted for, on average, approximately 64% of total groundwater extracted from the OVGB while municipal well production accounted for approximately 36%. In 2018, the total groundwater extracted from the OVGB was approximately 4,515 AF, of which approximately 2,565.6 AF (57%) was for agriculture, 418.6 AF (9%) was for domestic, and 1,530.8 AF (34%) was for municipal use, including CMWD and other municipal pumping (OBGMA 2019; Figure 2-6).

2.1.2.2 Precipitation and Streamflow Monitoring

The primary sources of historical and current climate and streamflow data for the OVGB include VCWPD, DWR, the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Geological Survey (USGS). Precipitation and streamflow data are compiled by the VCWPD and made accessible through the County's Hydrologic Data Webpage. Additional climate data are available from NOAA's Climate Data Online service, and streamflow data from the USGS National Water Information System (NWIS) Mapper. In addition, the OBGMA conducts monthly manual stream discharge monitoring and continuous stream stage monitoring on lower San Antonio Creek. The data from these monitoring entities are used to inform development of the groundwater basin setting, hydrogeological conceptual model, and groundwater budget.

Table 2-4 lists all the precipitation stations and stream gauges within and in the vicinity of the OVGB, along with their status (active/inactive) and their period of record. Figure 2-7, Weather Stations and Average Annual Precipitation in the OVGB shows all listed stations, except for the closest California Irrigation Management Information System (CIMIS) station (Santa Paula), which is located approximately 10 miles south-southeast of the southern OVGB boundary. Figure

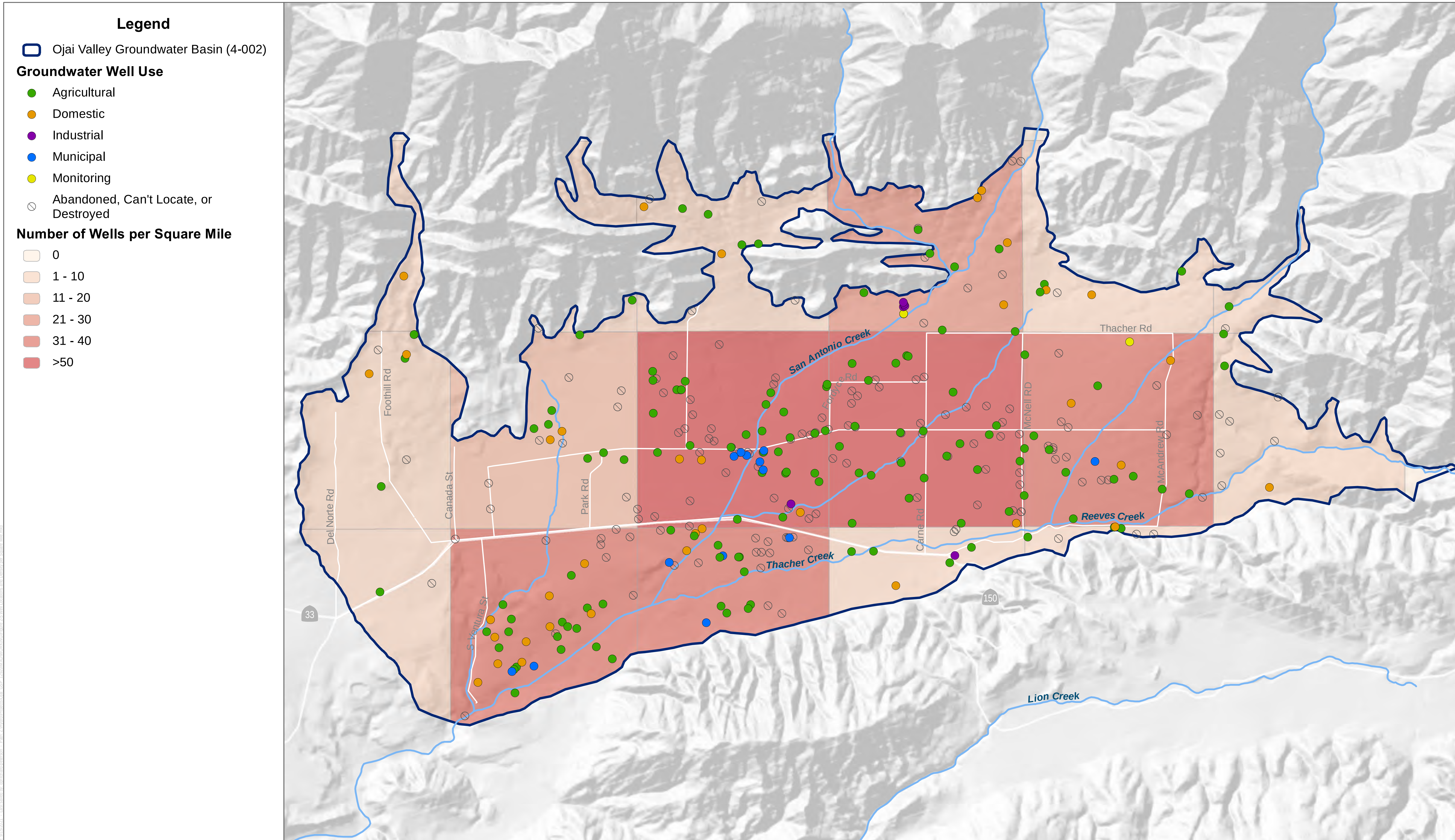
[5] The Ojai Basin Groundwater Model estimates total annual groundwater extraction over the period between 1985 to 2018 of approximately 4,100 AFY (DBS&A 2020b). Prior to 1993, groundwater extraction in the OVGB was not completely metered and modeled estimates differ from OBGMA reporting.

2-7 also shows the location of the OBGMA manual stream monitoring site on lower San Antonio Creek at Skunk Ranch Road.

Table 2-4
Weather Stations and Stream Gauges in the Vicinity of the OVGB

Station Name (Agency No./ID)	Latitude	Longitude	Elevation (Feet amsl)	Status	Period of Record
Weather Stations					
National Oceanic and Atmospheric Administration					
Ojai, CA, US (USC00046399)	34.4477	-119.2275	745	Active	5/1/1905 – Present
County of Ventura					
Ojai-County Fire Station (030D)	34.44806	-119.2313	760	Active	10/1/1980 – Present
Ojai-Thacher School (059)	34.46664	-119.1804	1,440	Active	10/1/1915 – Present
Upper Ojai-Happy Valley (064B)	34.43722	-119.1899	1,320	Active	10/1/1970 – Present
Ojai-Bower Tree Farm (153A)	34.44139	-119.2219	780	Active	10/1/1977 – Present
Ojai-Stewart Canyon (165)	34.46053	-119.2486	970	Active	10/1/1956 – Present
Meiners Oaks-County Fire Station (218)	34.44461	-119.2852	730	Active	10/1/1964 – Present
Senior Gridley Canyon - Type B (300)	34.48192	-119.2088	2,514	Active	10/1/1992 – Present
Nordhoff Ridge - Type C (303)	34.50989	-119.2308	4,112	Active	10/1/1997 – Present
California Irrigation Management Information System					
Santa Paula (198)	34.324639	-119.10488	218	Active	3/30/2005 – Present
Santa Paula (58)	34.301667	-119.11889	175	Inactive	7/30/1987 – 2/15/1991
Stream Gauges					
County of Ventura					
San Antonio Creek at Camp Comfort (616)	34.42703	-119.2585	577	Active	10/1/2018 – Present
Fox Canyon Drain below Ojai Ave (631)	34.44742	-119.2411	734	Inactive[a]	10/1/1967 – 10/1/2008
San Antonio Cr above Spreading Grounds (648)	34.46636	-119.2053	—	Active[b]	10/1/2013 – 9/30/2014
San Antonio Creek at Grand Ave (649)	34.45436	-119.2218	—	Active[b]	10/1/2013 – 9/30/2016
San Antonio Creek at Hwy 150 (650)	34.44914	-119.2248	—	Inactive	10/1/2013 – 9/30/2014
Thacher Creek at Boardman Road (669)	34.44481	-119.2227	—	Active[ab]	10/1/2002 – 10/1/2008
San Antonio Creek at Hwy 33 (605)	34.38039	-119.3046	307	Inactive	10/1/1949 – 10/1/2014
San Antonio Creek at Old Creek Road (605A)	34.38256	-119.3027	—	Active[b]	10/1/2013 – 9/30/2019
U.S. Geological Survey					
San Antonio Creek at Casitas Springs (11117500)[c]	34.38039	-119.3046	307	Inactive	10/1/1949 – 9/29/1983
San Antonio Creek Near Ojai CA (11117000)	34.42694	-119.2575	—	Inactive	10/1/1927 – 9/29/1932

Source: NOAA 2020; CIMIS 2020; VCWPD 2020; USGS 2020a.
Notes: amsl = above mean sea level; — = data are not available.
a Peak event only site.
b Site listed as active on the VCWPD Hydrologic Data Server but period of record does not extend to present.
c Site is same as station 605 monitored by VCWPD.



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD; OBGMA

DUDEK

0 0.5 1 Miles

FIGURE 2-5

Groundwater Well Locations and Density per Square Mile

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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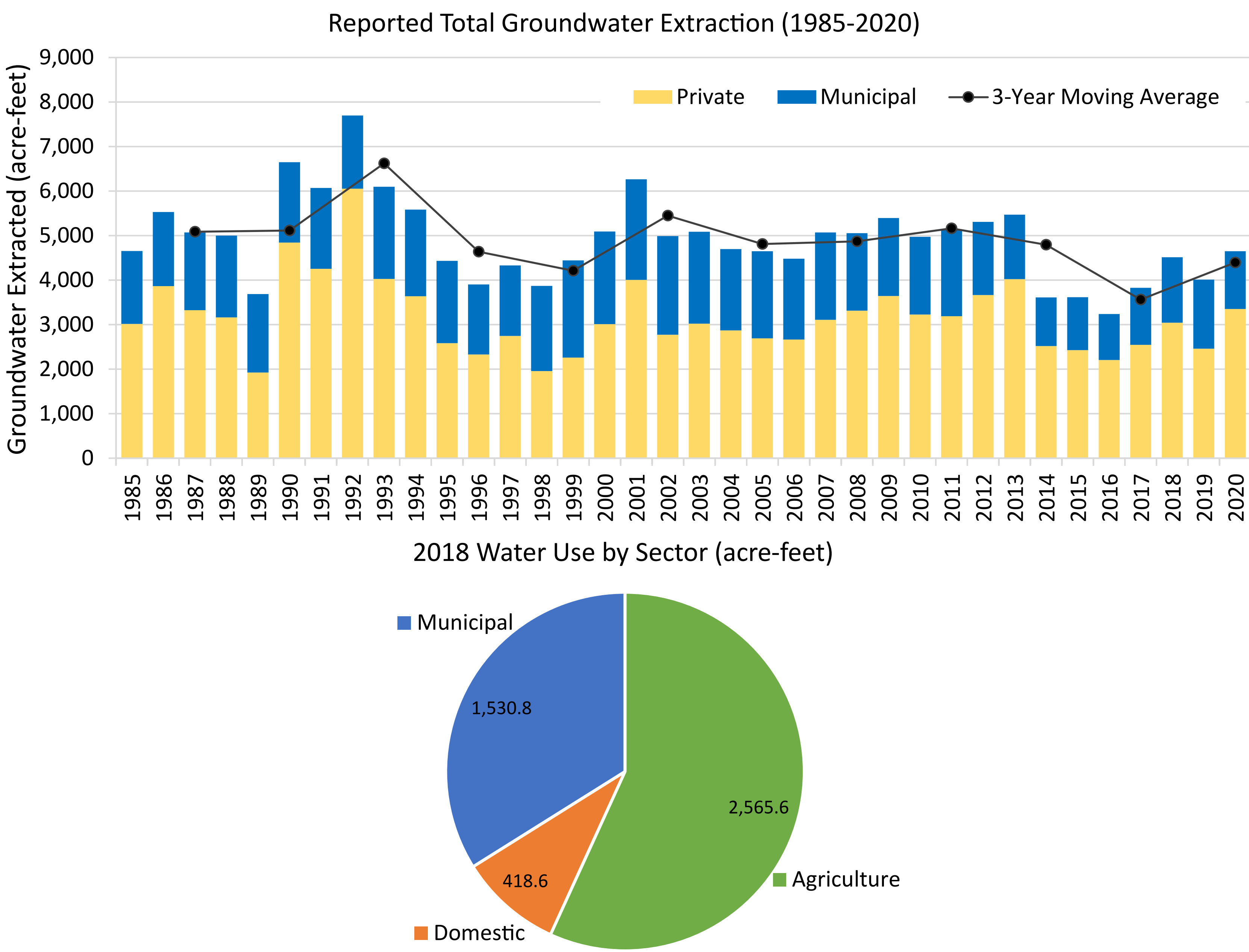

SOURCE: OBGMA

DUDEK

FIGURE 2-6

Historical Groundwater Extraction and Estimated Water Use by Sector

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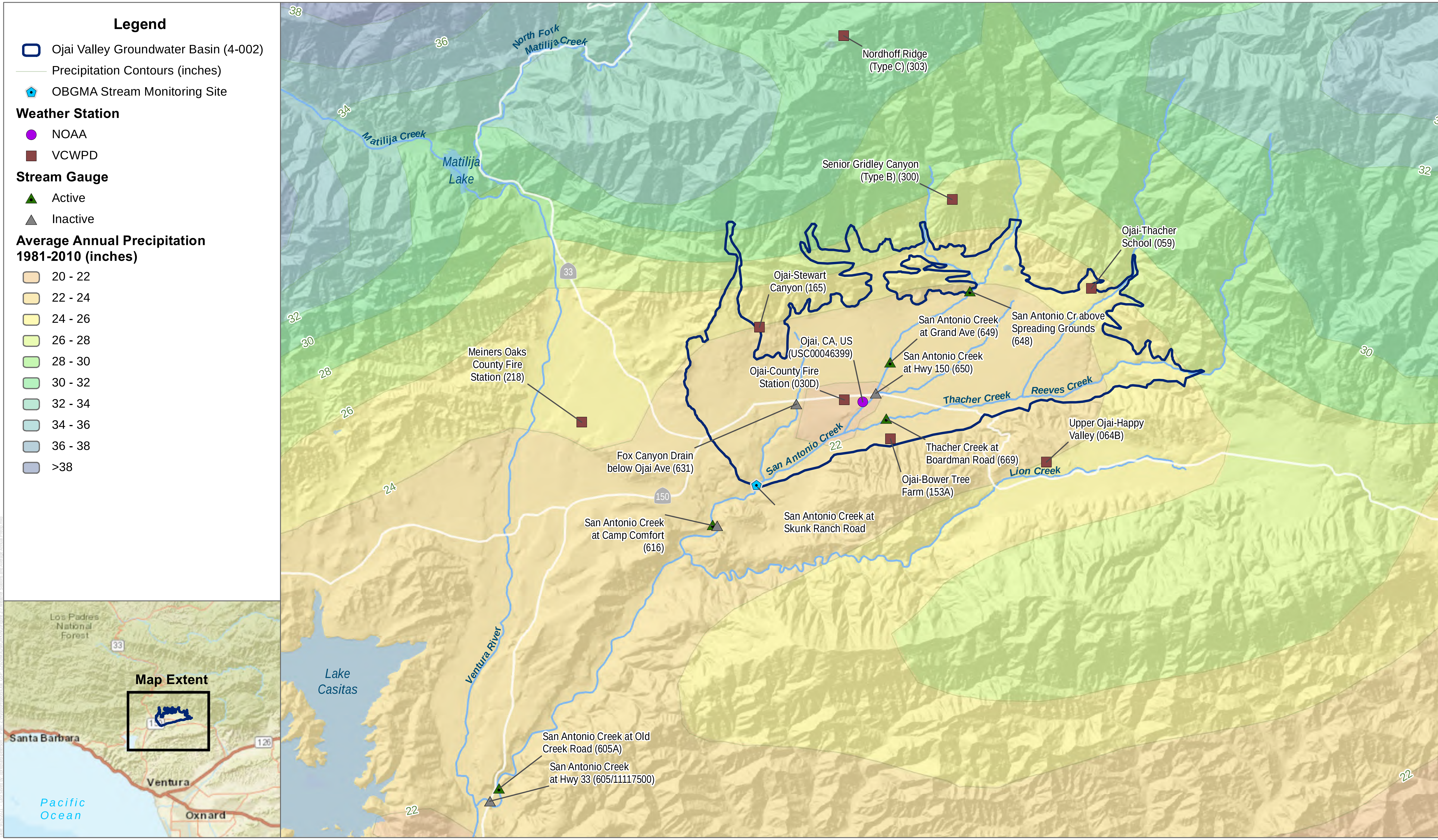

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NOAA; VCWPD; PRISM

DUDEK 0 1 2 Miles

FIGURE 2-7

Weather Stations and Average Annual Precipitation in the Plan Area

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.1.2.3 Management Plans

Groundwater Management Plan for the Ojai Basin

In 1992, the State Legislature provided an opportunity for local groundwater management with the passage of Assembly Bill (AB) 3030, the Groundwater Management Act (California Water Code, Part 2.75). Many basins developed a groundwater management plan (GWMP) to provide planned and coordinated monitoring, operation, and administration of groundwater basins with the goal of long-term groundwater resource sustainability. The Groundwater Management Act was first introduced in 1992 as AB 3030 and has since been modified by SB 1938 in 2002 and AB 359 in 2011. This legislation has largely been superseded by SGMA.

The Ojai Basin Groundwater Management Agency was created in 1991 with the mission "to preserve the quantity and quality of groundwater in the Ojai Valley Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the basin" (OBGMA 1994). The creation of the OBGMA required a special act of the California legislature, the Ojai Basin Groundwater Management Agency Act, or SB 534 (OBGMA 1994). The OBGMA adopted a GWMP under AB 3030 in 1994 (OBGMA 1994). The initial GWMP drew from existing data and sources and provided a review of groundwater conditions in the OVGB. It also provided a detailed action plan for the effective management of the OVGB consisting of five broad goals including: (1) understanding the basin, (2) controlling exports: protecting and managing the basin, (3) encouraging supporting activities, (4) effective communication, and (5) efficient administration (OBGMA 1994). Since the development of the initial GWMP in 1994, OBGMA prepared updates to the GWMP in 2007 and 2018 (OBGMA 2018).

Ventura County Integrated Regional Water Management Plan

The Ventura County Integrated Regional Water Management Program (IRWM) began in 2005 following the passage of Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002. Chapter 8 of Proposition 50 authorized the legislature to appropriate $500 million for IRWM planning, the intent of which was to encourage agencies to develop plans using regional water management strategies for water resources and to develop projects using these IRWM strategies to protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water. The Watersheds Coalition of Ventura County (WCVC), the IRWM planning group for Ventura County, developed and then adopted its first IRWM plan in 2006, and under Proposition 50 received $25 million for 11 countywide projects. The WCVC Integrated Regional Watershed Management Plan (IRWM Plan) was updated under the Proposition 84 Guidelines in 2013 and received approximately $56.2 million for 22 countywide projects. Several WCVC IRWM Proposition 50 and 84 grant funded projects were completed in the OVGB, including the San Antonio Creek Spreading Grounds

Rehabilitation Project Phases 1 and 2, and the Senior Canyon Water Company Automation Upgrades Project.

In 2019, another update to the IRWM Plan was prepared to ensure that the County remains eligible for funding under the Proposition 1 guidelines (WCVC 2019). The Proposition 1 IRWM Grant Program provides funding for projects that help meet the long-term water needs of the state, including the need to decrease reliance on imported water sources, increase infrastructure resilience to the impacts of climate change, and locally manage and prioritize watershed resources and water infrastructure projects. The 2019 update focused on improving the previous IRWM Plan and incorporating the outcome of the SGMA and the formation of groundwater sustainability agencies (WCVC 2019). The IRWM Plan region encompasses all of Ventura County.

Urban Water Management Plan

Casitas Municipal Water District water supply management is outlined in the 2020 Urban Water Management Plan (CMWD 2021). All urban water suppliers (as defined in California Water Code Section 10617), including CMWD, are required to prepare water management plans on a 5-year cycle.[6] These plans describe existing and planned water supply sources, identify human and/or environmental threats to water reliability, outline how they will meet state-mandated water conservation targets,[7] establish water shortage contingency plans, and assess whether their existing and future water supplies will be sufficient over a 20-year planning horizon. Projections of growth and land use in the service area along with drought scenarios are incorporated in the long-term water supply assessment. Although CMWD does not meet the requirements of an agricultural water supplier,[8] CMWD voluntarily completed a combined urban water management plan (UWMP) and Agricultural Water Management Plan in 2015 (Milner 2016), and included elements of agricultural management planning in its 2020 UWMP (CWMD 2021). In 2015, CMWD supplied 8,048 AF of water to approximately 5,732 acres of irrigated crops including avocados, hay, lemons, oranges, strawberries, tangerines, and walnuts (Milner 2016). In 2020, CMWD supplied 5,116 AF of water for agricultural irrigation (CMWD 2021).

CMWD's annual water demand has varied historically from a low of approximately 8,545 AF in 2019 to a high of approximately 24,416 AF in 1989. Agricultural sales account for approximately 50% of CMWD's total water demand, followed by sales to other water agencies (35%) and retail sales (15%). CMWD's water supply comes from local surface water stored in Lake Casitas and

6 Per California Water Code Section 10617, an urban water supplier means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly, to more than 3,000 customers or supplying more than 3,000 AFY of water.

7 The Water Conservation Act of 2009 (i.e., SB X7-7) requires that the state reduce urban water consumption by 20% by the year 2020, as measured in gallons per capita per day.

8 Per California Water Code Section 10608.12(a), an agricultural water supplier means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water.

local groundwater extracted from Mira Monte Well. CMWD's water demand from Lake Casitas reached a high of 26,180 AF in calendar year 1989, but has since remained consistently lower with a decline to 7,668 AF in calendar year 2019 in response to water resource changes by large customers, heightened customer awareness of water resource conditions, and CMWD's Water Efficiency and Allocation Program (CMWD 2021).

As part of the 2020 UWMP update, CMWD's future water supplies and demands were assessed. For the period from 2020 to 2040, CMWD's projected water supply is 19,310 AFY. This estimate assumes that 14,865 AFY of surface water will be sourced from Lake Casitas, 145 AFY of groundwater will be pumped from Mira Monte Well, 2,000 AFY of State Water Project (SWP) water will be delivered via the Ventura-Santa Barbara Counites Intertie (discussed below), and up to 2,300 AFY will be pumped from the Ojai wellfield. Based on CMWD's water supply reliability assessment, no water shortages are predicted based on average and single-dry years planning evaluations (CMWD 2021). Given that Lake Casitas and groundwater basin storage can sustain extended drought periods, a few dry years have little effect on Casitas' supply availability. However, supplies can become limited during extended drought periods and Casitas implements its Water Efficiency and Allocation Program as a demand management tool as Lake Casitas storage declines. This demand management helps to stretch supplies longer than the 5-year drought period evaluated in the 2020 UWMP (CMWD 2021).

In addition to the UWMP, CMWD has a Water Shortage Contingency Plan, a Staged Demand Reduction Program, and a Water Efficiency and Allocation Program. CMWD plans to continue to develop and implement aggressive water conservation programs to overcome potential future water shortage issues. CMWD does not plan to obtain additional water through surface water transfers and exchanges, from desalinated water, or from recycled water. CMWD does, however, have an entitlement to 5,000 AFY of SWP water that it is currently not able to receive because CMWD does not have a physical connection to the SWP. CMWD has been involved in several studies to bring SWP water to the service area. Ultimately, either construction of a pipeline or interagency coordination and water transfers and exchanges would be required for CMWD to access its SWP entitlement (Milner 2016). Funding is currently being pursued for construction of a 1.5-mile pipeline between CMWD and Carpinteria Valley Water District, referred to as the Ventura-Santa Barbara Counties Intertie, which would increase the size of a current Intertie connection as well as build pump stations to enable the ability to move 2,000 AFY on average of Casitas' SWP supplies to the Casitas system (CMWD 2021).

UWMPs provide valuable data on regional water demand and supply, provide a means of measuring how effective water conservation and water use efficiency efforts have been, and set the framework for evaluating and prioritizing future capital improvements. With groundwater being an important source of water supply for the OVGB, the sustainable management criteria as well as the projects and management actions developed in this GSP draw from information in prior UWMPs and are likewise expected to heavily inform the next UWMP cycle.

2.1.2.4 Regulatory Programs

Porter-Cologne Water Quality Control Act and Clean Water Act Permitting

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act; codified in California Water Code, Section 13000 et seq.) is the primary state water quality control law for California. Whereas the federal Clean Water Act applies to all waters of the United States, the Porter-Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters.[9] The Porter-Cologne Act is implemented by SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state could cause pollution or nuisance, including impacts to public health and the environment. The OVGB is located in the northern area of the RWQCB, Los Angeles Region (RWQCB Region 4) and within the Ventura River Hydrologic Unit, per the RWQCB Water Quality Control Plan for the Los Angeles Region (Los Angeles Basin Plan; RWQCB 2014). These statutes are relevant to the GSP in that they regulate the quality of point-source discharges (e.g., wastewater treatment plant effluent, industrial discharges, and on-site wastewater treatment systems (OWTSs) and non-point source discharges (e.g., stormwater runoff) to the underlying aquifer.

The Los Angeles Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Los Angeles Basin Plan (California Water Code Sections 13240–13247). The Porter-Cologne Act provides the RWQCBs with authority to include in their Basin Plans water discharge prohibitions applicable to particular conditions, areas, or types of waste. The Los Angeles Basin Plan is continually being updated to include amendments related to implementation of total maximum daily loads, revisions of programs and policies within the RWQCB Los Angeles Region, and changes to beneficial use designations and associated water quality objectives. The beneficial uses for groundwater are identified in the Los Angeles Basin Plan as being suitable for municipal and domestic supply, agricultural supply, industrial process supply, and industrial service supply (RWQCB 2014). Unlike beneficial uses of surface water (which vary based on individual surface water body), the RWQCB designates the same beneficial uses for all DWR-designated groundwater basins in the Los Angeles Region.

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[9] "Waters of the state" are defined in the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]).

The Los Angeles Basin Plan defines water quality objectives for groundwater generally (for taste, odors, and radioactivity), as well specific to beneficial uses (i.e., municipal/domestic supply and agricultural supply). The water quality objectives for municipal/domestic supply are the same as primary drinking water standards (i.e., maximum contaminant levels [MCLs]) found in Title 22 of the California Code of Regulations (CCR). For agricultural uses of groundwater, the Los Angeles Basin Plan provides water quality objectives consisting of maximum concentrations for various inorganic chemicals (including certain metals and nitrate) and guidelines for various physical and general mineral properties (RWQCB 2014, Tables 3-8 and 3-9). The Los Angeles Basin Plan defines additional objectives for select constituents specific to certain groundwater basins, including the OVGB. For the OVGB, the Los Angeles Basin Plan has defined additional objectives for total dissolved solids (TDS), sulfate, chloride, and boron (RWQCB 2014, Table 3-13).

The Porter-Cologne Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. California Water Code Section 13260(a) requires that any person discharging waste or proposing to discharge waste—other than to a community sewer system—that could affect the quality of the waters of the state file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States), a National Pollutant Discharge Elimination System (NPDES) permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. WDRs typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits. The NPDES and WDR programs regulate construction, municipal, and industrial stormwater and non-stormwater discharges under the requirements of the Clean Water Act of 1972 and the Porter-Cologne Act, respectively. The construction and industrial stormwater programs are administered by SWRCB, whereas individual WDRs, low-threat waivers, and other OVGB-specific programs are administered by the Los Angeles RWQCB. Programs and policies that have particular relevance to the OVGB include the following:

1. **Stormwater General Permits (Construction and Industrial General Permits).** SWRCB and the Los Angeles RWQCB administer a number of general permits that are intended to regulate activities that collectively represent similar threats to water quality across the state and thus can appropriately be held to similar water quality standards and pollution prevention BMPs. Construction projects more than 1 acre in size are regulated under the statewide Construction General Permit and are required to develop and implement a stormwater pollution prevention plan. Six separate annual reports were submitted for the 2019-2020 reporting period within the OVGB (SWRCB 2020a), indicating that six projects are required to implement a stormwater pollution prevention plan. Similarly, industrial sites are also

required to develop a stormwater pollution prevention plan that identifies and implements BMPs necessary to address all actual and potential pollutants of concern. Currently there is one entity within the OVGB subject to an industrial stormwater pollution prevention plan. The City of Ojai, located at 408 South Signal Street, Ojai, CA, 93023 submitted an Annual Report for the 2019-2020 reporting period and indicated that no pollutants were present at The City of Ojai facility (SWRCB 2020a).

2. **Irrigated Lands Regulatory Program.** Water discharges from agricultural operations include irrigation runoff, flows from tile drains, irrigation return flows, and stormwater runoff. These discharges can affect water quality by transporting pollutants, including pesticides, sediment, nutrients, salts (including selenium and boron), pathogens, and heavy metals, from cultivated fields into surface waters and/or groundwater. To prevent agricultural discharges from impairing the waters that receive these discharges, the Irrigated Lands Regulatory Program (ILRP) regulates discharges from irrigated agricultural lands. This is done by issuing WDRs or conditional waivers of WDRs to growers. These orders contain conditions requiring water quality monitoring of receiving waters and corrective actions when impairments are found. Through a series of events related to the passage of SB 390 (Alpert), the ILRP originated in 2003. Initially, the ILRP was developed for the Central Valley RWQCB. As the Central Valley RWQCB ILRP progressed, a groundwater quality element was added to the filing requirement for agricultural lands that had previously been subjected to only surface water discharge concerns. To date, the different RWQCBs are in different stages of implementing the ILRP. The Los Angeles RWQCB has a conditional waiver program for irrigated agricultural lands throughout the region, focusing on priority water quality issues such as pesticides and toxicity, nutrients, and sediments—especially nitrate impacts to drinking water sources. According to the SWRCB GeoTracker database, there are no enrollees to the Irrigated Lands Regulatory Program in the OVGB (SWRCB 2020b).

3. **OWTS Requirements.** Requirements for the siting, design, operation, maintenance, and management of OWTSs are specified in SWRCB's OWTS Policy (SWRCB 2018). The OWTS policy sets forth a tiered implementation program with requirements based upon levels (tiers) of potential threat to water quality. The OWTS policy includes a conditional waiver for on-site systems that comply with the policy. On-site sewage disposal systems in Ventura County are regulated by the Environmental Health Division Liquid Waste Program. Ventura County regulations for on-site sewage disposal systems set forth specific requirements related to (1) permitting and inspection of on-site systems; (2) septic tank design and construction; (3) drywell and disposal field requirements; and (4) servicing, inspection, reporting, and upgrade requirements. Standards pertaining to system sizing and construction are contained in the California (Uniform) Plumbing Code. Additional

requirements for on-site sewage disposal systems in Ventura County are adopted as part of community plans or as project-specific mitigation measures.

4. **Individual WDRs.** Individual WDRs are required for point source discharges to land not otherwise covered under a general permit program or conditional waiver. The purpose of individual WDRs are to define discharge prohibitions, effluent limitations, and other water quality criteria necessary to ensure discharges do not result in exceedances of Los Angeles Basin Plan objectives for receiving waters, including groundwater. There is a total of 11 individual WDRs in the OVGB—five draft, three historical, and three active WDRs. The three active WDRs include the Krishnamurti Education Center (WDR100039613), Monica Ros School, Inc. (WDR100000508), and The Thacher School Wastewater Treatment Plant (WDR100000725). Both the Krishnamurti Center and Monica Ros School submit quarterly monitoring reports for the discharge of wastewater to several on-site OWTSs. The Thacher School Wastewater Treatment Plant submits quarterly monitoring reports for the discharge of wastewater to a 40,000 gallon per day design peak capacity on-site wastewater treatment plant where, once treated, the effluent is discharged to a 24,000 square foot buried leach field. The Thacher School Wastewater Treatment Plant has a groundwater monitoring network consisting of two wells, one up-gradient (state well number (SWN) 05N22W33J01S) and one down-gradient (MW-1R) of the treatment plant, in addition to a third well (SWN 05N22W33R01S) that is used to calculate groundwater flow direction, that are monitored quarterly for a variety of constituents including nitrate, TDS, chloride, sulfate, and boron (SWRCB 2020b).

Implementation of the GSP would not affect the applicability or implementation of the regulatory programs discussed above, and continued implementation of Porter-Cologne Act and the Clean Water Act permitting would advance the GSP's sustainability goals related to water quality. The County requires new development and redevelopment projects proposed within the OVGB to comply with NPDES permits, WDRs, and OWTS requirements as part of its permitting and approval process. These programs will continue to provide benefits to water quality by requiring both point and non-point discharges to comply with Los Angeles Basin Plan water quality objectives and to be protective of Los Angeles Basin Plan beneficial uses throughout SGMA's planning and implementation horizon. In addition, the application of stormwater permits means specific performance standards for capture and infiltration of stormwater runoff would be implemented where applicable, providing opportunities for enhanced recharge of the OVGB.

Groundwater Well Permitting

Statewide standards for the construction, repair, reconstruction, or destruction of wells are found in DWR Bulletin 74-81 and 74-90 (i.e., California Well Standards) (DWR 1981, 1991). The California Well Standards include requirements to avoid sources of contamination or cross-contamination, proper sealing of the upper annular space (i.e., first 50 feet), disinfection of the well following construction work, use of appropriate casing material, and other requirements. In October 2017, Governor Brown signed SB 252, which became effective on January 1, 2018. SB 252 requires well permit applicants in critically overdrafted basins to include information about the proposed well, such as location, depth, and pumping capacity. The bill also requires the permitting agency to make the information easily accessible to the public and the GSAs. The OVGB is not designated as critically overdrafted.

The Ventura County Public Works Agency issues groundwater well permits in the OVGB. In December 2014, the Ventura County Ordinance No. 4468 was adopted which regulates the construction, maintenance, operation, modification, and destruction of groundwater wells. Ventura County requires well permits for any construction, modification, replacement, repair, or destruction of wells. Permit requirements include "information as the Agency may deem necessary in order to determine whether underground waters will be protected" (Chapter 8, 4813, C8). Ventura County well construction or destruction activity standards are required to comply with the DWR Well Standards Bulletin Nos. 74-81, 74-90, and 74-9. New water wells must be equipped with a flow meter and calibrated every 3 years; however, de minimis extractors (those producing less than 2 AFY) are exempt from this requirement. Completion logs are required for all wells and geophysical logs are required where necessary to prevent cross contamination of pumping zones. Section 4826 pertains to the Aquifer Protection Program, the purpose of which is to require destruction or repair of wells that are causing groundwater pollution. The provision requires annual reporting of water extractions, time of operation, static groundwater levels, and pump test data if available. Based on these data, all wells are classified in regard to location and operational condition. Due to pervasive drought conditions, as of October 28, 2014, Section 4826.1 prohibited the construction of new wells or modification or repair of existing wells within the unincorporated area of Ventura County except under specific circumstances. With the initiation of SGMA, the ordinance was modified to include only basins designated as high or medium priority by DWR, which includes the OVGB. In addition, OBGMA requires all wells in the OVGB to be registered and extractions reported in accordance with Ordinance No. 1.

Title 22 Drinking Water Program

The SWRCB DDW regulates public water systems in the state to ensure the delivery of safe drinking water to the public. A public water system is defined as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Private domestic wells, wells associated with drinking water systems with less than 15 residential service connections, industrial wells, and irrigation wells are not regulated by DDW.

DDW enforces the monitoring requirements established in Title 22 of the California Code of Regulations for public water system wells, and all the data collected must be reported to DDW.

Title 22 also designates the MCLs for various waterborne contaminants, including volatile organic compounds, non-volatile synthetic organic compounds, inorganic chemicals, radionuclides, disinfection byproducts, general physical constituents, and other parameters.

Water Supply Planning and Water Use Efficiency

Over the years, California has passed a series of Senate Bills, including SB X7-7, SB 610, SB 221, SB 1262, and most recently SB 606, that together outline the regulatory framework for water conservation and water supply planning, and for considering issues of water availability in the environmental and permitting process for land use plans, projects, and subdivisions. These bills have been codified in the California Water Code Sections 10608–10609.42, which establish water use and demand reduction targets; Sections 10610–10657, which address UWMPs; and Sections 10910–10914, which address water supply assessments, as well as California Government Code Section 66473.7 (part of the Subdivision Map Act of 1893), which contains requirements related to written verifications (i.e., "will-serve" letters). Collectively, these laws, along with the California Environmental Quality Act of 1970 (CEQA), prompt cities, counties, special districts, and water suppliers to evaluate growth in a broader geographic and temporal context, by coordinating land use planning with water availability and sustainability. CMWD's UWMP is described in greater detail in Section 2.1.2.3, Management Plans. SB 1262, which became effective in 2017, made changes to existing law to integrate to some extent existing law governing written verifications and water supply assessments with the passage of SGMA. The sections of the California Water Code addressing water supply now contain several provisions relating specifically to groundwater, which if used wholly or in part to supply a project or subdivision, triggers additional analytical steps that could expand the necessary scope of a CEQA document, water supply assessment, and/or written verification, as applicable. SB 1262 added language in the subdivision map act clarifying additional considerations for when part or all of the water supply comes from groundwater, especially in adjudicated basins, basins in critical overdraft, and/or basins designated as high or medium priority pursuant to SGMA. In addition to incorporating information from UWMPs, water supply assessments may incorporate relevant information from GSPs prepared pursuant to SGMA.

AB 1668 and SB 606, passed in May 2018, would require the SWRCB, in coordination with DWR, to adopt long-term standards for the efficient use of water, as provided, and performance measures for commercial, industrial, and institutional water use on or before June 30, 2022. The bill, among other things, establishes a standard for indoor water use of 55 gallons per capita daily to be reached by 2025, 52.5 gallons per capita daily beginning in 2025, decreasing to 50 gallons per capita daily beginning in 2030, or as determined jointly by DWR and SWRCB in accordance with necessary studies and investigations. DWR will also adopt long-term standards for outdoor residential water use and outdoor irrigation in connection with commercial, industrial, and institutional water use. With the 20% by 2020 conservation goal pursued in the Water Conservation Act of 2009, these bills extend UWMP requirements, but will measure compliance with uniform standards based on the aggregate amount of water that would have been delivered the previous year by an urban retail water supplier if all that water had been used efficiently (rather than relative to a water district's baseline). The legislation has a variance process available to allow for exceptions in special circumstances approved by DWR. AB 1668 continues the requirements for urban water suppliers to submit UWMPs every 5 years (though in years ending in 6 and 1 instead of 0 and 5), and makes water suppliers ineligible for any water grant or loan if it does not submit a UWMP. The bills also add requirements for agricultural water management.

Operational Flexibility and Conjunctive Management Considerations

Operational flexibility is a key consideration in integrated water resource management because it helps water purveyors adapt to known legal, operational, and environmental constraints and plan for an uncertain future, especially as it relates to drought resiliency and the effects of climate change. Operational flexibility can be measured over a given time horizon and/or geographic scale (e.g., water district service area) as the difference between available water supply and service area demand. Operational flexibility is maximized when a water purveyor has a large variety of sources in a water supply portfolio, when it has local control over such sources, and when such sources are connected to each other (e.g., conjunctively managed). On a general statewide scale, water purveyors are increasingly looking to minimize reliance on imported water supplies by promoting stormwater recharge, maximizing wastewater recycling, and sustainably developing local sources of water.

CMWD draws from two sources—Lake Casitas (maintained by runoff from the Ventura River and the subwatersheds surrounding the reservoir) and groundwater—which differ in terms of the volume available, timing of peak availability, and reliability. Climate and regulatory constraints (e.g., water quality standards, water rights, and minimum environmental flows) have historically had a greater impact on the availability of surface water supplies. With the passage of SGMA and the sustainable management criteria established in this GSP (Chapter 3), once adopted, minimum thresholds may be established for each sustainability indicator. OBGMA has exercised its authority to manage the OVGB in a manner that avoids critical overdraft and manages the OVGB conjunctively with its surface water supplies in accordance with its adopted GWMP (OBGMA 2018). OBGMA's planning documents identify CMWD as a "backup" water supply in the event groundwater supplies become depleted. OBGMA does not currently have a groundwater banking plan within the OVGB.

The GSP complements and enhances existing projects and programs currently in place to maximize beneficial use of water resources and increase operational flexibility within the OVGB.

2.1.3 Land Use Considerations

The following section presents a review of population and land use characteristics of the OVGB, and the various land use plans and their applicability to groundwater resource management. State law requires that all cities and counties adopt a comprehensive, long-term general plan that outlines physical development of the county or city. The general plan must cover a local jurisdiction's entire planning area so that it can adequately address the broad range of issues associated with the city or county's development. Ultimately, the general plan expresses the community's development goals and embodies public policy relative to the distribution of future public and private land uses. The general plan may be adopted as a single document or as a group of documents relating to subjects or geographic segments of the planning area.

Most of the planning documents relevant to the OVGB fall under the umbrella of the Ventura County General Plan, which is a "living document" made up of many parts that are periodically updated by the County's Planning Division. The core structure of the document is to have broad countywide land use policies that then get refined in various community plans—the local setting, policy issues, and community concerns are taken into account through a public participation process. All elements of a general plan, whether mandatory or optional—including community plan principles, goals, objectives, policies, and plan proposals—must be internally consistent with each other and all elements have equal legal status (i.e., no element is legally subordinate to another).

The development and implementation of the GSP is relevant to several general plan and community plan elements, and vice versa, because both contain policies and implementation actions that are intended to be protective of water resources. All applicable land use plans acknowledge the major constraints on growth that the lack of water availability presents, and the County's general plans broadly encourage water conservation, and prohibit development, such as tentative map and subdivision approvals, unless the availability of water can be proven. Several plan elements intersect, including the Conservation Element, the Environmental Resource Management Element, and the Groundwater Resources Element, and contain policies specifically aimed at water resources and groundwater sustainability.

In a few cases, identified below, the passage of SGMA and the adoption of this GSP render some of the land use plan policies or underlying assumptions within them out of date. Where this occurs, it is expected that future general plan and community plan updates, and/or updates to general plan theoretical buildout estimate, must consider the sustainability goals, sustainable management criteria, as well as the projects and management actions of this GSP, and revise the relevant land use plans accordingly.

2.1.3.1 Land Use and Population

To evaluate current land uses within the OVGB, the OVGB boundary was intersected with the 2012 and 2016 land use layers from the Southern California Association of Governments (SCAG).

The percentage of various land use categories for the OVGB are presented in Table 2-5. The land uses in the OVGB are shown on Figure 2-8, Current Land Use. Within the OVGB, the majority of the land is agriculture, single family residential, facilities (including a golf course and school), and transportation, communications, and utilities. Agriculture is the most water-intensive land use in the OVGB. According to SCAG's 2016 land use dataset, updated as of November 2018, approximately 2,672 acres within the OVGB are used for agriculture (Table 2-5).

Table 2-5
Summary of Land Use in the OVGB

Land Use Category	2012		2016[a]	
	Acres	*Percent*	*Acres*	*Percent*
Agriculture	2,681.6	45.3%	2,672.3	45.2%
Commercial and Services	43.6	0.7%	43.6	0.7%
Education	39.8	0.7%	39.8	0.7%
Facilities	546.3	9.2%	545.0	9.2%
General Office	16.9	0.3%	16.9	0.3%
Industrial	31.4	0.5%	31.4	0.5%
Mixed Residential	16.0	0.3%	14.8	0.2%
Mixed Residential and Commercial	3.7	0.1%	3.7	0.1%
Mobile Homes and Trailer Parks	1.6	0.0%	1.6	0.0%
Multi-Family Residential	63.3	1.1%	63.3	1.1%
Open Space and Recreation	40.3	0.7%	40.3	0.7%
Rural Residential	150.2	2.5%	144.0	2.4%
Single Family Residential	1,562.7	26.4%	1,576.7	26.7%
Transportation, Communications, and Utilities[b]	363.6	6.1%	375.1	6.3%
Undeveloped or Protected Land	133.9	2.3%	132.8	2.2%
Vacant	168.9	2.9%	172.9	2.9%
Water	10.6	0.2%	0.2	0.0%
Unknown	38.9	0.7%	38.9	0.7%
Total	5,913	100%	5,913	100%

Source: SCAG 2020.
Notes:
[a] Draft version of SCAG's 2016 land use dataset, updated November 2018. Final 2016 land use dataset not available as of August 2020.
[b] This land use includes road rights-of-way that were not included in the land use data layer.

There are several sources of population data for the OVGB, most of which are derived from decennial census counts, which last occurred in 2020. Sources of population information are as follows:

- **U.S. Census Bureau:** The U.S. Census Bureau conducts a census count every 10 years. Census data are gathered by tracts, blocks, and census-designated places. Census blocks were intersected with the OVGB boundary to determine the population overlying the OVGB for 2010. Census blocks that intersected the boundaries of the OVGB were area-weighted to determine the population that falls within the OVGB.
- **City and County General Plans**: The City of Ojai and the County of Ventura gather data on development, growth, and land use patterns, and make population estimates in

conjunction with census data. The City's and County's general plans and websites were reviewed for historical and current population data.

- **Southern California Association of Governments**: SCAG is the nation's largest metropolitan planning organization, representing 6 counties, 191 cities, and more than 18 million residents. SCAG produces demographics data and growth forecasts for the entire Southern California region which were reviewed and used to forecast population growth within the OVGB.

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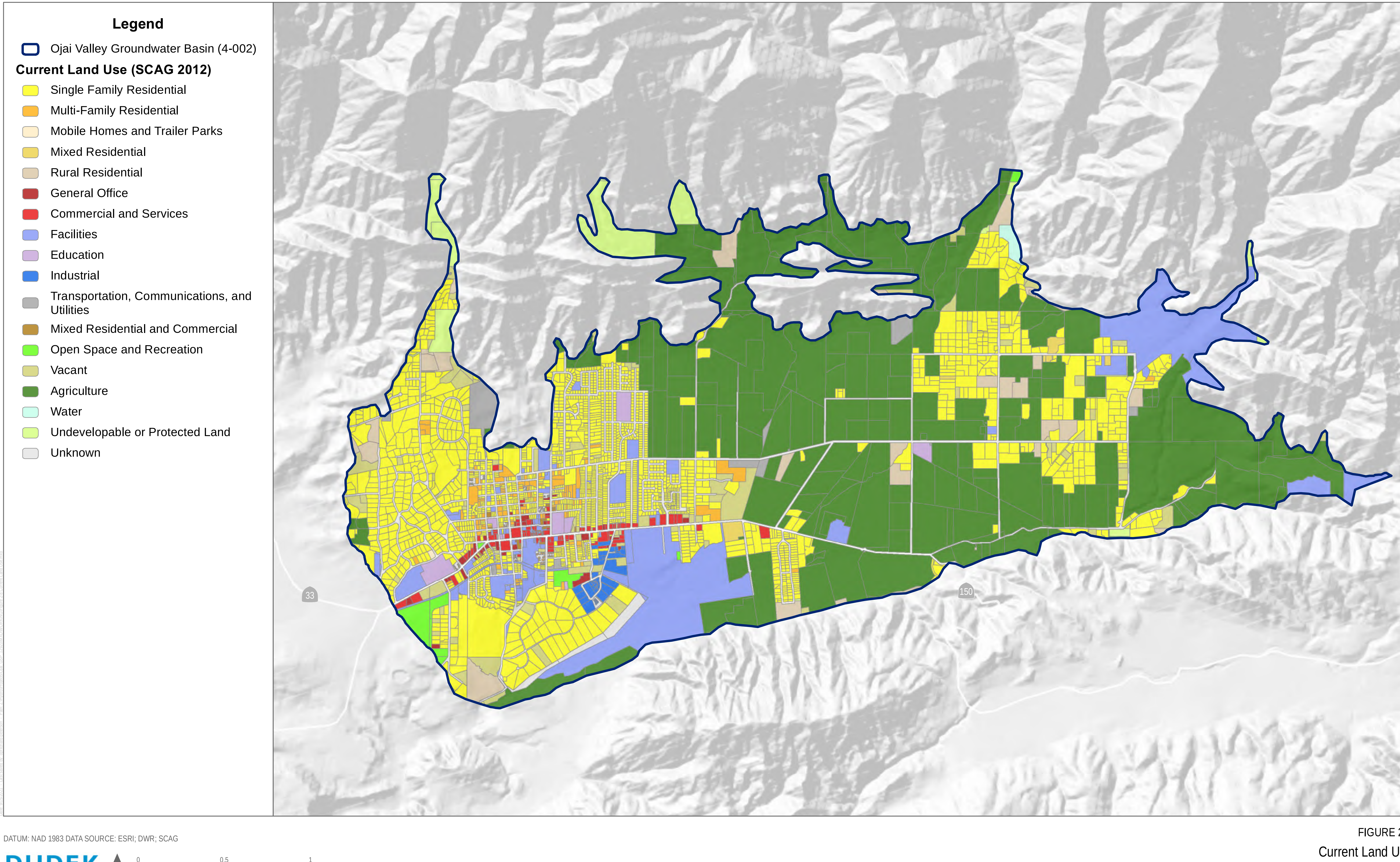

FIGURE 2-8

Current Land Use

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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At a countywide level, population growth is skewed toward incorporated cities. The population distribution within Ventura County is the result of a 1969 County–City agreement, called the Guidelines for Orderly Development, which directs urban-level development to incorporated cities in Ventura County (VCPD 2019). That agreement limits urban-level development and services within unincorporated areas. The total increase in population within unincorporated areas in Ventura County was 1.9% from 2000 to 2010, whereas population in the cities increased by 10.3% over the same period (VCPD 2019).

Table 2-6 shows the past, current, and projected population for Ventura County, the City of Ojai, and the OVGB. The population of the OVGB is estimated to have been 7,749 in 2010, based on census data. The population of the City of Ojai was estimated to have been 7,679 in 2018, approximately 0.9 percent of the total population of Ventura County, with an average household size of 2.4. Between 2000 and 2018, the City of Ojai's population growth rate was -2.3%, which was substantially lower than the Ventura County rate of 14.1% over the same period (SCAG 2019). The population of the City of Ojai is, however, forecasted to increase by approximately 6.5% between 2020 and 2035, and 2.5% between 2035 and 2040 (SCAG 2016). Using the 2010 OVGB population of 7,749 as a baseline and the average of forecasted growth rates for Ventura County and City of Ojai, the population of the OVGB is predicted to be 8,905 by the year 2040 (Table 2-6).

Table 2-6
Past, Current, and Projected Population for Ventura County, the City of Ojai, and the OVGB

Area	Population					
	2000	*2010*	*2012*	*2020*	*2035*	*2040*
Ventura County	753,197	823,318	835,400	886,400	945,100	965,400
City of Ojai[a]	7,862	7,461	7,535	7,700	8,200	8,400
OVGB[b]	—	7,749	7,844	8,170	8,705	8,905

Source: VCPD 2019 (for Ventura County, City of Ojai, and OVGB population in 2000 and 2010) and SCAG 2016 (for Ventura County and City of Ojai population 2012-2040).
Notes: — = not available or not applicable.
a Approximately 66% of the City of Ojai is in the OVGB.
b 2012-2040 OVGB population estimated based on average of forecasted growth rates for Ventura County and City of Ojai over same periods.

As defined in California Health and Safety Code, Section 116275, disadvantaged communities (DACs) are Census geographies having less than 80% of the statewide annual median household income. Based on 2016 DAC mapping at the Census Block Group level, approximately 1,220 acres of the OVGB are identified as severely disadvantaged with a median household income of $26,250 per year, and 640 acres are disadvantaged with a median household income of $50,200 per year (DWR 2020b). More recent 2018 DAC mapping at the Census Block Group Level indicates the areas of the OVGB previously identified as disadvantaged are no longer designated as disadvantaged (DWR 2020b).

2.1.3.2 General Plans

General plans are considered applicable to the GSP to the extent that they may change water demands within the OVGB or affect the ability of the GSA to achieve sustainable groundwater management over the planning and implementation horizon. General Plans applicable to the OVGB are (1) the Ventura County 2040 General Plan, (2) the Ojai Valley Area Plan, and (3) the City of Ojai General Plan. Each of the relevant general plans is summarized in Table 2-7 and described below.

Ventura County 2040 General Plan

The Ventura County General Plan (VCPD 2020a) applies to the County as a whole and includes area-specific plans for distinct unincorporated areas. For example, the Ojai Valley Area Plan (VCPD 2020b) includes specific water supply and water conservation and reuse policies that address local issues. The Ventura County 2040 General Plan outlines land use and growth policies at the County-wide level, and has several elements particularly relevant to groundwater sustainability, including the following:

- **Land Use and Community Character Element.** The Land Use and Community Character Element includes policies establishing land use designations with the intent to preserve open space, agricultural, and rural lands while permitting growth in unincorporated communities and cities. Section 2.2–Land Use Designations and Standards describes the preservation and management of open space areas for public health and safety, as well as for managed production of resources, such as groundwater basins.
- **Public Facilities, Services, and Infrastructure Element.** The Public Facilities, Services, and Infrastructure Element provides the framework for decisions concerning siting and maintenance of infrastructure, utilities, and services. The sections of this element with particular relevance to groundwater include: Section 5.4–Wastewater Treatment and Disposal, Section 5.5–Solid and Hazardous Waste, and Section 5.6–Flood Control and Drainage Facilities.
- **Conservation and Open Space Element.** The Conservation and Open Space Element provides guidance for the conservation, preservation, management, and development of natural, cultural, and scenic resources. In addition, the element provides guidance related to energy resources and planning for climate change impacts. Section 6.8–Open Space presents policies to preserve open space lands.
- **Hazards and Safety Element.** The Hazards and Safety Element includes policies to reduce hazards and ensure public safety, and focuses on the County's strategy to adapt to natural

hazards exacerbated by climate change. The sections with relevance to groundwater sustainability include Section 7.4–Geologic and Seismic Hazards and Section 7.5–Hazardous Materials.

- **Agriculture Element.** The Agriculture Element presents policies intended to maintain and promote Ventura County's thriving agriculture industry. Section 8.5–Sustainable Farming and Ranching establishes farming practices that will enhance the sustainability of agriculture in the County, including techniques designed to reduce water consumption.
- **Water Resources Element.** The purpose of the Water Resources Element is to provide a policy framework to preserve and enhance water supply and quality to ensure the long-term availability of the resource. The goals and policies of the element are organized under the following sections: 9.1–Water Supply, 9.2–Water Quality, 9.3–Water Conservation and Reuse, 9.4–Groundwater, 9.5–Watershed Management, 9.6–Water for Agriculture, and 9.7–Water for the Environment.
- **Area Plans.** The General Plan is supplemented by individual Area Plans that take into account the local setting, policy issues, and community concerns. The Area Plan applicable to the GSP is the Ojai Valley Area Plan (VCPD 2020b). The Water Resources Element of the Ojai Valley Area Plan includes specific policies that address local issues including: (1) effects on water from oil and gas exploration and production, (2) sedimentation, oil residue, and other urban pollutants impact mitigation, (3) water conservation techniques in new development, and (4) retrofits to limit water demand (VCPD 2020b).

City of Ojai General Plan

The City of Ojai General Plan outlines the City's land use and growth policies, reflecting the community's long-term development goals. Many of the goals and policies included in the City's general plan supplement those contained in the Ventura County 2040 General Plan. The elements of the City of Ojai General Plan with goals and policies that explicitly address water resources include the Land Use (City of Ojai 1997), Safety (City of Ojai 1991), and Conservation (City of Ojai 1987) elements. As discussed in the City of Ojai General Plan 2014-2021 Housing Element (City of Ojai 2013), data relevant to air quality, water resources, and traffic in the current adopted City of Ojai General Plan are outdated. When funding is available, the City plans to complete a comprehensive general plan update that will address development constraints resulting from regional air quality, water quality, water supply, and transportation issues (City of Ojai 2013).

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
Ventura County 2040 General Plan			
Land Use and Community Character Element – Section 2.2 Land Use Designations and Standards	Goal LU-9: To maintain an Open Space designation that: preserves for the benefit of all county residents the continued wise use of the county's renewable and nonrenewable resources by limiting the encroachment into such areas of uses which would unduly and prematurely hamper or preclude the use or appreciation of such resources; acknowledges the presence of certain hazardous features which urban development should avoid for public health and safety reasons, as well as for the possible loss of public improvements in these areas and the attendant financial costs to the public; retains open space lands in a non-urbanized state so as to preserve the maximum number of future land use options; retains open space lands for outdoor recreational activities, parks, trails and for scenic lands; Defines urban areas by providing contrasting but complementary areas which should be left non-urbanized; Recognizes the intrinsic value of open space lands and not regard such lands as "areas waiting for urbanization"; encourages Land Conservation Act contracts on farming and grazing and open space lands; and supports the productive agricultural activities of Open Space designated lands that are commonly used for agriculture, grazing, and ranching and that are important to the overall economy of Ventura County.		
	Policy LU-9.2	The County shall designate areas of land or water which are set aside for public health and safety as Open Space, thereby safeguarding humans and property from certain natural hazards, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs, and areas required for the protection and enhancement of air quality.	Consistent
	Policy LU-9.7	The County shall designate areas set aside for managed production of resources as Open Space, including, but not limited to, forest lands, rangeland, agricultural lands not otherwise designated Agricultural; areas required for the recharge of groundwater basins; bays, estuaries, marshes, rivers, and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.	Consistent
Public Facilities, Services, and Infrastructure Element – Section 5.4 Wastewater Treatment and Disposal, Section 5.5 Solid and Hazardous Waste, and Section 5.6	Goal PFS-4: To ensure the adequate provision of individual and public wastewater collection, treatment, reclamation, and disposal operations and facilities to meet the county's current and future needs in a manner that will protect the natural environment as well as public health, safety, and welfare.		
	Policy PFS-4.4	The County shall encourage wastewater treatment facilities to provide the maximum feasible protection and enhancement of groundwater resources.	Consistent
	Policy PFS-4.5	The County shall encourage on-site water reuse for landscape irrigation and groundwater recharge consistent with health standards, to reduce demand for potable water, and increase drought and disaster resiliency.	Consistent
	Policy PFS-4.6	The County shall encourage public wastewater system operators to upgrade existing wastewater treatment systems to reclaim water suitable for reuse for landscaping, irrigation, and groundwater recharge.	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
Flood Control and Drainage Facilities	Goal PFS-5: To maximize recycling, reuse, and composting of solid waste and ensure the safe handling and disposal of the remaining solid and hazardous waste		
	Policy PFS-5.1	The County shall require new landfills and other solid waste processing and disposal facilities (including facilities for composting, green waste, food waste) to be sited in areas that do not pose health and safety risks to residents and groundwater resources. The County shall require such facilities to be located based on objective criteria that do not disproportionally impact Designated Disadvantaged Communities.	Consistent
	Goal PFS-6: To provide adequate surface drainage and flood control facilities to protect public health and safety.		
	Policy PFS-6.2	The County shall encourage the integration of design features into flood control projects, when feasible: to address resource conservation and restoration and preservation of natural riparian habitats, to provide groundwater recharge, to enhance water quality, to protect scenic vistas, and to incorporate recreational areas or opportunities.	Consistent
	Policy PFS-6.4	The County shall coordinate with local, regional, state, and federal agencies to identify existing and potential infrastructure improvements to increase water retention to respond to drought conditions.	Consistent
	Policy PFS-6.5	The County shall require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and convey runoff for flood protection and groundwater recharge.	Consistent
Conservation and Open Space Element – Section 6.2 Coastal Resources and Section 6.8 Open Space	Goal COS-2: To protect and conserve coastal beaches and sand dunes, proactively enhance coastal and marine resources, and respond to projected sea level rise.		
	Policy COS-2.10	The County shall work with Federal, State, and local jurisdictions, agencies, and organizations to monitor saltwater intrusion and take proactive steps to reduce intrusion, including: working to maintain and restore coastal wetlands buffers; enhancing groundwater management to prevent excessive pumping in order to restore groundwater levels needed to reduce saltwater intrusion; and implementing mitigation measures to prevent saltwater intrusion into estuaries and groundwater basins including, but not limited to, implementation of reactive barriers and use of pumps to divert saltwater.	Not applicable to the OVGB
	Goal COS-9: To develop and maintain a comprehensive system of parks, recreation, and natural open space lands that meet the active and passive recreation and open space needs of Ventura County residents and visitors.		

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy COS-9.2	The County shall place a high priority on preserving open space lands for recreation, habitat protection, wildlife movement, flood hazard management, public safety, water resource protection, and overall community benefit.	Consistent
Hazards and Safety Element – Section 7.4 Geologic and Seismic Hazards and Section 7.5 Hazardous Materials	Goal HAZ-4: To minimize the risk of loss of life, injury, collapse of habitable structures, and economic and social dislocations resulting from geologic and seismic hazards.		
	Policy HAZ-4.15	The County shall require that potential ground surface subsidence be evaluated prior to approval of new oil, gas, water or other extraction well drilling permits and appropriate and sufficient safeguards are incorporated into the project design and facility operation.	Consistent
	Goal HAZ-5: To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment and disposal of hazardous materials and wastes.		
	HAZ-5.3	The County shall strive to locate and control sources of hazardous materials to prevent contamination of air, water, soil, and other natural resources.	Consistent
Agricultural Land Preservation Element – Section 8.5 Sustainable Farming and Ranching	Goal AG-5: To encourage sustainable and regenerative farming and ranching practices that promote resource conservation and reduce greenhouse gases.		
	Policy AG-5.4	The County shall encourage farmers to continue and enhance the water-saving irrigation techniques designed to reduce water consumption.	Consistent
Water Resources Element – All Sections	Goal WR-1: To effectively manage water supply by adequately planning for the development, conservation, and protection of water resources for present and future generations		
	Policy WR-1.1	The County should encourage water suppliers, groundwater management agencies, and groundwater sustainability agencies to inventory and monitor the quantity and quality of the county's water resources, and to identify and implement measures to ensure a sustainable water supply to serve all existing and future residents, businesses, agriculture, government, and the environment.	Consistent
	Policy WR-1.2	The County shall consider the location of a discretionary project within a watershed to determine whether or not it could negatively impact a water source. As part of discretionary project review, the County shall also consider local watershed management plans when considering land use development.	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy WR-1.3	The County shall support the use of, conveyance of, and seek to secure water from varied sources that contribute to a diverse water supply portfolio. The water supply portfolio may include, but is not limited to, imported water, surface water, groundwater, treated brackish groundwater, desalinated seawater, recycled water, and stormwater where economically feasible and protective of the environmental and public health.	Consistent
	Policy WR-1.4	The County shall continue to support the conveyance of, and seek to secure water from, state sources.	Consistent
	Policy WR-1.5	The County shall participate in regional committees to coordinate planning efforts for water and land use that is consistent with the Urban Water Management Planning Act, Sustainable Groundwater Management Act, the local Integrated Regional Water Management Plan, and the Countywide National Pollutant Discharge Elimination System Permit (stormwater and runoff management and reuse).	Consistent
	Policy WR-1.6	The County shall encourage the continued cooperation among water suppliers in the county, through entities such as the Association of Water Agencies of Ventura County and the Watersheds Coalition of Ventura County, to ensure immediate and long-term water needs are met efficiently.	Consistent
	Policy WR-1.7	The County shall encourage the continued cooperation among water suppliers in the county, through entities such as Association of Water Agencies of Ventura County and the Watersheds Coalition of Ventura County, to establish and maintain emergency inter-tie projects among water suppliers.	Consistent
	Policy WR-1.8	The County shall encourage the consolidation of water suppliers where necessary to ensure all residents are receiving water of adequate quality and quantity, to promote management efficiencies, and to encourage sharing of local resources and enhancement of managerial and technical expertise and capacity.	Consistent
	Policy WR-1.9	Where technically feasible, the County shall support the use of groundwater basins for water storage	Consistent
	Policy WR-1.10	The County shall continue to support and participate with the Watersheds Coalition of Ventura County in implementing and regularly updating the Integrated Regional Water Management Plan.	Consistent
	Policy WR-1.11	The County shall require all discretionary development to demonstrate an adequate long-term supply of water.	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy WR-1.12	The County shall evaluate the potential for discretionary development to cause deposition and discharge of sediment, debris, waste and other pollutants into surface runoff, drainage systems, surface water bodies, and groundwater. The County shall require discretionary development to minimize potential deposition and discharge through point source controls, storm water treatment, runoff reduction measures, best management practices, and low impact development.	Consistent
	Policy WR-1.13	The County shall require that all County-owned water pumps use 100 percent renewable-sourced electricity for water pumping, when feasible, and shall encourage private entities to use 100 percent renewable-sourced electricity when feasible.	Consistent
	Policy WR-1.14	The County shall require that discretionary development for new golf courses shall be subject to conditions of approval that prohibit landscape irrigation with water from groundwater basins or inland surface waters identified as Municipal and Domestic Supply or Agricultural Supply in the California Regional Water Quality Control Board's Water Quality Control Plan unless: 1. The existing and planned water supplies for a Hydrologic Area, including interrelated Hydrologic Areas and Subareas, are shown to be adequate to meet the projected demands for existing uses as well as reasonably foreseeable probable future uses within the area; and 2. It is demonstrated that the total groundwater extraction/recharge for the golf course will be equal to or less than the historic groundwater extraction/recharge for the site as defined in the County Initial Study Assessment Guidelines. Further, where feasible, reclaimed water shall be utilized for new golf courses.	Consistent
	Goal WR-2: To implement practices and designs that improve and protect water resources.		
	Policy WR-2.1	The County shall cooperate with Federal, State and local agencies in identifying and eliminating or minimizing all sources of existing and potential point and non-point sources of pollution to ground and surface waters, including leaking fuel tanks, discharges from storm drains, dump sites, sanitary waste systems, parking lots, roadways, and mining operations.	Consistent
	Policy WR-2.2	The County shall evaluate the potential for discretionary development to cause deposition and discharge of sediment, debris, waste, and other contaminants into surface runoff, drainage systems, surface water bodies, and groundwater. In addition, the County shall evaluate the potential for discretionary development to limit or otherwise impair later reuse or reclamation of wastewater or stormwater. The County shall require discretionary development to minimize potential deposition and discharge through point source controls, storm water treatment, runoff reduction measures, best management practices, and low impact development	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy WR-2.3	The County shall require that discretionary development not significantly impact the quality or quantity of water resources within watersheds, groundwater recharge areas or groundwater basins.	Consistent
	Policy WR-2.4	The County shall require discretionary development for out-of-river mining below the historic or predicted high groundwater level in the Del Norte/El Rio (Oxnard Forebay Basin) to demonstrate that exaction activities will not interfere with or affect water quality and quantity pursuant to the County's Initial Study Assessment Guidelines.	Not applicable to the OVGB
	Goal WR-3: To promote efficient use of water resources through water conservation, protection, and restoration.		
	Policy WR-3.1	The County shall encourage the use of non-potable water, such as tertiary treated wastewater and household graywater, for industrial, agricultural, environmental, and landscaping needs consistent with appropriate regulations.	Consistent
	Policy WR-3.2	The County shall require the use of water conservation techniques for discretionary development, as appropriate. Such techniques include low-flow plumbing fixtures in new construction that meet or exceed the state Plumbing Code, use of graywater or reclaimed water for landscaping, retention of stormwater runoff for direct use and/or groundwater recharge, and landscape water efficiency standards that meet or exceed the standards in the California Model Water Efficiency Landscape Ordinance.	Consistent
	Policy WR-3.3	The County shall require discretionary development to incorporate low impact development design features and best management practices, including integration of stormwater capture facilities, consistent with County's Stormwater Permit.	Consistent
	Policy WR-3.4	The County shall strive for efficient use of potable water in County buildings and facilities through conservation measures, and technological advancements.	Consistent
	Goal WR-4: To maintain and restore the chemical, physical, and biological integrity and quantity of groundwater resources.		
	Policy WR-4.1	The County shall work with water suppliers, water users, groundwater management agencies, and groundwater sustainability agencies to implement the Sustainable Groundwater Management Act and manage groundwater resources within the sustainable yield of each basin to ensure that county residents, businesses, agriculture, government, and the environment have reliable, high-quality groundwater to serve existing and planned land uses during prolonged drought years.	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy WR-4.2	In areas identified as important recharge areas by the County or the applicable Groundwater Sustainability Agency, the County shall condition discretionary development to limit impervious surfaces where feasible and shall require mitigation in cases where there is the potential for discharge of harmful pollutants within important groundwater recharge areas.	Consistent
	Policy WR-4.3	The County shall support groundwater recharge and multi-benefit projects consistent with the Sustainable Groundwater Management Act and the Integrated Regional Water Management Plan to ensure the long-term sustainability of groundwater.	Consistent
	Policy WR-4.4	The County shall encourage the use of in-stream water flow and recycled water for groundwater recharge while balancing the needs of urban and agricultural uses, and healthy ecosystems, including in-stream waterflows needed for endangered species protection.	Consistent
	Policy WR-4.5	The County shall require that discretionary development shall not significantly impact the quantity or quality of water resources within watersheds, groundwater recharge areas or groundwater basins.	Consistent
	Policy WR-4.6	The County shall require discretionary development for out-of-river mining below the historic or predicted high groundwater level in the Del Norte/El Rio (Oxnard Forebay Basin) to demonstrate that extraction activities will not interfere with or affect groundwater quality and quantity pursuant to the County's Initial Study Assessment Guidelines.	Not applicable to the OVGB
	Policy WR-4.7	The County shall require that discretionary development be subject to conditions of approval requiring proper drilling and construction of new oil, gas, and water wells and removal and plugging of all abandoned wells on-site.	Consistent
	Policy WR-4.8	The County shall require all new water wells located within Groundwater Sustainability Agency boundaries to be compliant with GSAs and adopted Groundwater Sustainability Plans.	Consistent
	Policy WR-4.9	The County shall prohibit new water wells in the Oxnard Plain Pressure Basin if they would increase seawater intrusion in the Oxnard or Mugu aquifers.	Not applicable to the OVGB
	Goal WR-5: To protect and, where feasible, enhance watersheds and aquifer recharge areas through integration of multiple facets of watershed-based approaches.		
	Policy WR-5.1	The County shall work with water suppliers, Groundwater Sustainability Agencies, wastewater utilities, and stormwater management entities to manage and enhance the shift toward integrated management of surface and groundwater, stormwater treatment and use, recycled water and conservation, and desalination.	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy WR-5.2	The County shall continue to seek funding and support coordination of watershed planning and watershed-level project implementation to protect and enhance local watersheds.	Consistent
	Goal WR-6: To sustain the agricultural sector by ensuring an adequate water supply through water efficiency and conservation.		
	Policy WR-6.1	The County should support the appropriate agencies in their efforts to effectively manage and enhance water quantity and quality to ensure long-term, adequate availability of high quality and economically viable water for agricultural uses, consistent with water use efficiency programs	Consistent
	Policy WR-6.2	The County should support programs designed to increase agricultural water use efficiency and secure long-term water supplies for agriculture.	Consistent
	Policy WR-6.3	The County should encourage the use of reclaimed irrigation water and treated urban wastewater for agricultural irrigation in accordance with federal and state requirements in order to conserve untreated groundwater and potable water supplies	Consistent
	Goal WR-7: To consider the water needs of the natural environment with other water uses in the county		
	Policy WR-7.1	The County shall encourage the appropriate agencies to effectively manage water quantity and quality to address long-term adequate availability of water for environmental purposes, including maintenance of existing groundwater-dependent habitats and in-stream flows needed for riparian habitats and species protection.	Consistent
Ojai Valley Area Plan			
Water Resources Element – Water Supply and Water Conservation and Reuse Section	Goal OV-62: To ensure that water which currently meets State standards shall not be degraded and ensure that water quality which does not meet State standards is improved.		
	Policy OV-62.1	The County shall require that new oil and gas exploration and production activity shall does not significantly affect the quality or quantity of the water supply.	Consistent
	Goal OV-63: To ensure that new development does not exceed water resources available to the Ojai Valley.		
	Policy OV-63.1	The County shall appropriately condition discretionary development which has the potential to deposit a significant amount of sedimentation, oil residue, or other urban pollutants into the surface water drainage system, to require retention basins and oily water separators so that at least the first inch of rainfall from any one storm is retained within the project, in order that contaminants from urban runoff do not significantly impact downstream surface water quality and biological resources. The County shall require the control devices used in the oily separators to be properly maintained for the life of the authorized use.	Consistent
	Goal OV-64: To ensure the employment of water conservation measures in new construction and encourage water conservation practices in agricultural, municipal, industrial, and recreational uses and in existing development.		

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
	Policy OV-64.1	The County shall condition discretionary development to utilize all feasible water conservation techniques.	Consistent
	Policy OV-64.2	The County shall require new discretionary development to retrofit existing plumbing fixtures or provide other means so as not to add any net increased demand on the existing water supply. The County shall apply this policy until such time as a groundwater basin study is completed and it is found that the available groundwater, or other sources of water, could adequately provide for cumulative demand without creating an overdraft situation.	Consistent
	Goal OV-65: To encourage the safe use of reclaimed water for irrigation, agriculture, wetland enhancement and stream flow maintenance and such other uses as are applicable.		
City of Ojai General Plan			
Land Use Element – Preserving Ojai's Small-Town Character and Managing the Pace of Growth and Development Sections	Goal: Preserve Ojai's small-town character.		
	Policy LU-11	Permit new developments only where and when adequate water and sewer infrastructure can be ensured by providing systemwide infrastructure improvements in advance of needs. Where construction of master planned facilities is not practical in advance, permit the construction and use of on-site facilities only to the extent that future construction of the master planned facilities will not be jeopardized (within low and very low density residential areas, septic tanks may be used for sewage disposal in lieu of community sewer system, subject to applicable health requirements).	Consistent
	Goal: Manage the pace of growth and development.		
	Policy LU-18	Limit the rate of residential, commercial, and office development as necessary to protect vital resources such as air and water quality.	Consistent
Safety Element – Disasters Section	Goals: 1) A City that is prepared for hazards and disasters so as to protect the public health, safety, and welfare, and to minimize damage to property; 2) A City whose development is planned in consideration of major hazards and other physical constrains so as to minimize loss of life, injury, and damage to property resulting from hazards and disasters; 3) A City whose citizens are informed as to the appropriate actions to take in the event of hazards and disasters; and, 4) A City that continues to improve upon inter-agency communication and cooperation regarding safety issues and emergency response preparedness.		
	Policy 3	The City shall ensure that adequate water supplies are available to Ojai residents following a major disaster.	Consistent
Conservation Element –	Goal: The city of Ojai shall strive to preserve the quantity and enhance the quality of water resources that may affect the Ojai Valley.		
	Policy 1	The City shall ensure that adequate supplies of water be available to all City residents and uses requiring water.	Consistent

Table 2-7
Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB

Element	Policy/Action No.	Description	GSP Consistency
Water/Watersheds Section	Policy 2	The City shall identify the sources and availability of water, flood potential, and sources of potential damage to the City's water supply and quality in order to maintain the optimum quality of water in the City and its watershed.	Consistent
	Policy 3	The City shall strive to protect natural watersheds, drainage beds and water recharge areas and rebuild those damaged to achieve recovery of local water and the preservation of water systems.	Consistent

Source: City of Ojai 1987, 1991, 1997; VCPD 2020a, 2020b.

2.1.3.3 Other Planning/Land Use Considerations

All discretionary projects proposed within the OVGB are required to comply with CEQA. In 2019, the Governor's Office of Planning and Research released an update to the CEQA Guidelines that included a new requirement to analyze projects for their compliance with adopted GSPs. Specifically, the new applicable significance criteria include the following:

- Would the program or project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Would the program or project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Therefore, to the extent to which general plans allow growth that could have an impact on groundwater supply, such projects would be evaluated for their consistency with adopted GSPs and for whether they adversely impact the sustainable management of the OVGB. Under CEQA, potentially significant impacts identified must be avoided or substantially minimized unless significant impacts are unavoidable, in which case the lead agency must adopt a statement of overriding considerations.

The County has long implemented its own CEQA significance thresholds based on heightened public concern and awareness for the scarcity of the County's groundwater resources. The Ventura County Initial Study Assessment Guidelines (Guidelines; VCPD 2011) contain threshold of significance criteria and methodology to ensure consistent and complete assessment of direct and indirect impacts of projects on groundwater quality and quantity. For example, the County's General Plan states that each legal parcel requiring a domestic water source is required to have a permanent supply of water (VCPD 2019). According to the County Guidelines, all projects supplied by a source of water that do not meet the criteria of a permanent supply of water shall be considered potentially significant (e.g., a spring does not meet the criteria for a permanent source of water supply) (VCPD 2011).

2.1.4 Beneficial Uses and Users

As discussed in Section 2.1.2, designated beneficial uses for groundwater in the OVGB include municipal and domestic supply (MUN), agricultural supply (AGR), industrial process supply (PROC), and industrial service supply (IND) based on the Los Angeles Basin Plan (RWQCB 2014). Two primary sectors extract the majority of groundwater in the OVGB: (1) agriculture use; and (2) municipal use (i.e., CMWD) (OBGMA 2018). Other groundwater users include four private water companies, including Siete Robles MWC, Senior Canyon MWC, Hermitage MWC, and Gridley Road Water Group, and one County managed non-potable irrigator, Ventura County

Property Administrator. Private groundwater users who extract less than 2 AFY are considered de minimis users under SGMA.

2.1.5 Additional GSP Components

Ventura River Watershed Adjudication

A related component of this GSP is the ongoing water rights litigation in the Ventura River Watershed. Settlement negotiations are currently ongoing among the parties and a Management Plan, as described below, has yet to be made available to the OBGMA. A summary of the history and status of the Ventura River Watershed Adjudication is as follows: In September 2014, the nonprofit Santa Barbara Channelkeeper filed a lawsuit (Santa Barbara Channelkeeper v. City of Buenaventura, Case No 19STCP01176) alleging the City of Ventura's diversions from the Ventura River were unreasonable and hurt habitat for endangered steelhead trout and other wildlife[10]. In response to the lawsuit, the City of Ventura filed a Cross-Complaint, and later a First Amended Cross-Complaint seeking to bring in other users of surface water and groundwater in the Ventura watershed, including the OVGB, which was one of the four "significant" basins[11] identified by the City of Ventura in the lawsuit.

Channelkeeper moved to strike the City of Ventura's First Amended Cross-Complaint, and the San Francisco County Superior Court granted the motion. The City of Ventura appealed the decision to strike its First Amended Cross-Complaint and on January 30, 2018, the Court of Appeal, First Appellate District, Division Two, reversed the San Francisco County Superior Court's decision. Following the Court of Appeal's decision, Channelkeeper filed a First Amended Complaint and Petition and the City of Ventura filed a Second Amended Cross-Complaint. On January 2, 2020, the City of Ventura filed a Third Amended Cross-Complaint. In the Amended Cross-Complaint, the City of Ventura named approximately 2,300 Cross-Defendants who beneficially use or who have potential rights to waters in the Ventura River Watershed, including surface water from the Ventura River and its tributaries and groundwater from the basins. The Amended Cross-Complaint asserts claims for pueblo and/or treaty water rights, prescriptive water rights, appropriative water rights, municipal priority, the human right to water, and reasonable and beneficial use, and asserts the City of Ventura's relative priority rights to water, including, without limitation, a request for a comprehensive adjudication of the Ventura River Watershed and the imposition of a physical solution.

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10 The Los Angeles RWQCB listed reaches 3 and 4 of the Ventura River on the 1998 California 303(d) List of Impaired Surface Waters for pumping and water diversion (LARWQCB 1998). National Marine Fisheries Service concluded that groundwater extractions from the City of Ventura's Foster Park well field are detrimental to the survival and recovery of Southern California steelhead (NMFS 2007).

11 The Groundwater Basins of the Ventura watershed include the Lower Ventura River Basin, the Upper Ventura River Basin, the Ojai Valley Groundwater Basin and the Upper Ojai Valley Basin.

The Amended Complaint and the Amended Cross-Complaint are the operative pleadings. The judicial venue was transferred from the San Francisco County Superior Court to the Los Angeles County Superior Court because of its closer proximity to the action. On November 21, 2019, the Court granted the City of Ventura's motion to approve a notice of adjudication and the City of Ventura has served or provided notice to 1) all property owners overlying the basins; 2) all property owners whose property is contiguous to the Ventura River or its tributaries, other than the federal government; and 3) all known holders of appropriative water rights, other than the federal government. The City of Ventura has served a summons on approximately 2,300 Cross-Defendants owning approximately 1,750 riparian parcels and provided 12,766 notices to the owners of approximately 10,000 parcels overlying the four groundwater basins.

On September 30, 2019, Channelkeeper and the City of Ventura entered into a settlement agreement that resulted in the partial dismissal of Channelkeeper's cause of action against the City of Ventura, pending entry of a Physical Solution. On August 20, 2020, Channelkeeper and the City of Ventura agreed to amend the settlement, resulting in a full dismissal of all issues set forth in the Amended Complaint.

On September 15, 2020, the City of Ventura, Ventura River Water District, Meiners Oaks Water District, Wood-Claeyssens Foundation, and the Rancho Matilija Mutual Water Company released a Proposed Physical Solution. The Proposed Physical Solution resolves that it is not necessary at this time for the court to determine the relative priority rights to water or to establish a comprehensive adjudication of water rights in the Ventura watershed. The Proposed Physical Solution recognizes and requires integration with GSPs under development for the OVGB and Upper Ventura River Basin. The parties and the management committee, an arm of the court, would coordinate with the GSAs in finalizing and preparing the Management Plan[12], which is a plan to move the conditions of the Southern California steelhead (*Oncorhynchus mykiss*) fish population (Fishery) in the watershed from baseline condition to good condition. The Proposed Physical Solution is expressly designed to address one of the six "undesirable results" that the GSP must avoid—the significant and undesirable depletions of interconnected surface water. The Proposed Physical Solution proposes to use the health of the Fishery as a proxy for the overall health of the instream uses in the Ventura River Watershed. The court finds that the Proposed Physical Solution addresses this undesirable result, and if they so choose, the GSAs may adopt the Proposed Physical Solution to meet the requirements of that portion of the GSP. In addition, the Proposed Physical Solution and the finally adopted Management Plan will include a water management component that could inform other requirements of the GSPs.

[12] As of June 2021, no formal coordination by the parties and the management committee has occurred with the OBGMA, the GSA for the OVGB. As this GSP is due to the DWR on January 31, 2022, it is unlikely that there is sufficient time to review and incorporate appropriate findings and recommendations of the Management Plan into the GSP.

The Proposed Physical Solution consists of three phases: 1) Adoption Phase, 2) Implementation Phase, and 3) Adaptive Management Phase. The Adoption Phase allows the parties time to establish the governance structure and adopt the Management Plan. The Implementation Phase is a 10-year period after adoption of the Management Plan in which the parties will implement the Management Plan, and the Adaptive Management Phase is a continuing series of 10-year periods in which the parties will adaptively manage the implementation of the Management Plan and plan updates. The purpose of this phasing is to allow for transition of existing baseline conditions in the Ventura River watershed to good conditions as measured by the health of the Fishery.

Management Plan actions to achieve good conditions for Fishery health include potential activities such as removing barriers that block the steelhead's access to critical habitat, creation of rearing habitat (pools) and river features such as boulder and large woody material to improve habitat conditions, reducing invasive species, and monitoring water quality and the steelhead population.

To date, no settlement agreement has been reached and the current terms of the Proposed Physical Solution have not been resolved. The Ventura River Watershed Adjudication is ongoing and has not been incorporated into this GSP. A discussion of the relationship of interconnected surface water with groundwater in the OVGB is described in Section 2.3.4.6.

2.2 BASIN SETTING

2.2.1 Geography

The OVGB is situated in a small east-west oriented valley in the Topatopa Mountains of the Transverse Ranges geomorphic province of Southern California. The OVGB is located approximately 11 miles inland from the Pacific Ocean. The land surface elevation of the OVGB ranges from approximately 630 feet above mean sea level (amsl) along the south-western boundary where San Antonio Creek exits the OVGB to approximately 2,080 feet amsl at the southern flank of the Topatopa Mountains (northern boundary of the OVGB). Nordhoff Peak (4,473 feet amsl) and Chief Peak (5,570 feet amsl) occupy the highest points of the Topatopa Mountains to the north of the OVGB and mark the northern boundary of the San Antonio Creek watershed (Figure 2-1). Black Mountain and Sulphur Mountain lie to the south of the OVGB and denote the southern boundary of the San Antonio Creek watershed. A description of the OVGB's lateral and vertical hydrogeological boundaries is provided in Sections 2.3.1 and 2.3.2.

2.2.2 Surface Water and Drainage Features

The OVGB is within the San Antonio Creek watershed which is one of the largest sub-watersheds of the Ventura River watershed (Figure 2-1). The San Antonio Creek watershed is characterized by tectonically active mountains dominated by chaparral and exposed bedrock with narrow ephemeral and intermittent streams. There are no major surface water reservoirs within the San

Antonio Creek watershed. San Antonio Creek is the largest stream in the San Antonio Creek watershed and is fed by four primary tributary streams including McNell Creek, Thacher Creek, Reeves Creek, and Lion Creek, the last-mentioned being located outside of the OVGB. A number of small named and unnamed ephemeral drainages also contribute flow to San Antonio Creek.

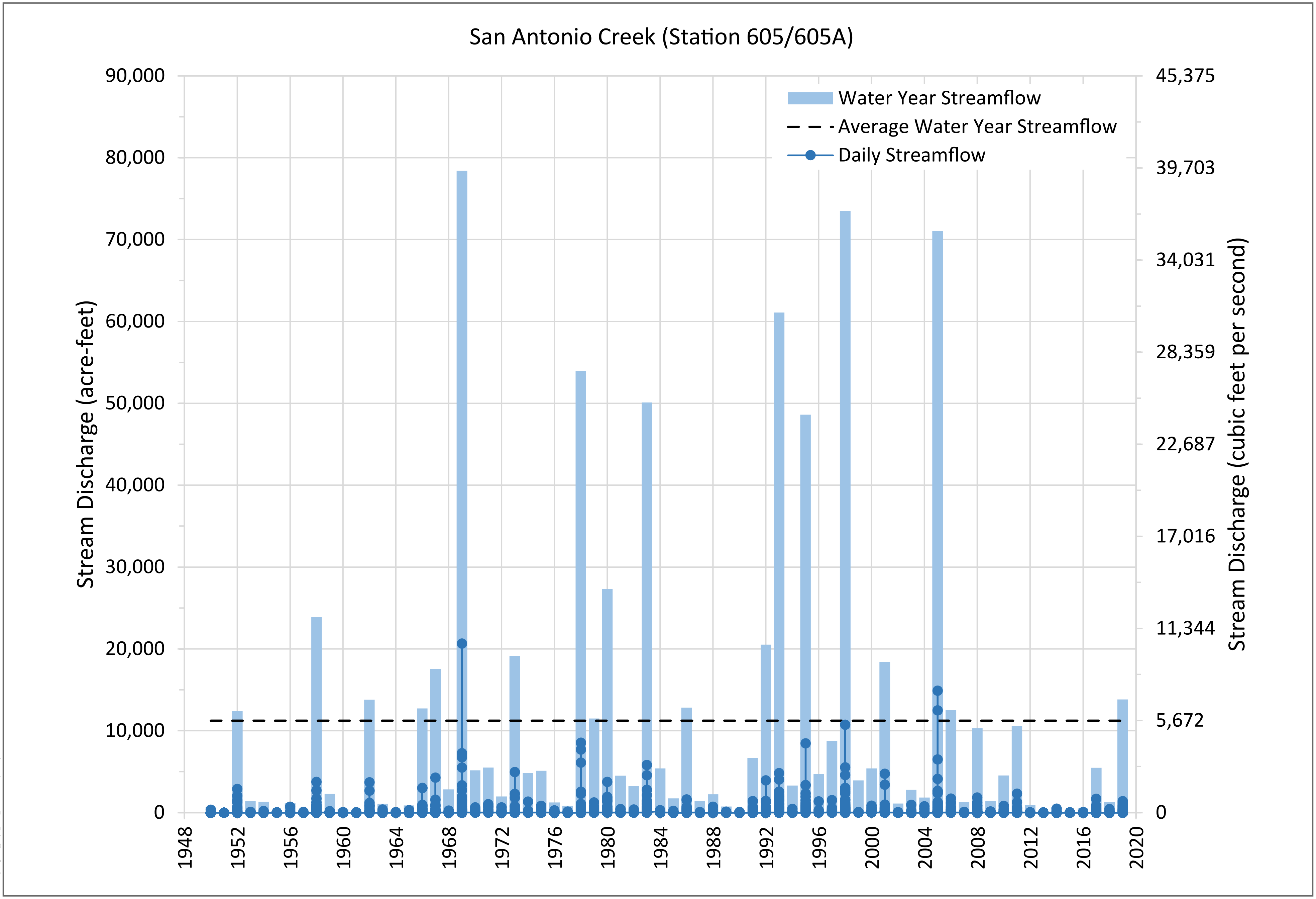
Streamflow records are available for four active and four inactive stream gauging stations on San Antonio Creek, in addition to one active gauging station on Thacher Creek and one inactive gauging station on Fox Canyon Drain, a small drainage that bisects the City of Ojai (Table 2-4, Weather Stations and Stream Gauges in the Vicinity of the OVGB). The two stream gauges on San Antonio Creek at the confluence with the Ventura River, Stations 605 and 605A, together provide daily stream discharge at the outlet of the San Antonio Creek watershed for the period from October 1949 to October 2019 (Figure 2-7). Peak flow typically occurs between December and April of any given water year and baseflow generally falls to 0 cubic feet per second (cfs) between June and October. There are some exceptions, particularly in 1969, 1978, 1983, 1993, 1995, 1998, and 2005 when flow continued through the summer months. The highest gauged flow was 10,405 cfs in January 1969. The water year with the lowest recorded stream discharge was 1951, where apparently no flow occurred, and the water year with the highest recorded stream discharge was 1969 at 78,403 AF. The average water year stream discharge is 11,230 AF (Figure 2-9, San Antonio Creek Stream Discharge).

2.2.3 Historical, Current, and Projected Climate

The climate within the OVGB is monitored continuously by several agencies, including NOAA, VCWPD, and others, as discussed in Section 2.1.2.2. The most complete historical record of precipitation, temperature, wind, and other climate variables is from the NOAA Ojai weather station (Station No. USC00046399).

2.2.3.1 Precipitation

The climate of the OVGB is Mediterranean, with warm, dry summers and cool, wet, winters. Precipitation is highly variable in the OVGB—seasonally, and from year to year. Precipitation typically occurs in just a few significant storms each year, which can come any time between October and April, with over 90% of the precipitation occurring between November and April (WCVC 2019; Figure 2-10, Monthly Average Total Precipitation). The Parameter-Elevation Regressions on Independent Slopes Model (PRISM) 30-year (1981–2010) digital elevation model precipitation data shows that the average annual precipitation in the OVGB ranges from about 22 inches per year in the southwestern part of the OVGB to nearly 26 inches per year in the northernmost parts of the OVGB along the southern flank of the Topatopa Mountains (Figure 2-7).



SOURCE: VCWPD

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FIGURE 2-9

San Antonio Creek Stream Discharge

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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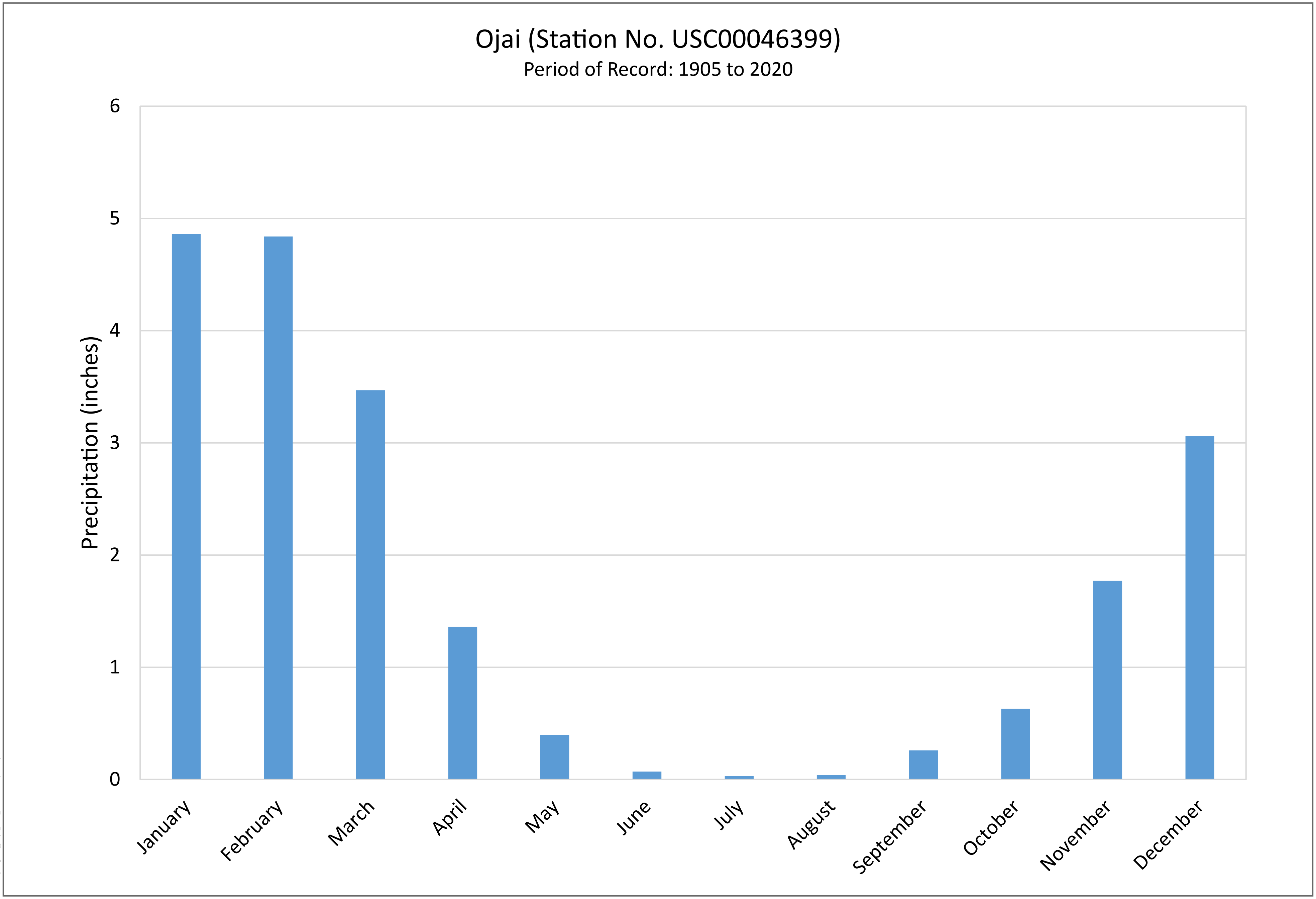

SOURCE: WRCC

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FIGURE 2-10

Monthly Average Total Precipitation

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Based on length of record, proximity to the OVGB, and station type meeting the standards set by the National Weather Service, the four most representative stations for climate analysis are the Ojai, Ojai-Thacher School, Ojai-Stewart Canyon, and Meiners Oaks-County Fire Station precipitation stations. Average water year precipitation data for the four weather stations for the period from 2000 to 2019 (20-year period) are provided in Table 2-9. Based on this 20-year record, the average water year precipitation in the vicinity of the OVGB ranges from 17.46 inches (Ojai station) to 20.06 (Ojai-Thacher School station), for a combined average annual precipitation of 18.88 inches (Table 2-8). Recent measured average water year precipitation for the four rain gauges located in the OVGB are all lower than the PRISM calculated averages.

Table 2-8
Average Water Year Precipitation from 2000 to 2019 for Select Rain Gauges in the Vicinity of the OVGB

Water Year	Rain Gauge			
	Ojai (USC00046399)[a]	*Ojai-Thacher School (059)*	*Ojai-Stewart Canyon (165)*	*Meiners Oaks-County Fire Station (218)*[b]
	Precipitation (inches)			
2000	18.84	19.73	18.00	20.30
2001	18.67	30.55	27.38	30.00
2002	7.27	8.27	7.19	8.07
2003	—	21.35	21.70	24.81
2004	13.65	13.04	12.64	15.15
2005	47.31	52.90	45.77	51.35
2006	25.37	26.00	23.44	25.91
2007	7.42	7.65	6.42	7.00
2008	—	23.89	21.25	23.86
2009	11.39	13.62	13.76	—
2010	21.46	24.35	24.05	25.36
2011	24.79	31.18	28.33	27.60
2012	10.06	12.09	10.85	10.64
2013	8.66	9.11	8.62	8.59
2014	9.49	11.30	9.67	9.12
2015	12.22	14.91	12.64	10.47
2016	10.69	11.07	12.00	10.75
2017	28.07	28.50	26.26	26.55
2018	11.81	13.60	11.87	10.88
2019	27.16	28.10	26.53	25.66
Average	17.46	20.06	18.42	19.58

Source: NOAA 2020, VCWPD 2020.
Notes: — = not available or not applicable.
[a] Water year precipitation data are not available (incomplete data record) for the Ojai weather station for the years 2003 and 2008.
[b] Water year precipitation for the Meiners Oaks-County Fire Station weather station for 2009 is reported as 0 so value excluded from table.

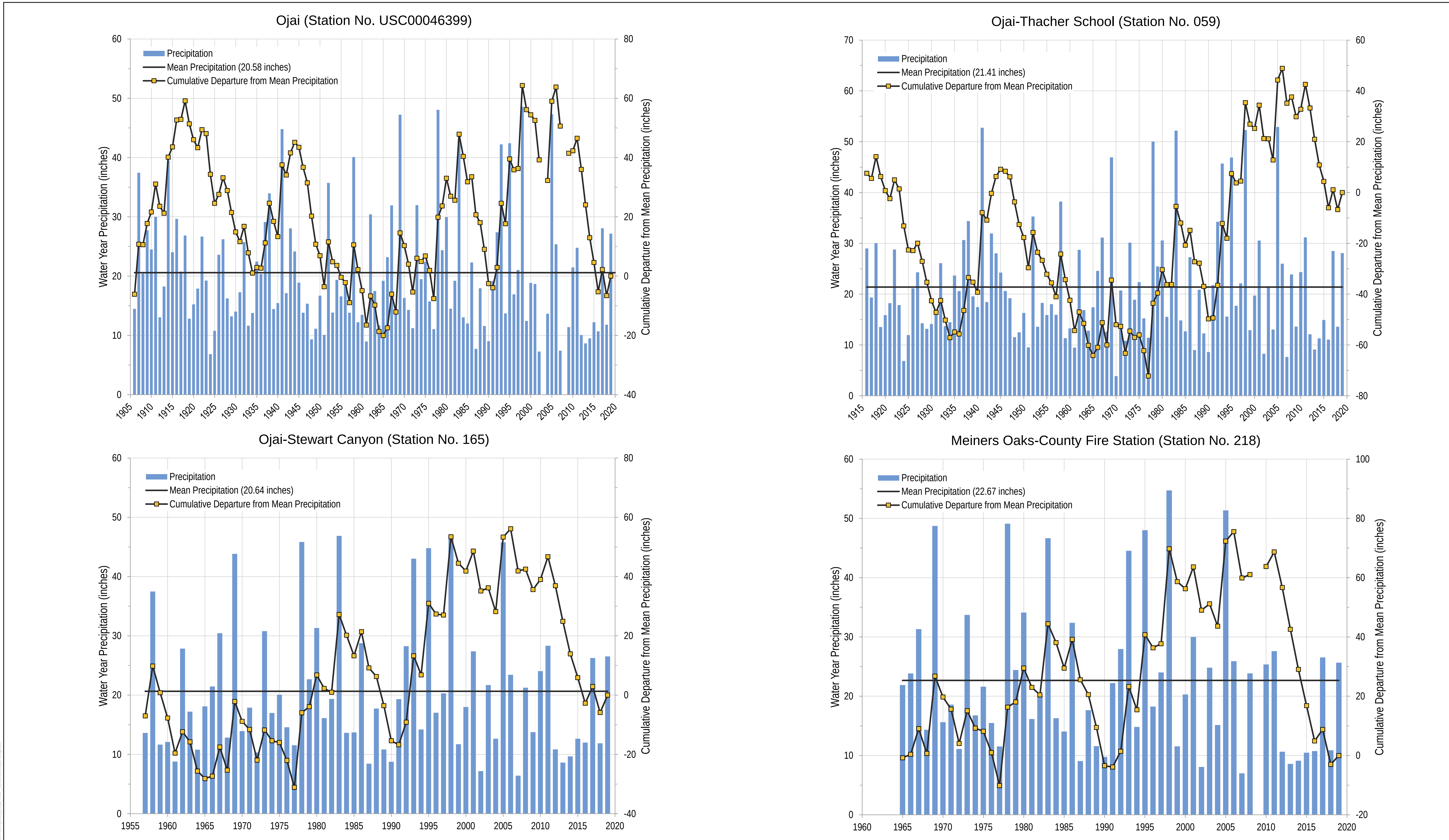
The most complete historical record of precipitation is from the NOAA Ojai station (Station No. USC00046399). Precipitation data collected since 1906 show that annual precipitation in Ojai has ranged from a low of 6.84 inches in 1924 to a high of 48.58 inches in 1998, while the average precipitation over the period from 1906 to 2019 was 20.58 inches (Figure 2-11, Water Year Precipitation; WCVC 2019; NOAA 2020). Very few years actually have average precipitation; most years are drier than average, and a relatively few very wet years heavily influence the average. Since 1906, 62% of the years have had less than average precipitation. Using the VCWPD's definition of a "significantly high rainfall year" as one having precipitation at least 150% above the average, or greater than 30.88 inches, there have been 15 years of significantly high precipitation in Ojai since 1906 (in 1907, 1914, 1938, 1941, 1952, 1958, 1967, 1969, 1973, 1978, 1983, 1993, 1995, 1998 and 2005). This is an average of once every eight years. Precipitation data from the four weather stations indicate that the period from 1970 through 2019 includes two major wet and dry climate cycles (Figure 2-11).

2.2.3.2 Temperature

Temperatures within the OVGB fluctuate on a seasonal basis from warm summers to cool winters. August and September are typically the hottest months in the OVGB. Based on the Ojai station, the average annual temperature in the OVGB is 61.4°F, ranging from an average low of 40.1°F in January to an average high of 80.9°F in July. The historical all-time minimum and maximum temperature recorded at the Ojai station are 13°F and 119°F, respectively (WRCC 2020).

2.2.3.3 Evapotranspiration

Reference evapotranspiration (ETo) in the OVGB has been calculated from the data collected at CIMIS Station 198 (located approximately 10 miles south-southeast of the southern basin boundary in Santa Paula, California) on a daily basis since 2005 (Table 2-9). The average ETo measured at CIMIS Station 198 between 2005 and 2020 is 52.75 inches per year or 4.40 feet per year (Table 2-9). In contrast, the average annual precipitation in the OVGB, based on the Ojai station (Figure 2-11) is 20.58 inches per year. The ETo values calculated from the CIMIS data reflect the amount of water that could be transpired by grass or alfalfa if supplied by irrigation, but do not represent the actual transpiration from any specific crop or native vegetation. To calculate the ET rate for a specific crop or native vegetation, the ETo is multiplied by a crop coefficient that adjusts the water consumption for each crop relative to the water consumption for alfalfa.



SOURCE: NOAA; VCWPD

FIGURE 2-11

Water Year Precipitation

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Table 2-9
Monthly and Yearly Reference Evapotranspiration (ETo) Totals for California Irrigation Management Information System Station No. 198 from 2005 to 2020 (Inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
2005	—	—	—	3.03	8.56	8.63	7.32	5.66	4.74	3.53	3.07	2.32	—
2006	3.15	3.43	3.13	3.53	4.59	5.49	5.58	5.67	4.56	3.74	3.01	3.01	48.89
2007	2.74	2.74	4.21	4.13	5.06	5.80	6.00	5.50	4.51	4.40	2.55	2.60	50.24
2008	2.52	2.69	4.94	5.69	5.47	6.56	6.20	5.76	4.87	4.73	3.17	2.13	54.73
2009	3.81	2.60	4.27	4.8	5.57	5.18	6.71	5.62	4.97	4.04	3.21	2.17	52.95
2010	2.45	2.34	4.71	4.86	6.39	5.85	5.80	6.20	4.88	2.98	3.01	1.78	51.25
2011	3.40	3.12	3.95	4.93	6.14	5.16	6.06	5.55	4.11	3.70	2.96	2.65	51.73
2012	3.33	3.53	3.99	4.76	6.19	5.88	6.03	6.31	4.92	3.79	2.38	1.72	52.83
2013	3.20	3.16	4.03	4.92	6.26	5.88	5.87	5.99	5.03	4.26	2.93	3.10	54.63
2014	3.39	2.74	4.48	5.57	6.72	6.12	6.24	5.73	4.88	4.11	3.04	1.52	54.54
2015	2.09	2.48	4.08	4.92	5.08	5.29	5.90	6.38	5.35	4.11	3.47	2.71	51.86
2016	2.16	4.19	4.19	5.59	5.29	6.00	6.90	6.08	5.11	3.57	2.72	2.40	54.2
2017	1.88	1.69	4.71	5.80	5.87	6.07	6.65	5.86	4.68	4.83	2.59	3.52	54.15
2018	2.87	3.12	3.52	5.31	4.92	6.11	6.87	6.58	4.70	4.12	3.39	2.48	53.99
2019	2.25	2.12	4.18	5.16	5.36	4.53	6.52	6.44	5.17	5.25	2.94	2.52	52.44
2020	2.50	3.61	3.26	4.52	6.61	5.77	6.80	—	—	—	—	—	—
13-Year Average	2.78	2.90	4.11	4.85	5.88	5.90	6.34	5.96	4.83	4.08	2.96	2.44	52.75

Source: CIMIS 2020.
Notes: 2005 and 2020 are excluded from the average as the record for those years are not complete.

According to the State of California Reference Evapotranspiration Map developed by CIMIS, the OVGB is located at the southern edge of Evapotranspiration Zone 10, with an annual average ETo of 49.1 inches or 4.09 feet (CIMIS 1999). This regional average annual ETo estimate is comparable to the ETo measured at CIMIS Station 198 (Table 2-9).

2.2.3.4 Projected Climate

Over the historical precipitation period of record there have been several serious droughts, and climate change may bring an increase in the frequency and intensity of years with below average historical rainfall. Projected future climate conditions related to precipitation frequency and intensity over the long term for California indicate, in general, a decrease in average precipitation, but an increase in the intensity of large storm events (Pierce et al. 2018). Additionally, it is projected that by the end of the century temperatures will increase by anywhere from 3.6°F to 12.6°F, with a strong increase in the number of extremely hot days relative to historical norms (Pierce et al. 2018). To evaluate climate change impacts on mean water year precipitation in the OVGB, DWR-projected 2030 and 2070 precipitation change factors, which are based on the California Water Commission's Water Storage Investment Program (WSIP) climate change analysis results, were applied to the historical precipitation record of the Ojai station (Station No. USC00046399).

Projected climate change factor data are provided by DWR in both tabular and geographic information system (GIS) spatial formats for the period from January 1915 to December 2011. For water years after 2011, change factor values for the pre-2011 water year with the most similar mean annual precipitation were used. Based on the GIS spatial data, the Ojai station falls within model grid cell 9263.

Based on the Ojai station (Station No. USC00046399) historical precipitation record for water years 1916 to 2019 and the DWR precipitation change factors, average water year precipitation is projected to increase by 0.14 inches and 0.67 inches by 2030 and 2070, respectively. Although average water year precipitation is anticipated to increase slightly based on the analysis, the number of extreme dry and wet water years is also predicted to increase by approximately 2% by 2070.

2.3 HYDROGEOLOGIC CONCEPTUAL MODEL

The hydrogeologic conceptual model (HCM) provides the framework for the development of water budgets, analytical and numerical models, and monitoring networks. Additionally, the HCM serves as a tool for stakeholder outreach and communication, and assists with the identification of data gaps. The HCM does not compute specific quantities of water flowing through or moving into or out of a basin, but rather provides a general understanding of the physical setting, characteristics, and processes that govern groundwater occurrence and movement within a basin. The parameters of the HCM developed for the OVGB are depicted on Figure 2-12, Hydrogeologic Conceptual Model. These parameters include basin boundaries, stratigraphy, land use, and the general processes that contribute to recharge and discharge from the OVGB. The following subsections detail the geologic and hydrogeologic characteristics of the OVGB, as well as historical and current groundwater conditions.

2.3.1 Geology

The OVGB underlies the western Transverse Ranges geomorphic province. The Transverse Ranges is characterized by east–west-trending mountain ranges from Points Arguello and Conception at the coast, inland to the San Bernardino Mountains. The province includes the offshore Channel Islands, which are similar in orientation and geologic composition to the mainland (CGS 2002). The southernmost mountains of the Transverse Ranges are the Santa Monica Mountains. The Transverse Ranges are actively uplifting in response to compression along an east–west-trending section of the San Andreas Fault (CGS 2002). The Transverse Ranges northern boundary is the east–west-trending Santa Ynez Fault, along which uplift of the Santa Ynez Mountains is occurring. The southern Transverse Ranges boundary is the Santa Monica Fault Zone, at the southern base of the Santa Monica Mountains.

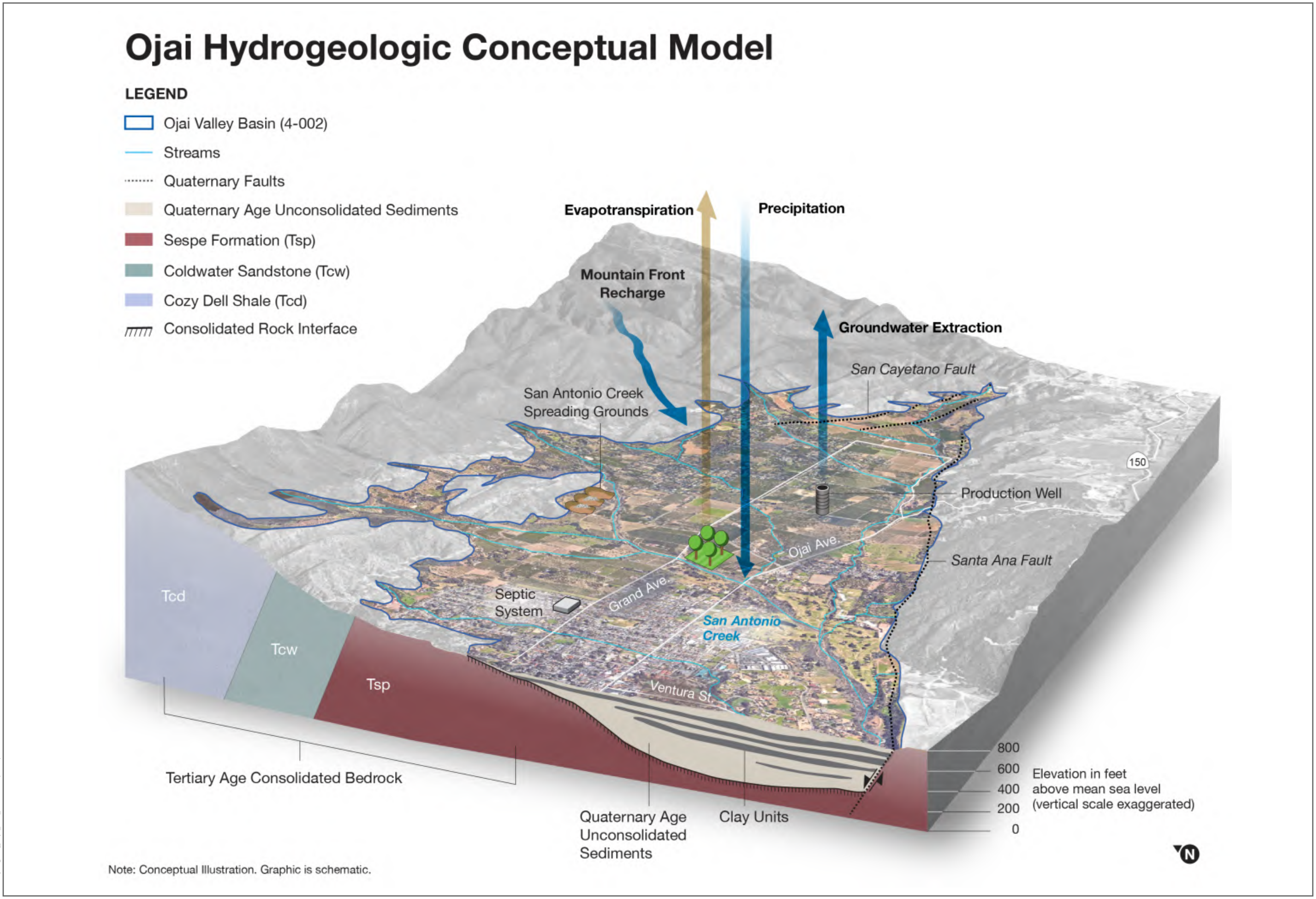

FIGURE 2-12

Hydrogeologic Conceptual Model for the Ojai Valley Groundwater Basin

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The OVGB is bounded on the north and east by Tertiary age[13] consolidated rocks associated with the Topatopa Mountains, and on the south by the Santa Ana Fault. The underlying geologic structure of the OVGB consists of downward-folded (synclinal) Eocene to early Miocene[14] folded and faulted sedimentary rocks of predominately the Rincon Shale, Vaqueros Sandstone, and Sespe formations. Additional sedimentary rock formations that outcrop within and/or underlie the OVGB include the Monterey Shale (Modelo), Coldwater Sandstone, and Cozy Dell Shale formations (Figure 2-13A, Dibblee Geologic Map and Figure 2-13B, Dibble Geologic Map Legend). The OVGB lies above the Tertiary age consolidated rocks and is composed of unconsolidated Pleistocene to Holocene age[15] alluvial water-bearing sediments (DWR 2004).

2.3.1.1 Units

The geologic units of the OVGB are of two general types: (1) consolidated rocks, which compose the east–west-trending Topatopa Mountains and underlie the OVGB, and (2) the unconsolidated sediments that overlie the basement rock and compose the OVGB aquifer and surficial geology. The boundary between the consolidated and unconsolidated rocks represents an unconformity across which lithological units representing millions of years are missing (Figure 2-13B). The geologic units underlying the OVGB are described below from oldest to youngest.

Tertiary Age Consolidated Rocks

Tertiary age consolidated rocks of marine and nonmarine origin that underlie the OVGB include the Sespe Formation, Vaqueros Sandstone, and Rincon Shale. These rocks effectively form the base of the freshwater aquifer in the OVGB and typically yield minor amounts of poor quality water. The Sespe Formation is an Oligocene age[16] terrestrial red to locally green silty shale and claystone interbedded with pink sandstone and conglomerate that subcrops below much of the OVGB and outcrops at much of the northern basin boundary of the OVGB. Overlying the Sespe Formation are the Miocene age Vaqueros Sandstone and Rincon Shale, both of which are of marine origin. The Vaqueros Sandstone consists primarily of light gray to tan, thickly bedded, fine-grained sandstone, while the Rincon Shale consists of poorly bedded gray clay shale and siltstone (Figures 2-13A and 2-13B).

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13 The Tertiary age is a geologic period from 66 million to 2.6 million years ago. The geologic timescale classifies this time period as the Cenozoic Era that includes the Paleogene and Neogene Periods.

14 The Eocene and Miocene Epochs are geological periods from 56 to 33.9 million years ago and 23 to 5.3 million years ago, respectively.

15 The Pleistocene is the geologic epoch lasting from approximately 2.6 million to 11,700 years ago and spans a period of successive glacial and interglacial climate cycles. The Holocene epoch is an interglacial period representing the last 11,700 years. The Quaternary Period is the last period of the Cenozoic Era and includes the Pleistocene and Holocene.

16 The Oligocene Epoch is a geological period from about 33.9 to 23 million years ago.

Quaternary Age Deposits

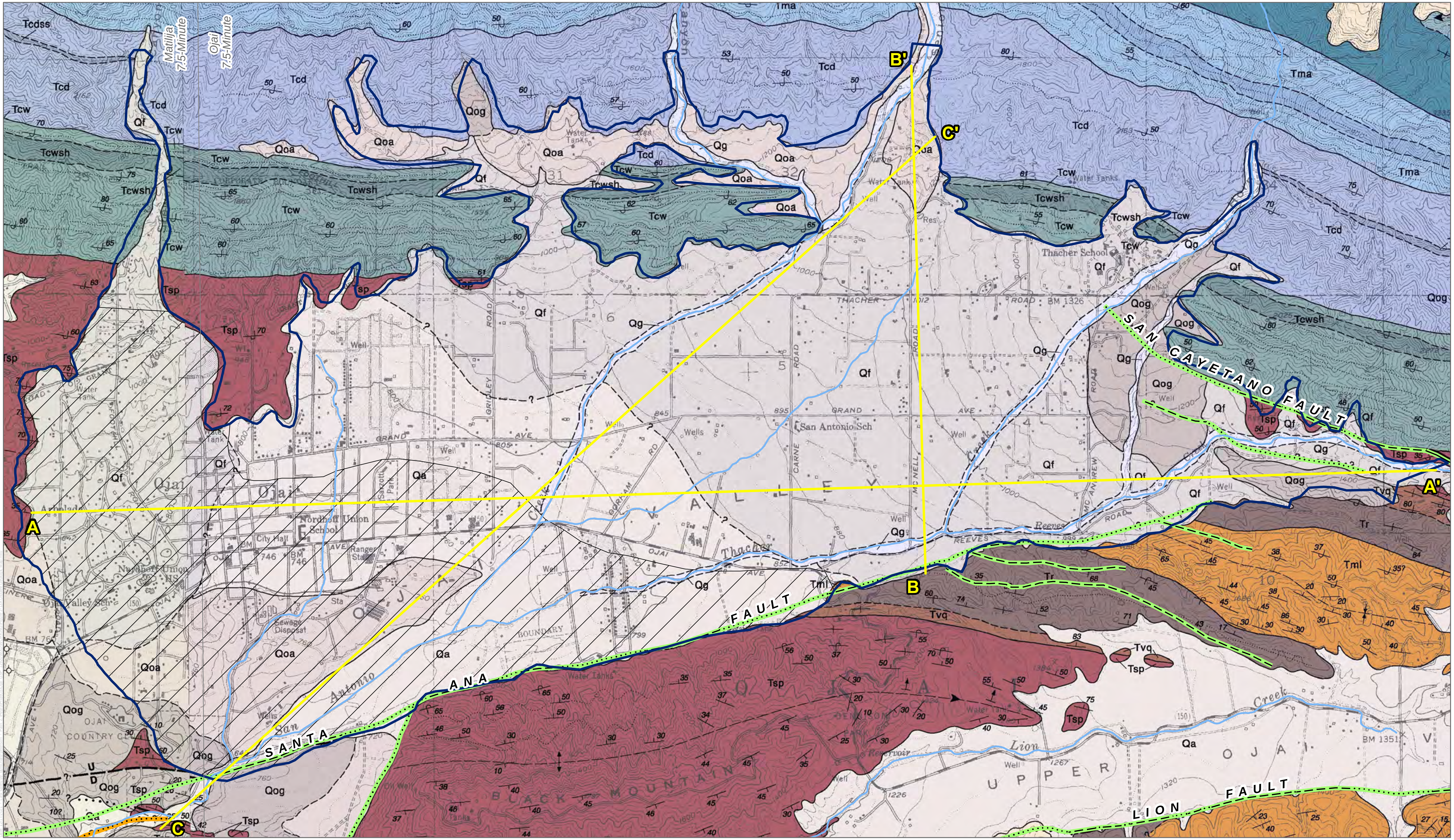
Unconsolidated deposits of Pleistocene to Holocene age eroded from the uplifted areas surrounding the OVGB unconformably overlie the consolidated Tertiary bedrock. The groundwater resources of the OVGB exist primarily within these deposits (see Section 2.3.2, Principal Aquifers and Aquitards). The surficial sediments consist of alluvial fan, stream channel, and floodplain deposits containing a wide range of material, from gravel- to clay-size particles. Approximately one half of the Quaternary sedimentary deposits of the OVGB are unconsolidated floodplain deposits of silt, sand, and gravel. Stream channel deposits consisting mostly of gravel and sand delineate the drainages of the major creeks that transect the OVGB. Older dissected surficial sediments, including remnants of weakly consolidated alluvial deposits of gravel, sand, and silt, and cobble-boulder fan gravel and fanglomerate deposits composed largely of sandstone detritus, flank the hillslopes surrounding the OVGB and underlie the southern portion of the City of Ojai. The remainder of the City of Ojai and OVGB is occupied by alluvial fan boulder gravel deposits (Figures 2-13A and2-13B).

2.3.1.2 Structures

The OVGB lies at the northern edge of the central Ventura basin, the deepest structural depression of the Transverse Ranges. Rocks of this region have been faulted and folded into a series of predominately west-trending anticlines and synclines caused by regional north-south compression. Much of this compression is absorbed locally by the San Cayetano Fault immediately to the east of the OVGB, and by the Red Mountain Fault approximately 9 miles to the southwest of the OVGB.

2.3.1.3 Faults

The Santa Ana Fault, which is part of the Mission Ridge fault system, runs in an east-west direction along the southern boundary of the OVGB at the base of Black Mountain. The Santa Ana Fault is a moderately constrained to inferred, late Quaternary fault with a slip rate of between 0.2 and 1 millimeter per year (USGS 2020b). The San Cayetano Fault extends into and is mapped terminating in the eastern portion of the OVGB. The San Cayetano Fault is a well constrained to inferred, latest Quaternary thrust fault with a slip rate of greater than 5 millimeters/year. No other major mapped faults are present in the OVGB (USGS 2020b). Faults primarily align along boundaries of the OVGB and do not influence groundwater flow within the OVGB.



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; Dibblee

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FIGURE 2-13A

Dibblee Geologic Map

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Legend

Ojai Valley Groundwater Basin (4-002)

Cross Section

Approximate Extent of Perched Aquifer

Quaternary Faults

Latest Quaternary (<15,000 years), inferred location

Late Quaternary (< 130,000 years), well constrained location

Late Quaternary (< 130,000 years), moderately contrained location

Late Quaternary (< 130,000 years), inferred location

Qg / Qf / Qa

SURFICIAL SEDIMENTS

Qg *Stream channel deposits, mostly gravel and sand*
Qa *Alluvial fan boulder gravel*
Qf *Alluvium: uncolsolidated floodplain deposits of silt, sand and gravel*

Qls

LANDSLIDE DEBRIS

Qoa / Qog

OLDER DISSECTED SURFICIAL SEDIMENTS

Qoa *Remnants of weakly consolidated older alluvial deposits of gravel, sand and silt*
Qog *Cobble-boulder fan gravel and fanglomerate deposits composed largely of sandstone detritus*

UNCONFORMITY

Tp

PICO SANDSTONE

Marine; Pliocene age

Tp *Massive to bedded gray siltstone, mudstone and minor tan sandstone; sandstone locally pebbly*

Tsq

SISQUOC SHALE

Marine, late Miocene age

Tsq *Light gray silty shale or claystone, locally slightly siliceous and diatomaceous; Delmontian-Mohnian Stages*

Tm / Tml

MONTEREY SHALE (MODELO FORMATION)

Marine; early to late Miocene age

Tm *Upper shale unit: white-weathering, thin-bedded, hard, platy to brittle siliceous shale, locally cherty; Mohnian Stage*
Tml *Lower shale unit: white-weathering, soft, fissle to punky clay shale with interbeds of hard siliceous shale and thin limestone strata; Luisian-Relizian Stages*

Tr

RINCON SHALE

Marine; early Miocene age

Tr *Poorly bedded gray clay shale and siltstone; contains occasional gray dolomitic concretions; Saucesian and upper Zemorrian Stages*

Tvq

VAQUEROS SANDSTONE

Shallow marine; early Miocene age

Tvq *Massive to thick bedded, light gray to tan, fine-grained sandstone locally calcareous; Zemorrian Stage*

Tsp

SESPE FORMATION

Nonmarine; Eocene to Miocene, predominantly Oligocene age

Tsp *Maroon, red and locally green silty shale or claystone and interbedded red to pinkish-gray sandstone; some sandstone beds in lower part coarse-grained and include pebble-cobble conglomerate; lowest part consists of pink sandstone and red claystone*

Tcw / Tcwsh

COLDWATER SANDSTONE

Marine; late Eocene age

Tcw *Hard, tan, bedded arkosic sandstone with minor interbeds of greenish-gray siltstone and shale; local oyster shell beds common in upper part; Narizian Stage*
Tcwsh *Greenish-gray siltstone and shale with occasional interbeds of tan sandstone*

Tcd / Tcdss

COZY DELL SHALE

Marine; late Eocene age

Tcd *Dark gray, argillaceous to silty micaceous shale with minor light gray to tan arkosic sandstone; Narizian Stage*
Tcdss *Light gray to tan arkosic sandstone with minor interbeds of gray micaceous shale*

Tma / Tmash

MATILIJA SANDSTONE

Marine; middle to late Eocene age

Tma *Hard, thick bedded, tan to mottled light greenish-gray arkosic sandstone with thin partings to thick interbeds of gray micaceous shale; lower Narizian (?) and upper Ulatisian (?) Stages*
Tmash *Gray micaceous shale with minor tan sandstone interbeds*

Tjsh / Tjss

JUNCAL FORMATION

Marine; early(?) to middle Eocene age

Tjsh *Dark gray micaceous shale with minor thin interbeds of hard, gray-white to tan arkosic sandstone; lower Ulatisian(?) to upper Penutian(?) Stages*
Tjss *Hard, gray-white to tan arkosic sandstone with minor interbeds of dark gray micaceous shale*

Kush / Kucg

UNAMED MARINE STRATA (JALAMA ? FORMATION)

Marine; upper Cretaceous age

Kush *Dark gray to black micaceous clay shale with minor interbeds of hard, tan, arkosic sandstone*
Kucg *Gray to brown cobble conglomerate of granitic, porphyritic-andesitic, and quartzitic detritus in arkosic sandstone matrix*

SOURCE: Dibblee

FIGURE 2-13B

Dibblee Geologic Map Legend

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.3.1.4 Folds

The major folds in the vicinity of the OVGB include the Matilija overturn, Ojai syncline, Reeves syncline, and Lion Mountain anticline. Competent Eocene clastic marine rocks form the Matilija overturn, which is the overturned southern section of an anticline in the Santa Ynez and Topatopa mountains. The Ojai Syncline underlies the OVGB and consists of terrestrial Sespe Formation and older marine rocks. Ductile middle to upper Miocene marine rocks form the Reeves syncline, which underlies the mountains northeast of the OVGB. The Lion Mountain anticline forms Black Mountain and is composed of non-marine rocks of the Sespe Formation (Kear 2005).

2.3.2 Principal Aquifers and Aquitards

Water-bearing units of the OVGB include alluvial deposits and fractures and interstices of underlying Tertiary rocks. The alluvium is composed of units of sand, gravel, and clay up to 50 to 100 feet thick that pinch out toward the lateral edges of the OVGB (Kear 2005; DBS&A 2011, 2020a). The alluvial deposits are the most productive units in the OVGB, with well yields that range from 100 to 600 GPM (DWR 2004). The weathered Tertiary rocks are typically consolidated and yield minor amounts of poor-quality water, with well yields typically around 2 to 5 GPM, but reaching a maximum of about 50 GPM (DWR 2004). The contact of the alluvial unconsolidated deposits of Pleistocene to Holocene age with the Tertiary rocks define the base of the OVGB. The primary storage units for groundwater are approximately four discrete sand and gravel units on the order of up to 100 feet thick each, which are sourced near the alluvial fan heads in the northeast side of the Ojai Valley (Kear 2005; OBGMA 2018). The individual coarse grained sand and gravel aquifer units that together comprise the primary production aquifer are thickest in the northern and eastern areas of the OVGB and thinnest in the southern and western areas of the OVGB where fine grained lacustrine and floodplain deposits of up to approximately 100 feet thick predominate as confining layers creating a multi-layered aquifer system (DBS&A 2011; Kear 2005; OBGMA 2018). The uppermost confining clay unit, which generally extends from approximately 30 to 130 feet below ground surface (bgs), is the thickest and most extensive aquitard and separates the primary production aquifer from a shallow perched aquifer (Kear 2005, 2021; OBGMA 2018). The approximate extent of the shallow perched, based on well geophysical and lithologic logs, is shown in Figure 2-13A (Kear 2005, 2021). The shallow perched aquifer generally extends from approximately 15 to 30 feet bgs (Kear 2005, 2021). Groundwater within the primary production aquifer is predominantly under unconfined conditions near the alluvial fan heads and semi-confined to mostly confined in the central, southern, and western portions of the OVGB (Kear 2005; 2021). The alluvial deposits are deepest in the central and southern areas of the OVGB (Kear 2005; DBS&A 2011, 2020a). The maximum total thickness of the alluvial deposits is approximately 900 feet (DBS&A 2011, 2020a).

The hydraulic properties of the primary production aquifer vary spatially. Results of field pumping tests indicate aquifer transmissivity ranges from 1×10^{-5} to 6.20 square feet per minute for an average of approximately 2.0 square feet per minute (Kear 2005). Aquifer storativity ranges from 1×10^{-8} to 0.024 for an average of approximately 0.003 (Kear 2005) and will vary with groundwater level fluctuation. Hydraulic conductivity and specific yield and storage values used in the Ojai Basin Groundwater Model (OBGM) developed by DBS&A also provide an estimate of the hydraulic properties of the primary production aquifer and aquitards. Values for aquifer hydraulic conductivity used in the OBGM range from 7 to 150 feet per day. Values for aquifer specific yield used in the OBGM range from 0.03 to 0.1. The specific storage of all aquifer layers in the OBGM is 1×10^{-6} per foot and of all aquitard layers is 1×10^{-7} per foot. The specific yield of all aquitard layers in the OBGM is 0.03. The hydraulic conductivity of all aquitard layers in the OBGM is presented as 0.1 feet per day (DBS&A 2011, 2020a). Note that while units of the model are simplified as being laterally contiguous, their conductivity properties do change with facies changes, generally becoming finer-grained and less conductive toward the southwest portion of the OVGB. Cross-sectional interpretations of the multi-layered OVGB aquifer system are shown in cross-sections A-A' (west-east), B-B' (south-north), and C-C' (southwest-northeast) (Figures 2-14 to 2-16, Cross Sections AA', BB', and CC', respectively) at the locations shown on Figure 2-13A.

2.3.3 Recharge and Water Deliveries

Water deliveries to the OVGB include potable water supplied by CMWD, which have historically ranged from an estimated 2,404 AFY to 5,272 AFY (Figure 2-17, Casitas Municipal Water District Water Deliveries); however, these surface water imports are used exclusively for domestic and agricultural supply, and not for managed recharge. The San Antonio Creek spreading grounds have historically been used to divert excess flows from San Antonio Creek to recharge groundwater in the OVGB (Figure 2-18, Recharge Areas and Soils). The spreading grounds are estimated to have provided an average of 126 AFY of recharge to the OVGB (Walter 2015). With the exception of the San Antonio Creek spreading grounds, recharge to the OVGB is limited to natural infiltration of precipitation, and to a lesser degree, return flows from septic systems and applied irrigation water.

The San Antonio Creek watershed, which drains the mountains surrounding the OVGB, provides recharge to the OVGB through infiltration of streamflow into the shallow alluvial sediments. Mountain front recharge that occurs at the interface between surrounding bedrock and unconsolidated sediments is a source of recharge along the creeks that enter the OVGB (Figure 2- 18). Focused areas of recharge also include areas of the OVGB occupied by soils with high saturated hydraulic conductivity (Figure 2-18). DBS&A (2020b) estimated average annual recharge from precipitation for the revised OBGM calibration period (1970 to 2019) to be approximately 6,970 AFY. The amount of groundwater recharge to the OVGB is considered to vary significantly from year to year. Daniel B. Stephens & Associates (DBS&A 2011) estimated annual recharge from precipitation for the original OBGM calibration period (1970 to 2009) to range from approximately 1,700 AFY to 20,000 AFY.

The other, though less voluminous, source of recharge is return flows from agricultural irrigation. DBS&A (2020b) estimated recharge from irrigation return flows for the period 1970 to 2019 to be approximately 1,483 AFY.

Septic tank treatment and disposal systems also contribute a source of recharge to the OVGB, but this source is considered negligible when compared to natural recharge. DBS&A (2020b) identified 16 individual septic systems and one wastewater treatment plant (Thacher School) within the OVGB, although there are likely additional OWTSs as OVSD's service area only covers approximately 33% of the OVGB. DBS&A (2011) estimated the recharge rate for individual septic systems to be 0.16 AFY, and for the Thacher School wastewater treatment plant to be 19 AFY, for a combined recharge rate from wastewater of approximately 22 AFY. Additional information on recharge sources as they pertain to the basin water budget is provided in Section 2.4.1, Inflow to Groundwater System.

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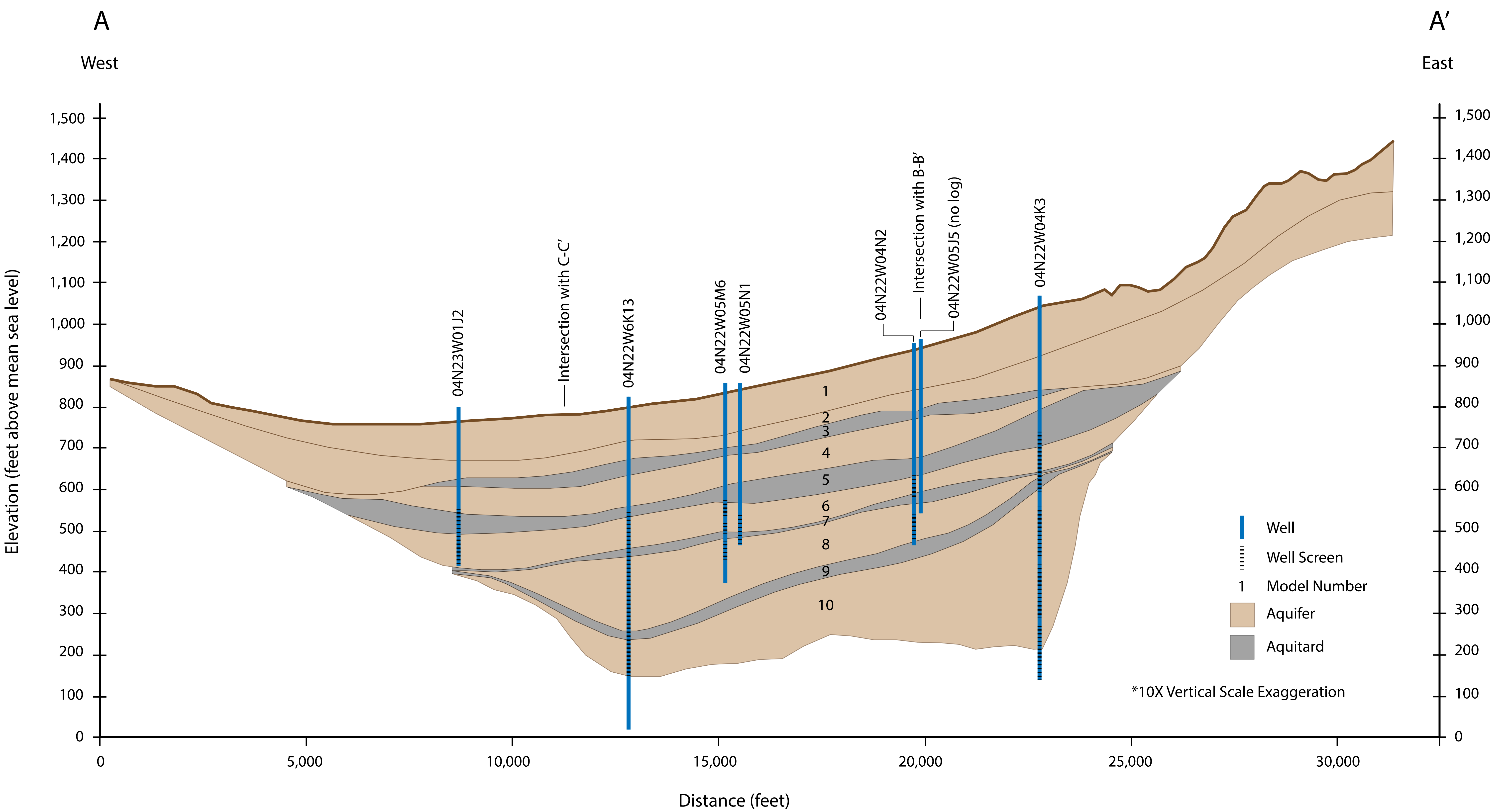

SOURCE: Adopted from DBS&A

FIGURE 2-14

A - A' Geologic Cross-Section

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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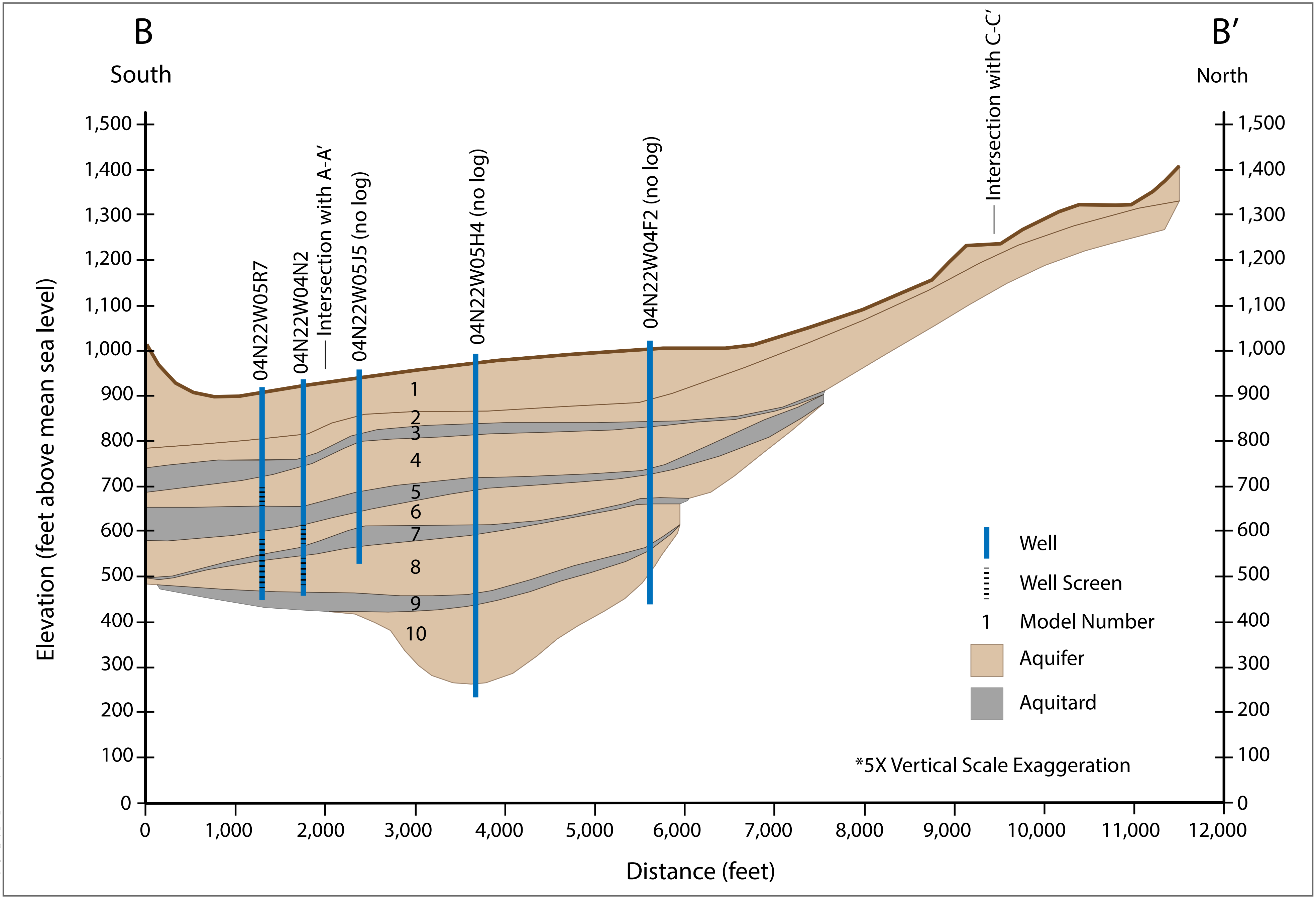

SOURCE: Adopted from DBS&A

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FIGURE 2-15

B - B' Geologic Cross-Section

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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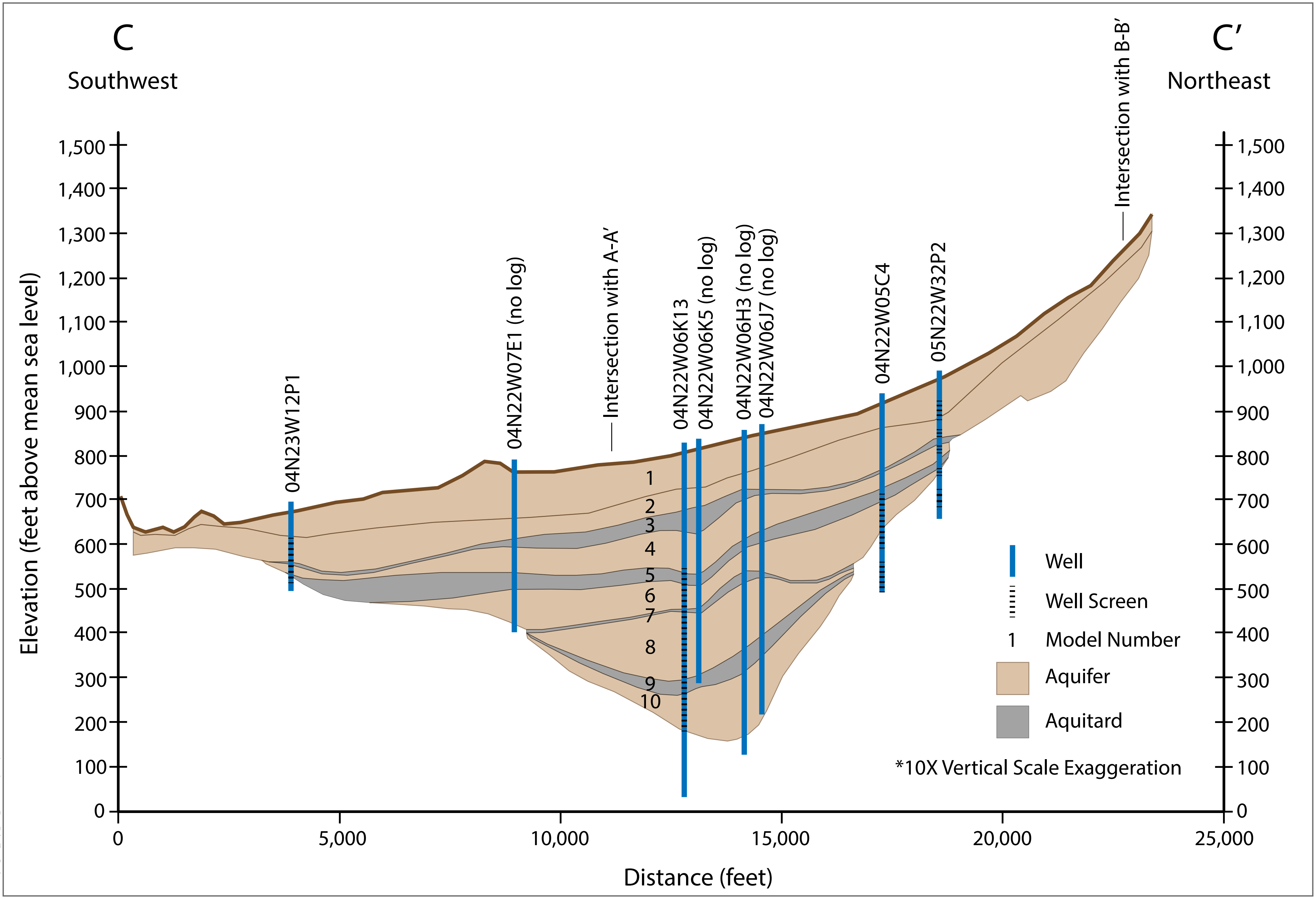

SOURCE: Adopted from DBS&A

DUDEK

FIGURE 2-16

C - C' Geologic Cross-Section

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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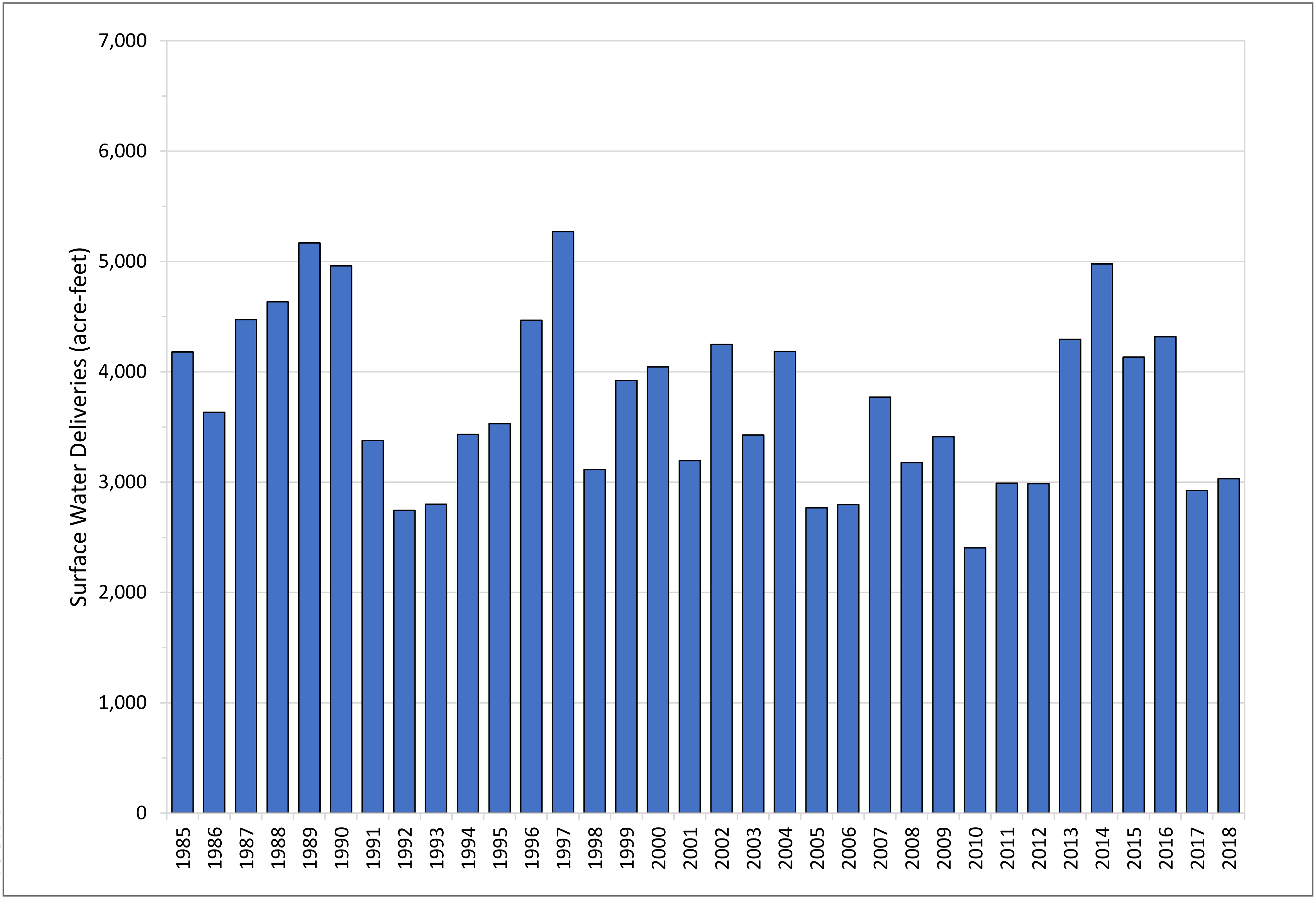

SOURCE: OBGMA

DUDEK

FIGURE 2-17

Casitas Municipal Water District Estimated Water Deliveries

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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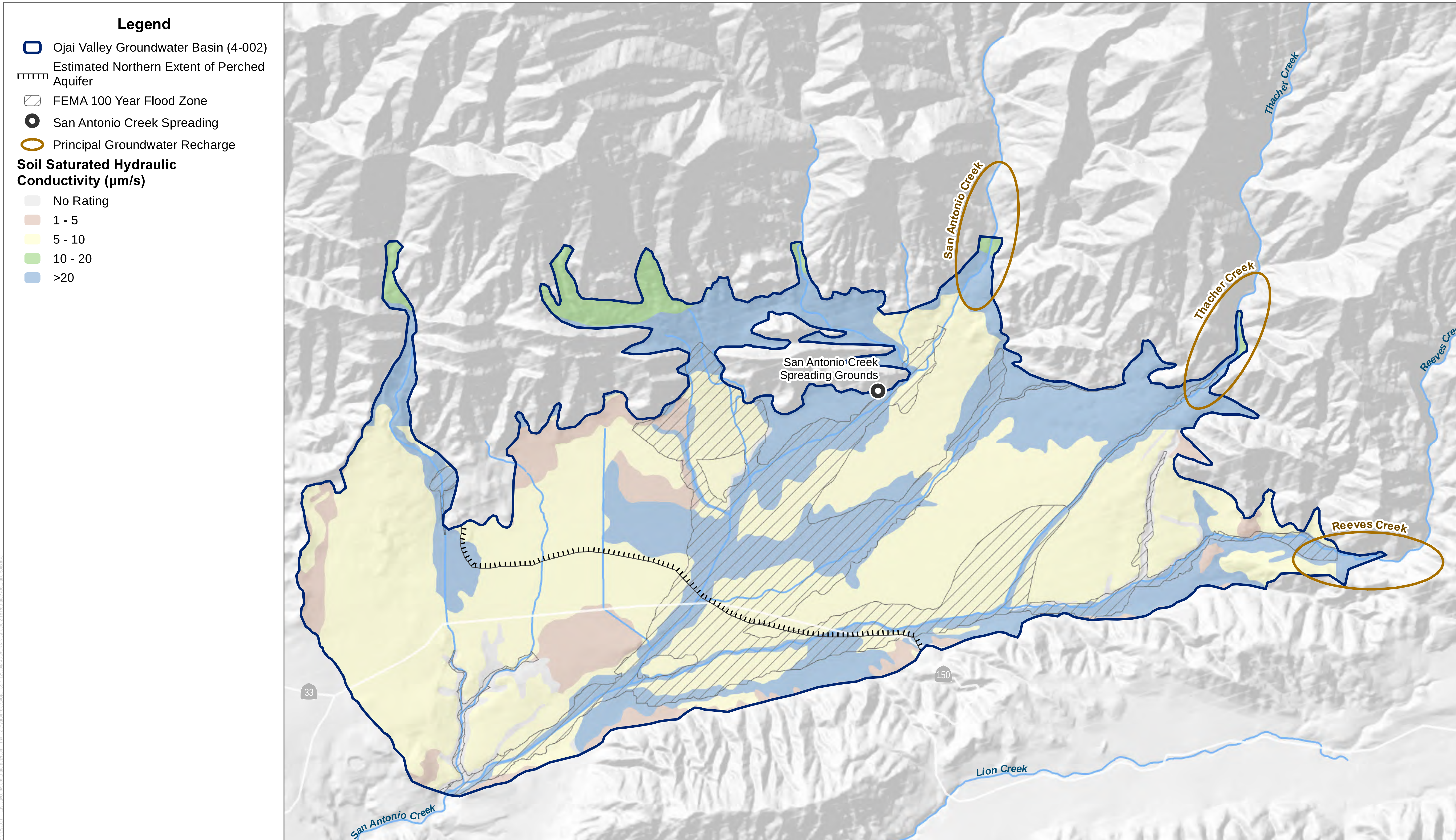

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; USDA; FEMA

DUDEK

0 0.5 1 Miles

FIGURE 2-18

Recharge Areas and Soils

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.3.4 Historical and Current Groundwater Conditions

2.3.4.1 Groundwater Elevation Data

Groundwater elevations in the OVGB were first measured in 1927, and multiple entities, including the USGS, VCWPD, and OBGMA, have recorded groundwater levels since that time. Prior to 1949, available groundwater elevation data are limited to a single well (SWN 04N22W05L001S) located in the central part of the OVGB. Since 1949, an increasing number of wells have been monitored for groundwater levels, including dedicated monitoring wells and agricultural, domestic, municipal, and industrial production wells. Currently, the VCWPD and OBGMA are the two primary entities that monitor groundwater levels in the OVGB, which together periodically take depth to water measurements in approximately 23 wells located across the OVGB. Hydrographs for all OVGB wells in which water level measurements have been recorded and made available are included in Appendix D.

Historical Groundwater Elevation Trends

Groundwater elevations in the OVGB are correlated with mountain front recharge, precipitation, return flows, and groundwater extraction. Groundwater elevations are highest in the northern and eastern portions of the OVGB, adjacent to the Topatopa Mountains, and lowest in the southwestern part of the OVGB in the vicinity of San Antonio Creek. The direction of regional groundwater flow in the OVGB is away from the Topatopa Mountains towards the southwest, except near major centers of groundwater extraction where the hydraulic gradient is locally toward the pumping wells.

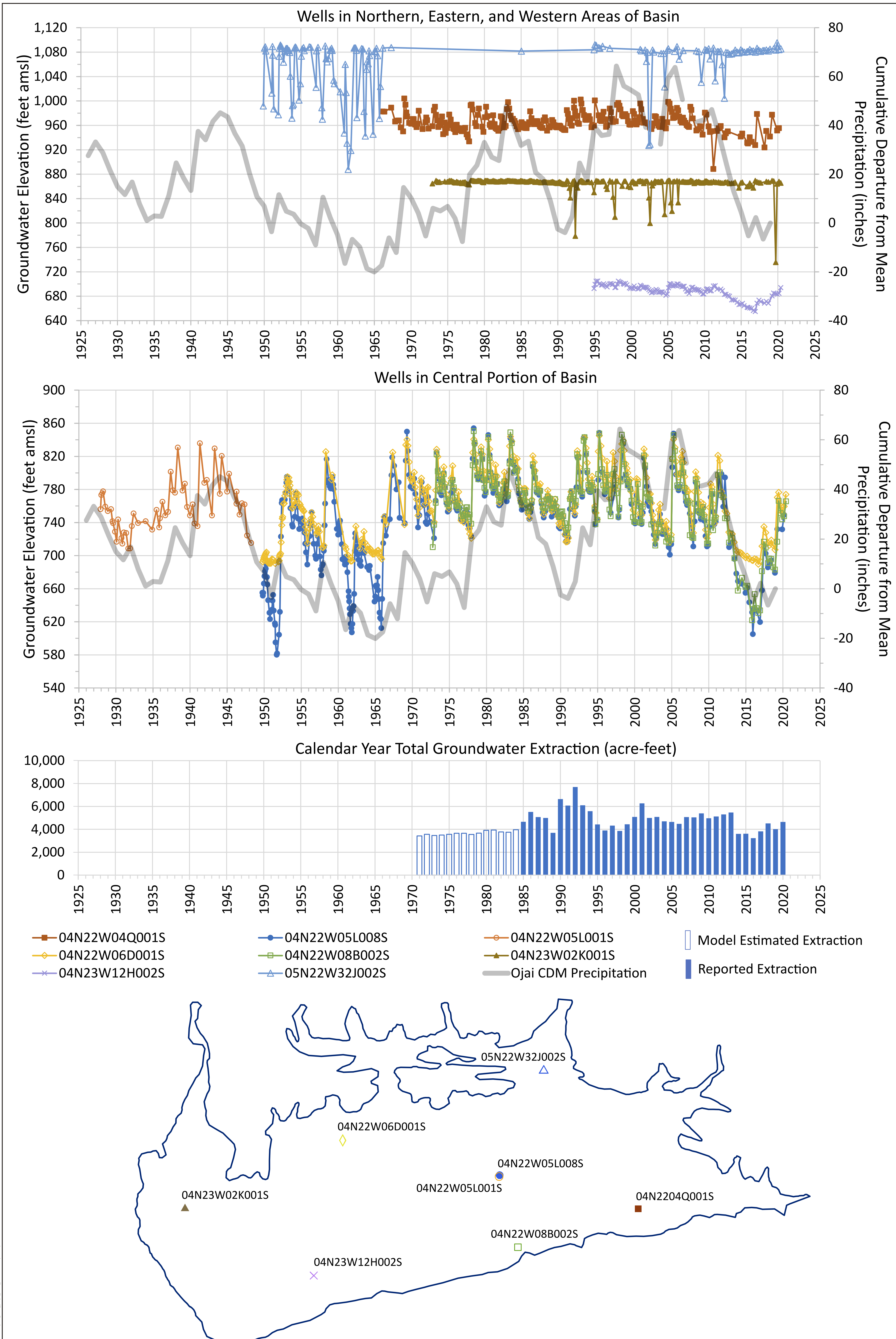
In December 1927, groundwater elevations in well 04N22W05L001S in the central part of the OVGB were approximately 756 feet amsl (Figure 2-19, Hydrographs for Select Wells). Between 1927 and 1948 (the end of the measurement record), groundwater levels in well 04N22W05L001S fluctuated in response to recharge from precipitation, declining during dry periods and rising during wet periods (Figure 2-19). The cyclic pattern of groundwater level decline and recovery over dry and wet climatic cycles observed in well 04N22W05L001S is apparent in hydrographs for wells located throughout the OVGB, with wells in the central part of the OVGB showing the largest response to precipitation and wells in the peripheral northern, eastern, and western areas exhibiting little to no response (Figure 2-19). Wells in the peripheral areas of the OVGB are not adjacent to the majority of the production wells, and groundwater levels in the peripheral wells likely reflect the combined influences of local precipitation and bedrock-derived recharge that helps maintain higher groundwater levels on the margins of the OVGB (OBGMA 2018).

Well 04N22W05L008S located in the central part of the OVGB has the longest and most continuous groundwater elevation record spanning from October 1949 to present. Over the approximately 71-year period of record, groundwater elevations have ranged from a low of approximately 580 feet amsl in September 1951 to a high of approximately 854 feet amsl in April 1978 (Figure 2-19). Declines in groundwater elevation of approximately 200 feet occurred between 1958 and 1962, and 2011 and 2016, coincident with periods of drought shown in the declining cumulative departure from the mean precipitation curve (Figure 2-19). Groundwater elevations recovered after each drought period. The magnitude of recovery depended on the length of time between droughts and the amount of precipitation received in each of the water years between the droughts, as well as the amount of groundwater extracted. These patterns of groundwater level decline and recovery were observed primarily in wells located in the central portion of the OVGB, although absolute changes in groundwater level varied geographically. In March 2020, the most recent measurement, the groundwater elevation in well 04N22W05L008S was approximately 749 feet amsl (Figure 2-19).

To evaluate how the historical groundwater gradient and direction of flow differed between a period of above average precipitation and a period of below average precipitation, groundwater elevation contours were generated using available data from wells greater than 100 feet in total depth for spring 1998 and fall 2015, respectively. The wells included in the analysis are screened across multiple aquifer units that comprise the primary production aquifer (see Section 2.3.2, Principal Aquifers and Aquitards). As of fall 2020, the only depth discrete groundwater well in the OVGB is well SACSGRP DDMW (05N22W32P002S–P006S) located at the San Antonio Creek Spreading Grounds.

In spring 1998, groundwater elevations ranged from a high of approximately 1,115 feet amsl in the eastern part of the OVGB to a low of 678 feet amsl in the southwestern part of the OVGB. The direction of groundwater flow was toward the southwest and the hydraulic gradient was approximately 0.019 feet/feet, as measured between wells 04N22W06D005S, 04N22W08B002S, and 04N23W12L002S (Figure 2-20, Groundwater Elevation Contours Spring 1998).

In fall 2015, groundwater elevations ranged from a high of approximately 1,081 feet amsl in the northeastern part of the OVGB to a low of approximately 579 feet amsl in the central part of the OVGB. The direction of groundwater flow was toward the southwest and the hydraulic gradient was approximately 0.056 feet/feet, as measured between wells 05N22W32J002S, 04N22W06D005S, and 04N22W08B002S. A pumping depression in the central part of the OVGB, as evidenced by the bullseye shaped contours and depressed water levels in several wells, indicates that groundwater flow was locally toward the center of the OVGB and pumping wells (Figure 2- 21, Groundwater Elevation Contours Fall 2015).



SOURCE: VCWPD; OBGMA

FIGURE 2-19

Hydrographs for Select Wells

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Current Groundwater Elevation Trends

Groundwater elevations in wells throughout the OVGB had generally been recovering in recent years from the last major drought period that ended around 2016 but are again declining due to below average precipitation recorded in the 2020 to 2021 Water Year. Between fall 2016 and spring 2020, groundwater elevations in peripheral areas of the OVGB increased by greater than 40 feet and levels in the central part of the OVGB increased by as much as 130 feet (Figure 2-19). In spring 2020 groundwater elevations in wells were generally near or at historical average levels.

In fall 2019, groundwater elevations ranged from a high of approximately 1,084 feet amsl in the northeastern part of the OVGB to a low of approximately 676 feet amsl in the central part of the OVGB. The direction of groundwater flow was toward the southwest and the hydraulic gradient was approximately 0.028 feet/feet, as measured between wells 05N22W32J002S, 04N23W01K002S, and 04N22W07G001S. Depressed groundwater levels in several wells in the central part of the OVGB suggest that a pumping depression persisted through the fall until the wet season recharge period (Figure 2-22).

In spring 2020, groundwater elevations ranged from a high of approximately 1,085 feet amsl in the northeastern part of the OVGB to a low of approximately 694 feet amsl in the southwestern part of the OVGB. The direction of groundwater flow was toward the southwest and the hydraulic gradient was 0.028 feet/feet, as measured between wells 05N22W32J002S, 04N23W01K002S, and 04N22W07G001S (Figure 2-23).

2.3.4.2 Estimate of Groundwater in Storage

The total groundwater storage capacity of the OVGB has been estimated to be between 70,000 AF and 85,000 AF (DWR 2004; OBGMA 2016). Since 1975, the total annual groundwater in storage in the OVGB at the springtime high point has been estimated using measured groundwater level data from key monitoring wells. From 1975 to 2018, the estimated total groundwater in storage has ranged from a minimum of 41,310 AF in 2016 to a maximum of 83,785 AF in 1983 (OBGMA 2016 and 2018). In 2018, the estimated groundwater in storage was 48,642 AF (OBGMA 2018).

The annual change in storage is also estimated using the Ojai Basin Groundwater Model developed by DBS&A (2011). The OBGM-calculated change in storage is lower than the volume in storage calculated using the method described in OBGMA (2016) (Section 2.4.3).

2.3.4.3 Seawater Intrusion

As an inland basin, the OVGB has no hydraulic connection to the Pacific Ocean. The OVGB is approximately 11 miles from the Pacific Ocean at an elevation of more than 630 feet amsl. Therefore, seawater intrusion has not occurred and will not occur in the OVGB.

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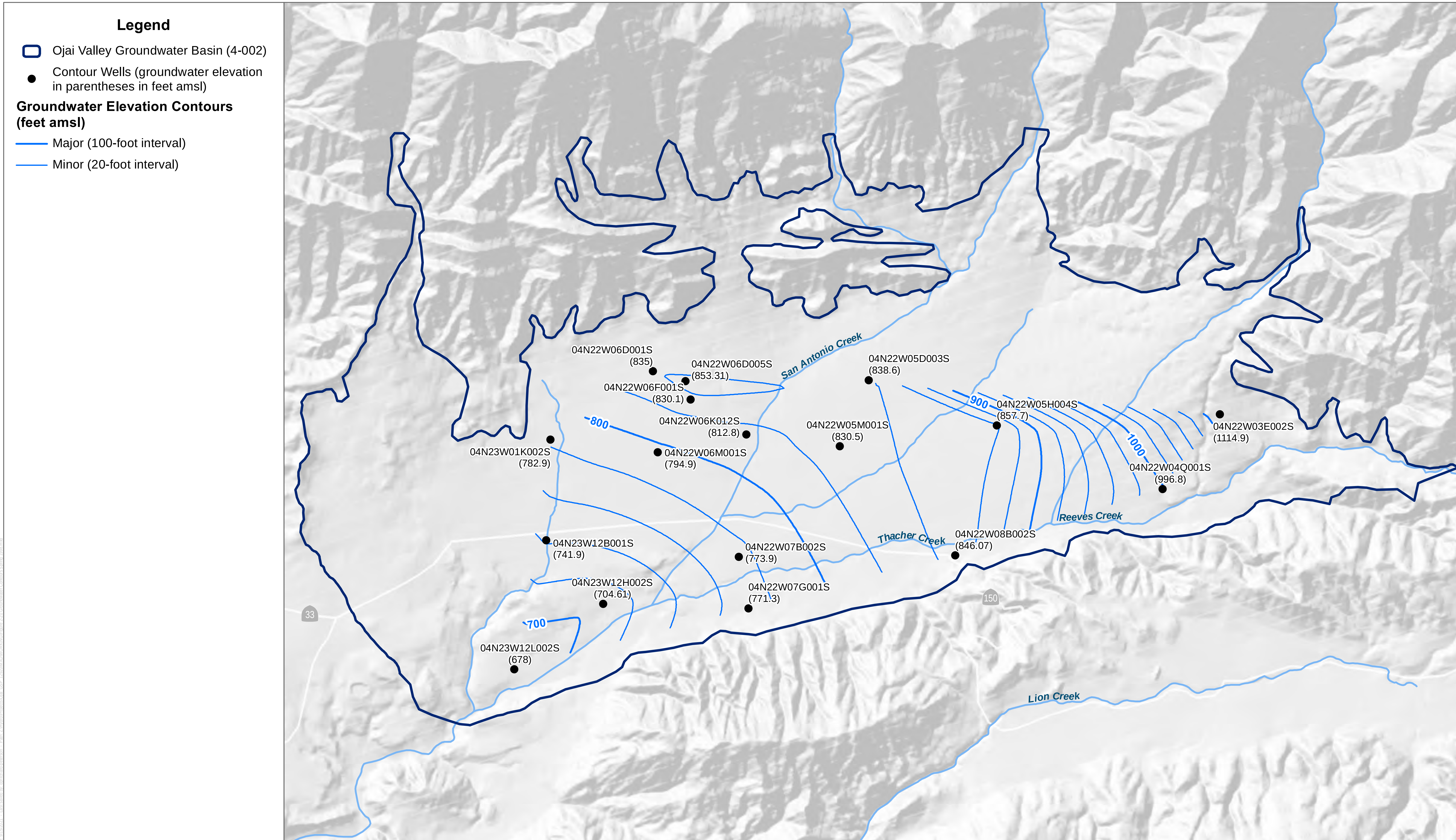

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD

DUDEK

0 0.5 1 Miles

FIGURE 2-20

Groundwater Elevation Contours Spring 1998

GGroundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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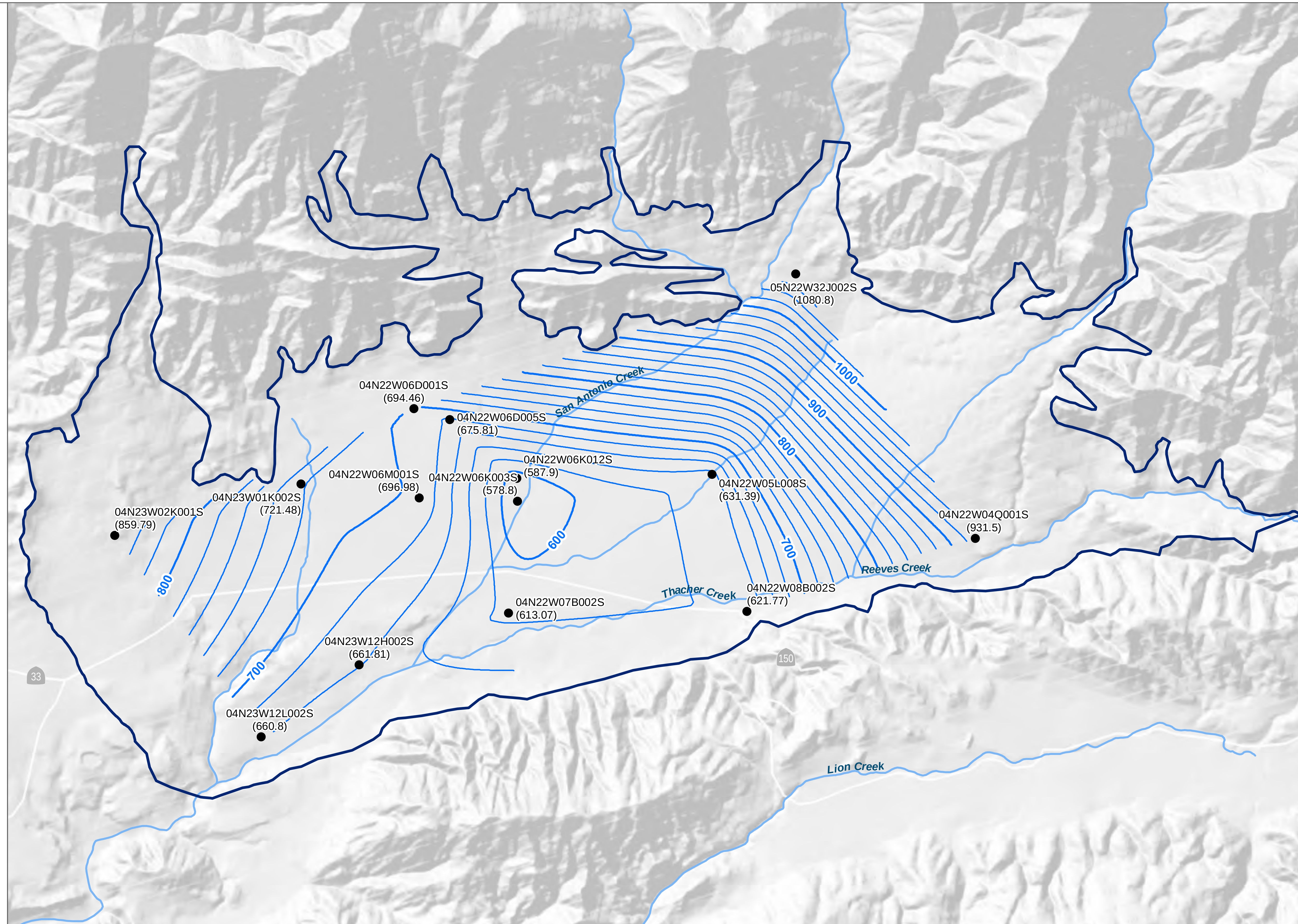
Legend

- Ojai Valley Groundwater Basin (4-002)
- Contour Wells (groundwater elevation in parentheses in feet amsl)

Groundwater Elevation Contours (feet amsl)

- Major (100-foot interval)
- Minor (20-foot interval)



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD

DUDEK

0 0.5 1 Miles

FIGURE 2-21

Groundwater Elevation Contours Fall 2015

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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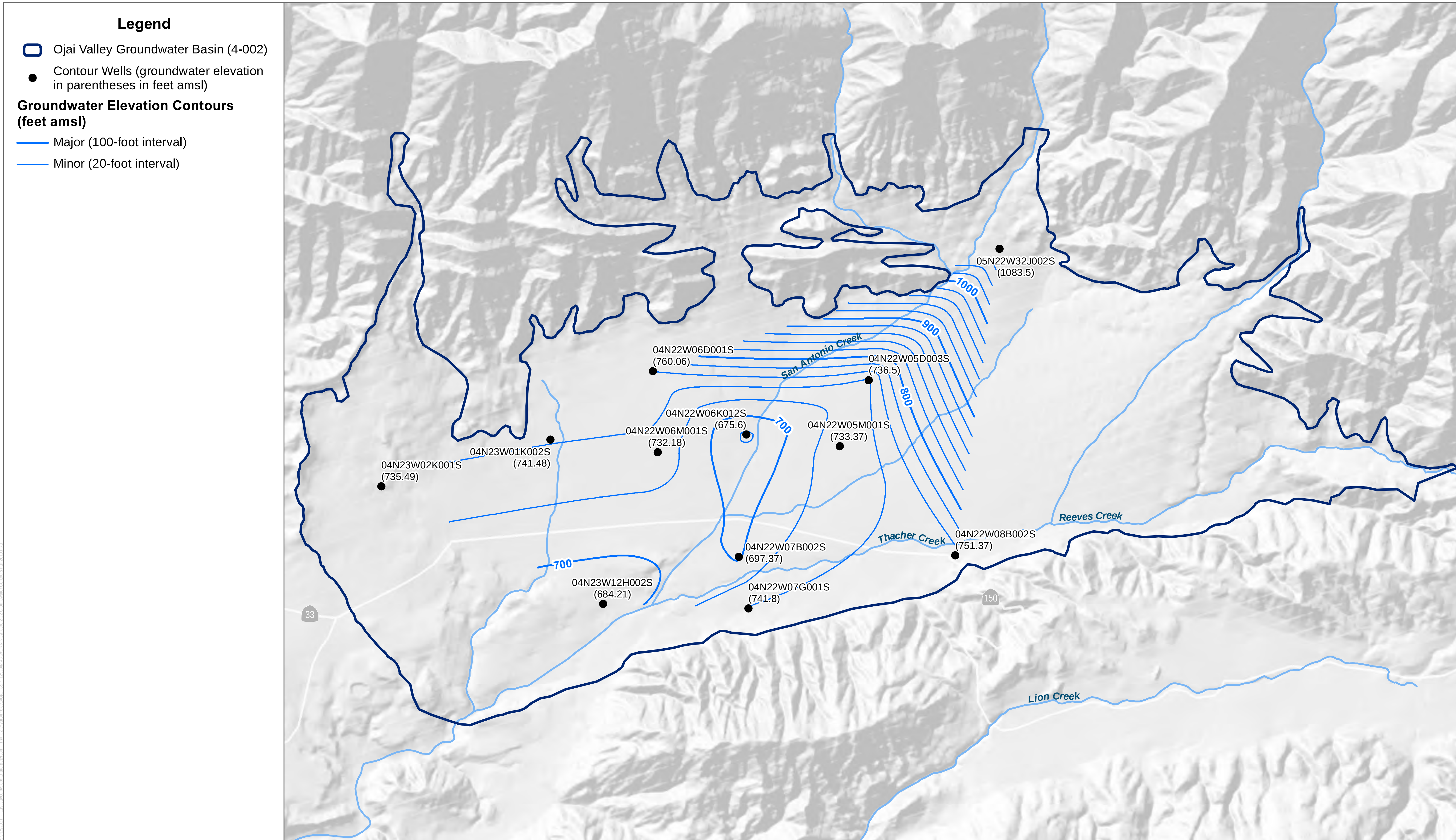

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD

DUDEK

0 0.5 1 Miles

FIGURE 2-22

Groundwater Elevation Contours Fall 2019

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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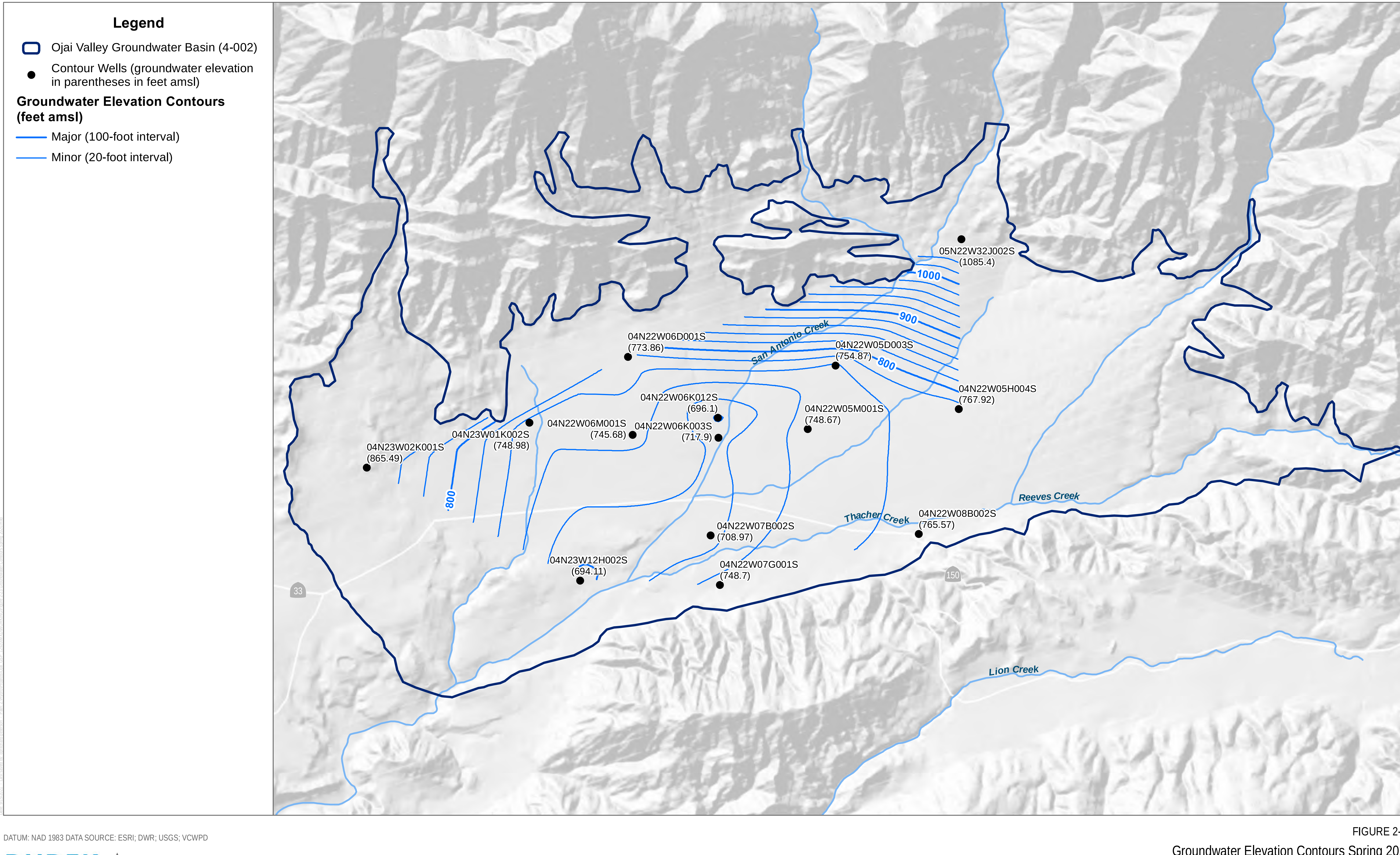

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD

DUDEK

FIGURE 2-23

Groundwater Elevation Contours Spring 2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.3.4.4 Groundwater Quality

The primary sources of groundwater quality data for the OVGB come from reporting by operators of municipal potable supply wells to the SWRCB DDW for the purpose of ensuring that water supplied to the public meets drinking water quality standards, and from groundwater quality monitoring conducted by the VCWPD. The groundwater quality results for municipal potable supply wells are reported to the SWRCB (nine wells total) and included in the SWRCB GeoTracker GAMA database (SWRCB 2020b). The VCWPD collects annual groundwater quality data from a network of wells in the OVGB and produced annual reports on groundwater conditions in the OVGB between 2010 and 2015 (OBGMA 2018; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). The VCWPD has continued to monitor groundwater quality in wells in the OVGB but has not published the data in annual reports (Dorrington pers. comm. 2021). Between 2010 and 2020, VCWPD sampled wells in the OVGB for inorganic water quality constituents, including TDS, major anions (sulfate [SO_4], chloride [Cl], bicarbonate [HCO_3], and nitrate [NO_3]), cations (calcium [Ca], sodium [Na], potassium [K], and magnesium [Mg]), and Title 22 metals. VCWPD noted in the annual reports that groundwater quality in the OVGB was considered good, although there was a high variation in groundwater quality in the individual wells sampled, as demonstrated by the Stiff diagrams shown in Figure 2-24, Stiff Diagrams for Wells Sampled by VCWPD 2010–2020 (Dorrington pers. comm. 2021; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). OBGMA has noted that overall, groundwater is of sufficient quality for drinking and irrigation, although some wells need to blend water from other sources to meet drinking water quality standards (OBGMA 2018). TDS, nitrate, chloride, sulfate, boron, odor, and metals (particularly iron and manganese) have been cited as potential groundwater quality concerns in the OVGB (DWR 2004; OBGMA 2018; RWQCB 2014; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016).

Total Dissolved Solids

TDS is a measure of all dissolved solids in water including organic and suspended particles. Sources of TDS include groundwater interaction with aquifer materials, as well as mixing with other water sources, such as septic effluent or water from deeper aquifers with higher TDS concentrations. Reported concentrations of TDS in wells sampled between 2010 and 2020 ranged from 370 milligrams per liter (mg/L) to 1,520 mg/L, for an average TDS concentration of approximately 760 mg/L (Dorrington pers. comm. 2021; SWRCB 2020b; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). Five of the 29 wells sampled had TDS concentrations above the secondary maximum contaminant level (SMCL) of 1,000 mg/L (Figure 2-25, Maximum TDS Concentrations 2010–2020). SMCLs are established for constituents that are not health hazards, but which may cause drinking water to have negative aesthetic effects (i.e., a negative impact on taste or odor) if they are above secondary standards. While TDS concentrations may be near SMCLs, TDS concentrations in groundwater have not significantly affected the ability of groundwater to be put to beneficial use within the OVGB. Several municipal wells have TDS measurements that have been collected regularly since the 1980s. All measurements collected at the municipal wells have been below the SMCL for TDS (Appendix D). A Mann-Kendall[17] analysis of trends in TDS concentrations in the municipal wells showed that they have been stable since measurements began, with the exception of Gorham Well, which has shown an increasing trend in TDS (Appendix D). TDS time series plots for municipal wells and wells sampled by VCWPD are included in Appendix D.

Nitrate

Nitrate has been identified as the primary groundwater quality constituent of concern for most of the Ventura River watershed (OBGMA 2018). Typical sources of nitrate include fertilizer, wastewater, and septic effluent. Nitrate can also be naturally occurring. Nitrate concentrations (as nitrogen) in wells sampled between 2010 and 2020 ranged from below the method detection limit (<0.09 mg/L)[18] to 14.7 mg/L, for an average nitrate as nitrogen concentration of approximately 4.5 mg/L (Dorrington pers. comm. 2021; SWRCB 2020b; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). The California drinking water MCL for nitrate as nitrogen is 10 mg/L. Two of the 29 wells sampled had nitrate concentrations above the MCL (Figure 2-26, Maximum Nitrate as Nitrogen Concentrations 2010–2020). Nitrate concentrations in the municipal wells sampled since the 1980s have not exceeded the MCL, with the exception of Grant Well (Appendix D). A Mann-Kendall trend analysis of nitrate concentrations in the municipal wells showed that they have been stable over time, with the exception of Gorham Well, Mutual Well 5, and Well 4. Gorham Well and Well 4 have shown an increasing trend in nitrate over time while Mutual Well 5 has shown a decreasing trend in nitrate (Appendix D). Nitrate time series plots for municipal wells and wells sampled by VCWPD are included in Appendix D.

Chloride

In general, chloride concentrations in wells sampled between 2010 and 2020 were well below the upper SMCL of 500 mg/L, with an average chloride concentration of approximately 65 mg/L (Dorrington pers. comm. 2021; SWRCB 2020b; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). Reported chloride concentrations in wells sampled ranged from 12 mg/L to 580 mg/L. One well (SWN 04N22W07D004S), located in the southwestern portion of the OVGB, has historically had chloride concentrations in excess of the SMCL, with a concentration measured at 580 mg/L in both 2011 and 2015 (Figure 2-27, Maximum Chloride Concentrations 2010–2020). Depth discrete studies have indicated that deeper aquifers, particularly in the central and southwestern

[17] The Mann-Kendall test does not require regularly spaced sample intervals, is unaffected by missing time periods, and does not assume a pre-determined data distribution (non-parametric statistics). The Mann-Kendall test assesses whether or not a dataset exhibits a monotonic (up or down) trend within a selected significance level. A significance level of 0.05 or confidence level of 95% was selected for this analysis.

[18] The detection limit was not reported by the VCWPD or SWRCB, but is less than 0.09 mg/L (the lowest reported detected concentration) (SWRCB 2020b).

portions of the OVGB, have poorer quality water with higher chloride concentrations (OBGMA 2018). It is possible that this well, which is screened from 200 to 500 feet depth, is pulling water from deeper aquifers with higher chloride concentrations. Chloride concentrations in the municipal wells sampled have remained well below the SMCL since measurements began (Appendix D; SWRCB 2020b). Thus, chloride is currently not a significant issue for beneficial use of groundwater in the OVGB. A Mann-Kendall trend analysis of chloride concentrations in the municipal wells showed that they have been stable over time, with the exception of Grant Well and San Antonio Well 3, which have shown an increasing trend and a decreasing trend in chloride, respectively. Chloride time series plots for municipal wells and wells sampled by VCWPD are included in Appendix D.

Sulfate

Sulfate concentrations in wells sampled between 2010 and 2020 were below the upper SMCL of 500 mg/L, with an average sulfate concentration of approximately 210 mg/L (Dorrington pers. comm. 2021; SWRCB 2020b; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). Reported sulfate concentrations in wells sampled ranged from 65 mg/L to 490 mg/L. Two of the 29 wells sampled had sulfate concentrations above the recommended SMCL of 250 mg/L, but all wells sampled had sulfate concentrations below the upper SMCL of 500 mg/L (Figure 2-28, Maximum Sulfate Concentrations 2010–2020). Thus, sulfate is currently not a significant issue for beneficial use of groundwater in the OVGB. A Mann-Kendall trend analysis of sulfate concentrations in the municipal wells showed that they have been stable over time, with the exception of San Antonio Well 3, which has shown a decreasing trend in sulfate (Appendix D). Sulfate time series plots for municipal wells and wells sampled by VCWPD are included in Appendix D.

Boron

Boron concentrations in wells sampled between 2010 and 2020 were below the California State Notification Level[19] of 1 mg/L, with an average boron concentration of approximately 0.15 mg/L (Figure 2-29, Maximum Boron Concentrations 2010–2020; Dorrington pers. comm. 2021; SWRCB 2020b; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). Reported boron concentrations in wells sampled ranged from below the method detection limit (<0.0001 mg/L)[20] to 0.5 mg/L. Thus, boron is currently not a significant issue for beneficial use of groundwater in the OVGB. A Mann-Kendall trend analysis of boron concentrations in the municipal wells showed that they have been stable over time (Appendix D). Boron time series plots for municipal wells and wells sampled by VCWPD are included in Appendix D.

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19 The State of California has established health-based advisory levels referred to as “notification levels” to provide information to public water systems about certain non-regulated chemicals in drinking water that lack MCLs, including boron.

20 The detection limit was not reported by the VCWPD or SWRCB, but is less than 0.0001 mg/L (the lowest reported detected concentration) (SWRCB 2020b).

Metals

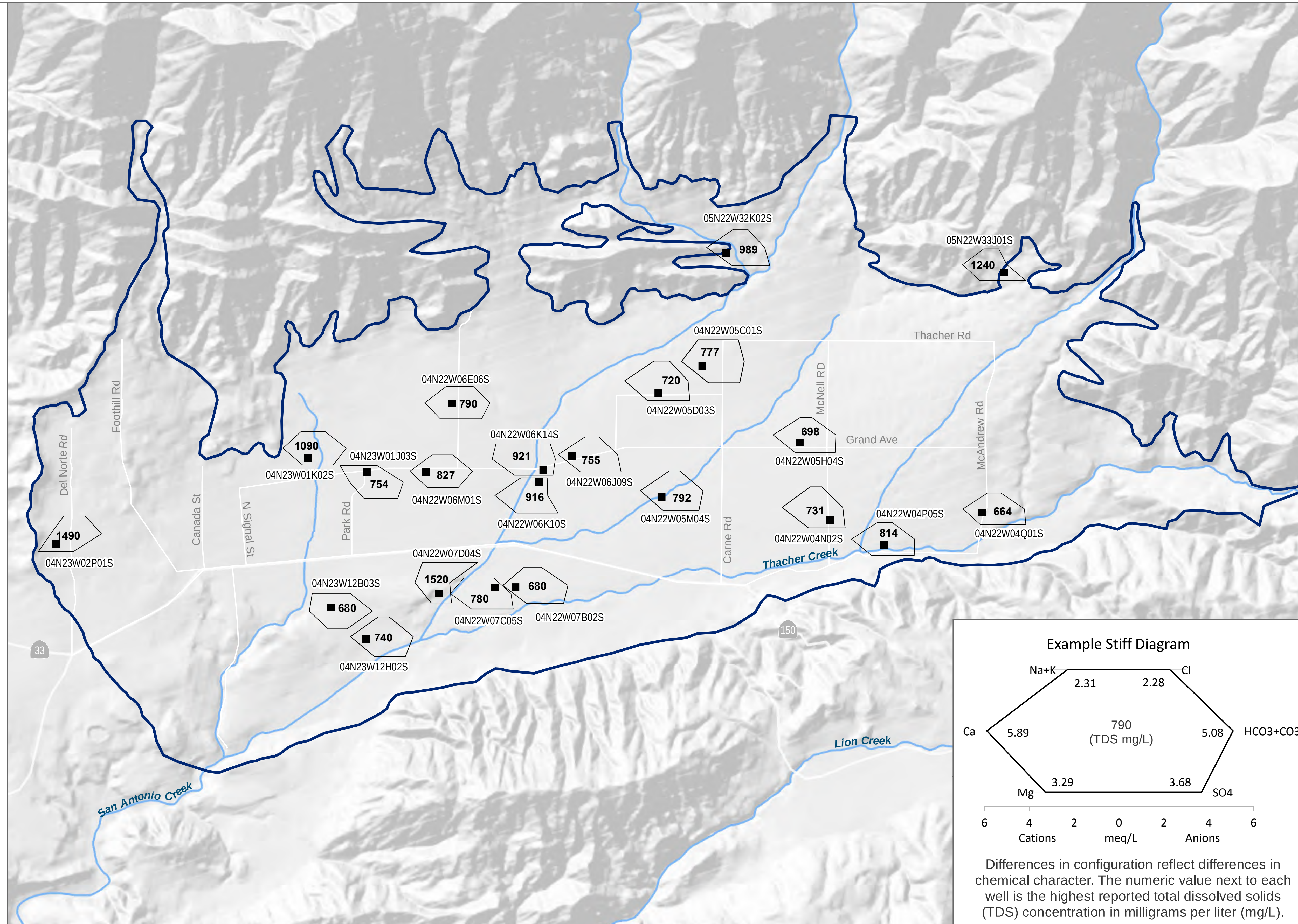
In addition to monitoring for major inorganic constituents, VCWPD and operators of municipal wells have sampled for Title 22 metals. Between 2010 and 2020, seven of the 29 wells sampled had iron concentrations above the SMCL of 0.3 mg/L, and 14 of the 29 wells had manganese concentrations above the SMCL of 0.05 mg/L (SWRCB 2020b; VCWPD 2010, 2011, 2012, 2013, 2015, and 2016). Reported concentrations of iron in wells sampled between 2010 and 2020 ranged from below the method detection limit (<0.03 mg/L)[21] to 2.64 mg/L, for an average iron concentration of approximately 0.25 mg/L. Reported concentrations of manganese in wells sampled between 2010 and 2020 ranged from below the method detection limit (<0.0026 mg/L)[22] to 1.80 mg/L, for an average manganese concentration of approximately 0.25 mg/L. Wells with iron and manganese above the SMCL were generally located in the central portion of the OVGB (Figure 2-30, Maximum Iron Concentrations 2010–2020; Figure 2-31, Maximum Manganese Concentrations 2010–2020). An analysis of iron concentrations over time in municipal wells shows that iron concentrations have generally been well below the SMCL since measurements began (Appendix D; SWRCB 2020b). Manganese concentrations in municipal wells have been much more variable, with manganese concentrations exceeding the SMCL several times over the historical measurement period (Appendix D; SWRCB 2020b). The most recent samples for the municipal wells show that manganese concentrations were below the SMCL, with the exception of San Antonio Well 4 and Well 4 (Appendix D; SWRCB 2020b). It should be noted that CMWD operates a groundwater treatment plant to remove iron and manganese prior to distribution to customers. A Mann-Kendall trend analysis of iron and manganese concentrations in municipal wells showed that they have been stable over time, with the exception of Mutual Well 4, Mutual Well 5, and San Antonio Well 4, which have shown a decreasing trend in manganese. Iron and Manganese time series plots for municipal wells and wells sampled by VCWPD are included in Appendix D.

21 The detection limit was not reported by the VCWPD or SWRCB, but is less than 0.03 mg/L (the lowest reported detected concentration) (SWRCB 2020b).

22 The detection limit was not reported by the VCWPD or SWRCB, but is less than 0.0026 mg/L (the lowest reported detected concentration) (SWRCB 2020b).

Legend

- ■ VCWPD Sampled Well 2010-2020
- Ojai Valley Groundwater Basin (4-002)
- Well Stiff Diagram



DATUM: NAD 1983 DATA SOURCE: VCWPD

DUDEK

0 0.5 1 Miles

FIGURE 2-24

Stiff Plots for Wells Sampled by VCWPD 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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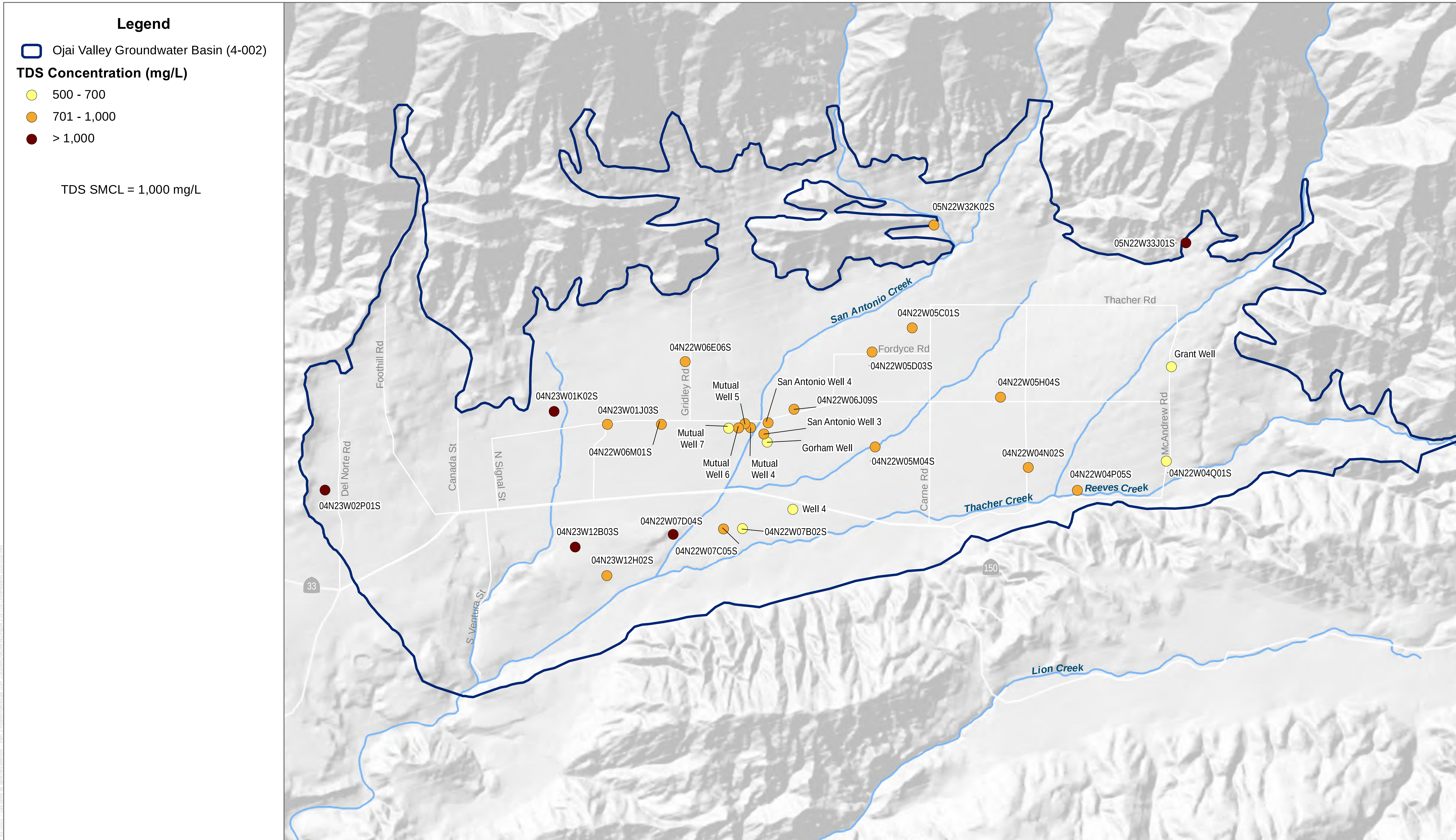

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

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FIGURE 2-25

Maximum Total Dissolved Solids Concentrations 2010-2020

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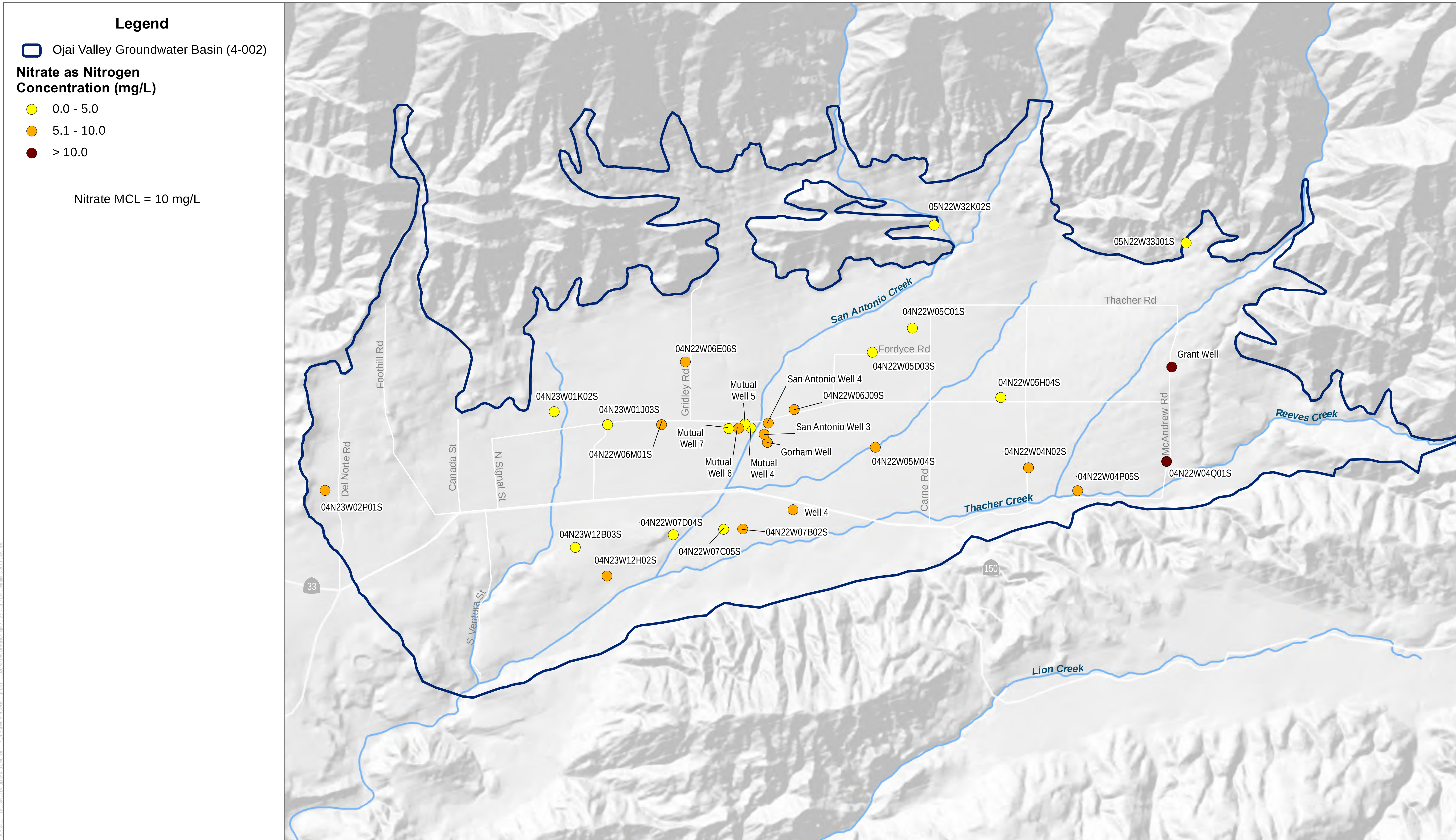

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

0 0.5 1 Miles

FIGURE 2-26

Maximum Nitrate as Nitrogen Concentrations 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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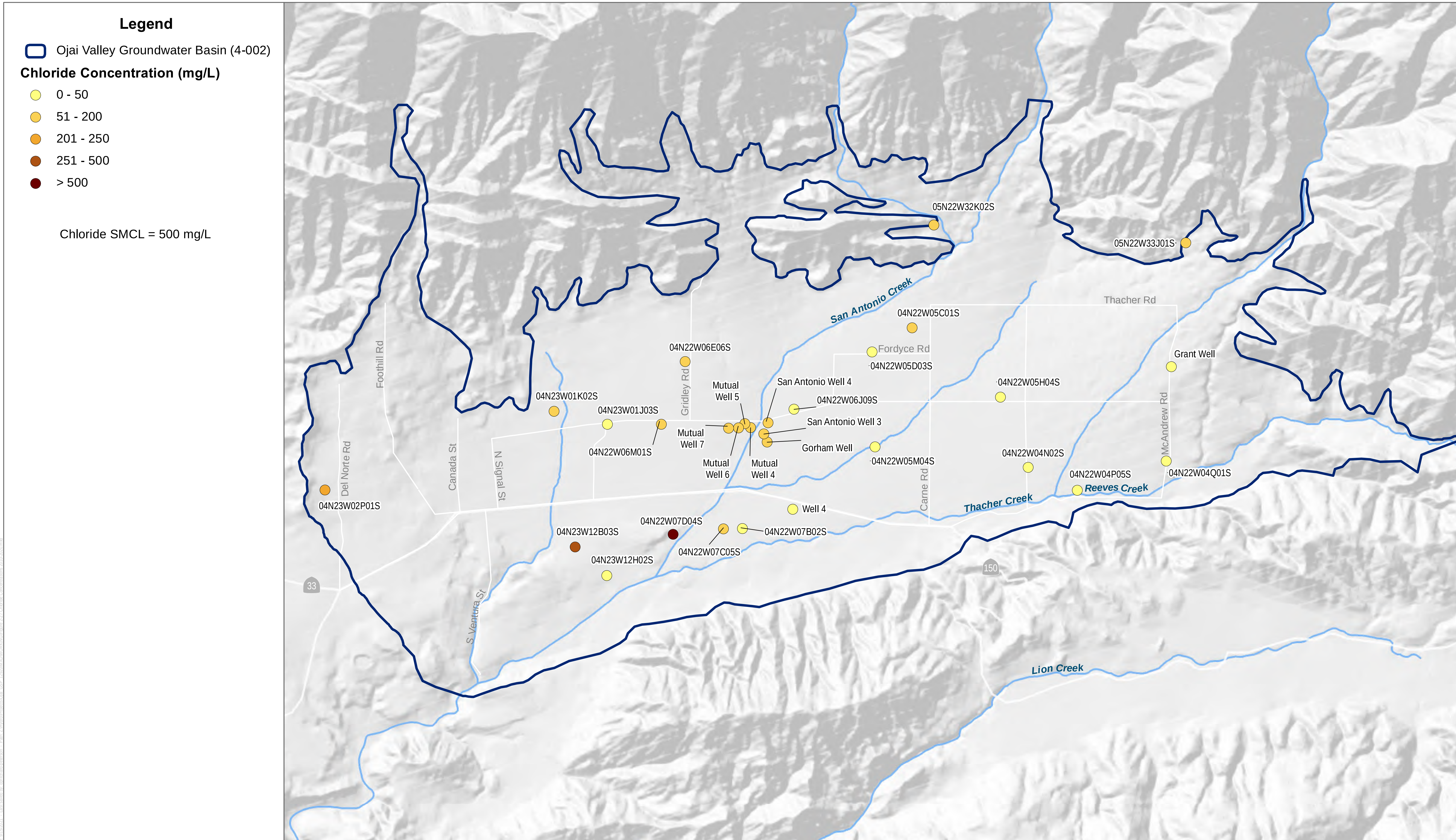

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

0 0.5 1 Miles

FIGURE 2-27

Maximum Chloride Concentrations 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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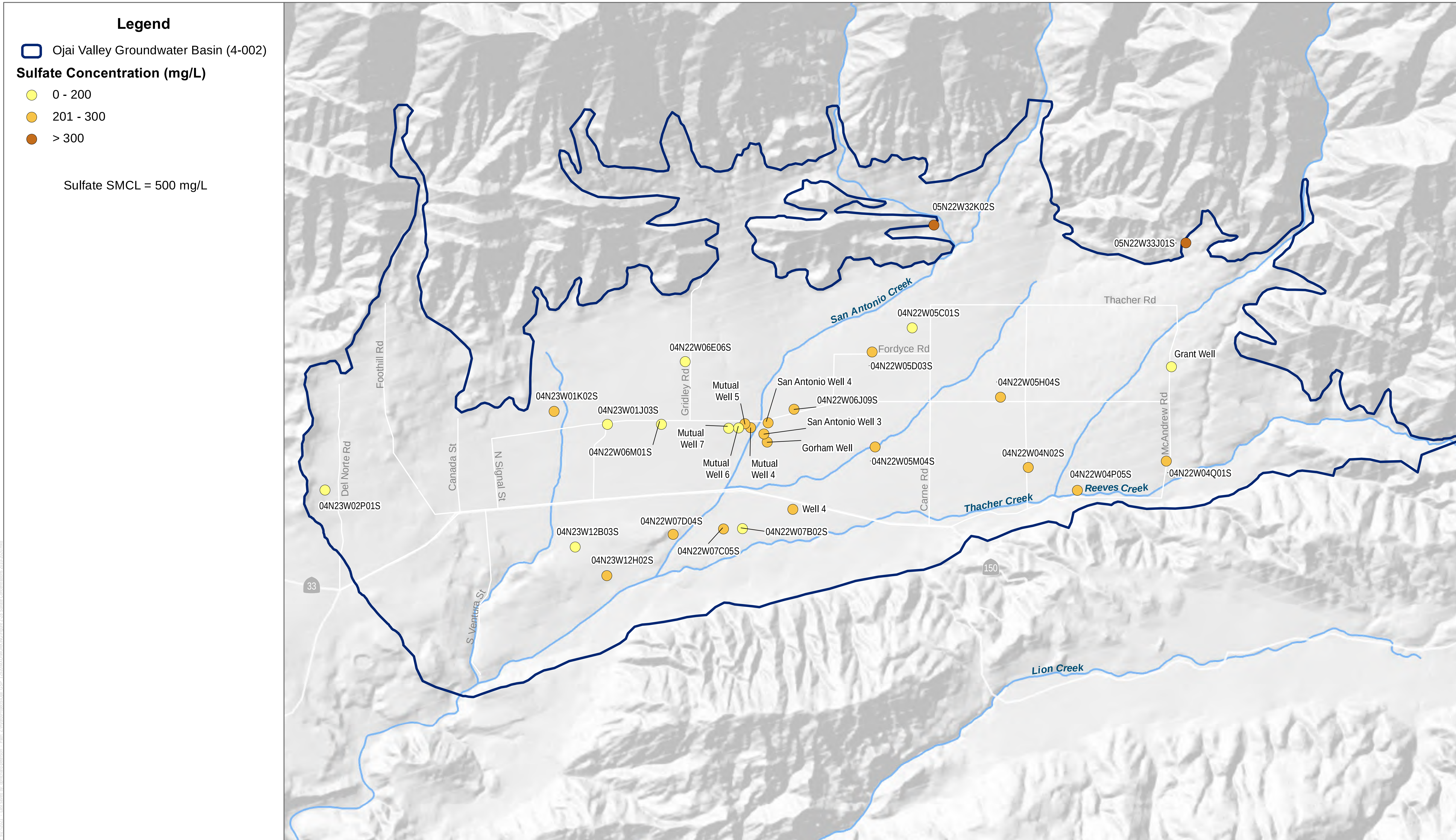

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

0 0.5 1 Miles

FIGURE 2-28

Maximum Sulfate Concentrations 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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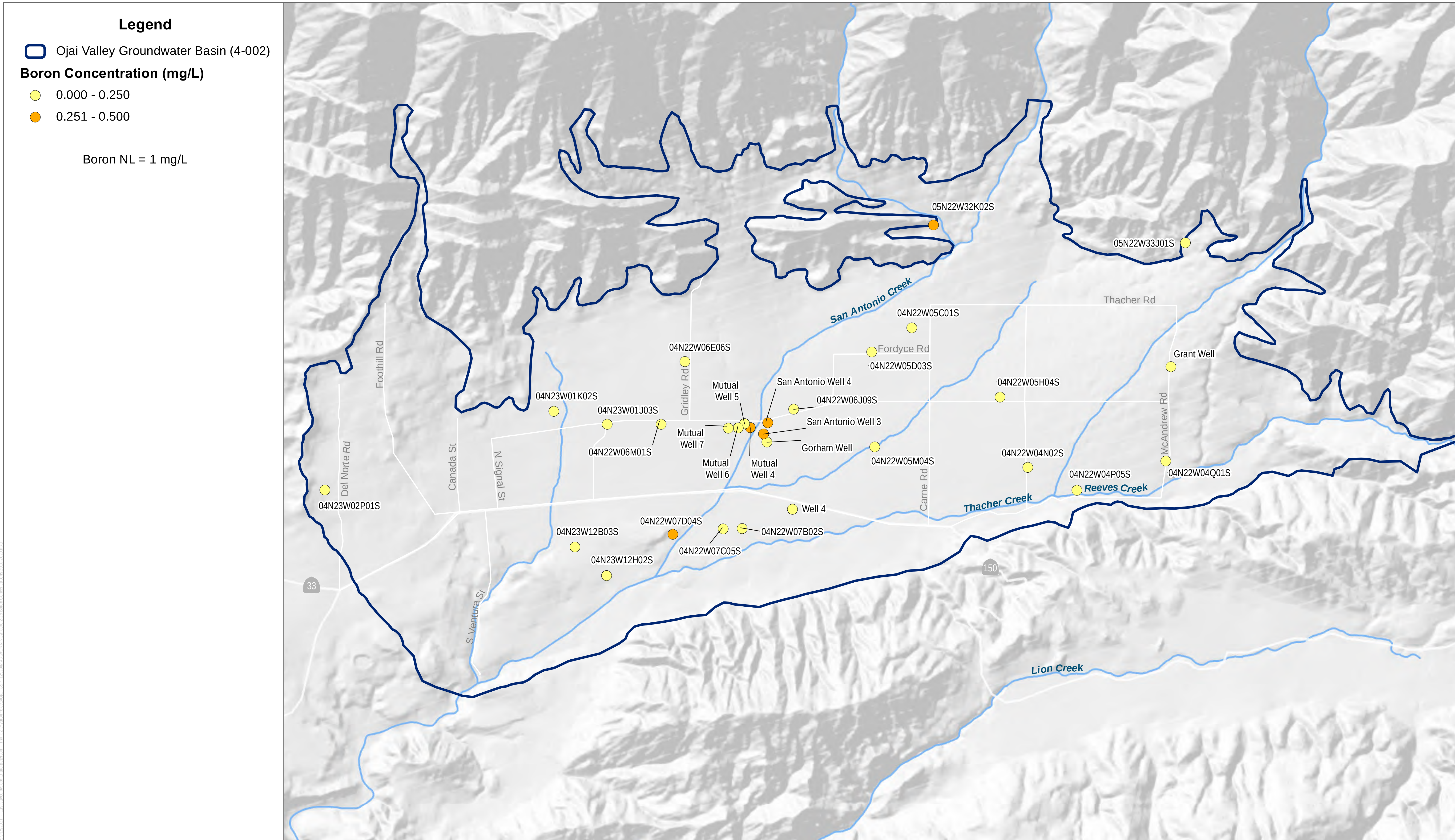

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

0 0.5 1 Miles

FIGURE 2-29

Maximum Boron Concentrations 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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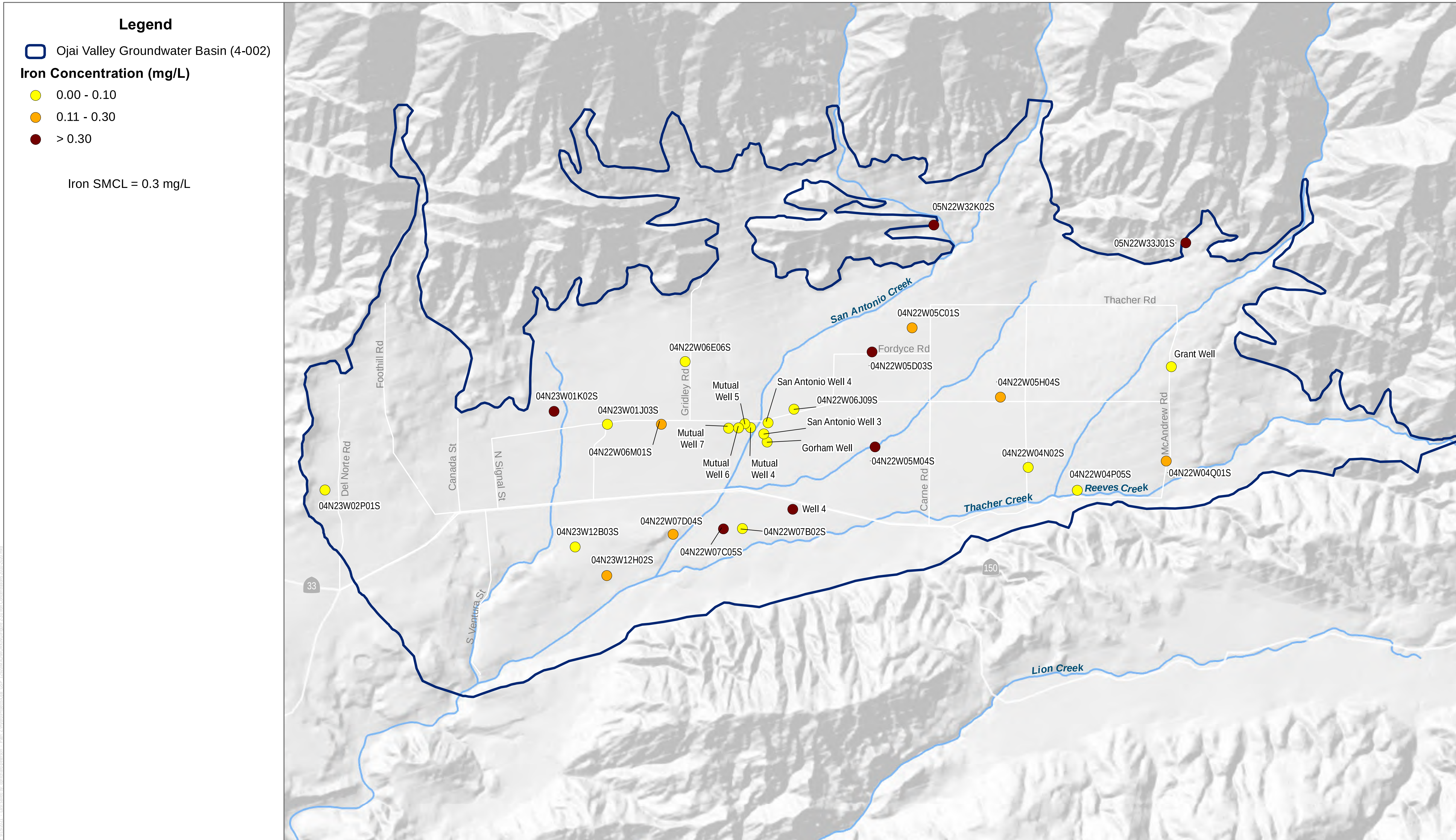

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

0 0.5 1 Miles

FIGURE 2-30

Maximum Iron Concentrations 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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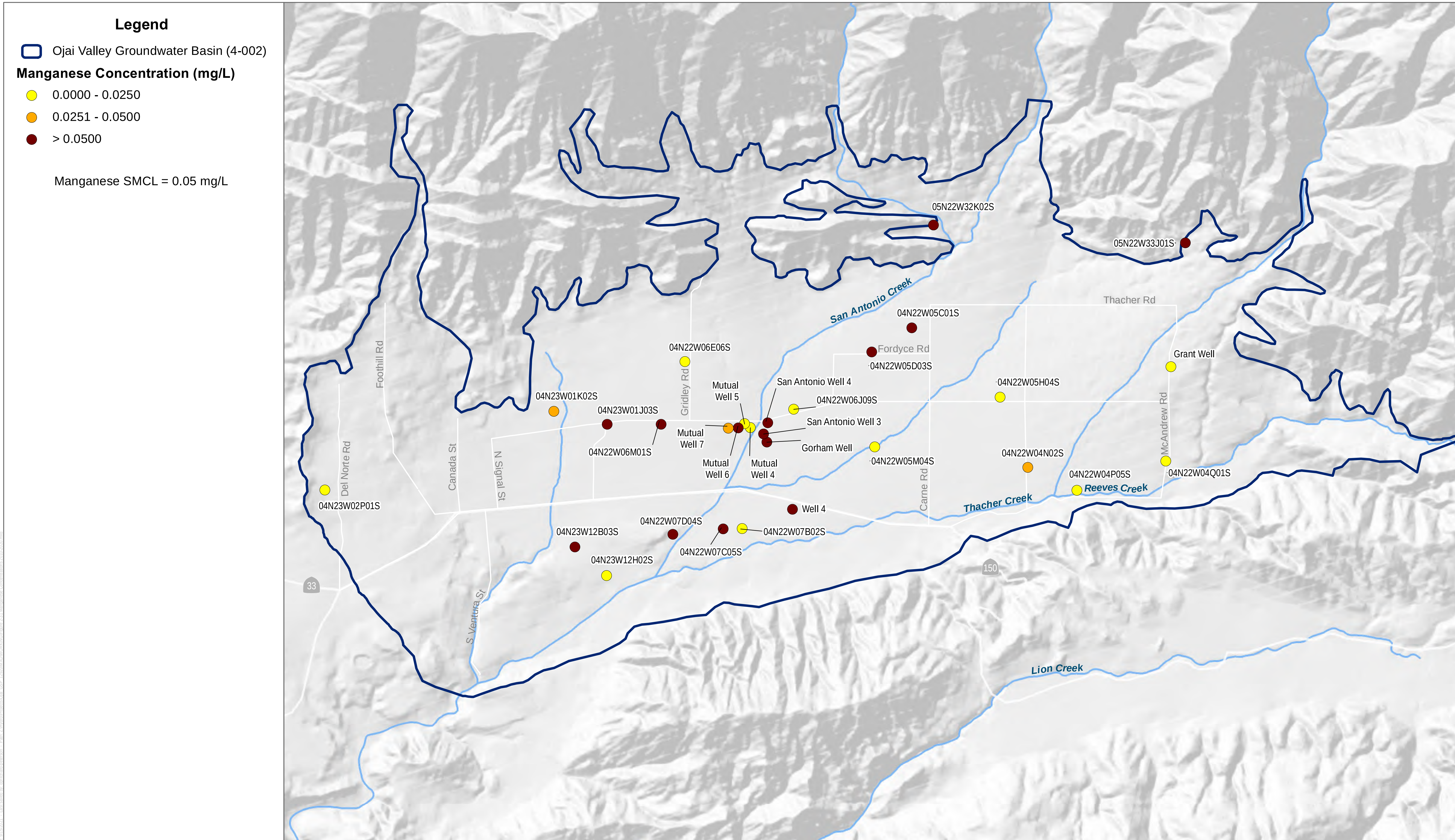

DATUM: NAD 1983 DATA SOURCE: VCWPD; SWRCB

DUDEK

0 0.5 1 Miles

FIGURE 2-31

Maximum Manganese Concentrations 2010-2020

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Review of Regulatory Cleanup Sites, Historic Oilfields, and Septic Systems

Both the Department of Toxic Substances Control's EnviroStor database and SWRCB's GeoTracker database were reviewed for information on the nature and status of regulatory cleanup sites located within the OVGB. These sites consist of a mix of commercial, industrial, and public land uses, predominantly consisting of automobile service stations along the California State Highway 150 corridor and within the Ojai Village (Downtown) area. Figure 2-32, Regulatory Cleanup Program Sites and Impaired Surface Waters shows the locations and status of cleanup site cases within the OVGB, along with the primary potential media of concern (e.g., soil or groundwater) for each. All cleanup site cases where groundwater was identified as a potential medium of concern are labeled on Figure 2-32. All GeoTracker sites in the OVGB have received closure from Ventura County Environmental Health Division (VCEHD) in accordance with its low-threat closure policy, indicating that contaminant releases have been remediated and adequately contained (as shown by contaminant plumes that have been either stable or decreasing in extent and concentration). Table 2-10 provides a comprehensive summary of each regulatory cleanup site case where groundwater was identified as a potential medium of concern in the OVGB. The sites that have had the greatest groundwater quality impact consist of leaking underground storage tank sites in the southwest corner of the OVGB in and around the vicinity of California State Highway 150. There are two closed cases that are near water supply wells in the Ojai Village area where groundwater was the medium of concern. Southeast of the Private Residence leaking underground storage tank (LUST) site, where a spill of a diesel underground storage tank (UST) was reported in 1995, is an active agricultural well (SWN 04N23W02K001S). South and east of the Mann Property LUST site, where a leak of a gasoline UST was reported in 1988, are an active agricultural well (SWN 04N23W12B03S) and domestic well (SWN 04N23W12B02S), respectively. No further information could be obtained on either case.

Table 2-10
Regulatory Cleanup Site Database Review

Project/Site Name	Site Type /Cleanup Program	Potential Contaminants of Concern	Potential Media of Concern	Case Status (Date)	Comment
DTSC / Envirostor Database					
Ojai Valley Club	Military Evaluation (FUDS)	None Specified	None Specified	Inactive - Needs Evaluation (7/1/2005)	Not on the National Priorities List. Current land use is residential.
SWRCB / Geotracker Database					
Beacon #3754	LUST Cleanup Site	Gasoline	Other groundwater (uses other than drinking water)	Completed - Case Closed (1/24/2007)	In 1998 soil samples were collected and elevated hydrocarbon concentrations (TPH and MTBE) were detected. Site assessment activities and monitoring well installation was conducted.

Table 2-10
Regulatory Cleanup Site Database Review

Project/Site Name	Site Type /Cleanup Program	Potential Contaminants of Concern	Potential Media of Concern	Case Status (Date)	Comment
					Groundwater monitoring continued until 2006 when the site was granted closure. Seven wells were abandoned in 2007 at the request of VCEHD as one of the requirements for closure of the LUST case.
Chevron #9-0478	LUST Cleanup Site	Gasoline	Other groundwater (uses other than drinking water)	Completed - Case Closed (12/6/2006)	The site was formerly occupied by a Chevron service station. In 2004, a 1,000-gallon UST was removed and soil confirmation samples were taken. Approximately 19 cubic yards of soil were excavated and stockpiled on site during excavation and soil sampling activities and it was determined that residual concentration of hydrocarbons do not pose a risk to public health. In 2006, VCEHD granted closure of the site.
Coburn Property	LUST Cleanup Site	Gasoline	Other groundwater (uses other than drinking water)	Completed - Case Closed (9/19/2012)	This property is a private residence. Contamination was discovered in 1992 when a 550 gallon gasoline UST was removed. Two grab samples were collected and lead was detected, triggering VCEHD to require additional assessment. TPH was later detected. Monitoring wells and vapor probes were installed and the site was monitored from 1994 to 2011. Remediation efforts included excavation and off-site disposal of contaminated soil, groundwater extraction and treatment, a soil vapor extraction pilot test, bioremediation, and in-situ chemical oxidation. VCEHD concluded that residual contamination remaining at the site does not pose a risk to human health, groundwater, or the environment.
Elmer Friend Property	LUST Cleanup Site	Gasoline	Aquifer used for drinking water supply	Completed - Case Closed (5/8/1995)	Leak reported in 1988 at 469 E Ojai Ave. No further information available.
Fast Gas	LUST Cleanup Site	Gasoline	Other groundwater (uses other	Completed - Case Closed (7/18/1996)	A gasoline leak at 616 E. Ojai Ave., a former gas station, was reported in 1985. Subsequently, monitoring wells

Table 2-10
Regulatory Cleanup Site Database Review

Project/Site Name	Site Type /Cleanup Program	Potential Contaminants of Concern	Potential Media of Concern	Case Status (Date)	Comment
			than drinking water)		were installed. A 1996 monitoring report indicated that no well exhibited signs of hydrocarbons. Monitoring wells and a groundwater extraction well were abandoned after the site received UST site remediation closure in 1996.
Hailwood, Inc.	LUST Cleanup Site	Gasoline	Other groundwater (uses other than drinking water)	Completed - Case Closed (4/2/1997)	Leak reported in 1988 at 201 Signal Street. No further information available.
Kwik Serve	LUST Cleanup Site	Gasoline	Other groundwater (uses other than drinking water)	Completed - Case Closed (9/10/2015)	The release was discovered in 1988 when three gasoline USTs were removed. More than 730 tons of impacted soil were transported off-site for disposal in 1995, prior to the installation of new gasoline USTs at the site. A groundwater treatment system and vapor extraction system operated at the site from 1997 through 2002, removing dissolved phase hydrocarbons and vapor phase hydrocarbons. Three gasoline USTs were removed in 2004 and one UST was removed in 2005. More than 370 tons of impacted soil were excavated and transported off-site for disposal. Residual petroleum constituents pose a low risk to human health, safety, and the environment. The site is currently a retail bike shop.
Landis Inc.	LUST Cleanup Site	Gasoline	Other groundwater (uses other than drinking water)	Completed - Case Closed (11/25/1998)	A petition to close the case was filed in 1998, which was found by VCEHD to have merit. Soil and water investigations were performed and demonstrated that residual petroleum is limited to mudflow deposits of the original release and extends less than 200 feet north of the former tank pit.
Mann Property	LUST Cleanup Site	Gasoline	Other groundwater (uses other	Completed - Case Closed (10/28/2009)	A 1,0000-gallon UST was removed in 1988 in the western parcel and a 550-gallon UST and fuel pump was

Table 2-10
Regulatory Cleanup Site Database Review

Project/Site Name	Site Type /Cleanup Program	Potential Contaminants of Concern	Potential Media of Concern	Case Status (Date)	Comment
			than drinking water)		removed in 1996 in the eastern parcel. Multiple soil and groundwater assessments were conducted at the site between 1989 and 2000. Monitoring wells were installed, hydrocarbon-impacted soils were over excavated from the tank cavity, and 16 soil borings were drilled and sampled in and around the former tank cavity. Contamination attenuated to closeable concentrations by March 2000, when VCEHD approved destruction of the wells on the western parcel. After site assessment via eight monitoring wells and over excavation of hydrocarbon-impacted soils in 1997 and additional remedial excavation in 2008, the groundwater plume was deemed stable and attenuating with time.
Ojai Valley Imports	LUST Cleanup Site	Waste oil / motor / hydraulic / lubricating	Other groundwater (uses other than drinking water)	Completed - Case Closed (8/9/2018)	The site is located at 996 E. Ojai Ave., is a former gasoline service station, and is currently an auto service and repair shop. In 1984, one 6,000-gallon and two 8,000-gallon USTs were removed. In 1986, one 500-gallon waste-oil UST was removed. TPH, benzene, ethylbenzene, MTBE, and TBA concentrations have been detected in groundwater and soil. Site remediation consisted of ozone/oxygen sparging. The case was closed after meeting all of the criteria for the LTCP policy in 2018.
Pacific Bell	LUST Cleanup Site	Diesel	Other groundwater (uses other than drinking water)	Completed - Case Closed (2/23/2004)	One 2,000-gallon UST was removed at 202 Ojai Avenue. Two soil samples and a water sample were analyzed after the UST removal. Subsequent samples collected indicated that the amount and concentrations of petroleum hydrocarbon contamination in soils and groundwater beneath the site are minor and closure was granted.

Table 2-10
Regulatory Cleanup Site Database Review

Project/Site Name	Site Type /Cleanup Program	Potential Contaminants of Concern	Potential Media of Concern	Case Status (Date)	Comment
Private Residence	LUST Cleanup Site	Diesel	Other groundwater (uses other than drinking water)	Completed - Case Closed (6/25/1996)	A leak was reported in 1995 followed by site assessment and remediation. No further information is provided.
Ultramar #754	LUST Cleanup Site	Gasoline	Aquifer used for drinking water supply	Completed - Case Closed (7/18/1996)	A gasoline leak at 616 E. Ojai Ave., a forming gas station, was reported in 1985. Subsequently, monitoring wells were installed. A 1996 monitoring report indicated that no well exhibited signs of hydrocarbons. Monitoring wells and a groundwater extraction well were abandoned after the site received UST site remediation closure in 1996.

Source: SWRCB 2020b (Geotracker Database), DTSC 2020 (Envirostor Database)
Notes: DTSC = California Department of Toxic Substances Control; COC = Contaminant(s) of Concern; FUDS = Formerly Used Defense Sites Database; LTCP = SWRCB Low-Threat Closure Policy; MCL = Maximum Contaminant Limit; MTBE = methyl tert-butyl ether; TBA = tertiary butyl alcohol; TPH = Total Petroleum Hydrocarbons; UST = Underground Storage Tank; VCEHD = Ventura County Environmental Health Division

As shown on Figure 2-32, the majority of the OVGB lies within the northern boundary of the Ojai Oil Field. There is a cluster of active, idle, inactive, plugged and/or abandoned oil and gas wells adjacent to the southern edge of the OVGB, as shown in the California Department of Conservation's Geologic Energy Management Division (formerly the Division of Oil, Gas, and Geothermal Resources) database of oil and gas wells. One well within the cluster falls within the OVGB and it is an idle oil and gas well (Figure 2-32; CalGEM 2020). Lion Mountain Ranch immediately south of the OVGB has historically supported oil and gas development since the 1860's when shallow oil wells were drilled in the vicinity of historical oil seeps (County of Ventura 2016). Subsequent oil wells were drilled in the 1940s, 1950s, 1960s, and 1980s that supplied oil and gas. There are three active wells at Lion Mountain Ranch, all located outside of the OVGB, that continue to produce oil and gas. Oil is transported off-site to Santa Paula by truck and gas is currently flared on-site.

In addition to regulatory cleanup sites and historical oilfields, septic tanks—if in disrepair or otherwise not operating as intended—represent another potential point source of contamination (e.g., nitrogen, bacteria, and pathogens) to the groundwater aquifer. Most developed properties within the OVGB have sewer connections to the Ojai Valley Sanitary District, which collects and processes wastewater from about 20,000 residents of the City of Ojai, the unincorporated Ojai

Valley, and north Ventura. However, some unincorporated areas within the OVGB are not serviced by this sewer system and rely on OWTSs for treatment of domestic wastewater.

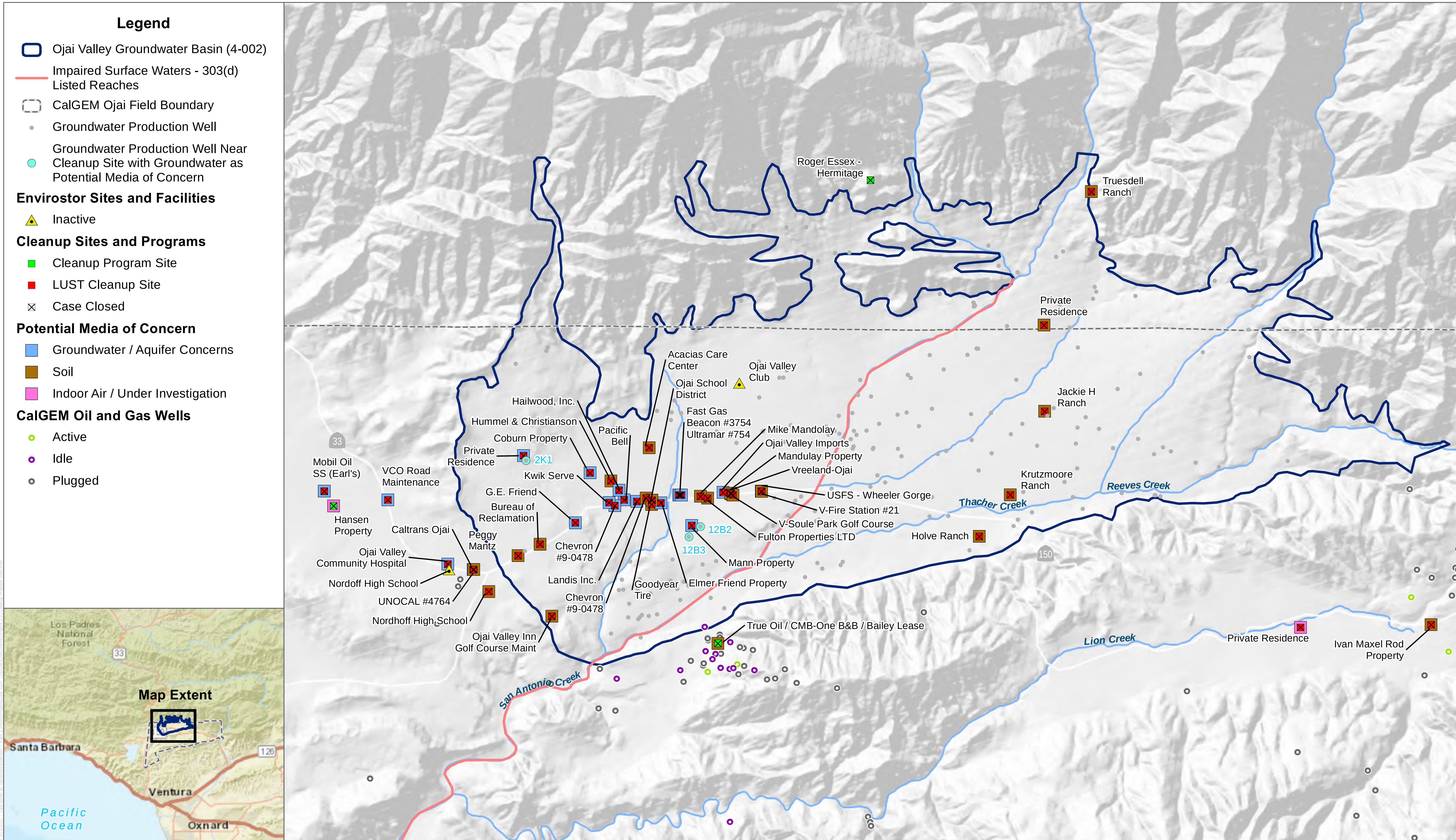
A 2018 Total Maximum Daily Load Study in the Ventura River watershed investigated the influence of OWTS on surface water quality in the watershed. This Total Maximum Daily Load Study identified OWTS as a contributing source of nutrients to the Ventura River watershed (VCEHD 2019). The study found that analysis from the sampling from two groundwater wells along San Antonio Creek in an area east of the City of Ojai and within the OVGB suggests that it is likely that groundwater in this area is influenced by nearby OWTS (VCEHD 2019). A surface water sample in the vicinity of these two wells had an average nitrate concentration of 1.4 mg/L, no detected pharmaceuticals and personal care products, and nitrate isotope results suggesting nitrate sources from animal waste and/or sewage (VCEHD 2019).

The Siete Robles tract, a community east of the City of Ojai and south of Ojai Avenue in the OVGB, is an area known for OWTS-related concerns. According to an Advisory Notice sent out by VCEHD in November 2005, elevated groundwater conditions reduced the ability of soil within the tract to treat sewage discharges from many of the septic systems. The inability of the soil to adequately receive and treat sewage can result in insanitary conditions leading to foul odors and potential human health risk. Some systems in the tract do not meet current Ventura County Building Code and Los Angeles Regional Water Quality Control Board minimum requirements for separation of septic systems from underlying groundwater (VCEHD 2005).

A list of parcels with probable septic tanks was obtained from Ojai Valley Sanitary District and used to create a map of parcels containing OWTS within the OVGB (Palmer pers. comm. 2020). Using this data, it is estimated that up to 780 OWTSs are in the OVGB. A map showing all parcels with OWTSs within the OVGB is shown in Figure 2-33, Parcels with Septic System. As shown in Figure 2-33, a large number parcels with septic tanks are located in the eastern portion of the OVGB which could be the source of the elevated nitrate concentrations in groundwater in that area (Figure 2-26).

Impaired Surface Water Sites

The portion of San Antonio Creek that overlies the Basin is listed in the SWRCB impaired surface waters list (i.e., 303(d) listed reaches; Figure 2-32; SWRCB 2016). Impairments listed for San Antonio Creek are TDS, nitrogen, and indicator bacteria. The 303(d) report by the SWRCB indicates that 74 of 222 samples taken from the creek for TDS analysis exceeded the water quality objective of 800 mg/L, four of 23 samples collected exceeded the water quality objective for nitrogen of 5 mg/L, and 46 of 263 samples exceeded the water quality objectives for indicator bacteria. High concentrations of chlorides and TDS are commonly observed in the OVGB during dry conditions when groundwater, high in dissolved salts, is the main source of baseflow (OBGMA 2018). High concentrations of indicator bacteria and nitrogen may be related to issues with contamination from OWTS as discussed above.



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; SWRCB (Geotracker); DTSC (Envirostor)

DUDEK

0 0.5 1 Miles

FIGURE 2-32

Regulatory Cleanup Program Sites and Impaired Surface Waters

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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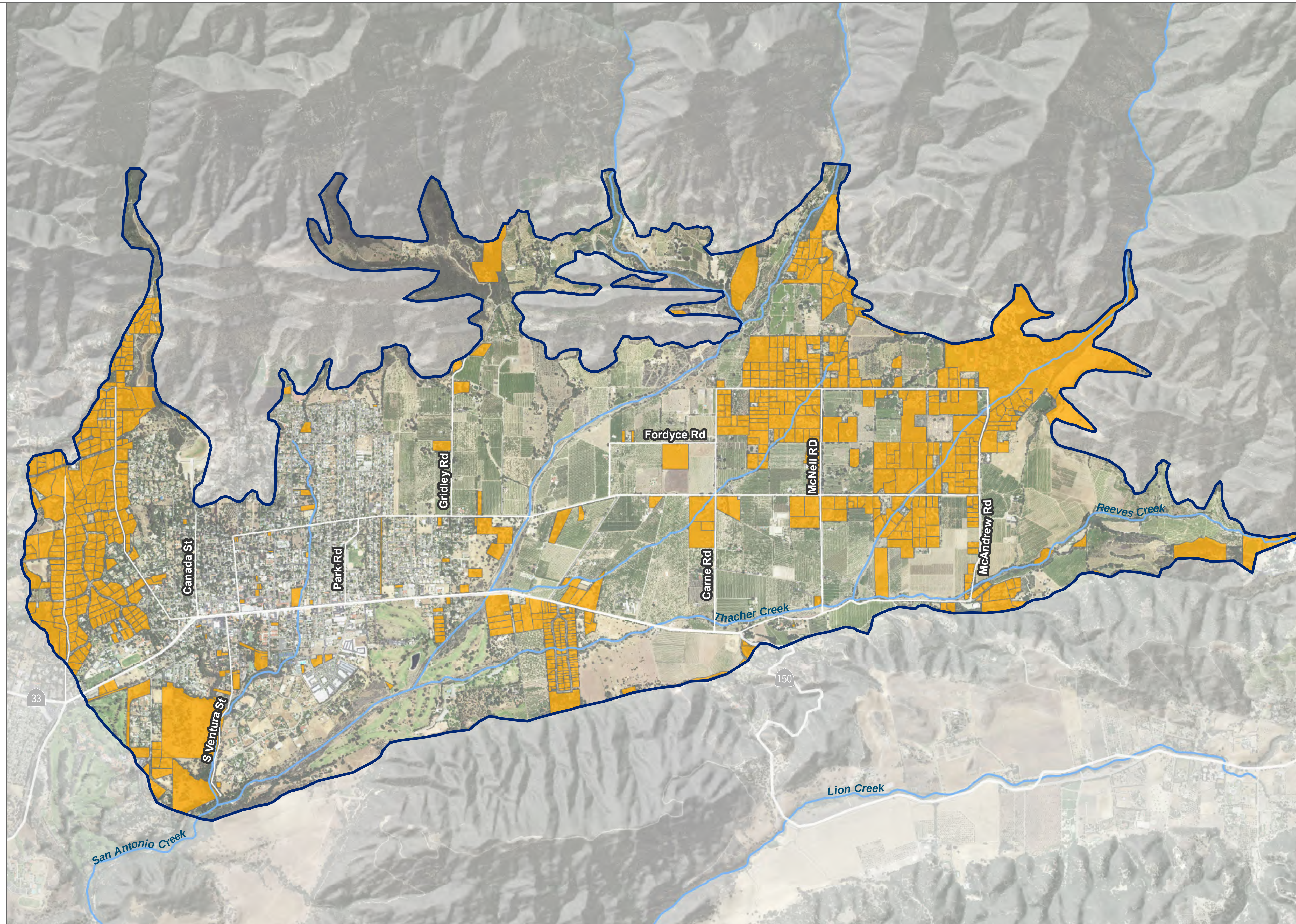
Legend

- Ojai Valley Groundwater Basin (4-002)
- Parcel with Septic System



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD

DUDEK

0 0.5 1 Miles

FIGURE 2-33

Parcels with Septic System

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.3.4.5 Land Subsidence

The primary cause of land subsidence in California, aside from the effects of tectonic forces, is aquifer system compaction as a result of fluid withdrawal. Aquifer system compaction occurs when there is a reduction of fluid (e.g., oil or groundwater) pressure in the void spaces (i.e., pores) of unconsolidated sediments. Land subsidence resulting from aquifer deformation may be of two kinds: elastic or inelastic. Elastic deformation is the reversible and temporary fluctuation of the land surface in response to seasonal groundwater recharge or extraction. Inelastic deformation is the irreversible and permanent compression of the land surface caused by the compaction of the pore spaces within the fine-grained sediments of an aquifer system. Inelastic deformation occurs when groundwater elevations drop below the historical range and fine-grained sediments become depressurized. The compaction or collapse of the pore spaces within the fine-grained sediments of an aquifer system results in the permanent loss of aquifer storage (Borchers and Carpenter 2014).

The University NAVSTAR Consortium, a non-profit university-governed consortium that facilitates geoscience research and education using geodesy, operates a network of continuous GPS (CGPS) instruments across the Americas, including in California. The closest CGPS station to the OVGB is station HVYS, located approximately 0.5 miles south of the OVGB. Another CGPS station within the vicinity of the OVGB is station NHRG, located approximately 3 miles northeast of the OVGB. (Figure 2-34, Land Subsidence). Land surface elevation at both stations has decreased by approximately 20 millimeters (0.79 inches) at each station since 2000 (UNAVCO 2020).

DWR provides vertical displacement data for the OVGB derived from interferometric synthetic aperture radar (InSAR) through DWR's SGMA Data Viewer. The TRE Altamira InSAR dataset is collected by the European Space Agency from the Sentinel-1A satellite for California from January 2015 through September of 2019 and processed by TRE Altamira. Sampling of the 100-meter by 100-meter calculation grid cells within the OVGB indicates that between 2015 and 2019, 41% of the OVGB experienced total negative vertical displacement (subsidence) between 0 and 0.21 inches while the 59% of the OVGB experienced total positive vertical displacement (uplift) between 0 and 0.75 inches. The average displacement within the OVGB was an uplift of 0.16 inches during the time period. (Figure 2-34).

As presented in the Report Supporting Alternative Demonstration of Groundwater Sustainability (OBGMA 2016), data from a 2005-2010 study (Marshall et al. 2013) used GPS and InSAR to document land motion throughout the western Transverse Ranges. This data indicates that subsidence of approximately 0.16 inches extends similarly into the mountains north and south of the OVGB consistent with a tectonic motion rather than land motion that would be consistent with groundwater extraction-caused subsidence (OBGMA 2016).

Between 2005 and 2010, springtime-high water levels in key observation well 04N22W05L008S averaged 820.97 feet amsl, which is 71.35 feet higher than the average between 2000 and 2019.

Between 2015 and 2019, the springtime-high water level in key observation well 04N22W05L008S averaged 697.34 feet amsl, 123.63 feet lower than the 2005 to 2010 time period and 52.57 feet lower than the 2000 to 2019 time period. Table 2-11 compares the water levels and vertical displacement over the entire OVGB during the two time periods. These data indicate that higher groundwater levels in well 04N22W05L008S are not correlated with land surface uplift.

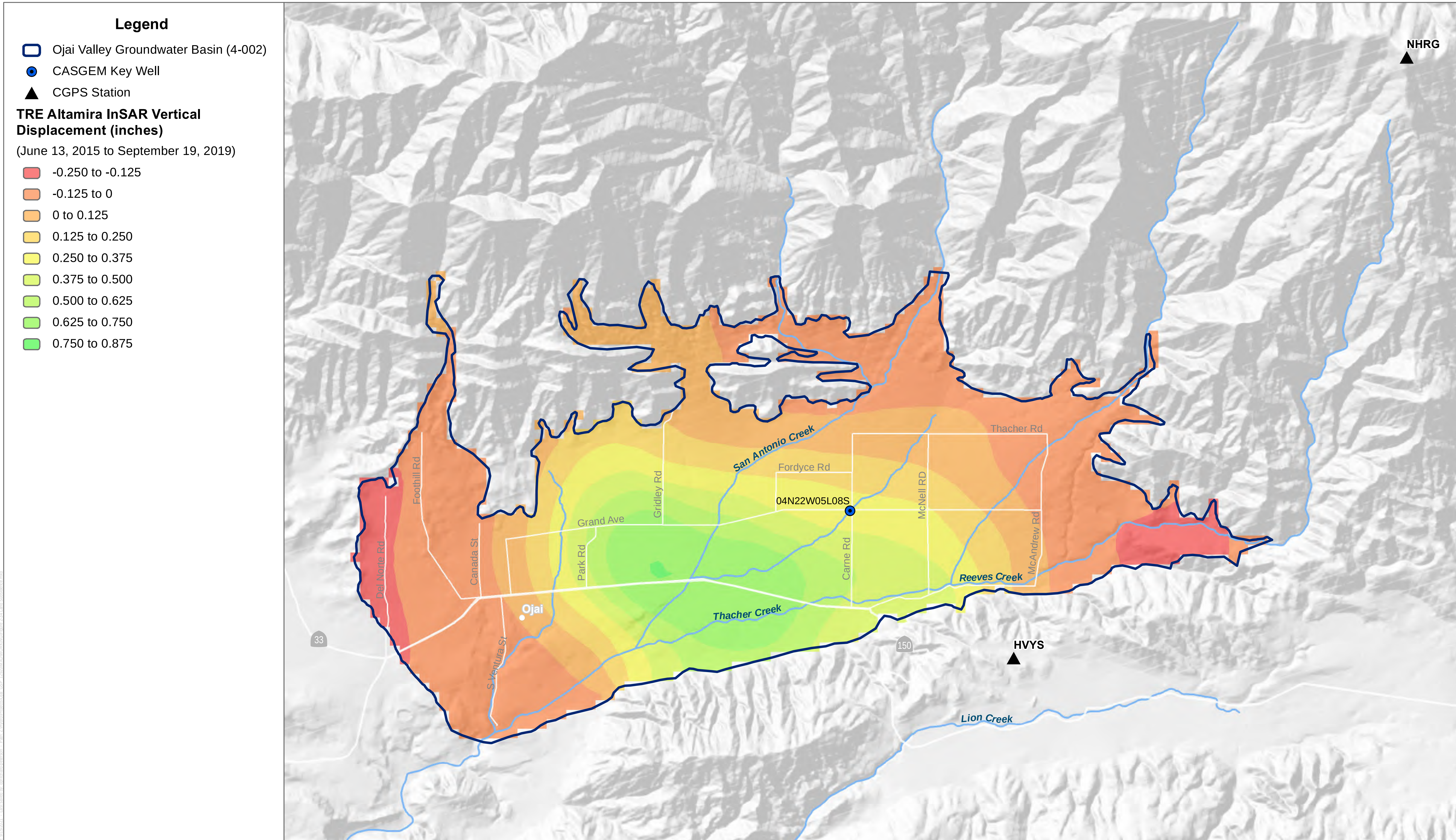
Table 2-11
Comparison Between Water Levels and Land Subsidence for 2005-2010 and 2015-2019

Time Period	Average Groundwater Level (feet amsl)[a]	Deviation from 2000-2019 Average Groundwater Level (feet)[a]	Total Vertical Displacement (inches)
2005-2010	820.97	71.35	-0.64[b]
2015-2019	697.34	-52.27	0.64[c]

Source: OBGMA 2016.
Notes: amsl = above mean sea level.
[a] Springtime-high water level at key well 04N22W05L008S.
[b] TRE Altamira InSAR data presented in OBGMA 2016.
[c] TRE Altamira InSAR data from SGMA Data Viewer.

Vertical displacement data was collected at a higher frequency during the 2015 to 2019 time period, which can be used to investigate seasonal correlations between vertical displacement and groundwater levels at the location of the key observation well 04N22W05L008S, shown on Figure 2-34. Figure 2-35, Groundwater Levels and Land Subsidence, shows the relationship between vertical displacement obtained from the SGMA Data Viewer within the 100-meter x 100-meter cell (AX0DAZN) at the location of key observation well 04N22W05L008S compared to groundwater levels at the key well over the same time period. Based on the data at this location it is not clear that groundwater level change is the cause of uplift or subsidence. Correlations can be noticed at times, including a spike in water level and vertical displacement in September 2016 followed by a sharp decrease in both. A similar increase in groundwater level can be correlated with an increase in uplift in September 2018 and September 2019. It is also evident, however, that spikes in vertical displacement occurred in September 2015 and September 2017 while groundwater levels remained relatively stable (Figure 2-35).

Although subsidence has been largely unmonitored until recently, the OVGB is estimated to currently be at a high risk for land subsidence based on groundwater level trends, but at a medium to low overall risk for future subsidence (DWR 2014). In addition, there is no documentation of physical evidence of subsidence such as well casing failure, infrastructure disruption, or earth fissures within the OVGB. As noted, variations in land surface elevation may result from temporary elastic or tectonic deformation and fluctuating groundwater levels. Available data indicates insignificant subsidence, likely from causes other than inelastic deformation. This is in agreement with the OVGB GWMP, which concludes that to date, no surface or subsurface evidence of land subsidence has been observed in the Ojai Valley Basin (OBGMA 2018).



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; SGMA; UNAVCO

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FIGURE 2-34

Land Subsidence

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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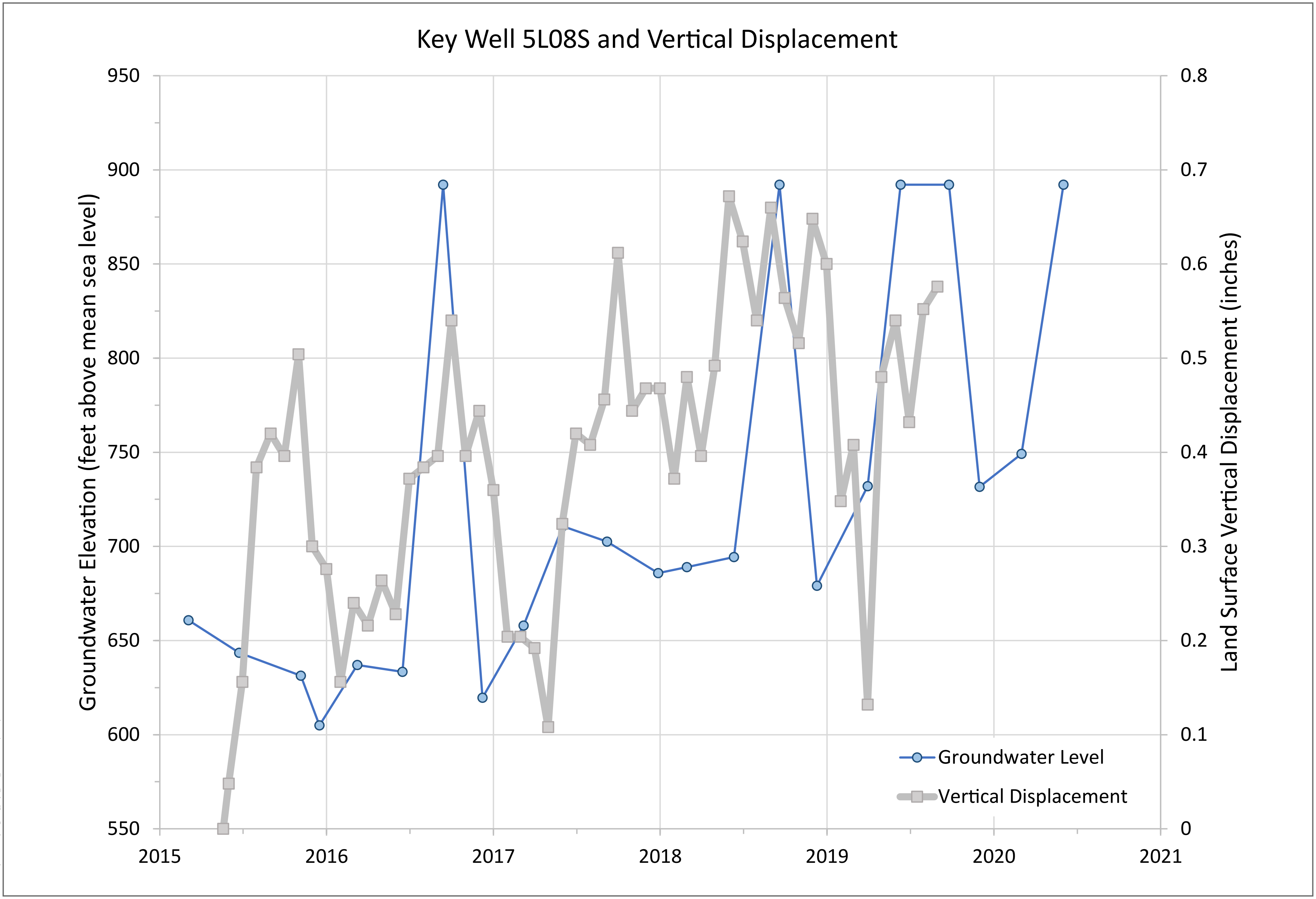

SOURCE: VCWPD; TRE Altamira InSAR

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FIGURE 2-35

Groundwater Levels and Land Subsidence

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.3.4.6 Groundwater–Surface Water Connections

The primary surface water features in the OVGB are streams. In general, streams may be classified as gaining, losing and connected to groundwater, or losing and disconnected from groundwater. Stream–aquifer exchanges are controlled by several factors, including stream discharge and stage, the magnitude and distribution of hydraulic conductivities of the streambed and aquifer sediments, streambed thickness and its variation, the hydraulic gradient between the stream and the aquifer, and the geometric/morphological characteristics of the stream channel (Barlow and Leake 2012). DWR (2016) identifies monitoring of streamflow as a necessary component of the water budget analysis as well as necessary for evaluating of stream depletions associated with groundwater extractions.

As discussed in Section 2.2.2, San Antonio Creek is the primary stream that flows through the OVGB. San Antonio Creek is fed by several named and unnamed drainages, the largest being McNell, Thacher, and Reeves creeks. According to the USGS National Hydrography Dataset (NHD), nearly the entire length of every creek that transects the OVGB is classified as intermittent[23] within the OVGB, with the exception of the lowermost reaches of San Antonio Creek, Thacher Creek, and the Fox Canyon Drain/Stewart Canyon drainage which are classified as perennial[24] (Figure 2-36, NCCAG Listed Communities). Based on available lithologic, streamflow, and groundwater level and quality data, there is a shallow perched aquifer in the southern and western portion of the OVGB that is in hydraulic connection with surface water of San Antonio Creek and its tributaries. The shallow perched aquifer is separated from the deeper confined production aquifers by an extensive clay aquitard (Kear 2005, 2021; OBGMA 2018). Groundwater levels in the shallow perched aquifer exhibit a stable trend with little seasonal fluctuation or response to groundwater extraction while groundwater levels in the primary production aquifer show the effects of groundwater extraction (Figure 2-37, Shallow Perched Aquifer and Deep Production Aquifer Groundwater Level Trends; Kear 2021). Surface water in San Antonio Creek and groundwater in the perched aquifer have a similar calcium-bicarbonate/sulfate water character, whereas groundwater in the primary production aquifer has a sodium-bicarbonate/chloride water character (Kear 2021). Figure 2-38, Lower San Antonio Creek Hydrogeologic Conceptual Model, illustrates the hydrogeology of the OVGB along lower San Antonio Creek as described above.

Streamflow records are available for four active and three inactive stream gauging stations on San Antonio Creek, in addition to one active gauging station on Thacher Creek and one inactive gauging station on Fox Canyon Drain. In addition, the OBGMA conducts monthly manual stream discharge monitoring and continuous stream stage monitoring on lower San Antonio Creek (Appendix E, Figure 6, Groundwater-Surface Water Monitoring San Antonio Creek). However, available shallow monitoring well and stream gauge data are limited in temporal resolution (i.e., short length of record and/or coarse measurement interval) and additional data and analysis are needed to quantify the degree of stream-aquifer connectivity. In order to continue to characterize

[23] Stream in which surface flows cease for some duration each year.
[24] Stream in which surface flows persist year-round.

the interaction between groundwater and surface water within the OVGB, additional analysis and continued monitoring of groundwater levels in the shallow perched aquifer, and streamflow and stage in San Antonio Creek is ongoing.

The known unique hydrogeologic characteristics of the perched aquifer system may justify separation of the perched system into a separate management area.

Chapter 3, Section 3.5, Monitoring Network, explains the proposed actions to evaluate groundwater–surface water interactions.

2.3.4.7 Groundwater Dependent Ecosystems

Groundwater dependent ecosystems (GDEs) are plant and animal communities that require groundwater to meet some or all water needs (Rohde et al. 2018). GDEs can include wetlands, streams, springs and seeps, and terrestrial vegetation. These communities are especially reliant on groundwater during dry seasons and droughts. GDEs have social, economic, and environmental benefits that include their ability to improve water quality, support biodiversity, and provide places for recreation. Depletion of groundwater levels in the vicinity of GDEs can threaten their existence (Rohde et al. 2018). GDEs are defined under the SGMA as “ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface” (Title 23 CCR Section 351(m)).

Overview of the Natural Communities Commonly Associated with Groundwater Dataset within the OVGB

Within the OVGB, 38 individual vegetation communities and 8 wetland communities that may depend on groundwater were identified in the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset provided by DWR (Rhode et al. 2018). The NCCAG dataset comprises 48 publicly available state and federal agency mapping datasets including but not limited to the following: VegCAMP—The Vegetation Classification and Mapping Program, California Department of Fish and Wildlife; CALVEG—Classification and Assessment with Landsat Of Visible Ecological Groupings, U.S. Department of Agriculture Forest Service; NWI V 2.0—National Wetlands Inventory (Version 2.0), U.S. Fish and Wildlife Service; FVEG—California Department of Forestry and Fire Protection, Fire and Resources Assessment Program; and USGS National Hydrography Dataset. Vegetation types less commonly associated with groundwater were removed from these datasets and the NCCAG only retained vegetation types commonly associated with groundwater (Rohde et al. 2018). Figure 2-36 shows the aerial extent of the communities and Table 2-12 provides a summary of the communities by vegetation and wetland type. An inventory of the aquatic and terrestrial freshwater species that may inhabit the mapped vegetation and wetland communities is provided in Appendix E.

Table 2-12
Summary of NCCAG Dataset within the OVGB

Natural Community Commonly Associated with Groundwater	Number of Polygons	Acres
Vegetation Dataset		
Coast Live Oak (*Quercus agrifolia*)	25	158.3
Riparian Mixed Hardwood	5	61.6
Riversidean Alluvial Scrub	4	13.8
Valley Oak (*Quercus loboata*)	2	5.8
Willow (*Salix spp.*)	2	9.6
Subtotal	*38*	*249.0*
Wetland Dataset		
Palustrine, Emergent, Persistent, Seasonally Flooded	1	0.1
Palustrine, Forested, Seasonally Flooded	1	1.6
Palustrine, Scrub-Shrub, Seasonally Flooded	1	1.8
Riverine, Unknown Perennial, Unconsolidated Bottom, Semi-permanently Flooded	5	0.9
Subtotal	*8*	*4.3*
Grand Total	46	253.3

Source: DWR 2020c.

The predominant phreatophyte species identified within the OVGB is coast live oak (*Quercus agrifolia*) and the predominant wetland type is palustrine, scrub-shrub, seasonally flooded (Table 2-12 and Figure 2-36). Together, these two vegetation and wetland types account for approximately 63% of the communities that may rely on groundwater within the OVGB. There are no managed wetlands in the OVGB.

Methods for Identifying Groundwater Dependent Ecosystems

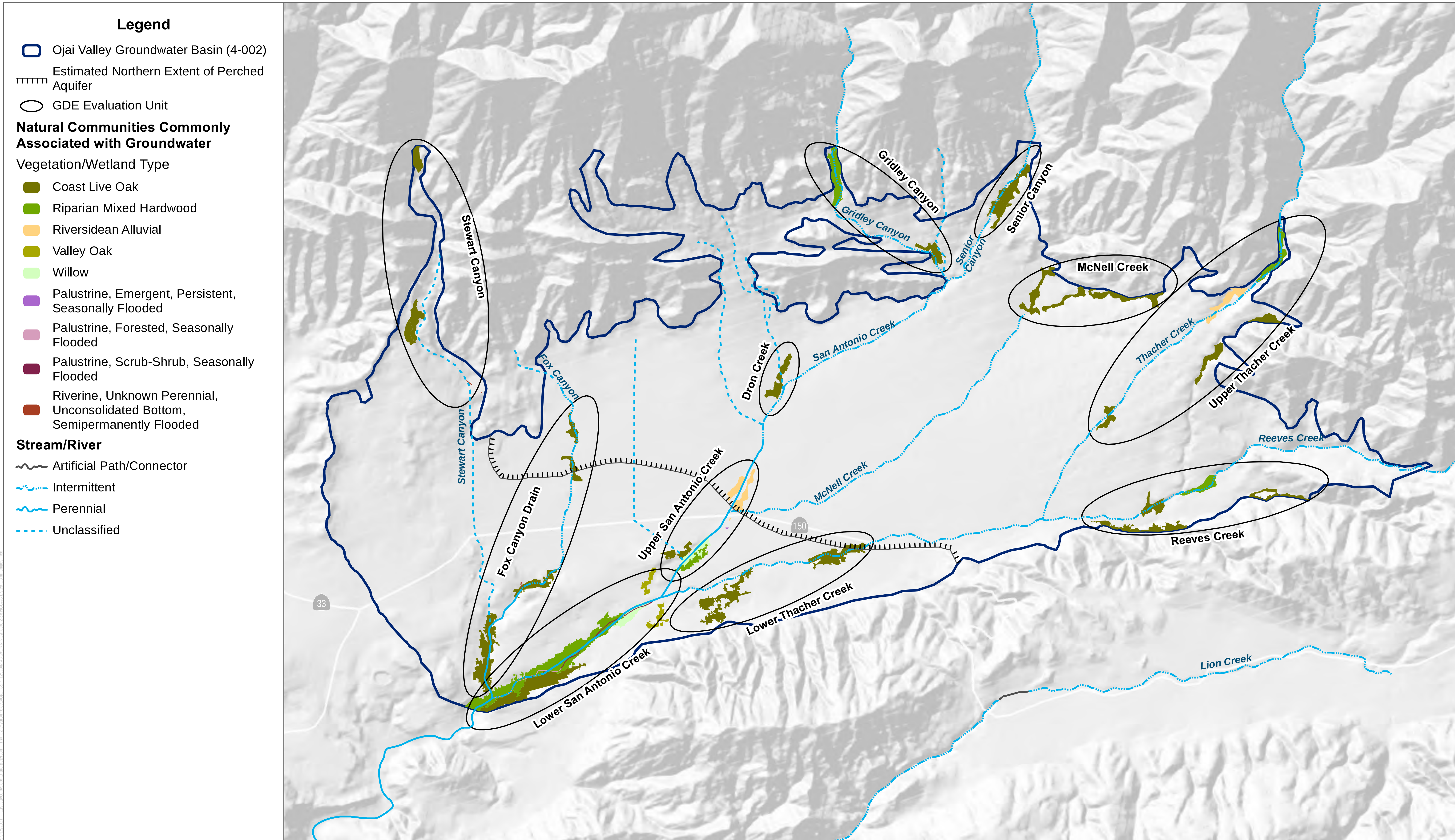
Due to the abundance and extent of individual vegetation and wetland communities identified in the NCCAG dataset, communities in the OVGB were aggregated into larger GDE evaluation units by stream and/or stream reach, comprising 11 evaluation units in total. GDE evaluation units in the OVGB were characterized using information provided in the NCCAG dataset as well as measured groundwater levels, historical aerial photographs, lithologic data, and precipitation and Landsat[25] data aggregated by The Nature Conservancy (TNC). TNC used Landsat data to calculate historical variations in the Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) for the period from 1985 to 2018 (Klausmeyer et al. 2019).

25 The Landsat mission is the longest running satellite monitoring program used to capture space-based images of the Earth's surface every 16 days. Landsat is managed by NASA and records visible, near-infrared, middle-infrared, and thermal wavelengths reflected from the Earth's surface. TNC aggregated this data to generate NDVI and NDMI.

These indices provide a quantitative measure of a habitat's greenness and moisture content during prolonged dry periods. Long-term variations in NDVI and NDMI act as a proxy for habitat health.

Groundwater elevation measurements, aerial photographs, lithologic data, and NDVI and NDMI indicators were reviewed following the general guidelines outlined by TNC (Rohde et al. 2018). Vegetation and wetland communities were characterized as: (1) priority potential groundwater dependent ecosystems, (2) potential groundwater dependent ecosystems or (3) potential GDEs not likely impacted by groundwater extraction. Communities were characterized as priority potential groundwater dependent ecosystems if NDVI and/or NDMI were positively correlated (correlation coefficient[26] greater than or equal to 0.6) with groundwater levels in the primary production aquifer (average annual dry period groundwater elevation [June through October] at key well 04N22W05L008S) and groundwater levels measured at nearby wells (approximately <1 one-half mile from GDE unit) were shallower than 30 feet bgs. This criterion for groundwater depth is identified by TNC as representative groundwater conditions that may sustain common phreatophytes and wetland ecosystems, with the exception of Valley oak, which has a maximum rooting depth of 80 feet and may be able to access deeper groundwater (Rohde et al. 2018). Vegetation and wetland communities were characterized as potential groundwater dependent ecosystems if groundwater levels underlying the communities have not been measured or the source of water sustaining a habitat was not easily identifiable. Conversely, vegetation and wetland communities were characterized as potential GDEs not likely impacted by groundwater extraction if groundwater levels were not correlated with NDVI and/or NDMI and there was geologic evidence that the communities were disconnected from the primary production aquifer, or the communities persisted during periods when underlying groundwater levels were much deeper than 30 feet bgs. Vegetation and wetland communities at a distance of greater than one-half mile from the nearest groundwater extraction well were characterized as not likely to be impacted by current groundwater extraction within the OVGB.

[26] The correlation coefficient is a measure of the strength of the linear relationship between two variables. The correlation coefficient assumes values ranging between +1 and -1, with 0 indicating no relationship, +1 indicating a perfect positive linear relationship, -1 indicating a perfect negative linear relationship. Generally, correlation coefficient values between 0 and ±0.3 indicate a weak linear relationship, values between ±0.3 and ±0.7 indicate a moderate linear relationship, and values between ±0.7 and ±1.0 indicate a strong linear relationship.



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

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0 0.5 1 Miles

FIGURE 2-36

NCCAG Listed Communities

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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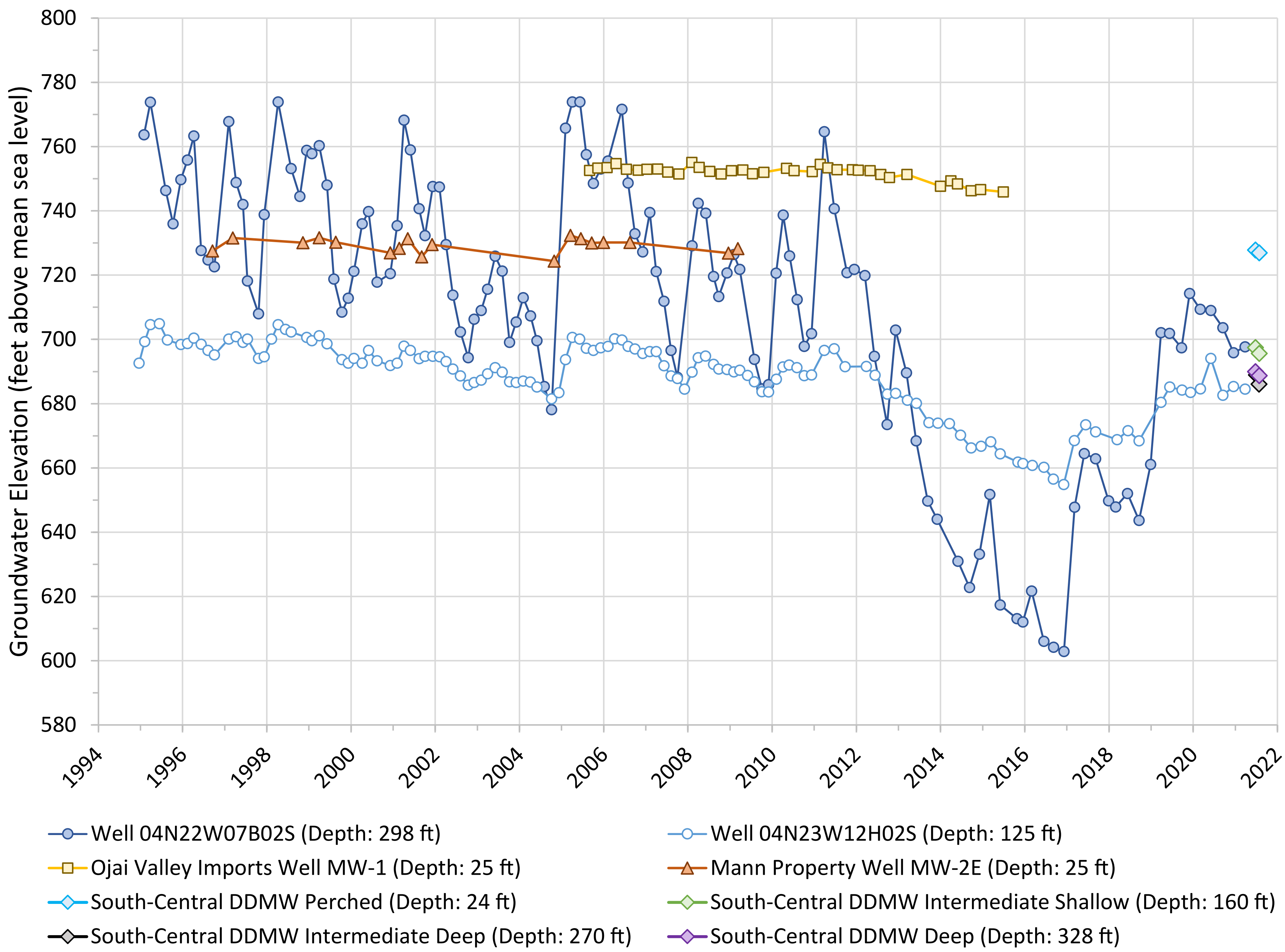

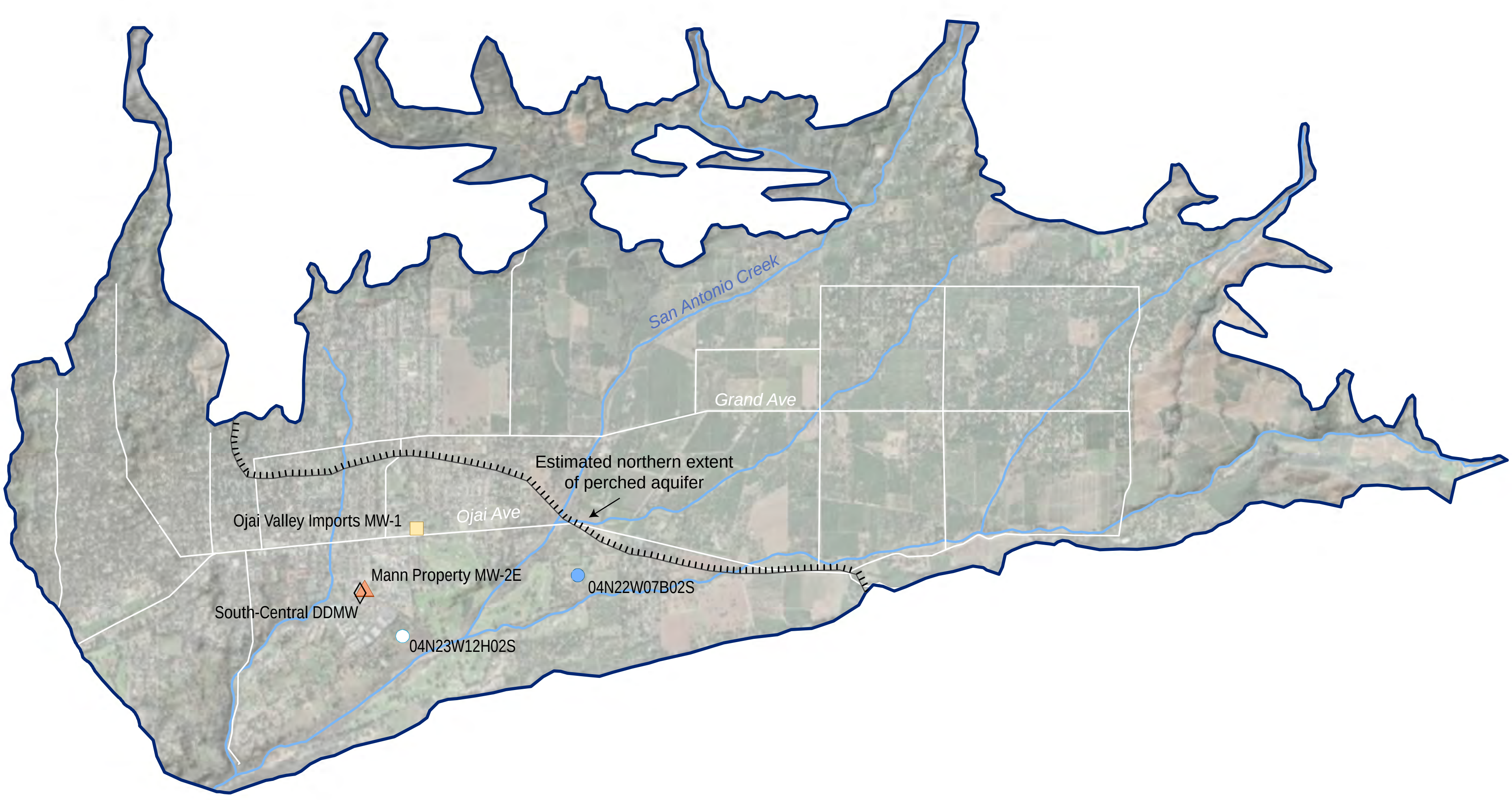

SOURCE: VCWPD; SWRCB

FIGURE 2-37

Shallow Perched Aquifer and Deep Production Aquifer Groundwater Level Trends

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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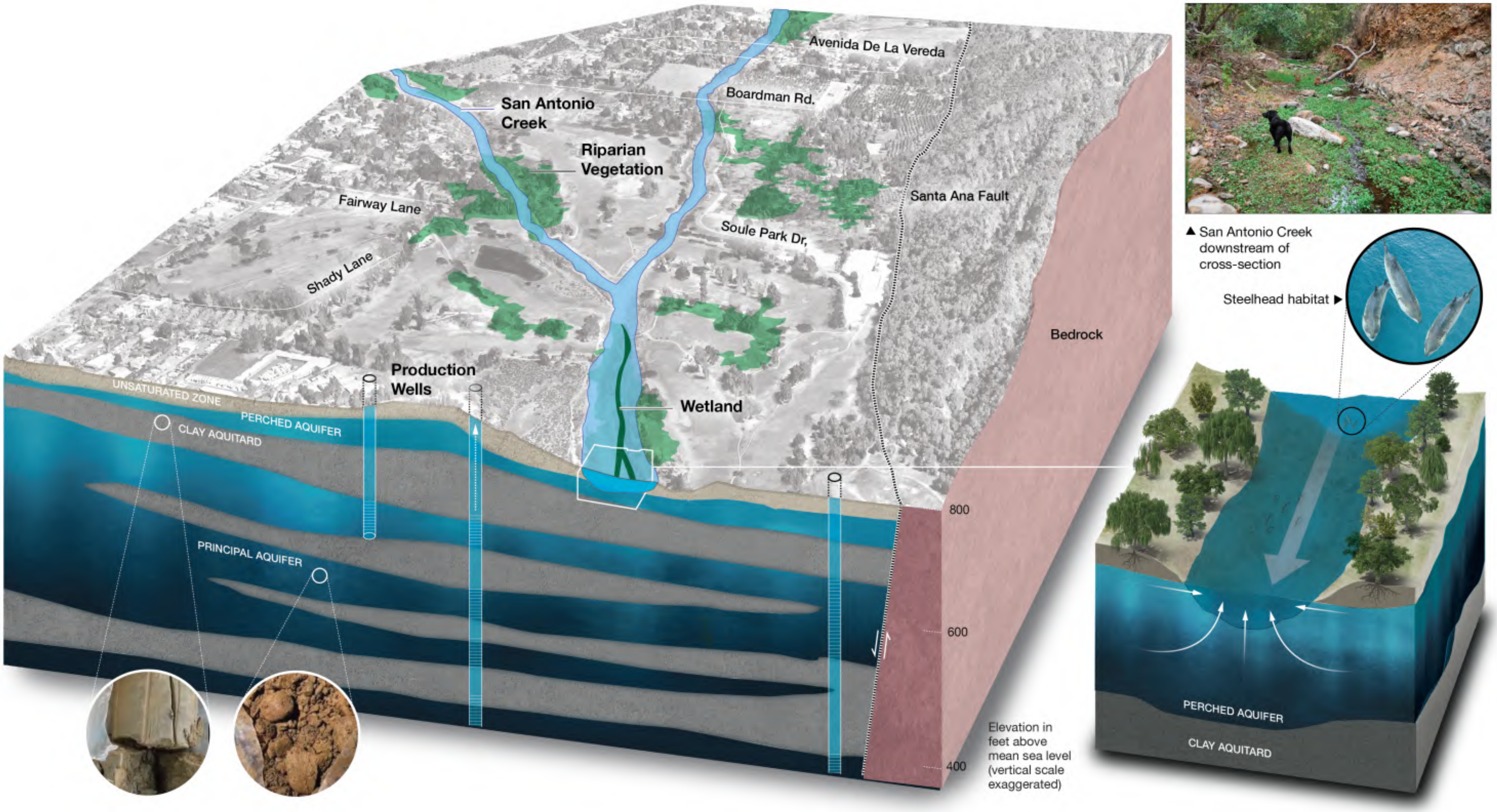

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FIGURE 2-38

Lower San Antonio Creek Hydrogeologic Conceptual Model

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Summary of GDE Characterization

This section describes the results of the GDE characterization in the OVGB. Data supporting the characterization of each ecosystem is described in detail in Appendix E.

SGMA requires that all beneficial uses and users of groundwater, including environmental users of groundwater (e.g., GDEs), be considered in the development of GSPs. Vegetation and wetland communities within the OVGB that may depend on groundwater as identified in the NCCAG dataset were characterized using the methods described above and the guidelines outlined by TNC (Rohde et al. 2018). Of the 46 individual vegetation and wetland communities (253.3 acres) identified in the NCCAG dataset, 12 communities (94.3 acres) are characterized as priority potential groundwater dependent ecosystems, 21 communities (99.5 acres) are characterized as potential groundwater dependent ecosystems, and 13 communities (59.5 acres) are characterized as potential GDEs not likely impacted by groundwater extraction.

In nine of the twelve vegetation and wetland communities identified as priority potential groundwater dependent ecosystems (with a combined area of approximately 92.3 acres), vegetation health trends for the ecosystems are positively correlated with groundwater levels and groundwater levels underlying the ecosystems are shallower than 30 feet bgs. In three of the twelve vegetation and wetland communities identified as priority potential groundwater dependent ecosystems (with a combined area of approximately 2.0 acres), vegetation health data are not available but the ecosystems are located along perennial creek reaches in the central part of the OVGB where historical groundwater level declines in the primary production aquifer have been most significant. The priority potential GDEs consist of coast live oak; riparian mixed hardwood; willow (*Salix spp.*); valley oak (*Quercus lobata*); Riversidean alluvial scrub; palustrine, scrub-shrub, seasonally flooded; and riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded vegetation and wetland communities located along or near the perennial reach of San Antonio Creek (Figure 2-39, Potential Groundwater Dependent Ecosystems). Although there is geologic evidence that these communities may be disconnected from the primary production aquifer as described in Section 2.3.4.6 and shown in Figure 2-38, the location of the ecosystems (near or along the perennial reach of San Antonio Creek) and vegetation health data suggest that groundwater may support these ecosystems, and there is potential for the ecosystems to be impacted by groundwater extraction.

In the majority of the potential groundwater dependent ecosystems (21 individual ecosystems with a combined area of approximately 99.5 acres) NDVI and NDMI data are not available, or vegetation health trends and aerial photographs indicate the presence of persistent vegetation during drought conditions, but data to characterize groundwater conditions underlying the ecosystems are limited. The potential GDEs for which data are limited consist of riparian mixed hardwood; riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded; and riversidean alluvial scrub vegetation and wetland communities. The potential GDEs are largely located on alluvial fans along the OVGB margins at the southern flank of the Topatopa mountains (Figure 2-39). Data indicate groundwater levels in these areas of the OVGB have remained relatively stable at 40 to 50 feet bgs, as described in Section 2.3.4.1, and current groundwater extraction in these areas is not significant. Further characterization of these ecosystems and their potential dependence on groundwater is warranted if future additional groundwater extractions are planned for these areas of the OVGB.

A total of 13 vegetation and wetland communities (59.5 acres) are characterized as potential GDEs not likely impacted by groundwater extraction (Figure 2-39). These ecosystems consist of coast live oak; riversidean alluvial scrub; palustrine, emergent, persistent, seasonally flooded; riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded; and palustrine, forested, seasonally flooded vegetation and wetland communities. Vegetation health trends for these 13 mapped communities are not correlated with groundwater levels, the communities persisted during periods when groundwater levels were greater than 70 feet bgs, and there is geologic evidence that these communities may be disconnected from the primary production aquifer as described in Section 2.3.4.6 and shown in Figure 2-38. Therefore, these ecosystems are not likely to be impacted by groundwater extraction.

It should be noted that additional data acquisition and monitoring including field surveys are needed to refine the potential GDE inventory, verify each ecosystem's dependence on groundwater, identify which ecosystems are of greatest ecological value, assess the susceptibility of each ecosystem to changing groundwater conditions, and evaluate whether potential effects of groundwater extraction are adverse to the health of the potential GDEs. Chapter 3, Section 3.5, Monitoring Network, identifies the metrics and proposed actions necessary to fill data gaps in order to establish sustainability indicators that are protective of GDEs.

2.4 WATER BUDGET

The water budget characterizes groundwater availability by assessing and analyzing inflows and outflows of water to the OVGB over time. This section presents historical and current water budget conditions and quantifies the volume of groundwater held in storage in the OVGB. In this GSP, the historical water budget was compiled for the period from water year 1971 through the end of water year 2014, and the current condition water budget was compiled for the period from water year 2015 through the end of water year 2019.

In order to develop the water budget for the OVGB, the OBGMA commissioned the development of the Ojai Basin Groundwater Model in 2011 (DBS&A 2011). The OBGM was recently updated to include data through the end of water year 2019 (DBS&A 2020b). The OBGM consists of two parts: a surface water model, that was built using the Distributed Parameter Watershed Model (DPWM) code, and a groundwater model that was developed using the MODFLOW-SURFACT code. The surface water model is used to estimate recharge from rainfall and irrigation, which is then used as an input to the groundwater model. Input and output files for both the DPWM and MODFLOW-SURFACT models were provided for preparation of historical, current, and projected water budgets for the OVGB.

The groundwater model domain roughly aligns to the boundary of the alluvial aquifer and is defined by a finite-difference grid of uniform cells (also called nodes) that are 200-feet by 200-feet square, or roughly 0.92 acres in area. The model is divided vertically into 10 layers, with layers 1, 2, 4, 6, 8, and 10 representing aquifer units and layers 3, 5, 7, and 9 representing semi-confining units. Note that this model simplifies OVGB stratigraphy. The aquifer properties such as hydraulic conductivity and storativity change across each stratigraphic unit. For the purposes of a general water budget this is deemed useful, but management based on measured parameters is optimal.

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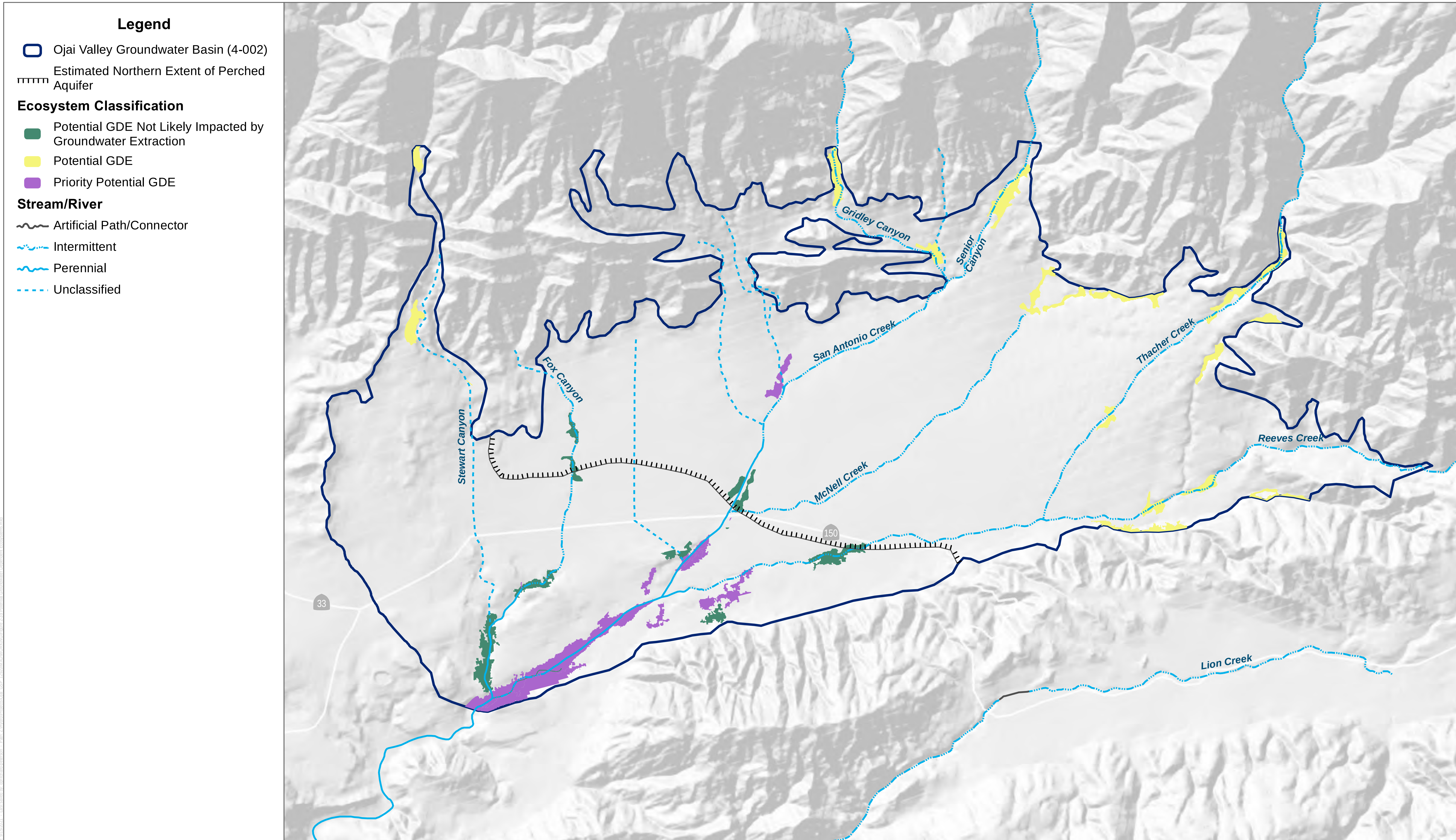

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

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0 0.5 1 Miles

FIGURE 2-39

Potential Groundwater Dependent Ecosystems

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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2.4.1 Inflow to Groundwater System

The OVGB is recharged by combination of native and non-native water supplies. Native water supplies to the OVGB include deep percolation of precipitation that falls on the basin floor and subsurface underflows of precipitation that falls in the watershed that drains to the basin (DBS&A 2020b). In addition to these sources, surface water flows along the San Antonio Creek were historically diverted for recharge to the basin via the San Antonio Creek Spreading Grounds (Figure 2-12). San Antonio Creek diversions were managed by Ojai Water Conservation District between 1963 and 1985 as described previously in Section 2.1.1.2, Water Agencies Relevant to the Plan Area.

Non-native water supplies to the basin include septic system discharges, disposal of treated wastewater via leaching fields operated by the Thacher School, and irrigation return flows. Irrigation return flows consist of both domestic water supplies used to irrigate landscape as well as water used for agriculture to irrigate crops such as citrus and various grains.

Average annual components of native and non-native groundwater recharge sources are summarized in Sections 2.4.1.1 through 2.4.1.4. These average annual quantities were extracted from the MODFLOW-SURFACT output files of the OBGM and represent average conditions in the basin between water years 1971 and 2014.

2.4.1.1 Precipitation recharge and irrigation return flows

Recharge from precipitation and irrigation is calculated using the DPWM surface water model. The DPWM is a soil-water-balance model that uses inputs such as precipitation, evapotranspiration, geology, soils, and vegetation cover to estimate runoff and water percolation through the soil column on a watershed-wide scale. The DPWM grid is designed to exactly overlay the grid for the groundwater model so that recharge outputs from the DPWM can be input directly to the groundwater model. The DPWM outputs for precipitation recharge and irrigation return flows are aggregated and input to the MODFLOW-SURFACT code using the recharge-seepage face package. This implementation of the recharge package removes excess recharge that would result in groundwater elevations that exceed land surface elevation, thereby limiting the specified recharge rate by the simulated groundwater elevation. Recharge calculations from the DPWM are considered uncalibrated since there are no streamflow gauges within the model domain to use for calibration (DBS&A 2011).

Results from the output files of the OBGM indicate that an average of approximately 6,500 AF of precipitation and irrigation return flows recharged the basin annually between water years 1971 and 2014 (Table 2-13). Documentation of the OBGM indicates that approximately 77% of the 6,500 AFY is attributed to precipitation recharge and the remaining 23% is attributed to irrigation return flows (DBS&A 2020b).

Table 2-13
Historical Water Budget for the OVGB

Water Year	Water Year Type	Groundwater Inflows (Acre-Feet)				Groundwater Outflows (Acre-Feet)					Change in Storage (Acre-Feet)	
		Recharge[a]	*Mtn. Front Recharge*	*Septic, Wastewater, and SACSG*	*Subtotal*	*Pumping*	*ET*	*Stream Discharge*	*Underflows to UVRGB*	*Subtotal*	*Annual*	*Cumulative*
1971	Dry	6,562	2,293	520	9,375	3,443	288	3,577	91	7,399	1,976	1,976
1972	Dry	4,178	1,512	523	6,213	3,563	282	2,607	91	6,543	-330	1,645
1973	Wet	11,515	4,066	520	16,100	3,488	311	8,476	94	12,369	3,732	5,377
1974	Average	6,088	1,911	520	8,519	3,500	308	5,385	95	9,287	-768	4,609
1975	Average	6,454	2,120	520	9,094	3,568	307	5,188	95	9,157	-64	4,545
1976	Average	2,212	567	523	3,301	3,642	279	2,175	91	6,187	-2,886	1,658
1977	Dry	2,492	686	520	3,697	3,657	254	1,466	88	5,465	-1,767	-109
1978	Wet	18,355	7,088	520	25,963	3,581	327	14,817	95	18,821	7,142	7,033
1979	Average	7,133	2,416	520	10,069	3,663	318	7,702	97	11,780	-1,712	5,322
1980	Average	12,181	4,538	523	17,241	3,886	330	11,893	98	16,206	1,035	6,356
1981	Dry	3,534	1,150	520	5,204	3,942	294	3,725	94	8,056	-2,852	3,505
1982	Average	2,705	646	520	3,871	3,799	275	2,001	90	6,165	-2,295	1,210
1983	Wet	14,207	5,079	520	19,806	3,765	323	10,781	95	14,965	4,841	6,051
1984	Dry	2,458	566	523	3,546	3,932	289	3,342	93	7,656	-4,110	1,941
1985	Dry	2,750	725	520	3,995	3,959	264	1,663	89	5,976	-1,981	-41
1986	Average	7,962	2,662	21	10,645	3,420	279	3,930	90	7,718	2,927	2,886
1987	Dry	1,051	36	21	1,108	3,460	254	1,347	88	5,149	-4,041	-1,154
1988	Average	3,016	706	21	3,744	3,577	212	1,252	84	5,125	-1,382	-2,536
1989	Dry	2,464	702	21	3,187	3,524	165	1,013	81	4,782	-1,595	-4,131
1990	Dry	1,892	498	21	2,412	3,773	124	849	77	4,823	-2,411	-6,542
1991	Average	7,315	2,674	21	10,011	3,810	145	2,591	78	6,624	3,387	-3,155
1992	Average	10,141	3,552	21	13,714	4,467	227	4,419	86	9,200	4,515	1,359
1993	Wet	16,349	6,263	21	22,633	4,687	319	12,630	95	17,731	4,902	6,261
1994	Dry	2,042	465	21	2,528	4,578	282	2,680	92	7,631	-5,103	1,158
1995	Wet	15,871	5,702	21	21,595	4,626	317	11,713	94	16,750	4,845	6,002

Table 2-13
Historical Water Budget for the OVGB

Water Year	Water Year Type	Groundwater Inflows (Acre-Feet)				Groundwater Outflows (Acre-Feet)					Change in Storage (Acre-Feet)	
		Recharge[a]	*Mtn. Front Recharge*	*Septic, Wastewater, and SACSG*	*Subtotal*	*Pumping*	*ET*	*Stream Discharge*	*Underflows to UVRGB*	*Subtotal*	*Annual*	*Cumulative*
1996	Average	3,617	1,141	21	4,779	4,708	290	3,055	93	8,147	-3,368	2,635
1997	Average	8,439	2,965	21	11,424	4,957	303	4,841	93	10,195	1,229	3,864
1998	Wet	16,909	6,327	21	23,257	3,956	344	15,465	98	19,864	3,393	7,257
1999	Dry	1,014	42	21	1,077	4,600	281	2,758	92	7,731	-6,654	604
2000	Average	5,582	2,066	21	7,670	4,501	252	2,439	88	7,280	390	993
2001	Average	10,479	3,649	21	14,150	4,384	289	6,066	91	10,831	3,318	4,311
2002	Dry	1,362	127	21	1,510	4,531	263	1,714	89	6,598	-5,087	-776
2003	Average	4,479	1,236	21	5,737	4,189	239	1,544	86	6,058	-321	-1,097
2004	Dry	3,162	828	21	4,012	4,326	197	1,138	83	5,744	-1,732	-2,829
2005	Wet	18,168	6,607	21	24,796	3,914	312	11,448	94	15,767	9,029	6,200
2006	Average	7,029	2,305	21	9,356	3,939	312	5,486	95	9,832	-476	5,723
2007	Dry	897	37	21	955	5,150	264	1,959	90	7,463	-6,508	-784
2008	Average	8,420	2,859	21	11,300	4,868	256	3,730	88	8,942	2,358	1,574
2009	Dry	2,672	756	21	3,449	4,753	231	1,340	86	6,410	-2,961	-1,387
2010	Average	7,613	2,361	21	9,995	4,277	255	2,814	87	7,433	2,562	1,175
2011	Average	10,080	3,392	21	13,493	4,709	308	5,567	93	10,678	2,815	3,990
2012	Dry	1,408	95	21	1,525	5,318	253	1,477	88	7,136	-5,611	-1,621
2013	Dry	1,355	110	21	1,486	5,002	159	909	79	6,150	-4,663	-6,285
2014	Dry	2,566	994	21	3,581	5,377	98	700	72	6,247	-2,666	-8,951
1971-2014 Average		*6,504*	*2,194*	*191*	*8,889*	*4,154*	*266*	*4,584*	*90*	*9,093*	*-203*	—
Dry WY Type Average		*2,437*	*646*	*188*	*3,270*	*4,272*	*236*	*1,904*	*87*	*6,498*	*-3,228*	
Average WY Type Avg.		*6,892*	*2,303*	*179*	*9,374*	*4,098*	*273*	*4,320*	*90*	*8,781*	*593*	
Wet WY Type Average		*15,910*	*5,876*	*235*	*22,021*	*4,002*	*322*	*12,190*	*95*	*16,609*	*5,412*	

Notes: Avg. = Average; Mtn. = Mountain; SACSG = San Antonio Creek Spreading Grounds; ET = evapotranspiration; UVRGB = Upper Ventura River Groundwater Basin.
[a] Recharge refers to deep percolation of precipitation and irrigation return flows.

2.4.1.2 Mountain Front Recharge

Precipitation that falls outside the OVGB but within the San Antonio Creek watershed may act as a source of groundwater recharge to the basin (e.g. mountain front recharge). The primary mechanism that results in the recharge of upgradient precipitation is infiltration, and subsequent underflow, through alluvial channels that extend beyond the basin boundary (DBS&A 2011). Estimates of precipitation infiltration into the alluvial channels that extend beyond the basin boundary were computed for the 1971-2014 period by the DPWM and used as inputs to the MODFLOW-SURFACT model.

Results from the OBGM indicate that an average of approximately 2,200 AFY of precipitation recharged the basin via underflows through upgradient alluvial channels (Table 2-13). This source of recharge historically accounted for an average of 25% of the total annual recharge to the OVGB.

2.4.1.3 San Antonio Creek Spreading Grounds

Surface water flows through the San Antonio Creek were historically diverted to the San Antonio Creek Spreading Grounds between 1963 and 1985 (OBGMA 2021b). No written records were kept of annual diversion volumes, but it is estimated that during operations, 15-25 AF of surface water was diverted daily to the San Antonio Creek Spreading Grounds for approximately 30 days per year (DBS&A 2011). Based on these estimates, the OBGM simulated an annual diversion and recharge volume of approximately 500 AFY (Table 2-13). When operational, recharge via the San Antonio Creek Spreading Grounds provided an average of approximately 5% of the annual recharge to the basin.

2.4.1.4 Septic Systems and Wastewater Recharge

Septic system recharge to groundwater was estimated using the Ventura County Individual Sewage Disposal System Applications/Permits database. Using this database, DBS&A identified 16 individual septic systems within the model boundary and a septic system at the Thacher School (DBS&A 2011). Recharge from septic systems was applied at the appropriate areas within the model. The average annual volume of recharge from septic systems and wastewater disposal at the Thacher School was 21 AFY. Between 1971 and 2014, this accounted for less than 1% of the average annual recharge to the basin.

Data collected by the Ventura County Watershed Protection District indicate that approximately 780 parcels in the OVGB rely on septic systems for on-site wastewater treatment systems. The 780 parcels with on-site wastewater treatment systems are not included in the OBGM. As a result, septic system return flows may be underestimated by the OBGM.

2.4.2 Outflows from Groundwater System

Groundwater discharges from the OVGB occur via discharges to the San Antonio Creek, evapotranspiration of shallow groundwater by native phreatophytes, groundwater production, and, to a lesser extent, underflows to the Upper Ventura River Subbasin and include subsurface flow in San Antonio Creek alluvium beyond the OVGB boundary (Figure 2-1). The rates and extent of discharge from these sources are simulated by MODFLOW-SURFACT in the OBGM.

Average annual components of model-simulated groundwater outflows are summarized in Sections 2.4.2.1 through 2.4.1.3. These average annual quantities were extracted from the OBGM and represent average conditions in the basin between water years 1971 and 2014.

2.4.2.1 Groundwater Discharge to Streams

Results from the OBGM indicate that the largest source of groundwater outflow from the OVGB is groundwater discharge to the San Antonio Creek (Table 2-13).

Surface water and groundwater interactions in the OBGM are simulated using both the DPWM and MODFLOW-SURFACT codes. Recharge to groundwater from streams is estimated using the DPWM and applied to the MODFLOW-SURFACT code using the recharge seepage face package (DBS&A 2011). As noted previously, this implementation of the recharge package in MODFLOW-SURFACT implicitly sets the recharge value in a cell equal to zero when groundwater elevations reach land surface.

Groundwater discharges to streams were simulated in the OBGM using the MODFLOW drain package (DBS&A 2011). In the OBGM, each stream reach is represented as a drain with a predefined geometry and streambed conductivity. The drain package then calculates groundwater discharges through the drain, or stream bottom, based on the difference in groundwater and drain elevations, and the pre-defined hydraulic properties of the drain. All drain cells within the model have a uniform width of 10 feet, a uniform length of 283 feet, a uniform bed thickness of 1 foot, and a uniform conductivity of 26.1 feet per day (DBS&A 2011). The elevation of each drain was set as 5 feet below the average land surface of the cell where the drain is located (DBS&A 2011). Between water years 1971 and 2014, the average annual groundwater discharge to streams calculated by the OBGM was approximately 4,600 AFY (Table 2-13).

2.4.2.2 Groundwater Pumping

Groundwater pumping is the second largest groundwater outflow simulated by the OBGM. Groundwater pumping data from wells within the model boundary were determined from the OBGMA database. OBGMA pumping records were available for 172 wells within the model boundary. The groundwater model assumed pumping from these wells to be the only pumping within the OVGB. As a result, pumping may be underestimated in the OBGM. Pumping volumes were reported to the OBGMA every six months from 1996 to 2015 and quarterly thereafter. Groundwater extraction records were only available starting in the year 1996. For years prior to 1996, the average quarterly extraction at each well was applied to corresponding quarters, with average values being reduced by 25% in the years 1986 through 1991 based on reports of reduced groundwater extractions during this period (DBS&A 2011). Between water years 1971 and 2014, the average annual groundwater extraction rate in the OBGM was approximately 4,200 AFY (Table 2-13). Groundwater extractions in the OBGM ranged from 3,420 AF in water year 1986 to 5,377 AF in water year 2014.

Estimated pumping data are also available from the OBGMA pumping database for calendar years 1985 through 2018. The average calendar year pumping for this period was 4,926 AF (OBGMA 2018). Model pumping for this same period averaged 4,286 AFY, suggesting that the model may underestimate the total pumping that occurs during this period. The model documentation suggests that pumping in the model is likely underestimated due to the assumption that only the 172 pumping wells included in the model extract water from the basin (DBS&A 2011). Interpretation of model results should take into consideration underestimation of pumping as part of the uncertainty in model results.

2.4.2.3 Evapotranspiration

Irrigated crop evapotranspiration in the OVGB was estimated using the DPWM to determine the rate and location of irrigation return flows to the OVGB over time. The DPWM calculates irrigated crop evapotranspiration using the Penman-Monteith equation, which computes evapotranspiration demands using local crop type and density information, land surface characteristics, and climatological data (DBS&A 2013). Precipitation and applied water volumes that locally exceed crop evapotranspiration demands contribute to irrigation return flows to the basin (DBS&A 2011). Because irrigated crops are located in areas of the OVGB that overlie the primary production aquifer and their shallow roots do not intercept the water table, evapotranspiration by irrigated crops does not directly contribute to outflows from groundwater.

Riparian habitats in the OVGB rely on shallow groundwater as a source of water supply (DBS&A 2011). Riparian habitats were mapped across the model domain using vegetation maps produced by the U.S. Fish and Wildlife Service and Wildscape Restoration (DBS&A 2011). Evapotranspiration from these habitats were estimated using the MODFLOW evapotranspiration (EVT1) package (DBS&A 2011). Inputs to the EVT1 package include maximum evapotranspiration rate and extinction depth[27]. The EVT1 package assumes a linear relationship between evapotranspiration and the height of the water table above the extinction depth. The

[27] Extinction depth is the depth to which the roots of plants extend below land surface and is the depth at which evaporation from the water table ceases.

maximum riparian evapotranspiration rate in the model was estimated using the DPWM and set equal to 57.2 inches per year, and the extinction depth was set at 13.12 feet (DBS&A 2011). Between water years 1971 and 2014, the average annual evapotranspiration by riparian habitats, as calculated by the OBGM, was 266 AFY (Table 2-13).

2.4.4.4 Subsurface Outflow

Subsurface groundwater outflow from the OVGB includes groundwater outflow in the alluvium at the southwestern part of the basin and outflow from the alluvium to bedrock beneath the alluvial aquifer. Both outflow in the alluvium and outflow to bedrock are estimated in the model using the MODFLOW general head boundary package (DBS&A 2011). The general head boundary package computes flow based on the difference in head between groundwater in the cell and head at the boundary, the boundary width, and the hydraulic conductivity of the boundary. Between water years 1971 and 2014, the average annual subsurface outflows estimated by the model were 90 AFY (Table 2-13).

2.4.3 Change in Annual Volume of Groundwater in Storage

Estimates of annual and cumulative changes in storage for the OVGB were extracted from the OBGM model output files. Annual change in storage from the model is presented in Figure 2-40, Annual Change in Groundwater in Storage, and cumulative change in storage is presented in Figure 2-41, Cumulative Change in Groundwater in Storage.

Results from the OBGM indicate that groundwater in storage decreased at an average annual rate of approximately 15 AFY between water years 1971 and 2019 (Table 2-16). Over this 49-year period, groundwater in storage declined by a total of approximately 750 AF.

2.4.4 Quantification of Current, Historical, and Projected Water Budget

Each GSP is required to include an accounting of the total annual volume of surface water and groundwater entering and leaving the basin during historical, current, and projected conditions (23 CCR Section 354.18). As previously noted, historical conditions for the OVBG refer to the 44 year period from the start of water year 1971 through the end of water year 2014 and current conditions refer to the period from the start of water year 2015 through the end of water year 2019. Results summarizing the current and historical water budgets are based on simulation results extracted from the OBGM.

In order to better understand the influence of climate on groundwater in storage in the OVGB, water years were divided into water year types based on the amount of precipitation that fell in the year versus the average precipitation over the period of record. Data used for water year type was taken from the Ojai station (Station No. USC00046399). Water years were divided into three types:

dry, average, and wet. Water years were classified as dry if precipitation was less than 75% of the average annual precipitation for the Ojai station, average if precipitation was between 75% and 150% of average annual precipitation, and wet if precipitation was greater than 150% of the average annual precipitation (Figures 2-40 and 2-41).

Between water years 1971 and 2014 (Historical Conditions), 18 years were characterized as dry water years, 19 years were characterized as average water years, and 7 years were characterized as wet water years. Between water years 2015 and 2019 (Current Conditions), water years 2015, 2016, and 2018 were characterized as dry water year types, and water years 2017 and 2019 were characterized as average water types.

Water budgets for these two time periods are described in sections 2.4.4.1 and 2.4.4.2 and are shown graphically in Figure 2-42, Historical and Current Conditions Water Budget.

2.4.4.1 Quantification of Historical Water Budget

Historical Availability and Reliability of Surface Water Supply for Deliveries (23 CCR 354.18(c) 2(a))

Surface water imported by CMWD has historically provided an estimated 47% of the annual domestic and agricultural water supplies to the OVGB. Between water year 1971 and 2014, CMWD imported an estimated 3,750 AF of surface water to the basin annually (Table 2-14). CMWD imported water supplies ranged from an estimated minimum of 2,404 AF in 2010 and to an estimated maximum of 5,272 AF in 1997. Water years 2010 and 1997 were both average water year types.

During dry, average, and wet water years, CMWD imported an estimated average of approximately 4,200 AFY, 3,600 AFY, and 3,100 AFY, respectively.

Table 2-14
Historical Imported Water Supplies to the OVGB

Calendar Year	Water Year Type	Estimated Casitas Imports (AF)
1985	Dry	4,181
1986	Average	3,633
1987	Dry	4,473
1988	Average	4,635
1989	Dry	5,169
1990	Dry	4,961
1991	Average	3,377
1992	Average	2,744
1993	Wet	2,800

Table 2-14
Historical Imported Water Supplies to the OVGB

Calendar Year	Water Year Type	Estimated Casitas Imports (AF)
1994	Dry	3,433
1995	Wet	3,530
1996	Average	4,468
1997	Average	5,272
1998	Wet	3,115
1999	Dry	3,922
2000	Average	4,044
2001	Average	3,195
2002	Dry	4,249
2003	Average	3,428
2004	Dry	4,185
2005	Wet	2,768
2006	Average	2,796
2007	Dry	3,770
2008	Average	3,176
2009	Dry	3,411
2010	Average	2,404
2011	Average	2,990
2012	Dry	2,986
2013	Dry	4,295
2014	Dry	4,978
	1985–2014 Average	*3,746*
	Dry WY Type Average	*4,155*
	Average WY Type Average	*3,551*
	Wet WY Type Average	*3,053*

Notes: AF = acre-feet; WY = water year.

Assessment of Historical Groundwater Inflows, Outflows, and Storage Changes as a function of Water Year Type (23 CCR Section 354.18(c) 2(b))

Results from the OBGM indicate that the OVGB was recharged at an average annual rate of approximately 9,400 AFY during average water years (Table 2-13). Of this, approximately 73% was derived from precipitation and irrigation return flows, 25% was derived from upgradient alluvial channel recharge, and 2% was derived from septic systems, wastewater disposal, and surface water spreading. In average water years, groundwater extractions and discharges to streams averaged approximately 4,100 AFY and 4,300 AFY, respectively (Table 2-13).

The OBGM estimates that groundwater in storage increased at an average rate of approximately 600 AFY during average water years. Change in groundwater in storage calculated by the OBGM during average water years ranged from a loss of approximately 3,400 AF in water year 1996 to an increase of approximately 4,500 AF in water year 1992. Annual precipitation in water years 1992 and 1996 was approximately 133% and 82% of the long-term average. The large variation in annual storage change between these two years demonstrates the climatic dependence of groundwater conditions in the OVGB.

During dry water years, the OBGM estimates that the OVGB was historically recharged at an average rate of approximately 3,300 AFY, which is approximately 65% less than recharge during average water years. Groundwater extractions in the OBGM are an average of approximately 200 AFY higher during dry water years than average water years. Groundwater discharges to streams during dry water years are approximately 55% lower than average water year type conditions.

Results from the OBGM indicate that groundwater in storage historically declined at an average rate of approximately 3,200 AFY during dry water years. This reduction in storage was driven by relatively consistent agricultural, municipal, and domestic groundwater demands during periods where precipitation recharge was 65% lower than average water year type conditions.

Groundwater in storage historically rebounded, on average, 5,400 AFY during wet water years (Figure 2-41). The increase in storage was driven by increased precipitation recharge (Table 2-13).

2.4.4.2 Quantification of Current Conditions Water Budget

Availability and Reliability of Surface Water Supply for Deliveries

Between water years 2015 and 2019, CMWD imported an average of approximately 3,600 AF of surface water to the OVGB annually. Peak imports to the OVGB during this period occurred in water year 2016, where CMWD imported approximately 4,300 AF of water to the OVGB. Surface water supplies imported to the OVGB during current conditions were similar in volume to historical imports (Table 2-14 and Table 2-15)

Table 2-15
Historical Imported Water Supplies to the OVGB

Calendar Year	Water Year Type	Casitas Imports (AF)
2015	Dry	4,133
2016	Dry	4,319
2017	Average	2,924
2018	Dry	3,031
	2015–2018 Average	*3,601*

Notes: AF = acre-feet.

Assessment of Groundwater Inflows, Outflows, and Storage Changes during Current Conditions

Results from the OBGM indicate that the OVGB was recharged at an average annual rate of approximately 7,100 AFY during water years 2015 through 2019 (Table 2-16). This average annual recharge rate is approximately 20% lower than historical conditions, reflecting the drier-than-average climate experienced within the OVGB between 2015 and 2019.

Over this same period, groundwater production from the OVGB averaged approximately 3,500 AFY, which is 700 AFY less than groundwater extraction rates reported for water years 1971-2014. Reduced groundwater extractions between 2015 and 2019 resulted in an average annual increase in groundwater in storage of approximately 1,600 AFY.

Climatic conditions and groundwater management between 2015 and 2019 has restored groundwater storage in the basin to pre-drought conditions (Figure 2-41). Current management in the OVGB has resulted in a cumulative increase in storage of approximately 8,100 AF between water years 2015 and 2019.

2.4.4.3 Quantification of Projected Water Budgets

Each GSP is required to include projected water budgets in order to estimate, "future baseline conditions of supply, demand, and aquifer response to Plan implementation, and to identify uncertainties of these projected water budget conditions" (23 CCR §354.18(c) 3). To assess future conditions, the projected water budgets are required to utilize a 50-year projection horizon that incorporates the most recent land use and population data, projected water demands, and surface water availability. Projected water budgets shall also be used to evaluate the potential impacts of climate change on operations within the Plan Area.

Table 2-16
Current Condition Water Budget for the OVGB

Water Year	Water Year Type	Groundwater Inflows (Acre-Feet)				Groundwater Outflows (Acre-Feet)					Change in Storage (Acre-Feet)	
		Recharge[a]	*Mtn Front Recharge*	*Septic, Wastewater, and SACSG*	*Subtotal*	*Pumping*	*ET*	*Stream Discharge*	*Model-based Underflows to UVRGB*	*Subtotal*	*Annual*	*Cumulative relative to water year 1971*
2015	Dry	1,430	264	21	1,715	3,682	70	483	68	4,303	-2,588	-11,538
2016	Dry	1,115	255	21	1,391	3,034	51	374	64	3,523	-2,132	-13,670
2017	Average	10,092	3,559	21	13,672	2,874	97	3,047	69	6,087	7,584	-6,086
2018	Dry	2,297	899	21	3,218	4,311	90	646	72	5,120	-1,902	-7,987
2019	Average	11,473	4,191	21	15,685	3,644	158	4,573	78	8,453	7,232	-755
2015-2019 Average		*5,281*	*1,834*	*21*	*7,136*	*3,509*	*93*	*1,825*	*70*	*5,497*	*1,639*	—

Notes: Avg. = Average; Mtn. = Mountain; SACSG = San Antonio Creek Spreading Grounds; ET = evapotranspiration; UVRGB = Upper Ventura River Groundwater Basin.
[a] Recharge refers to deep percolation of precipitation and irrigation return flows.

2.4.4.3.1 Projected Water Budget Assumptions

Simulated Climate Conditions

Projected water budgets for the OVGB were generated using simulation results from the DPWM and MODFLOW-SURFACT codes of the OBGM. Three future scenarios were simulated as part of the GSP development: (1) a Future Baseline scenario, (2) a Climate Change I scenario, and (3) a Climate Change II scenario. Each scenario utilized the hydrologic conditions recorded at the NOAA climate measurement station located in Ojai (NOAA Station ID: Ojai USC00046399) during the period from water year 1944 to 1993 to represent projected conditions from water year 2020 through water year 2069. During this period, the NOAA rain gauge measured approximately 20.2 inches of rain annually, which is similar to the long-term historical average annual precipitation rate (Section 2.2.3.1). This period in the climate record is characterized by a prolonged dry period between water years 1944 and 1965, followed by wet and dry climate cycles between water years 1965 and 1993 (Figure 2-11). Between 1944 and 1993, 21 years were characterized as dry water years, 21 years were characterized as average water years, and 8 years were characterized as wet water years.

Temperature measurements collected at the NOAA for the period from 1944 to 1993 approximated average conditions, with the daily maximum temperatures in August averaging approximately 90° F and daily minimum temperatures in January averaging approximately 36° F. Daily maximum temperature, minimum temperature, and precipitation measured at the NOAA gauge during this period were used as inputs to the DPWM for the Future Baseline scenario.

DWR provides monthly change factors that can be used to adjust historical data to represent projected future conditions (DWR, 2018). To simulate the effects of climate change on groundwater resources in the OVGB, the DWR 2030 and 2070 central tendency precipitation and evapotranspiration change factors were applied to the measured precipitation and temperature data, respectively. DWR's 2030 and 2070 central tendency change factors represent that mean monthly adjustment for historical data predicted from an ensemble of 20 different global climate projections (DWR, 2018). Results from the Climate Change I scenario reflect basin conditions using the 2030 central tendency change factors, and results from the Climate Change II scenario reflect basin conditions using the 2070 central tendency change factors.

The application of DWR's 2030 and 2070 climate change factors resulted in a slight increase in average annual precipitation compared to Future Baseline conditions. In the Climate Change I scenario, annual precipitation averaged approximately 20.4 inches per year and in the Climate Change II scenario, annual precipitation averaged approximately 21.0 inches per years. These precipitation rates are approximately 0.2 and 0.8 inches per year higher than conditions simulated in the Future Baseline scenario.

The application of DWR's 2030 and 2070 evapotranspiration change factors to the daily minimum and maximum temperatures result in warmer conditions across the OVGB compared to the Future Baseline scenario. In the Climate Change I scenario, daily maximum and minimum temperatures increased by an average of approximately 3º F and 2º F, respectively, compared to the Future Baseline scenario. In the Climate Change II scenario, daily maximum and minimum temperatures increased by an average of approximately 7º F and 4º F, respectively, compared to the Future Baseline scenario

Simulated Water Demands

Groundwater was extracted from the OVGB a constant extraction rate of approximately 4,000 AFY for all three future scenario conditions. This is slightly lower than the estimated historical sustainable yield of 4,100 AFY. The constant 4,000 AFY basin-wide extraction rate was distributed across each production well using the average groundwater extraction distribution from the current condition simulation.

On April 21, 2021, the Casitas Municipal Water District Board adopted a projected system demand of 14,525 AFY, which is below the Casitas System operational yield of 15,010 AFY (CMWD, 2021). These projected demands suggest that local surface water supplies are anticipated to remain available to the OVGB throughout the 50-year projection horizon. Local surface water has historically supplied approximately 40% of the total water supplies to the OVGB.

Land-use and irrigation practices were held constant from the current conditions throughout the 50-year projection horizon.

2.4.4.3.2 Future Baseline Scenario Water Budget

Results from the OBGM indicate that the OVGB would receive approximately 7,750 AF of recharge annually under Future Baseline conditions. Approximately 70% of this recharge will occur in the form of precipitation recharge and irrigation return flows, and 28% would occur in the form of mountain front recharge (Table 2-17). The projected average annual recharge to the OVGB under the Future Baseline conditions is approximately 1,100 AFY lower than historical conditions. This is due to a reduction in precipitation recharge and irrigation return flows (Table 2-17).

Table 2-17
Comparison of Historical, Current, and Projected Water Budgets for the OVGB

Water Budget Component	Historical (1971-2014)	Current (2015-2019)	Future (2020-2069)		
			Future Baseline	*Climate Change I*	*Climate Change II*
Precipitation Recharge and Irrigation Return Flows	6,502	5,281	5,593	5,473	5,591
Mountain Front Recharge	2,194	1,834	2,138	2,151	2,344
Septic, Wastewater, and Former SACSG	191	21	21	21	21
Total Groundwater Inflows	*8,887*	*7,136*	*7,752*	*7,645*	*7,956*
Pumping	4,154	3,509	4,006	4,006	4,005
ET	266	93	217	215	216
Groundwater Discharges to Streams	4,586	1,826	3,303	3,200	3,504
Model-based Subsurface Outflows to Upper Ventura River Subbasin	90	70	85	85	85
Total Groundwater Outflows	9,095	5,499	7,611	7,506	7,810
Annual Change in Storage	-208	1,637	141	139	146

Notes: All values in acre-feet per year; SACSG = San Antonio Creek Spreading Grounds; ET = evapotranspiration.

Under Future Baseline conditions, the OBGM indicates that approximately 7,600 AFY of groundwater will discharge the Basin via groundwater extractions, evapotranspiration, groundwater discharges to streams, and underflows to the Upper Ventura River Subbasin (Table 2-17). Of this, the OBGM indicates that approximately 3,300 AFY will discharge to the San Antonio Creek, 85 AFY will discharge from the OVGB via underflows to the Upper Ventura River Subbasin, and 215 AFY will be lost to evapotranspiration of shallow groundwater. As previously noted, groundwater extractions were simulated at constant rate of 4,000 AFY (Table 2-17).

The projected groundwater outflows from the OVGB are approximately 1,500 AFY lower than historical conditions (Table 2-17). This is predominantly due to a reduction in groundwater discharges to the San Antonio Creek of approximately 1,200 AFY compared to results from the 1971-2014 period (Table 2-17). Groundwater extractions under Future Baseline conditions were approximately 150 AFY lower than the average simulated historical extraction rate.

Results from the OBGM indicate that groundwater in storage will increase by approximately 140 AFY under Future Baseline conditions (Table 2-17). Over the 50-year projection horizon, this would result in a surplus of groundwater in storage of approximately 6,000 AF compared to the volume of groundwater in storage at the beginning of water year 1971 (Figure 2-43, Historical, Current, and Future Baseline Water Budget). Like the historical condition simulations, the OBGM indicates that groundwater in storage is depleted during dry climate periods, and the total volume of groundwater in storage is replenished during wet water years (Figure 2-43).

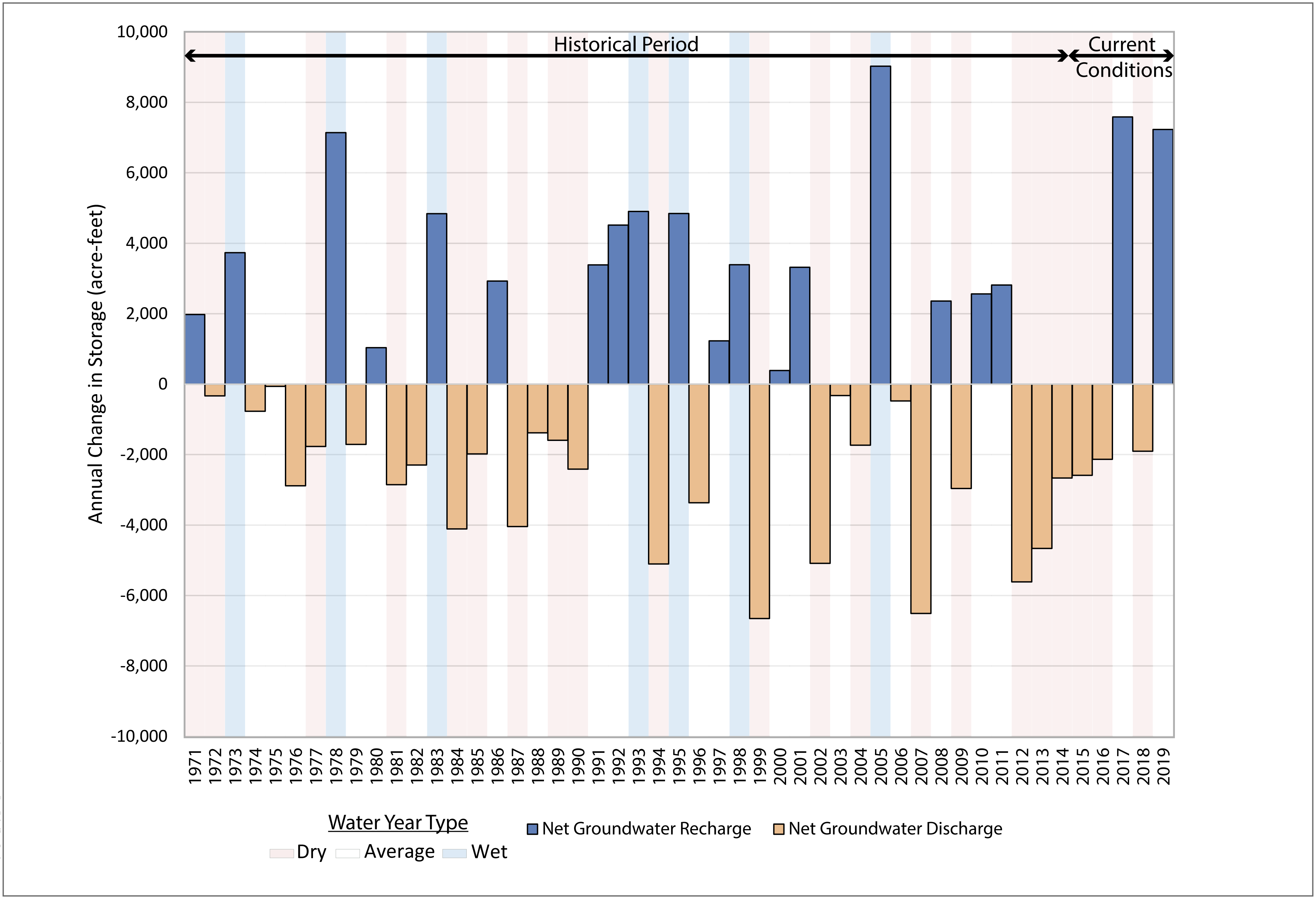
2.4.4.3.3 Climate Change I Scenario Water Budget

Results from the OBGM indicate that the OVGB would receive approximately 7,650 AF of recharge annually under Climate Change I conditions. Like the Future Baseline scenario, approximately 70% of this recharge will occur in the form of precipitation recharge and irrigation return flows, and 28% would occur in the form of mountain front recharge (Table 2-17). The projected average annual recharge to the OVGB under the Climate Change I scenario is approximately 1,200 AFY lower than historical conditions. This is due to a reduction in precipitation recharge and irrigation return flows (Table 2-17).

Under the Climate Change I scenario, the OBGM indicates that approximately 7,500 AFY of groundwater will discharge the Basin via groundwater extractions, evapotranspiration, groundwater discharges to streams, and underflows to the Upper Ventura River Subbasin (Table 2-17). Of this, the OBGM indicates that approximately 3,200 AFY will discharge to the San Antonio Creek, 85 AFY will discharge from the OVGB via underflows to the Upper Ventura River Subbasin, and 215 AFY will be lost to evapotranspiration of shallow groundwater. As previously noted, groundwater extractions were simulated at constant rate of 4,000 AFY (Table 2-17).

The projected groundwater outflows from the OVGB are approximately 1,600 AFY lower than historical conditions (Table 2-17). Like the Future Baseline simulation, this is predominantly due to a reduction in groundwater discharges to the San Antonio Creek of approximately 1,400 AFY compared to results from the 1971-2014 period (Table 2-17). Groundwater extractions under Future Baseline conditions were approximately 140 AFY lower than the average simulated historical extraction rate.

Results from the OBGM indicate that groundwater in storage will increase by approximately 140 AFY under Future Baseline conditions. Over the 50-year projection horizon, this would result in a surplus of groundwater in storage of approximately 6,000 AF compared to the volume of groundwater in storage at the beginning of water year 1971 (Figure 2-44, Historical, Current, and Projected Change in Storage). These simulated change in storage results are similar to conditions projected under the Future Baseline scenario despite the OVGB receiving less recharge in the Climate Change I scenario (Figure 2-44). The similarity in annual and cumulative change in storage between simulation results is caused by a decrease in groundwater discharges to streams that scales with the reduction in precipitation recharge and irrigation return flows (Table 2-17).



Source: Daniel B. Stephens & Associates (DBS&A)

FIGURE 2-40

Annual Change in Groundwater in Storage

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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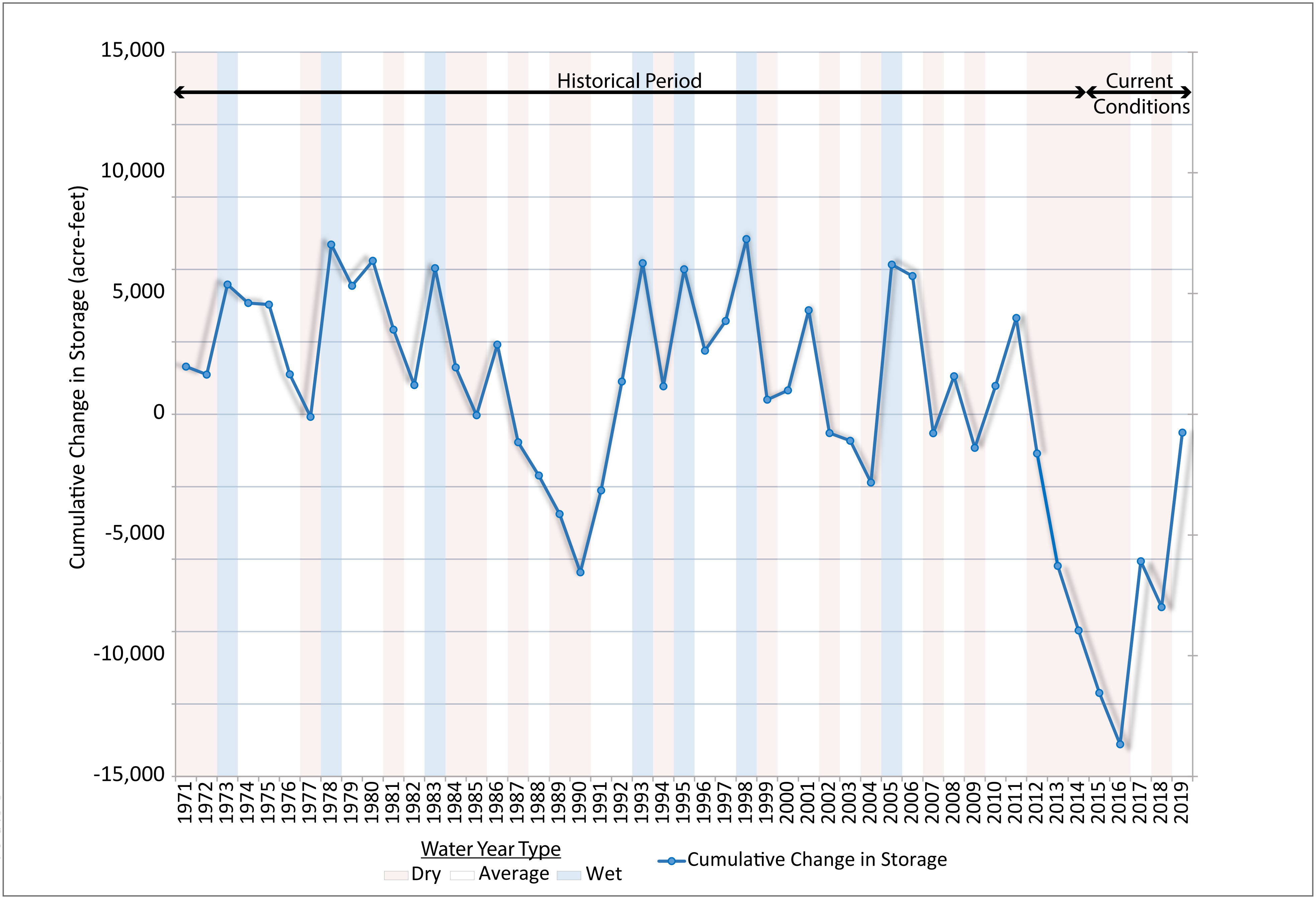

Source: Daniel B. Stephens & Associates (DBS&A)

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FIGURE 2-41

Cumulative Change in Groundwater in Storage

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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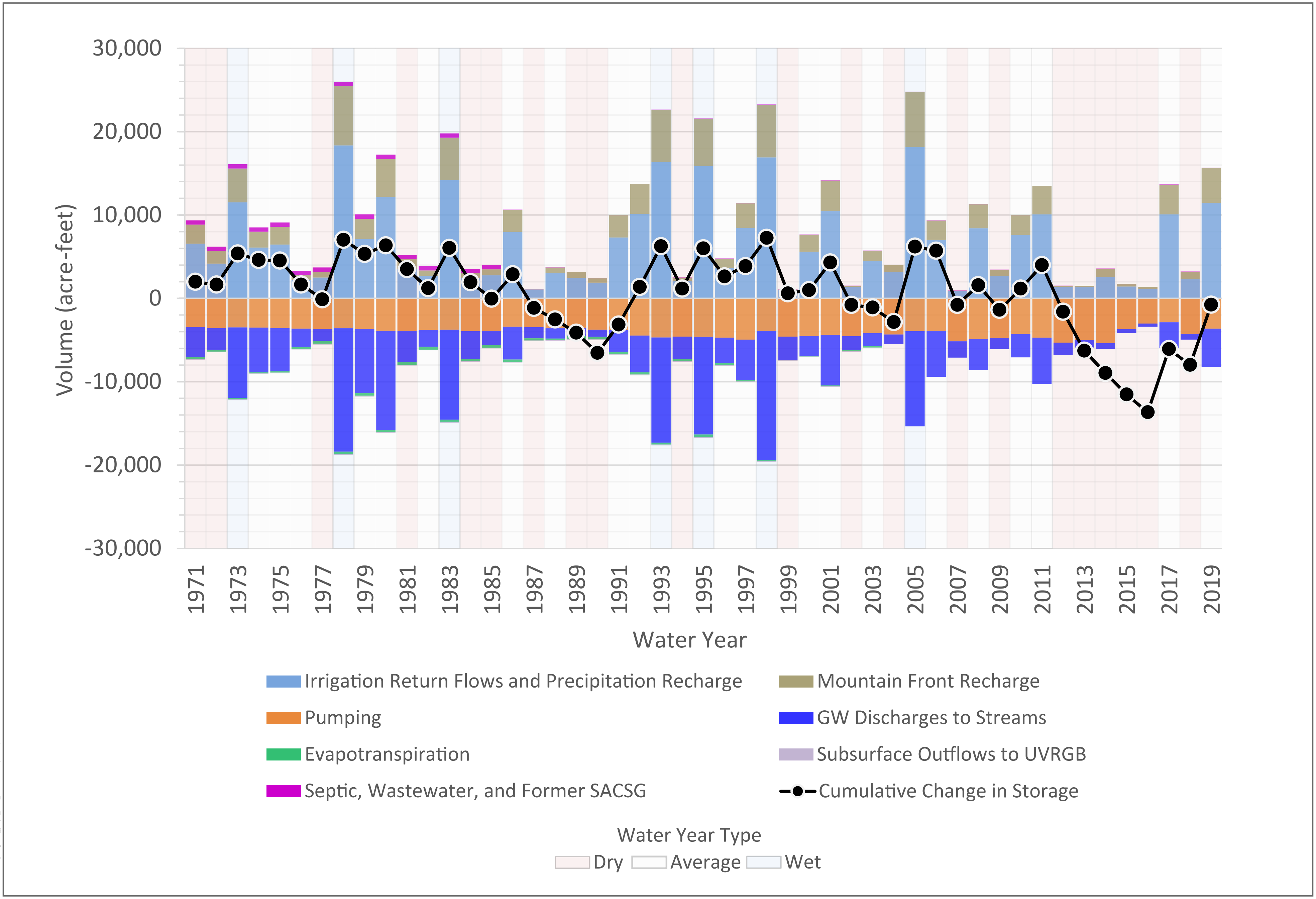

Source: Daniel B. Stephens & Associates (DBS&A)

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FIGURE 2-42

Historical and Current Conditions Water Budget

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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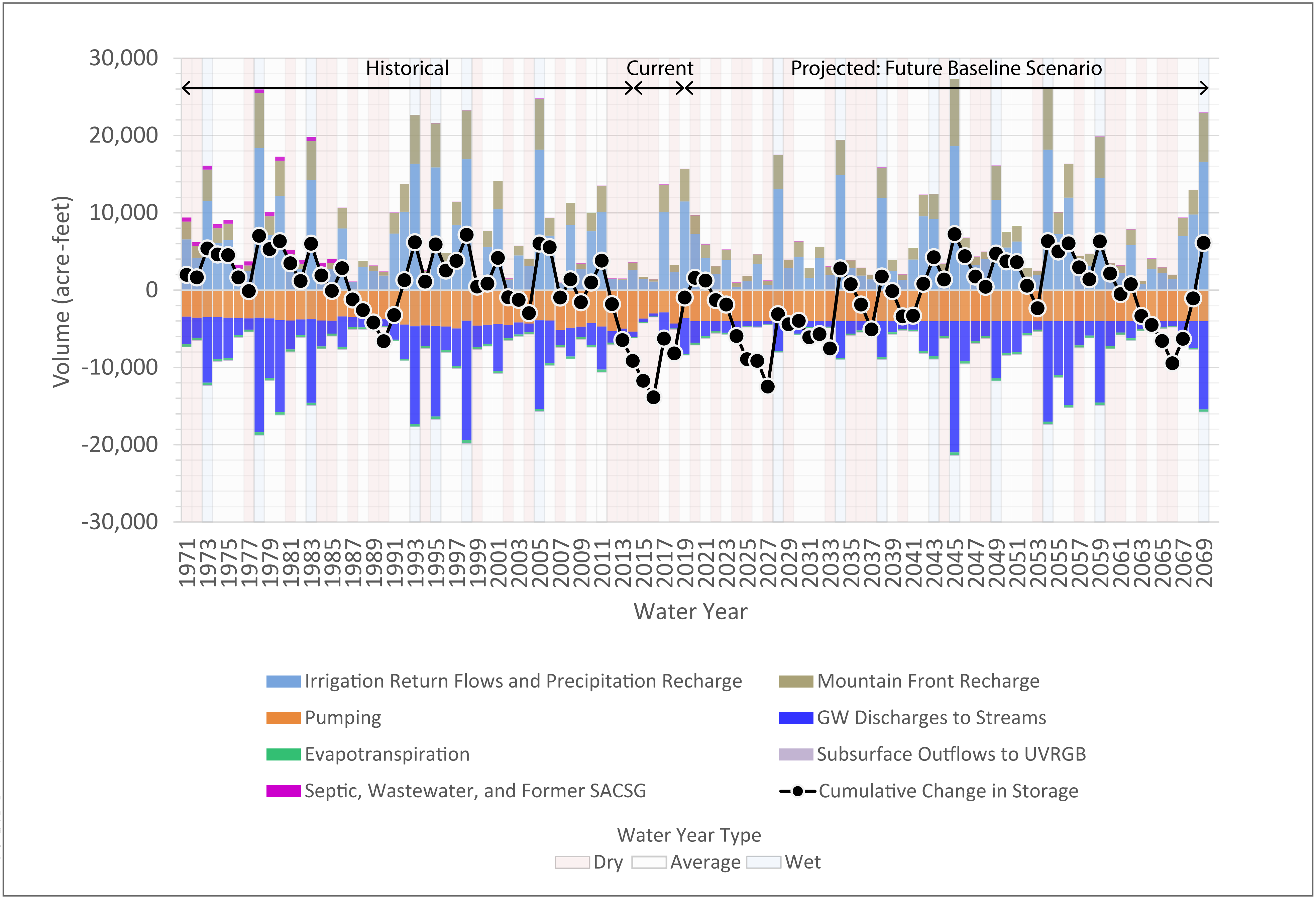

Source: Daniel B. Stephens & Associates (DBS&A)

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FIGURE 2-43

Historical, Current, and Future Baseline Water Budget

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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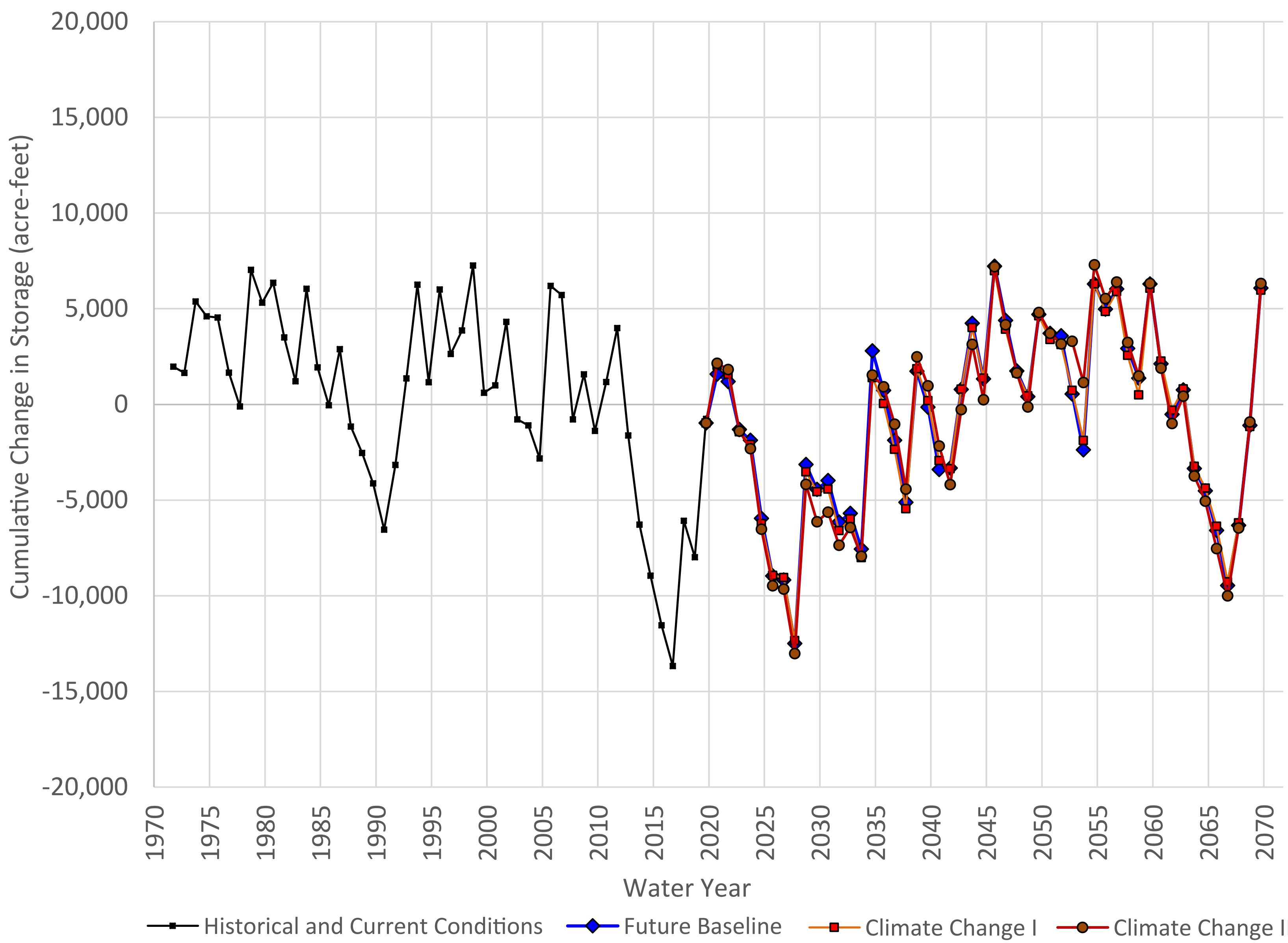

Source: Daniel B. Stephens & Associates (DBS&A)

FIGURE 2-44

Historical, Current, and Projected Change in Storage

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2.4.4.3.4 Climate Change II Scenario Water Budget

Results from the OBGM indicate that the OVGB would receive approximately 7,950 AF of recharge annually under Climate Change II conditions. Like the Future Baseline and Climate Change I scenarios, approximately 70% of this recharge will occur in the form of precipitation recharge and irrigation return flows, and 29% would occur in the form of mountain front recharge (Table 2-17). The projected average annual recharge to the OVGB under the Climate Change I scenario is approximately 900 AFY lower than historical conditions. This is due to a reduction in precipitation recharge and irrigation return flows (Table 2-17).

The projected average annual recharge to the OVGB under the Climate Change II scenario is the highest projected recharge rate across all three future simulations. This is due to the fact that the application of DWR's 2070 central tendency climate change factors to locally measured climate data resulted in an average annual increase in precipitation of 0.8 inches over the Future Baseline hydrology. In addition, DWR's 2070 central tendency factors result in a slightly higher frequency of wet water years compared to Future Baseline conditions. The increased average annual precipitation rate resulted in higher rates of precipitation recharge and mountain front recharge compared to the Future Baseline and Climate Change I scenario.

Under the Climate Change II scenario, the OBGM indicates that approximately 7,800 AFY of groundwater will discharge the Basin via groundwater extractions, evapotranspiration, groundwater discharges to streams, and underflows to the Upper Ventura River Subbasin (Table 2-17). Of this, the OBGM indicates that approximately 3,500 AFY will discharge to the San Antonio Creek, 85 AFY will discharge from the OVGB via underflows to the Upper Ventura River Subbasin, and 215 AFY will be lost to evapotranspiration of shallow groundwater. As previously noted, groundwater extractions were simulated at constant rate of 4,000 AFY (Table 2-17).

The projected groundwater outflows from the OVGB are approximately 1,300 AFY lower than historical conditions (Table 2-17). Like the Future Baseline simulation, this is predominantly due to a reduction in groundwater discharges to the San Antonio Creek of approximately 1,000 AFY compared to results from the 1971-2014 period (Table 2-17). Under the Climate Change II scenario, groundwater discharges to the San Antonio Creek are approximately 200 AFY and 300 AFY higher that the Future Baseline and Climate Change I scenarios, respectively. This increase in groundwater discharges to streams reflects the increased precipitation recharge and mountain front recharge simulated by the Climate Change II scenario.

Results from the OBGM indicate that groundwater in storage will increase by approximately 150 AFY under Future Baseline conditions. Over the 50-year projection horizon, this would result in a surplus of groundwater in storage of approximately 6,300 AF compared to the volume of groundwater in storage at the beginning of water year 1971 (Figure 2-44). The simulated change in storage results are similar to conditions projected under the Future Baseline and Climate Change I scenarios. The similarity in projected storage change under all three conditions demonstrates that the simulated precipitation and mountain front recharge rates directly affect the rates at which groundwater discharges to the San Antonio Creek.

2.4.5 Discussion of Model Calibration, Uncertainties, and Recommendations for Improvement

The numerical model of the OVGB was calibrated using groundwater observations from 18 wells (DBS&A 2011). Calibration wells were selected based on their construction information and record of measurements (DBS&A 2011). Only values of hydraulic conductivity, specific yield, and specific storage were adjusted during model calibration. Other values, including groundwater extraction, recharge, and evapotranspiration were held constant at the values that were estimated prior to model calibration. All of the calibration wells are production wells (DBS&A 2011).

Model calibration was evaluated using the mean error, the mean absolute error, and the root mean square error (DBS&A 2011). The mean error for the model was -11.26 feet, indicating that, on average, simulated groundwater elevations are around 11 feet higher than observed groundwater elevations (DBS&A 2020b). The mean absolute error was 20.88 feet, and the root mean square error was 26.8 feet (DBS&A 2020b). The scaled root mean square error, which is often used as an indicator of how good the model calibration is, was 4.6 percent for the most recent calibration (DBS&A 2020b). A value of less than 10 percent for the scaled root mean square error is generally considered acceptable for model calibration (Rumbaugh and Rumbaugh 2005).

As part of the initial model calibration process, components of model uncertainty were identified, and a sensitivity analysis was conducted (DBS&A 2011). The initial model report noted that the model did a poor job of capturing shorter term fluctuations (on the order of weeks to months) in observed groundwater elevation data. This was attributed to the fact that the model has quarterly stress periods (i.e., it is only calculating groundwater elevations on a quarterly basis), as well as the fact that all of the calibration wells are production wells, and groundwater elevations collected in those wells could be impacted by pumping (DBS&A 2011). It was also noted that estimates of recharge from precipitation and streamflow are uncalibrated due to a lack of streamflow data within the model domain, and that extraction data were estimated between 1970 and 1996 (DBS&A 2011). The sensitivity analysis concluded that the model-predicted groundwater elevations were most sensitive to changes in recharge from precipitation and irrigation, hydraulic conductivity of aquifer units, and specific yield of all layers (DBS&A 2011).

As with most numerical groundwater models, significant assumptions needed to be made in order to generate inputs to the groundwater model. Specifically, assumptions were needed to generate inputs for natural recharge and groundwater extraction, which are the main inflows and outflows of water to the OVGB. Recharge was generated using the DPWM model. A lack of streamflow data within the OVGB is a significant data gap, since it means that recharge values calculated by the DPWM cannot be calibrated (DBS&A 2011). Model reporting also acknowledges that extractions are potentially underestimated based on the data used to generate the inputs (DBS&A 2011). While all available extraction data was used, it was assumed that no extraction occurred outside of the information reported to the OBGMA (DBS&A 2011). In addition, in order to extend the model back to 1970, extraction data had to be extrapolated to cover a period from 1970 to 1996 when no extraction data was available (DBS&A). Continued collection of extraction data as part of GSP implementation will allow for future refinement of the model to reduce model uncertainty and allow for more accurate predictions of future basin conditions.

2.4.6 Quantification of Overdraft

The GSP Emergency regulations require that the water budget include, "a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions" if the Basin is found to be experiencing overdraft (23 CCR 354.18, Water Budget). Groundwater overdraft is defined in DWR Bulletin 118 as:

> *"…the condition of a groundwater basin or subbasin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions. Overdraft can be characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years"* (DWR 2004).

Groundwater elevation measurements collected in the OVGB indicate that the volume of groundwater in storage fluctuates in response to wet and dry climate cycles. For example, between water years 1983 and 1990, average annual precipitation measured in the OVGB was 80% of the long-term average and groundwater elevations declined by approximately 130 feet (measured at well 04N22W06D001S). This period was followed by a wet climate cycle, where precipitation between 1991 and 1998 averaged approximately 140% of the long-term average. Between 1991 and 1998, groundwater elevations increased at well 04N22W06D001S by approximately 120 feet, effectively restoring the OVGB to pre-drought conditions. Groundwater elevations in spring 2019 are similar to those measured in spring 1971, which indicates that the OVGB has not experienced overdraft conditions.

These observations of groundwater elevation declines during dry climate cycles and increases during wet climate cycles are represented effectively by the OBGM. Between 1971 and 2019, the OBGM indicates that groundwater in storage within the OVGB declined by 750 AF, or approximately 15 AFY. This rate of groundwater storage decline is within the model predictive uncertainty, which supports the conclusion that the OVGB is not currently experiencing, and has not historically experienced, overdraft conditions.

2.4.7 Sustainable Yield Estimate

Title 23 Section 354.18 requires that each Plan develop an estimate of the sustainable yield using information and data presented in the water budget for the basin. The SGMA legislation defines the sustainable yield of the basin as, "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from groundwater supply without causing undesirable results" (California Water Code Section 107271). Undesirable results are defined under SGMA as significant and unreasonable impacts to six different sustainability indicators:

- Chronic lowering of groundwater levels
- Reduction of groundwater in storage
- Degradation of water quality
- Land Subsidence
- Depletion of Interconnected Surface Water
- Seawater Intrusion

As noted in section 2.3.4, seawater intrusion is not a sustainability indicator applicable to the OVGB, and, as is described in Chapter 3 of this report, undesirable results associated with chronic lowering of groundwater levels, reduction of groundwater in storage, degradation of water quality, and land subsidence have not historically occurred in the basin. The impact of groundwater extraction rates on depletion of interconnected surface water is not well constrained and is a data gap in the OVGB (Section 2.3.4.7). This data gap is currently being addressed by OBGMA through the construction of a nested monitoring well located along the San Antonio Creek that has been designed to measure long-term trends in surface water-groundwater connection along the primary drainage channel in the OVGB. Because the historical relationship between surface water flows, groundwater elevations, and groundwater production is not well constrained by measured data, the historical and current water budgets extracted from the OBGM were used to develop an estimate of safe yield[28] for the OVGB.

[28] The safe yield is defined as the, "maximum quantity of water which can be withdrawn annually from groundwater supply without causing a gradual lowering of groundwater levels resulting in the eventual depletion of supply" (Babbit et al 2018).

Between 1971 and 2019, groundwater extractions simulated by the OBGM averaged approximately 4,100 AFY. The simulated change in groundwater in storage during this period is approximately -15 AFY, which is within the model uncertainty. The discrepancy in modeled versus reported/estimated pumping (Section 2.4.2.1) increases model uncertainty and suggests that the safe yield for the OVGB is likely higher than 4,100 AFY. This estimate is similar to the previously estimated safe yield value for the OVGB of approximately 5,000 AFY (DBS&A, 2011).

Future conditions in the OVGB may deviate from historical conditions due to the increased water usage efficiency practices, the availability of surface water supplies, and climate change. The final estimate of sustainable yield for the OVGB will not only consider the historical and current conditions safe yield estimate but will also be defined to prevent the onset of future undesirable results. Projected water budget assumptions that forecast conditions in the OVGB are described in Section 2.4.4.2. Sustainable management criteria are described in Chapter 3. Based on the projected water budgets and work completed to date to develop sustainable management criteria, the provisional estimate of the sustainable yield of the OVGB is approximately equivalent to the safe yield of 4,100 AFY.

2.4.8 Surface Water Available for Groundwater Recharge or In-Lieu Use

Water from Lake Casitas is used to meet agricultural and domestic demands (OBGMA 2018). Water from Lake Casitas is also blended with poorer quality groundwater by some water purveyors to improve water quality (OBGMA 2018). Lake Casitas has a total capacity of roughly 238,000 acre-feet. The average annual demand for water from Lake Casitas by users in the OVGB is approximately 3,680 AFY (OBGMA 2018).

In addition to surface water imported from Lake Casitas, artificial recharge occurred within the OVGB at the San Antonio Creek Spreading Grounds between 1963 and 1985 (DBS&A 2011; Section 2.4.1.3). The Wheeler Fire of 1985 prompted the VCWPD to purchase the spreading grounds property to construct a debris basin to protect the properties adjacent to San Antonio Creek. The construction of the debris basin resulted in the spreading basins being filled with excavated material and abandoned. VCWPD reconstructed a new spreading facility in 2014; this new spreading facility has not been operational since construction but will be operated collaboratively between the VCWPD, OBGMA, and CMWD (OBGMA 2018). When operational, the spreading grounds are anticipated to recharge an average of 126 AFY of water to the OVGB depending on hydrology, permitting issues, and water rights of downstream users.

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CHAPTER 3
SUSTAINABLE MANAGEMENT CRITERIA

This chapter of the Groundwater Sustainability Plan (GSP) provides a discussion of the sustainability goal (Section 3.1), undesirable results (Section 3.2), minimum thresholds (Section 3.3), measurable objectives to avoid undesirable results (Section 3.4), and monitoring network (Section 3.5) to measure each sustainability indicator applicable to the Ojai Valley Groundwater Basin (OVGB).[1] Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators[2] defined by the Sustainable Groundwater Management Act (SGMA) are caused by groundwater conditions, as a result of groundwater extraction and/or groundwater management, occurring in the OVGB. This chapter describes the criteria by which the Groundwater Sustainability Agency (GSA), or Ojai Basin Groundwater Management Agency (OBGMA), defines undesirable results within the OVGB, and identifies what constitutes sustainable groundwater management for the OVGB, including the process by which the GSA establishes minimum thresholds[3] and measurable objectives[4] for each applicable sustainability indicator (Title 23 California Code of Regulations [CCR] Section 354.22). Accordingly, the following Sections are subdivided to address each groundwater sustainability indicator. Undesirable results can vary for the beneficial uses and users supported by the OVGB's aquifers.

The OBGMA will periodically evaluate this GSP, assess changing conditions in the OVGB that may warrant modification of the GSP or management objectives, and may adjust components accordingly. The OBGMA will focus its evaluation on determining whether the actions under the GSP are meeting the GSP's sustainability goal for the OVGB.

3.1 SUSTAINABILITY GOAL

3.1.1 Standards for Establishing the Sustainability Goal

A sustainability goal[5] is a succinct, qualitative statement of the GSA's objectives and desired conditions of the groundwater basin. The California Department of Water Resources (DWR)

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1 A basin is a groundwater basin identified and defined in Bulletin 118 or as modified pursuant to a basin boundary modification approved by the Department of Water Resources (CWC Section 10721). In the context of this GSP, the word "basin" means the Ojai Valley Groundwater Basin, unless otherwise specified.

2 A sustainability indicator refers to "any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results" (Title 23 CCR Section 351(ah)).

3 A minimum threshold means "a numeric value for each sustainability indicator used to define undesirable results" (Title 23 CCR Section 351(t)).

4 A measurable objective means "specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin" (Title 23 CCR Section 351(s)).

5 "Sustainability goal" means the existence and implementation of one or more GSP's "that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure the . . . basin is operated within its sustainable yield" (California Water Code [CWC] Section 10721(u))." "Sustainable

SGMA GSP regulations (Title 23 CCR Section 350, et seq.) provide supplemental information about the sustainability goal. For example, the regulations state: "Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including:

- information from the basin setting used to establish the sustainability goal,
- a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield[6], and
- an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon" (Title 23 CCR Section 354.24).

3.1.2 Background

The City of Ojai and unincorporated Ojai Valley rely on local groundwater resources as the primary source of municipal drinking water, domestic supply, and agricultural irrigation. Groundwater also supports other beneficial uses, as described in Chapter 2, Plan Area and Basin Setting, of this GSP, including those set forth in the *Water Quality Control Plan for the Los Angeles Region* (Los Angeles Basin Plan) (RWQCB 2014).

The total annual groundwater extraction from the OVGB for beneficial use has historically ranged from 3,239 acre-feet per year (AFY) to 7,697 AFY (OBGMA 2018), while the sustainable yield of the OVGB has been estimated to range from approximately 4,100 AFY (Chapter 2, Section 2.4.7) to 5,000 AFY (DBS&A 2011). Prolonged periods of groundwater extraction in excess of the sustainable yield may impact beneficial uses and users of groundwater in the OVGB. Impacts to beneficial uses and users may include decreased well production rates, increased pumping costs, and/or degraded groundwater quality. Without continued management and action, groundwater could become more challenging and expensive to access and potentially insufficient in quantity or quality to support beneficial uses.

groundwater management" means the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results" (CWC Section 10721(v)). Undesirable results include chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply, significant and unreasonable reduction of groundwater storage, significant and unreasonable degraded water quality, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water (CWC Section 10721(x)).

[6] "Sustainable yield" means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result [CWC Section 10721(w)].

3.1.3 Sustainability Goal

The OBGMA's sustainability goal is to preserve the quantity and quality of groundwater in the Ojai Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the Basin. This GSP is intended to also meet the overarching sustainability goal of SGMA to ensure that the OVGB continues to operate within its sustainable yield and does not exhibit undesirable results within the planning and implementation horizon of this GSP (50 years).

Meeting this goal requires maintaining a balance of water demand with available water supply and protecting groundwater quality through the SGMA planning and implementation horizon. A good analogy is a prudent financial routine of "balancing the books" whereby the totals of debit (groundwater withdrawal) and credits (recharge) are brought into agreement to determine the profit or loss (change in groundwater storage) made during a period of time (annually or over a longer period of time such as a hydrologic cycle). Central to maintaining this goal is a strong understanding of the local setting of the OVGB described in Chapter 2. The OVGB currently relies entirely on local water resources. Conditions within the OVGB have been sustainable over the modeled period from 1971-2019 (49 year period) and will continue to be considered sustainable so long as the following sustainability goal components continue to be met:

- Long-term, aggregate groundwater use is less than or equal to the OVGB's estimated sustainable yield, as defined by SGMA;
- Groundwater levels are maintained at elevations necessary to avoid undesirable results. Lowering of groundwater levels potentially leading to significant and unreasonable depletions of available water supply for beneficial use could occur if groundwater levels fall below minimum thresholds set at representative monitoring points[7] (RMPs);
- Groundwater quality, as measured in municipal and domestic water wells, generally exhibits a stable and/or improving trend for identified contaminants of concern (COCs): total dissolved solids (TDS), sulfate, chloride, boron, nitrate, iron, and manganese; and
- Groundwater quality is suitable for existing beneficial uses.

3.1.4 Sustainability Strategy

To ensure the OVGB continues to operate within its sustainable yield over the planning and implementation horizon, the OBGMA has evaluated continuing several existing project and management actions (PMAs), and implementing several proposed PMAs, as detailed in Chapter 4, Projects and Management Actions. The existing PMAs are: (1) Conduct Groundwater Level, Groundwater Quality, and Stream Flow Monitoring; (2) Conduct Groundwater Extraction

[7] Per CCR Section 351, "representative monitoring" refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.

Monitoring; (3) Develop Data Management System; (4) Develop Comprehensive Conjunctive Management Plan; (5) Develop Groundwater Allocation; (6) Develop Water Conservation Program; (7) Encourage Voluntary Pumping Reductions; (8) Evaluate Feasibility of Recycled Water Production for Non-Potable Reuse; (9) Explore Opportunity to Implement Focused Recharge; and (10) Explore Grant Funding Opportunities. The proposed PMAs expected to be implemented are: (1) Prepare Sampling and Analysis Plan and Quality Assurance Project Plan; (2) Prepare Groundwater Dependent Ecosystems Assessment; (3) Simulate Extreme Climate Scenarios; (4) Develop Salt and Nutrient Management Plan; (5) Explore State Water Project Water Delivery Options; (6) Evaluate Settlement Management Plan from Physical Solution; (7) Implement Public Outreach and Engagement Plan; and (8) Complete Groundwater Sustainability Plan Annual Reports and 5-Year Updates. The overarching sustainability goal as well as the continued absence of undesirable results are expected to be maintained through implementation of the PMAs. The sustainability goal will also be maintained through proactive monitoring and management by the OBGMA as described in this and the following chapters.

Table 3-1 summarizes whether each of the six undesirable results has occurred, is occurring, or is expected to occur in the future in the OVGB without GSP implementation, and shows the PMAs that have been developed to address each of the undesirable results expected to occur. The City of Ojai and residents of the unincorporated Ojai Valley have been acutely aware of water problems for the past few decades, and the major drought period from 2012 through 2016 led to further heightened public awareness locally and across the state. Because supply augmentation through imported surface water is not a feasible option for the OVGB at this time, the only tool available to the OBGMA to maintain groundwater sustainability is through demand reduction. The Casitas Municipal Water District (CMWD) already implements a water conservation (shortage) policy and agricultural users have implemented increasingly efficient irrigation systems over the years. It is important to continue to implement and strengthen water conservation practices, as proposed in the water conservation PMA, because opportunity remains for further water savings, particularly for residences. California's current statewide target for indoor water use is 55 gallons per capita per day. In 2020, Ojai system water users' consumed an average of 209 gallons per capita per day for indoor and outdoor water use (CMWD 2021).

Considering the water conservation already achieved, and the diminishing returns in the volume of water that can be saved through conservation alone, key PMAs to ensure the OVGB continues to operate within its sustainable yield over the planning and implementation horizon are: Develop Comprehensive Conjunctive Management Plan, Develop Groundwater Allocation, Encourage Voluntary Pumping Reductions, Evaluate Feasibility of Recycled Water Production for Non-Potable Reuse, and Explore Opportunity to Implement Focused Recharge. These PMAs may be implemented if minimum thresholds are exceeded and undesirable results are determined to be occurring or likely to occur.

Table 3-1
Summary of Undesirable Results Applicable to the OVGB

Sustainability Indicator	Historical (Pre-2015)	Existing Conditions	Future Conditions Without GSP Implementation	Select PMAs to be Implemented to **Meet the GSP's Sustainability Goal**
Chronic Lowering of Groundwater Levels	Not Significant	Not Significant	Potentially Significant and Unreasonable	Conduct Groundwater Level and Extraction Monitoring, Develop Comprehensive Conjunctive Management Plan, Develop Groundwater Allocation, Encourage Voluntary Pumping Reductions
Reduction of Groundwater Storage	Not Significant	Not Significant	Potentially Significant and Unreasonable	
Seawater Intrusion	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Degraded Water Quality	Not Significant	Not Significant	Potentially Significant and Unreasonable	Conduct Groundwater Quality Monitoring
Land Subsidence	Not Significant	Not Significant	Not Significant	Not Applicable
Depletion of Interconnected Surface Water	Data Gap: however preliminary data indicates not significant	Data Gap: however preliminary data indicates not significant	Data Gap	Prepare Groundwater Dependent Ecosystems Assessment, Conduct Groundwater Level and Streamflow Monitoring

Notes: GSP = groundwater sustainability plan; PMA = projects and management action.

3.2 UNDESIRABLE RESULTS

Standards for the Description of Undesirable Results

According to GSP Regulations, the GSP's description of undesirable results is to include the following:

1. The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.
2. The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.
3. Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results (Title 23 CCR Section 354.26(b)).

Under SGMA, undesirable results occur when the effects caused by groundwater conditions occurring throughout the basin cause significant and unreasonable impacts to any of the six sustainability indicators. That is, the "significant and unreasonable occurrence of any of the six sustainability indicators constitutes an undesirable result" (DWR, Draft Sustainable Management Criteria, Best Management Practice, Section 4, p. 5). These sustainability indicators are:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage
- Seawater intrusion
- Degraded water quality
- Land subsidence
- Depletions of interconnected surface water

Application of Standards in the Ojai Valley Basin

Each of the sustainability indicators for the OVGB is discussed as follows, in the context of undesirable results.

3.2.1 Chronic Lowering of Groundwater Levels – Undesirable Results

Chronic lowering of groundwater levels occurs when groundwater production exceeds the long-term sustainable yield of a basin resulting in a significant and unreasonable depletion of supply. Temporary lowering of groundwater levels has historically occurred in the OVGB during periods of drought due to groundwater production for beneficial use and the absence of a viable alternative source of water supply other than local surface water from Lake Casitas. The existing beneficial uses and users of OVGB water are described in Chapter 2, Section 2.1.4, Beneficial Uses and Users. Per the Los Angeles Basin Plan (RWQCB 2014), the beneficial uses for groundwater in the OVGB include municipal and domestic supply (MUN), agricultural supply (AGR), industrial process supply (PROC), and industrial service supply (IND). Other OVGB pumpers include small water systems and *de-minimis* users. SGMA requires that all beneficial uses and users of groundwater, including groundwater dependent ecosystems (GDEs), be considered in GSPs (CWC Section 10723.2). Several vegetation and wetland communities located along San Antonio Creek within the OVGB have been identified to have a potential dependence on groundwater to meet some or all water needs, as described in Chapter 2, Section 2.3.4.7, Groundwater Dependent Ecosystems, and Appendix E, GDEs. Undesirable results associated with chronic (i.e., persistent and long-term) lowering of groundwater levels are most directly indicated by loss of access to adequate water resources for support of current and/or potential future beneficial uses and users. As discussed in Chapter 2, Section 2.3.4.1, Groundwater Elevation Data, the rate of groundwater level decline is variable across the OVGB, generally greatest in the central part of the OVGB and decreasing in magnitude towards the peripheral areas of the OVGB. Declines in groundwater elevation were observed in the central part of the OVGB between 1958 and 1962, and 2011 and 2016, coincident with periods of drought. However, groundwater levels recovered in subsequent average and wet water years, and significant and unreasonable impacts to beneficial uses and users were not observed.

Lowering of groundwater levels is significant and unreasonable if sufficient in magnitude to lower the rate of production of existing groundwater wells below that necessary to meet the minimum required to support the overlying beneficial uses, where alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s). The undesirable results of chronic lowering of groundwater levels could occur in the OVGB in the future in the absence of management actions to counteract lowering of groundwater levels below minimum thresholds. For the undesirable result of chronic lowering of groundwater levels to be considered significant and unreasonable, groundwater level declines would have to persist during the intervening average and wet water years because that would indicate a chronic/persistent overdraft condition. As discussed in Section 3.3, Minimum Thresholds, this GSP establishes thresholds for the OVGB that would generally indicate the occurrence (or absence) of an undesirable result. These thresholds relate to known elevations that current and future groundwater levels can be compared against, such as the prevailing elevations of the perforated intervals of groundwater wells in use or the lowest historical groundwater elevation recorded at each RMP, where known. The proposed PMAs to mitigate potential effects to beneficial use and users are discussed in Chapter 4, Projects and Management Actions.

3.2.2 Reduction of Groundwater in Storage – Undesirable Results

Reduction of groundwater storage has the potential to impact the beneficial uses and users of groundwater in the OVGB by limiting the volume of groundwater available for agricultural, municipal, domestic, and industrial use. In essence, the undesirable results of reductions in groundwater in storage are the same as those previously described for chronic lowering of groundwater levels because these impacts go hand-in-hand. Reduction of groundwater in storage could also impact other sustainability indicators, namely groundwater quality.

Significant and unreasonable impacts with respect to groundwater in storage could occur if groundwater extractions exceed the sustainable yield of the OVGB over a prolonged period containing both wet and dry water years, resulting in a long-term deficit in the groundwater budget. Simulation results from the Ojai Basin Groundwater Model (OBGM) indicate that the volume of groundwater in storage at the end of water year 2019 is approximately equal to the volume of groundwater in storage in water year 1971, which indicates that the OVGB has not experienced overdraft conditions (Chapter 2, Section 2.4.4.2).

An important concept relevant to groundwater in storage in the OVGB is the high variability and the decadal periodicity of wet versus dry periods in the climatic record, as described in Chapter 2, Section 2.2.3, Historical, Current, and Projected Climate, and shown in the cumulative departure from the mean precipitation curve in the Ojai Valley (Figure 2-11). Precipitation records indicate that very few years actually have average precipitation; most years are drier than average, and a relatively few very wet years heavily influence the average. The long-term groundwater supply depends on wet years with high recharge rates; however, these occur relatively infrequently, and the 20-year GSP implementation period could occur during a multi-decadal dry period. According to the OBGM, the average annual recharge from precipitation and irrigation return flows between water years 1971 to 2014 was approximately 6,500 AFY (DBS&A 2020).

Reduction in groundwater storage is significant and unreasonable if it is sufficient in magnitude to lower the rate of production of groundwater wells below that needed to meet the minimum required to support the overlying beneficial uses, and where means of obtaining sufficient groundwater or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s).

3.2.3 Seawater Intrusion – Undesirable Results

Undesirable results from seawater intrusion are not considered to be applicable to the OVGB due to geographic isolation from the ocean. The OVGB is more than 11 miles from the Pacific Ocean at an elevation of more than 630 feet above mean sea level (amsl). As a result, this GSP does not establish criteria for seawater intrusion (Title 23 CCR Section 354.26(d)).

3.2.4 Degraded Water Quality – Undesirable Results

In general, the groundwater quality in the OVGB meets California drinking water maximum contaminant levels (MCLs) without the need for treatment. As documented in Chapter 2, Section 2.3.4.4, Groundwater Quality, the primary constituents of concern in the OVGB include TDS, sulfate, chloride, boron, nitrate, iron, and manganese. Nitrate has been identified as the primary groundwater quality contaminant for most of the Ventura River watershed (OBGMA 2018). The source of nitrates is likely associated with either historical fertilizer applications or septic return flows, although nitrate can also be naturally occurring. At times concentrations of COCs in groundwater from certain wells in the OVGB have exceeded California drinking water MCLs; however, in most cases the COCs are naturally occurring and concentrations have exhibited a stable or improving trend over time (Chapter 2, Section 2.3.4.4, Groundwater Quality).

Degraded groundwater quality is significant and unreasonable if the magnitude of degradation precludes the use of groundwater for existing beneficial uses, including through migration of contaminant plumes that impair water supplies, where alternative means of treating or otherwise obtaining sufficient alternative water resources are not technically or financially feasible. At a minimum, for municipal and domestic wells, groundwater quality must meet potable drinking water standards specified in Title 22 of the CCR. For non-potable production wells, groundwater quality should generally be suitable for agricultural and industrial use. The majority of groundwater pumped in the OVGB is used for agricultural irrigation and thus does not have to meet potable drinking water standards to be put to beneficial use. The Los Angeles Basin Plan (RWQCB 2014) has established numerical objectives for groundwater quality in the OVGB, which are described in greater detail in Section 3.4.4, Degraded Water Quality – Measurable Objectives.

In summary, degradation of groundwater quality is an undesirable result that is not occurring and will not occur within the framework of existing regulations and adherence to state and local OVGB plans. Groundwater quality has continued to be suitable for beneficial use throughout the OVGB. Reduction of groundwater in storage and chronic lowering of groundwater levels are closely linked to undesirable effects on groundwater quality because these conditions increasingly limit the effectiveness of existing mitigation strategies (e.g., blending of groundwater with other water sources). Significant and unreasonable impacts on groundwater quality are a potential outcome in the future if groundwater overdraft is to occur because previous studies have indicated poorer water quality with higher chloride concentrations in portions of the deeper aquifers of the OVGB. Therefore, adherence to existing regulations and to state and local OVGB plans (which are used as the minimum thresholds and measurable objectives for this sustainability indicator), as well as implementation of sustainability criteria for chronic lowering of groundwater levels and reduction of groundwater in storage, in combination, is sufficient to ensure adverse effects related to groundwater quality would continue to be neither significant nor unreasonable.

3.2.5 Land Subsidence – Undesirable Results

The undesirable result of land subsidence includes an irreversible reduction in groundwater storage, and differential settlement of the land surface that substantially interferes with surface land uses. As discussed in Chapter 2, Section 2.3.4.5, Land Subsidence, the degree of land subsidence occurring in the OVGB is minimal, has not substantially interfered with surface land uses in the past, and is not anticipated to substantially interfere with surface land uses in the foreseeable future, including within the GSP’s planning and implementation horizon. Therefore, this GSP does not propose minimum thresholds or measurable objectives specific to this sustainability indicator. If during the GSP implementation timeline, it becomes evident that minimum thresholds and measurable objectives for lowering of groundwater levels and groundwater in storage are not being met, the degree to which land subsidence may become an undesirable result will be re-evaluated.

3.2.6 Depletions of Interconnected Surface Water – Undesirable Results

Under SGMA, depletions of surface waters interconnected with groundwater in the OVGB that have significant and adverse impacts on beneficial uses of surface waters constitute an undesirable result (CWC Section 10721(x)(6)). As discussed in Chapter 2, Section 2.3.4.6, Groundwater–Surface Water Connections, the interaction between groundwater and surface water within the OVGB is currently being studied. Available data indicate the primary production aquifer in the southern and western portion of the OVGB is confined and separated from the shallow perched aquifer. The shallow perched aquifer is in hydraulic connection with surface water of San Antonio Creek. However, available stream gauge and shallow monitoring well data are limited in temporal resolution (i.e., short length of record and/or coarse measurement interval) and additional data are needed to quantify the degree of stream-aquifer connectivity. Monitoring of groundwater levels and stream discharge and stage, as well as field investigations to assess the degree of interconnection between surface water and groundwater are warranted and ongoing.

As discussed in Chapter 2, Section 2.3.4.7, Groundwater Dependent Ecosystems, 12 priority potential groundwater dependent ecosystems that could be impacted by groundwater production were identified in the OVGB. The habitats consist of coast live oak (*Quercus agrifolia*); riparian mixed hardwood; willow (*Salix spp.*); valley oak (*Quercus lobata*); riversidean alluvial scrub; palustrine, scrub-shrub, seasonally flooded; and riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded vegetation and wetland communities located near or along the bed and bank of the perennial reach of San Antonio Creek. Because available information suggests a potential nexus between the health of the mapped potential GDEs and groundwater levels, field studies to verify dependence on groundwater are warranted. Undesirable results with respect to depletions of interconnected surface water would be considered significant and unreasonable if such depletions cause a decline or permanent loss of identified GDEs.

The steps that will be taken to fill data gaps and support development of minimum thresholds and measurable objectives as they relate to depletion of interconnected surface water and GDEs are discussed in Section 3.5.7.2, Identification of Data Gaps.

3.3 MINIMUM THRESHOLDS

A minimum threshold refers to a numeric value for each sustainability indicator used to define undesirable results (Title 23 CCR Section 351(t)). A GSP must establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results (Title 23 CCR Section 354.28(a)).

A GSA may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the GSA can demonstrate the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence (Title 23 CCR Section 354.28(d)). Minimum thresholds are not required for sustainability indicators that are not present and not likely to occur in the OVGB (Title 23 CCR Section 354.28(e)).

Per Title 23 CCR Section 354.28(b), the description of minimum thresholds shall include the following:

1. The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.
2. The relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.
3. How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.
4. How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.
5. How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.
6. How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in [the GSP Regulations].

The following sections address minimum thresholds for each sustainability indicator.

3.3.1 Chronic Lowering of Groundwater Levels – Minimum Thresholds

3.3.1.1 Minimum Threshold Justification

The GSP regulations provide that the "minimum threshold for chronic lowering of groundwater levels shall be the groundwater level indicating a depletion of supply at a given location that may lead to undesirable results" (Title 23 CCR Section 354.28(c)(2)).

Chronic lowering of groundwater levels in the OVGB, as discussed in Section 3.2.1, Chronic Lowering of Groundwater Levels – Undesirable Results, cause significant and unreasonable declines if they are sufficient in magnitude to lower the rate of production of existing groundwater wells below that necessary to meet the minimum required to support the overlying beneficial uses, where alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s). Therefore, groundwater elevations will be managed to ensure the aquifers in the OVGB are not depleted in a manner that causes significant and unreasonable impacts to other sustainability indicators.

Maintaining groundwater levels above recorded historical low static levels at RMPs during multi-year drought conditions was selected as the minimum desired threshold for groundwater elevations that would be protective of beneficial uses in the OVGB. These minimum thresholds would be protective of all potable and non-potable beneficial uses because undesirable results have not historically occurred at these levels.

The minimum thresholds for chronic lowering of groundwater levels are also intended to protect against significant and unreasonable impacts to groundwater storage volumes and groundwater quality. The development of the minimum thresholds for chronic lowering of groundwater levels included review of the hydrogeologic conceptual model, climate, current and historical groundwater conditions including groundwater level trends and groundwater quality, land subsidence data, interconnected surface water and the water budget as discussed in Chapter 2, Plan Area and Basin Setting.

As previously discussed, the climate in the OVGB is both highly variable and has a decadal periodicity (Chapter 2, Section 2.2.3.1, Precipitation). Further, applying DWR change factors for projected climate conditions in 2030 and 2070 to the historical precipitation record for the Ojai station (Station No. USC00046399) from water year 1916 to 2019 indicates the number of extreme wet and dry water years is predicted to increase. Historical precipitation data from the Ojai station indicates that the period from water year 2012 to 2016 was the driest consecutive five-year period on record. During this time, groundwater elevations in the OVGB approached historical lows (Figure 2-19, Hydrographs for Select Wells and Appendix D, Groundwater Level Hydrographs). Well 04N22W05L008S located in the central part of the OVGB has the longest and most continuous groundwater elevation record spanning from October 1949 to present. The lowest groundwater level recorded in well 04N22W05L008S was approximately 312 feet below ground surface (bgs) in September 1951. In December 2016 the groundwater level in well 04N22W05L008S reached a low of 287 feet bgs, which is approximately 25 feet higher, or approximately 10% less, than the September 1951 historical low. Assuming a repeat of historical climate conditions, the record low static groundwater levels measured at RMPs during the 2012 to 2016 drought, with a 10% buffer applied to correct for the OVGB record low groundwater level as measured in well 04N22W05L008S in September 1951, are established as the minimum thresholds to avoid the undesirable results of chronic lowering of groundwater levels.

The minimum thresholds represent groundwater elevations in the OVGB that, if exceeded at multiple wells for a duration of greater than one year, may cause undesirable results. The one year criterion is based on the rapid recovery of groundwater levels and groundwater in storage observed in average and wet water years. The one year period also provides the OBGMA sufficient time to implement management actions to reduce groundwater extraction and conserve groundwater supplies. Groundwater level minimum thresholds at RMPs are presented in Figure 3-1, Historical Groundwater Levels and Minimum Thresholds at Representative Monitoring Points and Table 3-2, Minimum Thresholds for Groundwater Levels. Table 3-2 also provides the well use, well depth, top of screen, bottom of screen, and surface elevation. The locations of the RMPs are shown in Figure 3-2, Representative Monitoring Points.

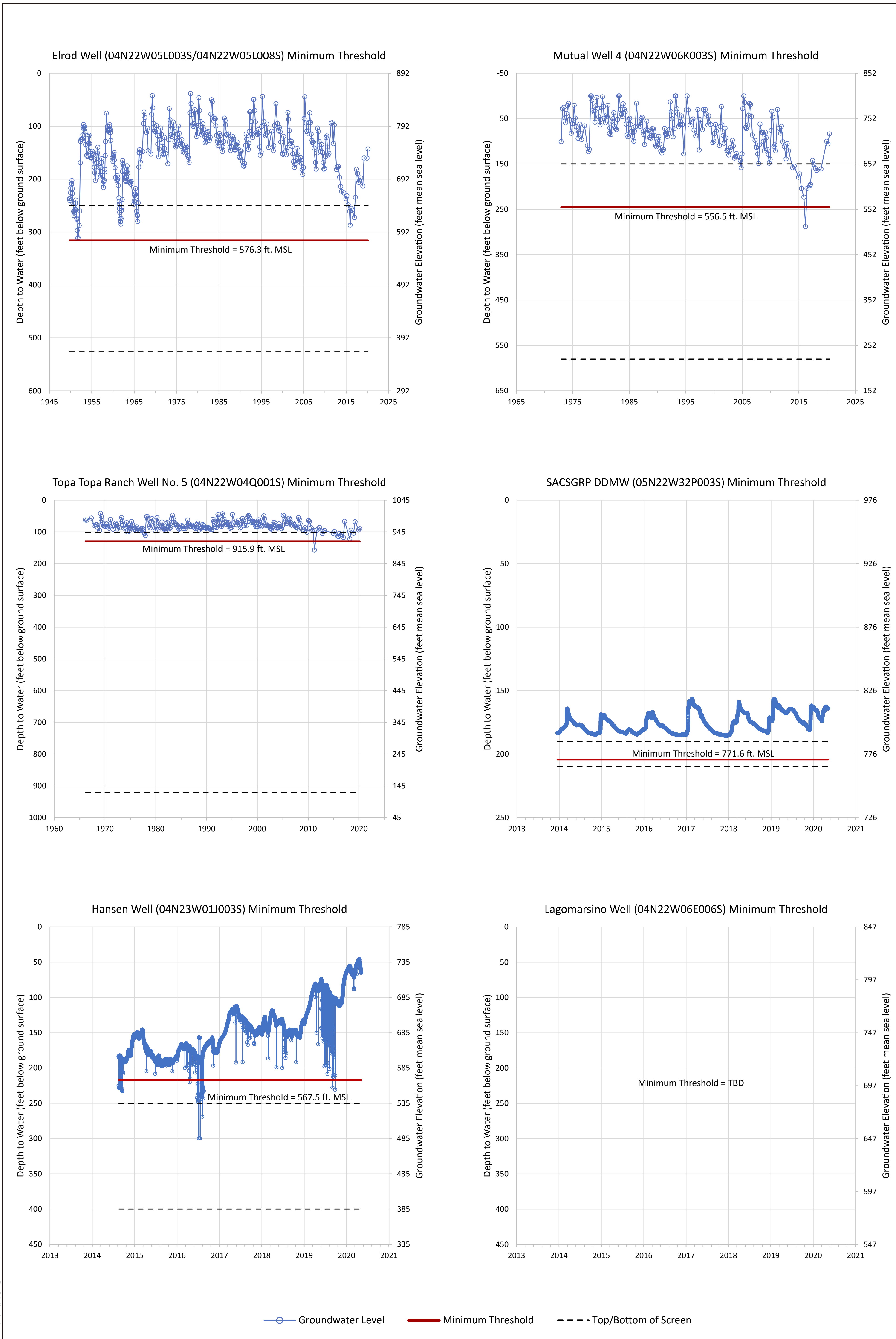
Table 3-2
Minimum Thresholds for Groundwater Levels

Well Name	SWN	Well Use	Well Depth (feet)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Reference Point Elevation (feet amsl)	Minimum Threshold (feet bgs)	Minimum Threshold (feet amsl)
Elrod Well	04N22W05L003S	Agricultural	632	236	620	879.00[a]	315.8	576.3
Topa Topa Ranch Well No. 5	04N22W04Q001S	Agricultural	970	102	920	1,045.50[b]	129.6	915.9
Lagomarsino Well	04N22W06E006S	Agricultural	454	105	415	847.00[a]	TBD	TBD
Hansen Well	04N23W01J003S	Agricultural	400[c]	250	400	784.50[a]	217.0	567.5
Mutual Well 4	04N22W06K003S	Municipal	600	150	580	801.80[b]	245.3	556.5
SACSGRP DDMW	05N22W32P003S	Monitoring	210	190	210	976.00[b]	204.4	771.6

Notes: SWN = state well number; bgs = below ground surface; amsl = mean sea level; — = not available; TBD = To be Determined.
[a] Estimated elevation of ground surface based on Google Earth. Well reference point and ground surface elevation will be surveyed in future.
[b] Well reference point elevation as reported by Ventura County Watershed Protection District (Dorrington pers. comm.).
[c] Total well depth and screen interval are approximate. Well needs to be video surveyed to confirm depth and screen interval(s).

Since February 2017 the OBGMA has monitored groundwater levels in the Elrod Well using a pressure transducer and data logger. The Elrod Well is located approximately 640 feet west of well 04N22W05L008S. The Elrod Well is at an elevation of approximately 879 feet amsl and well 04N22W05L008S is at an elevation of approximately 892 feet. The Elrod Well and well 04N22W05L008S are completed in the same aquifer and groundwater level data from the wells exhibit a similar trend. Due to reported access issues at well 04N22W05L008S that prevent installation of a pressure transducer and data logger, the Elrod Well was selected as a representative monitoring point. The minimum threshold established at the Elrod Well is based on the historical groundwater level record of well 04N22W05L008S, and accounts for the difference in land surface elevation of approximately 13 feet between the two wells.

The OBGMA will evaluate the minimum thresholds and measurable objectives at least every 5 years based on the preceding GSP implementation period climate and measured groundwater extractions to determine the likelihood that the GSP will maintain the sustainability goal. The OBGMA will revisit minimum thresholds and/or evaluate implementation of identified PMAs if the minimum thresholds in Table 3-2 are exceeded. Furthermore, RMPs could be added or replaced for the purpose of minimum threshold compliance monitoring as new data become available.



SOURCE: VCWPD; OBGMA

FIGURE 3-1

Historical Groundwater Levels and Minimum Thresholds at Representative Monitoring Points

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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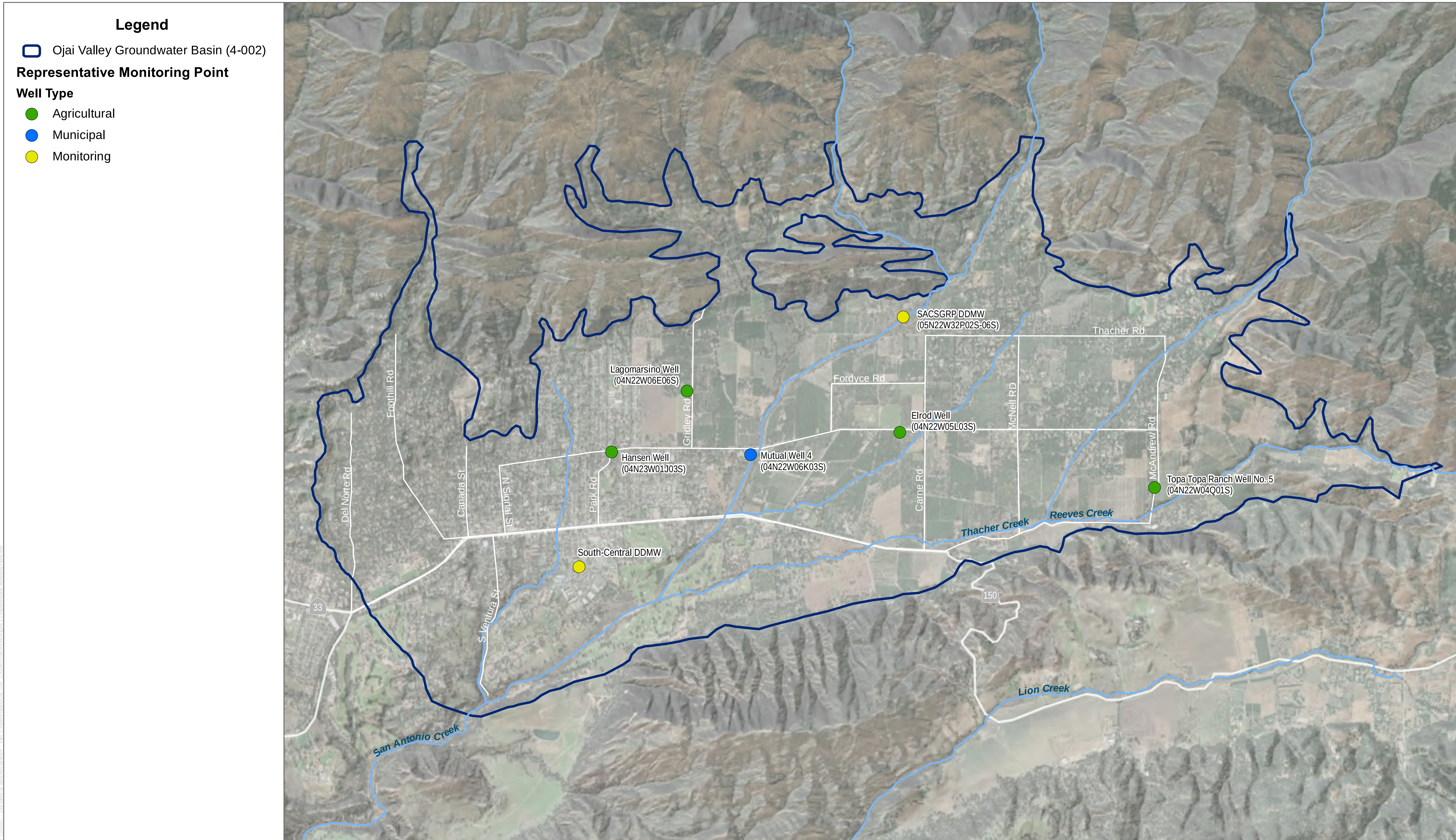

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD; OBGMA

DUDEK

0 0.5 1 Miles

FIGURE 3-2

Representative Monitoring Points

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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3.3.1.2 Relationship between Minimum Thresholds and Sustainability Indicator(s)

a. Relationship between the established minimum thresholds and the Chronic Lowering of Groundwater Sustainability Indicator

   The wells described in Table 3-2 are in locations that reflect a wide cross section of OVGB conditions. These locations are representative of overall OVGB conditions because they are spatially distributed throughout the OVGB both vertically (across aquifers) and laterally. The OBGMA has determined that maintenance of groundwater elevations above the minimum elevation thresholds at each of the listed monitoring site locations will help avoid the undesirable results of chronic lowering of groundwater levels, because it will minimize the chance that access to adequate water resources for beneficial users within the OVGB will be compromised.

b. Relationship between the established minimum thresholds and the other sustainability indicators applicable to the OVGB.

   Use of groundwater elevations at the wells outlined in Table 3-2, are appropriate minimum thresholds for the following sustainability indicators: reduction of groundwater storage and degraded groundwater quality. Lowering groundwater levels can reasonably be considered a proxy for decreases in groundwater in storage. The relationship between chronic lowering of groundwater levels and degraded groundwater quality is not direct, but deeper groundwater may be the source of elevated chloride concentrations. Chronic lowering of groundwater levels may, therefore, result in the need to treat groundwater for municipal and domestic uses.

3.3.1.3 Minimum Threshold Impacts to Adjacent Basins

As described in the water budget in Chapter 2, Section 2.4.4.4, Subsurface Outflow, subsurface outflow from the OVGB is minor (estimated at 90 AFY). The eastern and western boundaries of the OVGB correspond to recognized bedrock highs that limit groundwater exchange flow between the Ojai Valley Basin and adjacent basins (DWR 2004; Kear 2005). Thus, the minimum threshold of groundwater elevations selected to prevent chronic lowering of groundwater levels and to avoid triggering the other three applicable sustainability indicators in the OVGB are not expected to cause undesirable results in adjacent basins or adversely affect the ability of adjacent basins to achieve sustainability goals.

3.3.1.4 Minimum Threshold Impact on Beneficial Uses

Beneficial uses and users of groundwater in the OVGB are discussed above and in in Chapter 2, Section 2.1.4, Beneficial Uses and Users, and generally include three primary sets of pumpers: agriculture, municipal, and industrial. Other OVGB pumpers include small water systems and *de-*

minimis users. The minimum thresholds developed represent groundwater elevations in the OVGB that, if exceeded, may cause undesirable results (Title 23 CCR Section 354.28(a)). It is expected that, if groundwater elevations fall below the established minimum thresholds, water supplies available to beneficial uses and users in the OVGB will be limited or challenging to produce, and significant and unreasonable degradation of groundwater quality and other adverse impacts to sustainability indicators may occur.

3.3.1.5 Comparison between Minimum Threshold and Relevant State, Federal, or Local Standards

The OBGMA is not aware of any other state, federal, or local standards specific to lowering of groundwater levels in the OVGB. The California Environmental Quality Act (Guidelines Appendix G) has a requirement to examine whether a program or project would "substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)." The minimum thresholds established in this GSP quantify the meaning of this requirement in the local context of the OVGB. In 2019, the Governor's Office of Planning and Research released an update to the CEQA Guidelines that included a new requirement to analyze projects for their compliance with adopted GSPs. Specifically, the new applicable significance criteria include the following:

- Would the program or project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Would the program or project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Therefore, land use plans and projects subject to CEQA will be required to evaluate their impacts on groundwater based on the sustainable management criteria established in this GSP.

There are no quantitative local standards that define or limit specific groundwater elevations or amount of allowable groundwater level decline. As described in Chapter 2, Section 2.1.2.4, Regulatory Programs, the County of Ventura (County) has however taken action to protect groundwater resources by passing Ordinance No. 4468 prohibiting the construction of new wells or modification or repair of existing wells within groundwater basins designated as high or medium priority until GSAs are formed, and have adopted and submitted to DWR a GSP or alternative plan. Additionally, as further described in Chapter 2, Section 2.1.3.2, General Plans, the County recently updated the County's general plan. Although the Ventura County 2040 General Plan (VCPD 2020) does not set local quantitative standards with respect to the sustainability indicators, the County's general plan encourages the sustainable management of groundwater resources and supports GSAs in the implementation of GSPs. Following adoption of this GSP, this GSP may be incorporated by reference within future general plan and/or community plan updates.

3.3.1.6 Minimum Threshold Measurement Method

The static groundwater level will be measured at each RMP at least two times per year to evaluate groundwater elevation trends at anticipated seasonal low and seasonal high groundwater conditions. All measurements will comply with a forthcoming Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) (Chapter 4, Project and Management Actions). The monitoring network is described in further detail in Section 3.5, Monitoring Network.

3.3.2 Reduction of Groundwater in Storage – Minimum Thresholds

3.3.2.1 Minimum Threshold Justification

Reduction of groundwater in storage in the OVGB as discussed in Section 3.2.2, Reduction of Groundwater Storage – Undesirable Results, is significant and unreasonable if it is sufficient in magnitude to lower the rate of production of active groundwater wells below the minimum required to support the overlying beneficial uses, where an alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s).

Significant and unreasonable reduction of groundwater in storage could occur if there were a long-term deficit in the groundwater budget. As discussed above and described in Chapter 2, Section 2.4.3, Change in Annual Volume of Groundwater in Storage, results of the OBGM indicate that overall groundwater outflow from the OVGB is roughly balanced by inflow. During the period from water year 1971 through 2019, results from the OBGM indicate that groundwater in storage in the OVGB declined at an average rate of approximately 15 AFY; this resulted in a total cumulative loss in storage of approximately 750 AF, which is within the predictive uncertainty of the numerical model (Chapter 2, Section 2.4.4, Quantification of Current, Historical, and Projected Water Budgets). The historical low volume of groundwater in storage, based on static springtime groundwater levels, was estimated to be 41,310 AF in 2016 (OBGMA 2018), and based on OBGM simulations, was 59,049 AF in 2016.

Based on observed OVGB conditions and results of the OBGM, significant and unreasonable reduction of groundwater in storage has not occurred historically and is not currently occurring. The chronic lowering of groundwater levels minimum thresholds will be used as a proxy for evaluation of groundwater in storage. To ensure the GSP's sustainability goal is maintained, the OBGMA will evaluate current groundwater storage compared to minimum thresholds and measurable objectives, at least annually. If necessary, the OBGMA will evaluate additional PMAs if the minimum thresholds are exceeded, or the measurable objectives are not being achieved.

3.3.2.2 Relationship between Minimum Threshold and Sustainability Indicator(s)

The minimum thresholds for reduction of groundwater in storage are related to the other applicable sustainability indicators, including chronic lowering of groundwater levels and degraded groundwater quality. The minimum thresholds for reduction of groundwater in storage, which are directly correlated with the minimum thresholds for chronic lowering of groundwater levels, will protect the OVGB from conditions that could lead to overdraft and associated undesirable results. Maintaining groundwater levels above minimum thresholds at RMPs will ensure groundwater in storage and groundwater quality continue to be suitable for beneficial use throughout the OVGB.

3.3.2.3 Minimum Threshold Impacts to Adjacent Basins

As described in Section 3.3.1, Chronic Lowering of Groundwater Levels – Minimum Threshold, the minimum threshold selected for reduction of storage avoids causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

3.3.2.4 Minimum Threshold Impact on Beneficial Uses

The minimum thresholds will maintain the groundwater supply for beneficial uses and users in the OVGB as discussed in Section 3.3.1, Chronic Lowering of Groundwater Levels – Minimum Threshold. The minimum threshold impact on beneficial uses for both chronic lowering of groundwater levels and reduction of groundwater storage is the same.

3.3.2.5 Comparison between Minimum Threshold and Relevant State, Federal, or Local Standards

The comparison between minimum threshold and relevant state, federal, or local standards is generally the same as previously discussed for Section 3.3.1, Chronic Lowering of Groundwater Levels – Minimum Threshold.

3.3.2.6 Minimum Threshold Measurement Method

Reduction in groundwater storage is not a parameter that can be directly measured; rather, change in storage will be regularly estimated based on either the OVGB water budget or monitoring results derived from analysis of groundwater elevations and aquifer properties. To monitor the changes in storage to the OVGB, the generalized water budget equation is as follows:

Sum of inflows - Sum of outflows = Change in storage

The water budget is an accounting framework used to quantify all inflows and outflows from the OVGB over a given period of time, with the difference equating to the change in storage. The OBGM is used to estimate the water budget. The simulated water budget included water inputs from underflow, infiltrating rainfall, applied irrigation, and infiltrating surface water flows in creeks (i.e., losing streams); the water outputs included evapotranspiration, pumping, and subsurface flow out of the OVGB. The water budget developed using the DBS&A model is an important tool to manage water resources and will be updated at least every 5 years to document progress toward maintaining OVGB sustainability.

Change in groundwater storage will be estimated annually based on change in groundwater elevations. This involves documenting change in measured groundwater elevations at all monitoring network wells in the OVGB over a given period of time. The groundwater elevation change is then multiplied by the overlying OVGB area and estimated specific yield of the aquifer sediments to determine the change in groundwater storage. Changes in storage in the OVGB are determined from the generalized groundwater elevation and aquifer properties equation:

$$\textit{Overlying Area x } (GWE_{t0} - GWE_{t1}) \textit{ x Specific Yield = Change in Storage}$$

Where:

GWE_{t0} = the groundwater elevation at time zero (e.g., spring 2021)
GWE_{t1} = the groundwater elevation after time zero (e.g., spring 2022)

Groundwater elevation surfaces will be created from measured groundwater elevation data using a geographic information system (GIS) for specific time periods (e.g., Spring 2021 and Spring 2022). Each surface represents a specific elevation of the groundwater table. The difference between the two surfaces multiplied by the surface area of the OVGB represents the change in saturated volume of aquifer material between the two periods. This difference will be calculated using GIS and multiplied by the specific yield to estimate the change in groundwater storage. The reduction in groundwater storage will be calculated annually and reported by the OBGMA to document groundwater conditions with respect to the sustainability goal.

Reduction of groundwater in storage will be monitored using routine groundwater level measurements. Additionally, the hydrogeologic properties of the aquifer will be updated as additional pump test data becomes available.

3.3.3 Seawater Intrusion – Minimum Thresholds

As described in Section 3.2.3, Seawater Intrusion – Undesirable Results, seawater intrusion is not an applicable undesirable result in the OVGB, and a minimum threshold is not warranted.

3.3.4 Degraded Water Quality – Minimum Thresholds

Degraded groundwater quality in the OVGB, as discussed in Section 3.2.4, Degraded Water Quality – Undesirable Results, is significant and unreasonable if it is sufficient in magnitude to affect use of existing groundwater wells such that the groundwater quality precludes the use of groundwater to support the overlying beneficial uses, and that alternative means of obtaining sufficient water resources are not technically or financially feasible. For municipal and domestic wells, this means groundwater quality that meets potable drinking water standards specified in Title 22 of the CCR. For non-potable production wells, groundwater quality should generally be suitable for agricultural and industrial use. The drinking water standards specified in Title 22 of the CCR are established as the minimum thresholds for degraded groundwater quality for potable supply wells, provided there is a nexus between groundwater extraction and groundwater quality impairment. A summary of the drinking water standards specified in Title 22 of the CCR for the primary groundwater quality COCs in the OVGB are provided in Table 3-3.

Table 3-3
Degraded Groundwater Quality Minimum Thresholds for Identified Constituents of Concern

Constituent (mg/L)						
TDS[a]	*Sulfate*[a]	*Chloride*[a]	*Boron*[b]	*Nitrate (as N)*[c]	*Iron*[d]	*Manganese*[d]
1,000	500	500	1	10	0.3	0.05

Source: Title 22 CCR.
Notes: mg/L = milligrams per liter; TDS = total dissolved solids; N = nitrogen.
a Secondary maximum contaminant level (MCL) consumer acceptance contaminant level upper limit.
b State notification level (NL).
c Primary MCL.
d Secondary MCL.

To ensure the GSP's sustainability goal is maintained, the OBGMA will evaluate the minimum thresholds and measurable objective at least every 5 years. If necessary, the OBGMA will evaluate additional PMAs if the minimum thresholds are exceeded or the measurable objectives are not being achieved.

3.3.4.1 Minimum Threshold Justification

The minimum threshold for degraded groundwater quality is protective of existing and potential beneficial uses and users in the OVGB. Alternative means of addressing degraded groundwater quality such as wellhead treatment may also be technically and financially achievable.

3.3.4.2 Relationship between Minimum Threshold and Sustainability Indicator(s)

Degraded groundwater quality is related to the sustainability indicators: chronic lowering of groundwater levels and reduction of groundwater in storage. As groundwater levels decline and storage decreases there exists the potential for increased concentration of COCs as a result of poorer groundwater quality identified in deeper aquifers of the OVGB. Additionally, degradation of groundwater quality is associated with irrigation return flow and septic recharge that has percolated to the aquifer and has the potential to migrate laterally as a result of pumping. Degradation of groundwater quality is not a predictor of other sustainability indicators. Rather, it is a potential response. As such, it is sufficient to establish the minimum threshold for degraded groundwater quality in isolation from the other sustainability indicators.

3.3.4.3 Minimum Threshold Impacts to Adjacent Basins

As described in Section 3.3.1.3, Chronic Lowering of Groundwater Levels – Minimum Threshold, the minimum threshold selected for degraded groundwater quality is protective of causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

3.3.4.4 Minimum Threshold Impact on Beneficial Uses

The minimum threshold for degraded groundwater quality maintains existing and potential future beneficial uses of groundwater in the OVGB.

3.3.4.5 Comparison between Minimum Threshold and Relevant State, Federal, or Local Standards

The minimum threshold for degraded groundwater quality is compliant with potable drinking water standards specified in Section 64431 et seq. of Title 22 of the CCR. Section 13241, Division 7 of the California Water Code (CWC) specifies that "[e]ach regional board shall establish such water quality objectives in water quality control plans as in its judgement will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses...". Water quality objectives established in the Los Angeles Basin Plan were considered as part of development of measurable objectives described below in Section 3.4.

3.3.4.6 Minimum Threshold Measurement Method

Groundwater quality will be monitored on a semi-annual basis in the spring and fall of each year at the six RMPs, and at the South Central depth-discrete monitoring well (DDMW) which will be included as a RMP in the future when sufficient data are available to establish a minimum threshold and measurable objectives, to evaluate concentrations of identified COCs (Table 3-3). All measurements will comply with a forthcoming SAP/QAPP (Chapter 4, Projects and Management Actions). The monitoring network and monitoring protocols are described in Section 3.5, Monitoring Network, and Section 3.5.5, Protocols for Data Collection and Monitoring. Groundwater quality trends will be evaluated semi-annually using the Mann-Kendall test to assess whether or not the historical dataset exhibits a trend with a selected significance level of 0.05 or confidence interval of 95%. In addition, groundwater quality data collected by Ventura County Watershed Protection District (VCWPD) as part of the County's ongoing groundwater monitoring program and groundwater quality data for municipal supply wells submitted to the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) will be analyzed as data are made available. Groundwater quality results will be compared to the potable drinking water standards specified in Title 22 of the CCR discussed in Section 3.3.4, Degraded Water Quality – Minimum Thresholds and the Los Angeles Basin Plan groundwater quality objectives discussed in Section 3.4.4, Degraded Water Quality – Measurable Objectives.

3.3.5 Land Subsidence – Minimum Thresholds

As explained in Section 3.2.5, Land Subsidence – Undesirable Results, land subsidence is not presently an applicable sustainability indicator in the OVGB, and a minimum threshold is not presently warranted.

3.3.6 Depletions of Interconnected Surface Water – Minimum Thresholds

As described in Section 3.2.6, Depletions of Interconnected Surface Water, there is not sufficient information at this time to establish minimum thresholds, measurable objectives, or interim milestones for depletions of interconnected surface water or GDEs. The steps that will be taken to fill the data gaps and support development of minimum thresholds, measurable objectives, and interim milestones for depletions of interconnected surface water and GDEs are discussed in Section 3.5.4.2, Identification of Data Gaps and Chapter 4, Projects and Management Actions.

3.4 MEASURABLE OBJECTIVES

Standards for Establishing Measurable Objectives

A GSP is to include "measurable objectives, as well as interim milestones in increments of 5 years, to achieve the sustainability goal in the basin within 20 years of implementation of the plan" (CWC Section 10727.2(b)(1)). In addition, the GSP is to describe "how the Plan helps meet each objective and how each objective is intended to achieve the sustainability goal for the basin for the long-term beneficial uses" (CWC Section 10727.2(b)(2)). The GSP Regulations define "measurable objectives" as "specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin" (Title 23 CCR Section 351(s)).

Per GSP Regulations (Title 23 CCR Section 354.30):

a. Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

b. Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

c. Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

d. An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence. Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

The measurable objectives developed for each of the applicable sustainability indicators in this GSP are based on the current understanding of the OVGB setting as discussed in detail in Chapter 2. Because the OVGB is not experiencing undesirable results and is not considered to be in an overdraft condition, no interim milestones for the sustainability indicators were developed in this GSP.

3.4.1 Chronic Lowering of Groundwater Levels – Measurable Objectives

A reasonable margin of operational flexibility under adverse conditions was factored in when developing minimum thresholds and evaluating measurable objectives for chronic lowering of groundwater levels. The minimum thresholds are based on an evaluation of historical climate conditions and groundwater level trends as discussed in Section 3.3.1, Chronic Lowering of

Groundwater Levels – Minimum Threshold. The primary measurable objective for chronic lowering of groundwater levels is for groundwater levels at RMPs to remain above established minimum thresholds, and for groundwater levels to stabilize and recover after each drought period in average and wet water years. Numeric measurable objectives for groundwater levels will be developed as part of a comprehensive conjunctive management plan as described below and in Chapter 4, Projects and Management Actions.

In August 2017, the OBGMA approved adoption of Resolution No. 2017-4 to work cooperatively on the development of an agreement for the integrated use of surface water and groundwater. Following adoption of Resolution No. 2017-4, the OBGMA developed preliminary groundwater conservation actions based on groundwater levels at key well 04N22W05L08S, target volumes of groundwater in storage, and CMWD's Water Efficiency Allocation Program (WEAP) (OBGMA 2018). Similar to the storage and action table presented in the *Groundwater Management Plan – 2018 Update Ojai Valley Groundwater Basin* (OBGMA 2018), as part of development of the comprehensive conjunctive management plan the OBGMA may establish formal numeric groundwater level measurable objectives at RMPs based on groundwater levels and corresponding target volumes of groundwater in storage. The groundwater levels and storage measurable objectives will be used to inform groundwater conservation actions and track progress toward the sustainability goals. The OBGMA may take additional information into consideration such as current water storage in Lake Casitas when determining the stage and optimum annual pumping volume. Specifics of management actions to be taken will be included in the comprehensive conjunctive management plan.

3.4.2 Reduction of Groundwater in Storage – Measurable Objectives

Reduction of groundwater in storage measurable objectives will be developed as part of a comprehensive conjunctive management plan as described in Section 3.4.1, Chronic Lowering of Groundwater Levels – Measurable Objectives and in Chapter 4, Projects and Management Actions. The reduction of groundwater in storage measurable objectives will be used to inform groundwater conservation actions and track progress toward the sustainability goals. The OBGMA may take additional information into consideration such as current water storage in Lake Casitas when determining the stage and optimum annual pumping volume. Specifics of management actions to be taken will be included in the comprehensive conjunctive management plan.

3.4.3 Seawater Intrusion – Measurable Objectives

As explained in Section 3.2.3, Seawater Intrusion – Undesirable Results, seawater intrusion is not an applicable undesirable result in the OVGB, and a measurable objective is not warranted.

3.4.4 Degraded Water Quality – Measurable Objectives

Groundwater extraction wells in the OVGB are generally screened in multiple aquifer units (i.e., wells have long well screens intercepting multiple aquifer units). The aquifer units that compose the primary production aquifer are discussed in Chapter 2, Section 2.3.2, Principal Aquifers and Aquitards. Wellhead concentrations represent the average groundwater quality of the formations producing flow to the well and in most cases do not represent the groundwater quality of a specific aquifer unit. As discussed in Chapter 2, Section 2.3.4.4, Groundwater Quality, the primary COCs identified in the OVGB include TDS, sulfate, chloride, boron, nitrate, iron, and manganese.

As discussed in Section 3.2.4, Degraded Water Quality – Undesirable Results and Section 3.3.4, Degraded Water Quality – Minimum Thresholds, the minimum threshold for degraded groundwater quality is based on intended beneficial uses. For municipal and domestic wells, this means groundwater quality that meets potable drinking water standards specified in Title 22 of the CCR. For non-potable production wells, groundwater quality should generally be suitable for agricultural and industrial use. The Los Angeles Basin Plan has established numerical objectives for groundwater quality in the OVGB (Table 3-4; RWQCB 2014). Since the drinking water standards specified in Title 22 of the CCR are the minimum thresholds for degraded groundwater quality, the Los Angeles Basin Plan groundwater quality objectives are established as the measurable objectives, provided there is a nexus between groundwater extraction and groundwater quality impairment. In addition to the Los Angeles Basin Plan groundwater quality objectives, the measurable objectives for groundwater quality are for identified COCs to exhibit a stable or improving trend, as measured at each 5-year evaluation.

Table 3-4
Degraded Groundwater Quality Measurable Objectives for Select Constituents of Concern

Area of Ojai Valley Groundwater Basin	Objectives (mg/L)			
	TDS	*Sulfate*	*Chloride*	*Boron*
West of San Antonio-Senior Canyon	1,000	300	200	0.5
East of San Antonio-Senior Canyon	700	200	50	—

Source: RWQCB 2014.
Notes: mg/L = milligrams per liter; TDS = total dissolved solids; — = not available or not applicable.

3.4.5 Land Subsidence – Measurable Objectives

As explained in Section 3.2.5, Land Subsidence – Undesirable Results, land subsidence is not presently an applicable undesirable result in the OVGB, and a measurable objective is not warranted at this time.

3.4.6 Depletions of Interconnected Surface Water – Measurable Objectives

As described in Section 3.2.6, Depletions of Interconnected Surface Water, there is not sufficient information at this time to establish a minimum threshold or measurable objective for depletions of interconnected surface water or GDEs. The steps that will be taken to fill the data gaps and support development of minimum thresholds and measurable objectives as they relate to depletions of interconnected surface water and GDEs are discussed in Section 3.5.7.2, Identification of Data Gaps.

3.5 MONITORING NETWORK

Standards for Establishment of Monitoring Networks

Under SGMA, a GSP is to contain information regarding:

1. The monitoring and management of groundwater levels within the basin;
2. The monitoring and management of groundwater quality, groundwater quality degradation and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin;
3. The type of monitoring sites, type of measurements, and the frequency of monitoring for each location monitoring groundwater levels, groundwater quality, subsidence, streamflow, precipitation, and evaporation, including a summary of monitoring information such as well depth, screened intervals, and aquifer units monitored, and a summary of the type of well relied on for the information, including public, irrigation, domestic, industrial, and monitoring wells; and
4. Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin (CWC Section 10727.2).

According to GSP Regulations, the GSP is also to include descriptions of:

- How the monitoring network is capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation
- Monitoring network objectives including explanation of how the network will be developed and implemented to monitor:
  - Groundwater and related surface conditions

  - Interconnection of surface water and groundwater
- How implementation of the monitoring network objectives demonstrate progress toward achieving the measurable objectives, monitor impacts to beneficial uses or users of groundwater, monitor changes in groundwater conditions, and quantify annual changes in water budget components
- How the monitoring network is designed to accomplish the following for each sustainability indicator:
  - Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features
  - Reduction of Groundwater Storage. Estimate the change in annual groundwater in storage
  - Seawater Intrusion. Monitor seawater intrusion
  - Degraded Water Quality. Determine groundwater quality trends
  - Land Subsidence. Identify the rate and extent of land subsidence
  - Depletions of Interconnected Surface Water. Calculate depletions of surface water caused by groundwater extractions
- How the monitoring plan provides adequate coverage of the sustainability indicators
- The density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends
- The scientific rational (or reason) for site selection
- Consistency with data and reporting standards
- For each well, the corresponding sustainability indicator, minimum threshold, measurable objective, and interim milestone
- The location and type of each monitoring site on a map (Title 23 CCR Section 354.34).

3.5.1 Monitoring Network Objectives

The overall objective of the monitoring network in the OVGB is to track and monitor parameters to demonstrate progress toward maintaining the sustainability goals, including the minimum thresholds and measurable objectives defined in Section 3.3, Minimum Thresholds and Section 3.4, Measurable Objectives, respectively. The monitoring network is designed to collect sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and provide representative information about basin-wide groundwater conditions as necessary to evaluate GSP implementation. In order to accomplish this objective, the monitoring network in the OVGB must be capable of:

- Monitoring changes in groundwater conditions (in applicable sustainability categories)
- Monitoring compliance with minimum thresholds and measurable objectives
- Quantifying annual changes in water budget components

The most critical sustainable management criteria to be monitored directly for the OVGB are chronic lowering of groundwater levels and degraded groundwater quality. Reduction in groundwater storage is not a parameter that can be directly measured; therefore, change in storage will be regularly estimated based on either the OVGB water budget or monitoring results derived from analysis of groundwater elevations and aquifer properties. No direct measurements of land subsidence are proposed at this time, and depletions of interconnected surface water present a data gap to be addressed during GSP implementation.

3.5.2 Description of Existing Monitoring Network

The existing monitoring network for groundwater and related surface conditions in the OVGB includes groundwater production wells, dedicated groundwater monitoring wells, weather stations, and stream flow gages. The components of the monitoring network are discussed below in the context of their ability to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and of the ability of the network to document representative conditions in the OVGB. A discussion of how the monitoring network relates to each of the sustainable management criteria follows this discussion in Section 3.5.4, Monitoring Network Relationship to Sustainability Indicators.

3.5.2.1 Groundwater Monitoring

The existing network of groundwater monitoring wells includes both dedicated monitoring wells and production wells (Section 2.1.2, Water Resources Monitoring and Management Programs). Currently, groundwater levels are monitored by VCWPD and OBGMA, groundwater quality is monitored by VCWPD and operators of drinking water systems, namely the Ojai Water System operated by CMWD, who report groundwater quality data to the SWRCB DDW, and groundwater extraction from all active production wells is monitored by individual operators who self-report extraction volumes to the OBGMA.

The existing groundwater level and quality monitoring network consists of 37 wells in total. Of the 37 wells, 23 are monitored for groundwater levels, 24 are monitored for groundwater quality, and 35 are monitored for production (Figure 3-3 Groundwater Monitoring Network and Table 3-5). This network is capable of documenting the groundwater conditions in the OVGB and has been used for this purpose in the past. The current groundwater well network will be used to monitor groundwater conditions moving forward in order to continue to assess long-term trends in groundwater elevation and quality, and groundwater in storage, in the OVGB.

Table 3-5
Current Groundwater Monitoring Network

Well Name	SWN	CASGEM ID	Well Use	Monitoring Entity	Groundwater Monitoring Networks		
					Elevation	*Quality*	*Production*
South Central DDMW	—	—	Monitoring	OBGMA	X	X	—
SACSGRP DDMW	05N22W32P002S –006S	—	Monitoring	OBGMA	X	X	—
Elrod Well	04N22W05L003S	—	Agricultural	OBGMA	X	—	X
Lagomarsino Well	04N22W06E006S	—	Agricultural	OBGMA, VCWPD	X	X	X
Hansen Well	04N23W01J003S	—	Agricultural	OBGMA, VCWPD	X	X	X
Topa Topa Ranch Well No. 5	04N22W04Q001S	2813	Agricultural	OBGMA, VCWPD	X	X	X
—	04N22W05L008S	2816	Agricultural	VCWPD	X	—	X
Mutual Well 4	04N22W06K003S	—	Municipal	OBGMA, SWRCB, VCWPD	X	X	X
Mutual Well 5	04N22W06K011S	—	Municipal	SWRCB	—	X	X
Mutual Well 6	04N22W06K015S	—	Municipal	SWRCB	—	X	X
Mutual Well 7	—	—	Municipal	SWRCB	—	X	X
Gorham Well	04N22W06K013S	—	Municipal	SWRCB	—	X	X
Well 4	04N22W07A005S	—	Municipal	SWRCB	—	X	X
Grant Well	—	—	Municipal	SWRCB	—	X	X
San Antonio Well 3	04N22W06K010S	—	Municipal	SWRCB, VCWPD	—	X	X
San Antonio Well 4	04N22W06K014S	—	Municipal	SWRCB, VCWPD	—	X	X
—	05N22W32K002S	—	Agricultural	VCWPD	—	X	X
—	04N23W12B003S	—	Agricultural	VCWPD	—	X	X
—	04N22W06J009S	—	Agricultural	VCWPD	—	X	X
—	04N22W05M004S	—	Agricultural	VCWPD	—	X	X
—	04N22W04P005S	—	Agricultural	VCWPD	—	X	X
—	05N22W33J001S	—	Agricultural	VCWPD	—	X	X
—	04N22W06D001S	2818	Agricultural	VCWPD	X	—	X
—	04N23W01K002S	2837	Domestic	VCWPD	X	X	X
—	04N22W07G001S	2826	Agricultural	VCWPD	X	—	X
—	04N22W08B002S	26333	Industrial	VCWPD	X	—	X
—	04N22W05H004S	39777	Agricultural	VCWPD	X	X	X
—	04N22W05M001S	2817	Agricultural	VCWPD	X	—	X
—	04N22W07B002S	2824	Agricultural	VCWPD	X	—	X
—	04N22W05D003S	2814	Agricultural	VCWPD	X	X	X
—	04N22W06M001S	2822	Agricultural	VCWPD	X	—	X

Table 3-5
Current Groundwater Monitoring Network

Well Name	SWN	CASGEM ID	Well Use	Monitoring Entity	Groundwater Monitoring Networks		
					Elevation	*Quality*	*Production*
—	04N23W02K001S	46068	Agricultural	VCWPD	X	—	X
—	05N22W32J002S	38094	Agricultural	VCWPD	X	—	X
—	04N23W12L002S	26381	Agricultural	VCWPD	X	—	X
—	04N22W06K012S	26330	Agricultural	VCWPD	X	—	X
—	04N23W12H002S	26380	Agricultural	VCWPD	X	X	X
—	04N22W06D005S	46108	Agricultural	VCWPD	X	—	X

Notes: — = not available or not applicable; SWN = state well number; CASGEM = California Statewide Groundwater Elevation Monitoring Program; OBGMA = Ojai Basin Groundwater Management Agency; VCWPD = Ventura County Watershed Protection District; SWRCB = State Water Resources Control Board.

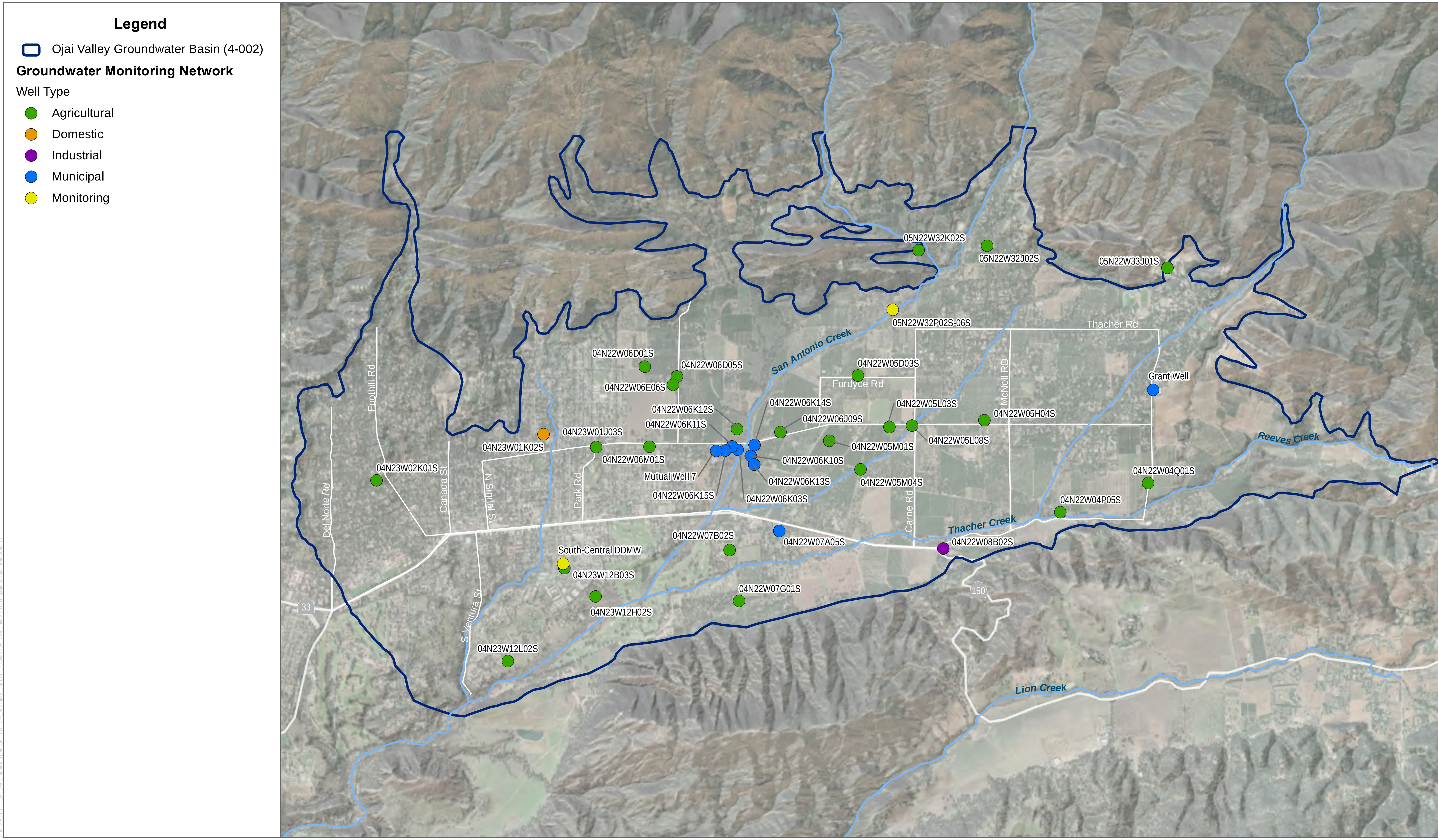
Groundwater Elevation

Groundwater elevations are currently the primary metric by which sustainability will be measured. The OBGMA has historically measured groundwater levels in a number of wells in the OVGB as described in Chapter 2, Section 2.1.2.1, Groundwater Monitoring, and plans to continue to monitor groundwater levels in the seven wells identified in Table 3-5 and shown in Figure 3-3. The seven wells include Mutual Well 4, Elrod Well, Lagomarsino Well, Hansen Well, Topa Topa Ranch Well No. 5, SACSGRP DDMW, and South Central DDMW. South Central DDMW is a new depth-discrete monitoring well consisting of four 2-inch diameter polyvinyl chloride (PVC) casings installed in June 2021 to further document groundwater elevation trends by aquifer depth and evaluate aquifer connectivity. In addition, the VCWPD monitors groundwater levels in 18 wells located throughout the OVGB. The OBGMA will incorporate the groundwater level data collected by VCWPD as data are made available.

The spatial and temporal coverage of the existing groundwater elevation monitoring network is sufficient to provide an understanding of representative conditions in the aquifer system, and this network will be used to demonstrate progress toward the sustainability goals for the OVGB. Although evaluation of the current groundwater elevation monitoring network suggests that the network is sufficient to document groundwater conditions in the OVGB, areas for future improvement of the network are identified in Section 3.5.7, Assessment and Improvement of Monitoring Network.

Groundwater in Storage

Groundwater in storage has historically been estimated based on groundwater elevation changes and aquifer properties using the measurement method described in Section 3.3.2.6, Minimum Threshold Measurement Method, and based on OBGM simulations. The groundwater in storage monitoring network is the same as the groundwater elevation monitoring network.



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; VCWPD; OBGMA

DUDEK

0 0.5 1 Miles

FIGURE 3-3

Groundwater Monitoring Network

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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Groundwater Quality

The OBGMA plans to monitor groundwater quality in the seven wells identified in Table 3-5 and Figure 3-3. The seven wells include Mutual Well 4, Elrod Well, Lagomarsino Well, Hansen Well, Topa Topa Ranch Well No. 5, SACSGRP DDMW, and South Central DDMW. The Elrod Well, South Central DDMW, and SACSGRP DDMW are not currently routinely monitored for groundwater quality but will be routinely monitored moving forward. In addition, the VCWPD monitors groundwater quality in 14 wells and groundwater quality data from nine municipal supply wells are reported to the SWRCB. Groundwater quality data collected by the OBGMA and provided by the VCWPD and SWRCB will be analyzed with respect to degraded groundwater quality minimum thresholds and measurable objectives.

The spatial and temporal coverage of the existing groundwater quality monitoring network is sufficient to provide an understanding of representative conditions in the aquifer system, and this network will be used to demonstrate progress toward the sustainability goals for the OVGB. Although evaluation of the current groundwater quality monitoring network suggests that the network is sufficient to document groundwater conditions in the OVGB, areas for future improvement of the network are identified in Section 3.5.7, Assessment and Improvement of Monitoring Network.

Groundwater Extraction

All operators of active production wells measure and report extractions to the OBGMA, including *de minimis* extractors pumping less than 2 AFY.

3.5.2.2 Surface Conditions Monitoring

The primary surface conditions that impact groundwater conditions in the OVGB are surface water flows and precipitation. The monitoring networks for both surface conditions are discussed below and in Chapter 2, Section 2.1.2.2, Precipitation and Streamflow Monitoring.

Surface Water

Surface flows in the OVGB are monitored by three stream gauges, two located on San Antonio Creek and one on Thacher Creek, maintained by the County. Two additional stream gauges located on San Antonio Creek downstream and outside of the OVGB provide additional streamflow data. Surface water flow in San Antonio Creek has been recorded daily since 1949 by station 605 located on lower San Antonio Creek at Highway 33, and since 2013 by stations 648 and 649 located on upper San Antonio Creek in the OVGB. In addition, since 2017 the OBGMA has conducted monthly manual stream discharge monitoring, and continuous stream stage monitoring using a pressure transducer set to record at a frequency of every 3-minutes, on lower San Antonio Creek.

The historical and existing spatial and temporal coverage of the surface water flow gauges provide adequate coverage for the short-term, seasonal, and long-term surface flow conditions in the OVGB. In the future, to the extent possible, additional stream gauges will be installed and incorporated into the existing monitoring network (Section 3.5.7, Assessment and Improvement of Monitoring Network).

Precipitation

Precipitation in the OVGB is monitored by four weather stations, three of which are maintained by the County and one by the National Oceanic and Atmospheric Administration (NOAA). Five additional precipitation stations located outside of the OVGB, but in the vicinity, provide additional precipitation data.

Precipitation in the OVGB has been recorded for more than a century. The historical and existing spatial and temporal coverage of the precipitation stations provide adequate coverage for the short-term, seasonal, and long-term monitoring of trends in precipitation. Additional precipitation monitoring locations are not currently recommended for characterizing surface conditions in the OVGB.

3.5.3 Monitoring Network Relationship to Sustainability Indicators

To document changes in groundwater conditions related to each of the applicable sustainability indicators, monitoring will be conducted using the existing network of groundwater wells. This network includes a greater number of wells than the list of RMPs presented in Section 3.3.1, Chronic Lowering of Groundwater Levels – Minimum Threshold. Minimum thresholds have been selected for the set of RMPs but have not been selected for every well used to monitor groundwater conditions in the OVGB. Conditions measured at the RMPs will be used to document progress toward the sustainability goals. Groundwater conditions measured in the broader network of wells, which includes the RMPs, will be used to document conditions in the OVGB at a greater spatial coverage than is provided by the RMPs. Recommendations and findings based on the RMP data will be supported by the data collected by the broader well network.

3.5.3.1 Chronic Lowering of Groundwater Levels

To monitor conditions related to chronic lowering of groundwater levels, the groundwater monitoring network must be structured to accomplish the following:

- Track short-term, seasonal, and long-term trends in water elevation
- Demonstrate groundwater elevations in spring and fall for each primary aquifer or aquifer system
- Record groundwater elevations at RMPs for which minimum thresholds and measurable objectives have been identified to track progress toward the sustainability goals for the OVGB

Spatial Coverage

The OVGB monitoring well density for groundwater elevation is currently approximately 1 well per 0.4 square miles (OVGB is approximately 9.2 square miles). While there is no definitive rule for the density of groundwater monitoring points needed in a basin, for comparison the monitoring well density recommended by CASGEM Groundwater Elevation Monitoring Guidelines ranges from 1 to 10 wells per 100 square miles (DWR 2010). Additional California DWR guidelines recommend a well network with a density of 1 observation per 16 square miles (DWR 2010, 2016a). Therefore, the density of wells in the monitoring network for the OVGB meets the criteria for adequate coverage for chronic lowering of groundwater levels; however, well density alone does not ensure collection of sufficient data to detect changes in groundwater conditions. Spatial (both lateral and vertical) and temporal representation need to be considered in assessment of the ability of the monitoring network to demonstrate short-term, seasonal, and long-term trends. In the future, to the extent possible, additional dedicated monitoring wells will be incorporated into the existing monitoring network (Section 3.5.7, Assessment and Improvement of Monitoring Network). The wells could include existing wells or new monitoring wells and will provide information on groundwater conditions in geographic locations and/or at depths where data gaps are identified.

Temporal Resolution

Groundwater elevation data will be collected from the network of groundwater wells to provide groundwater elevation conditions, at a minimum, in the spring and fall of each year. Further discussion of the monitoring schedule is provided in Section 3.5.4, Monitoring Network Implementation.

3.5.3.2 Reduction of Groundwater in Storage

To monitor conditions related to reduction of groundwater storage, the groundwater monitoring network must be structured to accomplish the following:

- Demonstrate groundwater elevations in spring and fall for each primary aquifer or aquifer system.
- Calculate year-over-year (spring to spring) change in storage by aquifer.
- Provide data from which lateral and vertical hydraulic gradients within and between aquifers can be calculated.
- Record groundwater elevations at RMPs for which minimum thresholds and measurable objectives have been identified to track progress toward the sustainability goals for the Subbasin.

The requirements for documenting reduction in groundwater storage are similar to those for chronic lowering of groundwater levels, because these two sustainability indicators are interrelated. Reduction in groundwater storage is not a parameter that can be directly measured; rather, change in storage will be estimated based on the OVGB water budget every 5 years and monitoring results derived from analysis of groundwater elevation changes annually (aquifer properties will be refined if there are additional pumping tests performed within the OVGB).

Based on the current understanding of aquifer properties and groundwater elevation data, monitoring of groundwater levels in the OVGB is a sufficient surrogate for evaluating reduction of groundwater in storage (Title 23 CCR Section 354.36(b)). The method for measurement of estimating annual reduction of groundwater in storage is described in Section 3.3.2.6, Minimum Threshold Measurement Method.

3.5.3.3 Degraded Water Quality

To monitor conditions related to degraded groundwater quality, groundwater quality samples will be collected in such a way as to track long-term trends in groundwater quality that may impact beneficial uses and users of groundwater in the OVGB. Specifically, these groundwater quality samples will be targeted to constituents of concern and areas of the OVGB that have documented degradation, or the potential for degradation, in groundwater quality related to groundwater production from the OVGB.

Water Quality Constituents

Monitoring has occurred for constituents of concern including TDS, chloride, and nitrate in addition to a number of other analytes. The network of existing wells is capable of providing an adequate assessment of groundwater quality trends for these constituents.

Spatial Coverage

The OVGB monitoring well density for groundwater quality is currently approximately 1 well per 0.4 square miles. The density of wells in the monitoring network for the OVGB meets the criteria for adequate coverage for degraded groundwater quality. Additional dedicated monitoring wells in geographic locations and/or at depths where data gaps are identified will be incorporated into the existing monitoring network in the future to the extent possible.

Temporal Resolution

Degradation of groundwater quality occurs on a longer timescale than changes in groundwater elevation. Operators of drinking water systems in the OVGB collect groundwater quality samples from drinking water supply wells at least every 3 years and submit results to the SWRCB. The

VCWPD collects groundwater quality samples from a network of wells on an annual basis. Together these data provide information on trends in groundwater quality across the OVGB and are of adequate temporal resolution to document conditions over time. In addition, the OBGMA plans to monitor groundwater quality in seven wells on a semi-annual basis. Groundwater quality data collected by the OBGMA and made available by the VCWPD and SWRCB will be used to document trends moving forward.

3.5.3.4 Seawater Intrusion Monitoring

Seawater intrusion is not an applicable undesirable result in the OVGB, and monitoring is not warranted (Section 3.2.3, Seawater Intrusion – Undesirable Results).

3.5.3.5 Land Subsidence Monitoring

Land subsidence is not an applicable undesirable result in the OVGB and monitoring is not warranted (Section 3.2.5, Land Subsidence – Undesirable Results). Vertical displacement data for the OVGB derived from interferometric synthetic aperture radar (InSAR) provided through DWR's SGMA Data Viewer will be analyzed on an annual basis, if available, to track changes in land surface elevation. If during the GSP implementation timeline it becomes evident that minimum thresholds and measurable objectives for lowering of groundwater levels and groundwater in storage are not being met, the degree to which land subsidence may become an undesirable result will be re-evaluated.

3.5.3.6 Depletions of Interconnected Surface Water Monitoring Network

The depletions of interconnected surface water monitoring network currently relies on the existing groundwater elevation and surface water monitoring networks. Previous assessments of stream-aquifer interactions in the OVGB have been performed using available groundwater level and stream gauge data, and some conclusions have been made (Chapter 2, Section 2.3.4.6, Groundwater-Surface Water Connections); however, existing stream gauge and shallow monitoring well data are limited in temporal resolution (i.e., short length of record and/or coarse measurement interval) and additional data are needed to quantify the degree of stream-aquifer connectivity. In order to adequately characterize the interaction between groundwater and surface water within the OVGB, additional monitoring of groundwater levels in the shallow perched aquifer, and streamflow and stage in San Antonio Creek is required. To this end, the OBGMA installed South Central DDMW to evaluate the connectivity between the principle aquifer and the shallow perched aquifer in hydraulic connection with surface flows in San Antonio Creek. Groundwater level data collected in South Central DDMW will facilitate quantitative assessments of groundwater-surface water interactions and representation of these processes in the OBGM. Additional improvements to the depletions of interconnected surface water monitoring network are discussed in Section 3.5.7, Assessment and Improvement of Monitoring Network.

3.5.4 Monitoring Network Implementation

3.5.4.1 Groundwater Elevation Monitoring Schedule

To reduce uncertainty associated with hydraulic gradients, and to follow guidance documents produced by DWR (DWR 2016a, 2016b), groundwater level measurements used in the evaluation of seasonal high and seasonal low groundwater conditions will be collected in a two week window in the spring and fall of any given calendar year. Pressure transducers and data loggers at RMPs will continue to be used to monitor short-term and seasonal trends, and data will be downloaded, semi-annually, at a minimum, and stored in a central database.

3.5.4.2 Groundwater in Storage Monitoring Schedule

Groundwater in storage is directly related to, and calculated from, groundwater elevations. Consequently, the schedule for monitoring groundwater in storage is the same as that for monitoring groundwater elevations.

3.5.4.3 Groundwater Quality Monitoring Schedule

To demonstrate short-term, seasonal, and long-term trends in groundwater quality, and to follow guidance documents produced by DWR (DWR 2016a, 2016b), groundwater quality monitoring will be completed at least semi-annually. Annual reviews of the groundwater quality trends will be used to assess whether sampling frequency or the spatial density of samples needs to be adjusted.

3.5.4.4 Groundwater Extraction Monitoring Schedule

Monitoring of groundwater extraction rates will take place quarterly, using flowmeters installed on individual wellheads, and quarterly totals of pumped water will be self-reported to the OBGMA, including *de minimis* extractors pumping less than 2 AFY.

3.5.5 Protocols for Data Collection and Monitoring

Standards for Establishing Monitoring Protocols

"Under SGMA, the GSP must contain monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin.

The CWC Section 10727.2(f). According to GSP Regulations, "Each Plan shall include monitoring protocols adopted by the Agency for data collection and management, as follows:

a. Monitoring protocols shall be developed according to best management practices.

b. The Agency may rely on monitoring protocols included as part of the best management practices developed by the Department, or may adopt similar monitoring protocols that will yield comparable data.

c. Monitoring protocols shall be reviewed at least every five years as part of the periodic evaluation of the Plan, and modified as necessary" (Title 23 CCR Section 352.2).

Protocols in the OVGB

The protocols for data collection and monitoring will be detailed in a forthcoming SAP/QAPP (Chapter 4, Projects and Management Actions). The SAP/QAPP will be updated periodically to address findings of the data and compliance criteria presented in this GSP. The SAP will provide a plan that includes sampling objectives, potential COCs, monitoring frequency, methods for groundwater elevation and quality monitoring, and sample handling. The QAPP will define roles and responsibilities, quality objectives and criteria, special training, documentation and records, field and laboratory analytical methods, field and laboratory quality control, assessments and response actions, data processing, review, verification and validation, data evaluation roles and responsibilities, and data reporting. Technical standards, data collection methods, and quality assurance will be described in detail in the SAP/QAPP to ensure comparable data and methodologies.

3.5.6 Representative Monitoring

Standards for Representative Monitoring

The GSP Regulations provide that a GSA may designate a subset of monitoring sites as representative of conditions in the basin as follows:

1. Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined.
2. Groundwater elevations may be used as a proxy for monitoring other sustainability indicators if the Agency demonstrates the following:

    a. (1) Significant correlation exists between groundwater elevations and the sustainability indicators for which groundwater elevation measurements serve as a proxy.

    b. (2) Measurable objectives established for groundwater elevation shall include a reasonable margin of operational flexibility taking into consideration the basin setting to avoid undesirable results for the sustainability indicators for which groundwater elevation measurements serve as a proxy.

3. The designation of a representative monitoring site shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area (Title 23 CCR Section 354.36).

Groundwater elevations and groundwater quality are the primary indicators to be directly measured and are the only sustainability indicators for which RMPs are warranted at this time. Groundwater elevations are also a proxy for evaluation of groundwater in storage as previously described in Section 3.5.3.2.

RMPs have been selected throughout the OVGB. Multiple RMPs are warranted to address the diversity of land uses, proximity to pumping centers and recharge areas, elevation differences, and variations in hydrogeology. As such, selected RMPs are anticipated to be updated as the OVGB pumping centers evolve or other pertinent data are obtained over the GSP implementation period. RMPs are presented in Table 3-6 and shown on Figure 3-2.

Table 3-6
Representative Monitoring Points

Well Name	SWN	Rationale
Elrod Well	04N22W05L03S	Agricultural production well with pressure transducer data
Topa Topa Ranch Well No. 5	04N22W04Q01S	Agricultural production well with long-term groundwater level and quality record
Lagomarsino Well	04N22W06E06S	Agricultural production well with pressure transducer and groundwater quality data
Hansen Well	04N23W01J03S	Agricultural production well with pressure transducer and groundwater quality data
Mutual Well 4	04N22W06K03S	Municipal production well with long-term groundwater level and quality record
SACSGRP DDMW	05N22W32P02S–06S	Dedicated depth-discrete monitoring well

Notes: SWN = state well number.

The new depth-discrete monitoring well (South Central DDMW) will be included as a RMP in the future when sufficient data are available to establish a minimum threshold and measurable objectives.

3.5.7 Assessment and Improvement of Monitoring Network

Standards for Assessment and Improvement of Monitoring Network

Section 354.38 of the GSP Regulations provide that a GSA should continue to assess and improve the monitoring network throughout the planning and implementation horizon, as follows:

1. Each Agency shall review the monitoring network and include an evaluation in the Plan and each 5-year assessment, including a determination of uncertainty and whether there are data gaps that could affect the ability of the Plan to achieve the sustainability goal for the basin.
2. Each Agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency.
3. If the monitoring network contains data gaps, the Plan shall include a description of the following:
   a. The location and reason for data gaps in the monitoring network.
   b. Local issues and circumstances that limit or prevent monitoring.
4. Each Agency shall describe steps that will be taken to fill data gaps before the next 5-year assessment, including the location and purpose of newly added or installed monitoring sites.
5. Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include the following:
   a. Minimum threshold exceedances.
   b. Highly variable spatial or temporal conditions.
   c. Adverse impacts to beneficial uses and users of groundwater.

3.5.7.1 Review and Evaluation of the Monitoring Network

The OVGB monitoring network will be reviewed and evaluated for effectiveness annually and for each 5-year assessment. The review and evaluation will address uncertainty and data gaps that could affect the ability of the Plan to achieve the sustainability goal for the OVGB, and will consider localized effects that may not be represented by the RMPs.

3.5.7.2 Identification of Data Gaps

Groundwater Elevation

Identification of data gaps for groundwater elevations must consider vertical and lateral representation of the OVGB. For vertical representation, as discussed in Chapter 2, Section 2.3.4, Historical and Current Groundwater Conditions, review of existing groundwater elevation data within the OVGB suggests that although four distinct aquifer units are delineated in varying thickness across the OVGB, the effect of well screen lengths and intervals is potentially minimal with respect to measured depths to groundwater (i.e., potentiometric surface) in the primary production aquifer. However, multi-completion wells or well clusters screened at discrete intervals in the various aquifer units would allow for measurement of potentiometric surface by aquifer unit. Measurement of groundwater levels by aquifer unit would improve understanding of groundwater conditions with respect to monitoring the applicable sustainability indicators, in particular depletions of interconnected surface water and impacts to GDEs. The OBGMA plans to monitor groundwater elevations in two existing depth-discrete monitoring wells to improve understanding of connectivity between aquifer units. The need for additional monitoring wells will be evaluated as part of the annual and 5-year review process.

Laterally, the pattern of existing overlying land uses, and beneficial uses of groundwater are well represented by the monitoring network. As conditions may change throughout GSP implementation, representation of overlying land uses and beneficial groundwater uses will be evaluated annually along with the network's reliability (i.e., well access and condition). Each monitoring well will be tracked and the need for alternative or additional monitoring wells will be evaluated as part of the annual and 5-year review processes.

As described in Section 3.5.2 and Section 3.5.3, based on the nature of the OVGB and review of historical data, sub-daily measurement of groundwater levels at representative monitoring points using pressure transducers and data loggers, and semi-annual manual measurement of groundwater levels at all wells in the monitoring network, together provide an appropriate monitoring frequency to continue to track short-term, seasonal, and long-term trends, and address the minimum standards of the monitoring network.

Groundwater Quality

As discussed in Chapter 2, Section 2.3.4.4, Groundwater Quality, there are both anthropogenic and natural sources of the COCs in the OVGB. All COCs are found in differing concentrations spatially, with variability in groundwater quality between wells. Extraction wells in the OVGB are generally screened in multiple aquifer units. As such, groundwater quality samples collected at the wellhead represent an average concentration of the formations screened and do not represent depth-discrete or aquifer specific conditions. Multi-completion wells or depth discrete groundwater quality samples would be required to better characterize groundwater quality by aquifer unit and depth in the OVGB. The OBGMA plans to monitor groundwater quality in two existing depth-discrete monitoring wells on a semi-annual basis to improve understanding of potential variability in groundwater quality at depth. The need for alternative or additional monitoring wells to improve the spatial coverage of the current groundwater quality monitoring network will be evaluated as part of the annual and 5-year review process.

Groundwater quality samples have historically been collected at a frequency of one to three years depending on the monitoring entity, well, and parameters measured. To track short-term and seasonal groundwater quality trends in the OVGB, the OBMGA plans to initially monitor groundwater quality in seven wells on a semi-annual basis.

Depletions of Interconnected Surface Water

As discussed in Section 3.5.3.6, existing shallow monitoring well and stream gauge data are limited in temporal resolution (i.e., short length of record and/or coarse measurement interval) and additional data are needed to quantify the degree of stream-aquifer connectivity. Groundwater level monitoring in multi-completion wells or wells screened in discrete aquifer units adjacent to surface water monitoring sites using pressure transducers and data loggers will allow for assessment of stream-aquifer connectivity and establishment of minimum thresholds and measurable objectives for depletions of interconnected surface water and GDEs, if appropriate. The OBGMA plans to fill existing data gaps as they pertain to depletions of interconnected surface water and GDEs by continuing to monitor stream discharge and stage on lower San Antonio Creek, and groundwater levels in South Central DDMW, and by preparing a groundwater dependent ecosystems assessment as described in Chapter 4, Projects and Management Actions. Following completion of the GDE assessment, the need for additional studies and monitoring will be evaluated as part of the annual and 5-year review process. In the future, to the extent possible, additional multi-completion monitoring wells and stream gauges will be installed and incorporated into the existing groundwater and surface water monitoring networks.

Regulatory Data Gaps

SGMA requires that the GSP consider relevant state, federal, and local standards. As such, pertinent regulatory agencies are considered stakeholders. Data gaps associated with relevant agencies are not known to currently exist.

Ojai Basin Groundwater Model

SGMA requires that the GSA identify data gaps and uncertainty associated with key water budget components and model forecasts, and develop an understanding of how these gaps and uncertainty may affect implementation of proposed projects and water management actions.

As part of the 5-year assessments, results from the monitoring network will be incorporated into updated numerical model simulations performed using the OBGM. Importantly, data collected during the GSP implementation will be used to refine model-estimates of groundwater-surface water interactions along San Antonio Creek, which have historically accounted for approximately 50% of the average annual groundwater discharges from the OVGB (Table 2-13). These estimates of groundwater-surface water interactions are not well-constrained by data collected in the OVGB (DBS&A 2011). The recent completion and monitoring of the new depth-discrete monitoring well (South Central DDMW) facilitates quantitative assessments of the OBGM's representation of these processes (Section 3.5.2.1, Groundwater Monitoring).

3.5.7.3 Description of Steps to Fill Data Gaps

The process for addressing identified data gaps is for the OBGMA to evaluate the potential significance of the data gaps, anticipated duration, costs, and overall benefit to the effectiveness of the GSP. As an initial step to address identified data gaps, the OBGMA has evaluated and proposed several projects in Chapter 4, Projects and Management Actions intended to fill existing data gaps. The PMAs developed to fill existing data gaps include Conduct Groundwater Level and Quality Monitoring, Prepare Groundwater Dependent Ecosystems Assessment, and Simulate Extreme Climate Scenarios.

3.5.7.4 Description of Monitoring Frequency and Density of Sites

Based on OVGB conditions, as described in Chapter 2, Section 3.5.2.1, Groundwater Monitoring, and the monitoring plan (described above), semi-annual monitoring of groundwater quality and groundwater elevations is considered adequate to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative data to compare to measurable objectives and minimum thresholds.

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CHAPTER 4
PROJECTS AND MANAGEMENT ACTIONS

4.1 PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY GOAL

Standards for Projects and Management Actions

Under the Regulations, the Groundwater Sustainability Plan (GSP) is to include the following:

1. "Each Plan shall include a description of the projects and management actions the Agency [Groundwater Sustainability Agency (GSA)] has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.
2. Each Plan shall include a description of the projects and management actions that include the following:
   a. A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:
      i. A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.
      ii. The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.
   b. If overdraft conditions are identified through the analysis required by California Code of Regulations (CCR) Section 354.18 [Water Budget], the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.
   c. A summary of the permitting and regulatory process required for each project and management action.
   d. The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

e. An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

f. An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.

g. A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

h. A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

i. A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.

3. Projects and management actions shall be supported by best available information and best available science.
4. An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions" (CCR Section 354.44).

Further, a GSA "has and may use the powers [in the Sustainable Groundwater Management Act (SGMA)] to provide the maximum degree of local control and flexibility consistent with the sustainability goals of [SGMA]" (California Water Code (CWC), Section 10725(b)). "A groundwater sustainability agency may perform any act necessary or proper to carry out the purposes of [SGMA]" (CWC, Section 10725.2(a)).

4.2 INTRODUCTION TO PROJECTS AND MANAGEMENT ACTIONS

Projects and management actions (PMAs) have been developed to address sustainability goals, minimum thresholds, and data gaps identified for the OVGB. The PMAs in this Chapter document the existing management of the OVGB undertaken by the OBGMA and potential actions that the OBGMA could undertake to further refine operation and management of the OVGB.

The OBGMA was created in 1991 and is currently one of only 15 special act districts with legislative authority to manage groundwater in California. As such, the OBGMA has a rich history of groundwater management and project implementation. OBGMA developed Groundwater Management Plans (GMPs) in 1994, 2007, and 2018 (OBGMA 1994, 2007, and 2018). Included in the GMPs are five primary goals to manage the OVGB, each with a number of action elements, that are effectively equivalent to PMAs:

1. Understand the Basin

2. Protect and Manage the Basin
3. Encourage Supporting Activities
4. Communicate Effectively
5. Administrate Efficiently

These existing management goals and associated action elements, as described in the GMPs, were developed by the OBGMA based on basin studies and vetted through stakeholder outreach and agency collaboration.

This chapter is organized by management action first, then projects that support each management action discussed separately under each management action. The discussion includes a description of the project, as well as additional details mandated by SGMA such as the legal, financial, and regulatory considerations for each and implementation timetables. The PMAs proposed in this GSP are summarized in Table 4-1.

Table 4-1
Summary of Project and Management Actions for Potential Implementation

Management Action	Project/Element	Sustainability Indicator(s) Benefited	Circumstances for Implementation	Schedule
Management Action #1 Understand the Basin	Conduct Groundwater Level, Groundwater Quality, and Streamflow Monitoring	GL, GS, WQ, GDE	Implementation ongoing, improvements to be incorporated as needed	At least semi-annually
	Conduct Groundwater Extraction Monitoring	GL, GS		Quarterly reporting
	Prepare Sampling and Analysis Plan and Quality Assurance Project Plan	GL, GS, WQ, GDE	Updated/consistent SAP/QAPP procedures to be implemented upon plan completion/adoption	To be prepared prior to first 5-year update
	Prepare Groundwater Dependent Ecosystems Assessment	GDE	GDE sustainability criteria to be developed once assessment is complete	
	Develop Data Management System	GL, GS, WQ, GDE	To be administered on an ongoing basis once DMS is completed within first few years of GSP implementation	
	Simulate Extreme Climate Scenarios	GL, GS	Will assist in refining minimum thresholds and measurable objectives	
Management Action #2 Protect and Manage the Basin	Develop Comprehensive Conjunctive Management Plan	GL, GS, WQ, GDE	Contingent upon agreement with CMWD and funding availability	
	Develop Groundwater Allocation	GL, GS	If undesirable results are determined to be occurring or likely to occur	As needed.
	Develop Water Conservation Program	GL, GS	Implementation ongoing, improvements to be incorporated as needed	As needed.
	Encourage Voluntary Pumping Reductions	GL, GS	If undesirable results are determined to be occurring or likely to occur	As needed.
Management Action #3 Encourage Supporting Activities	Develop Salt and Nutrient Management Plan	WQ	If required by the RWQCB, or if undesirable results are determined to be occurring or likely to occur	As needed.
	Evaluate Feasibility of Recycled Water Production for Non-Potable Use	GL, GS	Based on future study and funding availability	No specific schedule.
	Explore Opportunities to Implement Focused Recharge	GL, GS, GDE	Contingent upon funding availability	No specific schedule.

Table 4-1
Summary of Project and Management Actions for Potential Implementation

Management Action	Project/Element	Sustainability Indicator(s) Benefited	Circumstances for Implementation	Schedule
	Explore State Water Project Delivery Options	GL, GS	Initial study ongoing by CMWD. Contingent upon agreement with CMWD and funding availability	No specific schedule.
Management Action #4 Communicate Effectively	Evaluate Settlement Management Plan from Physical Solution	GDE	When settlement Management Plan is finalized	As needed.
	Implement Public Outreach and Engagement Plan	GL, GS, WQ, GDE	To be implemented as a component of the GSP	Ongoing
	Complete Groundwater Sustainability Plan Annual Reports and 5-Year Updates	GL, GS, WQ, GDE		Yearly
Management Action #5 Administrate Effectively	Explore Grant Funding Opportunities	GL, GS, WQ, GDE	Current and ongoing implementation	Ongoing

Notes: GL = declines in groundwater levels, GS = reduction of groundwater in storage, WQ = degraded groundwater quality, GDE = depletions of interconnected surface water (groundwater dependent ecosystems), GSP = Groundwater Sustainability Plan, CMWD = Casitas Municipal Water District, SAP/QAPP = Sampling and Analysis Plan/ Quality Assurance Project Plan, DMS = Data Management System

4.2.1 Conduct Groundwater Level, Groundwater Quality, and Streamflow Monitoring

As described in Chapters 2 and 3, the OBGMA routinely monitors groundwater and surface water conditions in the OVGB. The OBGMA currently monitors groundwater levels in six wells using pressure transducers and data loggers, and conducts monthly manual stream discharge monitoring, and continuous stream stage monitoring, on lower San Antonio Creek. The Ventura County Watershed Protection District (VCWPD) monitors groundwater levels in 18 wells on at least a semi-annual basis and groundwater quality in 14 wells on an annual basis. The VCWPD also operates several stream gauges on San Antonio Creek and its tributaries. In addition, operators of drinking water systems monitor groundwater quality in nine municipal supply wells and report results to the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW). The OBGMA regularly reviews the groundwater and surface water data collected by VCWPD, and the groundwater quality data submitted to the SWRCB, and uses the information to inform management of the OVGB.

The OBGMA plans to continue to monitor groundwater levels and quality on at least a semi-annual basis in the seven wells identified in Chapter 3, Table 3-5, and stream discharge and stage on lower San Antonio Creek, as well as continue to map points of daylighting and infiltrating surface water over time. Groundwater level and quality data made available by the VCWPD and SWRCB will be analyzed and used to document groundwater trends moving forward. Annual reviews of the groundwater level and quality data will be used to assess whether sampling frequency or the spatial density of samples needs to be adjusted.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, degraded groundwater quality, and depletions of interconnected surface water would benefit from implementation of this project.

Expected Benefits and Evaluation

Groundwater level and groundwater quality measurements collected by the OBGMA and VCWPD, and groundwater quality data submitted to the SWRCB, will continue to be used to assess basin conditions, provide warning of potential undesirable results, and evaluate the effectiveness of management activities at preventing undesirable results and maintaining sustainability of the OVGB.

This program has been successful in tracking historical and current groundwater levels and has been continually improved throughout past years. For example, in 2021, OBGMA installed a depth-discrete monitoring well (South Central DDMW) in the southwestern part of the OVGB to evaluate aquifer connectivity and has been monitoring groundwater levels within it since. In addition, as discussed in Chapter 3, Section 3.5.7.2, the existing network currently has an appropriate monitoring frequency to continue to track short-term, seasonal, and long-term trends, and address the minimum standards of the monitoring network as specified by DWR's Monitoring Networks and Identification of Data Gaps BMP (DWR 2016a). Moving forward, the existing network will be periodically evaluated for its effectiveness, and additional wells added, if necessary. Once sufficient historical information is gathered for the South Central DDMW, it may be added as an RMP with specific minimum thresholds and measurable objectives.

Circumstances for Implementation

This project is currently being implemented and future opportunities to expand and/or improve the groundwater and surface water monitoring networks will continue to be evaluated moving forward.

Public Noticing

There is no public notice required to continue existing groundwater and surface water monitoring activities, aside from working with any private parties for access to a well in the network. If OBGMA decides to drill a new dedicated monitoring well, public noticing would occur consistent with California Environmental Quality Act (CEQA) requirements. However, the OBGMA will inform interested parties of any new monitoring well installations through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA will obtain any required permits easements and access agreements necessary for installing additional monitoring wells in the OVGB, if it is determined that new dedicated monitoring wells should be added to the network.

Implementation Schedule

The implementation schedule for this management action will continue as it currently is being conducted, as described in Chapter 3, Section 3.5. Should the need for additional groundwater level or groundwater quality monitoring wells be identified in the future, a schedule for such an action would be developed at that time, reported to DWR, and included as part of the 5-year GSP evaluation process (CWC § 10733.8).

Legal Authority

The OBGMA and has the authority to install monitoring wells in the OVGB.

Estimated Costs

Ongoing annual costs associated with general OBGMA operations and monitoring is approximately $118,000, of which approximately $62,000 is dedicated to groundwater level, groundwater quality, and streamflow monitoring (see Chapter 5, Table 5-2). The preliminary estimate to install a single nested monitoring well in the OVGB, should the need for one be identified in the future, is approximately $300,000 based on the total planning, permitting and installation cost for South Central DDMW. This cost could change depending on multiple factors including well construction, parcel availability, and subsurface conditions encountered.

4.2.2 Conduct Groundwater Extraction Monitoring

The OBGMA is mandated by its enabling legislation to monitor groundwater extractions from all active water supply wells in the OVGB. Since 1993 and the adoption of Ordinance No. 1, the OBGMA has required all wells, including *de minimis* pumpers, in the OVGB to be registered and for extractions to be self-reported. A wellhead fixed fee in addition to an extraction charge based upon the amount of water extracted from the OVGB are assessed to each well operator. All well operators are required to install water measuring devices on extraction facilities. In the event a water measuring device is inoperable extraction volumes may be estimated. Each well operator is required to complete a Groundwater Extraction Statement and file it along with payment and any supporting documents used to calculate extractions to the OBGMA on a quarterly basis. If a well operator is delinquent in payment the well operator is subject to penalties.

The OBGMA will continue monitoring groundwater extraction from all wells in the OVGB. OBGMA continually updates its extraction forms to the highest and best means for collecting reliable and defensible data from pumpers. Fees paid to the OBGMA will be used to help pay for active management of the OVGB including implementation of this GSP.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage would benefit from implementation of this project.

Expected Benefits and Evaluation

Groundwater extraction monitoring by the OBGMA will continue to provide an essential input to the OBGMA to track the overall basin water budget, assist the OBGMA in identifying potential wasteful uses of water, financially incentivize groundwater users to be as efficient as possible in their uses of groundwater (due to the extraction charges), and help to continue to fund sustainable management of the OVGB. The extraction monitoring network is essential in monitoring implementation actions for the groundwater in storage measurable objective that will be developed as part of a comprehensive conjunctive management plan as described in Section 4.3.1.

This program has been successful in tracking extractions and has been continually improved throughout past years. For example, in 2015, OBGMA started quarterly rather than semi-annual reporting, and has started field-verifying certain self-reported extraction volumes by requesting photographs or videos of meters, and/or sending interns to verify extraction wells that have reported unusual extraction volumes (either much higher or lower than "normal"). Continued implementation of this program under the GSP will continue to improve the coverage and accuracy of the groundwater extraction monitoring program.

Circumstances for Implementation

The implementation schedule for this management action will continue as it currently is being conducted, as described in Chapter 3, Section 3.5. Any new well users would need to self-report extraction volumes to the OBGMA, just as current users of groundwater do. Should the need for additional action associated with groundwater extraction monitoring be identified in the future, a schedule for such an action would be developed at that time, reported to DWR, and included as part of the 5-year GSP evaluation process (CWC § 10733.8).

Public Noticing

There is no public notice required to continue existing groundwater extraction monitoring activities, aside from working with any private parties for access to a well in the network. The OBGMA will inform interested parties of any new or updated extraction reporting requirements through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the legal authority and responsibility to manage groundwater within its boundaries, including the collection of information concerning groundwater extraction, use, and distribution.

Implementation Schedule

This project is currently being implemented.

Legal Authority

The OBGMA—as the GSA under SGMA—has the legal authority to conduct groundwater extraction monitoring. The OBGMA is mandated by its enabling act to monitor groundwater extractions from all active wells within the OVGB. The County of Ventura Resource Management Agency issues groundwater well permits in the OVGB. In December 2014, the Ventura County

Ordinance No. 4468 was adopted which regulates the construction, maintenance, operation, modification, and destruction of groundwater wells. It incorporates the Statewide standards by reference (DWR Bulletin 74-81 and 74-90, i.e., California Well Standards) along with local requirements (DWR 1981, 1991). These legal standards and authority are described in greater detail in Chapter 2 (Section 2.1.2.1 and 2.1.2.4).

Estimated Costs

Ongoing annual costs associated with general OBGMA operations is approximately $241,000, of which a small amount is dedicated to operations costs associated with assessment and processing of wellhead fixed fees and extraction charges (Chapter 5, Tables 5-1 and 5-2). Although there are some operations costs associated with extraction monitoring the costs are small compared to the revenue generated. As described in Section 4.6.1, the OBGMA is funded solely by wellhead fixed fees and extraction charges, and receipt of grant monies.

4.2.3 Prepare Sampling and Analysis Plan and Quality Assurance Project Plan

The OBGMA may prepare a sampling and analysis plan (SAP) and quality assurance project plan (QAPP) for data collection and monitoring of applicable sustainability indicators. The SAP will provide a plan that includes sampling objectives, potential contaminants of concern (COCs), monitoring frequency, methods for groundwater elevation and quality monitoring, and sample handling. The QAPP will define roles and responsibilities; quality objectives and criteria; special training, documentation and records; field and laboratory analytical methods; field and laboratory quality control, assessments and response actions; data processing, review, verification and validation; data evaluation roles and responsibilities; and data reporting. Technical standards, data collection methods, and quality assurance will be described in detail in the SAP/QAPP to ensure comparable data and methodologies.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, degraded water quality, and depletions of interconnected surface water would benefit from implementation of this project because the SAP/QAPP would improve the accuracy and reliability of data collected.

Expected Benefits and Evaluation

Implementation of the SAP/QAPP would ensure the field protocols and data collection efforts remain consistent across the OVGB in terms of accuracy, precision, frequency, and reliability. This would maximize the potential to identify temporal or geographic trends in groundwater levels and/or groundwater quality that are real, rather than the result of inconsistent data collection and/or analysis methods. It would also make protocols and expectations clear to all users in the OVGB with a registered well and would increase the reliability and defensibility of the data reported. Implementation of this program under the GSP will continue to improve the accuracy, defensibility and consistency of the data collected in support of sustainable basin management.

Circumstances for Implementation

This project is anticipated to be implemented within the first five years of GSP implementation, but by 2022 at the earliest.

Public Noticing

The OBGMA will inform interested parties of progress on and/or availability of the SAP/QAPP through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the legal authority to document sampling and analysis protocols.

Implementation Schedule

It is anticipated that the GSA would formalize its existing and improved practices into a SAP/QAPP by 2022 at the earliest. The SAP/QAPP would be periodically revisited, and updated if required, concurrently with the GSP's 5-Year Updates.

Legal Authority

The OBGMA has the legal authority to document sampling and analysis protocols.

Estimated Costs

The estimated cost to prepare a SAP/QAPP is approximately $13,000 (Chapter 5, Table 5-4).

4.2.4 Prepare Groundwater Dependent Ecosystems Assessment

There is not sufficient information at this time to establish a minimum threshold or measurable objective for depletions of interconnected surface water or groundwater dependent ecosystems (GDEs). To fill existing data gaps and support development of minimum thresholds and measurable objectives the OBGMA will prepare a riparian and aquatic groundwater dependent ecosystems assessment for the OVGB. The assessment would include a work plan for completion of biological surveys, additional stream and aquifer monitoring, and removal and identification of potential funding of non-native phreatophytes. The assessment would expand upon the work completed in this GSP to identify potential GDEs, particularly those identified as "priority potential GDEs" and "potential GDEs" identified in Chapter 2 (Section 2.3.4.7) and Appendix E, by doing the following:

- **Identification of additional sites for multi-completion monitoring wells and stream gauges.** Additional monitoring of groundwater levels in the shallow perched aquifer, and streamflow and stage in San Antonio Creek has been identified as needed to validate the importance of the underlying groundwater table for sustaining the streamflow and habitat. Groundwater level monitoring in multi-completion wells or wells screened in discrete aquifer units adjacent to surface water monitoring sites using pressure transducers and data loggers would allow for assessment of stream-aquifer connectivity and establishment of minimum thresholds and measurable objectives for depletions of interconnected surface water and GDEs.
- **Identification of critical riffles and habitat areas.** The assessment would include vegetation mapping and stream reach mapping sufficient in detail to identify conditions that support special status species and whether such conditions have a nexus to the shallow groundwater table. Additional research on maximum rooting depths for identified plant species would further support evaluations of the groundwater dependence of associated habitat. OBGMA would coordinate with SWRCB and others appropriate agencies concerning ongoing study along San Antonio Creek.
- **Inclusion of an Invasive Species Identification and Eradication Plan.** One very significant means of output from the OVGB (and especially along the riparian corridor) is the evapotranspiration of shallow groundwater via native and non-native species. The non-native species tend to proliferate quickly and use much more water than natives. Removal of such species would be contemplated in the GDEs Assessment as a means of maximizing the volume of shallow/percolating water available for special status species.

The GDEs Assessment would also incorporate updated data from the recently-installed South Central DDMW well to evaluate connectivity between the principle aquifer and the shallow perched aquifer in hydraulic connection with surface flows in San Antonio Creek. The GDEs Assessment would include a series of recommendations and work plans (including scope, costs and schedule) for consideration by the OBGMA in the implementation of the GSP. The assessment may also propose initial minimum thresholds and measurable objectives, based on the updated work, for the depletions of interconnected surface waters sustainability criterion, if appropriate.

Measurable Objective Expected to Benefit

The measurable objectives for depletions of interconnected surface water and groundwater dependent ecosystems would benefit from implementation of this project.

Expected Benefits and Evaluation

The groundwater dependent ecosystem assessment will benefit the sustainability criteria for depletions of interconnected surface water by addressing the identified data gaps discussed in Section 2.3.4 and Section 3.5.3.6. In particular, the assessment will provide the necessary information to develop a work plan that may identify additional streamflow monitoring site and sites for multi-completion monitoring wells specifically designed to track interconnected streamflow and groundwater systems.

Circumstances for Implementation

Implementation of this PMA is necessary to establish minimum thresholds and measurable objectives for the depletions of interconnected surface water indicator, and thus should be implemented before the first GSP 5-Year Update.

Public Noticing

Based on the high-level description of this PMA, there is likely no public notice required to complete this work. However, the OBGMA will inform interested parties of schedule, progress, and/or results of the GDEs assessment through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to conduct further studies in support of the GSP. Potential partners could include the City, County, SWRCB, Ojai Valley Land Conservancy (OVLC), the Green Coalition, Upper Ventura River Groundwater Agency (UVRGA), and several other entities.

Implementation Schedule

The GDEs Assessment should be completed prior to the GSP's first 5-Year Update.

Legal Authority

The OBGMA has the authority to conduct further studies in support of the GSP.

Estimated Costs

It is estimated that this PMA would cost $50,000 (see Chapter 5, Table 5-2) in addition to costs already incurred for conducting groundwater level, groundwater quality, and streamflow monitoring.

4.2.5 Develop Data Management System

The OBGMA has maintained a database of historical groundwater and surface water data for the OVGB since the agency's formation in the early 1990s. Information contained in the database has been used to prepare annual reports and groundwater management plans.

The OBGMA plans to develop a data management system (DMS) that will be composed of historical data and allow for collection and input of future data with the ability to disseminate information in various formats. Data collected and input into the DMS will have consistent units and formatting as outlined in DWR's Groundwater Monitoring Protocols, Standards, and Sites BMP (DWR 2016b). The data will be stored in a Geographic Information System (GIS) relational geodatabase format or similar database type. The DMS will be viewable in real time via Internet and may be setup to be viewed geographically on a map viewer. The DMS will be able to output data in GIS and/or Microsoft Excel formats. The DMS will be password protected and accessible only by individuals with permissions. The OBGMA Board would develop policy regarding data accessibility and procedures for data requests.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, degraded water quality, and depletions of interconnected surface water and groundwater dependent ecosystems would benefit from implementation of this project.

Expected Benefits and Evaluation

The DMS would benefit sustainable management of the OVGB by making groundwater monitoring data available to all relevant parties in real time in several formats, thereby improving decision making within the basin moving forward. For example, having a widely accessible DMS would facilitate coordination of land use planning and permitting and current groundwater conditions. The OBGMA would have ready access to existing conditions when evaluating policy and making informed management decisions.

Circumstances for Implementation

The OBGMA will develop a DMS where data can be viewed in real time and information disseminated in various formats as funding permits. The DMS will be improved throughout the GSP implementation process.

Public Noticing

The OBGMA will inform interested parties of schedule, progress, and/or availability of the DMS through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to develop a DMS to support the GSP. The OBGMA will coordinate data collection and input with other entities who monitor climatic and hydrologic conditions in the OVGB including the VCWPD and SWRCB.

Implementation Schedule

This project is anticipated to be implemented prior to the first 5-year GSP update.

Legal Authority

The OBGMA has the authority to develop a DMS to support the GSP.

Estimated Costs

The estimated cost to develop a DMS as described above is approximately $34,000 (see Chapter 5, Table 5-4). The estimated cost includes creation of the DMS architecture and input of historical data. The estimated annual operations cost to update and maintain the DMS is approximately $11,000 (see Chapter 5, Table 5-2).

4.2.6 Simulate Extreme Climate Scenarios

Two climate change scenarios were simulated to assess the effect of climate change on groundwater resources in the OVGB. These climate scenarios utilized DWR's 2030 and 2070 central tendency change factors, which represent the average monthly adjustments simulated using a suite of 20 different global climate models (DWR 2018). In addition to these two scenarios, DWR has provided monthly adjustments factors representing wetter milder warming (WMW) and drier extreme warming (DEW) conditions. The change factors for the WMW and DEW conditions were developed by DWR using results from a single global climate model that utilized RCP 4.5 intermediate emissions scenario and RCP 8.5 high-emissions scenario, respectively. DWR's climate change guidance identifies these scenarios as conditions that can be used to, "further explore the range of uncertainty in future climate conditions and the impacts of such uncertainty on future water budgets and potential management strategies" (DWR 2018).

As part of the 5-year update to the GSP, the OBGMA will assess projected groundwater conditions under the WMW and DEW climate scenarios. The OBGMA will perform this assessment by updating the projected simulations developed using the Ojai Basin Groundwater Model (OBGM) with the climate change factors developed by DWR representing the WMW and DEW conditions. As part of this update, the OBGMA will reevaluate projected water budgets and groundwater elevations to further characterize uncertainty in groundwater conditions. Measured groundwater elevation, groundwater extraction data, and climatological data will be incorporated into these model updates to assess current and projected basin demands and management strategies.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage would benefit from implementation of this project.

Expected Benefits and Evaluation

OBGMA's incorporation of the WMW and DEW climate scenarios into the OBGM will inform whether adjustments need to be made to minimum thresholds and measurable objectives, and whether additional operational flexibility needs to be incorporated into basin management to account for additional uncertainties associated with extreme climate scenarios.

Circumstances for Implementation

This project is proposed to be implemented as a component of the first 5-year GSP update.

Public Noticing

The OBGMA will inform interested parties of schedule, progress, and/or results of the updated climate simulations through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to conduct additional analyses in support of the GSP.

Implementation Schedule

This project is proposed to be implemented as a component of the first 5-year GSP update.

Legal Authority

The OBGMA has the authority to conduct additional analyses in support of the GSP.

Estimated Costs

The estimated cost to incorporate the WMW and DEW climate scenarios into the OBGM and run simulations is approximately $24,000 (see Chapter 5, Table 5-4).

4.3 MANAGEMENT ACTION NO. 2 – PROTECT AND MANAGE THE BASIN

To ensure that the OVGB continues to operate within its sustainable yield and does not exhibit undesirable results within the planning and implementation horizon of this GSP, the OBGMA may take direct management actions to reduce groundwater extraction and conserve groundwater supplies.

4.3.1 Develop Comprehensive Conjunctive Management Plan

The conjunctive management of groundwater and surface water resources reduces undesirable fluctuations in supply and protects the beneficial uses of water resources. The Casitas Municipal Water District (CMWD) is the wholesale and retail water supplier in the Ventura River watershed and serves as the backup water supply for many customers in the OVGB when groundwater supplies become depleted. Surface water from Lake Casitas supplied by CMWD and groundwater extracted from the OVGB are currently conjunctively managed to the extent that there is increased use of surface water in lieu of groundwater when groundwater in storage is low, and increased use of groundwater and decreased use of surface water supplies when groundwater in storage is sufficient. In August 2017 the OBGMA approved adoption of Resolution No. 2017-4 to work cooperatively on the development of an agreement for the integrated use of surface water and groundwater. Following adoption of Resolution No. 2017-4, the OBGMA developed preliminary groundwater conservation actions based on groundwater levels at key well 04N22W05L08S, target volumes of groundwater in storage, and CMWD's Water Efficiency Allocation Program (WEAP); however, the conjunctive use program has not been finalized and implementation of the conservation actions are currently on a voluntary basis (OBGMA 2018).

The OBGMA will pursue with CMWD the development of an approved comprehensive conjunctive management plan for the integrated use of surface water and groundwater through the passage of a resolution. The conjunctive management plan will promote efficient water use, water conservation, and beneficial uses of surface water and groundwater for the combined health of Lake Casitas and the OVGB. To accomplish this goal, the conjunctive management plan will include formal conservation actions the OBGMA and CMWD could take during drought conditions when groundwater in storage and/or surface water supplies are low. The specific conservation actions to be taken for various stages of water shortages will be developed as part of this PMA. The OBGMA will pass the ordinances required to formalize and put the conservation actions into effect.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, degraded water quality, and depletions of interconnected surface water would benefit from implementation of this project.

Expected Benefits and Evaluation

The Comprehensive Conjunctive Management Plan would be a benefit to both groundwater and surface water supplies by reducing reliance on the most stressed resource at any given time. By establishing triggers for conservation actions, it helps minimize the impacts of drought conditions on the water resources available to the OVGB. The GSP complements and enhances existing projects and programs currently in place to maximize beneficial use of water resources and increase operational flexibility within the OVGB.

Circumstances for Implementation

The implementation of this PMA is ongoing and based on future study and funding availability.

Public Noticing

The OBGMA will inform interested parties of schedule, progress, and/or availability of the Comprehensive Conjunctive Management Plan through implementation of the Public Outreach and Engagement Plan (included as Appendix C). CMWD may also present information regarding development of the Comprehensive Conjunctive Management Plan at its publicly noticed Board meetings.

Permitting and Regulatory Process

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation. The OBGMA will need to work cooperatively with CMWD in order to develop and adopt the Comprehensive Conjunctive Management Plan. Section 708 of the OBGMA's enabling legislation mandates that no groundwater shall be exported from the OVGB except under permit issued by the OBGMA in full compliance with the policy and intent of the law (SB 534). The law mandates the preservation of the groundwater for the common benefit of water users within the OVGB.

Implementation Schedule

This project is proposed to be implemented as a component of the first 5-year GSP update but requires coordination with CMWD in order to develop a firm schedule.

Legal Authority

The OBGMA has the authority to conduct additional analyses in support of the GSP.

Estimated Costs

The estimated cost to develop a Comprehensive Conjunctive Management Plan as described above is approximately $31,000 (see Chapter 5, Table 5-4).

4.3.2 Develop Groundwater Allocation

The existing conjunctive management approach implemented by OBGMA includes a soft allocation based on the estimated volume of groundwater in storage at the springtime high. The OBGMA notifies pumpers of the state of basin conditions and recommends target extraction volumes.

In the event that groundwater extraction rates regularly exceed the estimated sustainable yield of the OVGB, the OBGMA may develop a groundwater allocation for the OVGB. The groundwater allocation may incorporate historical groundwater extraction by existing users and will be developed with stakeholder input. The groundwater allocation may include fees and other penalties for violations of pumping allowance or reporting.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage would benefit from implementation of this project.

Expected Benefits and Evaluation

Fees collected for groundwater produced in excess of the allocated amounts could be used to develop and implement groundwater replenishment projects. Groundwater in storage will be measured using groundwater elevations as a proxy. If groundwater elevations stabilize or rise at the groundwater level RMPs, the project will have succeeded in increasing the volume of groundwater in storage, preventing chronic declines in groundwater elevation.

Circumstances for Implementation

This project may be implemented if groundwater level and storage minimum thresholds are exceeded, and undesirable results are determined to be occurring or likely to occur.

Public Noticing

The OBGMA will inform interested parties of schedule, progress, and/or final results of the Groundwater Allocation through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The SGMA legislation allows for charging fees for pumping in excess of allocations or non-compliance with other GSA regulations (CWC Section 10732 (a)).

Implementation Schedule

If a groundwater allocation is deemed necessary based on exceedance of minimum thresholds, it would occur in a similar manner as the soft allocation, except would be mandatory rather than voluntary.

Legal Authority

The SGMA legislation allows for charging fees for pumping in excess of allocations or non-compliance with other GSA regulations (CWC Section 10732 (a)).

Estimated Costs

The estimated cost to develop a Groundwater Allocation Plan as described above is approximately $28,000 (see Chapter 5, Table 5-4).

4.3.3 Develop Water Conservation Program

The OBGMA encourages water conservation practices by urban and agricultural users. Water conservation practices that have been implemented in the OVGB are largely a result of enforcement of water conservation policies included in the Ojai Valley Area Plan, rebate offers for conversions offered by CMWD, market forces, and good management practices. The agricultural sector has made significant investment in water efficient technologies such as micro sprinklers and drip irrigation. CMWD has also implemented the WEAP, which includes mandated water conservation targets based on the level of water storage in Lake Casitas. Each CMWD customer is assigned an individual allocation based on reasonable demand for their water use and customers who use water in excess of their allocated amount are issued a penalty (CMWD 2021).

The water conservation program developed by OBGMA would consist of separate components for each water use sector. Programs for each sector would follow a similar approach consisting of reviewing historical programs and projects, identifying areas and methods for greatest potential water savings, outreach and coordination with potential participants, developing project cost estimates, competitively evaluating project alternatives, implementing projects, and acquiring follow-up metrics.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage would benefit from implementation of this project because the project reduces demand for groundwater.

Expected Benefits and Evaluation

The primary expected benefit from this project is a reduction in the demand for groundwater in the OVGB. The success of this project will be evaluated based on the aggregate volume of per capita water use and total groundwater extraction in the OVGB.

Circumstances for Implementation

This project is currently being implemented and future opportunities to increase water conservation will continue to be evaluated moving forward.

Public Noticing

Public noticing will be an integral part of the conservation program implementation. To be most effective, the availability of optional water conservation program services such as water audits and rebate programs will be widely advertised through billing inserts, websites, or mailings to well operators and other members of the public. In addition, water conservation outreach will be discussed at public meetings conducted by the OBGMA.

Permitting and Regulatory Process

The OBGMA has the authority to develop a water conservation program in support of GSP implementation.

Implementation Schedule

It is anticipated that the Water Conservation Program would be developed and formalized prior to the first 5-Year GSP update but the actual implementation schedule would likely be dependent on funding and coordination with other agencies such as CMWD.

Legal Authority

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation.

Estimated Costs

The estimated cost to develop a Water Conservation Plan as described above is approximately $29,000(see Chapter 5, Table 5-4).

4.3.4 Encourage Voluntary Pumping Reductions

The OBGMA regularly monitors groundwater levels in wells in the OVGB and uses the information to estimate groundwater in storage. As the volume of groundwater in storage decreases, the OBGMA encourages water users to reduce pumping to conserve groundwater supplies. The OBGMA will continue to employ this management approach, which may be implemented in lieu or as a component of the comprehensive conjunctive management plan described above. Groundwater users will be requested (or mandated by ordinance if implemented as a component of the groundwater allocation or conjunctive management plan PMAs) to minimize the volume of pumping to the maximum extent feasible when groundwater in storage supplies are low.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage would benefit from implementation of this project because the project reduces demand for groundwater.

Expected Benefits and Evaluation

The primary expected benefit from this project is a reduction in the demand for groundwater in the OVGB. The success of this project will be evaluated based on the total groundwater extraction in the OVGB.

Circumstances for Implementation

This project may be implemented if groundwater level and storage minimum thresholds are exceeded, and undesirable results are determined to be occurring or likely to occur.

Public Noticing

The OBGMA will inform interested parties of measures and means of voluntary pumping reductions through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation.

Implementation Schedule

It is anticipated that the voluntary pumping reductions would be encouraged when the amount of groundwater in storage begins approaching the minimum threshold.

Legal Authority

The OBGMA has the authority to implement voluntary pumping reductions in support of GSP implementation (CWC §10725 - 10726.9).

Estimated Costs

The estimated cost to encourage voluntary pumping reductions as described above is approximately $20,000 (see Chapter 5, Table 5-4).

4.4 MANAGEMENT ACTION NO. 3 – ENCOURAGE SUPPORTING ACTIVITIES

The OBGMA has a long history of working cooperatively with other agencies, stakeholders, and water users to protect and maintain the groundwater supply for the common benefit of the water users of the OVGB. The OBGMA will continue to support and work collectively on projects with other entities to ensure the sustainability goals of this GSP are achieved.

4.4.1 Develop Salt and Nutrient Management Plan

The OVGB does not currently have a salt and nutrient management plan (SNMP) to address the use of recycled water in the OVGB, and its potential impacts on groundwater quality. Recycled water may play an integral role in maintaining the sustainability of groundwater conditions in the OVGB in the future, as it could be used to replenish groundwater pumped in production areas or for other municipal and industrial uses. A SNMP has not been required primarily because of limited use of recycled water in the OVGB. The SNMP for the OVGB may be prepared at the direction of the Regional Water Quality Control Board (RWQCB) by the OBGMA in collaboration with stakeholders and other interested parties, including the Ojai Valley Sanitary District (OVSD). The SNMP process was designated by the California State Water Resources Control Board (SWRCB) as the appropriate way to address salt and nutrient issues and ensure attainment of water quality objectives and protection of beneficial uses.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage have the potential to benefit from implementation of this project.

Expected Benefits and Evaluation

Use of recycled water in the OVGB has the potential to reduce demand on groundwater production and replenish groundwater aquifers. An adopted SNMP for the OVGB would allow for appropriate use of recycled water that maintains beneficial uses of groundwater. This project will be effective if a SNMP for the OVGB is developed by the OBGMA and stakeholders, and accepted by the RWQCB.

Circumstances for Implementation

Development of a SNMP will occur if required by the RWQCB, or if undesirable results are determined to be occurring or likely to occur.

Public Noticing

Developing a SNMP requires substantial public input. This would be undertaken by the OBGMA and stakeholders participating in the development of the SNMP. Scoping meetings for a basin plan amendment would be noticed and held by the RWQCB. The OBGMA will inform interested parties of schedule, progress, and/or availability of the SNMP through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

CEQA needs to be followed if the Basin Plan is amended as a result of the SNMP. The public agencies that participate in the process can be the lead agencies for CEQA and the RWQCB can act as the responsible agency when adopting a basin plan amendment. Alternatively, the RWQCB can act as the lead agency and request that stakeholders prepare the necessary documentation.

Implementation Schedule

There is no implementation schedule for this project.

Legal Authority

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation (CWC §10725 - 10726.9).

Estimated Costs

The estimated cost to develop a Salt and Nutrient Management Plan as described above is approximately $80,000 (see Chapter 5, Table 5-4).

4.4.2 Evaluate Feasibility of Recycled Water Production for Non-Potable Reuse

The Ojai Valley Sanitary District provides sewer service to approximately 20,000 residents in the City of Ojai, unincorporated Ojai Valley, and north Ventura Avenue area. The OVSD's wastewater treatment plant is located along the Ventura River in the north Ventura Avenue area downstream of the OVGB. The treatment plant has a rated capacity of 3.0 million gallons per day average dry weather flow. For the period from 1983 to 2020 the annual average daily flow ranged from 1.44 to 3.02 million gallons per day. Highly treated effluent from the treatment plant is discharged in accordance with the NPDES Permit requirements to the Ventura River (at approximately river mile 5), with a limited quantity of treated effluent reclaimed for irrigation use at the treatment plant.

The OBGMA will work with the OVSD on a feasibility study for the use of treated effluent from the wastewater treatment plant for non-potable reuse in the OVGB.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage have the potential to benefit from implementation of this project, because non-potable water reuse would be in lieu of groundwater in most cases.

Expected Benefits and Evaluation

Use of recycled water in the OVGB has the potential to reduce demand on groundwater production and replenish groundwater aquifers.

Circumstances for Implementation

This PMA is conceptual and would require collaboration with OVSD to evaluate feasibility. No specific trigger has been developed for implementation and likely would be opportunistic based on factors such as the need to upgrade existing wastewater infrastructure.

Public Noticing

The OBGMA will inform interested parties of schedule, progress, and/or results of the feasibility study through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation.

Implementation Schedule

There is no specific schedule for implementation of this PMA.

Legal Authority

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation (CWC §10725 - 10726.9). In addition, SB 534 Article 5, Section 503 provides for the OBGMA to recommend and encourage wastewater reuse.

Estimated Costs

The estimated cost to evaluate the feasibility of recycled water production for non-potable use as described above is approximately $26,000 (see Chapter 5, Table 5-4).

4.4.3 Explore Opportunity to Implement Focused Recharge

Managed recharge of the OVGB occurred until 1985 through diversion of San Antonio Creek surface flows to a series of percolations basins at the San Antonio Creek Spreading Grounds. The San Antonio Creek Spreading Grounds Rehabilitation Project (SACSGRP) was undertaken to restore the function of the percolation basins, but the spreading grounds have not been used since the project was completed due to operational issues with the diversion structure.

The OBGMA supports the use of the spreading grounds to recharge the OVGB. The OBGMA will partner with the VCWPD to develop a workplan to bring the spreading grounds back into operation.

The OBGMA also supports stormwater capture for shallow aquifer recharge in portions of the OVGB overlain by the City of Ojai. Enhanced recharge of the shallow aquifer would likely benefit GDEs and downstream water users. The OBGMA will partner with the City of Ojai and conduct a feasibility study to identify opportunities to capture and direct roof and hardscape runoff to open spaces for shallow aquifer recharge.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, and depletions of interconnected surface water would benefit from implementation of this project if aquifer recharge results in an increase in groundwater elevations and groundwater in storage.

Expected Benefits and Evaluation

Increased aquifer recharge would offset groundwater production and increase the sustainable yield of the OVGB. If the project is implemented, the success of the project will be evaluated based on the volume of water that recharges the groundwater aquifers.

Circumstances for Implementation

This project is proposed to be implemented as a component of the first 5-year GSP update. The implementation of this PMA is ongoing and based on future study and funding availability.

Public Noticing

The OBGMA will inform interested parties of progress and results of implementing focused recharge through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation.

Implementation Schedule

This project is proposed to be developed as a component of the first 5-year GSP update. There is no specific schedule for implementation of this PMA.

Legal Authority

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation (CWC §10725 - 10726.9).

Estimated Costs

The estimated cost to explore focused recharge opportunities as described above is approximately $32,000 (see Chapter 5, Table 5-4).

4.4.4 Explore State Water Project Water Delivery Options

CMWD does not plan to obtain additional water through surface water transfers and exchanges, from desalinated water, or from recycled water. CMWD does, however, have an entitlement to 5,000 AFY of State Water Project (SWP) water that it is currently not able to receive because CMWD does not have a physical connection to the SWP. In 1963, the Ventura County Flood

Control District (VCFCD), now the Ventura County Watershed Protection District), contracted with the State of California for 20,000 AFY of water from the SWP. In 1971, the VCFCD assigned the administration of the Water Supply Contract to Casitas. Casitas' contractual share is 5,000 AFY, the City of Ventura has 10,000 AFY, and United Water Conservation District (UWCD) has 5,000 AFY. UWCD can access SWP through Lake Piru (via Pyramid Lake and Piru Creek), although local infrastructure is not in place to deliver the contractual share to Casitas and the City of Ventura.

In August 2020, DWR issued its most recent update, the 2019 DWR State Water Project Delivery Capability Report (DCR). The 2019 DCR includes DWR's estimates of SWP water supply availability under both existing (2020) and future (2040) conditions. According to the DCP, the long-term average delivery under existing conditions is 58 percent of Table A, and long-term average delivery under future conditions is 52 percent of Table A (2019 CDR, Appendix A Table A-1 and Appendix B Table B-3). For Casitas, this would result in a long-term average yield of 2,900 AFY under existing conditions and 2,600 AFY under future conditions.

CMWD has been involved in several studies to bring SWP water to the service area. Ultimately, either construction of a pipeline or interagency coordination and water transfers and exchanges, would be required for CMWD to access its SWP entitlement (CMWD 2021; Milner 2016). Currently, CMWD is exploring two SWP water alternatives: 1) connection with Carpinteria Valley Water District for 2,000 AFY on average and 2) connection between Calleguas Municipal Water District and the City of Ventura which could offset the City of Ventura's demands from Lake Casitas by as much as 5,000 AFY. These alternatives are conceptual and further study and implementation will likely be based on eligibility and availability of funding.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels and reduction of groundwater in storage have the potential to benefit from implementation of this project, because any use of SWP water in the OVGB would be in lieu of groundwater in most cases.

Expected Benefits and Evaluation

If a water supply pipeline or agency exchange is implemented to allow CMWD to obtain it's full SWP Table A allocation, it is estimated that it could provide a long-term average yield of 2,900 AFY, taking the DCR into account. Depending on how much of this amount is delivered to the OVGB, it could significantly enhance operational flexibility within the basin, and allow for further conjunctive management of the basin.

Circumstances for Implementation

The implementation of this PMA is ongoing and based on future study and funding availability.

Public Noticing

The OBGMA will inform interested parties of State Water Project delivery options through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation.

Implementation Schedule

There is no schedule for this PMA.

Legal Authority

The OBGMA has the authority to conduct additional analyses and develop plans in support of GSP implementation (CWC §10725 - 10726.9). The OBGMA would need to coordinate with CMWD to explore SWP options.

Estimated Costs

The estimated cost to explore State Water Project delivery options as described above is approximately $20,000 (see Chapter 5, Table 5-4).

4.5 MANAGEMENT ACTION NO. 4 – COMMUNICATE EFFECTIVELY

Effective communication between the OBGMA, stakeholders, and water users is a required component of SGMA and key to successful groundwater sustainability planning and implementation of projects and management actions.

4.5.1 Evaluate Settlement Management Plan from Physical Solution

On September 15, 2020, the City of Ventura, Ventura River Water District, Meiners Oaks Water District, Wood-Claeyssens Foundation, and the Rancho Matilija Mutual Water Company released a Proposed Physical Solution[1] as part of a settlement agreement between the City of Ventura and

[1] A physical solution is a court-supervised management plan that protects water resources within the watershed (in this case for the ecological beneficial uses within the Ventura River watershed), while preserving water right priorities, to the extent that those priorities do not lead to unreasonable use.

Santa Barbara Channelkeeper over a water rights litigation in the Ventura River watershed. The Proposed Physical Solution resolves that it is not necessary at this time for the court to determine the relative priority rights to water or to establish a comprehensive adjudication of water rights in the Ventura River watershed. The Proposed Physical Solution recognizes and requires integration with GSPs under development for the OVGB and Upper Ventura River Groundwater Basin. The parties and the management committee, an arm of the court, will coordinate with the GSAs in finalizing and preparing the Management Plan, which is a plan to move the conditions of the Southern California steelhead (*Oncorhynchus mykiss*) fish population (Fishery) in the watershed from baseline condition to good condition. The Proposed Physical Solution is expressly designed to address one of the six "undesirable results" that the GSP must avoid—the significant and undesirable depletions of interconnected surface water. The Proposed Physical Solution proposes to use the health of the Fishery as a proxy for the overall health of the instream uses in the Ventura River Watershed. The court finds that the Proposed Physical Solution addresses this undesirable result, and if they so choose, the GSAs may adopt the Proposed Physical Solution to meet the requirements of that portion of the GSP. In addition, the Proposed Physical Solution and the final adopted Management Plan will include a water management component that could inform other requirements of the GSPs.

The Proposed Physical Solution consists of three phases: 1) Adoption Phase, 2) Implementation Phase, and 3) Adaptive Management Phase. The Adoption Phase allows the parties time to establish the governance structure and adopt the Management Plan. The Implementation Phase is a 10-year period after adoption of the Management Plan in which the parties will implement the Management Plan, and the Adaptive Management Phase is a continuing series of 10-year periods in which the parties will adaptively manage the implementation of the Management Plan and plan updates. The purpose of this phasing is to allow for transition of existing baseline conditions in the Ventura River watershed to good conditions as measured by the health of the Fishery.

Management Plan actions to achieve good conditions for Fishery health include potential activities such as removing barriers that block the steelhead's access to critical habitat, creation of rearing habitat (pools) and river features such as boulder and large woody material to improve habitat conditions, reducing invasive species, and monitoring water quality and the steelhead population. The OBGMA's preparation of a Groundwater Dependent Ecosystem Assessment as part of Management Action 1 is expected to be compatible with Management Plan actions to achieve good conditions for Fishery health.

To date, no settlement agreement has been reached and the current terms of the Proposed Physical Solution have not been resolved. Additionally, no formal coordination by the parties and the management committee has occurred with the OBGMA. As this GSP is due to the DWR on January 31, 2022, it is unlikely that there will be sufficient time to review and incorporate appropriate findings and recommendations of the Management Plan into the GSP. When the

Management Plan is finalized the OBGMA will review the plan and evaluate its applicability to the GSP and management of the OVGB.

Measurable Objective Expected to Benefit

The measurable objectives for depletions of interconnected surface water and groundwater dependent ecosystems may benefit from implementation of this project (the benefits of the Proposed Physical Solution are still to be determined).

Expected Benefits and Evaluation

The benefits of the Proposed Physical Solution are still to be determined. The primary expected benefit from this project would be enhancement of the Southern California steelhead population in the Ventura River watershed, including in San Antonio Creek, through adoption of the Proposed Physical Solution and implementation of the Management Plan. It is anticipated that the Management Plan will include activities and monitoring on San Antonio Creek and in the OVGB including water quality monitoring and removal of invasive species (see Section 4.2.4). Data collected as part of implementation of the Management Plan may fill data gaps and improve understanding of the hydrogeology of the OVGB.

Circumstances for Implementation

The OBGMA will evaluate the settlement Management Plan when finalized.

Public Noticing

The OBGMA will communicate issues from the Physical Solution, if they relate to activities within the OVGB, through means outlined in the Public Outreach and Engagement Plan (included as Appendix C). This could include website postings, email distribution, public meeting agenda items, etc.

Permitting and Regulatory Process

There would be no permitting and regulatory process for the OBGMA associated with the Proposed Physical Solution, because the OBGMA's role would be limited to reviewing and incorporating appropriate findings and recommendations of the Management Plan into the GSP at the time of the 5-year update, as appropriate.

Implementation Schedule

The OBGMA will evaluate the settlement Management Plan when finalized. The OBGMA will provide comment and input during the Adoption Phase if contacted by the parties and the management committee.

Legal Authority

The OBGMA has the legal authority to review and incorporate findings and recommendations of the Management Plan into the GSP, as appropriate (CWC §10725 - 10726.9).

Estimated Costs

The estimated cost to evaluate the Management Plan from the Proposed Physical Solution as described above is approximately $24,000 (see Chapter 5, Table 5-4).

4.5.2 Implement Public Outreach and Engagement Plan

In 2020, the GSA prepared a Draft Public Outreach and Engagement Plan to provide individual stakeholders, stakeholder organizations, and other interested parties an opportunity to be involved in the development and evaluation of this GSP. To this end, the Public Outreach and Engagement Plan, included as Appendix C of this GSP, describes the steps the GSA has taken, and will continue to take, to achieve broad, enduring and productive public involvement during the development and implementation phases of this GSP.

The Public Outreach and Engagement Plan includes a list of identified stakeholders as of 2020 and describes the methods and avenues in which the GSA has continued to identify additional stakeholders, continued to solicit public involvement and feedback, and considered and/or incorporated stakeholder comments and concerns into the development and future implementation of this GSP. Examples of outreach and engagement that could occur during the GSP's implementation phase include soliciting input and/or communicating progress on the other PMAs discussed in this chapter, communicating the status of the Basin, and coordinating with other agencies in the watershed affected by GSP implementation.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, degraded water quality, and depletions of interconnected surface water have the potential to benefit from implementation of this project.

Expected Benefits and Evaluation

Stakeholder engagement is an important component of any successful long-term planning effort and is required by SGMA (Sections 10720–10730) and GSP Regulations (Section 353–354). Engaging members of the public on groundwater sustainability planning can improve public understanding of the technical, financial, and political considerations the GSA factors into their decision-making process. Participation by the public can also improve the GSA's understanding of the potential impacts of their decisions.

Circumstances for Implementation

The Public Outreach and Engagement Plan will be implemented as a component of the GSP.

Public Noticing

No public noticing is required to implement the Public Outreach and Engagement Plan (because it is already included as Appendix C of this GSP).

Permitting and Regulatory Process

The OBGMA is a public agency subject to the Brown Act, the state law that governs public meetings of agencies. All meetings shall be open and public except when the Brown Act authorizes otherwise.

Implementation Schedule

This PMA will be implemented on an ongoing basis throughout development, implementation, and updates of this GSP.

Legal Authority

The OBGMA has the authority to implement public outreach and engagement during development and after adoption this GSP (CWC §10720–10730).

Estimated Costs

The estimated cost to implement the Public Outreach and Engagement Plan as described above is approximately $35,000 (see Chapter 5, Table 5-4).

4.5.3 Complete Groundwater Sustainability Plan Annual Reports and 5-Year Updates

SGMA requires GSAs to submit annual reports to DWR by April 1st of each year following adoption of a GSP, and to submit GSP evaluations and periodic updates at least every five years. Annual reports and periodic evaluations shall, at a minimum, include the components described as required pursuant to CCR Section 356.2 and Section 356.4, respectively (see Chapter 5, Section 5.1).

The OBGMA will submit annual reports to DWR each year and evaluate its GSP at least every 5 years. In addition to being available from DWR, the OBGMA will make annual reports and periodic evaluations available to the public and stakeholders through the OBGMA's website, email announcements, newsletters/columns, and/or water bill inserts.

Measurable Objective Expected to Benefit

The measurable objectives for all sustainability indicators applicable to the OVGB, as discussed in Chapter 3, will benefit from completion of annual reports and 5-year updates.

Expected Benefits and Evaluation

Each Periodic Evaluation will include an assessment of changes (in basin status, undesirable results, etc.) that have occurred, or new information impacting water use, and how they may impact the plan implementation and achievement of the sustainability goal. These annual reports and 5-year updates ensure that the OVGB is adaptively managed according to conditions as they exist at the time of each update and allows incorporation of new data or revised basin understanding into basin management, as necessary to meet the overall sustainability goal.

Circumstances for Implementation

The OBGMA will submit GSP annual reports and 5-year periodic evaluations to DWR as required by SGMA.

Public Noticing

The OBGMA will inform interested parties of schedule, progress, and/or availability of the Annual Reports and 5-Year Updates through implementation of the Public Outreach and Engagement Plan (included as Appendix C).

Permitting and Regulatory Process

The OBGMA is required by SGMA to submit GSP annual reports and 5-year periodic evaluations to DWR.

Implementation Schedule

The OBGMA will submit annual reports to DWR by April 1st of each year and the periodic GSP evaluations and updates every five years.

Legal Authority

The OBGMA is required by SGMA to submit GSP annual reports and 5-year periodic evaluations to DWR.

Estimated Costs

The total annual cost of Annual Comprehensive DWR Reporting is estimated to be $30,000 per year starting in FY 2022. The 5-year update costs, including the Agency Evaluation and

Assessment Report and model updates/simulations, is estimated to be $180,000. If model updates are not required, the cost would be lower. These costs are expected to be funded using a combination of groundwater extraction charges, including quarterly fixed charges and variable pumping fees. Additionally, the OBGMA will proactively seek additional funding through state or other grants.

4.6 MANAGEMENT ACTION NO. 5 – ADMINISTRATE EFFICIENTLY

The resources available to the OBGMA to sustainably manage the OVGB include extraction fees charged to groundwater users and grant funding. Therefore, it is essential that the OBGMA administrates efficiently and pursues alternative funding opportunities to implement the PMAs described in this GSP and keep extraction fees low.

4.6.1 Explore Grant Funding Opportunities

The OBGMA is funded by wellhead fixed fees and extraction charges assessed to each well operator in the OVGB. These funds are used to carry out the groundwater management activities of the agency, though the majority of OBGMA's operating budget is used to pay the agency's staff, insurance, legal services, and regular audit expenses. The OBGMA has successfully secured additional funding through grants, including for development of the Ojai Basin Groundwater Model and completion of the SACSGRP. The OBGMA will continue to explore grant funding opportunities that are within its purview to pay management and administration costs, operations and monitoring costs, and to fund continuation of the existing and implementation of the proposed PMAs identified in this GSP.

Measurable Objective Expected to Benefit

The measurable objectives for chronic declines in groundwater levels, reduction of groundwater in storage, degraded water quality, and depletions of interconnected surface water have the potential to benefit from implementation of this project, because grants funds would pay for sustainable groundwater planning and implementation of projects.

Expected Benefits and Evaluation

Adequate funding is required for the sustainable management of groundwater in the OVGB. The success of this management action will be evaluated based on the OBGMA's ability to secure grant funds for continuation of the existing and implementation of the proposed PMAs identified in this GSP.

Circumstances for Implementation

This project is currently being implemented and will continue through the implementation phase of this GSP.

Public Noticing

State and federal grants funded by taxpayers are subject to public review prior to final distribution of funds. The OBGMA will inform interested parties and the public when grant funding is received and how the funding will support the sustainable management of groundwater resources in the OVGB.

Permitting and Regulatory Process

The OBGMA has the authority to apply for grant funding to support the sustainable management of the OVGB.

Implementation Schedule

The OBGMA will review funding opportunities and submit grant proposals as opportunities arise.

The Sustainable Groundwater Management Grant Program Proposition 68 Implementation Round 2 application solicitation begins in spring 2022, which may be an opportunity for the OBGMA to secure funding for implementation of one or several of the PMAs discussed above.

Legal Authority

The OBGMA has the authority to apply for grant funding to support the sustainable management of the OVGB.

Estimated Costs

The estimated cost to explore grant funding opportunities is approximately $17,000 (Chapter 5, Table 5-4). This includes cost to research funding opportunities and write grant applications.

4.7 REFERENCES CITED

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CHAPTER 5
PLAN IMPLEMENTATION

5.1 GROUNDWATER SUSTAINABILITY PLAN IMPLEMENTATION AND ESTIMATED COSTS

This Groundwater Sustainability Plan (GSP) will be implemented by the Ojai Basin Groundwater Management Agency (OBGMA), acting as the Groundwater Sustainability Agency (GSA) for the Ojai Valley Groundwater Basin (OVGB). The following sections include cost estimates for Plan implementation including annual reporting, periodic updates, monitoring protocols, and projects and management actions (PMAs). Potential funding sources and mechanisms are presented along with a tentative schedule for implementing the GSP's primary components. In addition, annual reporting and 5-year update procedures for the OVGB are described.

Standards for Plan Implementation

Under the GSP Regulations (23 California Code of Regulations [CCR] Section 350, et seq.), the GSP is to include the following:

- An estimate of the cost of implementing the Plan and a general description of how the Agency plans to meet those costs (23 CCR Section 354.6(e)).
- Schedule for Implementation (23 CCR Sections 352.4(c)(2) and 355.4(b)(2)).

Annual Reporting

The OBGMA shall submit an annual report to the California Department of Water Resources (DWR) by April 1 of each year following the adoption of the GSP. The annual report shall include the following components for the preceding water year:

1. General information, including an executive summary and a location map depicting the basin covered by the report.
2. A detailed description and graphical representation of the following conditions of the basin managed in the Plan:
    a. Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:
        i. Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.
        ii. Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

b. Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

c. Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

d. Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements.

e. Change in groundwater in storage shall include the following:

   i. Change in groundwater in storage maps for each principal aquifer in the basin.

   ii. A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

3. A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report (CCR Section 356.2).

5-Year Evaluation

The OBGMA shall evaluate its Plan at least every 5 years and whenever the Plan is amended and provide a written assessment to DWR. The assessment shall describe whether the Plan implementation, including implementation of PMAs, are meeting the sustainability goal in the OVGB, and shall include the following:

1. A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives, interim milestones and minimum thresholds.
2. A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.
3. Elements of the Plan, including the basin setting, management areas, or the identification of undesirable results and the setting of minimum thresholds and measurable objectives, shall be reconsidered and revisions proposed, if necessary.

4. An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes. If the Agency's evaluation shows that the basin is experiencing overdraft conditions, the Agency shall include an assessment of measures to mitigate that overdraft.
5. A description of the monitoring network within the basin, including whether data gaps exist, or any areas within the basin are represented by data that does not satisfy the requirements of the GSP Regulations (23 CCR Sections 352.4 and 354.34(c)). The description shall include the following:
    a. An assessment of monitoring network function with an analysis of data collected to date, identification of data gaps, and the actions necessary to improve the monitoring network, consistent with the requirements of Section 354.38.
    b. If the Agency identifies data gaps, the Plan shall describe a program for the acquisition of additional data sources, including an estimate of the timing of that acquisition, and for incorporation of newly obtained information into the Plan.
    c. The Plan shall prioritize the installation of new data collection facilities and analysis of new data based on the needs of the basin.
6. A description of significant new information that has been made available since Plan adoption or amendment, or the last 5-year assessment. The description shall also include whether new information warrants changes to any aspect of the Plan, including the evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results.
7. A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the Plan.
8. Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin.
9. A description of completed or proposed Plan amendments.
10. Where appropriate, a summary of coordination that occurred between multiple Agencies in a single basin, Agencies in hydrologically connected basins, and land use agencies.
11. Other information the Agency deems appropriate, along with any information required by DWR to conduct a periodic review as required by California Water Code (CWC) Section 10733 (CCR Section 356.4).

5.1.1 Groundwater Sustainability Agency Annual Budget

The OBGMA has performed substantial work toward estimating the cost of GSP implementation based on historical OBGMA operating costs and estimated costs to complete the activities contemplated in this GSP. Summaries of the tasks and costs are provided in the following subsections.

5.1.1.1 Management, Administration, and Other Costs

The OBGMA management and administration costs are based on historical management of the OVGB. The OBGMA's five-year cost of service analsyis prepared in 2020 was used as the basis for establishing budget through fiscal year (FY) 2024 (OBGMA 2020). Thereafter, future costs were estimated by applying inflation factors[1] to established costs. Table 5-1 provides a comprehensive list of line item expense types that the OBGMA expects to incur in FY 2022. The total annual cost of these tasks in FY 2022 is estimated to be $123,000 (rounded up to the nearest thousand).

Table 5-1
Management, Administration and Other Costs

Expense Item	Estimated Annual Cost (FY 2022)
Management and Administration	
Administrative Personnel	$35,000
Liability Insurance	$2,200
Worker's Comp	$700
Medical Reimbursement	$2,500
Sub-Total Labor Cost:	*$40,400*
Office Expenses	
Rent	$9,600
Telephone	$1,500
Utilities (included in office rent)	$-
Supplies	$2,500
Postage	$2,000
Equipment Purchase/Capital Outlay	$2,500
Bank Charges	$-
Sub-Total Office Cost:	*$18,100*
Training & Memberships	
Staff Training	$1,000
Ventura Watershed Council/Coordinator	$400
IRWMP/Watershed Coalition Membership	$1,600
Sub-Total Training and Memberships Cost:	*$3,000*

1 Assumes general inflation factor of 2.8% per year. Inflation factors for salary = 3.5%, benefits = 7%, utilities = 5%, construction = 4%, insurance = 6%, engineering = 4% and legal services = 3.5%.

Table 5-1
Management, Administration and Other Costs

Expense Item	Estimated Annual Cost (FY 2022)
Regular Professional/Support Services	
Accounting/Bookkeeping	$10,000
Management Services	$15,000
Legal Services	
Board/Administrative Support	$22,000
Other Support Services	
Financial Audit	$12,000
Website Maintenance	$1,000
Existing Data Base	$1,000
Sub-Total Regular Prof./Support Services Cost:	*$61,000*
Total Management, Administration and Other Costs	$123,000 (rounded)

5.1.1.2 Operations and Monitoring Costs

Annual operations include monitoring of groundwater levels, water quality, and streamflow, and compilation of self-reported production data. Cost to compile and report self-reported data is included as part of Management, Administration and Other Costs. Other tasks include data management, monitoring equipment maintenance, and project management and coordination such as attendance of technical staff at OBGMA Board Meetings. The required annual report will be produced in accordance with Section 356.2 of the GSP Regulations. The total annual cost of these tasks is estimated to be $118,000 per year (rounded up to the nearest thousand) starting in FY 2022. A task list and related estimated annual costs are provided in Table 5-2.

Table 5-2
Operations and Monitoring Costs

Expense Item		Estimated Annual Cost (FY 2022)
Task 1:	Monthly Water Level Monitoring	$21,000
Task 2:	Semi-Annual Water Quality Monitoring	$15,000
Task 3:	Monthly Stream Flow Monitoring	$26,000
Task 4:	Annual Data Management System Maintenance	$11,000
Task 5:	Annual Comprehensive DWR Reporting	$30,000
Task 6:	Project Management and Coordination	$15,000
Total Operations and Monitoring Costs		$118,000 (rounded)

5.1.2 Reserves and Contingencies

In addition to covering the operations budget, the OBGMA will investigate the need for adoption of a reserves policy which is expressly authorized by the Sustainable Groundwater Management Act (SGMA) (CWC Sections 10730(a) and 10730.2(a)(1)). Reasonable and achievable reserves are a prudent financial tool to aid in cash flow timing and unforeseen expenditures. Generally, a reserve for operations targets a specific percentage of annual operating costs or days of cash on hand. The reserve target is influenced by several factors including the frequency of billing and the recurrence of expenses. Comparable agencies use a reserves policy rule of one to two times frequency of cash flow. For example, based on the OBGMA's current quarterly billing cycle, the reserves percentage would be from 25% to 50% of the general operating budget, which would include the costs detailed in Tables 5-1 through 5-3. Additional reserves may be required for implantation of PMAs (Table 5-4) and other future capital improvement projects if implanted by the OBGMA.

5.1.3 Periodic (5-Year) Groundwater Sustainability Plan Update Costs

Every fifth year of GSP implementation and whenever the GSP is amended, the OBGMA is required to prepare and submit an Agency Evaluation and Assessment Report to the DWR together with the annual report for that year. The assessment and report will be prepared as described in CCR Section 356.10. Table 5-3 provides a list of tasks and estimated cost that the OBGMA expects to incur to complete 5-year updates. The total cost to prepare the five-year update due in FY 2027 is estimated to be $180,000 (rounded up to the nearest thousand).

Table 5-3
Groundwater Sustainability Plan 5-Year Update Costs

Expense Item		Estimated 5-Year Additional Costs
Task 1	Model Update and Simulations*	$60,000
Task 2	GSP Evaluation	$40,000
Task 3	GSP Update	$70,000
Task 4	Project Management and Meetings	$10,000
Total Groundwater Sustainability Plan 5-Year Update Costs		$180,000 (rounded)

Notes:
* Costs for model update and simulations are provided for every 5 years of the planning horizon, though this task may not be completed each time, or the scope of work may be more limited.

5.1.4 Projects and Management Actions Development Costs

Details of the proposed PMAs are presented in Chapter 4, Projects and Management Actions. Task descriptions and estimated costs associated with development of each PMA are summarized in Table 5-4. Proposed PMAs are presented at the planning level and additional costs will be incurred with full implementation. The level of cost development is categorized into three levels: 1) Rough Order of Magnitude Estimate with a cost variance of plus/minus (+/-) 50%, 2) Budget Estimate with a cost variance of +25% to -10%, and 3) Definitive Estimate with a cost variance of +10% to -5%. All estimated costs have been rounded up to the nearest thousand. The total cost to implement PMAs is estimated to be $463,000 (rounded up to the nearest thousand).

Table 5-4
Projects and Management Actions Development Costs

PMA Number	PMA	Estimated Cost	Level of Cost Development
Management Action No. 1 – Understand the Basin			
1a	Prepare Sampling and Analysis Plan and Quality Assurance Plan	$13,000	Definitive Estimate
1b	Prepare Groundwater Dependent Ecosystems Assessment	$50,000	Rough Order of Magnitude Estimate
1c	Develop Data Management System	$34,000	Budget Estimate
1d	Simulate Extreme Climate Scenarios	$24,000	Budget Estimate
	Sub-total	*$121,000*	
Management Action No. 2 – Protect and Manage the Basin			
2a	Develop Comprehensive Conjunctive Management Plan	$31,000	Rough Order of Magnitude Estimate
2b	Develop Groundwater Allocation	$28,000	Rough Order of Magnitude Estimate
2c	Develop Water Conservation Program	$29,000	Rough Order of Magnitude Estimate
2d	Encourage Voluntary Pumping Reductions	$20,000	Rough Order of Magnitude Estimate
	Sub-total	*$108,000*	
Management Action No. 3 – Encourage Supporting Activities			
3a	Develop Salt and Nutrient Management Plan	$80,000	Budget Estimate
3b	Evaluate Feasibility of Recycled Water Production for Non-Potable Reuse	$26,000	Rough Order of Magnitude Estimate
3c	Explore Opportunity to Implement Focused Recharge	$32,000	Rough Order of Magnitude Estimate
3d	Explore State Water Project Water Delivery Options	$20,000	Rough Order of Magnitude Estimate
	Sub-total	*$158,000*	
Management Action No. 4 – Communicate Effectively			
4a	Evaluate Settlement Management Plan from Physical Solution	$24,000	Budget Estimate
4b	Implement Stakeholder Outreach and Engagement Plan	$35,000	Budget Estimate
	Sub-total	*$59,000*	
Management Action No. 5 – Administrate Efficiently			
5a	Explore Grant Funding Opportunities	$17,000	Budget Estimate
	Sub-total	*$17,000*	
	Total PMAs Development Costs	$463,000	Rounded to nearest thousand

Notes:
All costs rounded up to the nearest thousandth. Not all of the PMAs may need to be implemented as some PMAs are tied to exceedance of minimum thresholds or regulatory driven as described in Chapter 4.
Cost development ranges are as follows: Rough Order of Magnitude Estimate (variance plus/minus 50%)
Budget Estimate (variance of +25% to -10%)
Definitive Estimate (variance of +10% to -5%)

5.1.5 Total Costs

Annual implementation costs may vary from year to year as a result of the status of PMAs, significance of new data, and increased reporting requirements every fifth year of implementation. For planning purposes, the estimated annual budget for OBGMA operations and monitoring have been adjusted for annual inflation based on the inflation factors previously described in Section 5.1.1 to determine the total GSP implementation cost when costs from the five-year cost of service analsyis prepared in 2020 are not available. After FY 2024, the inflation factors are applied to costs by type. The estimated GSP implementation cost for the 21-year implementation period through FY 2042 for operations and monitoring, management, administration and other costs, and 5-year annual reviews is approximately $8,114,000 as summarized in Table 5-5. Projects and Management Action costs are based on the PMAs described in Chapter 4 and run through FY 2027.

Table 5-5
Groundwater Sustainability Plan Estimated Implementation Cost Through 2042

FY	Management/ Administration	Office Expenses	Training & Memberships	Professional/ Support Services	GSP Cost*	Operations & Monitoring Costs	Five-Year Update	Projects and Management Actions**	Totals	Extraction Fee ($/AF)***
2022	$40,400	$18,100	$3,000	$61,000	$186,000	$118,000		$45,000	$471,500	$118
2023	$40,400	$15,600	$3,000	$49,000		$118,000		$95,000	$321,000	$80
2024	$40,400	$18,100	$3,000	$61,000		$118,000		$92,000	$332,500	$83
2025	$41,974	$16,070	$3,084	$47,598		$123,000		$89,000	$320,726	$80
2026	$43,614	$16,554	$3,170	$49,252		$128,000	$54,000	$55,000	$349,590	$87
2027	$45,322	$17,054	$3,259	$50,965		$133,000	$126,000	$87,000	$462,600	$116
2028	$47,101	$17,570	$3,350	$52,738		$139,000			$259,759	$65
2029	$48,956	$18,102	$3,444	$54,574		$144,000			$269,076	$67
2030	$50,889	$18,651	$3,541	$56,475		$150,000			$279,556	$70
2031	$52,905	$19,218	$3,640	$58,443		$156,000	$63,000		$353,206	$88
2032	$55,006	$19,802	$3,742	$60,481		$162,000	$147,000		$448,031	$112
2033	$57,197	$20,405	$3,846	$62,590		$168,000			$312,038	$78
2034	$59,482	$21,028	$3,954	$64,775		$175,000			$324,239	$81
2035	$61,866	$21,670	$4,065	$67,037		$182,000			$336,638	$84
2036	$64,353	$22,334	$4,179	$69,379		$189,000	$73,000		$422,245	$106
2037	$66,949	$23,018	$4,296	$71,804		$197,000	$170,000		$533,067	$133
2038	$69,657	$23,725	$4,416	$74,315		$205,000			$377,113	$94
2039	$72,485	$24,455	$4,540	$76,915		$213,000			$391,395	$98
2040	$75,437	$25,208	$4,667	$79,608		$222,000			$406,920	$102
2041	$78,520	$25,986	$4,797	$82,396		$230,000	$85,000		$506,699	$127
2042	$81,740	$26,789	$4,932	$85,283		$240,000	$197,000		$635,744	$159
Total	$1,194,653	$429,438	$79,921	$1,335,629	$186,000	$3,510,000	$915,000	$463,000	$8,113,642	$97

Notes: Assumes general inflation factor of 2.8% per year. Inflation factors: salary = 3.5%, benefits = 7%, utilities = 5%, construction = 4%, insurance = 6%, engineering = 4% and legal services = 3.5%.

* GSP preparation costs for FY 2022 only are included in the OBGMA 20-year budget. Actual GSP preparation cost is approximately $600,000.

** Projects and Management Action costs are based on the PMAs described in Chapter 4 and run through FY 2027.

*** Extraction fee estimate assumes annual FY costs are funded solely by groundwater extractions at a rate of 4,000 AFY and does not include any outside funding sources such as grants.

Estimated total GSP implementation costs assumes the following general components:

- Data collection, management, and evaluation
- Annual reporting
- 5-year review assessment and reporting
- Data gap analysis and additional evaluation
- PMAs development and implementation of components as funding allows
- Management, administration, and other costs

5.1.6 Funding Sources

In general, the OBGMA plans to fund GSP implementation using a combination of groundwater extraction charges, including quarterly fixed meter charges and variable pumping fees. Additionally, the OBGMA will proactively seek additional funding through state or other grants. Implementation of some PMAs over the GSP implementation period may be dependent on obtaining grant funding.

5.2 IMPLEMENTATION SCHEDULE

Pursuant to SGMA, the GSP will be adopted no later than January 31, 2022. Figure 5-1 provides a preliminary schedule for implementation of the primary GSP components through the first 5-year periodic evaluation. The schedule may shift as the process proceeds. The OBGMA will regularly complete a reevaluation and update of the schedule components based on progress toward maintaining the sustainability goal. It is anticipated that the schedule will be updated on an annual basis.

Routine annual and 5-year reporting of GSP progress will be performed in accordance with SGMA requirements. Annual Reports will be prepared and submitted to the DWR by April 1 of each year. Periodic Reports (5-Yearly or following substantial GSP amendments) will be submitted to the DWR by April 1 at least every 5 years (i.e., 2027, 2032, 2037, and 2042). The contents of Annual and Periodic Reports are described in the following Sections 5.3 and 5.4.

5.3 ANNUAL REPORTING

The annual report will, at a minimum, include the components described as required pursuant to CCR Section 356.2. In addition to being available from DWR, the OBGMA will make annual reports available to the public and stakeholders through the methods described in Chapter 2 (Section 2.1.5, Notice and Communication), primarily through the OBGMA's website, but also through email announcements, newsletters/columns, and/or water bill inserts.

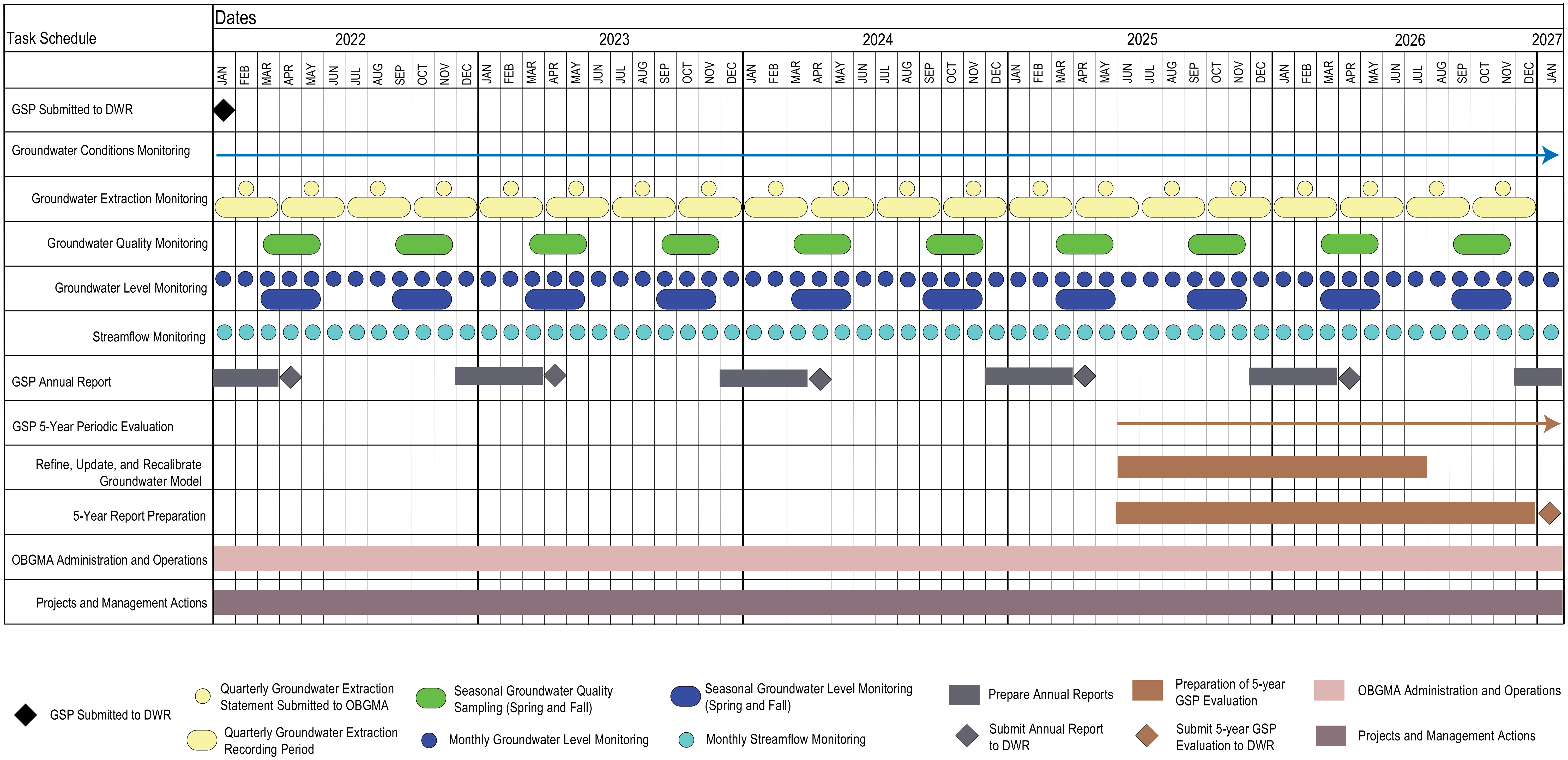

FIGURE 5-1

GSP Implementation Schedule

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

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5.3.1 General Information

An executive summary will be prepared to summarize the findings of the Annual Report and include a location map similar to Figure 1-1. This section will include a description of significant progress and pertinent findings of the reporting period and key recommendations for going forward.

5.3.2 Description and Graphical Representations of Groundwater Information

Groundwater Elevation Data

Detailed descriptions and graphical representations will be included to demonstrate the following conditions of the OVGB in accordance with the monitoring plan and monitoring network described in Section 3.5. Groundwater elevation data for each RMP will be depicted and summarized using groundwater contour maps similar to those included as Figures 2-22 and 2-23. The contour maps will include delineation of the primary aquifers and groundwater contours for seasonal high and low conditions. Hydrographs depicting current and historical data for each RMP will be included. The written section will include a description and interpretation of the data shown in the figures and a discussion of observed data gaps and recommendations for modifications to the monitoring network, if warranted.

Groundwater Extraction

Groundwater extraction information for the preceding water year will be presented. Data sources will include OBGMA self-reporting production records. Data will be presented in a table that summarizes groundwater extractions by well and identifies the measurement method (direct or estimated) and accuracy of measurements. A map of general location and volume of groundwater extractions will be provided. Groundwater extraction will be documented in conformance with the established OBGMA protocols.

Surface Water Supply

The volume of surface water supplied form Lake Casitas to water users in the OVGB will be documented. The annual report will note developments or studies in regard to surface water supplies. The contribution from natural sources of recharge is presented in Section 2.2.3, Water Budget, and will be quantified as part of the water budget.

Total Water Use

The total water use for the OVGB will be reported in tabular format including water use by type and geographically by well. Sources of data will include OBGMA self-reporting production data, municipal data and CMWD data and delivery records. Where direct measurement is not possible, indirect methods will be used to estimate water use.

Changes in Groundwater Storage

Estimated changes in storage will be evaluated using data from the representative monitoring points RMPs and potentially data from additionally monitored wells. This information will be depicted on maps to display the change in groundwater storage over a period of time spatially within the OVGB. This section will include a graph of climate, groundwater use, and annual and cumulative change in storage for the period of available record through the reporting period.

5.3.3 Plan Implementation Progress

A description of progress toward implementing the GSP will be included, including maintaining sustainability goals, meeting minimum thresholds and implementation of PMAs since the previous report. Current progress will be compared to the planned schedule using the chart shown in Figure 5-1.

5.4 PERIODIC EVALUATION AND REPORTING

The OBGMA will evaluate its GSP at least every 5 years and whenever the GSP is amended and provide a written assessment to the DWR. The evaluation will include the elements of the annual reports and an assessment of the progress toward the sustainability goal as defined in Section 3.1.3, Sustainability Goal. At a minimum, the Periodic Evaluations will include the elements required pursuant to CCR Section 356.4 as described in Section 5.1. In addition to being available from DWR, the OBGMA will make periodic evaluations available to the public and stakeholders through the methods described in Chapter 1 (Section 1.3.3, Notice and Communication).

5.5 REFERENCES

OBGMA (Ojai Basin Groundwater Management Agency) 2020. Groundwater Sustainability Plan Cost of Service Analysis and GSP Fee Proposal. OBGMA Board Meeting April 30, 2020.

APPENDIX A

Preparation of Checklist for GSP Submittal

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
Article 3. Technical and Reporting Standards				
352.2		Monitoring Protocols	· Monitoring protocols adopted by the GSA for data collection and management	Section 3.5.5; page 3-42
			· Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin	Section 3.5.5; page 3-42
Article 5. Plan Contents, Subarticle 1. Administrative Information				
354.4		General Information	· Executive Summary	ES-1
			· List of references and technical studies	Section 1.5, Section 2.5, Section 3.6, Section 4.7, Section 5.5
354.6		Agency Information	· GSA mailing address	page 1-5
			· Organization and management structure	Section 1.3.1
			· Contact information of Plan Manager	page 1-5
			· Legal authority of GSA	Section 1.3.2
			· Estimate of implementation costs	Section 5.1
354.8(a)	10727.2(a)(4)	Map(s)	· Area covered by GSP	Section 1.1
			· Adjudicated areas, other agencies within the basin, and areas covered by an Alternative	Section 1.1
			· Jurisdictional boundaries of federal or State land	Section 2.1.1
			· Existing land use designations	Section 2.1.3
			· Density of wells per square mile	Page 2-19
354.8(b)		Description of the Plan Area	· Summary of jurisdictional areas and other features	Section 2.1
354.8(c)	10727.2(g)	Water Resource Monitoring and Management Programs	· Description of water resources monitoring and management programs	Section 2.1.2
354.8(d)			· Description of how the monitoring networks of those plans will be incorporated into the GSP	Section 2.1.2
354.8(e)			· Description of how those plans may limit operational flexibility in the basin	Section 2.1.2

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
			· Description of conjunctive use programs	page 2-34
354.8(f)	10727.2(g)	Land Use Elements or Topic Categories of Applicable General Plans	· Summary of general plans and other land use plans	Section 2.1.3
			· Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects	Section 3.1.3, Section 4.1
			· Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans	Section 2.1.3
			· Summary of the process for permitting new or replacement wells in the basin	page 2-31
			· Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management	Section 2.1.3
354.8(g)	10727.4	Additional GSP Contents	· Description of Actions related to:	
			· Control of saline water intrusion	Section 2.3.4.3
			· Wellhead protection	Page 2-32
			· Migration of contaminated groundwater	Page 2-32
			· Well abandonment and well destruction program	Page 2-32
			· Replenishment of groundwater extractions	Section 2.4
			· Conjunctive use and underground storage	Page 2-34
			· Well construction policies	Page 2-32
			· Addressing groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects	Section 2.3.4, Section 4.3
			· Efficient water management practices	Section 2.1.2.3, Section 2.1.2
			· Relationships with State and federal regulatory agencies	Section 2.1.1, Section 2.1.2.4
			· Review of land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity	Section 2.1.3

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
			· Impacts on groundwater dependent ecosystems	Section 2.3.4.7, Section 3.3.6, Appendix E
354.1		Notice and Communication	· Description of beneficial uses and users · List of public meetings · GSP comments and responses · Decision-making process · Public engagement · Encouraging active involvement · Informing the public on GSP implementation progress	Section 2.1.4 Appendix C Appendix C Appendix C Appendix C Appendix C Appendix C
Article 5. Plan Contents, Subarticle 2. Basin Setting				
354.14		Hydrogeologic Conceptual Model	· Description of the Hydrogeologic Conceptual Model · Two scaled cross-sections · Map(s) of physical characteristics: topographic information, surficial geology, soil characteristics, surface water bodies, source and point of delivery for imported water supplies	Section 2.3 Page 2-81, 2-83, 2-85, 2-69 Figures 2-2, 2-13A, 2-13B, 2-14, 2-15, 2-16, 2-18
354.14(c)(4)	10727.2(a)(5)	Map of Recharge Areas	· Map delineating existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas	Figure 2-18
	10727.2(d)(4)	Recharge Areas	· Description of how recharge areas identified in the plan substantially contribute to the replenishment of the basin	Section 2.3.3
354.16	10727.2(a)(1) 10727.2(a)(2)	Current and Historical Groundwater Conditions	· Groundwater elevation data · Estimate of groundwater storage · Seawater intrusion conditions · Groundwater quality issues · Land subsidence conditions · Identification of interconnected surface water systems · Identification of groundwater-dependent ecosystems	Section 2.3.4.1 Section 2.3.4.2 Section 2.3.4.3 Section 2.3.4.4 Section 2.3.4.5 Section 2.3.4.6 Section 2.3.4.7
354.18	10727.2(a)(3)	Water Budget Information	· Description of inflows, outflows, and change in storage · Quantification of overdraft · Estimate of sustainable yield · Quantification of current, historical, and projected water budgets	Section 2.4.1, 2.4.2, 2.4.3 Section 2.4.6 Section 2.4.7 Section 2.4.4

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
	10727.2(d)(5)	Surface Water Supply	· Description of surface water supply used or available for use for groundwater recharge or in-lieu use	Section 2.4.8
354.2		Management Areas	· Reason for creation of each management area	N/A
			· Minimum thresholds and measurable objectives for each management area	N/A
			· Level of monitoring and analysis	N/A
			· Explanation of how management of management areas will not cause undesirable results outside the management area	N/A
			· Description of management areas	N/A
Article 5. Plan Contents, Subarticle 3. Sustainable Management Criteria				
354.24		Sustainability Goal	· Description of the sustainability goal	Section 3.1.3
354.26		Undesirable Results	· Description of undesirable results	Section 3.2
			· Cause of groundwater conditions that would lead to undesirable results	Section 3.2
			· Criteria used to define undesirable results for each sustainability indicator	Section 3.2
			· Potential effects of undesirable results on beneficial uses and users of groundwater	Section 3.2
354.28	10727.2(d)(1)	Minimum Thresholds	· Description of each minimum threshold and how they were established for each sustainability indicator	Section 3.3.1 to 3.3.6
	10727.2(d)(2)		· Relationship for each sustainability indicator	Section 3.3.1.2, 3.3.2.2, and 3.3.4.2
			· Description of how selection of the minimum threshold may affect beneficial uses and users of groundwater	Section 3.3.1.3, 3.3.1.4, 3.3.2.3, 3.3.2.4, 3.3.4.3, and 3.3.4.4
			· Standards related to sustainability indicators	Section 3.3.1.5, 3.3.2.5, and 3.3.4.5
			· How each minimum threshold will be quantitatively measured	Section 3.3.1.6, 3.3.2.6, and 3.3.4.6
354.3	10727.2(b)(1)	Measureable Objectives	· Description of establishment of the measureable objectives for each sustainability indicator	Section 3.4.1 to 3.4.6
	10727.2(b)(2)		· Description of how a reasonable margin of safety was established for each measureable objective	Section 3.4.1, 3.4.2, and 3.4.4
	10727.2(d)(1)		· Description of a reasonable path to achieve and maintain the sustainability goal, including a description of interim milestones	Section 3.4.1, 3.4.2, and 3.4.4
	10727.2(d)(2)			

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
Article 5. Plan Contents, Subarticle 4. Monitoring Networks				
354.34	10727.2(d)(1)	Monitoring Networks	· Description of monitoring network	Section 3.5.2
	10727.2(d)(2)		· Description of monitoring network objectives	Section 3.5.1
			· Description of how the monitoring network is designed to: demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features; estimate the change in annual groundwater in storage; monitor seawater intrusion; determine groundwater quality trends; identify the rate and extent of land subsidence; and calculate depletions of surface water caused by groundwater extractions	Section 3.5.2
	10727.2(e)			
	10727.2(f)		· Description of how the monitoring network provides adequate coverage of Sustainability Indicators	Section 3.5.3
			· Density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends	Section 3.5.3.1
			· Scientific rational (or reason) for site selection	Section 2.1.2.1 and 3.5.2
			· Consistency with data and reporting standards	Section 3.5.4 and 3.5.5
			· Corresponding sustainability indicator, minimum threshold, measureable objective, and interim milestone	Section 3.5.3
			· Location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used	Pages 259-261 and Figures 3-2 and 3-3
			· Description of technical standards, data collection methods, and other procedures or protocols to ensure comparable data and methodologies	Section 3.5.4 and 3.5.5
354.36		Representative Monitoring	· Description of representative sites	Section 3.5.6

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
			· Demonstration of adequacy of using groundwater elevations as proxy for other sustainability indicators	Section 3.5.6
			· Adequate evidence demonstrating site reflects general conditions in the area	Section 3.5.6
354.38		Assessment and Improvement of Monitoring Network	Review and evaluation of the monitoring network	Section 3.5.7.1
			Identification and description of data gaps	Section 3.5.7.2
			Description of steps to fill data gaps	Section 3.5.7.3
			· Description of monitoring frequency and density of sites	Section 3.5.2.1 and 3.5.7.4
Article 5. Plan Contents, Subarticle 5. Projects and Management Actions				
354.44		Projects and Management Actions	· Description of projects and management actions that will help achieve the basin's sustainability goal	Section 4.2 to Section 4.6
			· Measureable objective that is expected to benefit from each project and management action	Section 4.2 to Section 4.6
			· Circumstances for implementation	Page 4-4 to 4-5, Section 4.2 to Section 4.6
			· Public noticing	Section 4.2 to Section 4.6
			· Permitting and regulatory process	Section 4.2 to Section 4.6
			· Time-table for initiation and completion, and the accrual of expected benefits	Page 4-4 to 4-5, Section 4.2 to Section 4.6
			· Expected benefits and how they will be evaluated	Section 4.2 to Section 4.6
			· How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.	Section 4.2 to Section 4.6
			· Legal authority required	Section 4.2 to Section 4.6
			· Estimated costs and plans to meet those costs	Section 4.2 to Section 4.6
			· Management of groundwater extractions and recharge	Section 4.2.2
354.44(b)(2)	10727.2(d)(3)		· Overdraft mitigation projects and management actions	N/A

GSP Regulations Section	Water Code Section	Requirement	Description	Section(s) or Page Number(s) in the GSP
Article 8. Interagency Agreements				
357.4	10727.6	Coordination Agreements - Shall be submitted to the Department together with the GSPs for the basin and, if approved, shall become part of the GSP for each participating Agency.	Coordination Agreements shall describe the following:	
			· A point of contact	N/A
			· Responsibilities of each Agency	N/A
			· Procedures for the timely exchange of information between Agencies	N/A
			· Procedures for resolving conflicts between Agencies	N/A
			· How the Agencies have used the same data and methodologies to coordinate GSPs	N/A
			· How the GSPs implemented together satisfy the requirements of SGMA	N/A
			· Process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations	N/A
			· A coordinated data management system for the basin	N/A
			· Coordination agreements shall identify adjudicated areas within the basin, and any local agencies that have adopted an Alternative that has been accepted by the Department	N/A

Notes: N/A = Not Applicable to the Ojai Valley Groundwater Basin

APPENDIX B

GSA Formation Documents

OJAI BASIN
GROUNDWATER MANAGEMENT AGENCY
A STATE OF CALIFORNIA WATER AGENCY

MEMBER AGENCIES
Ojai Water Conservation District
Casitas Municipal Water District
City of Ojai
Golden State Water Company

OJAI BASIN MUTUAL WATER COMPANIES
Senior Canyon MWC
Siete Robles MWC
Hermitage MWC

December 6, 2014

California Department of Water Resources
Attn: Mark Cowin
P.O. Box 942836
Sacramento, CA 94236-0001

NOTICE OF INTENT TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY

Gentlemen:

As outlined in Senate Bill 1168, Chapter 4, Section 10723. (c), the Ojai Groundwater Basin Management Agency is deemed to be the exclusive groundwater management agency for the Ojai Groundwater Basin.

On December , 2014 the Board of Directors of the Ojai Basin Groundwater Management Agency passed Resolution 2014-4 wherein the Agency has elected to become a "Groundwater Sustainability Management Agency", as defined in Senate Bill 1168.

This Notice of Intent includes all of the Ojai Groundwater Basin as defined in the original enabling legislation, Senate Bill 534, approved on October 8, 1991. The exact boundaries of the management area are defined in Article 2, Section 201. A copy of Section 201 is attached to this Notice of Intent together with a map of the defined area.

Because this Agency has long operated as a Groundwater Management Agency, we had many years of communication with all of the interests in the groundwater. These interests include all of the following:

- Holders of overlying groundwater rights
- Agricultural users
- Domestic well owners
- Municipal water suppliers
- Local land use planning

In Section 10723.2 other entities are called out, but none of those entities are present in the Ojai valley.

The membership of the Board of Directors of this Agency consists of one director from each of the following entities:

- Ojai Water Conservation District
- City of Ojai
- Casitas Municipal water District
- Golden State Water Company, (supplier to the City of Ojai)
- One member representing three small water companies

Each of these members is charged with the responsibility of communicating OBGMA activities with the public at large within each of these five constituencies. In addition to these means of communication with all of our interested parties, this Agency maintains a public web site: www.obgma.com.

This Notice of Intent is accompanied with the following additional documents:

- Map of service boundaries
- Copy of the resolution electing to become a sustainability agency
- Copy of by-laws and ordinances adopted in the past by this Agency
- Copy of existing groundwater management plan
- Copy of the most recent published annual report

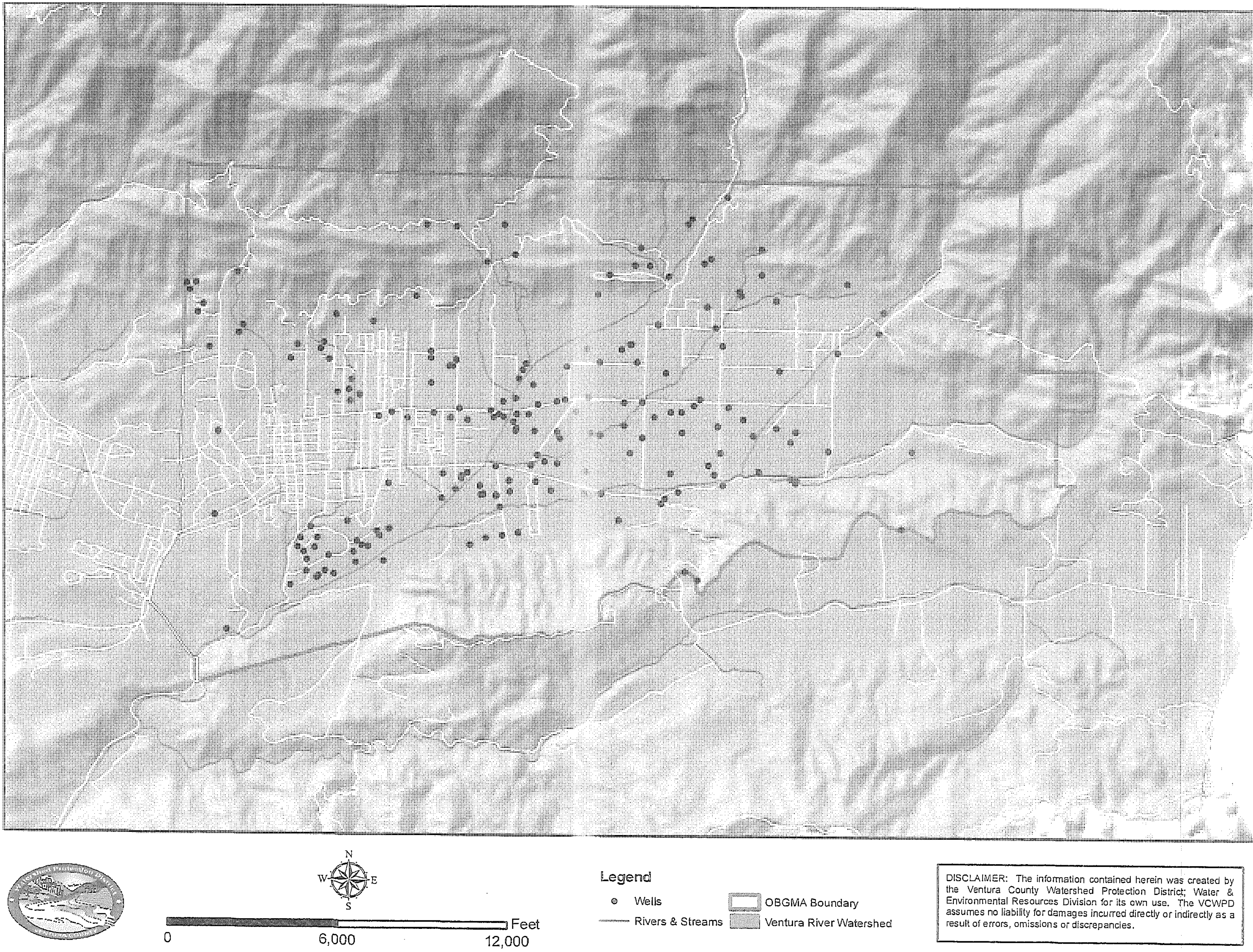
Should any other information be required by DWR, prior to the acceptance of this Agency becoming a "Sustainability Agency", please address your concerns to the undersigned.

Very truly yours,

Jerry L. Conrow

Jerry L. Conrow, President
Ojai Basin Groundwater Management Agency

Cc: Bob Pierotti, California Department of Water Resources; Southern Region



DISCLAIMER: The information contained herein was created by the Ventura County Watershed Protection District; Water & Environmental Resources Division for its own use. The VCWPD assumes no liability for damages incurred directly or indirectly as a result of errors, omissions or discrepancies.

Resolution 2014-4

A Resolution of the Ojai Basin Groundwater Management Agency requesting authorization from the Department of Water Resources to Become the Groundwater Sustainable Agency for the Ojai Basin as stated in California Water Code Section 10723(c)(3)

Whereas, the Ojai Basin Groundwater Management Agency (Agency) was officially established by legislative action (SB534 Hart) in 1991, and:

Whereas, the Agency has the responsibility for the requirements for the review of new well permitting, notification of intent to construct, registration of extraction facilities, metering, reporting of groundwater extractions, and the recordation of wells within the boundaries of the agency, and:

Whereas, the Agency has produced a Groundwater Management Plan (and a recent update) along with comprehensive Annual Reports outlining the status and actions of the Agency in the management of the basin, and:

Whereas, the Agency has adopted resolutions and Ordinances to provide for the management of the basin, and:

Whereas, the Agency has established a website (www.obgma.com) with all pertinent information easily available for the groundwater extractors and the public, and:

Whereas, Governor Brown signed into law the Groundwater Sustainability Act on September 16, 2014, and:

Whereas, Section 1072(c)(3) provides for those agencies created by statute to be deemed the exclusive local agency within their respective statutory boundaries with powers to comply with the new law, and:

And now, therefore, be it resolved:

The Ojai Basin Groundwater Management Agency, in conformance with California Water Code Section 1072(c)(3), requests that the Department of Water Resources designate the Agency as the Groundwater Sustainability Agency for the Ojai Basin as depicted the map attached to this resolution.

ADOPTED, SIGNED AND APPROVED this Dec 4, 2014

ATTEST: [signature] [signature]

Cece VanDerMeer, Secretary **Jerry L. Conrow, President**

CHAPTER 750

An act to amend Section 1 of, to repeal Sections 2 and 4 of, and to amend and renumber Section 3 of, Chapter 153 of the Statutes of 1974, and to create the Ojai Basin Groundwater Management Agency, relating to water.

[Approved by Governor October 8, 1991. Filed with Secretary of State October 9, 1991.]

LEGISLATIVE COUNSEL'S DIGEST

SB 534, Hart. Ojai Basin Groundwater Management Agency.

(1) Under existing law, there are no specific provisions for groundwater management within the Ojai Groundwater Basin.

This bill would enact the Ojai Basin Groundwater Management Agency Act which would create the Ojai Basin Groundwater Management Agency to provide for groundwater management within the prescribed boundaries of the agency. The bill would specify the powers and duties of the district and provide for the management and financing of the district.

The bill would require the agency to develop a prescribed plan and to undertake specified studies. The bill would provide that any person who intentionally violates the act or any agency ordinance is guilty of an infraction, thereby imposing a state-mandated local program by creating a new crime, and would subject that person to an administrative fine in an amount not to exceed $500, as prescribed. The bill would subject any person who negligently or intentionally violates the act or any agency ordinance to civil liability in an amount not to exceed $1,000 per day for each day of violation, as prescribed. The bill would impose a state-mandated local program by imposing various duties on local entities.

(2) Existing law requires that the Ojai Water Conservation District be governed by the Water Conservation District Law of 1931.

This bill would require the district to be governed by the Water Conservation Act of 1927.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for specified reasons.

The people of the State of California do enact as follows:

SECTION 1. This act shall be known and may be cited as the Ojai

Basin Groundwater Management Agency Act.

Article 1. Creation

Sec. 101. The Legislature hereby finds and declares that the preservation of the groundwater within the territory of the Ojai Basin Groundwater Management Agency, created pursuant to Section 102 for the protection of agricultural, municipal, and industrial uses, is in the public interest and for the common benefit of water users within the agency.

Sec. 102. The Ojai Basin Groundwater Management Agency is hereby created. The agency shall exercise the express powers granted by this act for purposes of groundwater management within the territory of the agency, together with other powers reasonably implied and necessary and proper to carry out the purposes of the agency.

Article 2. Boundaries

Sec. 201. For the purposes of this act, the boundaries of the agency include that portion of the Ojai Basin watershed which lies within the boundaries of the Casitas Municipal Water District or the Ojai Water Conservation District, but do not include any land within the boundaries of the Ventura River County Water District. The boundaries of the agency are more particularly described as follows:

The point of beginning is located at the intersection of the centerline of Creek Road and the northerly boundary of Camp Comfort; thence, northerly along the centerline of Creek Road to the point of intersection with the centerline of Hermosa Road; thence, westerly and northwesterly along the centerline of Hermosa Road to the point of intersection with the easterly line of Ventura Avenue, also known as State Highway Routes 33 and 150; thence, northerly along that easterly line of Ventura Avenue to the point of intersection with the centerline of Ojai Avenue; thence, northeasterly along the centerline of Ojai Avenue to the point of intersection with the centerline of Del Norte Road; thence, northerly along the centerline of Del Norte Road and the northerly prolongation of the centerline of Del Norte to the north quarter corner of Section 35, Township 5 North, Range 23 West, San Bernardino Base and Meridian, that point being also a point in the boundary of the Casitas Municipal Water District; thence along that boundary; thence east along the north line of that Section 35 and along the north line of Section 36 of that Township and Range and Sections 31, 32, 33, and 34 of Township 5 North, Range 22 West, San Bernardino Base and Meridian to the northeast corner of that Section 34; thence, south along the east line of that Section 34 and the east line of Section 3, Township 4 North, Range 22 West, San Bernardino Base and Meridian to the northwest corner of the south one-half of the northwest one-quarter of Section 2 of that last mentioned Township and Range; thence, east along the north line of that south one-half of the northwest one-quarter of Section 2 to the northeast corner thereof, south along the east line of that south one-half of the northwest one-quarter of Section 2 to the southeast corner thereof; thence, west along the south line of that south one-half of the northwest one-quarter of Section 2 to the northeast corner of the west one-half of the southwest one-quarter of that Section 2; thence, south along the east line of that west one-half of the southwest one-quarter of Section 2 to the southeast corner thereof to a point in the north line of fractional Section 11, Township 4 North, Range 22 West, San Bernardino Base and Meridian; thence, east along that north line to the north quarter corner of that fractional Section 11; thence, in a varying generally southwesterly and westerly direction along the watershed dividing ridge line, as shown on the Ojai Quadrangle of the United States Geological Survey 7.5 minute series of topographic maps, between the Ojai Valley and the Lions Creek Drainage, a distance of approximately four and three-quarter miles, more or less, to the point at which the 1,400-foot contour intersects the range line common to Range 22 West and Range 23 West, San Bernardino Base and Meridian; thence, in a straight line in a generally south of west direction a distance of approximately one and one-half miles, more or less, to the point of beginning.

Sec. 202. The boundaries of the agency shall be depicted on a map which shall be adopted by the board and thereafter recorded in the office of the county recorder.

Article 3. Definitions

Sec. 301. Unless otherwise indicated by their context, the terms defined in this article govern the interpretation of this act.

Sec. 302. "Agency" means the Ojai Basin Groundwater Management Agency.

Sec. 303. "Aquifer" means a geologic formation or structure that transmits or stores water in sufficient quantities to supply pumping wells or springs.

Sec. 304. "Available supply" means that quantity of groundwater which can be withdrawn in any given year from the groundwater basin without resulting in, or aggravating, conditions of overdraft, subsidence, or groundwater quality degradation. Available supply of the basin includes the natural water supply, imported water, and other water which has been spread to the basin or has otherwise reached the basin and return flows to the basin attributable to these sources reaching the basin in the course of use.

Sec. 305. "Basin" means the Ojai groundwater basin, as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the district, as defined in Section 201.

Sec. 306. "Board" means the board of directors of the agency.

Sec. 307. "Conjunctive use" means the coordinated operation of groundwater and surface water supplies. Conjunctive use includes increased groundwater use or decreased groundwater replenishment with surface supplies in years when surface supplies are less than normal and, in years of more abundant surface supplies, the increased use of surface water in lieu of groundwater, either to allow groundwater levels to recover or to replenish artificial groundwater supplies. Conjunctive use also includes long-term storage of water in the basin.

Sec. 308. "County" means the County of Ventura.

Sec. 309. "Export" means extracting groundwater from the basin for use on land, or within an area, which does not overlie or is not within the boundaries of the agency. Export does not include use on or after January 1, 1992, within any area served by groundwater from the basin prior to January 1, 1992.

Sec. 310. "Extraction" means the act of obtaining groundwater by pumping or other controlled means.

Sec. 311. "Extraction facility" means any device or method for the extraction of groundwater within the basin.

Sec. 312. "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water.

Sec. 313. "Groundwater basin" means a geologically and hydrologically defined area containing one or more aquifers which store, transmit, and yield significant quantities of water to wells, or are capable of doing so.

Sec. 314. "Groundwater management activities" means programs, measures, or actions taken to preserve, monitor, protect, and enhance groundwater resources within the territory of the agency.

Sec. 315. "Groundwater rights adjudication" means the determination of substantially all rights in the basin or the area subject to the adjudication.

Sec. 316. "Mutual water company" means a corporation organized for, or engaged in the business of, selling, distributing, supplying, or delivering water to its stockholders and members at cost for irrigation purposes or for domestic use.

Sec. 317. "Notice" or a "noticed hearing" means the notice required by Section 6061 of the Government Code.

Sec. 318. "Operator" means a person who operates a groundwater extraction facility. If the agency is unable to determine who operates a particular extraction facility, then "operator" shall mean the person to whom the extraction facility is assessed by the county assessor or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

Sec. 319. "Overdraft" means the condition of the basin where the average annual amount of water extracted exceeds the average annual supply of water to the basin.

Sec. 320. "Person" includes any state or local governmental agency, private corporation, firm, partnership, individual, group of individuals, or, to the extent authorized by law, any federal agency.

Sec. 321. "Program" means a groundwater management program prepared by the agency pursuant to this act.

Sec. 322. "Recharge" means the natural or artificial replenishment of groundwater storage by percolation or injection of one or more sources of water at the surface.

Sec. 323. "Replenishment" means spreading water over a permeable area for the purpose of allowing it to percolate to groundwater basins or aquifers, or otherwise adding water to groundwater basins or aquifers.

Sec. 324. "Supplemental water" means surface water or groundwater imported from outside the watershed or watersheds of the basin and flood waters that are conserved and saved within the watershed or watersheds which would otherwise have been lost or would not have reached the basin.

Sec. 325. "Temporary surplus" means the amount of water that can be extracted from the basin without permanently adversely affecting the available supply of the basin or the ability of the basin to provide storage space for natural or artificial recharge that would be lost during wet years if it could not be stored in the basin.

Sec. 326. "Water year" means the period from October 1 of one calendar year to September 30, inclusive, of the following calendar year.

Sec. 327. "Well interference" means a substantial water level decline in a short time period in a localized area caused by pumping from extraction facilities.

Article 4. General Provisions

Sec. 401. (a) The board shall consist of five directors and shall be selected in the following manner:

(1) One director shall be a member of, and be appointed by, each of the following entities, and shall be chosen by their respective governing boards or bodies from their members whose districts or divisions, if any, overlie, at least in part, the boundaries of the agency:

(A) The Ojai City Council.

(B) The Board of the Casitas Municipal Water District.

(C) The Board of the Ojai Water Conservation District.

(2) One director shall be a representative of the Southern California Water Company.

(3) One director shall be chosen from the members of the governing boards of the following mutual water companies whose territory at least in part overlies the boundaries of the agency.

(A) The Senior Canyon Mutual Water Company.

(B) The Siete Robles Mutual Water Company.

(C) The Hermitage Mutual Water Company.

The mutual water company director [redacted]. If the mutual water companies fail to appoint a director within three months, the remaining four directors shall appoint a director from one of the boards of the mutual water companies identified in this paragraph.

(b) The board is the governing body of the agency and shall exercise the powers of the agency.

Sec. 402. (a) No provisions of this act shall be construed to deny any entity from which a board member is or may be selected any rights or powers which they have or may be granted.

(b) The agency shall not involve itself in activities normally and historically undertaken by any entity, such as the construction and operation of dams, spreading grounds, pipelines, flood control facilities, groundwater wells, and water distribution facilities, or the wholesale and retail sale of water, without prior consent of those entities, and shall otherwise limit its activities to monitoring, planning, managing, controlling, preserving, and regulating the extraction and use of groundwater within the boundaries of the agency.

Sec. 403. This act does not abrogate or impair the overlying or appropriative rights of landowners or existing appropriators within the agency, including the right to seek an adjudication of those rights, or abrogate or impair the jurisdiction of the California Public Utilities Commission in regulating the activities and assets of the Southern California Water Company.

Sec. 404. (a) The board may adopt ordinances for the purpose of monitoring, regulating, conserving, managing, and controlling the use and extraction of groundwater within the boundaries of the agency. All ordinances shall be adopted, after a noticed public hearing, by a majority vote of the board. Notice of the adoption of all ordinances shall be given. The ordinances of the agency shall become effective on the 31st day after adoption.

(b) Notwithstanding subdivision (a), the board shall comply with the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of the Government Code), and may adopt as an urgency measure an interim ordinance. That urgency measure shall require a ⅘ vote of the board for adoption. The interim ordinance shall have no force and effect 45 days after its adoption. After a noticed public hearing, the board may extend the interim ordinance for 10 months and 15 days by a ⅘ vote of the board.

Sec. 405. Any person who intentionally violates this act or any agency ordinance is guilty of an infraction and may be required to pay a fine to the agency not to exceed five hundred dollars ($500). No fine shall be imposed until written notice has been given by registered mail to the alleged violator stating that a hearing will be held by the board not less than 30 days after the date of the notice, at which time the board will consider the imposition of the fine.

Sec. 406. Any person who negligently or intentionally violates this act or any agency ordinance may also be liable civilly to the agency for a sum not to exceed one thousand dollars ($1,000) per day for each day of violation, in addition to any other penalties that may be prescribed by law. No liability shall be imposed until written notice has been given by registered mail to the alleged violator stating that a hearing will be held by the board not less than 30 days after the date of the notice, at which time the board will consider the imposition of the liability.

Sec. 407. Upon the failure of any person to comply with this act or any agency ordinance, the agency may petition the superior court for a temporary restraining order, preliminary or permanent injunction, or other appropriate equitable relief. The right to petition for injunctive relief is in addition to other rights, which may be provided elsewhere in this act or otherwise allowed by law.

Sec. 408. The agency may petition the superior court of the county to recover any sums due the agency or damages incurred by the agency. To preserve and manage the groundwater resources within the agency, the agency may commence, maintain, intervene in, defend in, compromise, and assume the costs and expenses incurred by the agency in, actions and proceedings involving groundwater, including, but not limited to, groundwater rights adjudication.

Sec. 409. The agency may contract for staff and other services and may hire other contractors and consultants.

Sec. 410. The agency may exclude from any of the requirements of this act, or the operation of any ordinance, any operator who extracts less than a minimum amount of groundwater as specified by ordinance adopted by the board.

Article 5. Studies and Investigations

Sec. 501. The agency may collect data and conduct technical and other investigations in order to carry out this act. All hydrological investigations and studies carried out by, or on behalf of, the agency shall be conducted by, or under the supervision of, licensed engineers or other persons qualified in groundwater geology or hydrology.

Sec. 502. (a) The agency shall prepare annually a report on groundwater supplies and conditions in the agency, including groundwater management objectives and a plan of implementation of those objectives, following a determination that groundwater management activities may be necessary.

(b) The agency may prepare, or receive reports on groundwater and supplemental water supplies and conditions in the territory of the agency, including groundwater management and conjunctive use objectives and a plan for implementation of those objectives.

Sec. 503. The agency may recommend and encourage wastewater reuse and other water development projects, if those projects will enhance and contribute to the responsible management of groundwater resources, as part of its annual plan for implementation of groundwater management objectives.

Article 6. Groundwater Management Plans

Sec. 601. In order to maximize the long-term available supply, the agency shall develop, adopt, and implement a plan to protect the basin's groundwater quality and to balance long-term average annual water replenishment and extractions in the basin.

Sec. 602. The agency shall undertake a study to develop the plan required pursuant to Section 601 which includes all of the following components:

(a) A list of groundwater extraction facilities within the boundaries of the agency.

(b) For each extraction facility, an estimate of annual water production, in acre-feet per year, using industry accepted monitoring and testing procedures.

(c) A table and graph depicting water level readings, as of each October 1, from acceptable sources for the period of record.

(d) Provisions and testing procedures for monitoring water quality.

(e) Historical data for ,rainfall runoff, basin usage and replenishment, and water conservation activities.

(f) A proposed minimum amount of groundwater extraction below which the requirements of this act will not be applied.

Sec. 603. (a) The agency shall undertake a groundwater management study for future extractions from the basin. As a part of this study, the agency shall determine the hydrologic characteristics of the basin, which shall include all of the following information:

(1) Existing groundwater storage capacity.

(2) Existing groundwater storage.

(3) Existing and projected groundwater use.

(4) A review of the boundaries of the basin.

(5) The average annual variation in storage in existing groundwater storage.

(6) Projected annual rainfall, runoff, and recharge rates.

(7) Long-term recoverable storage, including an estimate of nonrecoverable storage.

(8) Potential extractions and storage programs.

Sec. 604. (a) The plan required pursuant to Section 601 may consider any project alternatives designed to enhance the overall balance of long-term average annual basin replenishment and extractions.

(b) The plan shall investigate options of operating the basin to provide an increased ability to capture, recharge, and maximize reasonable uses by fully utilizing the available groundwater supply. The options may include the conjunctive operation of the basin with Casitas Reservoir. The plan shall recommend alternative methods of managing the basin to achieve the long-term objectives of Section 601.

(c) The plan shall establish a minimum amount of groundwater extraction below which the requirements of this act will not be applied, which amount may be modified from time to time based on the impact on the operation of the agency.

Sec. 605. (a) The studies required in Sections 602 and 603 shall be completed and submitted to the board by January 1, 1993.

(b) The plan required in Section 601 shall be completed and submitted to the board by January 1, 1994.

Article 7. Groundwater Management

Sec. 701. If, after a noticed public hearing and consideration of any relevant investigations, studies, and evidence, including compliance with the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code), the board determines that groundwater management activities are necessary in order to improve or protect the quantity or quality of groundwater supplies within the basin, the board may, by ordinance, undertake any of the activities authorized by this article. The requirement in this section for compliance with the California Environmental Quality Act does not, and shall not be construed to, limit compliance with that act for other discretionary actions by the board.

Sec. 702. The board may exercise any of the following measures:

(a) Require conservation practices and measures within identified portions of the agency.

(b) Commence and prosecute legal actions to enjoin unreasonable uses or methods of use of water within the agency or outside the agency to the extent those uses or methods of use adversely affect the groundwater supply within the agency.

(c) Conserve and reclaim water within or outside the agency, require conservation practices and measures within the agency, and impose charges upon those within or without the agency benefited by the conservation practices.

Sec. 703. The agency may regulate groundwater replenishment programs and the recapture of supplemental groundwater resulting from those programs within the agency.

Sec. 704. To encourage conjunctive use, the agency may do either or both of the following:

(a) Contract with entities for benefits to areas outside the basin which may result from conservation or conjunctive use practices within the basin and may impose appropriate charges for those benefits.

(b) Contract with groundwater users within the basin to enhance the conjunctive use of groundwater and surface water and compensate groundwater users for the value of those measures.

Sec. 705. To minimize well interference, the agency may do either or both of the following:

(a) Impose spacing requirements or require reasonable mitigation measures relating to the construction of any new extraction facility.

(b) Impose reasonable operating regulations on extraction facilities.

Sec. 706. The agency may control groundwater extractions by regulating, limiting, or suspending extractions from extraction facilities, the construction of new extraction facilities, the enlarging of existing facilities, and the reactivation of abandoned or inactive extraction facilities. Construction of new extraction facilities may be suspended only after consulting with the county water resources department.

Sec. 707. The availability of supplemental water to any operator shall not subject that operator to regulations more restrictive than those imposed on other operators.

Sec. 708. (a) No groundwater shall be exported from within the agency unless the exporter has applied for, and obtained, a permit from the agency which establishes the quantity of water which may be exported and the conditions of the export. Notwithstanding any conditions specified in the permit, exporters shall be subject to this act.

(b) The agency shall not issue any permit to export groundwater from the agency unless the applicant has established that the temporary surplus is in excess of the amount currently required for reasonable and beneficial uses within the agency, and the board determines that the export would not adversely affect the rights of groundwater users within the agency. The agency shall issue permits for export for time periods, and under terms and conditions, it deems appropriate. All permits shall declare that they are subject to the right of the agency to reduce or suspend exports pursuant to this act.

(c) The agency shall, after published notice and a hearing which discloses evidence of overdraft, or any threat of overdraft, reduce or suspend extractions by exporters regardless of whether a permit to export has been granted pursuant to this act.

(d) The right to store and recapture imported or developed water in the groundwater basin shall be subject to prior permit by the agency. The agency shall issue storage and recapture permits under terms and conditions it deems appropriate and may impose charges therefor. Existing recapture facilities are exempt from this section.

Article 8. Registration of Groundwater Extraction Facilities

Sec. 801. The agency may, by ordinance, require extraction facilities to be registered with the agency within 30 days of notice being given to the operator of the extraction facility.

Sec. 802. The agency may require, by ordinance, that the operator of a registered extraction facility provide the agency annually with all of the following information regarding the extraction facility:

(a) The name and address of the operator of the extraction facility.

(b) The name and address of the owner of the land upon which the extraction facility is located.

(c) A description of the equipment associated with the extraction facility.

(d) The location of the water extraction facility.

(e) The purposes of groundwater use.

Sec. 803. No person may extract groundwater by the use of any extraction facility required to be registered unless the extraction facility has been registered with the agency.

Sec. 804. The agency shall require extraction facilities to be equipped with waterflow measuring devices installed and calibrated by the agency or, at the agency's option, by the extraction facility operator. The agency may, by ordinance, exempt specific extraction facilities from the measuring device requirements.

Sec. 805. No person may extract groundwater by the use of any extraction facility required to be equipped with a waterflow measuring device unless the extraction facility is so equipped.

Sec. 806. If an extraction facility is equipped with a waterflow measuring device, the record of extraction, as disclosed by the waterflow measuring device, may at the election of the board be presumed to be accurate, and if so presumed, shall be used as the basis for computing the water extraction of the extraction facility in completing the groundwater extraction statement.

Sec. 807. The agency may require proof of the accuracy of the waterflow measuring device from the operator and may, absent adequate proof of accuracy, order the operator, at the operator's sole cost, to have the waterflow measuring device calibrated in a manner acceptable to the agency. If the agency has probable cause to believe that the extraction of groundwater from any extraction facility is in excess of the amount reported in a groundwater extraction statement filed pursuant to Section 810, or if no statement is filed covering an extraction facility, the agency may investigate the extraction of water from the extraction facility.

Sec. 808. No person may intentionally injure, alter, remove, reset, adjust, manipulate, obstruct, or in any manner interfere or tamper with any waterflow measuring device affixed to any extraction facility so that the waterflow measuring device improperly or inaccurately measures and records water extraction.

Sec. 809. The board may, by ordinance, establish reasonable methods to be used in computing the amount of water extracted by exempted extraction facilities.

Sec. 810. (a) The agency may, by ordinance, require the operator of each extraction facility to file, in the form specified by the agency, a groundwater extraction statement that contains, but is not limited to, the following information:

(1) Total extraction in acre-feet of water from the extraction facility.

(2) The crop types or other uses and the acreage served by the extraction facility compared to the number of acres owned or leased.

(3) The method of measuring or computing groundwater extraction.

(4) Water conservation activities.

(b) Each groundwater extraction statement shall be verified by a written declaration under penalty of perjury that the information contained in the statement is true and correct.

(c) The operator of an extraction facility which has been permanently abandoned on or after January 1, 1992, shall give written notice of the abandonment to the agency.

Sec. 811. No person who is required to file a groundwater extraction statement may fail to do so.

Sec. 812. No person, with an intent to evade any requirement of this act, may file a false or fraudulent groundwater extraction statement with the agency.

Article 9. Management Charges

Sec. 901. (a) Each year the board may fix a management charge in accordance with benefit-based criteria to be established by the board, upon the City of Ojai, the Casitas Municipal Water District, the Ojai Water Conservation District, and the Southern California Water Company, for the purpose of paying the costs of initiating, carrying on, and completing any of the powers, purposes, and groundwater management activities for which the agency is organized.

(b) In the aggregate, management charges shall be limited to fifty thousand dollars ($50,000) in the first year and twenty-five thousand dollars ($25,000) in the second year. None of the entities identified in subdivision (a) shall be required to pay more than one-third of the aggregate allowable charges. Management charges in succeeding years, or contributions in excess of the established limits, shall be voluntary and payable at the discretion of each entity identified in subdivision (a).

Sec. 902. Management charges shall be paid in the manner prescribed by ordinance.

Article 10. Management Charges to Property

Sec. 1001. Each year the agency may fix a management charge for the purpose of paying the costs of initiating, carrying on, and completing any of the powers, projects, and purposes for which the agency is organized.

Sec. 1002. Before levying management charges, the board shall, after notice and hearing, find and determine the portion of the agency to be benefited by management and planning activities, the need for management charges for the purpose of paying the cost of these activities, and the amount of the charges to be levied.

Sec. 1003. Management charges may not exceed seven dollars and fifty cents ($7.50) per acre per year for each acre of land, or five dollars ($5.00) for each parcel of land of less than one acre within the agency.

Sec. 1004. Management charges applicable to the territory served by the City of Ojai's corporate franchise, or any other water purveyor within the agency's boundaries, may be collected by the water purveyor if the agency so requests and the water purveyor agrees to do so, and shall be paid to the agency in lieu of collection through the tax bills. The board may exclude portions of the agency or may establish schedules varying the management charges according to the likelihood that the land will benefit, as determined by the board, from improved groundwater management and planning.

Sec. 1005. The management charge may, at the option of the agency, be collected on the tax bills of the county, by the same persons, and at the same time as, together with and not separately from, county property taxes. In lieu of this election, the agency shall collect management charges at the same time, together with penalties and interest at the same rates, as is prescribed for the collection of county property taxes.

Sec. 1006. The amount of an unpaid management charge, together with any penalty and interest thereon, shall constitute a lien on that land as of the same time and in the same manner as does the tax lien securing county property taxes.

Sec. 1007. The board may fix management charges until January 1, 1995.

Article 11. Groundwater Extraction Charges

Sec. 1101. (a) The agency may, by ordinance, levy groundwater extraction charges on the extraction of groundwater by the use of water extraction facilities within the boundaries of the agency to pay the costs of initiating, carrying on, and completing any of the powers, purposes, and groundwater management activities described in this act, except that the charge shall not exceed the annual costs to the district incurred in carrying out this act and the cost of a reasonable reserve not to exceed 25 percent of the total appropriations in the agency's budget.

(b) Groundwater extraction charges shall be levied only within a zone or zones of benefit of the district which will benefit from the powers, purposes, and groundwater management activities.

(c) The board may establish zones of benefit within the district. Resolutions of the board shall describe the boundaries of the zones of benefit. The board may amend zones of benefit boundaries by annexing property to or by withdrawing property from a zone, or may divide a zone into two or more zones. Resolutions of the board shall describe the boundaries of the amended or divided zones.

Sec. 1102. (a) Before the levy of groundwater extraction charges, the board of directors shall, after notice and hearing, find and determine the activities required to prepare or implement any groundwater management program for the district and to initiate, carry on, or complete any of the other powers and purposes set forth in this act, and the sum of money necessary for the ensuing water year for those activities.

(b) The board shall determine the need and desirability of levying a groundwater extraction charge for the purpose of paying the costs of initiating, carrying on, and completing any of the powers and purposes set forth in this act. The board shall find that the charge is necessary to finance or otherwise support the groundwater management services provided by the district, except that the charge shall not exceed the annual costs to the district incurred in carrying out this act and the cost of a reasonable reserve not to exceed 25 percent of the total appropriations contained in the agency's budget.

Sec. 1103. The groundwater extraction charge rate shall be uniform for groundwater extraction within the territory of the agency.

Sec. 1104. Groundwater extraction charges shall be calculated on the basis of groundwater extraction statements filed pursuant to Section 810 and the benefit determined pursuant to Section 1101.

Sec. 1105. If any operator of any extraction facility fails to pay the groundwater extraction charge when due, the agency shall charge and collect interest, at the rate of 1½ percent each month, on the delinquent amount of the groundwater extraction charge. In addition, the agency may exercise any of the rights granted pursuant to Article 5 (commencing with Section 75630) of Chapter 3 of Part 9 of Division 21 of the Water Code to collect delinquent groundwater extraction charges.

Sec. 1106. All money collected by the agency pursuant to this article, Article 9 (commencing with Section 901), or Article 10 (commencing with Section 1001), shall be available for expenditure by the agency in carrying out its groundwater management activities.

Sec. 1107. The groundwater extraction charge shall not exceed seven dollars and fifty cents ($7.50) per acre-foot pumped per year.

Article 12. Miscellaneous

Sec. 1201. The Legislature finds and declares that this act, which is applicable only to the Ojai Basin Groundwater Management Agency, is necessary because of the unique and special groundwater management problems in the area included in the agency. It is, therefore, hereby declared that a general law cannot be made applicable to the agency and the enactment of this special law is necessary for the conservation, development, control, and use of that water for the public good and for the protection of life and property therein.

SEC. 2. Section 1 of Chapter 153 of the Statutes of 1974 is amended to read:

Section 1. The Ojai Water Conservation District shall be governed by the Water Conservation Act of 1927 (Chapter 91 of the Statutes of 1927).

SEC. 3. Section 2 of Chapter 153 of the Statutes of 1974 is repealed.

SEC. 4. Section 3 of Chapter 153 of the Statutes of 1974 is amended and renumbered to read:

Sec. 2. The Legislature hereby finds and declares that this act, which is applicable only to the Ojai Water Conservation District, is necessary because of the unique and special water conservation problems in the area included in the district. It is, therefore, hereby declared that a general law cannot be made applicable to the district and the enactment of this special law is necessary for the conservation, development, control, and use of water in the district for the public good and for the protection of life and property therein.

SEC. 5. Section 4 of Chapter 153 of the Statutes of 1974 is repealed.

SEC. 6. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act or the costs which may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, changes the penalty for a crime or infraction, or eliminates a crime or infraction. Notwithstanding Section 17580 of the Government Code, unless otherwise specified in this act, the provisions of this act shall become operative on the same date that the act takes effect pursuant to the California Constitution.

O

ORDINANCE NO. 1

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY REQUIRING THE REGISTRATION, METERING AND REPORTING OF GROUNDWATER EXTRACTIONS WITHIN THE BOUNDARIES OF THE AGENCY.

WHEREAS, Article 5, §§ 501 and 502 of the Ojai Groundwater Basin Management Agency Act authorizes the Agency to collect technical and other information necessary and appropriate to the compilation of an annual report on groundwater supplies within the basin; and

WHEREAS, information regarding the number, location, and use of wells within the basin and the amount of water extracted from these wells is important to the preparation of an annual report; and

WHEREAS, Article 8, § 802 of the Agency's Authorizing Act provides that the operator of a registered extraction facility shall be required to provide information to the Agency as requested from time to time; and

WHEREAS, Article 8, § 804 of the Agency's Authorizing Act mandates that the Agency, by Ordinance, shall require extraction facilities to be equipped with waterflow measuring devices; and

WHEREAS, the completion of the attached forms by persons who own or operate wells or produce groundwater within the boundaries of the basin, as defined by the Agency's Authorizing Act, will be useful to the Agency and will satisfy the legislative requirements applicable to the metering of wells;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Short Title.

This Ordinance No. 1 shall be known and cited as "the Agency Registration, Extraction and Metering Ordinance."

Section 2. Policy and Purpose.

The Agency is charged with the legal responsibility for managing groundwater within the boundaries of the Agency. Information concerning the extraction, use and distribution of water is necessary to the Agency's fulfillment of its legislative function of managing groundwater resources.

Section 3. <u>Definitions</u>.

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

a. "Waterflow measuring device" shall mean a meter or other measuring device which is attached to an extraction facility for the purpose of measuring the quantity of water extracted by the facility.

b. "Extraction" shall mean the act of obtaining groundwater by pumping or other controlled means.

c. "Extraction facility" shall mean any device or method for the extraction of groundwater within the basin, including a well.

d. "Basin" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in § 201 of the Agency's Authorizing Act.

e. "Operator" shall mean a person who operates a groundwater extraction facility. If the agency is unable to determine who operates a particular extraction facility, then "operator" shall mean the person to whom the extraction facility is assessed by the county assessor or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

f. "Person" shall mean any person, state or local governmental agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, any federal agency.

Section 4. <u>Extraction Facility Registration Form.</u>

a. The operator of an extraction facility shall register any extraction facility with the Agency by completing a registration form similar to the one attached hereto as Exhibit A and incorporated by reference as if fully set forth herein. The registration form shall be completed and the information requested provided to the Agency by the operator of an existing facility by returning a completed registration form to the Agency by July 1, 1993. New extraction facilities shall be registered by returning the registration form to the Agency within thirty calendar days following the completion of construction.

b. The Agency shall make blank registration forms available to operators and the public generally by direct mail to known operators and by keeping copies at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93024.

c. Failure of any operator to receive a direct mailing of a registration form shall not relieve the operator of the obligation to file the form with the Agency as required in Section 4(a).

Section 5. <u>Groundwater Extraction Form.</u>

a. Every operator that extracts groundwater from the basin shall file an annual extraction report containing an estimate of total extractions of groundwater through an extraction facility and additional relevant information as provided on a groundwater extraction form similar to Exhibit B attached hereto and incorporated herein by this reference, and signed under penalty of perjury by the operator.

b. The operator shall set forth its good faith basis for the estimate of total water extractions as set forth in § 5(a) which shall be included in the completed form transmitted to the Agency.

c. The Agency shall make blank groundwater extraction forms available to operators and the public generally by direct mail to known operators and by keeping copies at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93024.

d. Failure of any operator to receive a direct mailing of an extraction statement form shall not relieve the operator of the obligation to file the form with the Agency as required in Section 5(a).

e. The operator's extraction statement shall be presumed accurate upon timely filing of the form with the Agency. For good cause, the Agency may disregard the extraction statement and cause an investigation of the actual amount extracted by any operator in any calendar year. In the event of a discrepancy between the extraction statement filed by the operator and the findings of the Agency, the findings of the Agency shall control.

Section 6. <u>Extraction Facility Metering</u>.

Every operator shall equip each extraction facility with an approved waterflow measuring device and report the accuracy of the measuring device to the Agency in accordance with the following schedule:

a. For every extraction facility for which construction has been completed before June 1, 1993, every operator shall be required to equip each extraction facility with a waterflow measuring device by December 31, 1993.

b. For every extraction facility for which construction has been completed before June 1, 1993, every operator for each extraction facility shall be required to cause a test of the accuracy of the measuring device to be completed and the results of the test to be reported to the Agency by June 1, 1994. The test shall be undertaken in accordance with recognized industry standards.. Thereafter, every operator shall cause a test of the waterflow measuring device to be conducted and the test results reported to the Agency within the fifth calendar year immediately following the year in which the initial test was performed and reported.

c. For new extraction facilities for which construction is completed after June 1, 1993, every operator shall be required to equip each new extraction facility with a waterflow measuring device within 60 calendar days following the completion of well construction.

d. For new extraction facilities for which construction is completed after June 1, 1993, every operator shall be required to cause a test of the accuracy of the measuring device to be completed and the results of the test to be reported to the Agency within 90 calendar days following the completion of well construction. The test shall be undertaken in accordance with recognized industry standards. Thereafter, every operator shall cause a test of the waterflow measuring device to be conducted and the results of the test reported to the Agency within the fifth calendar year immediately following the year in which the initial test was performed and reported.

Section 7. Termination Date.

This Ordinance will remain in full force and effect until repealed by action of the Board of Directors for the Agency.

Section 8. Violation.

a. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed $500.

b. Any person who intentionally or negligently violates this Ordinance may be liable to the Agency civilly for a sum not to exceed $1,000 per day.

Section 9. Enforcement.

The Agency may take any actions authorized by law, to enforce the terms and provisions of this Ordinance.

Section 10. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 11. Effective Date.

This Ordinance was adopted on April 29, 1993, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES:	Roger Essick, Conner Everts, Robert N. McKinney, Charles Noren, Scott S. Slater
NOES:	None
ABSTAIN:	None
ABSENT:	None

ATTEST:

Roger Essick
President

Harry Bodell,
Acting Secretary
3284S

ORDINANCE NO. 1
AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY REQUIRING THE REGISTRATION, METERING AND REPORTING OF GROUDWATER EXTRACTIONS WITHIN THE BOUNDARIES OF THE AGENCY.

WHEREAS, Article 5, §§501 and 502 of the Ojai Groundwater Basin Management Agency Act authorizes the Agency to collect technical and other information necessary and appropriate to the compliation of an annual report on groundwater supplies within the basin; and

WHEREAS, information regarding the number, location, and use of wells within the basin and the amount of water extracted from these wells is important to the preparation of an annual report; and

WHEREAS, Article 8, § 802 of the Agency's Authorizing Act mandates that the Agency, by Ordinance, shall require extraction facilities to be equipped with waterflow measuring devices; and

WHEREAS, Article 8, §804 of the Agency's Authorizing Act mandates that the agency, by Ordinance, shall require extraction facilities to be equipped with waterflow measuring devices; and

WHEREAS, the completion of the attached forms by persons who own or operate wells or produce groundwater within the boundaries of the basin, as defined by the Agency's Authorizing Act, will be useful to the Agency and will satisfy the legislative requirements applicable to the metering of wells;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. SHORT TITLE.

This Ordinance No. 1-93 shall be known and cited as "the Agency Registration, extraction and Metering Ordinance."

Section 2. POLICY AND PURPOSE.

The Agency is charged with the legal responsibility for managing groundwater within the boundaries of the Agency. Information concerning the extraction, use and distribution of water is necessary to the Ojai, the Agency's fulfillment of its legislative function of managing groundwater resources.

Section 3. DEFINITIONS.

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

a. "Waterflow measuring device" shall mean a meter or other measuring device which is attached to an extraction facility for the purpose of measuring the quantity of water extracted by the facility.

b. "Extraction" shall mean the act of obtaining groundwater by pumping or other controlled means.

c. "Extraction facility" shall mean any device or method for the extraction of groundwater within the basin, including a well.

d. "Basin" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in § 201 of the Agency's Authorizing Act.

e. "Operator" shall mean a person who operates a groundwater extraction facility. If the agency is unable to determine who operates a particular extraction facility then "operator" shall mean the person to whom the extraction facility is assessed by the county assessor or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

f. "Person" shall mean any person, state or local governmental agency, private corporation firms, partnership, individual, group of individuals or, to the extent authorized by law, any federal agency.

Section 4. EXTRACTION FACILITY REGISTRATION FORM.

a. The operator of an extraction facility shall register any extraction facility with the agency by completing a registration form similar to the one attached hereto as Exhibit A and incorporated by reference as if fully set forth herein. The registration form shall be completed and the information requested provided to the Agency by the operator of an existing facility by returning a completed registration form to the Agency by July 1, 1993. New extraction facilities shall be registered by returning the registration form to the Agency within thirty calendar days following the completion of construction.

b. The Agency shall make blank registration forms available to operators and the public generally by direct mail to known operators and by keeping copies at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93023.

c. Failure of any operator to receive a direct mailing of a registration form shall not relieve the operator of the obligation to file the form with the Agency as required in Section 4(a).

Section 5. GROUNDWATER EXTRACTION FORM.

a. Every operator that extracts groundwater from the basin shall file an annual extraction report containing an estimate of total extractions of groundwater through an extraction facility and additional relevant information as provided on a groundwater extraction form similar to Exhibit B attached hereto and incorporated herein by this reference, and signed under penalty of perjury by the operator.

b. The operator shall set forth its good faith basis for the estimate of total water extractions as set forth in § 5(a) which shall be included in the completed form transmitted to the Agency.

c. The Agency shall make blank groundwater extraction forms available to operators and the public generally by direct mail to known operators and by keeping copies at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93023.

d. Failure of any operator to receive a direct mailing of an extraction statement form shall not relieve the operator of the obligation to file the form with the Agency as required in Section 5(a).

e. The operator's extraction statement shall be presumed accurate upon timely filing of the form with the Agency. For good cause, the Agency may disregard the extraction statement and cause an investigation of the actual amount extracted by any operator in any calendar year. In the event of a discrepancy between the extraction statement filed by the operator and the findings of the Agency, the findings of the Agency shall control.

Section 6. EXTRACTION FACILITY METERING.

Every operator shall equip each extraction facility with an approved waterflow measuring device and report the accuracy of the measuring device to the Agency in accordance with the following schedule:

a. For every extraction facility for which construction has been completed before June 1, 1993, every operator shall be required to equip each extraction facility with a waterflow measuring device by December 31, 1993.

b. For every extraction facility for which construction has been completed before June 1, 1993, every operator for each extraction facility shall be required to cause a test of the accuracy of the measuring device to be completed and the results of the test to be reported to the Agency by June 1, 1994. The test shall be undertaken in accorandance with recognized industry standards. Thereafter, every operator shall cause a test of the waterflow measuring device to be conducted and the test results reported to the Agency within the fifth calendar year immediately following the year in which the inital test was performed and reported.

c. For new extraction facilities for which construction is completed after June 1, 1993, every operator shall be required to equip each new extraction facility with a waterflow measuring device within 60 calendar days following the completion of well construction.

d. For new extraction facilities for which construction has been completed before June 1, 1993, every operator shall be required to cause a test of the accuracy of the measuring device to be completed and the results of the test to be reported to the Agency within 90 calendar days following the completion of well construction. The test shall be undertaken in accordance with recognized industry standards. Thereafter, every operator shall cause a test of the waterflow measuring device to be conducted and the results of the test reported to the Agency within the fifth calendar year immediately following the year in which the initial test was performed and reported.

Section 7. TERMINATION DATE.

This Ordinance will remain in full force and effect until repealed by action of the Board of Directors for the Agency.

Section 8. Violation.

a. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed $500.

b. Any person who intentionally or negligently violates this Ordinance may be liable to the Agency civilly for a sum not to exceed $1,000 per day.

Section 9. ENFORCEMENT.

The Agency may take any actions authorized by law, to enforce the terms and provisions of this Ordinance.

Section 10. SEVERABILITY

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 11. EFFECTIVE DATE

This Ordinance was adopted April 29, 1993, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES: - Roger Essick, Conner Everts, Robert N. McKinney, Charles Noren, Scott S. Slater.

NOES:

ABSTAIN:

ABSENT:

ATTEST:

/s/Roger Essick
President

Harry Bodell,
Acting Secretary

Published Ojai Valley News
May 7, 1993
5-10-3

ORDINANCE NO. 2

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY REQUIRING NOTIFICATION OF AN INTENT TO CONSTRUCT AN EXTRACTION FACILITY.

WHEREAS, Article 8, § 802 of the Agency's Authorizing Act provides that the operator of a registered extraction facility shall be required to provide information to the Agency as requested from time to time; and

WHEREAS, the Agency has adopted an ordinance requiring the registration of all wells within the boundaries of the Agency; and

WHEREAS, Article 7, of the Agency's Authorizing Act provides the Agency with the authority to impose reasonable conditions and regulations on the use of extraction facilities; and

WHEREAS, the Agency must be adequately informed about the existence of new extraction facilities within the Agency to carry out its groundwater management responsibilities, and

WHEREAS, the County of Ventura presently permits the construction and operation of extraction facilities as a ministerial matter; and

WHEREAS, the Agency desires to avoid the burden of unnecessary permitting in its regulation of extraction facilities; and

WHEREAS, an Ordinance is required to carry out this legislative purpose;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Short Title.

This Ordinance No. 2 shall be known and cited as "the Extraction Facility Notification Ordinance."

Section 2. Policy and Purpose.

The Agency is charged with the legal responsibility for managing groundwater within the boundaries of the Agency. Information concerning the extraction, use and distribution of water is necessary to the Agency's fulfillment of its legislative function of managing groundwater resources.

Section 3. Definitions.

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

a. "Basin" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in § 201 of the Agency's Authorizing Act.

b. "County" means the County of Ventura.

c. "Construction" means the building of an extraction facility such as the act of drilling a well

d. "Extraction" shall mean the act of obtaining groundwater by pumping or other controlled means.

e. "Extraction facility" shall mean any device or method for the extraction of groundwater within the basin, including a well.

f. "Operator" shall mean a person who operates a groundwater extraction facility. If the agency is unable to determine who operates a particular extraction facility, then "operator" shall mean the person to whom the extraction facility is assessed by the county assessor or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

g. "Person" shall mean any person, state or local governmental agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, any federal agency.

Section 4. Extraction Facility Permit.

a. No operator shall construct an extraction facility within the boundaries of the Agency without first having provided a copy of a County well permit to the Agency.

b. An operator shall be entitled to construct an extraction facility within the Agency as a matter of right upon demonstrating compliance with all County requirements for the construction and operation of a water well and providing a copy of the County well permit to the Agency.

c. The presentation of an approved County well permit, in a form and manner customarily issued by the County, to the Agency at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93023 shall be deemed compliance with County requirements for the purposes of this Ordinance.

d. An operator may begin construction of the extraction facility 3 calendar days following the Agency's receipt of a County well permit from the operator.

Section 5. Termination Date.

This Ordinance will remain in full force and effect until repealed by action of the Board of Directors for the Agency.

Section 6. Violation.

a. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed $500.

b. Any person who intentionally or negligently violates this Ordinance may be liable to the Agency civilly for a sum not to exceed $1,000 per day.

Section 7. Enforcement.

The Agency may take any actions authorized by law, to enforce the terms and provisions of this Ordinance.

Section 8. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 9. Exemption.

Any extraction facility in existence on the date this Ordinance shall become effective shall be exempt from the requirements of this Ordinance. However, in the event a modification of an existing extraction facility is undertaken by any operator and that operator is required under applicable County Ordinances to obtain a new County well permit, the operator shall also be obligated to provide a copy of the County well permit to the Agency in accordance with the terms of this Ordinance.

Section 10. Effective Date.

This Ordinance was adopted on December 16, 1993, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES:	Roger Essick, Conner Everts, Robert N. McKinney, Scott S. Slater
NOES:	None
ABSTAIN:	None
ABSENT:	Charles Noren

ATTEST:

Roger Essick
Roger Essick
President

Harry Bodell
Harry Bodell
Administrative Staff Assistant

3738S

ORDINANCE NO. 2
AN ORDINANCE OF
THE OJAI BASIN
GROUNDWATER MANAGEMENT
AGENCY REQUIRING NOTIFICATION OF AN INTENT TO CONTSTRUCT AN EXTRACTION FACILITY.

WHEREAS, Article 8, § 802 of the Agency's Authorizing Act provides that the operator of a registered extraction facility shall be required to provide information to the Agency as requested from time to time; and

WHEREAS, the agency has adopted an ordinance requiring the registration of all wells within the boundaries of the Agency; and

WHEREAS, Article 7, of the Agency's Authorizing Act provides the Agency with the authority to impose reasonable conditions and regulations on the use of extraction facilities; and

WHEREAS, the Agency must be adequately informed about the existence of new extraction facilities within the Agency to carry out its groundwater management responsibilities, and

WHEREAS, the County of Ventura presently permits the construction and operation of extraction facilities as a ministerial matter and

WHEREAS, the Agency desires to avoid the burden of unnecessary permitting in its regulation of extraction facilities; and

WHEREAS, an Ordinance is required to carry out this legislative purpose;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGMENT AGENCY AS FOLLOWS:

Section 1. Short Title.

This Ordinance No. 3 shall be known and cited as "the Extraction Facility Notification Ordinance."

Section 2. Policy and Purpose.

The Agency is charged with the legal responsibility for managing groundwater within the boundries of the Agency. Information concerning the extraction, use and distribution of water is necessary to the Agency's fulfillment of its legislative function of managing groundwater resources.

Section 3. Definitions.

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

a. "Basin" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in § 201 of the agency's Authorizing Act.

B. "County" means the County of Ventura.

c. "Construction" means the building of an extraction facility such as the act of drilling a well

d. "Extraction" shall mean the act of obtaining groundwater by pumping or other controlled means.

e. "Extraction facility" shall mean any device or method for the extraction of groundwater within the basin, including a well.

f. "Operator" shall mean a person who operates a groundwater extraction facility. If the agency is unable to determine who operates a particular extraction facility, then "Operator" shall mean the person to whom the extraction facility is assessed by the county assessor or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

g. "Person" shall mean any person, state or local government agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, any federal agency.

Section 4. Extraction Facility Permit.

A. No operator shall construct an extraction facility within the boundaries of the agency without first having provided a copy of a County well permit to the Agency.

b. An operator shall be entitled to construct an extraction facility within the Agency as a matter of right upon demonstrating compliance with all County requirements for the construction and operation of a water well and providing a copy of the County well permit to the Agency

c. The presentation of an approved County well permit, in a form and manner customarily issued by the County, to the Agency at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93023 shall be deemed compliance with County requirements for the purposes of this Ordinance.

d. An operator may begin construction of the extraction facility 3 calendar days following the Agency's receipt of a County well permit from the operator.

Section 5. Termination Date.

This Ordinance will remain in full force and effect until repealed by action of the Board of Directors for the Agency.

Section 6. Violation.

a. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed $500.

b. Any person who intentionally or negligently violates this Ordinance may be liable to the Agency civilly for a sum not to exceed $1,000 per day.

Section 7. Enforcement.

The Agency may take any actions authorized by law, to enforce the terms and provisions of this Ordinance.

Section 8. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations, irrespective of the fac that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 9.
EXEMPTION.

Any extraction facility in existence on the date this Ordinance shall become effective shall be exempt from the requirements of this Ordinance. However, in the event a modification of an existing extraction facility is undertaken by any operator and that operator is required under applicable County Ordinances to obtain a new County well permit, the operator shall also be obligated to provide a copy of the County well permit to the Agency in accordance with the terms o this Ordinance.

Section 10. Effective Date.

This Ordinance was adopted on December 16, 1993, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES: Roger Essick, Conner Everts, Robert N. McKinney, Scott S. Slater

NOES: None

ABSTAIN: None

ABSENT: Charles Noren

ATTEST:

/s/Roger Essick
President

/s/Harry Bodell
Administrative Staff Assistant

3738S

Published Ojai Valley News
December 31, 1993
12-34-3

ORDINANCE NO. 3

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY EXEMPTING CERTAIN WELLS FROM THE METERING REQUIREMENTS ESTABLISHED UNDER AGENCY ORDINANCE NO. 1-93.

WHEREAS, Article 5, §§ 501 and 502 of the Ojai Groundwater Basin Management Agency Act authorizes the Agency to collect technical and other information necessary and appropriate to the compilation of an annual report on groundwater supplies within the basin; and

WHEREAS, information regarding the number, location, and use of wells within the basin and the amount of water extracted from these wells is important to the preparation of an annual report; and

WHEREAS, Article 8, § 802 of the Agency's Authorizing Act provides that the operator of a registered extraction facility shall be required to provide information to the Agency as requested from time to time; and

WHEREAS, Article 8, § 804 of the Agency's Authorizing Act mandates that the Agency, by Ordinance, shall require extraction facilities to be equipped with waterflow measuring devices; and

WHEREAS, the Agency has adopted an Ordinance requiring the registration, and metering of extraction facilities; and

WHEREAS, Article 4, section 410 of the Agency's Authorizing Act allows the Agency to exempt the owners of extraction facilities from some or all of the provisions of its ordinances;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Title.

This Ordinance No. 3 shall be known as the "Metering Exemption Ordinance."

Section 2. Purpose and Intent.

The purpose and intent of this ordinance is to provide a procedure for the operator of an extraction facility to obtain an exemption to the Agency's requirement that all extraction facilities be metered.

Section 3. <u>Definitions</u>.

As used in this ordinance, all terms shall have the meaning given to them in the Agency's Authorizing Act or Agency Ordinance No. ____.

Section 4. <u>Exemption From Agency Ordinance No. ____ Requiring Extraction Facility Metering</u>.

A ---- HYDROLOGIC SOURCE EXEMPTION

1. The Agency may exempt operators from metering specific extraction facilities based upon the source of the water extracted by the extraction facility. Where the operator can demonstrate by clear and convincing evidence that an extraction facility within the boundaries of the Agency is (1) extracting water through a facility which draws water from a HYDROLOGIC source other than the Basin and (2) that no other operator within the Basin will be injured by the use of the extraction facility proposed for exemption, they shall be entitled to an exemption from the metering requirements specified in Ordinance 93-1.

2. The burden of proving that the water being extracted is not within the boundaries of the Agency or is not otherwise groundwater which is subject to the jurisdiction of the Agency is upon the operator.

3. Factors the Board deems relevant in granting the requested exemption include the following:

(a) The location of the extraction facility.

(b) The size of the extraction facility.

(c) The source of the water.

(d) The watershed boundaries.

(e) The drainage area.

(f) Where the water is applied.

(g) The public interest.

B ---- THE SMALL USER EXEMPTION

1. The Agency shall exempt operators from metering specific extraction facilities where the operator can demonstrate by clear and convincing evidence that an extraction facility is powered by a motor of three (3) or less horsepower and the sum total of water extracted by the operator from all extraction facilities for use on any single legal parcel is less than one and one half (1.5) acre-feet per year.

2. The burden of proving that the extraction facility meets the requirements of paragraph 1 is upon the operator.

3. This exemption shall expire by its terms without further action of the Agency on January 1, 1996.

C — PROCEDURE

1. Upon receipt of a written request for an exemption which is filed by an operator at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93023, the Agency Board shall set and conduct a public hearing to consider evidence and hear testimony on whether the operator has met the burden required for the exemption.

2. The hearing shall be held within sixty days of the date the Agency receives the written request for exemption.

3. The issuance of an exemption in any one case shall not entitle the operator to future exemptions. Nor shall an exemption from the metering requirement exempt the operator from any other Agency ordinance, resolution or legal requirement including, but not limited to, well registration and reporting of groundwater extractions.

Section 5. Cost Reimbursement.

All costs incurred by the Agency in reviewing an application for an exemption from the Extraction Facility Permit Ordinance shall be borne entirely by the operator including, but not limited to publication, administration, environmental review, engineering, geologic, hydrogeologic, and legal fees. Any exemption granted by the Agency pursuant to this Ordinance shall not become effective until the operator has tendered payment in full to the Agency.

Section 6. Effective Date.

This Ordinance was adopted on February 24, 1994, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

ORDINANCE NO. 3
AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY EXEMPTING CERTAIN WELLS FROM THE METERING REQUIREMENT ESTABLISHED UNDER AGENCY ORDINANCE NO. 1-93.

WHEREAS, Article 5, §§ 501 and 502 of the Ojai Groundwater Basin Management Agency act authorizes the agency to collect technical and other information necessary and appropriate to the compilation of an annual report on groundwater supplies within the basin; and

WHEREAS, information regarding the number, location, and use of wells within the basin and the amount of water extracted from these wells is important to the preparation of an annual report; and

WHEREAS, Article 8, § 802 of the Agency's Authorizing Act provides that the operator of a registered extraction facility shall be required to provide information to the Agency as requested from time to time; and

WHEREAS, Article 8, § 804 of the Agency's Authorizing Act mandates that the Agency, by Ordinance, shall require extraction facilities to be equipped with waterflow measuring devices; and

WHEREAS, the agency has adopted an Ordinance requiring the registration, and metering of extraction facilities, and

WHEREAS, Article 4, Section 410 of the Agency's Authorizing act allows the Agency to exempt the owners of extraction facilities from some or all of the provisions of its ordinances;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGMENT AGENCY AS FOLLOWS:

Section 1. Title.

This Ordinance No.3 shall be known as the "Metering Exemption Ordinance."

Section 2. Purpose and Intent.

The purpose and intent of this ordinance is to provide a procedure for the operator of an extraction facility to obtain an exemption to the Agency's requirement tht all extraction facilities be metered.

Section 3. Definitions.

As used in this ordinane, all terms shall have the meaning given to them in the Agency's Authorizing Act or Agency Ordinance No. SB534.

Section 4. Exemption From Agency Ordinance No. Requiring Extraction Facility Metering.

A HYDROLOGIC SOURCE EXEMPTION

1. The Agency may exempt operators from metering specific extraction facilities based upon the source of the water extracted by the extraction facility. Where the operator can demonstrate by clear and convincing evidence that an extraction facility within the boundaries of the agency is (1) extracting water through a facility which draws water from a HYDROLOGIC source other than the Basin and (2) that no other operator within the Basin will be injured by the use of the extraction facility proposed for exemption, they shall be entitled to an exemption from the metering requirements specified in Ordinance 93-1.

2. The burden of proving that the water being extracted is not within the boundaries of the Agency or is not otherwise groundwater which is subject to the jurisdiciton of the agency is upon the operator.

3. Factors the Board deems relevant in granting the requested exemption include the following:

(a) The location of the extraction facility.

(b) The size of the extracton facility.

(c) The source of the water.

(d) The watershed boundaries.

(e) The drainage area.

(f) Where the water is applied.

(g) The public interest.

B THE SMALL USER EXEMPTION

1. The Agency shall exempt operators from metering specific extraction facilities where the operator can demonstrate by clear and convincing evidence that an extraction facility is powered by a motor of three (3) or less horsepower and the sum total of water extracted by the operator from all extraction facilities for use on any single legal parcel is less than one and one half (1.5) acre-feet per year.

2. The burden of proving that the extraction facility meets the requirements of paragraph 1 is upon the operator.

3. This exemption shall expire by its terms without further action of the Agency on January 1, 1996.

C PROCEDURE

1. Upon receipt of a written request for an exemption which is filed by an operator at the Agency Board shall set and conduct a public hearing to consider evidence and hear testimony on whether the operator has met the burden required for the exemption.

2. The hearing shall be held within sixty days of the date the Agency receives the written request for exemption.

3. The issuance of an exemption in any one case shall not entitle the operator to future exemptions. Nor shall an exemption from the metering requirement exempt the operator from any other Agency ordinance, resolution or legal requirement including, but not limited to, well registration and reporting of groundwater extractions.

Section 5. Cost Reimbursement.

All costs incurred by the agency in reviewing an application for an exemption from the Extraction Facility Permit Ordinance shall be borne entirely by the operator including, but not limited to publication, administration, environmental review, engineering, geologic, hydrogeologic, and legal fees. Any exemption granted by the Agency pursuant to this Ordinance shall not become effective until the operator has tendered payment in full to the Agency.

Section 6. Effective Date.

This Ordinance was adopted on February 24, 1994, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the board of Directors of the Agency, State California, by the following vote:

AYES: Essick, Noren, McKinnon & Slater
NOES: Everts
ABSTAIN: None
ABSENT: None
ATTEST
/s/Conner Everts
President
/s/Harry Bodell
Secretary
3743S
Published Ojai Valley News
March 9, 1994
3-21-4

NOTICE OF PUBLIC HEARING
OJAI BASIN GROUNDWATER MANAGEMENT AGENCY

NOTICE IS HEREBY GIVEN THAT the Ojai Basin Groundwater Management Agency will hold a public workshop to consider the contents of a proposed Groundwater Management Plan.

This workshop has been set for public participation on Monday, March 14, 1994 at 7:00 p.m. in the Auditorium, Chaparral High School, 414 E. Ojai Ave., Ojai, California.

Interested persons may at that time participate with the Agency in the development of the proposed Management Plan.

Seating will be limited to 30-40. Additional information and reservations may be obtained by calling 640-8157.

Date: Feburary 28, 1994
Harry Bodell
Staff Assistant
Published Ojai Valley News
March 4, 9 & 11, 1994
3-11-4

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

ATTEST:

Conner Everts
President

Harry Bodell, Secretary

3743S

ORDINANCE NO. 4

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY LEVYING GROUNDWATER EXTRACTION CHARGES.

WHEREAS, Article 1, section 101 of the Ojai Groundwater Basin Management Agency Act declares that the preservation of the groundwater within the territory of the Ojai Basin Groundwater Management Agency for the protection of agricultural, municipal, and industrial uses, is in the public interest and for the common benefit of the water users within the Agency; and

WHEREAS, Article 10, sections 1001-1007 of the Ojai Groundwater Basin Management Agency Act authorizes the Agency to fix a management charge for the purpose of paying for the costs of initiating, carrying on and completing any of the powers, projects and purposes for which the Agency is organized. However, the Agency may not impose the management charge after January 1, 1995; and

WHEREAS, the Agency must raise sufficient funds to pay for the cost of initiating, carrying on, and completing the powers, purposes, and groundwater management activities described in its authorizing Act; and

WHEREAS, Article 11, section 1101 of the Ojai Groundwater Basin Management Agency Act authorizes the Agency to levy groundwater extraction charges on the extraction of groundwater by the users of groundwater extraction facilities within the boundaries of the agency; and

WHEREAS, the Agency has adopted Ordinance No. 1, which requires the registration of groundwater extraction facilities and reporting of groundwater extractions within the boundaries of the Agency; and

WHEREAS, Ordinances 1 and 4, taken together, enable the Agency to determine water extractions accurately and to assess and collect charges and fees equitably, so that the Agency may meet its mission of preserving the quantity and quality of the groundwater in the Ojai Basin.

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Short Title.

This Ordinance No. 4 shall be known and cited as "the Groundwater Extraction Charge Ordinance."

Section 2. Policy and Purpose.

The Agency is charged with the legal responsibility of managing the groundwater resource within the boundaries of the Agency. The Agency's mission is to preserve the quality and quantity of groundwater in the Ojai Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the basin. The Agency enacts this Groundwater Extraction Charge Ordinance as legal authority to require that every groundwater extraction facility contribute an equitable portion of the costs of running the Agency.

Section 3. Definitions.

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

a. **"Agency"** shall mean the Ojai Basin Groundwater Management Agency.

b. **"Basin"** shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in § 201 of the Agency's Authorizing Act.

c. **"Board"** shall mean the Board of Directors of the Agency.

d. **"County"** shall mean the County of Ventura.

e. **"Dwelling unit"** shall mean a structure suitable for residential household occupancy.

f. **"Extraction"** shall mean the act of obtaining groundwater from the Basin by pumping or other controlled means.

g. **"Extraction facility"** shall mean any device or method for the extraction of groundwater from the Basin, including a well.

h. **"Groundwater"** shall mean the water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, whether or not flowing through known and definite channels.

i. **"Operator"** shall mean a person who operates a groundwater extraction facility. If the Agency is unable to determine who operates a particular extraction facility, then "operator" shall mean the person to whom the extraction facility is assessed by the county assessor or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

j. **"Public water system"** shall mean a water system which, as defined in Section 4010.1 of the California Health and Safety Code, (i) serves 15 or more connections and provides water for residential use or (ii) regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

k. **"Person"** shall mean any person, state or local governmental agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, any federal agency.

l. **"Waterflow measuring device"** shall mean a meter or other measuring device which is attached to an extraction facility for the purpose of measuring the quantity of water extracted by the facility.

Section 4. Estimated Semi-Annual Water Demand.

a. The following estimates of semi-annual water demand shall be presumed accurate for those extraction facilities not equipped with a waterflow measuring device.

(1) Groundwater extraction facilities not equipped with waterflow measuring devices. The Table of Average Semi-Annual Water Demand set forth below shall be used to estimate the amount of water extracted by groundwater extraction facilities not equipped with a waterflow measuring device.

TABLE OF AVERAGE SEMI-ANNUAL WATER DEMAND

Water Use	Average Semi-Annual Water Demand
Residential	0.3 acre-foot/per dwelling unit
Subtropical orchard (Citrus/avocado/kiwi)	1.7 acre-foot/cultivated acre
Greenhouse operation	2.0 acre-foot/cultivated acre
Golf course and other turf	2.0 acre-foot/cultivated acre
All other agriculture	1.7 acre-foot/cultivated acre

b. If an extraction facility that is not equipped with a waterflow measuring device provides water to more than one type of use, total semi-annual groundwater extraction by the facility shall be estimated as the sum of all such uses on the basis of the indices established in the Table of Average Semi-Annual Water Demand. Water demand shall be presumed to be evenly divided between the payment periods prescribed in this Ordinance.

c. A groundwater extraction facility operator may appeal the Agency presumption of semi-annual water demand, as determined under paragraph a. of this Section, to the Board. Such appeal may challenge the presumed demand for a specific period of time or it may request authorization of a perennial method of estimating demand which would eliminate the need for reference to the Table of Average Semi-Annual Water Demand. Such appeal shall state fully the grounds of the appeal and all facts relied upon in the appeal, including, but not limited to, flow meter records; electrical power consumption records; logs of hours of operation, operating pressure, and depth of water; the result of any pump or efficiency test made; measurements of pump output; and any other data pertinent to quantifying groundwater production. The Board shall make a written finding of fact either granting or denying the appeal.

Section 5. Frequency of Payment and Computing Groundwater Extraction Charges.

a. Beginning with Semi-Annual Period 2 of 1995, each operator shall complete and file a Groundwater Extraction Statement and make payment of the appropriate groundwater extraction charge to the Agency. The frequency of reporting and making payment, and the method of computing the charge shall be as follows.

b. All operators shall pay the groundwater extraction charge semi-annually. If the extraction facility is equipped with a waterflow measuring device, the operator shall calculate and pay its extraction charge on the basis of its measured extractions. If the extraction facility is not equipped with a waterflow measuring device, the operator shall calculate and pay its extraction charge on the basis of the estimated semi-annual water demand set forth in Section 4 of this Ordinance. Semi-annual payments are due as set forth in Section 6 of this Ordinance and shall accompany the "Groundwater Extraction Statement" required pursuant to Section 7 of this Ordinance.

c. The amount of payment due shall be determined by multiplying the total water extraction for the applicable payment period by the effective per-acre-foot charge as set forth in Section 8 of this Ordinance.

Section 6. Payment and Reporting Due Dates.

a. Payment of the semi-annual extraction charge is due to the Agency as set forth in this Section. Payment is to accompany the filing of a Groundwater Extraction Statemen. required pursuant to Section 7 of this Ordinance.

b. The semi-annual assessment periods and payment due dates are as follows:

SEMI-ANNUAL PAYMENT DATES

Semi-Annual Period	Assessment Dates	Payment Due Date
1	January 1 - June 30	July 31
2	July 1- December 31	January 31

c. Payment not received by the Agency within the time specified for the applicable payment cycle shall be deemed delinquent and subject the operator to penalties as set forth in Section 8 of this Ordinance.

d. The operator's Groundwater Extraction Statement and payment of calculated fees shall be presumed accurate upon timely receipt by the Agency. For good cause, the Agency may disregard the Groundwater Extraction Statement and payment of fees and cause an investigation of the actual amount extracted by any operator for any payment period. In the event of a discrepancy between the Groundwater Extraction Statement and payment provided the Agency and the findings of the Agency, the findings of the Agency shall control.

Section 7. Groundwater Extraction Statement: Reporting Extractions

a. The Groundwater Extraction Form filing requirements of Ordinance 1, Section 5, are hereby superseded by this Ordinance. The Groundwater Extraction Statement forms and filing requirements are as set forth in this Ordinance.

b. Every operator that extracts groundwater from the basin shall file a completed "Groundwater Extraction Statement," in conjunction with the payment of the required extraction charge, with the same periodicity as required for payment of the extraction charge as set forth in Section 5 of this Ordinance. The completed and filed Groundwater Extraction Statement shall be on a form substantially similar to Exhibit A attached hereto and incorporated herein by this reference. Each completed and filed Groundwater Extraction Statement shall be signed under penalty of perjury by the operator of the respective extraction facility.

c. The Agency shall make Groundwater Extraction Statement forms available to operators and the public generally by direct mail to known operators and by keeping copies available for the public at the Agency office located at City Hall, 401 South Ventura Street, Ojai, California 93024.

d. Failure of any operator to receive a direct mailing of a Groundwater Extraction Statement form shall not relieve the operator of the obligation to file a completed Groundwater Extraction Statement and timely pay to the Agency the applicable groundwater extraction charge as required by this Ordinance.

Section 8. <u>Extraction Charge</u>

a. The groundwater extraction charge for Semi-Annual Period 2 of 1995 and Period 1 of 1996 shall be six dollars ($6.00) per acre-foot. The groundwater extraction charge shall thereafter be set annually by Board Resolution.

b. Detailed recording and management of all groundwater extraction charge funds shall be required. Deposits, investments and expenditures shall be handled in accordance with generally accepted accounting principles.

Section 9. <u>Penalties</u>.

a. Any groundwater production facility operator delinquent in payment of the groundwater extraction charge shall be subject to an assessment of extraction charges based on metered use or estimated use set forth in Section 4 of this Ordinance, whichever is greater; plus a ten (10) percent penalty; plus interest. Interest on all delinquent payments shall be charged at a rate of one and one-half percent (1.5%) per month.

b. Any operator or person who intentionally violates any provision of this Ordinance shall be guilty of an infraction and may be required to pay a fine to the Agency not to exceed five hundred dollars ($500).

c. Any operator or person who negligently or intentionally violates any provision of this Ordinance may also be civilly liable to the Agency for a sum not to exceed one thousand dollars ($1,000) per day for each day of such violation, in addition to any other penalties that may be prescribed by law.

d. Upon the failure of any operator or person to comply with any provision of this Ordinance, the Agency may petition the Superior Court for a temporary restraining order, preliminary or permanent injunction, or such other equitable relief as may be appropriate. The right to petition for injunctive relief is an additional right to those rights which may be provided elsewhere in this Ordinance or otherwise allowed by law.

e. The Agency may petition the Superior Court of the county to recover any sums due it under the provisions of this Ordinance.

f. A groundwater extraction facility operator subject to a penalty under Section 9 of this Ordinance may promptly appeal the penalty to the Board. Such appeal shall state fully the grounds of the appeal and all facts relied upon in the appeal, including, but not limited to, the facts causing the imposition of the penalty, any extenuating circumstances, the monetary amount owed to the Agency including penalties, and any other facts pertinent to the delinquency or violation. The Board shall make a written finding of fact either granting or denying the appeal.

g. The penalty provisions set forth in Section 9 of this Ordinance shall be reviewed annually by the Agency Board and, if deemed necessary, adjusted by Board Resolution.

Section 10. Termination Date.

This Ordinance will remain in full force and effect until repealed by action of the Board of Directors for the Agency.

Section 11. Application.

The provisions of this Ordinance shall be read in conjunction with and complement all other Agency Ordinances and Resolutions and shall apply to all persons residing within the boundaries of the Agency.

Section 12. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 13. Effective Date.

This Ordinance was adopted on APRIL 27, 1995, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

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PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES:	Jerry Conrow, Conner Everts, Charles Noren, Scott S. Slater
NOES:	None
ABSTAIN:	None
ABSENT:	Robert N. McKinney

Conner Everts, President

ATTEST:

Harry Bodell

Harry Bodell, Secretary

ORDINANCE NO. 4.1

AN AMENDMENT TO ORDINANCE NO. 4 OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY, WAIVING GROUNDWATER EXTRACTION CHARGES FOR CERTAIN SMALL USERS

WHEREAS, the Agency has adopted Ordinance No. 1, which requires the registration of groundwater extraction facilities and reporting of groundwater extractions within the boundaries of the Agency; and

WHEREAS, the Agency has adopted Ordinance No. 4, which requires all groundwater users within the boundaries of the Agency to pay a groundwater extraction charge based upon their water usage; and

WHEREAS, Ordinances 1 and 4, taken together, enable the Agency to determine water extractions accurately and to assess and collect charges and fees equitably, so that the Agency may meet its mission of preserving the quantity and quality of the groundwater in the Ojai Basin; and

WHEREAS, Article 4, section 410 of the Agency's authorizing act allows the Agency to exempt the owners of extraction facilities from some or all of the provisions of its ordinances;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Amendment of Ordinance No. 4

Section 5 of Agency Ordinance No. 4, the "Groundwater Extraction Charge Ordinance," is hereby amended to provide as follows:

Section 5. Frequency of Payment and Computing Groundwater Extraction Charges.

a. Beginning with Semi-Annual Period 2 of 1995, each operator shall complete and file a Groundwater Extraction Statement and make payment of the appropriate groundwater extraction charge to the Agency. The frequency of reporting and making payment, and the method of computing the charge shall be as follows.

b. All operators shall pay the groundwater extraction charge semi-annually. If the extraction facility is equipped with a waterflow measuring device, the operator shall calculate and pay its extraction charge on the basis of its measured extractions. If the extraction facility is not equipped with a waterflow measuring device, the operator shall calculate and pay its extraction charge on the basis of the estimated semi-annual water demand set forth in Section 4 of this Ordinance. Semi-annual payments are due as set forth in Section 6 of this Ordinance and shall accompany the "Groundwater Extraction Statement" required pursuant to Section 7 of this Ordinance.

c. The amount of payment due shall be determined by multiplying the total water extraction for the applicable payment period by the effective per-acre-foot charge as set forth in Section 8 of this Ordinance.

d. Notwithstanding the provisions of subsection c above, the payment of the semi-annual extraction charge is waived and set at $0.00 (zero dollars) for those extraction facilities whose semi-annual groundwater use is less than or equal to 1.0 (one) acre foot. The small user waiver set forth in this subsection shall be reviewed annually by the Agency Board and, if deemed necessary, adjusted by Board Resolution.

Section 2. Termination Date.

This Ordinance will remain in full force and effect until repealed by action of the Board of Directors for the Agency.

Section 3. Application.

The provisions of this Ordinance shall be read in conjunction with and complement all other Agency Ordinances and Resolutions and shall apply to all persons residing within the boundaries of the Agency.

Section 4. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 5. Effective Date.

This Ordinance was adopted on July 27, 1995, to be effective thirty-one (31) calendar days after its passage. Before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote:

AYES: CONROW, EVERTS, McKINNEY, NOREN, SLATER
NOES: NONE
ABSTAIN: NONE
ABSENT: NONE

ATTEST:

Conner Everts
President

Harry Bodell

Harry Bodell, Secretary

JULY 27, 1998

OVN07155

ORDINANCE NO. 4.1
AN AMENDMENT TO ORDINANCE NO. 4 OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY, WAIVING GROUNDWATER EXTRACTION CHARGES FOR CERTAIN SMALL USERS

WHEREAS, the Agency has adopted Ordinance no.. 1, which requires the registration of groundwater extraction facilities and reporting of groundwater extraction's within the boundaries of the Agency; and

WHEREAS, the Agency has adopted Ordinance No. 4, which requires all groundwater users within the boundaries of the Agency to pay a groundwater extraction charge based upon their water usage and

WHEREAS, Ordinances 1 and 4, taken together, enable the Agency to determine water extraction's accurately and to assess an collect charges and fees equitably, so that the Agency may meet its mission of preserving the quantity and quality of the groundwater in the Ojai Basin; and

WHEREAS, Article 4, section 410 of the Agency's authorizing act allows the Agency to exempt the owners of extraction facilities from some or all of the provisions of its ordinances;

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Amendment of Ordinance No. 4

Section 5 of Agency Ordinance No. 4, the "Groundwater Extraction Charge Ordinance," is hereby amended to provide as follows:

Section 5. Frequency of Payment and Computing Groundwater Extraction charges.

a. Beginning with Semi-Annual Period 2 of 1995, each operator shall complete and file a Groundwater Extraction' Statement and make payment of the appropriate groundwater extraction charge to the Agency. The frequency of reporting and making payment, and the method of computing the charge shall be as follows.

b. All operators shall pay the groundwater extraction charge semi-annually. If the extraction facility is equipped with a waterflow measuring device, the operator shall calculate and pay its extraction charge on the basis of its measured extraction's. If the extraction facility is not equipped with a waterflow measuring device, the operator shall calculate and pay its extraction charge on the basis of the estimated semi-annual water demand set forth in section 4 of this Ordinance. Semi-annual payments are due as set forth in Section 6 of this Ordinance and shall accompany the "Groundwater Extraction Statement" required pursuant to section 7 of this Ordinance.

c. The amount of payment due shall be determined by multiplying the total water extraction for the applicable payment period by the effective per-acre-foot charge as set for in Section 8 of this Ordinance.

d. Notwithstanding the provisions of subsection c above, the payment of the Semi-annual extraction charge is waived and set at $0.00 (zero dollars) for those extraction facilities whose semi-annula groundwater use is less than or equal to 1.0 (one) acre foot. Thermal user waiver set forth in this subsection shall be reviewed annually by the Agency Board and, if deemed necessary, adjusted by Board Resolution.

Section 2. Termination Date.
this Ordinance will remain in full force and effect until repealed by action of the Board of Directors of the Agency.

Section 3. Application.
The provisions of the ordinance shall be read in conjunction with and complement all other agency Ordinances and Resolutions and shall apply to all persons residing within the boundaries of the Agency.

Section 4. Severability.
If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of the Ordinance The Board of Directors hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulations irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

Section 5. Effective Date
This Ordinance was adopted on June 29, 1995, to be effective thirty-one (31) calendar days after its passage. before the expiration of fifteen (15) calendar days after its passage, this Ordinance shall be published once, with the names of the members of the Board of Directors for the Agency voting for it and against it, in a newspaper of general circulation published in the County of Ventura, State of California.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California, by the following vote
AYES: Jerry Cornrow, Conner Everts, Robert N. McKinney, Charles Noren, Scott S. Slater
NOES: None
ABSTAIN: None
ABSENT: None
Attest: Conner Everts, President
Harry Bodell, Secretary
Published Ojai Valley News July 12, 1995

OVN07265

CITY OF OJAI
PUBLIC HEARING NOTICE

NOTICE IS HEREBY GIVEN that the Ojai Basin Groundwater Management Agency will hold a public hearing to consider the adoption of Ordinance No. 4.1, an amendment to Ordinance 4; Waving Groundwater Extraction Charges for Certain Small Users, on Thursday, July 27, 1995, at 7 p.m. in the Ojai City Hall.

Interested persons may at that time appear before the Agency Board as an advocate or opponent to the proposed amendment, copies of which are on file at the Ojai City Hall reception desk.

Date: July 17, 1995
/s/Harry Bodell, Secretary
Ojai Basin Groundwater Management Agency
P.O. Box 1570, Ojai, CA 93024
Published Ojai Valley News July 19, 21 & 26,1995

ORDINANCE No. 5

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY REQUIRING A PERMIT FOR THE CONSTRUCTION AND OPERATION OF GROUNDWATER RECHARGE, REPLENISHMENT, STORAGE AND RECAPTURE PROJECTS IN THE BASIN

WHEREAS, Article 7, Section 703 of the Ojai Basin Groundwater Management Agency Act authorizes the agency to regulate groundwater replenishment programs and the recapture of supplemental groundwater resulting from those programs; and

WHEREAS, Article 7, Section 708(d) of the Agency Act mandates that the right to store and recapture imported or developed water shall be subject to prior permit by the agency and further states that the Agency shall issue storage and recapture permits under terms and conditions it deems appropriate and may impose charges therefore; and

WHEREAS, Article 1, Section 101 of the Agency Act declares that the preservation of the Ojai basin groundwater for the protection of agricultural, municipal, and industrial uses is in the public interest and for the common benefit of water users within the agency; and

WHEREAS, It is the expressed mission of the OBGMA to preserve the quantity and quality of groundwater in the Ojai Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the basin; and

WHEREAS, The groundwater in the Ojai Basin is a resource of common benefit to all groundwater extractors in the basin. Under existing circumstances and to the limited present knowledge of the Agency, the water supply and demand is largely in balance; however due to the increasing demands on the very limited water supply in the Ventura River Watershed, and the likelihood of extended drought periods in the future the natural recharge of the Ojai Basin may not be sufficient to meet the needs of well operators who extract water from the basin without the implementation of stringent conservation measures; and

WHEREAS, Projects to augment water storage in the Ojai basin through recharge from diverted surface water or imported water provide a potential method of augmenting the natural replenishment of the basin can potentially increase the water in storage in the basin available to well operators during drought periods; and water stored in the Ojai basin by such projects can potentially be recaptured to the common benefit of the well operators in the basin; now therefore

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. **Short Title.**

This Ordinance No. 5 shall be known and cited as "the Groundwater Recharge Permit Ordinance."

Section 2. **Policy and Purpose.**

The Agency is charged with the legal responsibility for managing groundwater within the boundaries of the Agency, with the protection of that groundwater in the public interest and for the common benefit of water users within the agency, and with the regulation of replenishment programs in the basin. The Agency enacts this Groundwater Recharge Ordinance as legal authority to require that every recharge, replenishment, storage and recapture project proposed to be undertaken in the basin obtain a permit from the Agency prior to construction or operation; and to set forth, in accordance with the Agency Act, terms and conditions for the development, construction and operation of such projects required for the approval of such a permit by the Board of Directors of the Agency.

Section 3. **Definitions.**

Agency
Aquifer
Available supply
Basin
Board
County
Extraction
Extraction facility
Groundwater
Groundwater management activities
Operator
Overdraft
Permitee
Person
Program
Recharge
Replenishment
Supplemental water
Temporary Surplus
Water Year

Section 4. **Groundwater Replenishment and Recharge Permit**

No person shall construct and/or operate a groundwater replenishment and recharge project in the Ojai Basin without first obtaining a Groundwater Replenishment and Recharge Permit (Recharge Permit) from the Agency.

An application for a Groundwater Permit shall be filed with the Agency at least 180 days prior to the requested date of approval.

Approval of a permit shall require compliance with the following terms and conditions:

The design and proposed operation of the project must be certified by a licensed hydrogeologist and a licensed engineer with experience in groundwater recharge project design. The OBGMA may require a review of the project design by an independent hydrogeologist and engineer.

All recharged water must accrue to the basin to the common benefit of all groundwater users in the basin.

Rights to the source of water for recharge must be obtained and held by a public agency authorized by law to obtain such rights.

An economic analysis shall be prepared by the project proponent demonstrating a positive cost benefit for well operators in the basin.

All appropriate permits must be obtained by the project proponent, as well as compliance with CEQA.

The designated operator for the Project shall be responsible for the construction and operation of the Project including all necessary safety precautions including the financial responsibility for accidents or property damage. That responsibility shall also include timely repair, rehabilitation, and restoration to functioning condition if the project is damaged by storm waters or other natural forces, or if damaged beyond restorable usability stabilization of the site into pre project condition.

Section 5. **Termination Date**

This Ordinance will remain in full force and effect until repealed by action of the Board of the Agency.

Section 6. **Violation**

a. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed $500.

b. Any person who intentionally or negligently violates this Ordinance may be liable to the Agency civilly for a sum not to exceed $1000 per day.

Section 7. <u>Enforcement.</u>

The Agency may take any actions authorized by law to enforce the terms and provisions of this Ordinance.

Section 8. <u>Severability.</u>

If any section, subsection, sentence, clause or phrase of this Ordinance and its implementing rules and regulation is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board hereby declares and determines that it would have passed this Ordinance and its implementing rules and regulation irrespective of the fact that any one or more sections, subsection, sentences, clauses or phrases may be determined to be unconstitutional or invalid.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California October 17, 2007.

ATTEST:

Jerry Conrow, President

Cece VanDerMeer, Secretary

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY ESTABLISHING POLICY FOR CONTRACTING FOR PROFESSIONAL CONSULTING SERVICES

ORDINANCE No. 6

Whereas, The Ojai Basin Groundwater Management Agency (Agency) has been established by legislation *(Stats.1991, c. 750(S.B. 534).)*; and,

Whereas, the enabling law, known as the Ojai Basin Groundwater Management Act ("Authorizing Act"), provides in Section 131-404(a) that the Board of Directors of the Agency may adopt ordinances for the purpose of monitoring, regulating, conserving, managing, and controlling the use and extraction of groundwater within the boundaries of the agency; and,

Whereas, the Authorizing Act provides in Section 131-409 that the Agency may contract for staff and other services and may hire other contractors and consultants; and

Whereas, the Authorizing Act provides in Section 131-501 the authority of the Agency to collect data and conduct technical and other investigations, and further provides that all hydrological investigations carried by, or on behalf of, the Agency shall be conducted by, or under the supervision of, licensed engineers or other persons qualified in groundwater geology or hydrology; and

Whereas, the Agency desires to establish a standardized policy governing service contracts between the Agency and Professional Consultants as defined in Section 3 herein.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY AS FOLLOWS:

Section 1. Title.

Ordinance No. 6 shall be known as the "Ojai Basin Groundwater Management Agency Professional Consulting Service Contracting Policy."

Section 2. Purpose and Intent.

To provide the Agency with a standardized policy governing service contracts with Professional Consultants as defined in Section 3 herein.

Section 3. Definitions.

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

a. "**Basin**" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in Section 201 of the Agency's Authorizing Act.

b. "**Agency**" shall mean the Ojai Basin Groundwater Management Agency.

c. "**Person**" shall mean any person, state, or local governmental agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, and federal agency.

d. "**Professional Consultant**" shall refer to those professional consultants providing services related to hydrological, geological, and hydrogeological investigations, reports or any other professional services and activities for which the Agency has responsibility and authority under its Authorizing Act.

e. "**Local Agency Head**" shall mean the Board of Directors or the General Manager, as designee, which shall be governed by all provisions set forth in Government Code Sections 4525-4529.5 pertaining to the Local Agency Head, as set forth therein.

Section 4. Establishment of a Policy on Contracting for Professional Consulting Services.

a. The Agency shall only contract with a Professional Consultant when one or more of the following situations occur.

i. Specialized skill, experience, or abilities are required which are not possessed by Agency staff members available for assignment to the required work.

ii. Specialized equipment and/or facilities are needed for the required work, which specialized equipment and/or facilities are not possessed and/or operated by the Agency, but are possessed and/or operated by a Professional Consultant.

iii. There is insufficient Agency staff available to accommodate the staffing needs of the required work.

b. All contracts entered into between the Agency and a Professional Consultant shall be consistent with Government Code Sections 4525-4529.5 as those sections pertain to the Local Agency Head.

c. The Agency shall generally issue Request for Qualifications/Request for Proposals prior to contracting with a Professional Consultant.

d. The Agency may, at its option, contract with a Professional Consultant as a sole source contract under the following conditions and/or criteria:

i. Consulting professional shall have a statement of qualifications on file with the Agency prior to the selection of any consulting firm.

ii. The Professional Consultant chosen for a sole source contract with the Agency shall demonstrate sufficient prior knowledge of the Agency, the tasks involved, and the desired results for the benefit of the Agency and the groundwater basin.

e. The Board of Directors or the General Manager, as designee, shall be designated by the Board of Directors as the Local Agency Head for the purposes of this ordinance.

f. Any contract by and between the Agency and a Professional Consultant shall be approved by a majority vote of the Board of Directors.

Section 5. Termination Date.

This Ordinance shall remain in full force and effect until repealed by action of the Board of Directors of the Agency.

Section 6. Severability.

If any section, subsection, sentence, clause or phrase of this ordinance and its implementing rules and regulations is for any reason held to be unconstitutional or invalid, such decisions shall not affect the validity of the remaining portions of this ordinance. The Board of Directors hereby declares and determines that it would have passed this ordinance and its rules and regulations, irrespective of the fact that any one or more sections, subsections, sentence, clause or phrase of this ordinance and its implementing rules and regulations may be determined to be unconstitutional or invalid.

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California by the following vote on August 28, 2008:

AYES: 4
NOES: Ø
ABSTAIN: Ø
ABSENT: Ø

ATTEST: Jerry L. Conrow

Jerry Conrow, President

Cece VanDerMeer, Secretary

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY SUPERCEDING ORDINANCES 1, 2, and 3, SPECIFYING THE REQUIREMENTS FOR THE NOTIFICATION OF INTENT TO CONSTRUCT AND THE REGISTRATION OF EXTRACTION FACILITIES, METERING AND REPORTING OF GROUNDWATER EXTRACTIONS, AND THE RECORDATION OF WELLS WITHIN THE BOUNDARIES OF THE AGENCY

OBGMA ORDINANCE NUMBER 7

Whereas, Article 5 of the Ojai Basin Groundwater Management Act authorizes the Agency to collect information necessary for the management of the groundwater resources of the Ojai Basin; and to collect information and data necessary for the compilation of an annual report on groundwater supplies; and

Whereas, Article 8 of the Act provides that Extraction Facilities in the Ojai Basin be registered with the Agency, and further provides that the Operator of a registered Extraction Facility may be required to provide information to the Agency; and

Whereas, information regarding the number, location, and use of groundwater Extraction Facilities within the basin, and the amount of water extracted from these facilities, is necessary for groundwater management, planning, and reporting by the Agency; and

Whereas, the Agency must be adequately informed about the existence and nature of new Extraction Facilities within the boundaries of the Agency in order to carry out its groundwater management responsibilities; and

Whereas, the County of Ventura Public Works Department and the City of Ojai issue permits for construction and operation of groundwater Extraction Facilities within the Agency boundaries, and the Agency desires to avoid unnecessary permitting in its regulation of groundwater Extraction Facilities; and

Whereas, Article 7, of the Act provides the Agency with the authority to impose reasonable conditions and regulations on the use of groundwater Extraction Facilities; and

Whereas, Article 8 of the Act provides that the Agency, by Ordinance, shall require groundwater Extraction Facilities to be equipped with Waterflow Measuring Devices; and allows the Agency to exempt specific groundwater Extraction Facilities from this requirement; and

Whereas, The State Water Resources Control Board Division of Water Rights has designated the Agency as the official groundwater extraction recordation Agency for the State within the Agency boundaries with specific authorities;

Now therefore be it ordained by the Board of Directors of the Ojai Basin Groundwater Management Agency (OBGMA) as follows:

Section 1 **Title**

Ordinance Number 7 shall be known as the "Ojai Basin Groundwater Management Agency Registering, Reporting, Metering, and Well Recordation Ordinance."

Section 2 **Purpose and Intent**

The purpose of this Ordinance is:

1. To approve and implement updated Agency policies requiring the Operators of Extraction Facilities to provide information to the Agency.
2. To approve and implement updated Agency policies for requiring notification of intent to construct an Extraction Facility within the boundaries of the Agency, for registering Extraction Facilities, and for semi-annual extraction reporting.
3. To approve and implement an updated Agency policy for metering Extraction Facilities.
4. To establish by Ordinance and implement new requirements for the Groundwater Recordation Program transferred to the Agency by the State Water Resources Control Board in June 2008.

Section 3 **Definitions**

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

"Act" shall mean the Ojai Basin Groundwater Management Act.

"Agency" shall mean the Ojai Basin Groundwater Management Agency.

"Basin" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in Section 201 of the Agency's Authorizing Act.

"Board" shall mean the Board of Directors of the Agency.

"City" shall mean the City of Ojai.

"County" means the County of Ventura.

"Construction" means the building of a groundwater Extraction Facility such as the act of drilling a well.

"Extraction" shall mean the act of obtaining groundwater by pumping or other controlled means.

"Extraction Facility" shall mean any device or method for the extraction of groundwater within the basin, including a well.

"Operator" shall mean a person who owns and operates a groundwater Extraction Facility. If the Agency is unable to determine who operates a particular Extraction Facility, the "Operator" shall mean the person to whom the Extraction Facility is assessed, if assessed by the County Assessor or, if not separately assessed, the person who owns the land upon which the Extraction Facility is located.

"Person" shall mean any person, state, or local governmental Agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, any federal Agency.

"Waterflow Measuring Device" shall mean a meter or other measuring device, meeting the standards set by the American Water Works Association (AWWA), which is attached to an Extraction Facility for the purpose of measuring the quantity of water extracted by the facility.

Section 4 Extraction Facility Permit Notification

1. No Operator shall construct an Extraction Facility within the boundaries of the Agency without first having provided a copy of a County, and, where required, City, well construction permit to the Agency.

2. The presentation of an approved County and, where required, City, well construction permit, in a form and manner customarily issued by the County or City, to the Agency at the Agency office shall be deemed compliance with County and City requirements for the purposes of this Ordinance.

3. An Operator may begin construction of the Extraction Facility three (3) calendar days following the Agency's receipt of a County and, where required, City, well construction permit from the Operator.

Section 5 **Extraction Facility Registration**

1. An Operator shall be permitted to operate an Extraction Facility within the Agency boundaries in accordance with the provisions of law and this ordinance upon demonstrating compliance with County and/or City requirements for the construction and operation of a water well, providing a completed copy of the County and/or City well permit including well test data and well drillers log to the Agency, and registering the Extraction Facility in accordance with section 5.2 of this ordinance.

2. Operators of Extraction Facilities shall register all Extraction Facilities with the Agency by completing and returning an OBGMA **Registration Form** to the Agency. New Extraction Facilities shall be registered by returning the Registration Form to the Agency within thirty (30) calendar days following completion of construction and prior to any groundwater extraction.

3. The Agency shall make Registration Forms available to Operators and the public generally at the Agency office, and downloadable on the Agency website at www.obgma.com.

4. Failure of the Operator to receive a direct mailing of a Registration Form shall not relieve the Operator of the obligation to file the form with the Agency as required in Section 4.2

5. The Agency shall prepare and maintain an Extraction Facility data sheet for each registered Extraction Facility within the Agency boundaries

Section 6 **Groundwater Extraction Reports**

1. Every Operator extracting groundwater from the basin shall file a semi-annual extraction report in January and July of each calendar year accurately stating the amount of water extracted during the prior six month period, providing all additional relevant information requested on the OBGMA **Groundwater Extraction Form**, signed under penalty of perjury by the Operator.

2. The Agency shall make Groundwater Extraction Forms available in June and December by direct mail to known Operators. Blank copies of the form will be available at the Agency office.

3. Failure of the Operator to receive a direct mailing of a Groundwater Extraction Form shall not relieve the Operator of the obligation to file the form with the Agency as required in Section 6.1.

4. The Operator's extraction statement on the form shall be presumed accurate upon timely filing of the form with the Agency. For good cause, the Agency may disregard the extraction statement and cause an investigation of the actual amount extracted by the Operator in any semi-annual period. In the event of a discrepancy between the statement filed by the Operator and the findings of the Agency, the findings of the Agency shall prevail.

Section 7 <u>Extraction Facility Metering</u>

1. Except as otherwise specified by Sections 7.2 and 7.3 of this ordinance, every Operator shall equip each Extraction Facility with a Waterflow Measuring Device as defined in Section 3 of this ordinance, and shall report installation of the measuring device to the Agency.

2. Operators of existing permitted Extraction Facilities otherwise in compliance with all ordinances and requirements of the Agency but not equipped with a Waterflow Measuring Device as of the date of adoption of this ordinance are exempt from the requirement in Section 7.1 for a period of three years from that date.

3. All Waterflow Measuring Devices shall be tested for accuracy at a frequency interval determined by the OBGMA Board to meet specific measurement standards. Calibration methods and procedures approved by the Board of Directors shall be detailed in an adopted Resolution of the Board.

4. Operators of Extraction Facilities not equipped with a Waterflow Measuring Device under the exemption in Section 7.2 shall provide an accurate record of the amount of water extracted during each semi-annual period on the OBGMA Groundwater Extraction Form as follows:
    a. Irrigated property shall use the following crop factor applied for each acre irrigated:
        i. Citrus and Avocado – 1.7 acre feet
        ii. Landscaping, turf, golf course – 2 acre feet
    b. Domestic use:
        i. For each dwelling unit - .3 acre feet

5. Operators of Extraction Facilities extracting one acre foot or less in any semi-annual period shall report and pay for a minimum of one acre foot for that period.

6. Any person who alters, removes, resets, adjusts, manipulates, obstructs or in any manner interferes or tampers with any Waterflow Measuring Device affixed to any groundwater extraction facility in accordance with this ordinance, resulting in said device to improperly or inaccurately measure and record groundwater extractions, is guilty of an intentional violation of this Ordinance, and will be subject to any and all penalties as described in Section 10.

7. All costs incurred with Waterflow Measuring Device testing or calibration shall be the personal obligation of the well operator. Non-compliance with any provision of the meter calibration requirements will subject the operator to financial penalties as described in Section 10.

Section 8 Groundwater Recordation

1. Operators of groundwater Extraction Facilities within the Agency's area of jurisdiction will record groundwater extractions with the Agency in accordance with California Water Code Sections 5001 - 5009 and delegated authority from the State Water Resources Control Board Division of Water Rights. The records for all groundwater extractions will be maintained at the Agency office.

2. Extraction Facilities with extractions properly recorded prior to April 23, 2008, when the Agency assumed authority for recordation shall retain their original recordation numbers. For all facilities recorded after that date, the Agency shall assign recordation numbers within the range of numbers, **G563001L004** through **G563999L004.**

3. In accordance with California Water Code Section 5001 all Extraction Facilities within the Agency jurisdiction extracting 25 acre feet of groundwater or more per year shall be recorded. Wells extracting less than 25 acre feet per year may be recorded.

4. To record an Extraction Facility an operator shall fill out a **First Notice of Groundwater Extraction Form** provided by the Agency

and return the form to the Agency office. The operator shall be responsible for keeping the information provided on the first notice form current by informing the Agency within the next semi-annual period of any changes in the information on file in the Agency office. There is no charge for the filing of the first notice form.

5. The Agency shall charge a fee of Ten dollars ($10) per semi-annual reporting period for the recordation of groundwater extraction. This fee shall be paid in conjunction with the semi-annual groundwater extraction charge as reported on the OBGMA Groundwater Extraction Form sent by the Agency by direct mail to Operators. The amount of this fee may be reviewed and amended annually when the Board sets its annual charges and fees.

6. The groundwater recordation records may be made available to other governmental agencies pursuant to Section 5009 of the California Water Code.

Section 9 **<u>Termination Date</u>**

This Ordinance shall remain in full force and effect until repealed or superseded by action of the Board of Directors of the Agency.

Section 10 **<u>Violation</u>**

In accordance with provisions 405 and 406 of the Act:

1. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed five hundred dollars ($500).

2. Any person who negligently or intentionally violates this Ordinance may also be liable civilly to the Agency for a sum not to exceed one thousand dollars ($1,000) per day for each violation, in addition to any other penalties that may be prescribed by law.

Section 11 **<u>Enforcement</u>**

The Agency may take any actions authorized by law, to enforce the terms and provisions of this Ordinance.

Section 12 **Severability**

If any section, subsection, sentence, clause or phrase of this Ordinance and its provisions is for any reason held to be unconstitutional or invalid, such decisions shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its rules and regulations, irrespective of the fact that any one or more sections, subsection, sentence, clause or phrase of this Ordinance may be determined to be unconstitutional or invalid.

Attachments:

Registration Form
Semi-Annual Groundwater Extraction Form
First Notice of Groundwater Extraction Form

AN ORDINANCE OF THE OJAI BASIN GROUNDWATER MANAGEMENT AGENCY SUPERCEDING ORDINANCE NUMBER 7 SPECIFYING THE REQUIREMENTS FOR NEW WELL PERMITTING, NOTIFICATION OF INTENT TO CONSTRUCT, REGISTRATION OF EXTRACTION FACILITIES, METERING, REPORTING OF GROUNDWATER EXTRACTIONS, AND THE RECORDATION OF WELLS WITHIN THE BOUNDARIES OF THE AGENCY

OBGMA ORDINANCE NUMBER 8

Whereas, Article 5 of the Ojai Basin Groundwater Management Act authorizes the Agency to collect information necessary for the management of the groundwater resources of the Ojai Basin; and to collect information and data necessary for the compilation of an annual report on groundwater supplies; and

Whereas, Article 8 of the Act provides that Extraction Facilities in the Ojai Basin be registered with the Agency, and further provides that the Operator of a registered Extraction Facility may be required to provide information to the Agency; and

Whereas, information regarding the number, location, and use of groundwater Extraction Facilities within the basin, and the amount of water extracted from these facilities, is necessary for groundwater management, planning, and reporting by the Agency; and

Whereas, the Agency must be adequately informed about the existence and nature of new Extraction Facilities within the boundaries of the Agency in order to carry out its groundwater management responsibilities; and

Whereas, Article 7, of the Act provides the Agency with the authority to impose reasonable conditions and regulations on the use of groundwater Extraction Facilities; and
Whereas, Article 8 of the Act provides that the Agency, by Ordinance, shall require groundwater Extraction Facilities to be equipped with Waterflow Measuring Devices; and allows the Agency to exempt specific groundwater Extraction Facilities from this requirement; and
Whereas, The State Water Resources Control Board Division of Water Rights has designated the Agency as the official groundwater extraction recordation Agency for the State within the Agency boundaries with specific authorities;

Now therefore be it ordained by the Board of Directors of the Ojai Basin Groundwater Management Agency (OBGMA) as follows:

Section 1 **<u>Title</u>**

Ordinance Number 8 shall be known as the "Ojai Basin Groundwater Management Agency Permitting, Registering, Reporting, Metering, and Well Recordation Ordinance."

Section 2 **<u>Purpose and Intent</u>**

The purpose of this Ordinance is:
1. To approve and implement updated Agency policies requiring the Operators of Extraction Facilities to provide information to the Agency.
2. To approve and implement updated Agency policies requiring permitting and notification of intent to construct an Extraction Facility within the boundaries of the Agency, for registering Extraction Facilities, and for semi-annual extraction reporting.
3. To approve and implement an updated Agency policy for metering Extraction Facilities.
4. To establish by Ordinance and implement new requirements for the Groundwater Recordation Program transferred to the Agency by the State Water Resources Control Board in June 2008.

Section 3 **Definitions**

All terms, phrases and words shall have the meaning assigned to such terms, phrases and words as commonly understood or as expressly defined in the Agency's Authorizing Act or as defined herein.

"Act" shall mean the Ojai Basin Groundwater Management Act.

"Agency" shall mean the Ojai Basin Groundwater Management Agency.

"Basin" shall mean the Ojai Groundwater Basin as shown in the Department of Water Resources Bulletin No. 12, "Ventura County Investigation," dated October 1953, to the extent included within the boundaries of the Agency, as defined in Section 201 of the Agency's Authorizing Act.

"Board" shall mean the Board of Directors of the Agency.

"City" shall mean the City of Ojai.

"County" means the County of Ventura.

"Construction" means the building of a groundwater Extraction Facility such as the act of drilling a well.

"Extraction" shall mean the act of obtaining groundwater by pumping or other controlled means.

"Extraction Facility" shall mean any device or method for the extraction of groundwater within the basin, including a well.

"Operator" shall mean a person who owns and operates a groundwater Extraction Facility. If the Agency is unable to determine who operates a particular Extraction Facility, the "Operator" shall mean the person to whom the Extraction Facility is assessed, if assessed by the County Assessor or, if not separately assessed, the person who owns the land upon which the Extraction Facility is located.

"Person" shall mean any person, state, or local governmental Agency, private corporation, firm, partnership, individual, group of individuals or, to the extent authorized by law, any federal Agency.

"Waterflow Measuring Device" shall mean a meter or other measuring device, meeting the standards set by the American Water Works Association (AWWA), which is attached to an Extraction Facility for the purpose of measuring the quantity of water extracted by the facility.

Section 4 **Extraction Facility Permitting and Registration**

1. All groundwater extraction facilities within the boundaries of the Agency shall be registered with the Agency. All new extraction facilities constructed within the Agency Boundary shall obtain a no-fee permit from the Agency prior to the issuance of a Well Permit by the Ventura County Watershed Protection District and or the City of Ojai. No extraction facility may be operated or otherwise utilized so as to extract groundwater within the boundaries of the Agency unless the facility is registered with the Agency as required. The operator of an extraction facility shall register his extraction facility and provide in full, the information required to complete the form provided by the Agency that includes the following:

   a. Name and address of the operator(s)
   b. Name and address of the owner(s) of the land upon which the extraction facility is located.
   c. A description of the equipment associated with the extraction facility.
   d. Location, parcel number and state well number of the extraction facility.
   e. Well Driller's log and well test data if available.

2. Operators of extraction Facilities shall register all Extraction Facilities with the Agency by completing and returning an OBGMA Registration Form to the Agency. New Extraction Facilities shall be registered by returning the Registration Form to the Agency within thirty (30) calendar days following completion of construction and prior to any groundwater extraction.

3. The Agency shall make Registration Forms available to Operators and the public generally at the Agency office located 428 Bryant Circle, Ojai, CA 93023 or P.O. box 1779, Ojai, CA 93024, or downloadable on the Agency website at www.obgma.com.

4. Failure of the Operator to receive a direct mailing of a Registration Form shall not relieve the Operator of the obligation to file the form with the Agency as required in Section 4.2.

5. The Agency shall prepare and maintain an Extraction Facility data sheet for each registered Extraction Facility within the Agency boundaries.

Section 5 **Groundwater Extraction Reports**

1. Every Operator extracting groundwater from the basin shall file a semi-annual extraction report in January and July of each calendar year accurately stating the amount of water extracted during the prior six month period, providing all additional relevant information requested on the OBGMA **Groundwater Extraction Form**, signed under penalty of perjury by the Operator.

2. The Agency shall make Groundwater Extraction Forms available in June and December by direct mail to known Operators. Blank copies of the form will be available at the Agency office.

3. Failure of the Operator to receive a direct mailing of a Groundwater Extraction Form shall not relieve the Operator of the obligation to file the form with the Agency as required in Section 5.1.

4. The Operator's extraction statement on the form shall be presumed accurate upon timely filing of the form with the Agency. For good cause, the Agency may disregard the extraction statement and cause an investigation of the actual amount extracted by the Operator in any semi-annual period. In the event of a discrepancy between the statement filed by the Operator and the findings of the Agency, the findings of the Agency shall prevail.

Section 6 **Extraction Facility Metering**

1. Except as otherwise specified by Section 6.2 of this ordinance, every Operator shall equip each Extraction Facility with a Waterflow Measuring Device, and shall report installation of the measuring device to the Agency.

2. Operators of existing permitted Extraction Facilities otherwise in compliance with all ordinances and requirements of the Agency but not equipped with a Waterflow Measuring Device as of the date of adoption of this ordinance are exempt from the requirement in Section 6.1 until April 23, 2011.

3. Operators of Extraction Facilities not equipped with a Waterflow Measuring Device under the exemption in Section 6.2 shall provide an accurate record of the amount of water

extracted during each semi-annual period on the OBGMA Groundwater Extraction Form as follows:

a. Irrigated property shall use the following crop factor applied for each acre irrigated:
    i. Citrus and Avocado – 1.7 acre feet
    ii. Landscaping, turf, golf course – 2 acre feet
b. Domestic use:
    i. For each dwelling unit - .3 acre feet

4. Operators of Extraction Facilities extracting one acre foot or less in any semi-annual period shall report and pay for a minimum of one acre foot for that period.

5. All Waterflow Measuring Devices shall be tested for accuracy at a frequency interval determined by the Board to meet specific measurement standards. Calibration methods and procedures approved by the Board of Directors shall be detailed in an adopted Resolution of the Board.

6. All costs incurred with Waterflow Measuring Device testing or calibration shall be the personal obligation of the well operator. Non-compliance with any provision of the meter calibration requirements will subject the operator to financial penalties and/or liens as described in Section 9.

Section 7 **Groundwater Recordation**

1. Operators of groundwater Extraction Facilities within the Agency's area of jurisdiction will record groundwater extractions with the Agency in accordance with California Water Code Sections 5001 - 5009 and delegated authority from the State Water Resources Control Board Division of Water Rights. The records for all groundwater extractions will be maintained at the Agency office.

2. Extraction Facilities with extractions properly recorded prior to April 23, 2008, when the Agency assumed authority for recordation shall retain their original recordation numbers. For all facilities recorded after that date, the Agency shall assign recordation numbers within the range of numbers, **G563001L004** through **G563999L004.**

3. In accordance with California Water Code Section 5001 all Extraction Facilities within the Agency jurisdiction extracting 25

acre feet of groundwater or more per year shall be recorded. Wells extracting less than 25 acre feet per year may be recorded.

4. To record an Extraction Facility an operator shall fill out a **First Notice of Groundwater Extraction Form** provided by the Agency and return the form to the Agency office. The operator shall be responsible for keeping the information provided on the first notice form current by informing the Agency within the next semi-annual period of any changes in the information on file in the Agency office. There is no charge for the filing of the first notice form.

5. The Agency shall charge a fee of Ten dollars ($10) per semi-annual reporting period for the recordation of groundwater extraction. This fee shall be paid in conjunction with the semi-annual groundwater extraction charge as reported on the OBGMA Groundwater Extraction Form sent by the Agency by direct mail to Operators. The amount of this fee may be reviewed and amended annually when the Board sets its annual charges and fees.

6. The groundwater recordation records may be made available to other governmental agencies pursuant to Section 5009 of the California Water Code.

This Ordinance shall remain in full force and effect until repealed or superseded by action of the Board of Directors of the Agency.

Section 9 **Violation**

In accordance with provisions 405 and 406 of the Act:

1. Any person who intentionally violates this Ordinance is guilty of an infraction and may be required to pay a fine not to exceed five hundred dollars ($500).

2. Any person who negligently or intentionally violates this Ordinance may also be liable civilly to the Agency for a sum not to exceed one thousand dollars ($1,000) per day for each violation, in addition to any other penalties that may be prescribed by law.

Section 10 **Enforcement**

The Agency may take any actions authorized by law, to enforce the terms and provisions of this Ordinance.

If any section, subsection, sentence, clause or phrase of this Ordinance and its provisions is for any reason held to be unconstitutional or invalid, such decisions shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares and determines that it would have passed this Ordinance and its rules and regulations, irrespective of the fact that any one or more sections, subsection, sentence, clause or phrase of this Ordinance may be determined to be unconstitutional or invalid.

Registration Form
Semi-Annual Groundwater Extraction Form
First Notice of Groundwater Extraction Form

PASSED AND ADOPTED by the Board of Directors of the Agency, State of California April 29, 2010.

ATTEST: Jerry Z. Conrow

Jerry Conrow, President Cece VanDerMeer, Secretary

Ojai Basin Groundwater Management Agency

Management Plan 2007 Update

Prepared by: Daniel B. Stephens & Associates

Ojai Basin Groundwater Management Agency
A Special District of Ventura County

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Ojai Basin Groundwater Management Agency
Groundwater Management Plan Update

1. Background

Two critical facts underline the importance of the Ojai Basin Groundwater Management Agency (OBGMA) and this management plan update.

- Chronic drought is a climatic reality. Over the last 100 years there have been several serious droughts, and climate change may likely bring an increase in the number and intensity of years with below average rainfall. Local precipitation, the only source of water in the Ventura River watershed, is predicted by several models to decrease in annual averages. Extended periods of drought are likely.

- The Ventura River watershed is depended on by numerous competing interests. Most water allocated to the various water purveyors in the watershed is accounted for; it has been predicted that, in a long- term drought, Lake Casitas could go dry. Existing wells already in the Ojai Basin are producing groundwater at a rate that is considered to be at or near the safe yield of the basin, and it is predicted (with historical precedence) that in a long-term drought a significant number of the existing wells will go dry. Stakeholders in the Ojai Basin cannot depend on any economically reasonable new source of water.

The OBGMA is responsible for managing the Ojai groundwater basin and, working with the well operators in the basin, for conserving that groundwater. The intent of this plan update is to avoid (where possible) and minimize the adverse economic and social impacts facing our valuable but limited water supply.

1.1 Mission Statement

The Ojai Basin Groundwater Management Agency's mission is to preserve the quantity and quality of groundwater in the Ojai Basin so that the long-term water supply is protected and maintained for the common benefit of the water users in the basin.

The mission of the OBGMA is derived from its enabling legislation, the Ojai Basin Groundwater Management Agency Act, which became law in 1991. The Act was approved as a response to the needs and concerns of local water agencies, water users, and well owners of the Ojai Basin. OBGMA was established in the fifth year of a drought, amidst concerns for potential Ojai Basin overdraft. The mission is in keeping with the history of the Ojai Basin and the circumstances existing when the OBGMA was formed. Since that time, although there have been some good water years and the Ojai Basin has continued to provide sufficient water for its well owners, competition for scarce water resources in Southern California and Ventura County is ever expanding, water resource planning is intensifying, and the importance of OBGMA's mission is even greater today.

Based upon the studies conducted by and for OBGMA, and due to a relatively wet period over the past 15 years, the water and demand in the Ojai Basin is largely in balance and capable of meeting the annual demands of overlying landowners and in-basin water users under present conditions. However, after a series of dry years, water in some wells drop to the point where an alternative water source must be used. In part, that is why water users presently import some 3,750 (1981 to 2005 average) acre-feet of Casitas Municipal Water District (Casitas) water into the Ojai Basin annually, mostly for irrigation. If Casitas water was not available or not used during a series of dry years, considering the present understanding of the hydrology of the basin and the existing water uses, some shallower and peripheral wells would probably not produce water. As a result, pumping lift costs to pump groundwater would be excessive, some wells would produce excessive amounts of sand, water quality of pumped groundwater would likely be compromised, and other detrimental effects of a reduced amount of groundwater storage in the Ojai Basin could occur.

Therefore, the focus of the OBGMA's efforts is on protecting and preserving the Ojai Basin groundwater resource for in-basin use and guarding against harmful export of water from the basin.

1.2 Current Fiscal Situation

The OBGMA is funded by extraction charges levied on pumpers in the Ojai Basin. The present legislative ceiling on extraction charges of $7.50 per acre-foot limits the capacity of OBGMA to meet its obligations and goals. The OBGMA is attempting to amend the Ojai Basin Groundwater Management Agency Act in the 2007 legislative session to increase the extraction charge ceiling, but any actual extraction charge change must be voted upon by the board, which consists of representatives of the stakeholders. Further fiscal details are presented in Section 3.5.

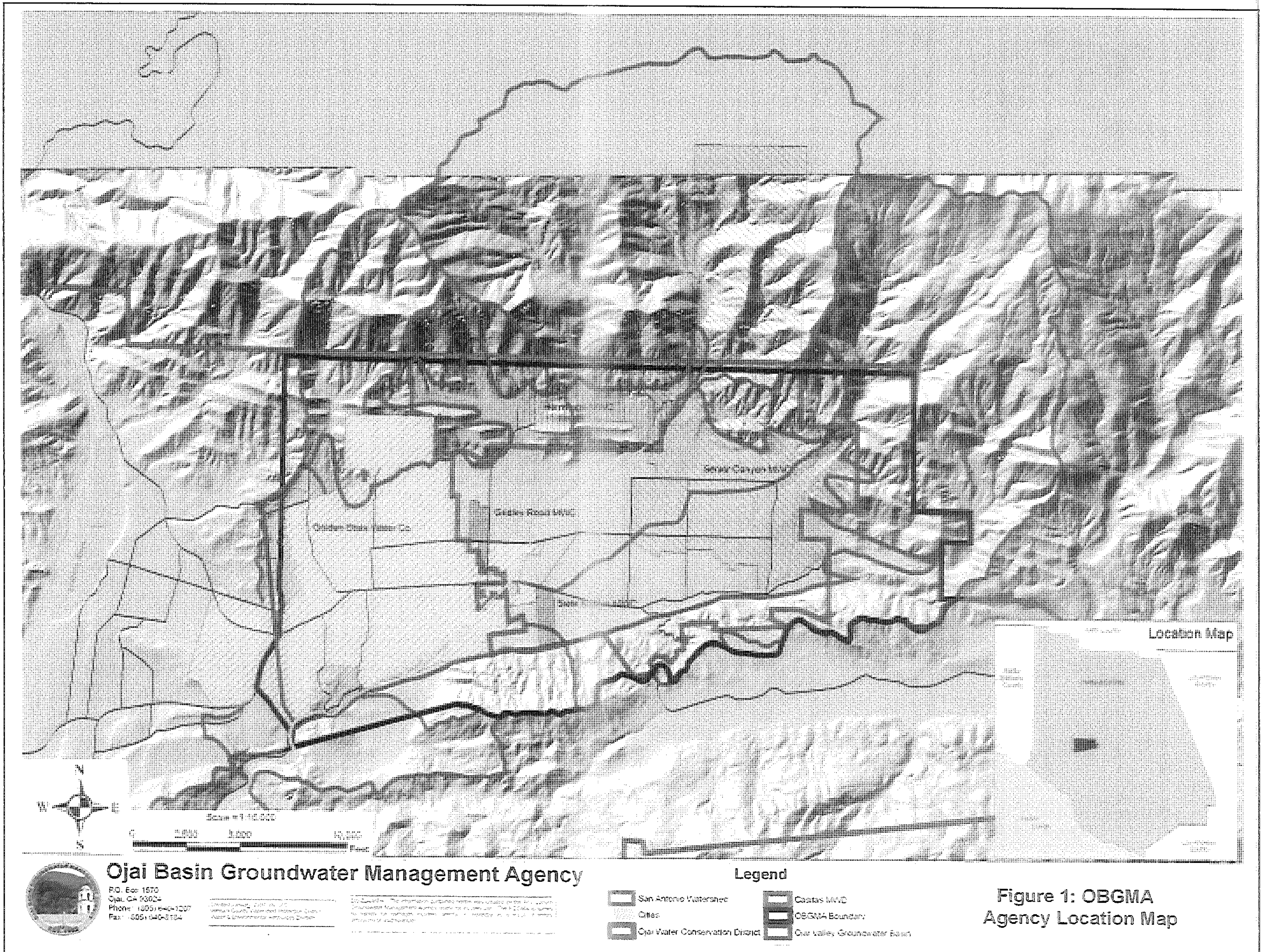
With adequate funding OBGMA will meet its responsibilities as required by law, will be able to carry out its mission to protect Ojai Basin groundwater in the interests of its water users, and will be able to achieve the goals of this management plan update.

2. General Approach

The OBGMA is required by law to have a Groundwater Management Plan (Plan) to guide its operations. The initial Plan was prepared and published in 1995. This 2007 update provides additional information and has been developed based on studies done for the OBGMA by its hydrogeologists and engineering contractors, input from well owners and water users, and recommendations made by the OBGMA's advisory committee and the State of California Department of Water Resources. Figure 1 provides a map of the OBGMA area of purview and service areas of other local agencies.

Since the Plan publication in 1995, numerous studies and projects have been conducted in the Ojai Basin within the jurisdiction of the OBGMA and have led to a better understanding of basin hydrogeology, water demands, and hydrologic fluctuations that affect the stakeholders. Continually improved understanding provides an additional level of detail to the goals and objectives of the Plan update. As understanding of the Ojai Basin improves over the years, updates to the Plan will be incorporated. It is anticipated that the Plan will be updated every five years.

This Plan update describes five broad goals. Each goal includes a number of action elements. Tables for each goal indicate when various action elements were completed or are planned for completion. While the five broad goals will provide the structure to the OBGMA's management efforts for several years, the OBGMA anticipates that the detailed action elements will evolve as the OBGMA's efforts continue to progress. Elements approved with this Plan update will be



Location Map
Senior Canyon MWC
Siete Robles MWC
Golden State Water Co.
N
W
E
S
0
2,500
5,000
10,000
Feet
Ojai Basin Groundwater Management Agency
P.O. Box 1570
Ojai, CA 93024
Legend
San Antonio Watershed
Cities
Ojai Water Conservation District
Casitas MWD
OBGMA Boundary
Ojai Valley Groundwater Basin
Figure 1: OBGMA
Agency Location Map

implemented in the form of rules, regulations, or ordinances. Prior to implementation, additional criteria to guide these actions will be developed in a public process by the OBGMA Board of Directors (OBGMA board) and added to this management plan update. Some elements as noted herein require more study and public review before specific implementation actions are approved. Additions will be made to this Plan update as actions to implement these elements are reviewed by the water users and well owners in the basin and approved by the OBGMA board. Amendments to the approved Plan update will be made only after full review, consideration of any advisory recommendation, and formal approval by the OBGMA board.

3. Groundwater Management Plan--Detailed Action Plan

3.1 Goal 1. Understanding the Basin

OBGMA must have a comprehensive understanding of the hydrology of the basin under its jurisdiction in order to carry out its mission. This understanding will continue to evolve as additional goal elements are implemented. Table 1 describes selected Goal 1 elements that have been completed, are scheduled, or are planned.

3.1.1 Monitoring

OBGMA has at its disposal several studies of the basin hydrology, including conceptual models. These models must be tested and updated regularly under a continuing monitoring program to serve as a basis for informed decision making. Monitoring will also be conducted to identify changing conditions and implement management programs when needed. Monitoring will include:

- Surface water entering the basin
- Recharge of the basin from rainfall
- Streamflow seepage
- Evapotranspiration
- Discharge from the basin as surface flow from San Antonio Creek and subsurface flow
- Extractions from the basin via public and private wells

Table 1. Selected Completed, Scheduled, and Planned Future Elements
Goal 1, Understanding the Basin

Element	Description	Completion Date (Actual or Anticipated)
Completed Element		
Basin studies	Study of basin water records developed by county technicians to monitor basin water quantity and quality, well permits, stream flows, and precipitation	1996
Monitoring	Conducted ongoing meetings and monitoring with county hydrologists	2000
Jim Capito, basin study	Located wells of record, obtained GPS coordinates of each, plotted surface altitudes of wells, determined conditions of abandoned wells, performed hazard screening, recorded well data sheets, provided QA/QC of county well records with OBGMA records	September 2001 to Spring 2002
Database creation	Established database	2004
Kear, 2005, Masters Thesis	Hydrogeology of the Ojai Groundwater Basin: Storativity and Confinement, Ventura County, California	December 2005
Daniel B. Stephens & Associates, Inc.	Hydrologic assessment, San Antonio Creek Sub-watershed, Ventura County, California	June 2006
Extraction reporting	Reporting of basin groundwater extractions	Twice annually
Scheduled Element		
Extraction reporting	Reporting of basin groundwater extractions	Twice annually
Basin studies	Depth discrete monitoring well construction and monitoring	2007-2010
Basin studies	Monitoring San Antonio Creek flow into basin	2007-2010
Monitoring	Key wells for water quality	Annually
Monitoring	Key wells for groundwater levels	Every other month
Future Element		
Extraction reporting	Reporting of basin groundwater extractions	Twice annually
Monitoring	Conversion of inactive production wells into depth-discrete monitoring wells	2008
Groundwater model	Generation of a MODFLOW type of groundwater model for the basin	2009
Basin studies	Evaluate and augment recharge along creek channels	2008
Basin studies	Geophysical survey of the basin to identify aquifer and bedrock morphology	2010

Monitoring results will be shared annually by the OBGMA with owners, water users, and the public.

3.1.2 *Data Collection*

Previous studies identified significant gaps in the current monitoring activities in the Ojai Basin. Specific areas identified for increased data collection are basin water level, water quality monitoring in stratified aquifers known to be present in the basin based on aquifer testing, and geophysical log correlations. In cooperation with the OBGMA, the Ventura County Watershed Protection District (VCWPD) may measure key wells routinely for water levels and water quality. OBGMA will obtain permission from the well owners prior to conducting monitoring not already being conducted by Ventura County. This data will be analyzed and reported annually by OBGMA to stakeholders via annual reports, the website, or other publications. Additional data collection actions, including surface water discharged from San Antonio Creek and surface water inflow into the basin, have been assessed and will be considered in greater detail in the future. This data will be analyzed and reported annually by the OBGMA. All results from each well measurement are to be shared with the respective well owner either through direct communication and/or provision of any OBGMA publication that contains such data.

3.1.3 *Well Registration*

The OBGMA adopted Ordinance No. 1, April 29, 1993 which required all wells in the basin be registered with the OBGMA. There are currently 145 registered wells in the Ojai basin, of which 125 are reported to be active and the remaining 20 are inactive. Approximately 60 additional wells are reported to have been destroyed, bringing the total number of historically known wells in the basin to over 200. OBGMA will continue seeking to have all wells in the basin registered under a formal agreement with Ventura County to ensure that their well records are made available to the OBGMA and that any new well permits are registered with the OBGMA. Such an agreement ensures that well permits in the OBGMA area of jurisdiction will not be issued by Ventura County without proof that the applicant has properly notified OBGMA and been advised of the requirements for well operators in the Ojai basin. Figure 2 presents a map of active wells and Figure 3 depicts wells that are registered as inactive and destroyed. The OBGMA is also planning to obtain delegated authority from the State Water Resources Control Board, Water Rights Division to handle groundwater production recordation within OBGMA area of jurisdiction.

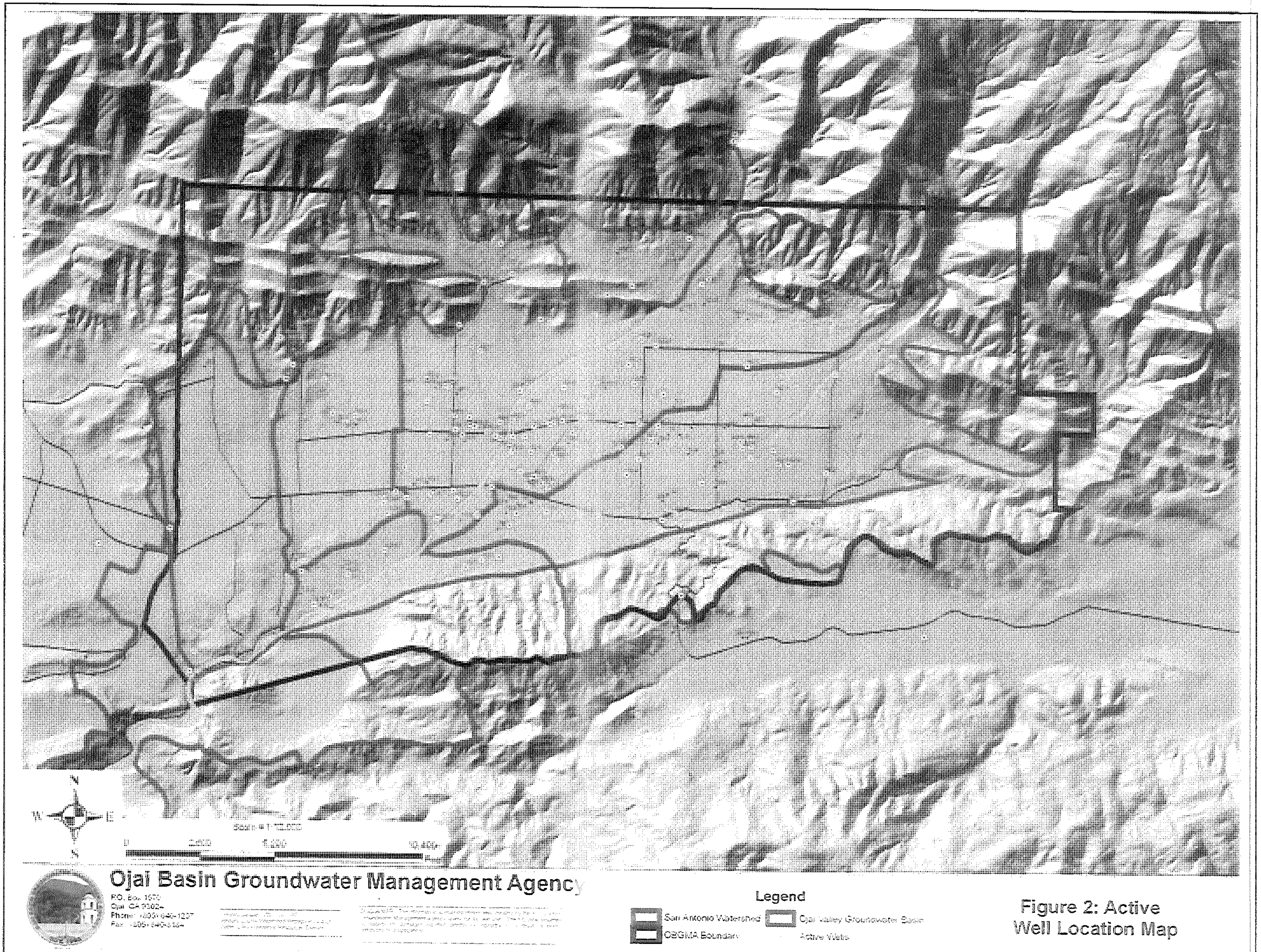


Figure 2: Active Well Location Map

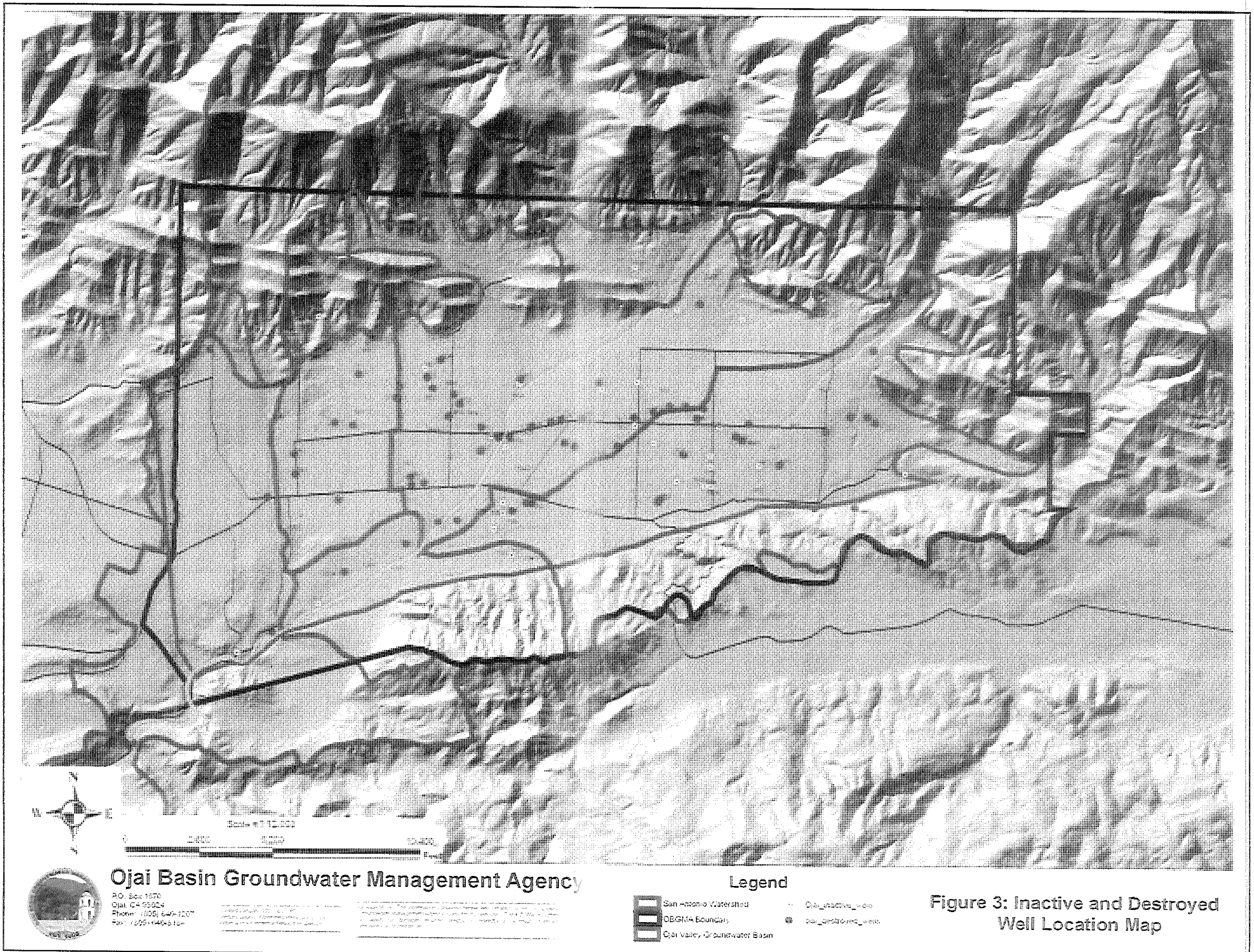


Figure 3: Inactive and Destroyed Well Location Map

3.1.4 Extraction Measurement

The OBGMA is mandated by its enabling Act to monitor groundwater extractions. Key parameters that allow the OBGMA to manage basin balance, prevent overdraft, and evaluate the amount of groundwater in storage include the amount of water extracted from the basin, precipitation, recharge data, and water level monitoring. OBGMA is also committed to implementing an effective, reliable method of monitoring well extractions. Currently, well owners are required to report, as precisely as possible, using meters or a variety of methods such as electrical power usage or crop factor, their annual water extractions. OBGMA will consider requiring metering of new wells and metering of all wells within a 3-year time frame. OBGMA will conduct an internal audit of its groundwater extraction reports to determine whether those reports accurately reflect actual extractions. In addition, OBGMA will institute steps, including assisting well operators with accurate reporting, to ensure the most efficient and effective ways to determine the actual withdrawals of water from the basin semi-annually.

3.2 Goal 2. Controlling Exports: Protecting and Managing the Basin

In order to preserve the groundwater in the Ojai Basin OBGMA will take direct management actions based on factual knowledge of the basin and the needs and concerns of water users and well owners in the basin. Table 2 describes selected Goal 2 elements that have been completed, are scheduled, or are planned.

3.2.1 Exports of Water from the Basin

OBGMA's enabling legislation mandates that no groundwater shall be exported from the basin except under permit issued by the OBGMA in full compliance with the policy and intent of the law. The law mandates the preservation of the groundwater for the common benefit of water users within the basin. Based on present hydrologic facts and circumstances, the OBGMA finds that there is no surplus water available for export. Under natural conditions, when surplus water is present in the basin, water flows under artesian pressure from wells and from exposed aquifers into San Antonio Creek along gaining reaches of the stream. Because this surplus has value to downstream stakeholders, and the surplus conditions are ephemeral (occurring only during years of heavy rainfall such as 1993, 1995, 1998, and 2005) and can change rapidly to conditions of deficiency, it is likely that surplus conditions will not exist in the foreseeable future.

Table 2. Selected Completed, Scheduled, and Planned Future Elements
Goal 2, Controlling Exports: Protecting and Managing the Basin

Element	Description	Completion Date (Actual or Anticipated)
Completed Element		
Export controls	Reviewed Matilija Dam removal issues, attended stakeholder meetings and EIR certification	2005
Database creation	Established database	2004
Scheduled Element		
Establish triggers	Establish basin triggers such as the relationship between groundwater levels and drought conditions to generate and adopt a water conservation plan	2008
Managing the basin	Update Groundwater Management Plan	2012 (every five years)
Future Element		
Maintain thresholds	Quantify relationship between basin storage and outflow into San Antonio Creek	2009

Nevertheless, OBGMA will review the existence of surplus from time to time, as dictated by the receipt and review of its annual report or as new, reliable information becomes available. OBGMA will establish the conditions and criteria under which it would contemplate granting a permit for export, should a surplus be determined to exist. These conditions and criteria will include at least the following:

- The applicant for a permit will bear the full financial, regulatory, and legal burden of demonstrating that a surplus of water exists, which, if exported, would not cause harm to any existing groundwater user in the basin, now or in the future.

- The export permit will be suspended in the event of a declared water shortage, basin storage threshold level, or other pre-established condition.

- All export permits will contain conditions and criteria that will otherwise protect the in-basin users to the fullest extent allowable under the law.

3.2.2 Establishment of Thresholds and Triggers

Water levels in the basin fluctuate considerably in response to pumping and recharge from seasonal rainfall. The Ojai Basin is considered largely in balance. Review of precipitation, accumulative departure curves, and water level responses over time indicate that the basin has the hydrologic characteristics of quick discharge and quick recharge when precipitation occurs. Also, based on aquifer testing, there is a significant amount of overlap of cones of depression created in the potentiometric surface by pumping wells. These features must be considered when establishing action levels of groundwater elevations or streamflow.

Groundwater use between 1981 and 2005 averaged approximately 5,170 acre-feet, of which some 1,820 acre-feet was pumped by Golden State Water Company for municipal and domestic supply (35 percent). In addition, three mutual water companies and approximately 100 active private wells supply both agricultural and domestic water in the basin. There is a great variation in location and depth of the wells in the basin, and their relative access to groundwater at low points in the hydrologic cycle. There is also variation in water quality in different parts of the basin. Taking into account the needs of the water users in the basin, overlying landowners and well operators, and the existing conjunctive relationship between the groundwater used in the basin and the Casitas water imported into the basin, OBGMA will establish basin storage thresholds which will trigger special action by the OBGMA to ensure protection of groundwater supplies in the basin.

OBGMA will develop triggers and the conservation measures that must be implemented at those points, and will also develop the procedures and pass the ordinances needed to put the conservation measures into effect. This will be done with full communication with, involvement, and understanding of the basin well operators.

3.3 Goal 3. Encouraging Supporting Activities

With its limited resources, OBGMA must strive to achieve its goals in cooperation with and through the supporting activities of other agencies, and through the encouragement of supportive actions by water users. Table 3 describes selected Goal 3 elements that have been completed, are scheduled, or are planned.

Table 3. Selected Completed, Scheduled, and Planned Future Elements
Goal 3, Encouraging Supporting Activities

Element	Description	Completion Date (Actual or Anticipated)
Completed Element		
Well inventories	Worked with well owners to increase number of Ventura County key wells in Ojai	1994
Joint meetings	Casitas, Ojai Water Conservation District (OWCD), and Ojai Basin Groundwater Management Agency explore interests in common	1995
Meetings	Participated with and followed progress of Ventura countywide Stormwater Quality Management Program	1996
Integrated regional watershed management planning (IRWMP) efforts	Participated in IRWMP, pursuit of Proposition 50 water bond funding	2006
Scheduled Element		
San Antonio Creek Spreading Grounds Rehabilitation Project	Rehabilitate abandoned spreading grounds in cooperation with OWCD, Ventura County Watershed Protection District (VCWPD)	2007-2010
Ventura River watershed planning	Study Ventura River watershed in cooperation with VCWPD	2007-2010
Future Element		
Grant funding pursuit	As available and targeted to basin issues	Annually

3.3.1 Data Collection and Storage

Ventura County already routinely collects information on water levels and quality from wells in the basin. In cooperation with OBGMA, this effort is planned to continue to meet the monitoring needs of the basin.

3.3.2 Water Conservation

OBGMA encourages water conservation practices by both agricultural users and urban users. Market forces, as well as good management practices, are moving most agricultural users in the basin toward implementation of water conservation measures. Likewise, Golden State Water Company, the largest municipal supplier in the basin, has initiated a conservation plan approved by the Public Utilities Commission and supported by the City of Ojai. OBGMA will encourage the development, publication, and sharing of information with these users that will encourage the optimum use of water resources in the basin. Further, OBGMA will seek the assistance of various local, state, federal and private organizations to provide water conservation services and education programs for in-basin water users, including the pursuit of grant funds as available. OBGMA will encourage in-basin water users to incorporate conservation practices and will consider development of a conservation plan in anticipation of drought conditions. Water meters on all wells will be needed to effectively measure sharing of conservation efforts.

3.3.3 Abandoned Wells

Ventura County has a program to address abandoned wells as part of the water well ordinance. OBGMA encourages implementing a program in the Ojai Basin to identify all abandoned wells, to determine if they pose any hazard to the quantity or quality of groundwater in the basin, to identify the actions needed, and to help obtain the resources to rectify any problems. OBGMA supports evaluation of abandoned or idle wells to determine whether they can be converted to monitoring wells, rehabilitated, or properly destroyed in accordance with Ventura County standards. OBGMA will also seek to obtain grant funds to assist well owners in proper destruction of abandoned wells, or in conversion to monitoring wells if appropriate.

3.3.4 Artificial Recharge

The Ojai Water Conservation District (OWCD) was involved in importing water from Matilija Reservoir via gravity flow pipeline and a program of enhanced percolation of streamflow on San Antonio Creek until 1985. This involved the diversion of surface flows into a series of percolation basins and was highly successful. The program was discontinued after the emergency construction of a debris basin on San Antonio Creek by Ventura County using FEMA funds, following a major fire in the watershed. The result of that construction was the destruction of most of the percolation basins, which were never restored.

The artificial recharge of the basin from San Antonio Creek by the Ojai Water Conservation District is endorsed by the OBGMA. To rehabilitate these spreading grounds, the OBGMA supports the San Antonio Creek Spreading Grounds Rehabilitation Project (SASGRP), one of the key projects of the Watersheds Coalition of Ventura County (WCVC) suite of applications. Under its enabling legislation, OBGMA must regulate any groundwater storage, recapture, and/or replenishment project in the Ojai Basin, and, accordingly, will be processing a permit for the SACSGRP. Other partners in the SASGRP endeavor include the OWCD, the VCWPD, Casitas Municipal Water District, and Golden State Water Company. This project will strive to augment basin storage by restoring the percolation basins and diversion and intake structures that were destroyed by the emergency construction. This was a key goal element on the OBGMA 1995 Plan.

The SASGRP may offset some of the losses associated with the proposed Matilija Dam decommissioning, known as the Matilija Dam Ecosystem Restoration Project (MDERP). The MDERP proposes to replace the water supply loss resulting from the dam's removal prior to its obsolescence date. The SASGRP, if successful, can only partially mitigate the loss of water supply resulting from the MDERP. Other measures should be evaluated and implemented to more completely mitigate the removal of the Matilija Dam and the elimination of its storage volume.

3.3.5 Watershed Management

OBGMA will work with other stakeholders in the Ventura River Watershed to effectively understand and manage the drainage area that includes Ojai. Such a project is also included in the suite of tasks applied for by the WCVC, under the Ventura River Watershed Protection Plan. OBGMA supports this endeavor and the understanding of the basin will be enhanced with additional monitoring wells in the basin provided under the project.

3.4 Goal 4. Effective Communication

The effectiveness of OBGMA will depend upon its ability, within its limited means, to meet the needs of the water users and well owners of the basin. This will depend on effective, two-way communication between OBGMA and the users it serves. Table 4 describes selected Goal 4 elements that have been completed, are scheduled, or are planned.

3.4.1 Advisory Committee

Ad hoc advisory committees with representatives of the well owners and water users in the basin have been periodically created by the OBGMA board and have been a means of developing a dialogue between users and OBGMA. The advisory committees are used by OBGMA board as a nucleus of interested and affected users to consider and develop the details of actions proposed under this groundwater management plan update.

Table 4. Selected Completed, Scheduled, and Planned Future Elements Goal 4, Effective Communication

Element	Description	Completion Date (Actual or Anticipated)
Completed Element		
Public workshops	Two workshops to hear and record well owner concerns	1994
Advisory committee	Explored basin issues	1994
Public workshop	Sponsored "Well Maintenance and Rehabilitation" Seminar	1998
Outreach	Displayed "Pollution Prevention House" on Ojai Day and at local elementary schools	1999
Website	To inform stakeholders of Agency operations and Basin issues	2007
Scheduled Element		
Maintain and update website	To inform stakeholders of Ojai Basin Groundwater Management Agency operations and basin issues	Ongoing
Future Element		
Awareness campaign	Increase public awareness of water issues in the basin through workshops, forums, newsletters, etc.	2008 and ongoing

3.4.2 Annual Report

OBGMA will prepare an annual report as required by law that it will self-publish at minimum expense. Technical contractors will only be used if required to perform technical analysis of data collected during the year.

3.4.3 Information Sharing

Information learned about the basin and water use in the basin will be shared by OBGMA with all well owners directly and with water users in the basin through the general news media and the publications of local water purveyors. Actions or items of special interest will be shared with well owners by direct mail newsletters, which will also include notice of OBGMA meetings and agendas. OBGMA board members will be available to meet with basin water users to address issues of concern and the ongoing management activities of OBGMA. OBGMA has established a website through which information is shared freely with the public. OBGMA's web address is www.obgma.com.

3.5 Goal 5. Efficient Administration

The resources available to OBGMA to carry out its mission and serve the water users of the basin are limited. Therefore, cost containment measures are essential. These measures will be developed and made part of this Plan update. Table 5 describes selected Goal 5 elements that have been completed, are scheduled, or are planned.

Table 5. Selected Completed, Scheduled, and Planned Future Elements Goal 1, Efficient Administration

Element	Description	Completion Date (Actual or Anticipated)
Completed Element		
Finance committee	Formed finance committee of board members and well owners, prepare fiscal budget	1994 (annually thereafter)
User fees	Established a system to fund Ojai Basin Groundwater Management Agency (OBGMA) based on well user fees	1995
Revenue evaluation	Evaluated expenses and revenue, to reach goal of operating on revenue from extraction fees only, grants of $3,500 from Casitas, Southern California Water Co. and the City of Ojai were encumbered as seed monies for OBGMA advancement.	1996
Scheduled Element		
Funding increase	Increase extraction charge ceiling to a reasonable amount through legislation.	2007
Administration	Hire a professional, qualified manager, on a part-time basis, to efficiently and effectively provide staff support for the agency.	2008
Future Element		
Donations	Solicitations of donations from stakeholders and other benefactors	Ongoing

3.5.1 Funding

OBGMA is funded by extraction charges levied on pumpers in the Ojai Basin. The present legislative ceiling on extraction charges is $7.50 per acre-foot. In a typical year with 5,000 acre-feet extracted, the OBGMA budget is roughly $37,500 per year. OBGMA operates from a one-room office, with one part-time office assistant who also acts in the capacity of secretary and treasurer. These expenses, along with regular audits and required insurance, consume the majority of the funding. OBGMA should have one professional, technically qualified staff person as a manager at least part time. OBGMA should also participate in funding projects that are within its purview (such as the proposed SACSGRP, operation and maintenance, matching funds for grants, hiring consultants). OBGMA is seeking legislation in the 2007 session to amend its enabling Act to increase the extraction charge ceiling to $25. Any change in actual extraction charge will be voted upon by the OBGMA board, which consists of representatives of the stakeholders. The OBGMA board has estimated that an actual extraction charge of $15 per acre-foot would provide the funding needed to carry out their basic responsibilities and that an additional charge of $4 per acre-foot would be need to pay the OBGMA share of the operation and maintenance of the proposed SACSGRP.

With adequate funding, OBGMA will meet its responsibilities as required by law, will be able to carry out its mission to protect Ojai Basin groundwater in the interests of the water users in the basin, and will be able to achieve the goals of this management plan update.

3.5.2 Minimum Requirements

The OBGMA's enabling legislation requires the Plan to establish a minimum amount of extraction below which the requirements of the Act will not be applied. The OBGMA will establish these criteria.

Ojai Basin Groundwater Management Agency

2011 & 2012 Annual Report

Ojai Basin Groundwater Management Agency

PO Box 1779

Ojai, CA 93024

March 27, 2014

Contents

1.0 Introduction

The Ojai Basin Groundwater Management Agency (OBGMA) issues this Annual Report representing the calendar years 2011 and 2012. Similar to many previous years, the annual report comprises two years of reporting as compilation of data on extractions and activities has been completed. As the OBGMA has streamlined its efforts, and importantly, enacted measures to ensure more accurate extraction reporting, future years' Annual Reports are anticipated to be issued mid-calendar year for the preceding year.

Mission Statement

It is the mission of the Ojai Basin Groundwater Management Agency to preserve the quantity and quality of groundwater in the Ojai Basin in order to protect and maintain the long-term water supply for the common benefit of the water users in the Basin.

The mission of the OBGMA is derived from its enabling legislation, the Ojai Basin Groundwater Management Agency Act, which became law in 1991. The act was approved as a response to the needs and concerns of local water agencies, water users, and well owners of the Ojai Basin. The Agency was established in the fifth year of a drought, amidst concerns for potential Basin overdraft.

The mission is in keeping with the history of the Basin and the circumstances existing when the Agency was formed. Since that time, although there have been some good water years and the Ojai Basin has continued to provide sufficient water for its well owners, competition for scarce water resources in Southern California and Ventura County is ever expanding, water resource planning is intensifying, and the importance of the OBGMA mission is even greater today.

Background

Based upon the studies conducted by and for the Agency, and due to a relatively wet period over the past 15 years, the water supplies and demands in the basin are largely in balance and capable of meeting the annual demands of overlying landowners and in-basin water users under present conditions. However, after a series of dry years, water levels in some wells in the basin decline to the point where an alternative water source must be used. In part, that is why water users presently import some 3,682 (1985 to 2012 average) acre feet of Casitas Municipal Water District (Casitas) water into the basin annually, mostly for irrigation.

If Casitas water was not available or not used in a series of dry years, considering the present understanding of the hydrology of the basin and the existing water uses, some shallower and peripheral wells would probably not produce water, pumping lift costs to pump groundwater would be excessive, some wells would produce excessive amounts of sand, water quality of pumped groundwater would likely be compromised, and other detrimental effects of a reduced amount of storage in the Basin.

Through the agency's efforts, many stakeholders better understand these conditions, and the importance of conjunctive use in action: using groundwater when available and relying on Casitas water when basin storage is minimized. This practice has a somewhat self-regulating effect on the basin, as the charges for purveyor water encourage conservation and good stewardship of the groundwater resource.

Therefore, the focus of the Agency's efforts is on protecting and preserving the basin groundwater resource for in-basin use; and guarding against export of water from the basin.

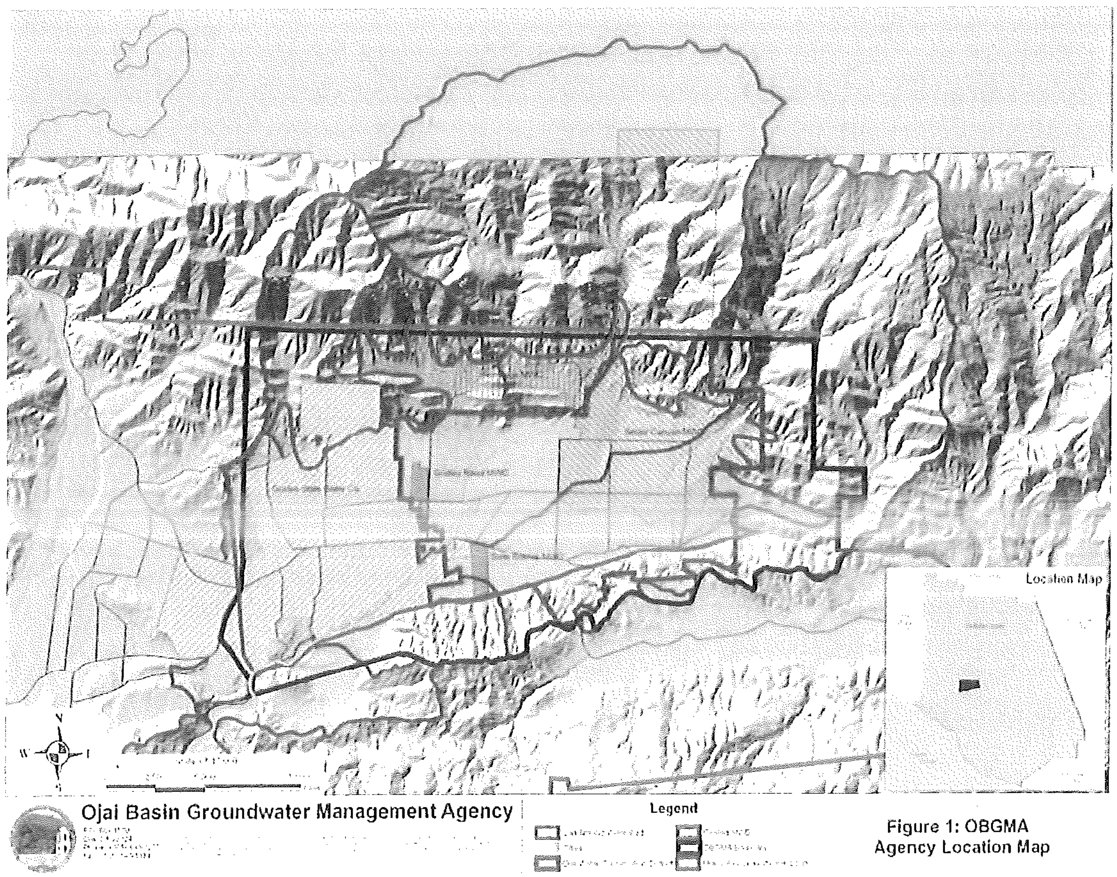


Figure 1 - OBGMA Agency Location Map

Two critical facts underline the importance of the Ojai Basin Groundwater Management Agency (OBGMA) and this Annual Report, which represents a summary of the basin conditions, the OBGMA activities and efforts to manage the basin in keeping with its Management Plan and enabling legislature .

> **Chronic drought is a climatic reality**. Over the last 100 years there were several serious droughts, and climate change may likely bring an increase in the number and intensity of years with below average rainfall. Local precipitation,

the only source of water in the Ventura River watershed, is predicted by several models to decrease in annual averages. Extended periods of drought are likely.

The Ventura River watershed is used by numerous interests. Most water available to the various water purveyors in the watershed is accounted for; it has been predicted that, in a long- term drought, the Lake Casitas could go dry. Existing wells already in the Ojai Basin are producing groundwater at a rate that is considered to be at or slightly below the safe yield of the basin, and it is predicted (with historical precedence) that in a long term drought a significant number of the existing wells will go dry. Stakeholders in the Ojai Basin can not expect an economically reasonable new source of water.

The OBGMA has been given the responsibility for managing the Ojai groundwater basin and, working with its constituents, the well operators in the basin, for conserving that groundwater. The intent of this plan is to avoid, where possible, and strive to minimize, the adverse economic and social impacts facing our valuable but limited water supply.

Board of Directors

The OBGMA Board consists of five members and their alternates. The five seats comprise representatives of each of the following entities:

- Ojai Water Conservation District
- City of Ojai
- Golden State Water Company
- Casitas Municipal Water District
- Mutual water companies

Regular attendance at each of the Board meetings is required to form a quorum and attend to board activities. During 2011 and 2012, the Board was comprised of the following personnel, with alternates occasionally representing and attending:

- Jerry Conrow, President (OWCD)
- Roger Essick (Mutual water companies)
- Russ Baggerly (CMWD)
- Ken Petersen (GSWC)
- Betsy Clapp (City of Ojai)

Summary of years' accomplishments

Over Calendar Years 2011 and 2012, OBGMA accomplished many activities in keeping with its enabling legislation and management planning, including:

- Held monthly board meetings with public participation to carry out the objectives of its enabling legislature and groundwater monitoring plan
- Supported recordation of water extractions for individual well owners
- Documented groundwater extraction from reported pumping
- Monitored water levels in the basin both automatically via a network of data loggers and manually

- Coordinated with County and private entities to monitor basin conditions
- Permitted the construction of four water wells in 2011 and four in 2012
- Successfully completed a groundwater model of the basin
- Supported the ongoing design and permitting of the San Antonio Spreading Grounds rehabilitation project (SACSGRP)
- Participated in outreach programs including presentations to the Groundwater Resources Association of California (GRAC)
- Drafted detailed plans for basin inflow and outflow monitoring and applied to the State for Local Groundwater Assistance Funding to implement the planned monitoring
- Compiled geologic and hydrogeologic data to further the understanding of the basin
- Participated in watershed, county, and state-wide meetings, conferences, and discussions to further the Agency's participation and exposure to affect policy
- Assisted individual stakeholders to understand their roles, rights, and responsibilities as overlying landowners of the groundwater basin.
- Developed, maintained and updated the website (www.obgma.com) to inform the public regarding the OBGMA activities and basin conditions.

2.0 Duties And Responsibilities

The OBGMA is required by law to have a Groundwater Management Plan (Plan) to guide its operations. The initial Plan was prepared and published in 1995. The 2007 Update provided additional information to the original Plan and has been developed based on studies done for the Agency by its hydrogeologists, engineering contractors, input from well owners and water users, recommendations made by the Agency's advisory committee and by the State of California Department of Water Resources. Figure 1 presents a map of the OBGMA area of purview and service areas of other local agencies.

In the ensuing years between the original Plan publication and the 2007 update, numerous studies and projects have been undertaken in the Basin within the purview of the OBGMA and have led to a better understanding of Basin hydrogeology, demands, and hydrologic fluctuations which affect the stakeholders. Continually improved understanding provides an additional level of detail to the goals and objectives of the Plan; as the understanding of the Basin improves over the years, updates to the Plan will be incorporated. It is anticipated that the Plan will be updated every five years.

The Plan consists of five broad goals. Each goal includes a number of action elements, and as described herein there are tables under each goal which demonstrate when various action elements were completed or are planned for completion. While the five broad goals will provide the structure to the Agency's management efforts for several years, the Agency anticipates that the detailed action elements will evolve as the Agency's efforts continue to progress. Approved plan elements will be implemented in the form of rules, regulations or ordinances. Prior to implementation, additional criteria to guide these actions will be developed in a public process by the Board and added to this management plan. Some elements as noted herein require more study and public review before specific implementation actions are approved. Additions will be made to this Plan as actions to implement these elements are reviewed by the water users and well owners in the basin and approved by the Agency Board of Directors (Board). Revisions or updates to the approved Plan will be made only after full review, consideration of any advisory recommendation and formal approval by the Board.

The five goals are described in detail in the 2007 Groundwater Management Plan Update available at www.OBGMA.com, and are:

1) Understanding the Basin
2) Controlling Exports; protecting and managing the Basin
3) Encouraging Supporting Activities
4) Effective Communication
5) Efficient Administration

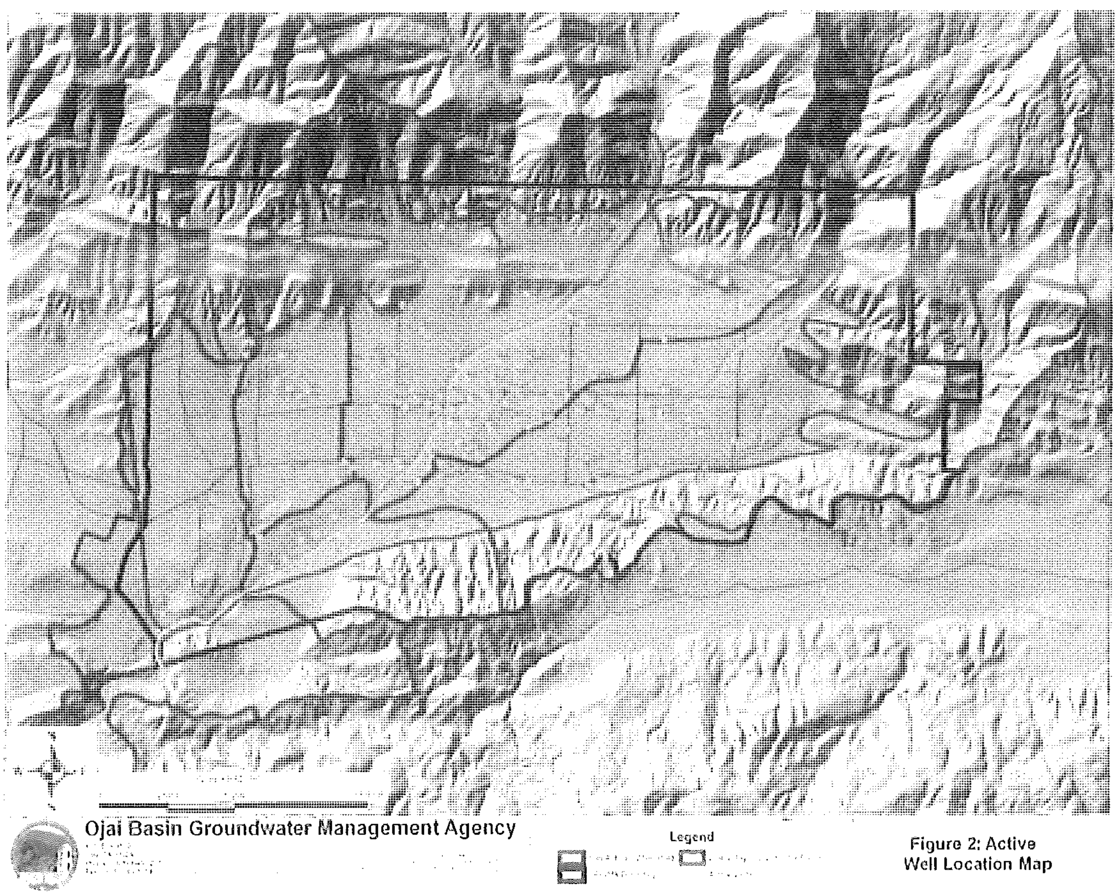


Figure 2- Active Well Location Map

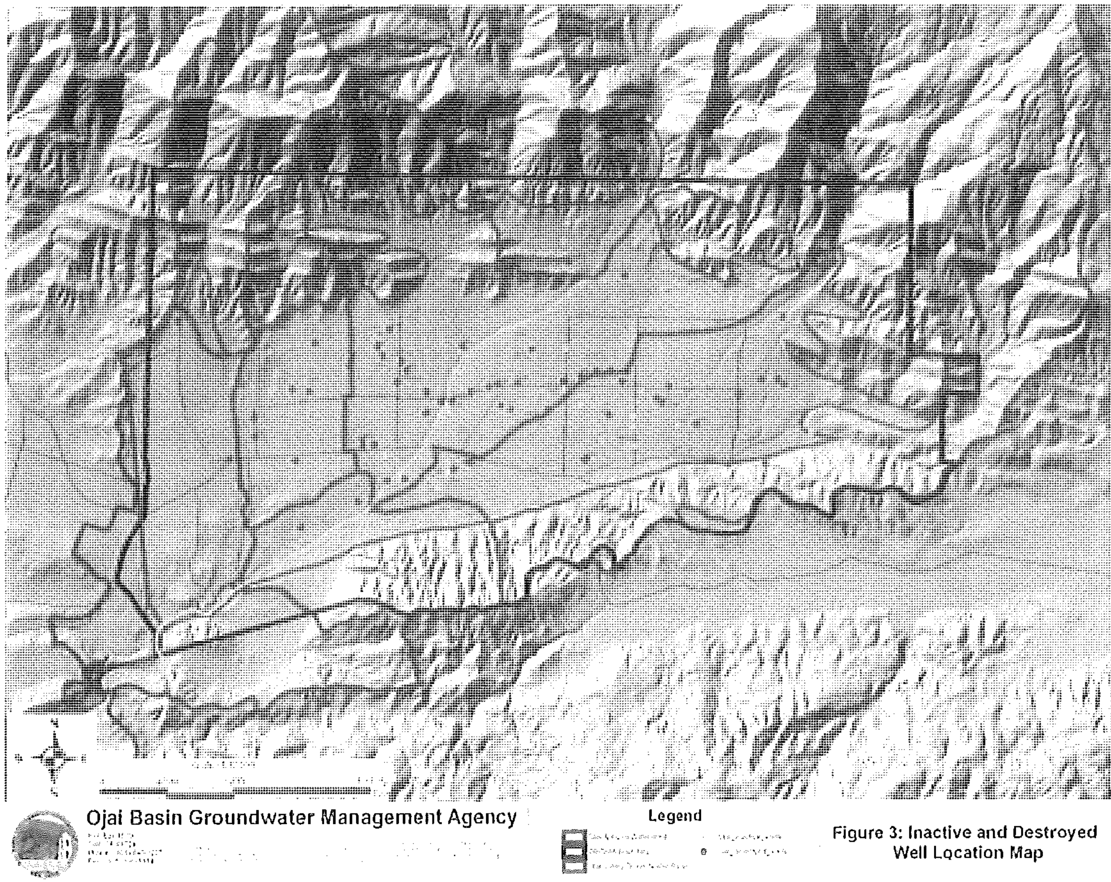


Figure 3- Inactive and destroyed Well Location Map

Ordinances

Many of these goals are met by enacting ordinances and resolutions. During the 2011 and 2012 Calendar Years, no new ordinances were adopted

Resolutions

During the 2011 and 2012 Calendar Years, the following Resolution was adopted and implemented:

Resolution 2011-1 (draft) and 2, adopted, signed, and approved June 30. 2011 approved an extraction charge of $15.00 per Acre Foot.

Projects

Two Major Projects were implemented with the OBGMA serving as major stakeholder.

The Groundwater Model

Importantly, the OBGMA completed the "Groundwater Model Development, Ojai Basin, Ventura County, California," in final form on November 15, 2011. This significant modeling effort was funded through the DWR Local Groundwater Assistance (LGA) Program and represented a leap in the technical understanding of the Basin and the capabilities of the OBGMA to model various scenarios related to natural and artificial recharge, groundwater extraction, and new well construction. Ongoing model updates, conducted at the discretion of the Board, allow the OBGMA to consider the effects of various scenarios including drought, recharge, additional well construction and groundwater extraction.

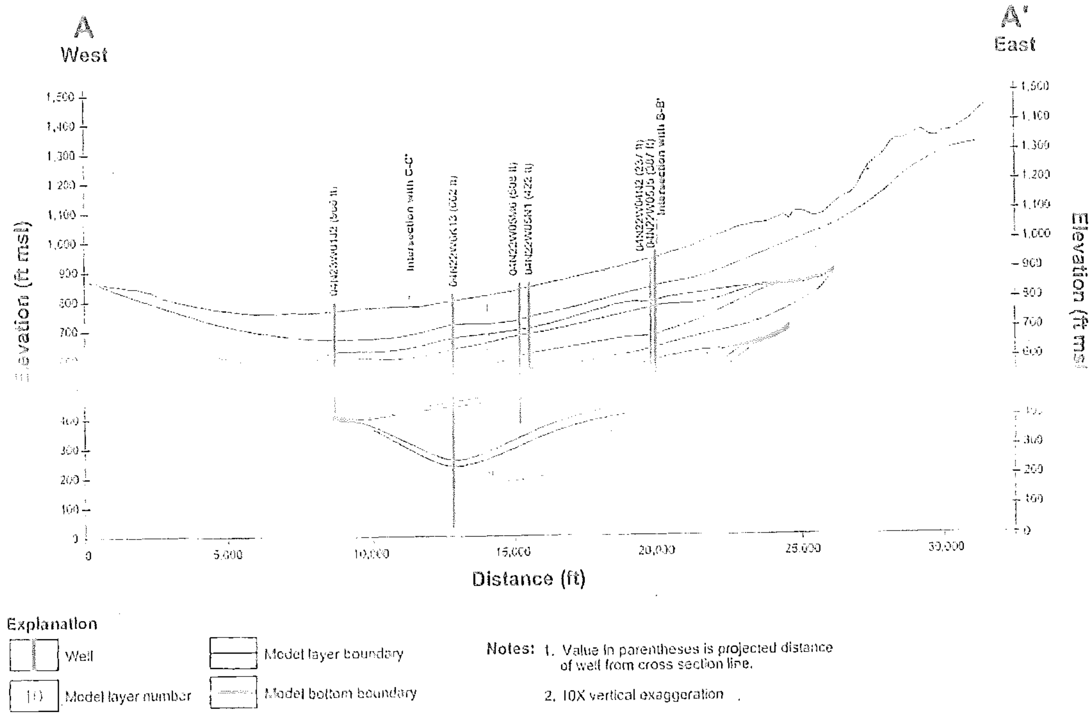


Figure 4 - West to east cross section showing 11 model layers

The SACSGRP

The San Antonio Creek Spreading Grounds Rehabilitation Project (SACSGRP) is intended to increase groundwater storage and recharge in the Ojai Valley Groundwater Basin by rebuilding an abandoned diversion works, rehabilitating existing relic infiltration basins, and constructing passive percolation recharge wells adjacent to San Antonio Creek. The project site is located on an 11.4 acre parcel of land owned by the Ventura County Watershed Protection District adjacent to San Antonio Creek, within the unincorporated portion of Ventura County, approximately 0.9 miles northeast of the City of Ojai, California. The proposed project received $1,315,000 in grant funding from the State Water Resources Control Board through the Proposition 50 Integrated Regional Water Management Grant, which was awarded to the Watershed Coalition of Ventura County. A stakeholder group composed of the Ojai Basin Groundwater Management Agency, the Ojai Water Conservation District, the Golden State Water Company, the Casitas Municipal Water District and the Ventura County Watershed Protection District was formed in January 2008 to collaborate on the implementation and maintenance of the proposed project. The primary purpose of the project is to capture 25 cubic feet per second (cfs) of surface flow (when available) from San Antonio Creek to recharge the Ojai Valley Groundwater Basin and help augment the Ojai Valley's water supply.

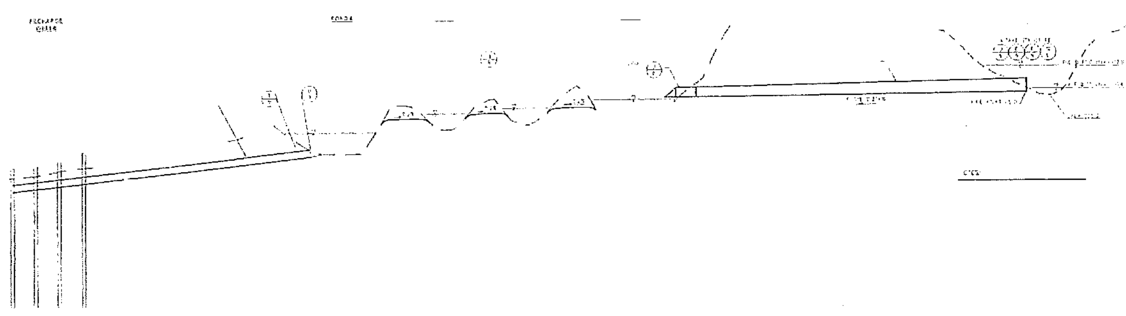


Figure 5 -Hydraulic profile for SACSGRP
from diversions through intake to recharge wells

The Ojai Groundwater Basin Inflow/Outflow Study

OBGMA Completed an application to the 2012 DWR LGA grant solicitation to implement the proposed project entitled "Ojai Groundwater Basin Inflow/Outflow Study," which has been abbreviated to the acronym of "IOS." As the name implies, the IOS strives to quantify the inflowing surface water that recharges the basin, the outflowing surface water that discharges from the basin, and quantify the surface water flowing through the central portion of the basin at the point of compliance for the SACSGRP.

Although the project was not initially funded through the highly competitive LGA process, the workplan presented in the application can serve for the OBGMA's implementation in a self-funded means or future grant applications.

The application components are found at:

http://www.water.ca.gov/lgagrant/docs/applications/Ojai%20Basin%20Groundwater%20Management%20Agency%20%28201209870016%29/

Inventory and Status of Wells

During 2011, 125 wells were actively reporting groundwater extraction from the Ojai Basin. During 2012, this number decreased by one, as a net decrease in well inventory was realized; four new wells were constructed each year, two wells were destroyed in 2012 and one was destroyed in 2011.

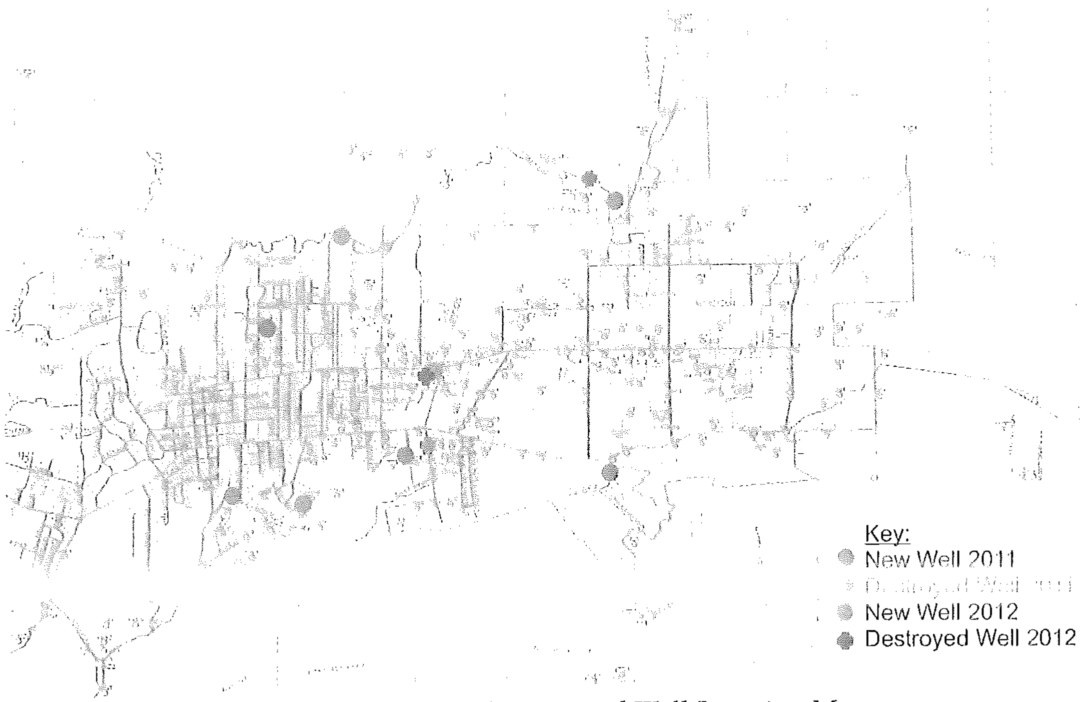


Figure 6- New and Destroyed Well Location Map

3.0 Precipitation

In the Ventura River Watershed, no significant water is imported for human uses including agricultural, irrigation, or municipal supplies. Virtually all water tributary to the Ojai Groundwater Basin derives from the hydrologic cycle as precipitation within the mountainous area surrounding the Ojai Basin and, to a lesser degree, precipitation on the valley floor itself.

An excellent proxy for recharge is precipitation as measured at the Ojai Fire Station. Long-term (1931-2012) average annual rainfall at that location is 21.21 inches; higher in the watershed, the average annual precipitation is nearly 36 inches.

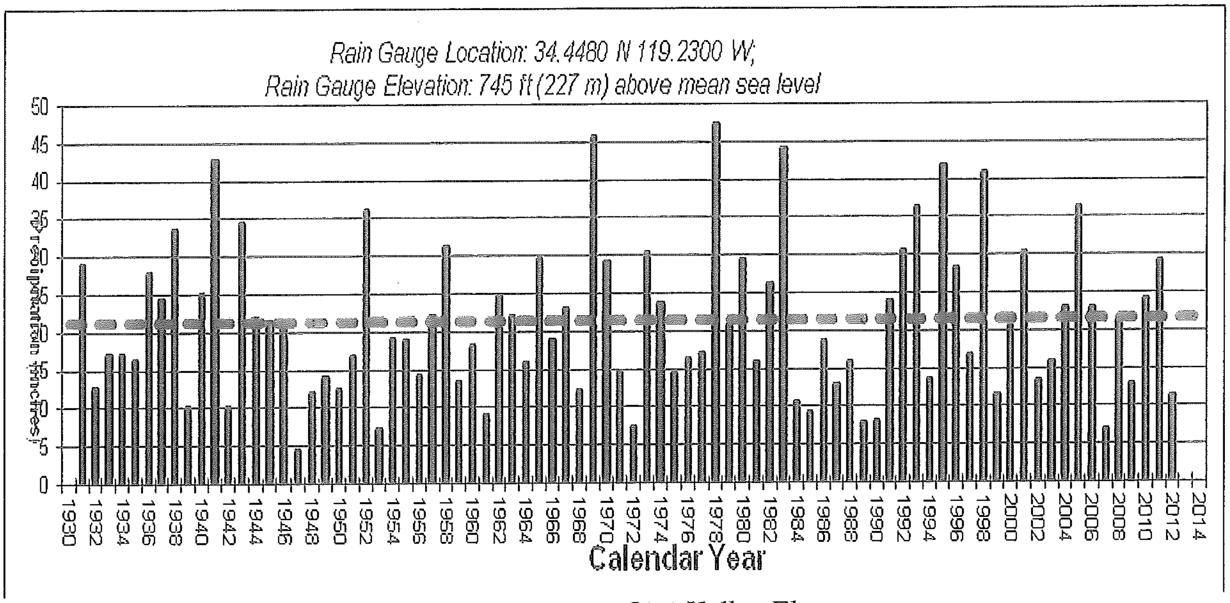


Figure 7- Precipitation at Ojai Valley Floor

In addition to the bar chart presented above, the accumulative departure from average annual precipitation is an indicator of drought periods versus periods of "normal" or "wet" periods. As the curve declines to the right, a period of drought is realized. Locally, it appears that a drought period began after the end of the 2010-2011 water year.

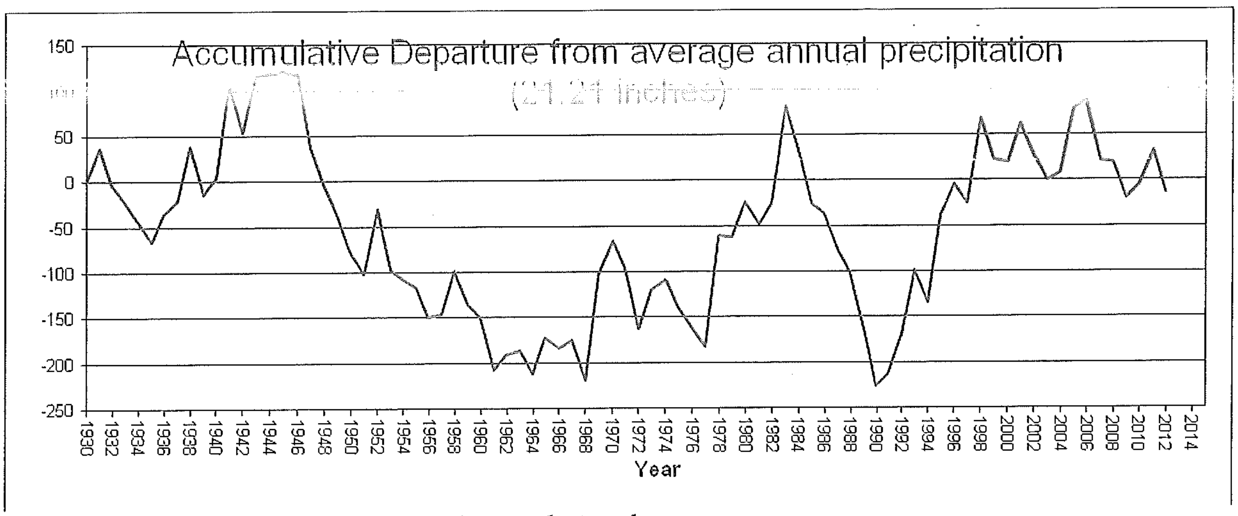


Figure 8- Accumulative departure curve

Based on the amount of precipitation measured within the watershed, and modeled recharge estimates, the OBGMA estimates that during water year ending 2011, 29.27 inches of rain fell on the valley floor and upwards of 10,000 acre-feet of water recharged to the basin. Similarly, during water year ending September 30, 2012, 11.35 inches of rain fell on the valley floor and about 2,000 acre feet of recharge was added to the basin storage.

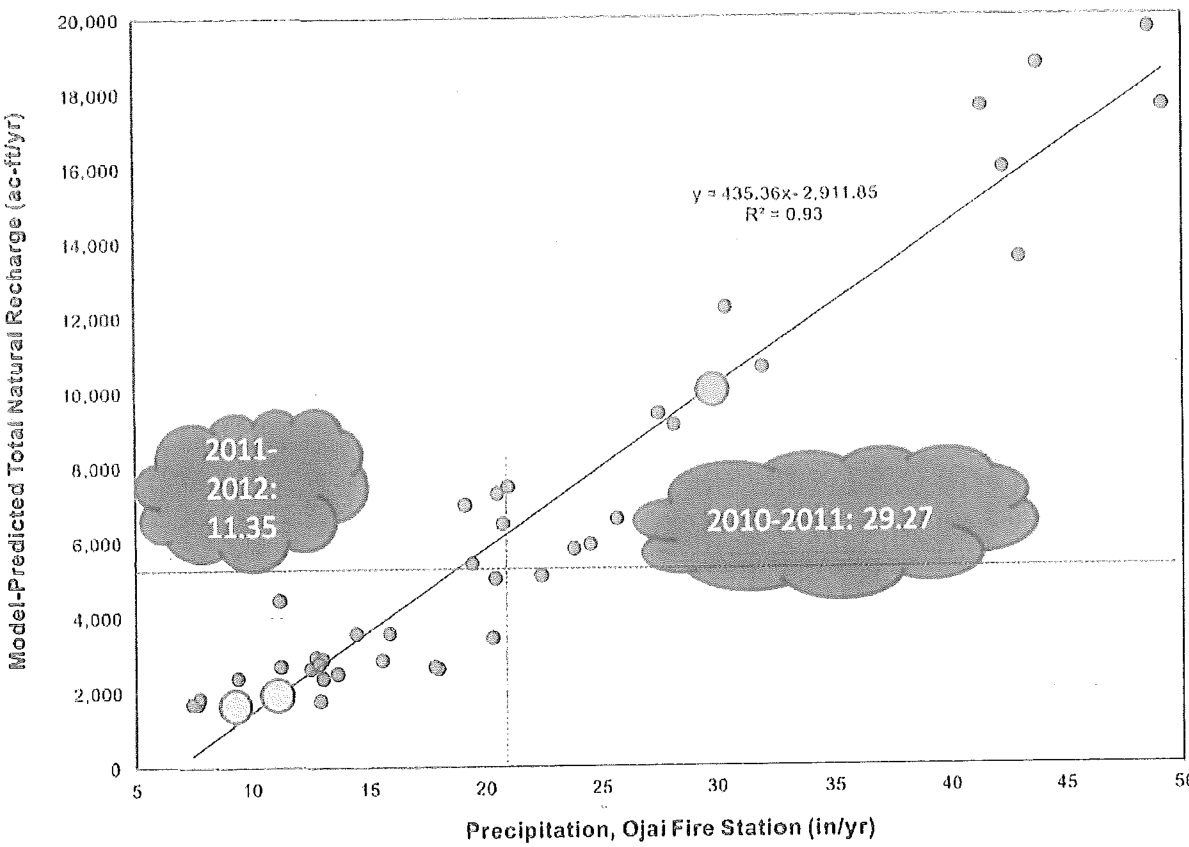


Figure 9- Relationship between precipitation and recharge

4.0 Groundwater Levels

Modeled and observed phenomena indicate that any precipitation less than 11 inches on the valley floor is taken up by evapotranspiration and soil storage, among other factors, and that significant recharge is limited to primarily subsurface flow during these drier years. The OBGMA's monitoring of the basal alluvial aquifer near the SACGRP Project indicate a favorable component of "recharge without rainfall" as discharges from adjacent bedrock aquifers contribute spring flow and subterranean contributions to the alluvial aquifers.

SACSGRP DDMW 190-210 feet: Basal Alluvial Aquifer

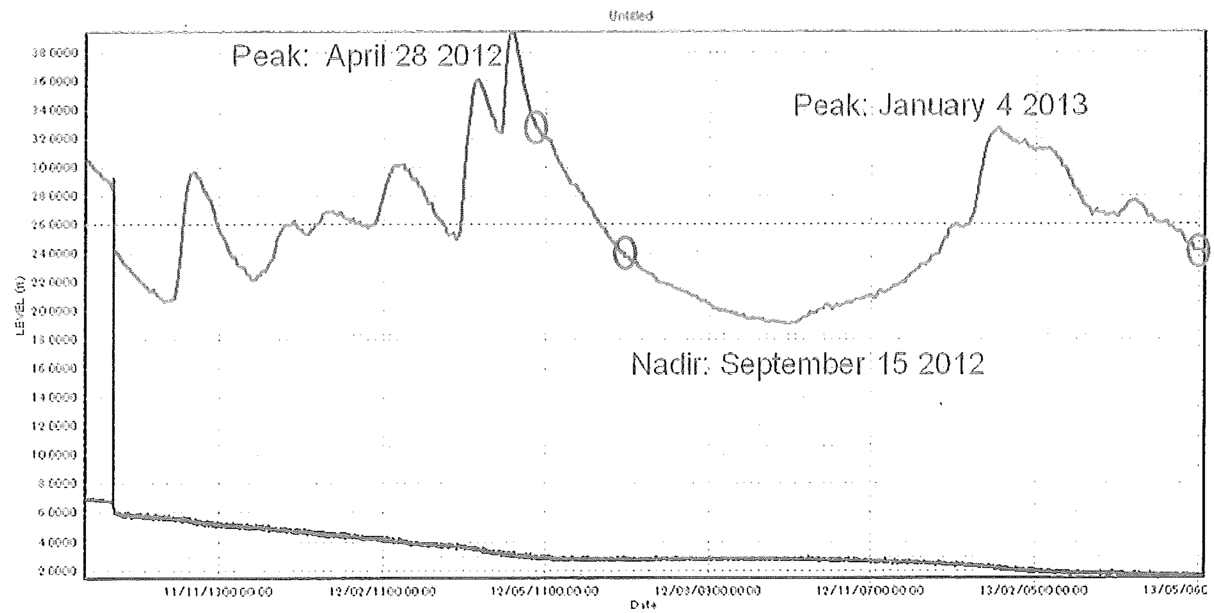


Figure 10- SACSGRP DDMW water levels October 2011 to May 2013

Monitoring of water levels by the County and OBGMA in several key wells provide a direct insight into basin storage and the effects of drought on portions of the basin. Generally, peripheral northern and eastern areas appear to be less affected by the droughts as they store the bedrock-derived recharge first as compared to central and southern portions of the basin. Additional storage capacity and extraction from the central portions of the basin compared to the peripheral areas also contribute to this phenomenon of discrepancy in water levels.

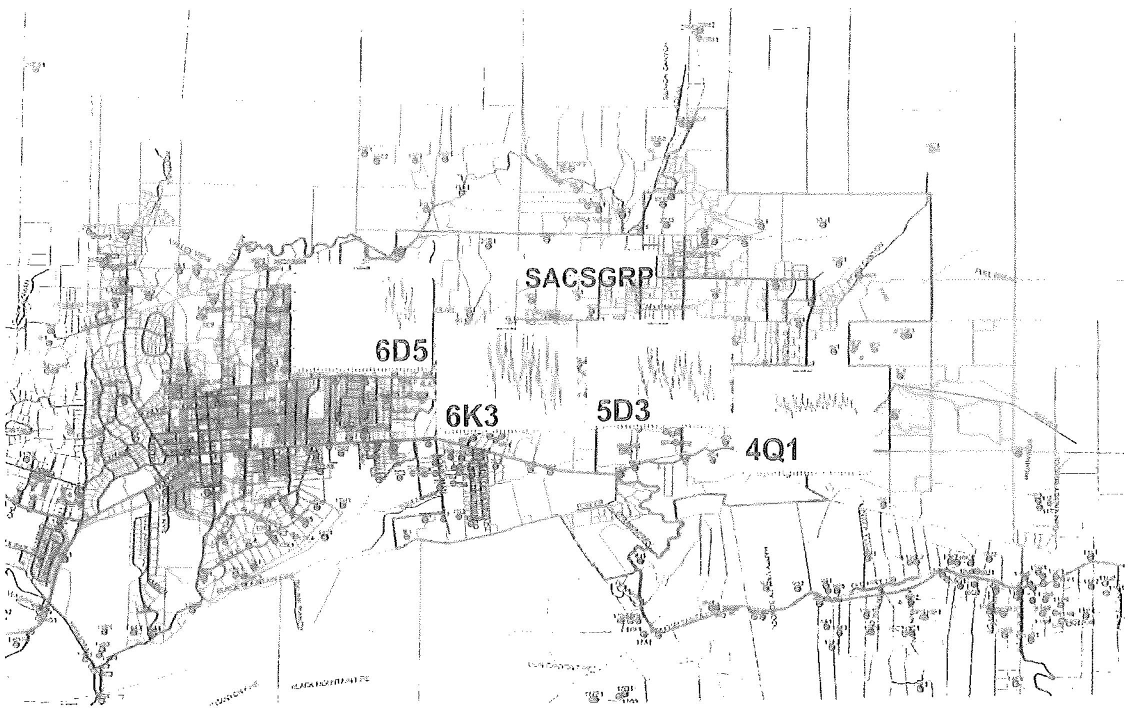
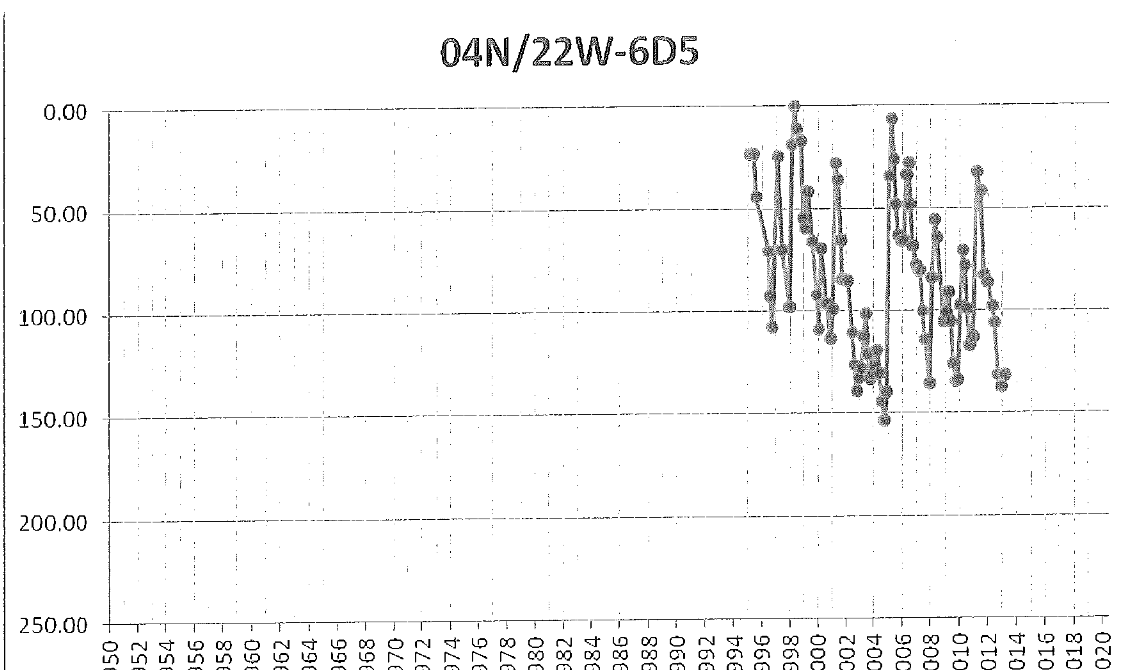
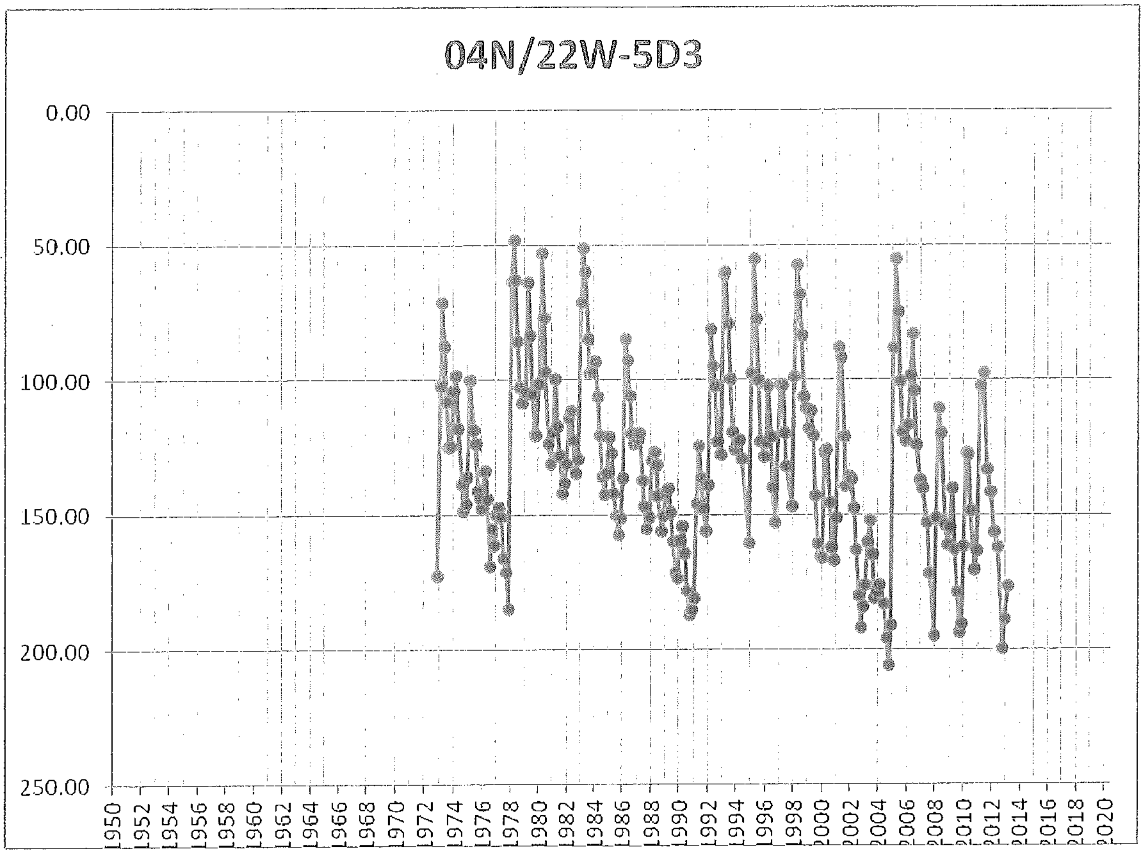


Figure 11 - Locations of Wells with hydrographs are shown above, including the SACSGRP DDMW basal alluvial aquifer, while details of the data are presented on the following graphs.




04N/22W-5D3
0.00
50.00
100.00
150.00
200.00
250.00
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
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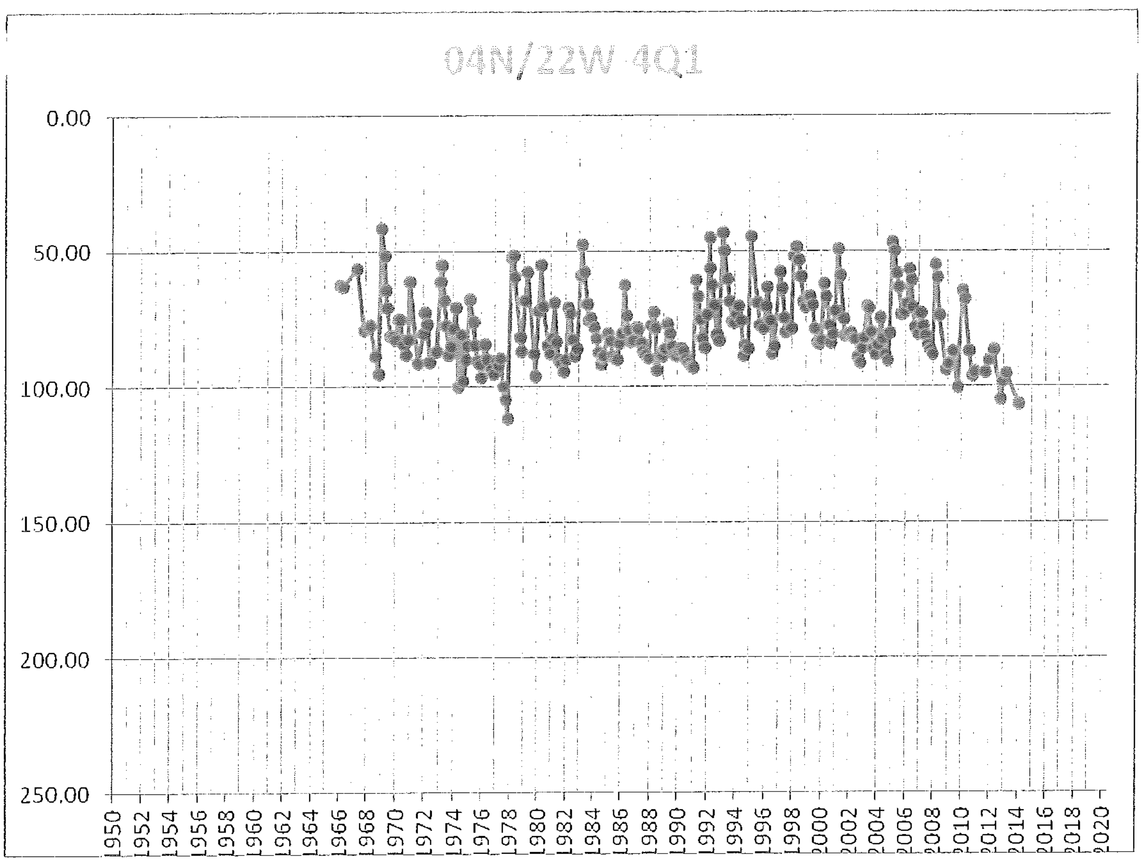
04N/22W-4Q1
0.00
50.00
100.00
150.00
200.00
250.00
1950
1952
1954
1956
1958
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1964
1966
1968
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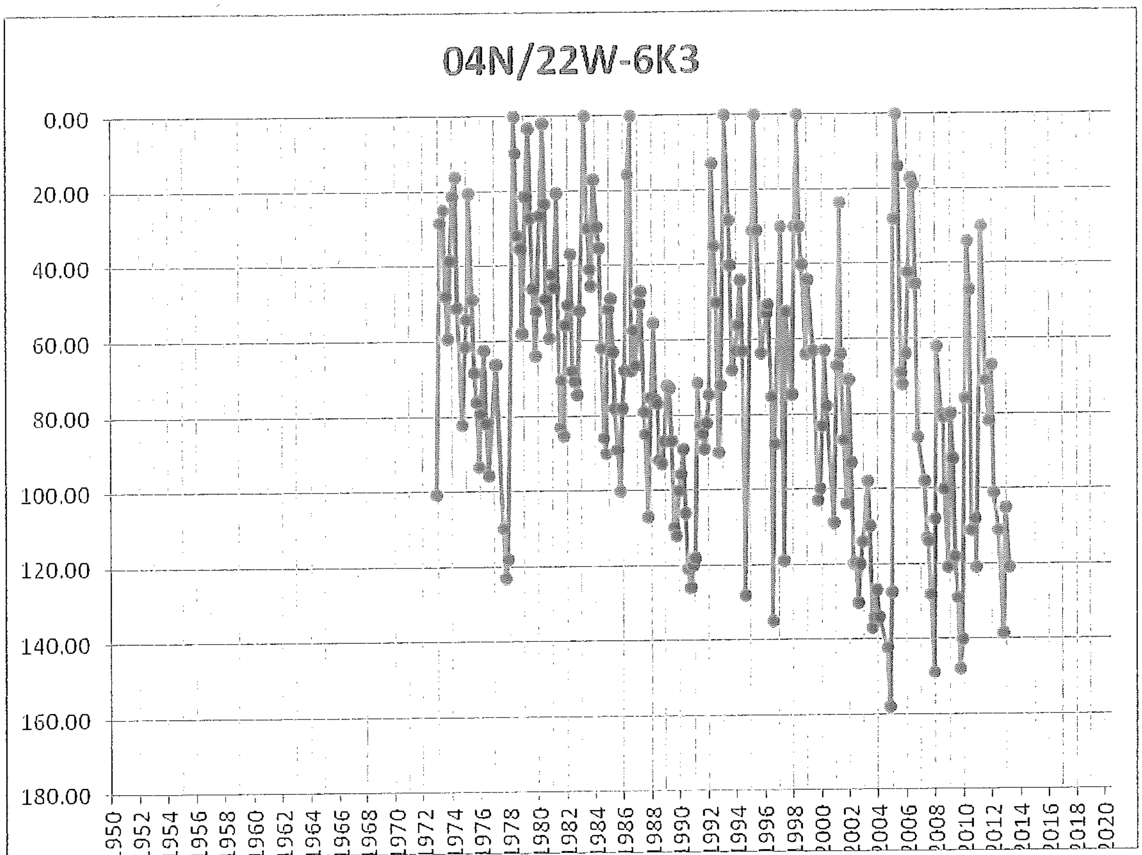
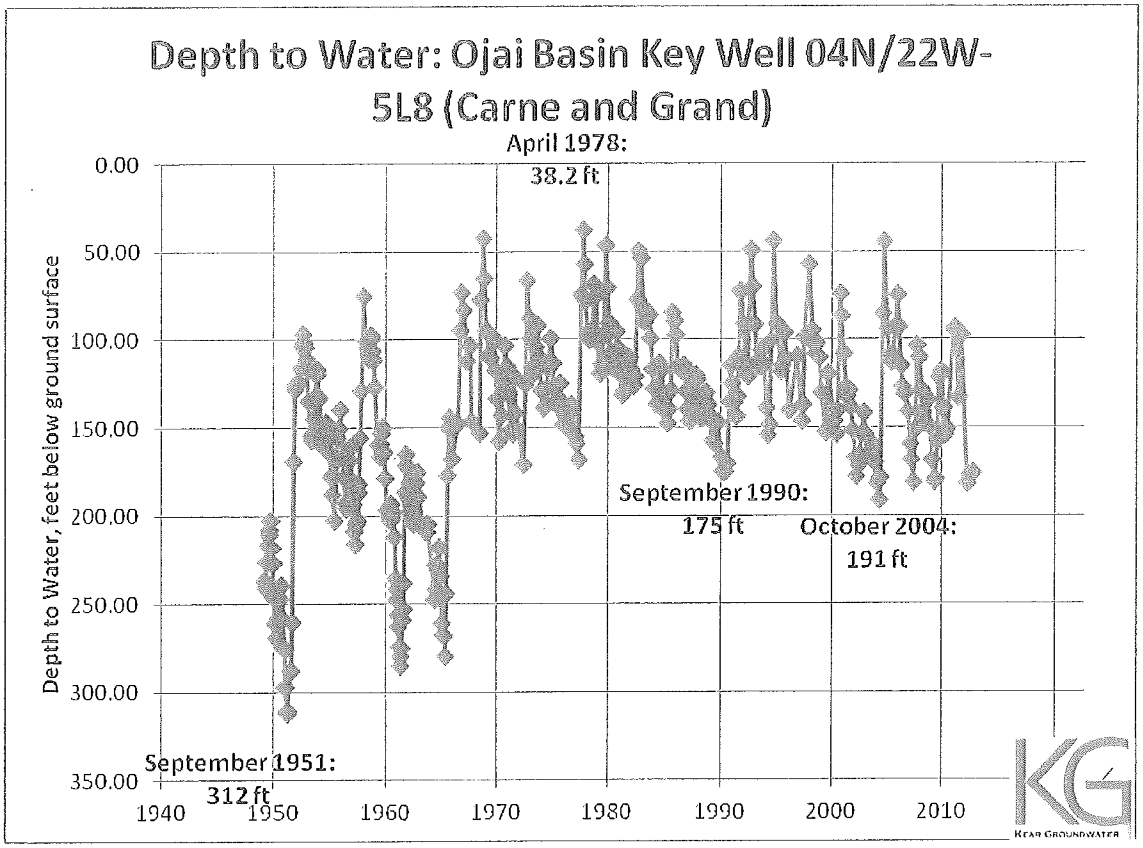


Based on the hydrographic data, the OBGMA estimates that the amount of groundwater in storage in the Basin at the spring high point is as follows:

The historic nadir in basin storage was in 1951 during a significant drought and before the current practice of conjunctive use including Casitas water imports was commonplace. At that time, in 1951, 43,741 acre feet are estimated to have been in storage in the Basin. This nadir is a significant threshold because the confined aquifer skeleton would have been maximally compacted at that time. Static water levels below that depth would increase compaction and potentially cause subsidence and cause irrecoverable storage capacity in the Ojai Basin.

YEAR	Springtime Basin storage (Acre Feet)
2002	62,567 AF
2003	57,087 AF
2004	55,094 AF
2005	80,000 AF *Artesian Flow Observed*
2006	62,810 AF *Artesian Flow Observed*
2007	49,750 AF
2008	59,000 AF
2009	50,000 AF
2010	54,627 AF
2011	63,944 AF *Artesian Flow Observed*
2012	62,402 AF


Depth to Water: Ojai Basin Key Well 04N/22W-5L8 (Carne and Grand)
April 1978:
38.2 ft
September 1990:
175 ft
October 2004:
191 ft
September 1951:
312 ft
Depth to Water, feet below ground surface
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
1940
1950
1960
1970
1980
1990
2000
2010
KG

5.0 Groundwater Quality

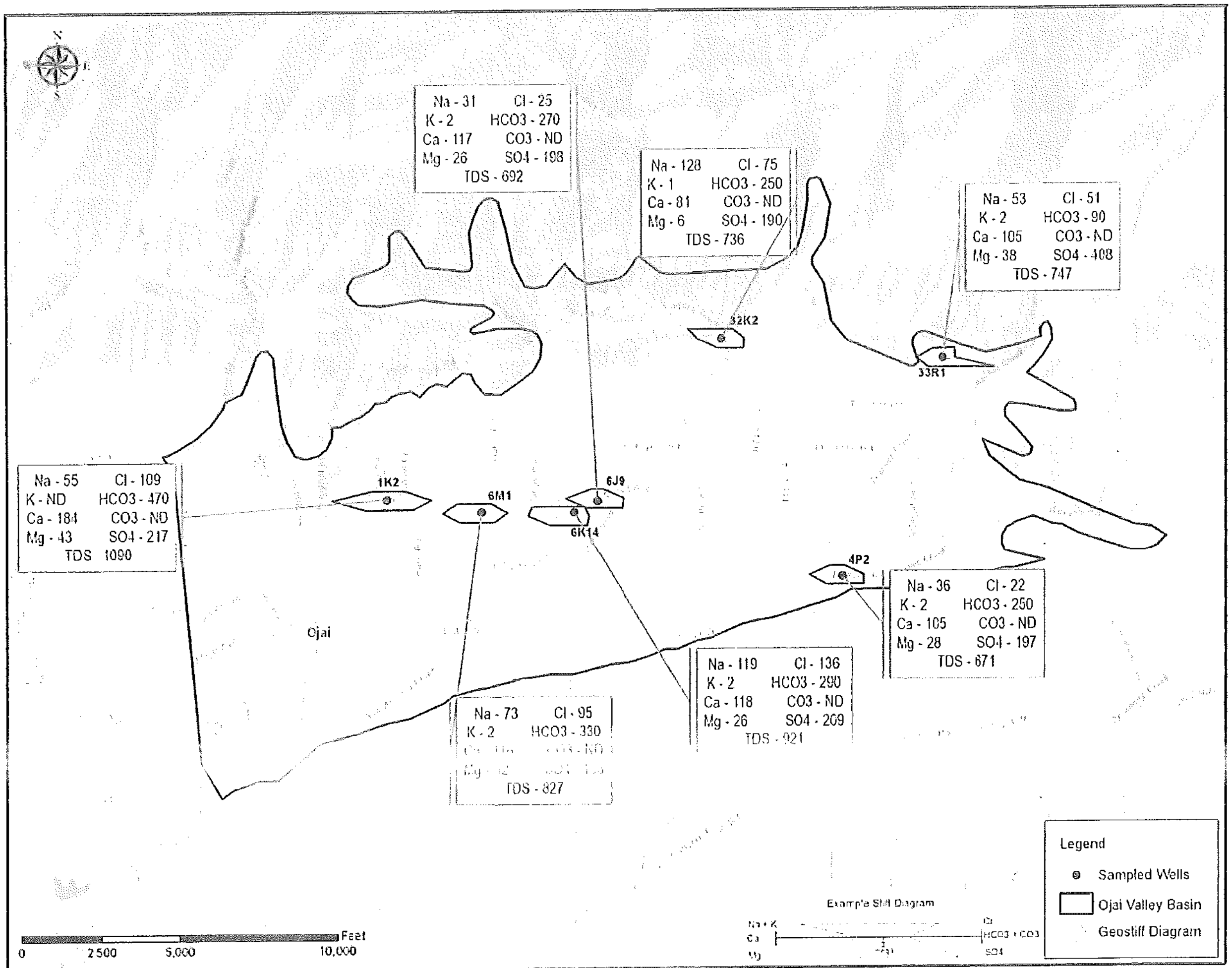


Figure 12- General water quality data 2012

The Ojai Valley Basin water quality is considered good for domestic and agricultural purposes. Average TDS is 812 mg/l and ranges from 671 to 1090 mg/l in county-sampled and reported wells. Depth-discrete information indicate a higher chloride concentration in deep aquifers in the central and southwestern portion of the basin. Two wells have iron (Fe) concentrations above the secondary MCL for drinking water. Water samples from three wells were analyzed for inorganic chemicals (Title 22 metals). No inorganic chemical was above the primary MCL for drinking water. Stiff water quality diagrams in the figure above show that Ojai Valley groundwater chemistry is quite variable. The above figure also shows approximate well locations and concentrations of total dissolved solids (TDS), sodium (Na_+), potassium (K_+), calcium (Ca_{2+}), magnesium (Mg_{2+}), chloride (Cl_-), bicarbonate (HCO_3-), carbonate ($CO_{3\ 2-}$) and sulfate ($SO_{4/2-}$) for the wells sampled by the County of Ventura in the Ojai Valley basin in 2012.

6.0 Groundwater Extractions

Reported Extractions

Reported extractions from 125 wells in 2011 and 124 wells in 2012 indicate an extraction quantity of 5,125 acre-feet and 5,310 acre-feet, respectively.

These extraction totals are in-line with historical use and trends since the OBGMA has been monitoring extractions from the Basin. Graphical depiction of these extractions, compared to estimated irrigation demand, imported water, and municipal groundwater extraction, are presented and tabulated below. Notably absent from this calculation is the imported water from Lake Casitas that Golden State Water Company (GSWC) provided to its customers.

Since the passage of OBGMA Ordinance No. 7 requiring metering of extraction facilities, an increased accuracy is afforded to these calculations and reporting. Additionally, a general declining trend may be observed owing to the fact that crop factors, formerly used to estimate extraction, often overestimated the actual amount of groundwater extraction.

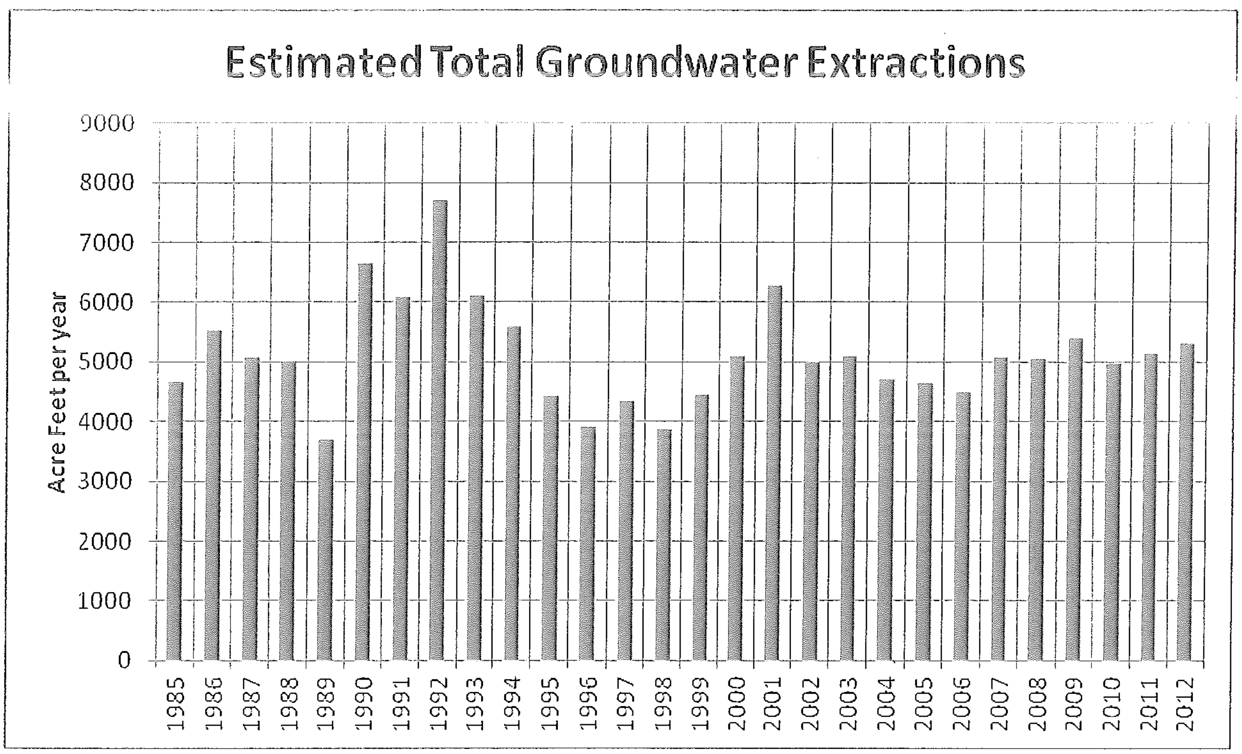


Figure 13 - Acre feet of groundwater extraction over time

Groundwater Extractions, Demands and Imports

Calendar Year	Estimated Irrigation Demand	Casitas Importation	Estimated Groundwater Extraction (Private Wells)	Groundwater Extraction (GSWC)	Estimated Total Groundwater Extractions
1985	7200	4181	3019	1638	4657
1986	7500	3633	3867	1663	5530
1987	7800	4473	3327	1744	5071
1988	7796	4635	3161	1839	5000
1989	7093	5169	1924	1766	3690
1990	9804	4961	4843	1804	6647
1991	7631	3377	4254	1819	6073
1992	8769	2744	6052	1645	7697
1993	6829	2800	4029	2070	6099
1994	7072	3433	3639	1946	5585
1995	6117	3530	2587	1846	4433
1996	6801	4468	2333	1569	3902
1997	8017	5272	2745	1583	4328
1998	5071	3115	1956	1913	3869
1999	6185	3922	2263	2181	4444
2000	7054	4044	3010	2080	5090
2001	7204	3195	4009	2258	6267
2002	7021	4249	2772	2220	4992
2003	6450	3428	3022	2066	5088
2004	7058	4185	2873	1824	4697
2005	5462	2768	2694	1955	4649
2006	5462	2796	2666	1818	4484
2007	6877	3770	3107	1963	5070
2008	6492	3176	3316	1736	5052
2009	7054	3411	3643	1751	5394
2010	5633	2404	3229	1742	4971
2011	5867	2990	3191	1934	5125
2012	6292	2986	3664	1646	5310

Natural Discharge

Natural discharge from the Basin occurs primarily via San Antonio Creek. Modeled discharge to surface streams is reported to average 2,282 Acre feet per year. Smaller components of discharge are to evapotranspiration (258 af/yr) and outflow to downgradient bedrock and alluvium (129 AF/yr).

In Water Year Ending 2011, a total of 10,597 acre feet are calculated to have discharged at San Antonio Creek beneath the Casitas Springs bridge at Highway 33. This compares to 906 Acre feet at the same point for water year ending 2012. The Ojai Basin comprises approximately 70.3 percent of the surface water tributary area to this gage and is one of the only groundwater basins that provides perennial discharge to the creek system. Although no active gage is present to date near the discharge point from the Ojai Basin, monitoring of the San Antonio Creek at Creek Road is within the OBGMA Purview and a planned activity.

7.0 Conclusions

Outlook for coming year (2013 and 2014)

Local precipitation in 2011 and 2012 represented a drying trend with declining precipitation totals for each water year. Continued persistent drought is anticipated, with low precipitation anticipated for 2013 and 2014. Demand on the Basin is anticipated to be high and natural discharges low.

Agency Planned Activities

For 2013 the OBGMA is planning several key objectives:

- Continued involvement in the SACSGRP, slated for construction late 2013
- Installing and monitoring additional continuous water level monitoring devices in key stakeholders' wells
- Adding hydrographs to the website
- Permitting wells
- Running model updates to evaluate dynamic conditions and scenarios
- Holding monthly board meetings with public participation to carry out the objectives of its enabling legislature and groundwater monitoring plan
- Supporting recordation of water extractions for individual well owners
- Documenting groundwater extraction from reported pumping
- Coordinating with County and private entities to monitor basin conditions
- Participated in outreach programs
- Compiling geologic and hydrogeologic data to further the understanding of the basin
- Participating in watershed, county, and state-wide meetings, conferences, and discussions to further the agency's participation and exposure to affect policy
- Assisting individual stakeholders to understand their roles, rights, and responsibilities as overlying landowners of the groundwater basin.
- Maintaining and updating the website to inform the public regarding the OBGMA activities and basin conditions.
- Considering a Groundwater Management Plan Update
- Considering the ramifications of ownership transfer of GSWC on basin management, possibly revising the OBGMA Act
- Continue to explore and apply for grant funding opportunities to carry out the OBGMA responsibilities, goals and objectives.

APPENDIX C

Public Outreach and Engagement

Groundwater Sustainability Plan
Public Outreach and Engagement Plan

Ojai Basin Groundwater Management Agency
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Contact: Trey Driscoll

APRIL 2021

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APPENDICES

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Glossary of Terms and Acronyms

Term/Acronym/Abbreviation	Definition
DWR	California Department of Water Resources
Engagement	Efforts made to understand and involve stakeholders and their concerns in activities and decisions of the Groundwater Sustainability Agency
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
OBGMA	Ojai Basin Groundwater Management Agency
OVGB	Ojai Valley Groundwater Basin
SGMA	Sustainable Groundwater Management Act
Stakeholder	An individual or entity interested or affected by the Groundwater Sustainability Plan

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1 The Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), signed into law by Governor Jerry Brown on September 16, 2014, created a new framework for groundwater management in California. The framework includes a structure and schedule to achieve sustainable groundwater management within 20 years. The California Department of Water Resources (DWR) has historically managed the state's central repository for groundwater data. Under SGMA, DWR provides guidance, financial assistance, and technical support for compliance with state requirements. The State Water Resources Control Board provides the regulatory backstop under SGMA, taking over basin management and assessing fees if local groundwater management is not successful in complying with the requirements of SGMA.

SGMA established a new structure for local groundwater management through Groundwater Sustainability Agencies (GSAs). Each basin designated as a high- or medium-priority groundwater basin by DWR required the formation of a GSA by July 1, 2017. Each GSA for these high- and medium-priority basins must then develop a Groundwater Sustainability Plan (GSP) that details how sustainable groundwater management will be achieved within 20 years of implementing the GSP. Sustainable groundwater management is defined by SGMA as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results." This avoidance of undesirable results is measured through the following six sustainability indicators:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degradation of water quality
- Significant and unreasonable land subsidence
- Depletion of interconnected surface water and groundwater that has significant and unreasonable adverse impacts on beneficial uses of the surface water

The GSP is a tool used to help the GSA sustainably manage the basin. Before the GSP can be adopted, the criteria for sustainable management must be assessed, including determining what is significant and unreasonable within the parameters of SGMA for the groundwater basin managed by that GSA, with input from stakeholders.

1.1 Sustainable Groundwater Management Act Requirements for Stakeholder Engagement

Stakeholder engagement is an important component of any successful long-term planning effort and is required by SGMA (Sections 10720–10730) and GSP Regulations (Section 353–354). Each GSA shall encourage and support active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin (Section 10727.8). The GSA must also allow for voluntary participation by Native American tribes and the federal government (Section 10720.3). The GSA may appoint and consult with an advisory committee (Section 10727.8) and must consider the interests of all beneficial uses and users of groundwater within the basin (Section 10723.2).

Engaging members of the public in groundwater sustainability planning can improve public understanding of the technical, financial, and political considerations the GSA factors into their decision-making process. Participation by the public can also improve the GSA's understanding of the potential impacts of their decisions. While this Outreach and Engagement Plan is focused on the stakeholder and interested parties associated with the development of the Groundwater Sustainability Plan for the OBGMA, there is a nexus with the ongoing Ventura River Watershed Adjudication. Specifically, the *Santa Barbara Channelkeeper v. City of Buenaventura*, Case No 19STCP01176 filed in September 2014, alleges diversions from the Ventura River were unreasonable and hurt habitat for endangered steelhead trout and other wildlife. In response to the lawsuit, the City of Ventura filed a Cross-Complaint seeking to bring in other users of surface water and groundwater in the Ventura watershed, including the Ojai Basin, which was one of the four "significant" basins identified by the City of Ventura in the lawsuit. Presently, this adjudication agreement is ongoing and at the time of print there still has not been settlement on the adjudication. Nonetheless, the OBGMA recognizes the issue. To the extent necessary, this will be addressed in the GSP.

SGMA recognized the importance of stakeholder engagement and has laid out specific requirements for stakeholder engagement within each of the following four phases of SGMA.

Phase 1: GSA Formation and Coordination

- Establish and maintain a list of interested parties (Section 10723.4).
- Provide public notice of the GSA formation (Section 10723[b]).
- Conduct a GSA formation public hearing (Section 10723[b]).
- Notify DWR of the GSA formation (Section 10723[b]).
- Provide a written statement to DWR, as well as the cities and counties within the GSA boundary, describing how interested parties may participate in the GSP development (Section 10727.8).

Phase 2: GSP Preparation and Submission

SGMA requires local agencies throughout California to sustainably manage groundwater basins by developing GSPs or submitting an alternative to DWR for consideration. Per SGMA, alternatives must demonstrate how water managers have already achieved or will achieve sustainable groundwater management.

An alternative, per Water Code Section 10733.6(b), may be any of the following:

1. An existing groundwater management plan
2. Groundwater management pursuant to an adjudication
3. An analysis of basin conditions that demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years

Subsequent to the passage of SGMA, the Board of the Ojai Basin Groundwater Management Agency (OBGMA) elected to submit an alternative. The decision was in part based on the fact that OBGMA was created in 1991 amidst concerns of local water agencies, water users, and well owners about potential overdraft of the Ojai Valley

Groundwater Basin and is responsible for managing the supply and demand of Ojai Valley Groundwater Basin for the protection and common benefit of agricultural, municipal, and industrial water users of the basin. As such, the agency is required to have a Groundwater Management Plan to guide its operations. Elements of OBGMA's Groundwater Management Plan are implemented in the form of policies, rules, regulations, and ordinances. These were determined by the Board of Directors to meet the SGMA requirements and were submitted to DWR on December 27, 2016. On July 17, 2019, the DWR presented a letter response, via email, that their recommendation was to not approve the Alternative Demonstration submitted by OBGMA. On August 14, 2019, OBGMA submitted a response to DWR's recommendation indicating that the agency was committed to developing a GSP that addresses the issue raised by the DWR recommendation.

GSP preparation and submission will include the following items to specifically address stakeholder outreach and engagement:

- Submit initial notification of intent to prepare a GSP (Section 353.6)
- Prepare a GSP that considers beneficial uses and users of groundwater when describing undesirable results, minimum thresholds, projects, and actions (Section 10727.8, Section 10723.2, and Section 354.10)
- The GSP must include a communication section that includes the following (Section 354.10):
  - Explanation of the GSA's decision-making process
  - List of public meetings at which the GSP was discussed
  - Identification of opportunities for public engagement and a discussion of how public input and response will be used
  - Description of how the GSA encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin
  - Description of how the GSA will inform the public about progress implementing the GSP, including the status of projects and actions
- Public noticing must be completed and public meeting procedures must be adhered to prior to adopting, submitting, or amending a GSP (Section 10728.4)

Phase 3: GSP Review and Evaluation

- Work with the Ventura Watershed parties and the management committee to coordinate the GSP preparation with the Management Plan and requirements of the Physical Solution, and adopt, if appropriate, thresholds and actions identified by the GSA.
- Upon GSA adoption of the GSP and submittal to DWR, the GSP will be available on the DWR website for a 60-day public comment period. Any person may provide comments to the DWR on the GSP. DWR will consider the comments received prior to completing their evaluation and assessment of the GSP (Section 353.8).

Phase 4: Implementation and Reporting

- SGMA requires assessments and re-evaluation of the GSP at least every 5 years.
- GSAs must provide public notice and hold public meetings prior to amending the GSP (Section 10730).

- Public notice is required before the GSA imposes or increases fees (Section 10730). The GSA must also follow other applicable laws and regulations associated with the assessment of fees including the requirements of Proposition 218.
- Work with the Ventura watershed Parties and the Management Committee to implement the GSP incompliance with the Management Plan and Physical Solution.

Appendix A, Sustainable Groundwater Management Act Requirements for Stakeholder Engagement, includes a table with the statutory requirements to assist the GSA in tracking progress towards meeting the requirements throughout each of the four phases.

2 Ojai Valley Groundwater Basin

The Ojai Valley Groundwater Basin (OVGB) is bounded by the Topatopa Mountains to the north and east, the Upper Ojai Valley Groundwater Basin (DWR Basin No. 4-001) to the east, the Santa Ana Fault and Black Mountain to the south, and the Upper Ventura River Subbasin (DWR Basin No. 4-003.01) to the west (see Figure 1). The eastern and western boundaries of the OVGB correspond to recognized bedrock highs that limit groundwater exchange flow between the Ojai Valley Basin and adjacent basins. The OVGB is drained by San Antonio Creek, a tributary to the Ventura River. The OVGB is approximately 5,913 acres and underlies the City of Ojai and the eastern Ojai Valley. Approximately 184 active wells in the OVGB provide water supply for agricultural, municipal, domestic, and industrial uses. Groundwater discharge from the OVGB to San Antonio Creek provides water supplies for downstream water uses.

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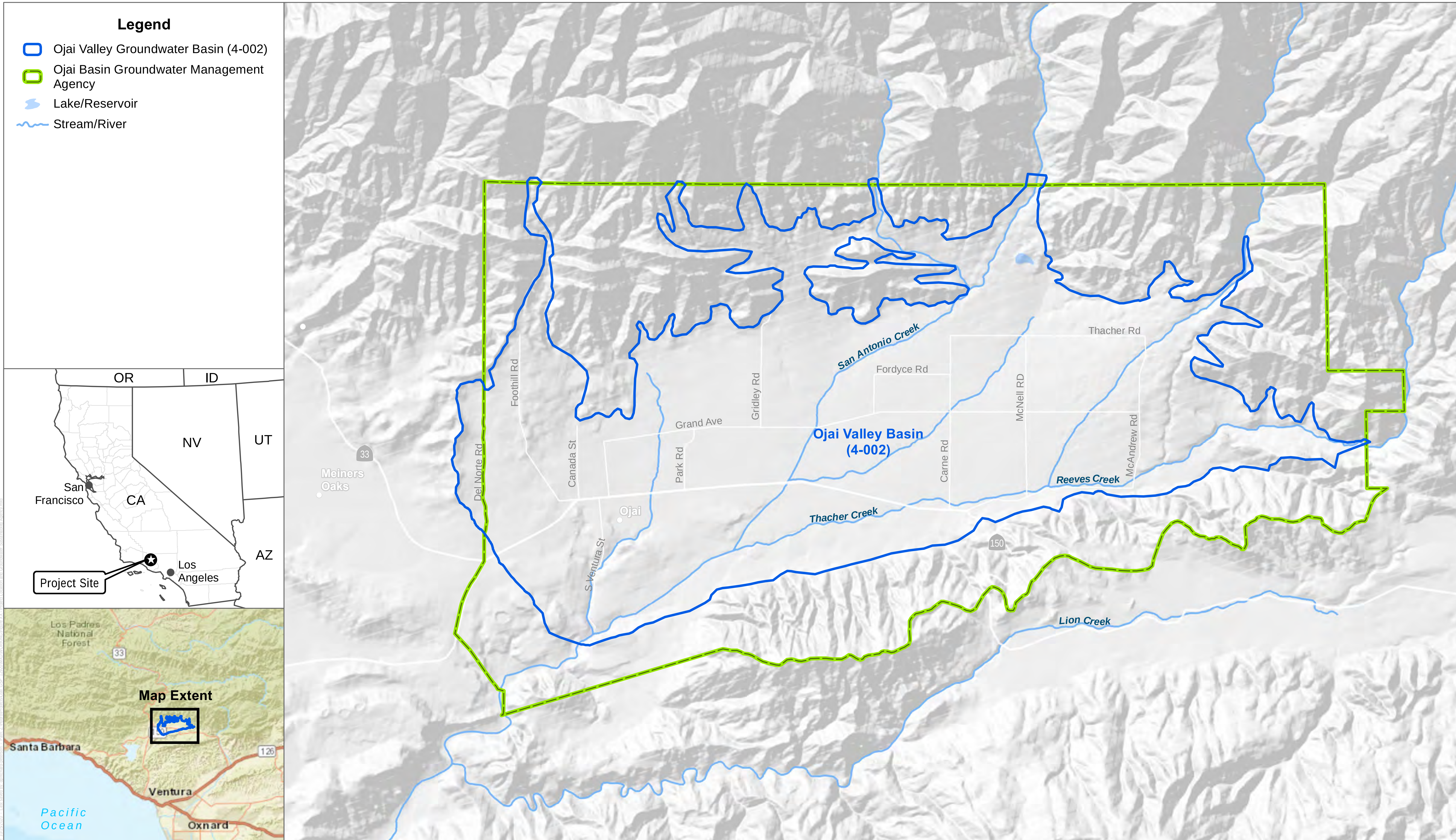

DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS

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FIGURE 1

Ojai Valley Groundwater Basin and Groundwater Sustainability Agency

Ojai Valley Basin Groundwater Sustainability Plan Public Outreach and Engagement Plan

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3 Ojai Basin Groundwater Management Agency

OBGMA is a California Special District that was established in 1991 and was deemed to be the exclusive groundwater management agency for the OVGB under SGMA. OBGMA elected to become the GSA for the OVGB in accordance with SGMA with OBGMA Resolution 2014-4, adopted by OBGMA on December 4, 2014.

3.1 Stakeholders and Interested Parties

OBGMA has a long history of collaborating with other local agencies, including the City of Ojai, Casitas Municipal Water District, Ventura County Watershed Protection District, the Ojai Water Conservation District, the Ventura County Resource Management Agency, the Ventura River Watershed Council, and local water purveyors. Local water purveyors include Senior Canyon Mutual Water Company, Hermitage Mutual Water Company, Gridley Canyon Mutual Water Company, and Siete Robles Mutual Water Company. OBGMA also coordinates with the Upper Ventura River GSA since the two agencies share a common basin boundary.

Interested parties and stakeholders in the OVGB include residents, domestic well owners, public agency representatives, landowners, non-governmental organizations, agricultural well owners, and business owners. Any member of the public can request (in writing) to be added to the list of interested parties and receive updates via email. This master list of stakeholders and interested parties will be used to distribute meeting announcements and important updates, including the availability of documents for review and comment. A list of beneficial uses and users of groundwater within the OVGB is included as Appendix B, List of Beneficial Uses and Users.

3.2 Decision-Making Process

The OBGMA convenes approximately monthly as needed and may conduct additional special hearings to review and approve the GSP. The OBGMA Board comprises five voting Directors appointed by (1) the Ojai Water Conservation District, (2) City of Ojai, (3) Casitas Municipal Water District, (4) small water companies, and (5) a representative of the area served by the Casitas-Ojai Community Facilities District (formerly Golden State Water Company).

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4 Purpose

This Public Outreach and Engagement Plan has been developed as a communication tool to help stakeholders understand the importance of participation in groundwater sustainability planning and lay the framework of how stakeholders can actively engage in the GSA and GSP planning efforts. In 2018, DWR released a Guidance Document for GSP Stakeholder Communication and Engagement (https://groundwaterexchange.org/wp-content/uploads/2020/02/DWR-Stakeholder-Communication-and-Engagement.pdf) that details best practices, including the development of communication and engagement plans to increase transparency in the GSP development process. This Public Outreach and Engagement Plan provides a framework for clear communication and transparency throughout the GSP development and implementation process and will be updated as needed.

4.1 Defining Sustainability for the Basin

The OBGMA will prepare a GSP for the OVGB in accordance with the SGMA, to define sustainability and guide future management decisions. During GSP development, OBGMA will request stakeholder feedback as OBGMA develops criteria for "significant and unreasonable" undesirable results for the OVGB. Stakeholders will play a role in reviewing technical information generated for the GSP and providing feedback from the stakeholder perspective. Management decisions could include restrictions on the amount of water that can be pumped from the OVGB and new project development to enhance water resource management.

Basin sustainability will also consider specific court mandated requirements as stipulated in the Physical Solution and Management Plan being developed for the Ventura Watershed.

4.2 Outreach and Engagement Goals

One of OBGMA's goals is to maintain a transparent and inclusive processes for stakeholder engagement in the GSP development, including consideration of the interests of diverse social, cultural, and economic elements of the population within OVGB. This transparent and inclusive process will assist OBGMA in making the GSP more resilient by increasing public buy in, promoting compliance, and enhancing the quality of information on which the GSP is based. As an existing groundwater management agency, OBGMA has established relationships with well owners in the OVGB and has a long history of collaboration with other agencies and environmental interest groups. OBGMA expects a high level of interest and participation in the GSP development.

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5 Groundwater Sustainability Plan Engagement Opportunities

5.1 Staying Informed

The best way for interested parties to get the latest information on the GSP development process is to subscribe to the email distribution list. Interested parties can subscribe to the email distribution list by sending an email to OjaiBasinGSP@gmail.com that includes "request to be added to the interested parties list" in the subject line and body of the email. Additional outreach to stakeholders will be conducted as appropriate to direct users to the website and to subscribe to electronic project updates and meeting announcements. Outreach may include announcements with extraction statements, media releases, announcements through the Ventura River Watershed Council, agricultural industry organizations, or other methods as appropriate. Regular communications will be distributed via email throughout the GSP development process. Emails, agency website posts, and physical postings at Ojai City Hall will concurrently provide notice of public meetings and other important updates.

This approach will increase the success of the GSP by fostering early public participation, developing stakeholder supported management strategies, and enhancing the data quality and basis of GSP development. Specifically, OBGMA will implement the following tiered outreach strategy to actively engage a diverse group of stakeholders in the development of the GSP:

- Provide regular updates on GSP development progress via email to the list of interested parties
- Direct outreach to key stakeholders, including tribal interests, through phone and email
- Receive questions and public comments via a central email address (OjaiBasinGSP@gmail.com)
- Maintain the OBGMA website as a centralized location where stakeholders can obtain GSP information
- Hold public meetings where members of the public can ask questions and provide comment

This tiered engagement strategy is designed to give a diverse group of stakeholders multiple opportunities to participate, as appropriate, based on their level of interest, availability, and communication style. The OBGMA will continuously evaluate progress towards the stakeholder outreach and engagement goal. The OBGMA may adjust the engagement strategy and/or provide additional outreach opportunities as needed throughout the GSP development and implementation process.

5.2 Providing Feedback to the Ojai Basin Groundwater Management Agency

Questions and comments regarding the OBGMA and the GSP development process can be sent via email to OjaiBasinGSP@gmail.com or via the contact us form on OBGMA's website (www.obgma.com). All OBGMA meetings are open to the public and provide opportunity for the public to comment. Board meetings are currently being held by Zoom Conferencing. OBGMA may also hold special meetings or workshops focused on obtaining feedback on components of the GSP. OBGMA will provide members of the public opportunities to provide comment on the GSP before adoption. Comments on the GSP are requested in electronic format through the online comment form. Comments on the GSP that are entered into the online comment form will be submitted to DWR as part of the public record along with a summary of how the comments were considered and/or incorporated in the final GSP. Electronic links to the online comment form will be provided to interested parties via email and via public notice for the public at large. The public and stakeholders will be provided with information about the timeframe and process for submitting electronic written comments. Notice of opportunities to comment will also be posted on the OBGMA website (www.obgma.com).

5.3 Groundwater Sustainability Plan Engagement Summary

Expected roles, responsibilities, and opportunities for engagement throughout the GSP development process are summarized in Table 1. OBGMA may provide additional opportunities or adjust the process as needed to meet the needs of stakeholders and/or the requirements of SGMA.

Table 1. Groundwater Sustainability Plan Development Roles and Responsibilities

Groundwater Sustainability Plan Development Participants	Roles and Responsibilities for Groundwater Sustainability Plan Development
OBGMA	• Oversee GSP development • Approve costs and budgets • Conduct public hearings • Consider stakeholder feedback • Adopt the GSP • Provide notice of public meetings • Manage GSP consultant team
Interested Parties 	• Attend GSA meetings and workshops • Read updates distributed via email • Provide input on draft and final GSP
GSP Consultant Team	• Develop draft GSP components • Present information and make changes as directed by OBGMA • Prepare draft and final GSP

Notes: GSP = Groundwater Sustainability Plan; OBGMA = Ojai Basin Groundwater Management Agency.

6 Contact Us

The best way to stay informed and receive the most current information for the OBGMA and GSP development is to subscribe to the email distribution list. To subscribe, send an email to OjaiBasinGSP@gmail.com. Additional information may be obtained by visiting www.obgma.com.

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Appendix A

Sustainable Groundwater Management Act Requirements for Stakeholder Engagement

Public outreach and engagement are an important component of any successful long-term planning effort and are required by Sustainable Groundwater Management Act (Sections 10720–10730) and Groundwater Sustainability Plan Regulations (Sections 353–354). This appendix provides a quick reference to how the Ojai Basin Groundwater Management Agency (OBGMA) will meet these requirements (Table A-1).

Table A-1. Sustainable Groundwater Management Act Requirements and Associated Ojai Basin Groundwater Management Agency Actions

SGMA Requirement	OBGMA Actions
The Groundwater Sustainable Agency (GSA) must encourage and support active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin (Sustainable Groundwater Management Act [SGMA] Section 10727.8).	Implement the tiered outreach strategy as discussed in Section 5.1 of this plan.
The GSA must also allow for voluntary participation by Native American tribes and the federal government (SGMA Section 10720.3).	The Ojai Basin Groundwater Management Agency (OBGMA) interested parties list includes federal agency representatives and a local tribal representative. OBGMA also reached out via phone to invite participation in the Groundwater Sustainability Plan (GSP) development (Appendix B).
The GSA must consider the interests of all beneficial uses and users of groundwater within the basin (SGMA Section 10723.2).	OBGMA prepared a Public Outreach and Engagement Plan. The Plan's tiered outreach strategy, discussed in Section 5.1, considers interests of all beneficial uses and users. OBGMA will distribute meeting announcements and important updates via email to all stakeholders and interested parties.
The GSA may appoint and consult with a Citizens Advisory Group (SGMA Section 10727.8)	
Establish and maintain a list of interested parties (SGMA Section 10723.4).	See discussion under section 5.1 of this plan.
Provide public notice of the GSA formation (SGMA Section 10723[b]).	Completed December 6, 2014 and November 2, 2015,
Notify Department of Water Resources (DWR) of the GSA formation (SGMA Section 10723[b]).	Completed, see letter dated December 6, 2014.
Conduct a GSA formation public hearing (SGMA Section 10723[b]).	Completed October 26, 2017 and May 28, 2020
Provide a written statement to DWR, as well as the cities and counties within the GSA boundary, describing how interested parties may participate in the GSP development (SGMA Section 10727.8).	Completed on January 19, 2015, and , May 16, 2018, and December 19, 2019.
Submit initial notification of intent to prepare a GSP (GSP Regulations Section 353.6).	Completed on December 19, 2019.
Prepare a GSP that considers beneficial uses and users of groundwater when describing undesirable results, minimum thresholds, projects and actions (SGMA Section 10727.8, Section 10723.2, and GSP Regulations Section 354.10).	To be completed in the draft and final GSP.

Table A-1. Sustainable Groundwater Management Act Requirements and Associated Ojai Basin Groundwater Management Agency Actions

SGMA Requirement	OBGMA Actions
The GSP must include a communication section that includes the following (GSP Regulations Section 354.10): Explanation of the GSA's decision-making process List of public meetings at which the GSP was discussed Identification of opportunities for public engagement and a discussion of how public input and response will be used Description of how the GSA encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin Description of how the GSA will inform the public about progress implementing the GSP, including the status of projects and actions	
Provide public noticing and public meeting procedures prior to adopting, submitting, or amending a GSP (SGMA Section 10728.4).	To be completed for the final GSP.
Upon GSA adoption of the GSP and submittal to DWR, the GSP will be available on the DWR website for a 60-day public comment period. Any person may provide comments to the DWR on the GSP. DWR will consider the comments received prior to completing their evaluation and assessment of the GSP (GSP Regulations Section 353.8).	To be completed by DWR.
GSA must provide public notice and hold public meetings prior to amending the GSP (SGMA Section 10730).	To be completed as discussed in the final GSP.
Public notice is required before the GSA imposes or increases fees (SGMA Section 10730).	To be completed as discussed in the final GSP.

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Appendix B

List of Beneficial Uses and Users

In accordance with Section 10723.2 and Section 10723.8 (a)(4) of the Sustainable Groundwater Management Act, the following parties have or will be contacted to determine how best to consider and protect their interests throughout the formation of the Groundwater Sustainable Agency, development of a Groundwater Sustainability Plan, and implementation of the Groundwater Sustainability Plan.

These interests include, but are not limited to the following:

(a) Holders of Overlying Groundwater Rights (e.g., [1] agricultural users and [2] domestic water-well owners): The City of Ojai, well owners, and agricultural interest groups are on the list of interested parties.

(b) Municipal Well Operators: A representative from the City of Ojai is on the Ojai Basin Groundwater Management Agency (OBGMA) Board of Directors.

(c) Public Water Systems: All public water systems in the Ojai Valley Groundwater Basin (OVGB), including local mutual water companies, are represented on the OBGMA Board of Directors.

(d) Local Land Use Planning Agencies: The City of Ojai and the Ventura County Resource Management Agency representatives are on the list of interested parties.

(e) Environmental Users of Groundwater: The California Department of Fish and Wildlife, Environmental Non-Governmental Organizations, and the National Marine Fisheries Services are included on the list of interested parties.

(f) Surface Water Users: The Electronic Water Rights Information Management System (eWRIMS) database has been reviewed for surface water diverters in the Ojai Valley basin and all listed diverters will be contacted.

(g) Federal Government: The U.S. Forest Service, U.S. Fish and Wildlife Service, and National Marine Fisheries Service are on the list of interested parties.

(h) California Native American tribes: The local Chumash Barbareño/Ventureño Band of Mission Indians is on the list of interested parties and is invited to participate. The OBGMA is currently working to locate the nearest contact in the Ojai Valley and expects to send information soon after the time of print of this Outreach and Engagement Plan.

(i) Disadvantaged Communities: There are no disadvantaged communities identified by DWR within the OVGB.

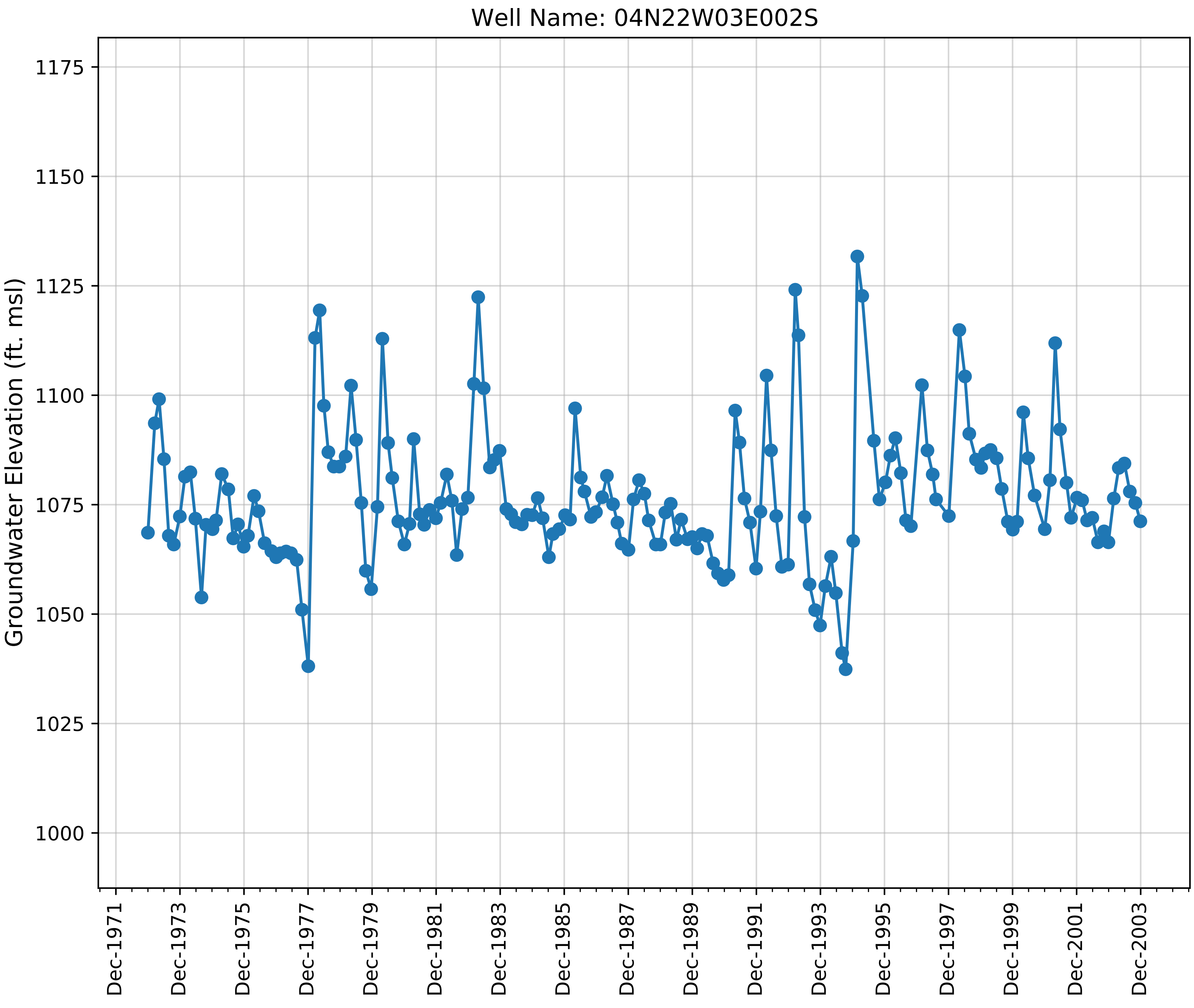
(j) Entities Listed in Sustainable Groundwater Management Act Section 10927 that are Monitoring Groundwater Elevations in all or part of the OVGB: The OBGMA monitors key wells, Casitas-Ojai CFD monitors its wells, and the Ventura County Water Protection District is the California State Groundwater Elevation Monitoring agency within the OVGB.

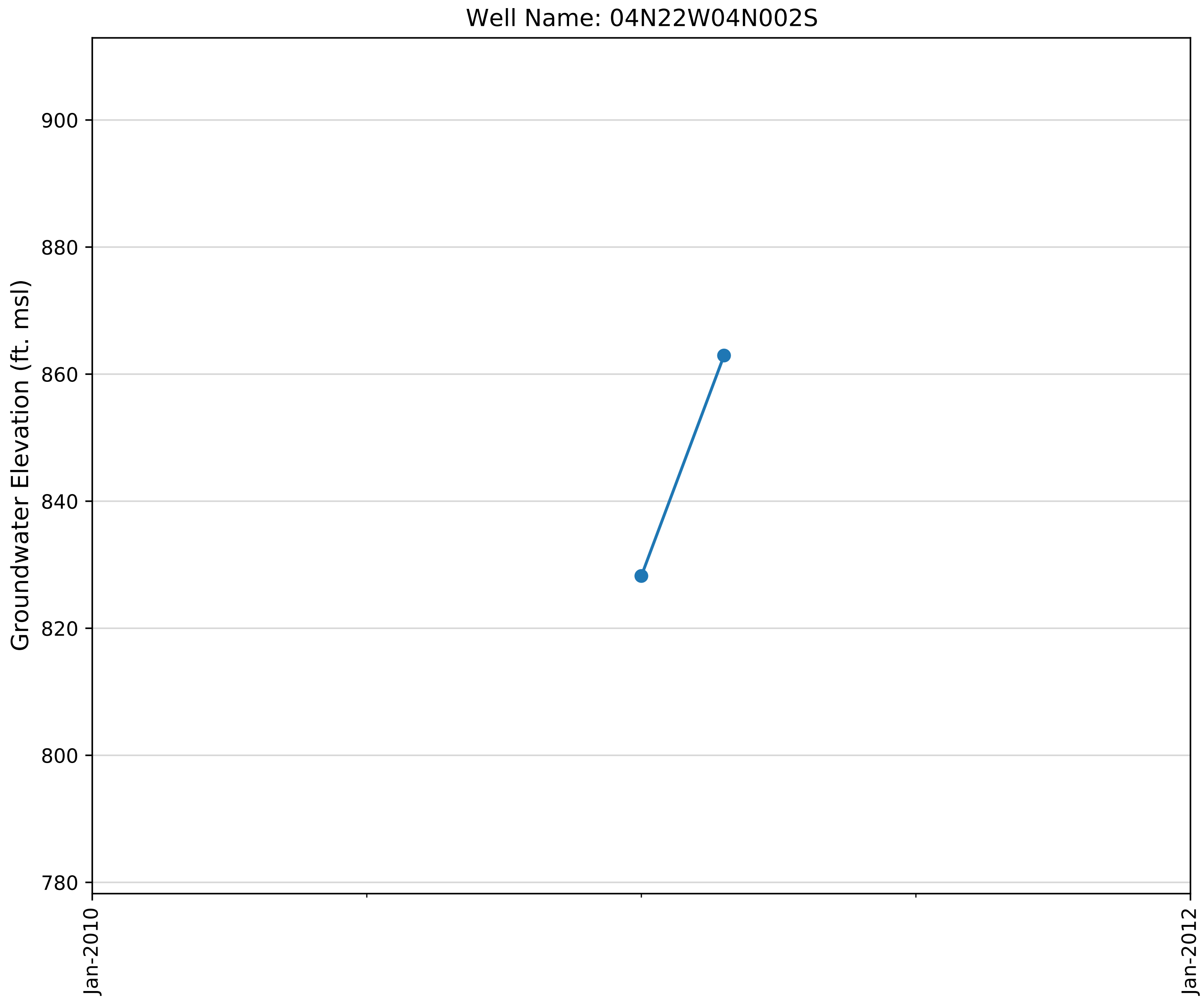
Ojai Basin Groundwater Management Agency
List of Public Meetings for Groundwater Sustainability Plan

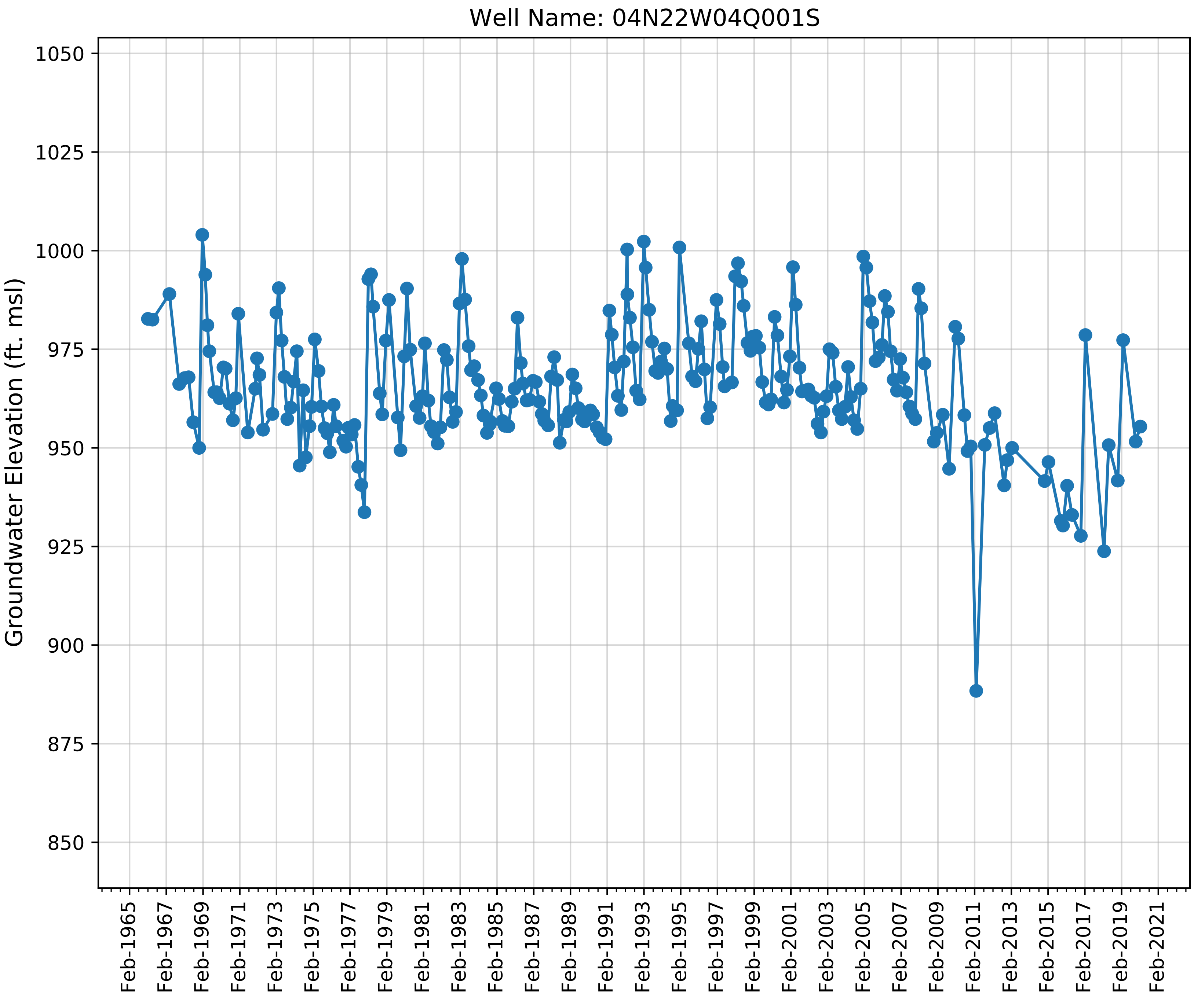
Date*	Location	Topics (Not listed are opening/closing procedures and certain administrative/informational items)	Meeting Type
1/31/2022		**Submittal to DWR**	
1/6/2022	Council Chamber, Ojai City Hall	Adoption of GSP by the OBGMA Board (5-0; vote to approve)	Special Board Meeting
12/9/2021	Council Chamber, Ojai City Hall	Public Hearing to Adopt GSP	Special Board Meeting
11/25/2021	Council Chamber, Ojai City Hall	Summarize Comments Received Provide Summary of RTC/Edits to Draft GSP	Regular Board Meeting
10/28/2021	Council Chamber, Ojai City Hall	General Board and GSP Comment	Regular Board Meeting
9/30/2021	Council Chamber, Ojai City Hall	Chapter 1-5 Key Concepts Slides in Board Packet and Review Chapter 3	Regular Board Meeting
8/26/2021	Council Chamber, Ojai City Hall	GSP Chapters 3, 4 & 5	Regular Board Meeting
7/29/2021	Council Chamber, Ojai City Hall	Future Water Budget Simulations and Proposed Projects and Management Actions	Regular Board Meeting
6/24/2021	Council Chamber, Ojai City Hall	GSP Chapters 1, 2 & 3	Regular Board Meeting
6/9/2021	Zoom Meeting	Potential Groundwater Dependent Ecosystems Overview	Special Board Meeting
5/27/2021	Zoom Meeting	Water Budget Update	Regular Board Meeting
4/29/2021	Zoom Meeting	Water Budget: Proposed Alternative	Regular Board Meeting
3/25/2021	Zoom Meeting	Water Budget	Regular Board Meeting
2/25/2021	Zoom Meeting	Water Quality	Regular Board Meeting
1/28/2021	Zoom Meeting	Subsidence	Regular Board Meeting
12/4/2020	Zoom Meeting	Basin Status Report and GSP Update	Regular Board Meeting
10/29/2020	Zoom Meeting	Basin Status Report	Regular Board Meeting
9/24/2020	Zoom Meeting	Public Outreach and Engagement Plan	Regular Board Meeting

APPENDIX D

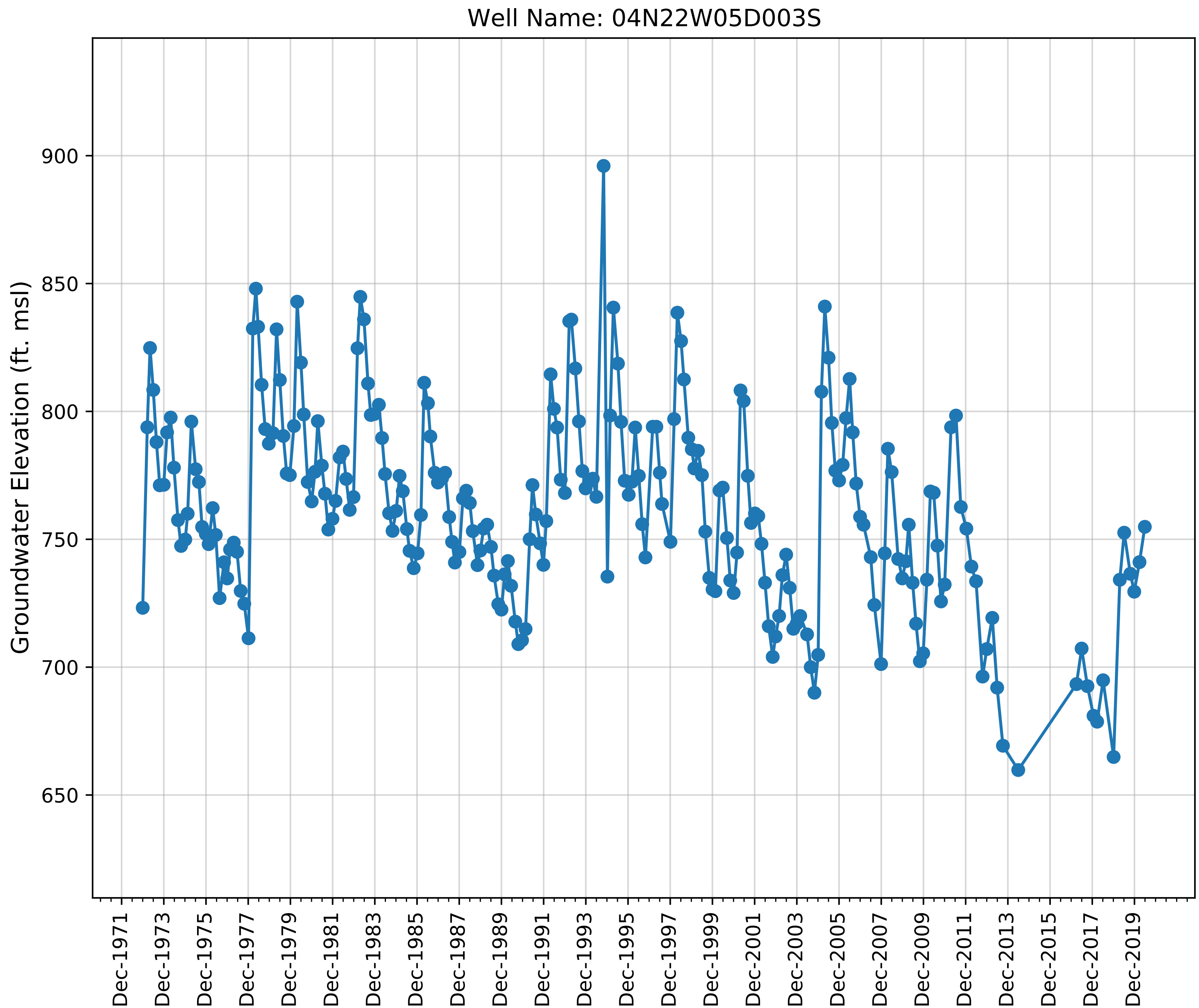
Groundwater Level and Quality Data


Well Name: 04N22W03E002S
Groundwater Elevation (ft. msl)
1175
1150
1125
1100
1075
1050
1025
1000
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
Dec-1997
Dec-1999
Dec-2001
Dec-2003

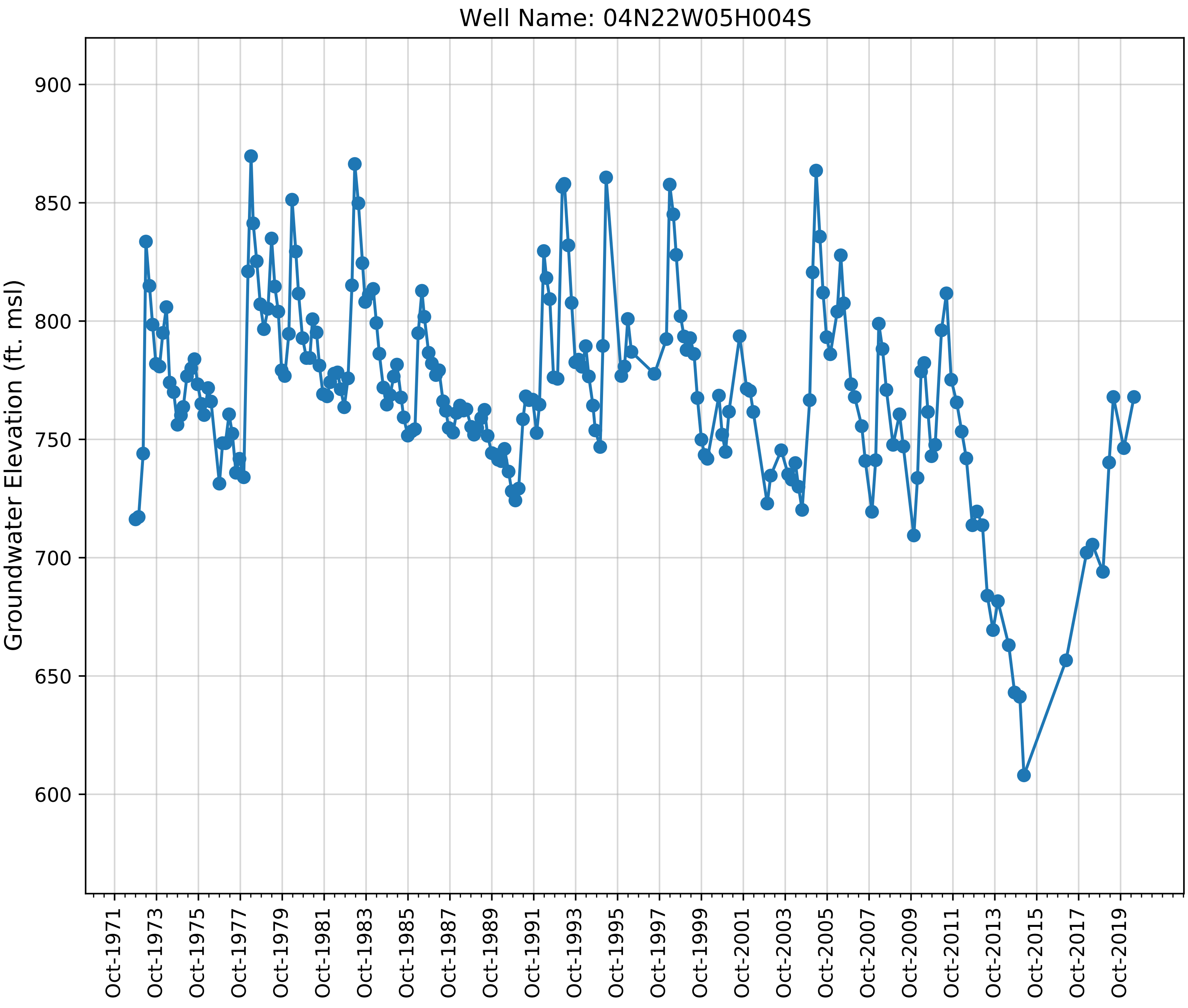

Well Name: 04N22W04N002S
Groundwater Elevation (ft. msl)
900
880
860
840
820
800
780
Jan-2010
Jan-2012



Well Name: 04N22W04Q001S
Groundwater Elevation (ft. msl)
1050
1025
1000
975
950
925
900
875
850
Feb-1965
Feb-1967
Feb-1969
Feb-1971
Feb-1973
Feb-1975
Feb-1977
Feb-1979
Feb-1981
Feb-1983
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021



Well Name: 04N22W05D003S
Groundwater Elevation (ft. msl)
900
850
800
750
700
650
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
Dec-1997
Dec-1999
Dec-2001
Dec-2003
Dec-2005
Dec-2007
Dec-2009
Dec-2011
Dec-2013
Dec-2015
Dec-2017
Dec-2019



Well Name: 04N22W05H004S
Groundwater Elevation (ft. msl)
900
850
800
750
700
650
600
Oct-1971
Oct-1973
Oct-1975
Oct-1977
Oct-1979
Oct-1981
Oct-1983
Oct-1985
Oct-1987
Oct-1989
Oct-1991
Oct-1993
Oct-1995
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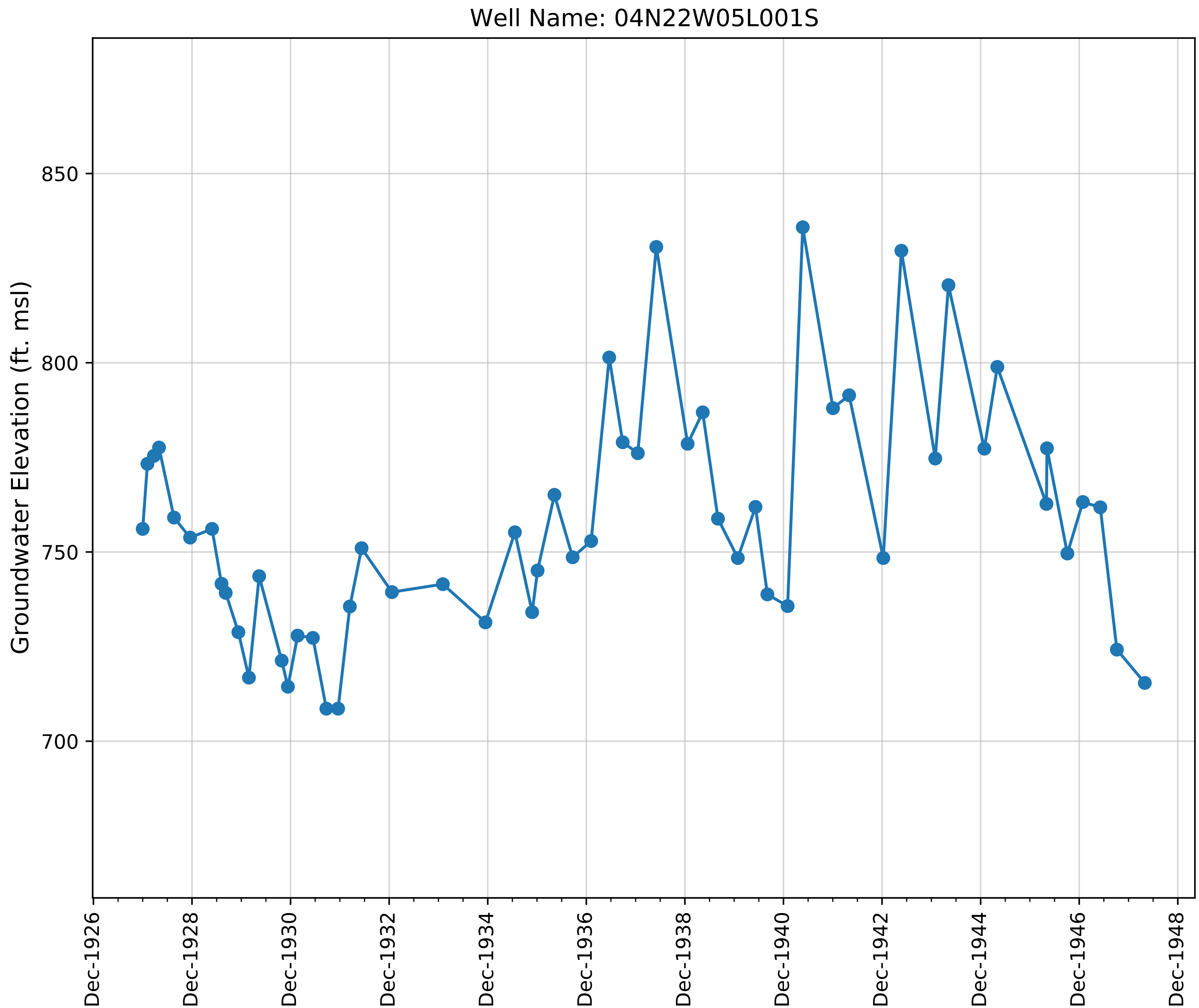
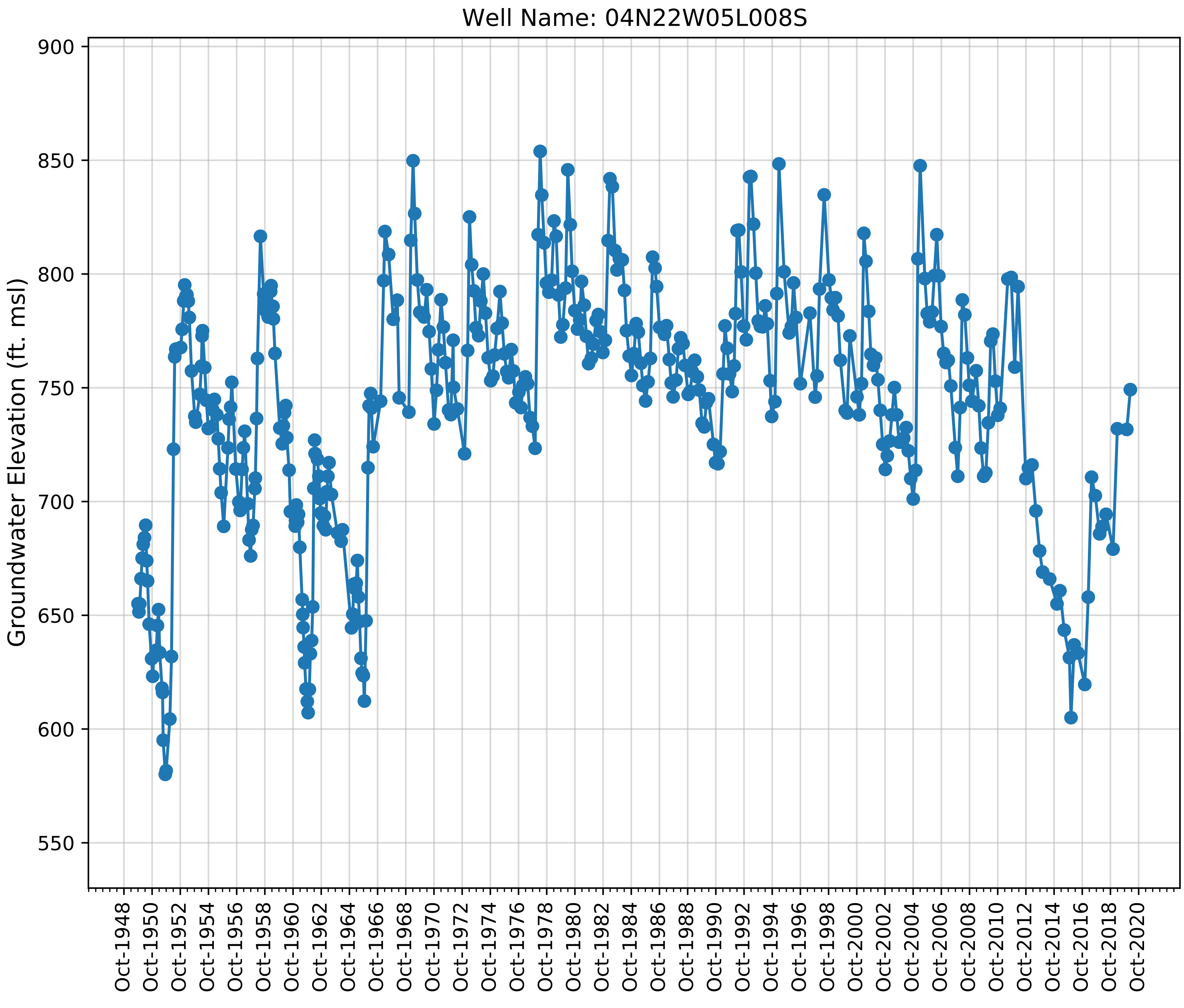
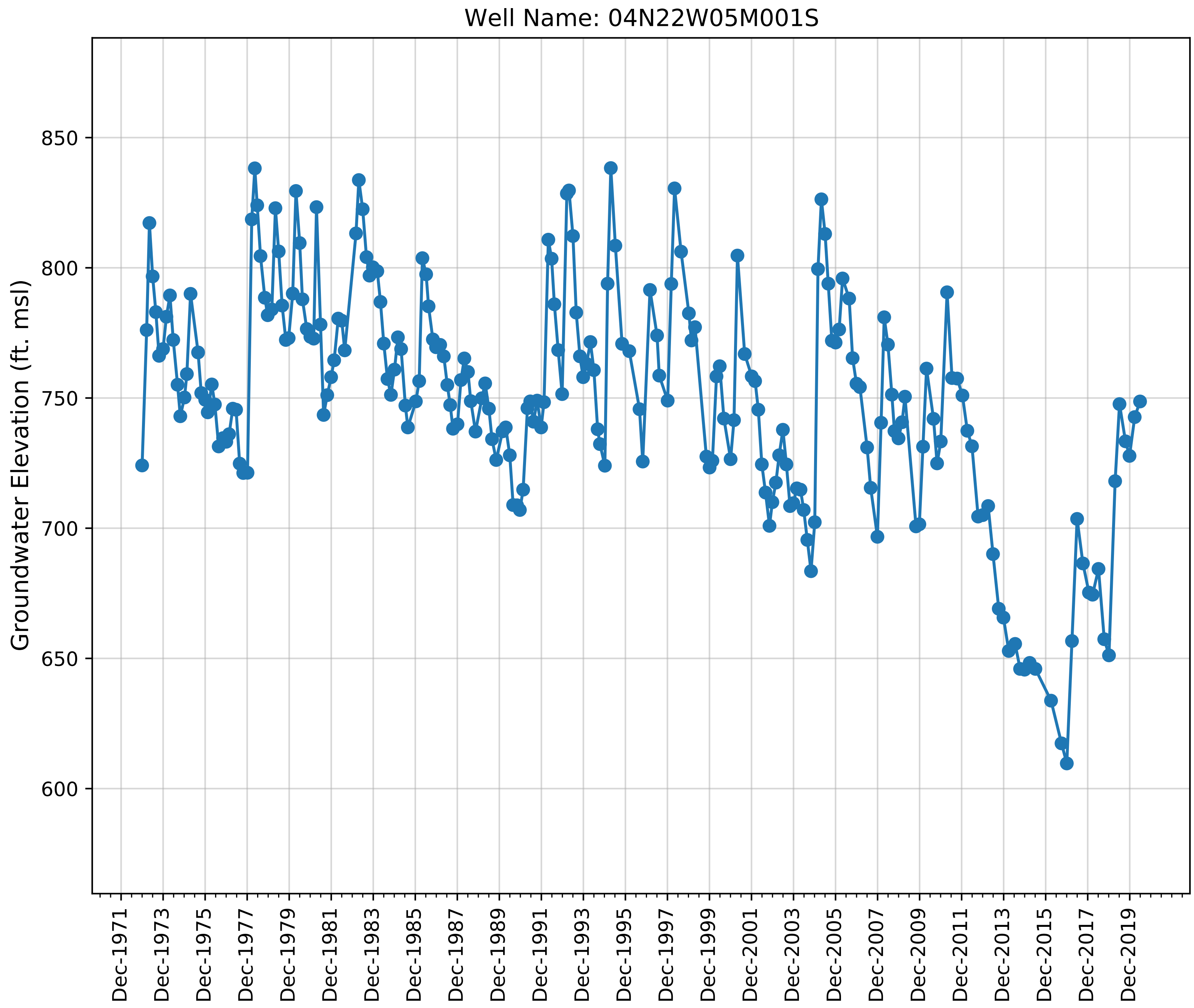
Oct-2015
Oct-2017
Oct-2019



Well Name: 04N22W05L001S
Groundwater Elevation (ft. msl)
850
800
750
700
Dec-1926
Dec-1928
Dec-1930
Dec-1932
Dec-1934
Dec-1936
Dec-1938
Dec-1940
Dec-1942
Dec-1944
Dec-1946
Dec-1948



Well Name: 04N22W05L008S
Groundwater Elevation (ft. msl)
900
850
800
750
700
650
600
550
Oct-1948
Oct-1950
Oct-1952
Oct-1954
Oct-1956
Oct-1958
Oct-1960
Oct-1962
Oct-1964
Oct-1966
Oct-1968
Oct-1970
Oct-1972
Oct-1974
Oct-1976
Oct-1978
Oct-1980
Oct-1982
Oct-1984
Oct-1986
Oct-1988
Oct-1990
Oct-1992
Oct-1994
Oct-1996
Oct-1998
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020



Well Name: 04N22W05M001S
Groundwater Elevation (ft. msl)
850
800
750
700
650
600
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
Dec-1997
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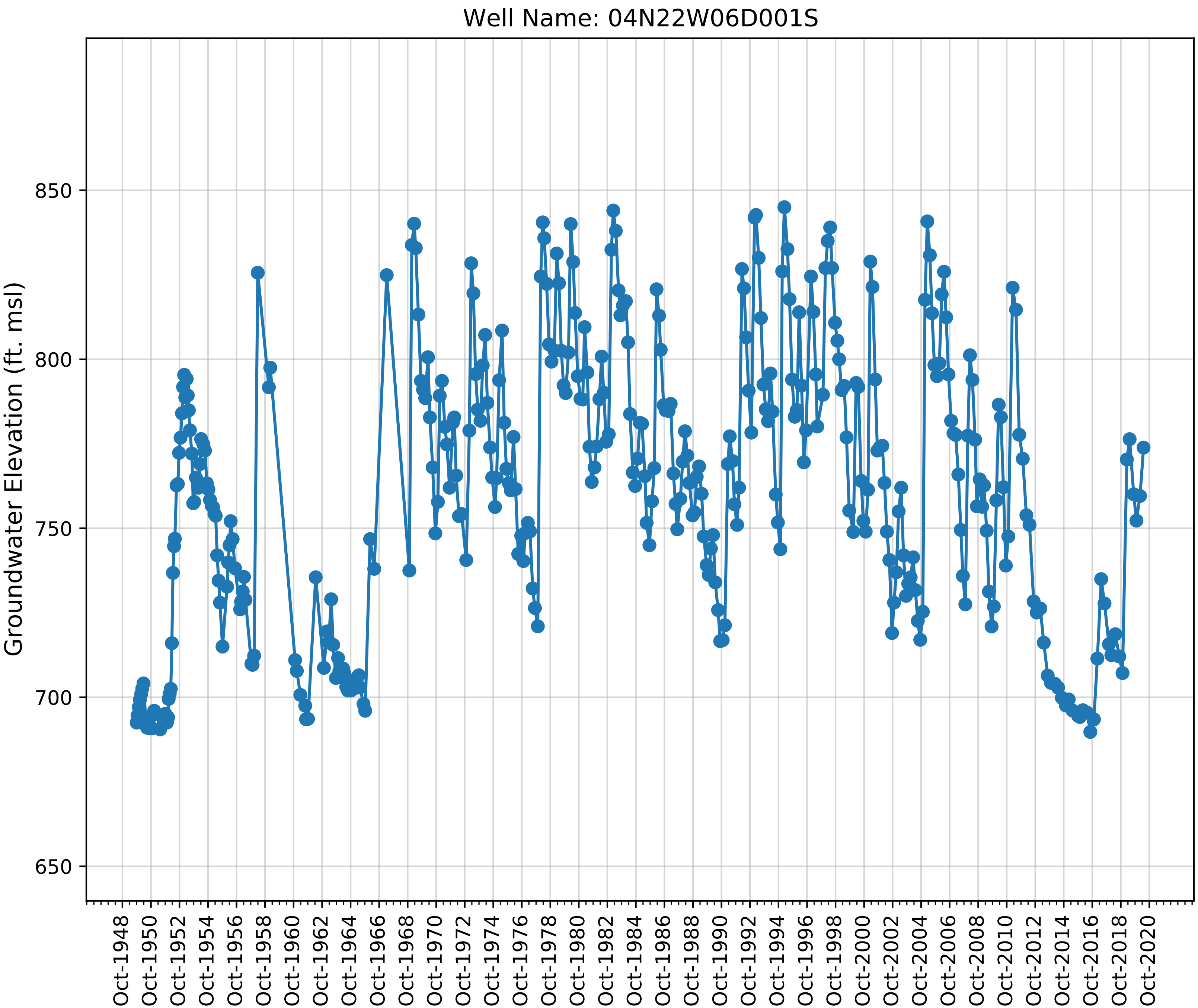
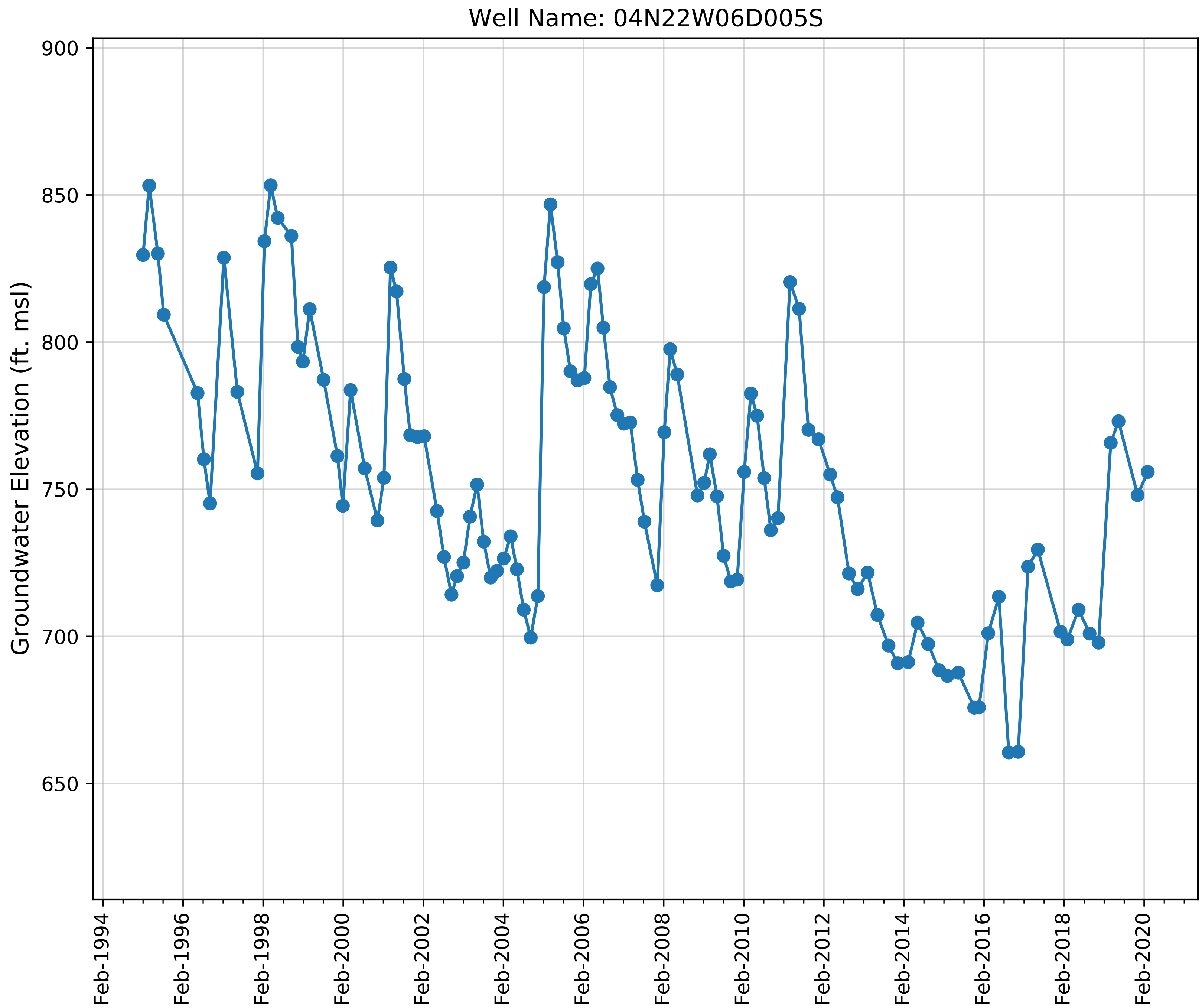
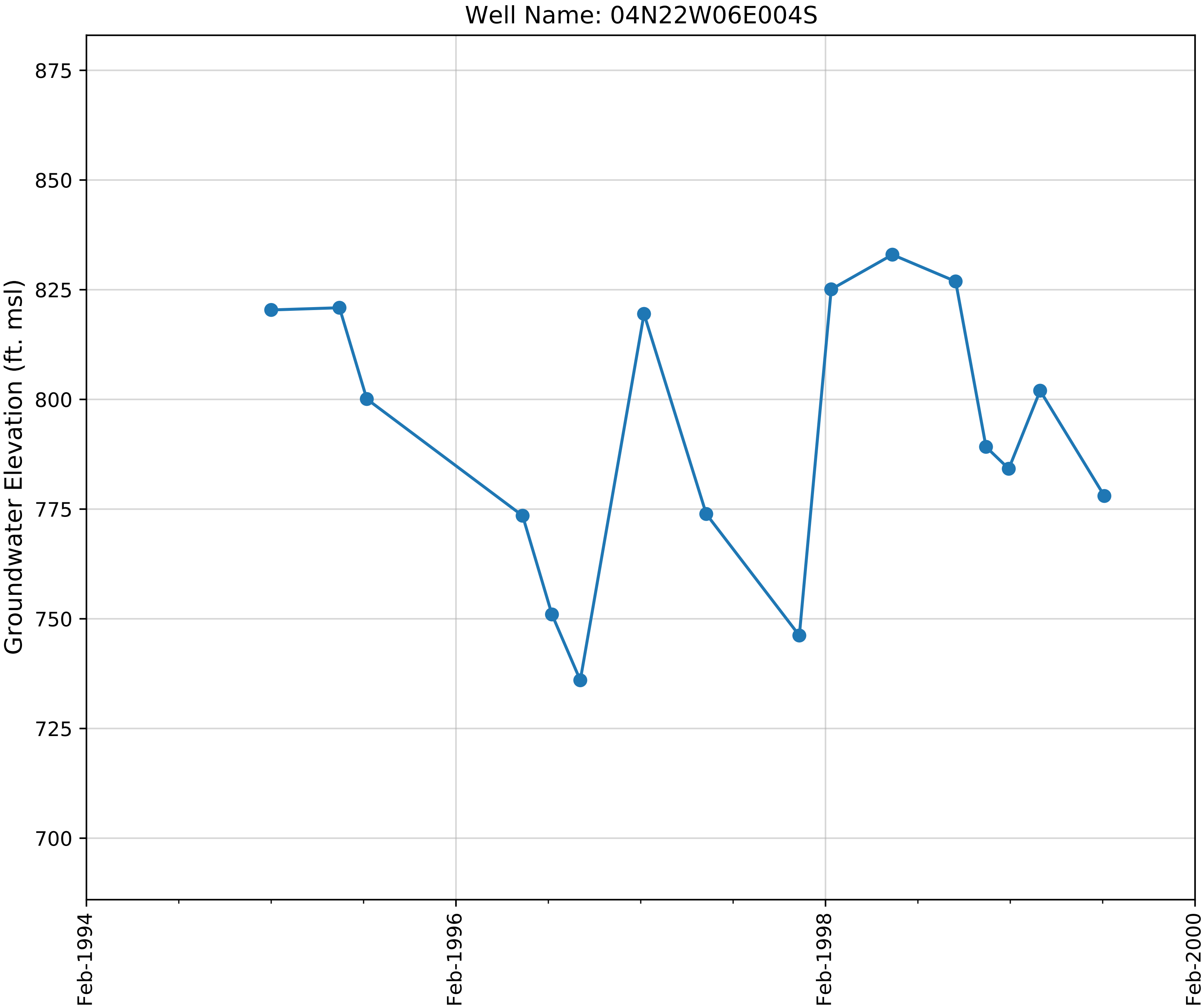
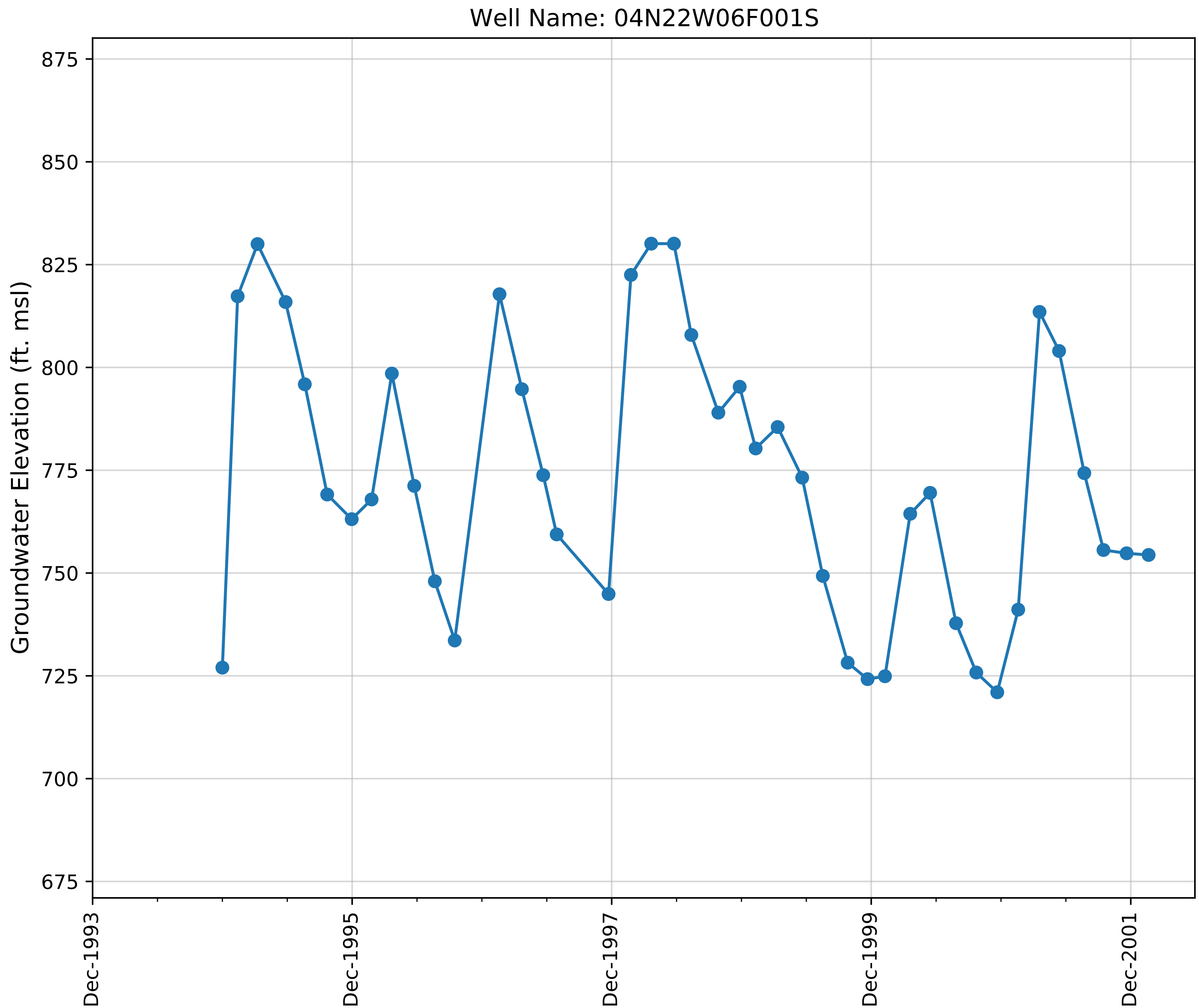
Dec-2001
Dec-2003
Dec-2005
Dec-2007
Dec-2009
Dec-2011
Dec-2013
Dec-2015
Dec-2017
Dec-2019

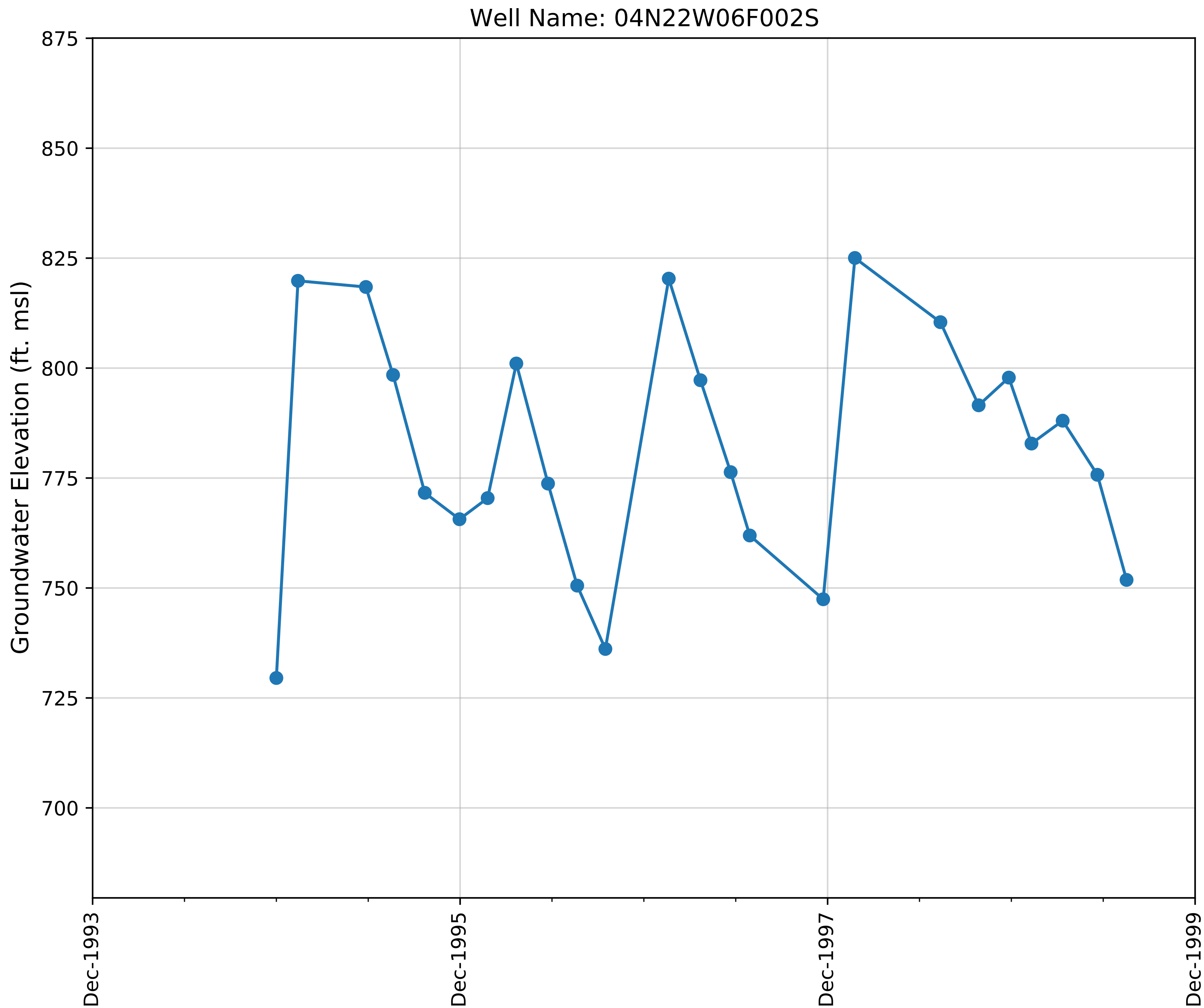

Well Name: 04N22W06D001S
Groundwater Elevation (ft. msl)
850
800
750
700
650
Oct-1948
Oct-1950
Oct-1952
Oct-1954
Oct-1956
Oct-1958
Oct-1960
Oct-1962
Oct-1964
Oct-1966
Oct-1968
Oct-1970
Oct-1972
Oct-1974
Oct-1976
Oct-1978
Oct-1980
Oct-1982
Oct-1984
Oct-1986
Oct-1988
Oct-1990
Oct-1992
Oct-1994
Oct-1996
Oct-1998
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020

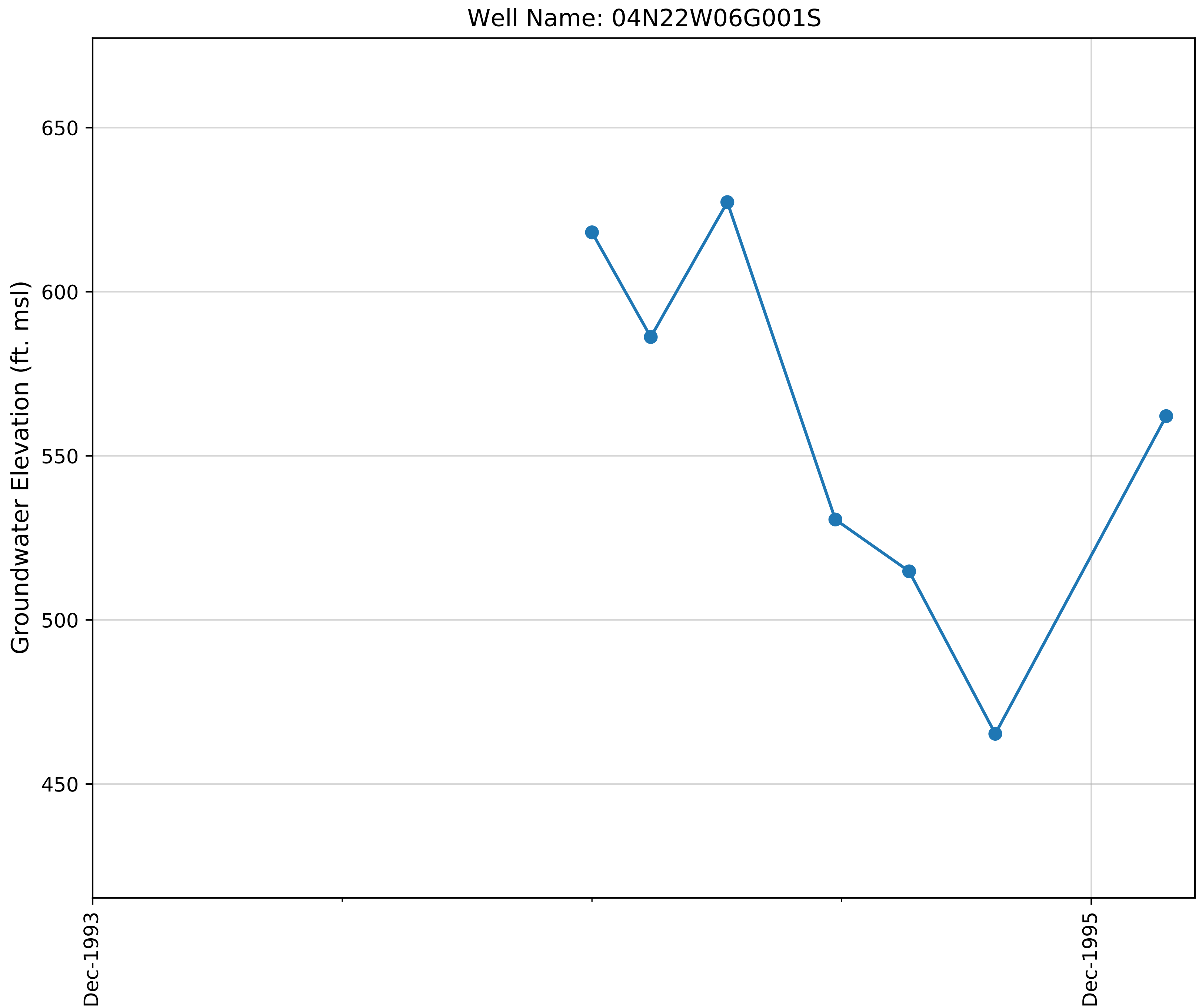


Well Name: 04N22W06D005S
Groundwater Elevation (ft. msl)
900
850
800
750
700
650
Feb-1994
Feb-1996
Feb-1998
Feb-2000
Feb-2002
Feb-2004
Feb-2006
Feb-2008
Feb-2010
Feb-2012
Feb-2014
Feb-2016
Feb-2018
Feb-2020

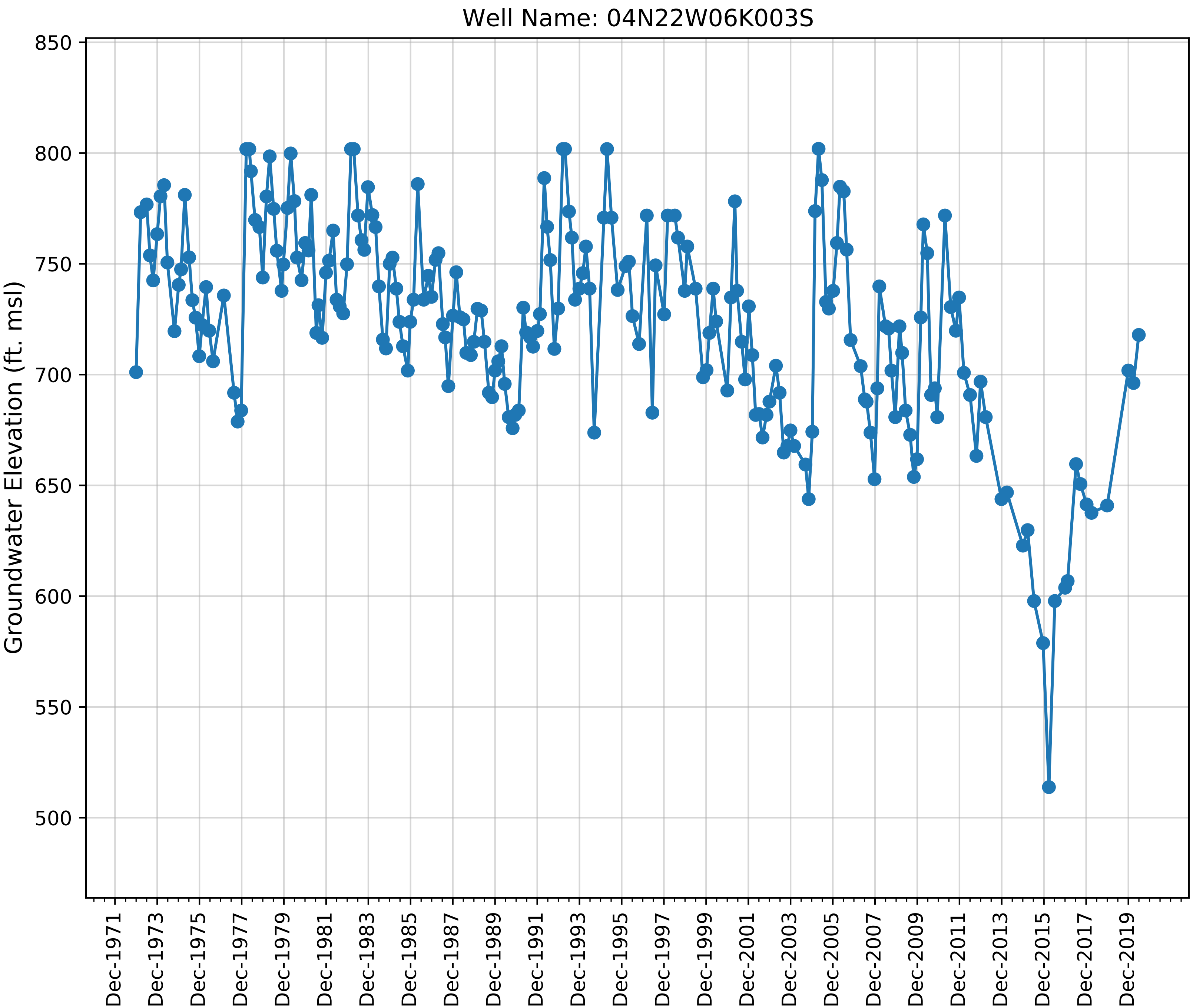

Well Name: 04N22W06E004S
Groundwater Elevation (ft. msl)
875
850
825
800
775
750
725
700
Feb-1994
Feb-1996
Feb-1998
Feb-2000


Well Name: 04N22W06F001S
Groundwater Elevation (ft. msl)
875
850
825
800
775
750
725
700
675
Dec-1993
Dec-1995
Dec-1997
Dec-1999
Dec-2001


Well Name: 04N22W06F002S
Groundwater Elevation (ft. msl)
875
850
825
800
775
750
725
700
Dec-1993
Dec-1995
Dec-1997
Dec-1999



Well Name: 04N22W06G001S
Groundwater Elevation (ft. msl)
650
600
550
500
450
Dec-1993
Dec-1995



Well Name: 04N22W06K003S
Groundwater Elevation (ft. msl)
850
800
750
700
650
600
550
500
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
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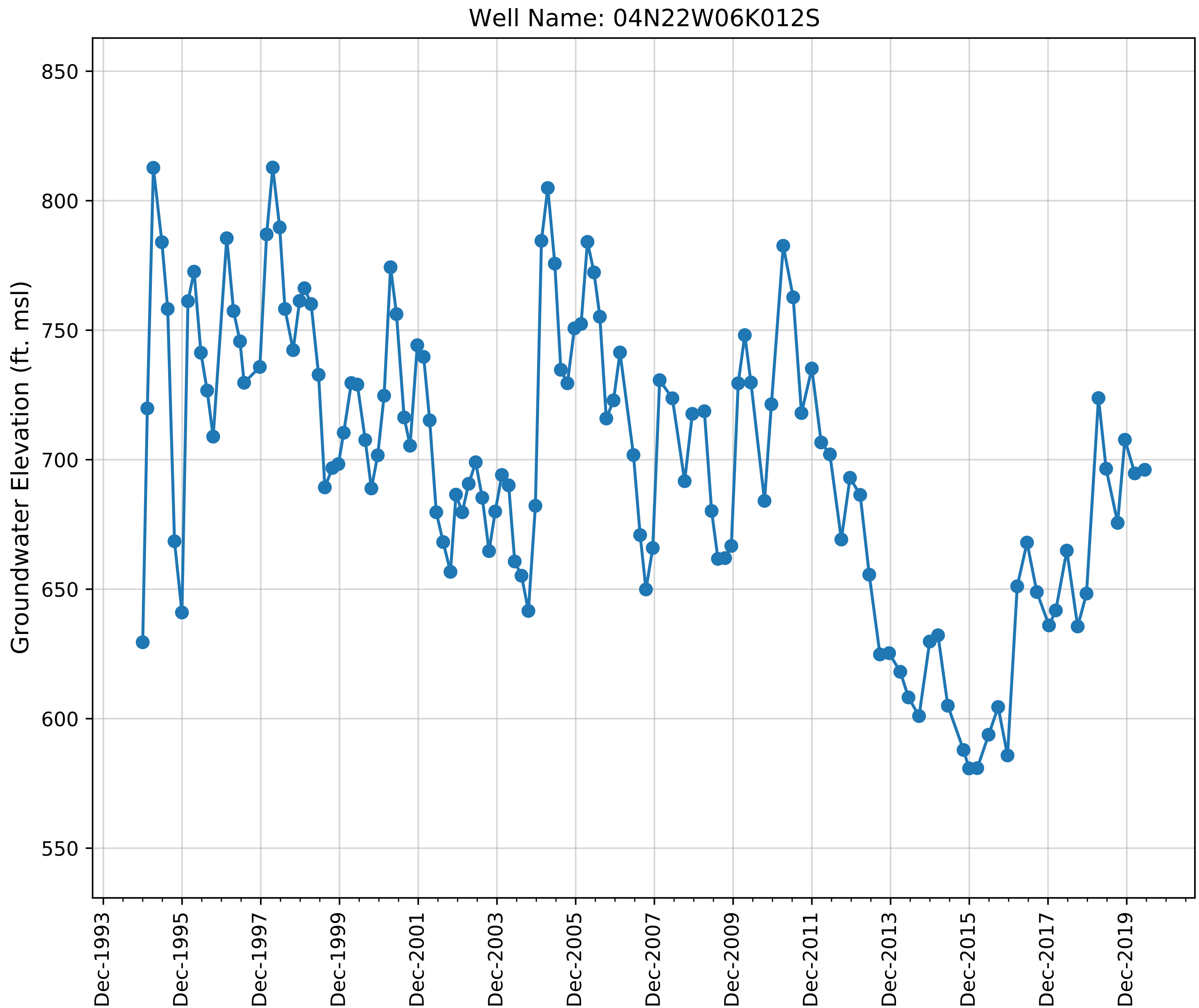
Dec-2015
Dec-2017
Dec-2019


Well Name: 04N22W06K012S
Groundwater Elevation (ft. msl)
850
800
750
700
650
600
550
Dec-1993
Dec-1995
Dec-1997
Dec-1999
Dec-2001
Dec-2003
Dec-2005
Dec-2007
Dec-2009
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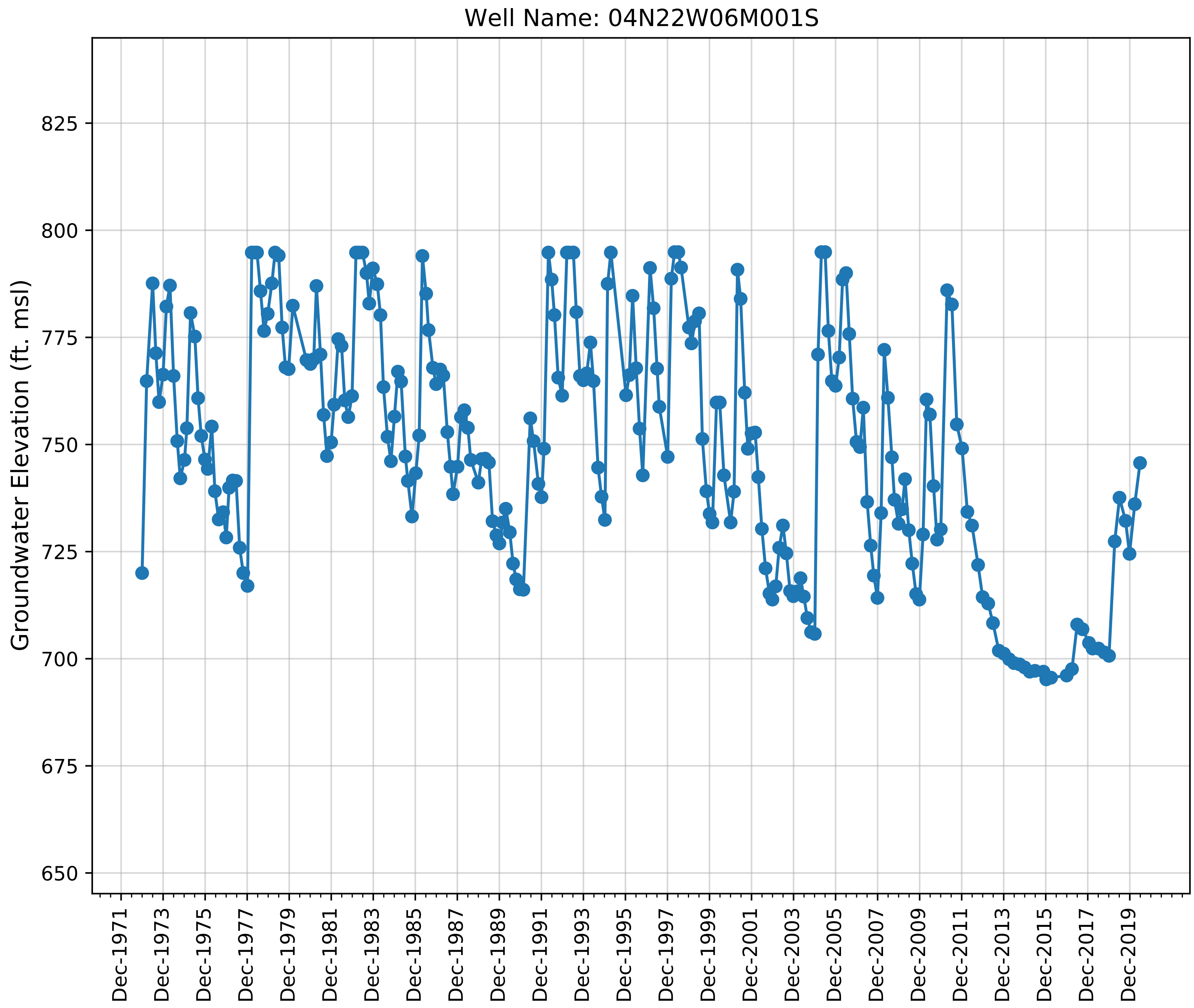
Dec-2015
Dec-2017
Dec-2019



Well Name: 04N22W06M001S
Groundwater Elevation (ft. msl)
825
800
775
750
725
700
675
650
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
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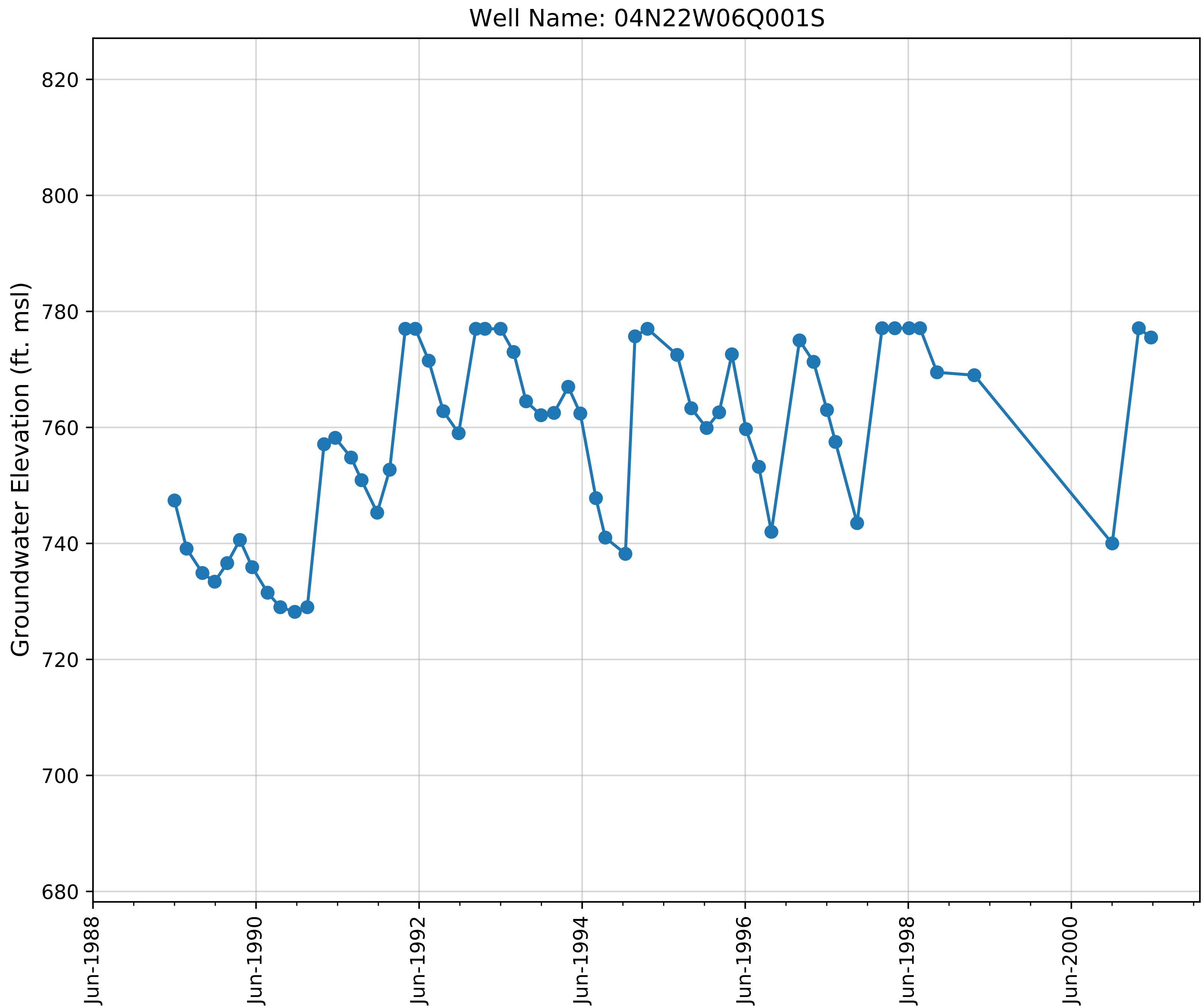
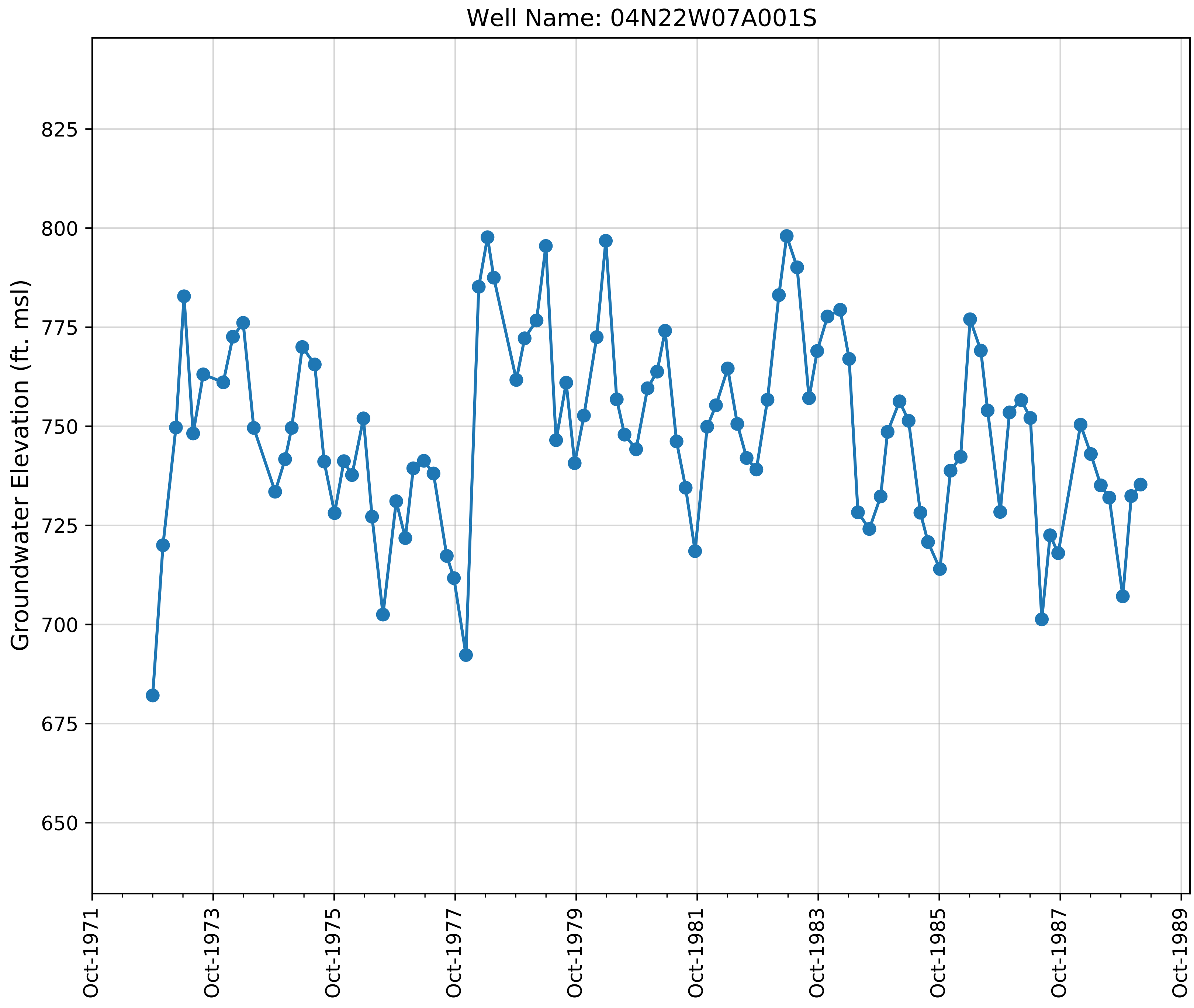
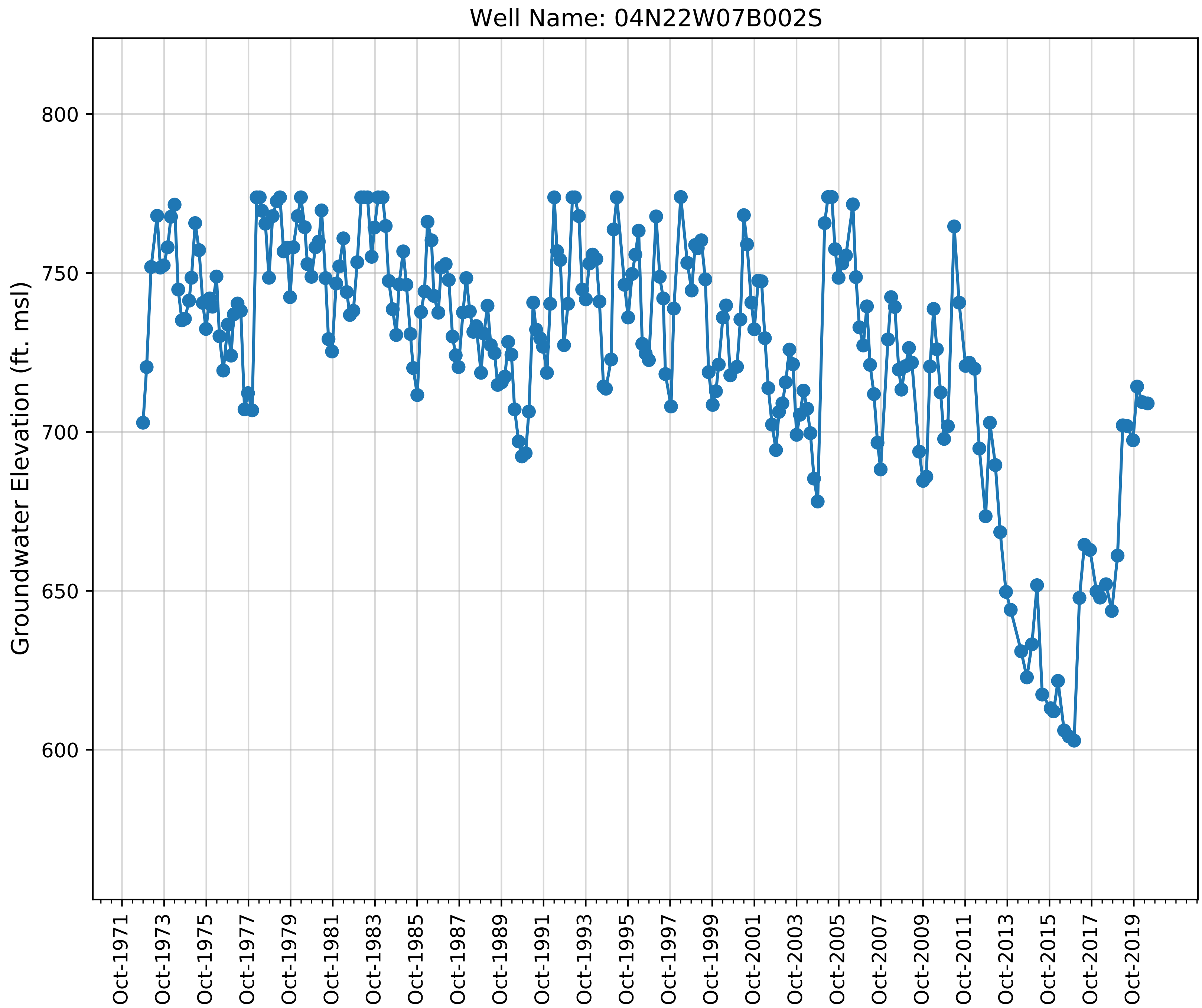
Dec-2015
Dec-2017
Dec-2019

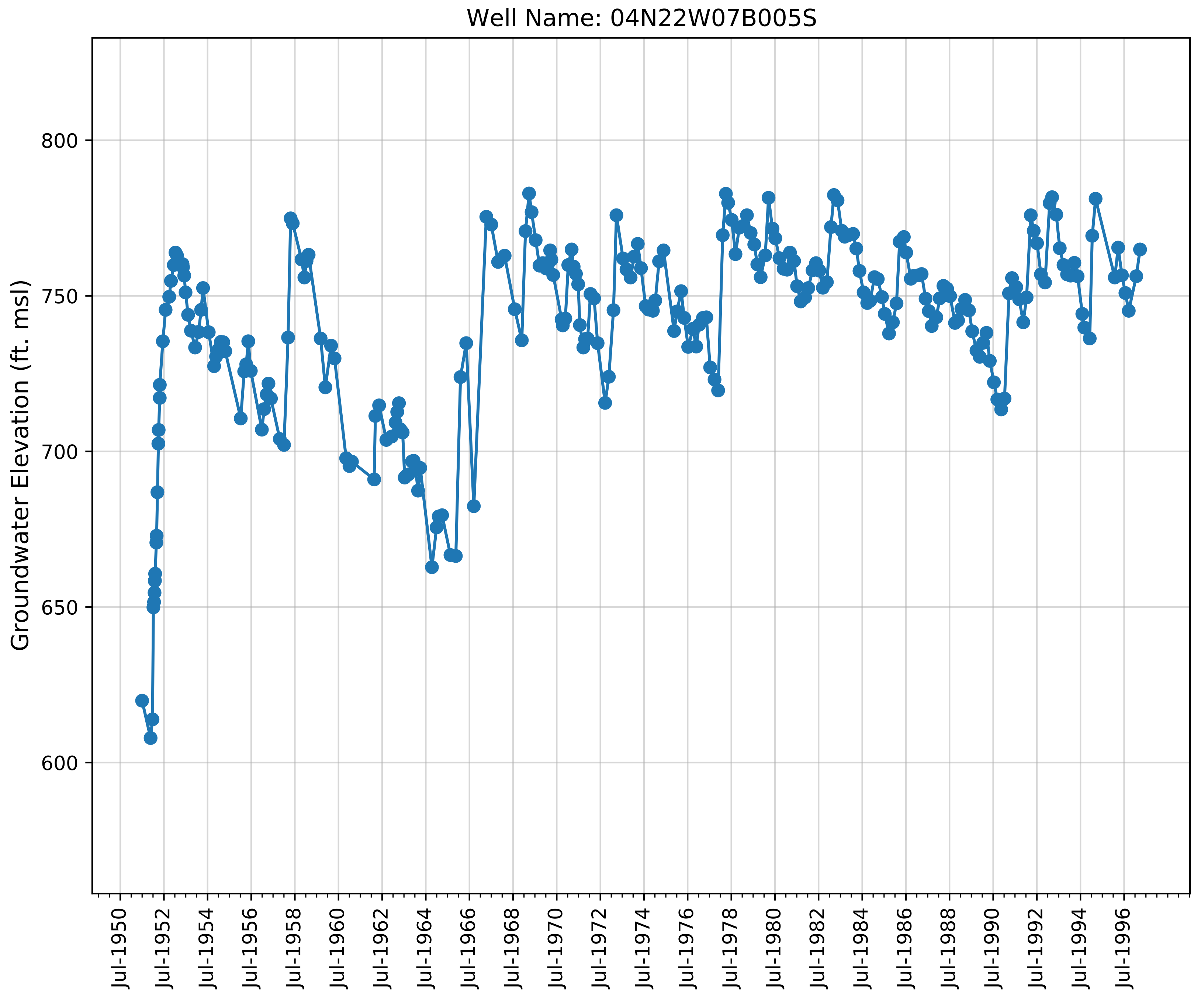


Well Name: 04N22W06Q001S
Groundwater Elevation (ft. msl)
820
800
780
760
740
720
700
680
Jun-1988
Jun-1990
Jun-1992
Jun-1994
Jun-1996
Jun-1998
Jun-2000

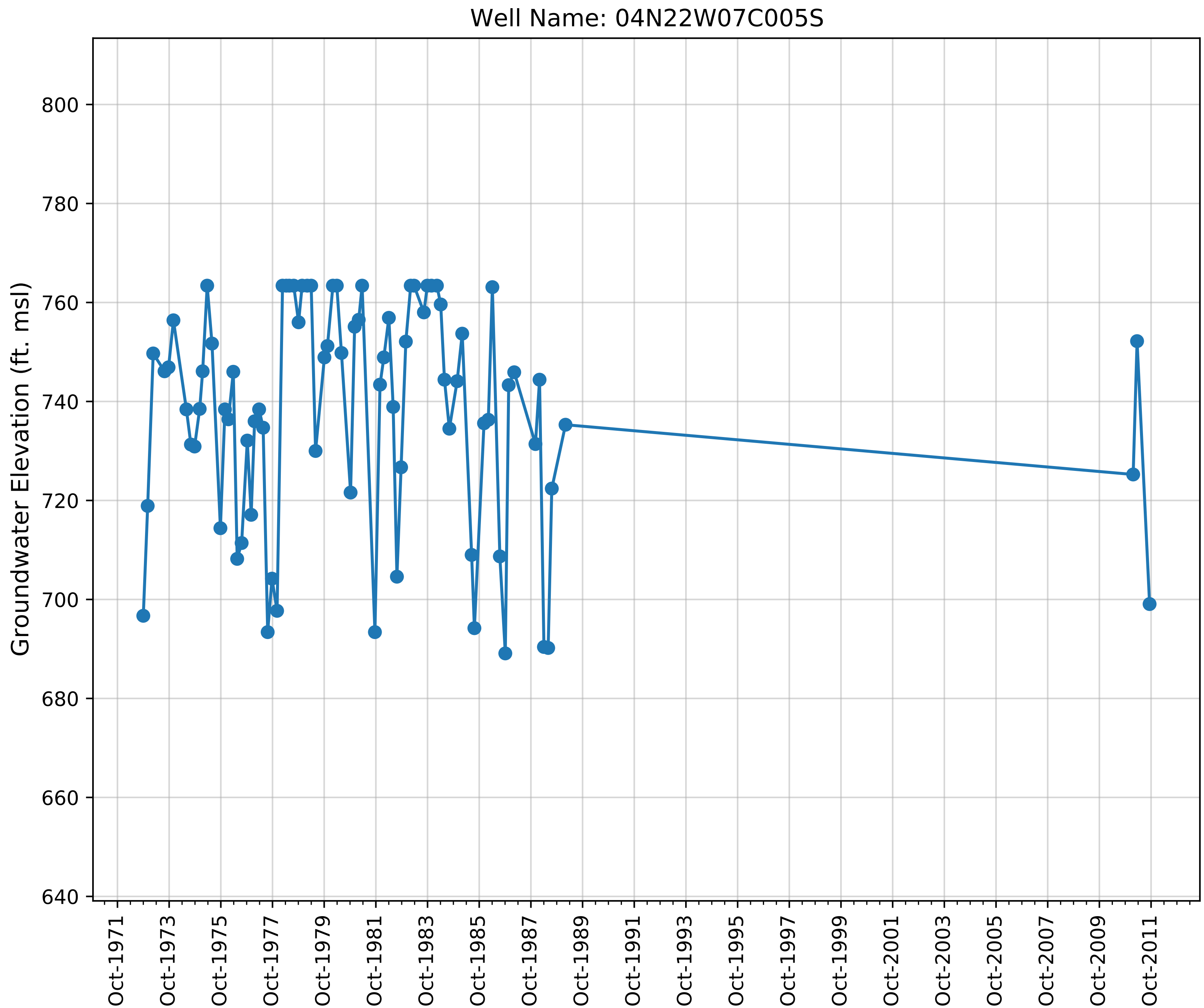

Well Name: 04N22W07A001S
Groundwater Elevation (ft. msl)
825
800
775
750
725
700
675
650
Oct-1971
Oct-1973
Oct-1975
Oct-1977
Oct-1979
Oct-1981
Oct-1983
Oct-1985
Oct-1987
Oct-1989



Well Name: 04N22W07B002S
Groundwater Elevation (ft. msl)
800
750
700
650
600
Oct-1971
Oct-1973
Oct-1975
Oct-1977
Oct-1979
Oct-1981
Oct-1983
Oct-1985
Oct-1987
Oct-1989
Oct-1991
Oct-1993
Oct-1995
Oct-1997
Oct-1999
Oct-2001
Oct-2003
Oct-2005
Oct-2007
Oct-2009
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019



Well Name: 04N22W07B005S
Groundwater Elevation (ft. msl)
800
750
700
650
600
Jul-1950
Jul-1952
Jul-1954
Jul-1956
Jul-1958
Jul-1960
Jul-1962
Jul-1964
Jul-1966
Jul-1968
Jul-1970
Jul-1972
Jul-1974
Jul-1976
Jul-1978
Jul-1980
Jul-1982
Jul-1984
Jul-1986
Jul-1988
Jul-1990
Jul-1992
Jul-1994
Jul-1996



Well Name: 04N22W07C005S
Groundwater Elevation (ft. msl)
800
780
760
740
720
700
680
660
640
Oct-1971
Oct-1973
Oct-1975
Oct-1977
Oct-1979
Oct-1981
Oct-1983
Oct-1985
Oct-1987
Oct-1989
Oct-1991
Oct-1993
Oct-1995
Oct-1997
Oct-1999
Oct-2001
Oct-2003
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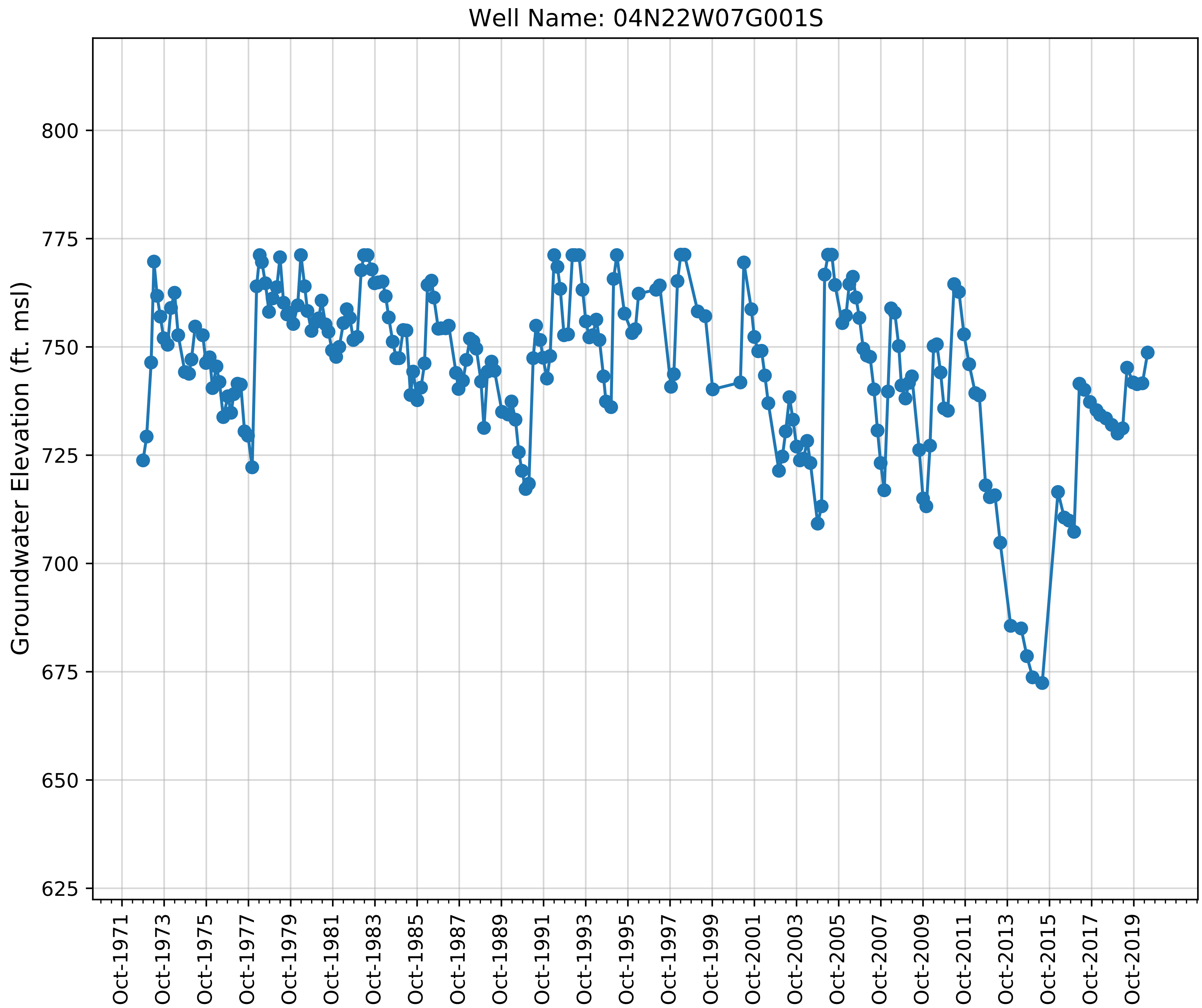
Oct-2007
Oct-2009
Oct-2011


Well Name: 04N22W07G001S
Groundwater Elevation (ft. msl)
800
775
750
725
700
675
650
625
Oct-1971
Oct-1973
Oct-1975
Oct-1977
Oct-1979
Oct-1981
Oct-1983
Oct-1985
Oct-1987
Oct-1989
Oct-1991
Oct-1993
Oct-1995
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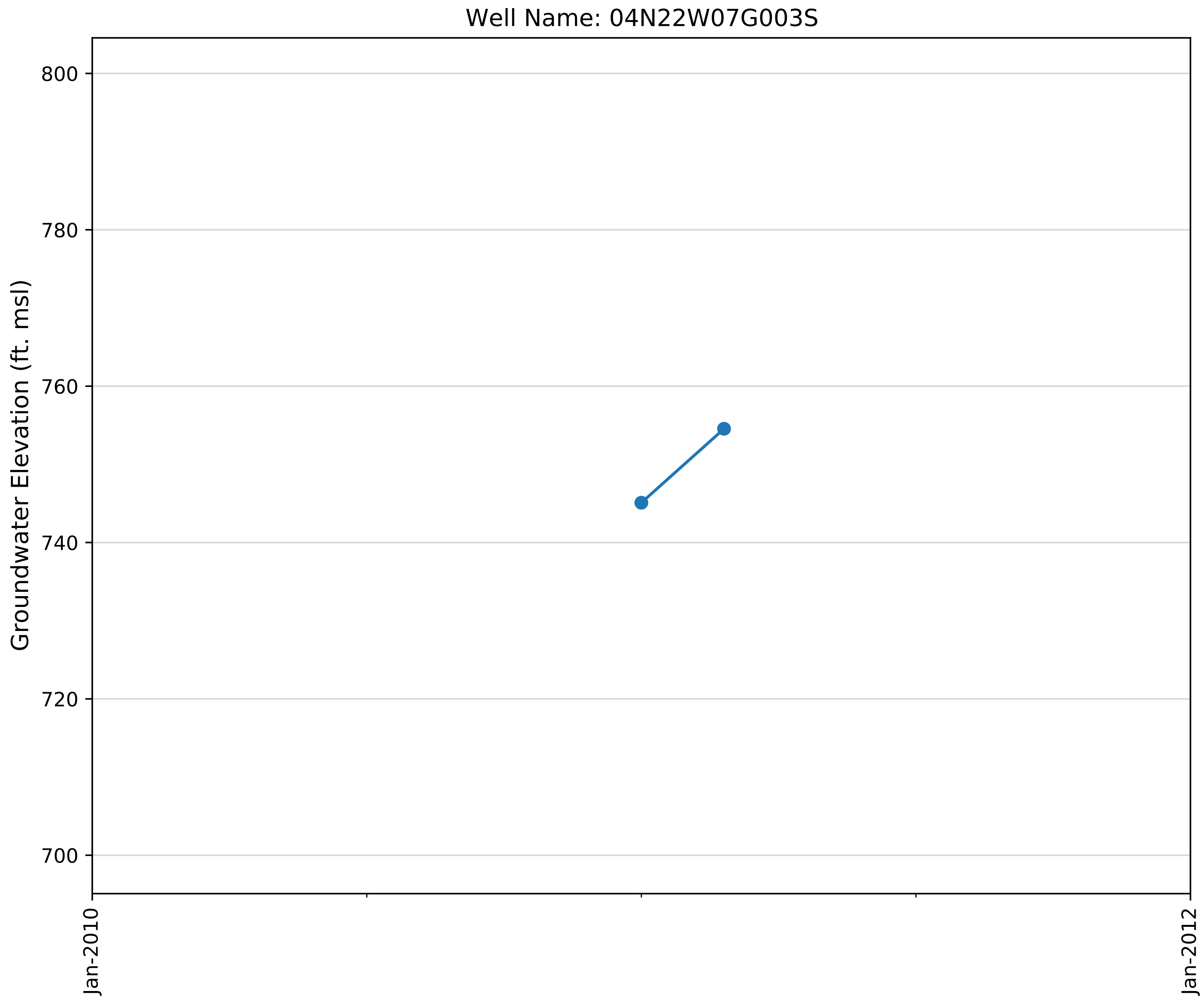
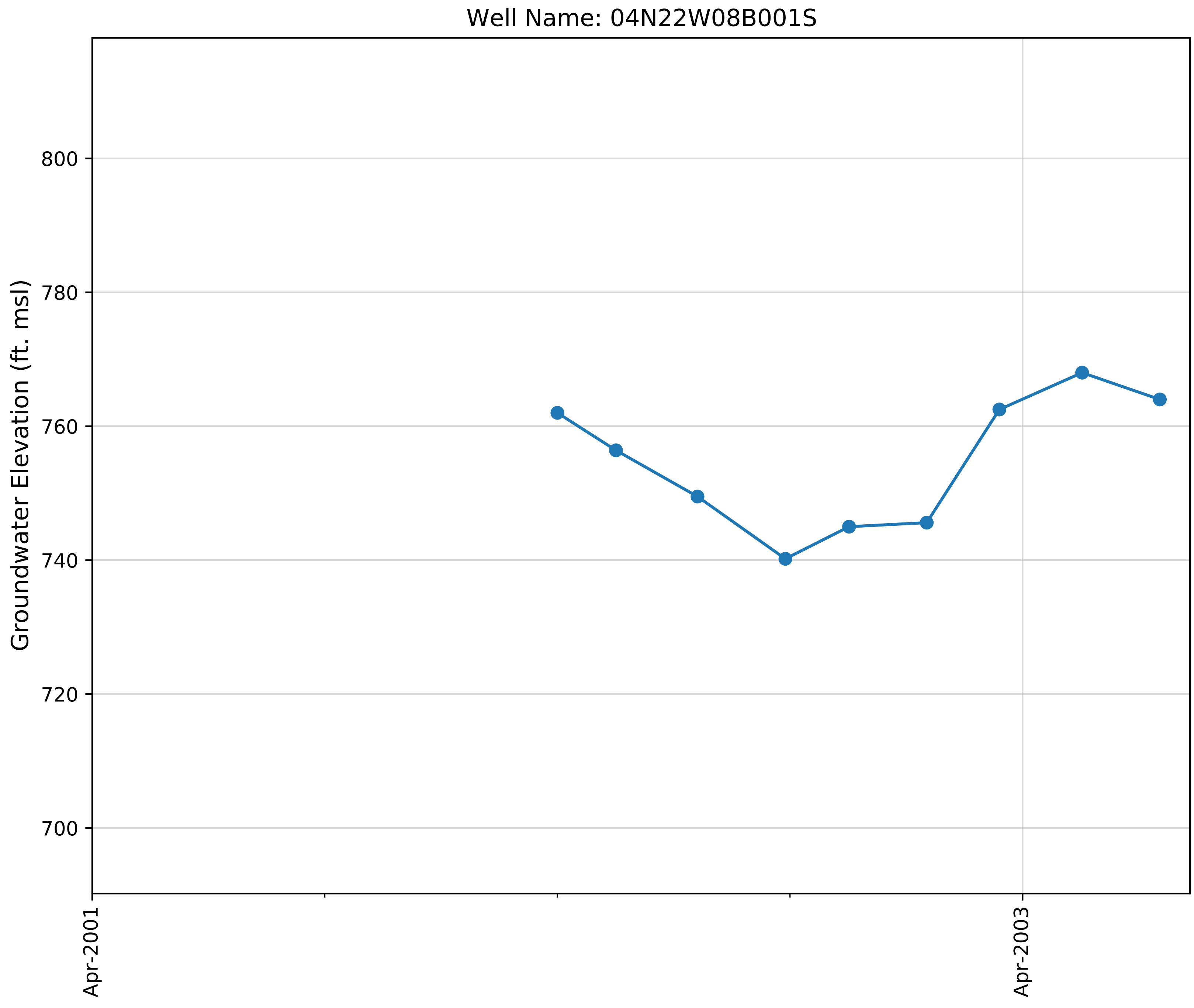
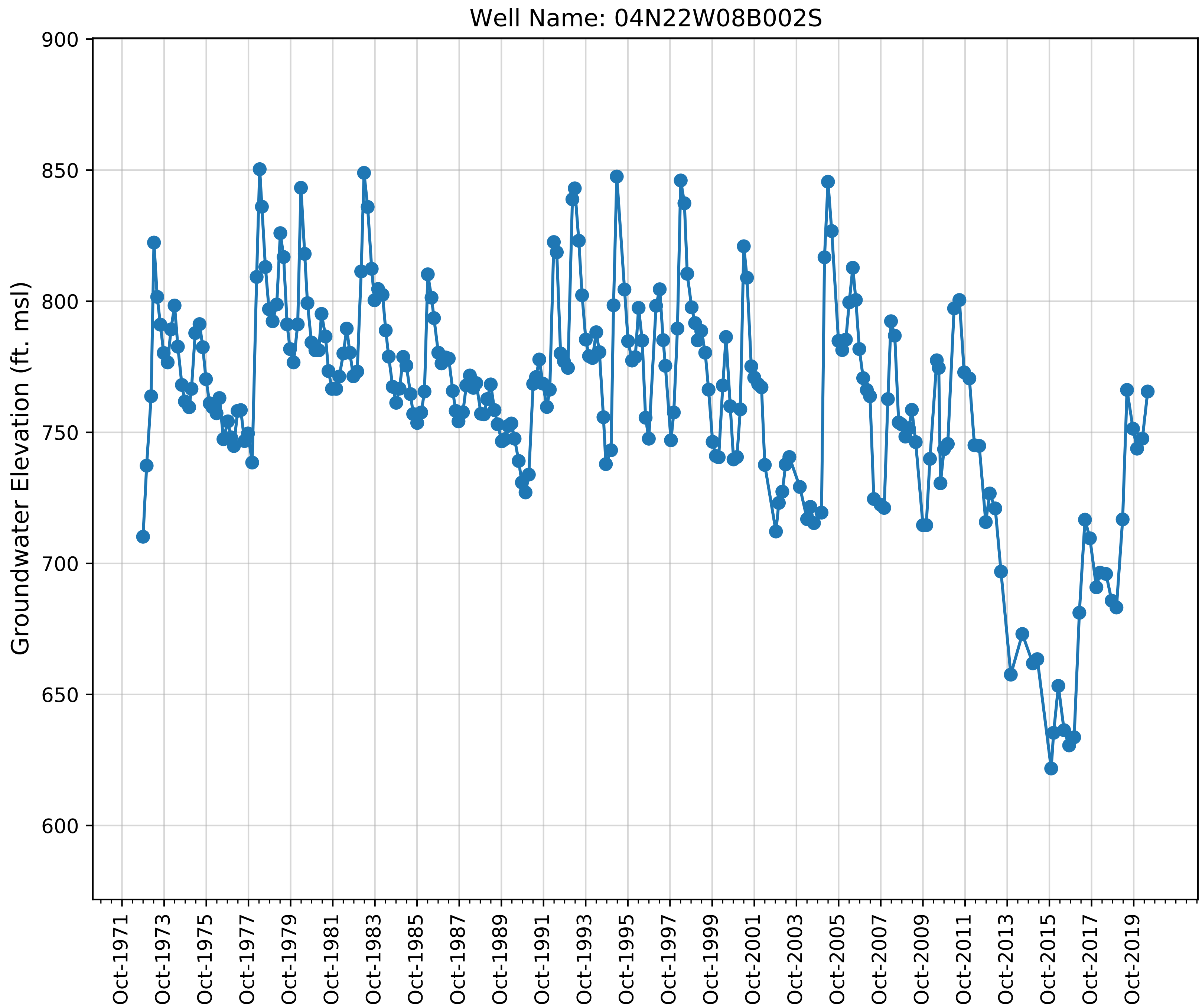
Oct-2015
Oct-2017
Oct-2019


Well Name: 04N22W07G003S
Groundwater Elevation (ft. msl)
800
780
760
740
720
700
Jan-2010
Jan-2012



Well Name: 04N22W08B001S
Groundwater Elevation (ft. msl)
800
780
760
740
720
700
Apr-2001
Apr-2003


Well Name: 04N22W08B002S
Groundwater Elevation (ft. msl)
900
850
800
750
700
650
600
Oct-1971
Oct-1973
Oct-1975
Oct-1977
Oct-1979
Oct-1981
Oct-1983
Oct-1985
Oct-1987
Oct-1989
Oct-1991
Oct-1993
Oct-1995
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Oct-2001
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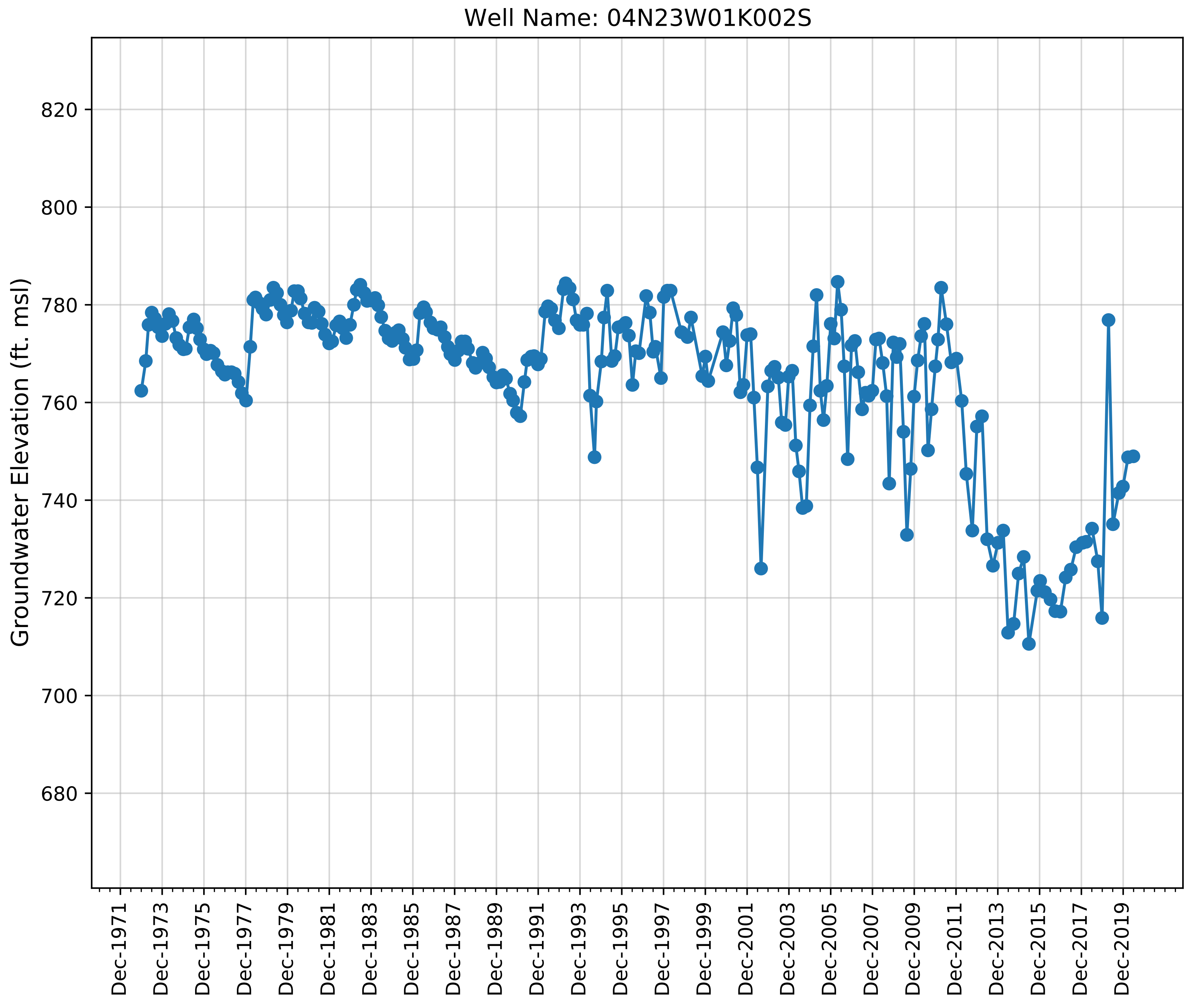
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019


Well Name: 04N23W01K002S
Groundwater Elevation (ft. msl)
820
800
780
760
740
720
700
680
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
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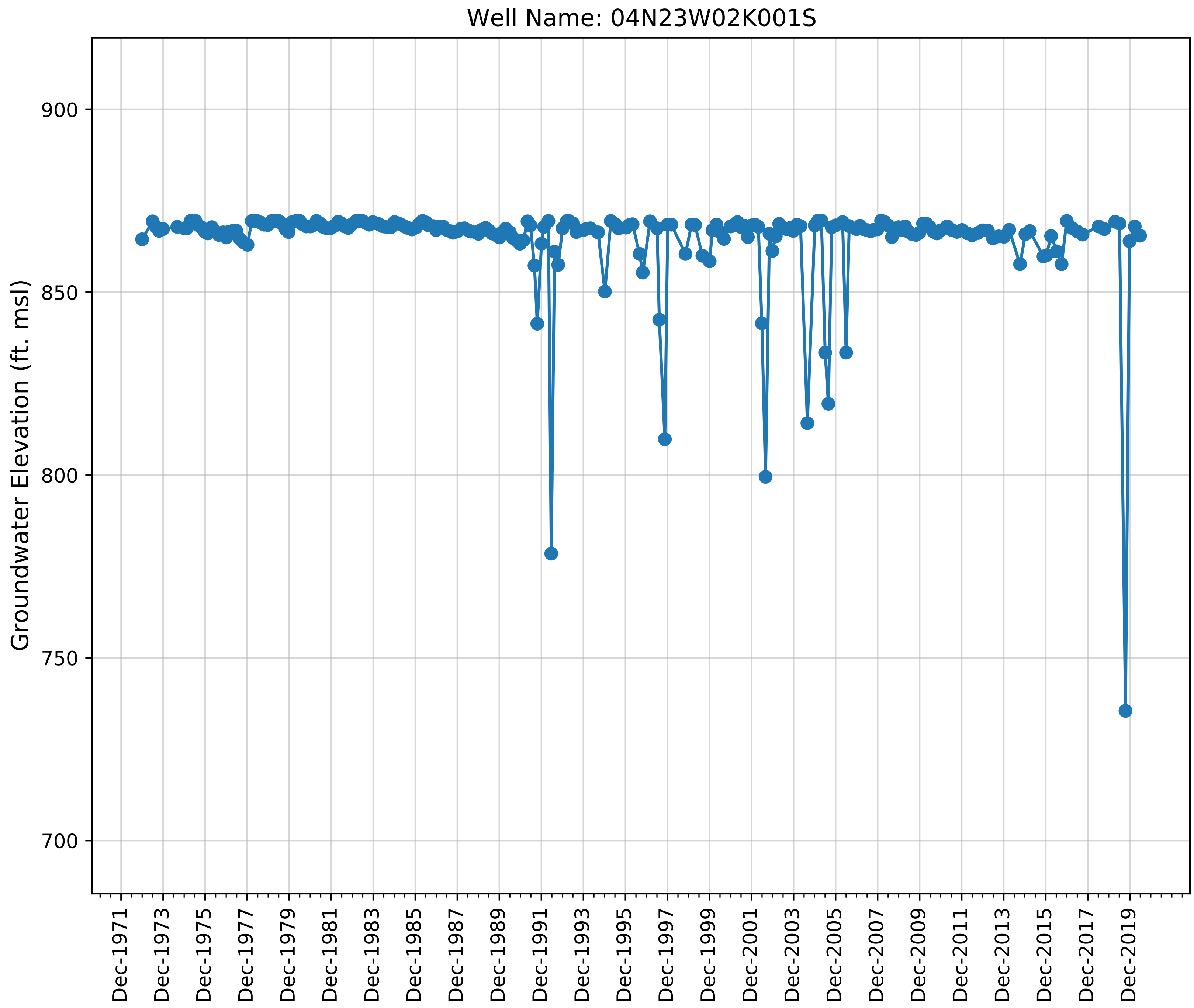
Dec-2015
Dec-2017
Dec-2019



Well Name: 04N23W02K001S
Groundwater Elevation (ft. msl)
900
850
800
750
700
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
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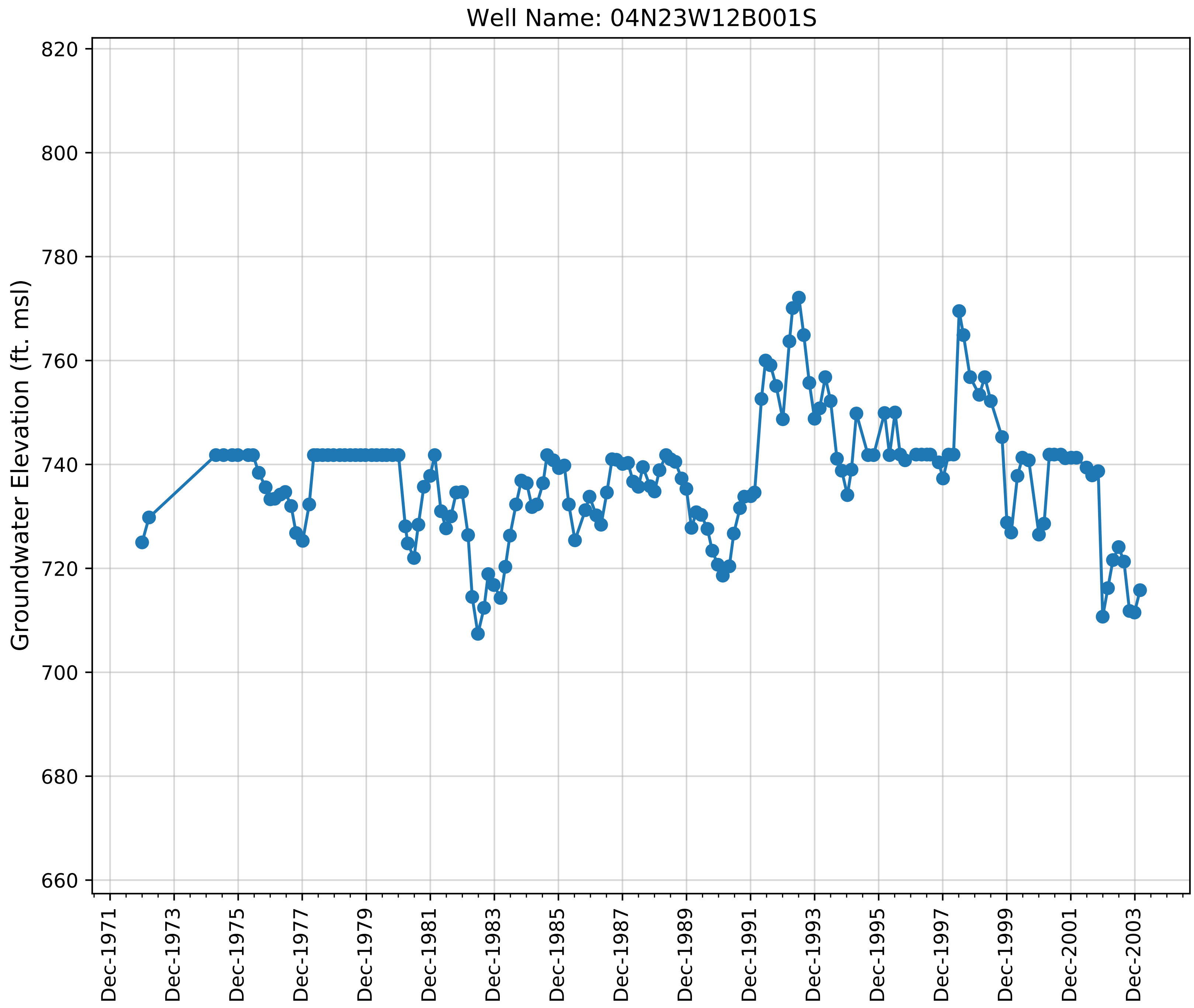
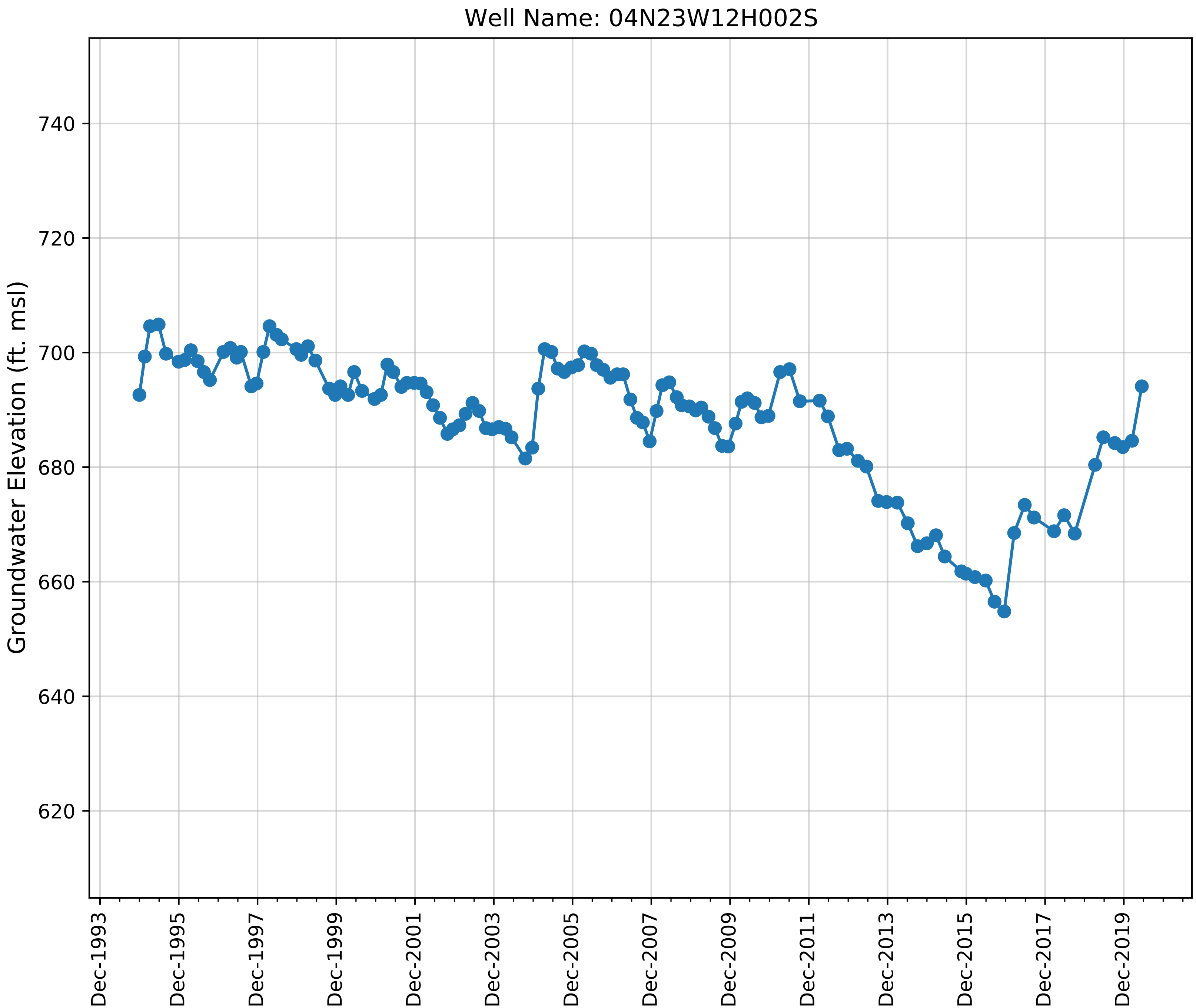
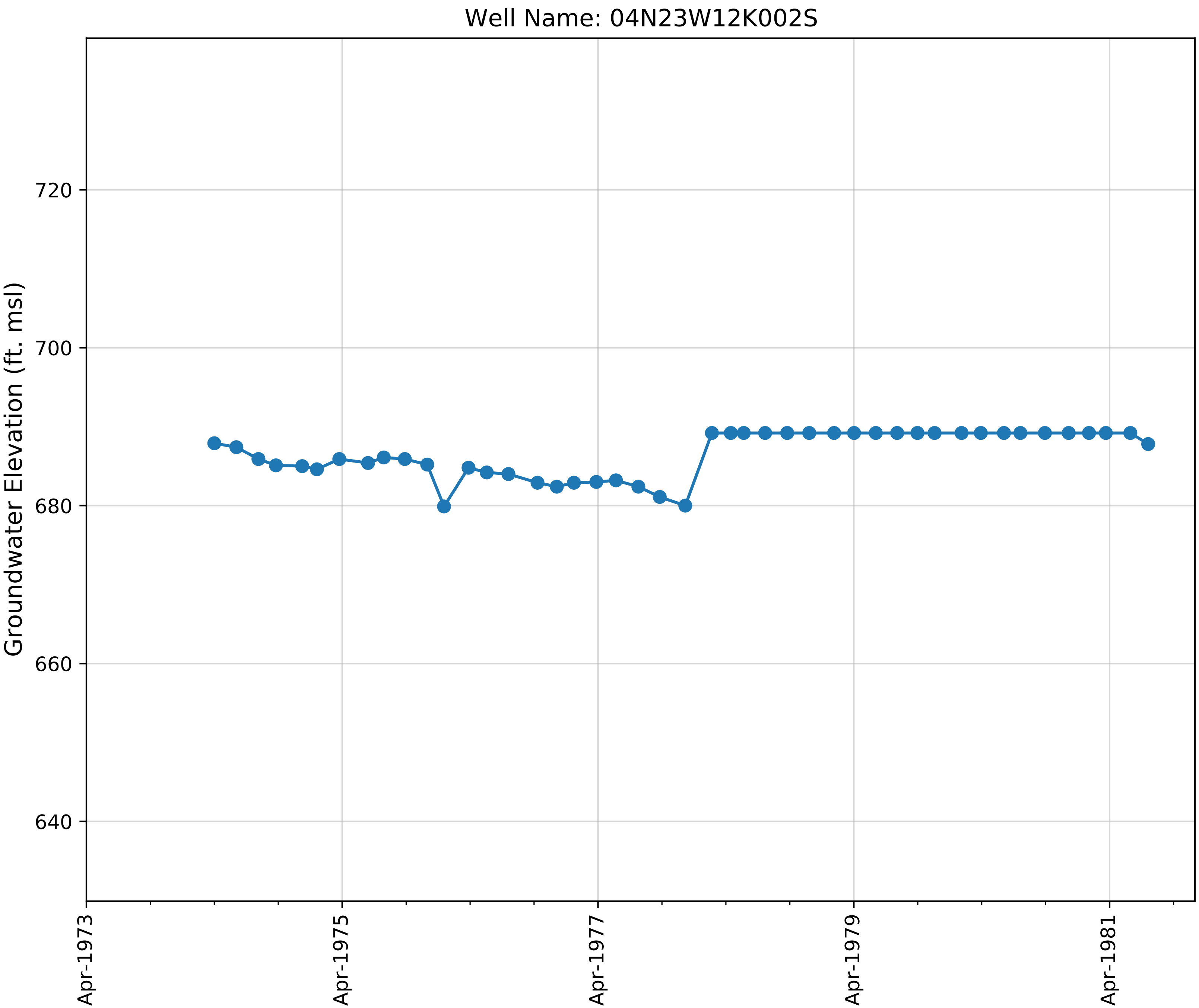
Dec-2015
Dec-2017
Dec-2019



Well Name: 04N23W12B001S
Groundwater Elevation (ft. msl)
820
800
780
760
740
720
700
680
660
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
Dec-1997
Dec-1999
Dec-2001
Dec-2003

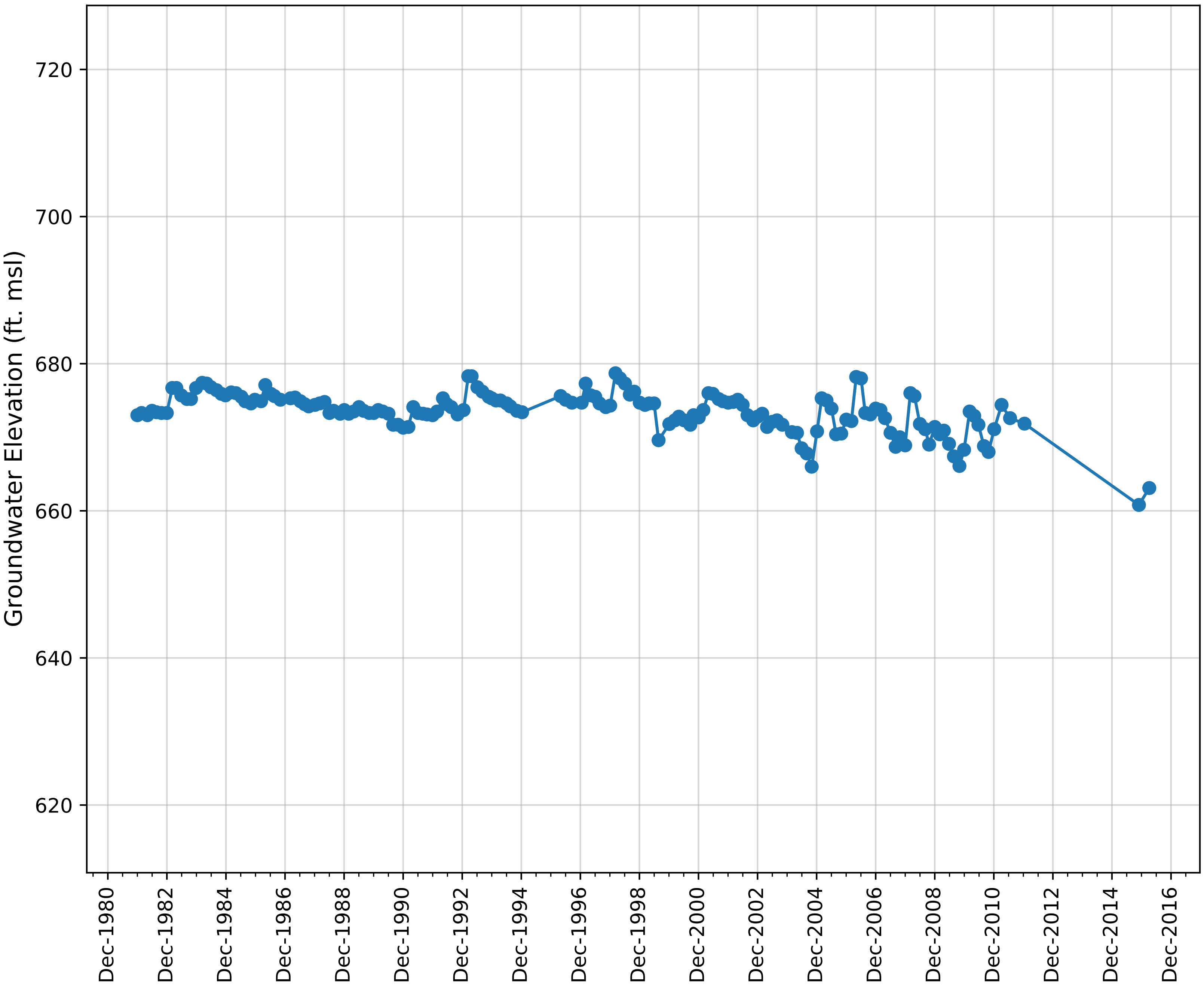


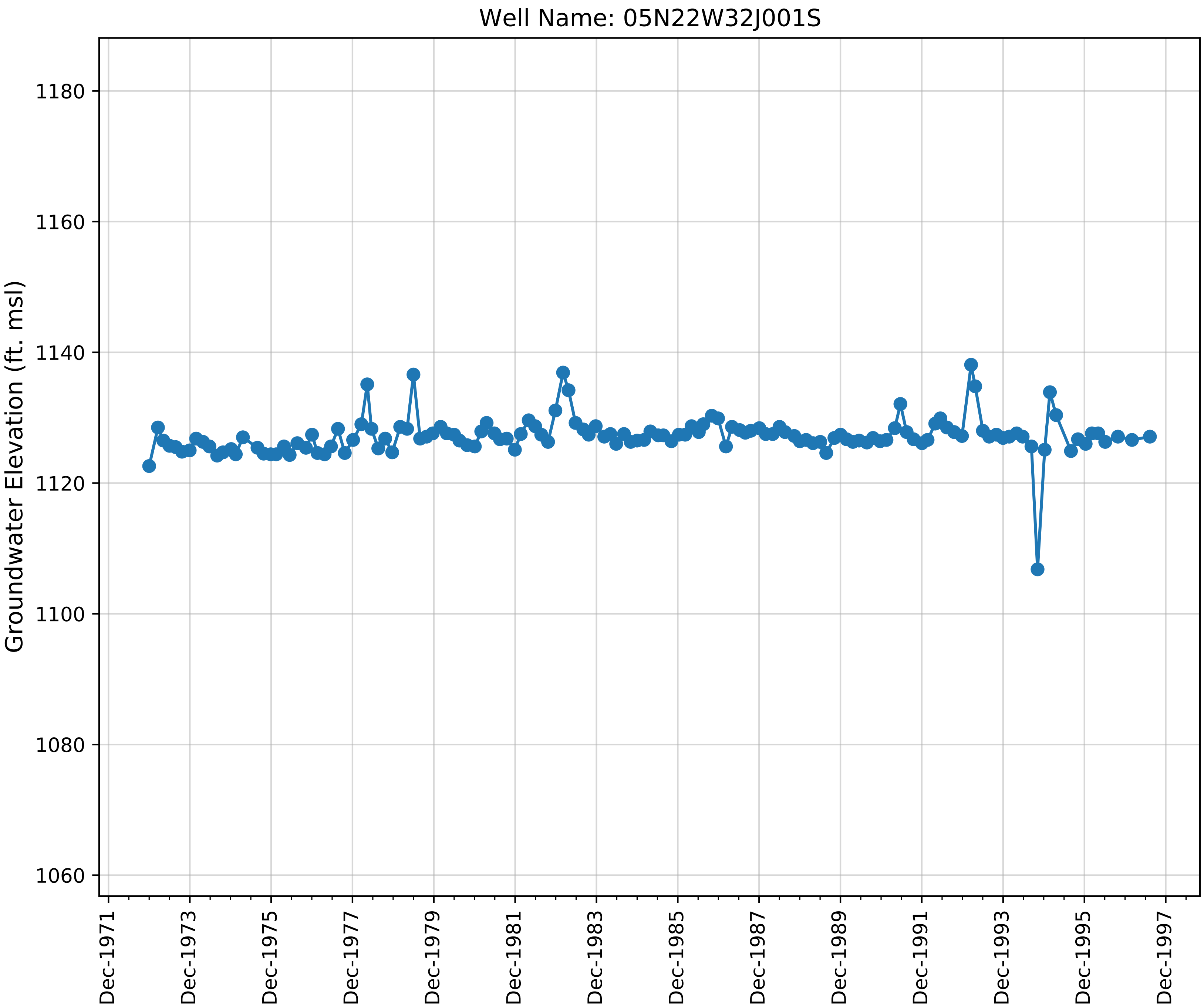
Well Name: 04N23W12H002S
Groundwater Elevation (ft. msl)
740
720
700
680
660
640
620
Dec-1993
Dec-1995
Dec-1997
Dec-1999
Dec-2001
Dec-2003
Dec-2005
Dec-2007
Dec-2009
Dec-2011
Dec-2013
Dec-2015
Dec-2017
Dec-2019



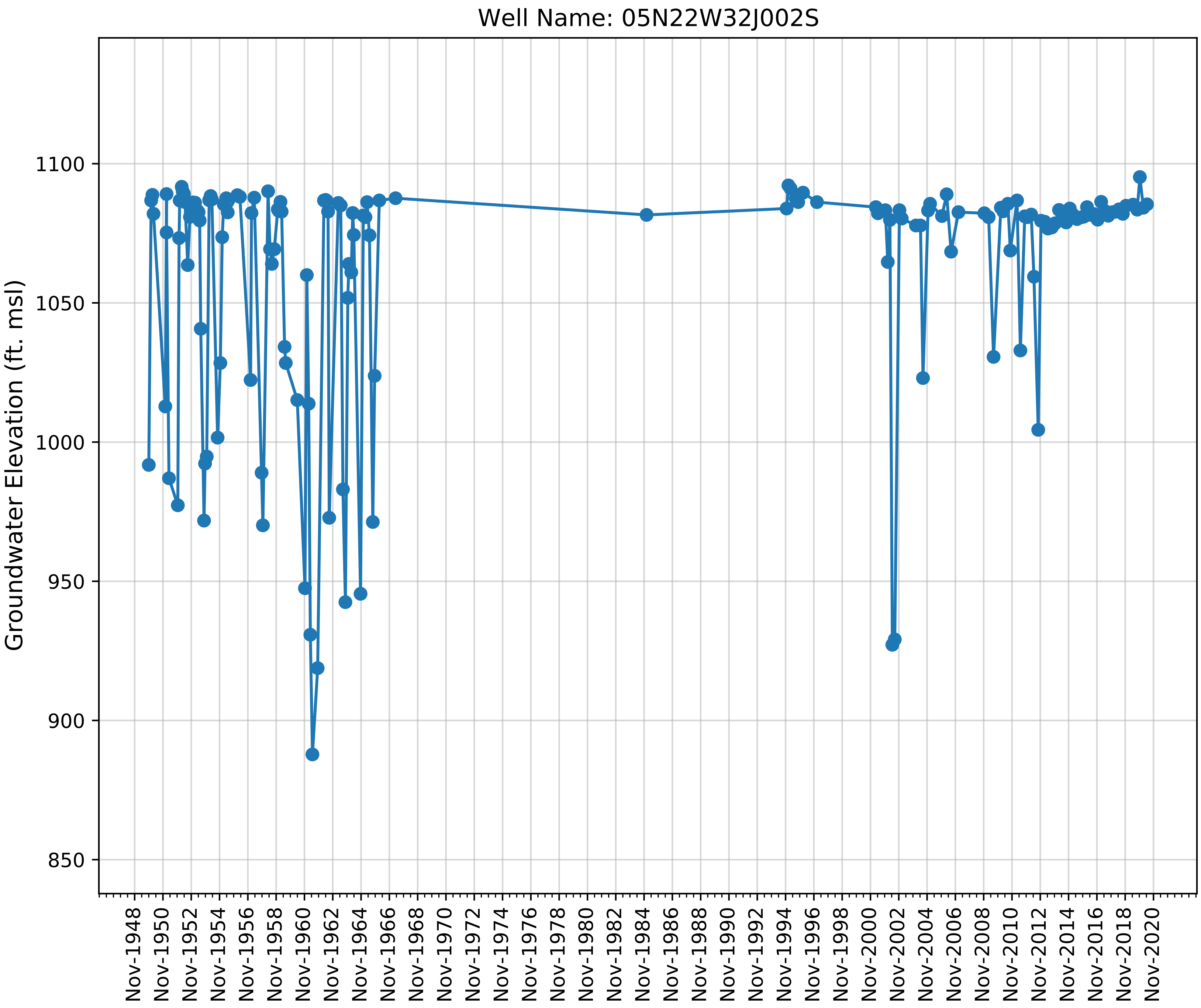
Well Name: 04N23W12K002S
Groundwater Elevation (ft. msl)
720
700
680
660
640
Apr-1973
Apr-1975
Apr-1977
Apr-1979
Apr-1981

Well Name: 04N23W12L002S

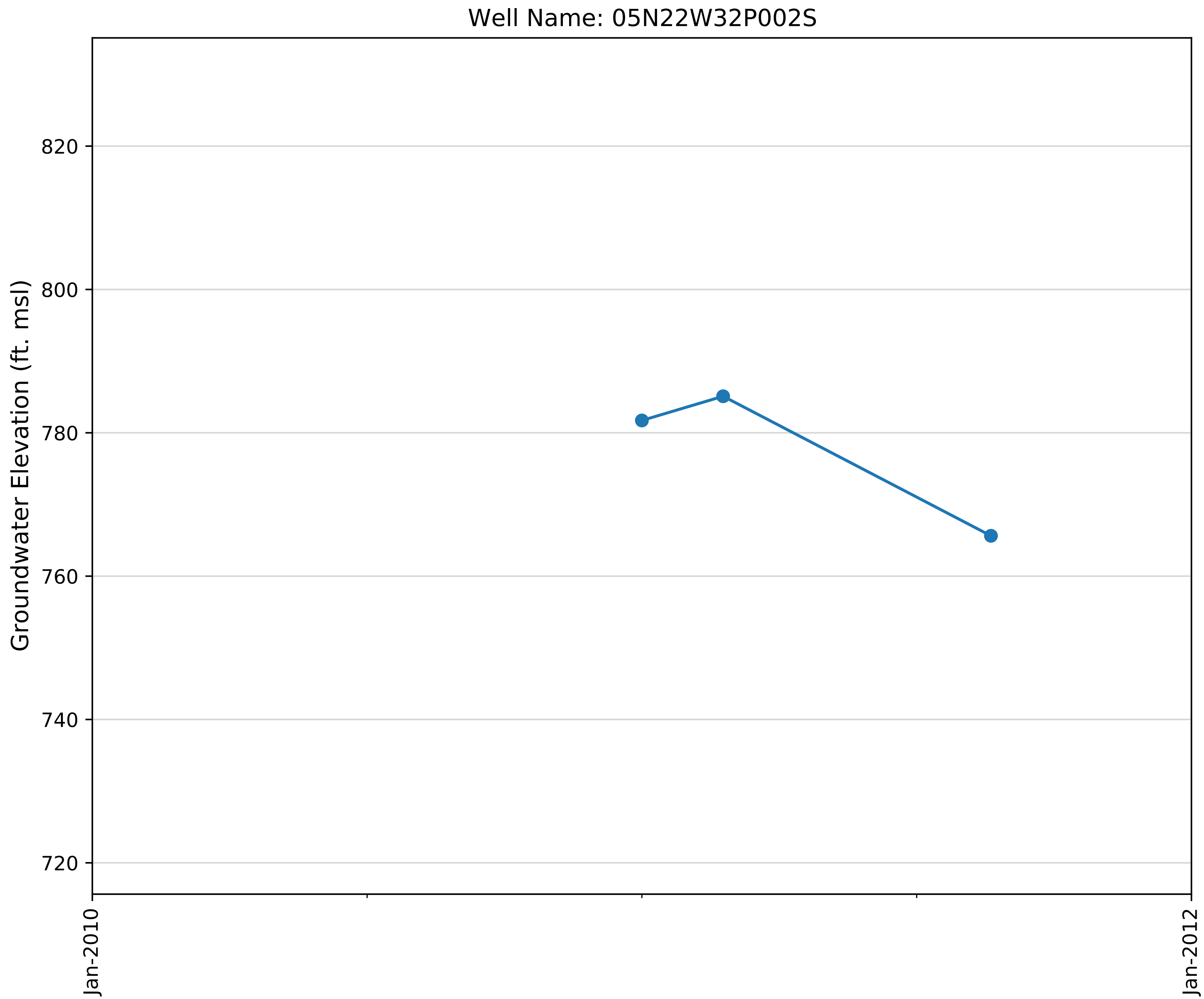




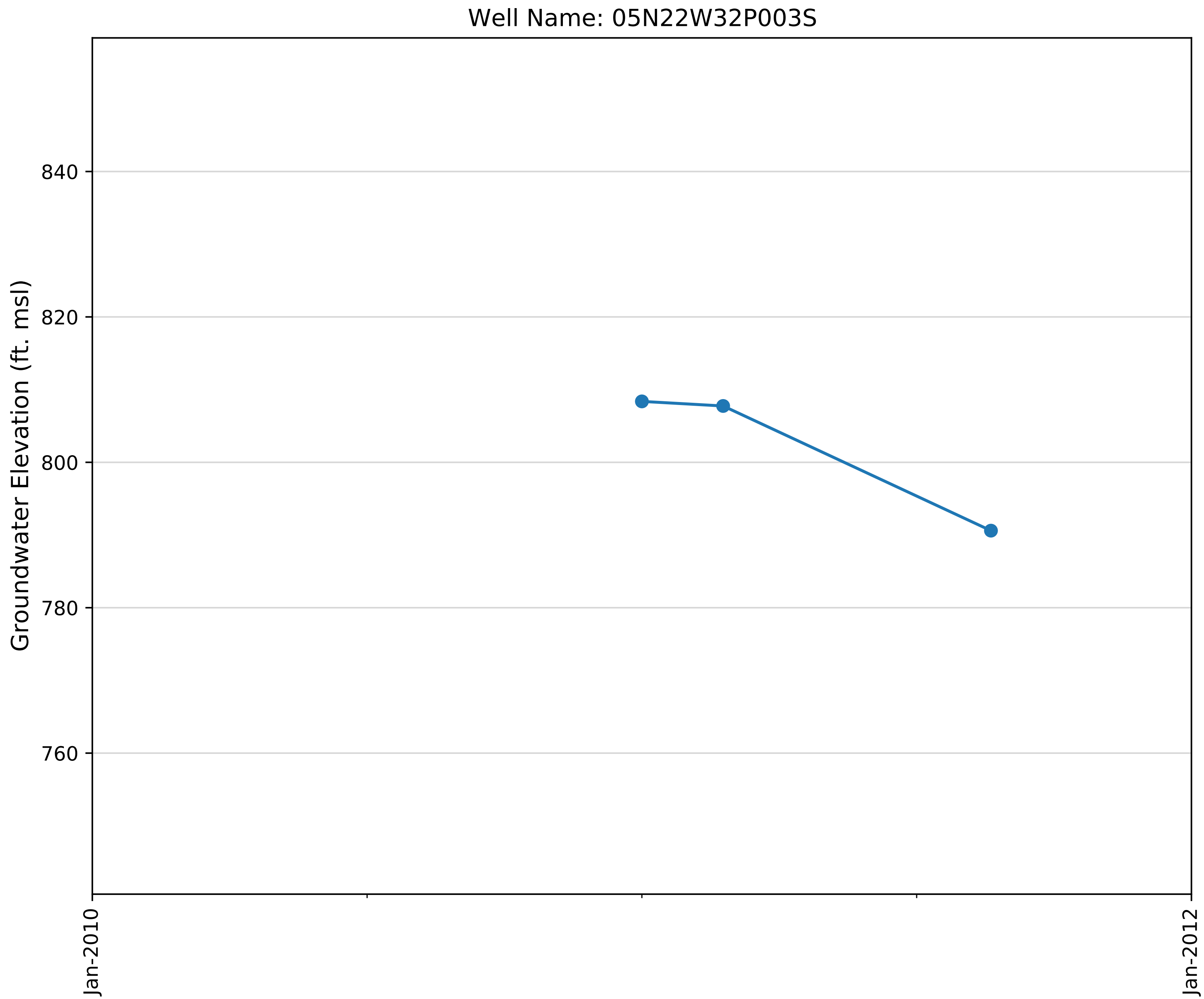
Well Name: 05N22W32J001S
Groundwater Elevation (ft. msl)
1180
1160
1140
1120
1100
1080
1060
Dec-1971
Dec-1973
Dec-1975
Dec-1977
Dec-1979
Dec-1981
Dec-1983
Dec-1985
Dec-1987
Dec-1989
Dec-1991
Dec-1993
Dec-1995
Dec-1997

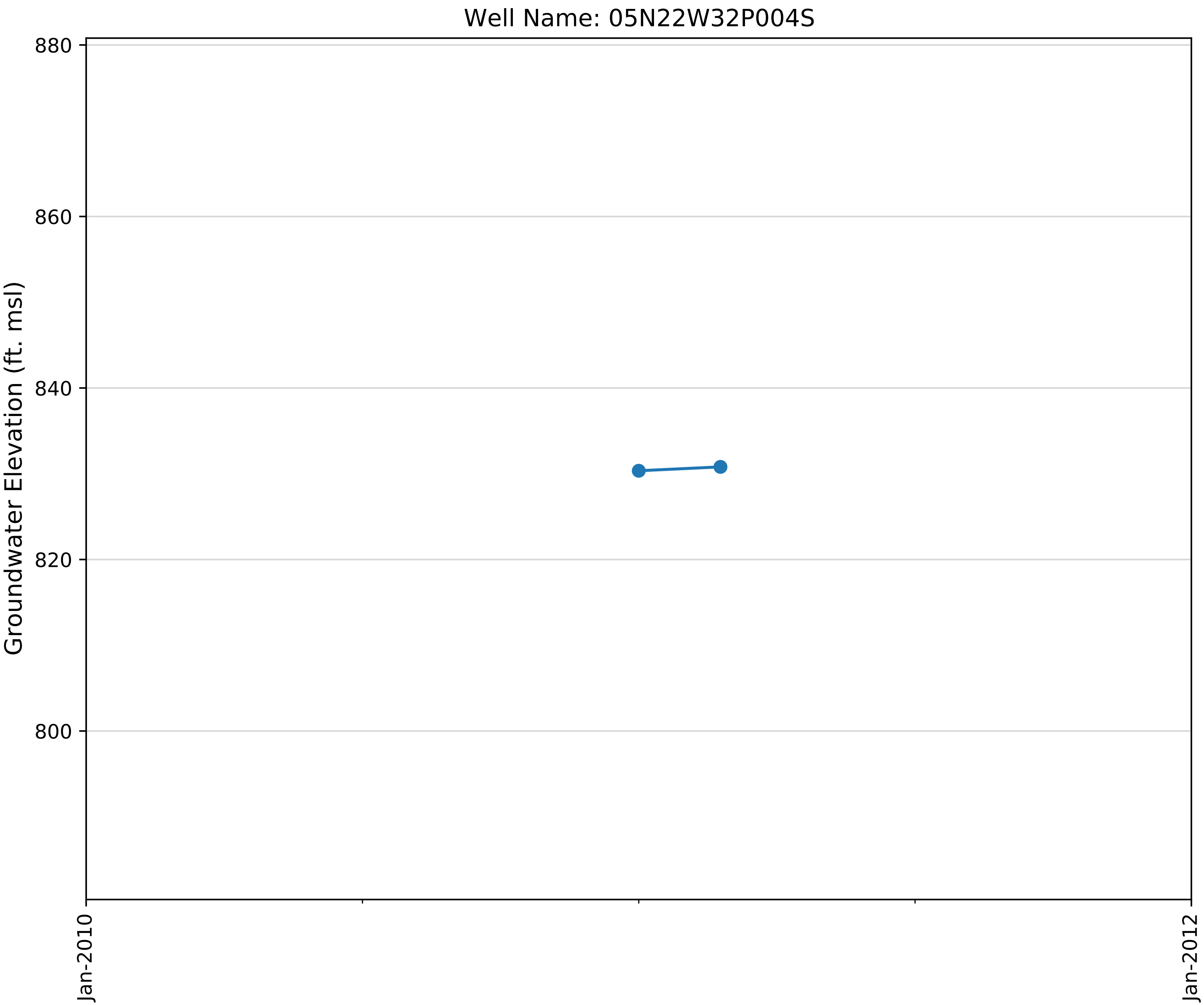


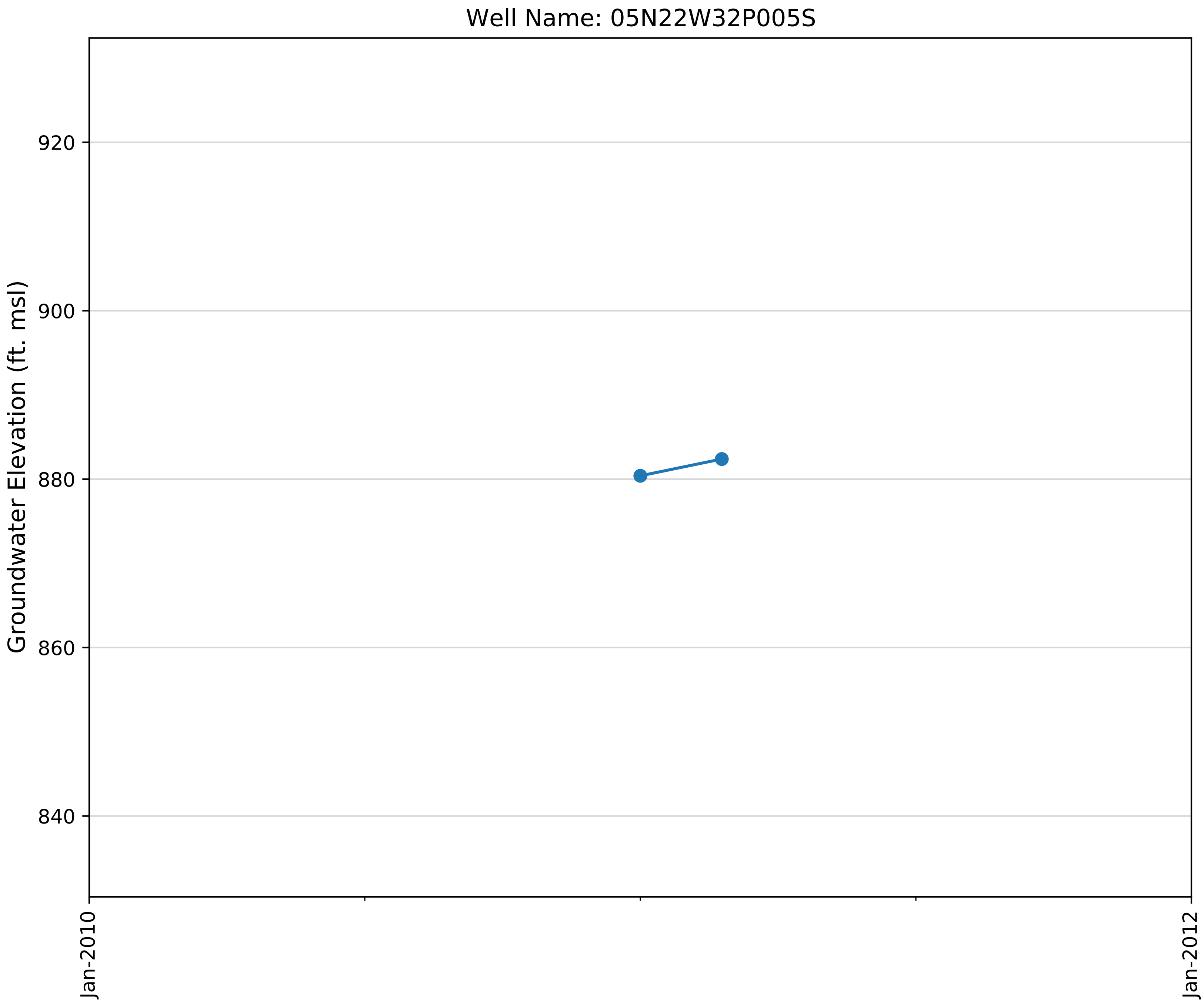
Well Name: 05N22W32J002S
Groundwater Elevation (ft. msl)
1100
1050
1000
950
900
850
Nov-1948
Nov-1950
Nov-1952
Nov-1954
Nov-1956
Nov-1958
Nov-1960
Nov-1962
Nov-1964
Nov-1966
Nov-1968
Nov-1970
Nov-1972
Nov-1974
Nov-1976
Nov-1978
Nov-1980
Nov-1982
Nov-1984
Nov-1986
Nov-1988
Nov-1990
Nov-1992
Nov-1994
Nov-1996
Nov-1998
Nov-2000
Nov-2002
Nov-2004
Nov-2006
Nov-2008
Nov-2010
Nov-2012
Nov-2014
Nov-2016
Nov-2018
Nov-2020



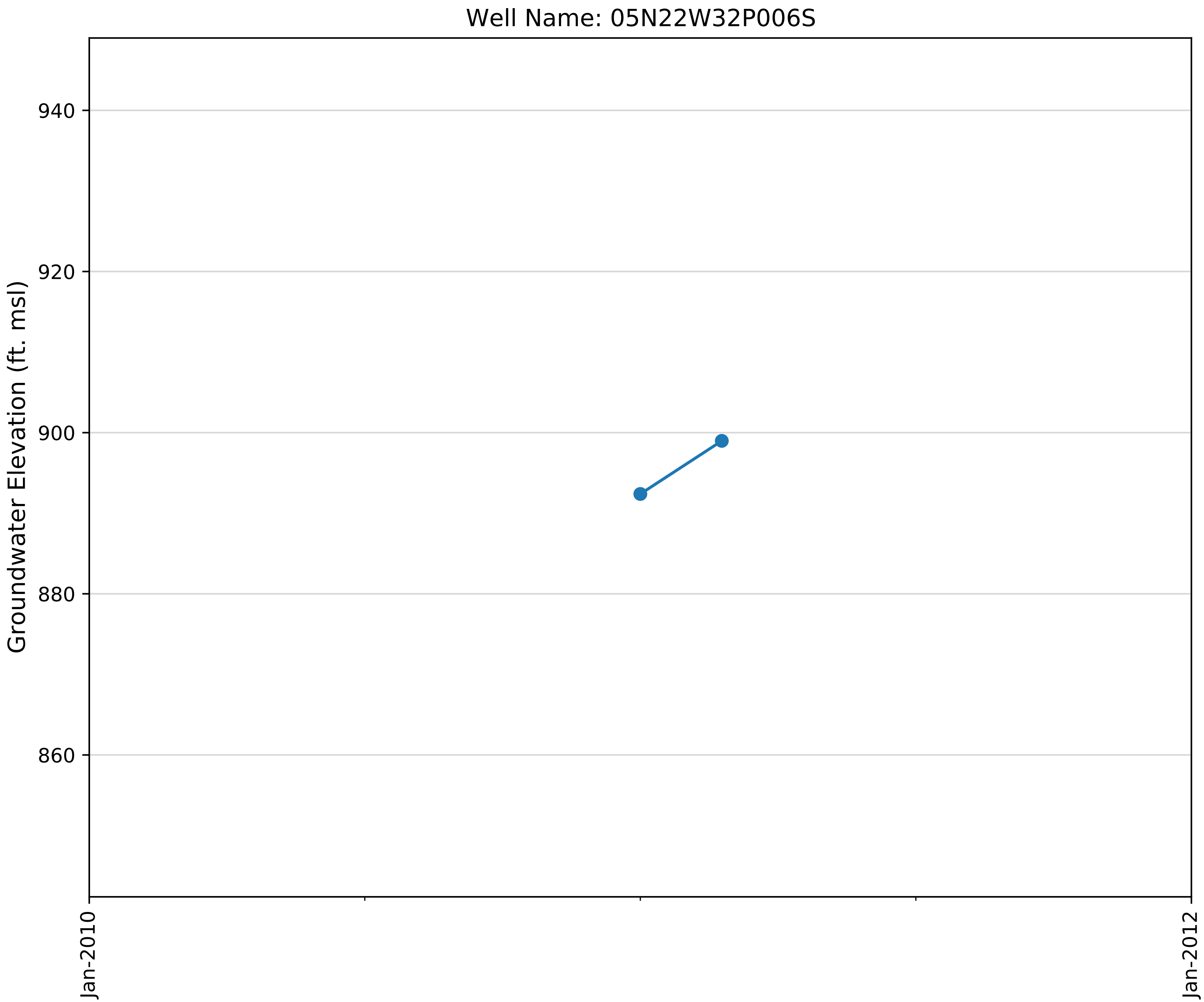
Well Name: 05N22W32P002S
Groundwater Elevation (ft. msl)
820
800
780
760
740
720
Jan-2010
Jan-2012


Well Name: 05N22W32P003S
Groundwater Elevation (ft. msl)
840
820
800
780
760
Jan-2010
Jan-2012


Well Name: 05N22W32P004S
Groundwater Elevation (ft. msl)
880
860
840
820
800
Jan-2010
Jan-2012



Well Name: 05N22W32P005S
Groundwater Elevation (ft. msl)
920
900
880
860
840
Jan-2010
Jan-2012

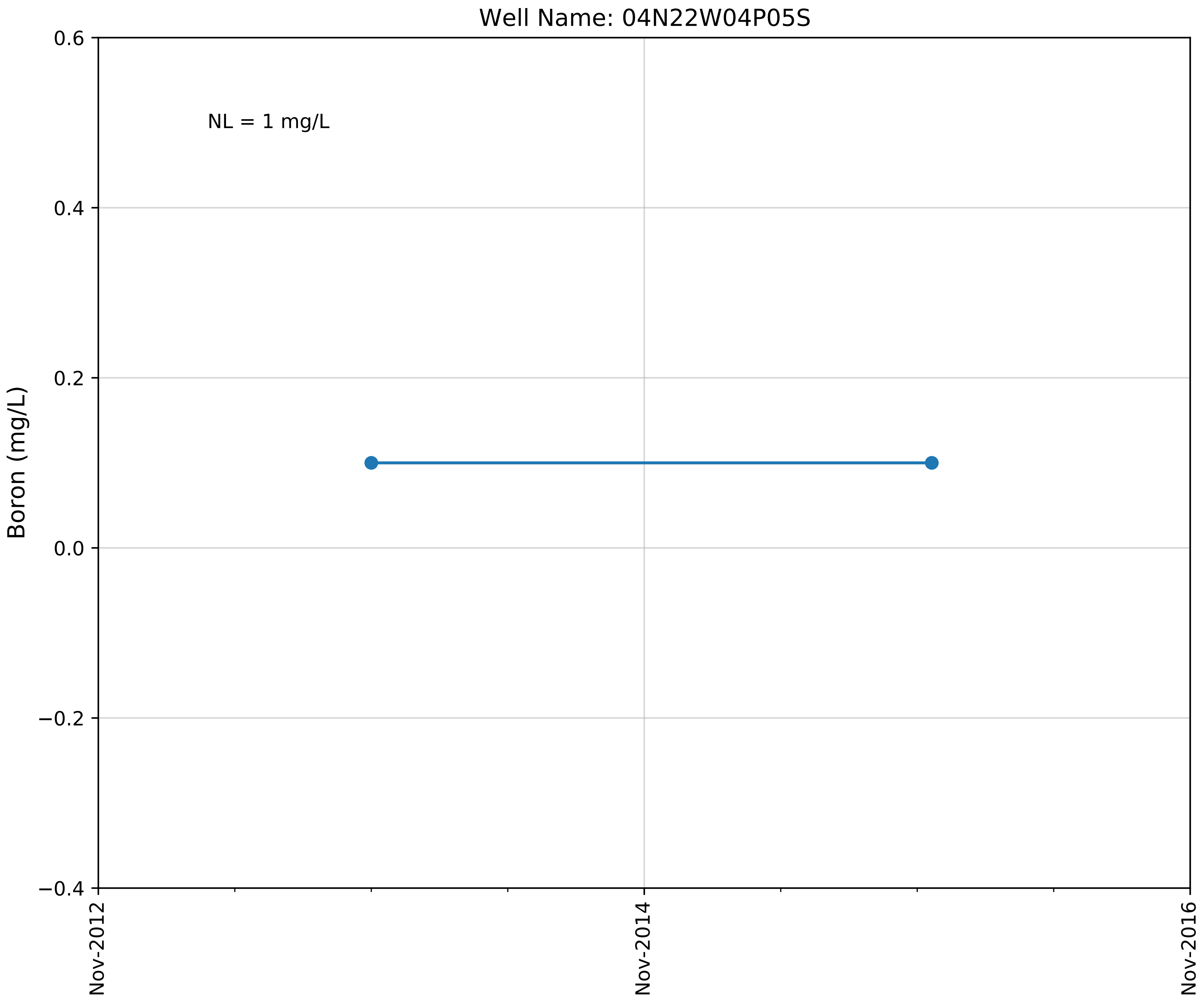


Well Name: 05N22W32P006S
Groundwater Elevation (ft. msl)
940
920
900
880
860
Jan-2010
Jan-2012

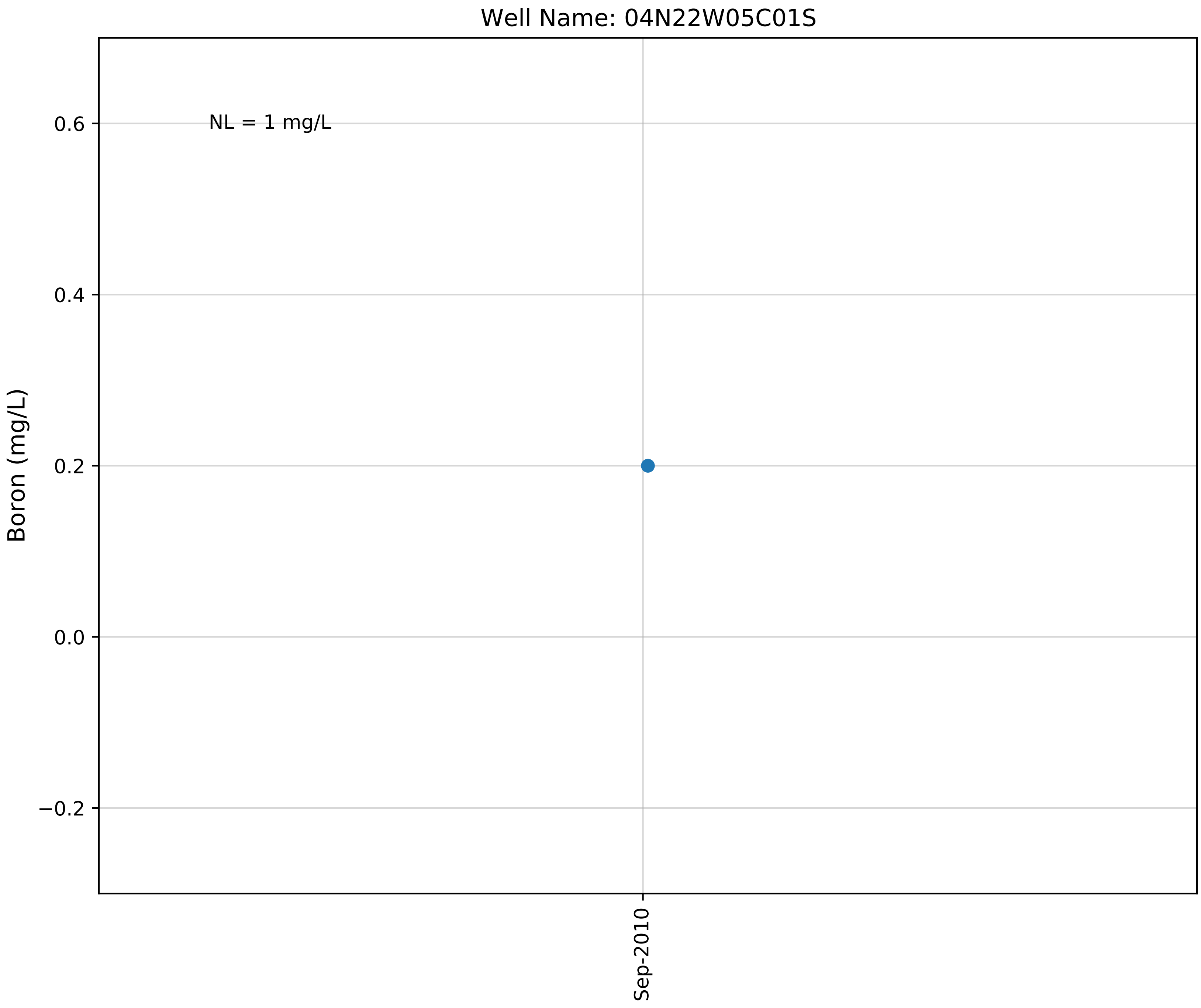
Table 1
Summary of Mann-Kendall Test Results

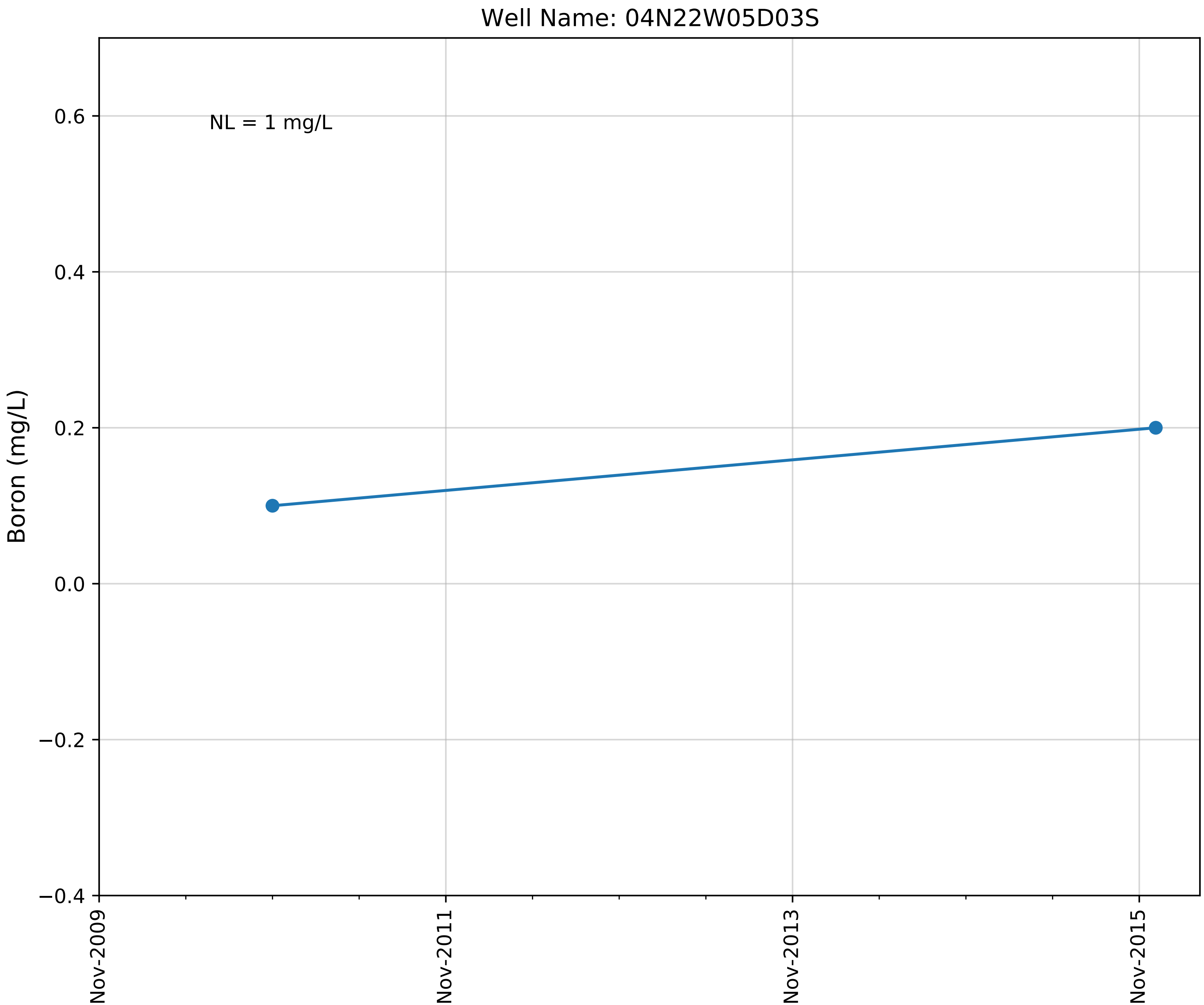
Analyte	Statistics	Gorham Well	Grant Well	Mutual Well 4	Mutual Well 5	Mutual Well 6	Mutual Well 7	San Antonio Well 3	San Antonio Well 4	Well 4
TDS	n	17	7	19	20	22	—	22	15	8
	S-Statistic	50	-4	6	28	-44	—	-44	4	1
	Sig. Level	0.05	0.05	0.05	0.05	0.05	—	0.05	0.05	0.05
	Minimum S	42	13	49	52	61	—	61	35	16
	Trend	Increasing	No Trend	No Trend	No Trend	No Trend	—	No Trend	No Trend	No Trend
Nitrate	n	25	20	29	31	11	—	27	29	22
	S-Statistic	72	11	-80	-156	-4	—	30	27	74
	Sig. Level	0.05	0.05	0.05	0.05	0.05	—	0.05	0.05	0.05
	Minimum S	72	52	90	99	23	—	81	90	61
	Trend	Increasing	No Trend	No Trend	Decreasing	No Trend	—	No Trend	No Trend	Increasing
Chloride	n	17	6	19	20	—	—	22	15	8
	S-Statistic	34	13	-45	-25	—	—	-93	4	2
	Sig. Level	0.05	0.05	0.05	0.05	—	—	0.05	0.05	0.05
	Minimum S	42	11	49	52	—	—	61	35	16
	Trend	No Trend	Increasing	No Trend	No Trend	—	—	Decreasing	No Trend	No Trend
Sulfate	n	17	6	19	20	—	—	22	15	8
	S-Statistic	-30	-4	8	43	—	—	-71	-14	13
	Sig. Level	0.05	0.05	0.05	0.05	—	—	0.05	0.05	0.05
	Minimum S	42	11	49	52	—	—	61	35	16
	Trend	No Trend	No Trend	No Trend	No Trend	—	—	Decreasing	No Trend	No Trend
Boron	n	5	4	5	—	—	—	6	—	8
	S-Statistic	-4	1	1	—	—	—	-4	—	-3
	Sig. Level	0.05	0.05	0.05	—	—	—	0.05	—	0.05
	Minimum S	8	6	8	—	—	—	11	—	16
	Trend	No Trend	No Trend	No Trend	—	—	—	No Trend	—	No Trend
Iron	n	16	6	18	19	—	—	20	15	22
	S-Statistic	-10	-5	-25	9	—	—	-22	10	5
	Sig. Level	0.05	0.05	0.05	0.05	—	—	0.05	0.05	0.05
	Minimum S	38	11	45	49	—	—	52	35	61
	Trend	No Trend	No Trend	No Trend	No Trend	—	—	No Trend	No Trend	No Trend
Manganese	n	19	5	30	34	4	—	23	16	22
	S-Statistic	8	-2	-97	-197	2	—	-59	-45	-46
	Sig. Level	0.05	0.05	0.05	0.05	0.05	—	0.05	0.05	0.05
	Minimum S	49	8	95	113	6	—	65	38	61
	Trend	No Trend	No Trend	Decreasing	Decreasing	No Trend	—	No Trend	Decreasing	No Trend

Notes:
The Mann-Kendall test was only performed when four or more water quality sample results were available for a well.
When numerous water quality sample results were available for a well in a single calendar year, the highest annual constituent concentration was included in the analysis.

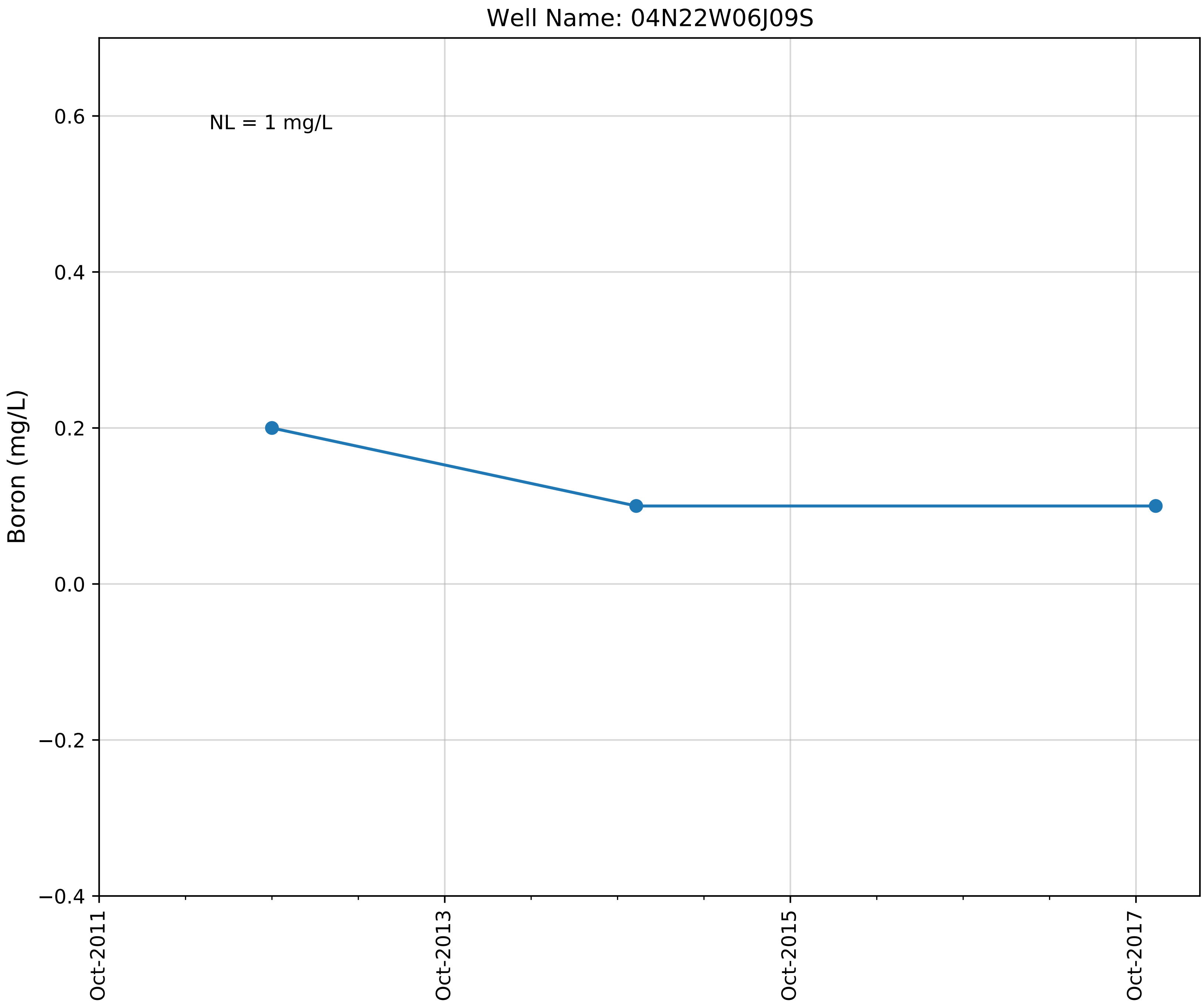


Well Name: 04N22W04P05S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2012
Nov-2014
Nov-2016

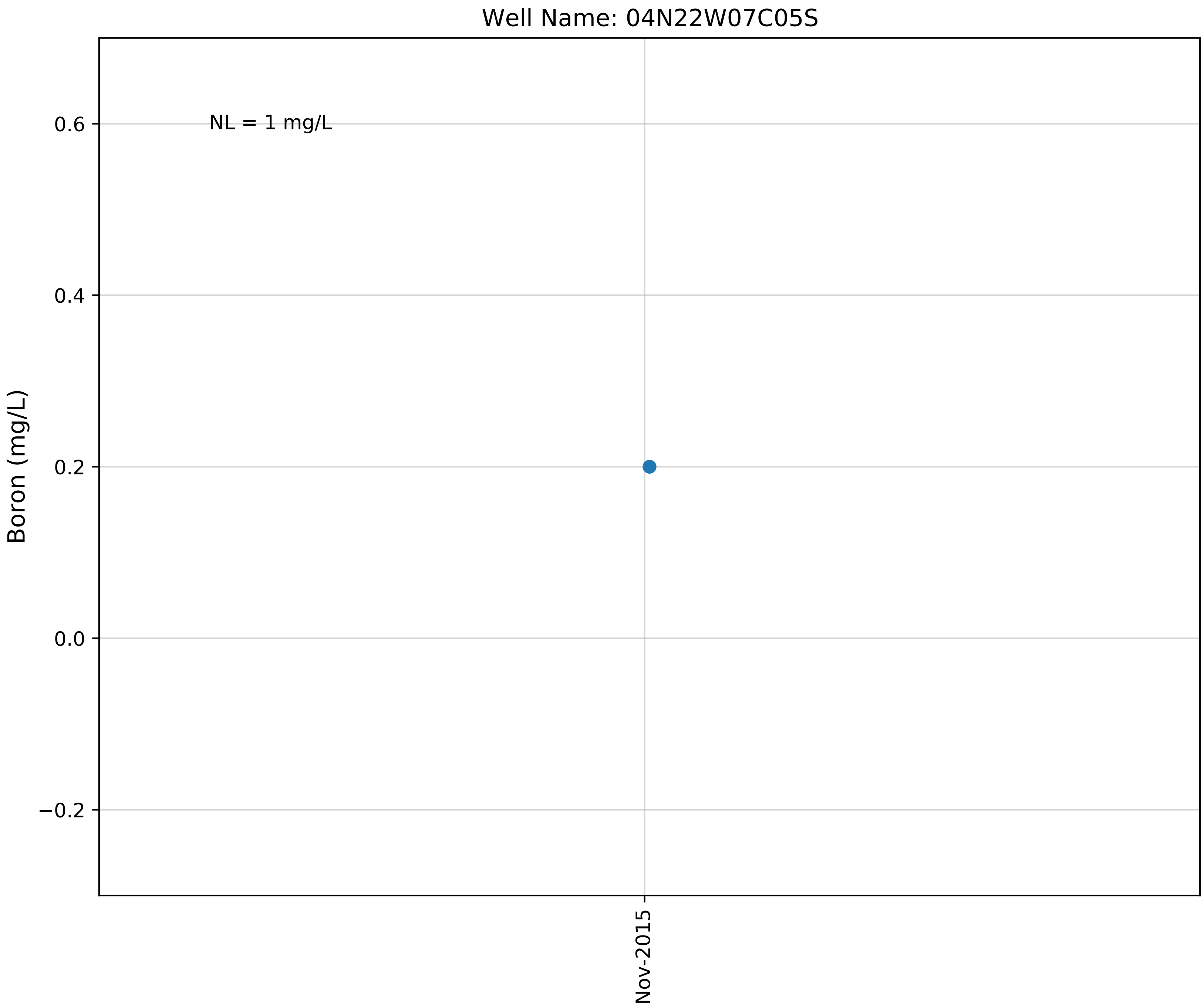

Well Name: 04N22W05C01S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
Sep-2010



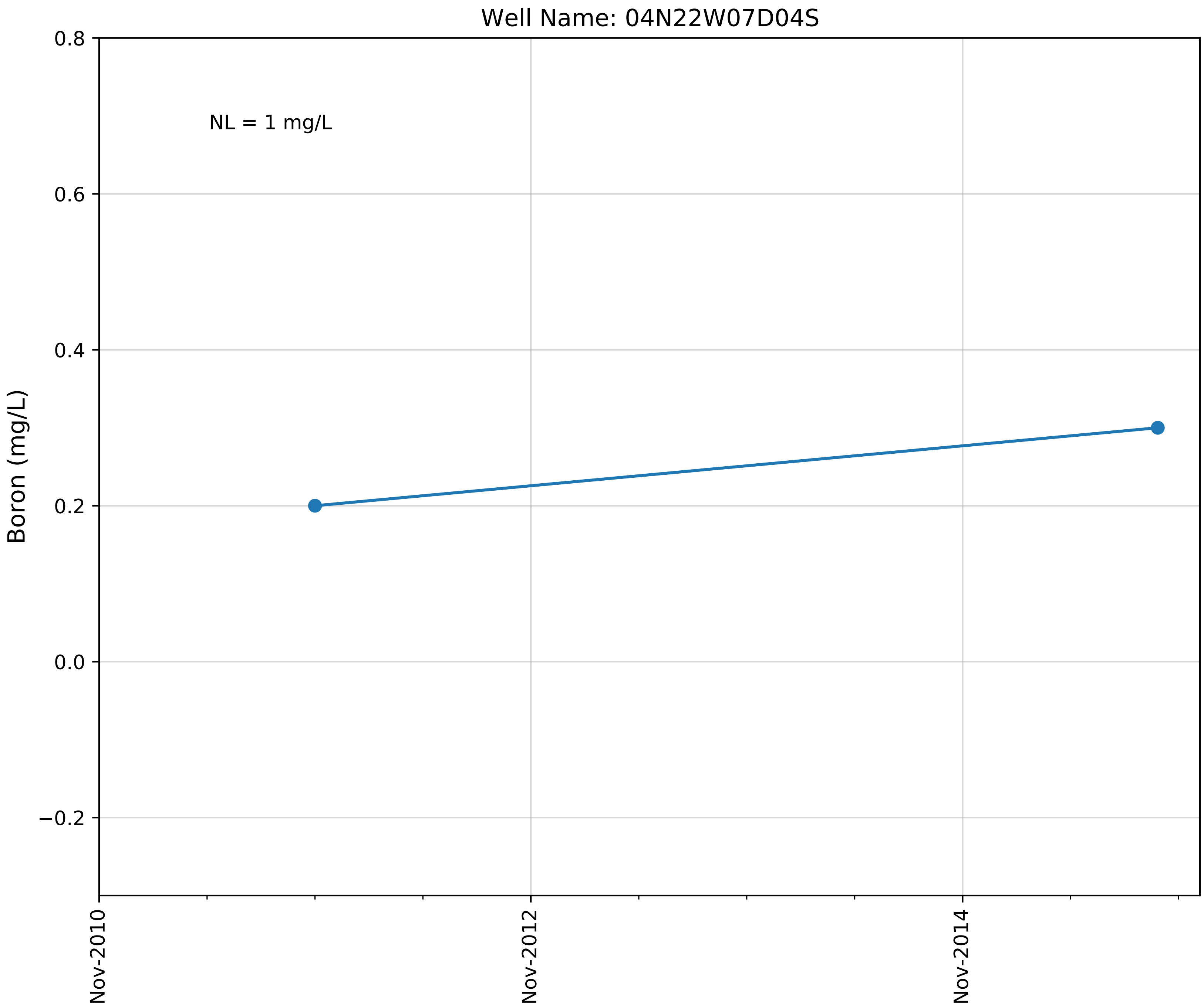
Well Name: 04N22W05D03S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011
Nov-2013
Nov-2015



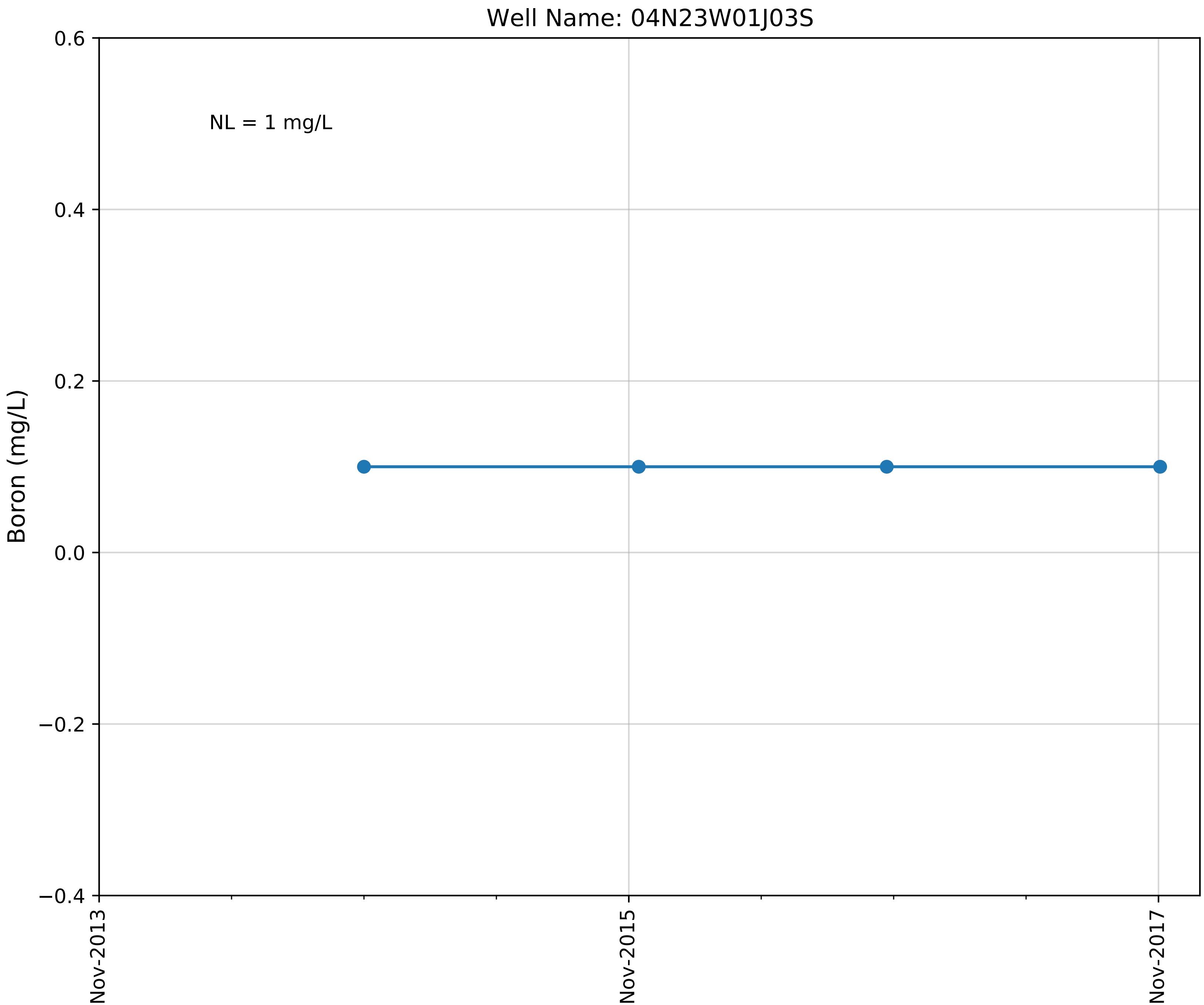
Well Name: 04N22W06J09S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Oct-2011
Oct-2013
Oct-2015
Oct-2017

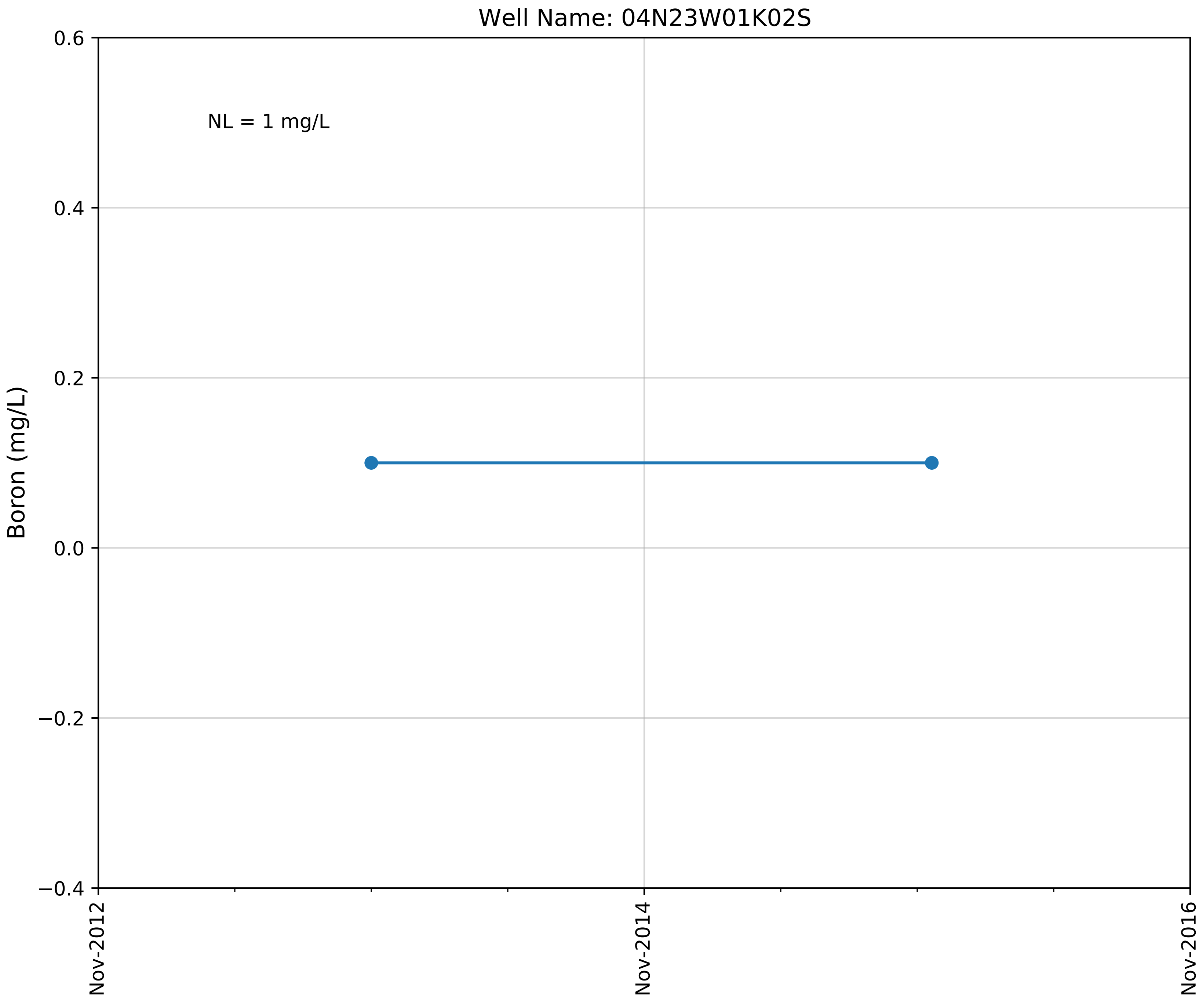


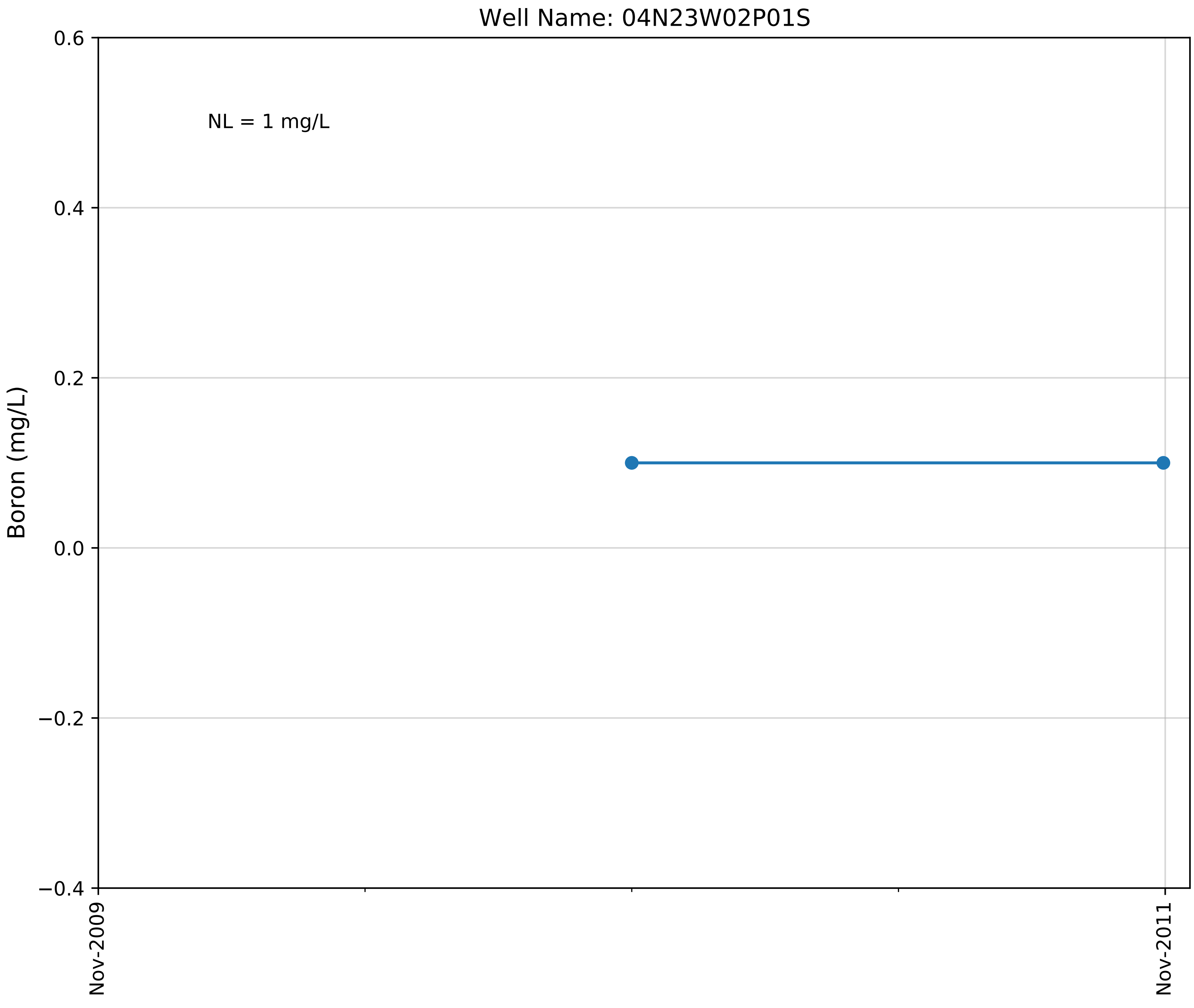
Well Name: 04N22W07C05S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
Nov-2015



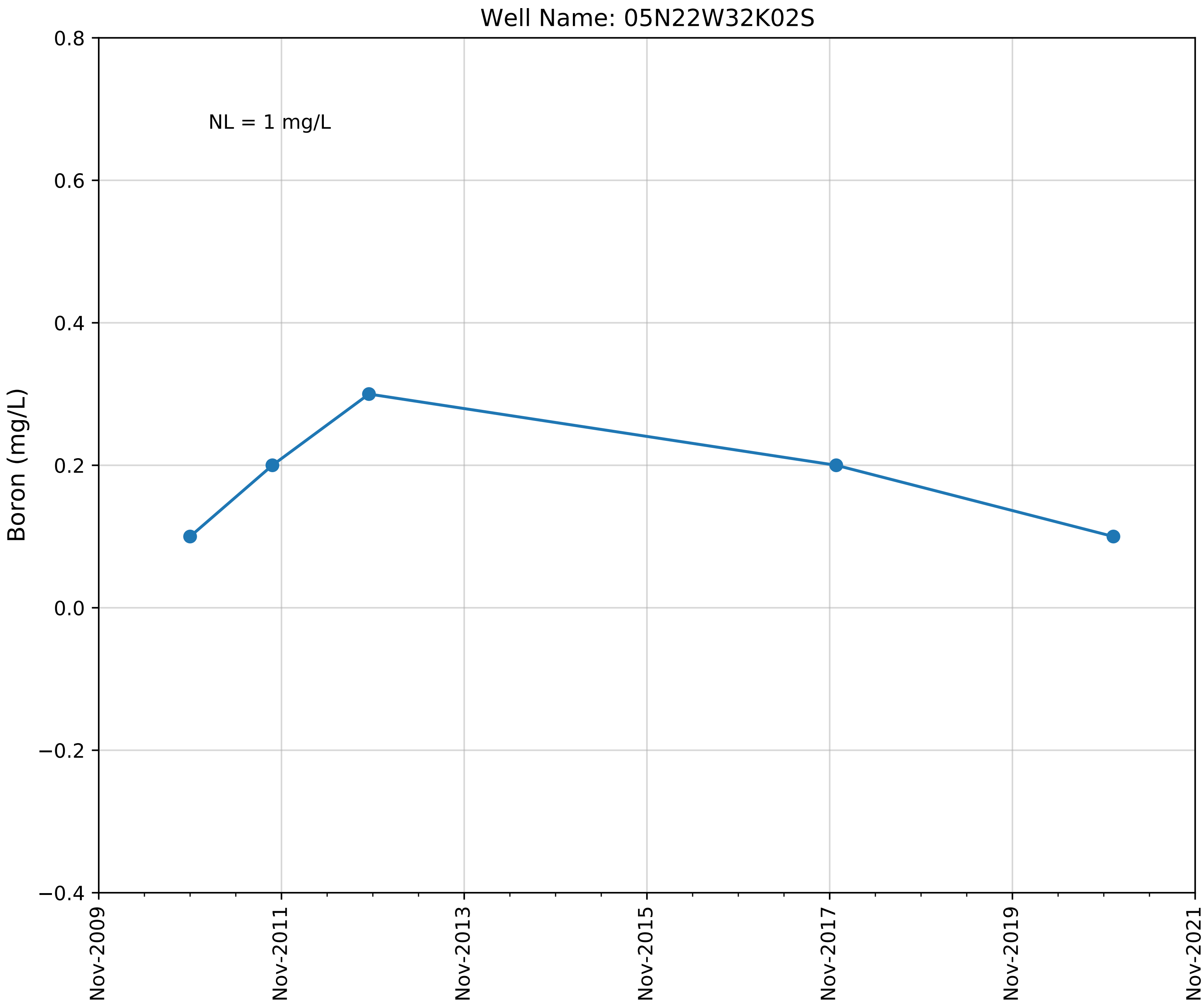
Well Name: 04N22W07D04S
NL = 1 mg/L
Boron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
Nov-2010
Nov-2012
Nov-2014


Well Name: 04N23W01J03S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015
Nov-2017

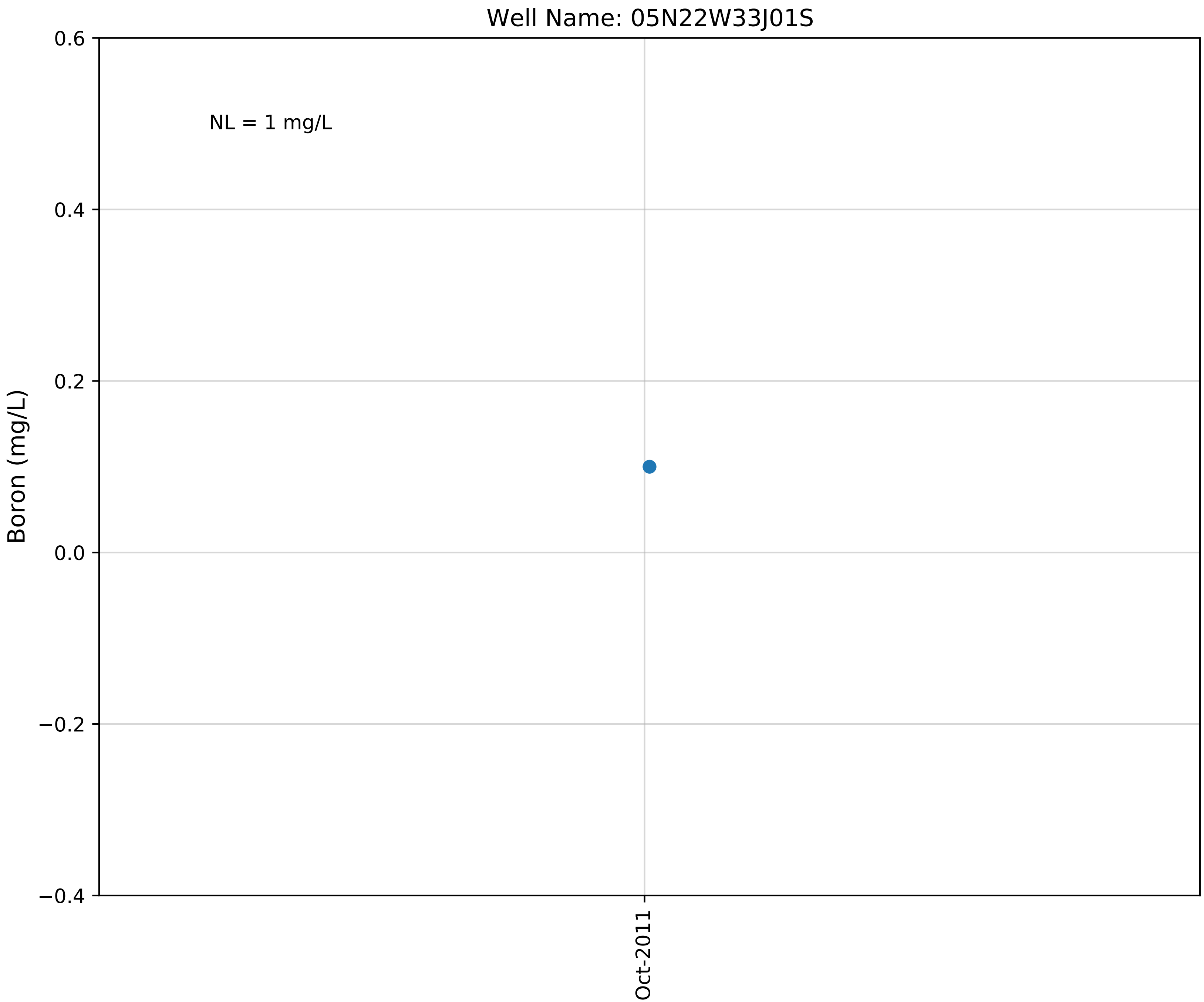

Well Name: 04N23W01K02S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2012
Nov-2014
Nov-2016



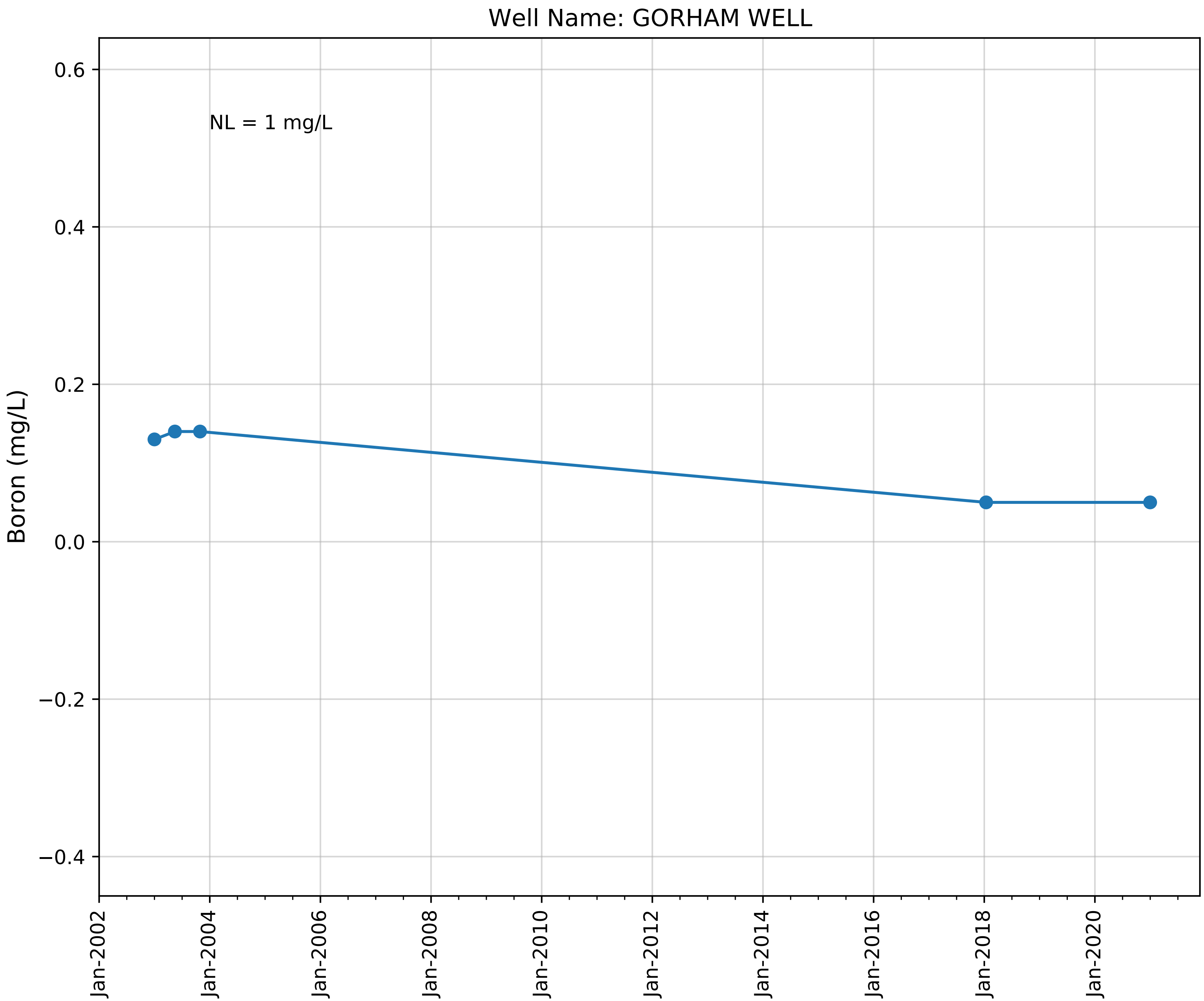
Well Name: 04N23W02P01S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011



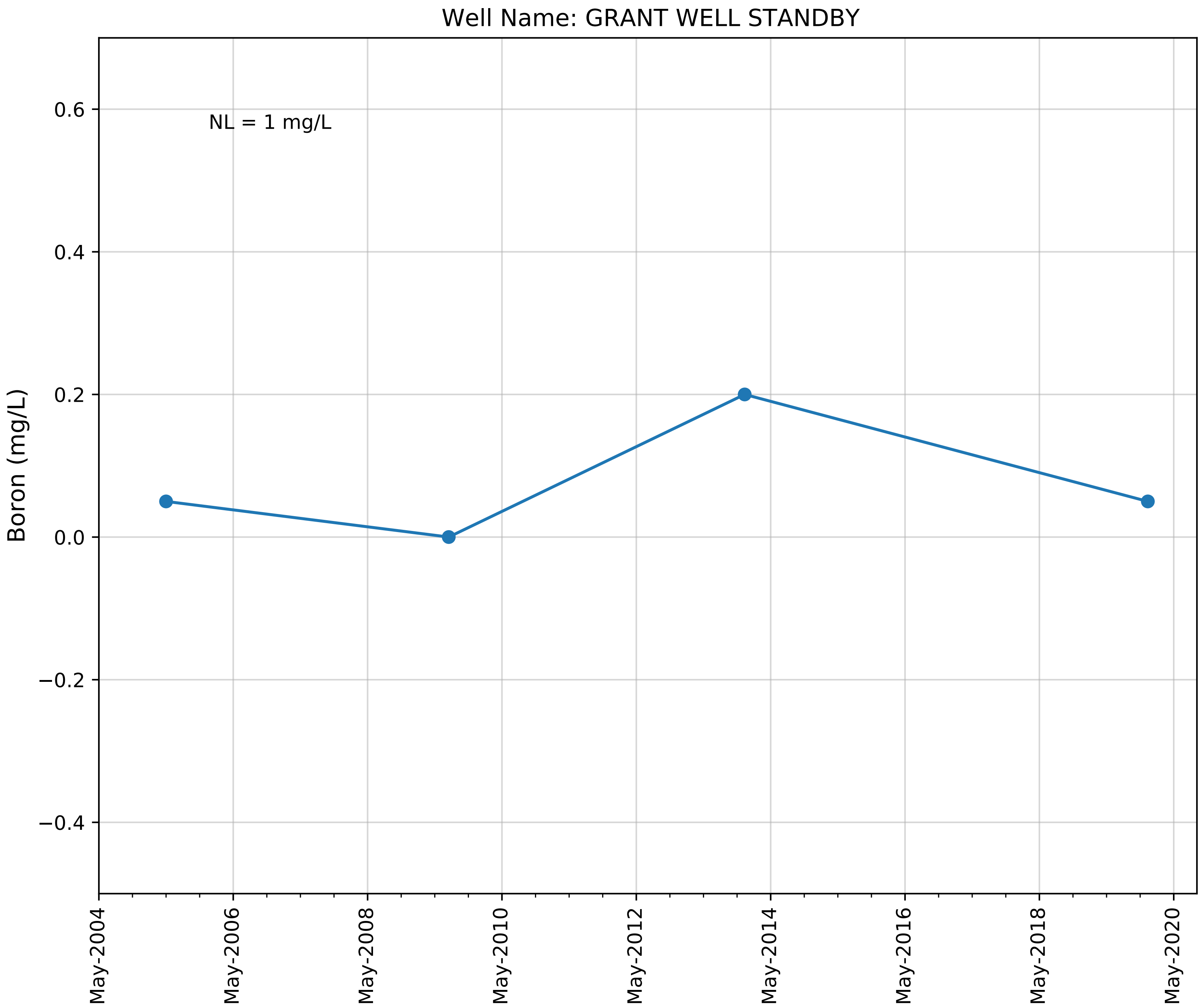
Well Name: 05N22W32K02S
NL = 1 mg/L
Boron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021



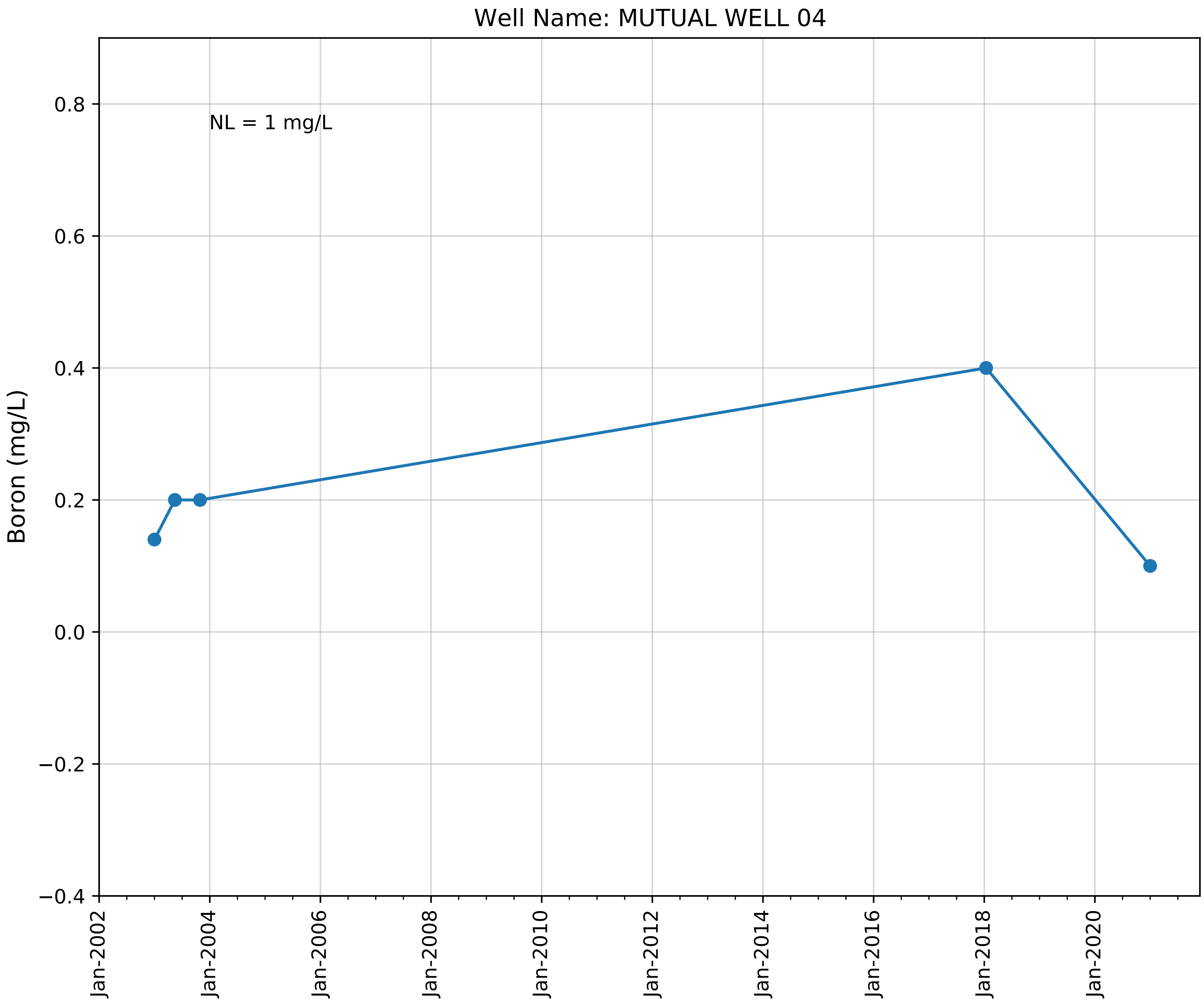
Well Name: 05N22W33J01S
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Oct-2011

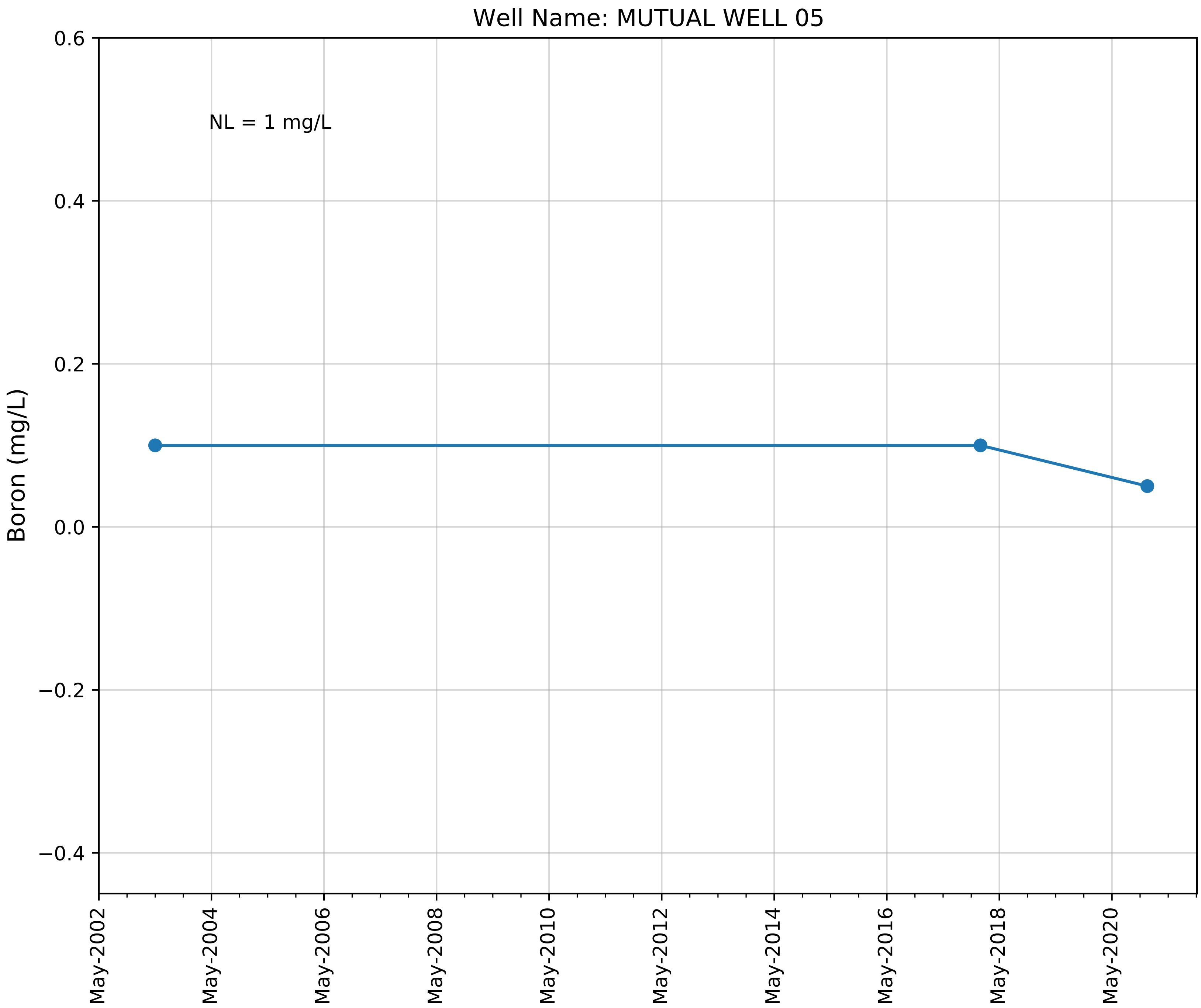


Well Name: GORHAM WELL
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018
Jan-2020

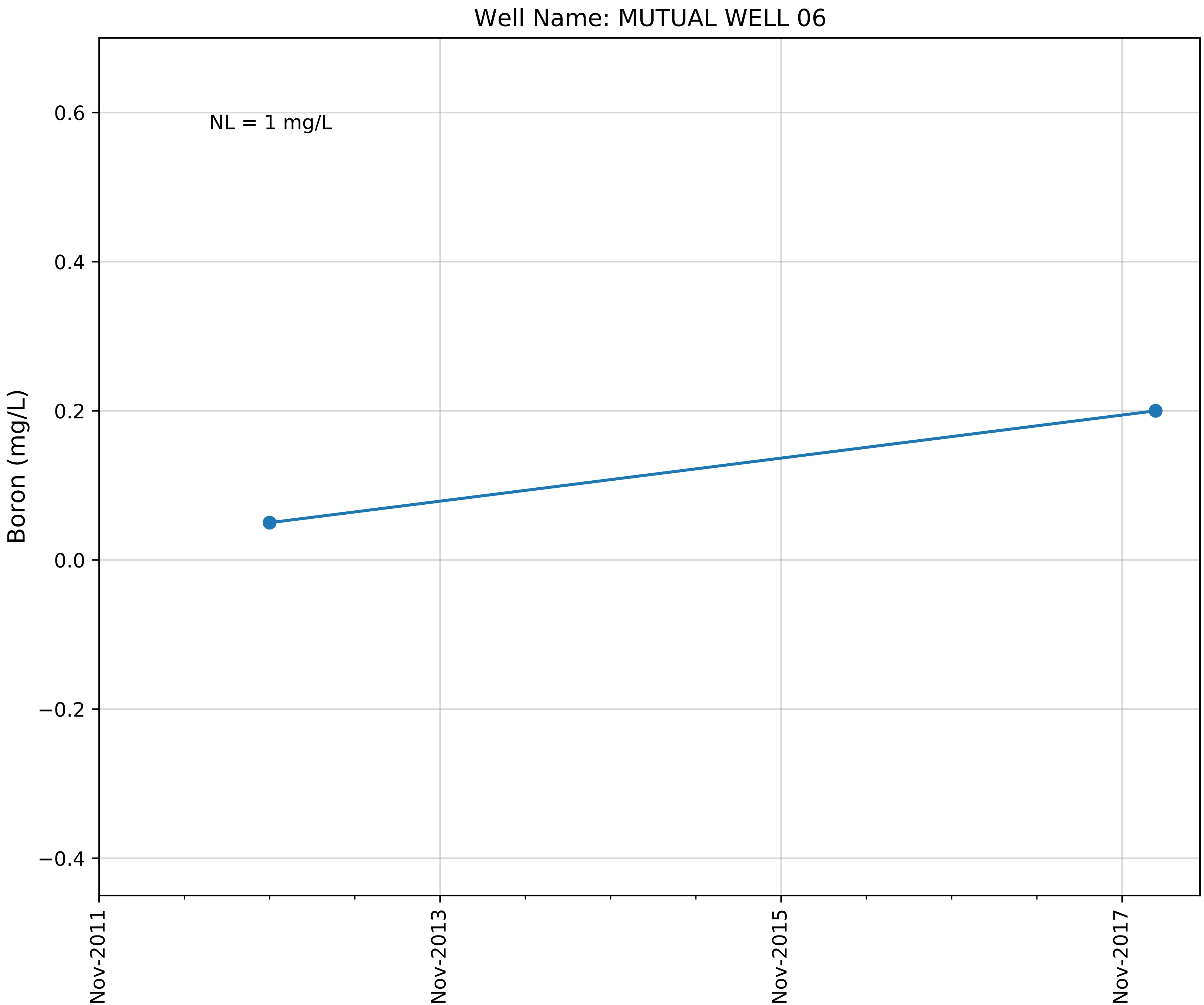


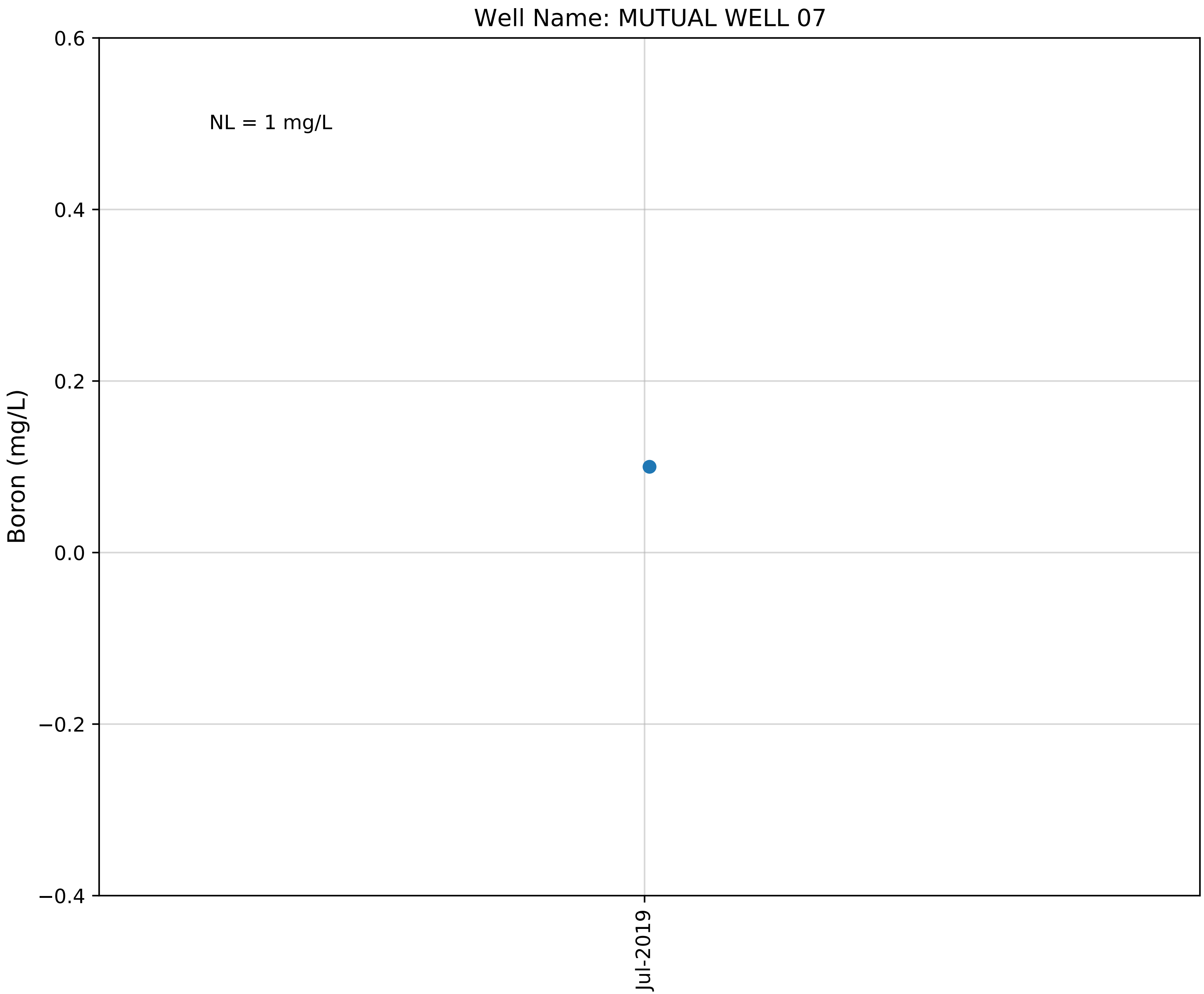
Well Name: GRANT WELL STANDBY
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
May-2004
May-2006
May-2008
May-2010
May-2012
May-2014
May-2016
May-2018
May-2020


Well Name: MUTUAL WELL 04
NL = 1 mg/L
Boron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018
Jan-2020

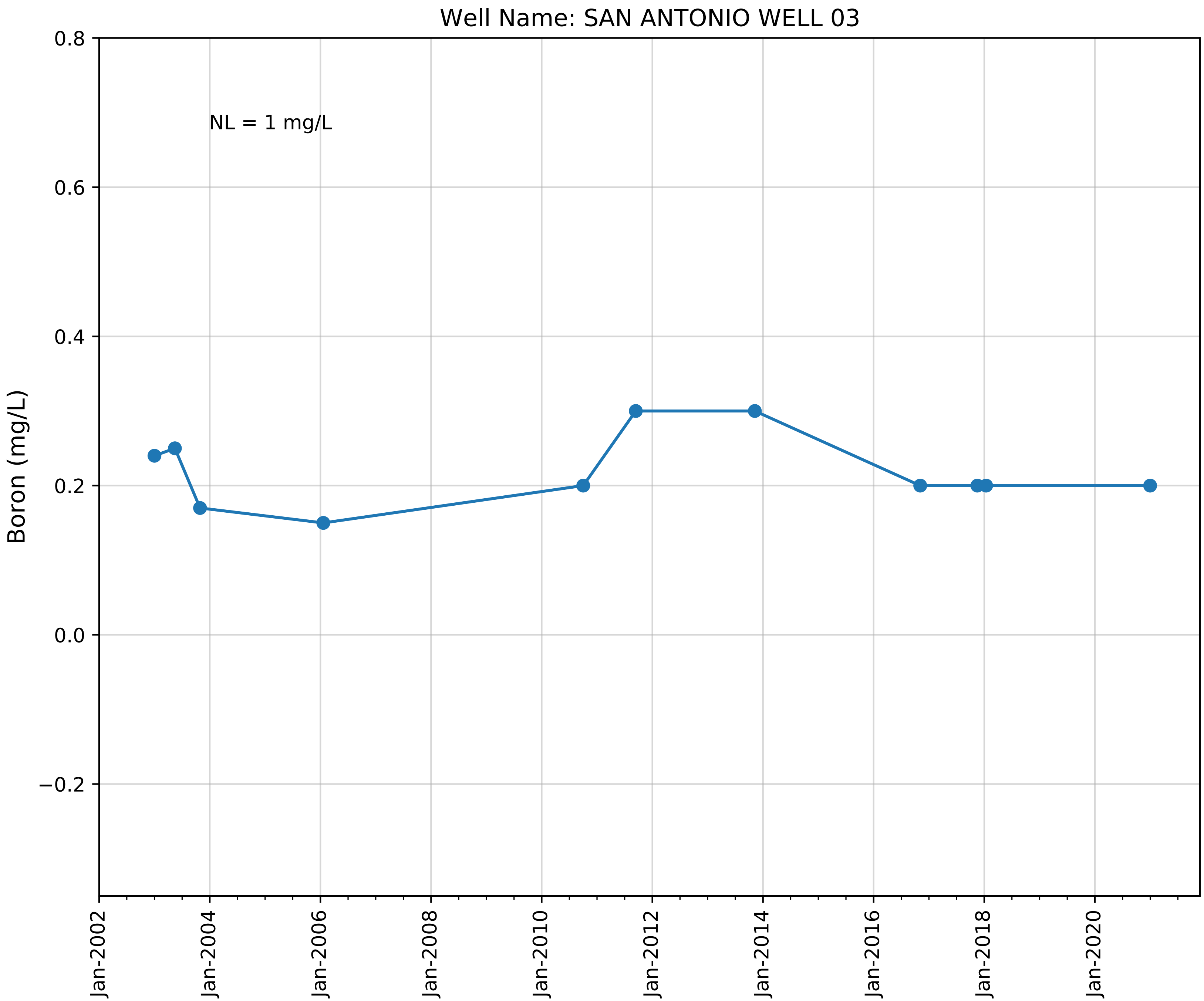


Well Name: MUTUAL WELL 05
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
May-2002
May-2004
May-2006
May-2008
May-2010
May-2012
May-2014
May-2016
May-2018
May-2020

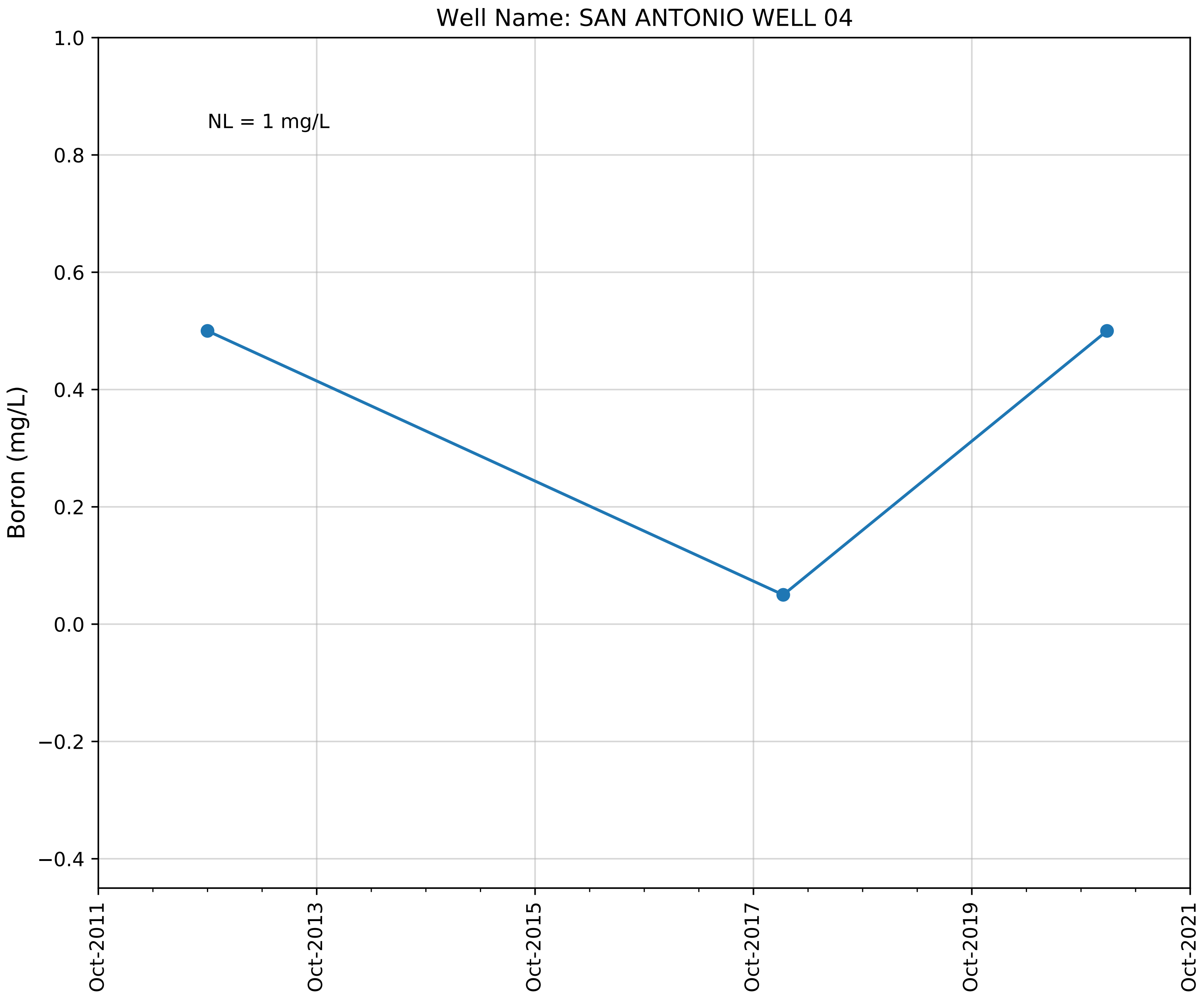

Well Name: MUTUAL WELL 06
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2011
Nov-2013
Nov-2015
Nov-2017



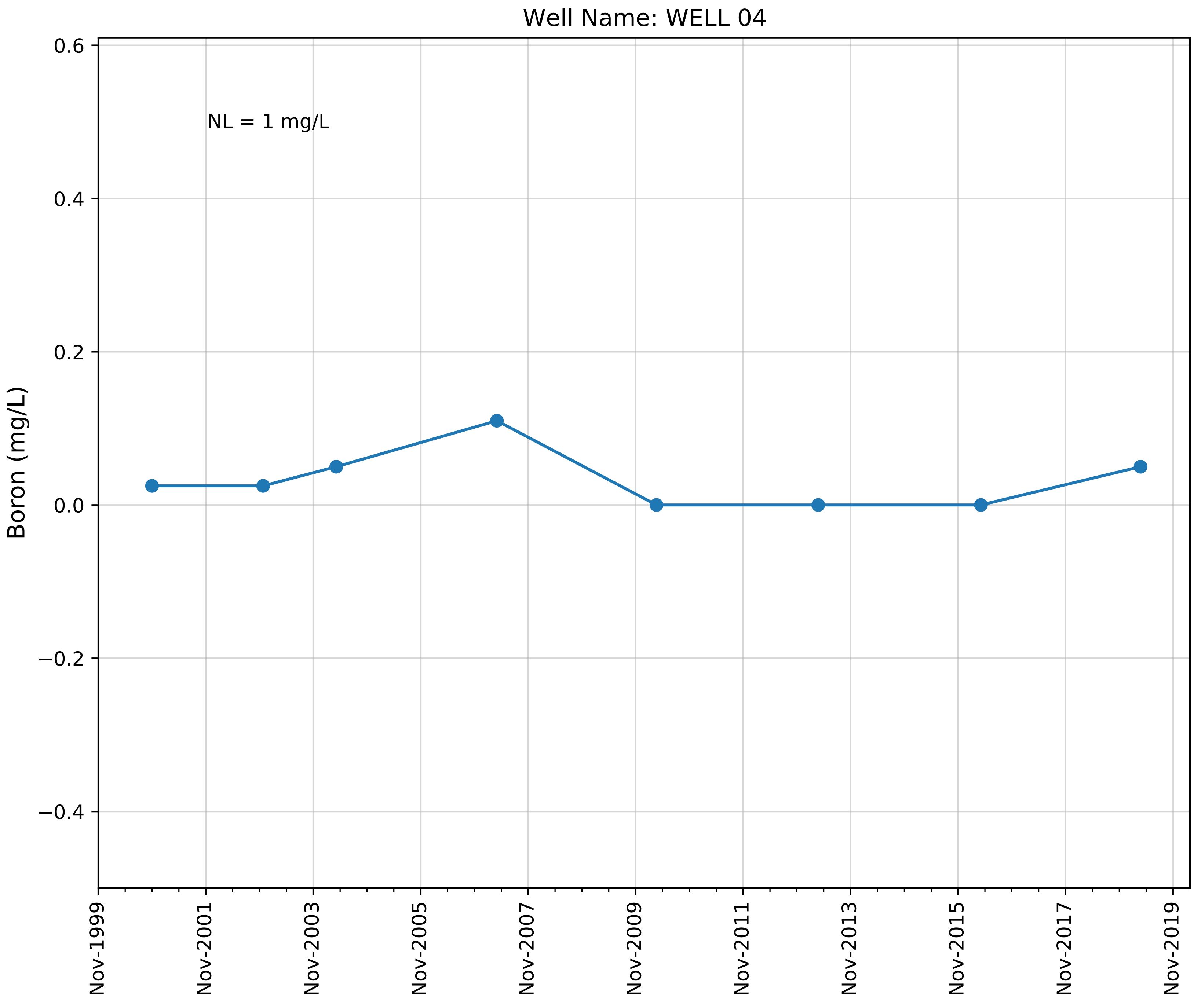
Well Name: MUTUAL WELL 07
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Jul-2019



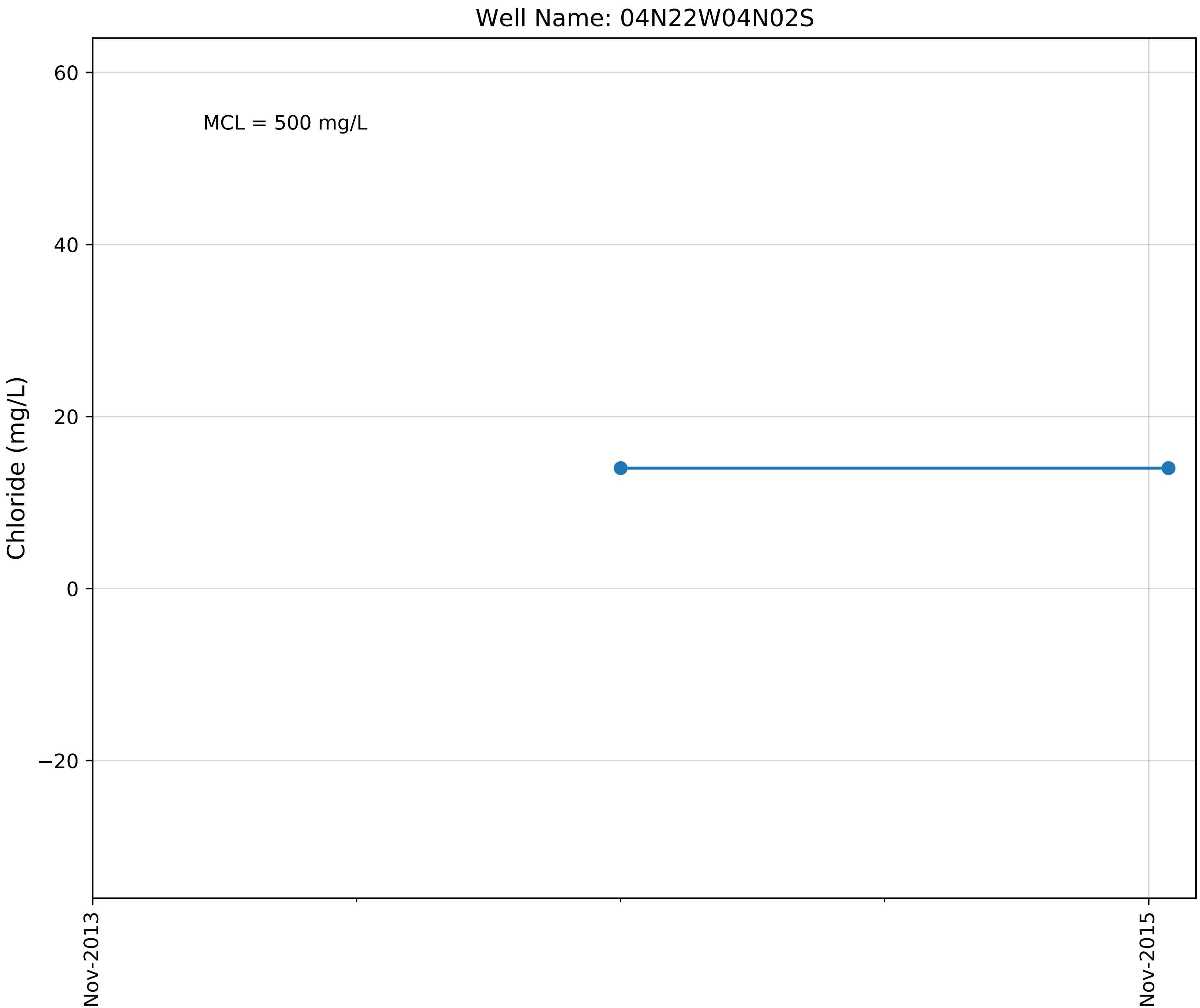
Well Name: SAN ANTONIO WELL 03
NL = 1 mg/L
Boron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018
Jan-2020



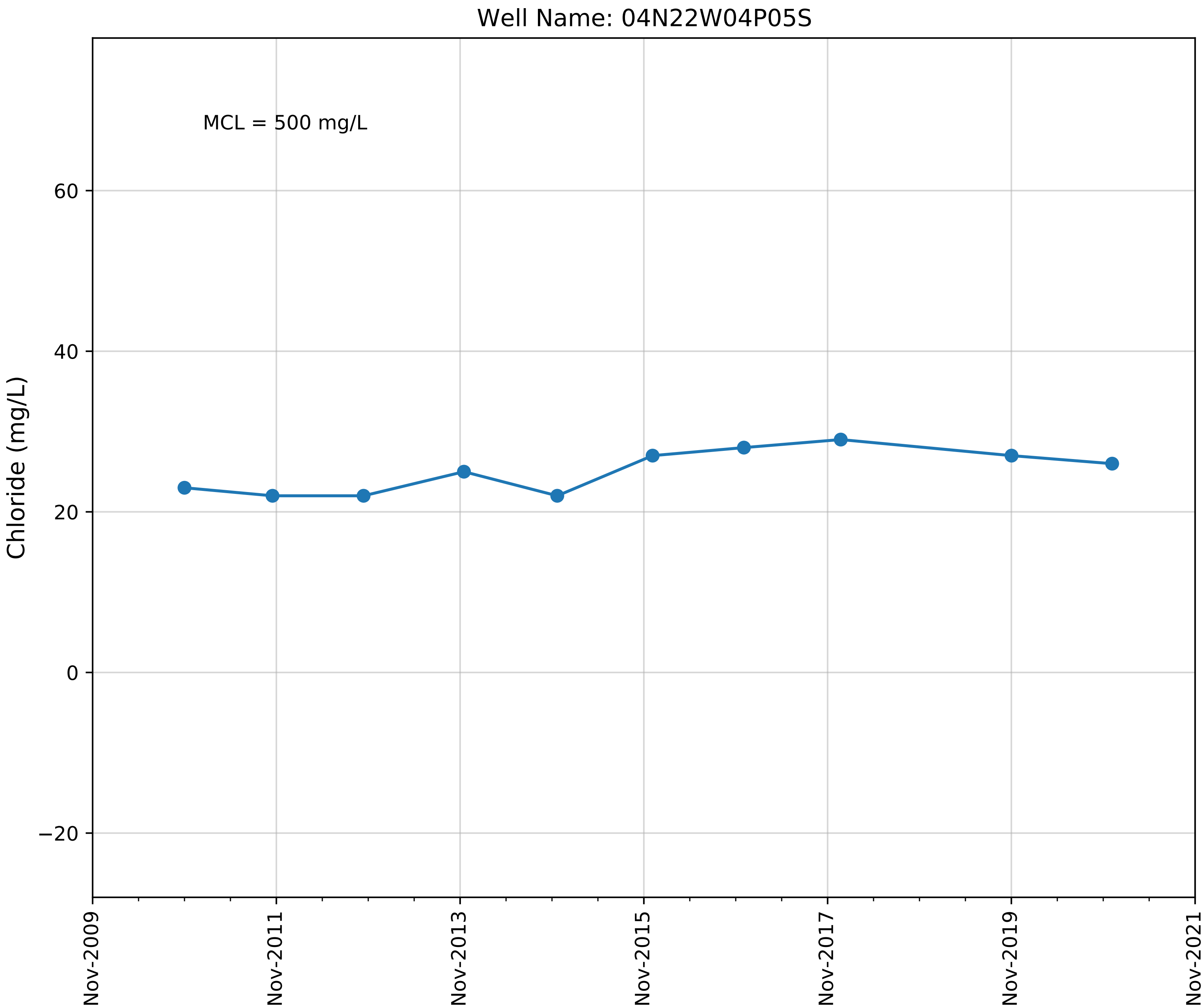
Well Name: SAN ANTONIO WELL 04
NL = 1 mg/L
Boron (mg/L)
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021



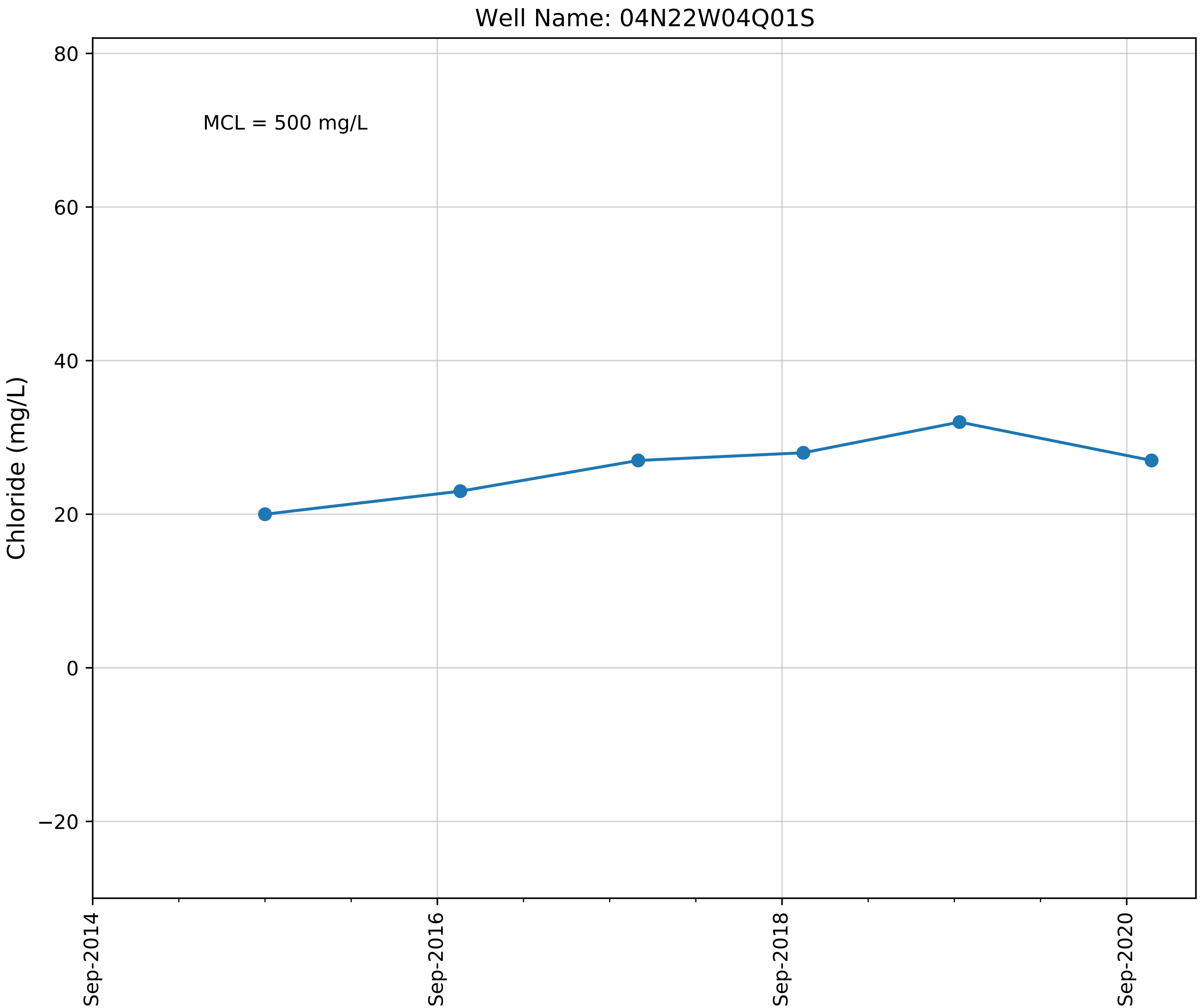
Well Name: WELL 04
NL = 1 mg/L
Boron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019



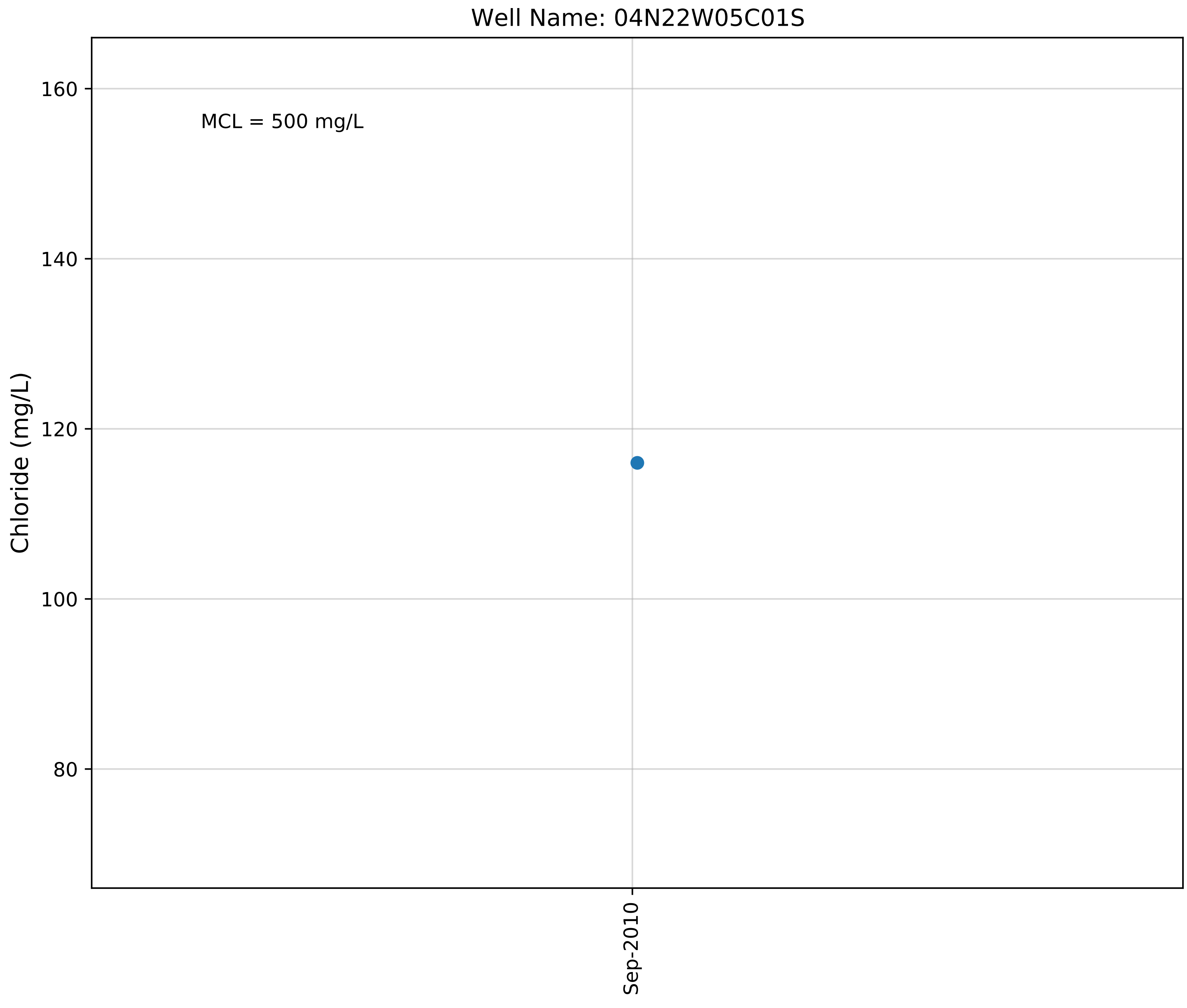
Well Name: 04N22W04N02S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Nov-2013
Nov-2015



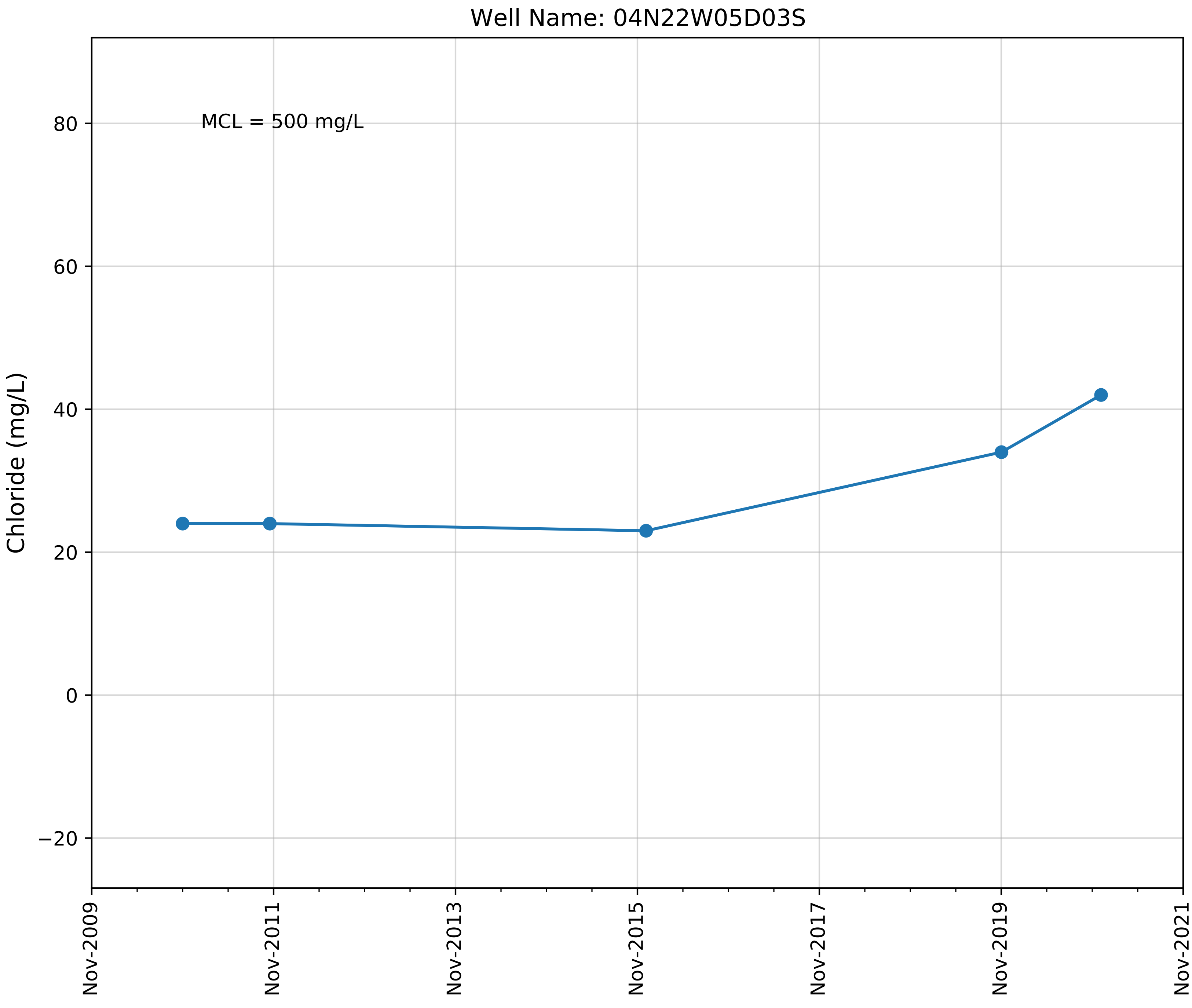
Well Name: 04N22W04P05S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021



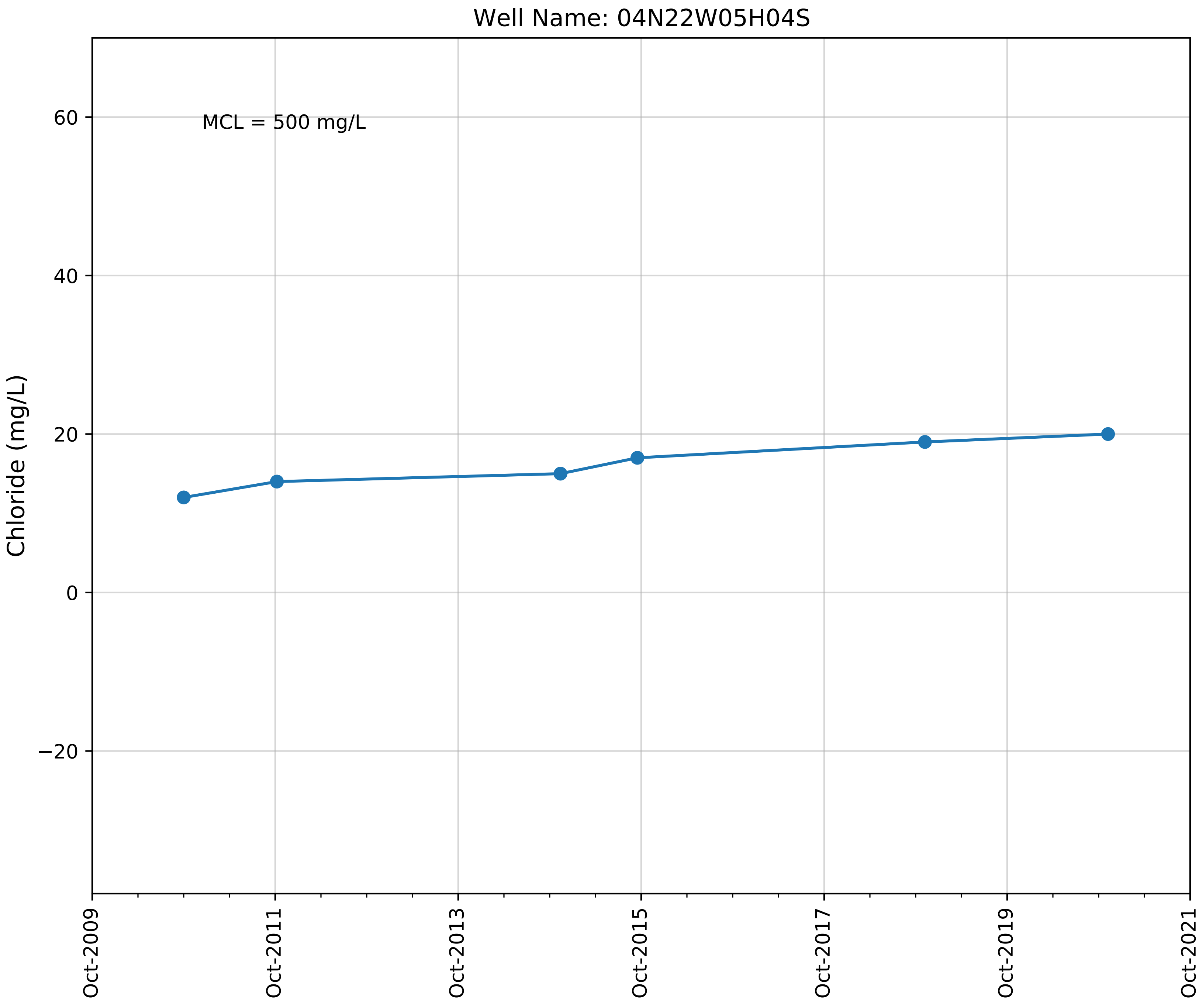
Well Name: 04N22W04Q01S
MCL = 500 mg/L
Chloride (mg/L)
80
60
40
20
0
−20
Sep-2014
Sep-2016
Sep-2018
Sep-2020



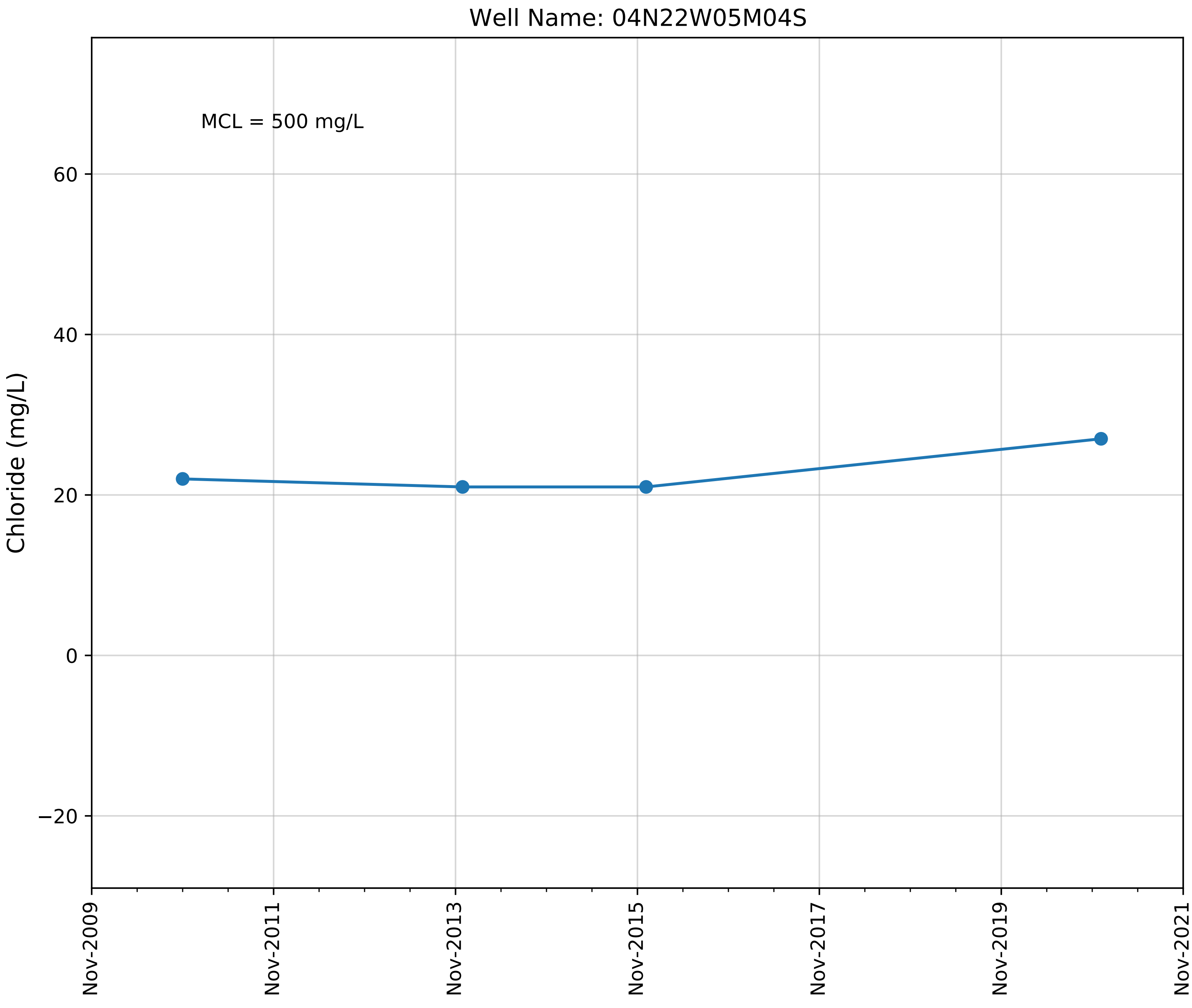
Well Name: 04N22W05C01S
MCL = 500 mg/L
Chloride (mg/L)
160
140
120
100
80
Sep-2010

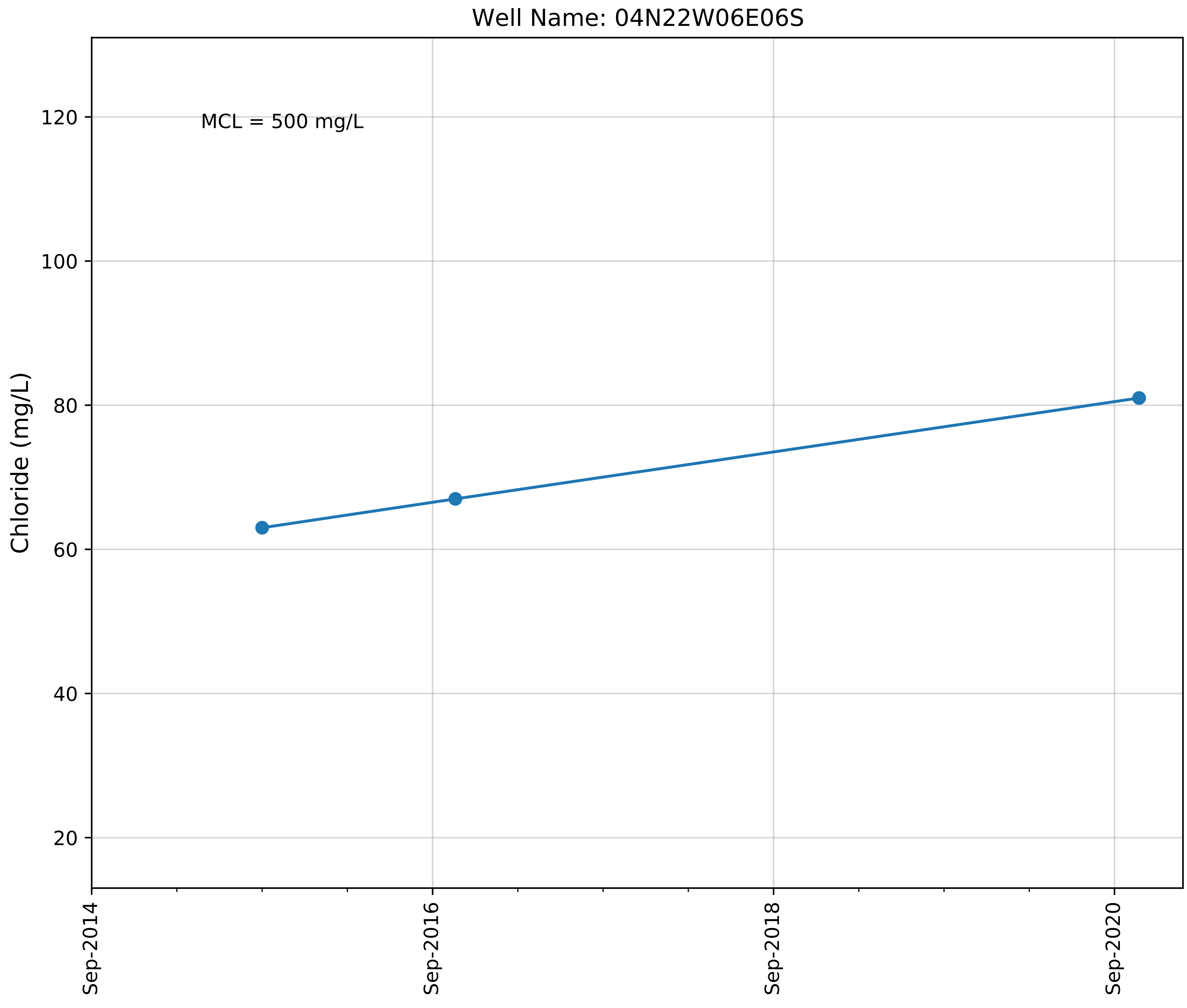


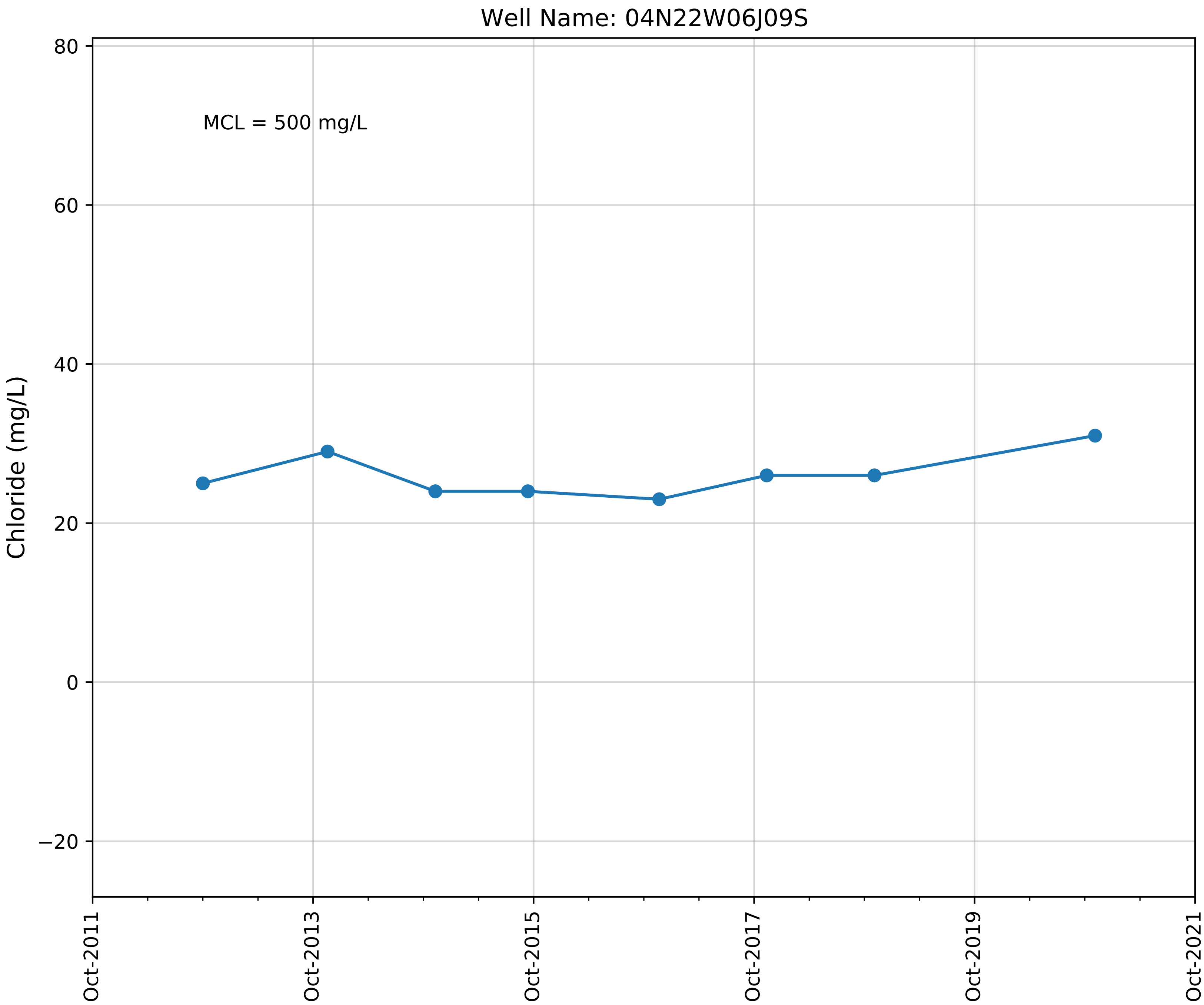
Well Name: 04N22W05D03S
MCL = 500 mg/L
Chloride (mg/L)
80
60
40
20
0
−20
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

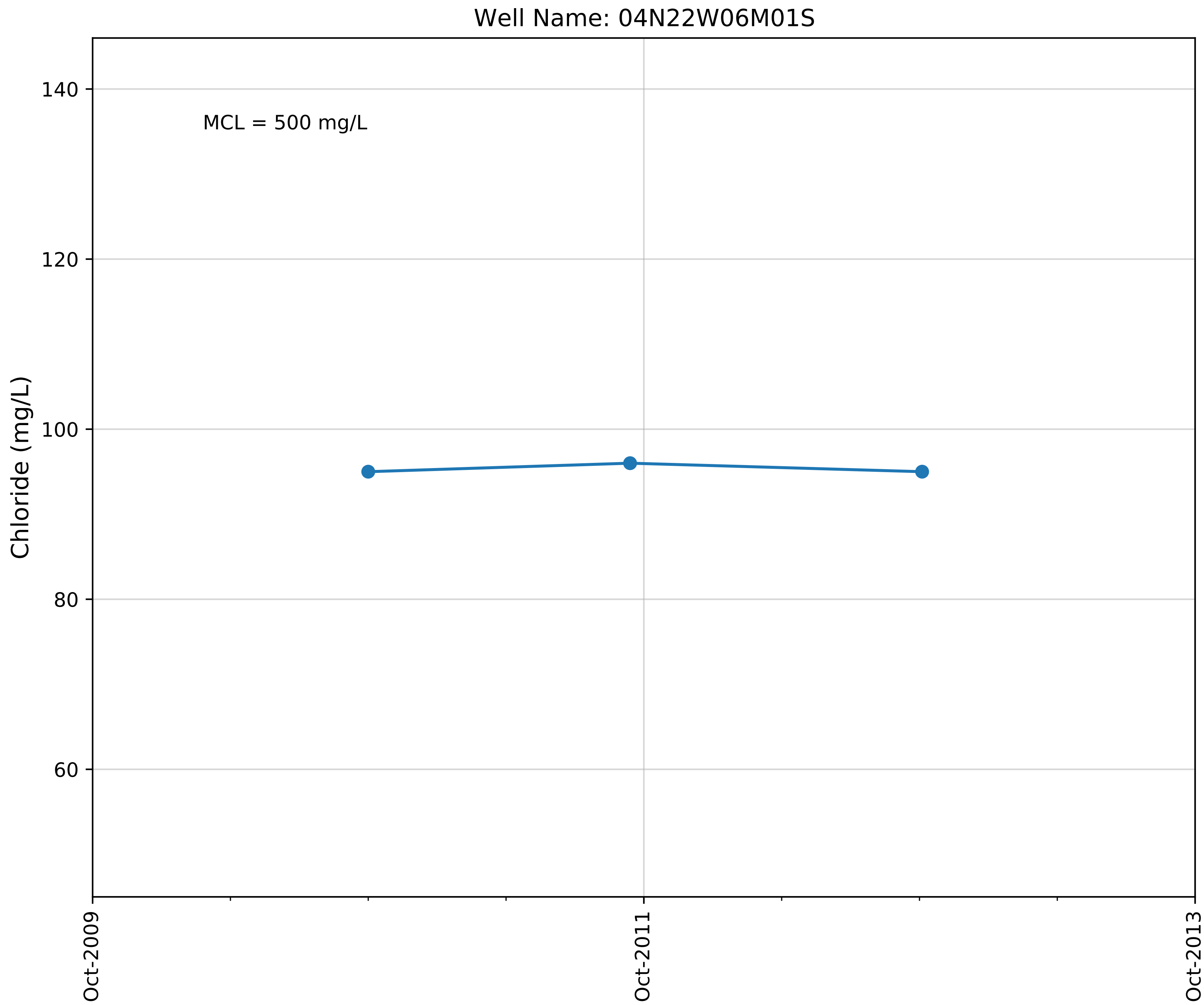


Well Name: 04N22W05H04S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Oct-2009
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021

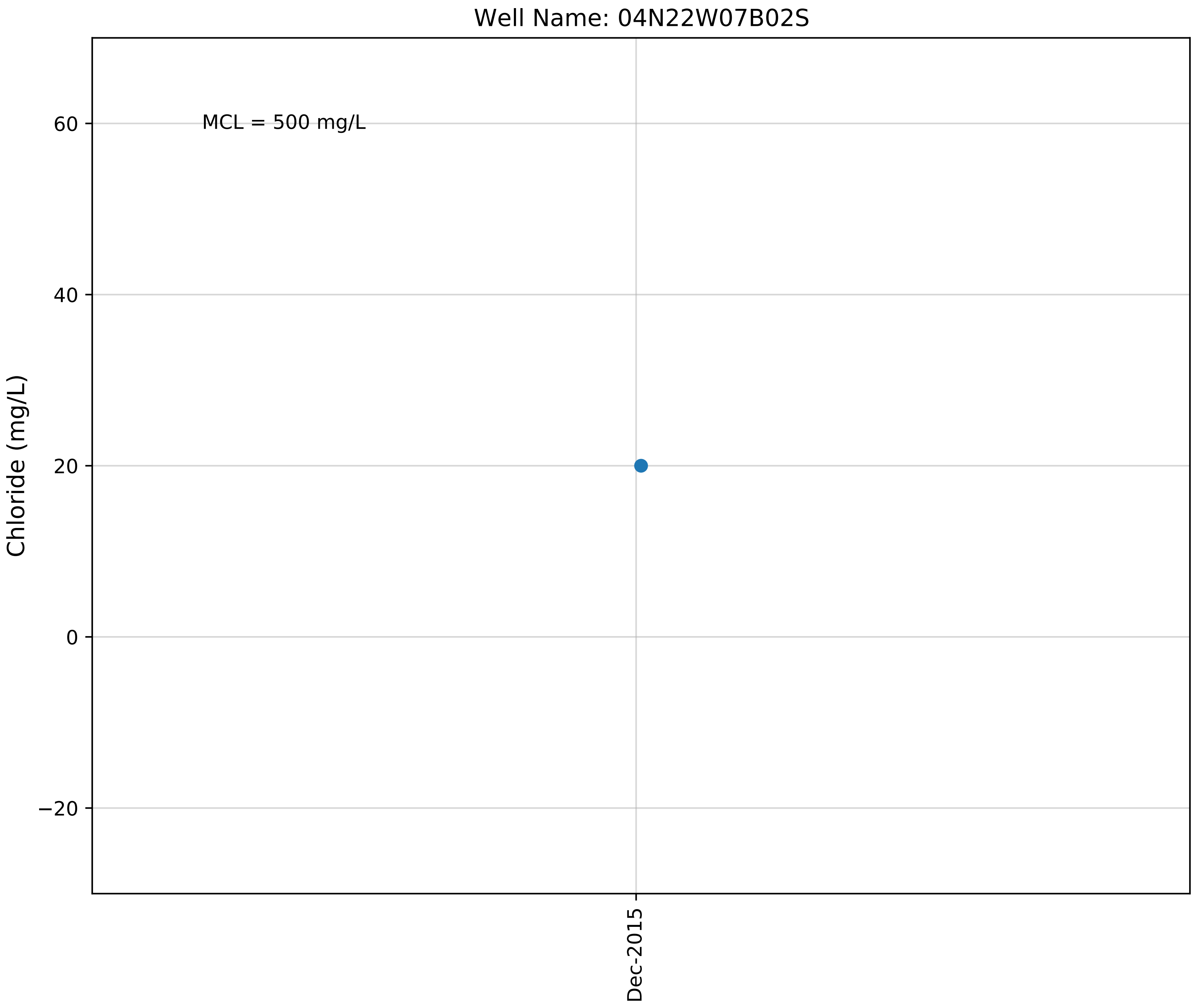

Well Name: 04N22W05M04S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021


Well Name: 04N22W06E06S
MCL = 500 mg/L
Chloride (mg/L)
120
100
80
60
40
20
Sep-2014
Sep-2016
Sep-2018
Sep-2020

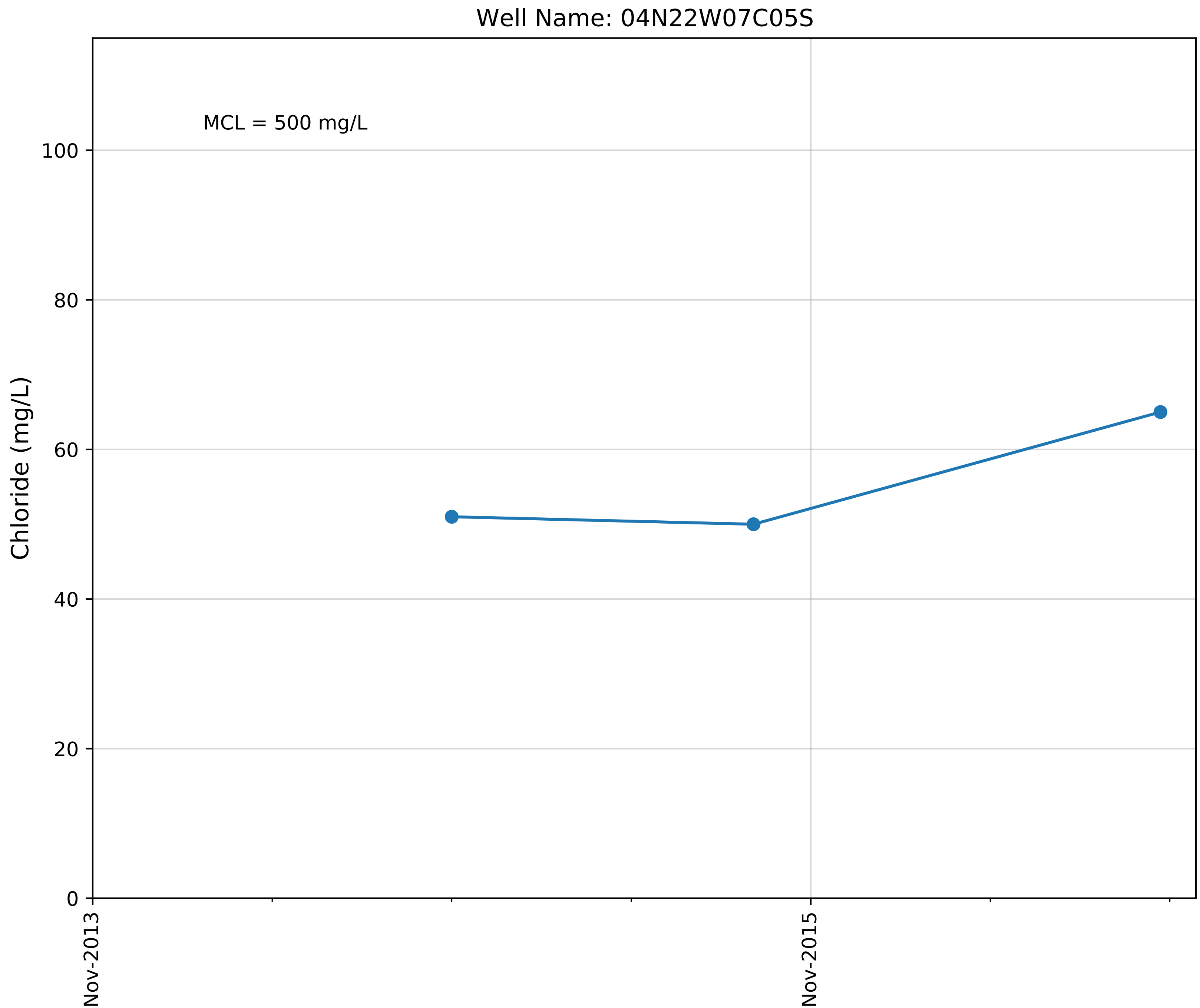

Well Name: 04N22W06J09S
MCL = 500 mg/L
Chloride (mg/L)
80
60
40
20
0
−20
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021



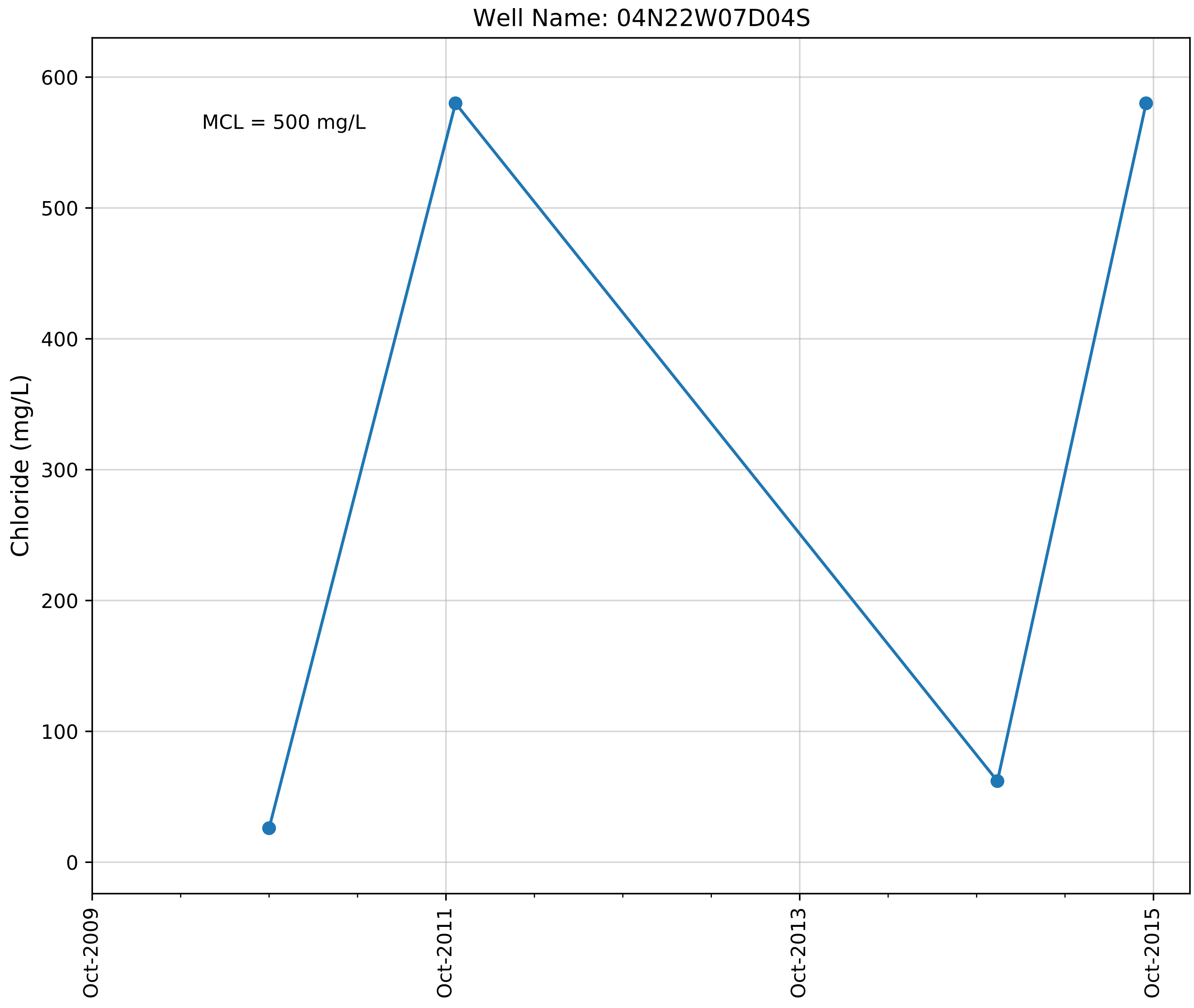
Well Name: 04N22W06M01S
MCL = 500 mg/L
Chloride (mg/L)
140
120
100
80
60
Oct-2009
Oct-2011
Oct-2013



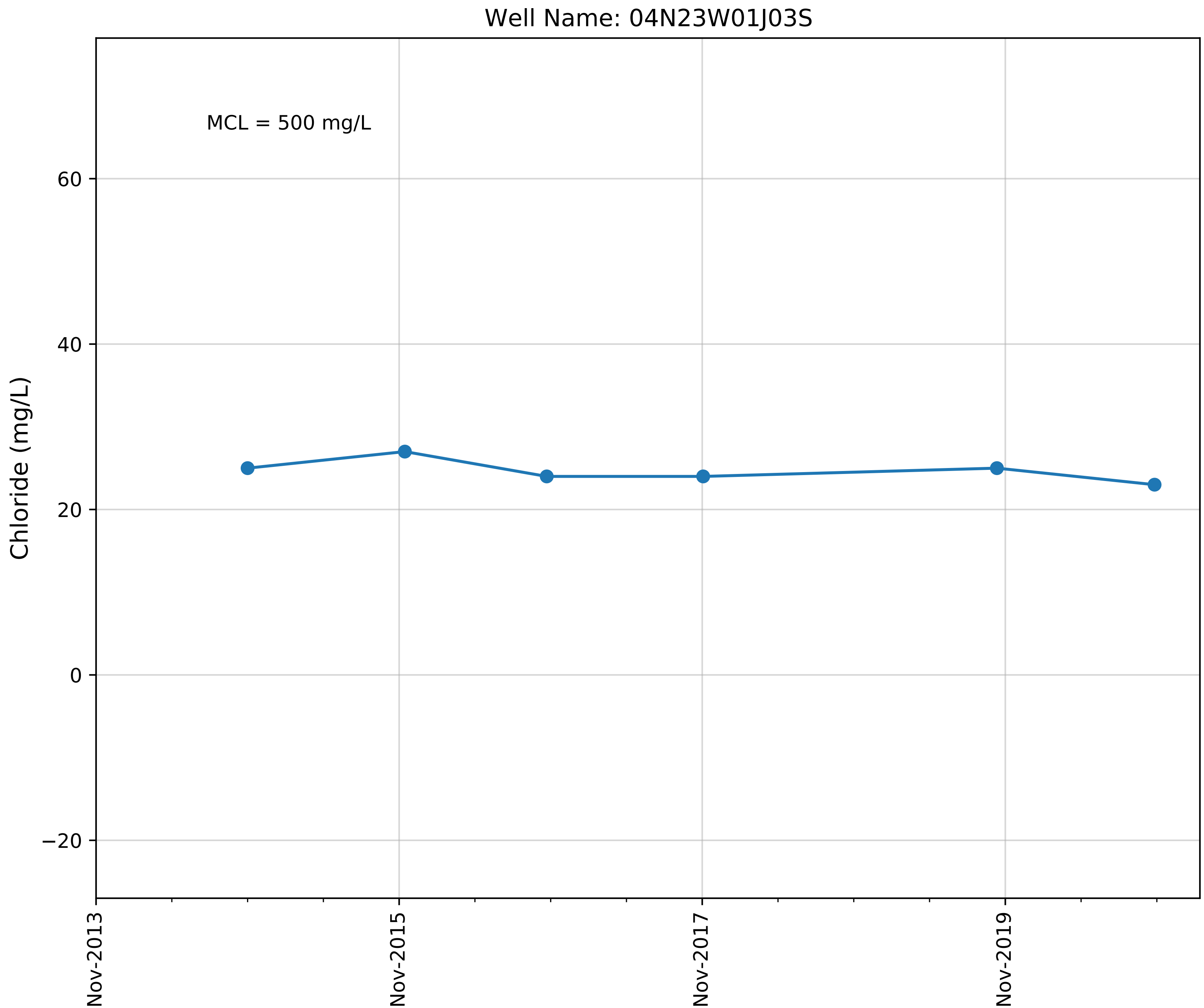
Well Name: 04N22W07B02S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Dec-2015



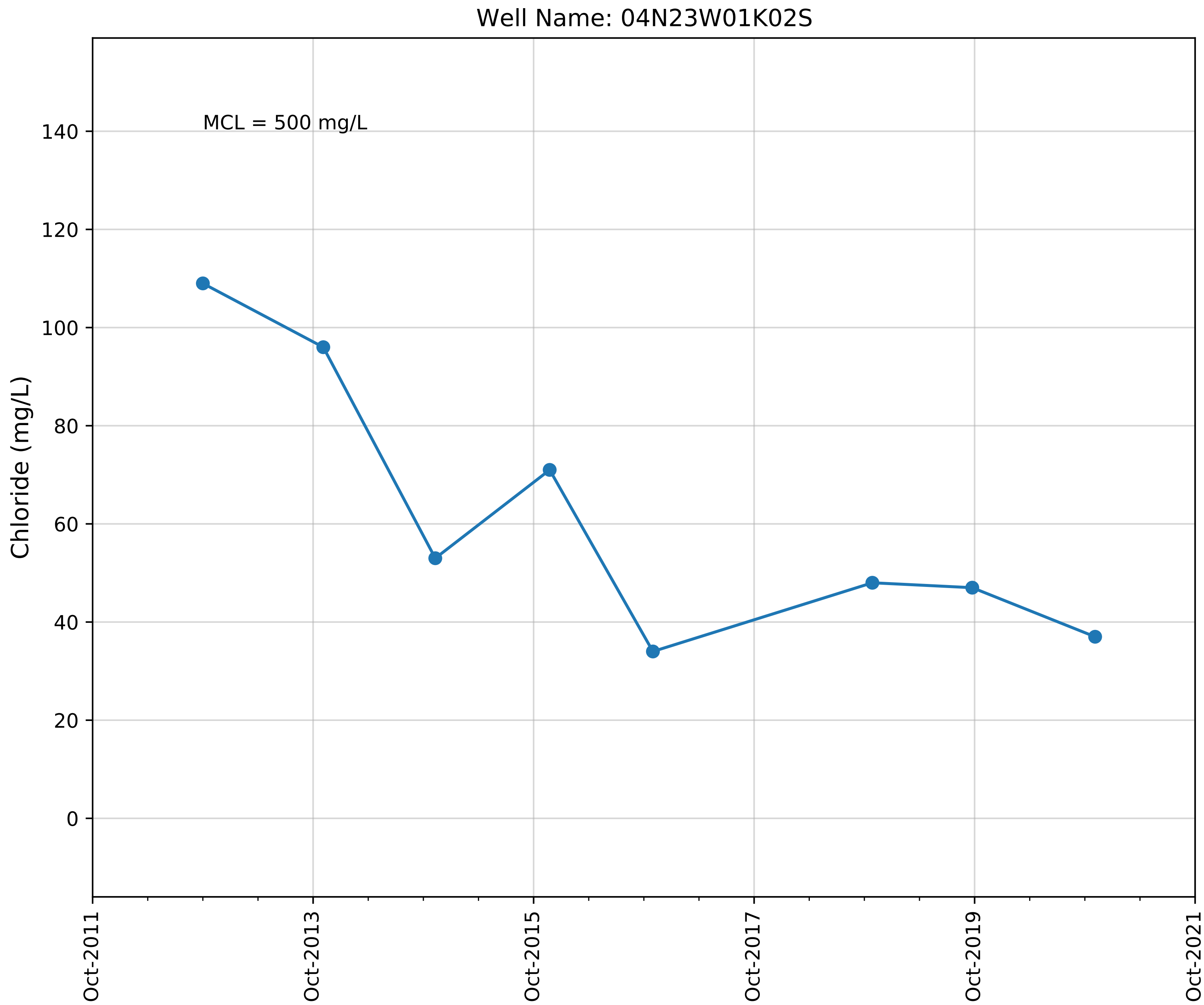
Well Name: 04N22W07C05S
MCL = 500 mg/L
Chloride (mg/L)
0
20
40
60
80
100
Nov-2013
Nov-2015



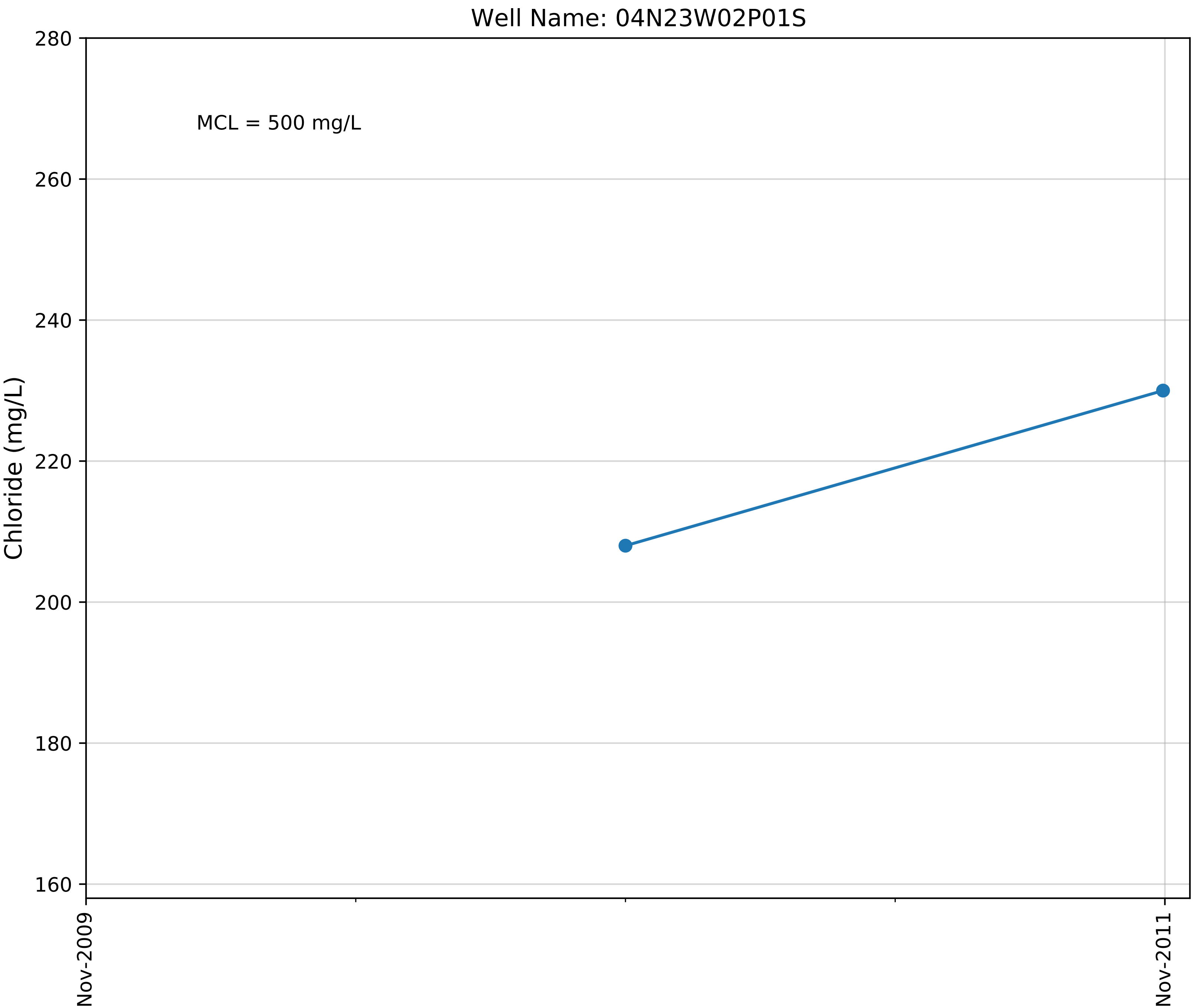
Well Name: 04N22W07D04S
MCL = 500 mg/L
Chloride (mg/L)
600
500
400
300
200
100
0
Oct-2009
Oct-2011
Oct-2013
Oct-2015



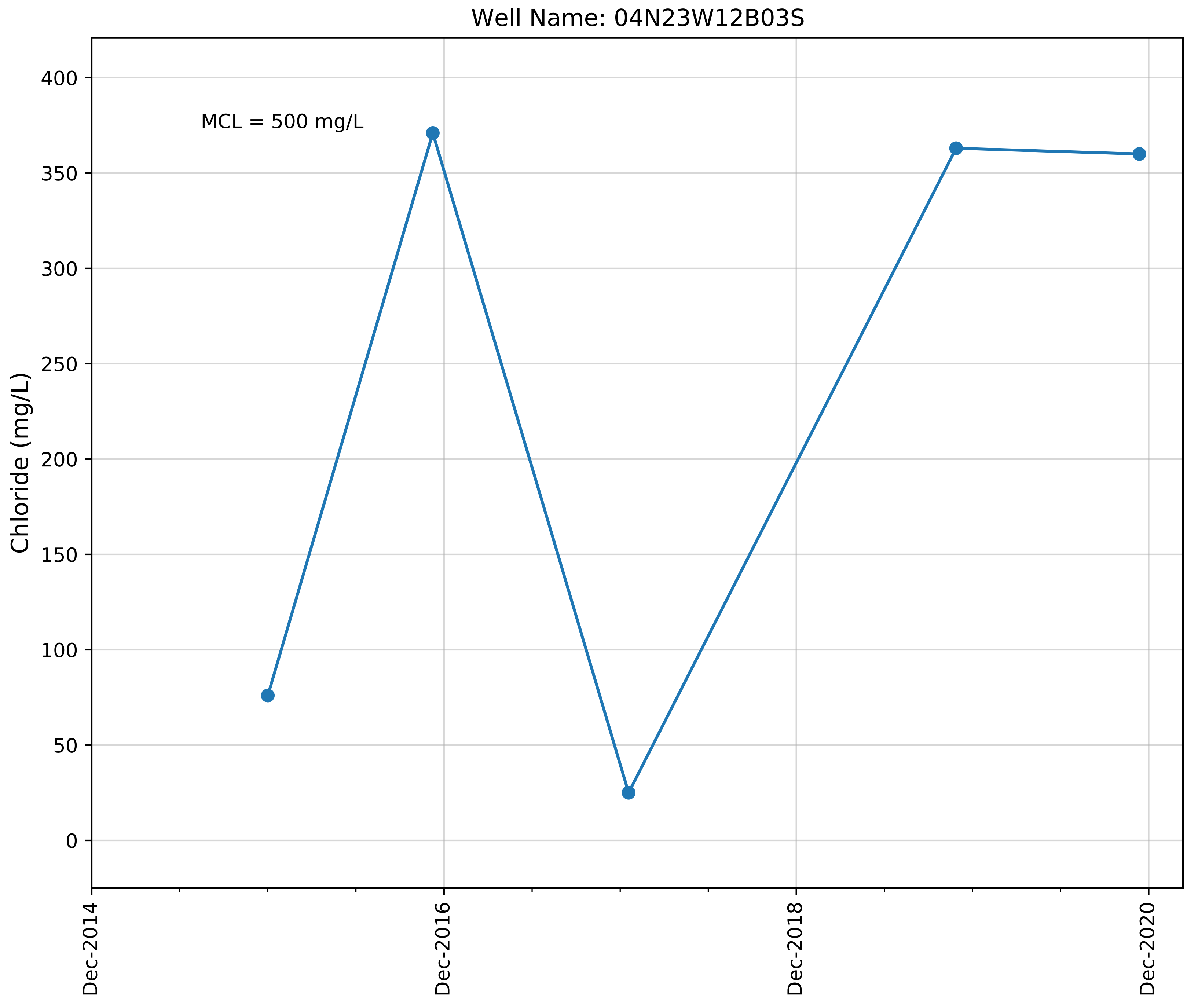
Well Name: 04N23W01J03S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Nov-2013
Nov-2015
Nov-2017
Nov-2019



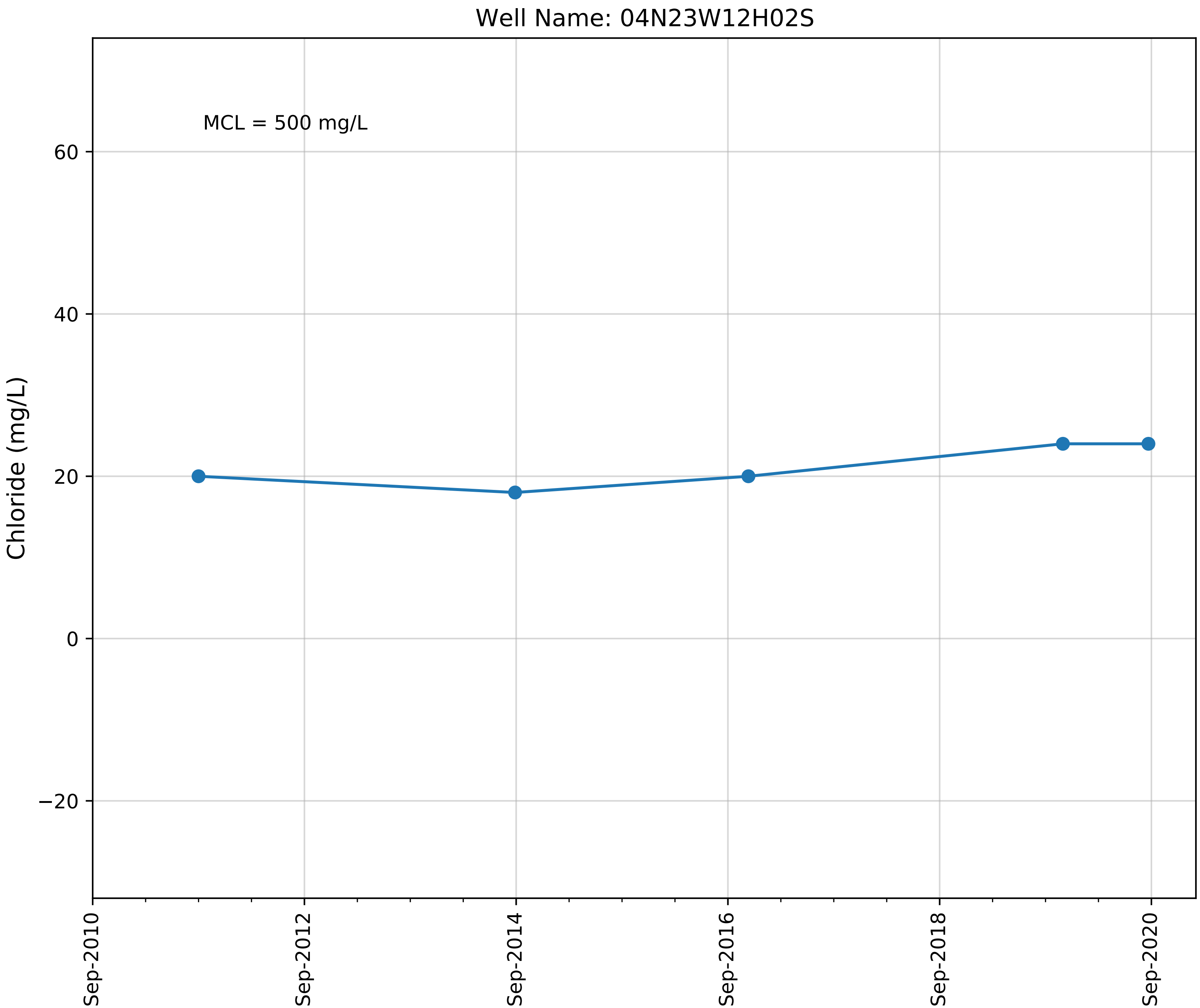
Well Name: 04N23W01K02S
MCL = 500 mg/L
Chloride (mg/L)
0
20
40
60
80
100
120
140
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021

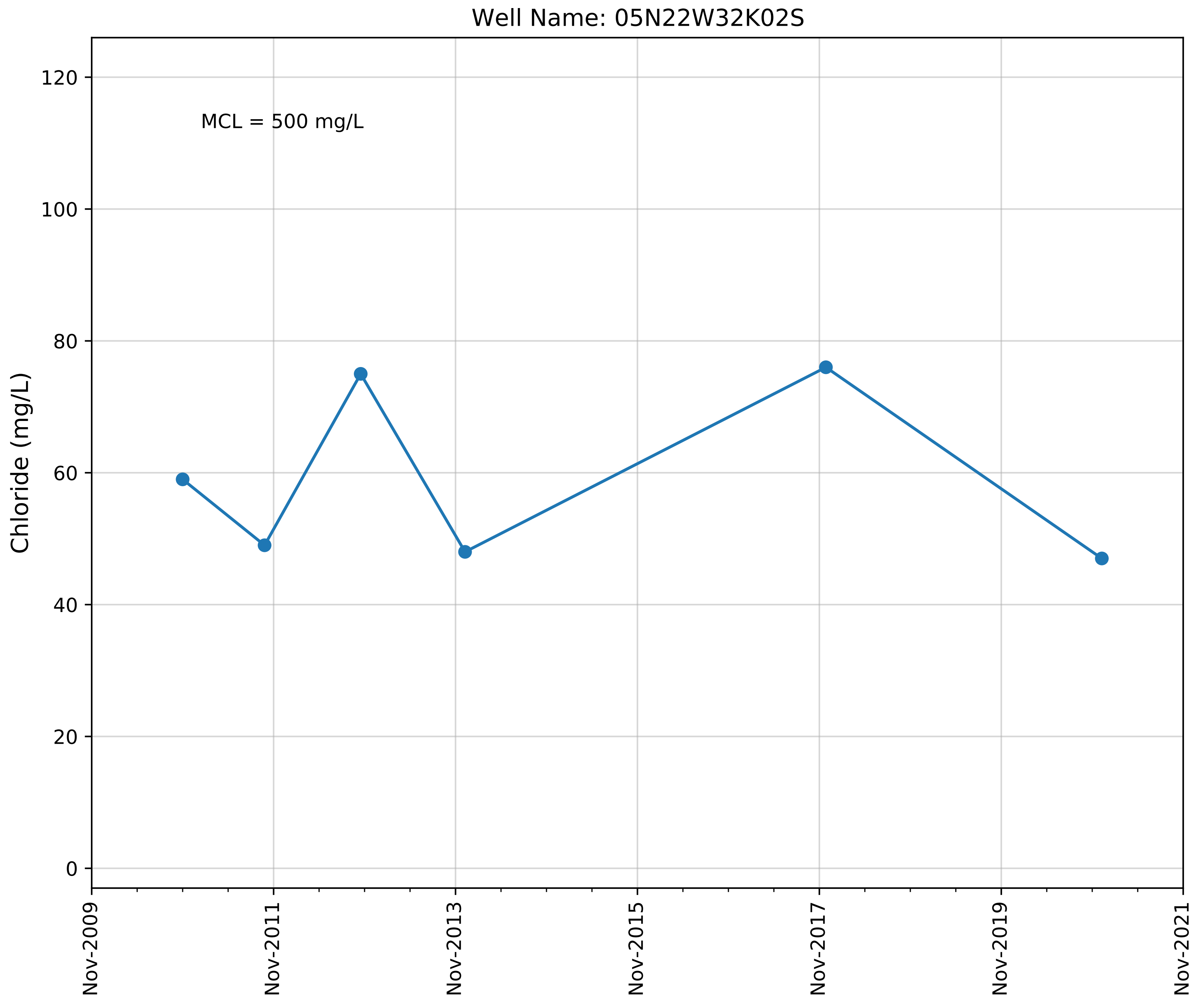


Well Name: 04N23W02P01S
MCL = 500 mg/L
Chloride (mg/L)
280
260
240
220
200
180
160
Nov-2009
Nov-2011

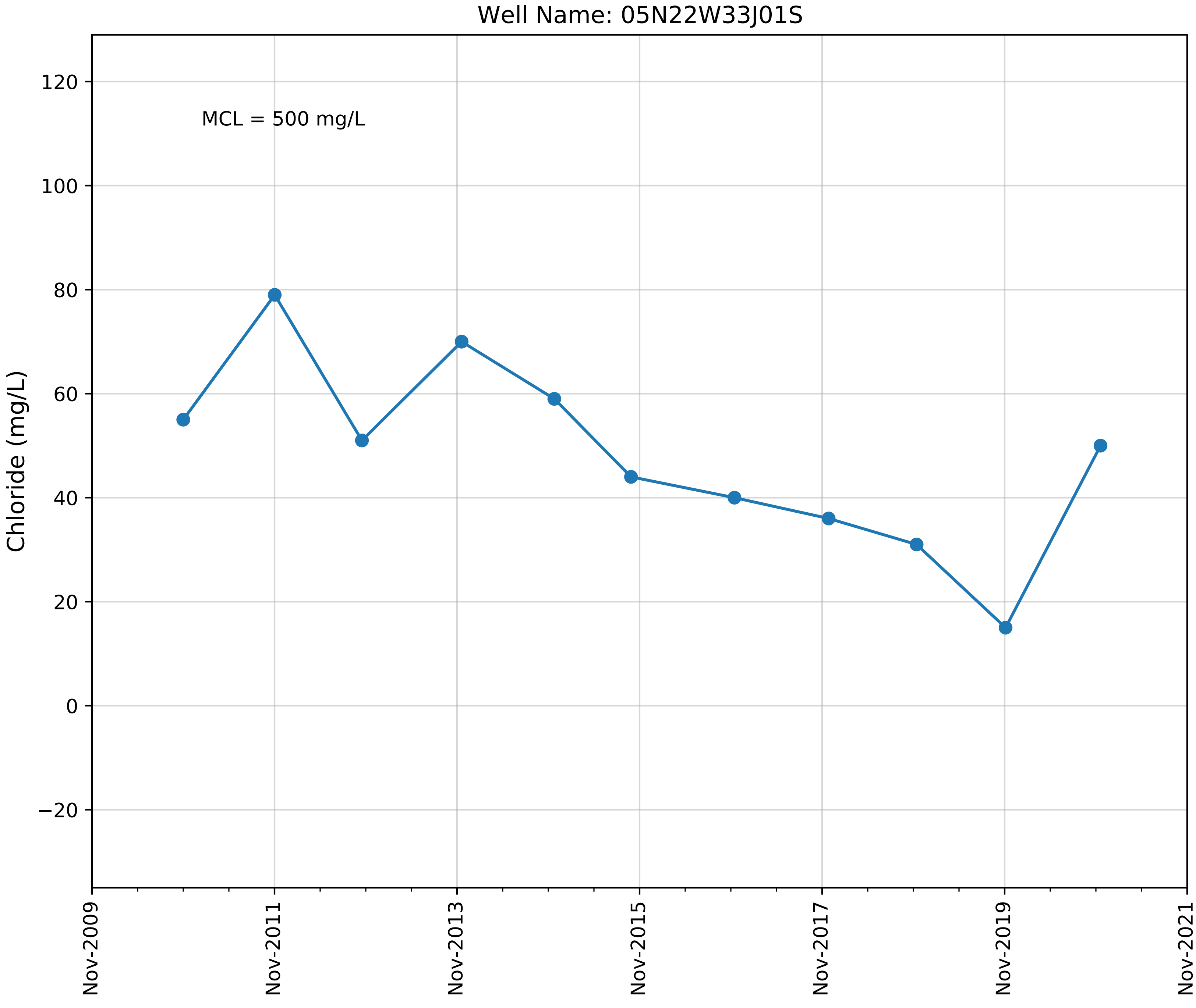


Well Name: 04N23W12B03S
MCL = 500 mg/L
Chloride (mg/L)
0
50
100
150
200
250
300
350
400
Dec-2014
Dec-2016
Dec-2018
Dec-2020

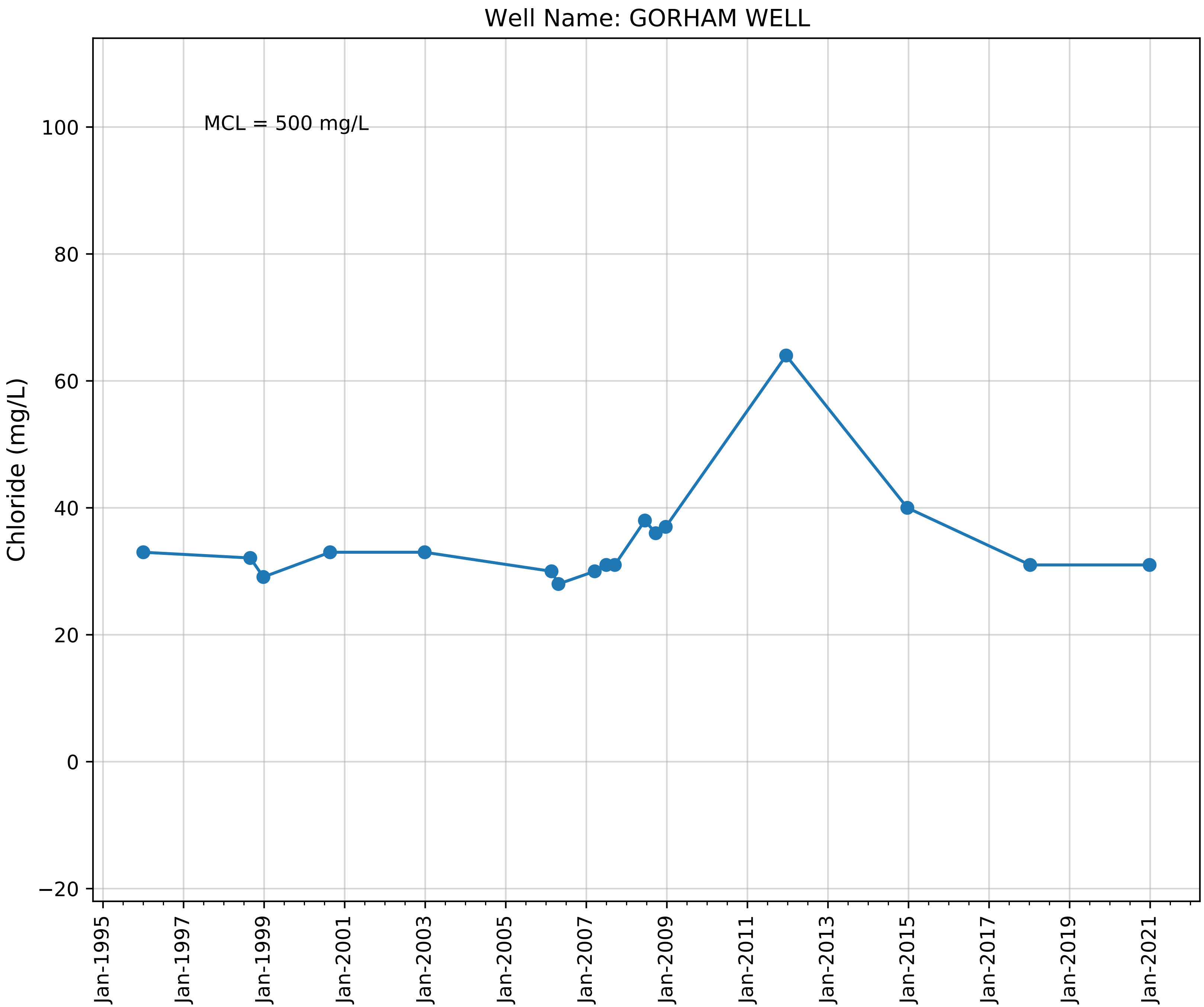

Well Name: 04N23W12H02S
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Sep-2010
Sep-2012
Sep-2014
Sep-2016
Sep-2018
Sep-2020

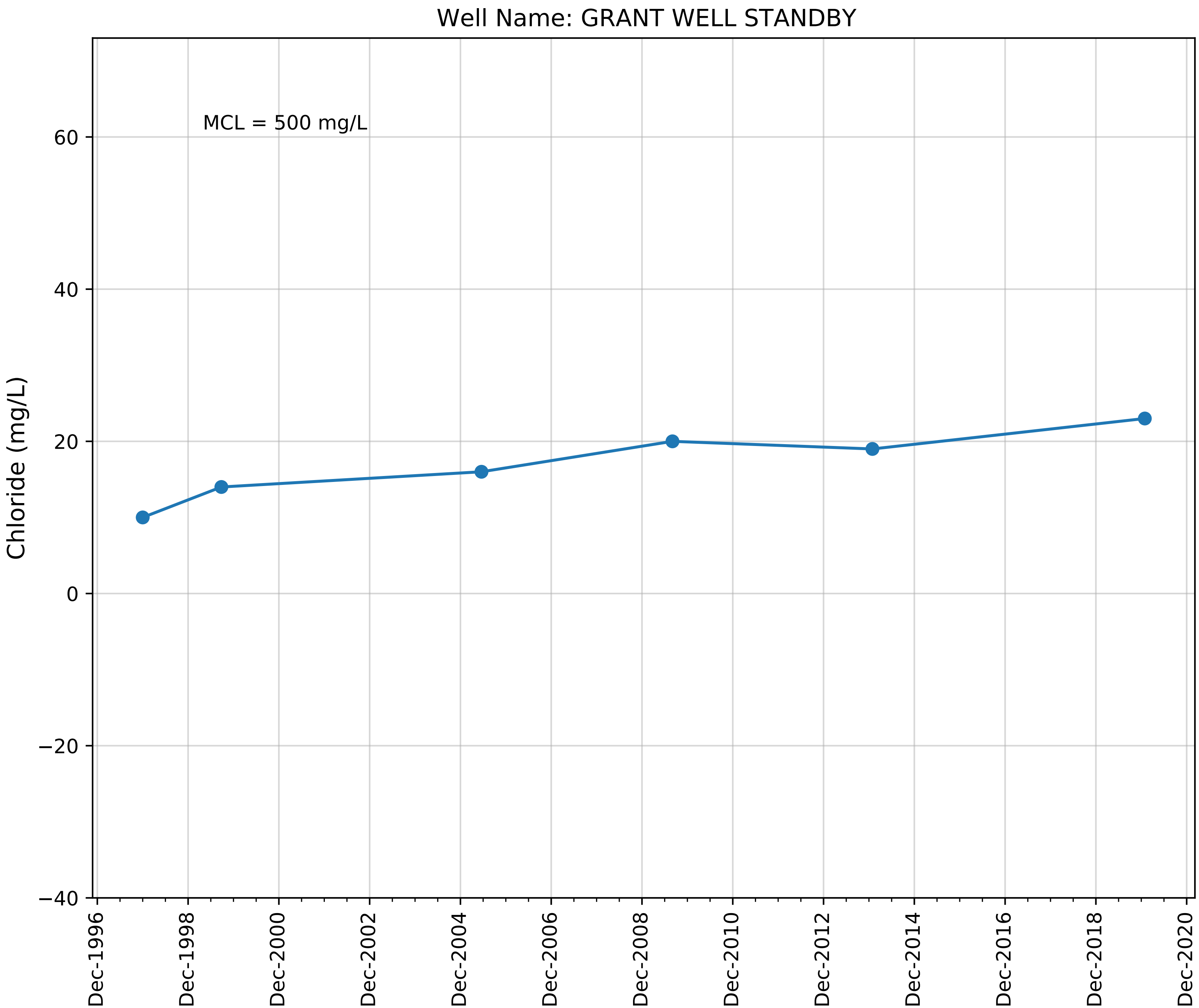


Well Name: 05N22W32K02S
MCL = 500 mg/L
Chloride (mg/L)
0
20
40
60
80
100
120
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

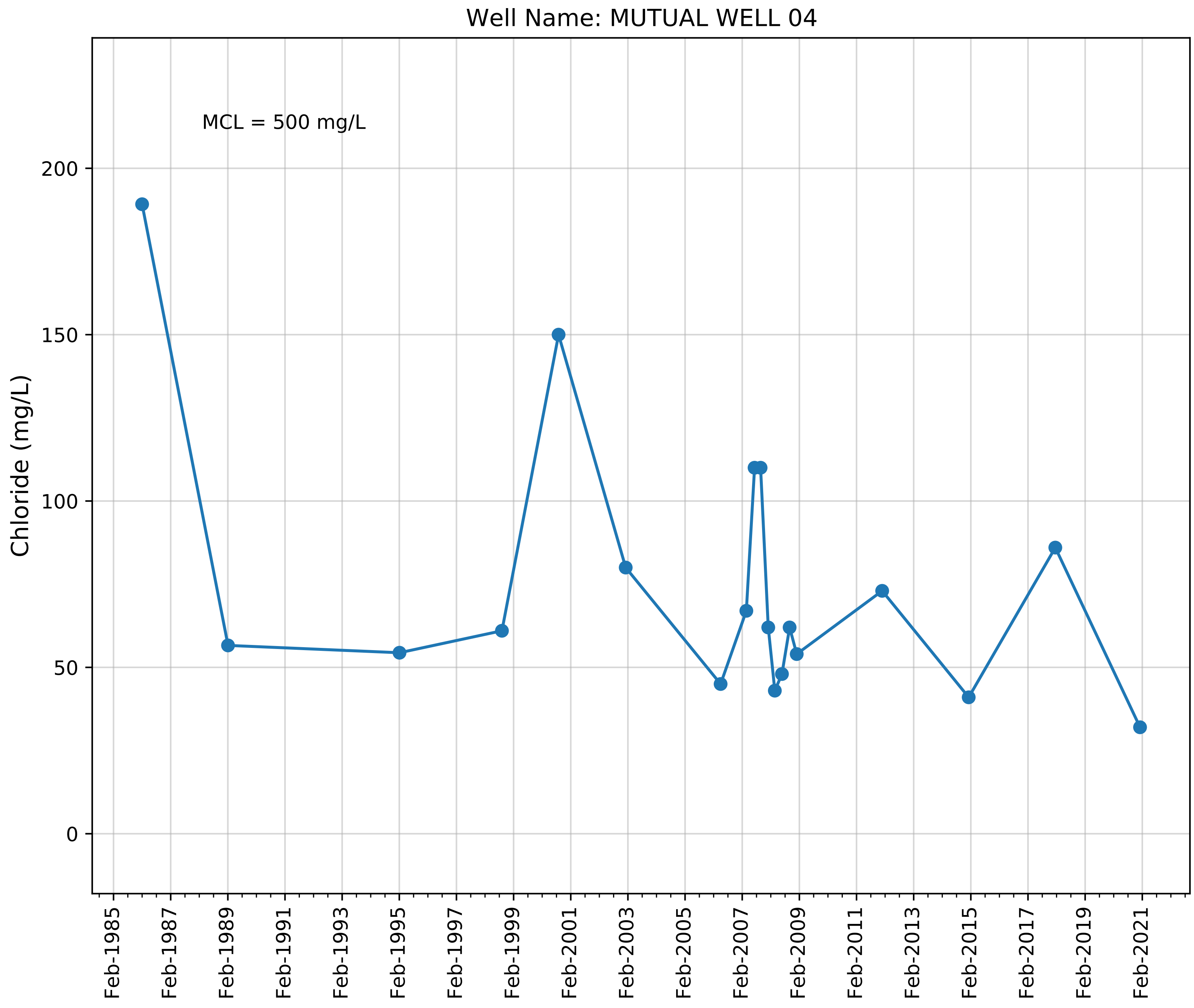


Well Name: 05N22W33J01S
MCL = 500 mg/L
Chloride (mg/L)
120
100
80
60
40
20
0
−20
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

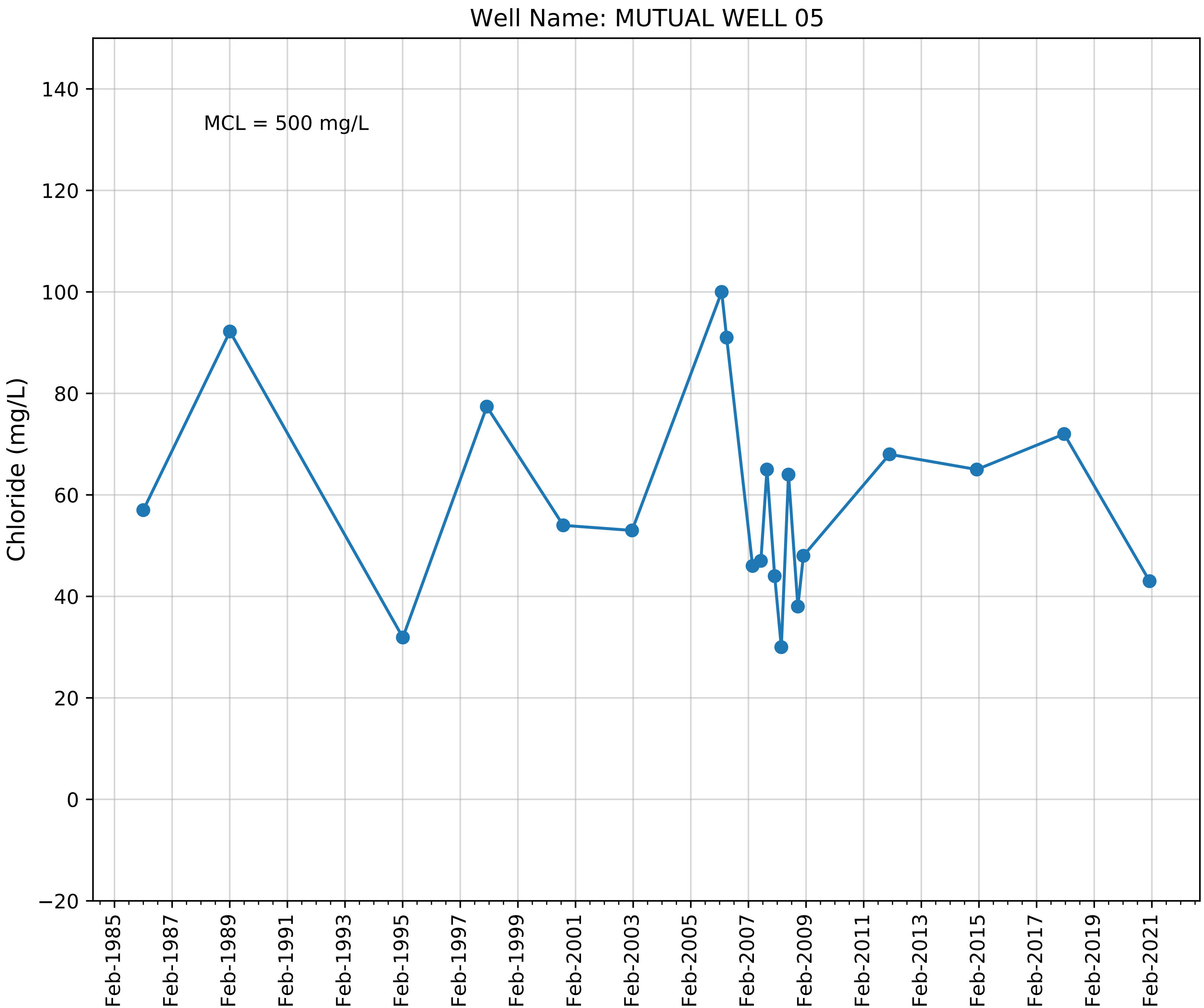

Well Name: GORHAM WELL
MCL = 500 mg/L
Chloride (mg/L)
100
80
60
40
20
0
−20
Jan-1995
Jan-1997
Jan-1999
Jan-2001
Jan-2003
Jan-2005
Jan-2007
Jan-2009
Jan-2011
Jan-2013
Jan-2015
Jan-2017
Jan-2019
Jan-2021



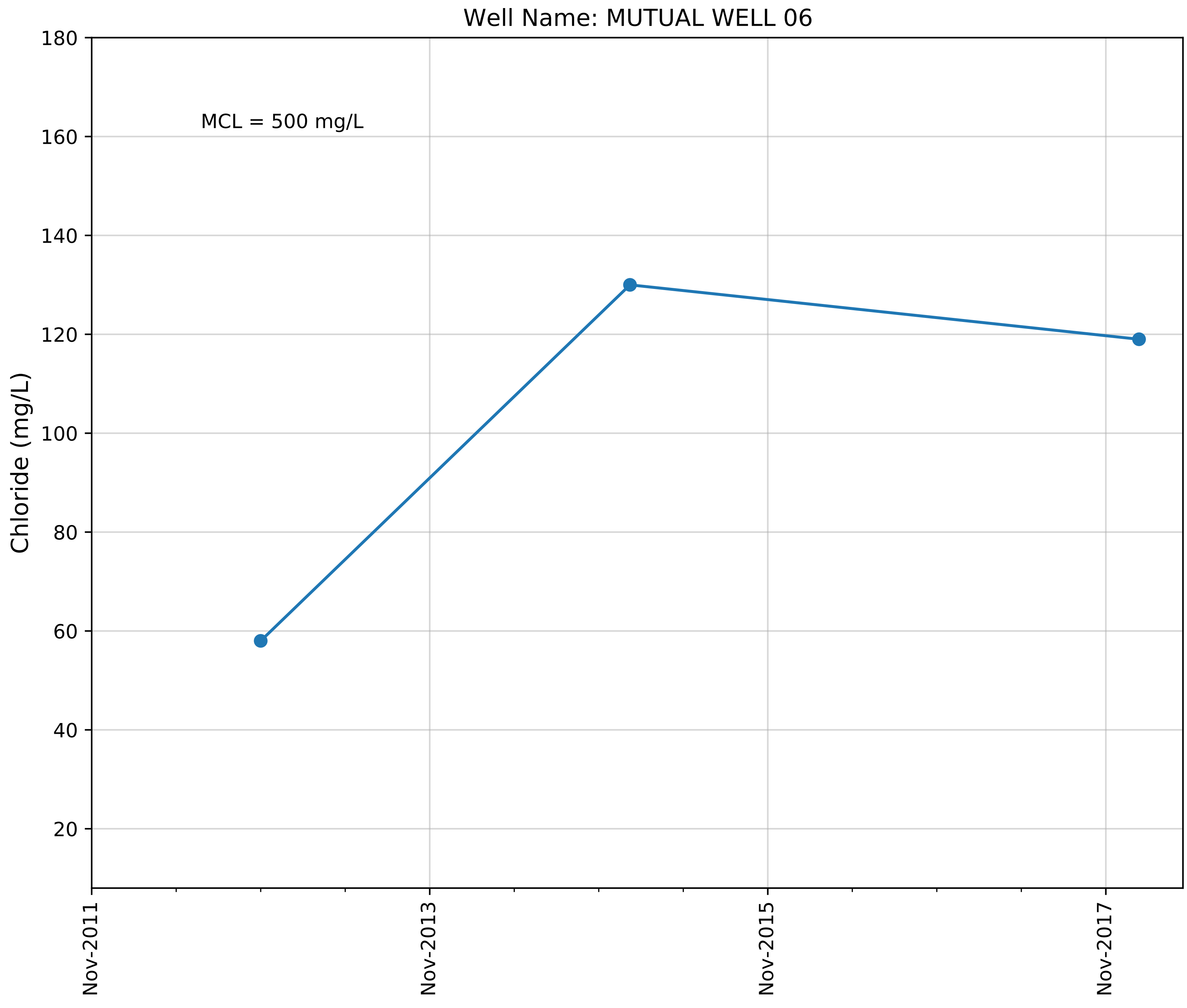
Well Name: GRANT WELL STANDBY
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
−40
Dec-1996
Dec-1998
Dec-2000
Dec-2002
Dec-2004
Dec-2006
Dec-2008
Dec-2010
Dec-2012
Dec-2014
Dec-2016
Dec-2018
Dec-2020



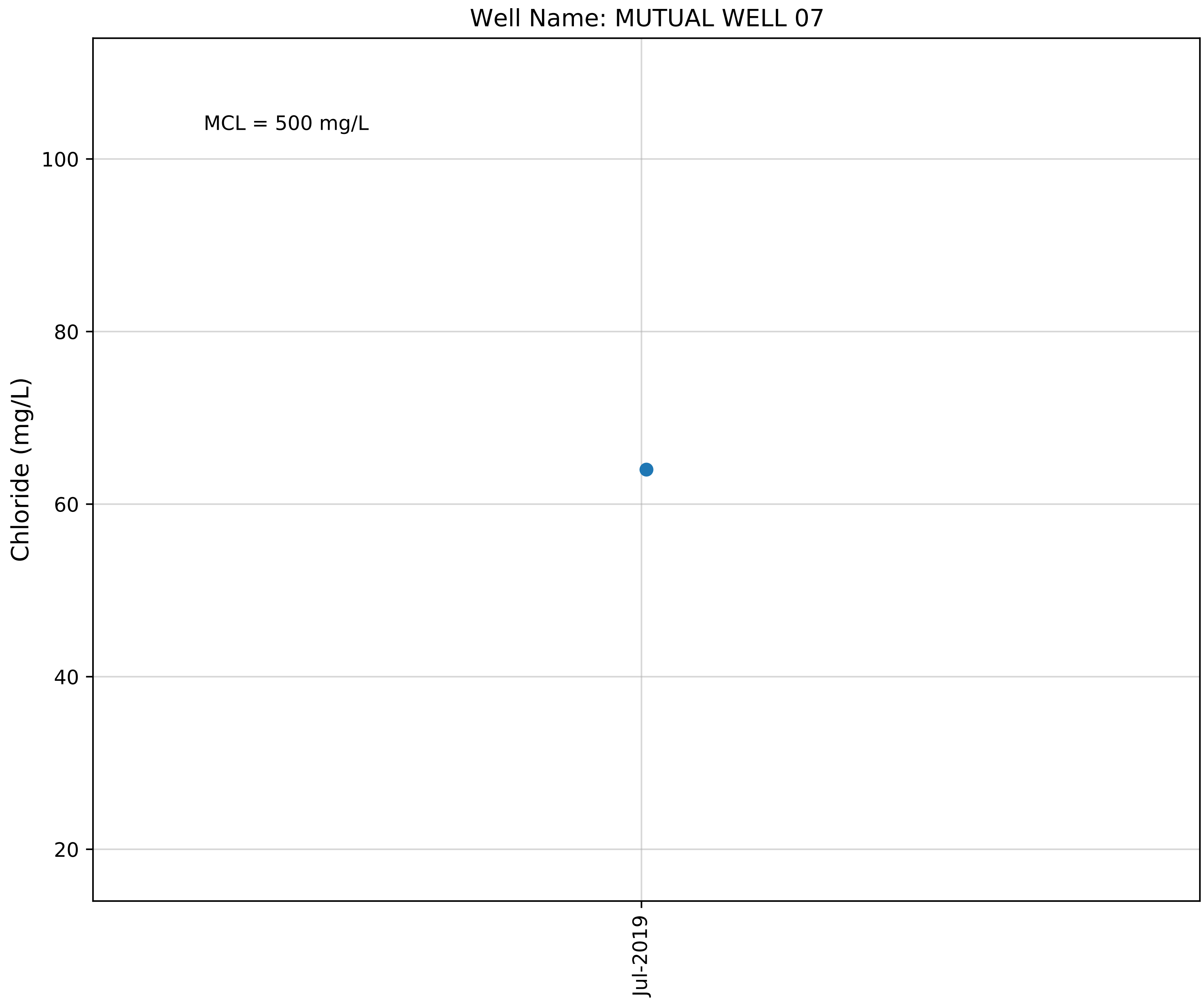
Well Name: MUTUAL WELL 04
MCL = 500 mg/L
Chloride (mg/L)
0
50
100
150
200
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021



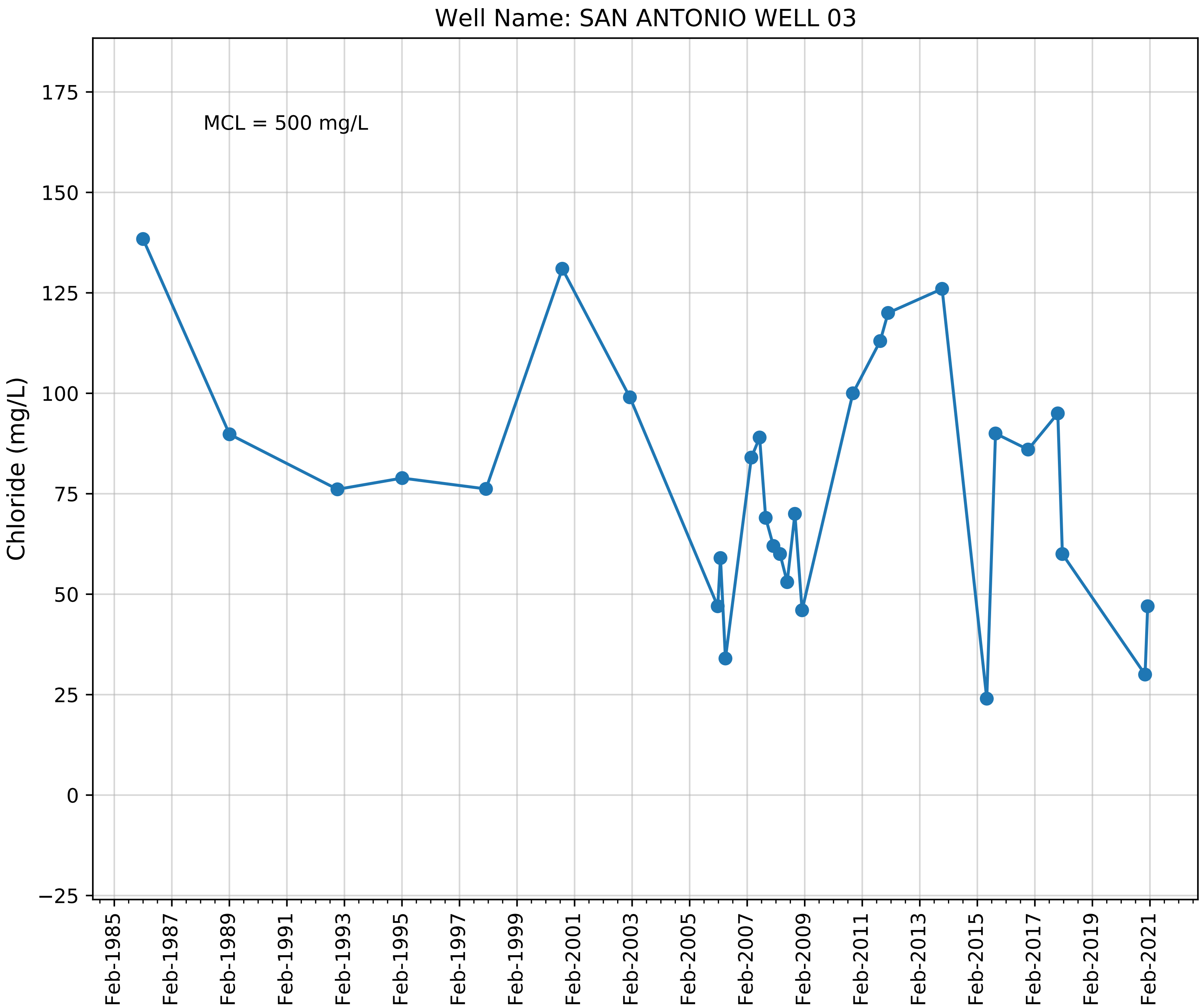
Well Name: MUTUAL WELL 05
MCL = 500 mg/L
Chloride (mg/L)
140
120
100
80
60
40
20
0
−20
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021



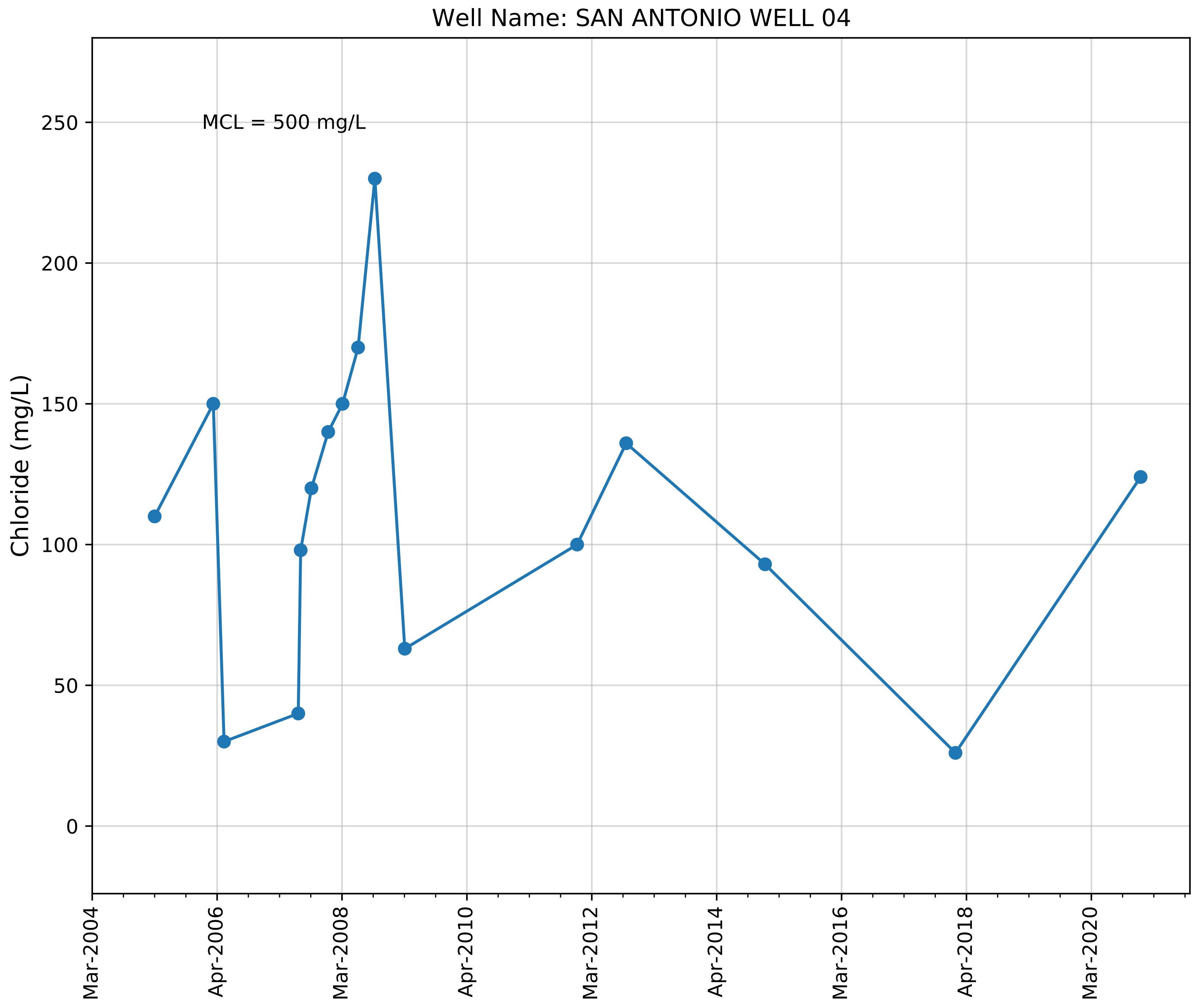
Well Name: MUTUAL WELL 06
MCL = 500 mg/L
Chloride (mg/L)
180
160
140
120
100
80
60
40
20
Nov-2011
Nov-2013
Nov-2015
Nov-2017



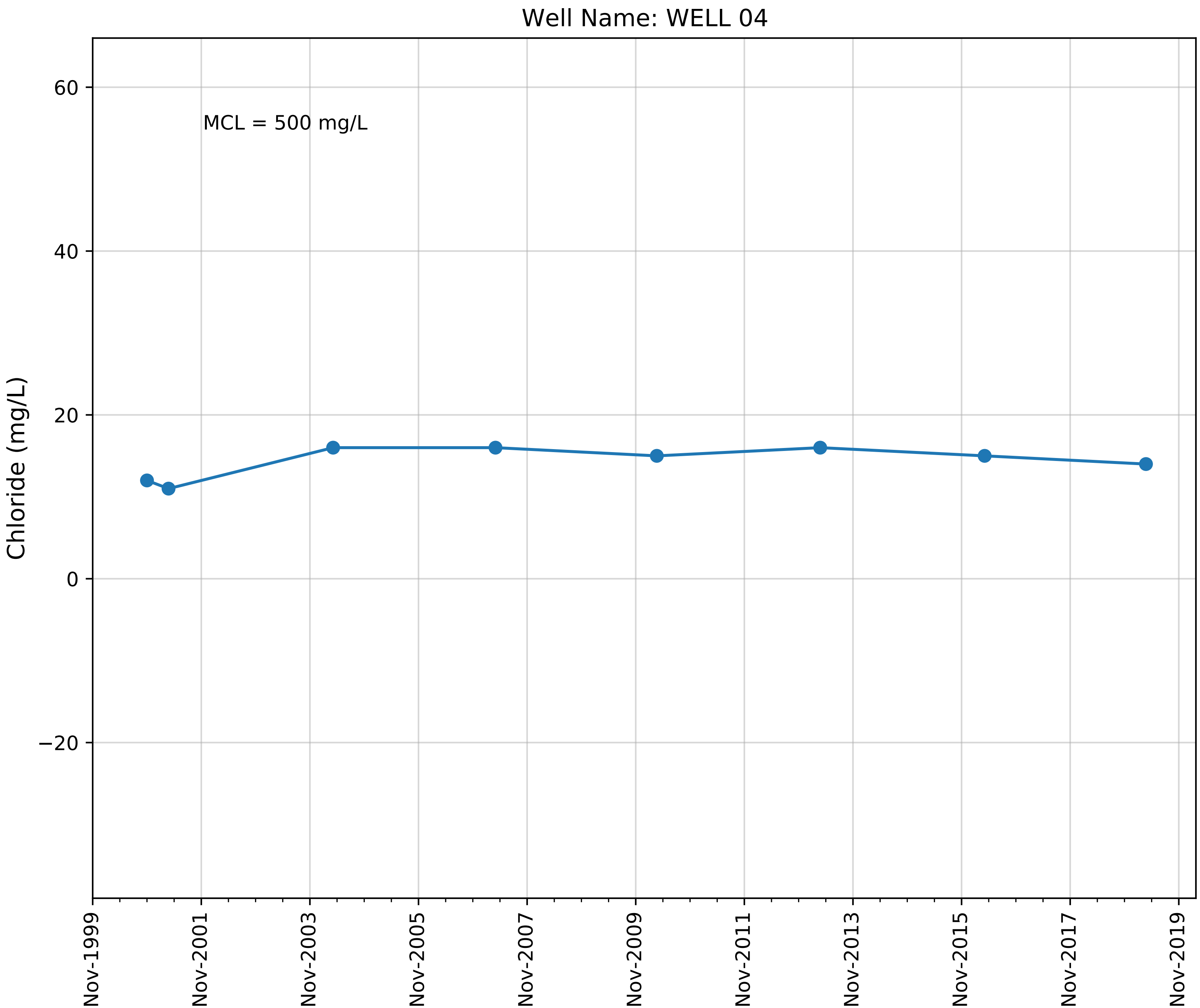
Well Name: MUTUAL WELL 07
MCL = 500 mg/L
Chloride (mg/L)
100
80
60
40
20
Jul-2019



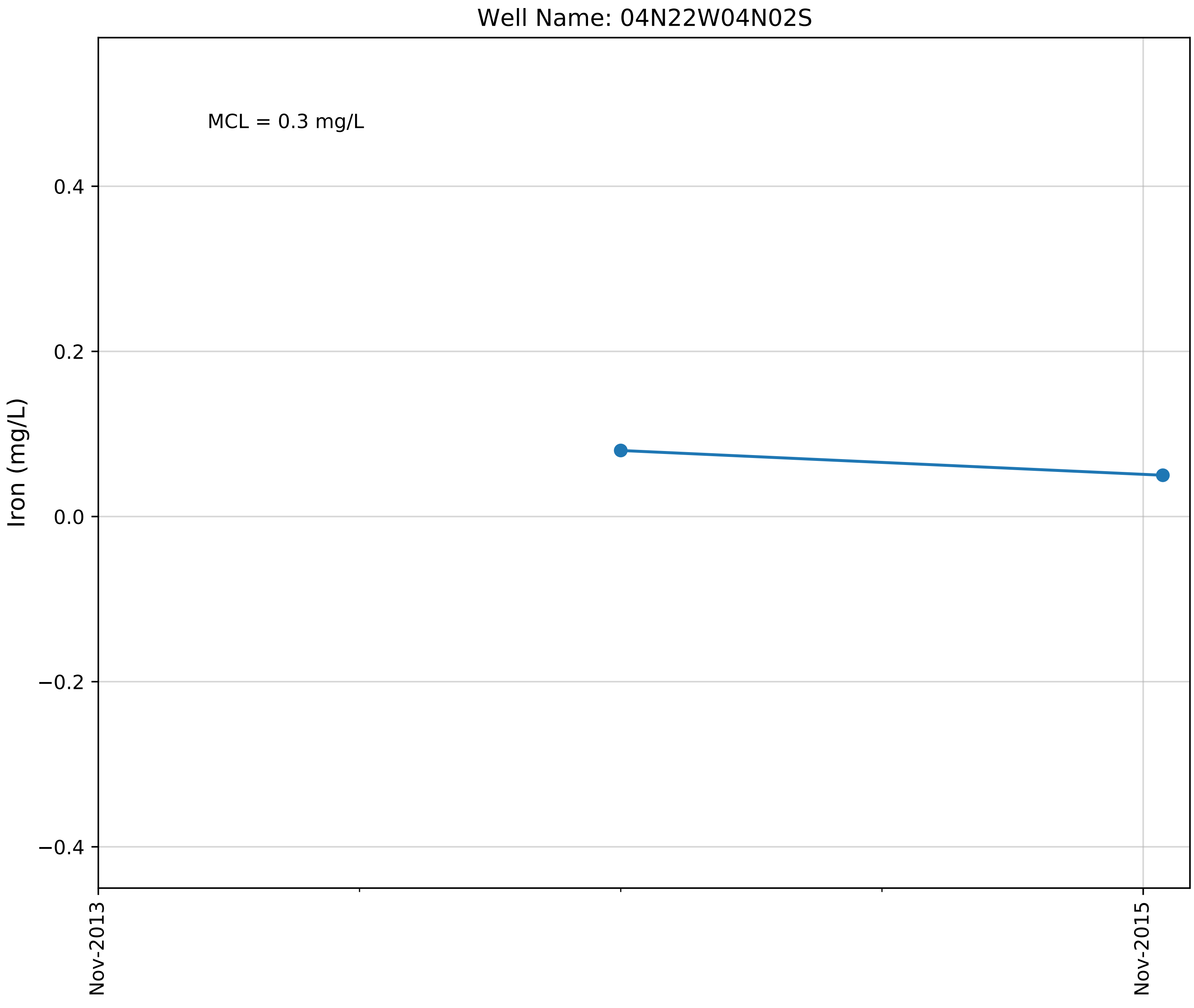
Well Name: SAN ANTONIO WELL 03
MCL = 500 mg/L
Chloride (mg/L)
175
150
125
100
75
50
25
0
−25
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

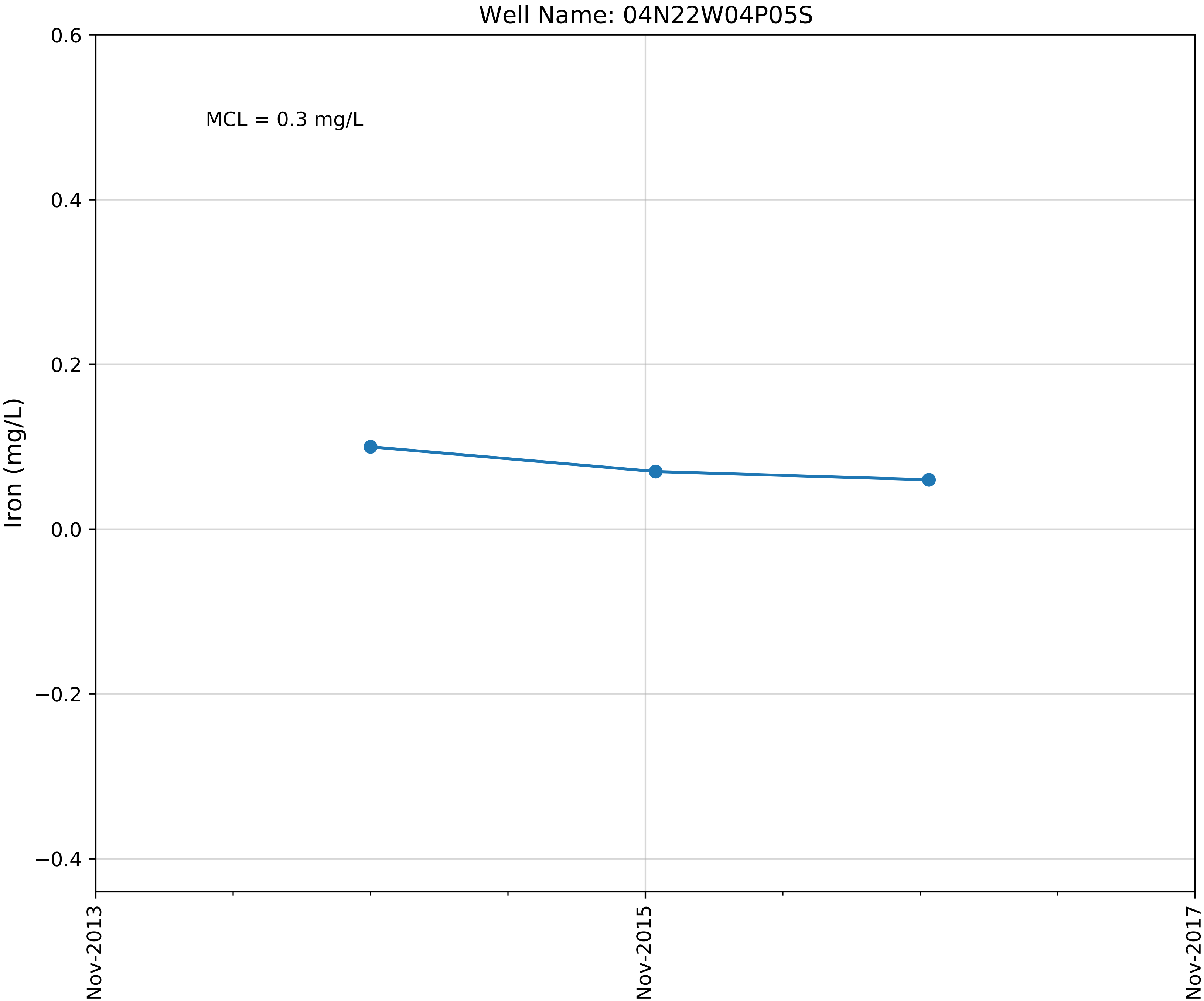


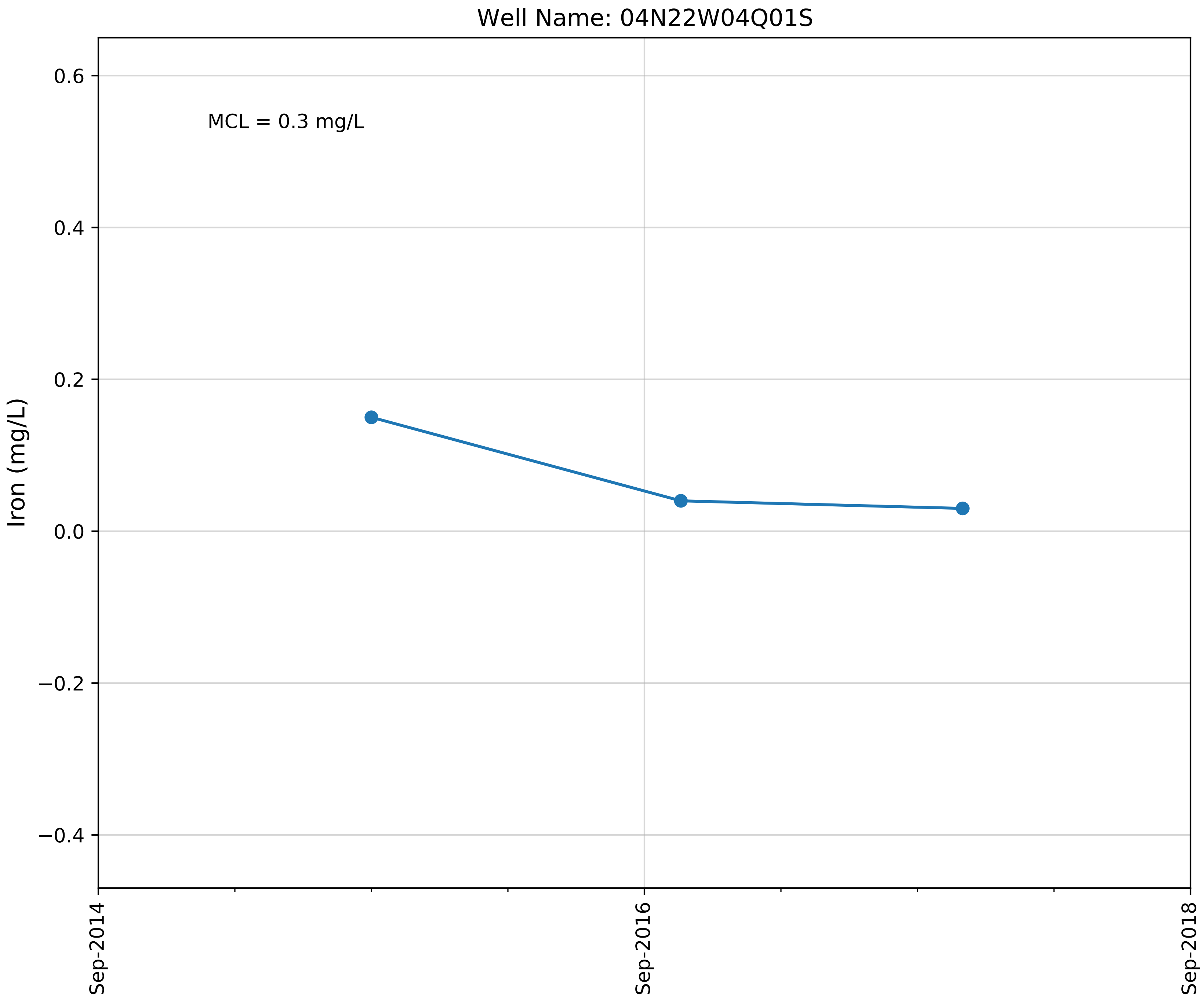
Well Name: SAN ANTONIO WELL 04
MCL = 500 mg/L
Chloride (mg/L)
250
200
150
100
50
0
Mar-2004
Apr-2006
Mar-2008
Apr-2010
Mar-2012
Apr-2014
Mar-2016
Apr-2018
Mar-2020

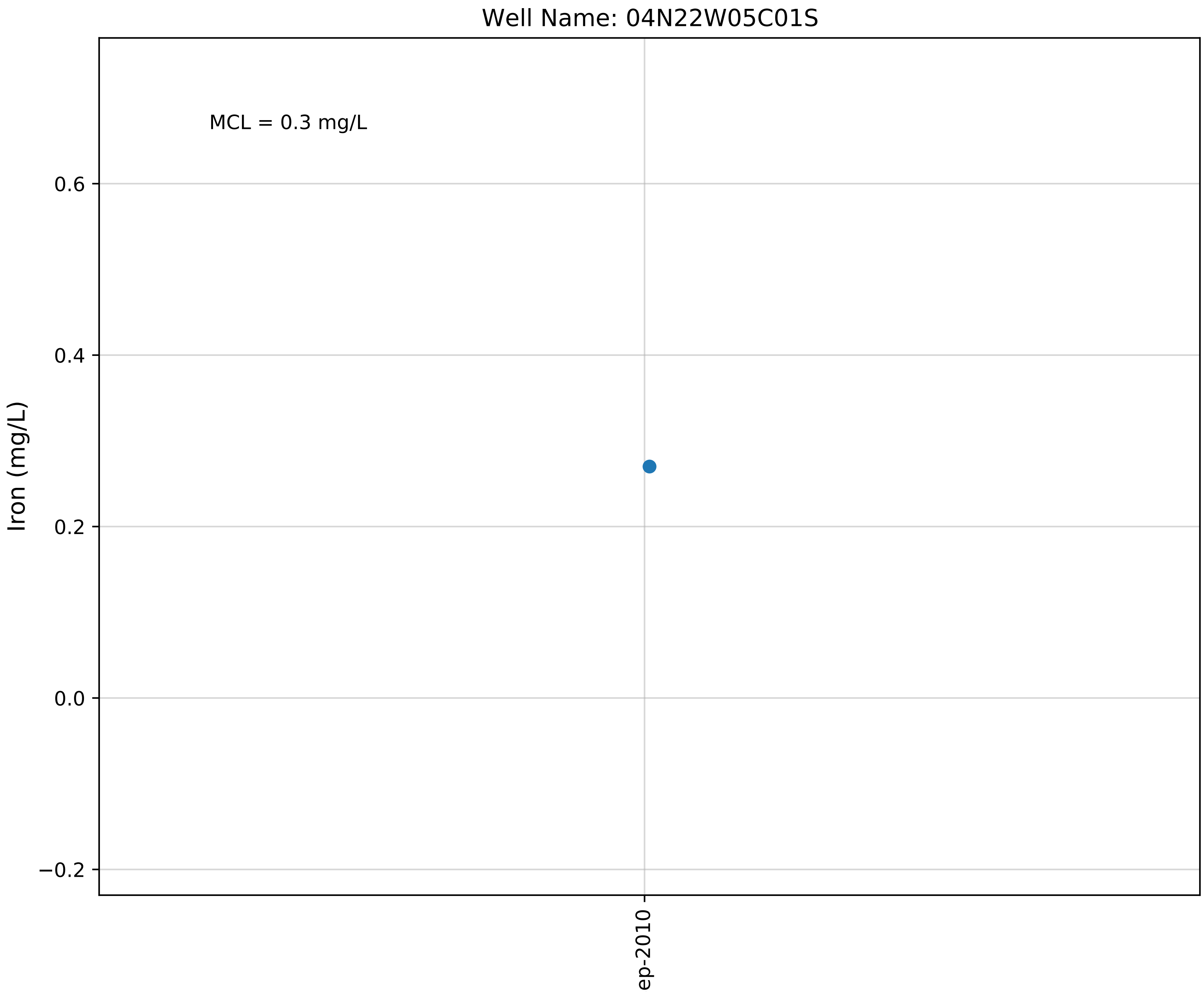


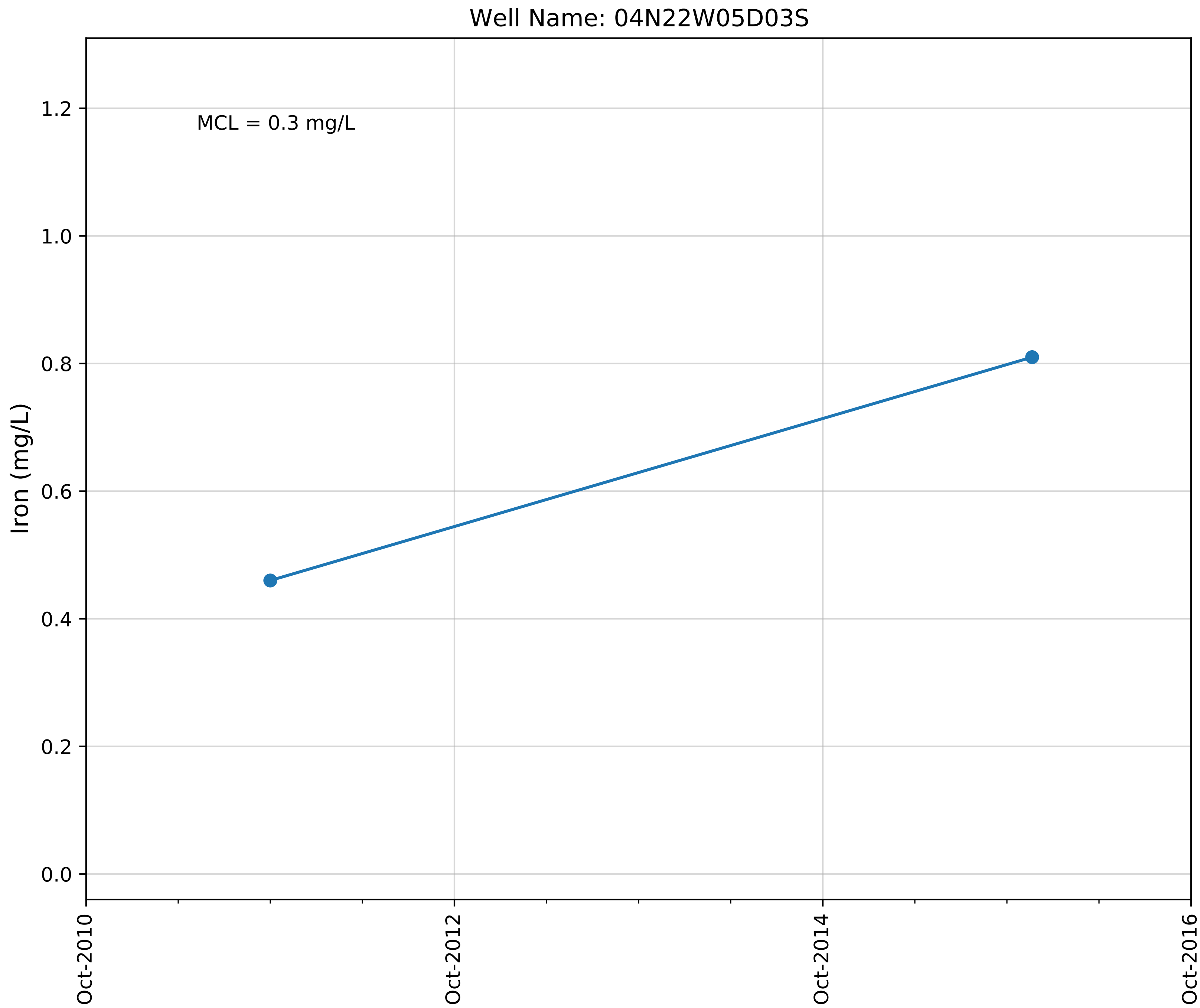
Well Name: WELL 04
MCL = 500 mg/L
Chloride (mg/L)
60
40
20
0
−20
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019

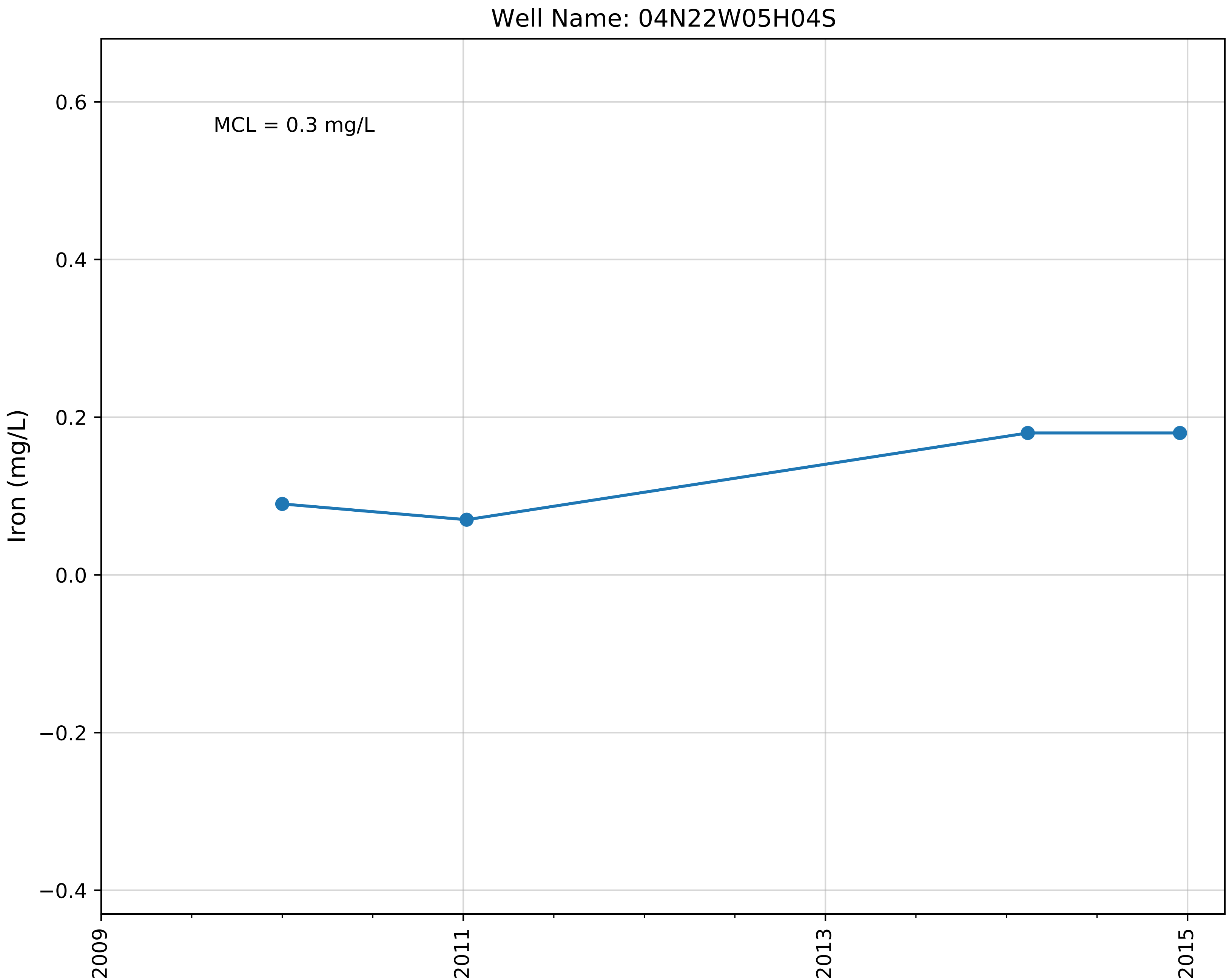

Well Name: 04N22W04N02S
MCL = 0.3 mg/L
Iron (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015

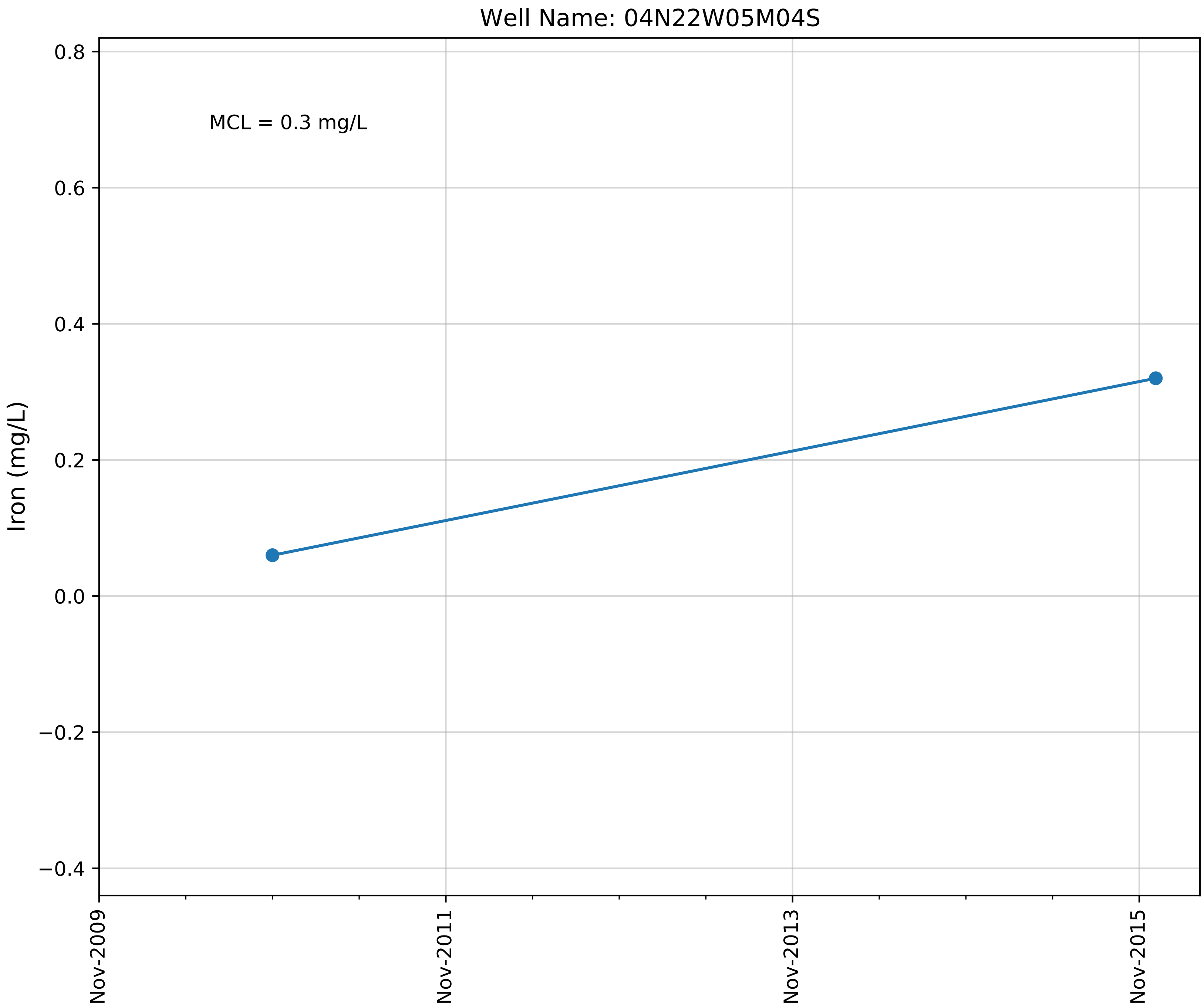

Well Name: 04N22W04P05S
MCL = 0.3 mg/L
Iron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015
Nov-2017

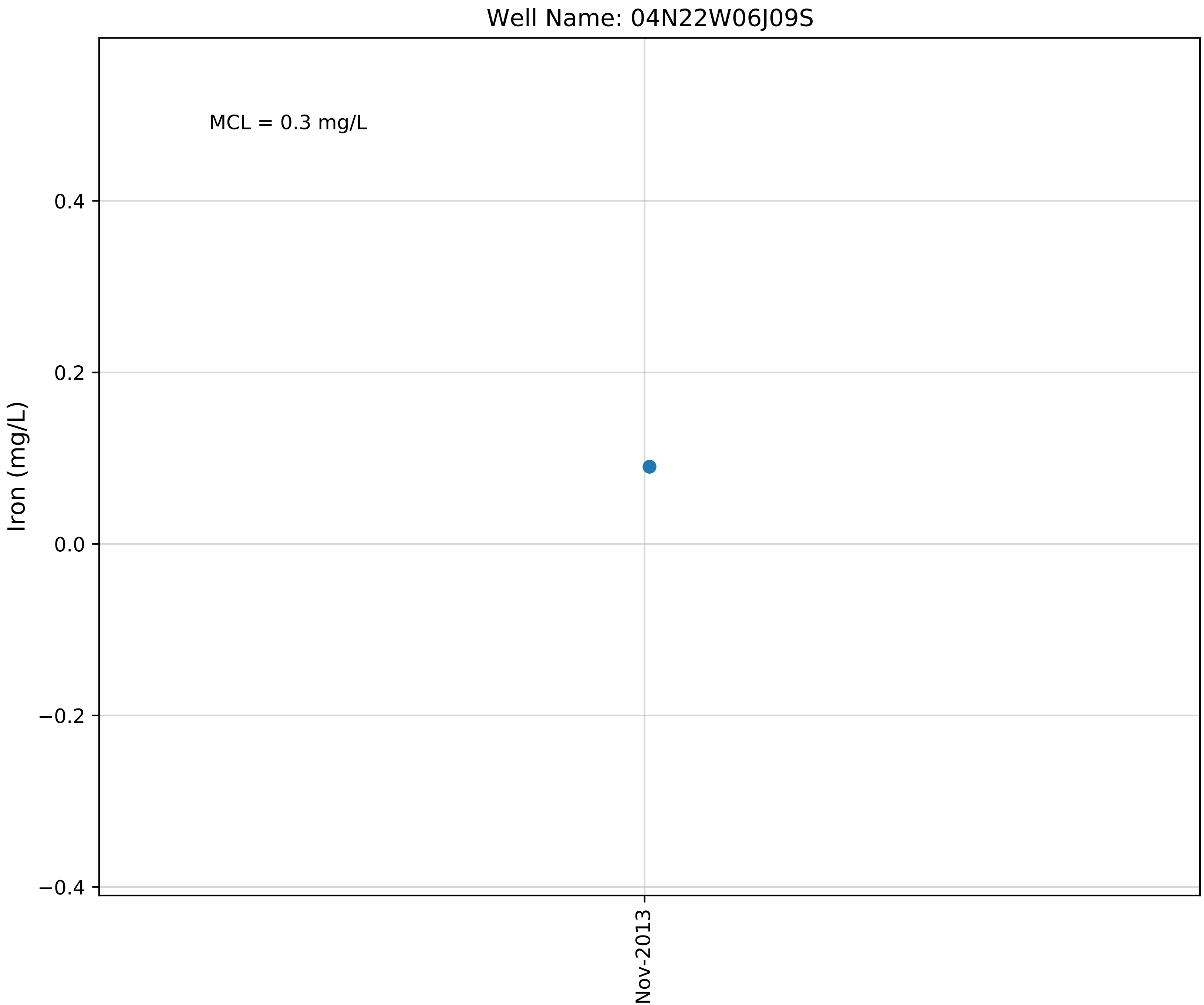

Well Name: 04N22W04Q01S
MCL = 0.3 mg/L
Iron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Sep-2014
Sep-2016
Sep-2018


Well Name: 04N22W05C01S
MCL = 0.3 mg/L
Iron (mg/L)
0.6
0.4
0.2
0.0
−0.2
Sep-2010

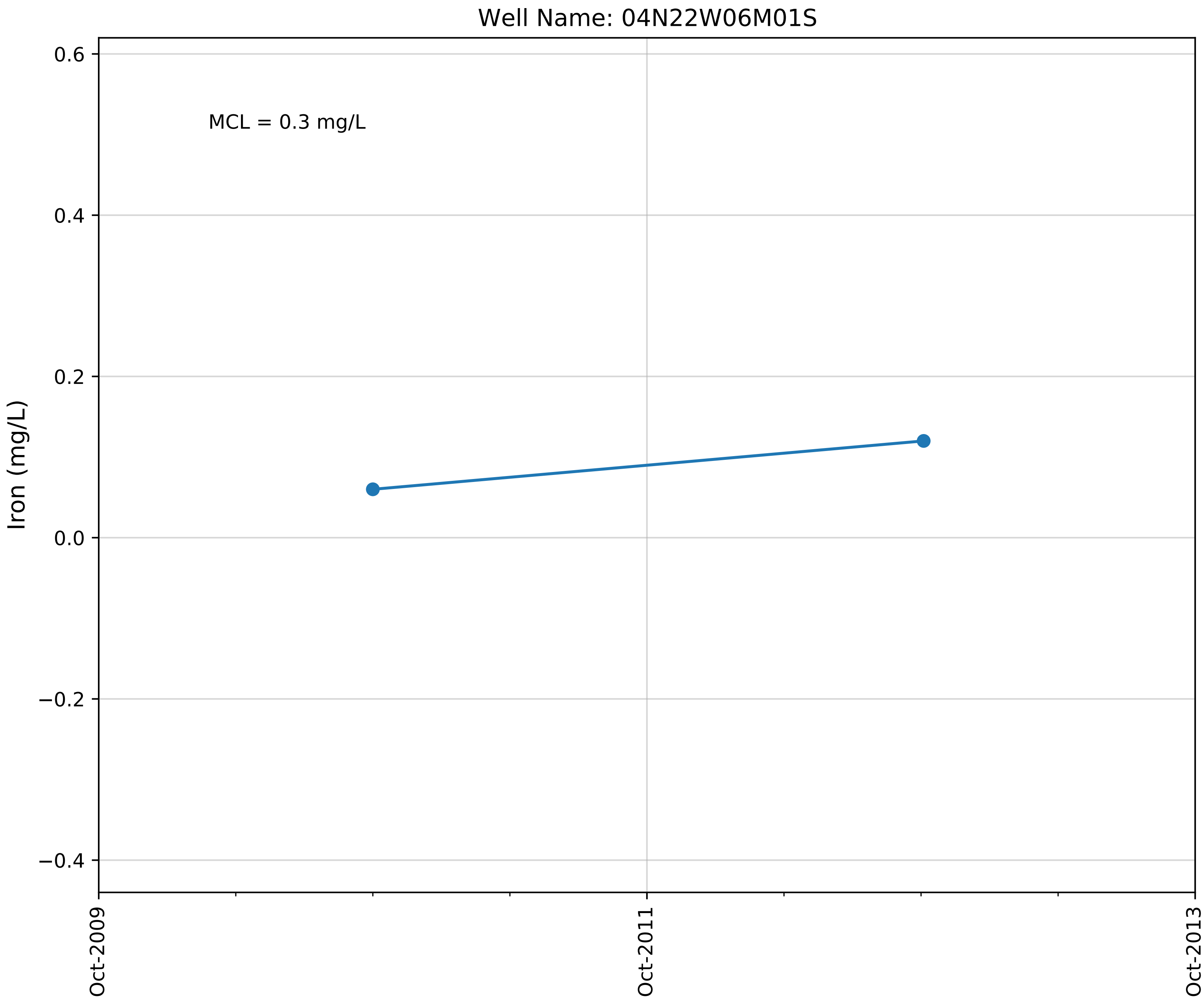

Well Name: 04N22W05D03S
MCL = 0.3 mg/L
Iron (mg/L)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
Oct-2010
Oct-2012
Oct-2014
Oct-2016


Well Name: 04N22W05H04S
MCL = 0.3 mg/L
Iron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Oct-2009
Oct-2011
Oct-2013
Oct-2015

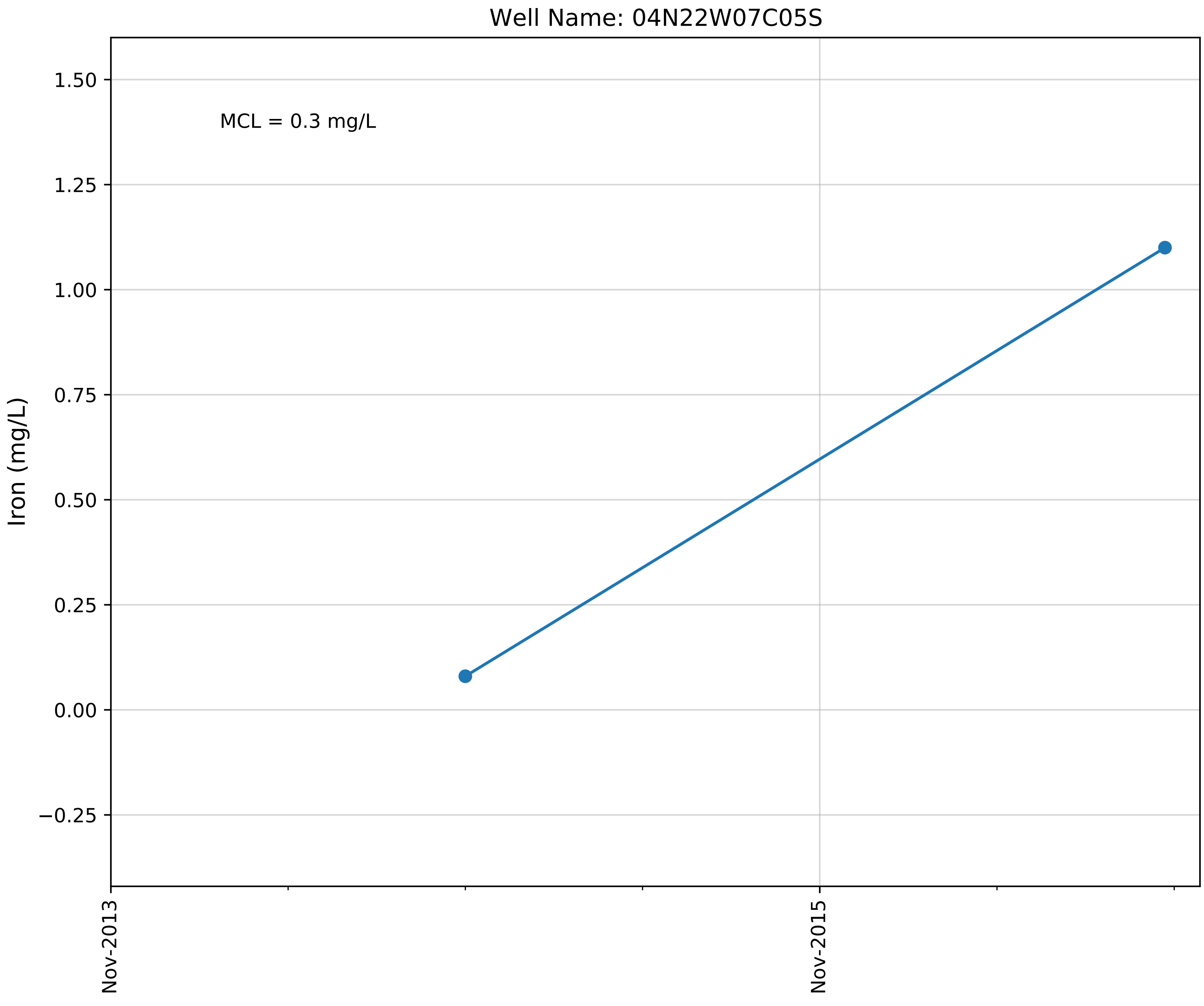

Well Name: 04N22W05M04S
MCL = 0.3 mg/L
Iron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011
Nov-2013
Nov-2015

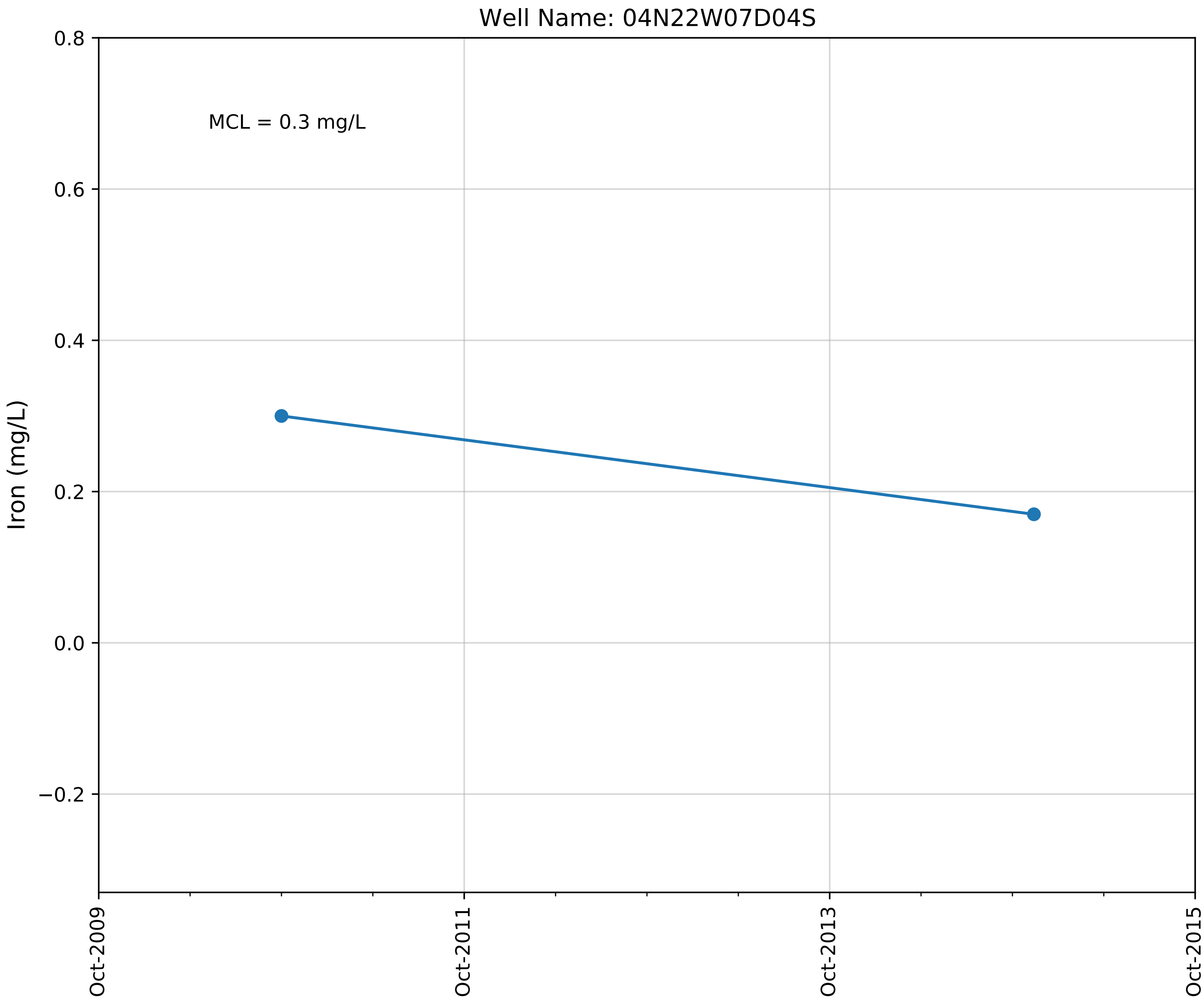


Well Name: 04N22W06J09S
MCL = 0.3 mg/L
Iron (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2013

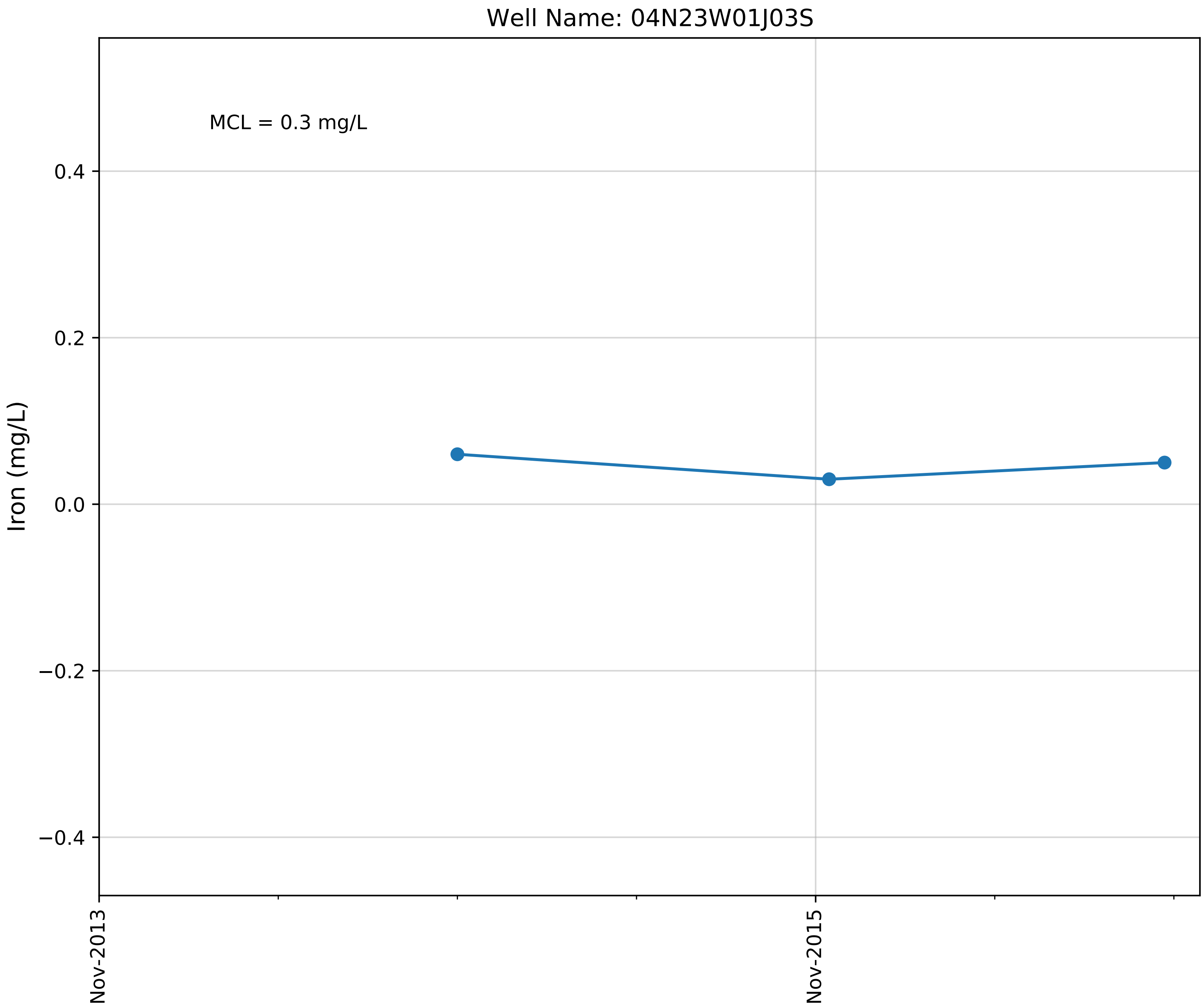


Well Name: 04N22W06M01S
MCL = 0.3 mg/L
Iron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Oct-2009
Oct-2011
Oct-2013

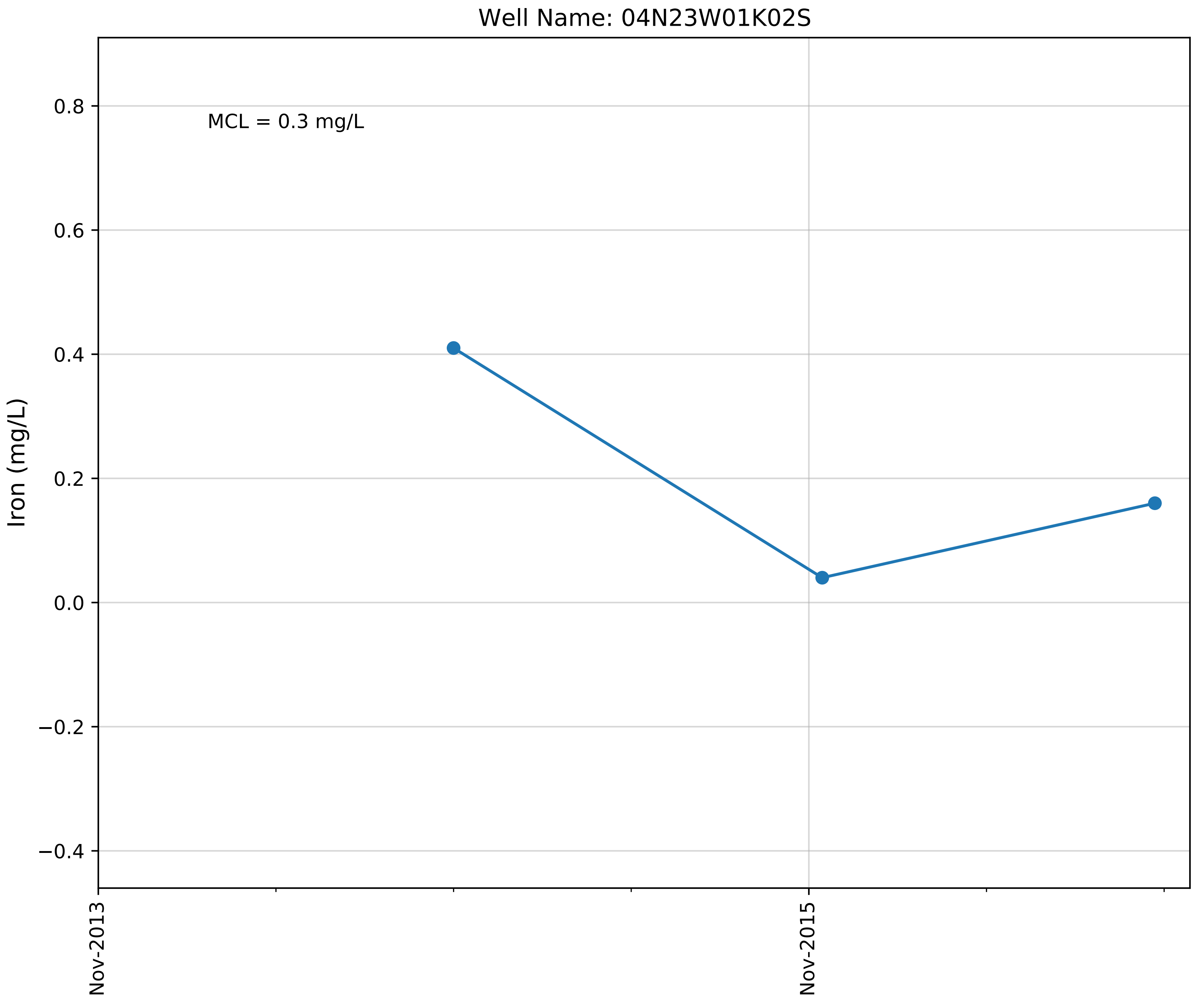

Well Name: 04N22W07C05S
MCL = 0.3 mg/L
Iron (mg/L)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
−0.25
Nov-2013
Nov-2015



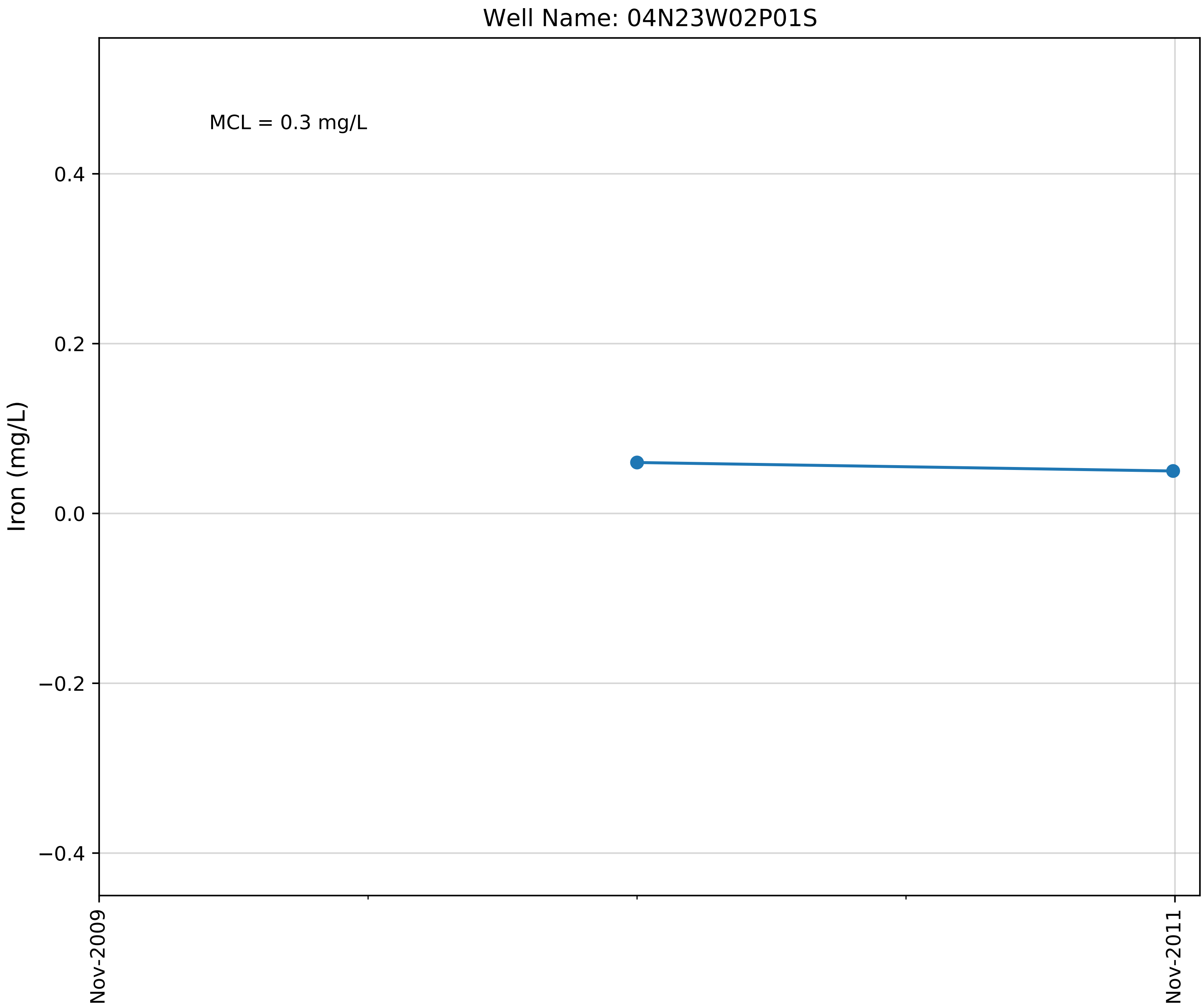
Well Name: 04N22W07D04S
MCL = 0.3 mg/L
Iron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
Oct-2009
Oct-2011
Oct-2013
Oct-2015



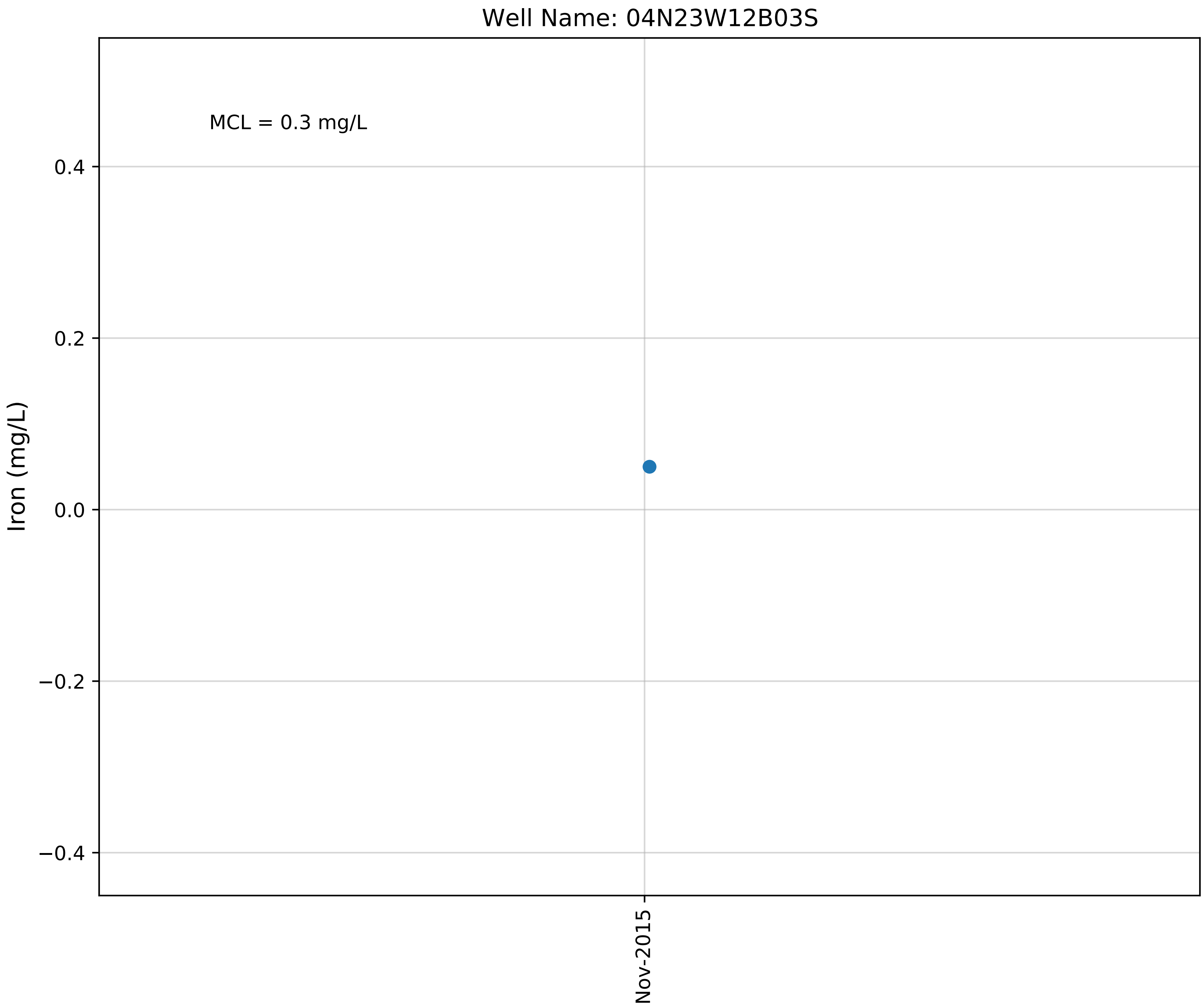
Well Name: 04N23W01J03S
MCL = 0.3 mg/L
Iron (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015



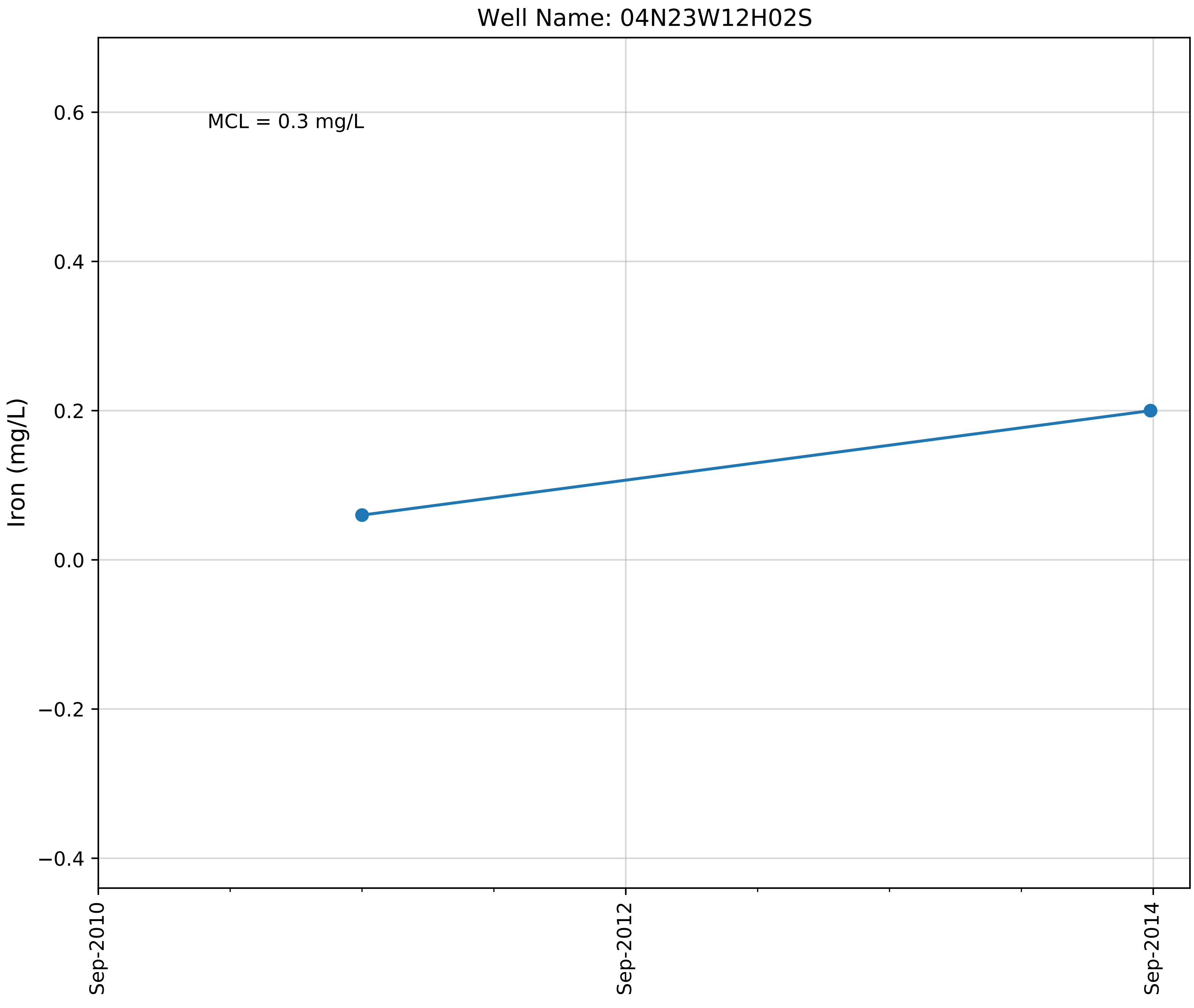
Well Name: 04N23W01K02S
MCL = 0.3 mg/L
Iron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015



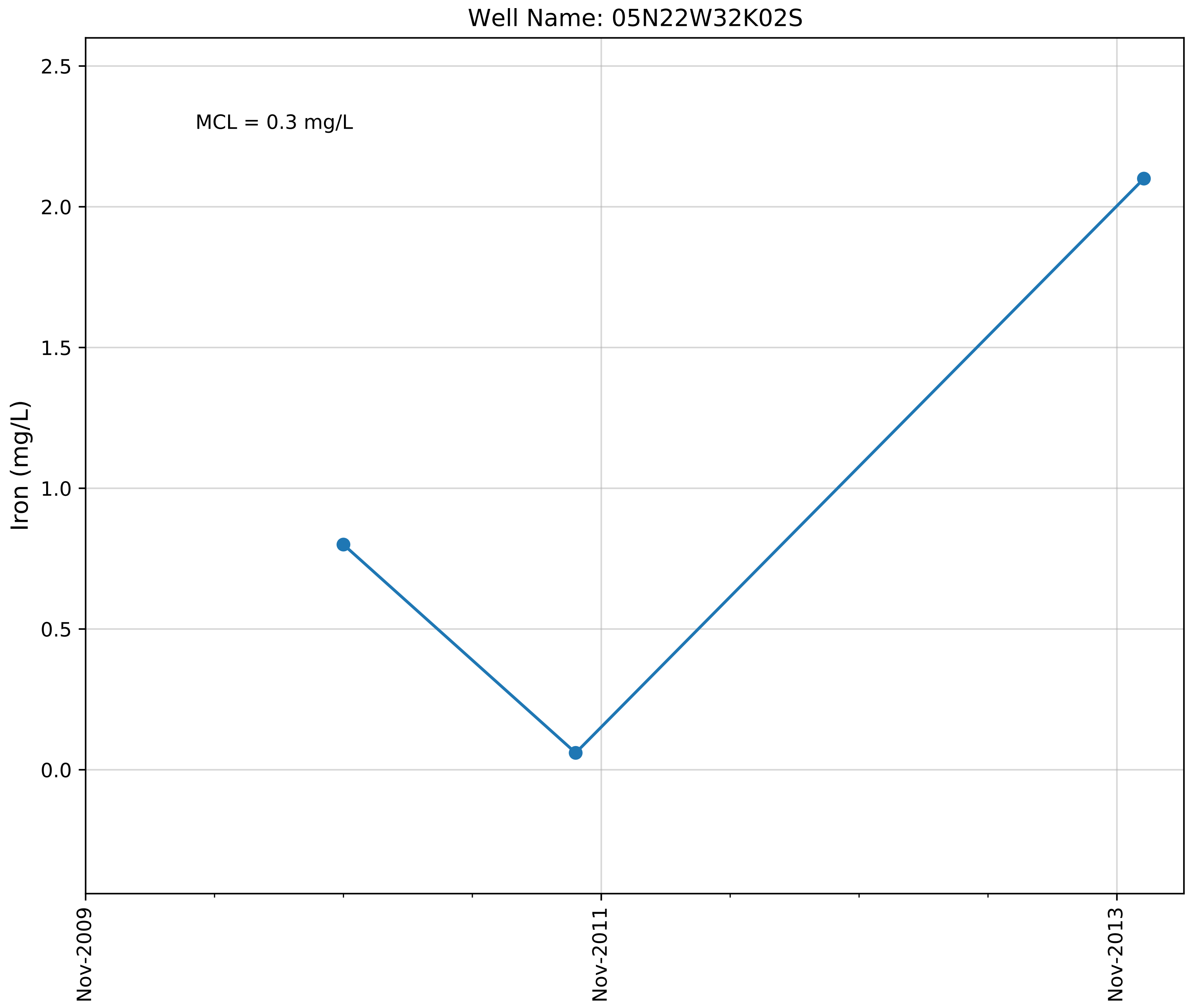
Well Name: 04N23W02P01S
MCL = 0.3 mg/L
Iron (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011

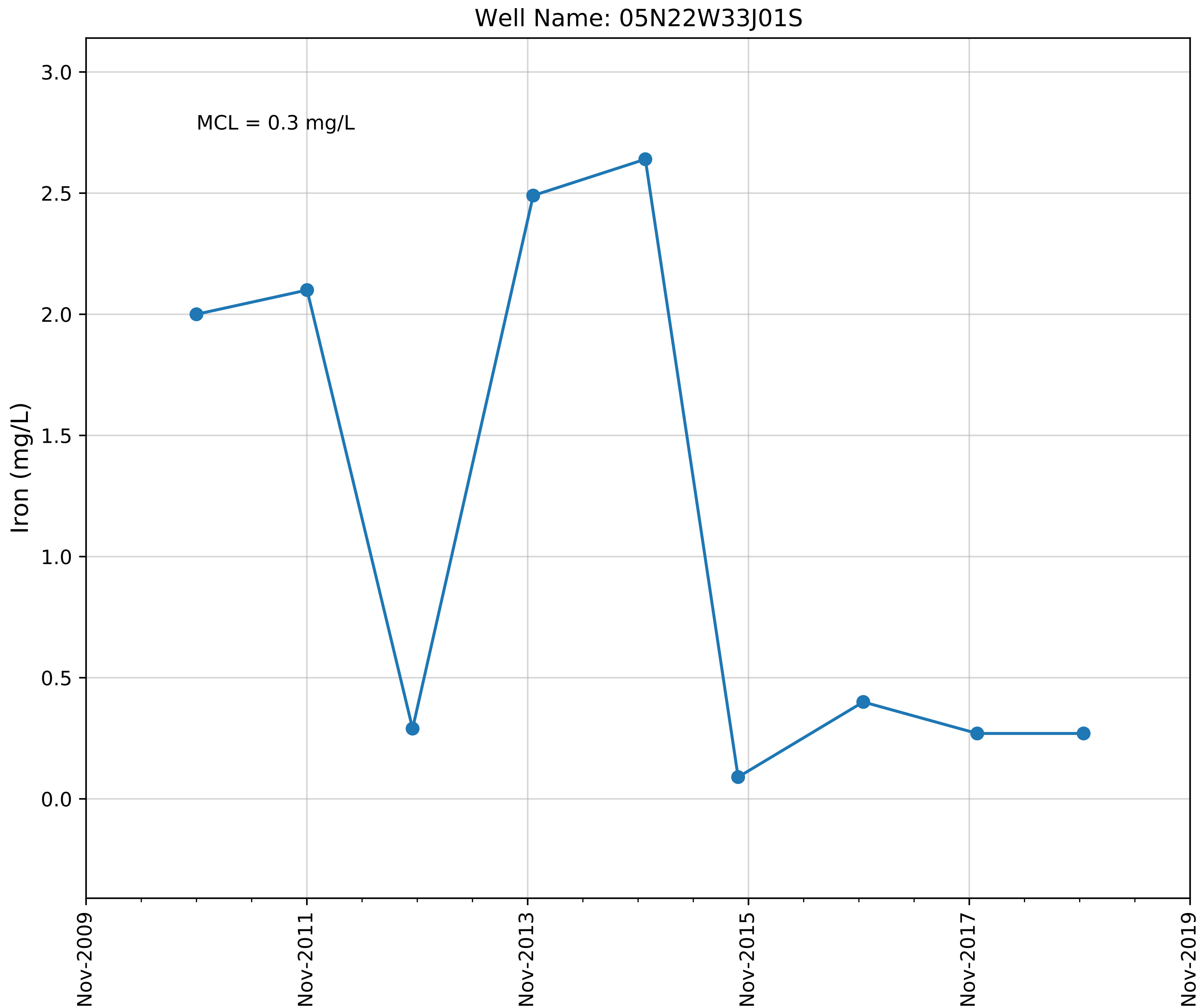


Well Name: 04N23W12B03S
MCL = 0.3 mg/L
Iron (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2015

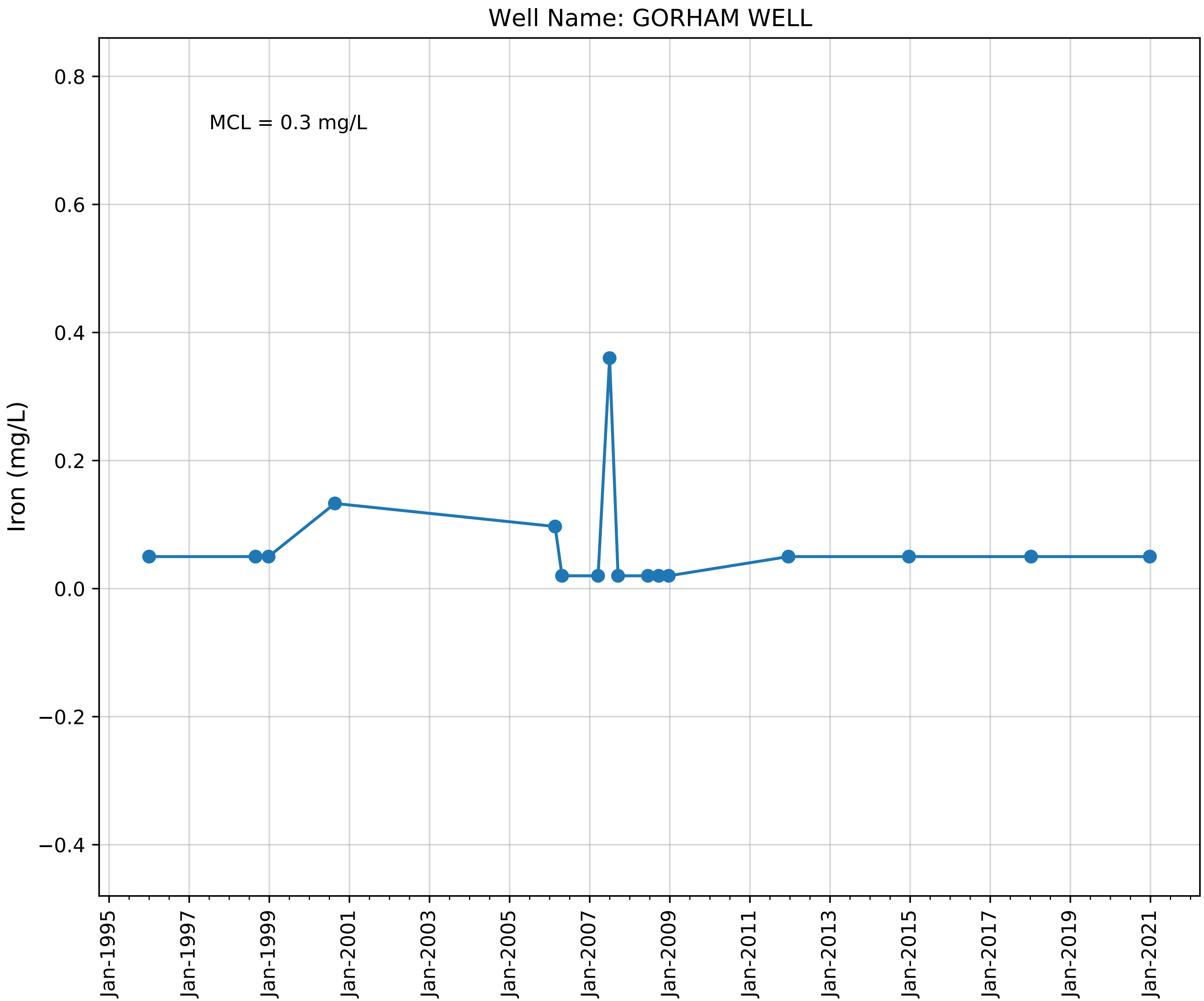


Well Name: 04N23W12H02S
MCL = 0.3 mg/L
Iron (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Sep-2010
Sep-2012
Sep-2014

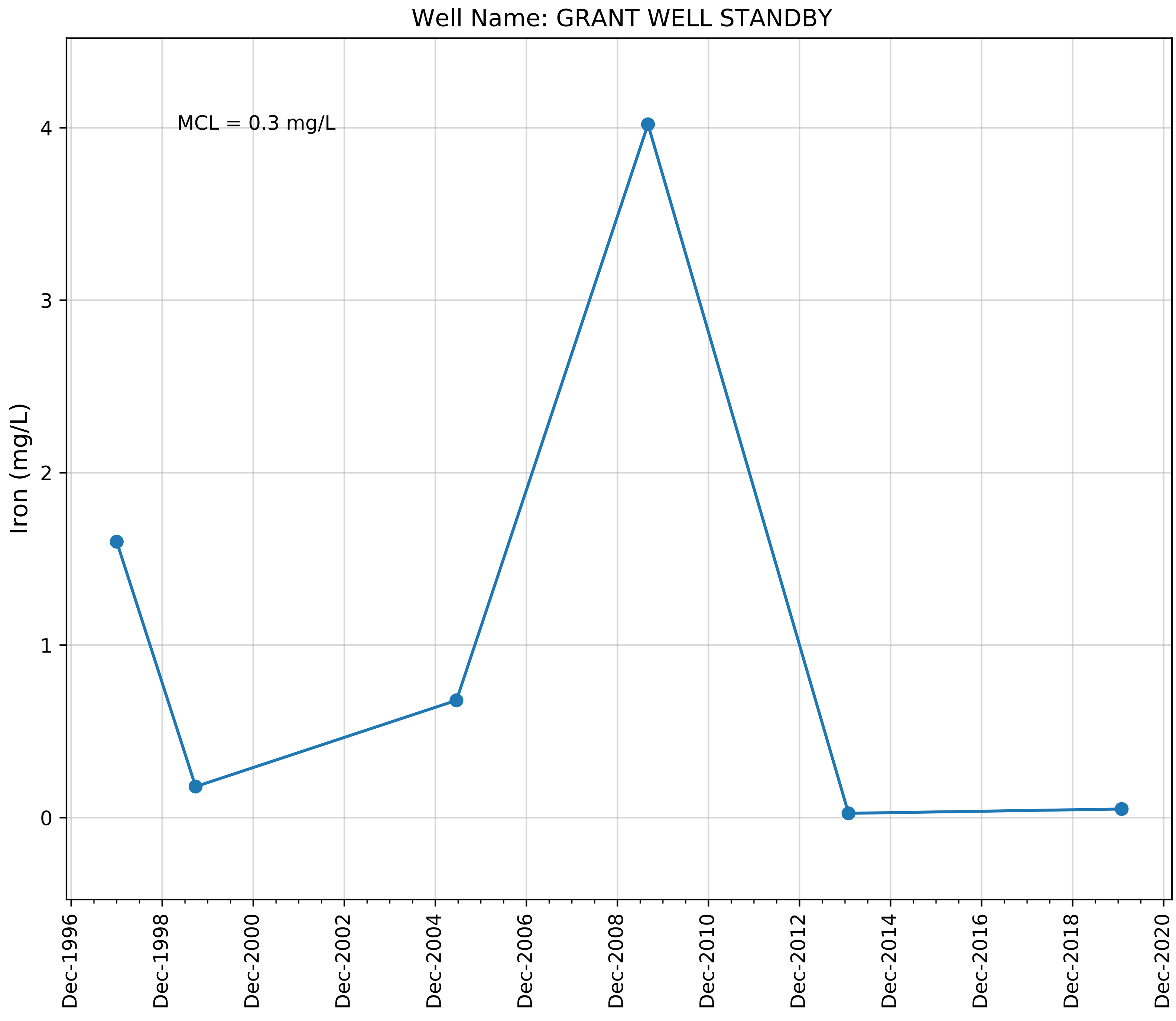

Well Name: 05N22W32K02S
MCL = 0.3 mg/L
Iron (mg/L)
2.5
2.0
1.5
1.0
0.5
0.0
Nov-2009
Nov-2011
Nov-2013

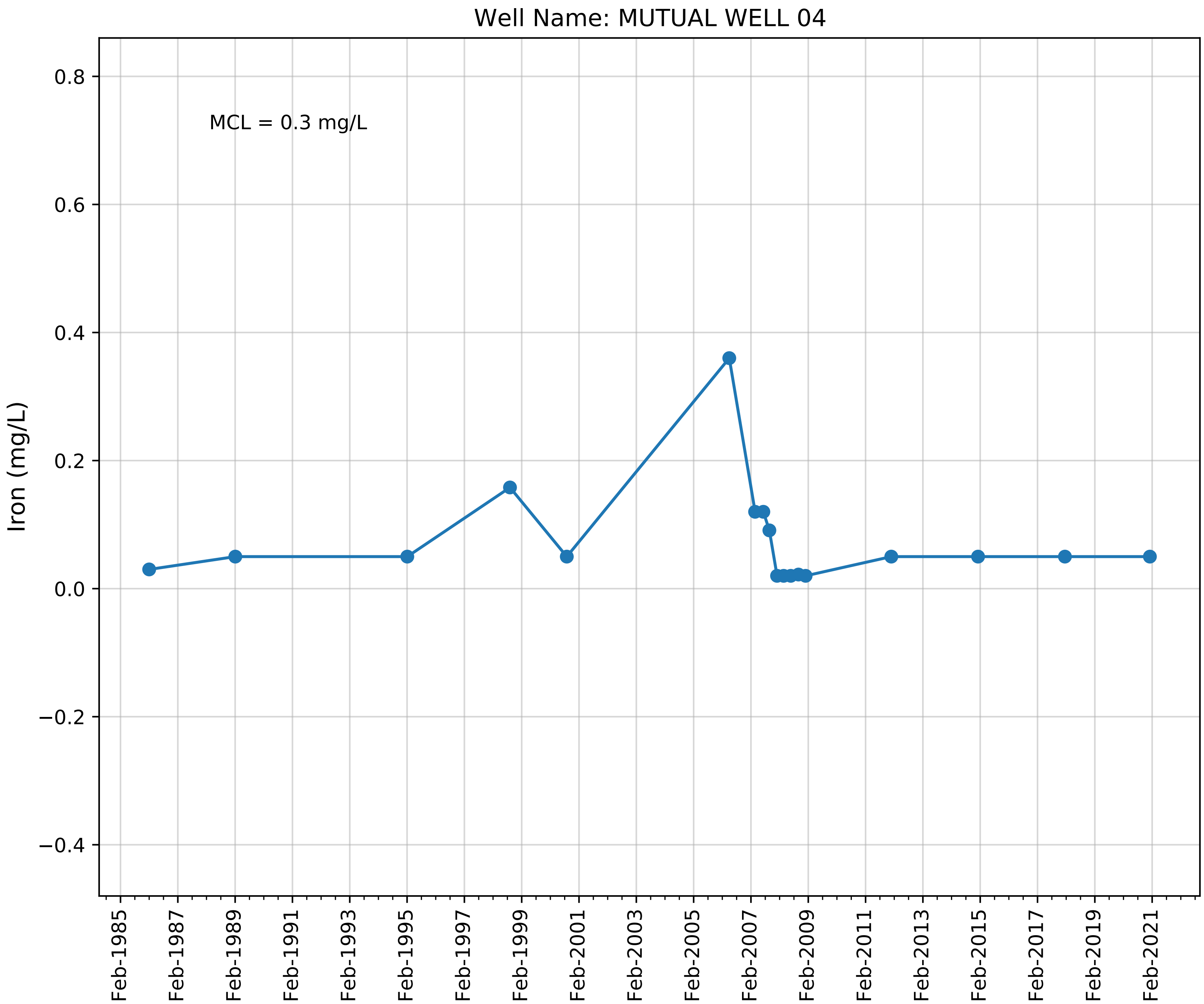


Well Name: 05N22W33J01S
MCL = 0.3 mg/L
Iron (mg/L)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019

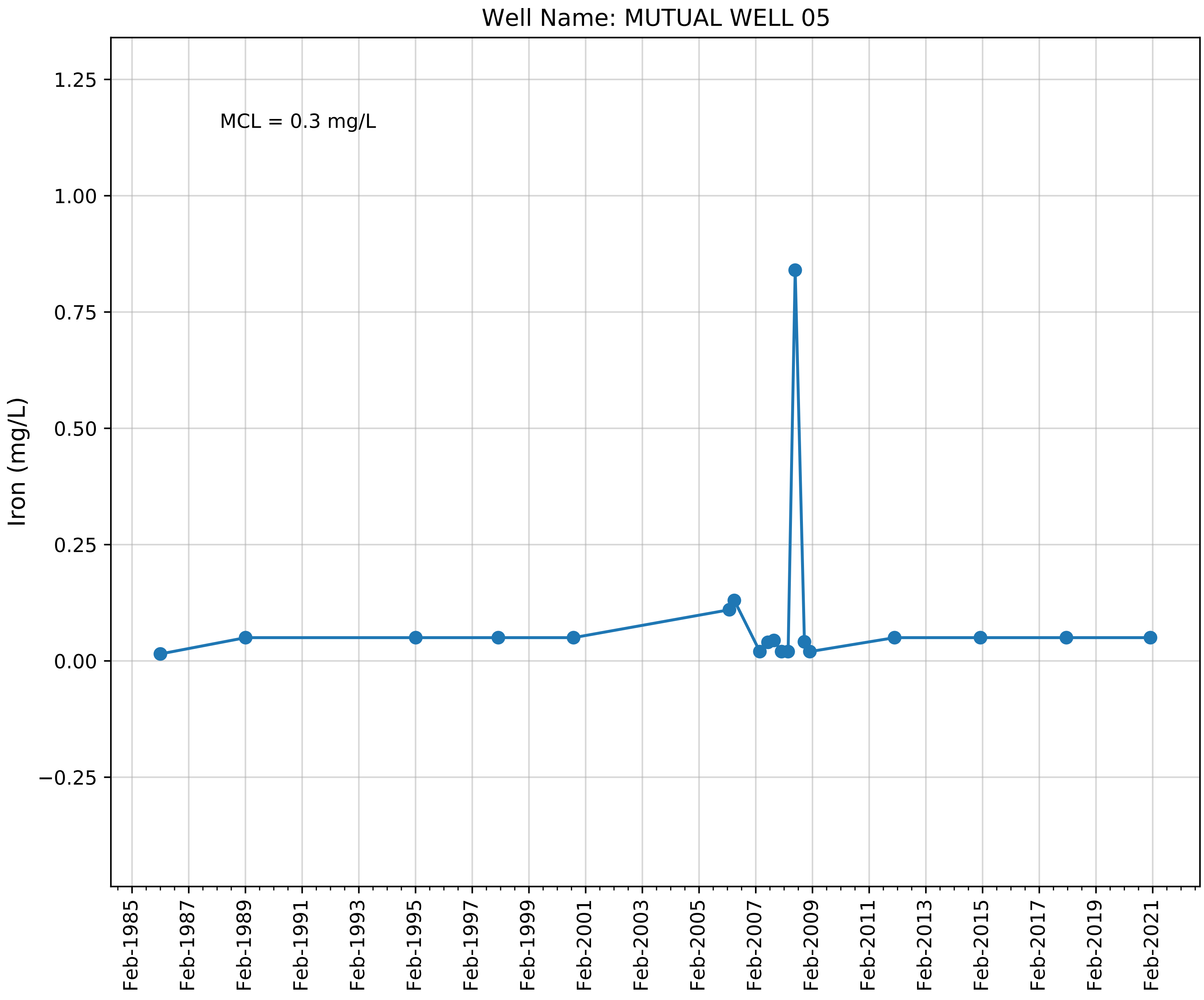


Well Name: GORHAM WELL
MCL = 0.3 mg/L
Iron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Jan-1995
Jan-1997
Jan-1999
Jan-2001
Jan-2003
Jan-2005
Jan-2007
Jan-2009
Jan-2011
Jan-2013
Jan-2015
Jan-2017
Jan-2019
Jan-2021

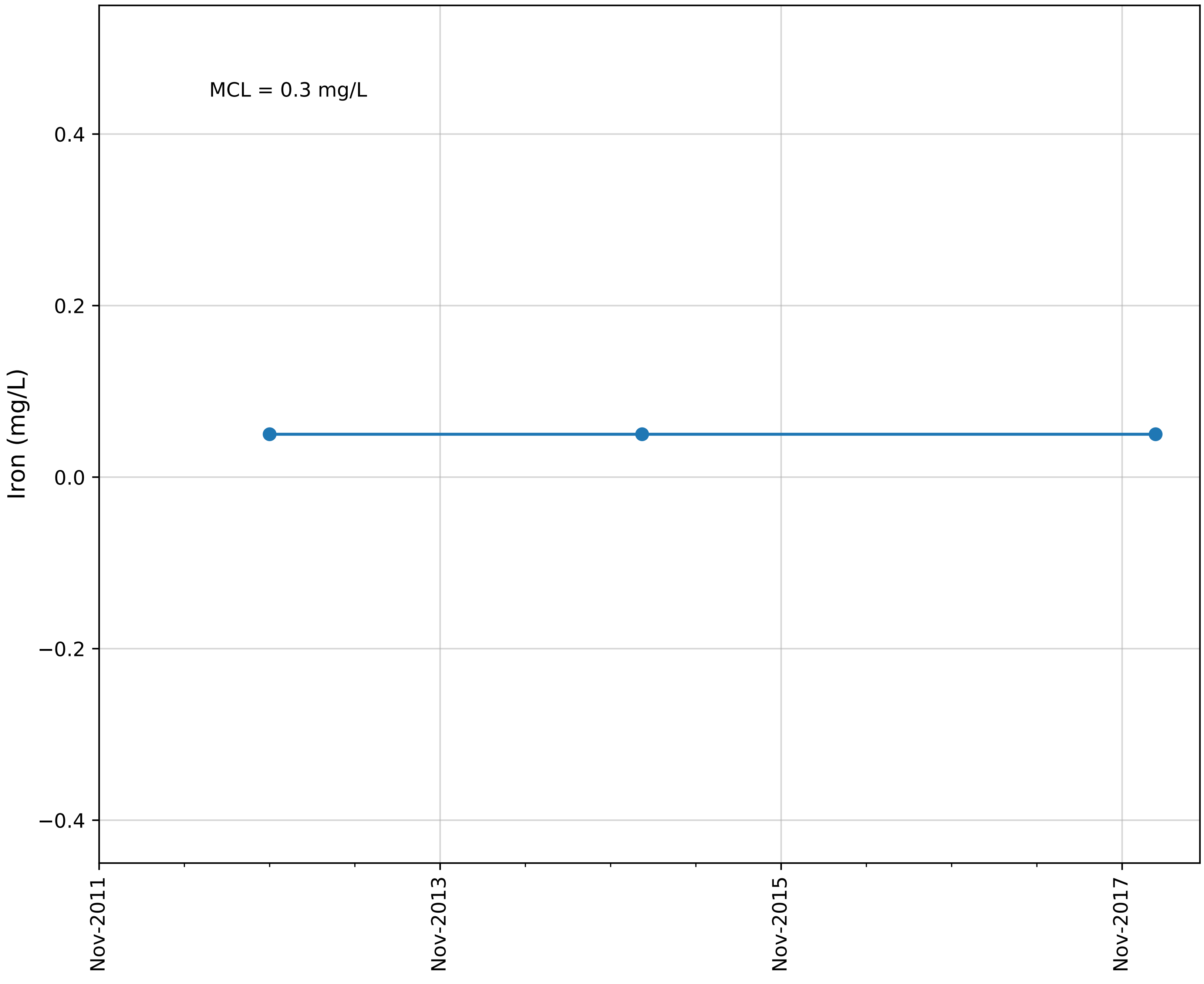

Well Name: GRANT WELL STANDBY
MCL = 0.3 mg/L
Iron (mg/L)
0
1
2
3
4
Dec-1996
Dec-1998
Dec-2000
Dec-2002
Dec-2004
Dec-2006
Dec-2008
Dec-2010
Dec-2012
Dec-2014
Dec-2016
Dec-2018
Dec-2020

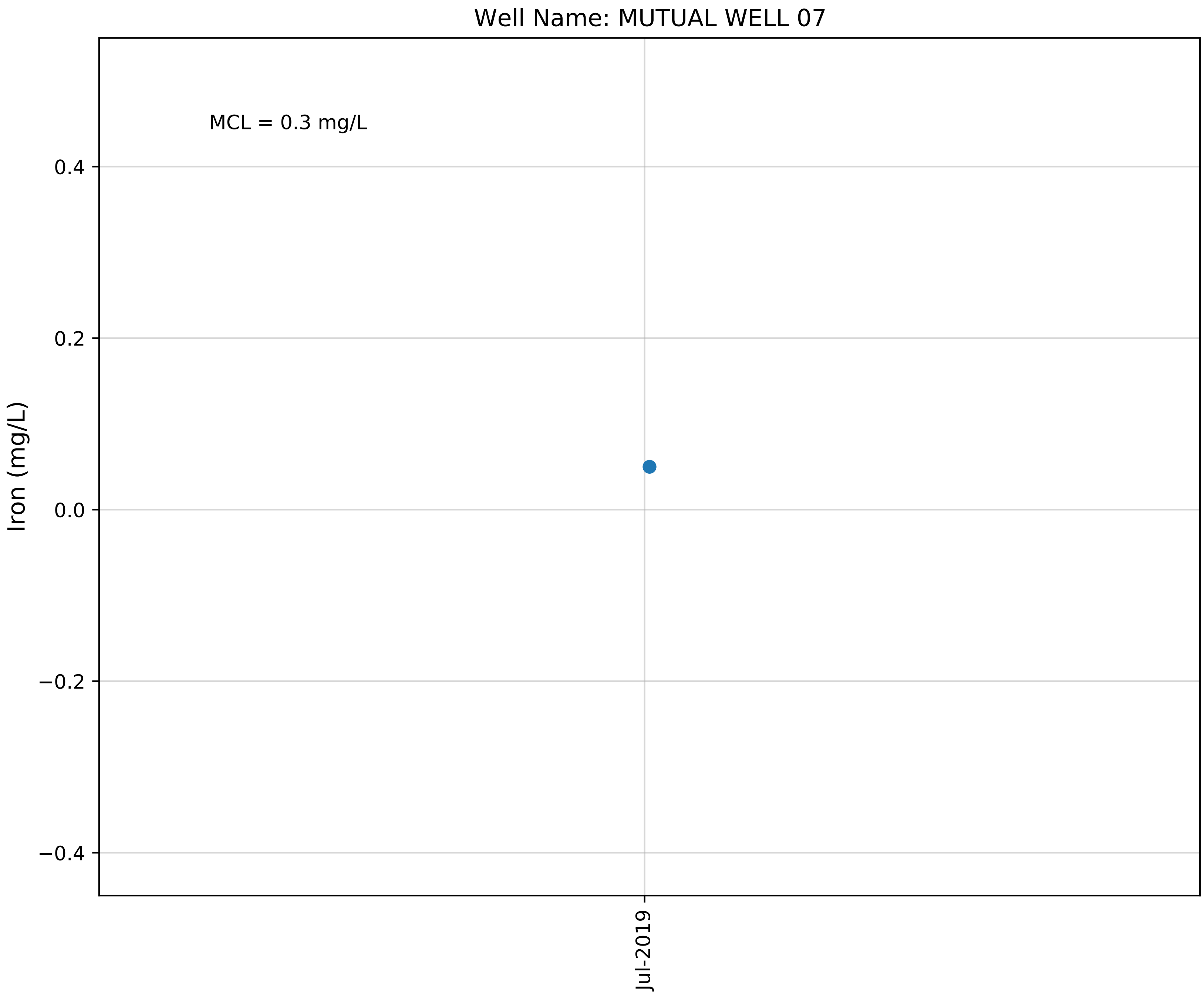


Well Name: MUTUAL WELL 04
MCL = 0.3 mg/L
Iron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

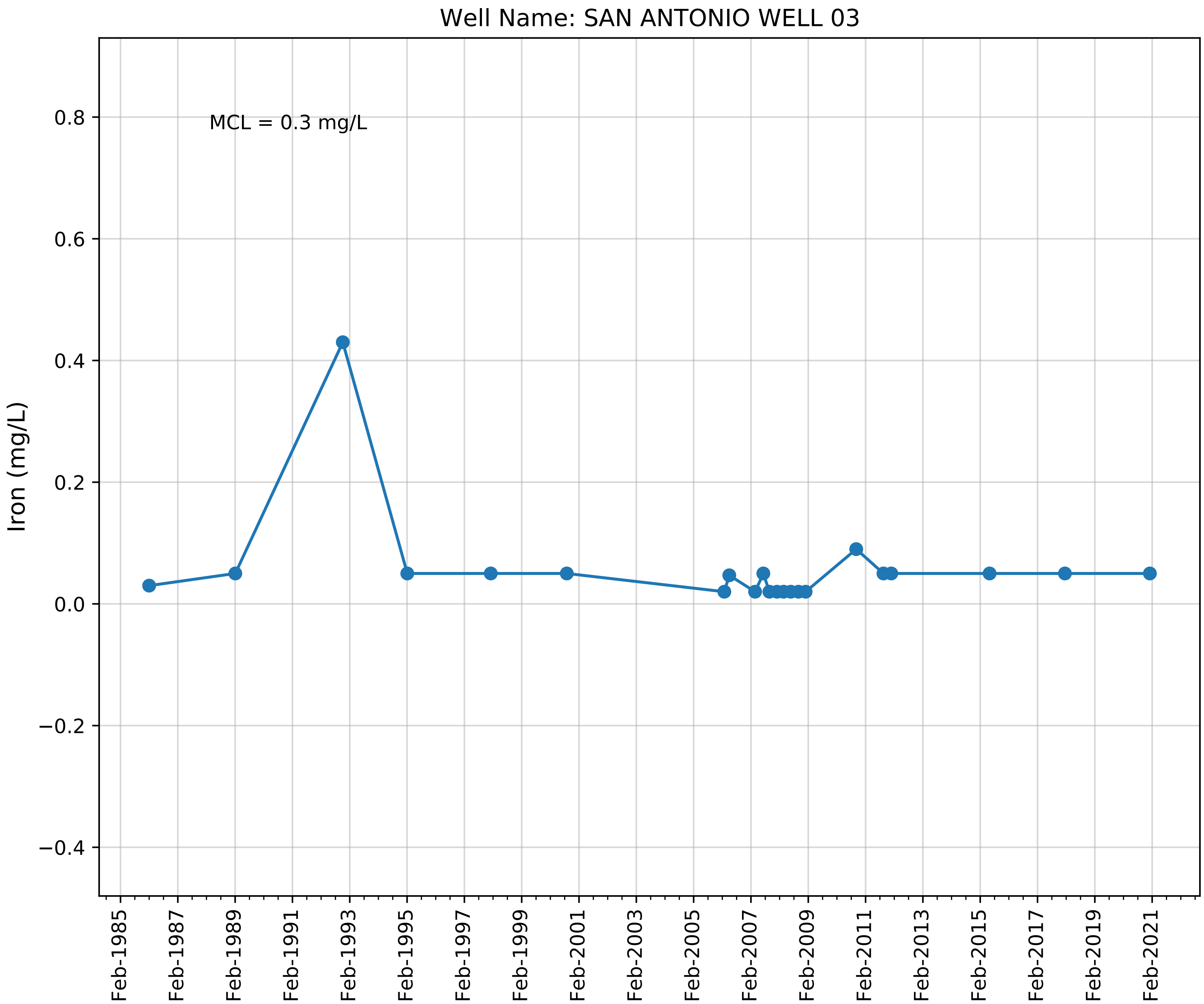

Well Name: MUTUAL WELL 05
MCL = 0.3 mg/L
Iron (mg/L)
1.25
1.00
0.75
0.50
0.25
0.00
−0.25
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

Well Name: MUTUAL WELL 06

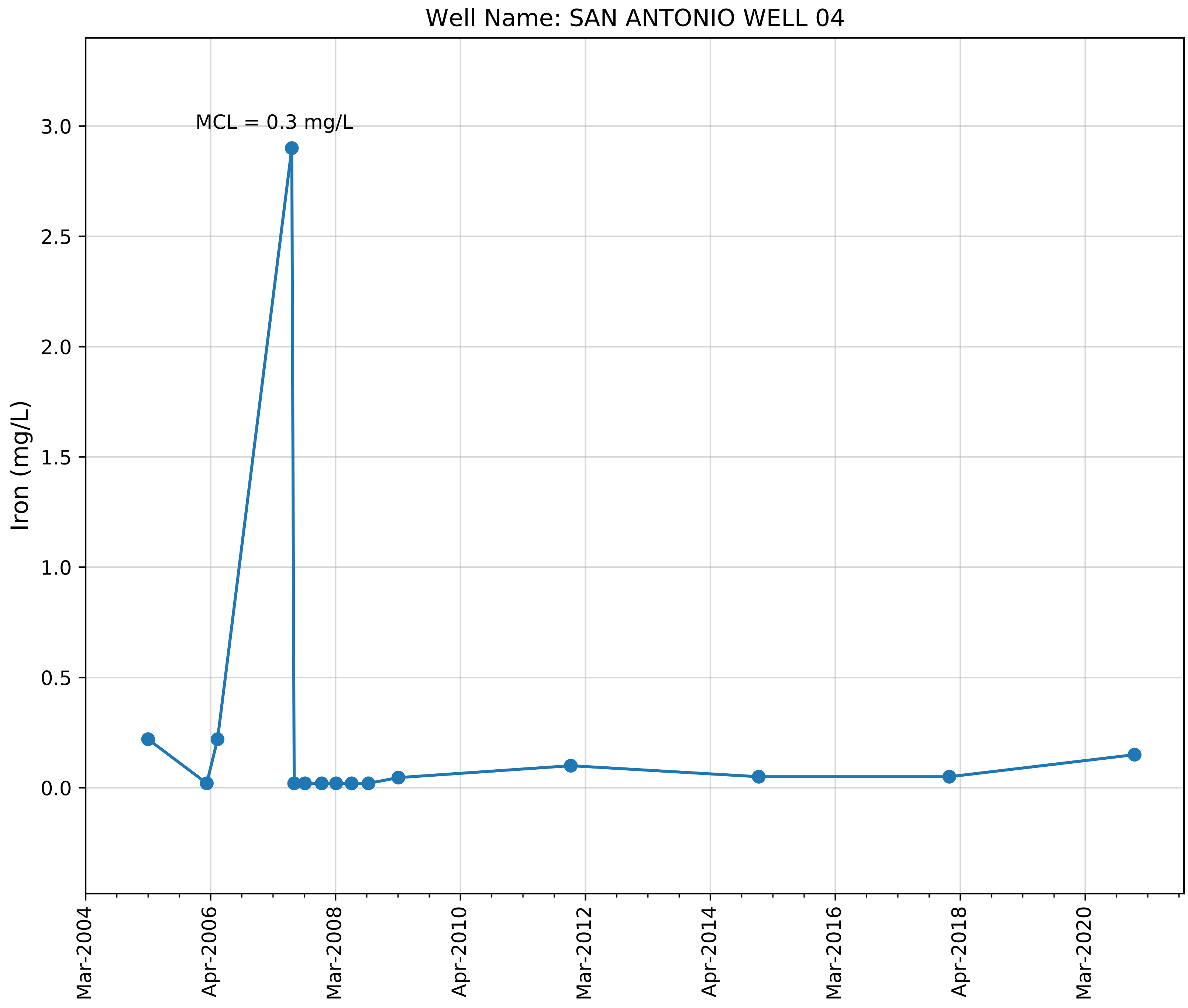


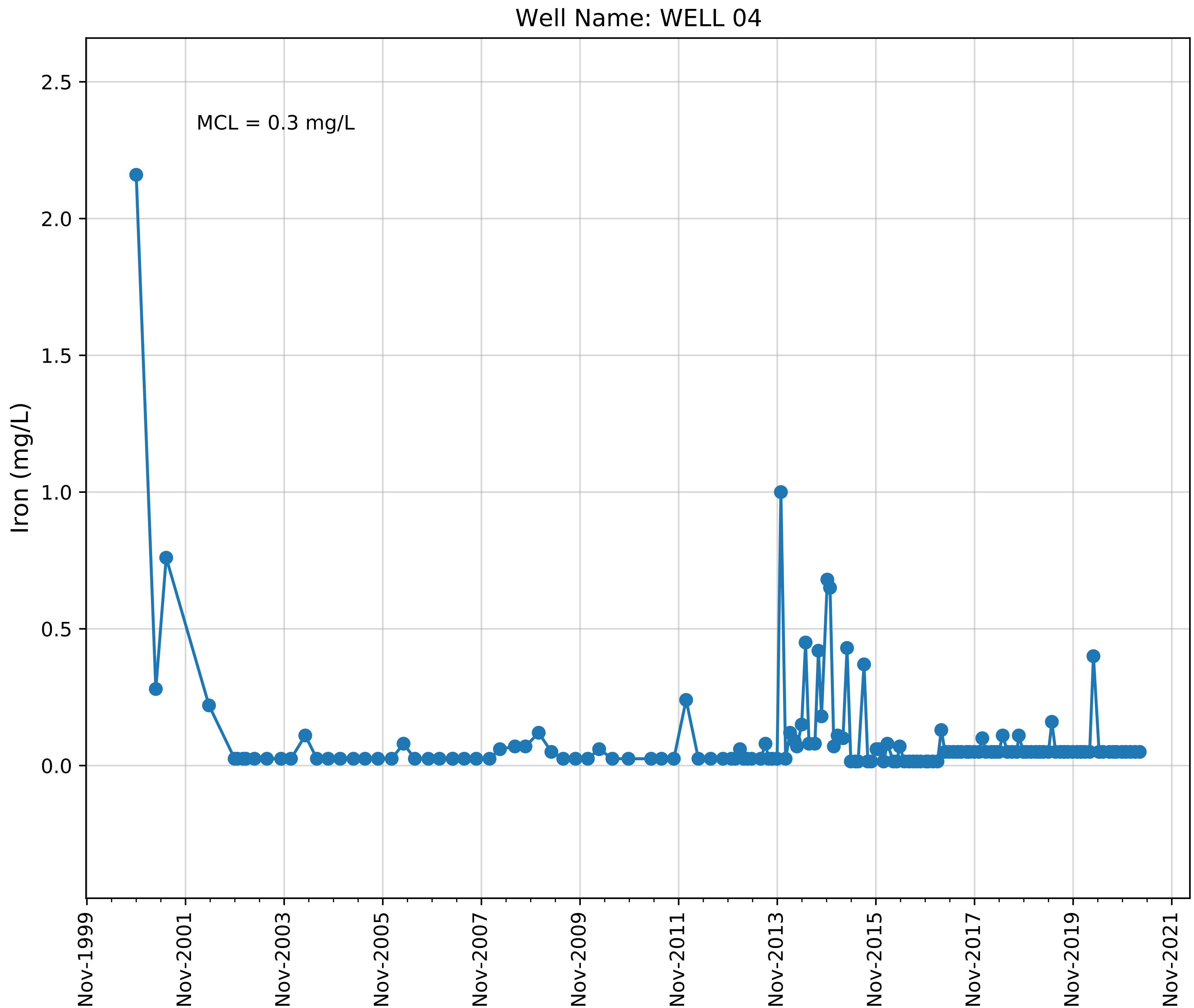


Well Name: MUTUAL WELL 07
MCL = 0.3 mg/L
Iron (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Jul-2019

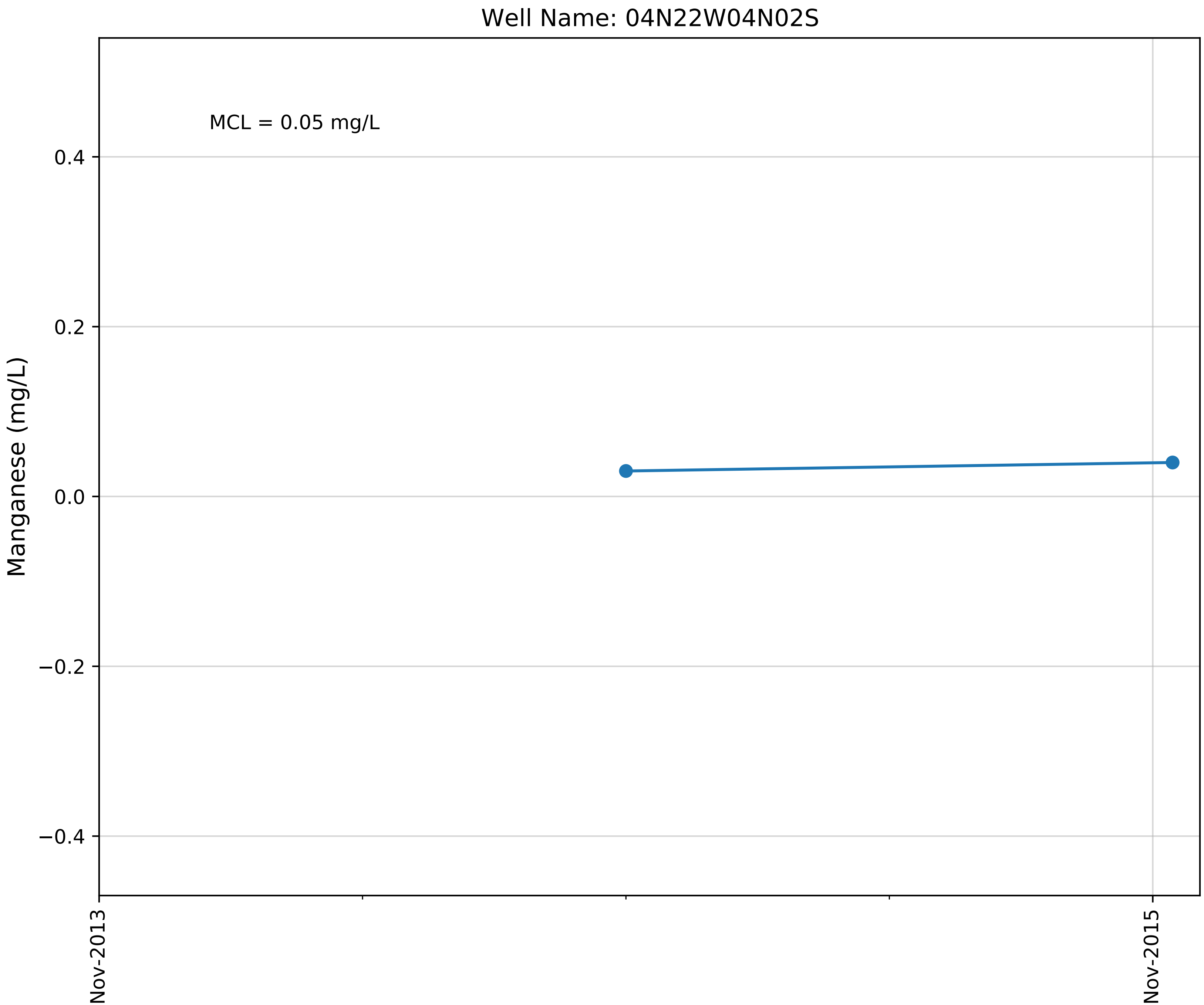


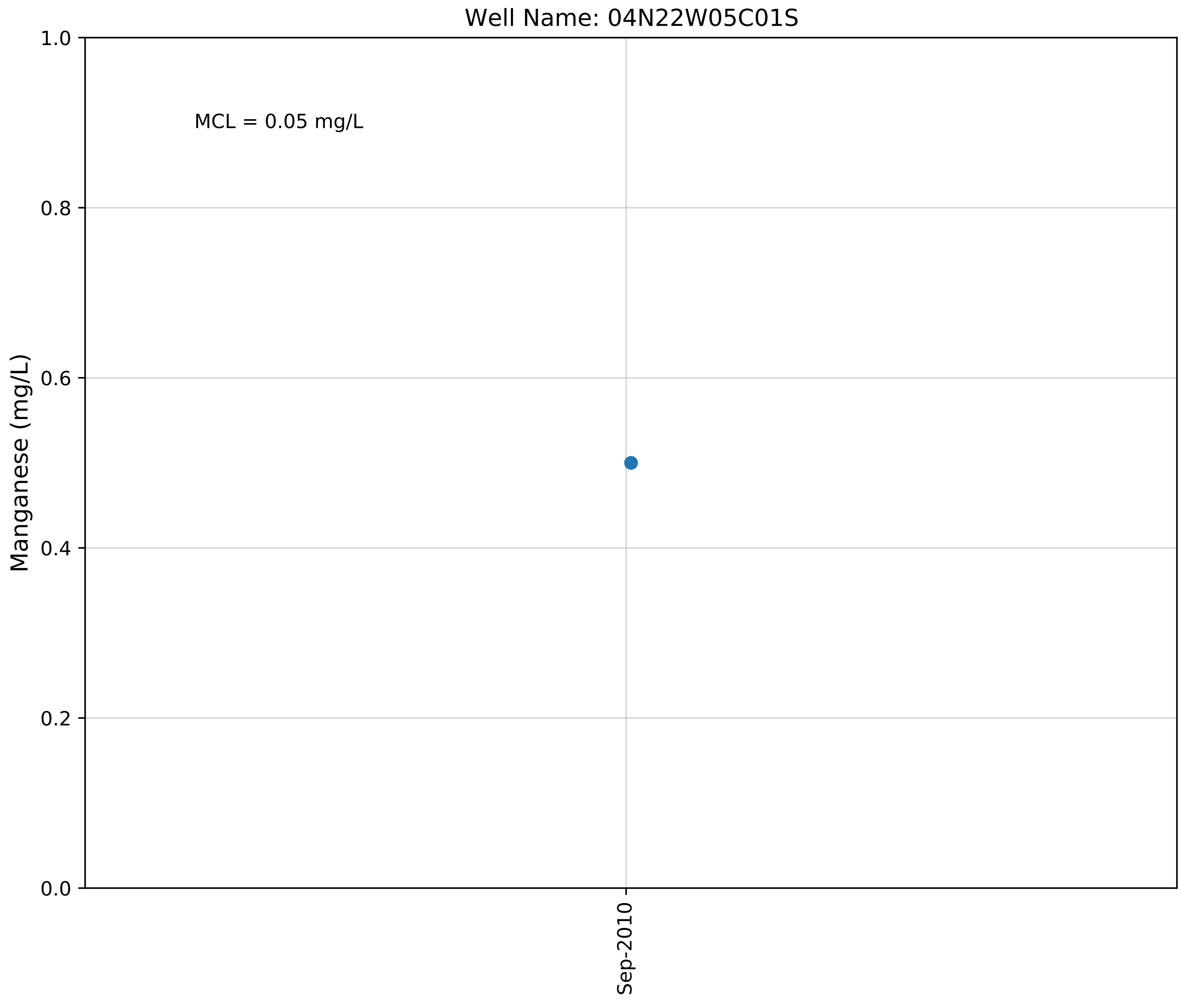
Well Name: SAN ANTONIO WELL 03
MCL = 0.3 mg/L
Iron (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

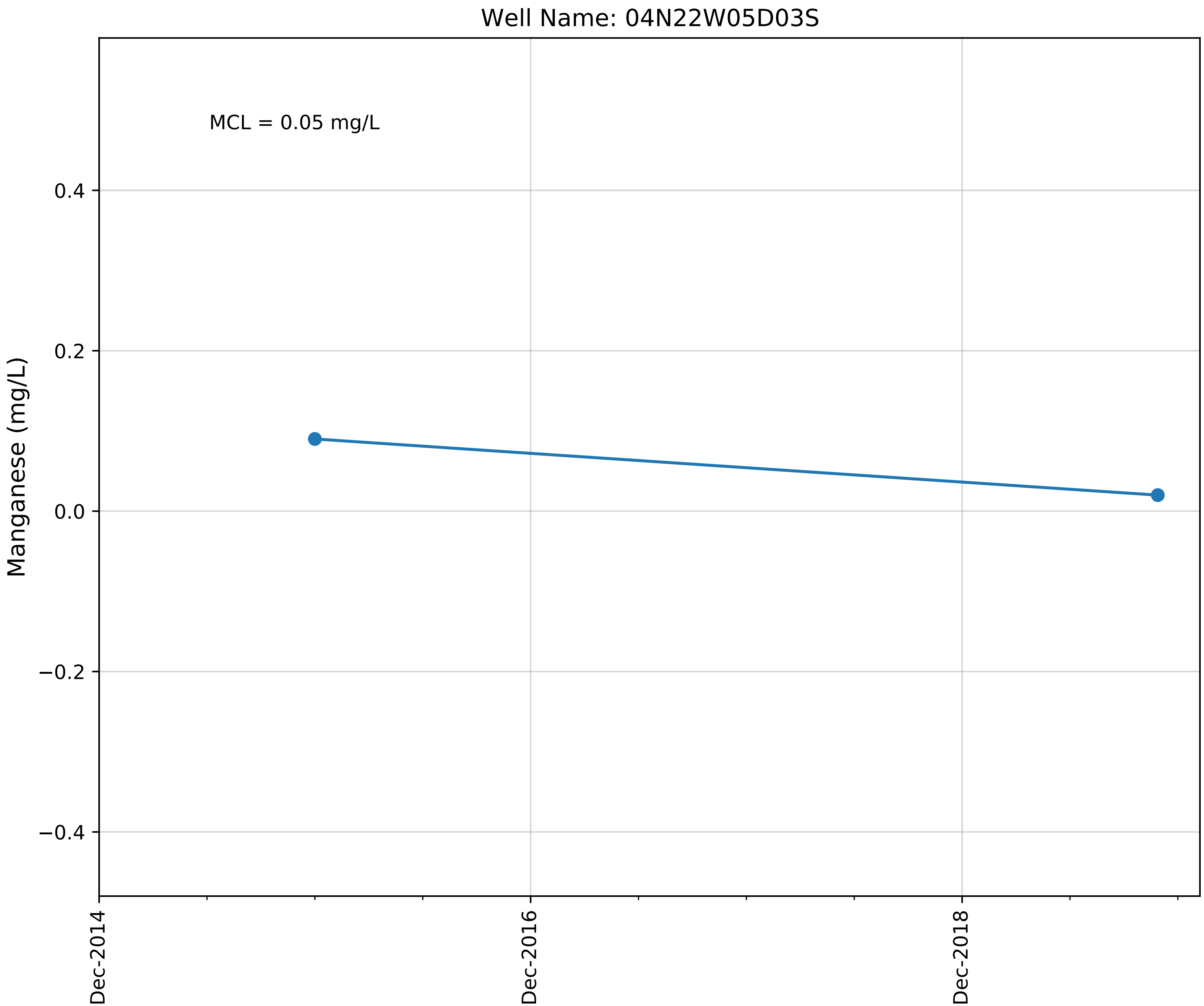

Well Name: SAN ANTONIO WELL 04
MCL = 0.3 mg/L
Iron (mg/L)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mar-2004
Apr-2006
Mar-2008
Apr-2010
Mar-2012
Apr-2014
Mar-2016
Apr-2018
Mar-2020

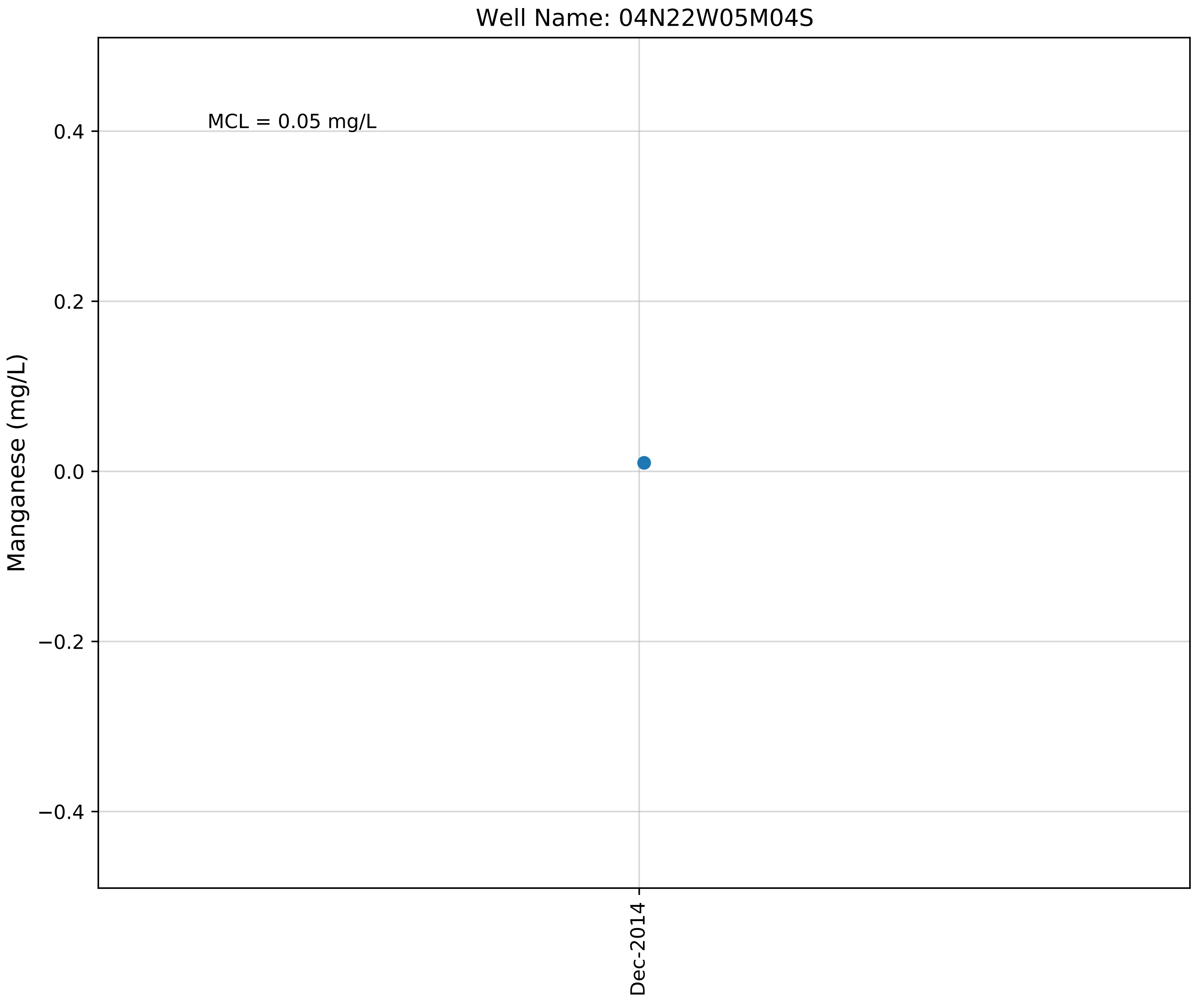


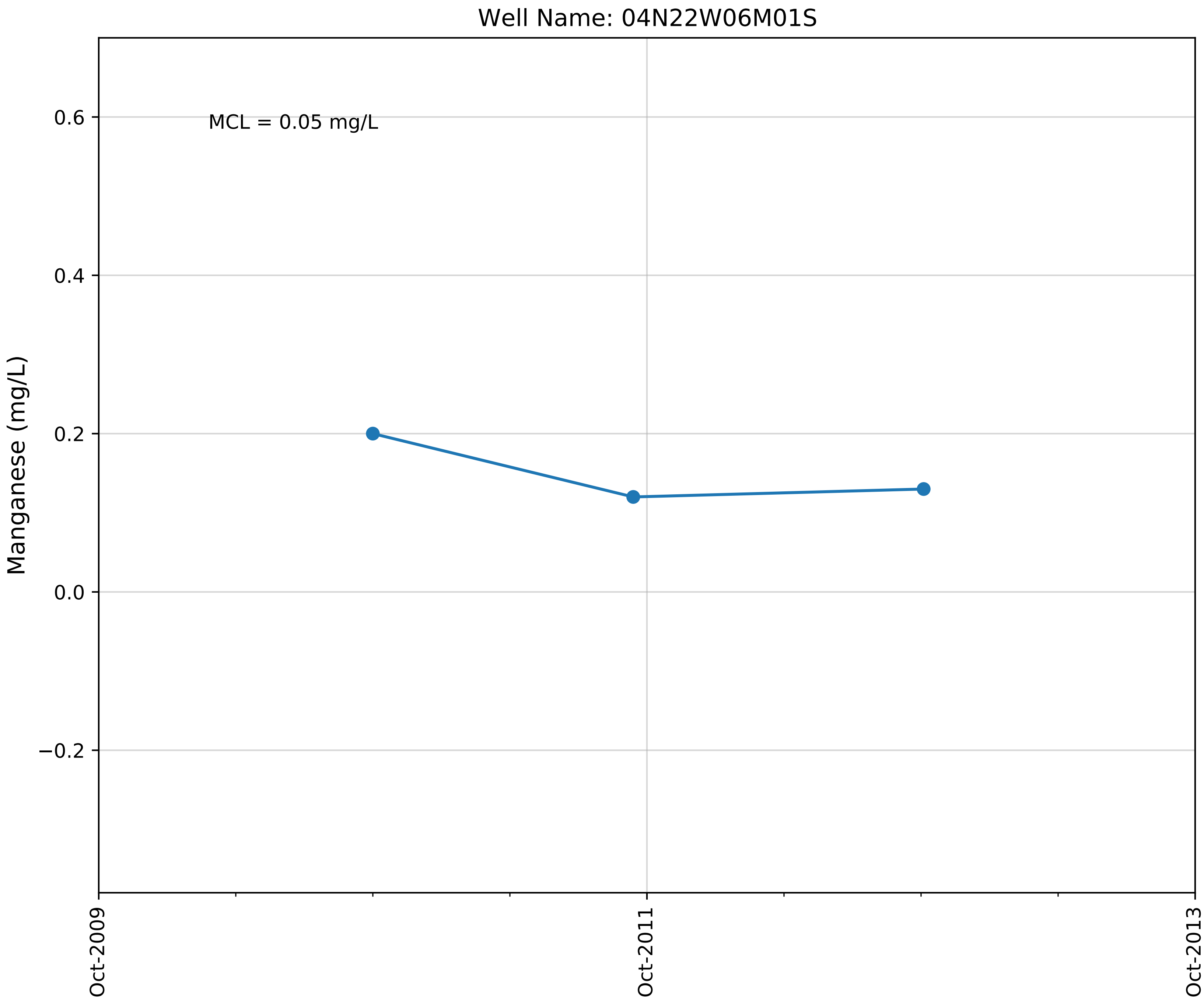
Well Name: WELL 04
MCL = 0.3 mg/L
Iron (mg/L)
2.5
2.0
1.5
1.0
0.5
0.0
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021


Well Name: 04N22W04N02S
MCL = 0.05 mg/L
Manganese (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015

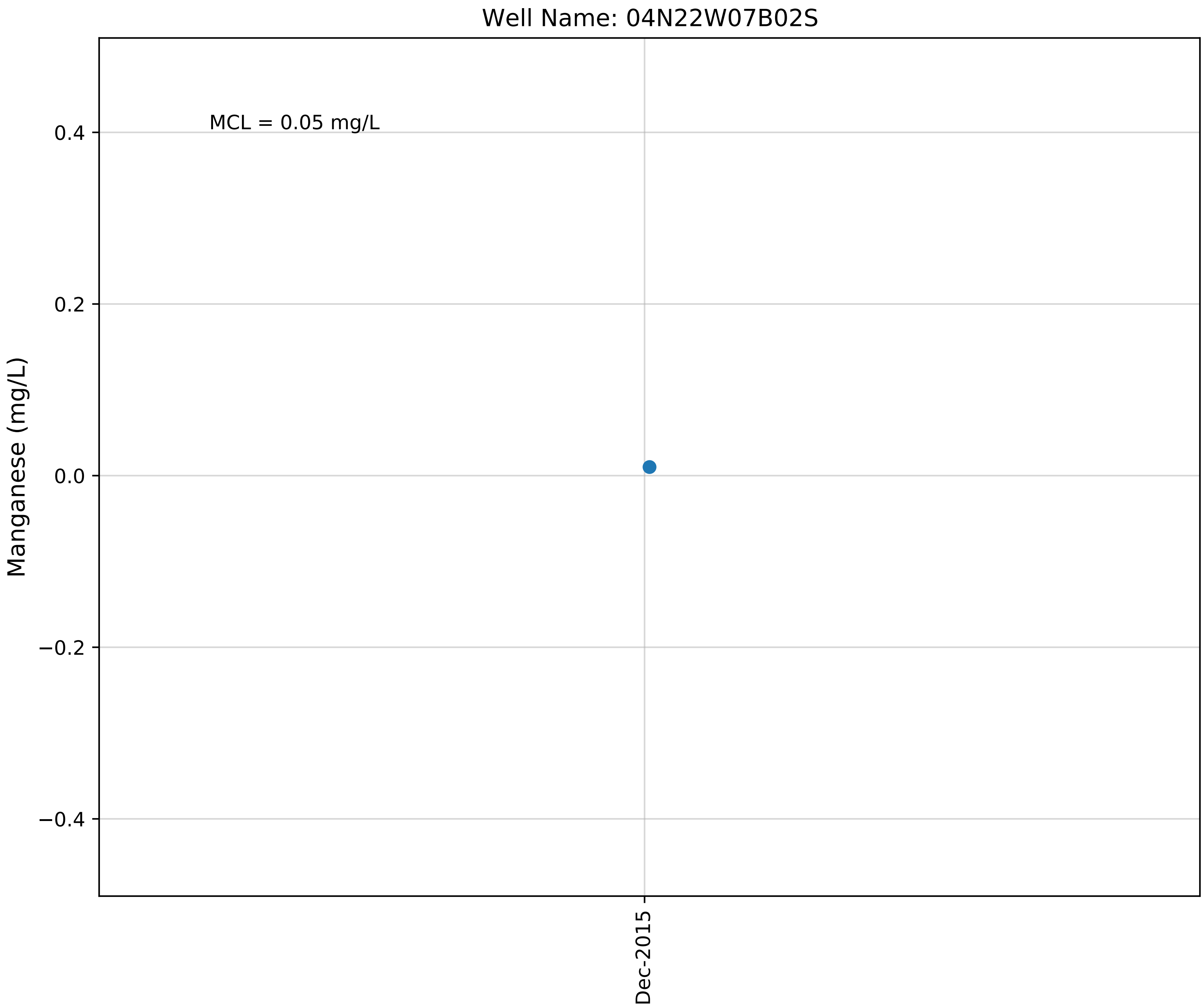

Well Name: 04N22W05C01S
MCL = 0.05 mg/L
Manganese (mg/L)
1.0
0.8
0.6
0.4
0.2
0.0
Sep-2010


Well Name: 04N22W05D03S
MCL = 0.05 mg/L
Manganese (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Dec-2014
Dec-2016
Dec-2018

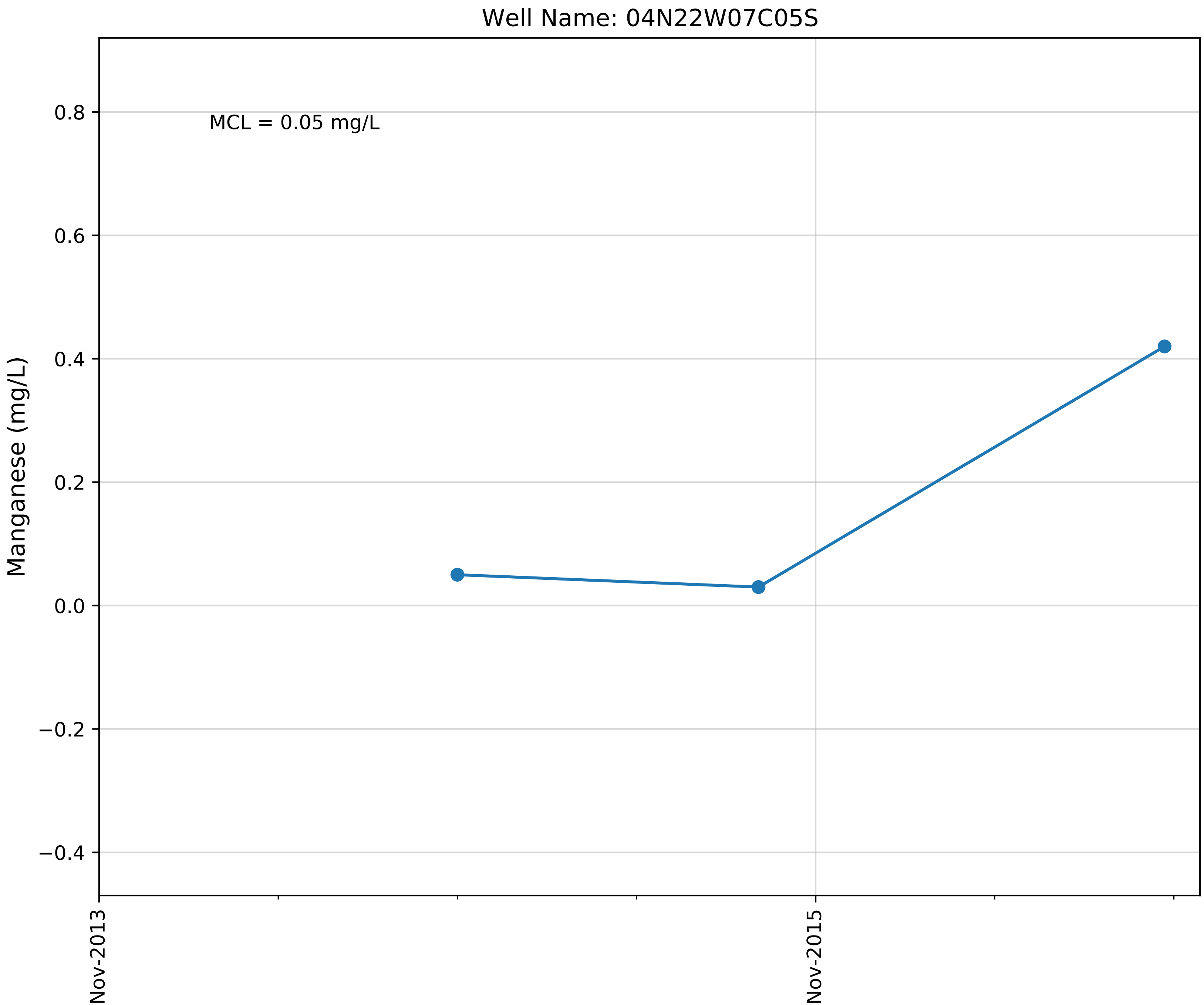

Well Name: 04N22W05M04S
MCL = 0.05 mg/L
Manganese (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Dec-2014

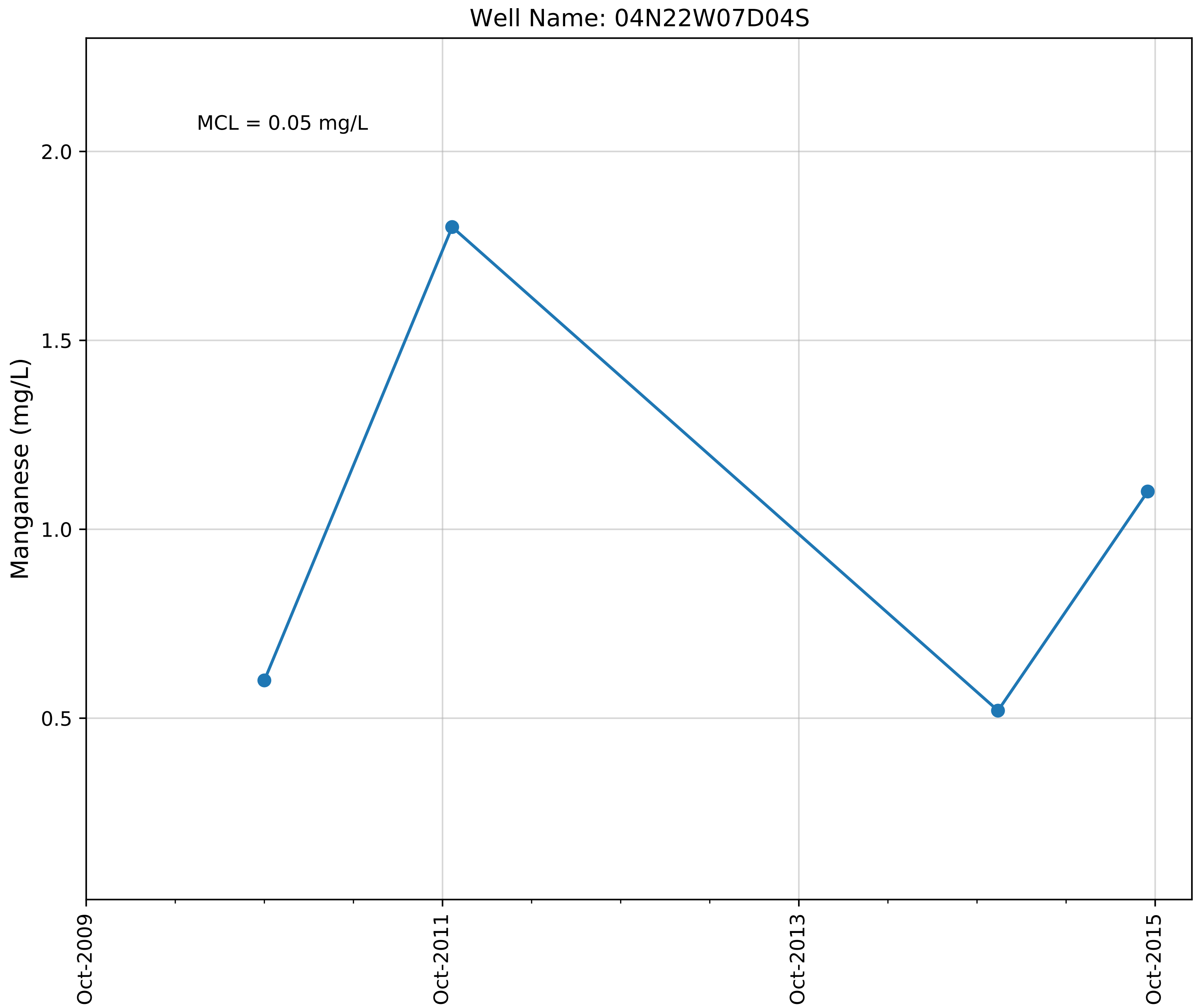


Well Name: 04N22W06M01S
MCL = 0.05 mg/L
Manganese (mg/L)
0.6
0.4
0.2
0.0
−0.2
Oct-2009
Oct-2011
Oct-2013

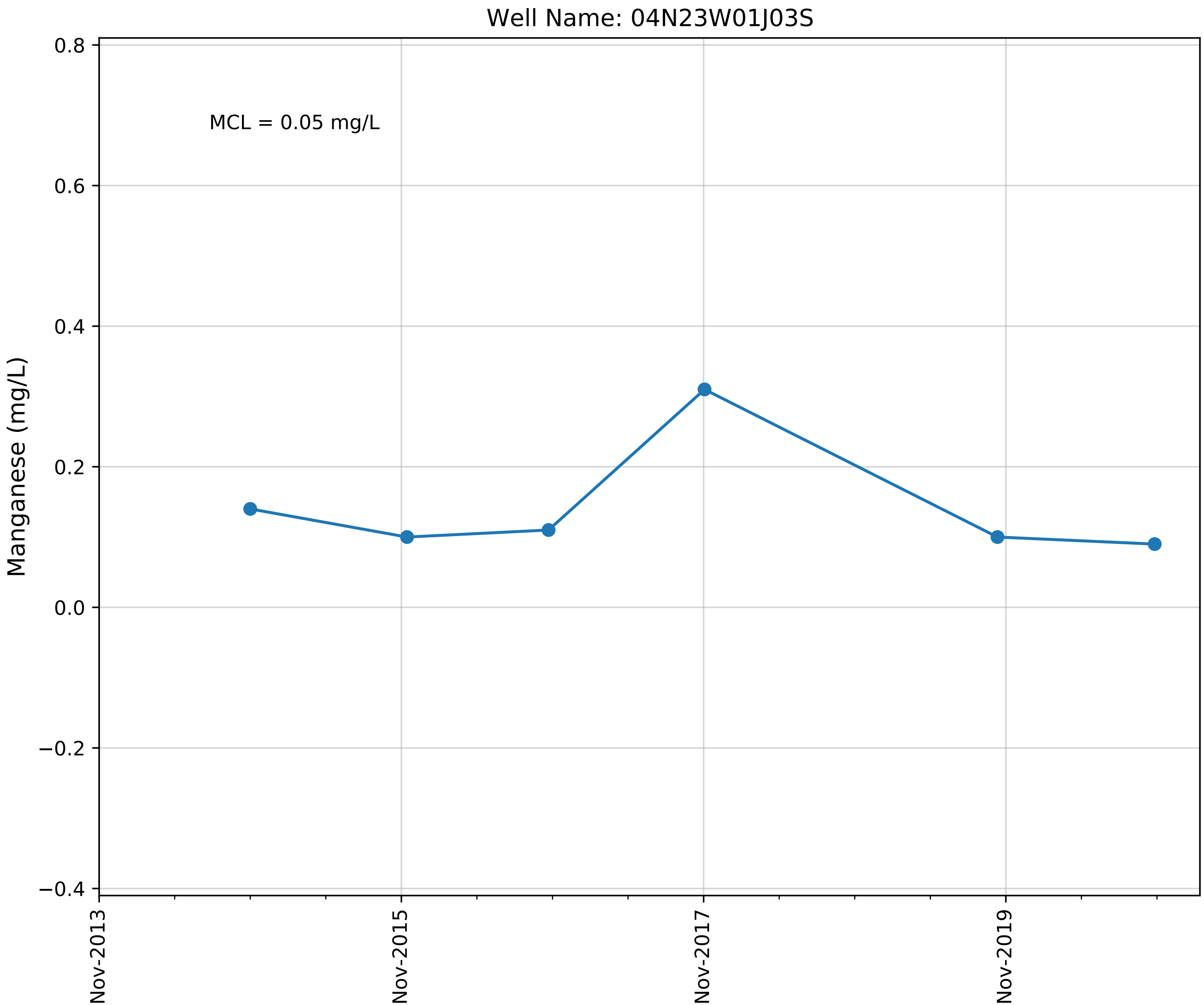


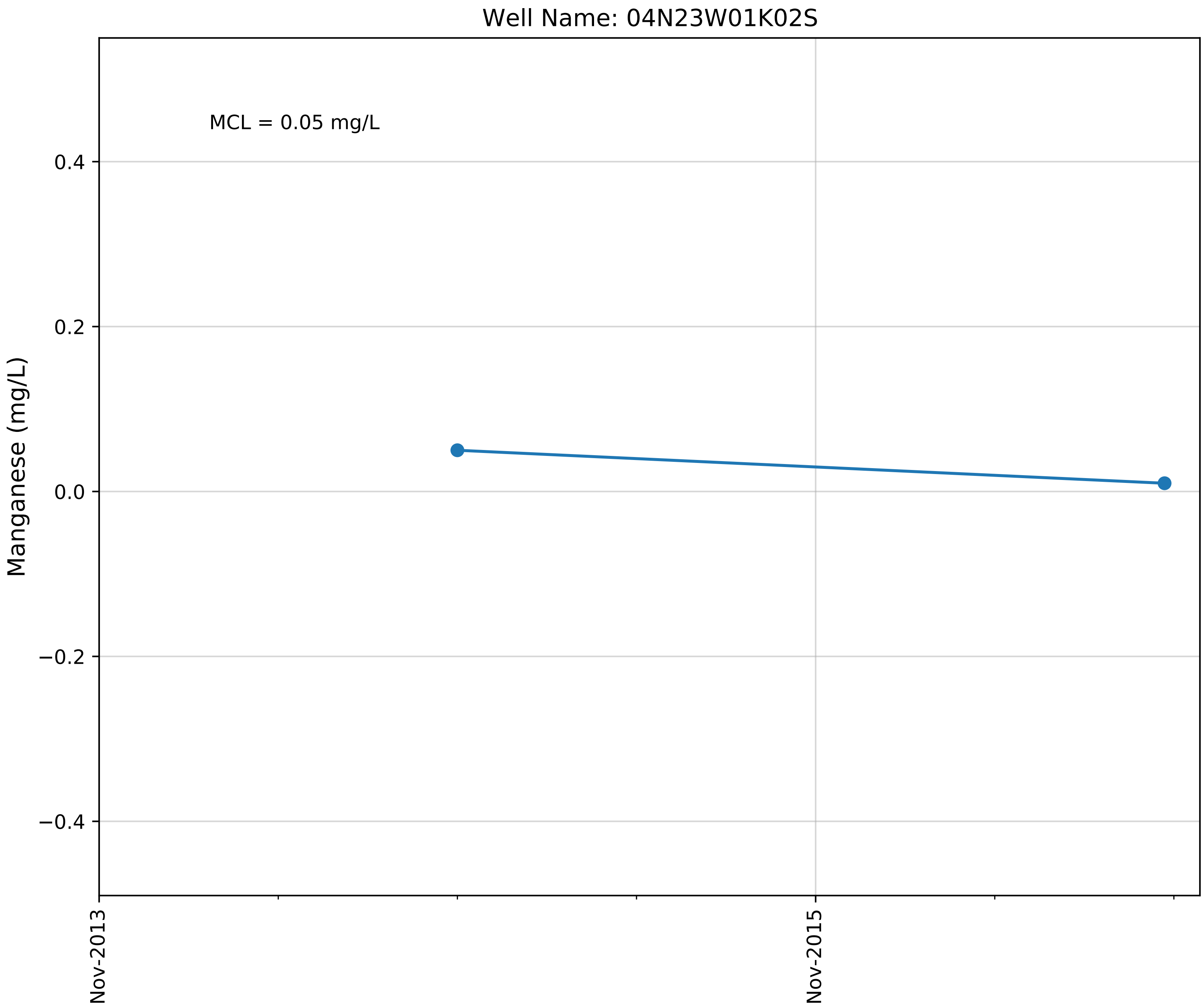
Well Name: 04N22W07B02S
MCL = 0.05 mg/L
0.4
0.2
0.0
−0.2
−0.4
Manganese (mg/L)
Dec-2015

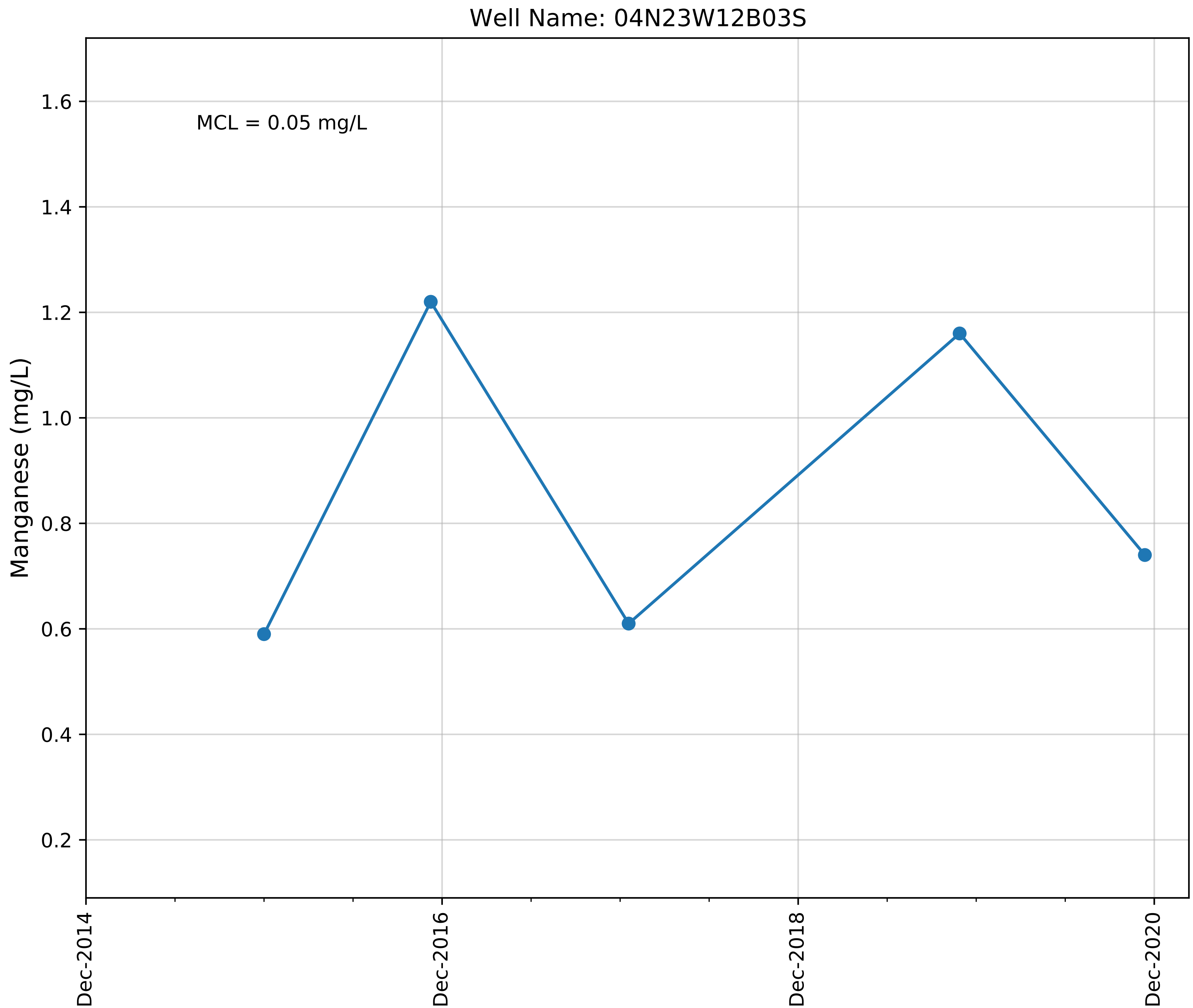

Well Name: 04N22W07C05S
MCL = 0.05 mg/L
Manganese (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015

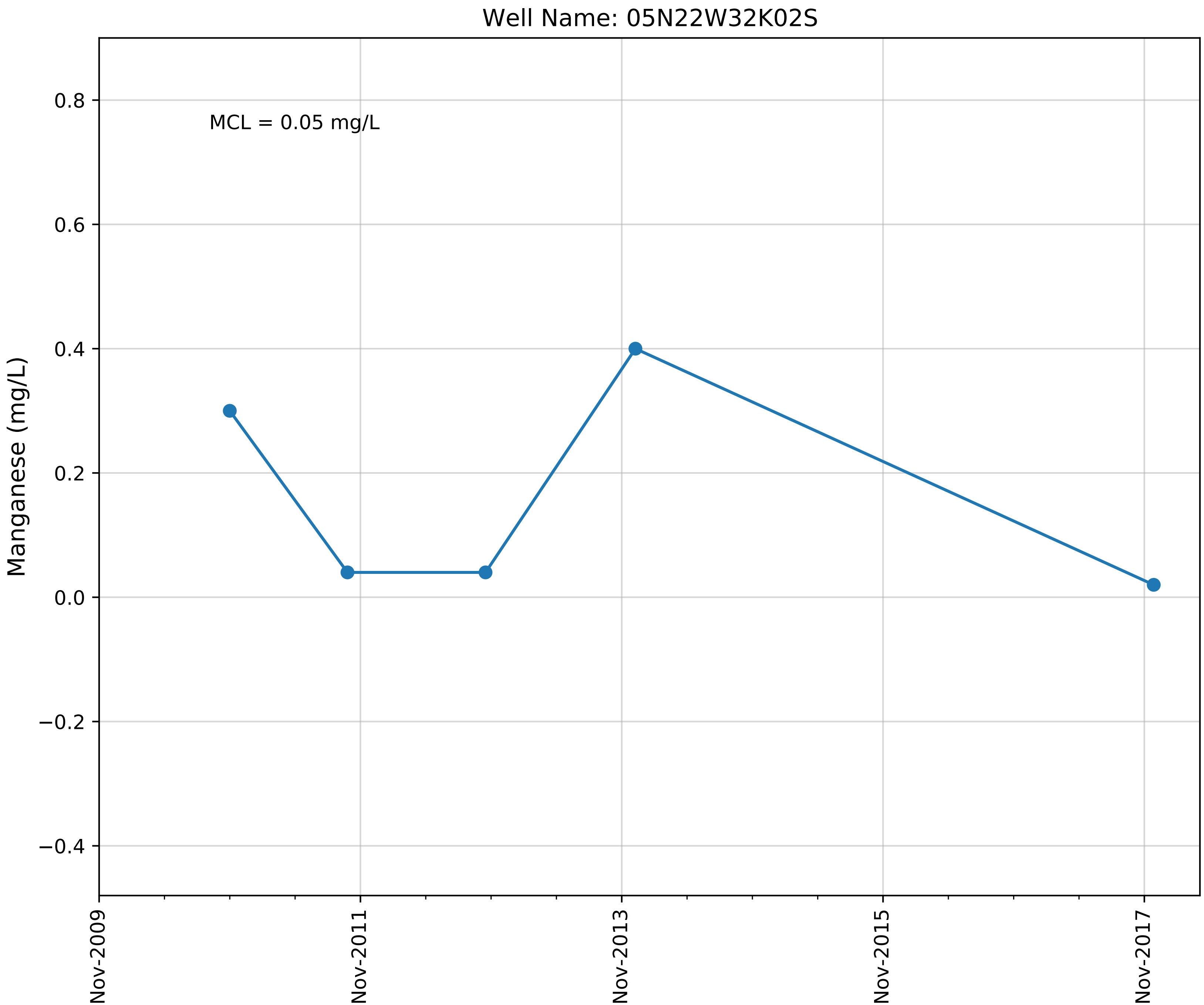


Well Name: 04N22W07D04S
MCL = 0.05 mg/L
Manganese (mg/L)
2.0
1.5
1.0
0.5
Oct-2009
Oct-2011
Oct-2013
Oct-2015

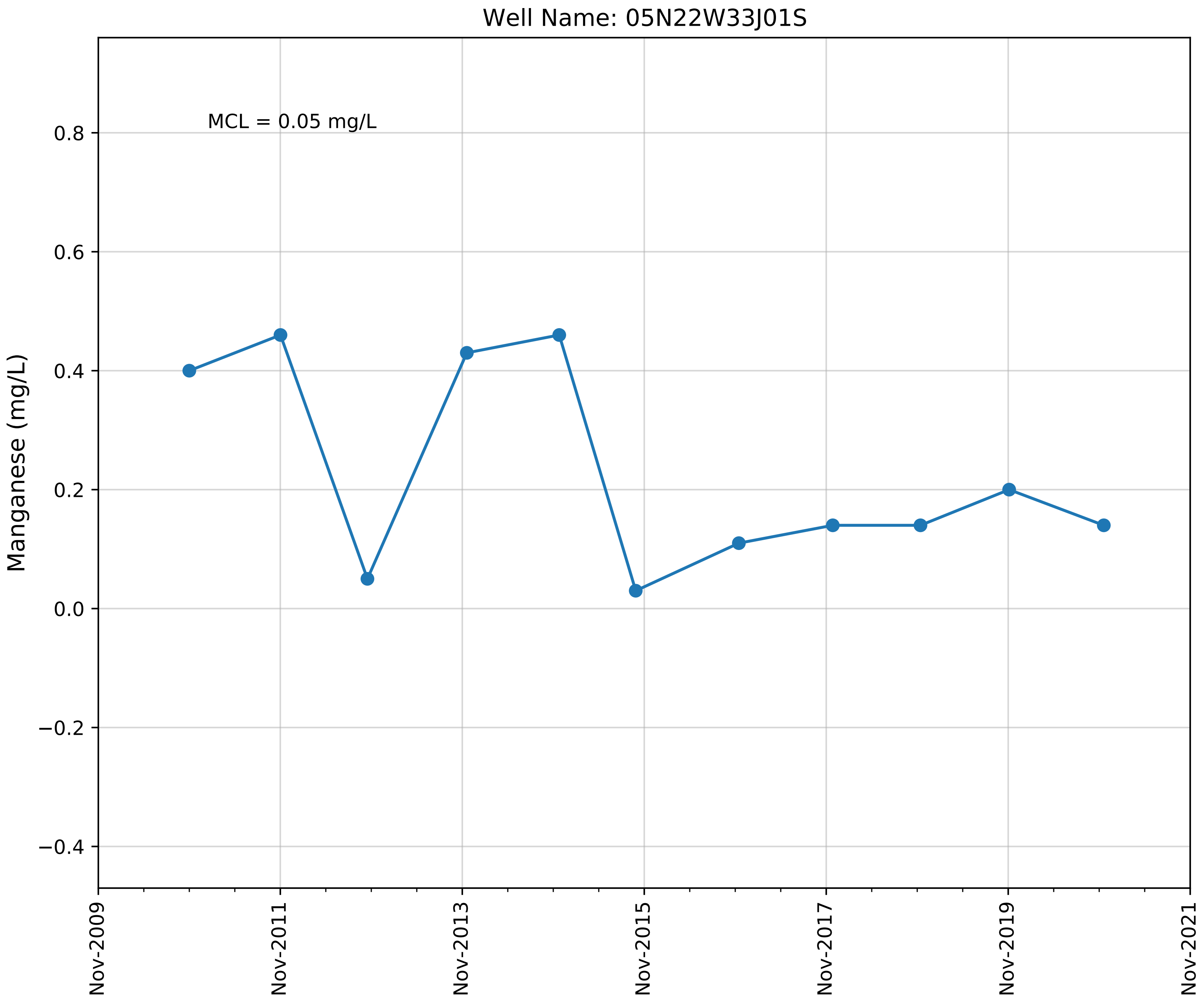

Well Name: 04N23W01J03S
MCL = 0.05 mg/L
Manganese (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015
Nov-2017
Nov-2019


Well Name: 04N23W01K02S
MCL = 0.05 mg/L
Manganese (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2013
Nov-2015

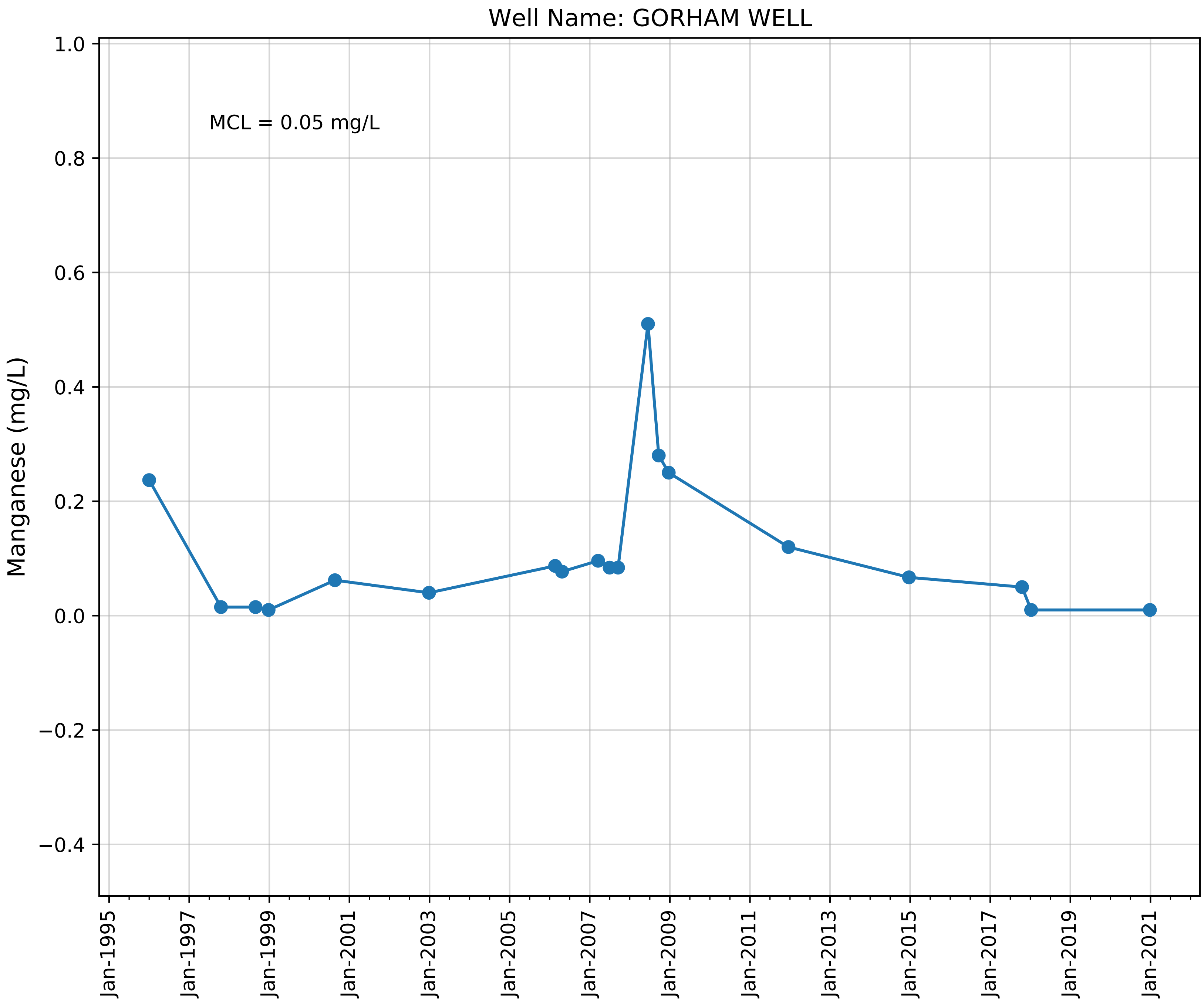

Well Name: 04N23W12B03S
MCL = 0.05 mg/L
Manganese (mg/L)
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Dec-2014
Dec-2016
Dec-2018
Dec-2020



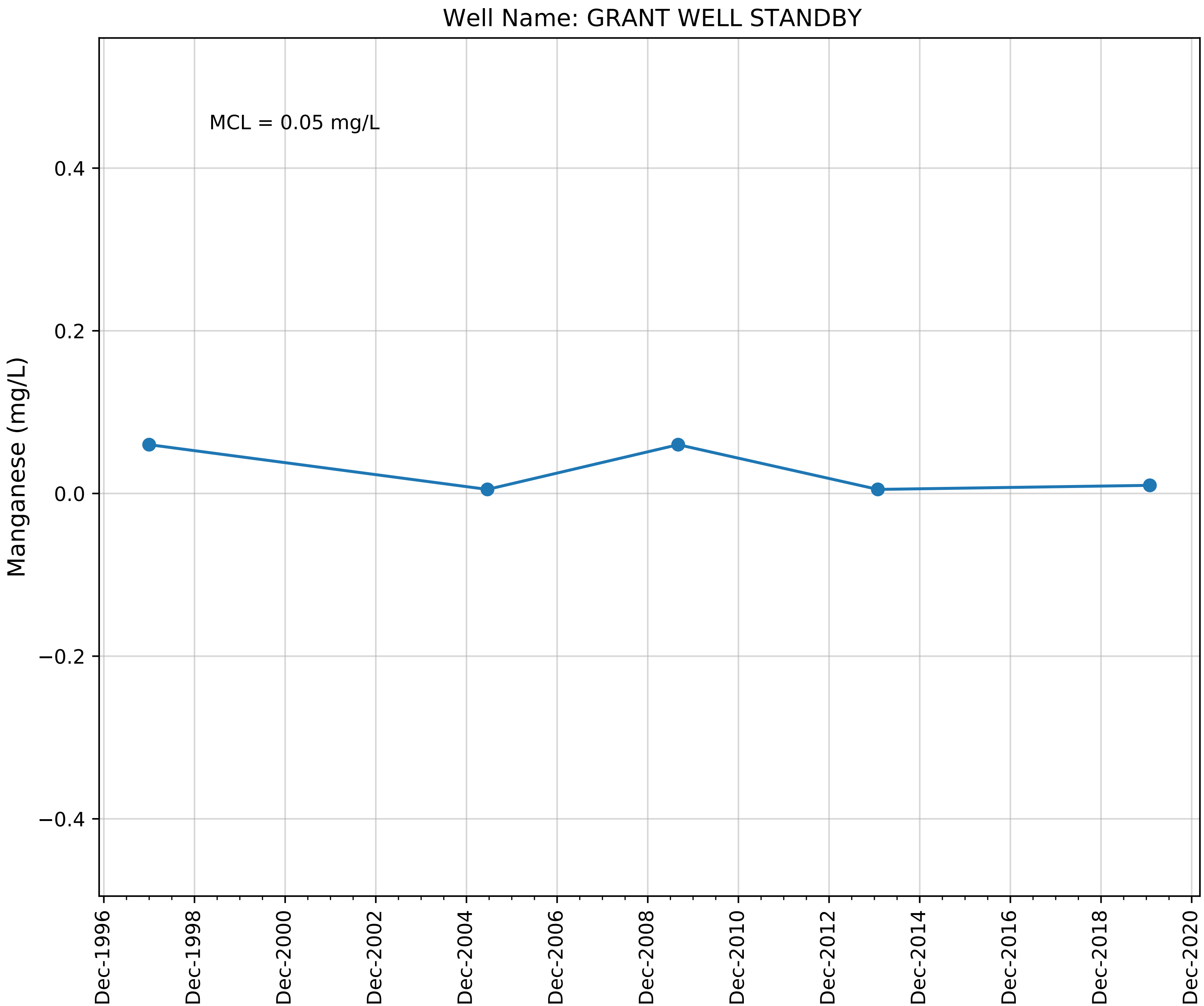
Well Name: 05N22W32K02S
MCL = 0.05 mg/L
Manganese (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017



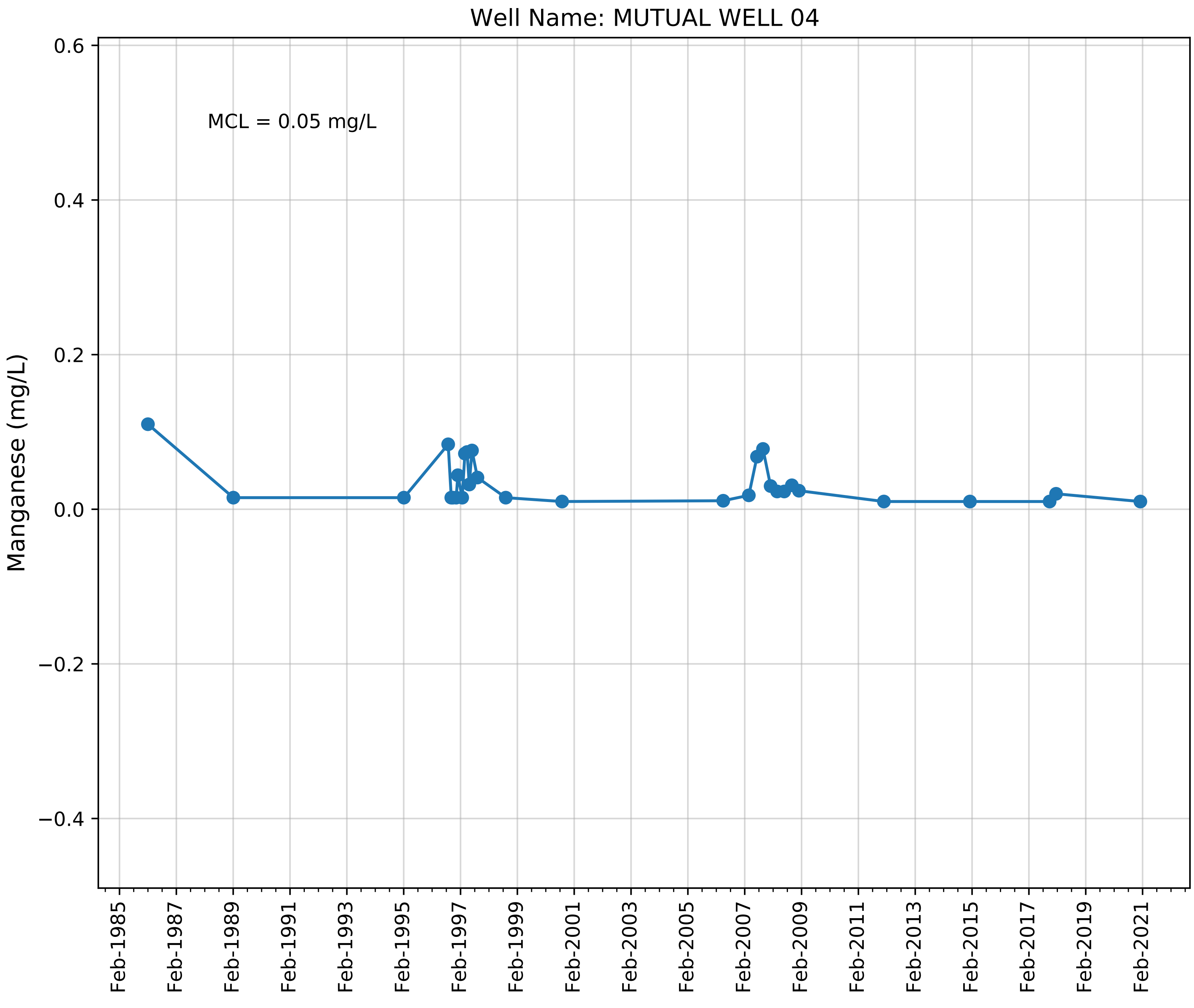
Well Name: 05N22W33J01S
MCL = 0.05 mg/L
Manganese (mg/L)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021



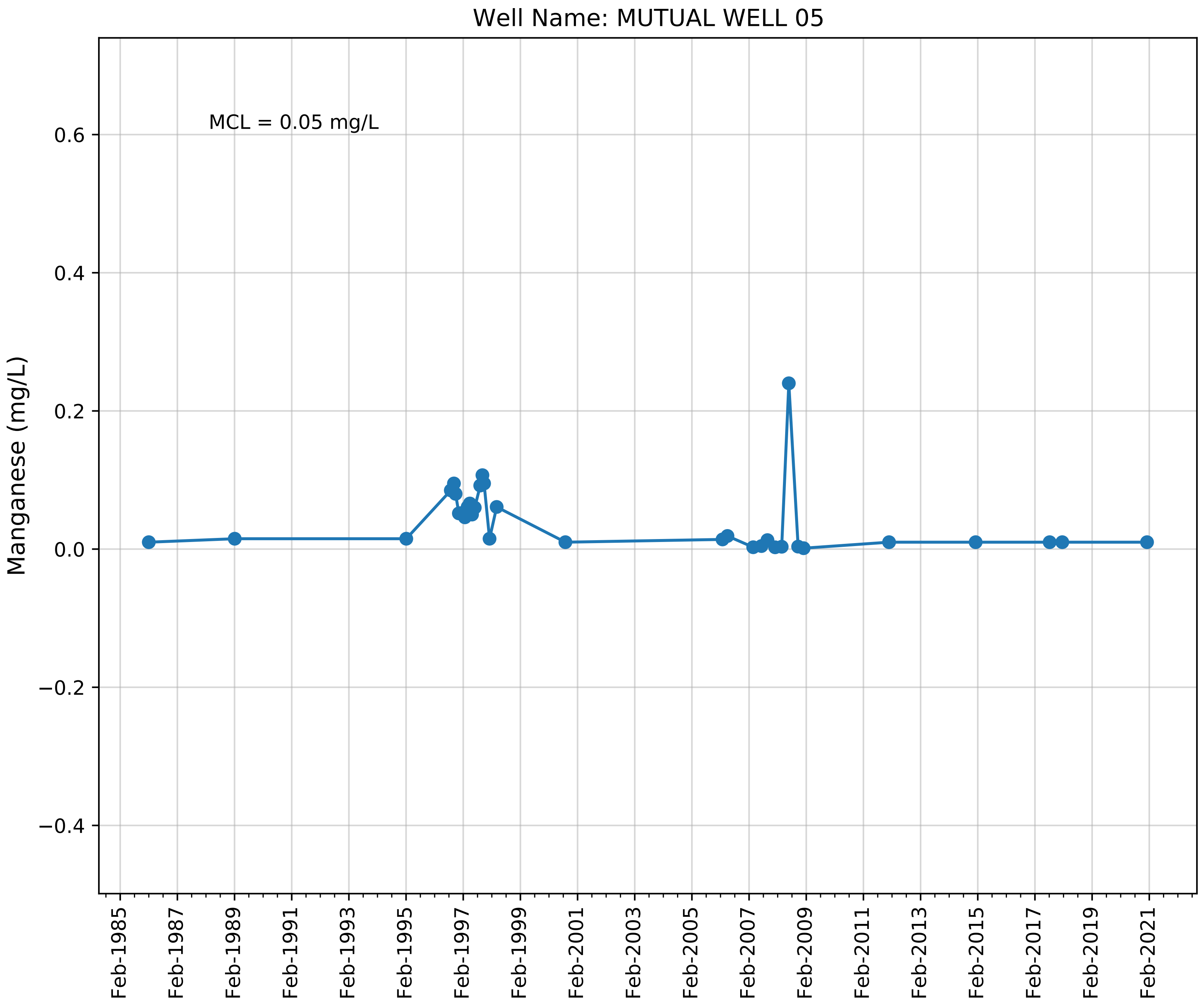
Well Name: GORHAM WELL
MCL = 0.05 mg/L
Manganese (mg/L)
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Jan-1995
Jan-1997
Jan-1999
Jan-2001
Jan-2003
Jan-2005
Jan-2007
Jan-2009
Jan-2011
Jan-2013
Jan-2015
Jan-2017
Jan-2019
Jan-2021

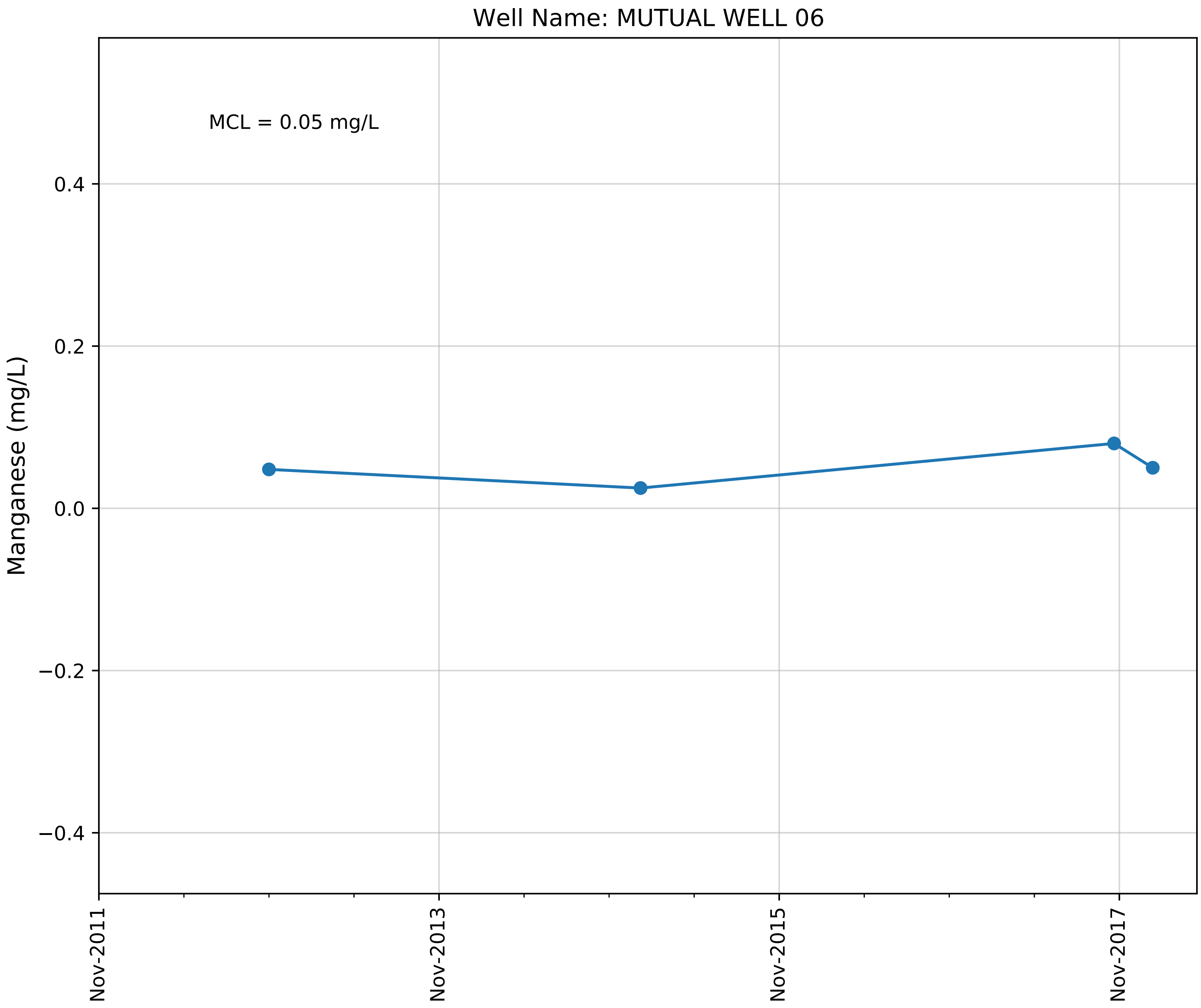


Well Name: GRANT WELL STANDBY
MCL = 0.05 mg/L
Manganese (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Dec-1996
Dec-1998
Dec-2000
Dec-2002
Dec-2004
Dec-2006
Dec-2008
Dec-2010
Dec-2012
Dec-2014
Dec-2016
Dec-2018
Dec-2020

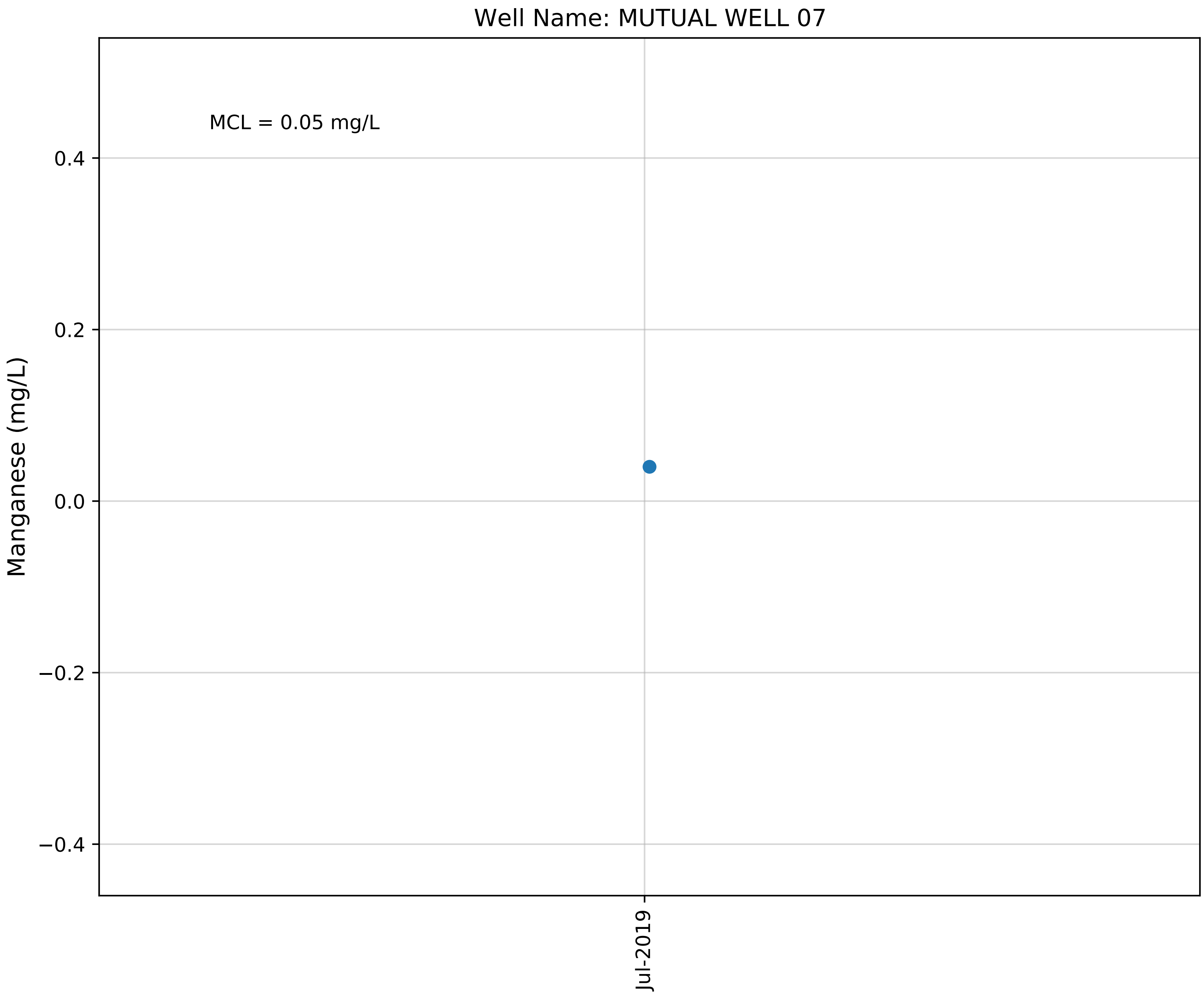


Well Name: MUTUAL WELL 04
MCL = 0.05 mg/L
Manganese (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

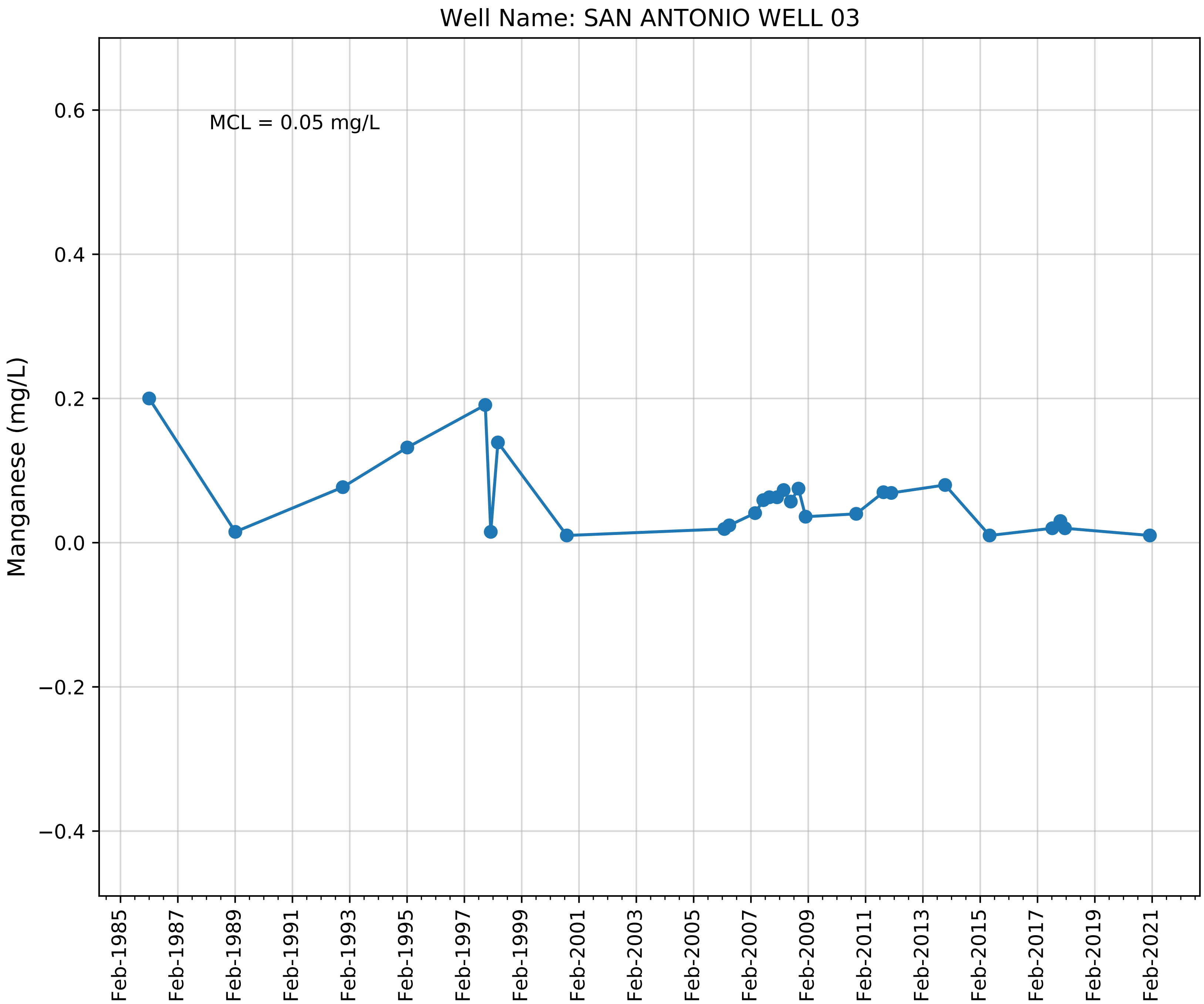

Well Name: MUTUAL WELL 05
MCL = 0.05 mg/L
Manganese (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021



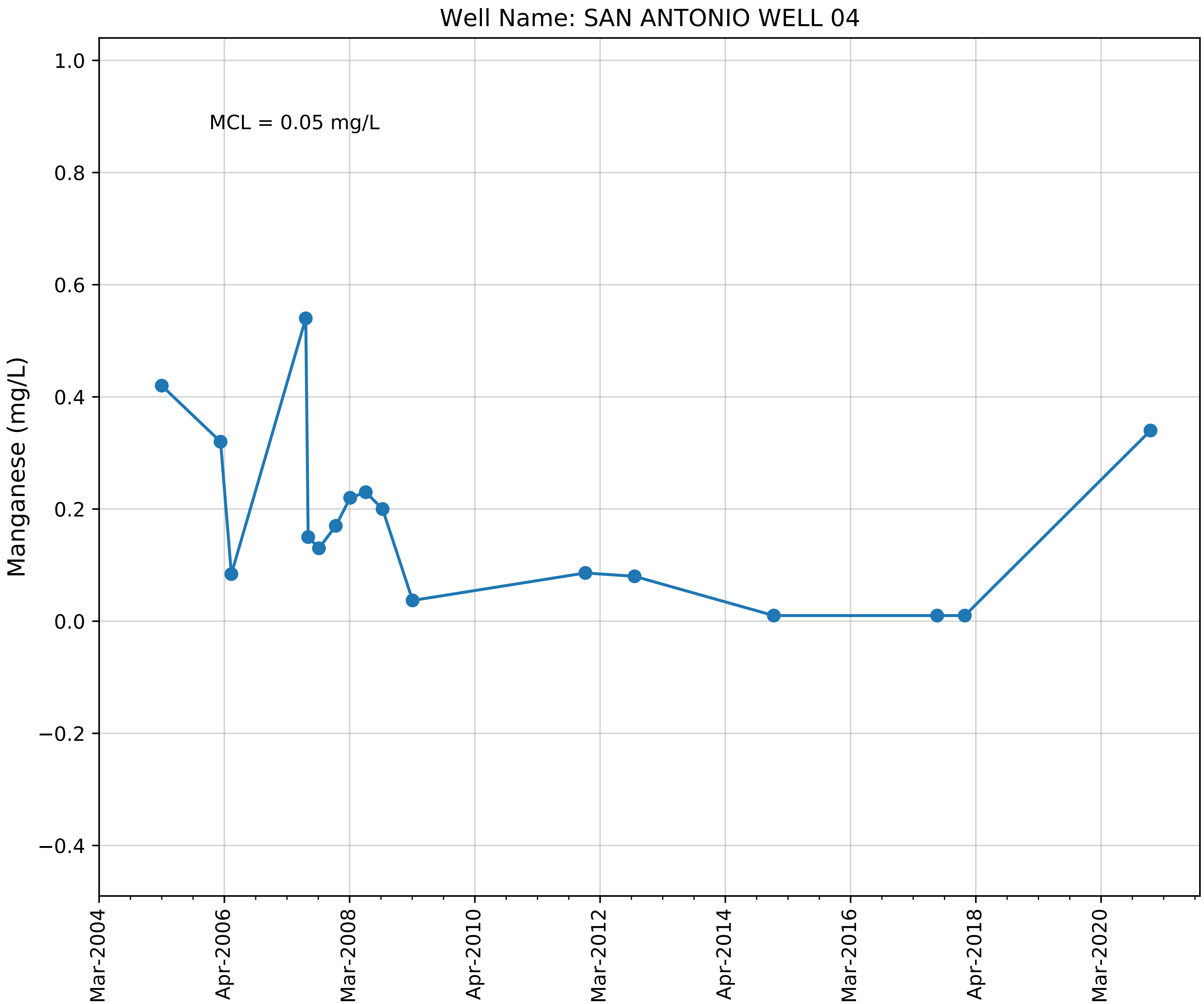
Well Name: MUTUAL WELL 06
MCL = 0.05 mg/L
Manganese (mg/L)
0.4
0.2
0.0
−0.2
−0.4
Nov-2011
Nov-2013
Nov-2015
Nov-2017

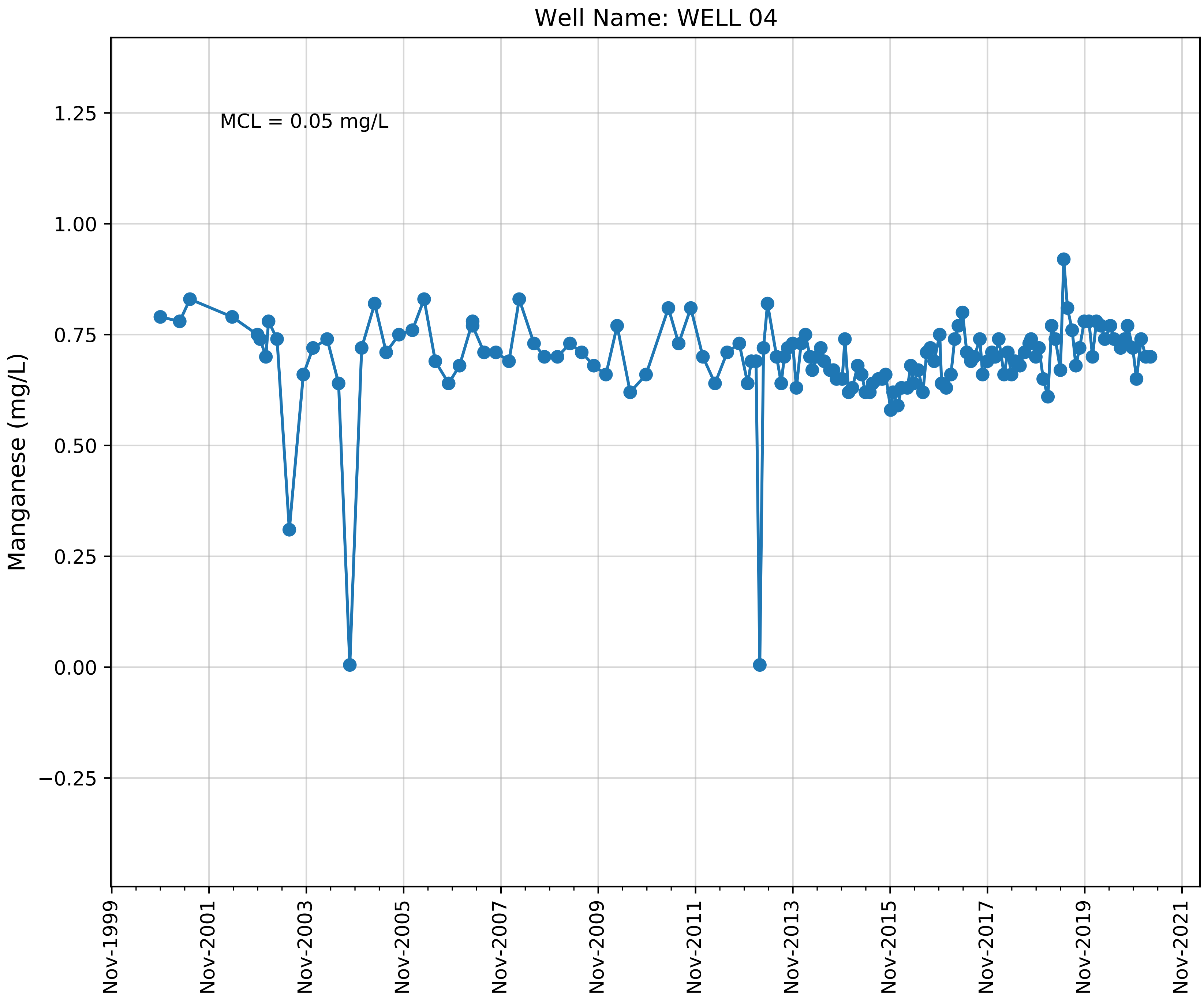


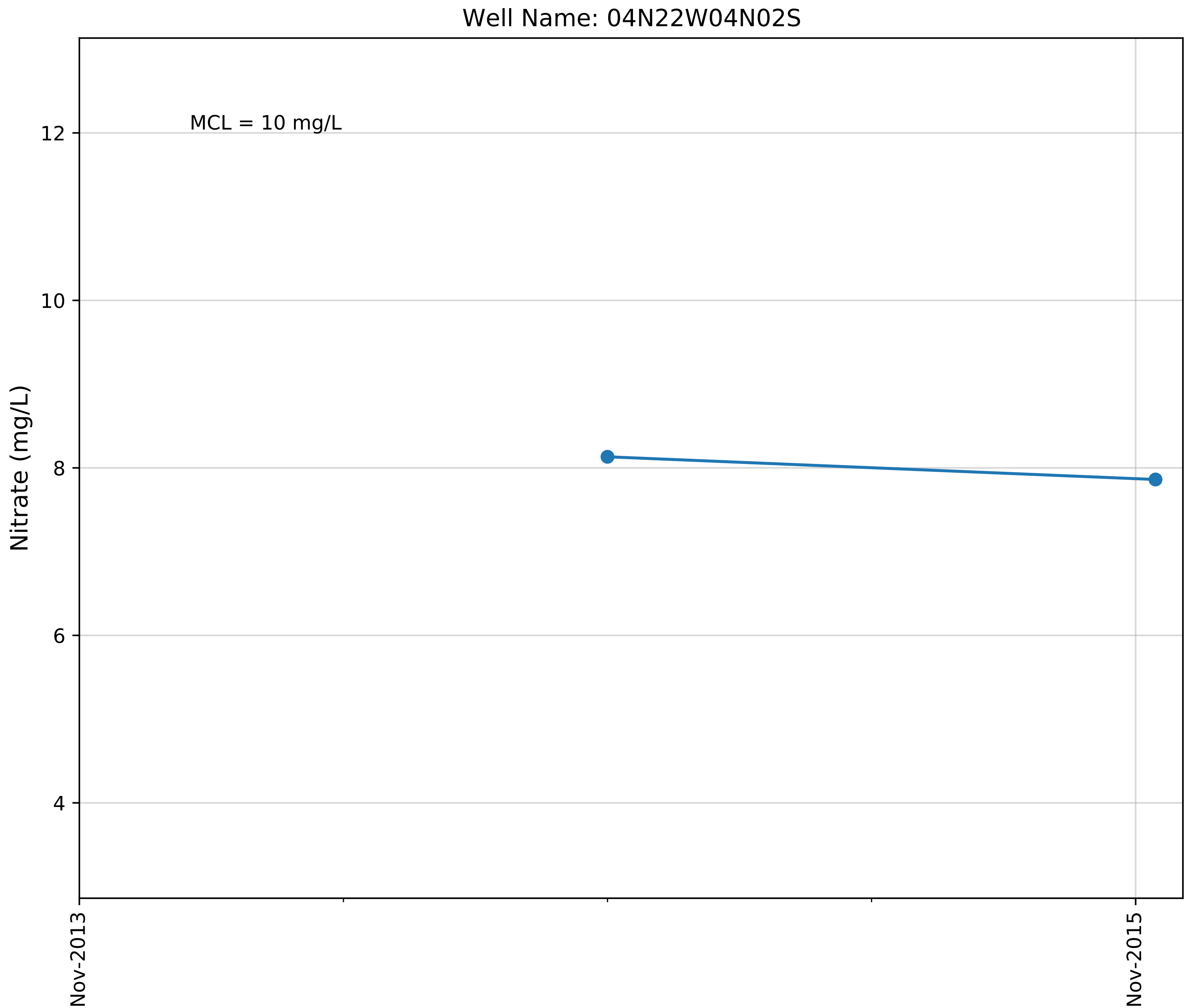
Well Name: MUTUAL WELL 07
MCL = 0.05 mg/L
0.4
0.2
0.0
−0.2
−0.4
Manganese (mg/L)
Jul-2019



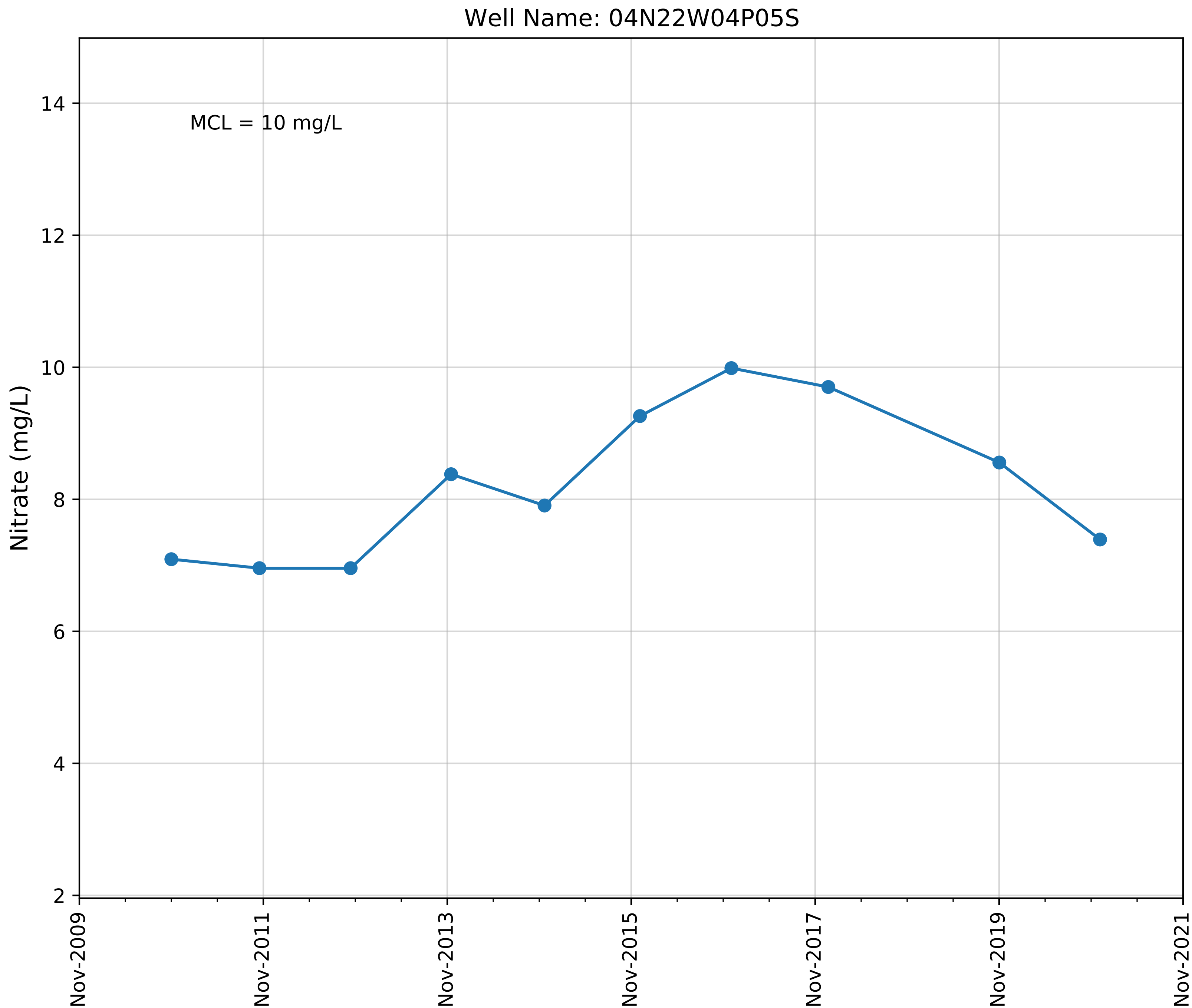
Well Name: SAN ANTONIO WELL 03
MCL = 0.05 mg/L
Manganese (mg/L)
0.6
0.4
0.2
0.0
−0.2
−0.4
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021


Well Name: SAN ANTONIO WELL 04
MCL = 0.05 mg/L
Manganese (mg/L)
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
Mar-2004
Apr-2006
Mar-2008
Apr-2010
Mar-2012
Apr-2014
Mar-2016
Apr-2018
Mar-2020

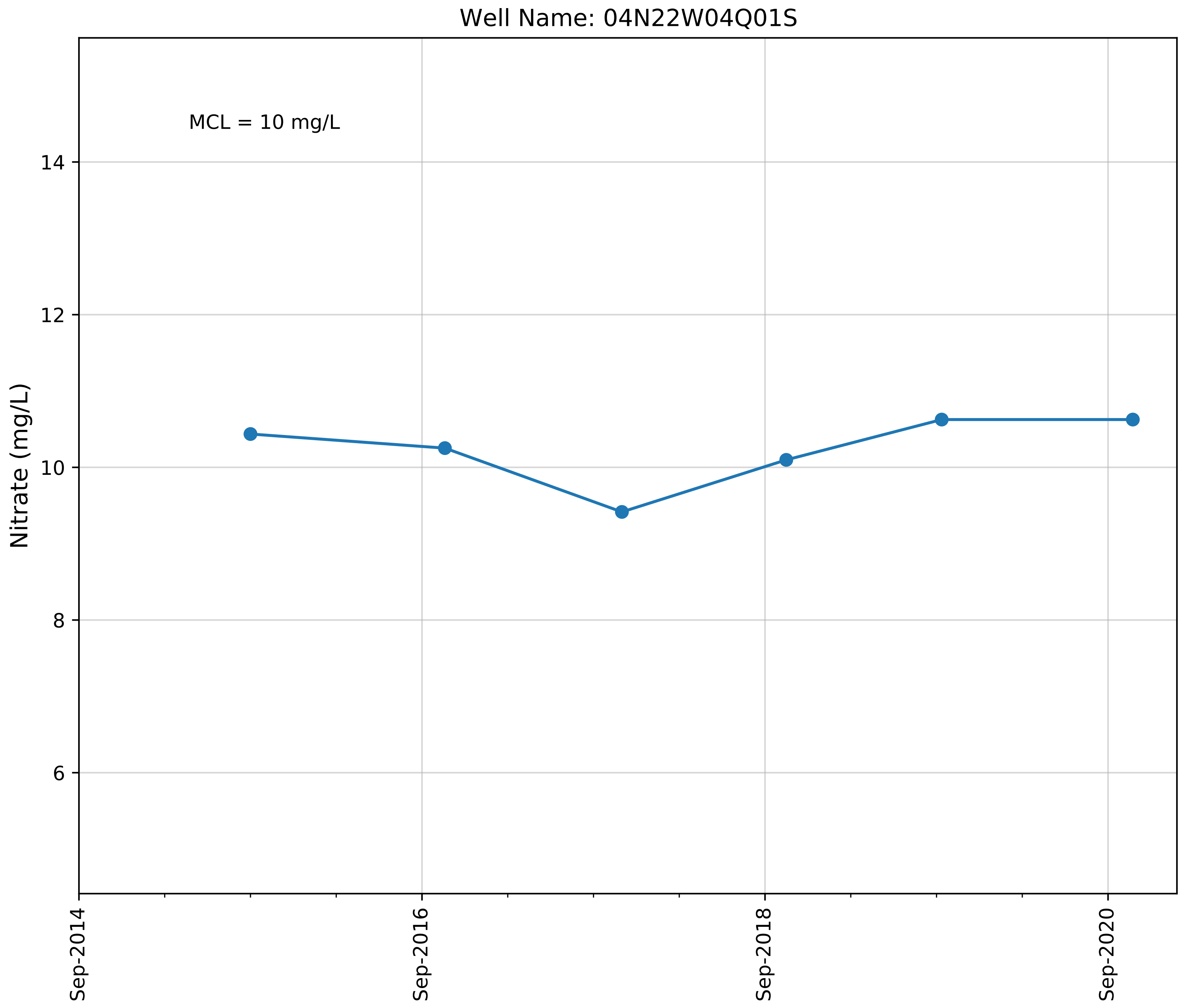

Well Name: WELL 04
MCL = 0.05 mg/L
Manganese (mg/L)
1.25
1.00
0.75
0.50
0.25
0.00
−0.25
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

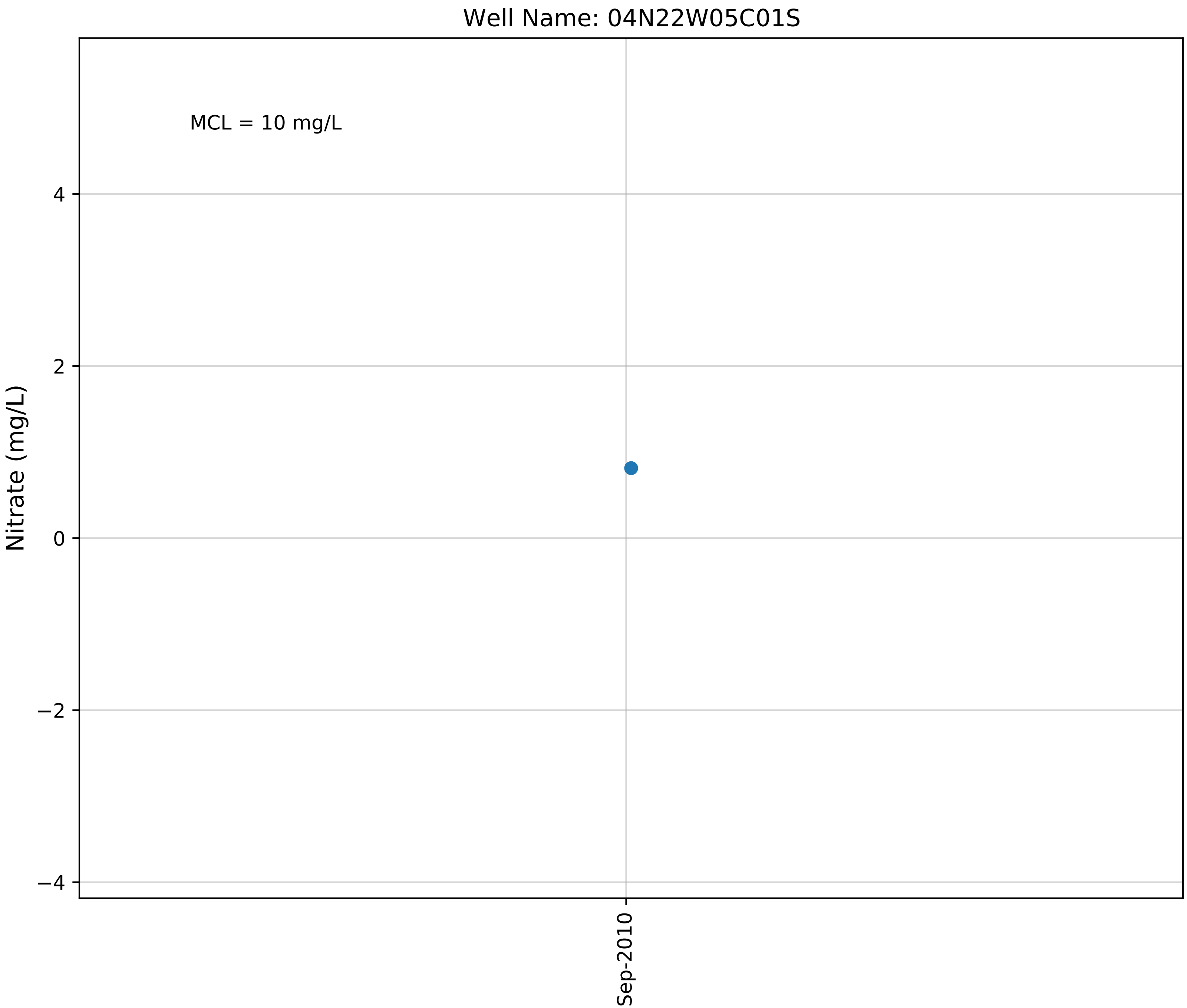


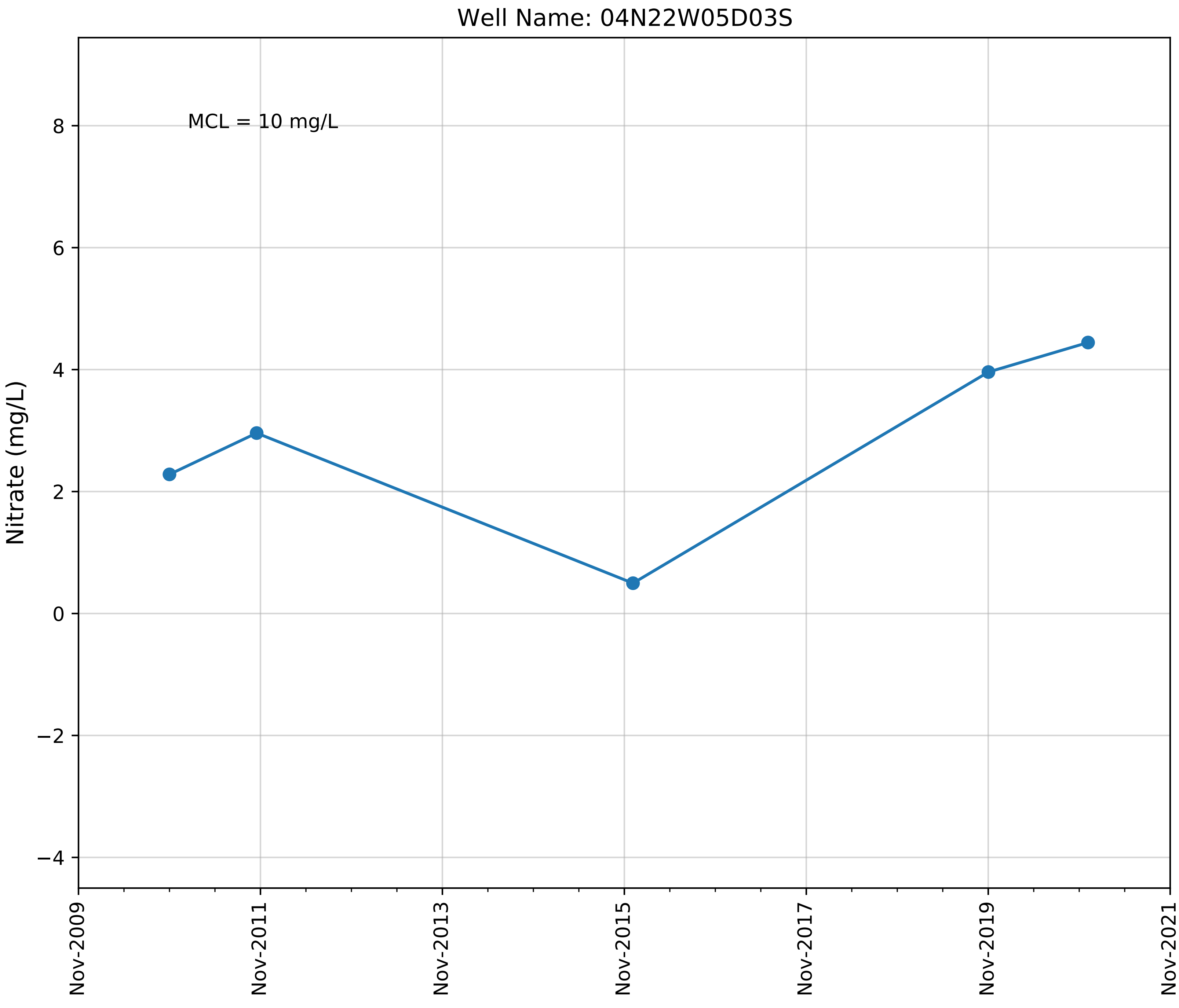
Well Name: 04N22W04N02S
MCL = 10 mg/L
Nitrate (mg/L)
12
10
8
6
4
Nov-2013
Nov-2015

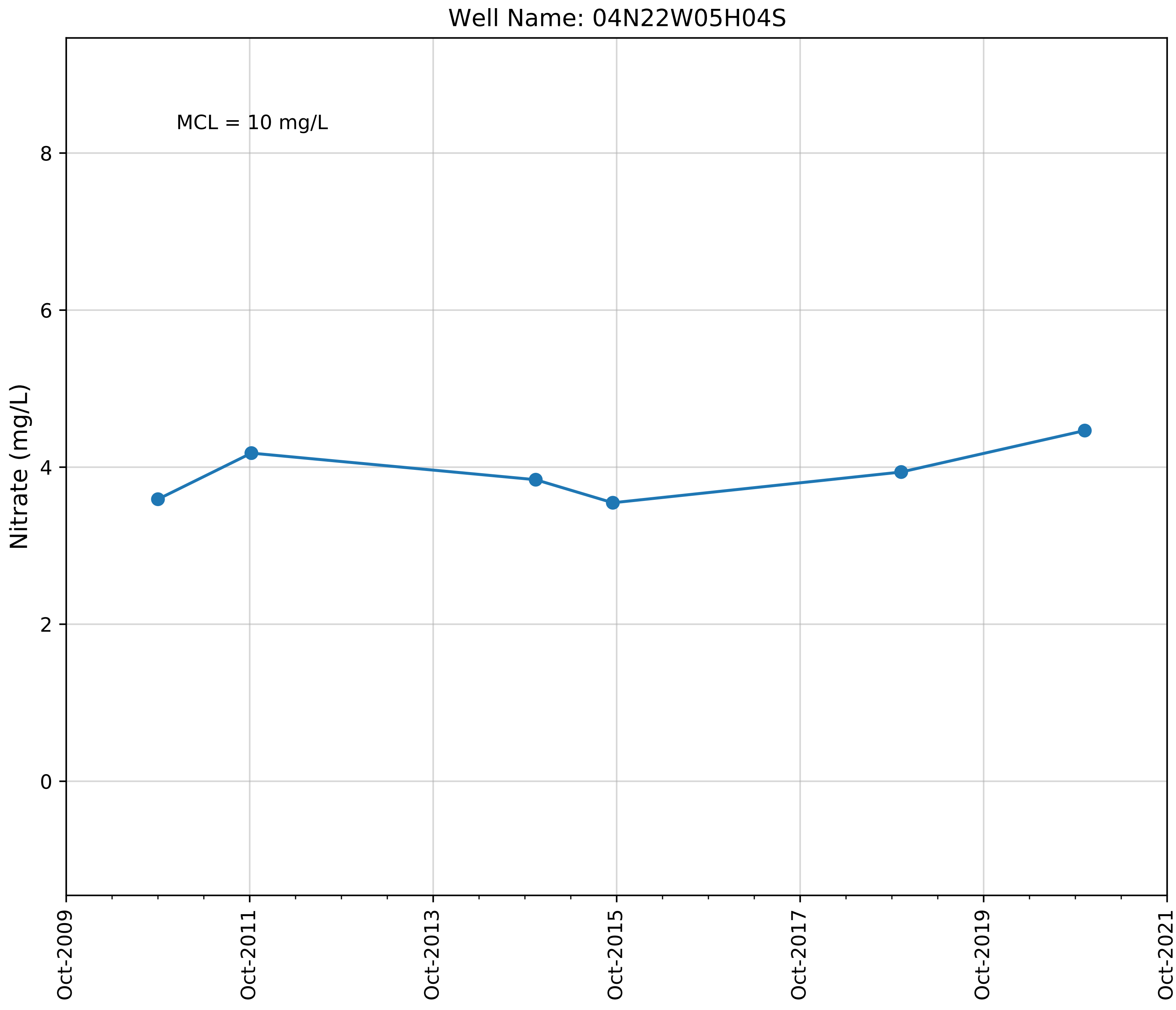


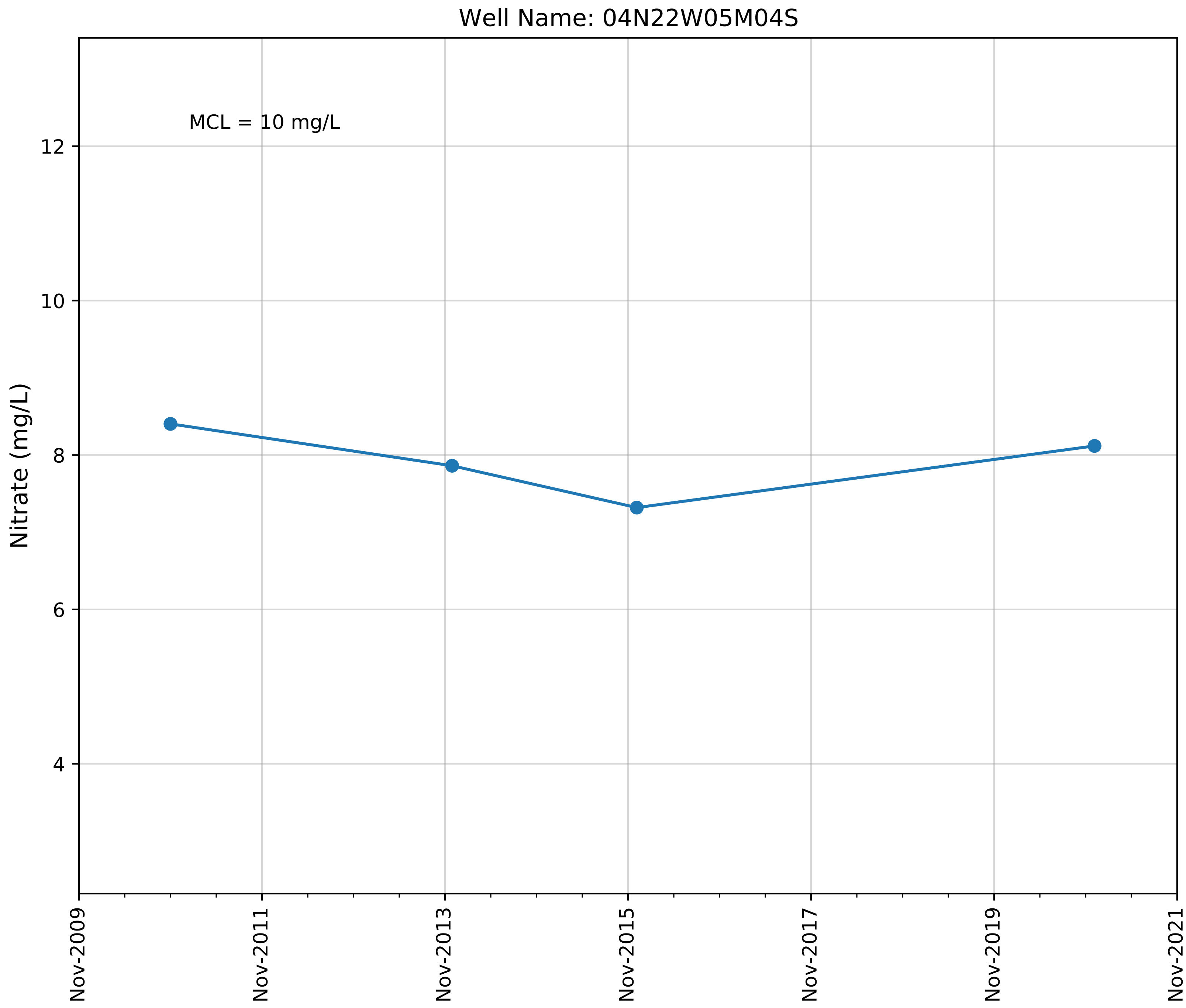
Well Name: 04N22W04P05S
MCL = 10 mg/L
Nitrate (mg/L)
14
12
10
8
6
4
2
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

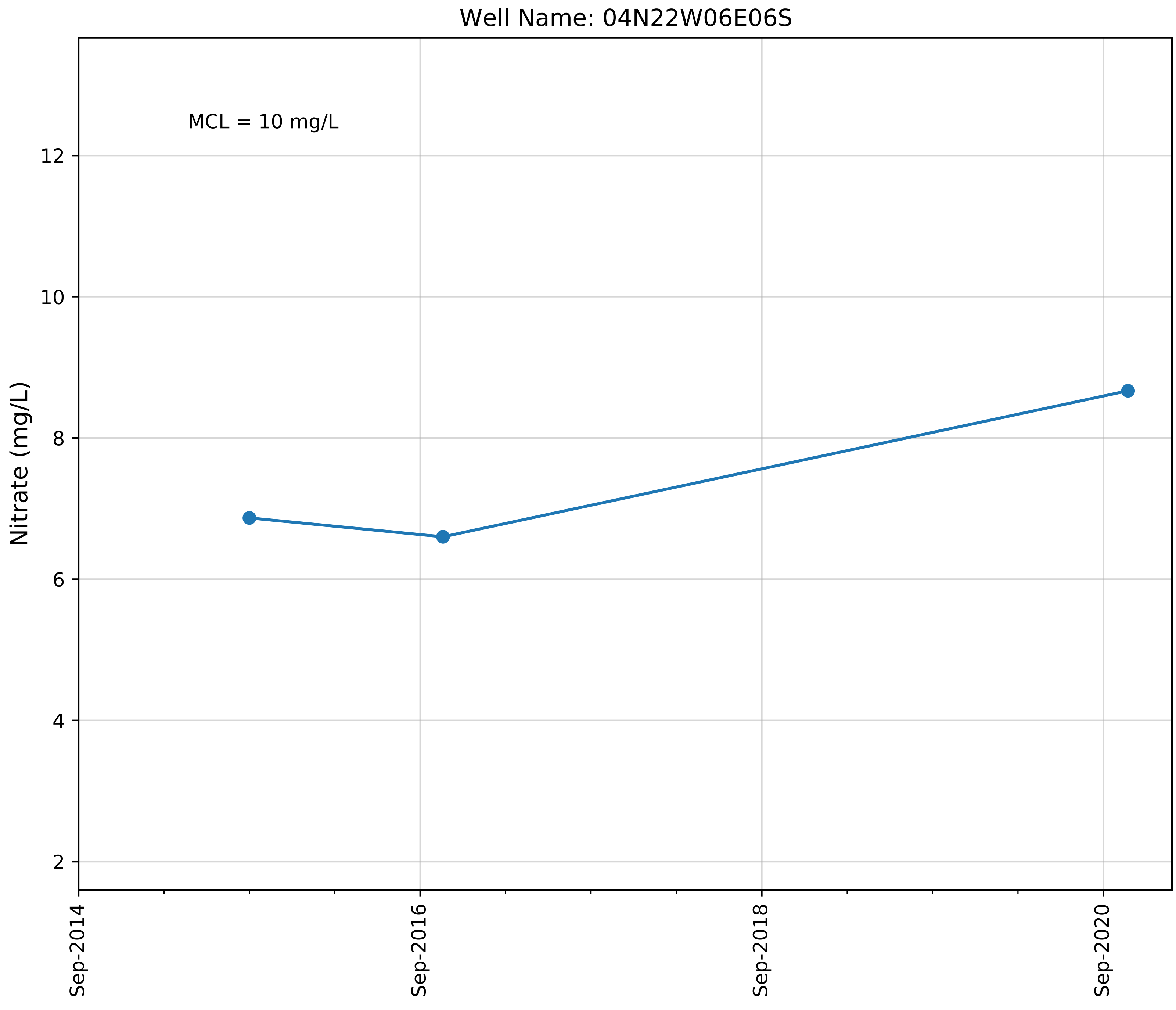

Well Name: 04N22W04Q01S
MCL = 10 mg/L
Nitrate (mg/L)
14
12
10
8
6
Sep-2014
Sep-2016
Sep-2018
Sep-2020

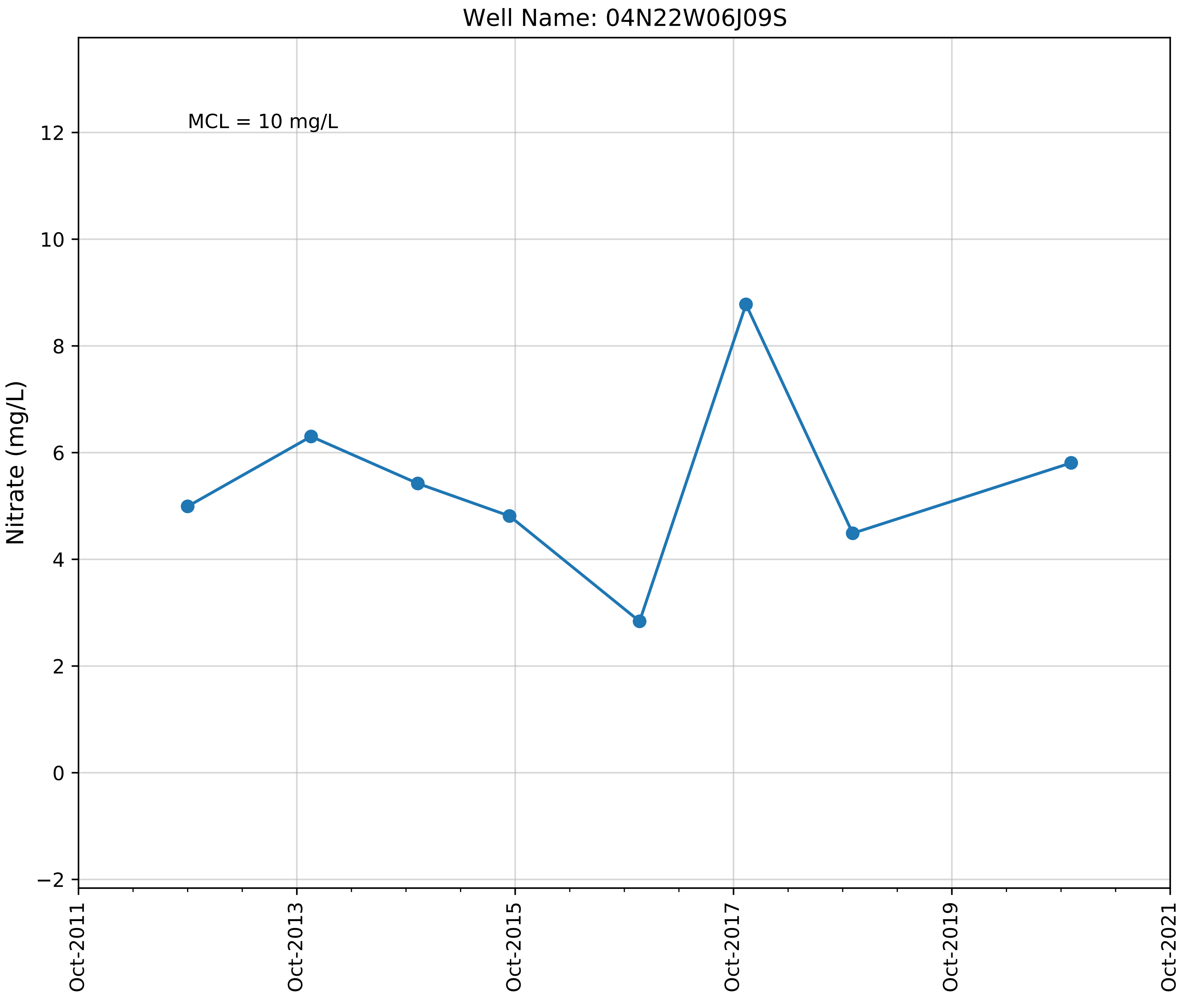

Well Name: 04N22W05C01S
MCL = 10 mg/L
Nitrate (mg/L)
4
2
0
−2
−4
Sep-2010


Well Name: 04N22W05D03S
MCL = 10 mg/L
Nitrate (mg/L)
8
6
4
2
0
−2
−4
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

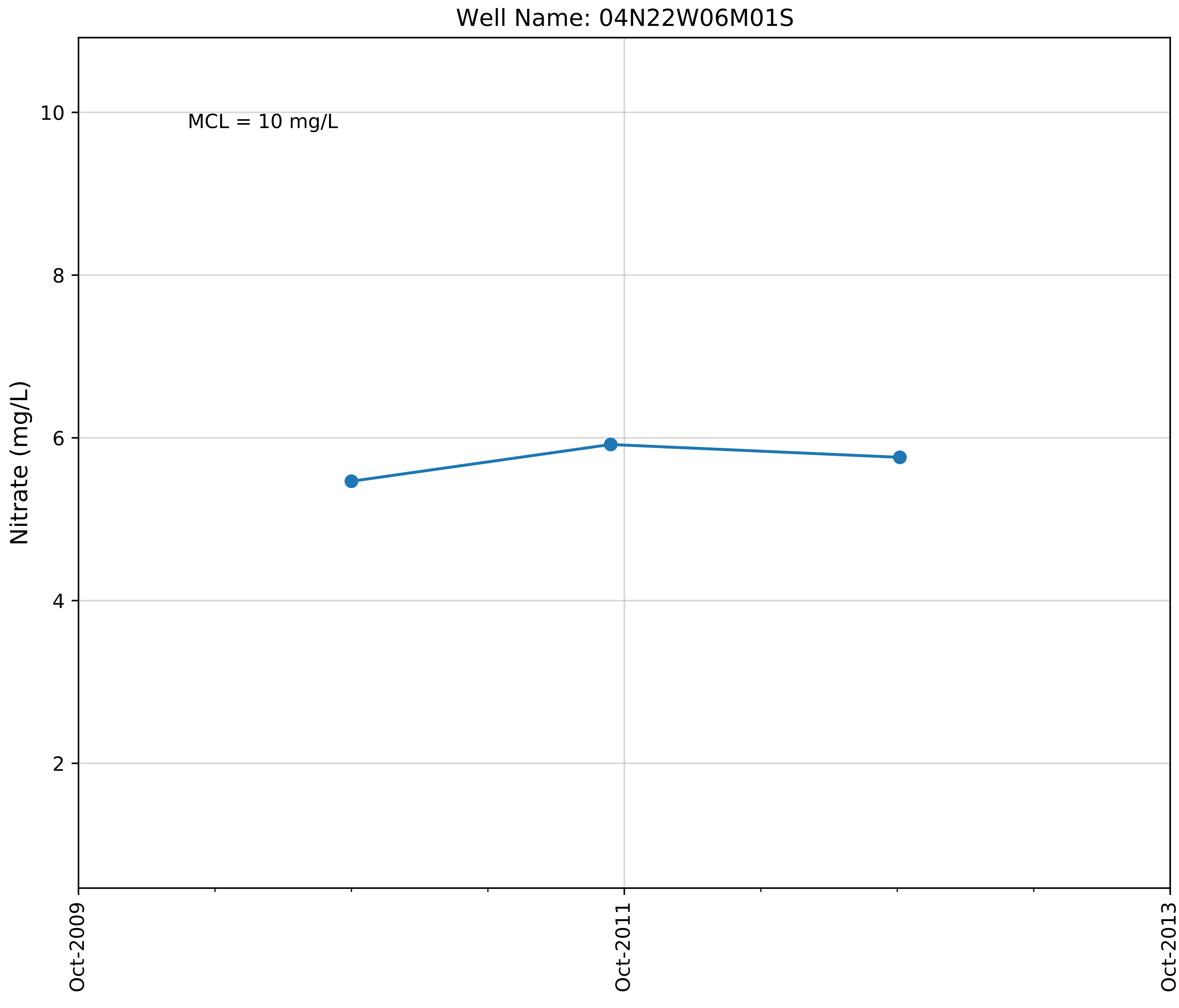

Well Name: 04N22W05H04S
MCL = 10 mg/L
Nitrate (mg/L)
0
2
4
6
8
Oct-2009
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021

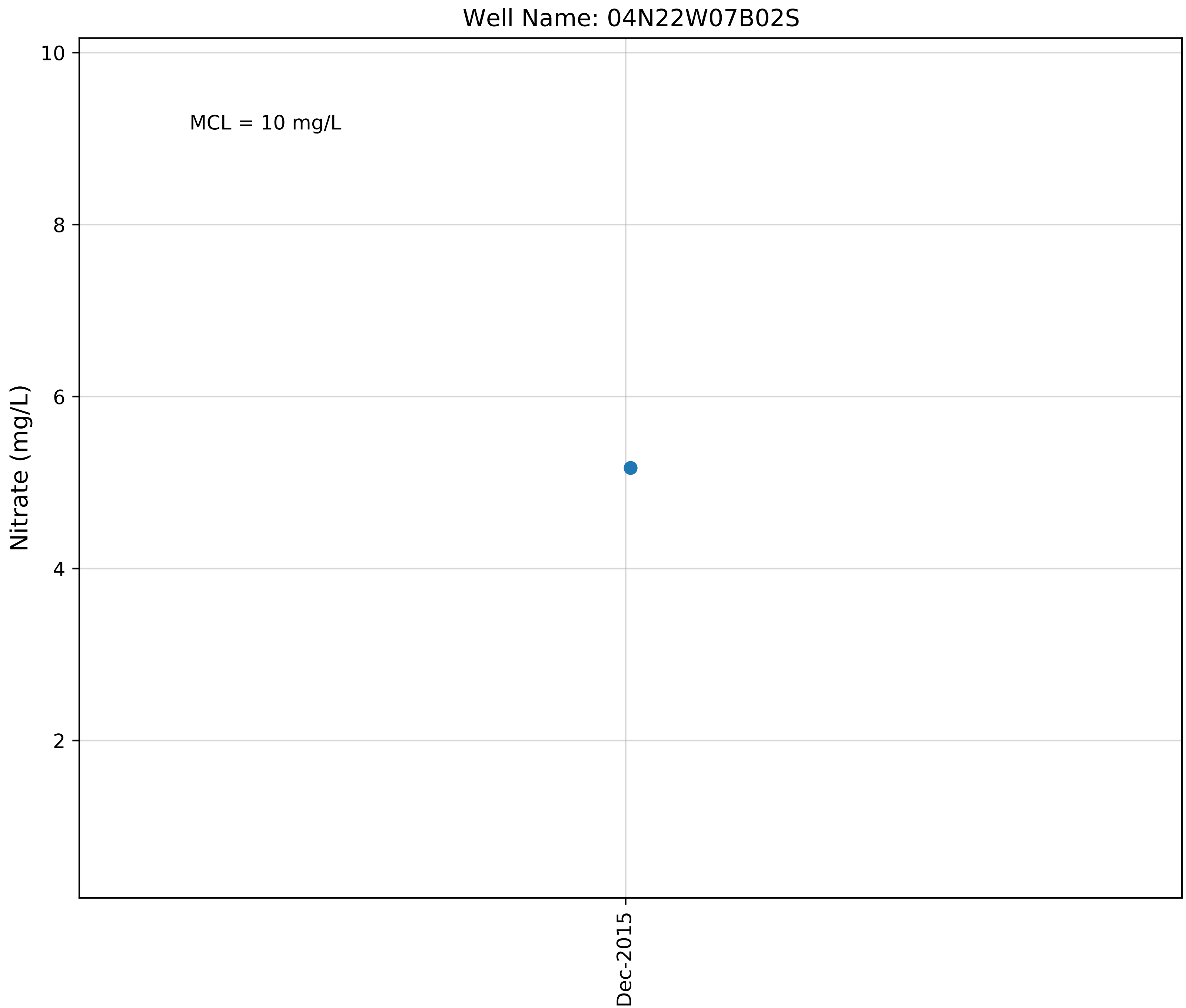

Well Name: 04N22W05M04S
MCL = 10 mg/L
Nitrate (mg/L)
4
6
8
10
12
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

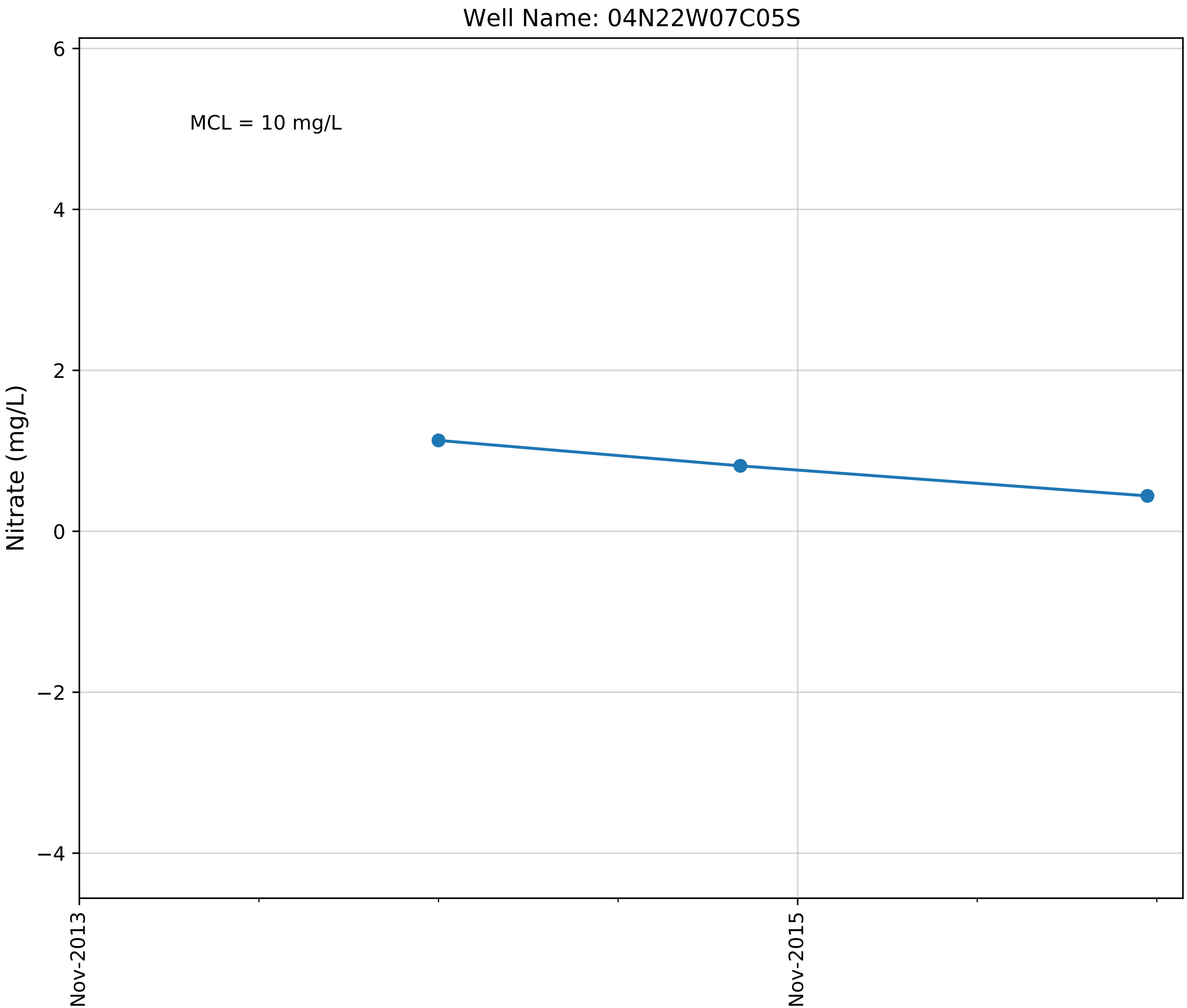

Well Name: 04N22W06E06S
MCL = 10 mg/L
Nitrate (mg/L)
2
4
6
8
10
12
Sep-2014
Sep-2016
Sep-2018
Sep-2020



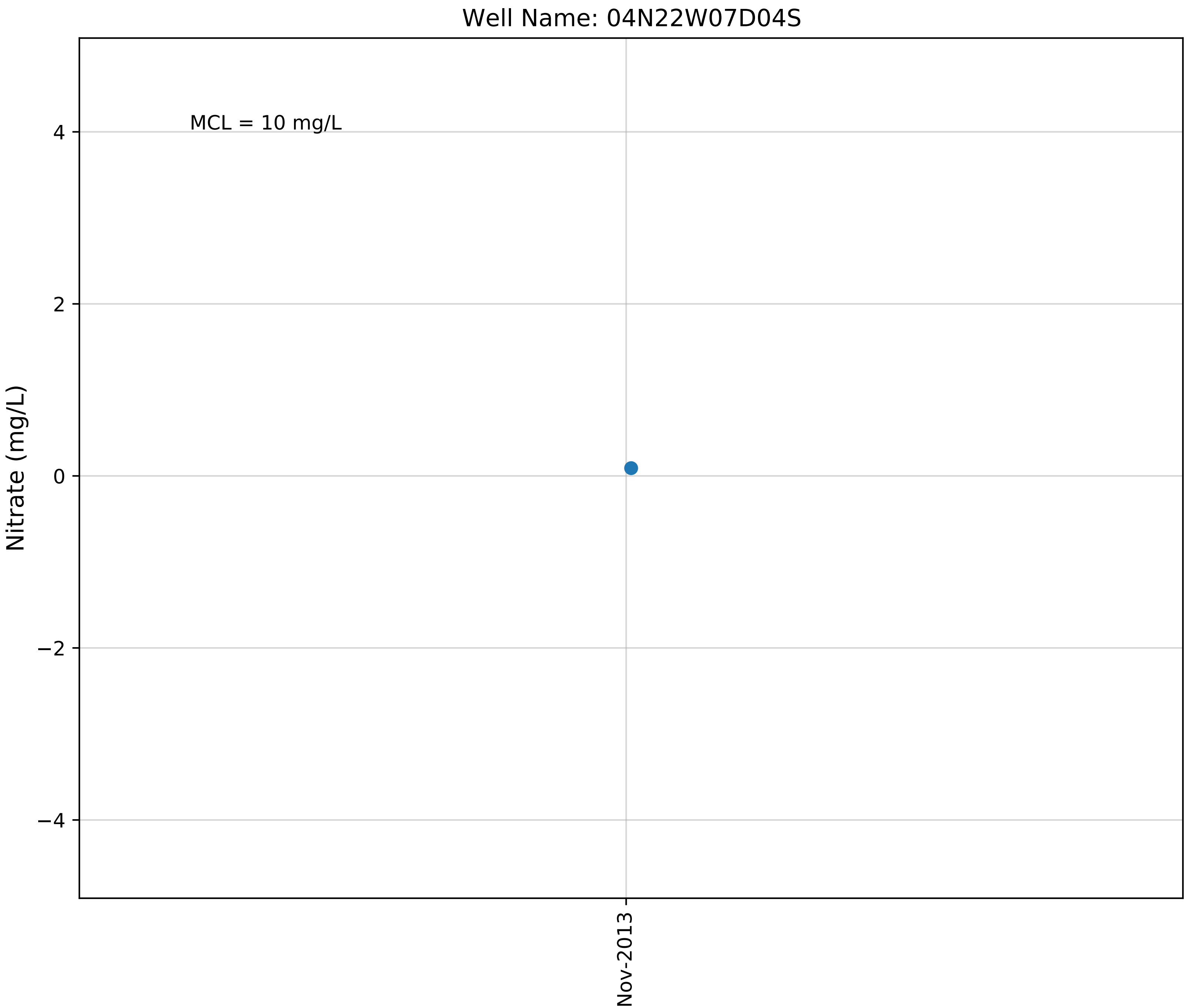
Well Name: 04N22W06J09S
MCL = 10 mg/L
Nitrate (mg/L)
12
10
8
6
4
2
0
−2
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021


Well Name: 04N22W06M01S
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
Oct-2009
Oct-2011
Oct-2013

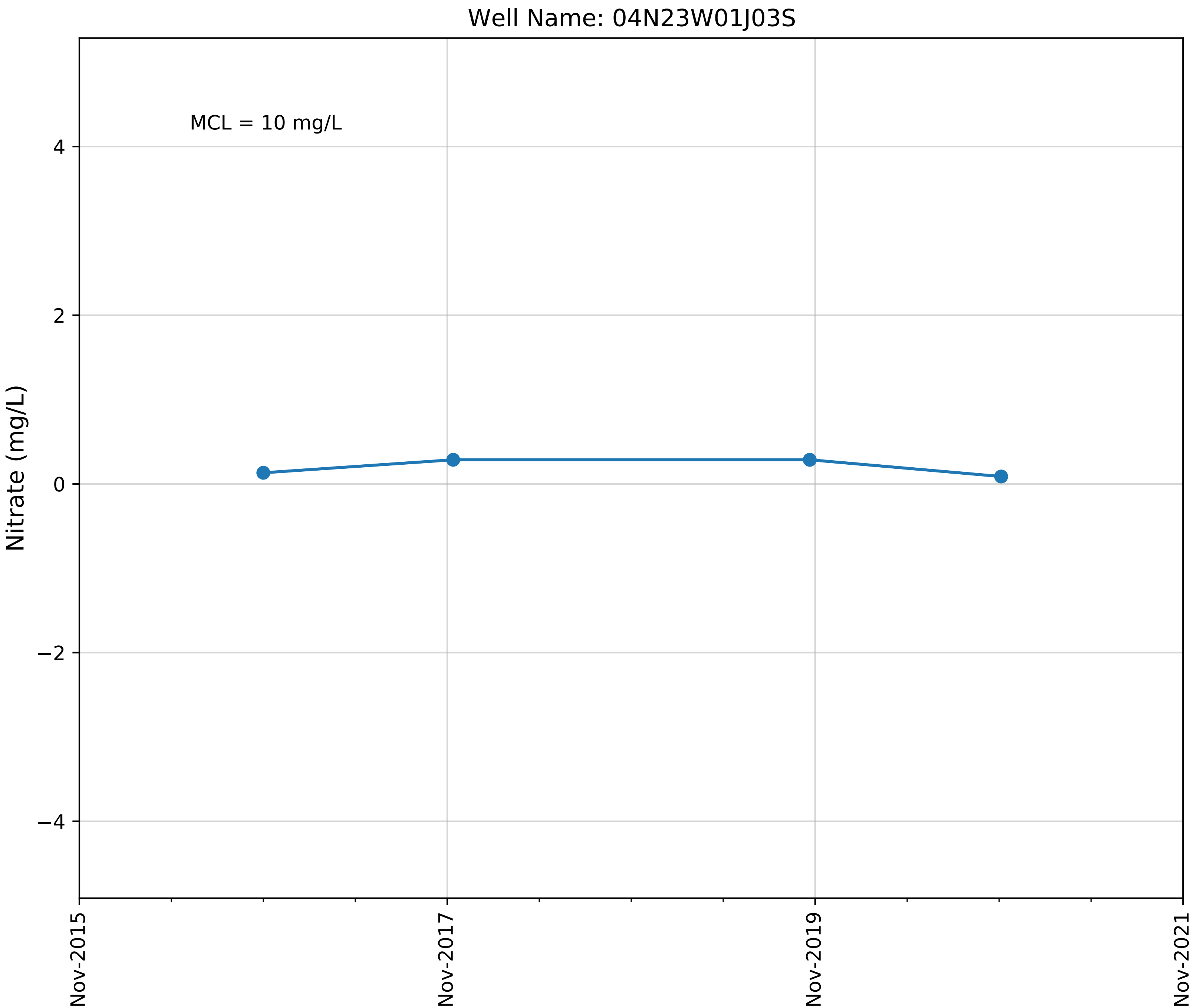

Well Name: 04N22W07B02S
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
Dec-2015



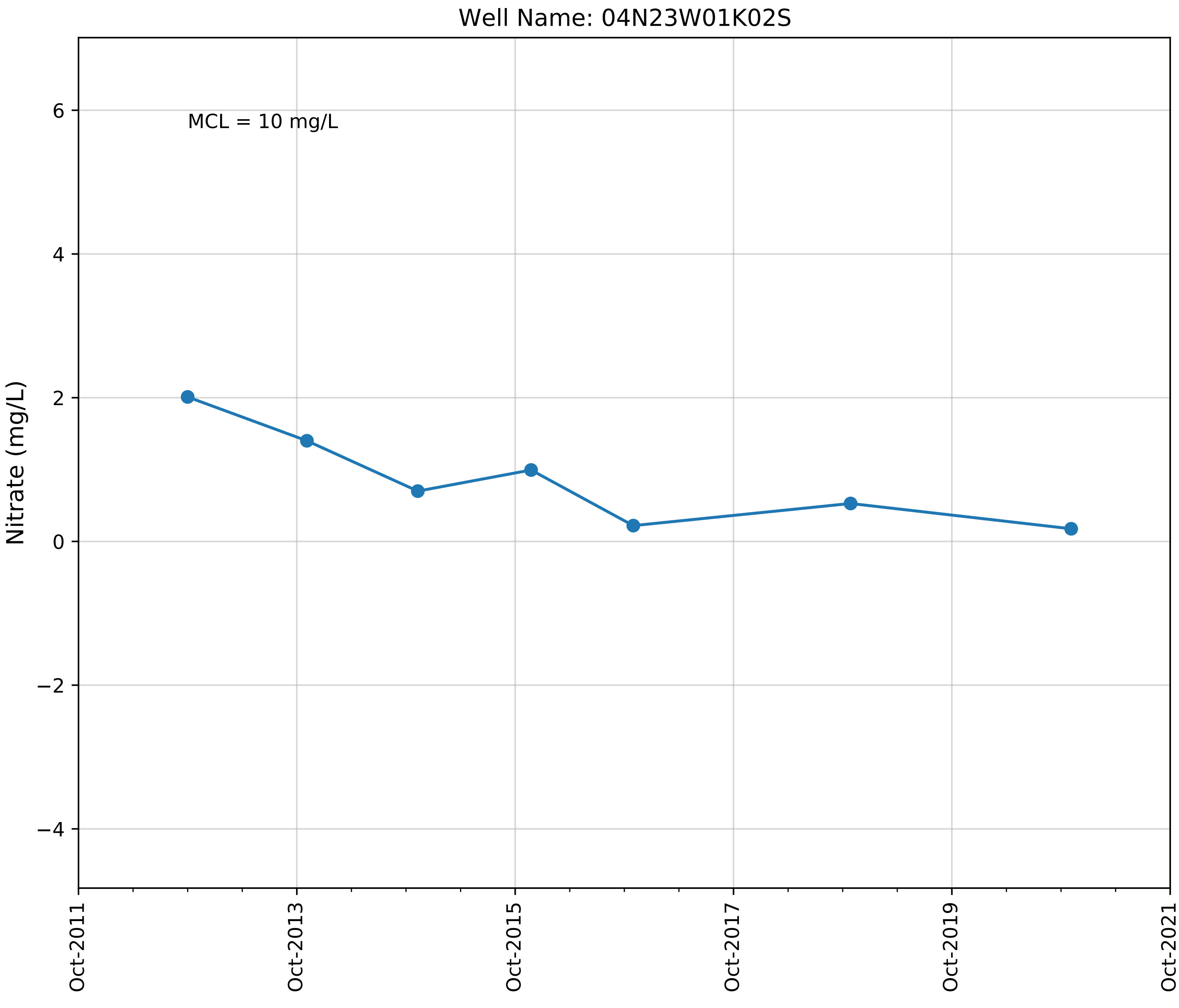
Well Name: 04N22W07C05S
MCL = 10 mg/L
Nitrate (mg/L)
6
4
2
0
−2
−4
Nov-2013
Nov-2015



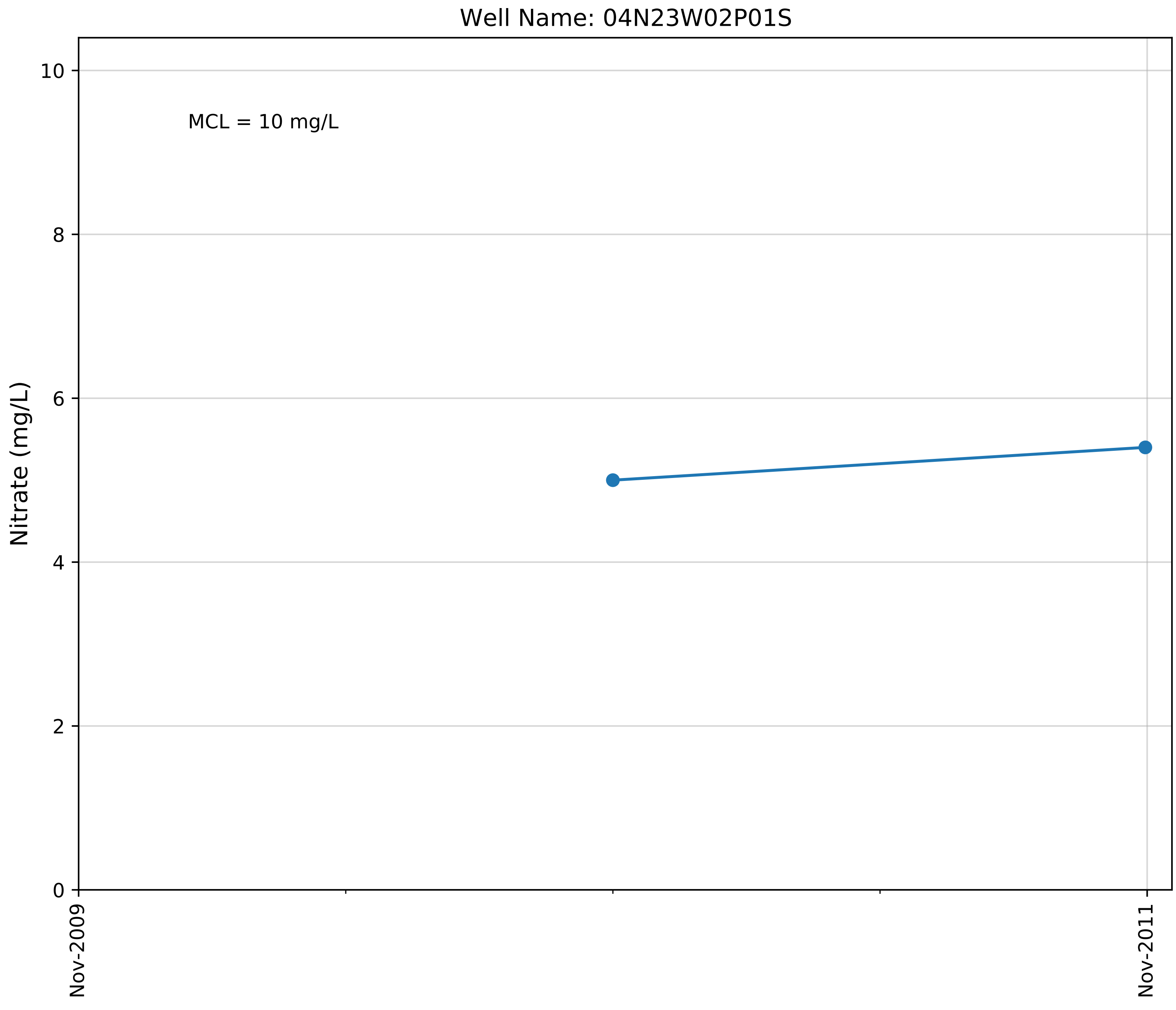
Well Name: 04N22W07D04S
MCL = 10 mg/L
Nitrate (mg/L)
4
2
0
−2
−4
Nov-2013



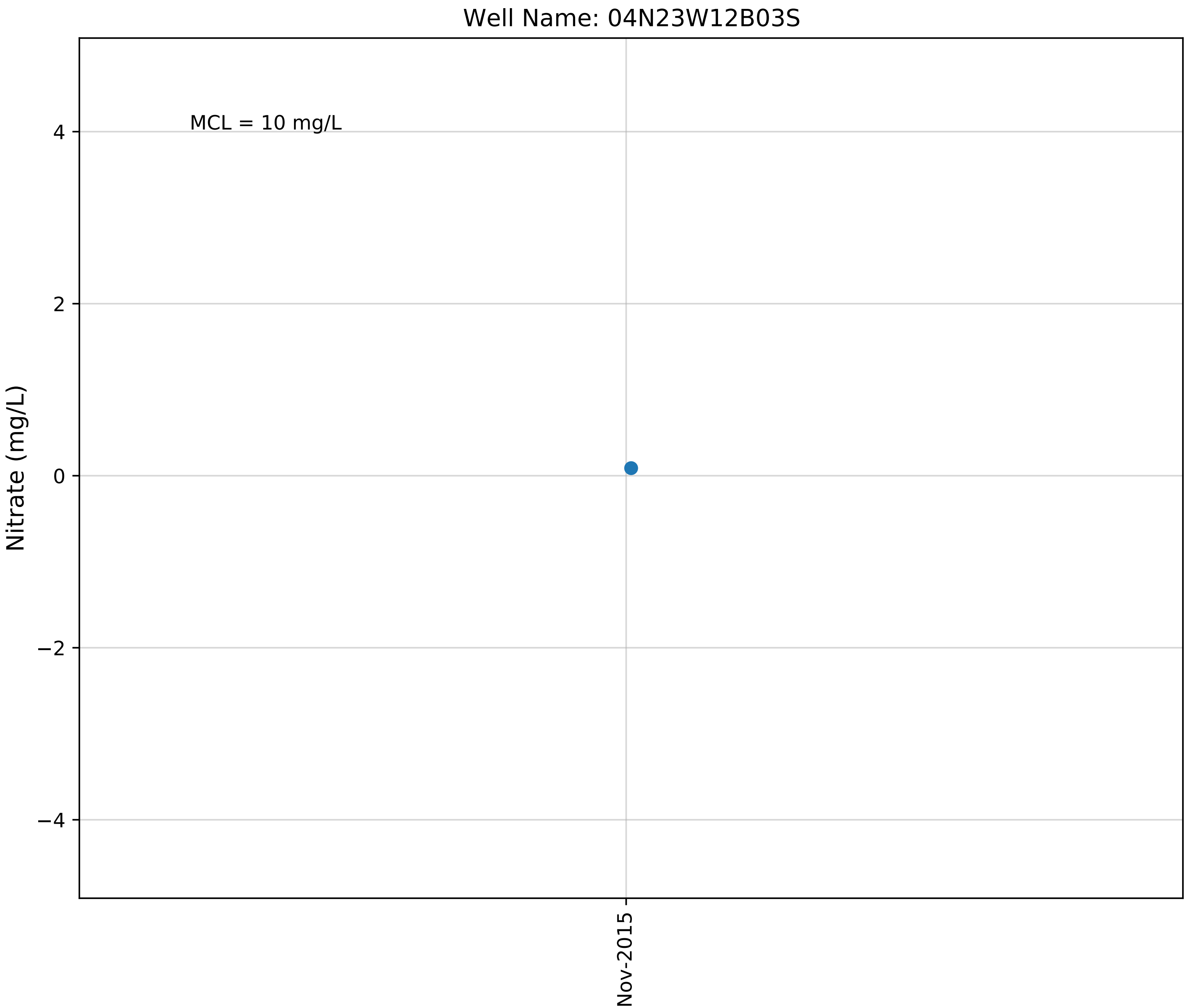
Well Name: 04N23W01J03S
MCL = 10 mg/L
Nitrate (mg/L)
4
2
0
−2
−4
Nov-2015
Nov-2017
Nov-2019
Nov-2021

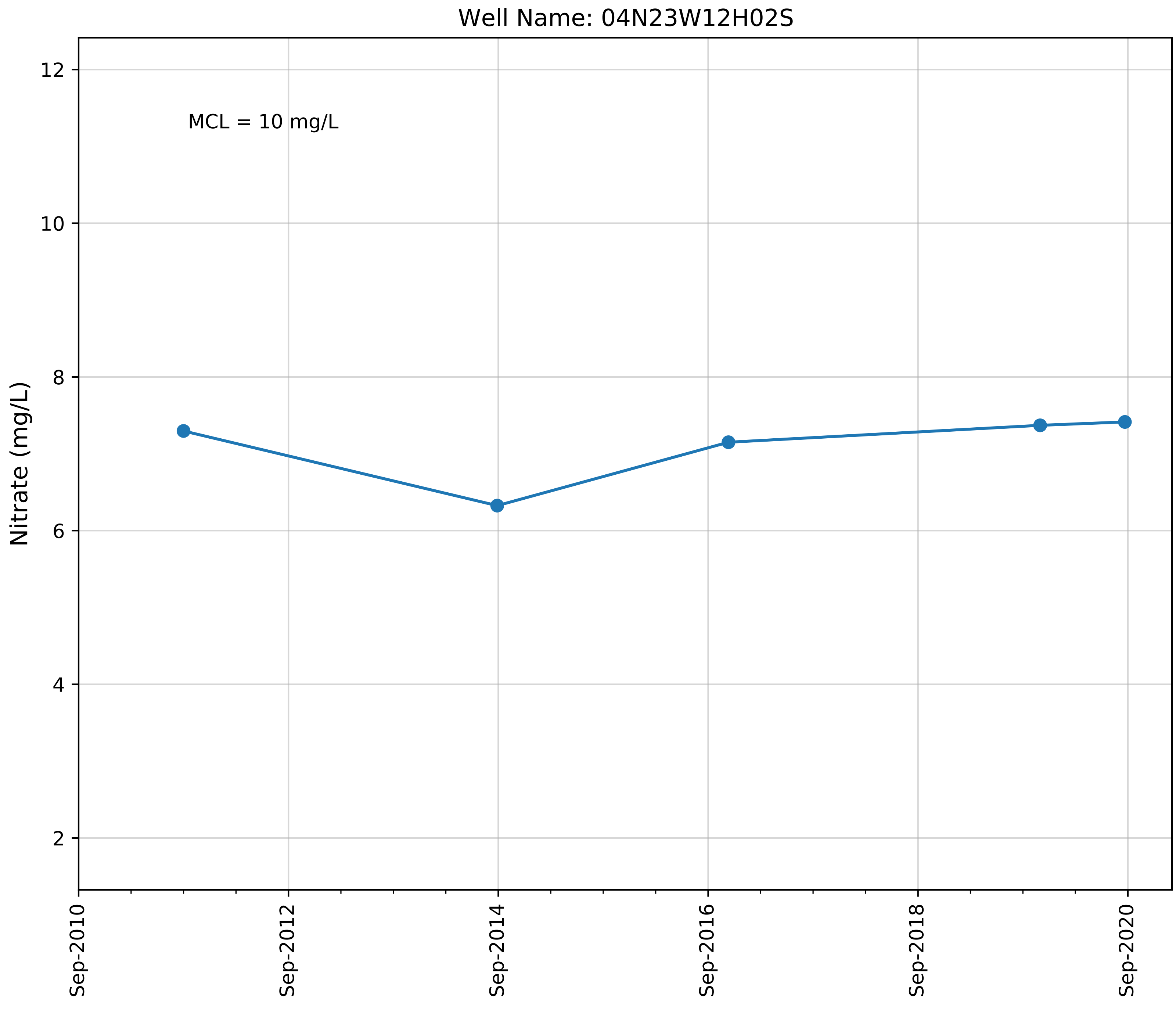


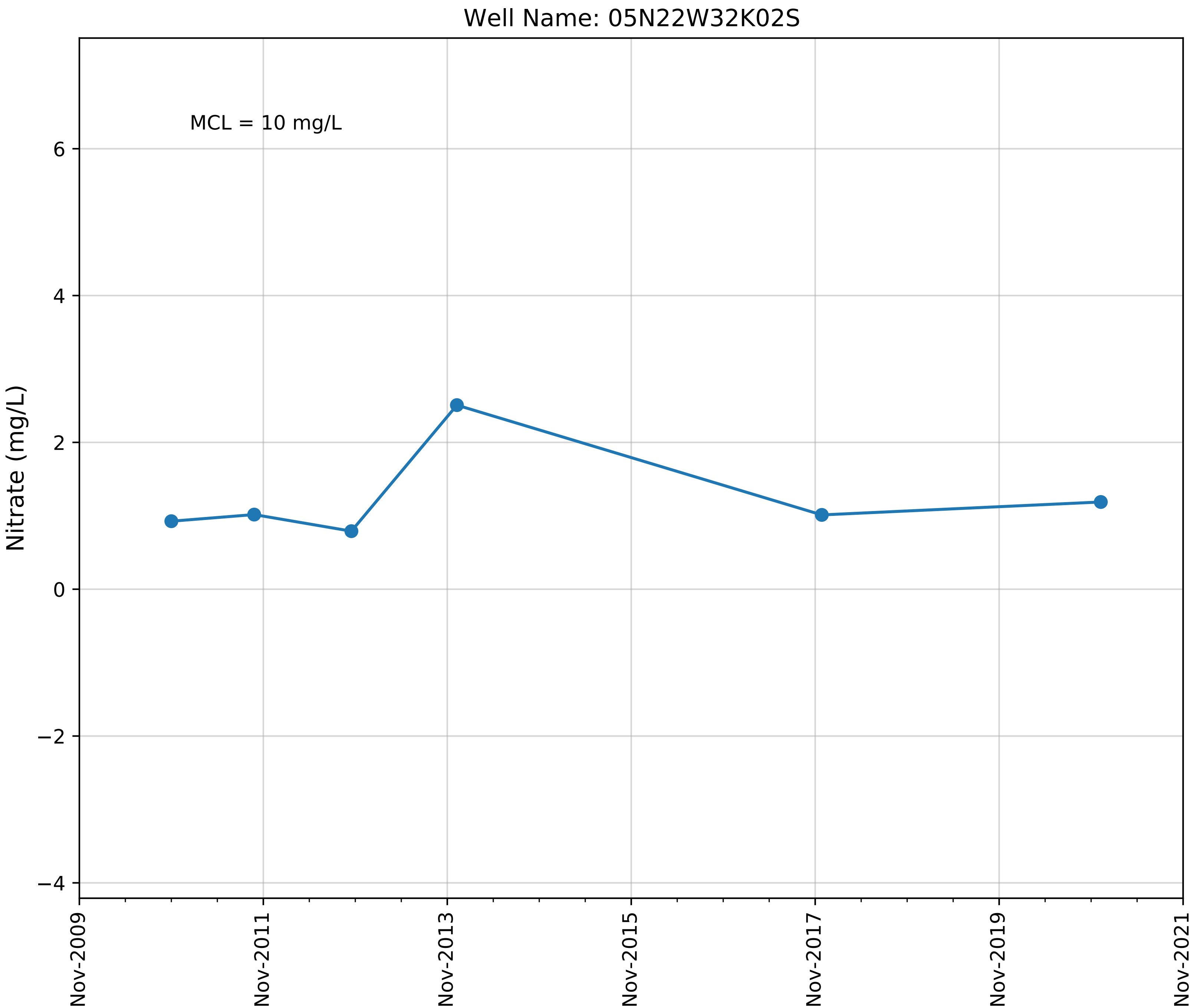
Well Name: 04N23W01K02S
MCL = 10 mg/L
Nitrate (mg/L)
6
4
2
0
−2
−4
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021



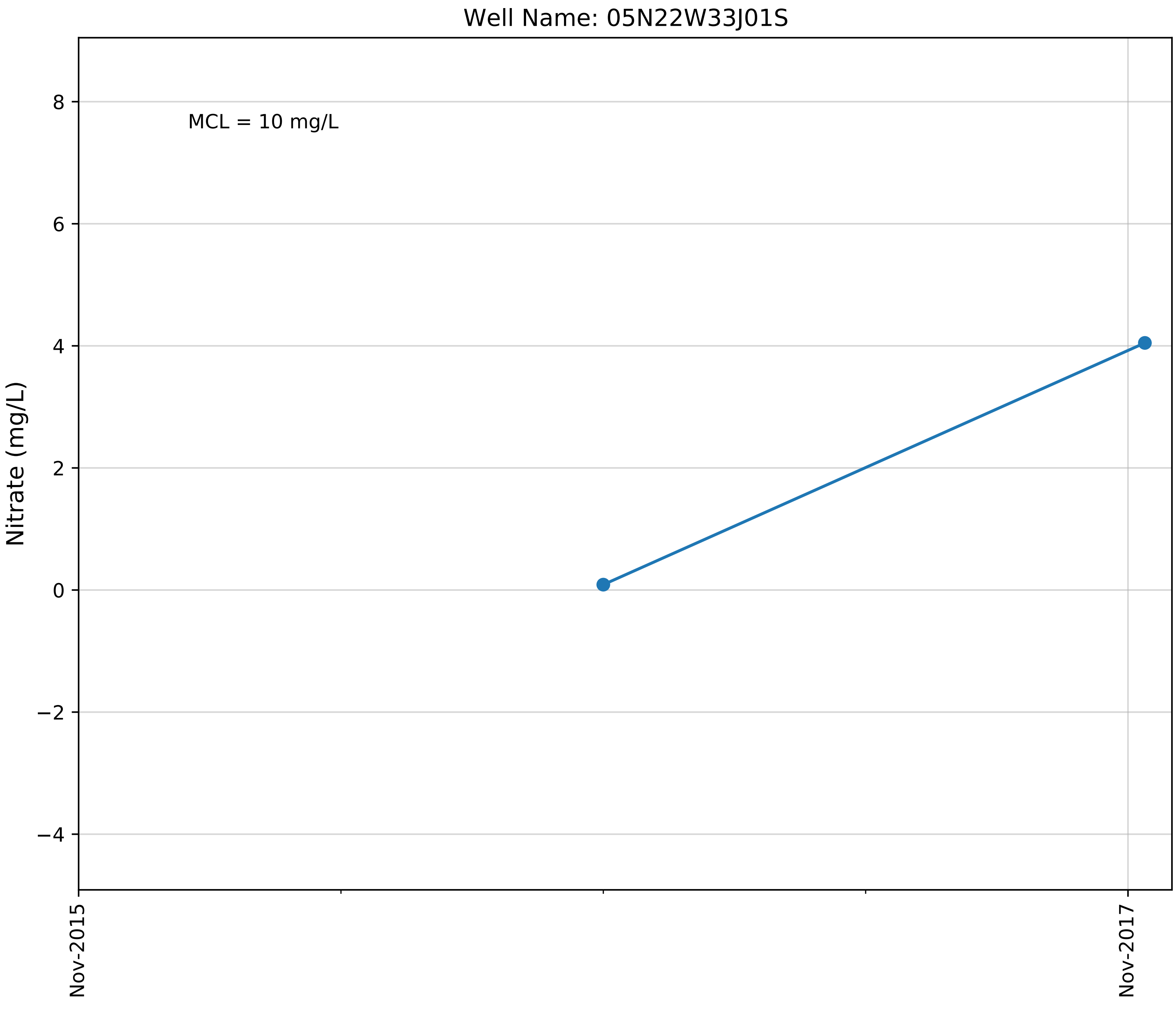
Well Name: 04N23W02P01S
MCL = 10 mg/L
Nitrate (mg/L)
0
2
4
6
8
10
Nov-2009
Nov-2011


Well Name: 04N23W12B03S
MCL = 10 mg/L
Nitrate (mg/L)
4
2
0
−2
−4
Nov-2015

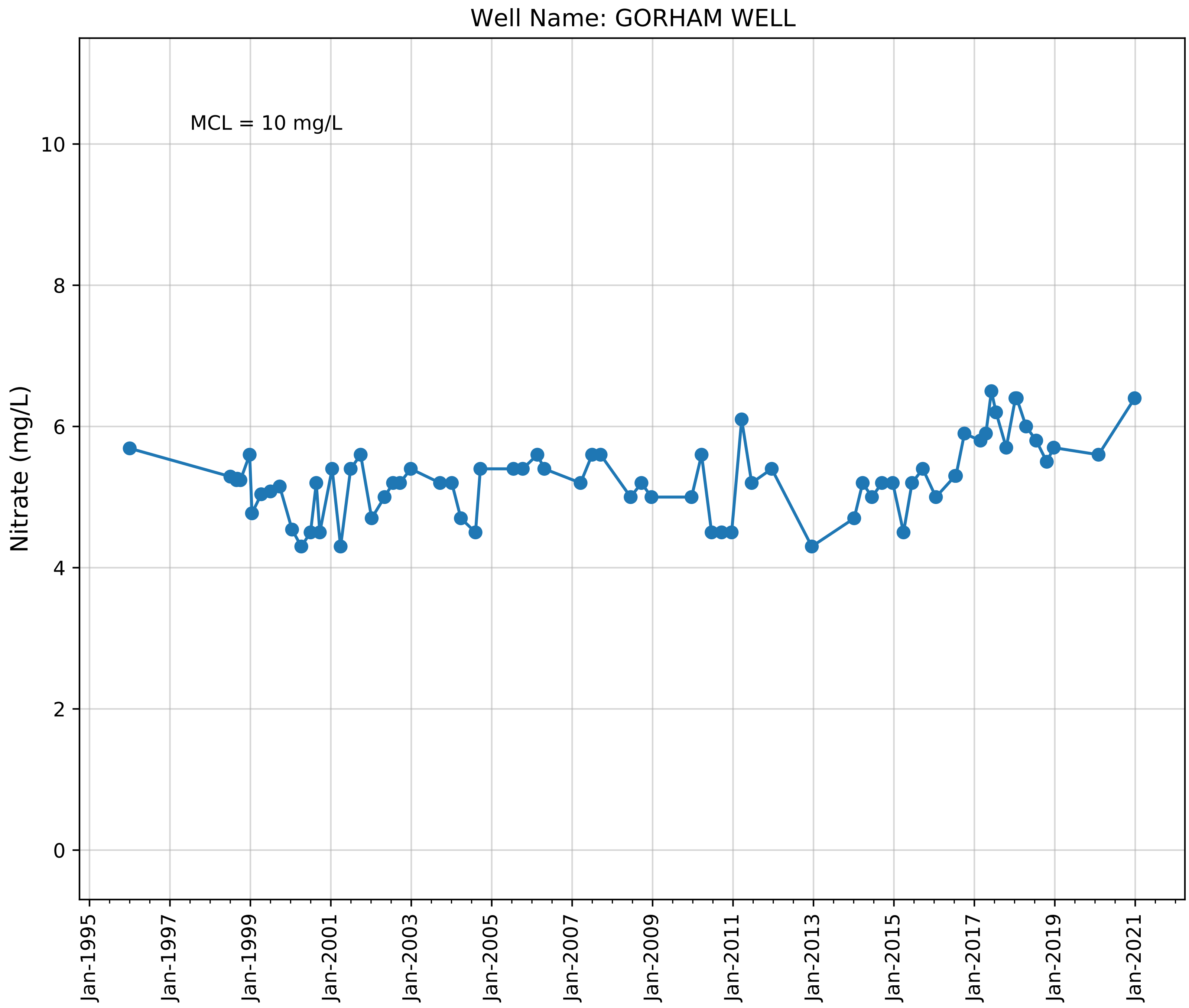

Well Name: 04N23W12H02S
MCL = 10 mg/L
Nitrate (mg/L)
2
4
6
8
10
12
Sep-2010
Sep-2012
Sep-2014
Sep-2016
Sep-2018
Sep-2020

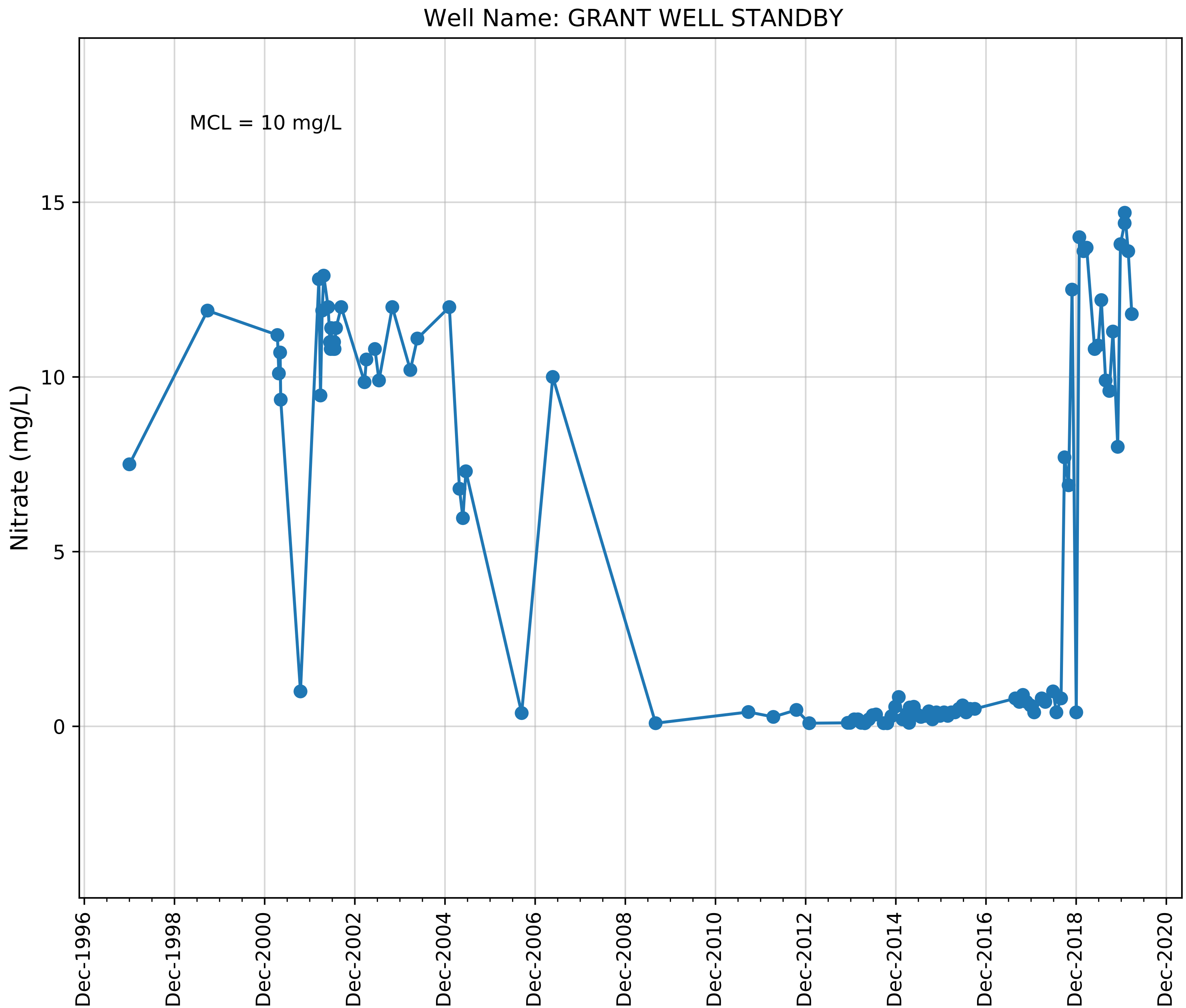


Well Name: 05N22W32K02S
MCL = 10 mg/L
Nitrate (mg/L)
6
4
2
0
−2
−4
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

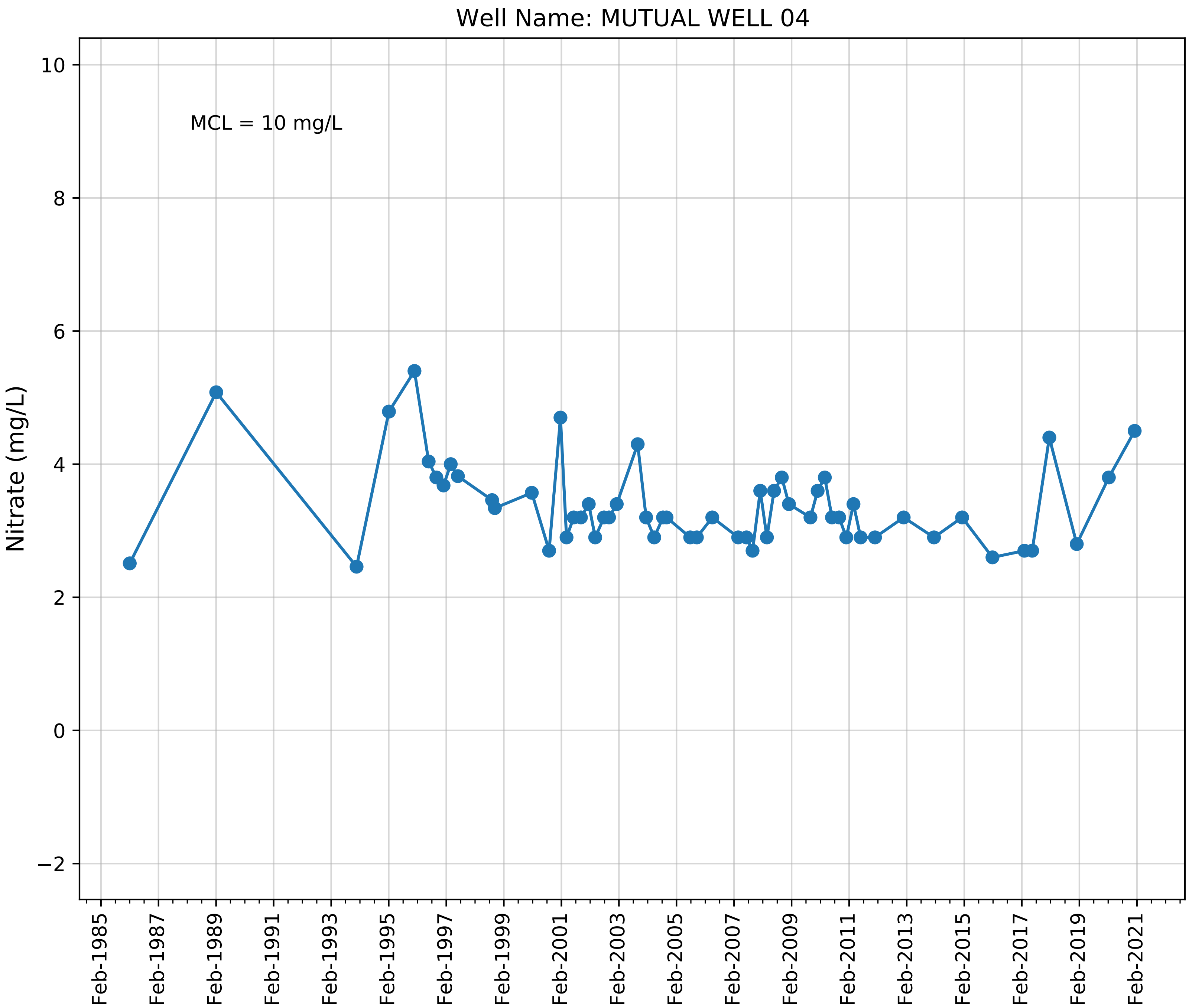


Well Name: 05N22W33J01S
MCL = 10 mg/L
Nitrate (mg/L)
8
6
4
2
0
−2
−4
Nov-2015
Nov-2017

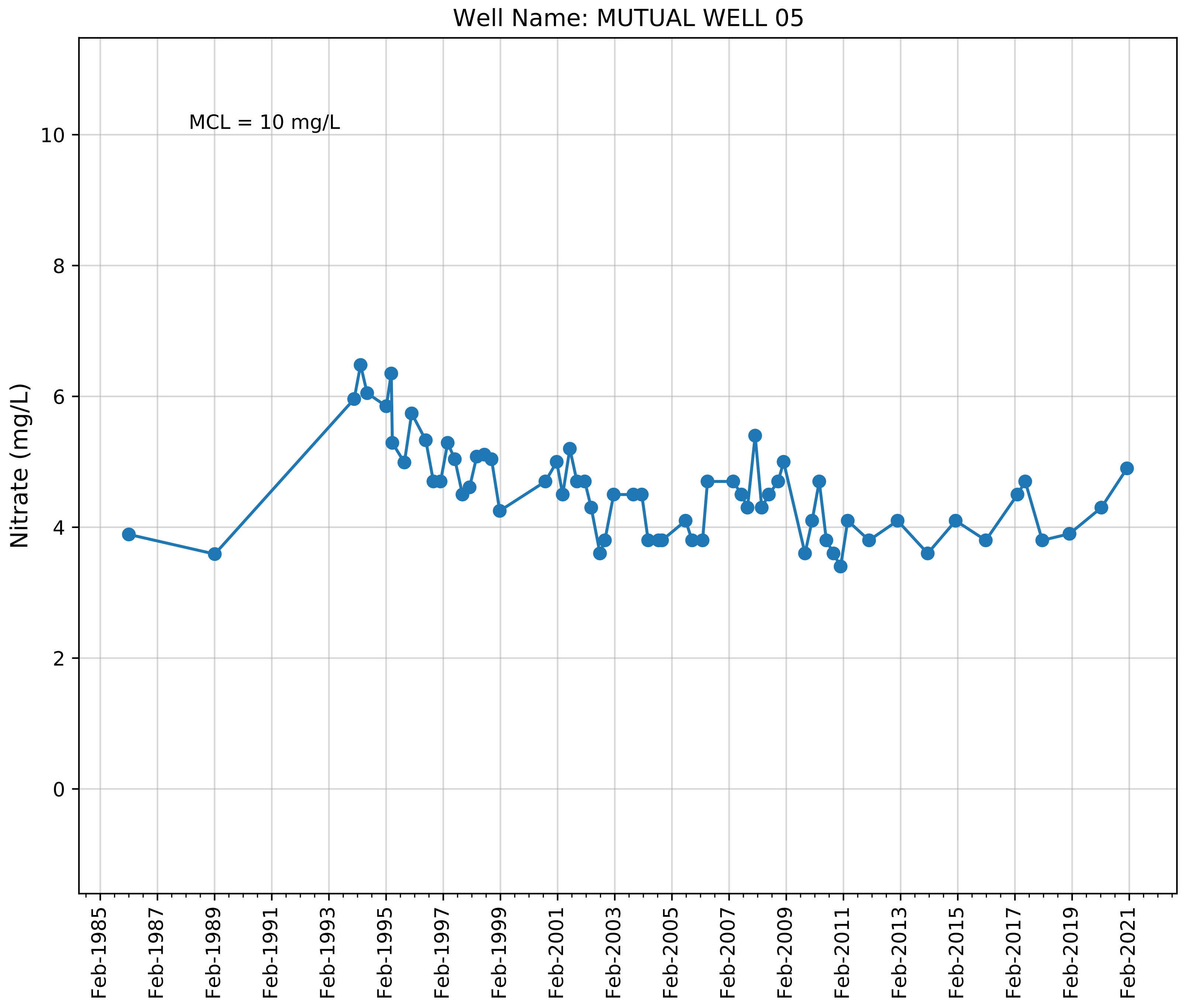

Well Name: GORHAM WELL
MCL = 10 mg/L
Nitrate (mg/L)
0
2
4
6
8
10
Jan-1995
Jan-1997
Jan-1999
Jan-2001
Jan-2003
Jan-2005
Jan-2007
Jan-2009
Jan-2011
Jan-2013
Jan-2015
Jan-2017
Jan-2019
Jan-2021



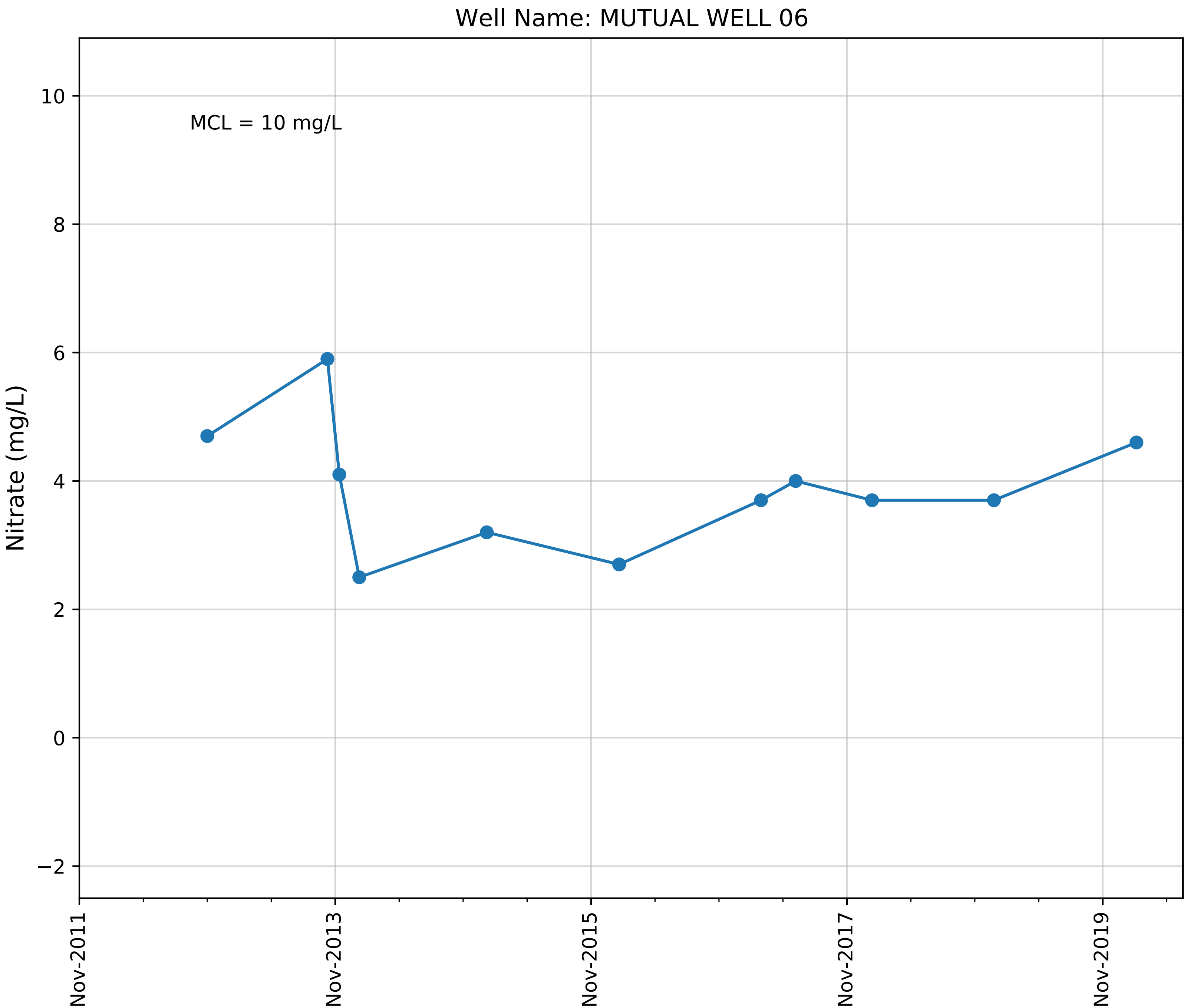
Well Name: GRANT WELL STANDBY
MCL = 10 mg/L
Nitrate (mg/L)
0
5
10
15
Dec-1996
Dec-1998
Dec-2000
Dec-2002
Dec-2004
Dec-2006
Dec-2008
Dec-2010
Dec-2012
Dec-2014
Dec-2016
Dec-2018
Dec-2020



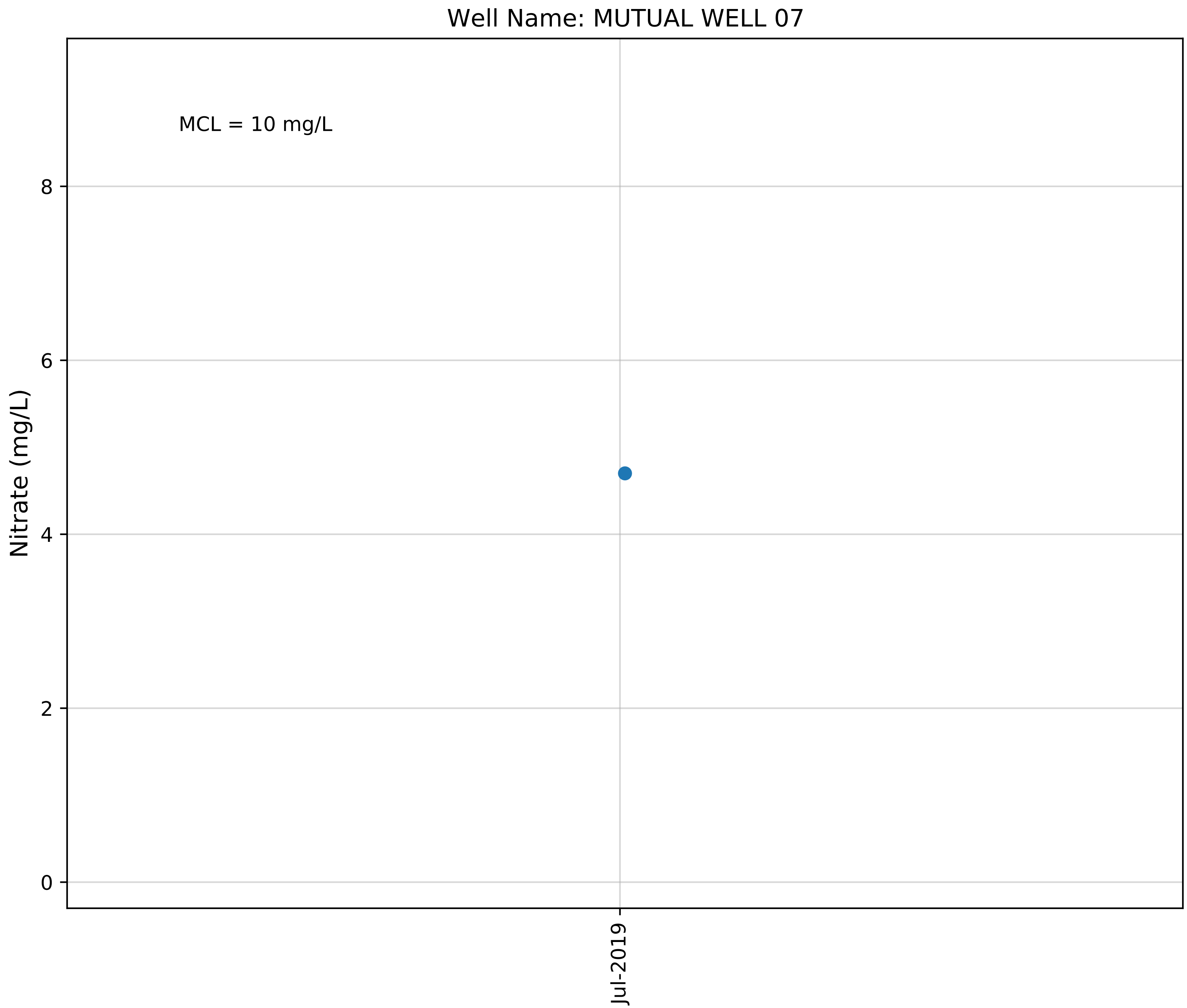
Well Name: MUTUAL WELL 04
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
0
−2
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

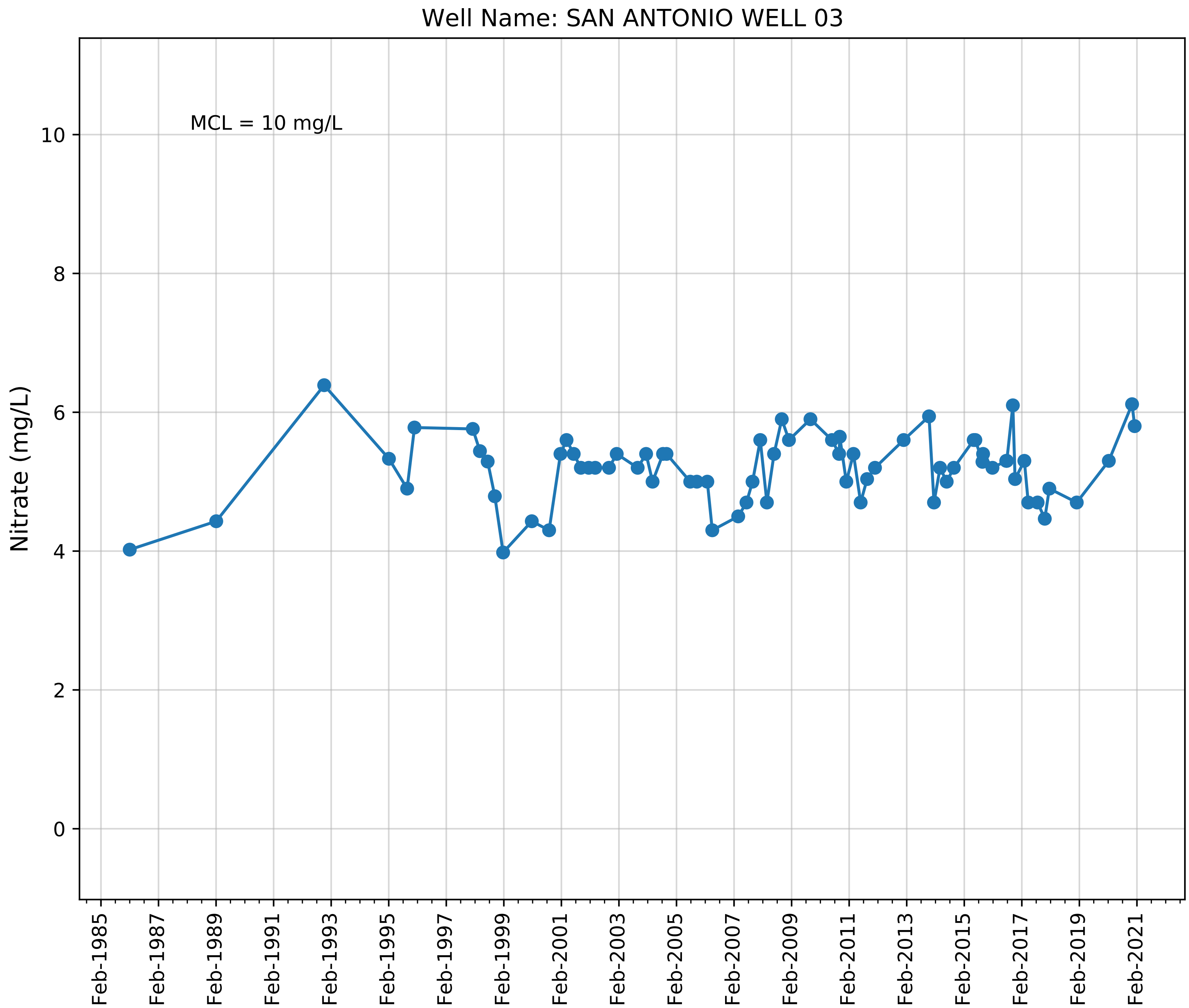


Well Name: MUTUAL WELL 05
MCL = 10 mg/L
Nitrate (mg/L)
0
2
4
6
8
10
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

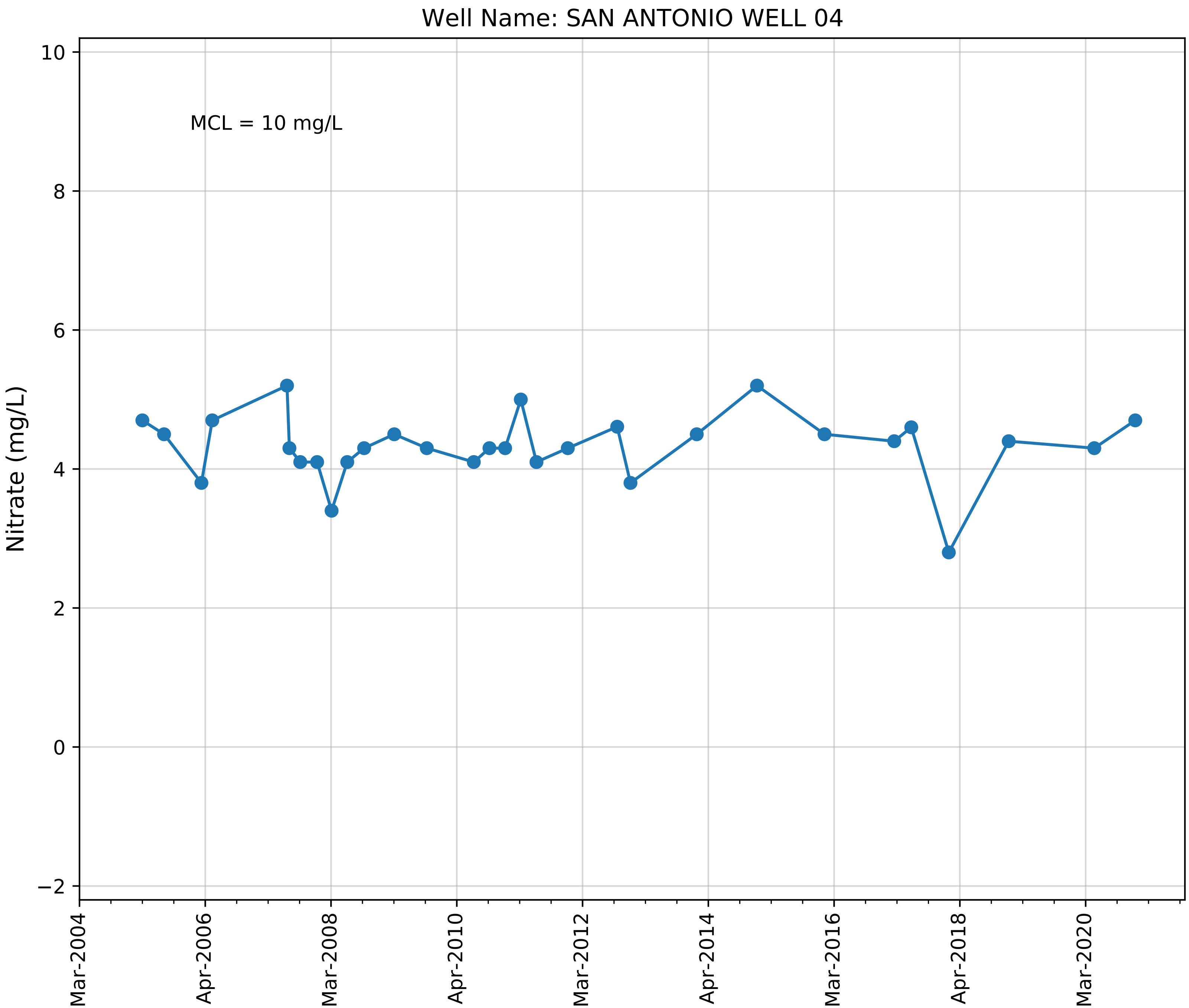


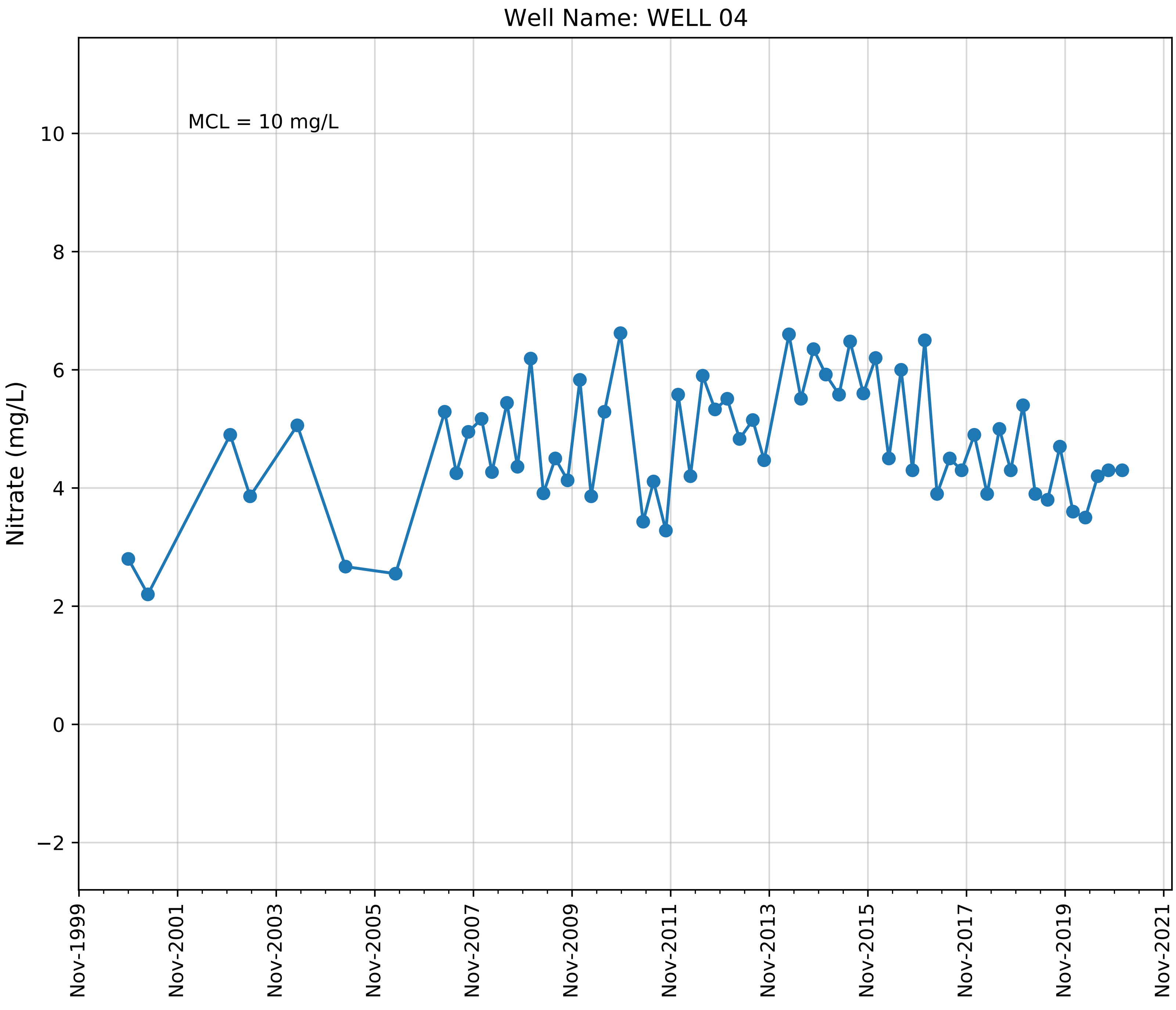
Well Name: MUTUAL WELL 06
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
0
−2
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019

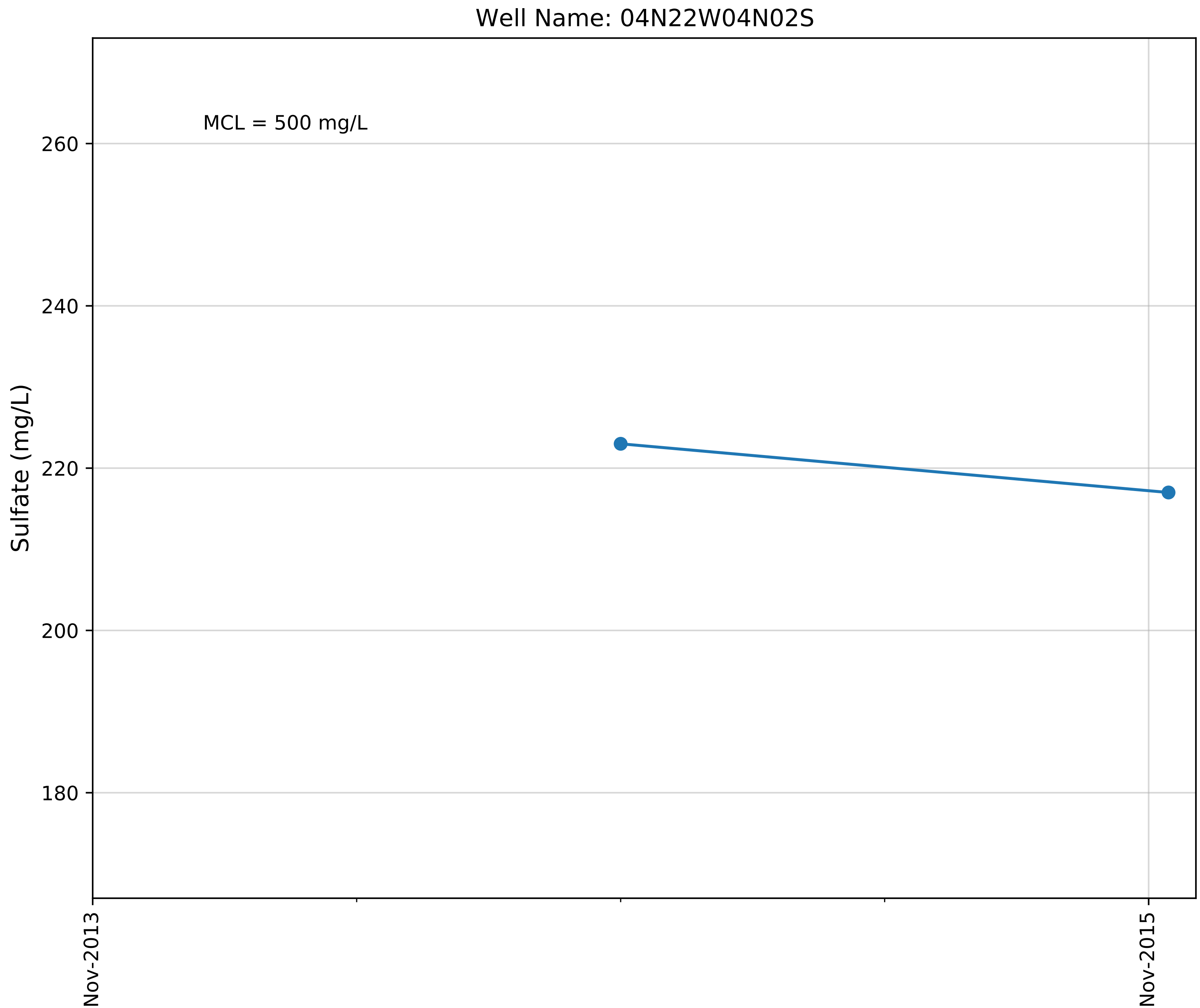

Well Name: MUTUAL WELL 07
MCL = 10 mg/L
Nitrate (mg/L)
0
2
4
6
8
Jul-2019

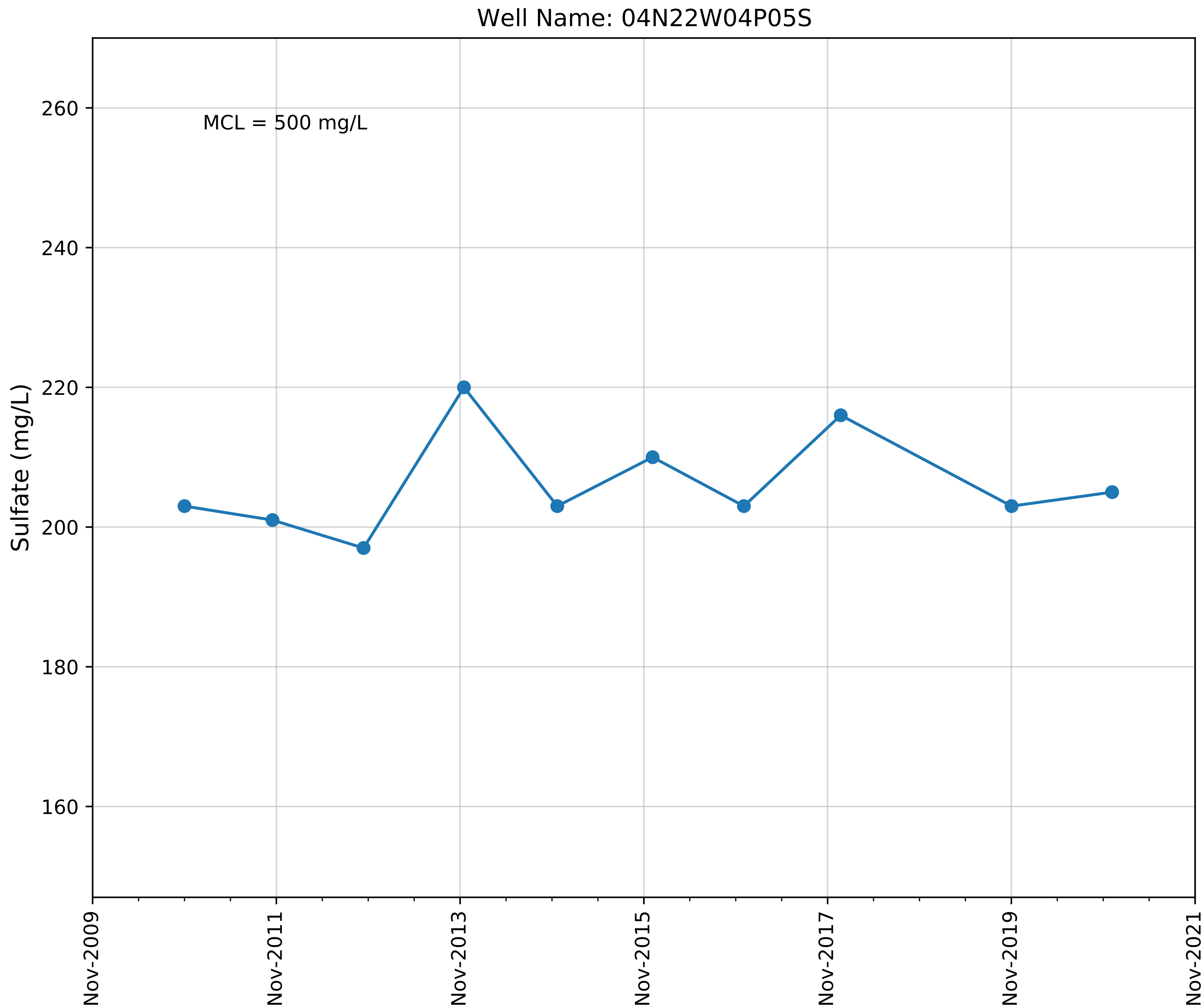


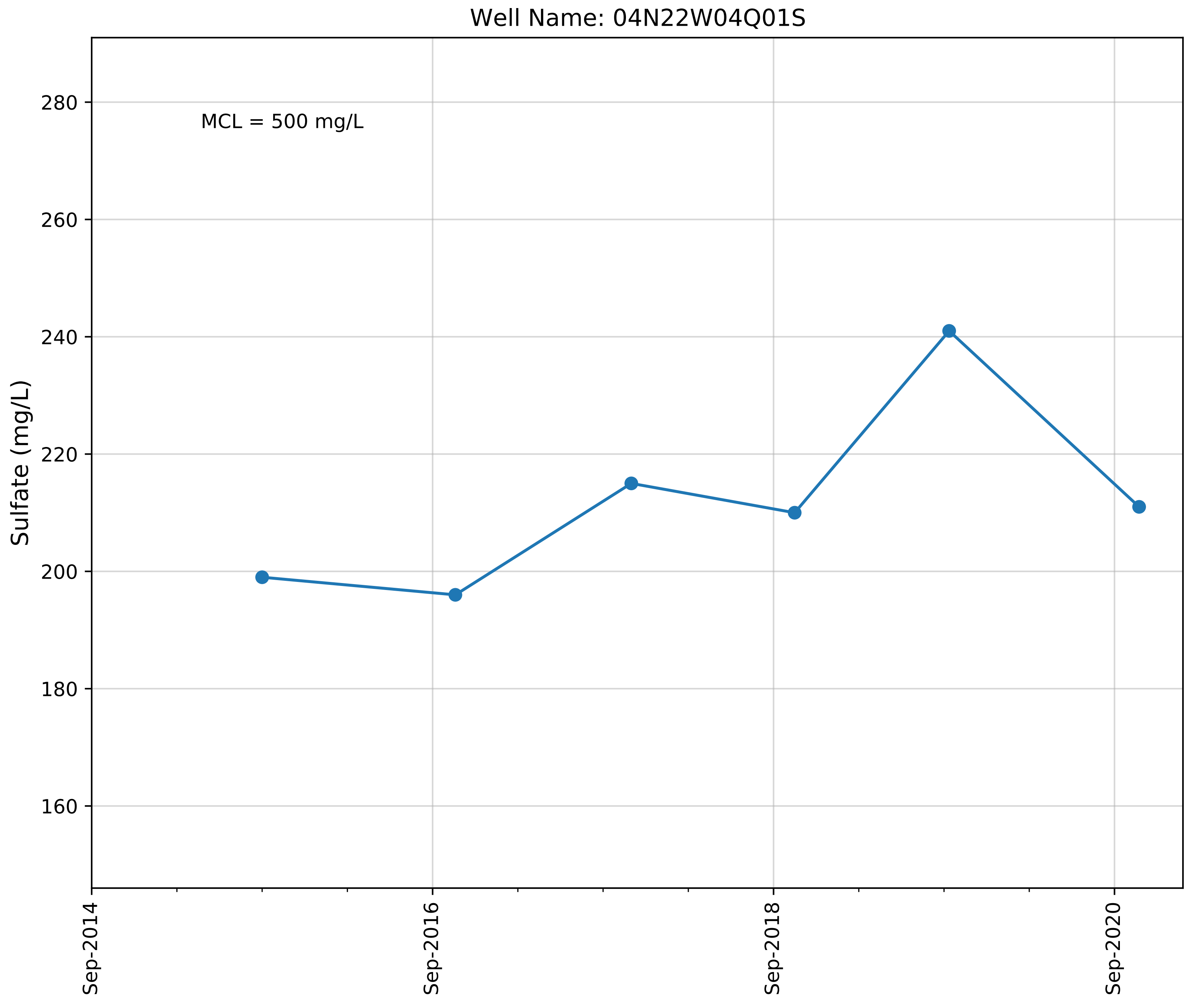
Well Name: SAN ANTONIO WELL 03
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
0
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

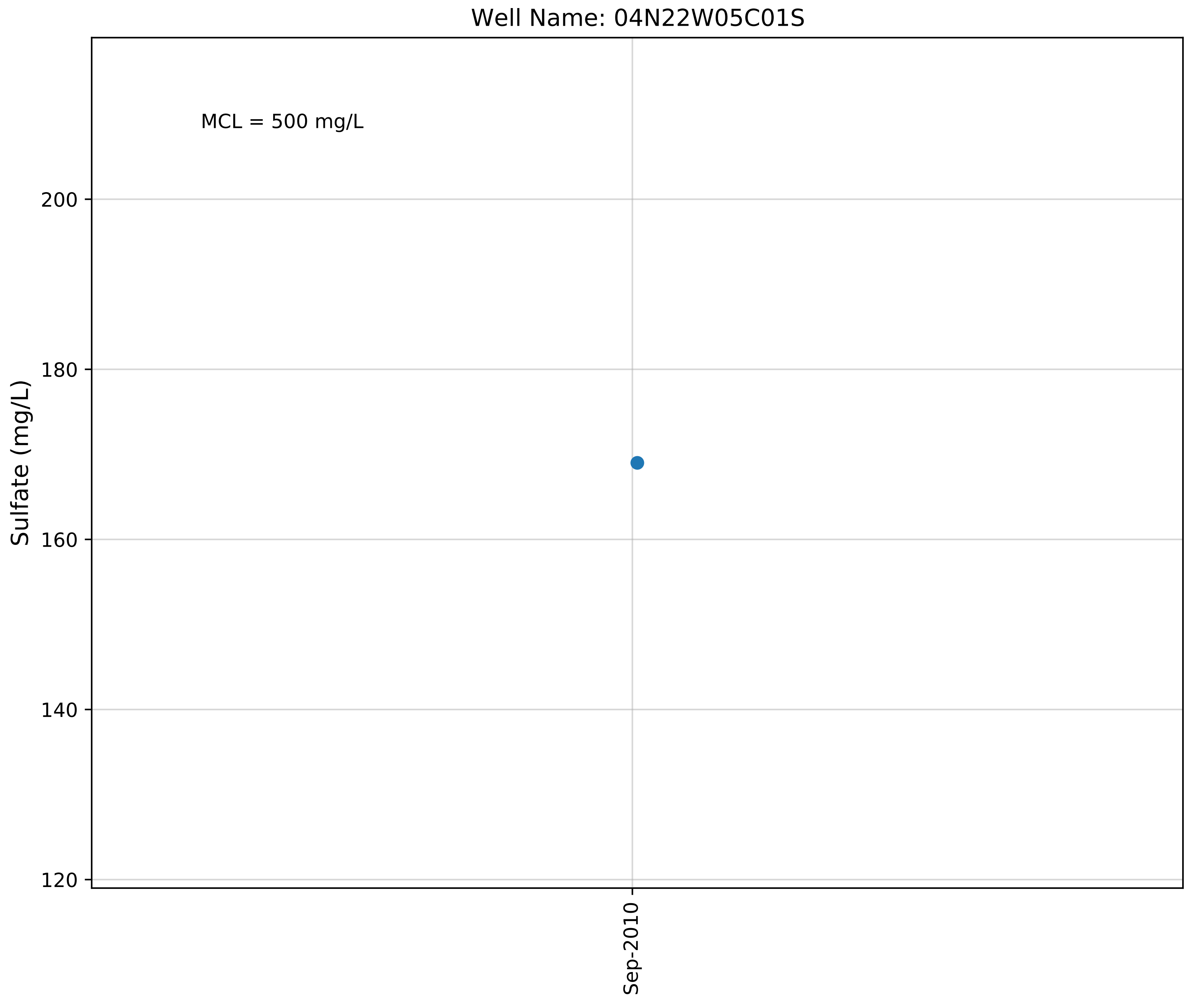

Well Name: SAN ANTONIO WELL 04
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
0
−2
Mar-2004
Apr-2006
Mar-2008
Apr-2010
Mar-2012
Apr-2014
Mar-2016
Apr-2018
Mar-2020


Well Name: WELL 04
MCL = 10 mg/L
Nitrate (mg/L)
10
8
6
4
2
0
−2
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

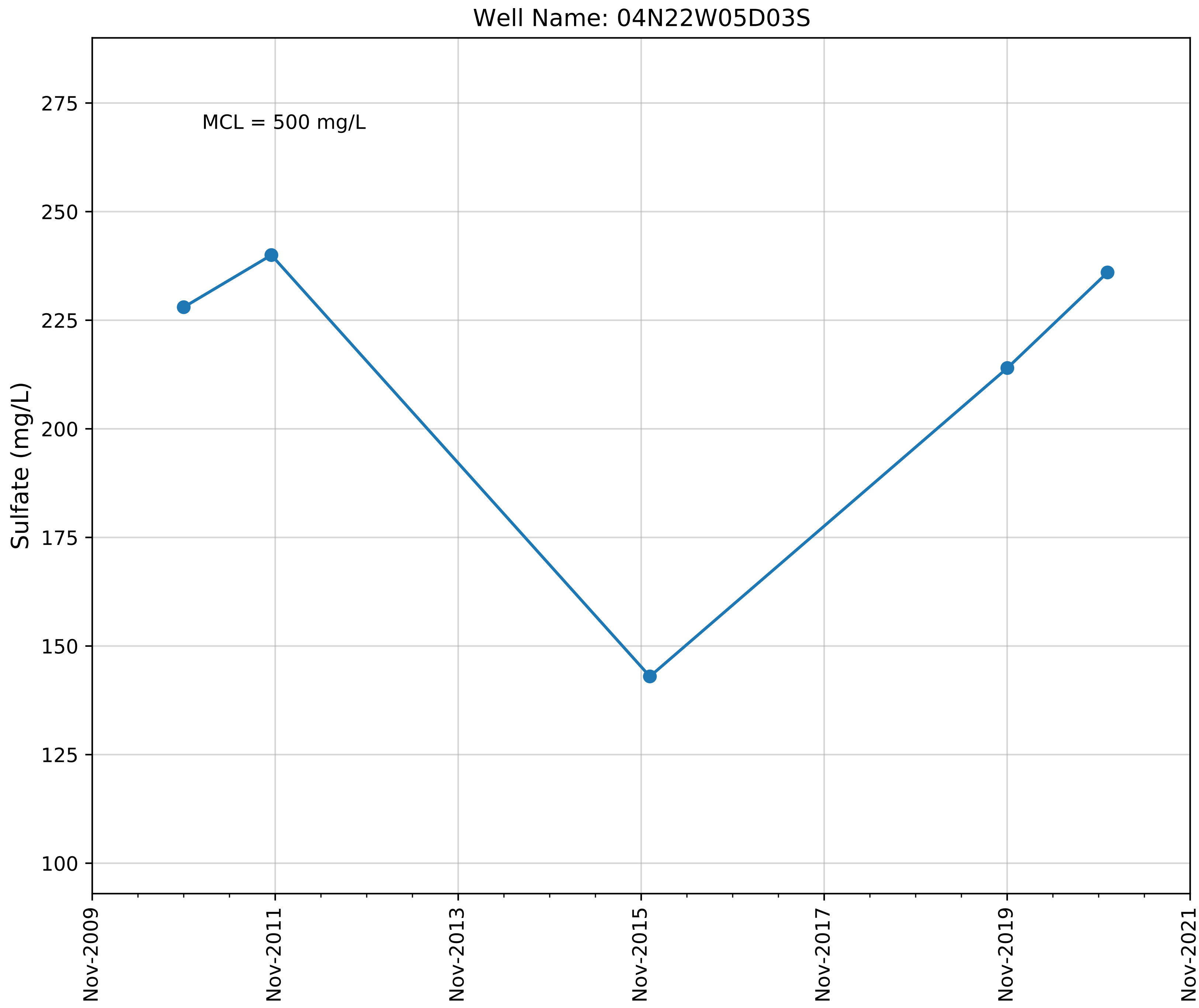

Well Name: 04N22W04N02S
MCL = 500 mg/L
Sulfate (mg/L)
260
240
220
200
180
Nov-2013
Nov-2015


Well Name: 04N22W04P05S
MCL = 500 mg/L
Sulfate (mg/L)
260
240
220
200
180
160
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

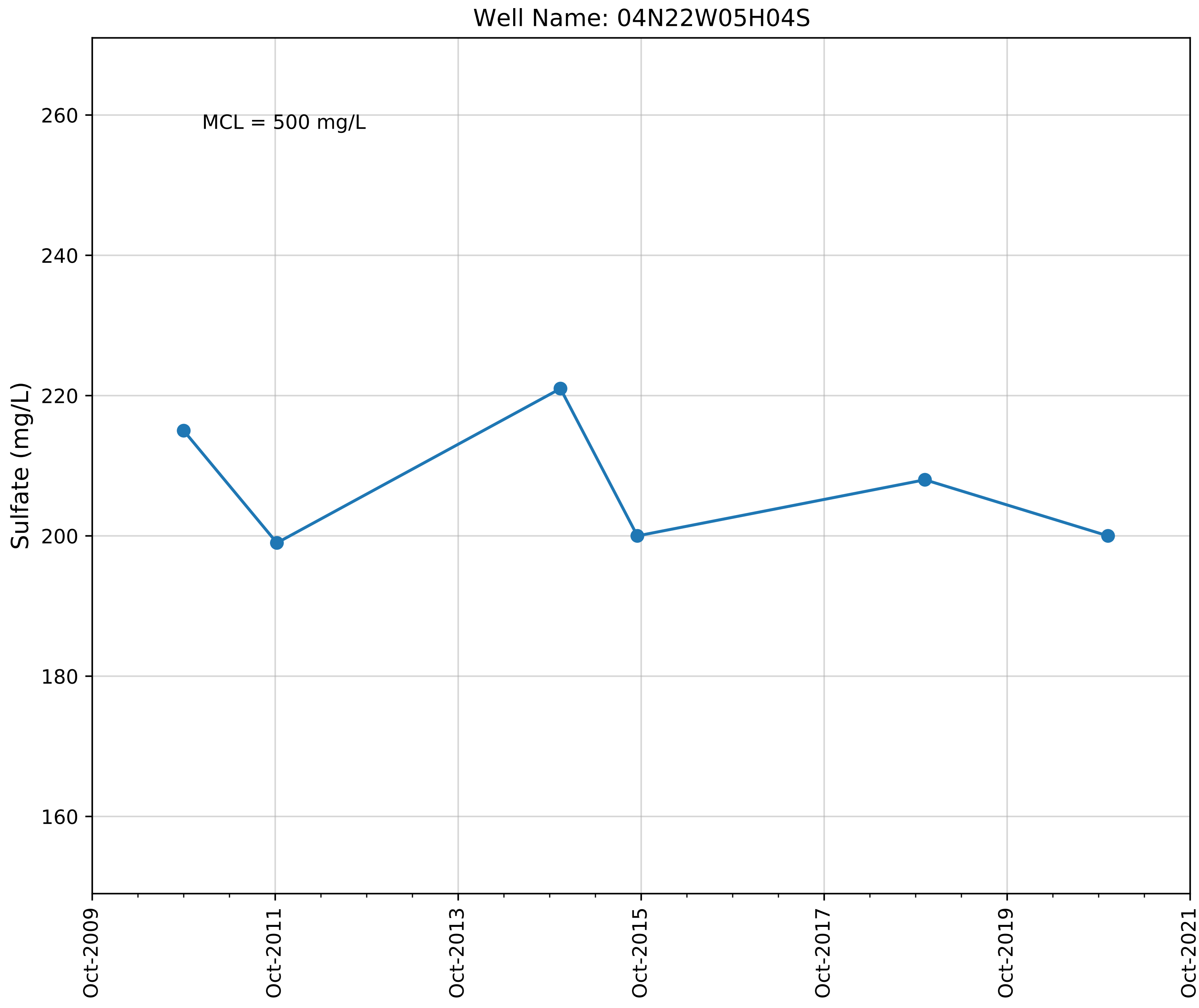

Well Name: 04N22W04Q01S
MCL = 500 mg/L
Sulfate (mg/L)
160
180
200
220
240
260
280
Sep-2014
Sep-2016
Sep-2018
Sep-2020



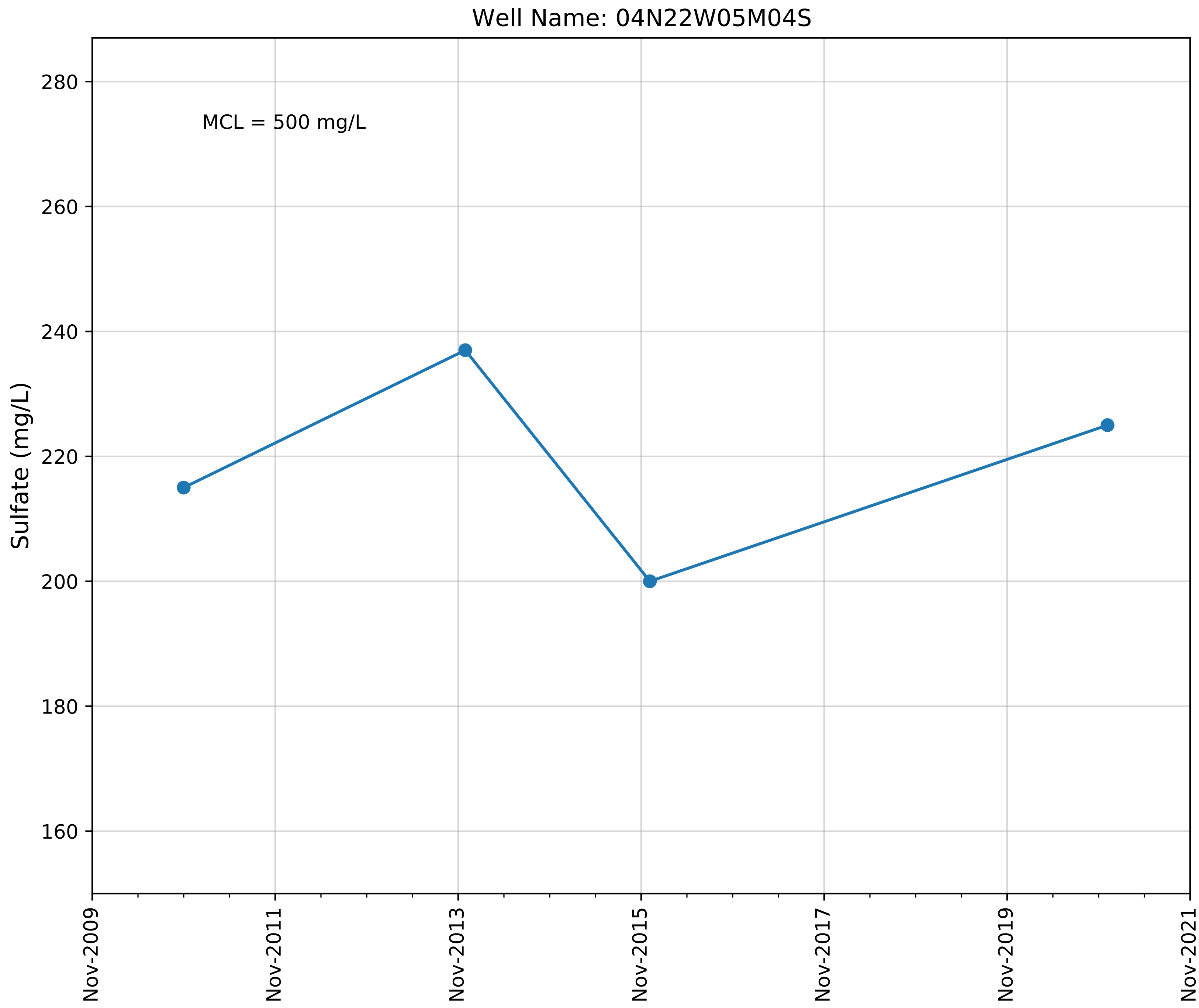
Well Name: 04N22W05C01S
MCL = 500 mg/L
Sulfate (mg/L)
200
180
160
140
120
Sep-2010



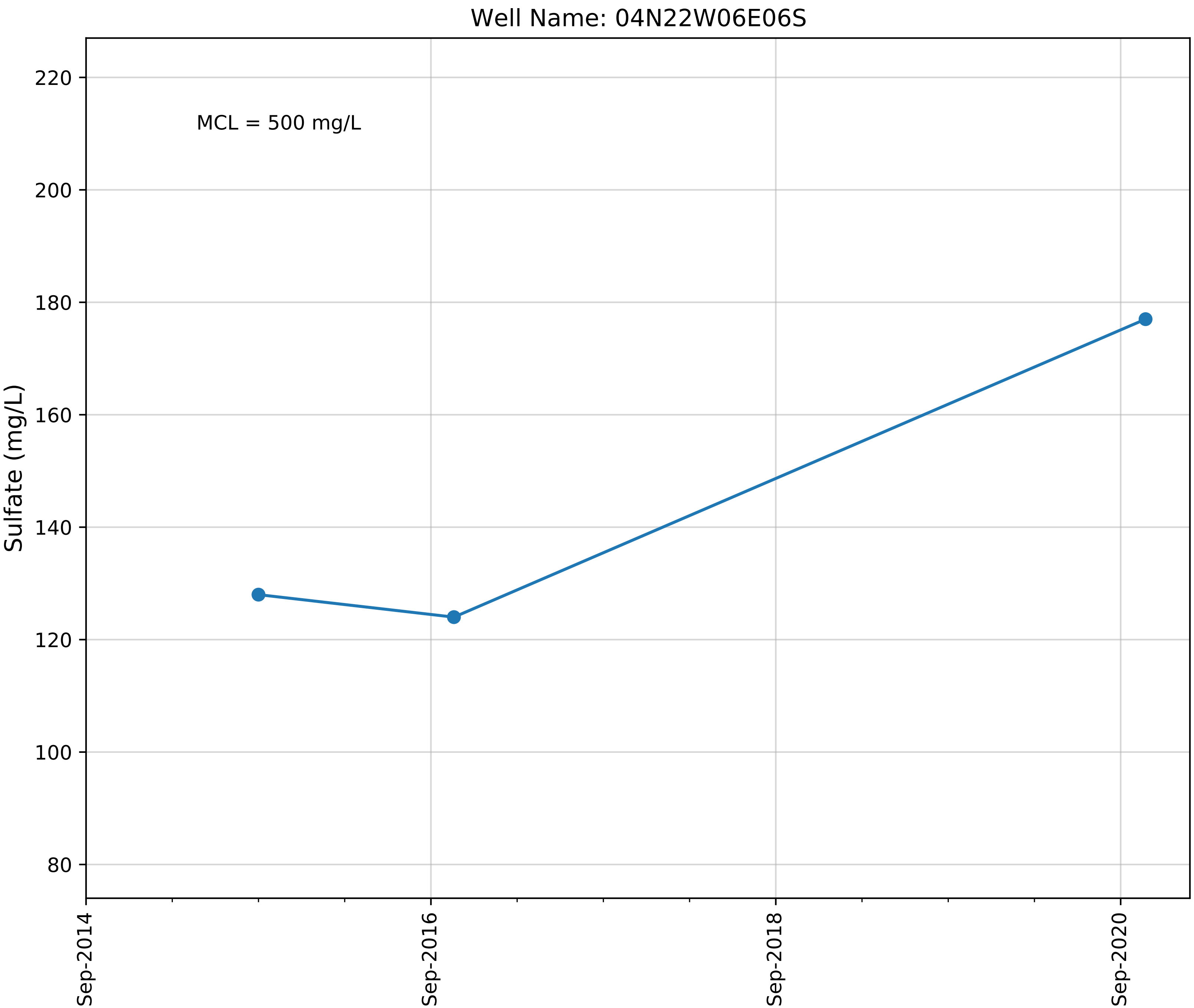
Well Name: 04N22W05D03S
MCL = 500 mg/L
Sulfate (mg/L)
275
250
225
200
175
150
125
100
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

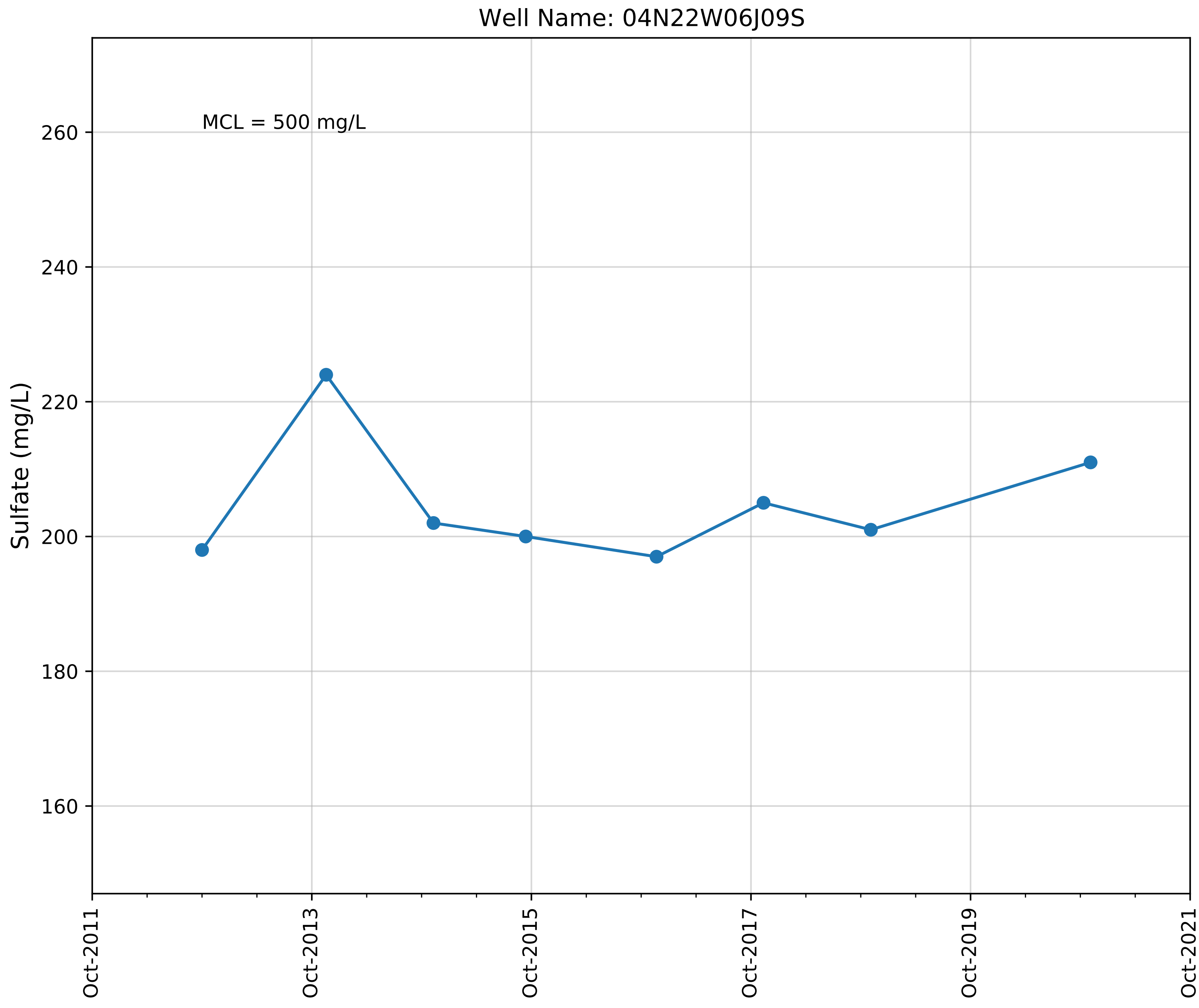


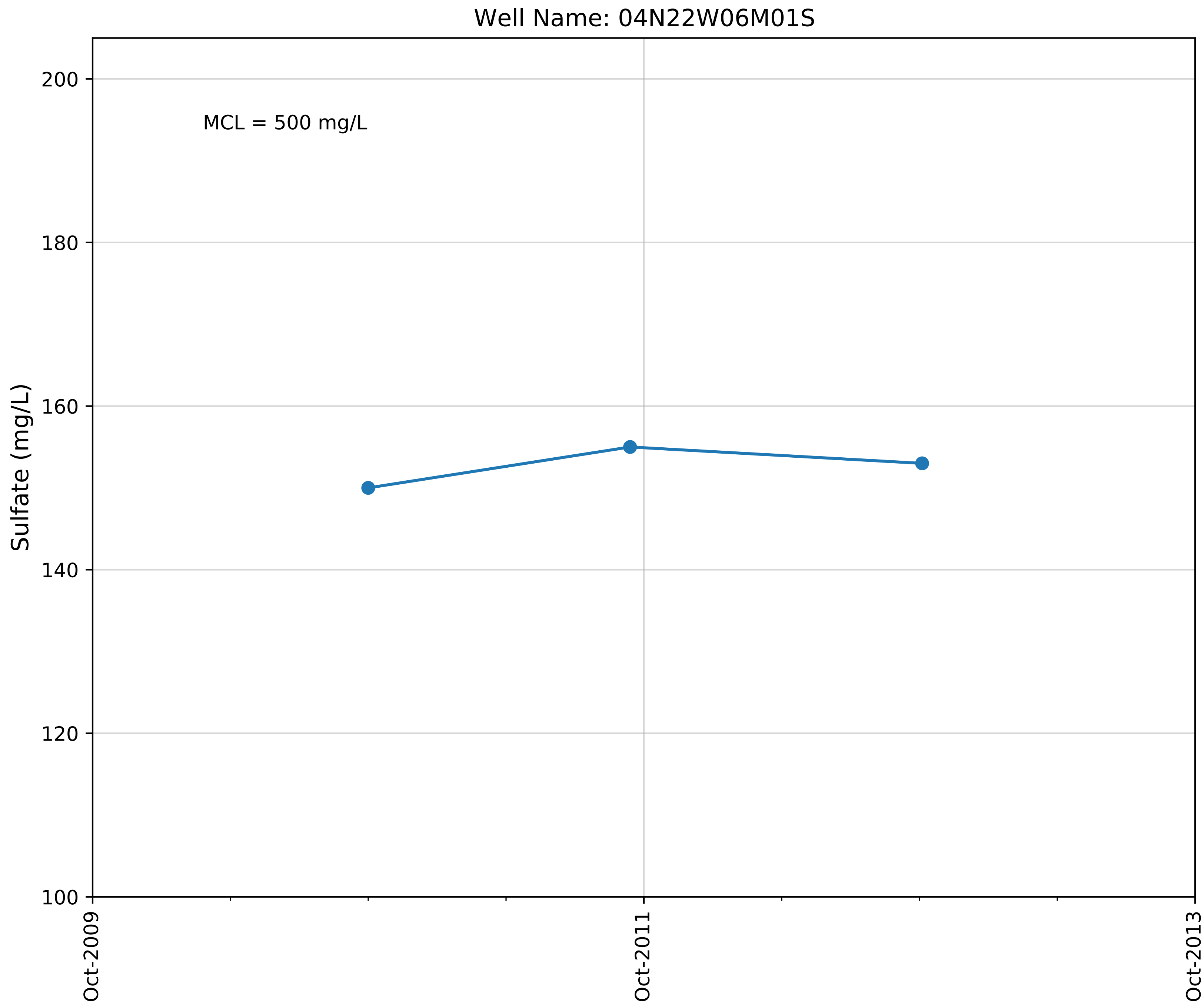
Well Name: 04N22W05H04S
MCL = 500 mg/L
Sulfate (mg/L)
260
240
220
200
180
160
Oct-2009
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021



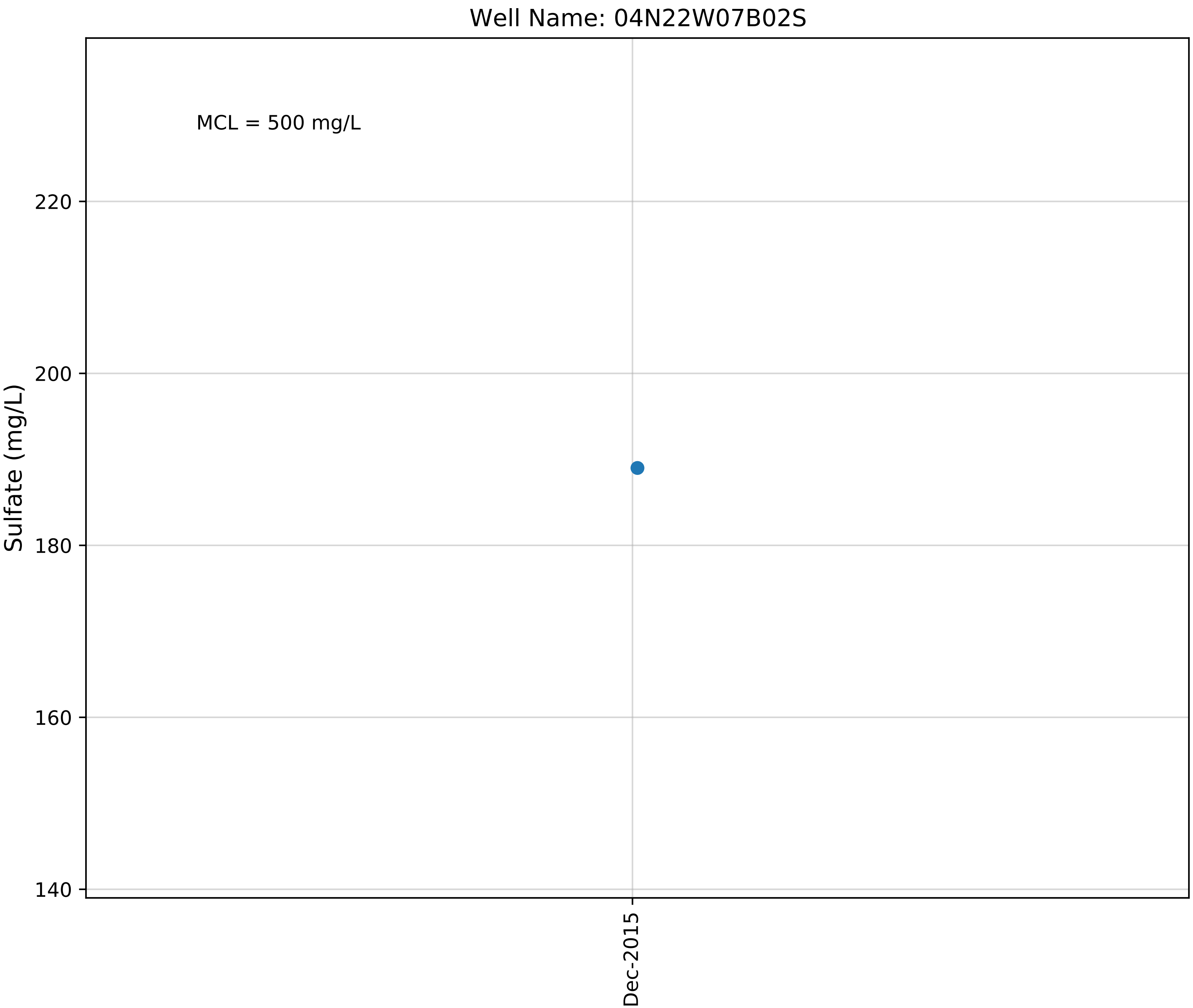
Well Name: 04N22W05M04S
MCL = 500 mg/L
Sulfate (mg/L)
280
260
240
220
200
180
160
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021


Well Name: 04N22W06E06S
MCL = 500 mg/L
Sulfate (mg/L)
220
200
180
160
140
120
100
80
Sep-2014
Sep-2016
Sep-2018
Sep-2020

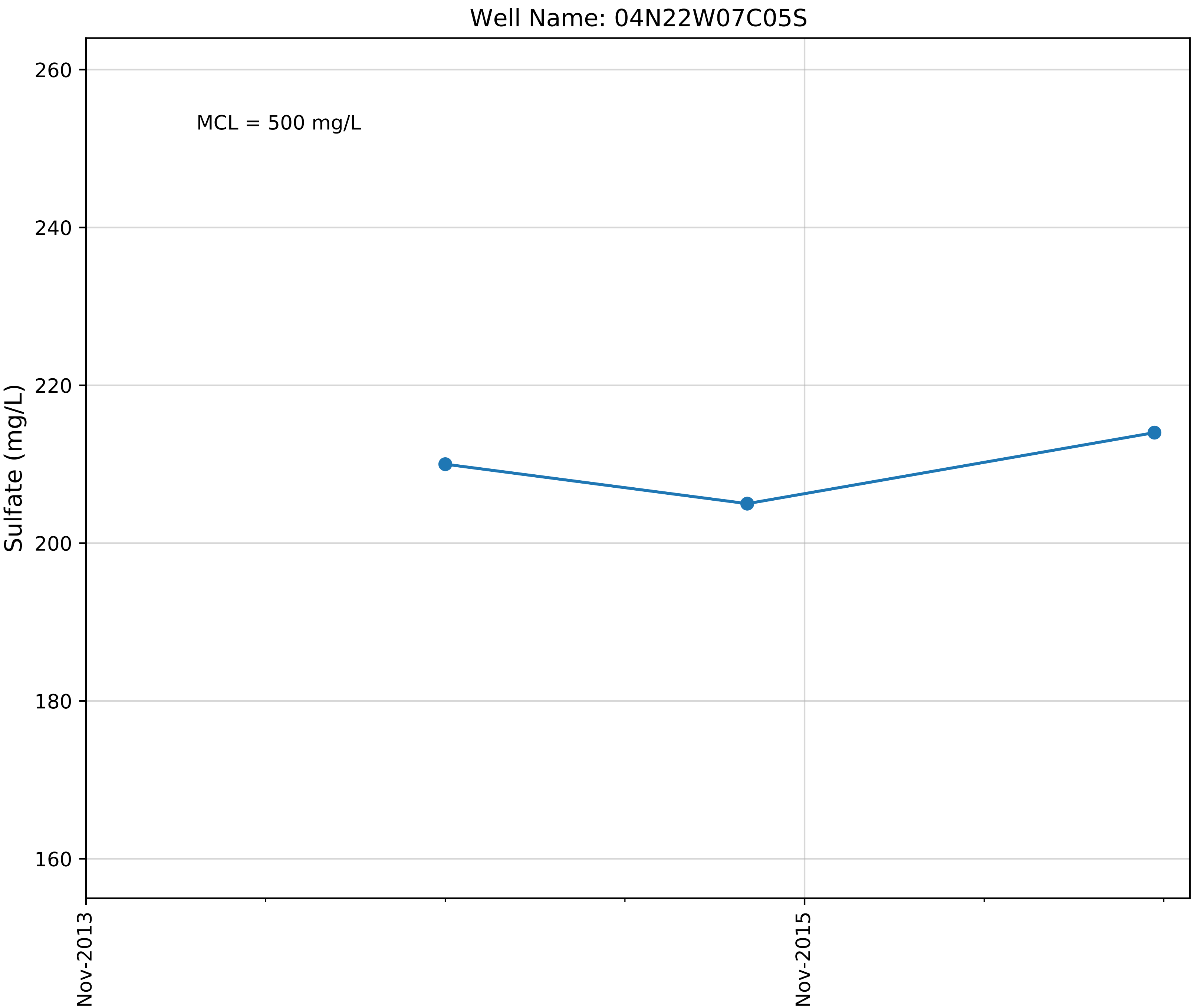

Well Name: 04N22W06J09S
MCL = 500 mg/L
Sulfate (mg/L)
260
240
220
200
180
160
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021



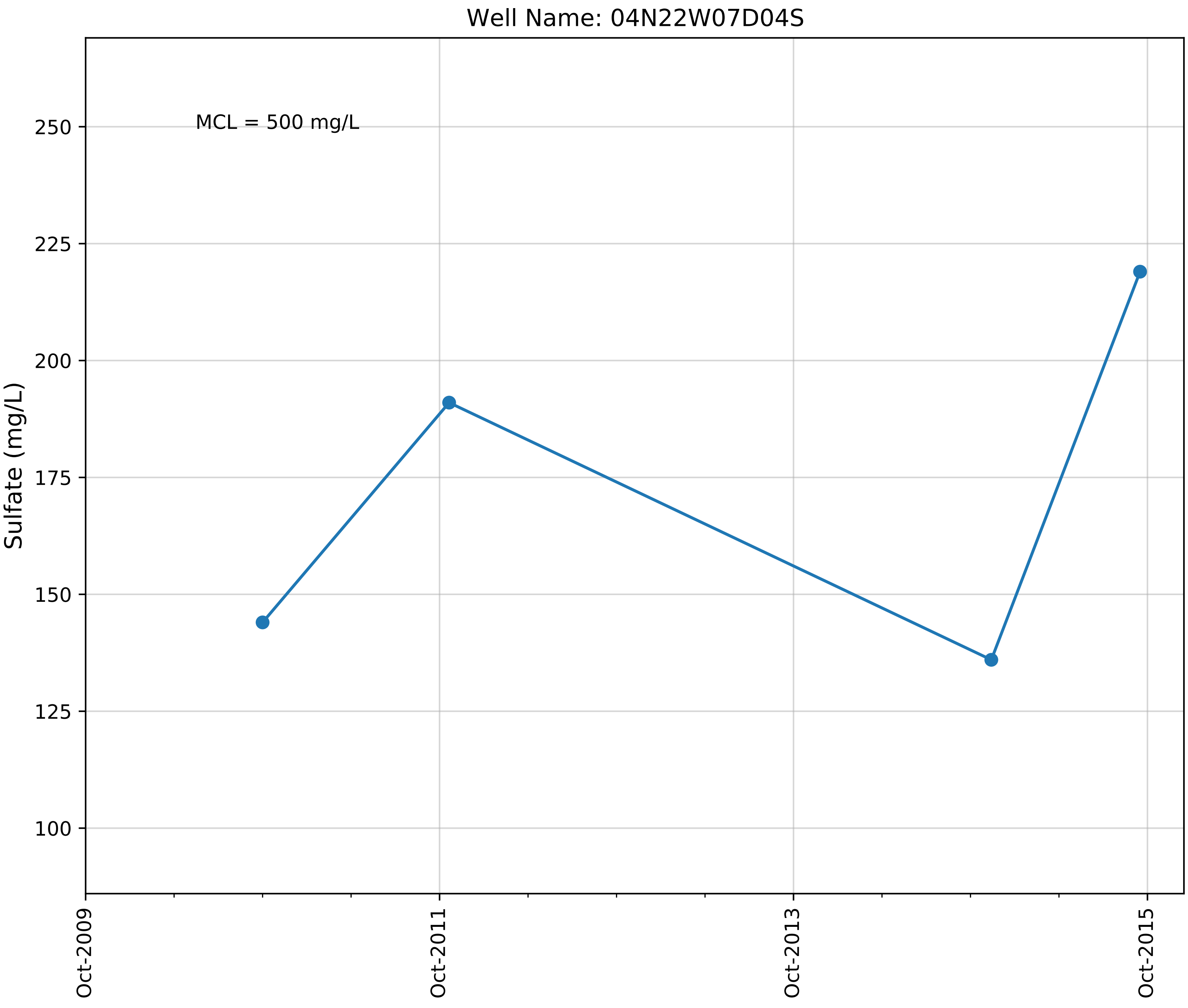
Well Name: 04N22W06M01S
MCL = 500 mg/L
Sulfate (mg/L)
200
180
160
140
120
100
Oct-2009
Oct-2011
Oct-2013



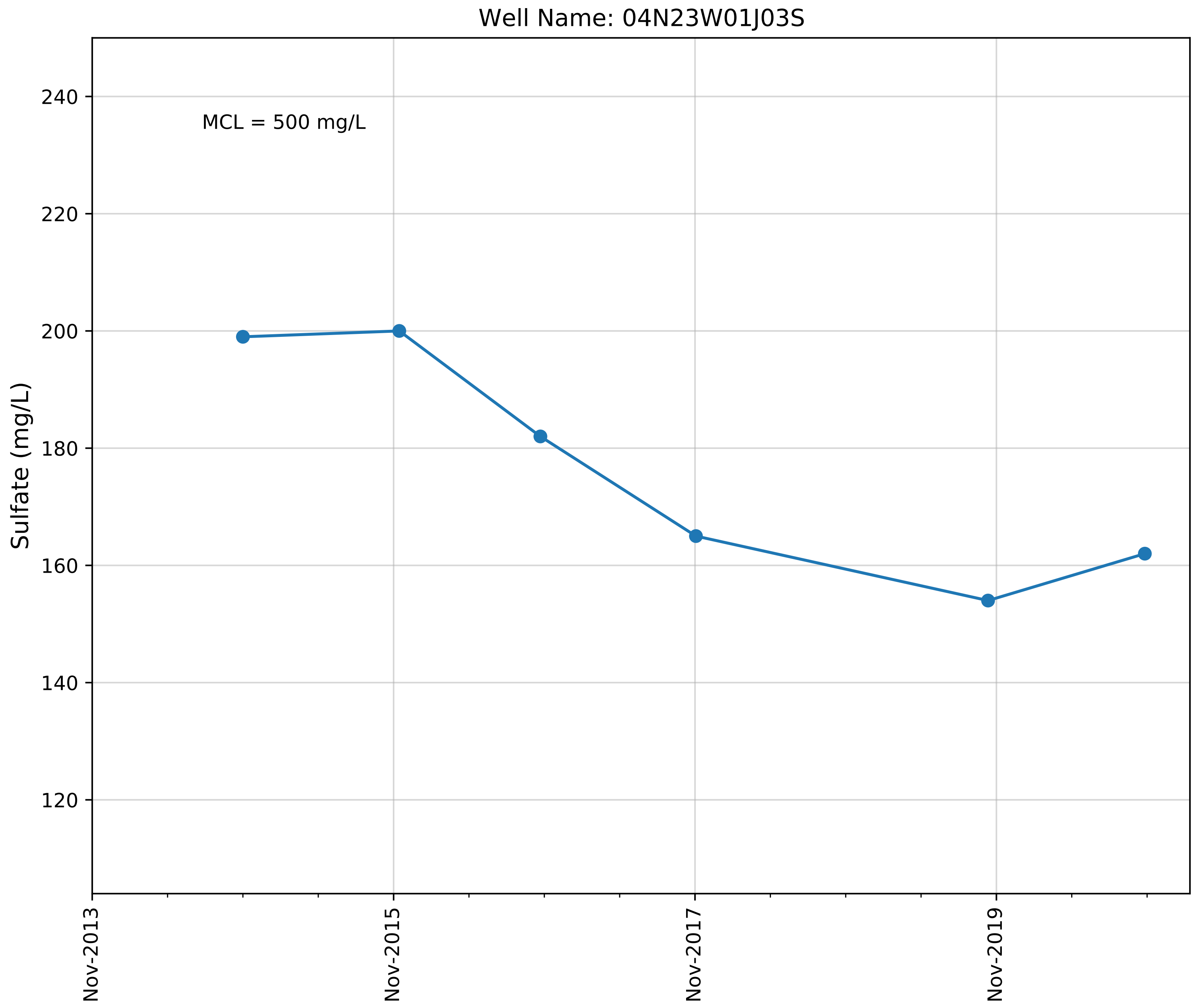
Well Name: 04N22W07B02S
MCL = 500 mg/L
Sulfate (mg/L)
220
200
180
160
140
Dec-2015

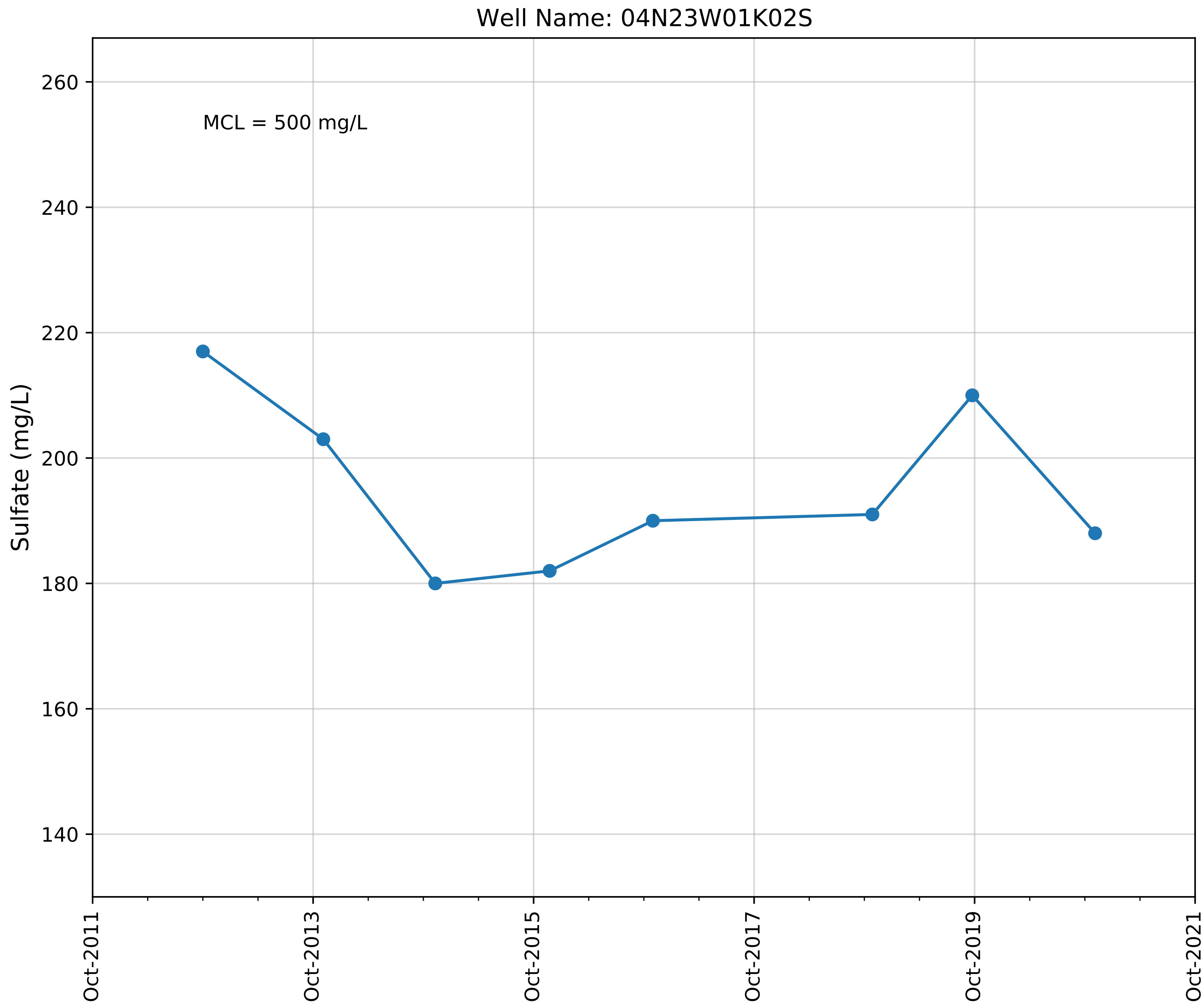


Well Name: 04N22W07C05S
MCL = 500 mg/L
Sulfate (mg/L)
260
240
220
200
180
160
Nov-2013
Nov-2015

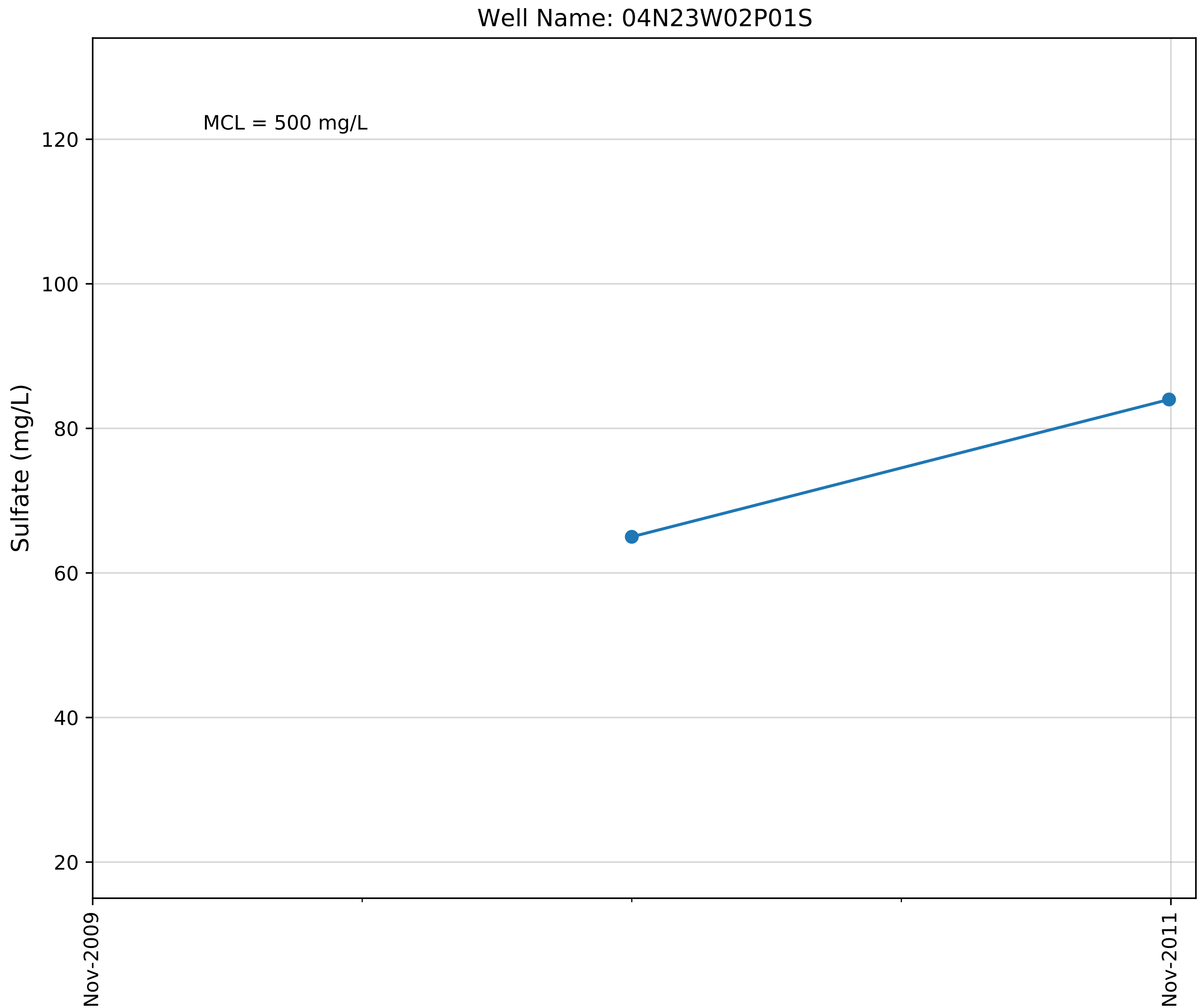


Well Name: 04N22W07D04S
MCL = 500 mg/L
Sulfate (mg/L)
250
225
200
175
150
125
100
Oct-2009
Oct-2011
Oct-2013
Oct-2015

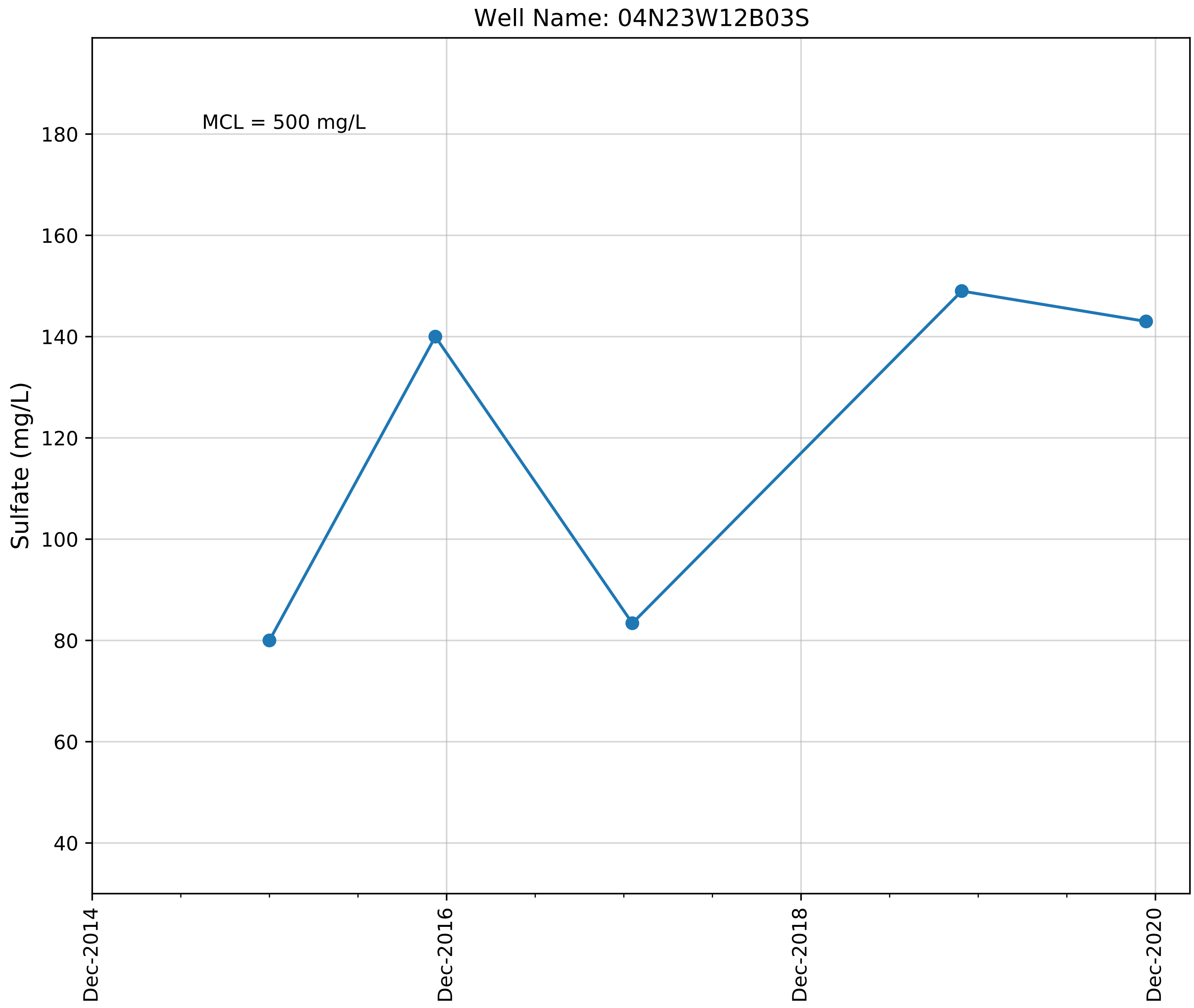

Well Name: 04N23W01J03S
MCL = 500 mg/L
Sulfate (mg/L)
240
220
200
180
160
140
120
Nov-2013
Nov-2015
Nov-2017
Nov-2019

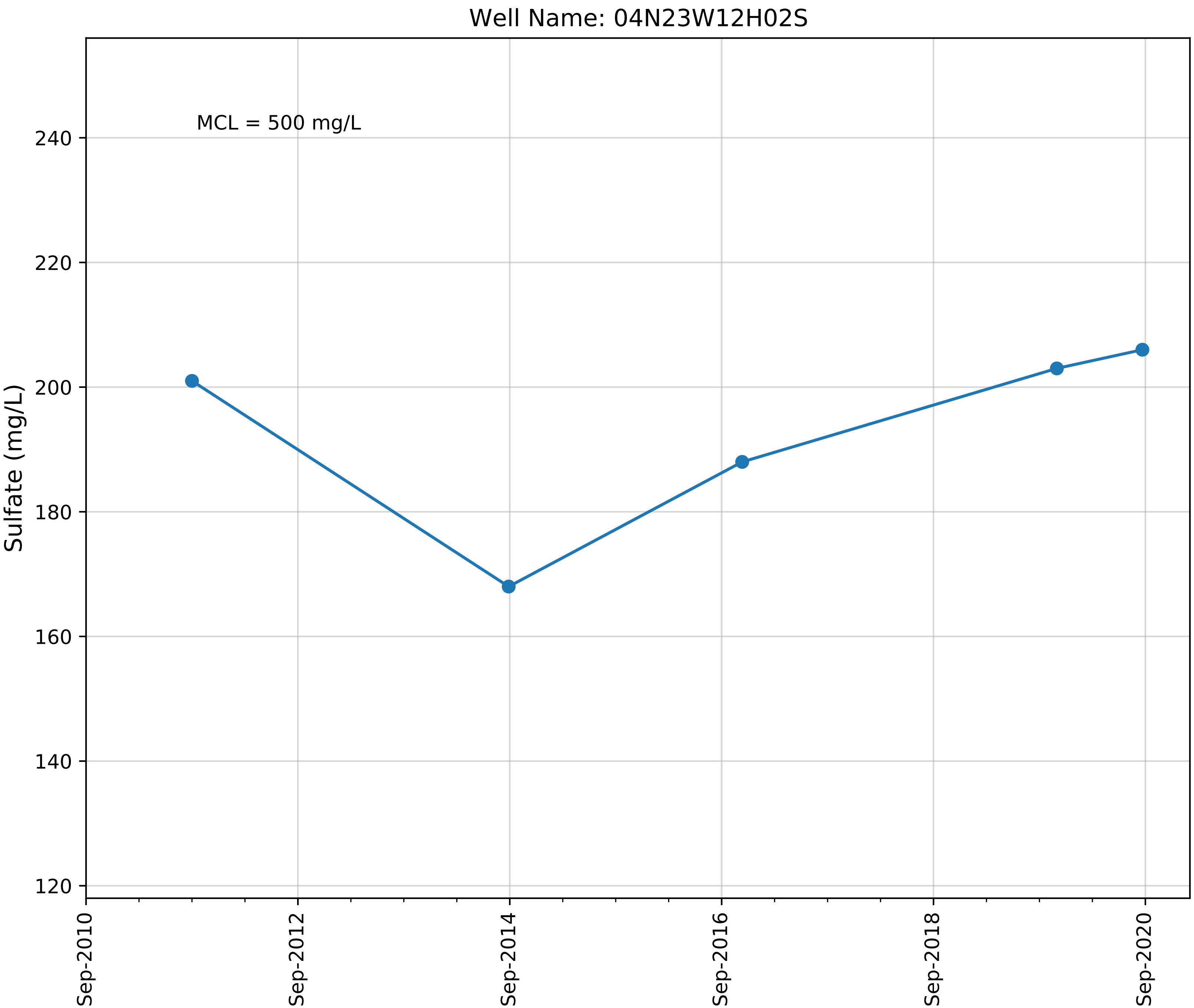


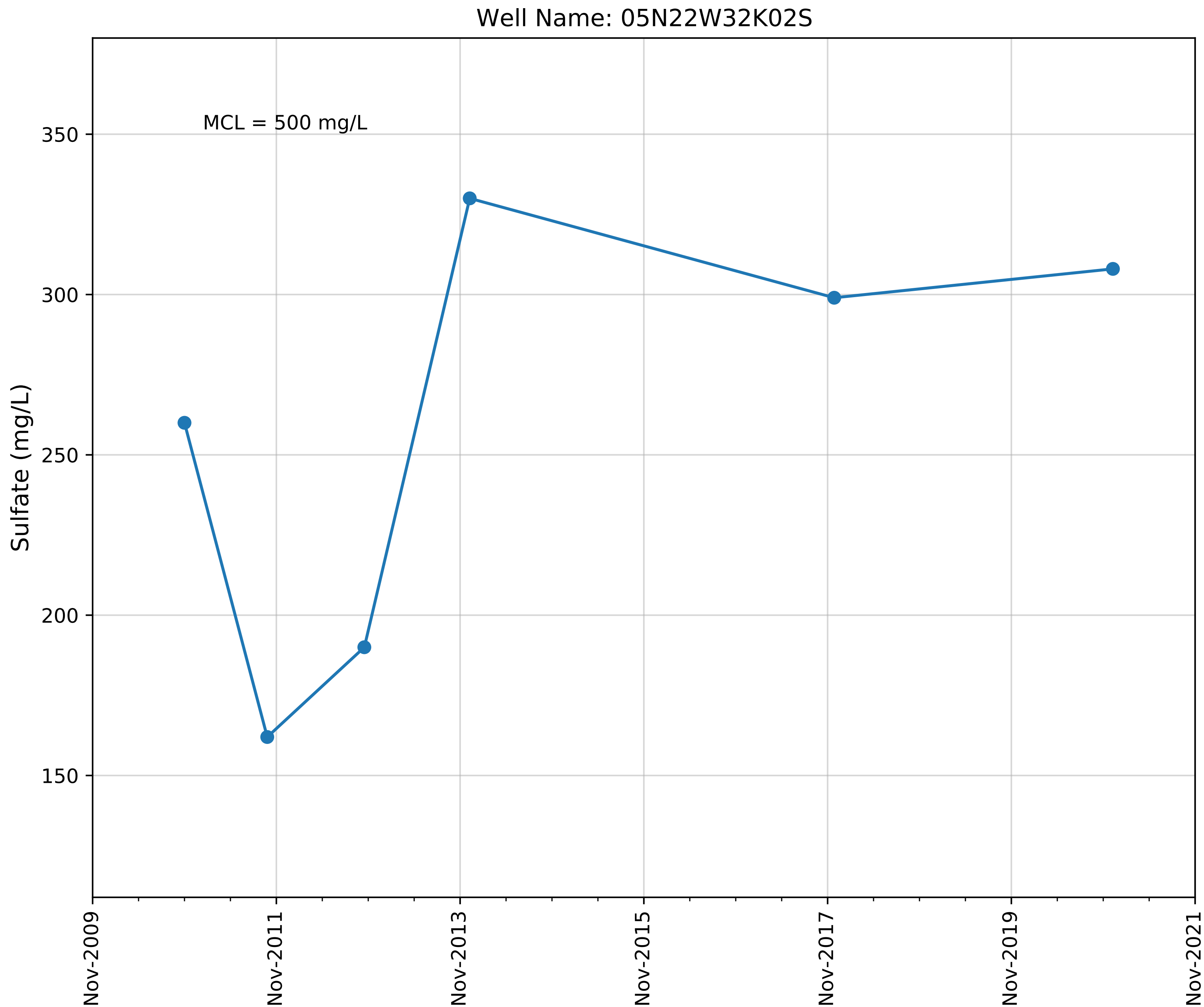
Well Name: 04N23W01K02S
MCL = 500 mg/L
Sulfate (mg/L)
140
160
180
200
220
240
260
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021



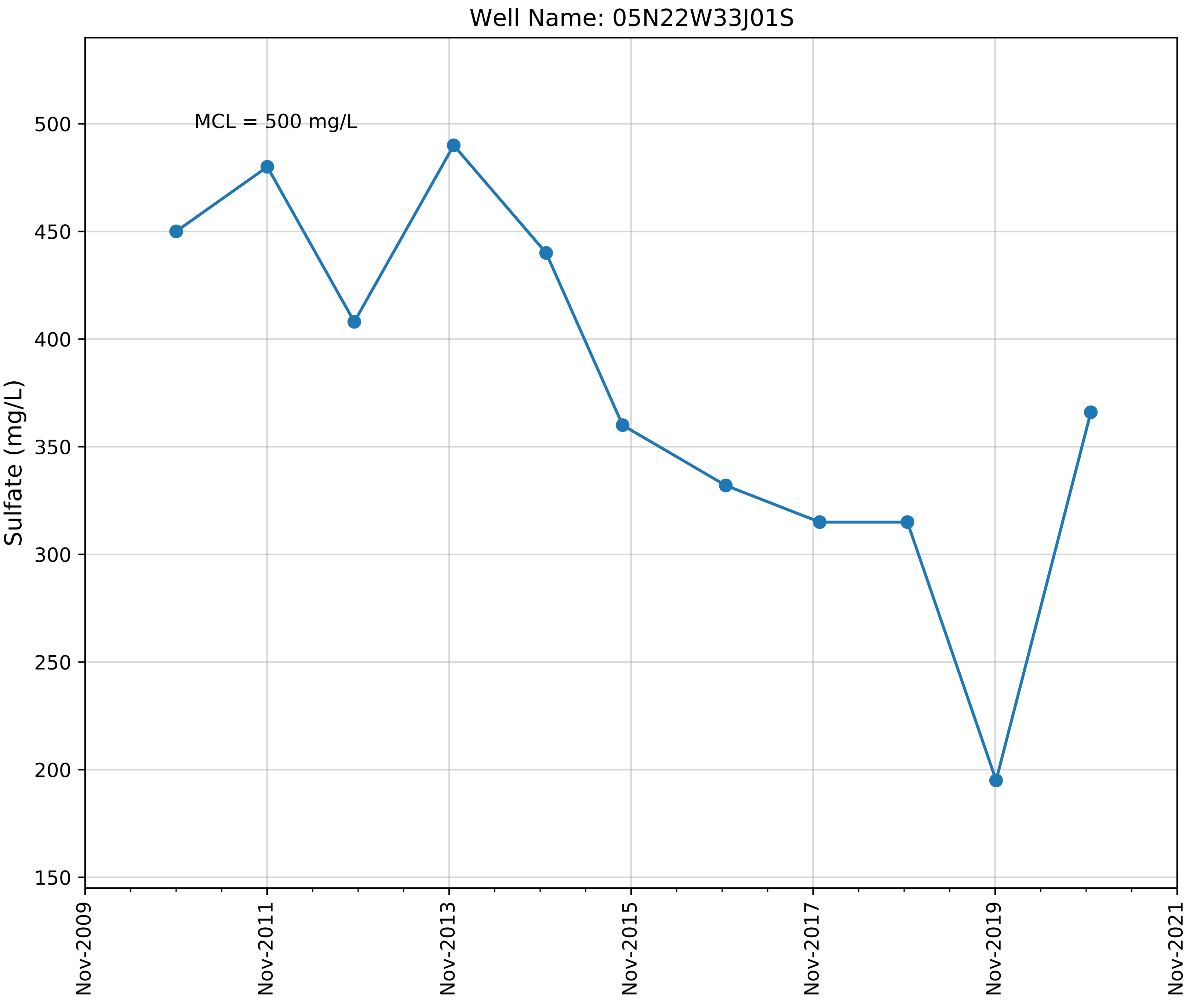
Well Name: 04N23W02P01S
MCL = 500 mg/L
Sulfate (mg/L)
120
100
80
60
40
20
Nov-2009
Nov-2011

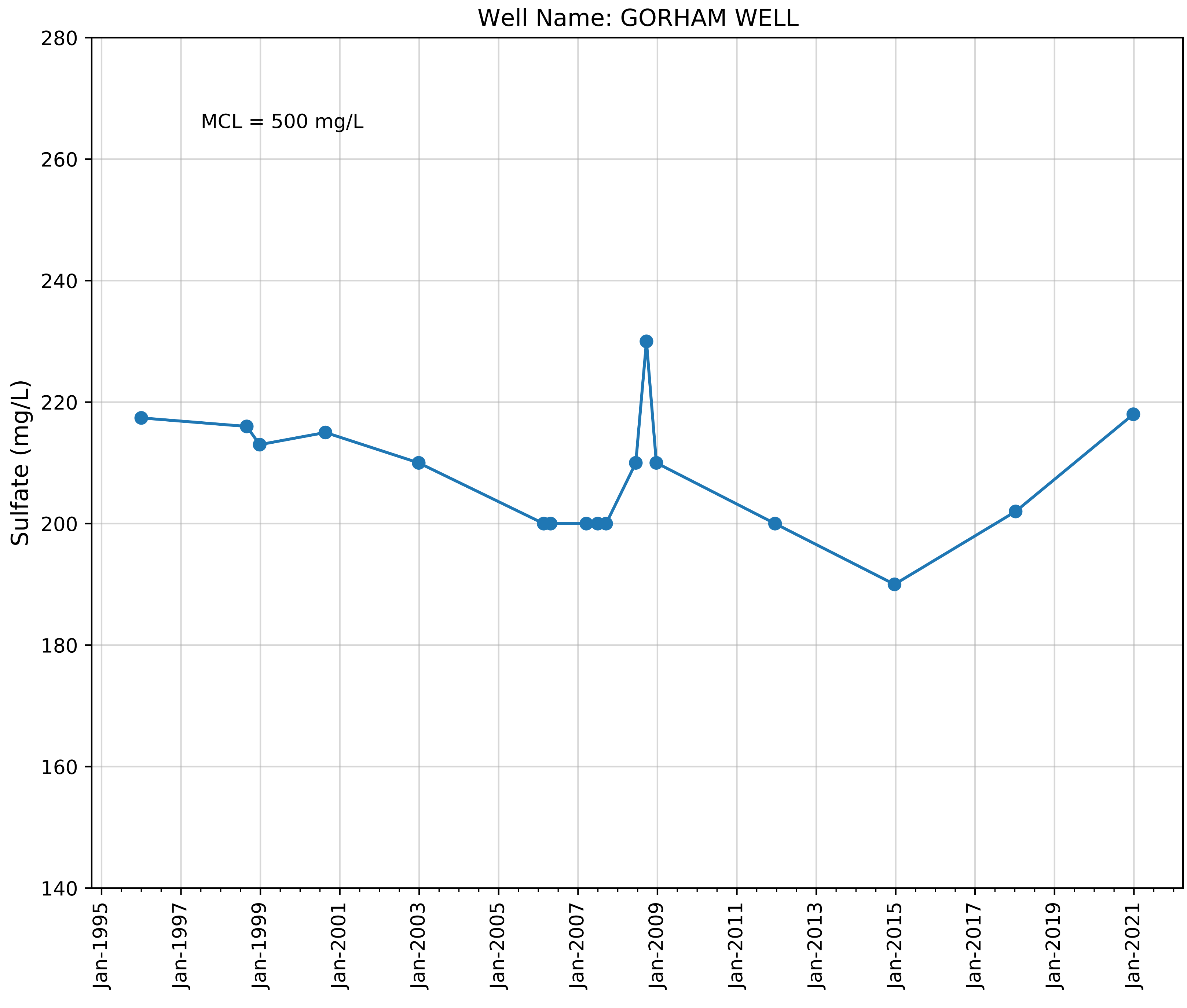

Well Name: 04N23W12B03S
MCL = 500 mg/L
Sulfate (mg/L)
180
160
140
120
100
80
60
40
Dec-2014
Dec-2016
Dec-2018
Dec-2020


Well Name: 04N23W12H02S
MCL = 500 mg/L
Sulfate (mg/L)
240
220
200
180
160
140
120
Sep-2010
Sep-2012
Sep-2014
Sep-2016
Sep-2018
Sep-2020

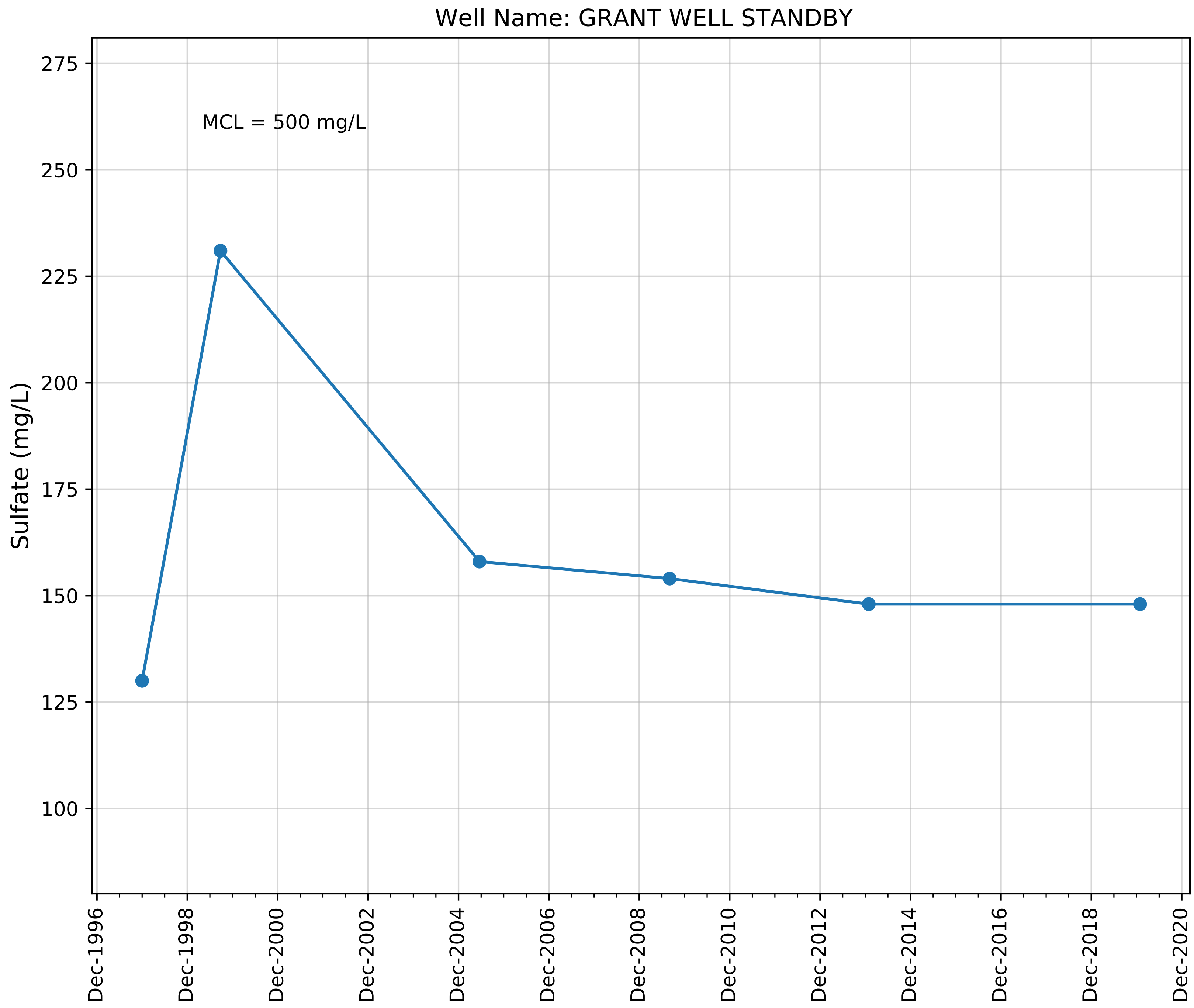


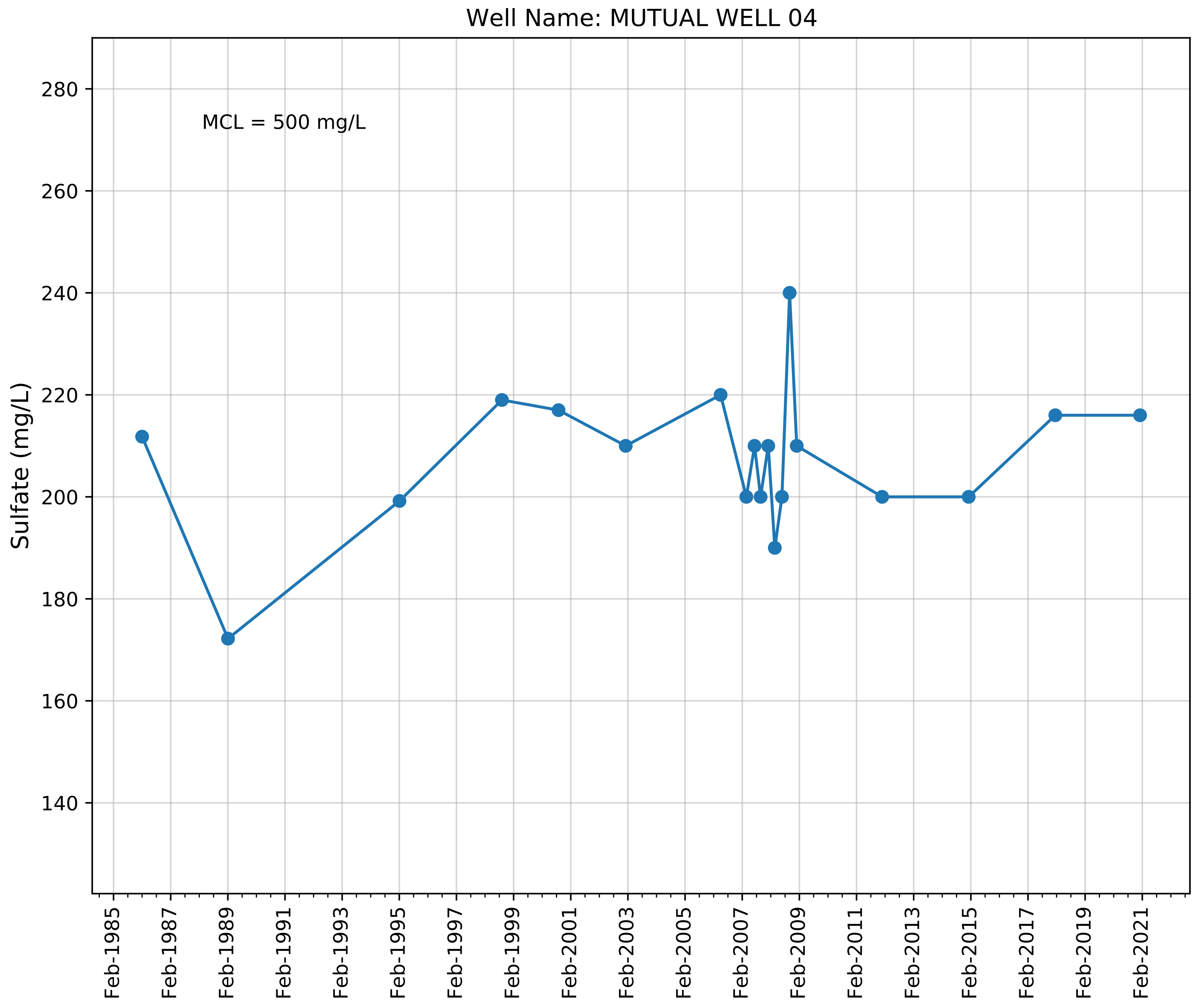
Well Name: 05N22W32K02S
MCL = 500 mg/L
Sulfate (mg/L)
350
300
250
200
150
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021


Well Name: 05N22W33J01S
MCL = 500 mg/L
Sulfate (mg/L)
500
450
400
350
300
250
200
150
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

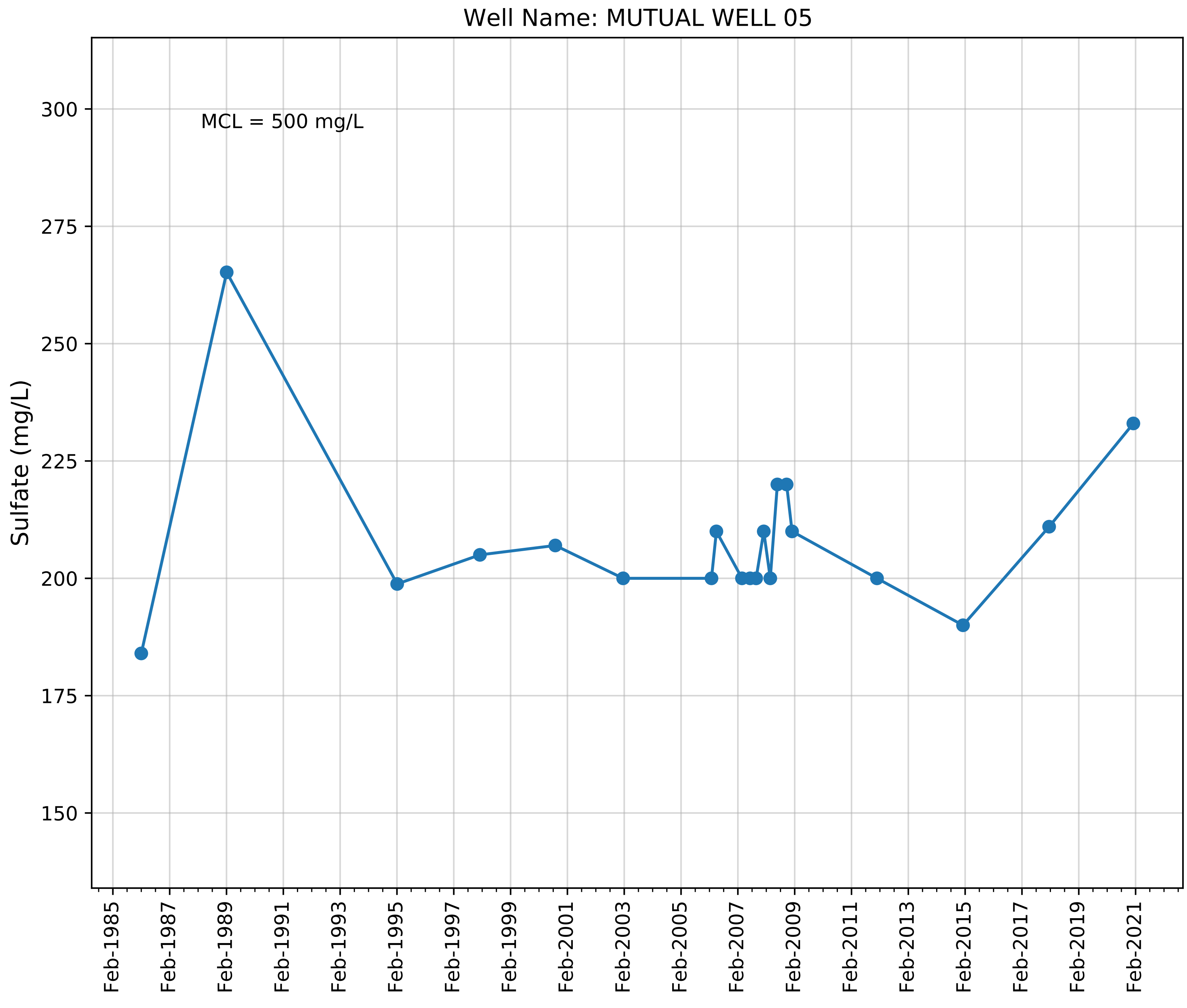


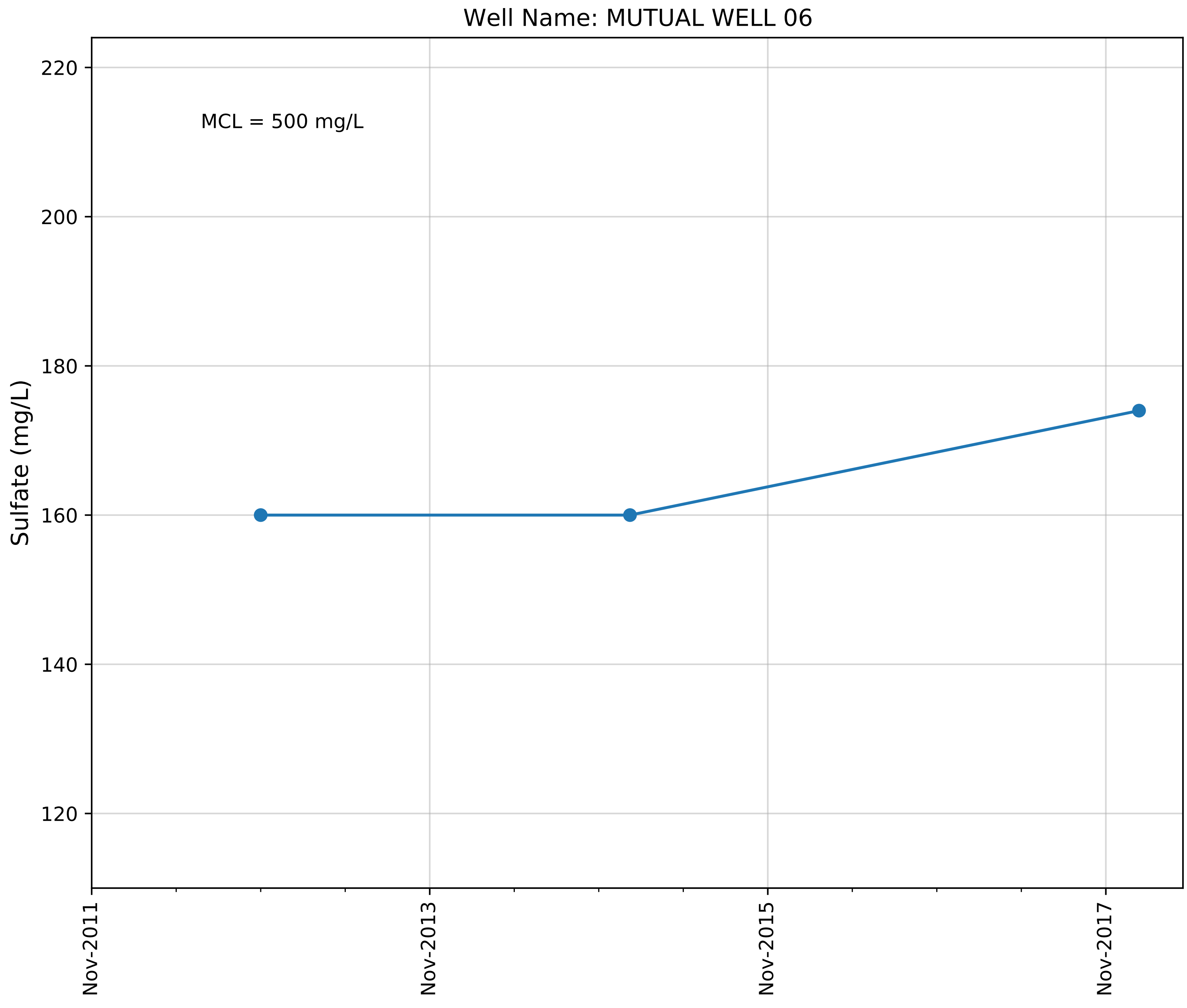
Well Name: GORHAM WELL
MCL = 500 mg/L
Sulfate (mg/L)
280
260
240
220
200
180
160
140
Jan-1995
Jan-1997
Jan-1999
Jan-2001
Jan-2003
Jan-2005
Jan-2007
Jan-2009
Jan-2011
Jan-2013
Jan-2015
Jan-2017
Jan-2019
Jan-2021

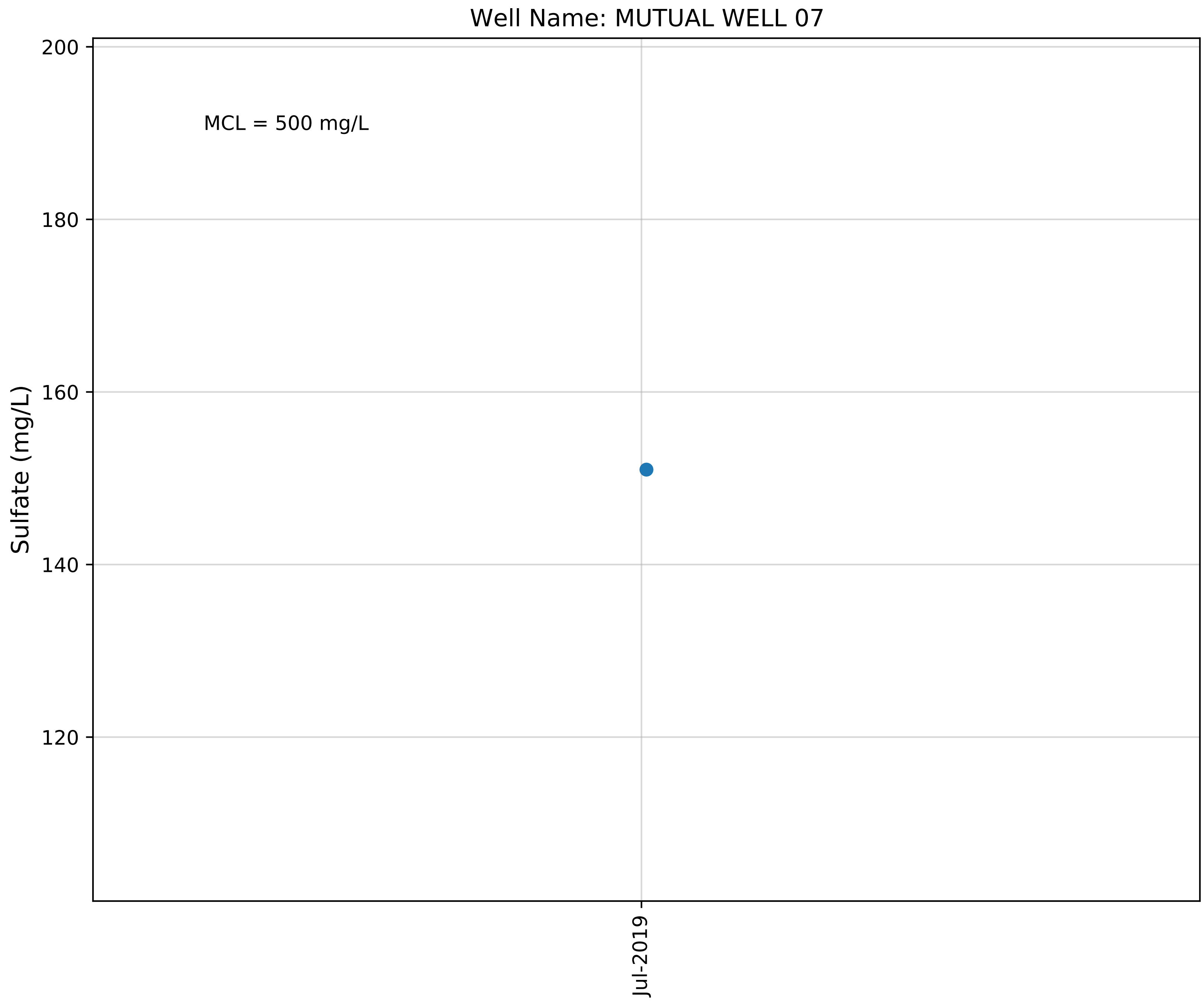

Well Name: GRANT WELL STANDBY
MCL = 500 mg/L
Sulfate (mg/L)
275
250
225
200
175
150
125
100
Dec-1996
Dec-1998
Dec-2000
Dec-2002
Dec-2004
Dec-2006
Dec-2008
Dec-2010
Dec-2012
Dec-2014
Dec-2016
Dec-2018
Dec-2020

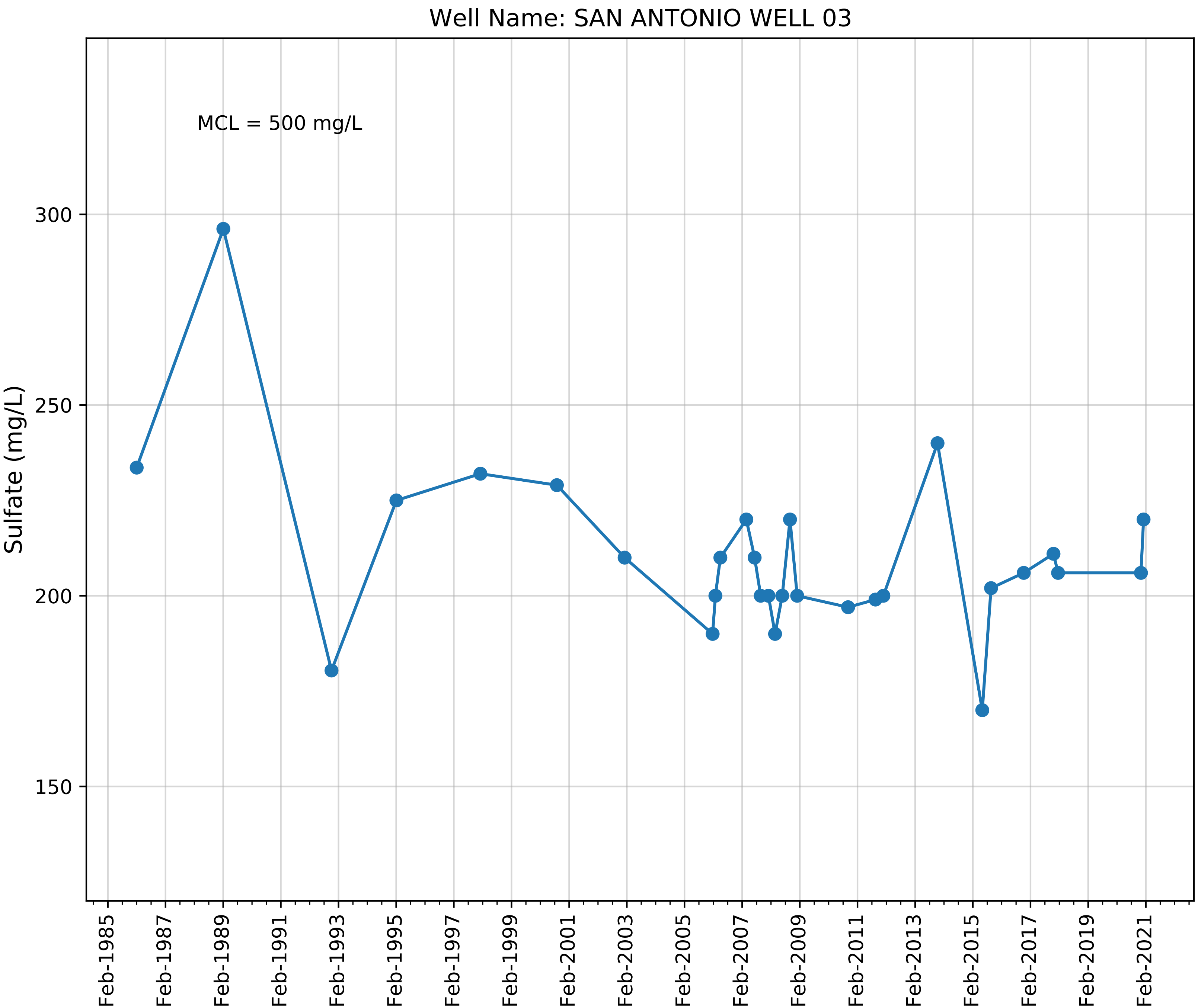


Well Name: MUTUAL WELL 04
MCL = 500 mg/L
Sulfate (mg/L)
280
260
240
220
200
180
160
140
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

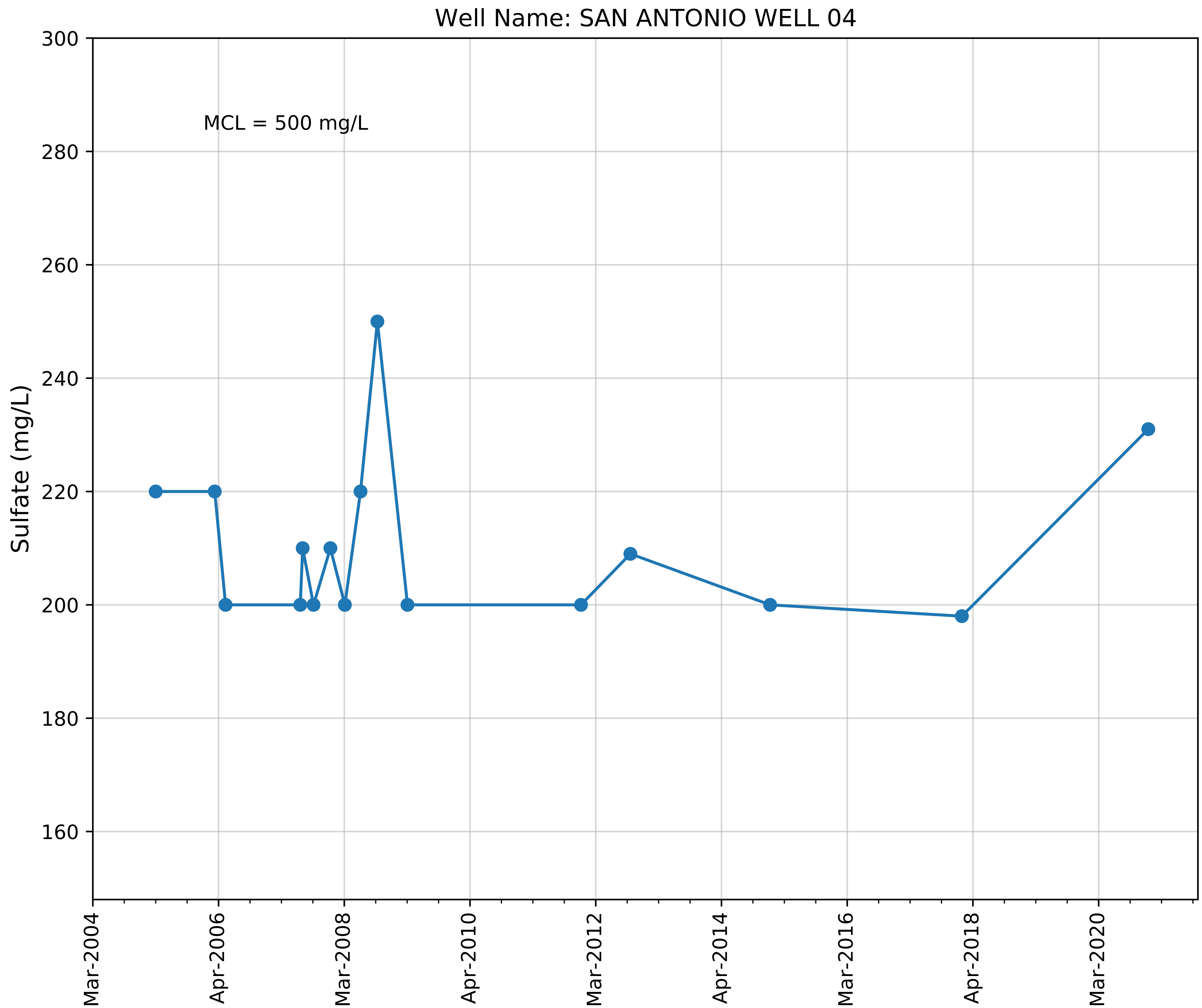

Well Name: MUTUAL WELL 05
MCL = 500 mg/L
Sulfate (mg/L)
300
275
250
225
200
175
150
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021


Well Name: MUTUAL WELL 06
MCL = 500 mg/L
Sulfate (mg/L)
220
200
180
160
140
120
Nov-2011
Nov-2013
Nov-2015
Nov-2017

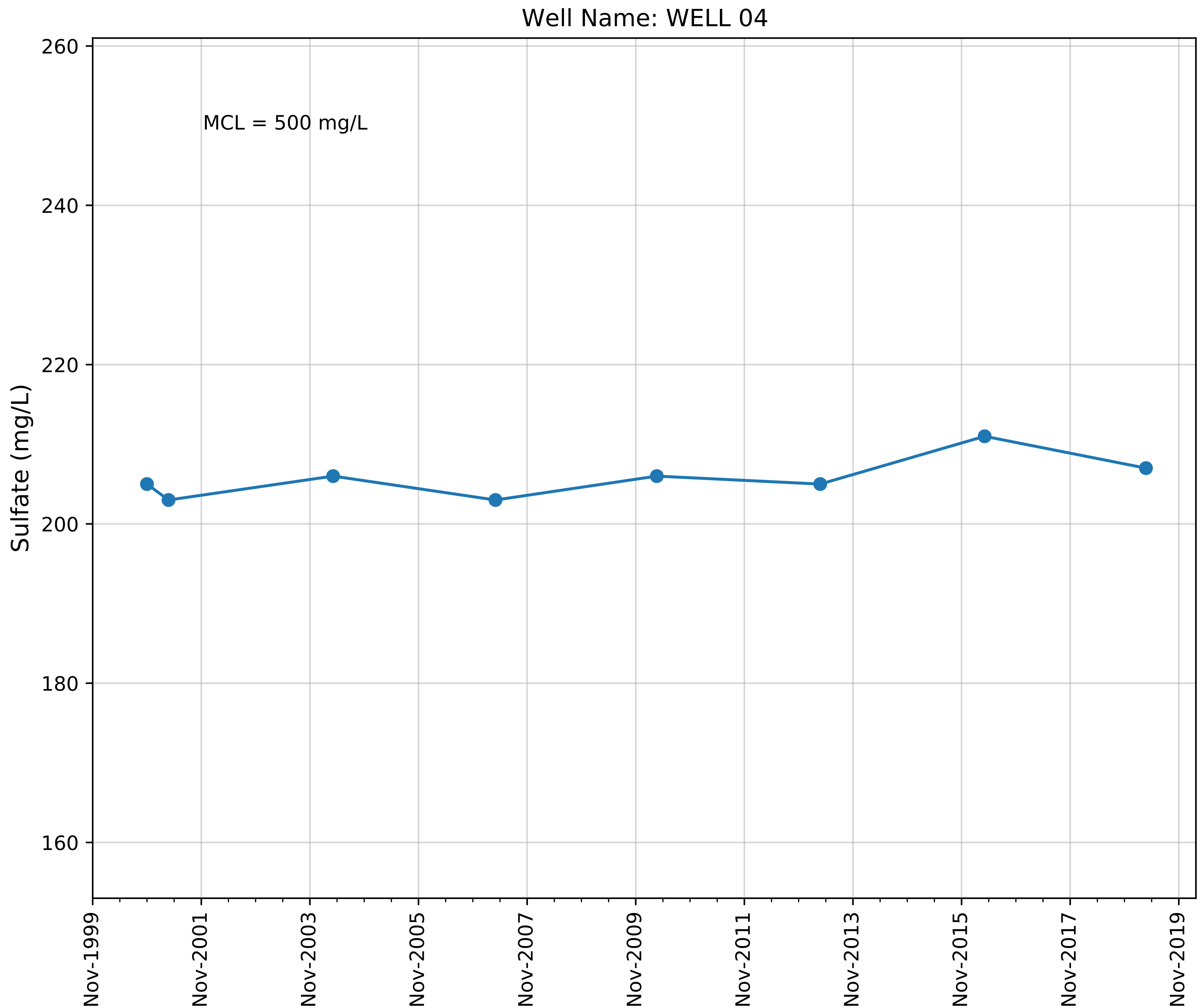

Well Name: MUTUAL WELL 07
MCL = 500 mg/L
Sulfate (mg/L)
200
180
160
140
120
Jul-2019

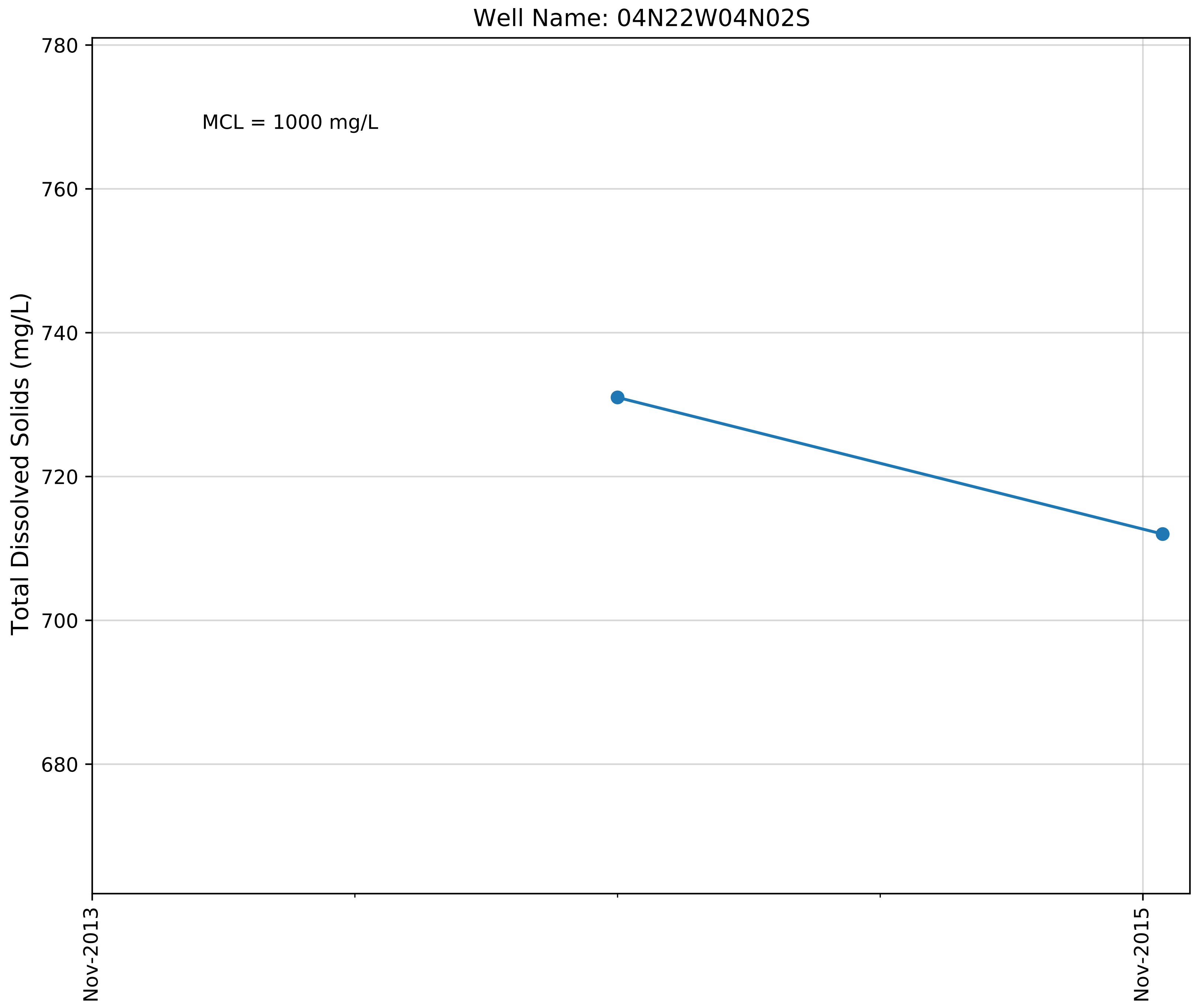


Well Name: SAN ANTONIO WELL 03
MCL = 500 mg/L
Sulfate (mg/L)
300
250
200
150
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

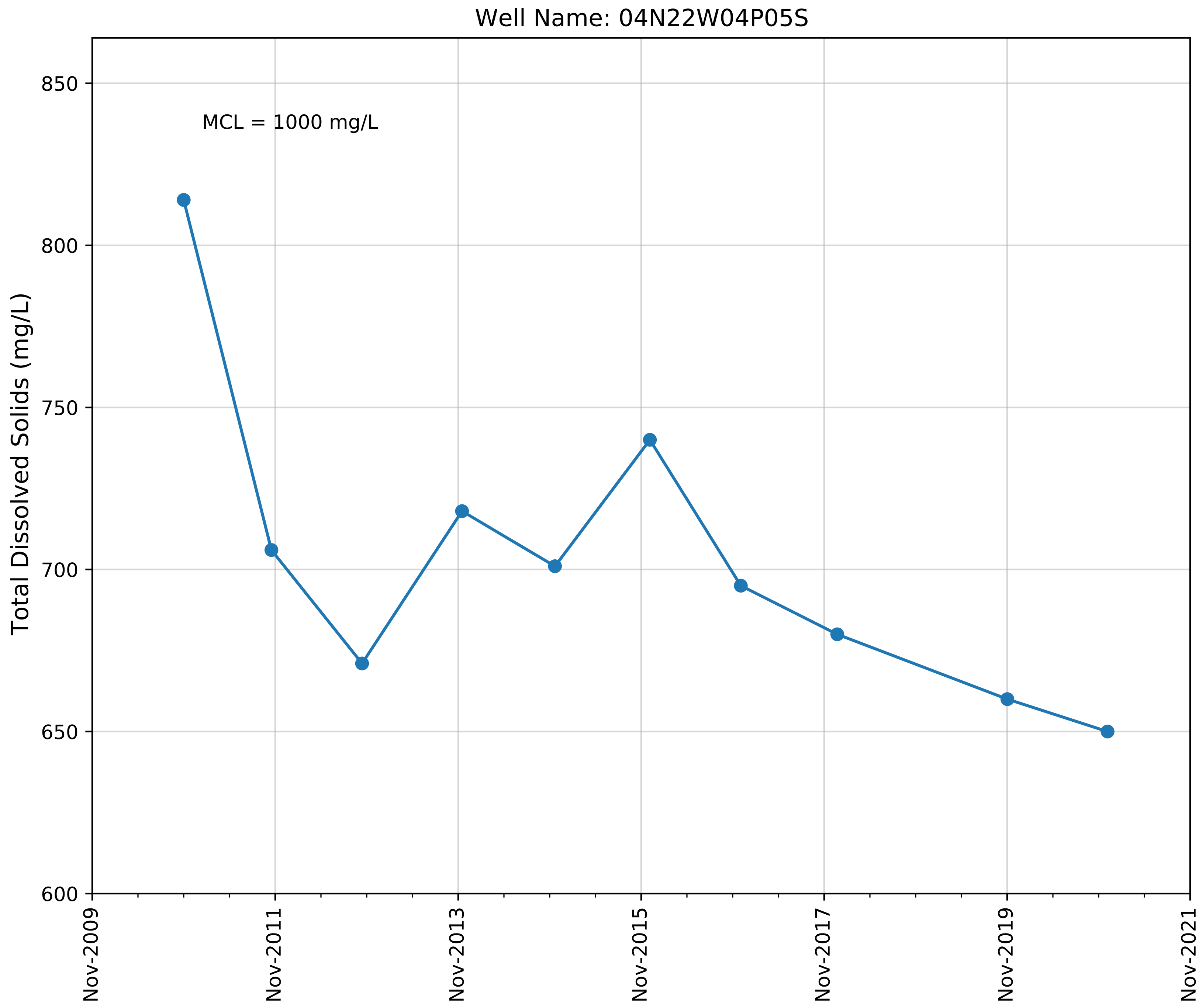


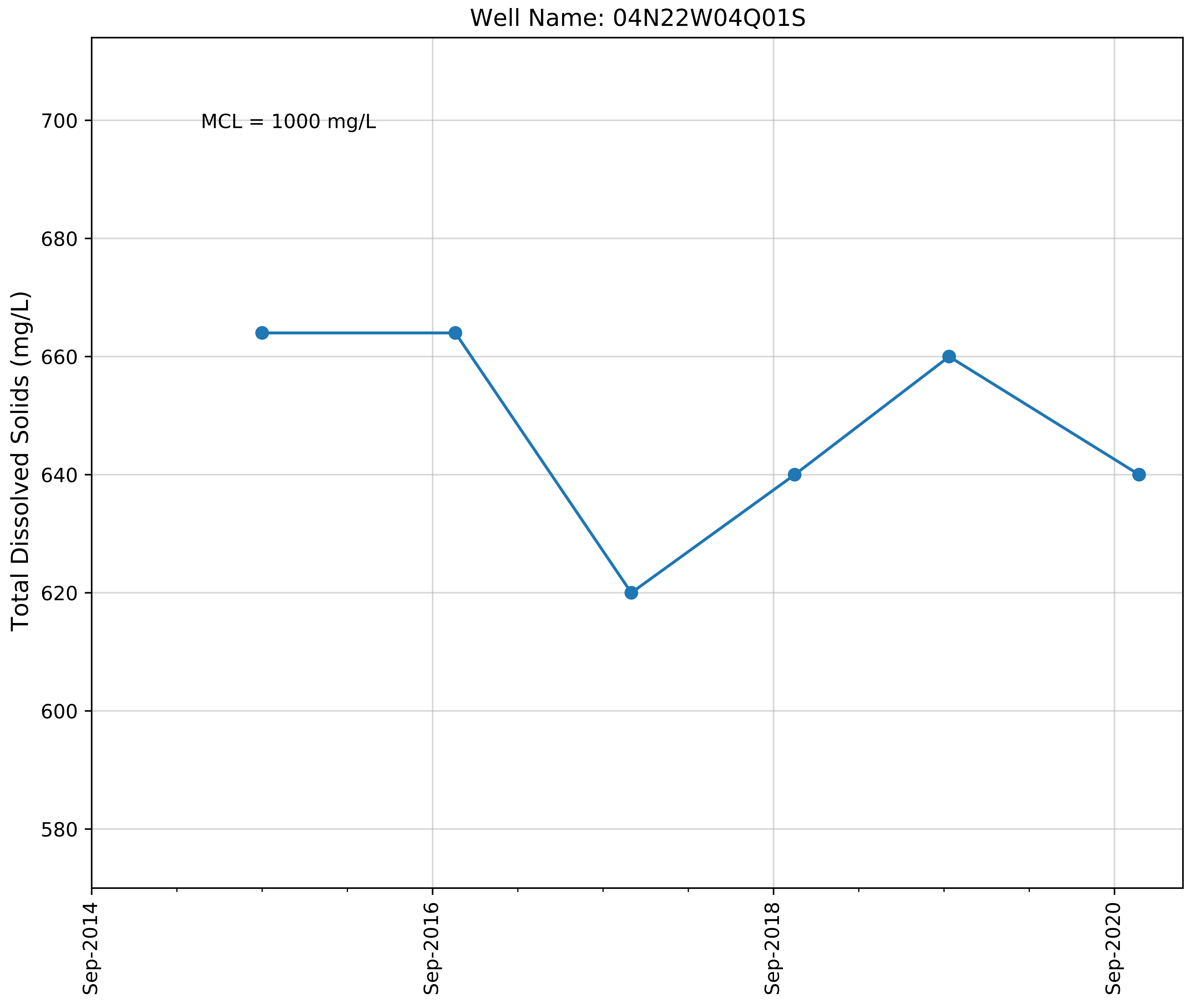
Well Name: SAN ANTONIO WELL 04
MCL = 500 mg/L
Sulfate (mg/L)
300
280
260
240
220
200
180
160
Mar-2004
Apr-2006
Mar-2008
Apr-2010
Mar-2012
Apr-2014
Mar-2016
Apr-2018
Mar-2020

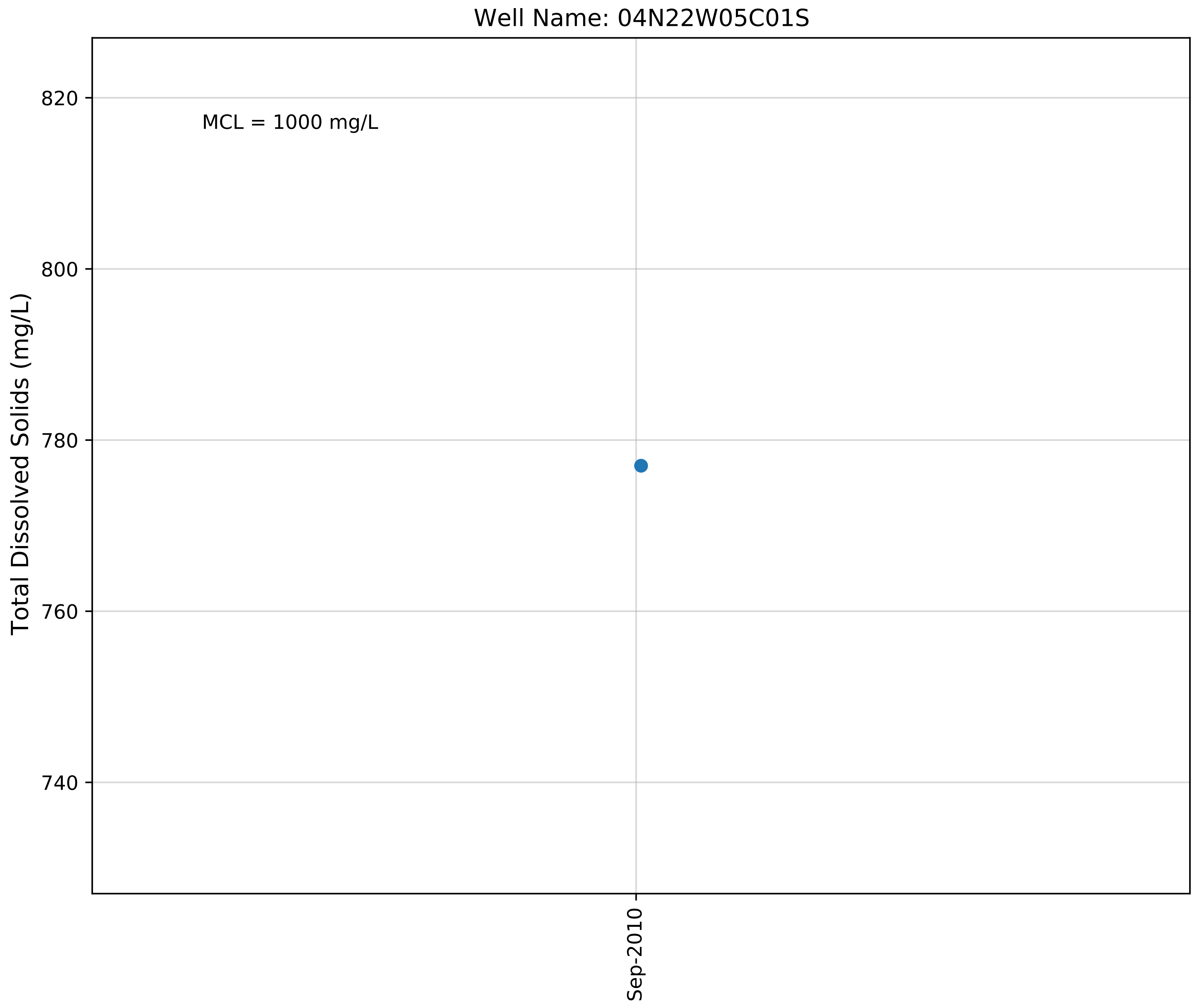

Well Name: WELL 04
MCL = 500 mg/L
Sulfate (mg/L)
260
240
220
200
180
160
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019



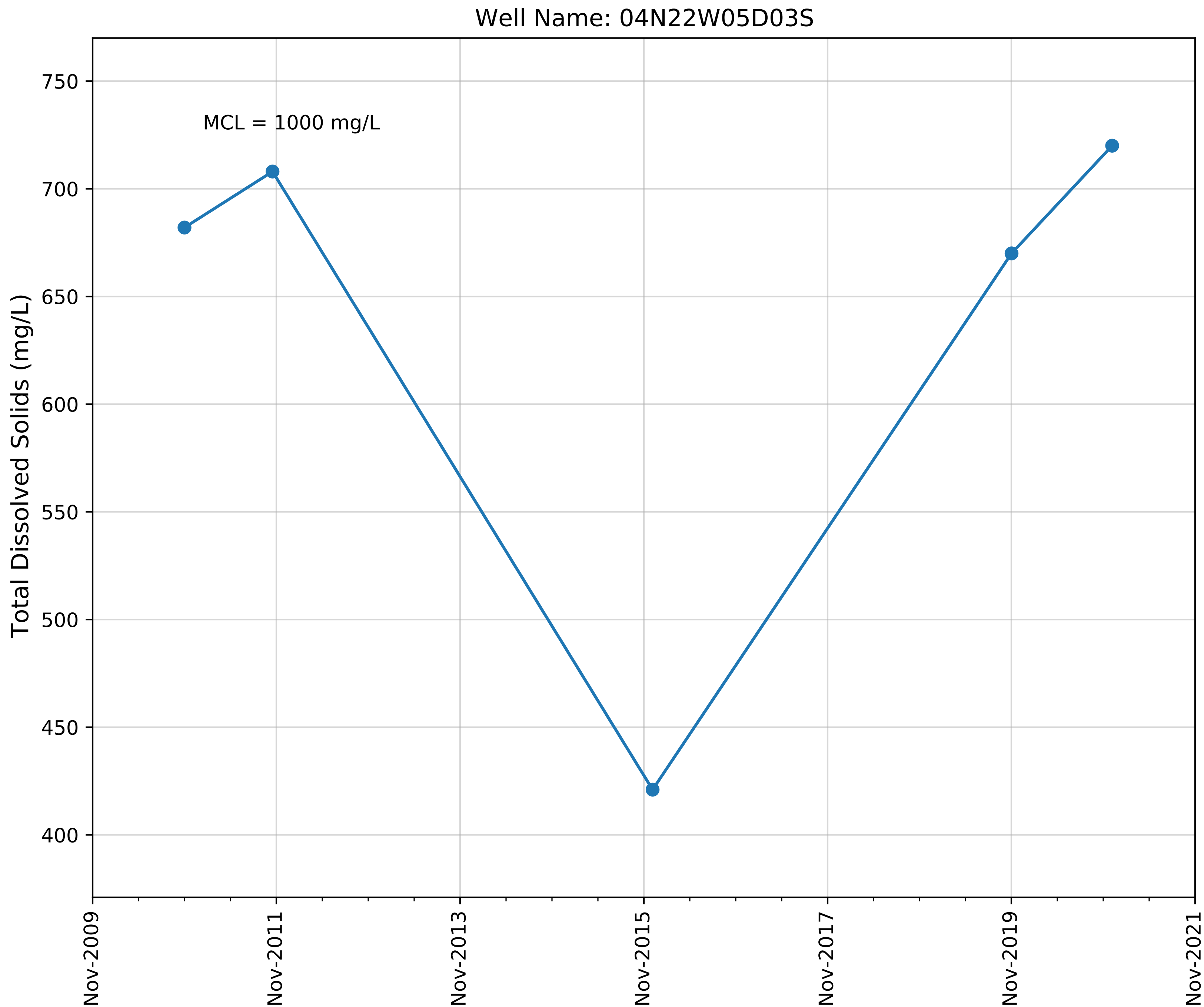
Well Name: 04N22W04N02S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
780
760
740
720
700
680
Nov-2013
Nov-2015


Well Name: 04N22W04P05S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
850
800
750
700
650
600
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

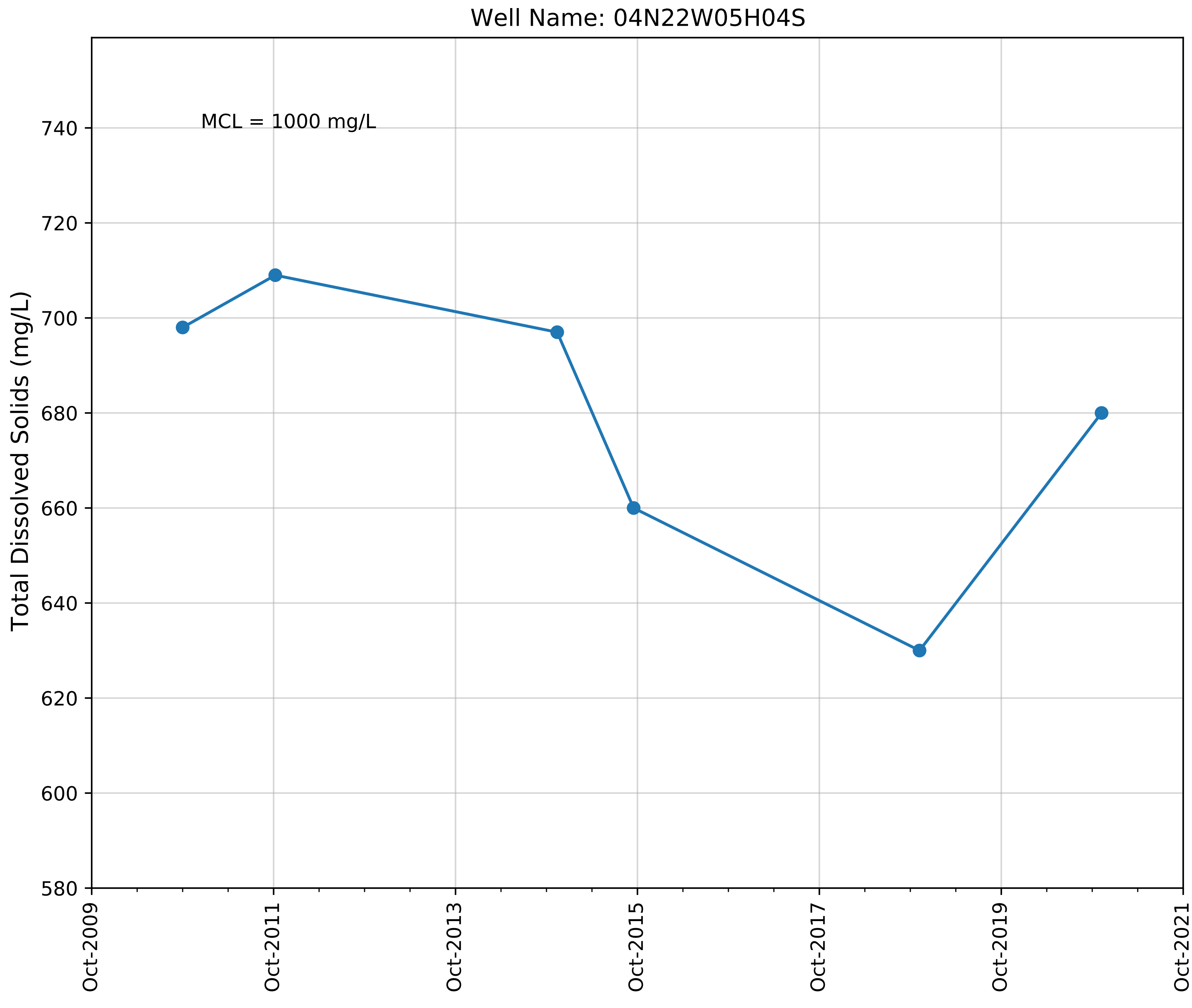

Well Name: 04N22W04Q01S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
700
680
660
640
620
600
580
Sep-2014
Sep-2016
Sep-2018
Sep-2020



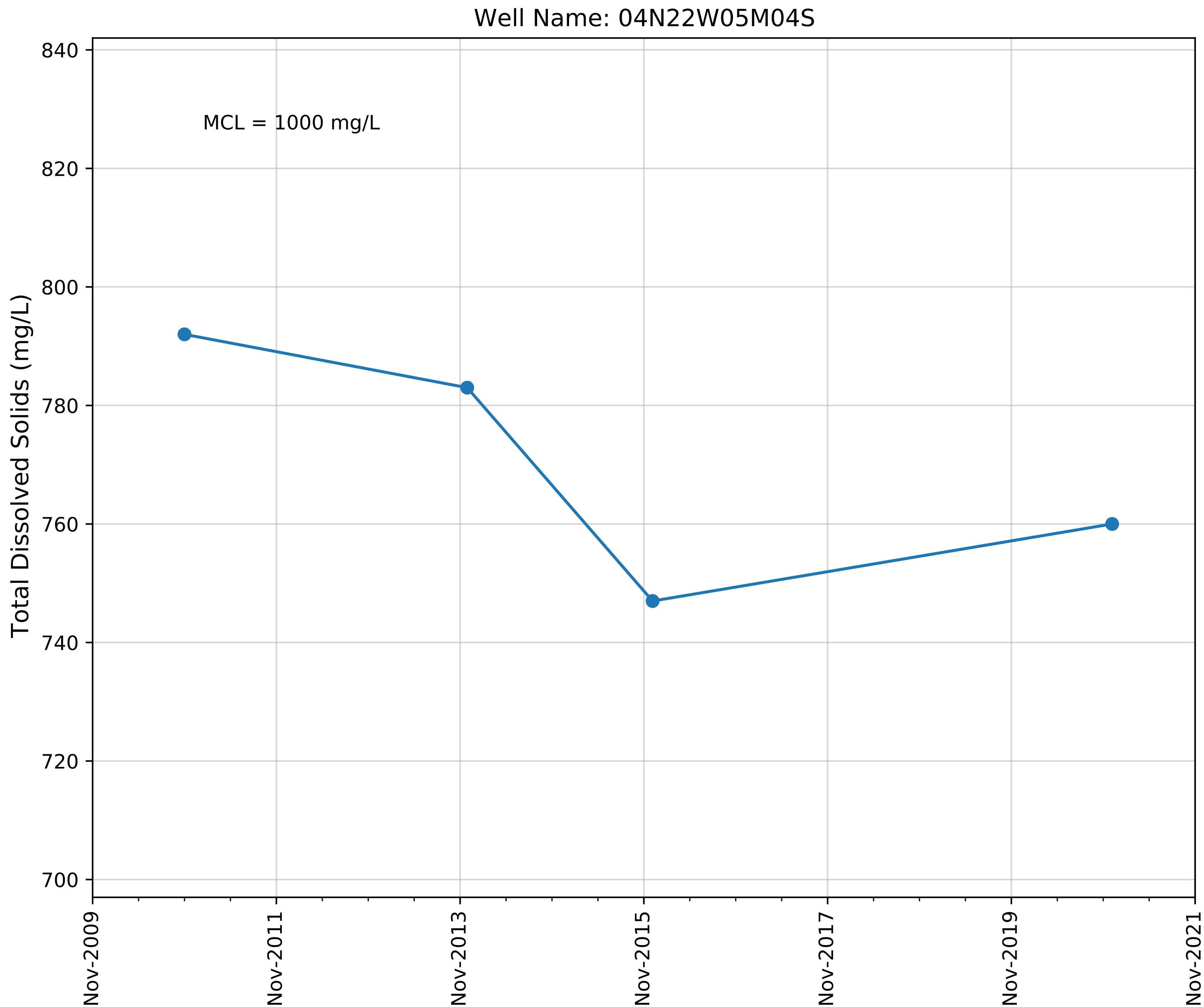
Well Name: 04N22W05C01S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
820
800
780
760
740
Sep-2010



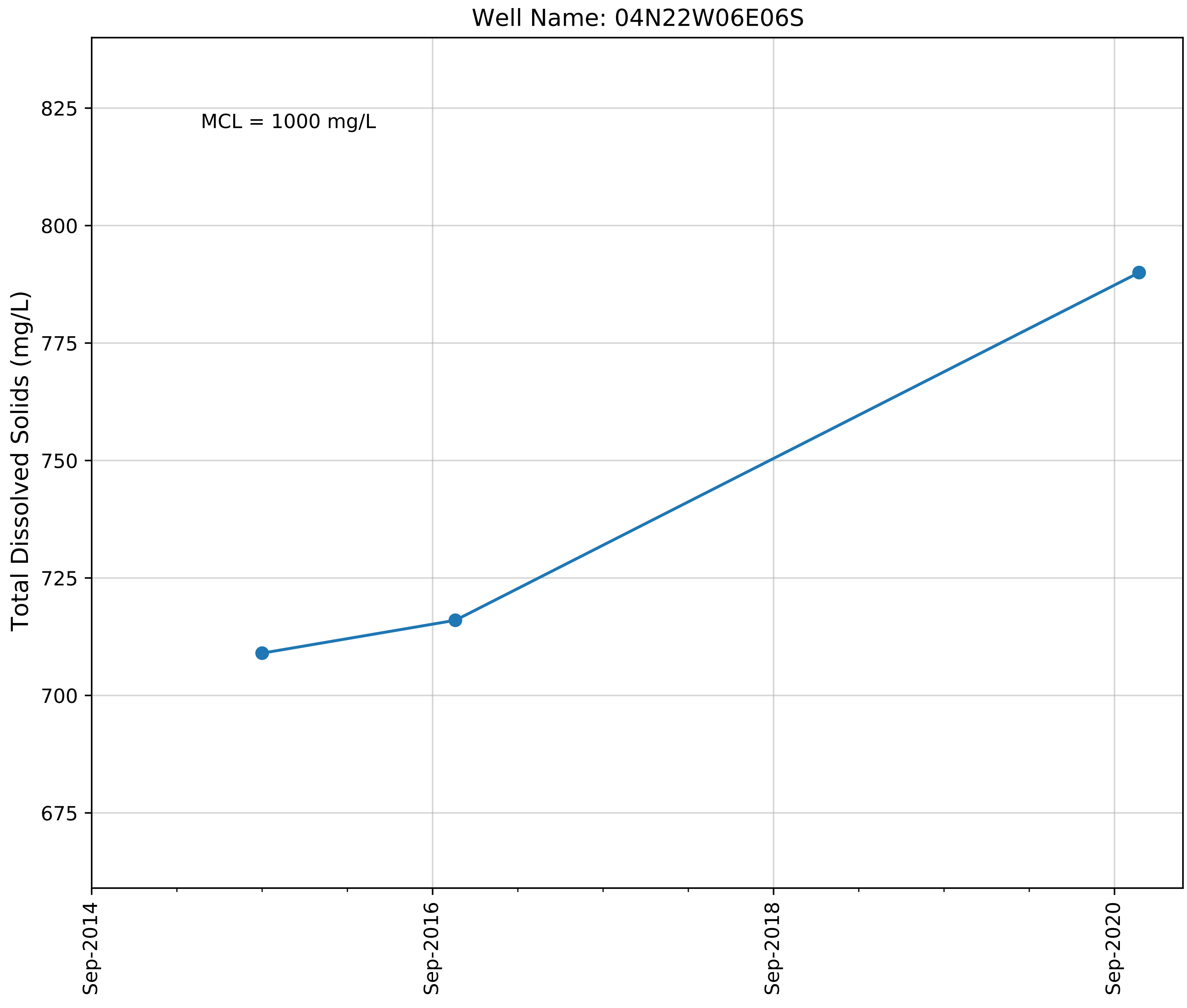
Well Name: 04N22W05D03S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
750
700
650
600
550
500
450
400
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

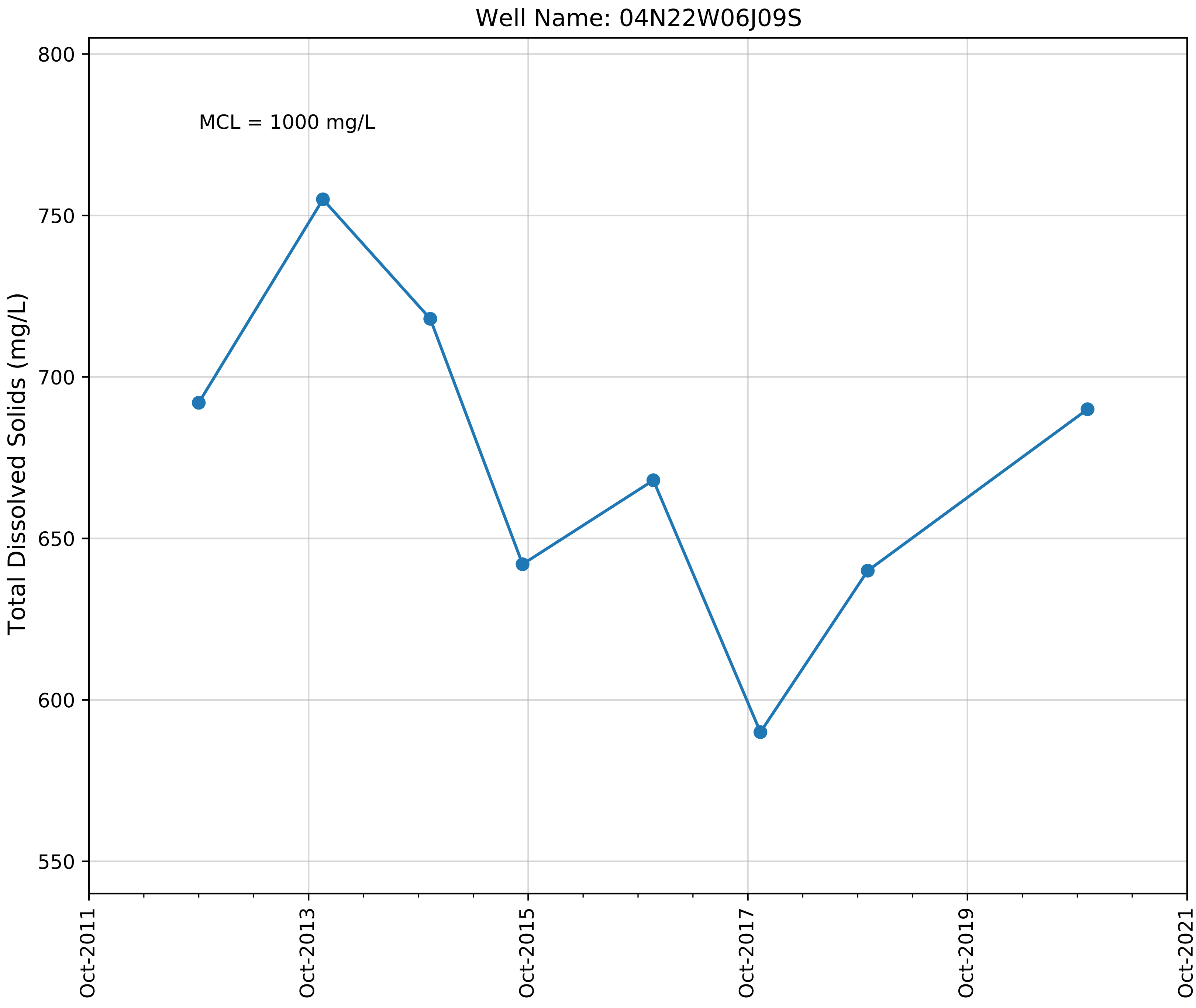


Well Name: 04N22W05H04S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
580
600
620
640
660
680
700
720
740
Oct-2009
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021

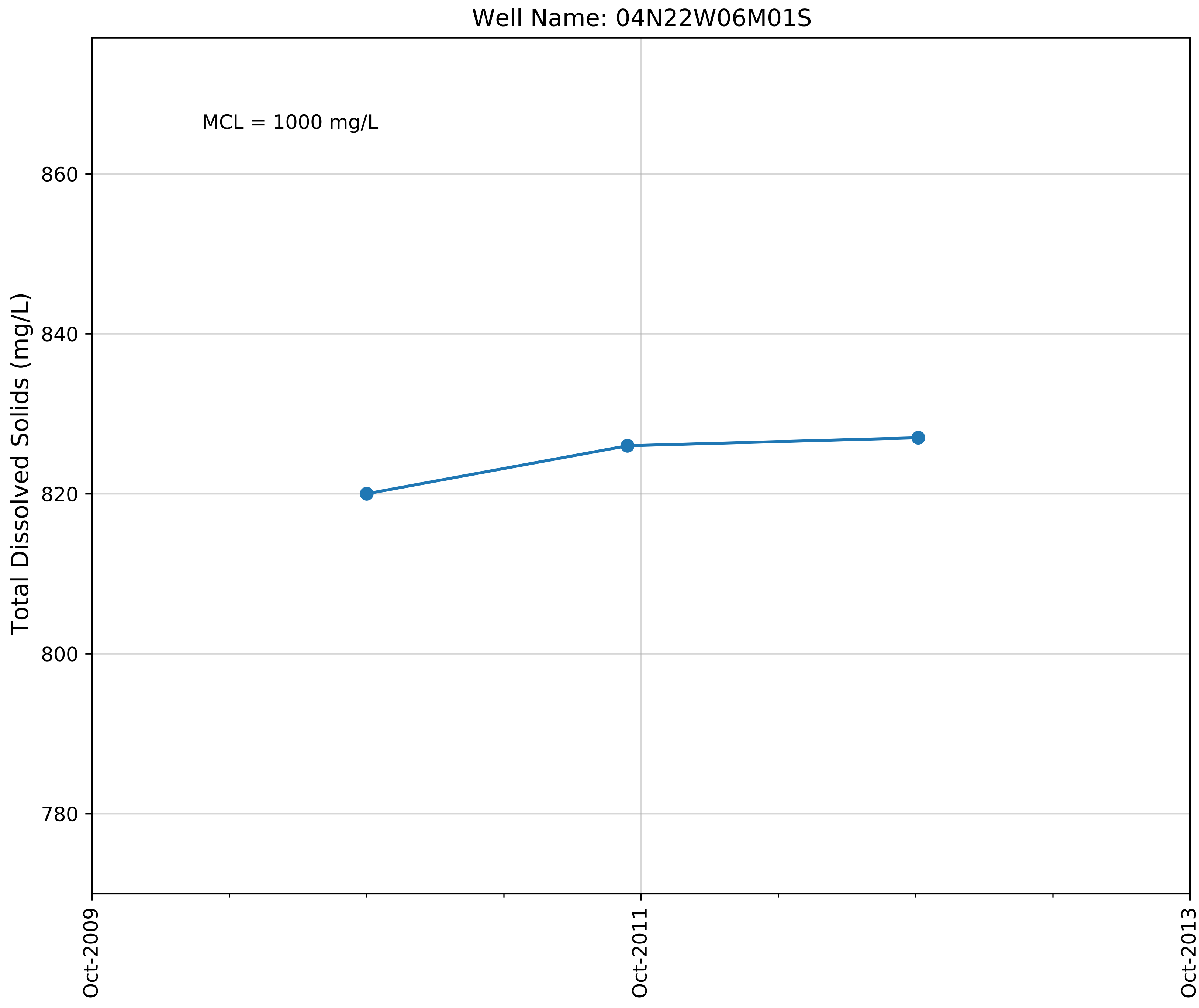


Well Name: 04N22W05M04S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
840
820
800
780
760
740
720
700
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

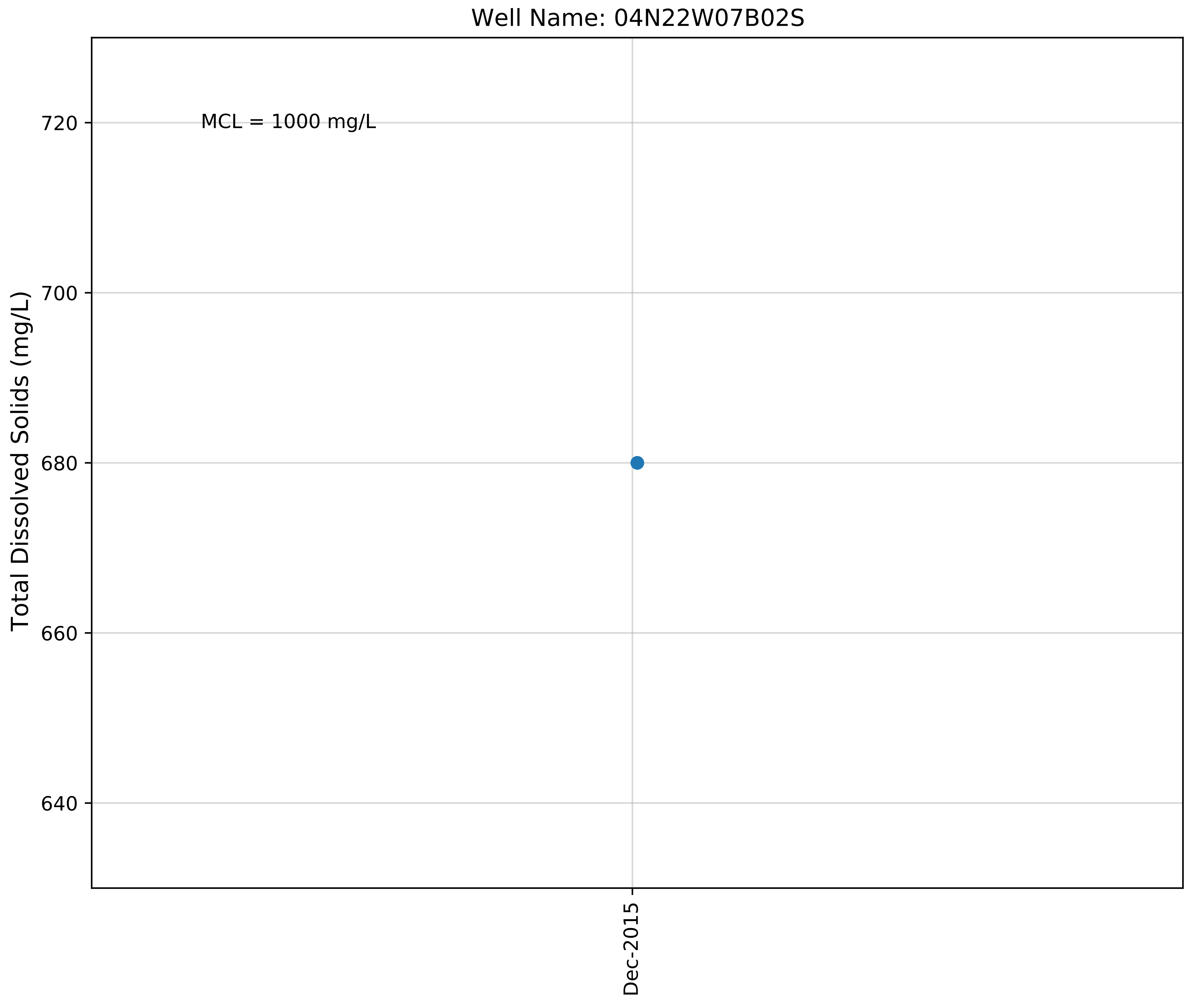

Well Name: 04N22W06E06S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
825
800
775
750
725
700
675
Sep-2014
Sep-2016
Sep-2018
Sep-2020

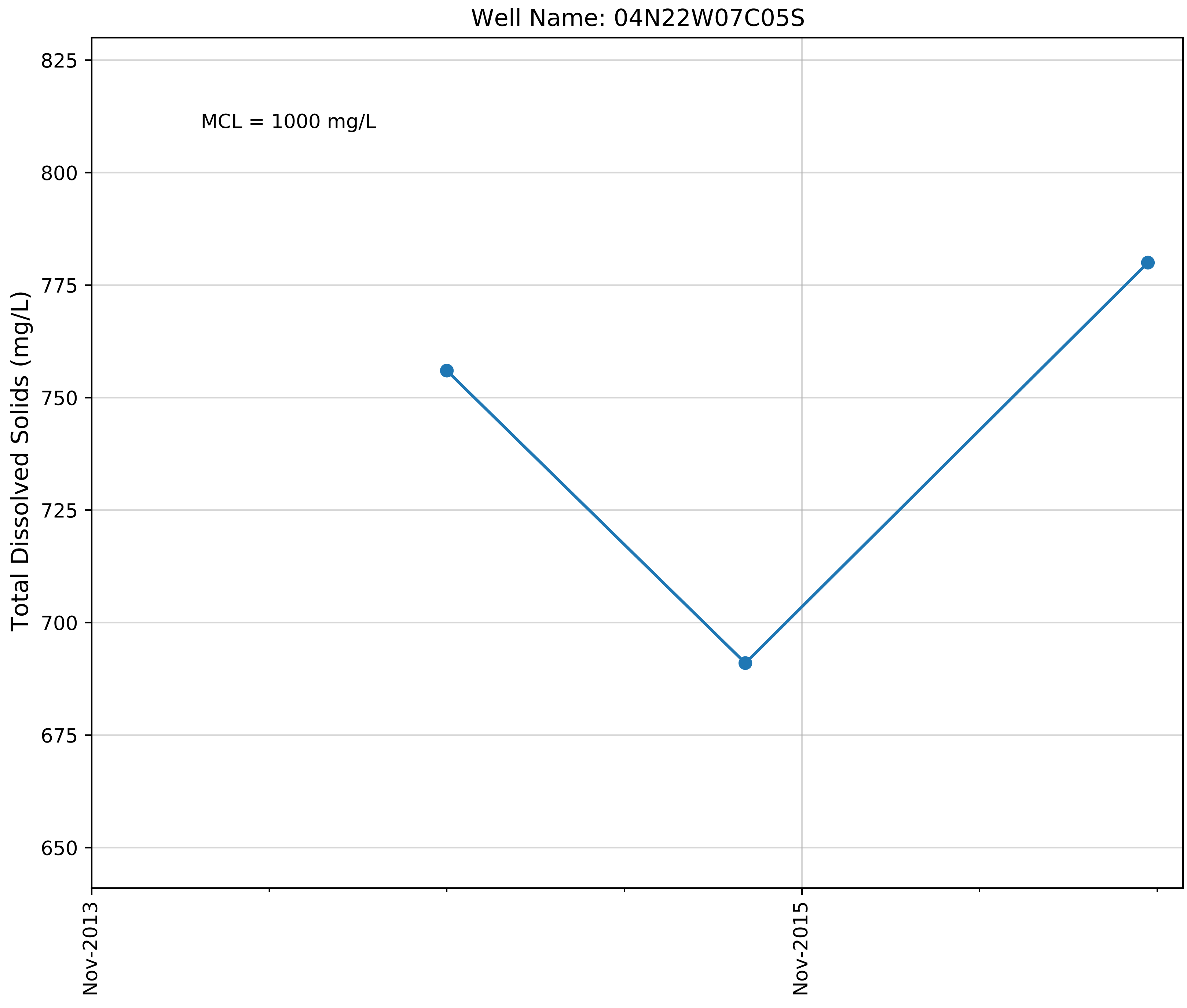


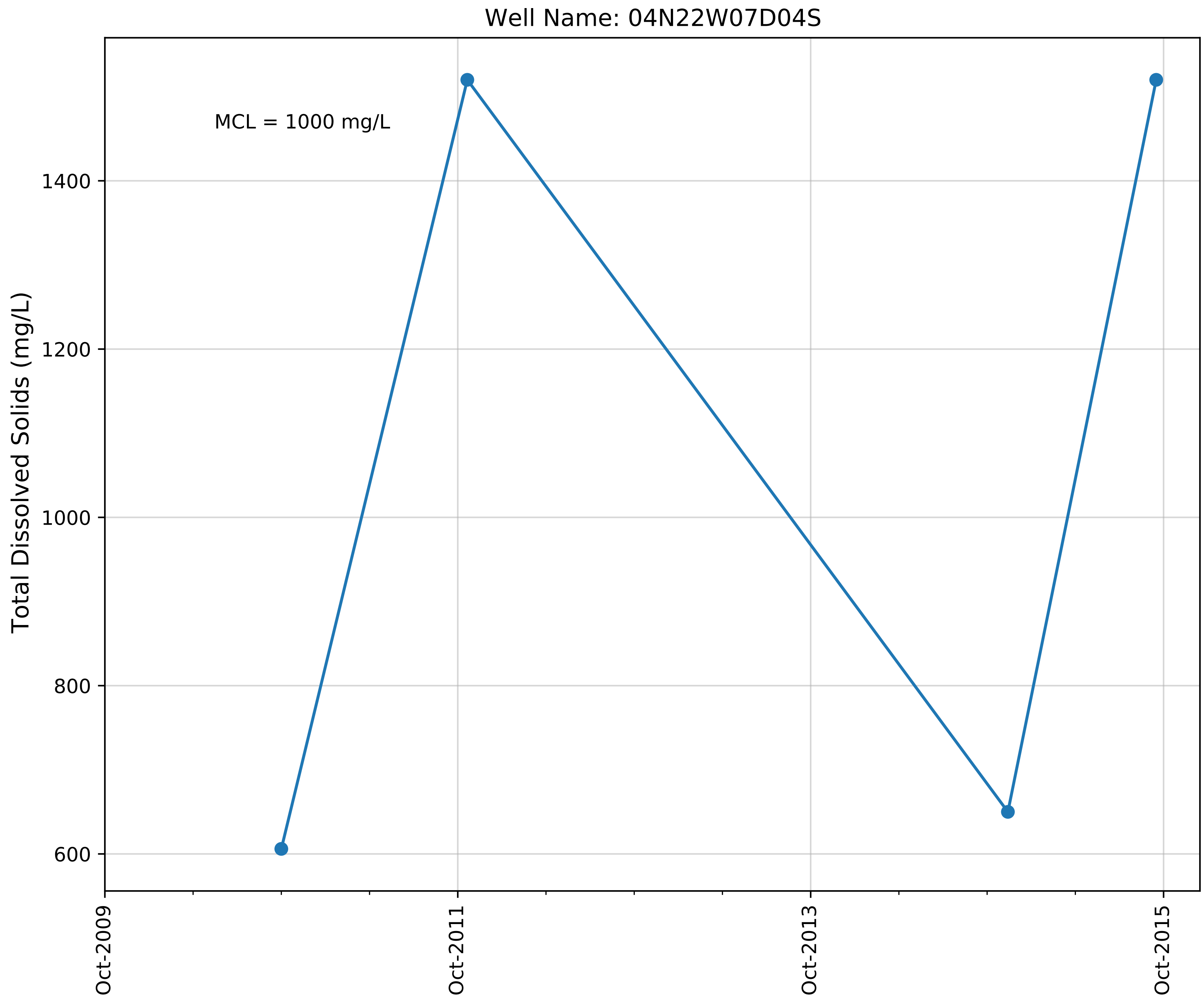
Well Name: 04N22W06J09S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
800
750
700
650
600
550
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021

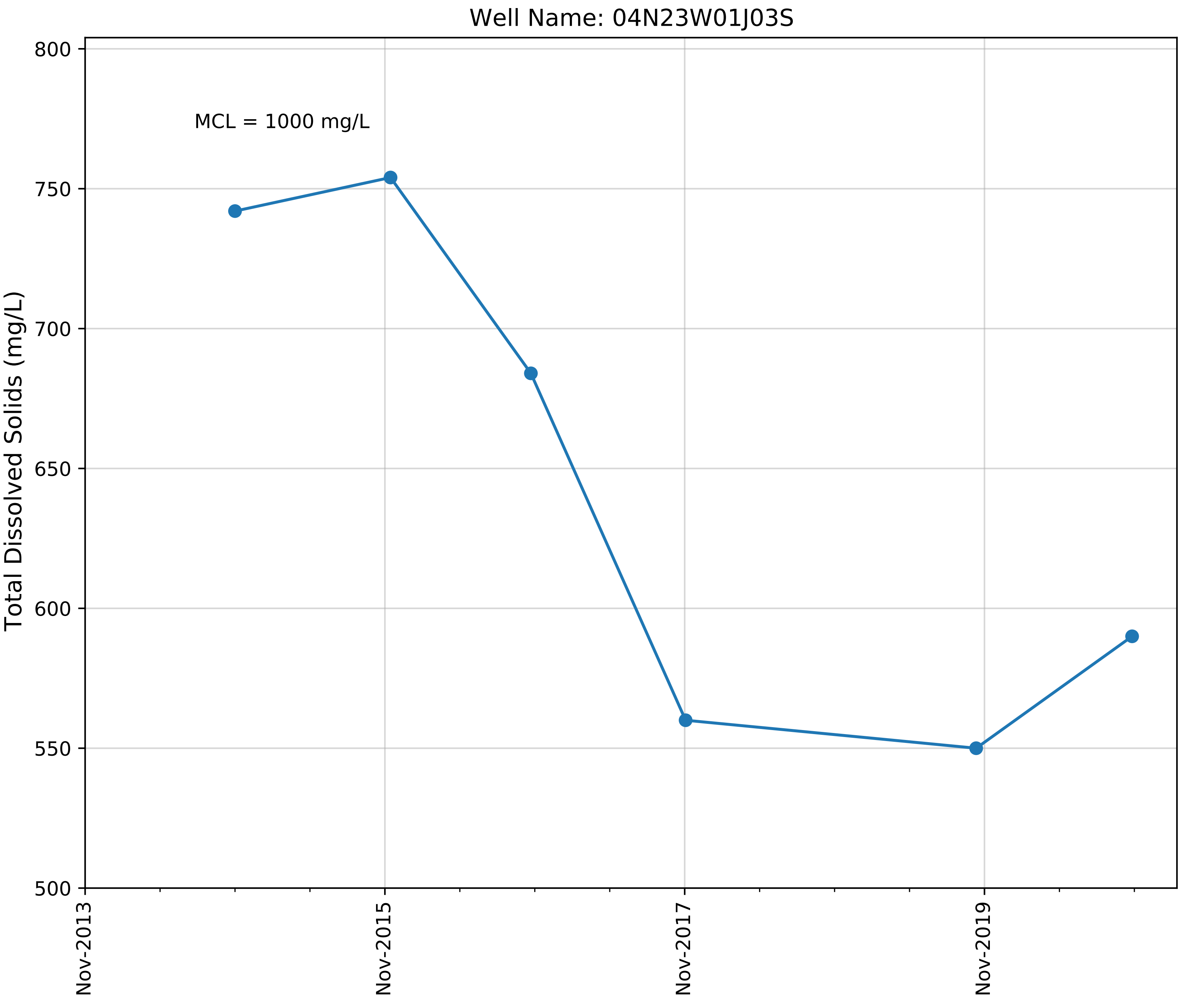


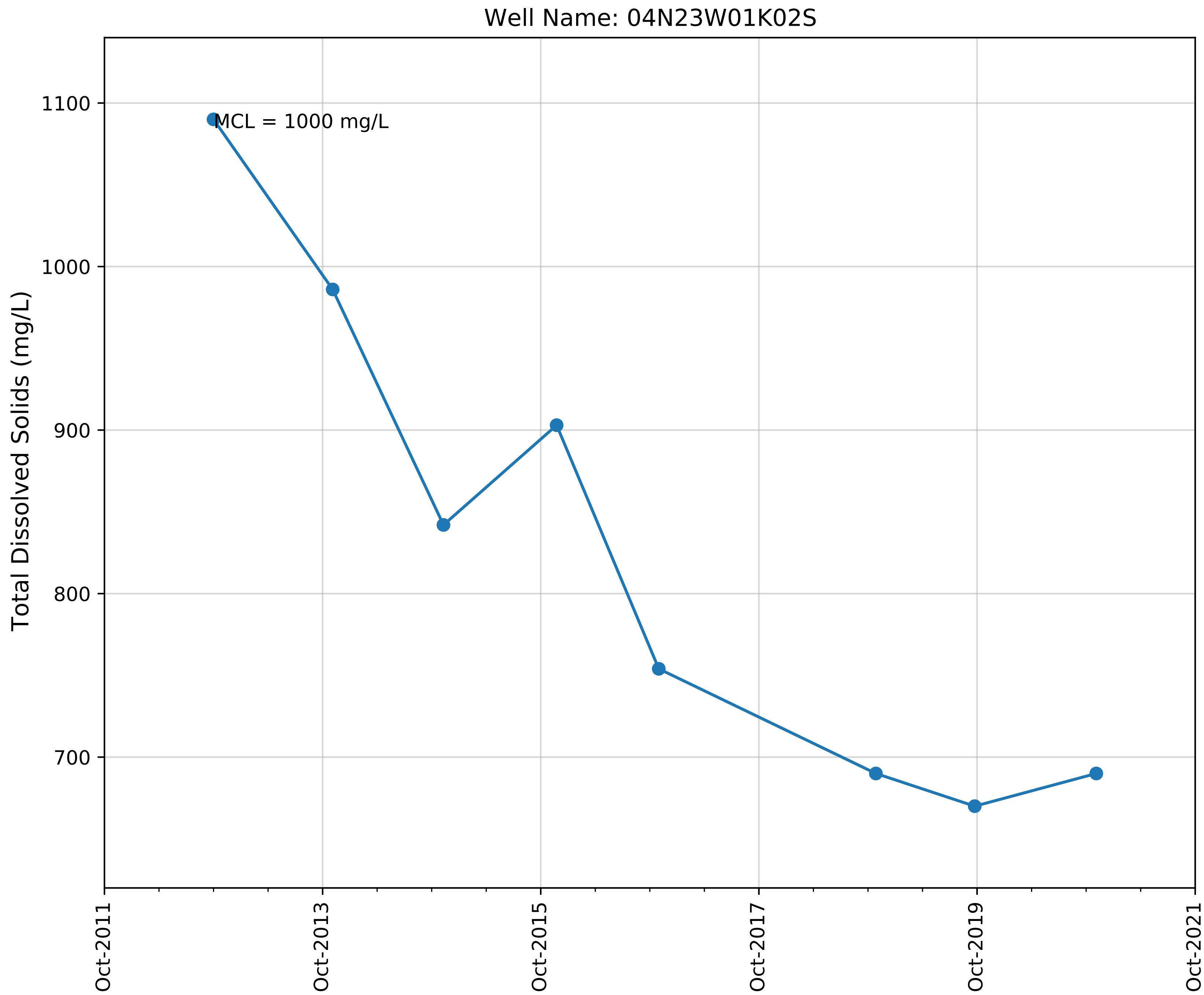
Well Name: 04N22W06M01S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
860
840
820
800
780
Oct-2009
Oct-2011
Oct-2013


Well Name: 04N22W07B02S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
720
700
680
660
640
Dec-2015

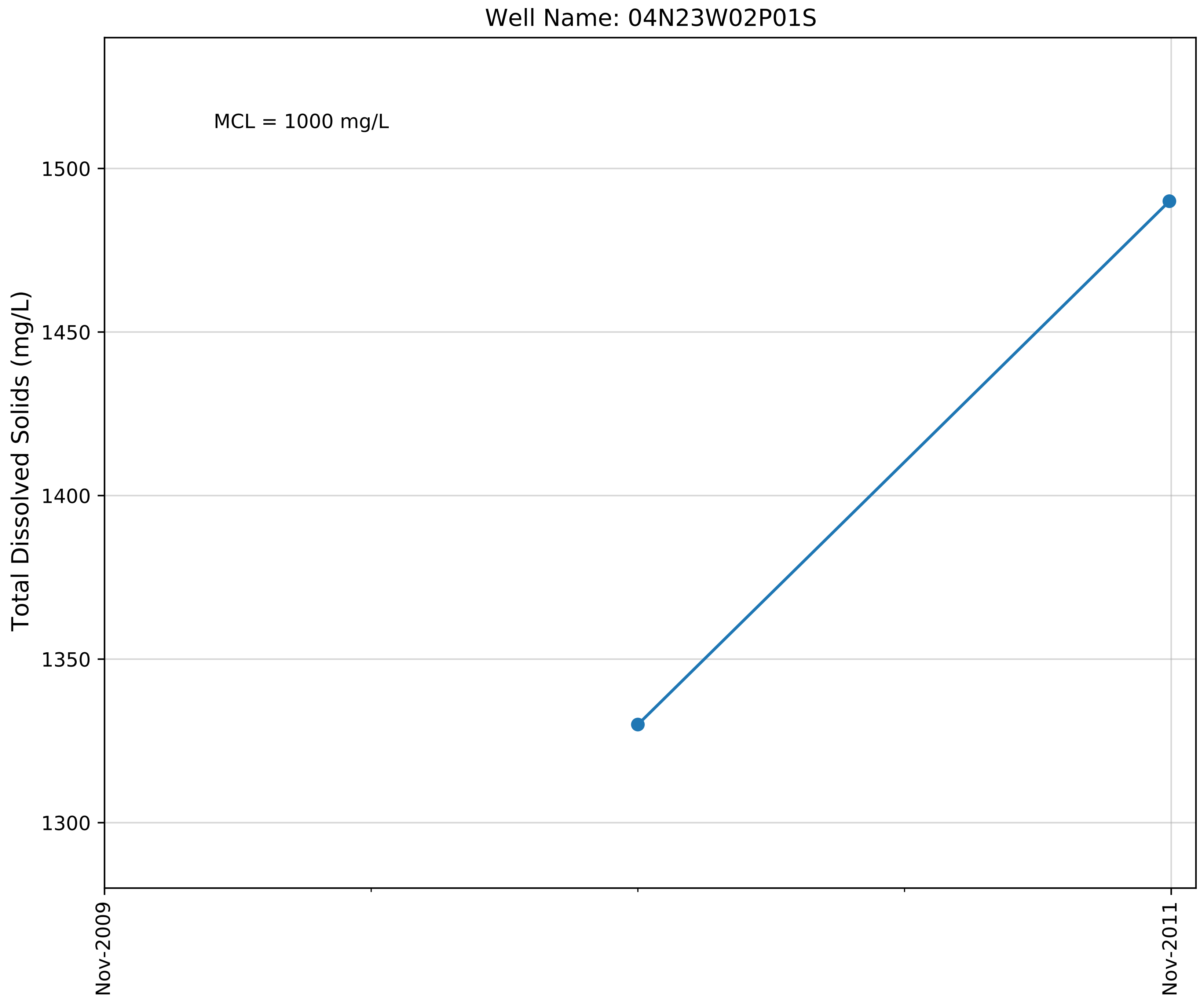

Well Name: 04N22W07C05S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
825
800
775
750
725
700
675
650
Nov-2013
Nov-2015


Well Name: 04N22W07D04S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
600
800
1000
1200
1400
Oct-2009
Oct-2011
Oct-2013
Oct-2015

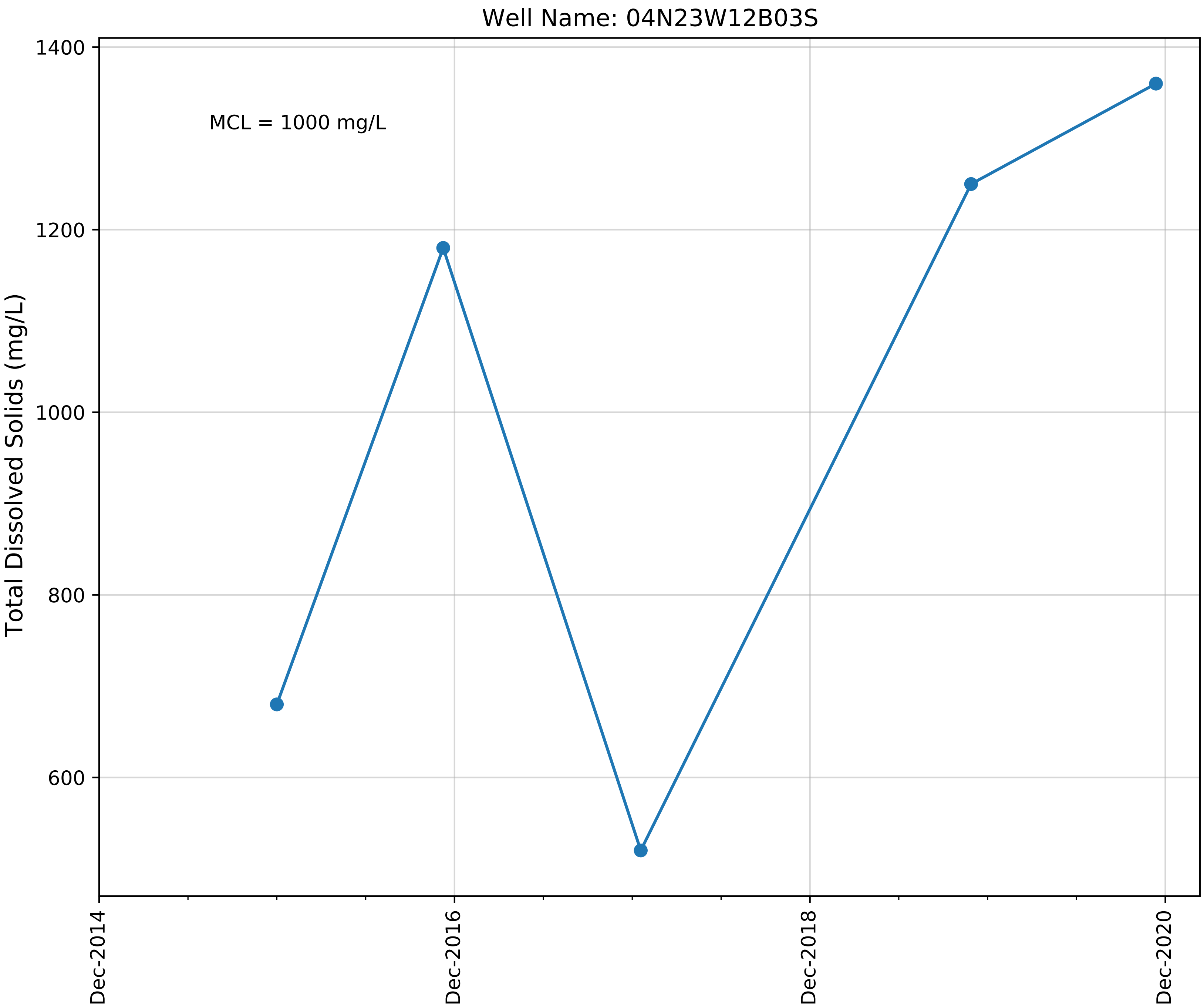

Well Name: 04N23W01J03S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
800
750
700
650
600
550
500
Nov-2013
Nov-2015
Nov-2017
Nov-2019



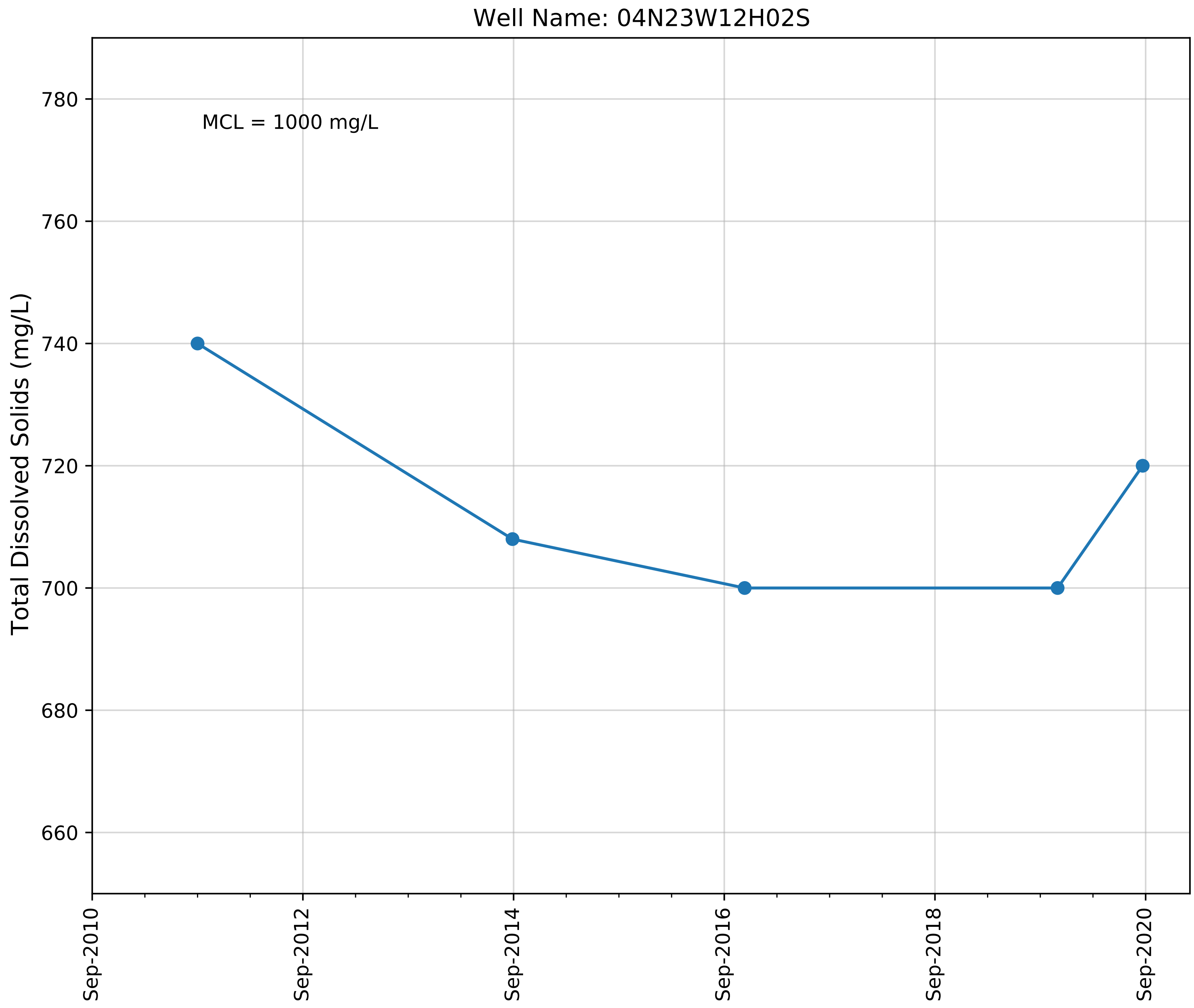
Well Name: 04N23W01K02S
Total Dissolved Solids (mg/L)
MCL = 1000 mg/L
1100
1000
900
800
700
Oct-2011
Oct-2013
Oct-2015
Oct-2017
Oct-2019
Oct-2021

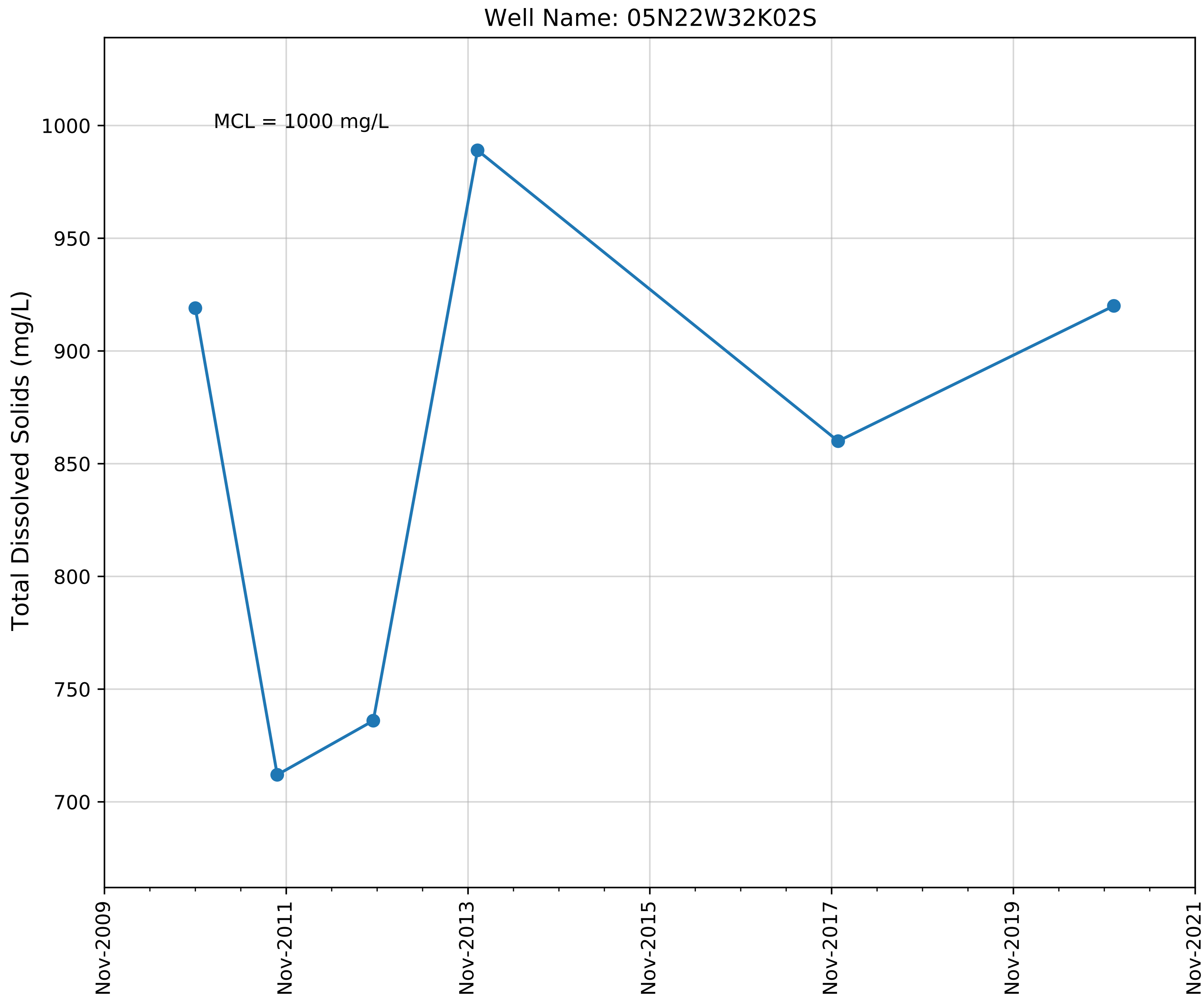


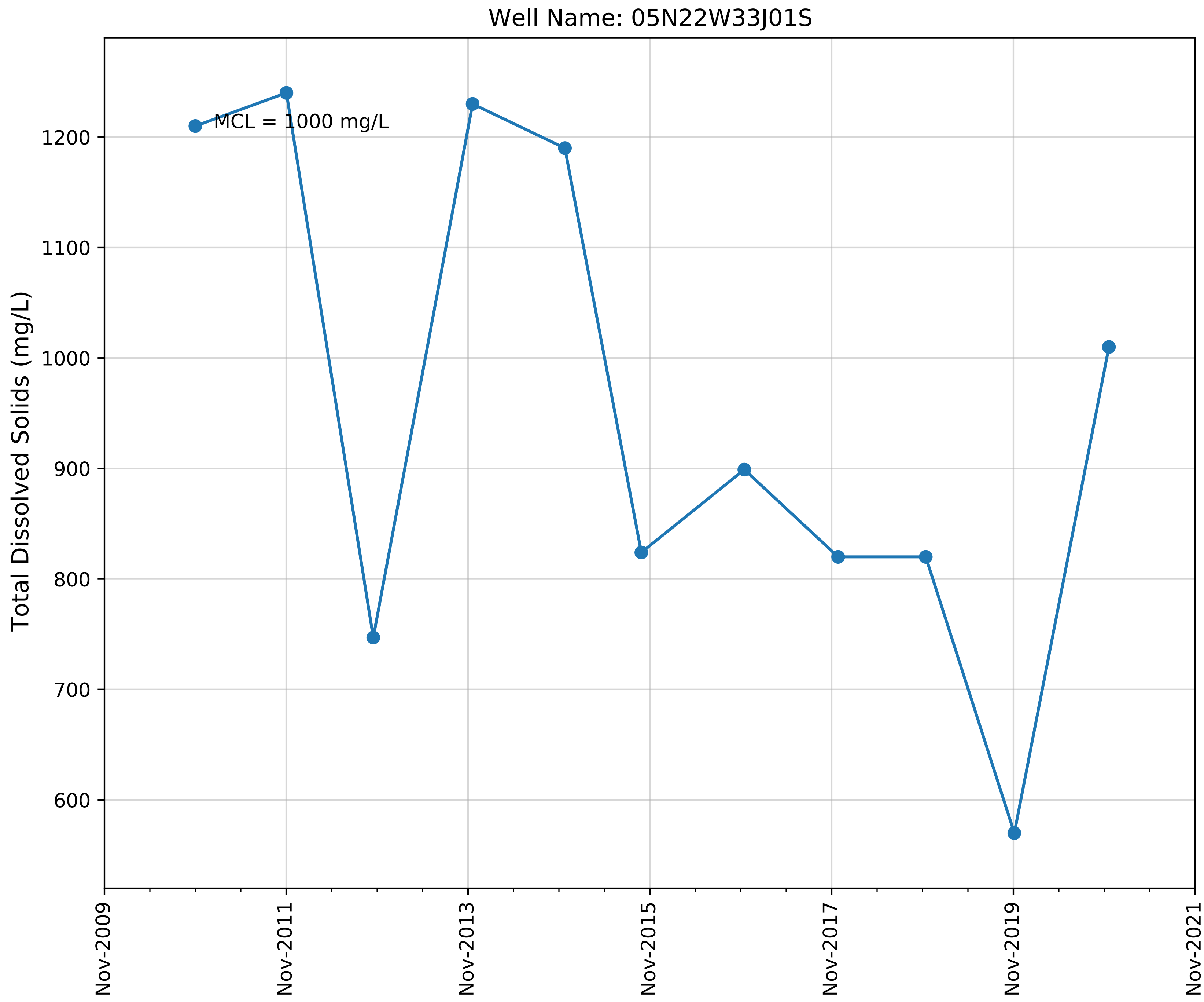
Well Name: 04N23W02P01S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
1500
1450
1400
1350
1300
Nov-2009
Nov-2011

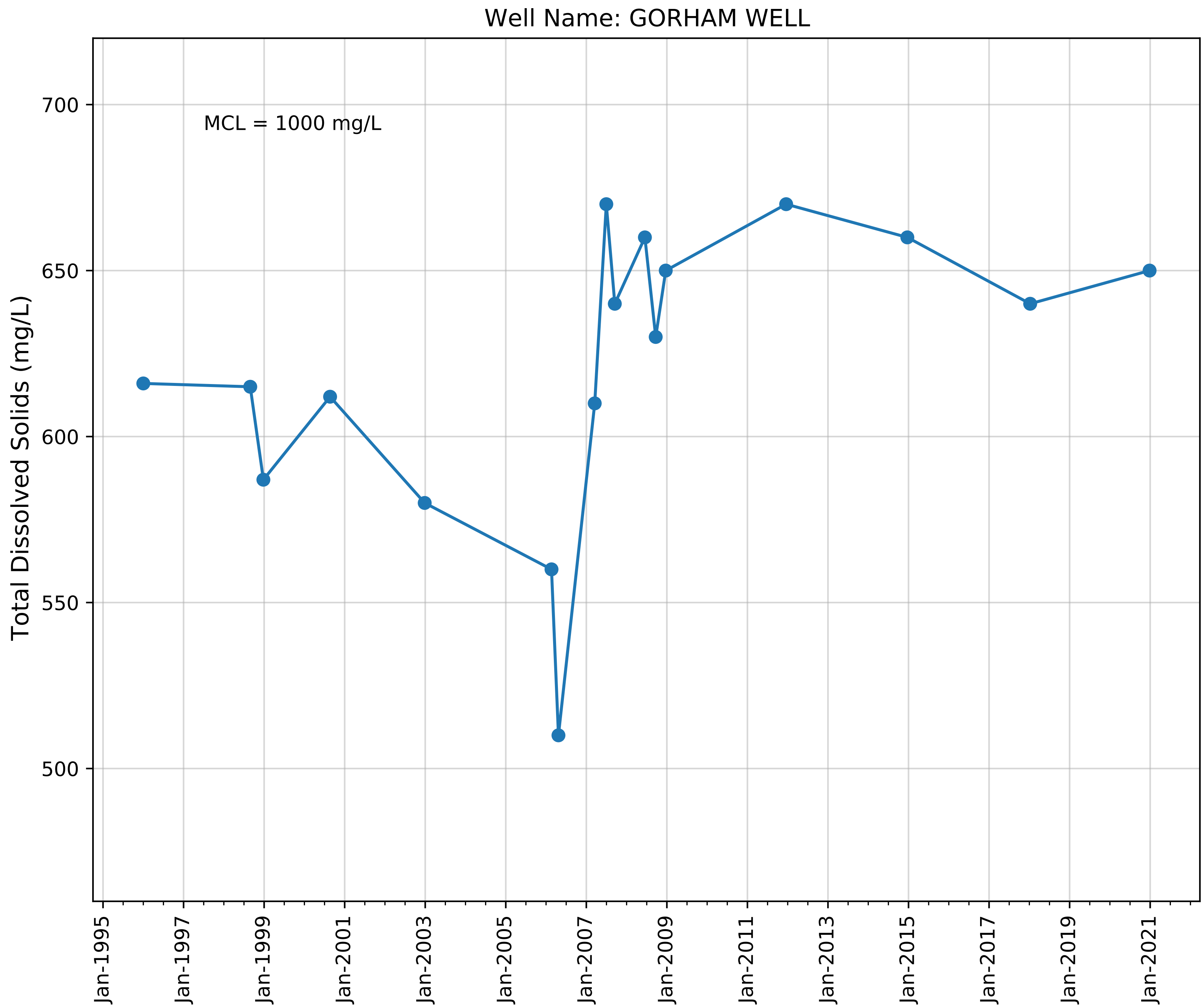


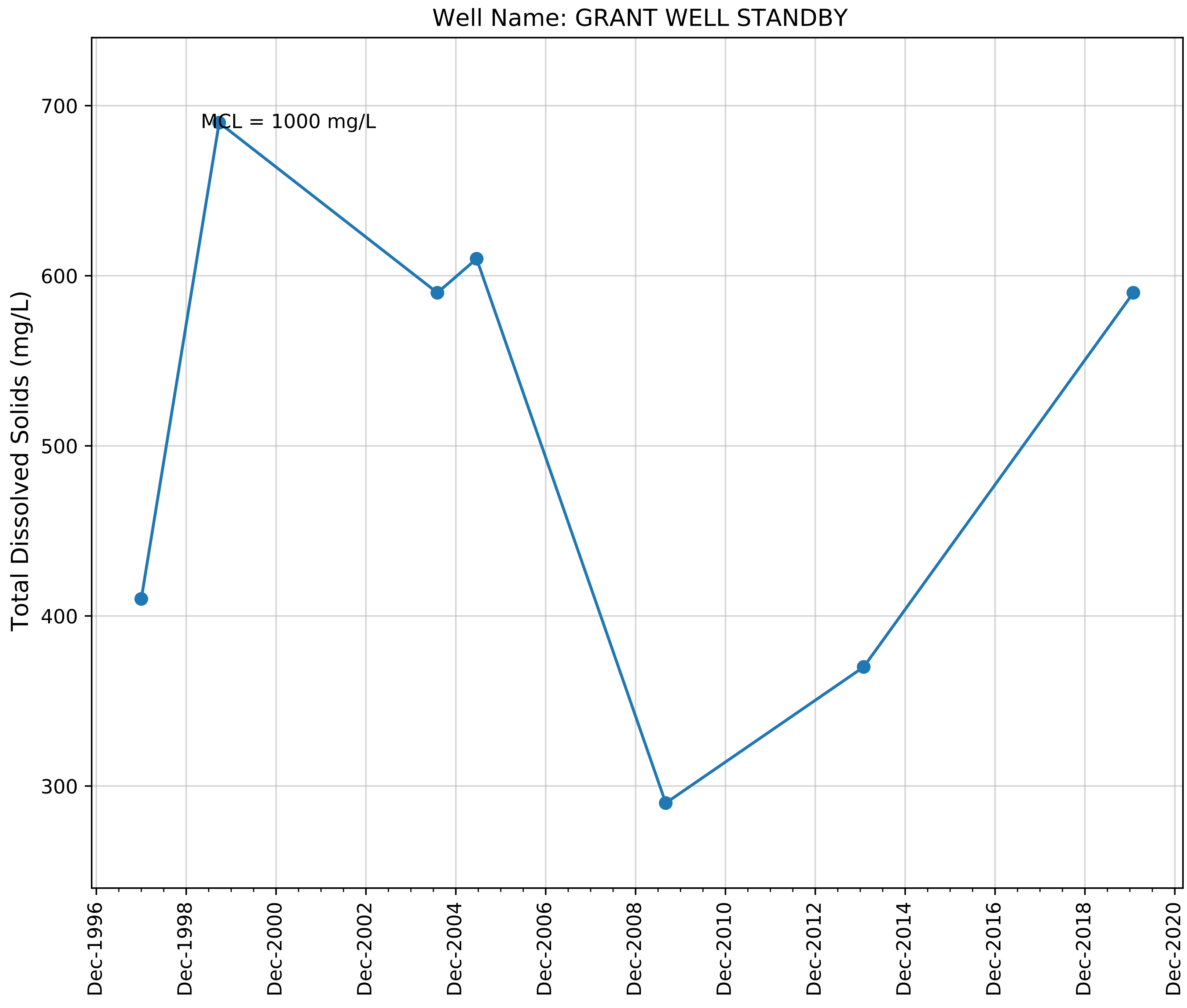
Well Name: 04N23W12B03S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
1400
1200
1000
800
600
Dec-2014
Dec-2016
Dec-2018
Dec-2020


Well Name: 04N23W12H02S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
780
760
740
720
700
680
660
Sep-2010
Sep-2012
Sep-2014
Sep-2016
Sep-2018
Sep-2020

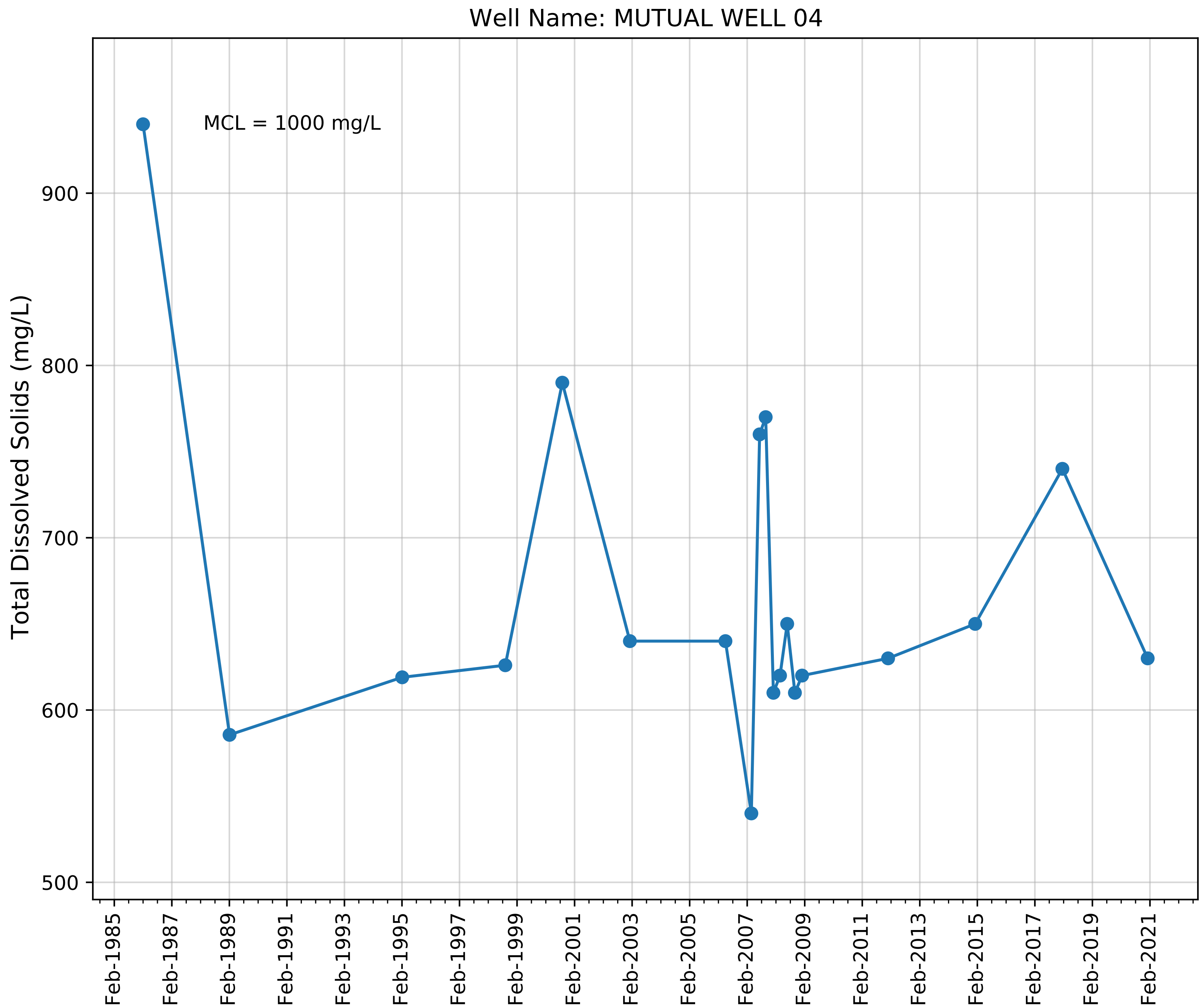

Well Name: 05N22W32K02S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
1000
950
900
850
800
750
700
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

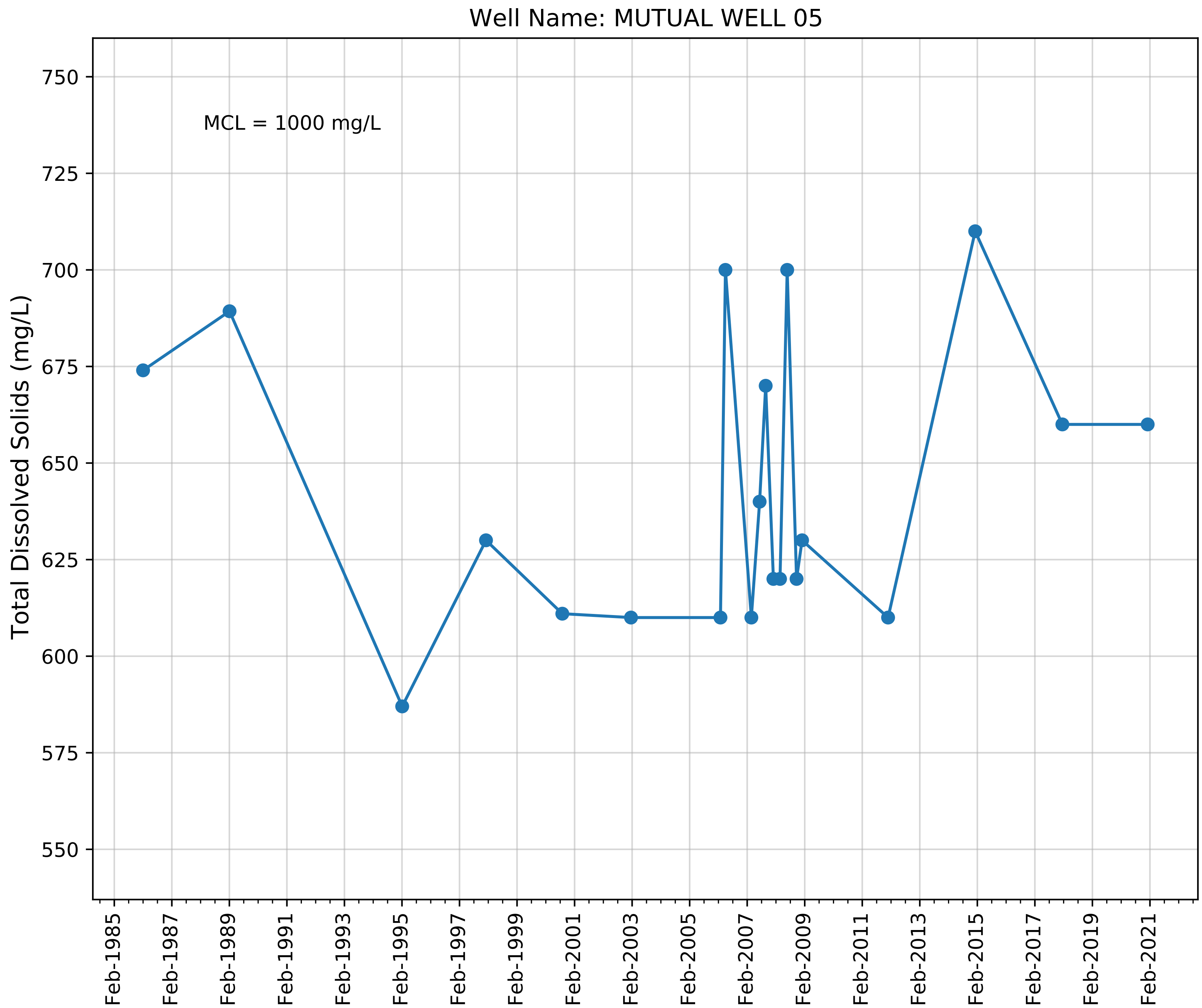

Well Name: 05N22W33J01S
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
1200
1100
1000
900
800
700
600
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019
Nov-2021

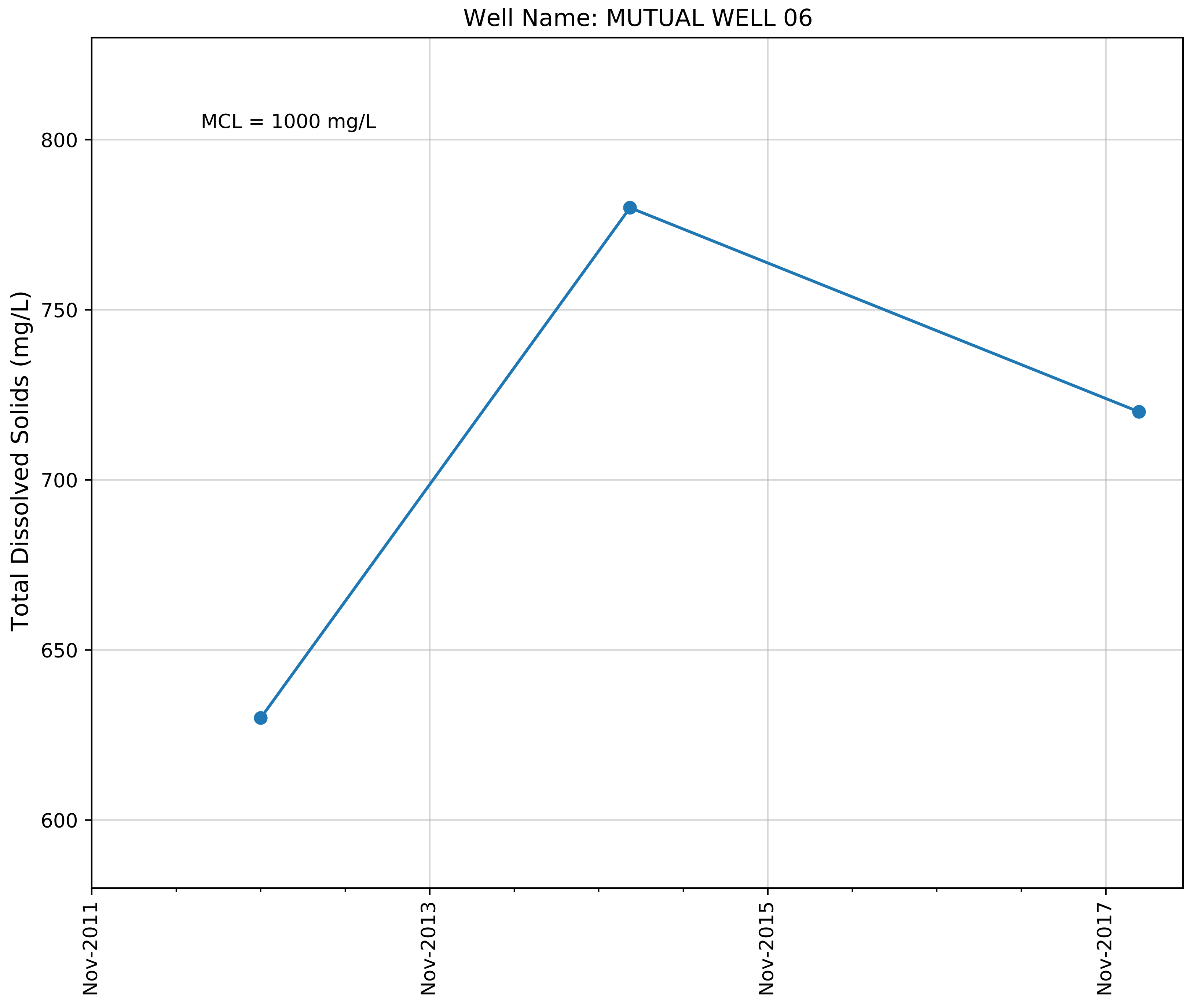

Well Name: GORHAM WELL
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
700
650
600
550
500
Jan-1995
Jan-1997
Jan-1999
Jan-2001
Jan-2003
Jan-2005
Jan-2007
Jan-2009
Jan-2011
Jan-2013
Jan-2015
Jan-2017
Jan-2019
Jan-2021

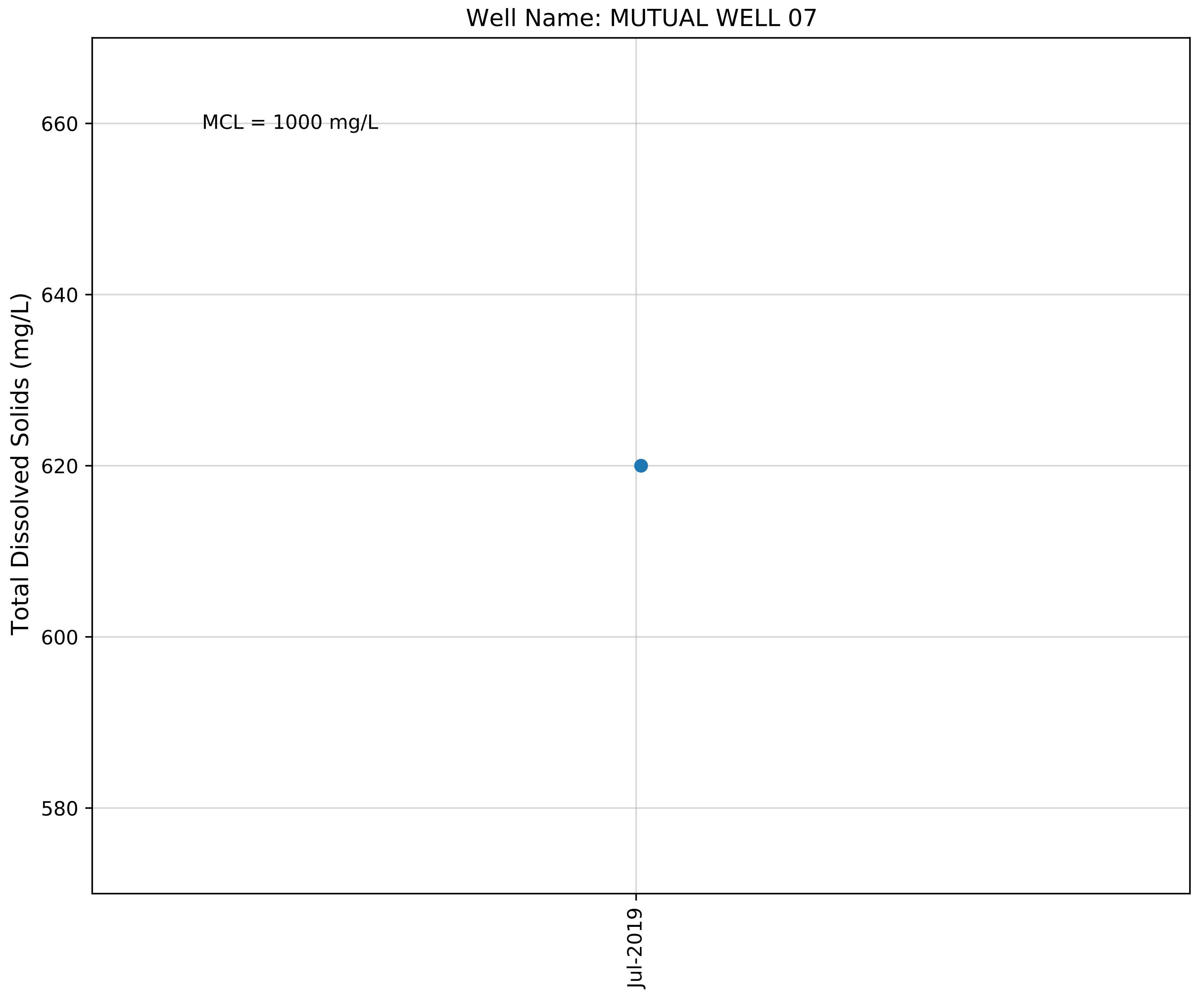


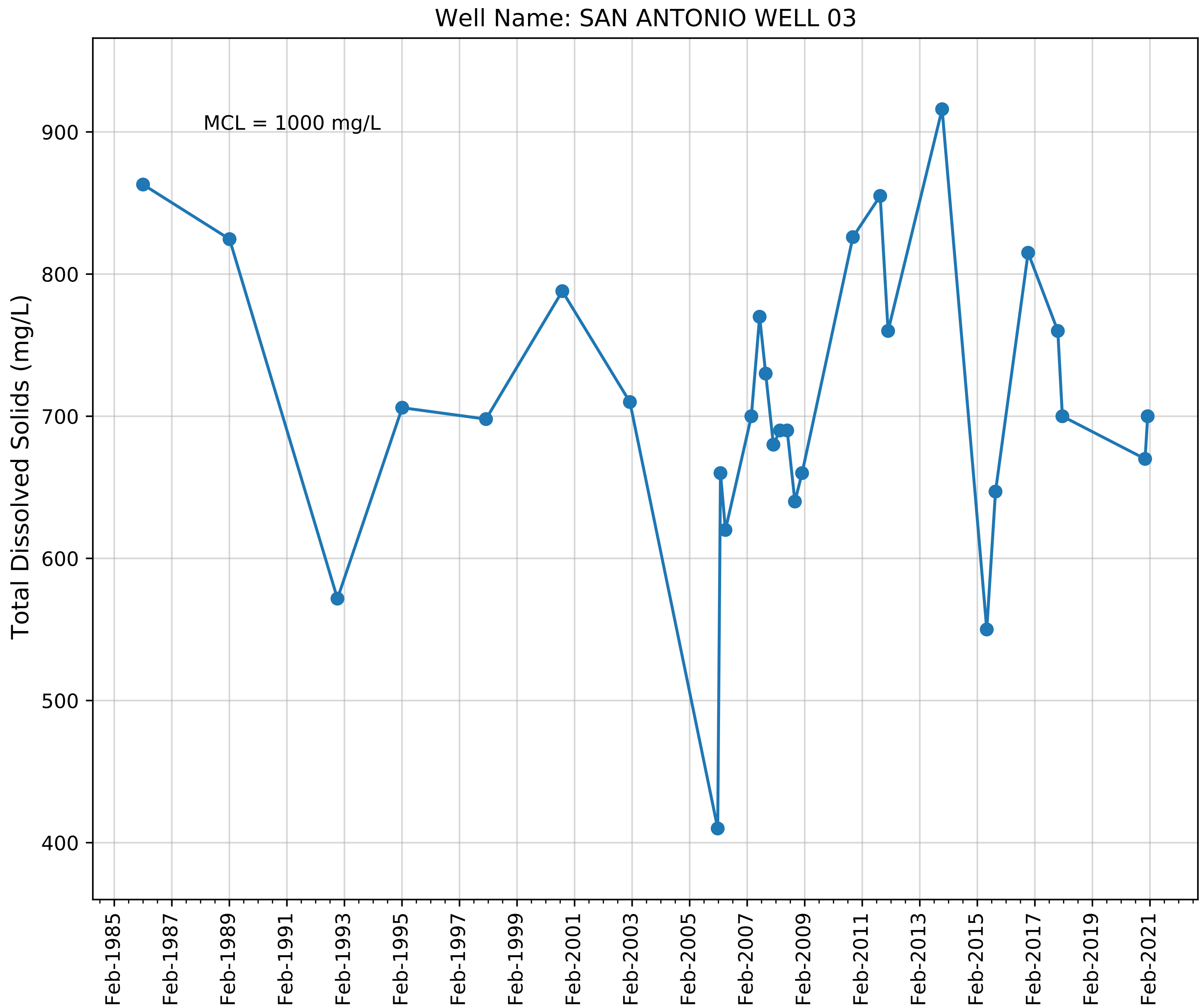
Well Name: GRANT WELL STANDBY
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
700
600
500
400
300
Dec-1996
Dec-1998
Dec-2000
Dec-2002
Dec-2004
Dec-2006
Dec-2008
Dec-2010
Dec-2012
Dec-2014
Dec-2016
Dec-2018
Dec-2020


Well Name: MUTUAL WELL 04
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
900
800
700
600
500
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021

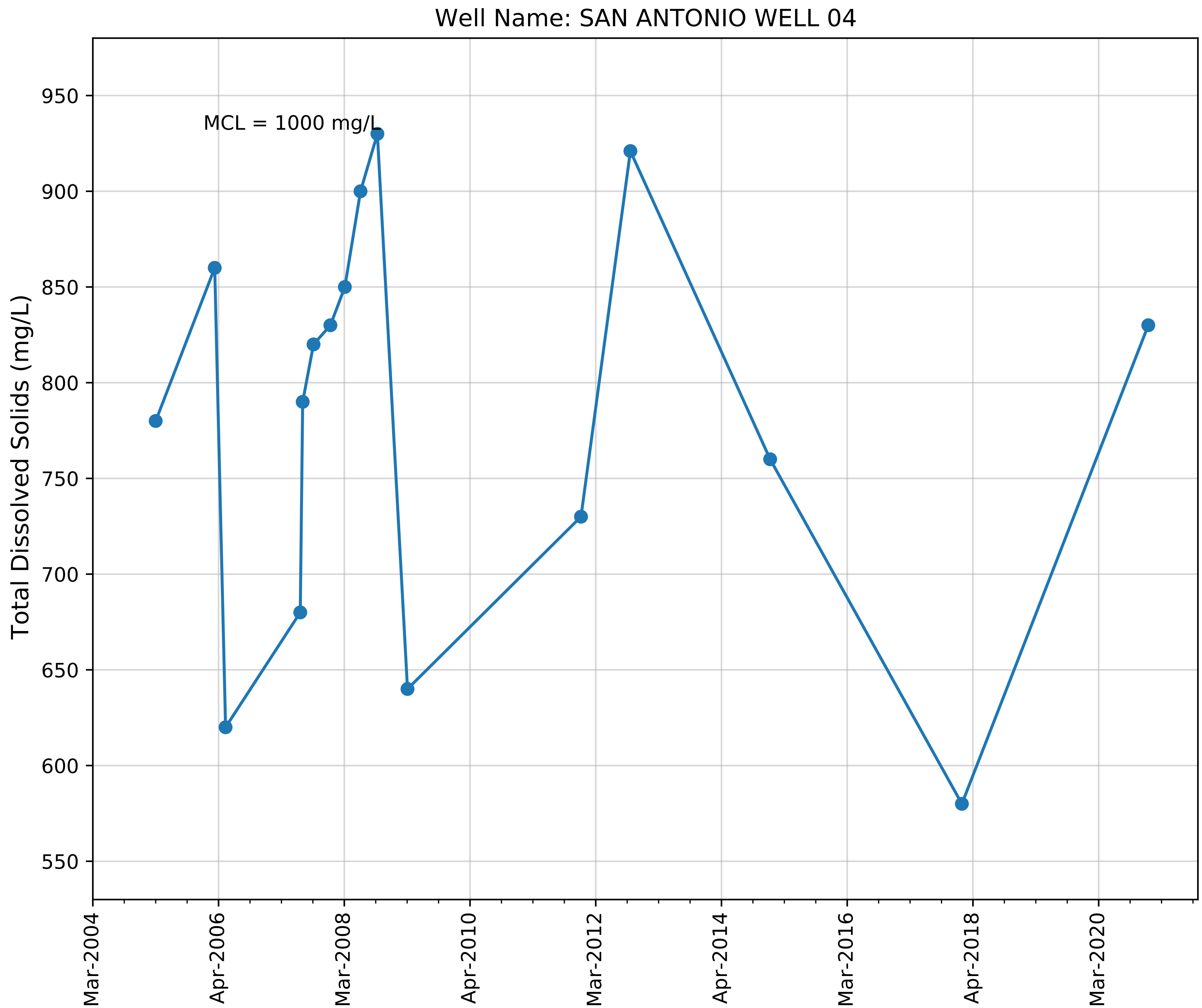

Well Name: MUTUAL WELL 05
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
750
725
700
675
650
625
600
575
550
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021


Well Name: MUTUAL WELL 06
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
800
750
700
650
600
Nov-2011
Nov-2013
Nov-2015
Nov-2017

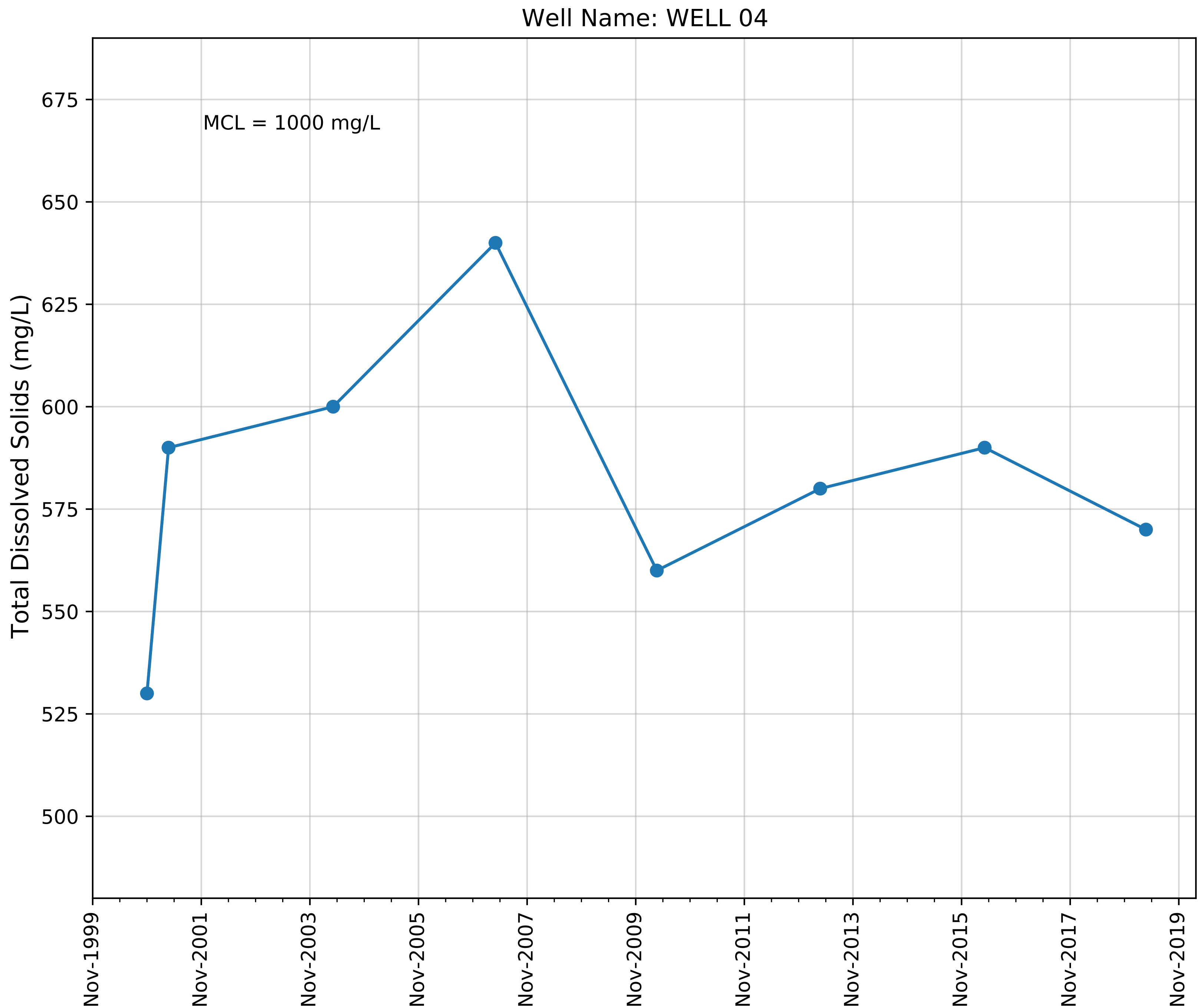

Well Name: MUTUAL WELL 07
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
660
640
620
600
580
Jul-2019



Well Name: SAN ANTONIO WELL 03
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
400
500
600
700
800
900
Feb-1985
Feb-1987
Feb-1989
Feb-1991
Feb-1993
Feb-1995
Feb-1997
Feb-1999
Feb-2001
Feb-2003
Feb-2005
Feb-2007
Feb-2009
Feb-2011
Feb-2013
Feb-2015
Feb-2017
Feb-2019
Feb-2021



Well Name: SAN ANTONIO WELL 04
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
950
900
850
800
750
700
650
600
550
Mar-2004
Apr-2006
Mar-2008
Apr-2010
Mar-2012
Apr-2014
Mar-2016
Apr-2018
Mar-2020



Well Name: WELL 04
MCL = 1000 mg/L
Total Dissolved Solids (mg/L)
675
650
625
600
575
550
525
500
Nov-1999
Nov-2001
Nov-2003
Nov-2005
Nov-2007
Nov-2009
Nov-2011
Nov-2013
Nov-2015
Nov-2017
Nov-2019

APPENDIX E

Groundwater Dependent Ecosystems

APPENDIX E
GROUNDWTER DEPENDENT ECOSYSTEMS

Inventory of Freshwater Species

The OVGB provides habitat that supports a variety of aquatic and terrestrial freshwater species, several of which are listed as threatened, endangered, and/or species of special concern. Table 1 provides an inventory of freshwater species that reside in the San Antonio Creek watershed and may be found in the OVGB. The threatened and/or endangered species that may be found in the OVGB include the Willow Flycatcher (*Empidonax traillii*), Yuma Clapper Rail (*Rallus longirostris yumanensis*), Least Bell's Vireo (*Vireo bellii pusillus*), Southern California steelhead (*Oncorhynchus mykiss*), Arroyo Toad (*Anaxyrus californicus*), and California Red-legged Frog (Rana draytonii).

Table 1
Inventory of Freshwater Species Located in the San Antonio Creek Watershed

Scientific Name	Common Name	Legal Protected Status		
		Federal	*State*	*Other*
Birds				
Aechmophorus clarkii	Clark's Grebe	—	—	—
Aechmophorus occidentalis	Western Grebe	—	—	—
Anas americana	American Wigeon	—	—	—
Anas platyrhynchos	Mallard	—	—	—
Anas strepera	Gadwall	—	—	—
Ardea alba	Great Egret	—	—	—
Ardea herodias	Great Blue Heron	—	—	—
Butorides virescens	Green Heron	—	—	—
Cinclus mexicanus	American Dipper	—	—	—
Egretta thula	Snowy Egret	—	—	—
Empidonax traillii	Willow Flycatcher	Bird of Conservation Concern	Endangered	—
Fulica americana	American Coot	—	—	—
Icteria virens	Yellow-breasted Chat	—	Special Concern	BSSC - Third priority
Lophodytes cucullatus	Hooded Merganser	—	—	—
Megaceryle alcyon	Belted Kingfisher	—	—	—
Mergus merganser	Common Merganser	—	—	—
Nycticorax nycticorax	Black-crowned Night-Heron	—	—	—
Oxyura jamaicensis	Ruddy Duck	—	—	—
Phalacrocorax auritus	Double-crested Cormorant	—	—	—

Table 1
Inventory of Freshwater Species Located in the San Antonio Creek Watershed

Scientific Name	Common Name	Legal Protected Status		
		Federal	*State*	*Other*
Plegadis chihi	White-faced Ibis	—	Watch list	—
Podilymbus podiceps	Pied-billed Grebe	—	—	—
Rallus longirostris yumanensis	Yuma Clapper Rail	Endangered	Threatened	—
Setophaga petechia	Yellow Warbler	—	—	BSSC - Second priority
Tachycineta bicolor	Tree Swallow	—	—	—
Vireo bellii pusillus	Least Bell's Vireo	Endangered	Endangered	—
Crustaceans				
Hyalella spp.	Hyalella spp.	—	—	—
Fishes				
Gasterosteus aculeatus microcephalus	Inland threespine stickleback	—	Special	Least Concern - Moyle 2013
Gila orcutti	Arroyo chub	—	Special Concern	Vulnerable - Moyle 2013
Oncorhynchus mykiss - Southern CA	Southern California steelhead	Endangered	Special Concern	Endangered - Moyle 2013
Oncorhynchus mykiss irideus	Coastal rainbow trout	—	—	Least Concern - Moyle 2013
Amphibians and Reptiles				
Actinemys marmorata marmorata	Western Pond Turtle	—	Special Concern	ARSSC
Anaxyrus boreas boreas	Boreal Toad	—	—	—
Anaxyrus californicus	Arroyo Toad	Endangered	Special Concern	ARSSC
Pseudacris cadaverina	California Treefrog	—	—	ARSSC
Pseudacris regilla	Northern Pacific Chorus Frog	—	—	—
Rana boylii	Foothill Yellow-legged Frog	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Rana draytonii	California Red-legged Frog	Threatened	Special Concern	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Thamnophis hammondii hammondii	Two-striped Gartersnake	—	Special Concern	ARSSC
Thamnophis sirtalis sirtalis	Common Gartersnake	—	—	—
Invertebrates				
Ambrysus spp.	Ambrysus spp.	—	—	—
Argia spp.	Argia spp.	—	—	—

Table 1
Inventory of Freshwater Species Located in the San Antonio Creek Watershed

Scientific Name	Common Name	Legal Protected Status		
		Federal	*State*	*Other*
Baetis tricaudatus	A Mayfly	—	—	—
Cheumatopsyche spp.	Cheumatopsyche spp.	—	—	—
Chironomidae fam.	Chironomidae fam.	—	—	—
Dixidae fam.	Dixidae fam.	—	—	—
Enallagma carunculatum	Tule Bluet	—	—	—
Erythemis collocata	Western Pondhawk	—	—	—
Fallceon quilleri	A Mayfly	—	—	—
Gumaga spp.	Gumaga spp.	—	—	—
Hetaerina americana	American Rubyspot	—	—	—
Hydroptilidae fam.	Hydroptilidae fam.	—	—	—
Libellulidae fam.	Libellulidae fam.	—	—	—
Microtendipes spp.	Microtendipes spp.	—	—	—
Oecetis disjuncta	A Caddisfly	—	—	—
Optioservus spp.	Optioservus spp.	—	—	—
Parametriocnemus spp.	Parametriocnemus spp.	—	—	—
Peltodytes spp.	Peltodytes spp.	—	—	—
Polypedilum spp.	Polypedilum spp.	—	—	—
Pseudochironomus spp.	Pseudochironomus spp.	—	—	—
Psychodidae fam.	Psychodidae fam.	—	—	—
Sialis spp.	Sialis spp.	—	—	—
Sigara mckinstryi	A Water Boatman	—	—	—
Simulium spp.	Simulium spp.	—	—	—
Sperchon spp.	Sperchon spp.	—	—	—
Tanytarsus spp.	Tanytarsus spp.	—	—	—
Tinodes spp.	Tinodes spp.	—	—	—
Tricorythodes spp.	Tricorythodes spp.	—	—	—
Mollusks				
Anodonta californiensis	California Floater	—	Special	—
Anodonta dejecta	Woebegone Floater	—	—	—
Anodonta spp.	Anodonta spp.	—	—	—
Plants				
Alnus rhombifolia	White Alder	—	—	—
Ammannia coccinea	Scarlet Ammannia	—	—	—
Arundo donax	—	—	—	—
Azolla filiculoides	—	—	—	—

Table 1
Inventory of Freshwater Species Located in the San Antonio Creek Watershed

Scientific Name	Common Name	Legal Protected Status		
		Federal	*State*	*Other*
Berula erecta	Wild Parsnip	—	—	—
Bolboschoenus maritimus paludosus	—	—	—	—
Carex alma	Sturdy Sedge	—	—	—
Carex densa	Dense Sedge	—	—	—
Cotula coronopifolia	—	—	—	—
Cyperus involucratus	—	—	—	—
Datisca glomerata	Durango Root	—	—	—
Epilobium campestre	—	—	—	—
Juncus acutus leopoldii	Spiny Rush	—	Special	CRPR - 4.2
Juncus phaeocephalus paniculatus	Brownhead Rush	—	—	—
Lemna gibba	Inflated Duckweed	—	—	—
Lemna minor	Lesser Duckweed	—	—	—
Lemna valdiviana	Pale Duckweed	—	—	—
Lobelia dunnii serrata	Dunn's Lobelia	—	—	—
Mimulus cardinalis	Scarlet Monkeyflower	—	—	—
Mimulus guttatus	Common Large Monkeyflower	—	—	—
Paspalum distichum	Joint Paspalum	—	—	—
Persicaria lapathifolia	—	—	—	—
Phacelia distans	—	—	—	—
Phyla nodiflora	Common Frog-fruit	—	—	—
Platanus racemosa	California Sycamore	—	—	—
Pluchea odorata odorata	Scented Conyza	—	—	—
Psilocarphus tenellus	—	—	—	—
Rumex conglomeratus	—	—	—	—
Ruppia cirrhosa	Widgeon-grass	—	—	—
Salix exigua exigua	Narrowleaf Willow	—	—	—
Salix laevigata	Polished Willow	—	—	—
Salix lasiolepis lasiolepis	Arroyo Willow	—	—	—
Schoenoplectus americanus	Three-square Bulrush	—	—	—
Schoenoplectus californicus	California Bulrush	—	—	—
Scirpus microcarpus	Small-fruit Bulrush	—	—	—
Sidalcea neomexicana	Rocky Mountain Checker-mallow	—	Special	CRPR - 2B.2

Table 1
Inventory of Freshwater Species Located in the San Antonio Creek Watershed

Scientific Name	Common Name	Legal Protected Status		
		Federal	*State*	*Other*
Stachys albens	White-stem Hedge-nettle	—	—	—
Typha domingensis	Southern Cattail	—	—	—
Veronica anagallis-aquatica	—	—	—	—
Veronica catenata	—	—	—	—
Zannichellia palustris	Horned Pondweed	—	—	—

Source: California Freshwater Species Database version 2.0.9.
Notes: — = not available/applicable.

Vegetation and Wetland GDE Characterization

This section describes the characterization of individual NCCAG mapped polygons by groundwater dependent ecosystem evaluation unit. Data supporting the characterization of each unit is described in detail below. The methods for identifying groundwater dependent ecosystems are outlined in Section 2.3.4.7 of the Groundwater Sustainability Plan.

Stewart Canyon GDE Evaluation Unit

The Stewart Canyon GDE Evaluation Unit consists of approximately 11.34 acres of coast live oak (*Quercus agrifolia*) vegetation and 0.15 acres of riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland communities. The coast live oak habitat can be divided into an upstream habitat that is entirely undeveloped land and a downstream habitat that consists of developed residential and undeveloped land. Both communities are located along the bed and bank of the natural stream channel. The Stewart Canyon drainage is not classified by the USGS. The riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland habitat is located within the manmade Stewart Canyon Creek Debris Basin, an earthen-filled basin constructed by the U.S. Army Corps of Engineers in 1963 to control floodwater and sediment produced during large flood events (Figure 1, Stewart Canyon GDE Evaluation Unit).

NDMI trends for the downstream coast live oak habitat (NCCAG polygons 48487 and 48667) and the wetland habitat (NCCAG polygon 102080) are positively correlated with groundwater levels, and NDMI trends for the wetland habitat are also correlated with precipitation. NDVI trends for the communities are not correlated with groundwater levels or precipitation. NDVI and NDMI trends for the upstream coast live oak habitat (NCCAG polygon 52076) are not correlated with groundwater levels or precipitation. Aerial photographs show that the habitat completely burned in 2017 but has partially regrown since that time. No NDVI or NDMI data are available for

NCCAG polygon 102081 (riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland).

There are five active production wells within 1 km of the mapped communities (Figure 1). A well completion report is available for well 04N23W02A04S, which indicates that in May 2016 the depth to water was approximately 40 feet bgs. Well 04N23W02A04S is 615 feet deep and screened from 40 to 600 feet. The lithology at well 04N23W02A04S consists of topsoil from 0 to 10 feet bgs and a mixture of sandstone and conglomerate rock from 10 to 620 feet bgs.

Although NDMI trends are positively correlated with groundwater levels and precipitation, because there is insufficient site-specific data to characterize groundwater conditions underlying the Stewart Canyon GDE Evaluation Unit it is characterized as a potential GDE. The unit is located at the northern edge of the OVGB in an area with few production wells and is therefore not likely to be impacted by groundwater extraction. Additionally, based on the correlation between NDMI trends for the wetland habitat and precipitation, the habitat is likely supported by intermittent surface flows emanating from the contributing watershed.

Gridley Canyon GDE Evaluation Unit

The Gridley Canyon GDE Evaluation Unit consists of approximately 9.14 acres of riparian mixed hardwood and 4.72 acres of coast live oak vegetation communities. The riparian mixed hardwood habitat is located within the Gridley Canyon drainage and the coast live oak habitat is located near the confluence of the Gridley Canyon and Senior Canyon drainages. The Gridley Canyon drainage is classified as an intermittent stream by the USGS. Both vegetation communities are located along the bed and bank of the natural stream channel on undeveloped land bordered by undeveloped to developed agricultural land (Figure 2, Gridley Canyon, Senior Canyon, and McNell Creek GDE Evaluation Units).

NDVI and NDMI trends for the communities are not correlated with precipitation or groundwater levels. During the last major drought period which began in late 2011, the NDVI for both vegetation communities slightly increased, while the NDMI for the riparian mixed hardwood habitat remained stable and the NDMI for the coast live oak habitat decreased. Aerial photographs show that both vegetation communities partially burned in 2017 but have regrown since that time.

There are four active production wells located within 1 km and downgradient of the riparian mixed hardwood habitat, and 20 production wells located within 1 km of the coast live oak habitat. Recent groundwater level data are available for one nearby well (well 05N22W32J002S; Figure 2). Since the beginning of the measurement record in November 1949, the shallowest depth to water measured in well 05N22W32J002S was 44.6 feet bgs in December 2019 and the most recent depth to water was 54.4 feet bgs, as measured in June 2020. Static groundwater levels in Well

05N22W32J002S have remained relatively stable around 55 feet bgs since the beginning of the measurement record. Well 05N22W32J002S is 500 feet deep and screened from 83 to 283 feet.

Lithologic data are available for two nearby wells (wells 05N22W32H001S and 05N22W32K003S) and indicate that sand to cobble size unconsolidated sediments extend from ground surface to depths of between 38 and 110 feet bgs (Figure 2). Depth to first water in well 05N22W32H001S was measured at 100 feet bgs in September 2004 and in well 05N22W32K003S was measured at 30 feet bgs in August 2011.

Because there is insufficient site-specific data to characterize groundwater conditions underlying the Gridley Canyon GDE Evaluation Unit, it is characterized as a potential GDE. However, based on the relatively stable static groundwater levels in nearby wells and geographic location of the habitat being at the edge of the OVGB, the unit is not likely to be impacted by groundwater extraction.

Senior Canyon GDE Evaluation Unit

The Senior Canyon GDE Evaluation Unit consists of approximately 12.8 acres of coast live oak vegetation. The coast live oak habitat is located within the Senior Canyon drainage (upper San Antonio Creek) along the bank and bed of the natural stream channel on developed residential and undeveloped land. The Senior Canyon drainage is classified as an intermittent stream by the USGS (Figure 2).

NDVI and NDMI trends for the habitat are not correlated with precipitation or groundwater levels. During the last drought period the NDVI for the vegetation increased while the NDMI remained relatively stable then slightly decreased. Aerial photographs show that the vegetation partially burned in 2017 but has regrown since that time.

There are 12 active production wells located within 1 km of the unit. Recent groundwater level data indicate that groundwater levels were 54.4 feet bgs in June 2020 (well 05N22W32J002S). Additionally, a well log for nearby well 05N22W32H001S suggests unconsolidated sediments are shallow and unconfined in the vicinity of the Senior Canyon GDE Evaluation Unit (Figure 2). Depth to first water in well 05N22W32H001S was measured at 100 feet bgs in September 2004.

Because there is insufficient site-specific data to characterize groundwater conditions underlying the Senior Canyon GDE Evaluation Unit, it is characterized as a potential GDE. However, because the unit is located upgradient of extraction wells at the northern edge of the OVGB, the vegetation is not likely to be impacted by groundwater extraction.

McNell Creek GDE Evaluation Unit

The McNell Creek GDE Evaluation Unit consists of approximately 17.5 acres of coast live oak vegetation. The unit can be divided into three separate coast live oak communities in close proximity to one another, all of which are located along the beds and banks of the drainages that comprise the upper reaches of McNell Creek. McNell Creek is classified as an intermittent stream by the USGS. Portions of the unit consist of developed residential land, but most of the habitat is undeveloped land (Figure 2).

NDVI and NDMI trends for the vegetation communities are not correlated with precipitation or groundwater levels, except for the western-most coast live oak habitat (NCCAG polygon 51773) for which NDMI and groundwater levels are positively correlated. During the last drought period the NDVI for the communities increased until about 2015 then decreased the years following, while NDMI showed a subtle steady decline starting in 2011.

There are 23 active production wells within 1 km of the unit, the majority of which are located downgradient. Three production wells are located within the western-most mapped coast live oak habitat. The closest well with recent groundwater level data is well 05N22W32J002S. In June 2020, the depth to water in well 05N22W32J002S was 54.4 feet bgs. The lithology underlying the unit is not known (Figure 2).

Because there is insufficient site-specific data to characterize groundwater conditions underlying the McNell Creek GDE Evaluation Unit and the NDMI trend for one of the coast live oak habitats is positively correlated with groundwater levels, the unit is characterized as a potential GDE. However, because the unit is located at the northern edge of the OVGB in an area with few production wells it is not likely to be impacted by groundwater extraction.

Upper Thacher Creek GDE Evaluation Unit

The Upper Thacher Creek GDE Evaluation Unit consists of approximately 6.1 acres of riparian mixed hardwood, 6 acres of riversidean alluvial scrub, and 11.2 acres of coast live oak vegetation communities, all of which are located on undeveloped land along the beds and banks of natural stream channels. The coast live oak habitat consists of three separate units, one on Thacher Creek and two on a tributary to Reeves Creek that originates near Thacher Creek. Upper Thacher Creek is classified as an intermittent stream by the USGS (Figure 3, Upper Thacher Creek and Reeves Creek GDE Evaluation Units).

NDVI and NDMI trends for the mapped communities vary across the Upper Thacher Creek GDE Evaluation Unit. NDVI and NDMI trends for the vegetation communities are not correlated with precipitation or groundwater levels, except for the northeastern-most coast live oak habitat (NCCAG polygon 48489) for which NDMI and groundwater levels are positively correlated. Aerial photographs show that much of the vegetation burned in 2017 but has regrown since that time.

There are 29 active production wells within 1 km of the unit, the majority of which are located southwest and downgradient of the mapped vegetation communities. Recent groundwater level data are available for one nearby well (well 04N22W04Q001S). Between December 2011 and December 2016, groundwater levels in well 04N22W04Q001S declined approximately 27 feet, but then recovered in the years following. The shallowest groundwater level measured was 41.5 feet bgs in February 1969. In March 2020, the depth to water in well 04N22W04Q001S was 90.1 feet bgs. Well 04N22W04Q001S is 970 feet deep and screened from 102 to 920 feet (Figure 3). A well log for nearby well 04N22W03D001S indicates unconsolidated sediments comprised of gravel, sand, and clay extend from ground surface to 110 feet bgs with no indication of an intervening confining unit. Depth to first water in well 04N22W03D001S was measured at 160.4 feet bgs in September February 2018.

Because there is insufficient site-specific data to characterize groundwater conditions underlying the Upper Thacher Creek GDE Evaluation Unit and the NDMI trend for one of the coast live oak habitats is positively correlated with groundwater levels, the unit is characterized as a potential GDE. However, because the unit is located at the northeastern edge of the OVGB in an area with few production wells it is not likely to be impacted by groundwater extraction.

Reeves Creek GDE Evaluation Unit

The Reeves Creek GDE Evaluation Unit consists of approximately 4.8 acres of riparian mixed hardwood and 15.8 acres of coast live oak vegetation communities on undeveloped to sparsely developed residential land along the bed and bank of Reeves Creek, and at the base of the mountains that delineate the southern boundary of the OVGB. Upper Reeves Creek is classified as an intermittent stream by the USGS (Figure 3).

NDVI and NDMI trends for the communities are not correlated with precipitation or groundwater levels. NDVI and NDMI for the riparian mixed hardwood habitat steadily increased from the early 2000s through the last major drought, while NDVI and NDMI for the coast live oak habitats generally increased from the early 2000s to 2015, then decreased thereafter.

There are approximately 20 active production wells within 1 km of the unit, the majority of which are located west and downgradient of the mapped vegetation communities. Three production wells are located at the western edge of the downstream coast live oak habitat. The closest well with recent groundwater level data is well 04N22W04Q001S. In March 2020, the groundwater level in well 04N22W04Q001S was 90.1 feet bgs (Figure 3). Well logs for two nearby wells (wells 04N22W04K003S and 04N22W04P005S) indicate unconsolidated sediments are up to 880 feet thick in the vicinity of the Reeves Creek GDE Evaluation Unit. The static water level in well

04N22W04K003S in August 2017 was 152 feet bgs and the water level in well 04N22W04P005S in June 2000 was 40 feet bgs.

Because there is insufficient site-specific data to characterize groundwater conditions underlying the Reeves Creek GDE Evaluation Unit, it is characterized as a potential GDE. However, because the unit is located at the southeastern edge of the OVGB upgradient of extraction wells, and static groundwater levels in the area have been relatively stable over time, the vegetation is not likely to be impacted by groundwater extraction.

Lower Thacher Creek GDE Evaluation Unit

The Lower Thacher Creek GDE Evaluation Unit consists of approximately 25.4 acres of coast live oak vegetation. The unit can be divided into two separate coast live oak habitats, an upstream habitat that is located along the bed and bank of lower Thacher Creek and a downstream habitat that is located on the left bank and floodplain of Thacher Creek. The reach of Thacher Creek adjacent to the unit is classified as an intermittent stream by the USGS. Portions of both habitats consist of developed residential land, and a portion of the downstream habitat is within Soule Park County Park (Figure 4, Lower Thacher Creek, Dron Creek, and Upper San Antonio Creek GDE Evaluation Units).

NDVI and NDMI trends for the vegetation communities are not correlated with precipitation or groundwater levels, except for the portion of the downstream coast live oak habitat closest to Thacher Creek (NCCAG polygon 48643) for which NDMI and groundwater levels are positively correlated. NDVI and NDMI trends for upstream habitat (NCCAG polygon 48646) and the southern portion of the downstream habitat (NCCAG polygon 48628) remained relatively stable through the last drought, while NDVI and NDMI for the northern portion of the downstream habitat (NCCAG polygon 48643) closest to Thacher Creek showed a decreasing trend. Aerial photographs indicate that the vegetation within Soule Park County Park (NCCAG polygon 48643) mapped as coast live oak is actually western sycamore (*Platanus racemosa*), which is a deciduous tree species that loses its foliage each year. Because a portion of the habitat is comprised of a deciduous tree species, the reliability of NDVI and NDMI trends as indicators of habitat health could be affected.

There are approximately 51 active production wells within 1 km of the unit, eight of which are located less than 100 meters from the mapped vegetation communities. Recent groundwater level data are available for one well (well 04N22W07G001S). Since October 1972, water levels in well 04N22W07G001S have ranged from 0 feet bgs (artesian) to 98.8 feet bgs. The average depth to water over the measurement record is approximately 25 feet bgs. Between June 2011 and June 2015, groundwater levels in well 04N22W07G001S declined approximately 90 feet, but then recovered to near pre-drought levels in the years following. In June 2020, the groundwater level in well 04N22W07G001S was 22.5 feet bgs (Figure 4). Well 04N22W07G001S is 116 feet deep and the screened interval is not known.

The majority of the Lower Thacher Creek GDE Evaluation Unit falls within an area of the OVGB where the primary production aquifer is considered to be semi-confined to confined and separated from the shallow perched aquifer by intervening clay layers. Well logs are available for two nearby wells (well 04N22W07L001S and 04N22W07A005S), which indicate the presence of a clay layer that extends from approximately 67 feet bgs to upwards of 131 feet bgs, and potentially additional clay units at greater depths. The static water level in well 04N22W07L001S in September 1998 was 37 feet bgs.

Based on available data, NCCAG mapped polygons 48646 and 48628 are characterized as potential GDEs not likely impacted by groundwater extraction. NDVI and NDMI trends for the mapped communities are not correlated with groundwater levels and the communities persisted during drought conditions when groundwater levels were much greater than 30 feet bgs for several consecutive years. Conversely, NCCAG mapped polygon 48643 is characterized as a potential GDE. Although there is geologic evidence of a local confining layer, NDVI and NDMI for the habitat showed a decreasing trend when groundwater levels declined during drought conditions. Therefore, there is potential for the ecosystem to be impacted by groundwater production.

Dron Creek GDE Evaluation Unit

The Dron Creek GDE Evaluation Unit consists of approximately 6.3 acres of coast live oak habitat located on the bed and bank of Dron Creek near the confluence with San Antonio Creek. The reach of San Antonio Creek adjacent to the unit is classified as an intermittent stream, while Dron Creek is not classified by the USGS. The unit is comprised of undeveloped land surrounded by agricultural land (Figure 4).

NDMI trends for the coast live oak community are positively correlated with groundwater levels. NDVI and NDMI trends indicate a general decline in vegetation health since the late 1990s, although the change in habitat health is not apparent in aerial photographs.

There are approximately 41 active production wells within 1 km of the unit, one of which is within the mapped habitat. Historical groundwater level data are available for one well (well 04N22W06G001S) in close proximity to the mapped unit. Well 04N22W06G001S is 614 feet deep and screened from 422 to 608 feet. Groundwater levels recorded in well 04N22W06G001S between December 1994 and February 1996 ranged from 205.7 feet bgs to 367.7 feet bgs. The closest well with recent groundwater level data is well 04N22W06K012S. Since December 1994, groundwater levels in well 04N22W06K012S have ranged from 0 feet bgs (artesian) to 231.9 feet bgs, and been on average approximately 111 feet bgs. In June 2020, the depth to water in well 04N22W06K012S was 116.6 feet bgs (Figure 4). Well 04N22W06K012S is 604 feet deep and screened from 100 to 600 feet. Groundwater levels measured in nearby wells are similar to those measured in well 04N22W06K012S.

Well logs are available for five nearby wells (wells 04N22W06J010S, 04N22W06K015S, 04N22W06K014S, 04N22W06L008S, 04N22W06J009S), which indicate the underlying geologic materials consist of a mixture of gravel, sand, and clay to a depth of 660 feet or greater. In several of the wells a uniform clay layer was encountered around 300 feet depth. The shallowest depth to water recorded was 67 feet bgs.

Because NDMI trends are positively correlated with groundwater levels and water levels have been measured at less than 30 feet bgs, the Dron Creek GDE Evaluation Unit is characterized as a potential GDE and there is potential for the habitat to be impacted by groundwater production.

Upper San Antonio Creek GDE Evaluation Unit

The Upper San Antonio Creek GDE Evaluation Unit consists of approximately 3.7 acres of coast live oak; 4 acres of riparian mixed hardwood; 7.8 acres of riversidean alluvial scrub; 4.4 acres of willow (*Salix spp.*); 0.08 acres of palustrine, emergent, persistent, seasonally flooded; and 0.02 acres of riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded vegetation and wetland communities. The communities are mostly located along the bed and bank of San Antonio Creek, although some of the habitat extends onto the floodplain. The unit consists of undeveloped land surrounded by developed residential, agriculture, and recreational land. The reach of San Antonio Creek that bisects the unit is classified as a perennial stream by the USGS, although aerial photographs indicate that surface flows regularly cease during dry months (Figure 4).

NDVI and NDMI trends for the mapped communities vary across the Upper San Antonio Creek GDE Evaluation Unit. NDMI trends for the riparian mixed hardwood (NCCAG polygon 52204) and willow (NCCAG polygon 53178) communities are positively correlated with groundwater levels. Additionally, NDMI trends for the riversidean alluvial scrub habitat on the left bank of San Antonio Creek (NCCAG polygon 52678) is positively correlated with precipitation. The NDVI and NDMI trends for the riparian mixed hardwood and willow communities indicate a significant decrease in vegetation health between 2011 and 2018 corresponding with measured declines in annual precipitation and groundwater levels. The NDVI and NDMI trends for the coast live oak, riversidean alluvial scrub habitat, and two wetland communities remained stable or increased between 2011 and 2018. No NDVI or NDMI data are available for NCCAG polygon 52675 (riversidean alluvial scrub).

There are approximately 68 active production wells within 1 km of the unit, eight of which are located less than 100 meters from the mapped communities. Historical groundwater level data are available for one shallow well (well 04N22W06Q001S) in close proximity to the mapped units. Well 04N22W06Q001S is screened from 52 to 65 feet and the total depth is not known.

Groundwater levels recorded in well 04N22W06Q001S between June 1989 and May 2001 ranged from 0 feet bgs (artesian) to 48.8 feet bgs, and were on average approximately 18 feet bgs. The closest well with recent groundwater level data is well 04N22W07B002S. Since October 1972, groundwater levels in well 04N22W07B002S have ranged from 0 feet bgs (artesian) to 170.9 feet bgs, and been on average approximately 46 feet bgs. Between March 2011 and September 2018, groundwater levels declined by approximately 121 feet from 9.15 feet bgs to 130.1 feet bgs. In June 2020, the depth to water in well 04N22W07B002S was 64.8 feet bgs (Figure 4).

With the exception of the riversidean alluvial scrub habitat, the entire Upper San Antonio Creek GDE Evaluation Unit overlies an area of the OVGB where the perched aquifer in hydraulic connection with the stream is considered to be separated from the semi-confined to confined production aquifer. No well logs are available for wells in the immediate vicinity of the unit; however, logs for nearby wells indicate that the southwest part of the OVGB consists of a multilayered aquifer system comprised of alternating fine- and coarse-grained unconsolidated sediment layers of variable thickness. Based on lithologic information contained in well logs, approximately three to four distinct clay layers upwards of 20 to 30 feet thick each have been encountered between land surface and 150 feet bgs. Existing wells completed in the shallow perched aquifer—the coarse-grained water bearing sediments above approximately 30 feet depth—are solely monitoring wells associated with hazardous waste cleanup sites.

Based on available data, NCCAG polygons 52677 and 52678 (riversidean alluvial scrub), 91230 (palustrine, emergent, persistent, seasonally flooded), 102079 (riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded), and 51726 (coast live oak) are characterized as ecosystems that are potential GDEs not likely impacted by groundwater extraction. NDVI and NDMI trends for the mapped communities are not correlated with groundwater levels and the communities persisted during drought conditions when groundwater levels were much greater than 30 feet bgs for several consecutive years. Conversely, NCCAG polygons 52204 (riparian mixed hardwood) and 53178 (willow) are characterized as potential GDEs. Although there is geologic evidence of a local confining layer, NDVI and NDMI for the communities showed a decreasing trend when groundwater levels declined during drought conditions. Therefore, there is potential for the ecosystems to be impacted by groundwater production.

Lower San Antonio Creek GDE Evaluation Unit

The Lower San Antonio Creek GDE Evaluation Unit consists of approximately 19 acres of coast live oak; 37.6 acres of riparian mixed hardwood; 5.8 acres of valley oak (*Quercus lobata*); 5.2 acres of willow; 1.6 acres of palustrine, forested, seasonally flooded; 1.8 acres of palustrine, scrub-shrub, seasonally flooded; and 0.6 acres of riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded vegetation and wetland communities. The communities are located along the bed, bank, and floodplain of San Antonio Creek. The unit consists of undeveloped land surrounded by developed residential, agriculture, and recreational land. The valley oak habitat is within the Soule Park Golf Course. The reach of San Antonio Creek that bisects the unit is classified as a perennial stream by the USGS, except for an approximately 1/3-mile reach immediately upstream of the confluence with Fox Canyon Drain/Stewart Canyon which is classified as intermittent. Although the reach of San Antonio Creek is classified as a perennial stream, aerial photographs indicate that surface flows regularly cease during dry months (Figure 5, Lower San Antonio Creek and Fox Canyon Drain GDE Evaluation Units).

NDVI and NDMI trends for the mapped communities vary across the Lower San Antonio Creek GDE Evaluation Unit. NDMI trends for the coast live oak (NCCAG polygon 51703), riparian mixed hardwood (NCCAG polygon 52203), valley oak (NCCAG polygons 53063 and 53064), and willow (NCCAG polygon 53177) vegetation communities are positively correlated with groundwater levels. NDVI trends for the southern portion of the valley oak habitat (NCCAG polygon 53603) and willow habitat (NCCAG polygon 53177) are also correlated with groundwater levels. Additionally, NDMI trends for the riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland habitat are positively correlated with precipitation. No NDVI or NDMI data are available for NCCAG polygon 95852 (palustrine, scrub-shrub, seasonally flooded wetland).

There are approximately 48 active production wells within 1 km of the unit, nine of which are located less than 100 meters from the mapped communities. The closest well with recent groundwater level is well 04N23W12H002S. Since December 1994, groundwater levels in well 04N23W12H002S have ranged from 11.7 feet bgs to 61.8 feet bgs, and been on average approximately 28 feet bgs. Between June 2011 and December 2016, groundwater levels declined by approximately 42 feet from 19.5 feet bgs to 61.8 feet bgs. In June 2020, the depth to water in well 04N23W12H002S was 22.5 feet bgs (Figure 5). Well 04N23W12H002S is 125 feet deep and the screened interval is not known.

As previously discussed, the southwestern portion of the OVGB is characterized as a semi-confined to confined multilayered aquifer system. Lithologic data for well 04N23W12P002S located in the center of the unit near San Antonio Creek indicates five distinct clay layers upwards of 45 feet thick exist between 75 and 340 feet bgs. Well 04N23W12P002S is 265 feet deep and screened from 50 to 265 feet. In July 2014, the depth to water in well 04N23W12P002S was 11 feet bgs. The majority of production wells in the southwest part of the OVGB are completed in deeper aquifer units and screened below 50 feet depth, although there are a few wells (wells 04N23W12K005S, 04N23W12K006S, 04N23W12K008S, 04N23W12L004S), screened starting at 30 to 40 feet bgs.

Based on available data, the mapped wetland communities (NCCAG polygons 93683 and 102077) are characterized as ecosystems that are potential GDEs not likely impacted by groundwater extraction. NDVI and NDMI trends for the mapped communities are not correlated with groundwater levels and the communities persisted during drought conditions when groundwater levels were much greater than 30 feet bgs for several consecutive years. Additionally, NDVI trends for one of the wetlands is correlated with precipitation, which suggests that the habitat is likely supported by surface flows emanating from the contributing watershed. Conversely, NCCAG polygons 51703 (coast live oak), 52203 (riparian mixed hardwood), 53063 and 53064 (valley oak), and 53177 (willow) are characterized as potential GDEs. Although there is geologic evidence of a local confining layer, NDVI and NDMI for the communities showed a decreasing trend when groundwater levels declined during drought conditions. Additionally, NCCAG polygon 95852 (palustrine, scrub-shrub, seasonally flooded) is characterized as a potential GDE because NDVI and NDMI data are not available. Therefore, there is potential for the ecosystems to be impacted by groundwater production.

Fox Canyon Drain GDE Evaluation Unit

The Fox Canyon Drain GDE Evaluation Unit consists of approximately 30.6 acres of coast live oak habitat and 0.12 acres of riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded habitat located on the bed and bank of Fox Canyon Drain. The coast live oak habitat can be divided into four separate units—three units located on undeveloped to developed residential land on an intermittent reach of upper Fox Canyon Drain, as classified by the USGS, and a single unit located entirely on undeveloped land on a perennial reach of lower Fox Canyon Drain. The wetland habitat is located in a small tributary drainage to Fox Canyon Creek (Figure 5).

NDVI and NDMI trends are not correlated with precipitation or groundwater levels. Of the four mapped coast live oak units, the NDVI and NDMI trends for the coast live oak habitat on lower Fox Canyon Drain have tracked the closest with precipitation and groundwater levels. The indices for the coast live oak units on upper Fox Canyon Drain follow a distinctly different trend independent of changes in precipitation and groundwater conditions. No NDVI or NDMI data are available for the riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland (NCCAG polygon 102078).

There are approximately 42 active production wells within 1 km of the unit, seven of which are located less than 100 meters from the mapped communities. The closest well with recent groundwater level is well 04N23W01K002S. Since December 1972, groundwater levels in well 04N23W01K002S have ranged from 1.7 feet bgs to 75.8 feet bgs, and been on average approximately 21 feet bgs. Between March 2011 and December 2016, groundwater levels declined by approximately 66 feet from 2.92 feet bgs to 69.2 feet bgs. In June 2020, the depth to water in well 04N23W01K002S was 37.4 feet bgs (Figure 5). Well 04N23W01K002S is 142 feet deep and screened from 90 to 130 feet.

As previously discussed, the southwestern portion of the OVGB is characterized as a semi-confined to confined multilayered aquifer system. A well log for nearby well 04N23W12M001S indicates clay deposits extend from land surface to 30 feet bgs, and from 55 feet bgs to 100 feet bgs. The static depth to water in well 04N23W12M001S in August 2004 was 27 feet bgs.

Based on available data, the coast live oak communities (NCCAG polygons 48621, 48642, 51750, and 51995) are characterized as ecosystems that are potential GDEs not likely impacted by groundwater extraction. NDVI and NDMI trends for the mapped communities are not correlated with groundwater levels, the vegetation persisted during periods when underlying groundwater levels were deeper than 30 feet bgs, and there is geologic evidence of a local confining layer. NCCAG polygon 102078 (riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded) is characterized as a potential GDE because NDVI and NDMI data are not available.

Summary of GDE Characterization

The NCCAG dataset identified 46 individual communities within the OVGB that may depend on groundwater. Of the 46 communities, 12 were characterized as priority potential GDEs, 21 were characterized as potential GDEs, and 13 were characterized potential GDEs not likely impacted by groundwater extraction. Table 2 provides a summary of the GDE characterization results by individual NCCAG polygon.

Table 2
Characterization of NCCAG Dataset Polygons in the OVGB

NCCAG Polygon ID	GDE Evaluation Unit	Vegetation or Wetland Type	GDE Characterization	Justification	Impacted by Groundwater Extraction
48487	Stewart Canyon	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
48667	Stewart Canyon	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52076	Stewart Canyon	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
102080	Stewart Canyon	Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
102081	Stewart Canyon	Riverine, unknown perennial, unconsolidated bottom,	Potential GDE	Insufficient data to characterize habitat health over time	Not likely to be impacted by groundwater extraction

Table 2
Characterization of NCCAG Dataset Polygons in the OVGB

NCCAG Polygon ID	GDE Evaluation Unit	Vegetation or Wetland Type	GDE Characterization	Justification	Impacted by Groundwater Extraction
		semi-permanently flooded			
51778	Gridley Canyon	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52214	Gridley Canyon	Riparian mixed hardwood	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
51784	Senior Canyon	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52073	Senior Canyon	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
51770	McNell Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
51773	McNell Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52049	McNell Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
48489	Upper Thacher Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
51761	Upper Thacher Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52020	Upper Thacher Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52209	Upper Thacher Creek	Riparian mixed hardwood	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52683	Upper Thacher Creek	Riversidean alluvial scrub	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
48457	Reeves Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
48654	Reeves Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction

Table 2
Characterization of NCCAG Dataset Polygons in the OVGB

NCCAG Polygon ID	GDE Evaluation Unit	Vegetation or Wetland Type	GDE Characterization	Justification	Impacted by Groundwater Extraction
51971	Reeves Creek	Coast live oak	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
52594	Reeves Creek	Riparian mixed hardwood	Potential GDE	Insufficient site-specific data to characterize groundwater conditions	Not likely to be impacted by groundwater extraction
48628	Lower Thacher Creek	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
48643	Lower Thacher Creek	Coast live oak	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
48646	Lower Thacher Creek	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
52035	Dron Creek	Coast live oak	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
51726	Upper San Antonio Creek	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
52204	Upper San Antonio Creek	Riparian mixed hardwood	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
52675	Upper San Antonio Creek	Riversidean alluvial scrub	Priority Potential GDE	Insufficient data to characterize habitat health over time	Potential to be impacted by groundwater production
52677	Upper San Antonio Creek	Riversidean alluvial scrub	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction

Table 2
Characterization of NCCAG Dataset Polygons in the OVGB

NCCAG Polygon ID	GDE Evaluation Unit	Vegetation or Wetland Type	GDE Characterization	Justification	Impacted by Groundwater Extraction
52678	Upper San Antonio Creek	Riversidean alluvial scrub	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
53178	Upper San Antonio Creek	Willow	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
91230	Upper San Antonio Creek	Palustrine, emergent, persistent, seasonally flooded	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
102079	Upper San Antonio Creek	Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
51703	Lower San Antonio Creek	Coast live oak	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
52203	Lower San Antonio Creek	Riparian mixed hardwood	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
53063	Lower San Antonio Creek	Valley oak	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
53064	Lower San Antonio Creek	Valley oak	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production
53177	Lower San Antonio Creek	Willow	Priority Potential GDE	Vegetation health correlated with groundwater levels and levels shallower than 30 feet bgs	Potential to be impacted by groundwater production

Table 2
Characterization of NCCAG Dataset Polygons in the OVGB

NCCAG Polygon ID	GDE Evaluation Unit	Vegetation or Wetland Type	GDE Characterization	Justification	Impacted by Groundwater Extraction
93683	Lower San Antonio Creek	Palustrine, forested, seasonally flooded	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
95852	Lower San Antonio Creek	Palustrine, scrub-shrub, seasonally flooded	Priority Potential GDE	Insufficient data to characterize habitat health over time	Potential to be impacted by groundwater production
102077	Lower San Antonio Creek	Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
48621	Fox Canyon Drain	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
48642	Fox Canyon Drain	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
51750	Fox Canyon Drain	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
51995	Fox Canyon Drain	Coast live oak	Potential GDE Not Likely Impacted by Groundwater Extraction	Vegetation health not correlated with groundwater levels and geologic evidence of confining unit	Not likely to be impacted by groundwater extraction
102078	Fox Canyon Drain	Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded	Priority Potential GDE	Insufficient data to characterize habitat health over time	Potential to be impacted by groundwater production

Legend

Ojai Valley Groundwater Basin (4-002)

Active Production Well

Well Used in GDE Analysis

Natural Communities Commonly Associated with Groundwater Dataset

Vegetation/Wetland Type

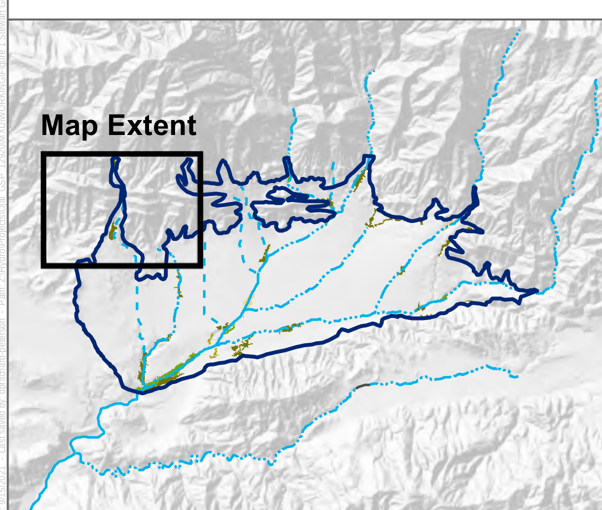
Coast Live Oak

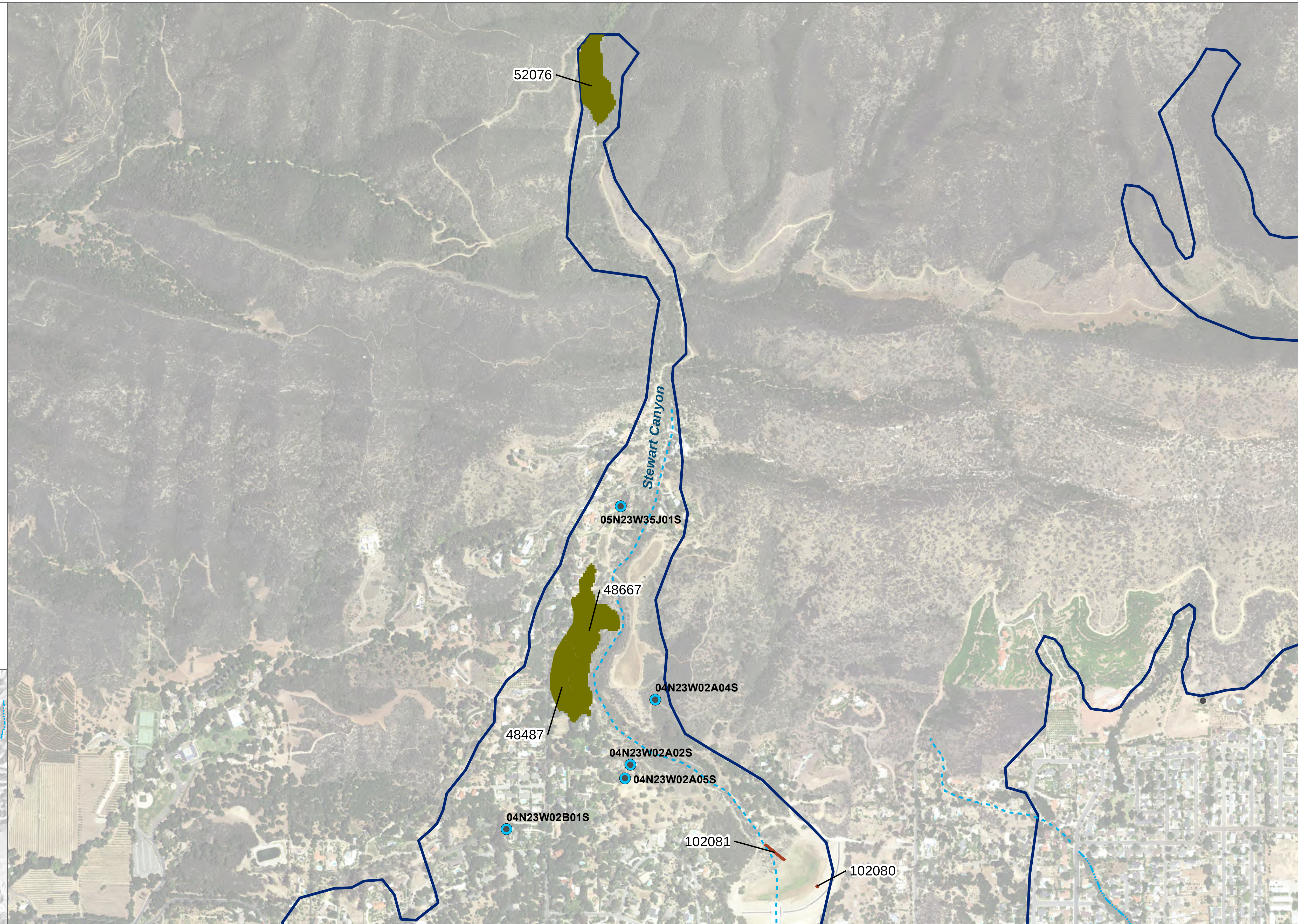
Riverine, Unknown Perennial, Unconsolidated Bottom, Semipermanently Flooded

Stream/River

Intermittent

Unclassified





DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

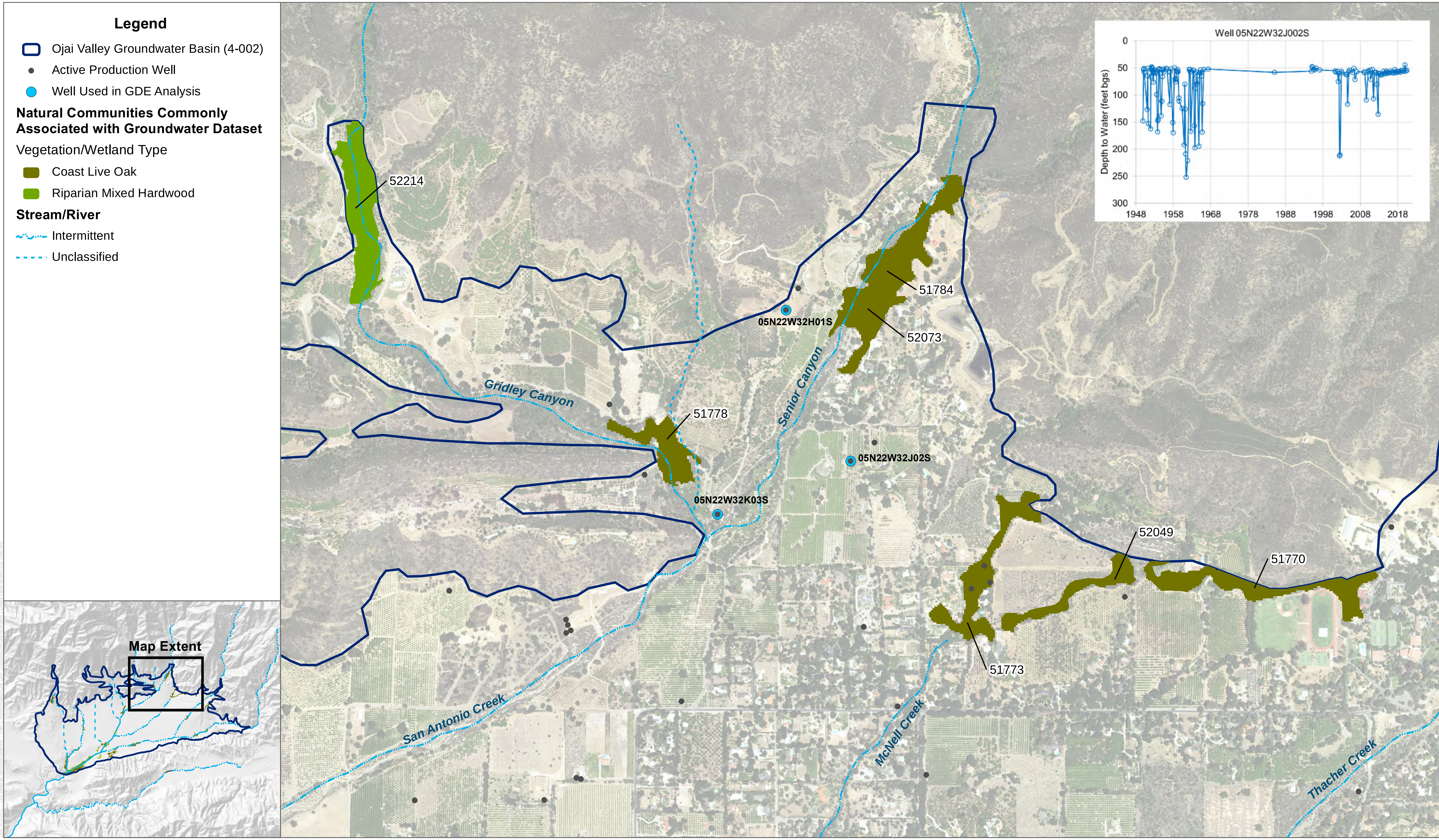
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Stewart Canyon GDE Evaluation Unit

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

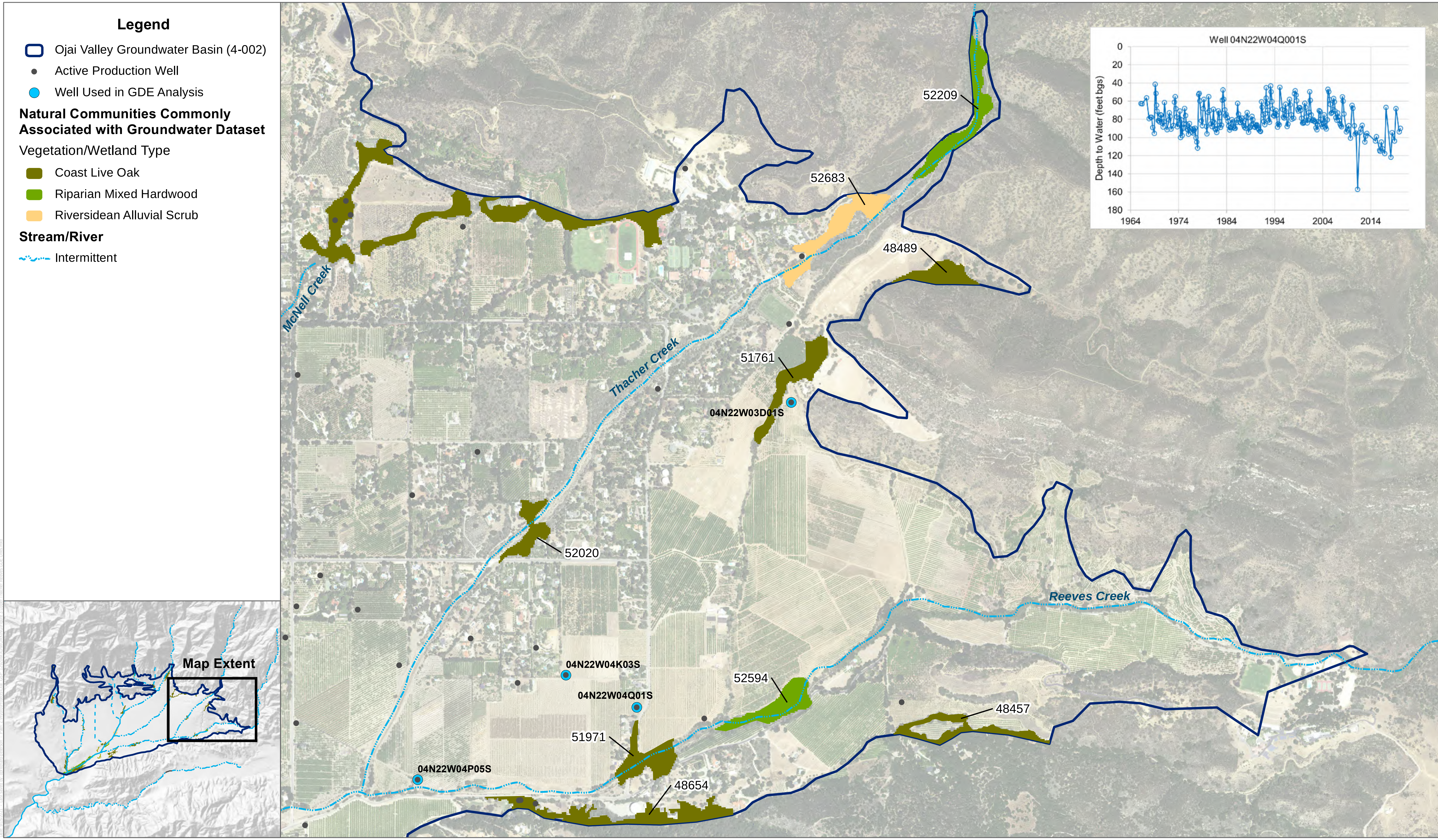
DUDEK

0 1,000 2,000 Feet

FIGURE 2

Gridley Canyon, Senior Canyon, and McNell Creek GDE Evaluation Units

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin



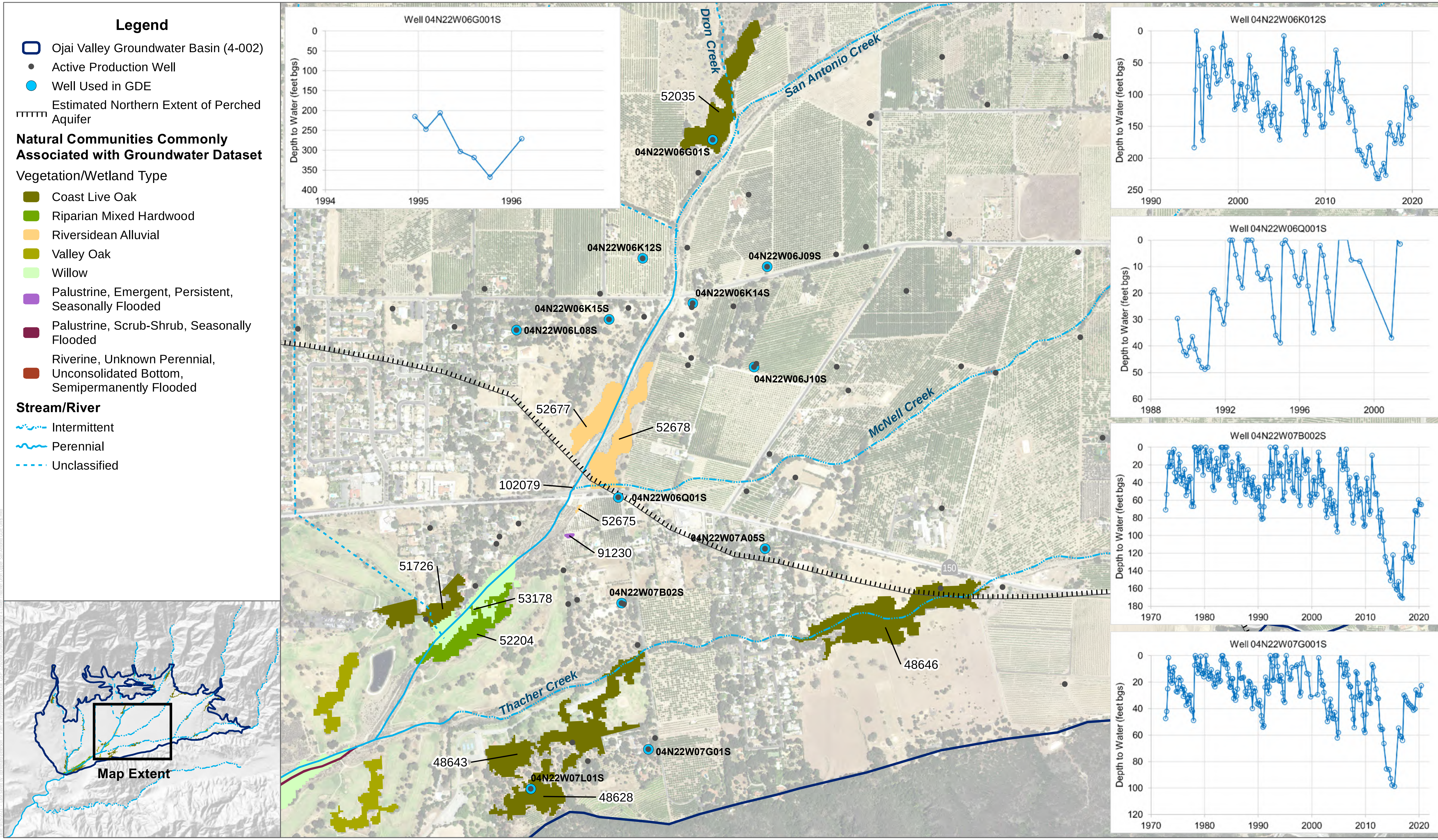
DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

DUDEK

0 1,000 2,000 Feet

FIGURE 3

Upper Thacher Creek and Reeves Creek GDE Evaluation Units



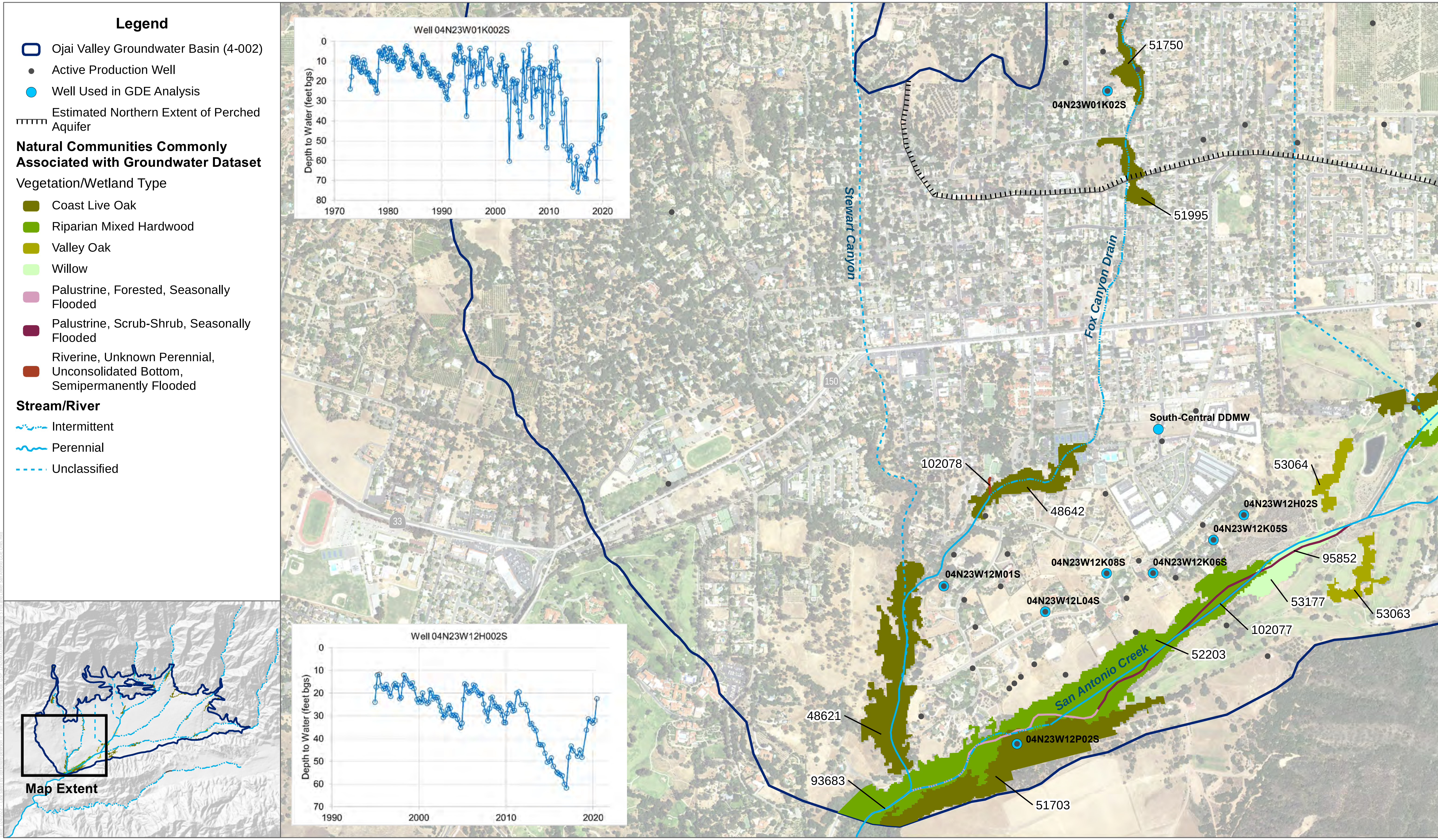
DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

DUDEK

0 1,000 2,000 Feet

FIGURE 4

Lower Thacher Creek, Dron Creek, and Upper San Antonio Creek GDE Evaluation Units



DATUM: NAD 1983 DATA SOURCE: ESRI; DWR; USGS; NCCAG; OBGMA

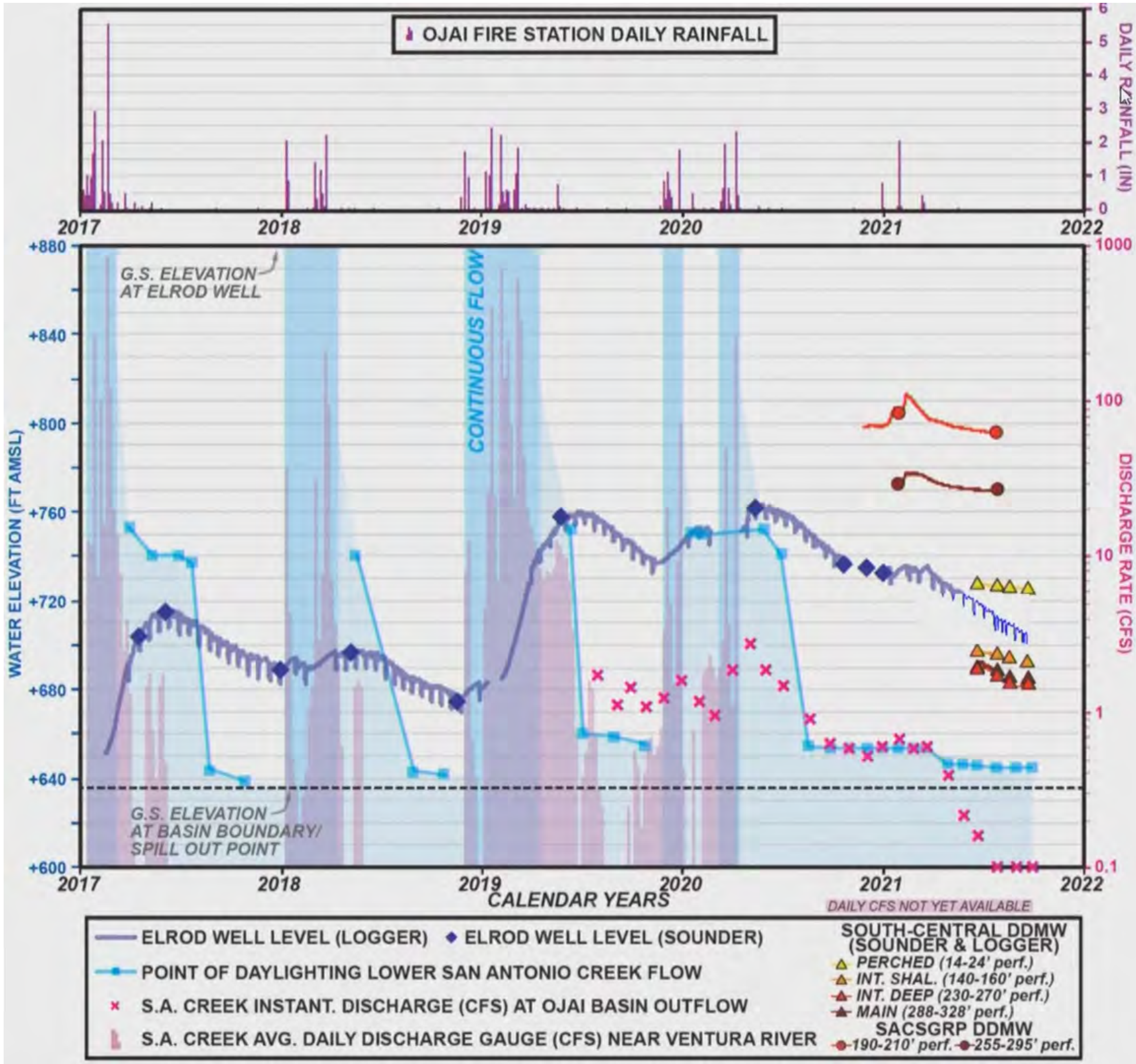
DUDEK

0 1,000 2,000 Feet

FIGURE 5

Lower San Antonio Creek and Fox Canyon Drain GDE Evaluation Units

Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin



SOURCE: OBGMA; Kear

DUDEK

FIGURE 6

Groundwater-Surface Water Monitoring San Antonio Creek

APPENDIX F

Responses to Comments

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
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(858) 467-4201
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

December 7, 2021

Via Electronic Mail

Mr. John Mundy
Plan Manager
Ojai Basin Groundwater Management Agency
417 Bryant Circle, Suite 112
Ojai, CA 93023
OjaiBasinGSP@gmail.com
JMundyconsultingllc@gmail.com

Subject: California Department of Fish and Wildlife Comments on the Ojai Basin Groundwater Management Agency's Draft Groundwater Sustainability Plan

Dear Mr. Mundy:

The California Department of Fish and Wildlife (CDFW) appreciates the opportunity to provide comments on the Ojai Basin Groundwater Management Agency's (OBGMA) Ojai Basin (Basin or OVGB) Draft Groundwater Sustainability Plan (Draft GSP) prepared pursuant to the Sustainable Groundwater Management Act (SGMA). The Basin is designated as high priority under SGMA and must be managed under a GSP by January 31, 2022.

CDFW is writing to support ecosystem preservation and enhancement in compliance with SGMA and its implementing regulations based on CDFW expertise and best available information and science. As trustee agency for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species (Fish & Game Code §§ 711.7 and 1802).

Development and implementation of GSPs under SGMA represents a new era of California groundwater management. The Department has an interest in the sustainable management of groundwater, as many sensitive ecosystems, species, and public trust resources depend on groundwater and interconnected surface waters (ISWs), including ecosystems on Department-owned and managed lands within SGMA-regulated basins.

SGMA and its implementing regulations afford ecosystems and species specific statutory and regulatory consideration, including the following as pertinent to GSPs:

- GSPs must **consider impacts to groundwater dependent ecosystems** (GDEs) (Water Code § 10727.4(l); see also 23 CCR § 354.16(g));
- GSPs must consider the interests of all beneficial uses and users of groundwater, including environmental users of groundwater (Water Code § 10723.2) and GSPs must **identify and consider potential effects on all beneficial uses and users of**

groundwater (23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3));

- GSPs must **establish sustainable management criteria that avoid undesirable results** within 20 years of the applicable statutory deadline, including **depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water** (23 CCR § 354.22 *et seq*. and Water Code §§ 10721(x)(6) and 10727.2(b)) and describe monitoring networks that can identify adverse impacts to beneficial uses of interconnected surface waters (23 CCR § 354.34(c)(6)(D)); and,
- GSPs must **account for groundwater extraction for all water use sectors,** including managed wetlands, managed recharge, and native vegetation (23 CCR §§ 351(al) and 354.18(b)(3)).

Furthermore, the Public Trust Doctrine imposes a related but distinct obligation to consider how groundwater management affects public trust resources, including navigable surface waters and fisheries. Groundwater hydrologically connected to surface waters is also subject to the Public Trust Doctrine to the extent that groundwater extractions or diversions affect or may affect public trust uses. (*Environmental Law Foundation v. State Water Resources Control Board* (2018), 26 Cal. App. 5th 844; *National Audubon Society v. Superior Court* (1983), 33 Cal. 3d 419.) The groundwater sustainability agency (GSA) has "an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." (*National Audubon Society*, *supra*, 33 Cal. 3d at 446.) Accordingly, groundwater plans should consider potential impacts to and appropriate protections for ISWs and their tributaries, and ISWs that support fisheries, including the level of groundwater contribution to those waters.

In the context of SGMA statutes and regulations, and Public Trust Doctrine considerations, groundwater planning should carefully consider and protect environmental beneficial uses and users of groundwater, including fish and wildlife and their habitats, GDEs, and ISWs.

The Basin supports both riparian and aquatic habitat. The Basin's riparian habitat supports several special status avian species, including the least Bell's vireo (*Vireo belli pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow warbler *(Setophaga petechia*), yellow-breasted chat *(Icteria virens),* and Cooper's hawk *(Accipiter cooperi).* This riparian habitat also supports several special status aquatic species, including Southern California steelhead (*Oncorhynchus mykiss*), arroyo chub (*Gila orcuttii*), California red-legged frog *(Rana aurora draytonii),* southwestern pond turtle *(Actinemys pallida),* and two-striped garter snake *(Thamnophis hammondii)*. Pertaining to the protection of these species and their habitat, CDFW is providing comments regarding GDE monitoring and implementation of management actions to help ensure appropriate consideration and protection of GDEs and beneficial users of groundwater and ISWs. CDFW is providing additional comments and recommendations as notated in Attachment A. Editorial comments or other suggestions are included for OBGMA's consideration during development of a final GSP.

If you have any questions related to CDFW's comments and/or recommendations on the Ojai Basin Draft GSP, please contact Steve Slack, Environmental Scientist, at Steven.Slack@wildlife.ca.gov.

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Mr. John Mundy
Ojai Basin Groundwater Management Agency
December 7, 2021
Page 3 of 4

Sincerely,

DocuSigned by:
Erinn Wilson
B6E58CFE24724F5...

Erinn Wilson-Olgin
Environmental Program Manager
South Coast Region

Enclosure(s): Attachment A, Attachment B

ec: California Department of Fish and Wildlife

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Natalie.Stork@waterboards.ca.gov

Attachment A

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE COMMENTS ON THE OJAI BASIN DRAFT GROUNDWATER SUSTAINABILITY PLAN

SPECIFIC COMMENTS AND RECOMMENDATIONS

CDFW's comments are as follows:

Comment #1 – Natural Recharge (Page ES-2): The Draft GSP does not accurately define natural recharge and confuses natural recharge with artificial recharge.

Issue: The OBGMA's description of natural recharge conflicts with U.S. Geological Survey's (USGS) description of natural recharge. The OBGMA states that "*Natural recharge to the OVGB occurs through percolation of surface waters through alluvial channels, infiltration of precipitation that falls directly on the valley floor, subsurface flow, and septic and irrigation return flow*" (Executive Summary 2.0, Summary of Basin Setting and Conditions, page ES-2). According to the U.S. Geological Survey (USGS 2021), septic and irrigation return flows are characterized as artificial groundwater recharge.

Recommendation #1: CDFW recommends that the OBGMA reconsider how the GSP defines natural recharge and reclassify septic, and irrigation returns as artificial recharge consistent with the USGS characterization.

Comment #2 – GDEs based on the 30-foot Depth Groundwater Criterion (Page 2-140) and Potential GDE Elimination (Page 2-137): The Draft GSP has eliminated 13 individual communities comprising 59.5 acres of habitat.

Issue # 2.1: A 30-foot depth to groundwater criterion was applied to identify potential GDEs (Section 2.3.4.7). GDE identification, required by 23 CCR § 354.16(g), is based on methods that risk exclusion of ecosystems that may depend on groundwater. According to Figures 1-5 (Appendix E: GDE's) of the Draft GSP, the groundwater depth is greater than 30 feet throughout the Basin. After applying the 30-foot criterion, certain GDEs along San Antonio Creek, Thacher Creek, Reeves Creek, McNell Creek, and throughout the Basin were excluded from consideration as potential GDEs. The Draft GSP removes potential GDEs with a depth to groundwater greater than 30 feet; however, mature valley oak (*Quercus lobata*) can access groundwater up to 80 feet below the ground surface (Howard 1992, Lewis & Burgy, 1964). The use of a 30-foot threshold may incorrectly exclude valley oak communities within the Basin from further consideration as a GDE. The Draft GSP has identified 5.8 acres of valley oak in the Basin on Table 2-12, page 2-138.

Recommendation #2.1(a): CDFW recommends the GSP update the methodology for GDE identification to reflect accurate maximum rooting depth specifically for valley oak communities. CDFW recommends use of the Natural Communities Commonly Associated with Groundwater dataset, field verification, and/or other local data to identify the locations of valley oaks within the Basin. For those areas, the GDE analysis should apply a threshold of 80 feet below the ground surface as the maximum potential depth at which the potential GDE could access groundwater. CDFW accepts the use of a 30-foot threshold as sufficiently conservative for other potential GDEs within the Basin that likely do not contain valley oaks. CDFW recommends the OBGMA

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Attachment A
Page 2

identify these areas, and retain these areas as potential GDEs in the final GSP until future monitoring data can eliminate them as GDEs.

Recommendation #2.1(b): CDFW recommends that OBGMA utilize The Nature Conservancy's (TNC) GDE Pulse web-map to view vegetation identified as potential GDEs with data that identifies long term temporal trends of vegetation metrics (TNC 2021).

Recommendation #2.1(c): CDFW recommends that OBGMA utilize U.S. Fish and Wildlife Service's (USFWS)'s National Wetlands Inventory (2021) to identify potential GDEs such as riverine habitat, freshwater forested/shrub wetland, and freshwater emergent wetland.

Issue #2.2: The Draft GSP has indicated that the interaction between groundwater and surface water within the OVGB is a data gap. Page 2-137 of the Draft GSP states, "*However, available shallow monitoring well and stream gauge data are limited in temporal resolution (i.e., short length of record and/or coarse measurement interval) and additional data and analysis are needed to quantify the degree of stream-aquifer connectivity. In order to adequately characterize the interaction between groundwater and surface water within the OVGB, additional analysis and continued monitoring of groundwater levels in the shallow perched aquifer, and streamflow and stage in San Antonio Creek is required. Chapter 3, Section 3.5, Monitoring Network, explains the proposed actions to evaluate groundwater–surface water interactions*".

Hydrologic connectivity considerations include connected surface waters, disconnected surface waters, and transition surface waters. CDFW believes that shallow perched groundwater, bedrock groundwater, and surface water can still be connected to groundwater and hydrologic connectivity cannot be ruled out without further analysis. A recent publication by TNC notes that, *"If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and GDEs…This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water."* (TNC 2019)

The Draft GSP is not clear regarding which potential GDEs will be included for further monitoring and testing in the final GSP. There are 46 individual vegetation and wetland communities identified as potential GDEs comprising a total of 253.3 acres. Out of the 46 communities,13 individual communities comprising of 59.5 acres have been characterized as potential GDEs not likely to be impacted by groundwater extraction. It is unclear how this distinction can be made if the interaction between groundwater and surface water is a data gap in this Draft GSP. The Draft GSP mentions that these 13 communities **may** be disconnected from the principal aquifer.

If hydrologic connectivity exists between a terrestrial or aquatic ecosystem and groundwater, then that ecosystem is a potential GDE and must be identified in a GSP. (23 CCR § 354.16 (g).) Therefore, hydrologic connectivity between surface water and groundwater, as well as groundwater accessibility to terrestrial vegetation, must be carefully evaluated.

Recommendation #2.2(a): CDFW recommends the final GSP provide a more detailed assessment of the 13 communities within the Basin that were mapped as "GDEs not impacted by groundwater extraction". Conclusions regarding the presence of GDEs need to be well-supported. CDFW also recommends considering best available GDEs-related data and information when conducting this analysis. Specifically, the OBGMA should consider the best scientific data on depth to groundwater in its analysis of ISWs, USGS data on mapped springs/seeps, and a comparison of recent groundwater level contours to vegetation root zones. CDFW believes the shallow perched aquifer and shallow alluvial aquifer, although rarely used for water supply, likely support GDEs and should be analyzed further in the Draft GSP. Groundwater within the shallow perched and alluvial aquifers is likely critical to supporting "ecological communities or species" within the Basin (23 CCR § 351(m)).

Recommendation #2.2(b): CDFW recommends the OBGMA utilize the digital database of indicators of groundwater dependent ecosystems (iGDEs) from the *Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report* (Klausmeyer et al. 2018) to review each of the ecoregion/vegetation types. In Klausmeyer et al. 2018, vegetation alliance descriptions from *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) are used to classify vegetation communities. In addition to using the iGDEs database, CDFW also recommends field assessments be conducted to further reclassify vegetation communities based on the dominant plant species (Sawyer et al. 2009).

Recommendation #2.2(c): CDFW recommends using Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) to assess habitat health for all potential GDE areas on an annual basis. NDVI and NDMI should be used as early indicators of water stress on GDEs. NDVI and NDMI are remotely sensed color data that can be used as a refined proxy for vegetation health in the Basin. The TNC GDE Pulse tool (2021) provides both a web viewer and access to the raw data to analyze these metrics over different periods of time (Klausmeyer et al. 2019).

Recommendation #2.2(d): If the OBGMA's revised analysis indicates that additional communities qualify as GDEs under SGMA, CDFW recommends the GSP's sustainable management criteria (SMC) be revised to facilitate appropriate and timely monitoring and management response actions for all beneficial users within or supported by these GDEs. These GDEs should be monitored for groundwater levels and vegetative health to account for and mitigate potential adverse impacts to these GDEs from new production wells or expanded production from existing wells.

Recommendation #2.2(e): CDFW does not recommend relying solely on soils information to assess the presence of GDEs. For example, the presence of sandy, dry, and friable soils does not mean that existing plant species do not rely on groundwater for some portion of their life cycle. Capillary fringe associated with root networks from native plants could be accessing groundwater from deeper depths.

Recommendation #2.2(f): CDFW recommends the final GSP develop SMC for all areas of ISWs and GDEs within the OVGB.

Comment #3 – Section 4.2.4 Prepare Groundwater Dependent Ecosystem Assessment (Page 4-11): The Draft GSP does not include minimum thresholds or measurable objectives to protect ISWs and GDEs.

Issue: Terrestrial and aquatic special-status species are not sufficiently analyzed in this Draft GSP. Section 4.2.4 indicates that "*There is not sufficient information at this time to establish a minimum threshold or measurable objective for depletions of interconnected surface water or groundwater dependent ecosystems (GDEs). To fill existing data gaps and support development of minimum thresholds and measurable objectives the OBGMA will prepare a riparian and aquatic groundwater dependent ecosystems assessment for the OVGB. The* *assessment would include a work plan for completion of biological surveys, additional stream and aquifer monitoring, and removal and identification of potential funding of non-native phreatophytes*". Based on the lack of information provided in the Draft GSP, CDFW is not able to determine if all listed and special status species in the Basin are accounted for. The Basin provides habitat that supports several sensitive species such as Southern California steelhead [*Oncorhynchus mykiss* (*O. mykiss*) or southern steelhead], an endangered species under the Federal Endangered Species Act (ESA), the ESA-listed and CDFW species of special concern (SSC) California red-legged frog (*Rana draytonil*), the ESA-listed and California Endangered Species Act (CESA)-listed least Bell's vireo (*Vireo belli pusillus*), and the ESA-listed and CESA-listed southwestern willow flycatcher (*Empidonax traillii extimus*). Additional CDFW SSCs known to occur in the area include yellow warbler *(Setophaga petechia*), yellow-breasted chat *(Icteria virens),* Cooper's hawk *(Accipiter cooperi)*, arroyo chub (*Gila orcuttii*), southwestern pond turtle (*Actinemys pallida*), and two-striped garter snake *(Thamnophis hammondii)* (CNDDB 2021b; USFWS 2021).

California red-legged frog is rarely encountered far from perennial water. Tadpoles require water for at least three or four months while completing their aquatic development. Adults eat both aquatic and terrestrial invertebrates, and the tadpoles graze along rocky stream bottoms. Groundwater pumping that impairs streamflow could have negative impacts on California red-legged frog populations.

Southwestern pond turtle was designated as a California SSC in 1994. Southwestern pond turtles' preferred habitat is permanent ponds, lakes, streams, or permanent pools along intermittent streams associated with standing and slow-moving water. A potentially important limiting factor for western pond turtle is the relationship between water level and flow in off-channel water bodies, which can both be affected by groundwater pumping.

Habitats that support these species also consist of phreatophytes and other vegetation communities that are dependent on shallow aquifers that support surface water in each of these systems. Phreatophytic vegetation is a critical contributor to nesting and foraging habitat, and forage for a wide range of species. These vegetation communities can be affected by depth to groundwater threshold impacts (Froend et. al. 2010; Naumburg et.al. 2005). This sensitivity to groundwater level thresholds means that localized pumping and recharge actions altering groundwater levels can impact the health and extent of phreatophyte vegetation health. Both decreasing (drying out) or increasing (drowning) groundwater elevation have the potential to stress phreatophytes depending on the plant species and the groundwater elevation and duration (e.g., short term wetness/dryness versus prolonged wetness/dryness).

If groundwater depletion results in reduced streamflow in areas with ISWs, the nesting and foraging success of southwestern willow flycatcher, least Bell's vireo, and other bird species may be diminished due to the reduced nesting habitat and food availability.

The unsustainable use of groundwater can impact the species dependent on shallow aquifers and ISWs. This may lead to adverse impacts on fish and wildlife and the habitat they need to survive. Determining the effects that groundwater levels have on surface water flows in the Basin would provide an understanding of how the groundwater levels may be associated with the health and abundance of riparian vegetation. Poorly managed groundwater pumping, and interconnected surface water flows have the potential to reduce the abundance and quality of riparian vegetation, reducing the amount of shade provided by the vegetation, and ultimately leading to increased water temperatures in the Basin. Based on the information provided in the Draft GSP, CDFW is not able to determine all habitats that are supported by groundwater.

Recommendation #3: CDFW highly recommends that the OBGMA map out locations where there are ISWs and document aquatic habitats and other GDEs as required under SGMA. The OBGMA should then provide appropriate consideration to those habitats and the sensitive species that rely on them. Fish and wildlife resources should be considered in the water budget. Additionally, shallow groundwater levels near ISWs should be monitored to ensure that groundwater use is not depleting surface water and affecting fish and wildlife resources in the Basin.

Comment #4 – Federally Endangered Southern California Steelhead Habitat and Other Sensitive Species: The Draft GSP does not provide sufficient analysis of potential effects on public trust resources, especially on sensitive species occurring within the Basin.

Issue #4.1: San Antonio Creek contains important southern steelhead spawning and rearing habitat. Threats to southern steelhead from groundwater pumping, such as excessively high-water temperatures due to reduced surface flows or groundwater pumping in the spring, summer, and early fall, reduce available juvenile rearing habitat. Low flows in the fall and winter can delay adult passage to critical spawning areas. CDFW suggests that the OBGMA consider the impacts of the Draft GSP on the health of the southern steelhead population in the Basin, particularly in the lower perennial reach of San Antonio Creek.

Recommendation #4.1(a): To ensure meaningful consideration of beneficial users of groundwater and GDEs as required under SGMA, CDFW recommends the OBGMA provide a biological assessment identifying species known to occur within the GDEs presented in Figure 2-36 (Page 2-141), including southern steelhead, California red-legged frog, least Bell's vireo, southwestern willow flycatcher, yellow warbler, yellow-breasted chat, Cooper's hawk, arroyo chub, southwestern pond turtle, and two-striped garter snake. Given these species' dependency on GDEs, the Draft GSP must 1) accurately identify species that occur in the Basin and depend on groundwater; 2) identify species' habitats; and 3) identify potential effects on these species and their habitat from current and future groundwater pumping scenarios.

Recommendation #4.1(b): CDFW recommends the OBGMA identify potential impacts of groundwater depletions to fish and wildlife beneficial users. Furthermore, the evaluation should consider species' water needs for all life history stages when defining undesirable results and setting minimum thresholds as required by SGMA (see Recommendation #4.1(a) for list of species). For example, CDFW recommends that the evaluation describe flow conditions necessary to ensure sufficient hydrologic connectivity to support each stage of the southern steelhead life cycle (Please see Recommendation #5(a) below). Different fish and wildlife species have different water needs. Understanding the timing of water availability with respect to species needs across all life history phases will allow groundwater planners to better account for groundwater management impacts to fish and wildlife species and users of groundwater and ISWs.

Recommendation #4.1(c): CDFW recommends OBGMA map and document open water habitat in addition to GDEs in the final GSP.

Issue #4.2: The OBGMA does not have a plan or established objectives to address potential impacts to southern steelhead or other sensitive species that are dependent on groundwater and/or ISW. The OBGMA is proposing to wait for a settlement or conclusion of the Ventura

River comprehensive groundwater and surface water adjudication (Ventura River Adjudication). According to the Draft GSP, the Proposed Physical Solution is a proposed resolution to the Ventura River Adjudication that its proponents claim addresses undesirable depletions of ISWs and protects the spawning and rearing habitat of southern steelhead. However, the Proposed Physical solution was developed by a limited group of consumptive users in the Ventura River watershed, and does not necessarily represent the best available science regarding the needs of southern steelhead and other species. There is no consensus among the Ventura River Adjudication parties (including resource agencies such as CDFW and the State Water Resources Control Board [SWRCB]) or scientific community that the Proposed Physical Solution adequately considers and protects beneficial users of ISW and groundwater and avoids undesirable results, including depletions of ISW that have significant and unreasonable adverse impacts on beneficial users. CDFW believes OBGMA needs to establish interim milestones with established objectives that will identify and address impacts to sensitive species.

Recommendation #4.2: Per SGMA statutes and regulations, the OBGMA should consider the best available science to assess the needs of species that depend on ISW or groundwater, and develop appropriate SMC and project and management actions for protection of these species. Under the Public Trust Doctrine, the OBGMA has an obligation to protect sensitives species, such as southern steelhead. The OBGMA should not wait for action by the Court or parties in the Ventura River Adjudication before proceeding to establish SMC and project and management actions.

Comment #5 – Section 3.3.6: The GSP Does Not Account for the Best Available Science for Depletions of Interconnected Surface Waters or GDEs (Page 3-26): The Draft GSP has not considered the best available science relevant to depletions of ISWs or impacts on GDEs.

Issue: In Section 3.3.6, the Draft GSP does not incorporate CDFW's Instream Flow Criteria or the SWRCB's groundwater-surface water modeling of the Ventura River Watershed. Groundwater pumping has the potential to draw down surface flows, which may lead to inadequate depths for southern steelhead passage or reduced habitat for steelhead spawning and rearing. This draw-down may constitute a significant and unreasonable adverse effect on public trust resources, including southern steelhead.

Recommendation #5(a): In May 2020, CDFW's Instream Flow Program publicly released the Instream Flow Regime Criteria on a Watershed Scale of the Ventura River (Watershed Criteria Report) (2020). CDFW's Watershed Criteria Report represents the best available science regarding flows needed to support the Basin's ecosystem within the Lower San Antonio Creek (San Antonio Creek 1), Upper San Antonio Creek (San Antonio Creek 2), and Lion Canyon Creek, a tributary to San Antonio Creek.

<u>Ecosystem Baseflows</u>
The Ecosystem Baseflows are monthly baseflows that preserve a healthy stream ecosystem. These are calculated as a percentage of monthly and annual Natural Flows and vary throughout the year.

San Antonio Creek 1 (cfs)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
22	34	20	10	8	3	1	<1	1	2	6	8

San Antonio Creek 2 (cfs)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
14	23	13	7	6	2	1	<1	1	1	4	6

Lion Canyon Creek (cfs)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
7	11	6	3	2	1	<1	<1	<1	<1	2	3

Wetted Perimeter Sensitive Period Indicators

Sensitive Period Indicator flows can be used to identify the sensitive low-flow period. During this period, fish and wildlife may be particularly sensitive to flow reductions. These flows can be determined using a field-based analysis.

- San Antonio Creek 1: 4 cfs
- San Antonio Creek 2: 5 cfs

When the Sensitive Period Indicator flows are not met, the ecosystem is likely to be particularly sensitive to additional flow reductions and other stressors.

Steelhead Habitat Optimum Flows

Steelhead Habitat Optimum Flows provide optimal access to preferred steelhead habitat.

- San Antonio Creek 1: 11 cfs
- San Antonio Creek 2: 8 cfs
- Lion Canyon Creek: 5 cfs

Steelhead Passage Flows

Steelhead Passage Flows provide enough water for steelhead to cross riffles, which are typically the shallowest part of the channel.

San Antonio Creek 1:

Juvenile Steelhead Passage Flows	8 cfs
Adult Steelhead Passage Flows	24 cfs

San Antonio Creek 2:

Juvenile Steelhead Passage Flows	7 cfs
Adult Steelhead Passage Flows	24 cfs

These Steelhead Passage Flows provide connectivity between mesohabitat units for steelhead.

In addition, CDFW (2021a) released an additional report for San Antonio Creek (*Instream Flow Evaluation: Southern California Steelhead Adult Spawning and Juvenile Rearing in San Antonio Creek, Ventura County*) in November 2021. This San Antonio Creek Instream Flow Evaluation Report (CDFW 2021a) represents the best available science and includes criteria for flows to support southern steelhead habitat in San Antonio Creek that should also be included in the final GSP.

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Attachment A
Page 8

Summary of Area-Weighted Suitability (AWS) from the 1D Hydraulic Modeling Analysis

Reach	Flow for Maximum Juvenile Steelhead Rearing AWS (cfs)	Flow for 50% Maximum Juvenile Steelhead Rearing AWS (cfs)	Flow for Maximum Adult Steelhead Spawning AWS (cfs)	Flow for 50% Maximum Adult Steelhead Spawning AWS (cfs)
1	20	3	25	9
2	22	5	17	7

This table identifies flows that produce the most suitable habitat for spawning and rearing of southern steelhead. It also presents flows that would produce 50% of suitable habitat based on area and southern steelhead habitat preferences (CDFW 2021a).

The Watershed Criteria Report (CDFW 2020) and the San Antonio Creek Instream Flow Evaluation Report (CDFW 2021a) are tools that should be used for consideration in water management planning. CDFW recommends that the OBGMA incorporate the data from both reports into the development of minimum thresholds in the final GSP. These reports should be used to inform the development of minimum thresholds, measurable objectives, and interim milestones. Establishment of SMC grounded in the best available science is necessary to avoid ISW depletions that have significant and unreasonable adverse effects on southern steelhead and other beneficial users, as required under SGMA.

Recommendation #5(b): On August 31, 2021, the State Water Resources Control Board (SWRCB) released a Preliminary Draft version of the Groundwater-Surface Water Model of the Ventura River Watershed. This integrated groundwater-surface water model quantifies the relationship between surface flow, subsurface flow, and instream flow requirements in the Ventura River watershed, including areas within the Basin. CDFW recommends the OBGMA incorporate the model's data and simulation results into the final GSP.

Comment #6 – Section 3.3.1 Chronic Lowering of Groundwater Levels-Minimum Thresholds (Page 3-11): Defaulting to the post-2015 low groundwater level as minimum thresholds because similar conditions have previously occurred does not account for relevant best available since, including annual cycles and seasonal variation.

Issue: The Draft GSP defaults to seasonal or historical low groundwater levels to establish minimum thresholds. The OBGMA states that:

- "*The minimum thresholds for groundwater levels are based on the record low static groundwater level that occurred in well 04N22W05L008S at approximately 312 feet below ground surface in September 1951. The minimum thresholds represent groundwater elevations in the OVGB that, if exceeded at multiple wells for a duration of greater than one year, may cause undesirable results*" (ES-3.0 Overview of Sustainability Indicators, Minimum Thresholds, and measurable objectives, Groundwater levels, page ES-3).
- "*Maintaining groundwater levels above recorded historical low static levels at RMPs during multiyear drought conditions was selected as the minimum desired threshold for groundwater elevations that would be protective of beneficial uses in the OVGB. These minimum thresholds would be protective of all potable and non-potable beneficial uses because undesirable results have not historically occurred at these levels*" (3.3.1 Chronic

Lowering of Groundwater Levels-Minimum Thresholds, 3.3.1.1 Minimum Threshold Justification, page 3-12).

- "*Assuming a repeat of historical climate conditions, the record low static groundwater levels measured at RMPs during the 2012 to 2016 drought, with a 10% buffer applied to correct for the OVGB record low groundwater level as measured in well 04N22W05L008S in September 1951, are established as the minimum thresholds to avoid the undesirable results of chronic lowering of groundwater levels*" (3.3.1 Chronic Lowering of Groundwater Levels-Minimum Thresholds, 3.3.1.1 Minimum Threshold Justification, page 3-13).

The Draft GSP establishes minimum thresholds for groundwater levels based on record low static groundwater levels. This is not likely to prevent undesirable results to beneficial users, or ISWs, including GDEs (see Comment #7). For ISWs, the Draft GSP sets the proxy groundwater elevation minimum thresholds at the highest seasonal low of a below-normal water year that occurred prior to 2015. The Draft GSP assumes that undesirable results would be avoided because any associated ISW depletions would not be worse than what occurred prior to 2015. Threshold levels for compliance should be defined in a way that reflects an annual cycle — including seasonal thresholds as well as inter-annual thresholds that reflect how levels have historically behaved during dry and wet periods—again, using the best available information (DWR 2016). The Draft GSP contends that only groundwater conditions that worsen beyond historic lows would constitute an undesirable result. However, GSPs must first evaluate potential adverse impacts to beneficial uses and users and determine at what groundwater levels those impacts would occur, and *then* set minimum thresholds accordingly. Defaulting to the post-2015 low groundwater level as minimum thresholds because similar conditions have previously occurred does not adequately consider potential adverse impacts to beneficial uses or users, and public trust resources.

Groundwater levels immediately preceding 2015 were likely unusually low due to limited surface water availability and/or heavier reliance on groundwater pumping during the drought period. Therefore, the levels during this drought period, or estimates of the levels, should be considered the low point in a wet-dry year cycle, and should be adopted as the bottom of the allowable range.

Recommendation #6: The Draft GSP should reselect minimum thresholds that would better protect environmental uses and users of groundwater, rather than defaulting to the historical low groundwater levels for the Basin. CDFW recommends OBGMA re-establish the minimum thresholds based on CDFW's Recommendation #5(a) that would protect environmental uses and users of groundwater.

Comment #7 – Section 3.3.6 Depletions of Interconnected Surface Water and Establish Minimum Thresholds and Measurable Objectives (Page 3-26): The Draft GSP indicated there is not sufficient information at this time to establish minimum thresholds, measurable objectives, or interim milestones for depletions of ISWs or GDEs.

Issue: The Draft GSP should specify how streamflow depletion minimum threshold exceedances will be identified on a timescale that is shorter than five years. The Draft GSP lacks an actionable path for identifying and addressing undesirable results caused by streamflow depletion in real-time to avoid adverse impacts to aquatic GDEs. The Draft GSP relies on long-term climate averages to measure compliance with minimum thresholds. This will not timely address undesirable results occurring on shorter climatic time scales or during periods of drought. CDFW generally comments on these concerns regarding minimum thresholds and measurable objectives as it relates to the health of fish and wildlife in their respective habitats. Based on the lack of information provided in the Draft GSP, CDFW is not able to determine if the minimum threshold is sufficient to ensure avoidance of significant and unreasonable adverse impacts (undesirable results) to southern steelhead (also see Comment #4). Hydrologic connectivity should be maintained to provide suitable habitat for southern steelhead.

Recommendation #7: CDFW recommends OBGMA establish the minimum thresholds based on the CDFW's Recommendation #5(a) to initiate the implementation of management actions and priority projects to avoid significant and unreasonable impacts to southern steelhead. A reasonable timetable is also needed to ensure projects are ready to be implemented to avoid surface water flow levels that would jeopardize the fish and wildlife resources.

Comment #8 – Section 2.3.2 Hydrogeologic Conceptual Model (HCM) (Page 2-75): The HCM does not properly identify and characterize the principal aquifers and aquitards.

Issue #8.1: The Draft GSP's hydrogeologic conceptual model (HCM) of the Basin does not accurately characterize the physical components and groundwater conditions (23 CCR §354.14. & 23 CCR § 354.16.). The Draft GSP's HCM also does not properly identify and characterize the principal aquifer systems and aquitards within the Basin (23 CCR §354.14). The Draft GSP identifies four discrete aquifer units (Section 2.3.2 page 2-75) within the Basin (separated by extensive confining layers). These are identified as the primary storage units for groundwater within the Basin. However, the Draft GSP does not provide clarification on whether these discrete aquifer units are designated as separate principal aquifers systems or as one collective principal aquifer system. Further discussion on page 2-75 indicates that these aquifers units are under semi-confined to confined conditions (except for the northern portion of the Basin where recharge occurs). This indicates the potential for different aquifer parameters and groundwater conditions from one storage unit to the next unit. The Draft GSP needs to provide clarification on whether these aquifer units should be designated as separate principal aquifer systems or as one system. The Draft GSP should also identify the aquifer specific parameters used to make this designation. In addition, the GSP does not properly identify the primary use or uses of each aquifer, such as domestic, irrigation, or municipal water supply as required by SGMA regulations.

The HCM identifies a perched aquifer within the Basin and provides an estimated northern boundary for this storage unit. For discussion purposes, a perched aquifer is defined as an aquifer that occurs above the regional water table. This occurs when there is an impermeable layer of rock or sediment or relatively impermeable layer above the main water table/aquifer, but below land surface. The HCM provides three geologic cross sections within the HCM depicting the subsurface geologic framework within the Basin. However, the Draft GSP's geologic cross sections do not show the location of and/or the lateral extent of the perched aquifer unit. It also does not show the confining layer unit associated with it. If the Draft GSP is characterizing this perched system within the HCM, then the associated geologic cross sections should indicate the location and depth of this unit and the associated confining layer to meet the requirements of applicable SGMA regulations (23 CCR §354.14). The HCM (page 2-45, Figure 2-38) provides a conceptual drawing of the Lower San Antonio Creek Hydrogeologic Unit which shows the general location and depth of the perched aquifer. However, the conceptual drawing also indicates that the perched aquifer is also connected with the principal aquifer units. Beyond a brief discussion regarding the presence of a perched aquifer, the HCM does not provide any discussion regarding the criteria used to make this designation or provide the data points (well information) used to identify its presence. CDFW would like clarification in the final GSP regarding the criteria used to designate the perched aquifer.

Recommendation #8.1(a): The Draft GSP indicates on multiple figures an estimated northern boundary of the perched aquifer. CDFW recommends the final GSP provide a discussion on what mechanisms (i.e., confining layers etc.) are present at this northern boundary to substantiate this characterization. This clarification is critical to CDFW as this designation has direct implications regarding the effects of groundwater usage within the principal aquifers and its impact on water levels within this shallow aquifer system (GSP designated perched aquifer) that may support GDEs within the Basin.

Recommendation #8.1(b): CDFW recommends revising the HCM to clarify and characterize the physical components of the Basin as required by SGMA regulations.

Issue #8.2: As mentioned above in Issue 9.1, the Draft GSP identifies four discrete aquifer units (Section 2.3.2 – page 2-75) within the Basin that are separated by lacustrine and floodplain deposits (Confining Units). These are shown in the geologic cross section (Figure 2-14 to Figure 2-16) to extend across the Basin. On page 2-75, the Draft GSP states that: "*Groundwater within the aquifer units is predominantly under unconfined conditions near the alluvial fan heads and semi-confined to mostly confined in the central, southern, and western portions of the OVGB (Kear 2005).*" As required by SGMA regulations (23 CCR §354.14. (b)(B)), the Draft GSP must provide the physical properties of the aquifers and aquitards, including the vertical and lateral extent, hydraulic conductivity, and storativity of the geologic units identified within the HCM. The Draft GSP clearly identifies multiple aquifer units within the Basin that are separated by extensive confining units of up to 100 feet in thickness. These aquifer units are characterized as being under semi-confined to confined conditions. The Draft GSP only provides a collective range of transmissivity and storativity values for the Basin. The Draft GSP does not adequately characterize or graphically identify locations and depth specific aquifer parameters (i.e., hydraulic connectivity, transmissivity, and specific yield/storativity) associated with the aquifer assemblages presented within the GSP.

Recommendation #8.2: CDFW recommends revising the HCM to clearly identify and characterize the physical components of the Basin as required under SGMA. Specifically, the OBGMA needs to provide a more adequate characterization of depth specific aquifer parameters associated with the multi-zone confined aquifer system present within the Basin. The Draft GSP indicates most of the wells within the Basin have perforated intervals that extend over multiple aquifer units and there is only one depth specific monitoring location (San Antonio Spreading Grounds) within the Basin. CDFW does not believe the current well infrastructure within the Basin can provide the specific characterizations needed to meet the requirements specified by SGMA regulations (23 CCR §354.14.). The Draft GSP also indicates this is a data gap with plans and proposed projects to install more multi-completion monitoring wells to fill this data gap. CDFW encourages expediting the installation of monitoring wells. Data from these wells will be critical to address data gaps and provide the depth specific aquifer parameters associated with each designated aquifer zone within the Basin.

Issue #8.3: SGMA requires the Draft GSP describe historic and current water level trends within the Basin for each principal aquifer (23 CCR §354.16). These trends should include a) groundwater elevation contour maps depicting current seasonal highs and lows; and b) hydrographs depicting historical highs and lows (among other information). The Draft GSP provides groundwater elevation contour maps for the spring and fall events for select years (1998, 2015, 2019, and 2020); however, the provided groundwater elevation contour maps are only representative for composite groundwater elevations. These are not specific to the groundwater elevations within the discrete confined aquifer units designated within the HCM. As discussed above, the OBGMA needs to provide clarification regarding the principal aquifers within the Basin. The OBGMA also needs to adequately describe current and historical water level trends for each designated aquifer.

Recommendation #8.3: CDFW recommends the final GSP provide groundwater level elevation contour maps that depict the groundwater table or potentiometric surface associated with current seasonal highs and seasonal lows and hydraulic gradients between principal aquifers. CDFW recommends the OBGMA provide additional discussion of vertical groundwater gradients and the interactions between principal aquifers and provide groundwater contour maps to meet the requirements of applicable SGMA regulations (23 CCR §354.16 (a)(1) and (2).).

Comment #9 – Section 2.3.4.7 Vegetation and Wetland Communities Located 0.5- Mile from Nearest Groundwater Extraction Well (Page 2-140, Plan Area and Basin Settings): The Draft GSP does not explain how a 0.5-mile radius from the nearest groundwater extraction well would protect vegetation and wetland communities from well pumping.

Issue: Vegetation and wetland communities, at a distance of greater than 0.5-mile from the nearest groundwater extraction well, were characterized as “not likely” to be impacted by current groundwater extraction within the OVGB (Page 2-140). This seems like an arbitrary distance that has not been tested by scientific method(s).

The Draft GSP does not identify the methods or methodology for this determination or what parameters were used in this hydrologic assessment. The location of the well with respect to the principal aquifer may be different than that of a perched aquifer or a stream with ISW. “*When it comes to the groundwater-surface water connection, the lateral location of wells can matter. This is because pumping of groundwater wells often creates a cone of depression around the wellhead, and this cone of depression can result in aquifers that once contributed to surface waters becoming aquifers that drain surface waters and reduce instream flows.”* (Kibel et al. 2018). The cone of depression of groundwater wells has the potential to impact vegetation and wetland communities.

Recommendation #9: CDFW recommends the final GSP explain how a 0.5-mile radius would protect vegetation and wetland communities from being impacted by well pumping. “*Near-stream pumping wells may be particularly problematic from the perspective of stream depletion management. Such wells may approach a nearly direct depletion of stream flow and may do so with relatively little drawdown. […] Such near stream wells will require special consideration by the GSAs as to their compliance with UR#6 (ISW’s).*” (Hall et al. 2018). Pump testing a particular well with monitoring wells in the vicinity for drawdown measurement would be a scientific way of proving a 0.5-mile radius may not impact groundwater level elevations.

GENERAL COMMENTS AND RECOMMENDATIONS

Comment #10 – Draft GSP vs. Final GSP

Issue: The OBGMA may need to revise the GSP before it is finalized an adopted.

Recommendation #10: CDFW recommends OBGMA provide a red-lined version of the final GSP to understand the changes made between the Draft GSP and final GSP. Alternatively, CDFW recommends OBGMA provide a summary of changes made and comments addressed by OBGMA in preparation of a final GSP.

CONCLUSION

CDFW appreciates the opportunity to comment on the Draft GSP. CDFW recommends OBGMA address the comments above to avoid a potential 'incomplete' or 'inadequate' GSP determination per SGMA Regulations, as assessed by the Department of Water Resources, for the following reasons derived from regulatory criteria for GSP evaluation:

1. The assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are not reasonable and/or not supported by the best available information and best available science. [CCR § 355.4(b)(1)] (See Comments # 2, 3, 4, 5, 6, 7, 8, and 9);

2. The Draft GSP does not identify reasonable measures and schedules to eliminate data gaps. [CCR § 355.4(b)(2)] (See Comments # 2, 3, 4 and 5);

3. The SMC and projects and management actions are not commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Draft GSP. [CCR § 355.4(b)(3)] (See Comments # 3, 4, 5, 6, 7, 8 and 9);

4. The interests of the beneficial uses that are potentially affected by the use of groundwater in the Basin, have not been considered. [CCR § 355.4(b)(4)] (See Comments # 2, 3, 4, 5, 6, 7, 8, and 9)).

Attachment B

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Response to Comment Letter

Organization/Agency: California Department of Fish and Wildlife (CDFW)
Commenter: Erinn Wilson-Olgin
Date: December 7, 2021

CDFW-1 Comment #1: Natural Recharge (Page ES-2): The Draft GSP does not accurately define natural recharge and confuses natural recharge with artificial recharge.

As recommended, the GSP will be revised to distinguish between natural recharge and artificial recharge.

CDFW-2 Comment #2: GDEs based on the 30-foot Depth Groundwater Criterion (Page 2-140) and Potential GDE Elimination (Page 2-137): The Draft GSP has eliminated 13 individual communities comprising 59.5 acres of habitat.

As explained in the GSP Section 2.3.4.7 and Appendix E, the GDE characterization method relied on a review and analysis of groundwater level data, aerial photographs, lithologic data, and normalized difference vegetation index (NDVI) and normalized difference moisture index (NDMI) trends to characterize each Natural Communities Commonly Associated with Groundwater (NCCAG) mapped vegetation and wetland community in the OVGB. A 30-foot groundwater depth criterion was used to inform the analysis as this criterion is identified by The Nature Conservancy as representative groundwater conditions that may sustain common phreatophytes and wetland ecosystems (Rohde et al. 2018); however, the criterion was not solely relied on to characterize a vegetation or wetland community's reliance (or lack of) on groundwater. The 13 individual communities comprising 59.5 acres have not been eliminated but instead identified as potential GDEs not likely to be impacted by groundwater extraction because vegetation health trends are not correlated with groundwater levels, the communities persisted during periods when groundwater levels were much greater than 30 feet below ground surface, and there is geologic evidence that the communities may be disconnected from the principal aquifer. The GDE characterization process described in Section 2.3.4.7 and Appendix E did not eliminate any potential GDEs but instead identified potential GDEs that may be most susceptible to impacts of groundwater extraction.

CDFW-3 Comment #3: Section 4.2.4 Prepare Groundwater Dependent Ecosystem Assessment (Page 4-11): The Draft GSP does not include minimum thresholds or measurable objectives to protect ISWs and GDEs.

As stated in the GSP, there is not sufficient information at this time to establish a minimum threshold or measurable objective for potential depletions of interconnected surface water (ISWs) or GDEs. The steps that will be taken to fill the data gaps and support development of minimum thresholds and measurable objectives as they relate to potential depletions of ISWs and GDEs are described in Section 4.2.4 Prepare Groundwater Dependent Ecosystems Assessment. The recommendations provided by CDFW will be considered when the Prepare Groundwater Dependent Ecosystems Assessment project is undertaken.

CDFW-4 Comment #4: Federally Endangered Southern California Steelhead Habitat and Other Sensitive Species: The Draft GSP does not provide sufficient analysis of potential effects on public trust resources, especially on sensitive species occurring within the Basin.

The CDFW universally implies that groundwater pumping in the spring, summer, and early fall are resulting in reduced surface flows and excessively high water temperatures that reduce available juvenile rearing habitat for southern steelhead. The OBGMA stresses that most of San Antonio Creek and its tributaries within the OVGB are typically dry "losing" reaches and groundwater aquifers and surface water channels are highly interconnected only at perennially wet reaches in the OVGB, typically near Skunk Ranch Road in the southwestern corner of the OVGB. As presented in Draft GSP figure 2-38, Lower San Antonio Creek Hydrogeological Conceptual Model, surface water is interconnected with a perched aquifer that is isolated by a clay aquitard from the deeper principal aquifers where groundwater production primarily occurs. The GSP explains that, "The impact of groundwater extraction rates on depletion of interconnected surface water is not well constrained and is a data gap in the OVGB (Section 2.3.4.7). This data gap is currently being addressed by OBGMA through the recent construction of a nested monitoring well located along the San Antonio Creek that has been designed to measure long-term trends in surface water-groundwater connection along the primary drainage channel in the OVGB." Preliminary groundwater level and water quality data from initial monitoring of the new nested monitoring well, South-Central Nested Depth-Discrete Monitoring Well, indicate that the perched aquifer encountered from 14 to 24 feet below ground surface is isolated from the principal (production) aquifers encountered from 140 feet to 328 feet below ground surface (Kear 2021, Summary of Construction Operations OBGMA New 'South-Central Nested Depth-Discrete Monitoring Well). The new South-Central Nested Depth-Discrete Monitoring Well was completed in June 2021. Additional groundwater level and water quality monitoring is ongoing and will be further evaluated when assessing ISW-groundwater interactions and the potential need to develop sustainability management criteria for depletions of interconnected surface water.

Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP, will address CDFW recommendation #4.1(a) to provide a biological assessment identifying species known to occur within the GDEs presented in Figure 2-36 (Page 2-141). As described above, the Draft GSP has identified ISW-groundwater interactions as a data gap and is proactively working to fill this data gap to address recommendations provided in #4.1(b). As further described below, OBGMA has been documenting the first daylighting of surface water in San Antonio Creek since 2017. The OBGMA will work to map and document potential additional open water habitat in the OVGB as part of the Prepare Groundwater Dependent Ecosystem Assessment PMA to address CDFW Recommendation #4.1(c).

CDFW-5 Comment #5: Section 3.3.6: The GSP Does Not Account for the Best Available Science for Depletions of Interconnected Surface Waters or GDEs (Page 3-26): The Draft GSP has not considered the best available science relevant to depletions of ISWs or impacts on GDEs.

In May 2020, CDFW's Instream Flow Program publicly released the Instream Flow Regime Criteria on a Watershed Scale of the Ventura River (Watershed Criteria Report) (2020). CDFW asserts this report "represents best available science for the OVGB regarding flows needed to support the Basin's ecosystem within the Lower San Antonio Creek (San Antonio Creek 1), Upper San Antonio Creek (San Antonio Creek 2), and Lion Canyon Creek, a tributary to San Antonio Creek". The Watershed Criteria Report states, "The Department provides this document as a tool for consideration in water management planning. It presents an analytical approach that can be implemented, if appropriate, under the specific circumstances of a watershed, stream, or informational need. This report and the Overview, in and of themselves, should not be considered to provide binding guidelines, establish legal compliance, or ensure project success." The Watershed Criteria Report estimates natural flows at several river reaches that would be expected with no human influence. Based on Figure 2 of the Watershed Criteria Report, no assessed reach appears to be within the boundary of the OVGB as defined by Bulletin 118. San Antonio Creek 2 reach is likely just outside of the boundary of the OVGB but could be used as an approximate proxy for surface water outflows from the OVGB. Estimated modeled natural flows for San Antonio Creek 2 are presented in Watershed Criteria Report Table 1 and are excerpted as follows:

11) San Antonio Creek 2 33.9 mi^2

	Month Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Natural Flows (cfs)	Wet	15	41	49	28	10	4	2	1	1	1	1	4
	Moderate	3	6	7	5	2	1	<1	<1	<1	<1	1	2
	Dry	2	3	2	1	1	<1	<1	<1	<1	<1	1	1

As explained in CDFW's Overview of Watershed-Wide Instream Flow Criteria Report Methodology (2021), "Arid watersheds are underrepresented in the reference gage network, and frequently have complex, groundwater-dominated hydrology (Lane et al. 2017). As a result, *estimates for arid regions should be interpreted with caution* (Zimmerman et al. 2020). (CDFW 2021).

Watershed Criteria Report Table 4 presents Ecosystem Baseflows for San Antonio Creek 2 and are excerpted as follows:

11) San Antonio Creek 2 33.9 mi^2

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ecosystem Baseflows (cfs)	14	23	13	7	6	2	1	<1	1	1	4	6

The OBGMA also notes that the Watershed Criteria Report defined a Sensitive Period Indicators of 5 cfs for San Antonio Creek 2 (Table 5), a steelhead habitat optimum flows by drainage area of 8 cfs for San Antonio Creek 2 (Table 6) and Steelhead passage flows of 7 cfs for juveniles and 24 cfs for adult fish for San Antonio Creek (Table 7). The OBGMA points out that prescribed Ecosystem Baseflows, Sensitive Period Indicators and steelhead habitat optimum flows are likely only to occur under wet natural flow conditions as defined by CDFW's own analsyis reflecting the high variation of precipitation and resulting flow in San Antonio Creek. While these instream flows may provide beneficial conditions for steelhead, they do not represent the minimum threshold below which significant and unreasonable impacts to steelhead would occur due to the potential depletion of ISW due to pumping in the OVGB, as is required by SGMA.

In December 2021, the SWRCB released a numerical analysis to help better define in-stream flows, *Draft Model Documentation Report for the Groundwater-Surface Water Model of the Ventura River Watershed*. This report provides unimpaired flow and calibration/validation flow for Gage 605A located on San Antonio Creek at Old Creek Road/Highway 33 near the confluence of San Antonio Creek with the Ventura River approximately 5 miles downstream of the OVGB. The OBGMA recommends that this numerical model be used to evaluate unimpaired flow at the surface discharge point in San Antonio Creek from the OVGB (approximately at San Antonio Creek 2) and compared to the analytical estimates provided by CDFW (2020). The numerical model should take particular care to differentiate the potentiometric surface that occurs in the perched aquifer from the potentiometric surfaces that occur in the principal (production) aquifers. While artesian wells are documented to occur in the OVGB, the perched aquifer is separated from the principal (production) aquifers by an extensive clay aquitard that acts as a vertical barrier to flow in the southwestern potion of the OVGB meaning that the principal (production) aquifers do not discharge to surface water in the area of the perched aquifer. Differences between calibration/validation flows and unimpaired flows should take into account evapotranspiration by invasive plants at different densities that especially impact dry season low-flow periods as the difference in instream flow between the two scenarios during the dry season may be explained entirely by changes in densities of invasive phreatophytes or native riparian vegetation over time.

The OBGMA has been measuring the first point of daylighting of surface water since 2017 and actual instantaneous discharge of stream flow since 2019 of San Antonio Creek near Skunk Ranch Road. Since 2019, stream flow discharge has varied from 0.07 cfs in September 2021 to 2.8 cfs in April 2020 (Kear 2021, Ojai Basin Conditions presented at the September 30, 2021 Regular OBGMA Board Meeting). These actual measured flows are generally within the range of the modeled estimated dry natural flows presented in Watershed Criteria Report Table 1. However, stream flow discharge measured in San Antonio Creek near Skunk Ranch Road within the 2 to 3 cfs range is correlated with precipitation events as measured at the Ojai Fire Station and discharge of groundwater from the perched aquifer as baseflow alone is not expected to sustain stream flow during exceptionally dry periods.

The OBGMA notes that CDFW released Instream Flow Evaluation: Southern California Steelhead Adult Spawning and Juvenile Rearing in San Antonio Creek, Ventura County in November 2021. Thank you for brining to the attention of the OBGMA of this new report. This report was released *after* the preparation of the Draft GSP completed in October 2021. The GSP is due to DWR on January 31, 2022. Sufficient time is not available to review and incorporate potentially relevant findings from CDFW's November 2021 report in the Draft Final GSP. This report will be reviewed and considered as part of the Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP.

Overall, it is the OBGMA's initial position, based on review of the Instream Flow Regime Criteria on a Watershed Scale of the Ventura River, that the in-stream flows developed for San Antonio Creek 2 by the CDFW do not currently provide best available science to potentially develop sustainability management criteria for ISW-groundwater interactions and that in-depth instream flow studies including more intensive field work and/or modeling (as described in CDFW's own guidance) are required that takes into account specific hydrology, hydrostratigraphy, groundwater elevations of discrete aquifers and other site-specific conditions of the OVGB.

The OBGMA notes that on August 31, 2021, the SWRCB released a Preliminary Draft version of the Groundwater-Surface Water Model of the Ventura River Watershed and that as of December 2021 a Draft Model Documentation Report of the Groundwater-Surface Water Model of the Ventura River Watershed is now available. This new body of work developed by the SWRCB was not available in a state to review or incorporate pertinent findings into the Draft GSP (October 2021) or the Draft Final GSP to be completed by January 2022. This report will be reviewed and considered as part of the Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP.

CDFW-6 Comment #6: Section 3.3.1 Chronic Lowering of Groundwater Levels-Minimum Thresholds (Page 3-11): Defaulting to the post-2015 low groundwater level as minimum thresholds because similar conditions have previously occurred does not account for relevant best available data since, including annual cycles and seasonal variation.

As stated in Section 3.3.1 Chronic Lowering of Groundwater Levels – Minimum Thresholds, the record low static groundwater levels measured at RMPs during the 2012 to 2016 drought, with a 10% buffer applied to correct for the OVGB record low groundwater level as measured in well 04N22W05L008S in September 1951, are established as the minimum thresholds to avoid potential undesirable results resulting from chronic lowering of groundwater levels. As data gaps are filled and additional groundwater level monitoring data become available the information will be used to reevaluate and update, if needed, the minimum thresholds and measurable objectives for groundwater levels.

The GSP makes no assertion regarding the minimum thresholds developed for groundwater levels and groundwater in storage as being protective of ISW depletions or GDEs as suggested by this comment. The GSP clearly indicates that potential depletions of interconnected surface water and impacts to GDEs have been identified as a data gap that requires further evaluation as described in Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP. As indicated above, it is OBGMA position that in-stream flows developed for San Antonio Creek 2 (downstream of the boundary of the OVGB) by the CDFW do not currently provide best available science to potentially develop sustainability management criteria for ISW-groundwater interactions and that in-depth instream flow studies including more intensive field work and/or modeling (as described in CDFW's own guidance) are required that takes into account specific hydrology, hydrostratigraphy, groundwater elevations of discrete aquifers and other site-specific conditions of the OVGB.

CDFW-7 Comment #7: Section 3.3.6 Depletions of Interconnected Surface Water and Establish Minimum Thresholds and Measurable Objectives (Page 3-26): The Draft GSP indicated there is not sufficient information at this time to establish minimum thresholds, measurable objectives, or interim milestones for depletions of ISWs or GDEs.

As previously described, most of San Antonio Creek and its tributaries within the OVGB are typically dry "losing" reaches and groundwater aquifers and surface water channels are highly interconnected only at perennially wet reaches in the OVGB, typically near Skunk Ranch Road in the southwestern corner of the OVGB. As presented in Draft GSP figure 2-38, Lower San Antonio Creek Hydrogeological Conceptual Model, surface water is interconnected with a perched aquifer that is isolated by a clay aquitard from the deeper principal aquifers where groundwater production primarily occurs. Available information compiled in the GSP suggests that a nexus between groundwater extraction from the principal (production) aquifers and in-stream flows in San Antonio Creek is lacking whereas CDFW based on limited site-specific information consisting of an analytical model not applicable to arid environments implies that it is a forgone conclusion that minimum thresholds are required to address undesirable results caused by streamflow depletion to avoid adverse impacts to aquatic GDEs. CDFW wrongly concludes that the minimum threshold developed in the GSP for undesirable results of lowering of groundwater levels and reduction of groundwater in storage is somehow also developed for depletions of interconnected surface water and GDEs. This is not the case. As stated in the GSP, there is not sufficient information at this time to establish a minimum threshold or measurable objective for potential depletions of ISWs or GDEs. The steps that will be taken to fill the data gaps and support development of minimum thresholds and measurable objectives as they relate to potential depletions of ISWs and GDEs are described in Section 4.2.4 Prepare Groundwater Dependent Ecosystems

Assessment. The recommendations provided by CDFW and SWRCB will be considered when the Prepare Groundwater Dependent Ecosystems Assessment project is undertaken.

CDFW-8 Comment #8: Section 2.3.2 Hydrogeologic Conceptual Model (HCM) (Page 2-75): The HCM does not properly identify and characterize the principal aquifers and aquitards.

As indicated in revised Section 2.3.2, Principal Aquifers and Aquitards, "Water-bearing units of the OVGB include alluvial deposits and fractures and interstices of underlying Tertiary rocks. The alluvium is composed of 50 to 100 feet thick units of sand, gravel, and clay that pinch out toward the lateral edges of the OVGB (Kear 2005; DBS&A 2011, 2020a). The alluvial deposits are the most productive units in the OVGB, with well yields that range from 100 to 600 GPM (DWR 2004). The weathered Tertiary rocks are typically consolidated and yield minor amounts of poor-quality water, with well yields typically around 2 to 5 GPM, but reaching a maximum of about 50 GPM (DWR 2004). The contact of the alluvial unconsolidated deposits of Pleistocene to Holocene age with the Tertiary rocks define the base of the OVGB. The primary storage units for groundwater are approximately four discrete sand and gravel units on the order of up to 100 feet thick each, which are sourced near the alluvial fan heads in the northeast side of the Ojai Valley (Kear 2005; OBGMA 2018). The individual coarse grained sand and gravel aquifer units that together comprise the principal aquifer are thickest in the northern and eastern areas of the OVGB and thinnest in the southern and western areas of the OVGB where fine grained lacustrine and floodplain deposits of up to approximately 100 feet thick predominate as confining layers creating a multi-layered aquifer system (DBS&A 2011; Kear 2005; OBGMA 2018). The uppermost confining clay unit, which generally extends from approximately 30 to 130 feet below ground surface (bgs), is the thickest and most extensive aquitard and separates the principal aquifer from a shallow perched aquifer (Kear 2005, 2021; OBGMA 2018). The approximate extent of the shallow perched, based on well geophysical and lithologic logs, is shown in Figure 2-13A (Kear 2005, 2021). The shallow perched aquifer generally extends from approximately 15 to 30 feet bgs (Kear 2005, 2021). Groundwater within the principal aquifer is predominantly under unconfined conditions near the alluvial fan heads and semi-confined to mostly confined in the central, southern, and western portions of the OVGB (Kear 2005; 2021). The alluvial deposits are deepest in the central and southern areas of the OVGB (Kear 2005; DBS&A 2011, 2020a). The maximum total thickness of the alluvial deposits is approximately 900 feet (DBS&A 2011, 2020a).

The hydraulic properties of the principal aquifer vary spatially. Results of field pumping tests indicate aquifer transmissivity ranges from 1×10-5 to 6.20 square feet per minute (ft^2/min) for an average of approximately 2.0 ft^2/min (Kear 2005). Aquifer storativity ranges from 1×10-8 to 0.024 for an average of approximately 0.003 (Kear 2005). Hydraulic conductivity and specific yield and storage values used in the Ojai Basin Groundwater Model (OBGM) developed by DBS&A also provide an estimate of the hydraulic properties of the principal aquifer and aquitards. Values for aquifer hydraulic conductivity used in the OBGM range from 7 to 150 feet per day (ft/d). Values for aquifer specific yield used in the OBGM range from 0.03 to 0.1. The specific storage of all aquifer layers in the OBGM is 1×10-6 per foot (ft-1) and of all aquitard layers is 1×10-7 ft-1. The specific yield of all aquitard layers in the OBGM is 0.03. The hydraulic conductivity of all aquitard layers in the OBGM is 0.1 ft/d (DBS&A 2011, 2020a). Cross-sectional interpretations of the multi-layered OVGB aquifer system are shown in cross-sections A-A' (west-east), B-B' (south-north), and C-C' (southwest-northeast) (Figures 2-14 to 2-16, Cross Sections AA', BB', and CC', respectively) at the locations shown on Figure 2-13A". Most well screen intervals for wells completed in the OVGB intercept multiple aquifers, and the lack of depth-discrete monitoring wells precludes management of multiple aquifer systems. The information provided in the

GSP represents best available data for the OVGB. As additional data is collected during GSP implementation, the hydrogeological conceptual model including description of the principal aquifers and aquitards will be updated.

The extent of the perched aquifer as depicted on GSP Figure 2-18 has been generally determined based on historical groundwater levels and interpolation of well logs. GSP Figure 2-37, Shallow Perched and Depp Production Aquifer Groundwater Level Trends provides depth discrete groundwater levels for several wells in the southwestern portion of the OVGB that clearly demonstrates distinct groundwater level trend where the shallow perched aquifer exhibit a stable trend with little seasonal fluctuation or response to groundwater extraction while groundwater levels in the principal aquifer show the effects of groundwater extraction. As described above, the OBGMA recently installed a new nested monitoring well, South-Central Nested Depth-Discrete Monitoring Well, which indicates the perched aquifer encountered from 14 to 24 feet below ground surface is isolated from the principal (production) aquifers encountered from 140 feet to 328 feet below ground surface at this location. Additional monitoring wells may need to be drilled and completed as multi-completion wells in order to verify the spatial extent of the perched aquifer.

As described in the GSP and shown Draft Final GSP Figures 2-14 through 2-16 most wells are cross-screened over multiple aquifer units and depth-discrete groundwater levels by aquifer are not available for the OVGB. As such the four principal aquifers described in the GSP are currently combined into a single principal aquifer in order to prepare groundwater level contour maps.

CDFW-9 Comment #9: Section 2.3.4.7 Vegetation and Wetland Communities Located 0.5- Mile from Nearest Groundwater Extraction Well (Page 2-140, Plan Area and Basin Settings): The Draft GSP does not explain how a 0.5-mile radius from the nearest groundwater extraction well would protect vegetation and wetland communities from well pumping.

The GSP GDE characterization process used a 0.5-mile radius in order to quantify the number of wells in the vicinity of each NCCAG mapped vegetation or wetland community. The 0.5-mile radius was selected based on The Nature Conservancy's use of a 1 kilometer buffer (approximately 0.5 miles) to associate wells with groundwater level data with polygons in the NCCAG dataset (Klausmeyer et al. 2019). The statement in the GSP regarding communities at a distance of greater than one-half mile from the nearest groundwater extraction well only applies to 3.36 acres of coast live oak (*Quercus agrifolia*) vegetation (NCCAG polygon 52076) located in the Stewart Canyon drainage at the northern edge of the OVGB (Appendix E, Figure 1). NDMI and NDVI trends for the vegetation are not correlated with groundwater levels and the vegetation is located upgradient at a great distance from the nearest groundwater production wells. Groundwater level data are not available for any nearby wells. Aerial photographs show that the vegetation completely burned in 2017 but has partially regrown since that time. The closest well with a well log (well 04N23W02A04S) indicates that the alluvial aquifer is no more than 10 feet thick in the vicinity of the vegetation. The closest active production wells are fractured bedrock wells. The vegetation is characterized as a potential GDE not likely to be impacted by groundwater extraction because the vegetation is located a great distance from production wells, vegetation health is not correlated with groundwater levels, and the aquifer is very thin in this part of the OVGB. The GSP will be revised by removing the statement regarding the 0.5-mile radius criterion since in fact the GDE characterization process did not rely on the criterion to characterize a vegetation or wetland community's reliance (or lack of) on groundwater, but rather was used to help quantify the number of wells in the vicinity of each vegetation or wetland community.

CDFW-10 Comment #10: Draft GSP vs. Final GSP

A red-lined version of the draft GSP in addition to responses to comments will be included with the Draft Final GSP adopted by the OBGMA.

Casitas Municipal Water District

November 24, 2021

John Mundy, Executive Director
Ojai Basin Groundwater Management Agency

Sent via email to OjaiBasinGSP@gmail.com and jmundyconsultingllc@gmail.com

Subject: Comments on the OBGMA Draft Groundwater Sustainability Plan

Dear Mr. Mundy:

Casitas Municipal Water District (Casitas) has the following comments on the OBGMA's Draft Groundwater Sustainability Plan (Draft GSP) published October 2021.

Comment #1: Page ES-2
Please revise the language as follows:

> *The Casitas Municipal Water District distributes Lake Casitas stored water to wholesale accounts, retail municipal and industrial accounts, and retail agricultural accounts ~~agricultural accounts, wholesale municipal accounts, and retail accounts~~. A portion of Lake Casitas storage is distributed to wholesale ~~agricultural~~ and retail accounts inside the boundaries of the OBGMA. Conjunctive use of surface water and groundwater is key to meeting the total water demand of the OVGB.*

Comment #2: Page 2-6 & 2-11
Please revise the language as follows:

> *Current Draft GSP Language:*
> *CMWD administers the Ojai potable water system, which serves approximately 2,953 residences and businesses within Community Facilities District (CFD) No. 2013-1 (Ojai). CFD No. 2013-1 encompasses approximately 2,150 acres of land in the City of Ojai and unincorporated Ventura County (Figure 2-3; CMWD 2021).*
>
> *Community Facilities District No. 2013-1 was formed by CMWD at the request of members of the community in March 2013 pursuant to the Mello-Roos Community Facilities Act of 1982, as amended (Sections 53311 et seq. of the Government Code of the State of California), to finance the acquisition of the Ojai Water System facilities from Golden State Water Company (David Taussig & Associates 2013). In June 2017, CMWD acquired the Ojai Water System.*

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Revised Language:
CMWD owns and operates the Ojai potable water system, which serves approximately 2,953 residences and businesses within Community Facilities District (CFD) No. 2013-1 (Ojai). CFD No. 2013-1 encompasses approximately 2,150 acres of land in the City of Ojai and unincorporated Ventura County (Figure 2-3; CMWD 2021).

Community Facilities District No. 2013-1 was formed by CMWD at the request of members of the community in March 2013 pursuant to the Mello-Roos Community Facilities Act of 1982, as amended (Sections 53311 et seq. of the Government Code of the State of California), to finance the acquisition of the Ojai Water System facilities from Golden State Water Company (David Taussig & Associates 2013). In June 2017, CMWD acquired the Ojai Water System.

Comment #3: Page 2-27
Please revise the language as follows. The numbers referenced in the draft GSP reflect the CMWD 2020 UWMP Table 3, which only goes back to Fiscal Year 2013-14 and does not reflect the historical high water demand:

Current Draft GSP Language:
CMWD's water demand from Lake Casitas reached a high of 20,415 AF in fiscal year 2013–2014, but has since continued to decline to 8,802 AF in fiscal year 2019–2020 in response to water resource changes by large customers, heightened customer awareness of water resource conditions, and CMWD's Water Efficiency and Allocation Program (CMWD 2021).

Revised Language:
CMWD's water demand from Lake Casitas reached a high of 26,180 AF in calendar year 1989, but has since remained consistently lower with a decline to 7,668 AF in calendar year 2019 in response to water resource changes by large customers, heightened customer awareness of water resource conditions, and CMWD's Water Efficiency and Allocation Program.

Comment #4: Page 2-27
Since the Casitas Water System supplies the Ojai Water System, the surface supplies were double-counted in the draft GSP evaluation. In addition, the assessment of Casitas' supplies should be reworded since there is not a surplus supply for multi-year droughts extending beyond the 5-year drought period required for analysis in the 2020 UWMP. Please revise the language as follows:

Current Draft GSP Language:
As part of the 2020 UWMP update, CMWD's future water supplies and demands were assessed. For the period from 2020 to 2040, CMWD's projected water supply is 19,771 AFY. This estimate assumes that 15,326 AFY of surface water will be sourced from Lake Casitas, 145 AFY of groundwater will be pumped from Mira Monte Well, 2,000 AFY of State Water Project (SWP) water will be delivered via the Ventura-Santa Barbara Counites Intertie (discussed below), and up to 2,300 AFY will be pumped from the Ojai wellfield .

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Based on CMWD's water supply reliability assessment, it is predicted that for average, single-dry, and multiple-dry water years (up to the second consecutive dry year) there will be a surplus of approximately 3,396 AFY (CMWD 2021). For multiple-dry water years after the second consecutive dry year, there will be a minimum surplus of 1,054 AFY (CMWD 2021)

Revised Language:
As part of the 2020 UWMP update, CMWD's future water supplies and demands were assessed. For the period from 2020 to 2040, CMWD's projected water supply is 19,310 AFY. This estimate assumes that 14,865 AFY of surface water will be sourced from Lake Casitas, 145 AFY of groundwater will be pumped from Mira Monte Well, 2,000 AFY of State Water Project (SWP) water will be delivered via the Ventura-Santa Barbara Counties Intertie (discussed below), and up to 2,300 AFY will be pumped from the Ojai wellfield . Based on CMWD's water supply reliability assessment, no water shortages are predicted based on average and single-dry years planning evaluations. Given that Lake Casitas and groundwater basin storage can sustain extended drought periods, a few dry years have little effect on Casitas' supply availability. However, supplies can become limited during extended drought periods and Casitas implements its WEAP as a demand management tool as Lake Casitas storage declines. This demand management helps to stretch supplies longer than the five year drought period evaluated in the 2020 UWMP. (CMWD 2021)

Comment #5: Page 2-27
Please revise the language as follows:

Funding is currently being pursued for construction of a 1.5-mile pipeline between CMWD and Carpinteria Valley Water District, referred to as the Ventura-Santa Barbara Counties Intertie, which would increase the size of a current Intertie connection as well as build pump stations to enable the ability to move ~~up to~~ 2,000 AFY on average of Casitas' SWP supplies to the Casitas system (CMWD 2021).

Comment #6: Page 2-83 (Figure 2-17) and Page 2-158 (Table 2-14)
Casitas staff are unclear how the data provided for Casitas Water Deliveries in Figure 2-17 and Table 2-14 were derived. Casitas' current reporting systems are not set up to report aggregate Casitas water use within the Ojai groundwater basin. However, staff are currently working on a billing system and GIS project that will make this type of reporting easier in the future.

Comment #7: Page 2-84 (Figure 2-18)
It would be helpful for the GSP to explain whether the recharge areas shown in Figure 2-18 make it into the water supply aquifers, or if the recharge areas are only recharging the perched aquifer.

Comment #8: Page 2-119 (Figure 2-31) and Page 2-104
Figure 2-31 is showing Casitas' well exceeding the MCLs for manganese. Please add language to Page 2-104 explaining that Casitas MWD operates a groundwater treatment plant to remove iron and manganese prior to distribution to customers.

Comment #9: Page 2-181

Please update the Lake Casitas capacity to reflect 238,000 acre-feet based on the 2017 bathymetric survey (which is a reduced capacity from the original estimated 254,000 acre-feet).

Comment #10: Page 3-28

Please revise the language as follows. The resolution was approved by OBGMA representatives. However, the resolution has yet to be considered by the full board of the Casitas Municipal Water District.

> *Current Draft GSP Language:*
> In August 2017, the OBGMA and CMWD approved adoption of Resolution No. 2017-4 to work cooperatively on the development of an agreement for the integrated use of surface water and groundwater.
>
> *Revised Language:*
> In August 2017, the OBGMA approved adoption of Resolution No. 2017-4 to work cooperatively on the development of an agreement for the integrated use of surface water and groundwater.

Comment #11: Page 3-32 and Page 4-17

Please revise the language as follows.

> *Currently, groundwater levels are monitored by VCWPD and OBGMA, groundwater quality is monitored by VCWPD and operators of drinking water systems, namely the Ojai Water System ~~Community Facilities District~~ operated by CMWD, who reports groundwater quality data to the SWRCB DDW, and groundwater extraction from all active production wells is monitored by individual operators who self-report extraction volumes to the OBGMA.*

Comment #12: Page 4-26 – Explore Opportunity to Implement Focused Recharge

Refer to the Draft GSP language provided in Attachment 1.

Casitas has the following comments:

1. In the description of "Measurable Objectives Expected to Benefit" and "Expected Benefits and Evaluation", please clarify whether the proposed recharge projects would benefit the shallow perched aquifer or the lower producing zones, given the clay layers that separate the shallow aquifer from the lower water supply producing zones.
2. Please also clarify if measurable objectives were established for the shallow perched aquifer, which seems to be the portion of the basin that would benefit from stormwater capture and recharge projects.

Comment #13: Page 4-28 Explore State Water Project Water Delivery Options

Refer to the Draft GSP language provided in Attachment 1.

Casitas has the following comments:

1. Please revise the language in the third paragraph as follows:

   Currently, CMWD is exploring two SWP water alternatives: 1) connection with Carpinteria Valley Water District for ~~up to~~ 2,000 AFY on average and 2) connection between Calleguas Municipal Water District and the City of Ventura which ~~would~~ could offset the City of Ventura's demands from Lake Casitas by ~~approximately 1,300~~ as much as 5,000 AFY.

2. The statement that "any use of SWP water in the OVGB would be in-lieu of groundwater in most cases" is not accurate, since an "in-lieu" arrangement has yet to be established. Imported water via the State Water Project infrastructure is considered a backup supply to mitigate impacts of extended local drought periods on Lake Casitas. Groundwater will remain the most cost-effective water source for Ojai Basin pumpers, who may either implement demand reduction strategies or purchase Casitas water in the event that groundwater supply is not available. If it is OBGMA's intent to explore an "in-lieu" arrangement related to State Water supply, this should be made clearer in the project description.
3. Regarding public noticing of State Water Project delivery options, Casitas strongly recommends that OBGMA coordinates with Casitas.

Comment #14: Page 2-54 and 2-55, and Page 4-29 and 4-30

Refer to the Draft GSP language provided in Attachment 1. This description of the "Settlement Management Plan from Physical Solution" in Sections 2 and 4 must be re-written to reflect the following:

1. No settlement agreement has been reached. The current terms of the Proposed Physical Solution have not been resolved, nor are they required, as implied in committal tone of the language. The adjudication process is ongoing, and will likely take several years to resolve.
2. The "Measurable Objective Expected to Benefit" and "Expected Benefits and Evaluation" language must be re-written to reflect that measureable benefits are still to be determined.

If there are any questions in this regard, please do not hesitate to contact me at mflood@casitaswater.com or 805.649.2251, Ext. 111.

Sincerely,

Michael Flood

Michael Flood
General Manager

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Response to Comment Letter

Organization/Agency: Casitas Municipal Water District (CMWD)
Commenter: Michael Flood
Date: November 24, 2021

CMWD-1 Comment #1: page ES-2 of the Draft GSP clarifies CMWD customer types. The GSP will be revised based on the provided edits.

CMWD-2 Comment #2: Page 2-6 and 2-11 provides revised language regarding the ownership and operation of the Ojai potable water system. The GSP will be revised based on the provided edits.

CMWD-3 Comment #3: Page 2-27 provides additional historical data to reflect Lake Casita's highest historical water demand of 26,180 acre-feet in calendar year 1989. The GSP will be revised based on the provided edits.

CMWD-4 Comment #4: Page 2-27 provides clarifying language regarding the 2020 UWMP update. The GSP will be revised based on the provided edits.

CMWD-5 Comment #5: Page 2-27 provides clarifying language regarding CMWD's SWP supplies. The GSP will be revised based on the provided edits.

CMWD-6 Comment #6: Page 2-83 (Figure 2-17) and Page 2-158 (Table 2-14) points out that that historically aggregate Casitas water use has not been available for the OVGB. These data have previously been estimated in order to develop a water budget for the basin. The GSP will be updated to indicate that these values are estimated and not measured values. CMWD surface water imports in the Ojai Basin Groundwater Model (OBGM) are accounted for at the model cell level based on irrigation demand for the different land uses across the OVGB. The OBGM assumes irrigation demands are constant from year-to-year. The imported volume of CMWD water impacts total pumpage in the OVGB which is reflected in the model pumping rates (DBS&A 2011).

CMWD-7 Comment #7: Page 2-84 (Figure 2-18) asks about the spatial distribution of recharge to the principal and perched aquifers in the OVGB. The GSP explains that, "The San Antonio Creek watershed, which drains the mountains surrounding the OVGB, provides recharge to the OVGB through infiltration of streamflow into the shallow alluvial sediments. Mountain front recharge that occurs at the interface between surrounding bedrock and unconsolidated sediments is a source of recharge along the creeks that enter the OVGB (Figure 2- 18). Focused areas of recharge also include areas of the OVGB occupied by soils with high saturated hydraulic conductivity (Figure 2-18). DBS&A (2020b) estimated average annual recharge from precipitation for the revised Ojai Basin Groundwater Model (OBGM) calibration period (1970 to 2019) to be approximately 6,970 AFY. The amount of groundwater recharge to the OVGB is considered to vary significantly from year to year. Daniel B. Stephens & Associates (DBS&A 2011) estimated annual recharge from precipitation for the original OBGM calibration period (1970 to 2009) to range from approximately 1,700 AFY to 20,000 AFY." Figure 2-18 shows the estimated northern extent of the perched aquifer. Recharge that occurs north and east of the perched aquifer readily migrates vertically to recharge the principal aquifers. Infiltration of precipitation, runoff and irrigation return flows that occurs in the area of the perched aquifer likely precludes vertical migration to the principal aquifers because a continuous clay aquitard acts as a barrier to vertical flow in the southwestern area of the OVGB (see Figure 2-38 for Lower San Antonio Creek Hydrogeologic Conceptual Model).

CMWD-8 Comment #8: Page 2-119 (Figure 2-31) and Page 2-104 indicates that Casita's well exceeds the drinking water standard for manganese. As recommended, the GSP will be revised to include explanation that CMWD operates a groundwater treatment plant to remove iron and manganese prior to distribution to its customers.

CMWD-9 Comment #9: Page 2-181 requests that the Lake Casitas capacity be updated to 238,000 acre-feet from 254,000 acre-feet to reflect the estimate from the 2017 bathymetric survey. The GSP will be revised to incorporate this information.

CMWD-10 Comment #10: Page 3-28 requests that the text of the GSP be revised to clarify that only the OBGMA has adopted resolution 2017-4 and that the resolution has yet to be considered by the full board of the CMWD. The GSP will be revised to clarify this information.

CMWD-11 Comment #11: Page 3-31 and Page 4-17 recommends slight modifications to the text. The GSP will be revised to incorporate the suggested revisions.

CMWD-12 Comment #12: Page 4-26. Casitas requests clarification regarding the expected benefit of proposed recharge projects in terms of whether the recharge projects would benefit the perched aquifer or the principal aquifers. In addition, the comment questions whether measurable objectives have been established for the perched aquifer. As explained in response to comment #7, a portion of the southwestern area of the OVGB is underlain by a continuous clay aquitard that acts as a vertical barrier to flow. Recharge projects located in the northeastern part of the OVGB—such as the San Antonio Creek Spreading Grounds—will result in recharge to the principal aquifers. Recharge projects located in the southwestern areas of the OVGB will likely only provide recharge to the perched aquifer; however, additional data may be required to determine the benefit of a particular recharge project. At this point, no minimum threshold or measurable objective has been established for the perched aquifer. Study is ongoing to document the potential effect of pumping in the OVGB on groundwater levels in the perched aquifer (see Management Action #1 Understand the Basin, Prepare Groundwater Dependent Ecosystems Assessment as described in Section 4.2.4).

CMWD-13 Comment #13: Page 4-28 provides clarifying language regarding the effect of importing SWP water. The GSP will be revised to incorporate these edits.

CMWD-14 Comment #14: Page 2-54 and 2-55, and Page 4-29 and 4-30 provides clarifying remarks in regard to the ongoing Ventura watershed adjudication. The GSP will be revised to incorporate these edits. In particular, the "Measurable Objective Expected to Benefit" and "Expected Benefits and Evaluation" language will be revised to indicate that these benefits are yet to be determined pending outcome of the ongoing litigation.

December 9, 2021

Ojai Basin Groundwater Management Agency
P.O. Box 1779
Ojai, CA 93024

Submitted via email: OjaiBasinGSP@gmail.com

Re: Public Comment Letter for Ojai Valley Groundwater Basin Draft GSP

Dear John Mundy,

On behalf of the above-listed organizations, we appreciate the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Ojai Valley Groundwater Basin being prepared under the Sustainable Groundwater Management Act (SGMA). Our organizations are deeply engaged in and committed to the successful implementation of SGMA because we understand that groundwater is critical for the resilience of California's water portfolio, particularly in light of changing climate. Under the requirements of SGMA, Groundwater Sustainability Agencies (GSAs) must consider the interests of all beneficial uses and users of groundwater, such as domestic well owners, environmental users, surface water users, federal government, California Native American tribes and disadvantaged communities (Water Code 10723.2).

As stakeholder representatives for beneficial users of groundwater, our GSP review focuses on how well disadvantaged communities, drinking water users, tribes, climate change, and the environment were addressed in the GSP. While we appreciate that some basins have consulted us directly via focus groups, workshops, and working groups, we are providing public comment letters to all GSAs as a means to engage in the development of 2022 GSPs across the state. Recognizing that GSPs are complicated and resource intensive to develop, the intention of this letter is to provide constructive stakeholder feedback that can improve the GSP prior to submission to the State.

Based on our review, we have significant concerns regarding the treatment of key beneficial users in the Draft GSP and consider the GSP to be **insufficient** under SGMA. We highlight the following findings:

1. Beneficial uses and users **are not sufficiently** considered in GSP development.
    a. Human Right to Water considerations **are not sufficiently** incorporated.
    b. Public trust resources **are not sufficiently** considered.
    c. Impacts of Minimum Thresholds, Measurable Objectives and Undesirable Results on beneficial uses and users **are not sufficiently** analyzed.

2. Climate change **is not sufficiently** considered.
3. Data gaps **are sufficiently** identified and the GSP **has a plan** to eliminate them.
4. Projects and Management Actions **do not sufficiently consider** potential impacts or benefits to beneficial uses and users.

Our specific comments related to the deficiencies of the Ojai Valley Groundwater Basin Draft GSP along with recommendations on how to reconcile them, are provided in detail in **Attachment A.**

Please refer to the enclosed list of attachments for additional technical recommendations:

Attachment A	GSP Specific Comments
Attachment B	SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users
Attachment C	Freshwater species located in the basin
Attachment D	The Nature Conservancy's "Identifying GDEs under SGMA: Best Practices for using the NC Dataset"

Thank you for fully considering our comments as you finalize your GSP.

Best Regards,

Ngodoo Atume
Water Policy Analyst
Clean Water Action/Clean Water Fund

J. Pablo Ortiz-Partida, Ph.D.
Western States Climate and Water Scientist
Union of Concerned Scientists

Samantha Arthur
Working Lands Program Director
Audubon California

Danielle V. Dolan
Water Program Director
Local Government Commission

E.J. Remson
Senior Project Director, California Water Program
The Nature Conservancy

Melissa M. Rohde
Groundwater Scientist
The Nature Conservancy

Attachment A

Specific Comments on the Ojai Valley Groundwater Basin Draft Groundwater Sustainability Plan

1. Consideration of Beneficial Uses and Users in GSP development

Consideration of beneficial uses and users in GSP development is contingent upon adequate identification and engagement of the appropriate stakeholders. The (A) identification, (B) engagement, and (C) consideration of disadvantaged communities, drinking water users, tribes,[1] groundwater dependent ecosystems, streams, wetlands, and freshwater species are essential for ensuring the GSP integrates existing state policies on the Human Right to Water and the Public Trust Doctrine.

A. Identification of Key Beneficial Uses and Users

Disadvantaged Communities and Drinking Water Users
The identification of Disadvantaged Communities (DACs) and drinking water users is **insufficient**. The GSP identifies the Barbareño/Ventureño Band of Mission Indians as a stakeholder within the basin but does not provide a map of the tribal lands or tribal interests in the basin.

The GSP maps domestic wells in the basin by density per square mile (Figure 2-5). However, the plan fails to provide depth of these wells (such as minimum well depth, average well depth, or depth range) within the basin. This information is necessary to understand the distribution of shallow and vulnerable drinking water wells within the basin.

These missing elements are required for the GSAs to fully understand the specific interests and water demands of these beneficial users, and to support the consideration of beneficial users in the development of sustainable management criteria and selection of projects and management actions.

RECOMMENDATIONS
• Include a map showing domestic well locations and average well depth across the basin. • Provide a map of tribal lands and describe tribal interests in the basin.

Interconnected Surface Waters
The identification of Interconnected Surface Waters (ISWs) is **insufficient**, due to lack of supporting information provided for the ISW analysis.

The GSP maps streams in the basin using the USGS National Hydrography Dataset on Figure 2-36, which shows the stream reaches labeled as intermittent, perennial, and unclassified. The

[1] Our letter provides a review of the identification and consideration of federally recognized tribes (Data source: SGMA Data viewer) within the GSP from non-tribal members and NGOs. Based on the likely incomplete information available to our organizations for this review, we recommend that the GSA utilize the California Department of Water Resources' "Engagement with Tribal Governments" Guidance Document (https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents) to comprehensively address these important beneficial users in their GSP.

GSP states (p. 2-137): "*According to the USGS National Hydrography Dataset (NHD), nearly the entire length of every creek that transects the OVGB is classified as intermittent within the OVGB, with the exception of the lowermost reaches of San Antonio Creek, Thacher Creek, and the Fox Canyon Drain/Stewart Canyon drainage which are classified as perennial.*" Note the regulations [23 CCR §351(o)] define ISW as "surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted." "At any point" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be crucial for surface water flow and supporting environmental users of groundwater and surface water.

The GSP implies that surface water reaches connected to the shallow perched aquifer should not be considered ISWs. The GSP states (p. 2-137): *"Based on available lithologic, streamflow, and groundwater level data, there is a shallow perched aquifer in the southern and western portion of the OVGB that is in hydraulic connection with surface water of San Antonio Creek and its tributaries. The shallow perched aquifer is separated from the deeper confined production aquifers by an extensive clay aquitard (OBGMA 2018). Groundwater levels in the shallow perched aquifer exhibit a stable trend with little seasonal fluctuation or response to groundwater extraction while groundwater levels in the principal aquifer show the effects of groundwater extraction."* However, shallow aquifers that provide significant quantities of groundwater to springs or surface water systems, must by definition be considered a principal aquifer, regardless of pumping.[2] This is especially the case if the shallow aquifer is supporting ecosystems, providing baseflow to streams, and has the potential to support future well development, even if the majority of the basin's pumping is currently occurring in deeper principal aquifers. If areas of shallow or perched groundwater are discounted as ISWs, the GSP should provide more supporting evidence of 1) vertical groundwater gradients between the perched system and deeper principal aquifers, and 2) whether perched groundwater is providing significant or economic quantities of water to springs (e.g., GDEs), wells (e.g., domestic wells), and surface water systems (e.g., GDEs/ISWs).

The GSP acknowledges the gaps in data needed to adequately characterize the interaction between groundwater and surface water within the basin. We recommend that any segments with data gaps are considered potential ISWs and clearly marked as such on maps provided in the GSP.

RECOMMENDATIONS

- On the map of streams in the basin, clearly label reaches as interconnected (gaining/losing) or disconnected. Consider any segments with data gaps as potential ISWs and clearly mark them as such on maps provided in the GSP.
- Use seasonal data over multiple water year types to capture the variability in environmental conditions inherent in California's climate, when mapping ISWs. We recommend the 10-year pre-SGMA baseline period of 2005 to 2015.
- Overlay the basin's stream reaches on depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. Show the location of groundwater wells used in the analysis.

[2] "'Principal aquifers' refer to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems." [23 CCR §351(aa)]

- For the depth-to-groundwater contour maps, use the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found.

Groundwater Dependent Ecosystems

The identification of Groundwater Dependent Ecosystems (GDEs) is **insufficient**. The GSP took initial steps to identify and map GDEs using the Natural Communities Commonly Associated with Groundwater dataset (NC dataset). However, we found that some mapped features in the NC dataset were improperly disregarded.

- NC dataset polygons were incorrectly removed if Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) data did not correlate with groundwater level trends. This is an incorrect method, since a lack of a relationship does not preclude that groundwater is providing some of the ecosystem's water needs. If the ecosystem is accessing groundwater then the ecosystem should be categorized as a GDE. If there are no data to characterize groundwater conditions underlying the GDE, then the GDE should be retained as a potential GDE and data gaps reconciled in the Monitoring Network section of the GSP.

- NC dataset polygons were incorrectly removed if they were determined to not be impacted by groundwater extraction from the deeper principal aquifer. However, shallow aquifers that have the potential to support well development, springs, or surface water systems are principal aquifers, even if the majority of the basin's pumping is occurring in deeper principal aquifers. If there are no data to characterize groundwater conditions in the shallow principal aquifer, then the GDE should be retained as a potential GDE and data gaps reconciled in the Monitoring Network section of the GSP.

The GSP states (p. 2-147): *"Of the 46 individual vegetation and wetland communities (253.3 acres) identified in the NCCAG dataset, 12 communities (94.3 acres) are characterized as priority potential groundwater dependent ecosystems, 21 communities (99.5 acres) are characterized as potential groundwater dependent ecosystems, and 13 communities (59.5 acres) are characterized as potential GDEs not likely impacted by groundwater extraction."* The GSP should clarify which potential GDEs are retained for consideration and inclusion in the monitoring network and sustainable management criteria. If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.

The GSP lists Valley Oak (*Quercus lobata*) as one of the vegetation types in the basin. We recommend that an 80-foot depth-to-groundwater threshold be used when inferring whether Valley Oak polygons in the NC dataset are likely reliant on groundwater. This recommendation is based on a recent correction in TNC's rooting depth database,[3] after finding a typo in the max rooting depth units for Valley Oak. This resulted in a specific change in the max rooting depth of Valley Oak from 24 feet to 24 meters (80 feet). For all other phreatophytes, we continue to recommend that a 30-foot depth-to-groundwater threshold be used when inferring whether all other NC dataset polygons are likely reliant on groundwater.

[3] TNC. 2021. Plant Rooting Depth Database. Available at: https://groundwaterresourcehub.org/sgma-tools/gde-rooting-depths-database-for-gdes/

The GSP provides a summary of the communities in the NC Dataset by vegetation and wetland type in Table 2-12. However, the GSP does not provide a description or inventory of the basin's fauna or discuss endangered, threatened, or special status species.

RECOMMENDATIONS

- Re-evaluate the NC dataset polygons that were incorrectly removed based on NDVI and NDMI trends or based on impact by groundwater extraction from the deeper principal aquifer. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.

- Provide depth-to-groundwater contour maps, noting the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape.

- Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30-ft threshold, such as Valley Oak (*Quercus lobata*). We recommend that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30-ft threshold, when verifying whether Valley Oak polygons from the NC Dataset are connected to groundwater. It is important to emphasize that actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and proximity to other water sources.

- If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.

- Provide a complete inventory, map, or description of fauna (e.g., birds, fish, amphibian) and flora (e.g., plants) species in the basin and note any threatened or endangered species (see Attachment C in this letter for a list of freshwater species located in the Ojai Valley Basin).

Native Vegetation and Managed Wetlands

Native vegetation and managed wetlands are water use sectors that are required to be included in the water budget.[4,5] The integration of native vegetation into the water budget is **insufficient**. The GSP text discusses evapotranspiration from riparian habitats for the historic period, but native vegetation appears to be grouped into a category with all evapotranspiration in the water budget tables. The omission of explicit water demands for native vegetation is problematic

[4] "'Water use sector' refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation." [23 CCR §351(al)]

[5] "The water budget shall quantify the following, either through direct measurements or estimates based on data: (3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow." [23 CCR §354.18]

because key environmental uses of groundwater are not being accounted for as water supply decisions are made using this budget, nor will they likely be considered in project and management actions. Managed wetlands are not mentioned in the GSP, so it is not known whether or not they are present in the basin.

RECOMMENDATIONS

- Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including native vegetation.
- State whether or not there are managed wetlands in the basin. If there are, ensure that their groundwater demands are included as separate line items in the historical, current, and projected water budgets.

B. Engaging Stakeholders

Stakeholder Engagement During GSP Development
Stakeholder engagement during GSP development is **insufficient**. SGMA's requirement for public notice and engagement of stakeholders is not fully met by the description in the Public Outreach and Engagement Plan (Appendix C).[6]

We note the following deficiencies with the overall stakeholder engagement process:

- The GSP documents opportunities for public involvement and engagement in very general terms for listed stakeholders. Public notice and engagement activities include media releases and announcements through the Ventura River Watershed Council and agricultural industry organizations, communications via email to the interested parties list, agency website posts, and physical postings at Ojai City Hall, and attendance at public meetings with opportunities for questions and comments. The GSP does not state whether there was direct engagement with drinking water users, environmental stakeholders or representatives, or whether tribal and environmental stakeholders are represented on a GSP Advisory Committee.
- The plan does not include documentation on how stakeholder input from the above-mentioned outreach and engagement was solicited, considered, and incorporated into the GSP development process.
- While the plan states: "*The local Chumash Barbareño/Ventureño Band of Mission Indians is on the list of interested parties and is invited to participate,*" there is no documentation of how outreach and engagement to the Chumash Barbareño/Ventureño Band of Mission Indians was conducted and the input from the tribe to GSP development.

[6] "A communication section of the Plan shall include a requirement that the GSP identify how it encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin." [23 CCR §354.10(d)(3)]

- The GSP states *"the OBGMA may adjust the engagement strategy and/or provide additional outreach opportunities as needed throughout the GSP development and implementation process,"* suggesting that plans for outreach to all identified stakeholders will continue during the implementation phase of the GSP. However, the GSP does not include a detailed plan for continual opportunities for outreach and engagement through the implementation phase of the GSP that is specifically directed to domestic well owners, tribes, and environmental stakeholders within the basin.

RECOMMENDATIONS

- In the Public Outreach and Engagement Plan, describe active and targeted outreach to engage drinking water users, tribes, and environmental stakeholders throughout the GSP development and implementation phases. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process.
- Regarding the interests of tribes, the plan states that *"the OBGMA is currently working to locate the nearest contact in the Ojai Valley and expects to send information soon after the time of print of this Outreach and Engagement Plan."* Provide this information in the final plan.
- Utilize DWR's tribal engagement guidance to comprehensively identify, involve, and address all tribes and tribal interests that may be present in the basin.[7]

C. Considering Beneficial Uses and Users When Establishing Sustainable Management Criteria and Analyzing Impacts on Beneficial Uses and Users

The consideration of beneficial uses and users when establishing sustainable management criteria (SMC) is **insufficient**. The consideration of potential impacts on all beneficial users of groundwater in the basin are required when defining undesirable results and establishing minimum thresholds.[8,9,10]

Disadvantaged Communities and Drinking Water Users

For chronic lowering of groundwater levels, the GSP establishes minimum thresholds as follows (p. 3-12): *"Maintaining groundwater levels above recorded historical low static levels at RMPs during multi year drought conditions was selected as the minimum desired threshold for groundwater elevations that would be protective of beneficial uses in the OVGB. These minimum thresholds would be protective of all potable and non-potable beneficial uses because*

[7] Engagement with Tribal Governments Guidance Document. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Guidance-Doc-for-SGM-Engagement-with-Tribal-Govt_ay_19.pdf

[8] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results." [23 CCR §354.26(b)(3)]

[9] "The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[10] "The description of minimum thresholds shall include [...] how state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the agency shall explain the nature of and the basis for the difference." [23 CCR §354.28(b)(5)]

undesirable results have not historically occurred at these levels." The GSP does not quantify the number of domestic wells that could go dry, or otherwise consider or analyze the impact of minimum thresholds on domestic wells. Therefore, the GSP does not sufficiently describe whether minimum thresholds will avoid significant and unreasonable loss of drinking water to domestic well users, especially given the absence of a domestic well impact mitigation plan in the GSP. In addition, the GSP does not sufficiently describe or analyze direct or indirect impacts on drinking water users or tribes when defining undesirable results, nor does it describe how the groundwater level minimum thresholds are consistent with Human Right to Water policy and will avoid significant and unreasonable impacts on these beneficial users.[11]

For degraded water quality, constituents of concern (COCs) in the basin include total dissolved solids (TDS), sulfate, chloride, boron, nitrate, iron, and manganese. Minimum thresholds are established for each COC as the relevant drinking water standards specified in Title 22 of the California Code of Regulations (CCR). Measurable objectives are established for COCs that have groundwater quality objectives in the Los Angeles Basin Plan (i.e., TDS, sulfate, chloride, and boron).

The GSP only includes a very general discussion of impacts on drinking water users when defining undesirable results and evaluating the impacts of proposed minimum thresholds for degraded water quality. The GSP does not, however, mention or discuss direct and indirect impacts on tribes when defining undesirable results for degraded water quality, nor does it evaluate the cumulative or indirect impacts of proposed minimum thresholds on these stakeholders.

RECOMMENDATIONS

Chronic Lowering of Groundwater Levels

- Describe direct and indirect impacts on drinking water users and tribes when describing undesirable results and defining minimum thresholds for chronic lowering of groundwater levels. Include information on the impacts during prolonged periods of below average water years.

- Consider and evaluate the impacts of selected minimum thresholds and measurable objectives on drinking water users and tribes within the basin. Further describe the impact of passing the minimum threshold for these users. For example, provide the number of domestic wells that would be fully or partially de-watered at the minimum threshold.

Degraded Water Quality

- Describe direct and indirect impacts on drinking water users and tribes when defining undesirable results for degraded water quality.[12] For specific guidance on how to consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act."[13]

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[11] California Water Code §106.3. Available at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=106.3

[12] "Degraded Water Quality [...] collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues." [23 CCR §354.34(c)(4)]

[13] Guide to Protecting Water Quality under the Sustainable Groundwater Management Act https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

- Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on drinking water users and tribes.

Groundwater Dependent Ecosystems and Interconnected Surface Waters

The GSP states (p. 3-26): *"As described in Section 3.2.6, Depletions of Interconnected Surface Water, there is not sufficient information at this time to establish minimum thresholds, measurable objectives, or interim milestones for depletions of interconnected surface water or GDEs."*

The GSP discusses data gaps for GDEs and ISWs, and provides specific plans to fill these data gaps in the monitoring network and projects and management actions sections of the GSP. Despite these data gaps, the GSP could be improved by including further discussion of significant and unreasonable effects for GDEs and ISWs in the basin, including surface water beneficial users (see Attachment C for a list of environmental users in the basin), such as increased mortality and inability to perform key life processes (e.g., reproduction, migration). In the future as SMC are established for GDEs and ISWs, note our further recommendations below.

RECOMMENDATIONS

- When establishing SMC for the basin, consider that the SGMA statute [Water Code §10727.4(l)] specifically calls out that GSPs shall include "impacts on groundwater dependent ecosystems."
- Evaluate impacts on GDEs when establishing SMC for chronic lowering of groundwater levels. When defining undesirable results, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results in the basin.[14] Defining undesirable results is the crucial first step before the minimum thresholds can be determined.[15]
- When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when minimum thresholds in the basin are reached.[16] The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts on environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected

[14] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results". [23 CCR §354.26(b)(3)]

[15] The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[16] "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." [23 CCR §354.28(c)(6)]

by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law.[8,17]

2. Climate Change

The SGMA statute identifies climate change as a significant threat to groundwater resources and one that must be examined and incorporated in the GSPs. The GSP Regulations require integration of climate change into the projected water budget to ensure that projects and management actions sufficiently account for the range of potential climate futures.[18] The effects of climate change will intensify the impacts of water stress on GDEs, making available shallow groundwater resources especially critical to their survival. Condon *et al.* (2020) shows that GDEs are more likely to succumb to water stress and rely more on groundwater during times of drought.[19] When shallow groundwater is unavailable, riparian forests can die off and key life processes (e.g., migration and spawning) for aquatic organisms, such as steelhead, can be impeded.

The integration of climate change into the projected water budget is **insufficient**. The GSP incorporates climate change into the projected water budget using DWR change factors for both 2030 and 2070. However, the plan does not consider multiple climate scenarios (e.g., the 2070 extremely wet and extremely dry climate scenarios) in the projected water budget. The GSP would benefit from clearly and transparently incorporating the extremely wet and dry scenarios provided by DWR into projected water budgets or select more appropriate extreme scenarios for the basin. While these extreme scenarios may have a lower likelihood of occurring and their consideration is not required by DWR (only suggested), their consequences could be significant and their inclusion can help identify important vulnerabilities in the basin's approach to groundwater management.

The GSP integrates climate change into key inputs (e.g., changes in precipitation and evapotranspiration) of the projected water budget. However, the plan fails to include surface water flow inputs (inclusive of imported water) for the projected water budget and incorporate the effects of climate change on these flows. The sustainable yield is calculated based on the projected water budget with climate change incorporated. However, if the water budgets are incomplete, including the omission of extremely wet and dry scenarios and the projected climate change effects on surface water flow inputs, then there is increased uncertainty in virtually every subsequent calculation used to plan for projects, derive measurable objectives, and set minimum thresholds. Plans that do not adequately include climate change projections may underestimate future impacts on vulnerable beneficial users of groundwater such as ecosystems, tribes, and domestic well owners.

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[17] Rohde MM, Seapy B, Rogers R, Castañeda X, editors. 2019. Critical Species LookBook: A compendium of California's threatened and endangered species for sustainable groundwater management. The Nature Conservancy, San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/Critical_Species_LookBook_91819.pdf

[18] "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." [23 CCR §354.18(e)]

[19] Condon et al. 2020. Evapotranspiration depletes groundwater under warming over the contiguous United States. Nature Communications. Available at: https://www.nature.com/articles/s41467-020-14688-0

RECOMMENDATIONS
• Integrate climate change, including extreme climate scenarios, into all elements of the projected water budget to form the basis for development of sustainable management criteria and projects and management actions • Include surface water flow inputs, inclusive of imported water, in the projected water budget and incorporate climate change effects on these flows. • Incorporate climate change scenarios into projects and management actions.

3. Data Gaps

The consideration of beneficial users when establishing monitoring networks is **sufficient**, due to the inclusion of specific plans to increase the Representative Monitoring Wells (RMWs) in the monitoring network that represent water quality conditions and shallow groundwater elevations around domestic wells, tribes, GDEs, and ISWs in the basin.[20]

We commend the GSA for establishing a representative monitoring network for ISW and GDEs, and for including plans to fill existing data gaps with stream monitoring and a GDE assessment to plan for additional monitoring wells and stream gauges in the future (Section 3.5.7.2).

4. Addressing Beneficial Users in Projects and Management Actions

The consideration of beneficial users when developing projects and management actions is **incomplete**. The GSP identifies the benefits or impacts of identified projects and management actions, including water quality impacts, to key beneficial users of groundwater such as GDEs. However, projects and management actions (e.g., Develop Salt and Nutrient Management Plan) are described without a known timeline for implementation.

The GSP also fails to include a domestic well impact mitigation program to avoid significant and unreasonable loss of drinking water. We strongly recommend inclusion of a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation.

RECOMMENDATIONS
• Describe the projected timeline for implementing the Salt and Nutrient Management Plan project in Chapter 4 of the GSP. • For DACs and domestic well owners, provide specific plans for implementation of a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program.

[20] "The monitoring network objectives shall be implemented to accomplish the following: [...] (2) Monitor impacts to the beneficial uses or users of groundwater." [23 CCR §354.34(b)(2)]

- Recharge ponds, reservoirs, and facilities for managed aquifer recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the "Multi-Benefit Recharge Project Methodology Guidance Document."[21]

- Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.

[21] The Nature Conservancy. 2021. Multi-Benefit Recharge Project Methodology for Inclusion in Groundwater Sustainability Plans. Sacramento. Available at: https://groundwaterresourcehub.org/sgma-tools/multi-benefit-recharge-project-methodology-guidance/

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Response to Comment Letter

Organization/Agency: Non-Governmental Organizations
Commenter: Ngodoo Atume et al.
Date: December 9, 2021

NGO-1 Comment #1: The identification of Disadvantaged Communities (DACs) and drinking water users is insufficient.

As discussed in Section 2.1.3.1 Land Use and Population, there are no disadvantaged communities (DACs) in the Ojai Valley Groundwater Basin (OVGB). The local Chumash Barbareño/Ventureño Band of Mission Indians are a stakeholder group in the OVGB. Julie Tumamait-Stenslie, Tribal Chair of the The Barbareño/Ventureño Band of Mission Indians, attended and spoke at the Ojai Basin Groundwater Management Agency (OBGMA) meeting held on June 9, 2021. The Barbareño/Ventureño Band of Mission Indians do not have a federally recognized tribal land boundary.

As stated in Section 2.1.2.1 Groundwater Monitoring and Section 4.2.2 Conduct Groundwater Extraction Monitoring, since 1993 and the adoption of Ordinance No. 1, the OBGMA has monitored groundwater extractions from all active water supply wells in the OVGB, including *de minimis* pumpers. Each well operator submits a Groundwater Extraction Statement to the OBGMA on a quarterly basis. The OBGMA encourages well operators to communicate any potential well production issues users may be experiencing to inform basin management moving forward. Figure 2-5 Groundwater Well Locations and Density per Square Mile shows domestic well locations in the OVGB. The OBGMA disagrees with the comment that identification of DACs and drinking water users in the OVGB is insufficient.

NGO-2 Comment #2: The identification of Interconnected Surface Waters (ISWs) is insufficient, due to lack of supporting information provided for the ISW analysis.

As described in Section 2.3.4.6 Groundwater-Surface Water Connections, and shown in Figures 2-36 NCCAG Listed Communities and 2-39 Potential Groundwater Dependent Ecosystems, nearly the entire length of every creek that transects the OVGB is classified by the United States Geological Survey (USGS) National Hydrography Dataset (NHD) as intermittent, with the exception of the lowermost reaches of San Antonio Creek, Thacher Creek, and Fox Canyon Drain/Stewart Canyon which are classified as perennial. As stated in Section 2.1.2.2 Precipitation and Streamflow Monitoring, the OBGMA conducts monthly manual stream discharge monitoring and continuous stream stage monitoring on lower San Antonio Creek at the location identified in Figure 2-7 Weather Stations and Average Annual Precipitation in the Plan Area to monitor perennial baseflows and document the location of daylighting groundwater. A figure summarizing the data collected to date is included in Appendix E. As described in Section 4.2.1 Conduct Groundwater Level, Groundwater Quality, and Streamflow Monitoring and Section 4.2.4 Prepare Groundwater Dependent Ecosystems Assessment, the OBGMA plans to monitor stream flows and map stream reaches to fill data gaps associated with groundwater-surface water interactions and groundwater dependent ecosystems (GDEs). The information will be used to establish minimum thresholds or measurable objectives for depletions of interconnected surface water and GDEs, if appropriate.

The GSP does not suggest or imply that “surface water reaches connected to the shallow perched aquifer should not be considered ISWs” as asserted by the commentor. In fact, the GSP clearly indicates, "…that the perched aquifer is shallow perched aquifer in the southern and western portion of the OVGB that is in *hydraulic connection* with surface water of San Antonio Creek and its tributaries." While the perched aquifer is by definition a "principal aquifer" as defined by California Code of Regulations (CCR) Title 23 Section 351(aa) based on its ability to store, transmit, and yield significant quantities of water to surface water systems, it is not an aquifer that is typically targeted for groundwater extraction to yield significant or economic quantities of groundwater to wells, which is an important distinction in the OVGB. As shown in Figure 2-37, Shallow Perched Aquifer and Deep Production Aquifer Groundwater Level Trends, groundwater levels in the shallow perched aquifer exhibit a stable trend with little seasonal fluctuation or response to groundwater extraction while groundwater levels in the principal "production" aquifers show the effects of groundwater extraction (emphasis on distinction between the perched aquifer and production aquifers). Preliminary groundwater levels and water quality data from the OBGMA's new nested monitoring well, South-Central Nested Depth-Discrete Monitoring Well, indicate that the perched aquifer encountered from 14 to 24 feet below ground surface is isolated from the principal "production" aquifers encountered from 140 feet to 328 feet below ground surface (Kear 2021, Summary of Construction Operations OBGMA New 'South-Central Nested Depth-Discrete Monitoring Well). The new South-Central Nested Depth-Discrete Monitoring Well was completed in June 2021. Additional groundwater level and water quality monitoring is ongoing and will be further evaluated when assessing ISW-groundwater interactions and the potential need to develop sustainability management criteria for depletions of interconnected surface water. The OBGMA will consider recommendations provided by the commentor as part of Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP.

NGO-3 Comment #3: The identification of Groundwater Dependent Ecosystems (GDEs) is insufficient.

As discussed in Section 2.3.4.7 Groundwater Dependent Ecosystems and Appendix E, vegetation and wetland communities identified in the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset were characterized using the methods outlined by The Nature Conservancy (TNC) (Rohde et al. 2018). NCCAG polygons were characterized as: (1) priority potential groundwater dependent ecosystems, (2) potential groundwater dependent ecosystems or (3) potential GDEs not likely impacted by groundwater extraction. None of the vegetation or wetland communities were removed if Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) data did not correlate with groundwater level trends as claimed. All of the vegetation and wetland communities in the NCCAG were retained as "potential GDEs" and characterized to identify which communities have the greatest potential to be impacted by groundwater extraction, based on available data, in order to prioritize where additional study should be focused. Because there is limited groundwater level data from shallow and depth-discrete monitoring wells in the OVGB there is not sufficient data at this time to generate depth-to-groundwater contour maps as recommended. Hydrographs for wells nearby each NCCAG polygon were used to determine local depths-to-groundwater and evaluate groundwater level trends over time but were not solely relied upon to characterize an ecosystem's potential dependence on groundwater. Furthermore, field surveys have not been completed to verify the presence of and map the extent of the NCCAG identified vegetation and wetland communities. As discussed in Appendix E, many of the NCCAG polygons contain developed land and aerial photographs indicate that some of the vegetation species may be incorrectly identified (e.g., western sycamore is mapped as coast live oak). As described above and in Chapter 4, the OBGMA plans to monitor stream flows and groundwater levels and complete a groundwater dependent ecosystems assessment in order to fill data gaps. The information will be used to establish minimum thresholds or measurable objectives for depletions of interconnected surface water and GDEs, if appropriate.

A complete inventory and description of threatened and endangered species in the OVGB is included in Appendix E. The GSP will be revised to state that the maximum rooting depth of Valley Oak is 80 feet. The OBGMA will further consider recommendations provided by the commentor as part of Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP.

NGO-4 Comment #4: The integration of native vegetation into the water budget is insufficient.

In accordance with Groundwater Sustainability Plan (GSP) Regulations (23 CCR Section 354.18(b) 3), the water budget for the OVGB considered evapotranspiration from irrigated crops and native vegetation (including riparian habitats). As described in Section 2.4.2.3 Evapotranspiration, crop evapotranspiration was calculated using the Penman-Monteith equation and evapotranspiration from riparian vegetation was estimated using the MODFLOW evapotranspiration (EVT1) package. Between water years 1971 and 2014, the average annual evapotranspiration by riparian habitats, calculated by the Ojai Basin Groundwater Model (OBGM), was 266 acre-feet per year (AFY). Evapotranspiration was simulated in the projected water budget for the OVGB by applying the California Department of Water Resources (DWR) 2030 and 2070 central tendency evapotranspiration change factors to measured data.

No managed wetlands are known to occur in the OVGB. The GSP will be revised to indicate as such.

NGO-5 Comment #5: Stakeholder engagement during GSP development is insufficient.

In accordance with GSP Regulations (23 CCR Section 354.10), the OBGMA developed a Public Outreach and Engagement Plan (included as Appendix C) and held seventeen public meetings where presentations on the GSP were made and stakeholders and the public were provided opportunity to comment. In addition, the OBGMA conducted public outreach at a booth during Ojai Day held on October 16, 2021. In regards to interests of tribes, as described above, Julie Tumamait-Stenslie, Tribal Chair of the The Barbareño/Ventureño Band of Mission Indians, attended and spoke at the OBGMA meeting held on June 9, 2021. The OBGMA did not receive formal comments from stakeholders and the public on the draft GSP until November 24, 2021, and did not receive this comment letter until December 9, 2021, which does not provide the OBGMA sufficient time to incorporate all comments and suggested revisions in the GSP by the final statutory submittal deadline of January 31, 2022.

NGO-6 Comment #6: The consideration of beneficial uses and users when establishing sustainable management criteria (SMC) is insufficient.

A description of the beneficial uses and users of groundwater in the OVGB is included in Section 2.1.4 Beneficial Uses and Users. As described in Chapter 3, all beneficial uses and users of groundwater were considered when establishing sustainable management criteria for the applicable sustainability indicators. As stated in Section 3.2.1 Chronic Lowering of Groundwater Levels – Undesirable Results, lowering of groundwater levels is significant and unreasonable if sufficient in magnitude to lower the rate of production of existing groundwater wells below that necessary to meet the minimum required to support the overlying beneficial uses, where alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s). Although limited available information indicates that a number of shallow groundwater production wells located near the edge of the OVGB have experienced production issues during periods of prolonged drought, the OBGMA and local groundwater users have determined that the conditions do not constitute an undesirable result because other sources of water have been available. The OBGMA will continue to monitor groundwater levels in wells located throughout the OVGB and collect information from private well owners to reevaluate and update, if needed, the minimum thresholds and measurable objectives for groundwater levels. As described in Section 3.2.4 Degraded Water Quality – Undesirable Results, Degraded groundwater quality is significant and unreasonable if the magnitude of degradation precludes the use of groundwater for existing beneficial uses, including through migration of contaminant plumes that impair water supplies, where alternative means of treating or otherwise obtaining sufficient alternative water resources are not technically or financially feasible. Degradation of groundwater quality is an undesirable result that is not occurring and will not occur within the framework of existing regulations and adherence to state and local OVGB plans. adherence to existing regulations and to state and local OVGB plans (which are used as the minimum thresholds and measurable objectives for this sustainability indicator), as well as implementation of sustainability criteria for chronic lowering of groundwater levels and reduction of groundwater in storage, in combination, is sufficient to ensure adverse effects related to groundwater quality would continue to be neither significant nor unreasonable.

As discussed above and in Chapters 2 and 3, the interaction between groundwater-surface water interactions and GDEs are currently a data gap. As described above and in Chapter 4, the OBGMA plans to monitor stream flows and groundwater levels and complete a groundwater dependent ecosystems assessment in order to fill data gaps. The information will be used to establish minimum thresholds or measurable objectives for depletions of interconnected surface water and GDEs, if appropriate.

NGO-7 Comment #7: The integration of climate change into the projected water budget is insufficient.

In accordance with GSP Regulations (23 CCR Section 354.18(c) 3), the projected water budget for the OVGB utilized a 50-year projection horizon that incorporated the most recent land use and population data, projected water demands, and surface water availability. As described in Section 2.4.4 Quantification of Current, Historical, and Projected Water Budget, the DWR 2030 and 2070 central tendency precipitation and evapotranspiration change factors were applied to measured precipitation and temperature data recorded at the National Oceanic and Atmospheric Administration (NOAA) Ojai weather station from 1944 to 1993 to simulate the effects of climate change on groundwater resources in the OVGB under various climate scenarios. Groundwater extraction was set at a constant extraction rate of 4,000 AFY for all future scenario conditions and surface water supplies were assumed to remain available to the OVGB throughout the 50-year projection horizon based on Casitas Municipal Water District's (CMWD's) surface water supply and demand projections presented in the 2020 Urban Water Management Plan (CMWD 2021).

As described in Section 4.2.6 Simulate Extreme Climate Scenarios, the OBGMA has proposed to simulate extreme climate scenarios as a component of the first 5-year GSP update. The analysis will utilize monthly adjustment factors representing wetter milder warming (WMW) and drier extreme warming (DEW) conditions provided by DWR to assess groundwater conditions under extreme climate conditions. Additionally, the OBGMA will reevaluate projected water budgets and groundwater elevations to further characterize uncertainty in groundwater conditions. Measured groundwater elevations, groundwater extraction data, and climatological data will be incorporated into the Ojai Basin Groundwater Model updates to assess current and projected basin demands and management strategies.

NGO-8 Comment #8: The consideration of beneficial users when establishing monitoring networks is sufficient, due to the inclusion of specific plans to increase the Representative Monitoring Wells (RMWs) in the monitoring network that represent water quality conditions and shallow groundwater elevations around domestic wells, tribes, GDEs, and ISWs in the basin.

The OBGMA appreciates the recognition.

NGO-9 Comment #9: The consideration of beneficial users when developing projects and management actions is incomplete.

As stated in Section 4.4.1 Develop Salt and Nutrient Management Plan (SNMP), the OBGMA will develop a SNMP if required by the Regional Water Quality Control Board (RWQCB), or if undesirable results are determined to be occurring or likely to occur.

As described above and in Chapter 3, the OBGMA and local groundwater users have determined that if alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are feasible conditions do not constitute an undesirable result. The OBGMA will continue to monitor groundwater levels in wells located throughout the OVGB and collect information from private well owners to reevaluate and update, if needed, the minimum thresholds and measurable objectives for groundwater levels.

As discussed in Chapter 4, the OBGMA has proposed several projects and management actions that incorporate climate and water delivery uncertainties including simulate of extreme climate scenarios, develop of a comprehensive conjunctive management plan, and explore state water project delivery options, among others.

Verbal Comment at Ojai Board Meeting on December 9, 2021 – Kevin DeLano, Geologist (GIT) at State Water Resources Control Board

Mr. DeLano provided comment at the December 9, 2021 Ojai Board Meeting. Mr. Delano stated, "Just wanted to draw your attention to some information on flow that was recently published by CDFW on November 22, of 2021. CDFW published what they are calling a tech report for San Antonio Creek where they looked at instream flow needs for steelhead adult spawning and juvenile rearing. That is some new information that the GSA could consider. CDFW is in the process of developing more formal instream flow recommendations for San Antonio Creek and other parts of the Ventura River watershed. The tech reports are available online." Mr. DeLano agreed to sending tech report to OBGMA email.

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Response to Comment

Organization/Agency: State Water Resources Control Board
Commenter: Kevin Delano
Date: December 9, 2021

SWRCB-1 Kevin Dealno of the SWRCB provided general comment regarding the availability of California Department of Fish and Wildlife's (CDFW) Instream Flow Regime Criteria on a Watershed Scale of the Ventura River (Watershed Criteria Report) (May 2020), Southern California Steelhead Adult Spawning and Juvenile Rearing in San Antonio Creek, Ventura County (November 2021) and SWRCB's Draft Model Documentation Report for the Groundwater-Surface Water Model of the Ventura River Watershed (December 2021).

As provided in response to comment CDFW-5, In May 2020, CDFW's Instream Flow Program publicly released the Watershed Criteria Report. CDFW asserts this report "represents best available science for the OVGB regarding flows needed to support the Basin's ecosystem within the Lower San Antonio Creek (San Antonio Creek 1), Upper San Antonio Creek (San Antonio Creek 2), and Lion Canyon Creek, a tributary to San Antonio Creek". The Watershed Criteria Report states, "The Department provides this document as a tool for consideration in water management planning. It presents an analytical approach that can be implemented, if appropriate, under the specific circumstances of a watershed, stream, or informational need. This report and the Overview, in and of themselves, should not be considered to provide binding guidelines, establish legal compliance, or ensure project success." The Watershed Criteria Report estimates natural flows at several river reaches that would be expected with no human influence. Based on Figure 2 of the Watershed Criteria Report, no assessed reach appears to be within the boundary of the OVGB as defined by Bulletin 118. San Antonio Creek 2 reach is likely just outside of the boundary of the OVGB but could be used as an approximate proxy for surface water outflows from the OVGB. Estimated modeled natural flows for San Antonio Creek 2 are presented in Watershed Criteria Report Table 1 and are excerpted as follows:

11) San Antonio Creek 2 33.9 mi^2

	Month Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Natural Flows (cfs)	Wet	15	41	49	28	10	4	2	1	1	1	1	4
	Moderate	3	6	7	5	2	1	<1	<1	<1	<1	1	2
	Dry	2	3	2	1	1	<1	<1	<1	<1	<1	1	1

As explained in CDFW's Overview of Watershed-Wide Instream Flow Criteria Report Methodology (2021), "Arid watersheds are underrepresented in the reference gage network, and frequently have complex, groundwater-dominated hydrology (Lane et al. 2017). As a result*, estimates for arid regions should be interpreted with caution* (Zimmerman et al. 2020). (CDFW 2021).

Watershed Criteria Report Table 4 presents Ecosystem Baseflows for San Antonio Creek 2 and are excerpted as follows:

11) San Antonio Creek 2 33.9 mi^2

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ecosystem Baseflows (cfs)	14	23	13	7	6	2	1	<1	1	1	4	6

The OBGMA also notes that the Watershed Criteria Report defined a Sensitive Period Indicators of 5 cfs for San Antonio Creek 2 (Table 5), a steelhead habitat optimum flows by drainage area of 8 cfs for San Antonio Creek 2 (Table 6) and Steelhead passage flows of 7 cfs for juveniles and 24 cfs for adult fish for San Antonio Creek (Table 7). The OBGMA points out that prescribed Ecosystem Baseflows, Sensitive Period Indicators and steelhead habitat optimum flows are likely only to occur under wet natural flow conditions as defined by CDFW's own analsyis reflecting the high variation of precipitation and resulting flow in San Antonio Creek. While these instream flows may provide beneficial conditions for steelhead, they do not represent the minimum threshold below which significant and unreasonable impacts to steelhead would occur due to the potential depletion of Interconnected surface waters (ISWs) due to pumping in the OVGB, as is required by SGMA.

In November 2021 CDFW released Instream Flow Evaluation: Southern California Steelhead Adult Spawning and Juvenile Rearing in San Antonio Creek, Ventura County. This report was released after the preparation of the Draft GSP completed in October 2021. The GSP is due to DWR on January 31, 2022. Sufficient time is not available to review and incorporate potentially relevant findings from CDFW's November 2021 report in the Draft Final GSP. This report will be reviewed and considered as part of the Prepare Groundwater Dependent Ecosystem Assessment PMA described in Section 4.2.4 of the GSP.

In December 2021, the SWRCB released a numerical analysis to help better define in-stream flows, Draft Model Documentation Report for the Groundwater-Surface Water Model of the Ventura River Watershed. This report provides unimpaired flow and calibration/validation flow for Gage 605A located on San Antonio Creek at Old Creek Road/Highway 33 near the confluence of San Antonio Creek with the Ventura River approximately 5 miles downstream of the OVGB. The OBGMA recommends that this numerical model be used to potentially evaluate unimpaired flow at the surface discharge point in San Antonio Creek from the OVGB (approximately at San Antonio Creek 2) and compared to the analytical estimates provided by CDFW (2020). The numerical model should take particular care to differentiate the potentiometric surface that occurs in the perched aquifer from the potentiometric surfaces that occur in the principal (production) aquifers. While artesian wells are documented to occur in the OVGB, the perched aquifer is separated from the principal (production) aquifers by an extensive clay aquitard that acts as a vertical barrier to flow in the southwestern potion of the OVGB meaning that the principal (production) aquifers do not discharge to surface water in the area of the perched aquifer. Differences between calibration/validation flows and unimpaired flows should take into account evapotranspiration by invasive plants at different densities that especially impact dry season low-flow periods as the difference in instream flow between the two scenarios during the dry season may be explained entirely by changes in densities of invasive phreatophytes or native riparian vegetation over time.

The OBGMA has been measuring the first point of daylighting of surface water since 2017 and actual instantaneous discharge of stream flow since 2019 of San Antonio Creek near Skunk Ranch Road. Since 2019, stream flow discharge has varied from 0.07 cfs in September 2021 to 2.8 cfs in April 2020 (Kear 2021, Ojai Basin Conditions presented at the September 30, 2021 Regular OBGMA Board Meeting). These actual measured flows are generally within the range of the modeled estimated dry natural flows presented in Watershed Criteria Report Table 1. However, stream flow discharge measured in San Antonio Creek near Skunk Ranch Road within the 2 to 3 cfs range is correlated with precipitation events as measured at the Ojai Fire Station and discharge of groundwater from the perched aquifer as baseflow alone is not expected to sustain stream flow during exceptionally dry periods.

Overall, it is the OBGMA's initial position, based on review of the Instream Flow Regime Criteria on a Watershed Scale of the Ventura River, that the in-stream flows developed for San Antonio Creek 2 by the CDFW do not currently provide best available science to potentially develop sustainability management criteria for ISW-groundwater interactions and that in-depth instream flow studies including more intensive field work and/or modeling (as described in CDFW's own guidance) are required that takes into account specific hydrology, hydrostratigraphy, groundwater elevations of discrete aquifers and other site-specific conditions of the OVGB.

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PUBLIC WORKS VENTURA COUNTY
COUNTY of VENTURA

Jeff Pratt
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Assistant Director

Central Services **Joan Araujo**, Director | Engineering Services **Christopher Cooper**, Director | Roads & Transportation **Christopher Kurgan**, Director | Water & Sanitation **Joseph Pope**, Director | Watershed Protection **Glenn Shephard**, Director

December 9, 2021

Ojai Basin Groundwater Management Agency
Attn: Ms. Roberta Barbee, Administrative Assistant/Clerk of the Board
417 Bryant Circle, Suite 112
Ojai, CA 93023

Subject: Draft Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin

Dear Ms. Barbee:

Ventura County Public Works Agency, Watershed Protection (VCPWA-WP), appreciates the opportunity to review the Ojai Basin Groundwater Management Agency (OBGMA) *Draft Groundwater Sustainability Plan for the Ojai Valley Groundwater Basin* (Draft) dated October 2021. Following are our comments:

In ES 2.0, the primary storage units for groundwater in the Basin are four discrete sand and gravel aquifer units. How are these units identified according to the Hydrogeologic Conceptual Model developed for the Draft? Were these discrete aquifer units modeled as separate layers in the MODFLOW model?

ES 2.0 states that groundwater level trends in the Ojai Valley Groundwater Basin (OVGB) are correlated with recharge from precipitation, return flows, and groundwater extraction. Mountain front recharge is identified as a component of groundwater recharge in Section 2.4 and should be mentioned here.

Section 2.1 states that there is no known groundwater extraction in certain areas of the OVGB (alluvial filled stream channels along the southern flank of the Topatopa Mountains and a strip of land along the western margin of the OVGB). According to County records there are several wells outside of the OBGMA boundary on the southern flank of the Topatopas.

Section 2.1 states that the eastern and western boundaries of the OVGB correspond to recognized bedrock highs that limit groundwater exchange flow between the OVGB and adjacent basins. There is limited discussion regarding any hydrogeologic connection

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between the OVGB and the Upper Ventura River Valley Subbasin, in terms of the transmissivity of groundwater through the Ojai Conglomerate Formation.

Section 2.1.2.1 states that VCWPD monitors groundwater levels in 18 wells located throughout the OVGB on a quarterly basis. Suggest including a note stating the number of wells monitored is based on accessibility.

Section 2.1.2.1 states that the State Water Resources Control Board's (SWRCB's) Groundwater Ambient Monitoring and Assessment (GAMA) Program conducts comprehensive monitoring of California's groundwater quality. What quality components are monitored in the OVGB and are they evenly assessed throughout the Basin? Is there sufficient historical data to report trends?

Section 2.1.2.4 states that the County of Ventura Resource Management Agency issues groundwater well permits in the OVGB. Groundwater well permits are administered by the Ventura County Public Works Agency.

Section 2.1.3.2 discusses the 2040 General Plan update adopted in 2020 and the new water resources element. Suggest expanding on the relevant element sections as pertains to water supply, water quality and long-term availability.

The Ojai Valley Area Plan is discussed in Section 2.1.3.2. Area Plan Policy OV-64.2 states that new discretionary development will not add any net increased demand on the existing groundwater supply. Was this policy along with Programs UU through BBB considered during development of the Basin water budget? Will the Draft satisfy the goals outlined by these programs?

Section 2.1.3.3 outlines the County's CEQA significant thresholds based on the Ventura County Initial Study Assessment Guidelines adopted in 2011. The Ventura County 2040 General Plan Update was adopted in 2020 and contains the Water Resource Element containing additional policies and programs that are considered for planning and land use and discretionary development.

Section 2.3 describes the hydrogeological conceptual model including the principal aquifers and aquitards. It would be helpful to identify how these aquifers and aquitards correlate with model layers in the MODFLOW model.

Figures 2-14 through 2-16 are geologic cross sections that show the locations and depths of wells including some completed in the underlying Sespe Formation. It would be helpful if the perforated intervals of the wells were shown on the cross sections to indicate which aquifer units the wells are pumping from.

Figure 2-19 shows hydrographs for select wells plotted with the cumulative departure form mean precipitation. Well 04N23W02K001S displays virtually no seasonal variation and has a flat-line trend some other than a number of seemly anomalous low-water

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measurements, with seemingly no relationship to precipitation. Similarly, well 04N22W04Q001S does not show a relationship to precipitation. This well was selected as a key well with an assigned minimum threshold. And well 05N22W32J002S displays high variability in the 1950s through the 1960s and in the first part of the 2000s, but has been essentially flat-line from about 2013 to present. Analysis these hydrographs should be discussed in text.

A chart or graph accompanying Section 2.3.3 depicting annual estimated recharge from precipitation would more clearly illustrate the importance of rainfall for Basin recharge.

Section 2.4.3.2 lists the estimated groundwater in storage in 2018. There have been consecutive dry years since 2018, so an updated estimate closer to the current date would be beneficial. Generally, has a basin-wide storage reduction contributed to inelastic or elastic subsidence? The TRE Altamira InSAR dataset from January 2015 through September 2019 showed that 41% of the OVGB experienced negative vertical displacement (subsidence) along the boundaries of the Basin. Also, the Draft states that subsidence has been largely unmonitored until recently and the OVGB is estimated to currently be at a high risk for future subsidence. It appears that these factors could significantly affect future monitoring and pumping regulation programs.

Figure 2-41 displays the cumulative change in groundwater in storage from 1971 through 2019. It's noted that the decrease in groundwater in storage in 2016 was nearly three times greater than the drought of 1990.

The TDS discussion of Section 2.4.4.4 shows that wells in the western end of the Basin tend to have higher TDS concentrations. Does this indicate a loading of solids due to a decreased hydraulic conductivity or natural geologic barrier (i.e. consolidated formation/bedrock)? Would this be an indicator of a discontinuity between the OVGB and the Upper Ventura River Valley Subbasin?

On page 2-125, the review of historic oilfields includes a cluster of active, inactive, idle, plugged and/or abandoned wells along the southern boundary of the OVGB. There should be a brief discussion of naturally occurring oil and gas seeps that are commonly found in the fractured Monterrey Formation of this area.

Section 2.4.7 includes discussion of "safe yield" and concludes based on projected water budgets that the "sustainable yield" is the same as the "safe yield." However, the analysis that pumping at the safe yield will avoid undesirable results and therefore is the same as the sustainable yield is not well supported.

Section 2.4.7 states that recharge to the San Antonio Spreading Grounds could be limited by water rights of downstream users. This would appear to be negligible, especially given the number of recent dry years of less than average rainfall.

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Section 3.2 discussion of undesirable results essentially states that there have been no undesirable results from past declines in water levels because the water levels later recovered. The discussion does not contain analysis of wells that are known to have gone dry during these historical periods of low water levels and resultant potential undesirable results.

Section 3.3 sets the minimum thresholds for water levels at the lowest historical levels measured in 1951. However, there is no analysis if there were resulting undesirable results during this period of record low water levels.

Section 3.5.2.1 outlines the proposed groundwater monitoring network and states in Section 3.5.3.3 that the network of existing wells is capable of providing an adequate assessment of groundwater quality trends. Groundwater quality wells are heavily concentrated in the center of the Basin. It would be beneficial to add or reassign water quality monitoring sites to the lower/downgradient (western) portion of the Basin.

The Draft states in Section 3.5.7.2 that data gaps associated with relevant agencies are not known to currently exist. What is the confidence level of this assessment and how does the Draft arrive at this conclusion?

There are no proposed infrastructure projects or physical improvements in Section 4 of the Draft. Does the OBGMA have any potential projects to add to the Draft? Are there any opportunities for collaboration with other agencies, entities or stakeholders?

In Section 4.2.5, does the OBGMA plan to be able to share information from their proposed data management system with Ventura County Watershed Protection? The County would be able to incorporate the data into annual groundwater reporting.

In Section 4.3.2, there are no thresholds to determine if groundwater allocations need to be developed. Can the quarterly metering started in 2015 serve to establish these along with an ongoing metering program? Determining action items are vaguely spelled out. Suggest expanding this section.

Section 4.3.3 does not mention the water conservation measures of the Ojai Valley Area Plan.

What are the determining circumstances for implementation of a salt and nutrient management plan? What are the action item thresholds? (Section 4.4.1) Also, Section 4.4.2 might be an alternative mitigation measure tied to the necessity to implement a salt and nutrient management plan.

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If you should have any questions, please contact me at james.maxwell@ventura.org or (805) 654-5164.

Sincerely,

James Maxwell

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Response to Comment Letter TBD

Organization/Agency: Ventura County Public Works Agency (VCPWA)
Commenter: James Maxwell
Date: December 9, 2021

VCPWA-1 Comment #1: In ES 2.0, the primary storage units for groundwater in the Basin are four discrete sand and gravel aquifer units. How are these units identified according to the Hydrogeologic Conceptual Model developed for the Draft? Were these discrete aquifer units modeled as separate layers in the MODFLOW model?

Section 2.3.2 Principal Aquifers and Aquitards describes the hydrostratigraphy of the OVGB and Section 2.4 Water Budget describes the specifics of the numerical groundwater model. The Ojai Basin Groundwater Model is divided vertically into 10 layers, with layers 1, 2, 4, 6, 8, and 10 representing aquifer units and layers 3, 5, 7, and 9 representing semi-confining units as shown in Final Draft GSP figures 2-14 through 2-16.

VCPWA-2 Comment #2: ES 2.0 states that groundwater level trends in the Ojai Valley Groundwater Basin (OVGB) are correlated with recharge from precipitation, return flows, and groundwater extraction. Mountain front recharge is identified as a component of groundwater recharge in Section 2.4 and should be mentioned here.

The GSP will be revised to incorporate this information.

VCPWA-3 Comment #3: Section 2.1 states that there is no known groundwater extraction in certain areas of the OVGB (alluvial filled stream channels along the southern flank of the Topatopa Mountains and a strip of land along the western margin of the OVGB). According to County records there are several wells outside of the OBGMA boundary on the southern flank of the Topatopas.

Figure 2-5 Groundwater Well Locations and Density per Square Miles shows the location of wells in the OVGB. As shown in Figure 2-5, there areas of the OVGB, including the southern flank of the Topatopa Mountains and a strip of land along the western margin of the OVGB, where there are no groundwater wells.

VCPWA-4 Comment #4: Section 2.1 states that the eastern and western boundaries of the OVGB correspond to recognized bedrock highs that limit groundwater exchange flow between the OVGB and adjacent basins. There is limited discussion regarding any hydrogeologic connection between the OVGB and the Upper Ventura River Valley Subbasin, in terms of the transmissivity of groundwater through the Ojai Conglomerate Formation.

As described in Section 2.4 Water Budget, underflow from the OVGB to the Upper Ventura River Groundwater Subbasin is estimated to be approximately 70 to 90 AFY.

VCPWA-5 Comment #5: Section 2.1.2.1 states that VCWPD monitors groundwater levels in 18 wells located throughout the OVGB on a quarterly basis. Suggest including a note stating the number of wells monitored is based on accessibility.

The GSP will be revised to incorporate this information.

VCPWA-6 Comment #6: Section 2.1.2.1 states that the State Water Resources Control Board's (SWRCB's) Groundwater Ambient Monitoring and Assessment (GAMA) Program conducts comprehensive monitoring of California's groundwater quality. What quality components are monitored in the OVGB and are they evenly assessed throughout the Basin? Is there sufficient historical data to report trends?

As discussed in Section 2.3.4.4 Groundwater Quality, water quality data for several municipal supply wells in the OVGB are reported to the State Water Resources Control Board Division of Drinking Water. The water quality parameters measured and reported include the primary constituents of concern in the OVGB (i.e., TDS, nitrate, chloride, sulfate, boron, iron, and manganese), in addition to other organic and inorganic chemicals included in Title 22 of the California Code of Regulations. The municipal supply wells are largely located in the central part of the OVGB as shown in Figure 2-5, and Figures 2-25 through 2-31. Sufficient historical data to report trends are available for 8 municipal supply wells in the OVGB. Water quality time series plots and results of a Mann Kendall trend analysis for the 8 municipal supply wells are included in Appendix D Groundwater Level and Quality Data and summarized in Section 2.3.4.4 Groundwater Quality.

VCPWA-7 Comment #7: Section 2.1.2.4 states that the County of Ventura Resource Management Agency issues groundwater well permits in the OVGB. Groundwater well permits are administered by the Ventura County Public Works Agency.

The GSP will be revised to clarify this information.

VCPWA-8 Comment #8: Section 2.1.3.2 discusses the 2040 General Plan update adopted in 2020 and the new water resources element. Suggest expanding on the relevant element sections as pertains to water supply, water quality and long-term availability.

Table 2-7 Summary of General Plan Policies Relevant to Groundwater Sustainability in the OVGB contains all of the relevant 2040 General Plan elements, goals, and policies that pertain to water supply, water quality, and long-term availability.

VCPWA-9 Comment #9: The Ojai Valley Area Plan is discussed in Section 2.1.3.2. Area Plan Policy OV-64.2 states that new discretionary development will not add any net increased demand on the existing groundwater supply. Was this policy along with Programs UU through BBB considered during development of the Basin water budget? Will the Draft satisfy the goals outlined by these programs?

As discussed in Section 2.4.4.3 Quantification of Projected Water Budgets, three future scenarios were simulated as part of the GSP development. For all three future scenario conditions, groundwater extraction from the OVGB was set at a constant extraction rate of approximately 4,000 AFY. The constant 4,000 AFY basin-wide extraction rate was distributed across each production well using the average groundwater extraction distribution from the current condition simulation. Therefore, the water budget is in agreement with Goal OV-64 of the Ojai Valley Area Plan in that it is assumed there will be no net increase in demand on the existing groundwater supply.

VCPWA-10 Comment #10: Section 2.1.3.3 outlines the County's CEQA significant thresholds based on the Ventura County Initial Study Assessment Guidelines adopted in 2011. The Ventura County 2040 General Plan Update was adopted in 2020 and contains the Water Resource Element containing additional policies and programs that are considered for planning and land use and discretionary development.

Section 2.1.3.2 General Plans and Section 2.1.3.3 Other Planning/Land Use Considerations together cover all of the policies and programs that pertain to planning, land use, and discretionary development in the OVGB.

VCPWA-11 Comment #11: Section 2.3 describes the hydrogeological conceptual model including the principal aquifers and aquitards. It would be helpful to identify how these aquifers and aquitards correlate with model layers in the MODFLOW model.

The GSP will be revised to incorporate this information in Figures 2-14 through 2-16. The Ojai Basin Groundwater Model is divided vertically into 10 layers, with layers 1, 2, 4, 6, 8, and 10 representing aquifer units and layers 3, 5, 7, and 9 representing semi-confining units.

VCPWA-12 Comment #12: Figures 2-14 through 2-16 are geologic cross sections that show the locations and depths of wells including some completed in the underlying Sespe Formation. It would be helpful if the perforated intervals of the wells were shown on the cross sections to indicate which aquifer units the wells are pumping from.

The geologic cross sections were adopted from work completed by Daniel B. Stephens & Associates on the Ojai Basin Groundwater Model and work completed by Kear Groundwater. The purpose of the cross sections is to show the hydrostratigraphy of the OVGB. The wells shown on the cross sections were used to identify the location and extent of aquifer and aquitard units. Ten of the seventeen wells depicted on the cross-sections have known screen intervals. OBGMA can provide this information to Public Works for their use and OBGMA will add the well screen intervals to the cross-sections.

VCPWA-13 Comment #13: Figure 2-19 shows hydrographs for select wells plotted with the cumulative departure form mean precipitation. Well 04N23W02K001S displays virtually no seasonal variation and has a flat-line trend some other than a number of seemly anomalous low-water measurements, with seemingly no relationship to precipitation. Similarly, well 04N22W04Q001S does not show a relationship to precipitation. This well was selected as a key well with an assigned minimum threshold. And well 05N22W32J002S displays high variability in the 1950s through the 1960s and in the first part of the 2000s, but has been essentially flat-line from about 2013 to present. Analysis these hydrographs should be discussed in text.

Section 2.3.4.1 Groundwater Elevation Data describes the data presented in Figure 2-19 Hydrographs for Select Wells, including trends in groundwater levels, groundwater extraction, and precipitation. The purpose of Figure 2-19 is to show how trends in groundwater levels vary in different geographic areas of the OVGB. As discussed in the GSP and shown in Figure 2-19, wells in the central part of the OVGB show a clear response to precipitation and groundwater extraction while wells in the peripheral northern, eastern, and western areas exhibit little or no response. Well 04N22W04Q001S was selected as representative monitoring point because the well has a long and continuous groundwater level record dating back to the 1960s, known screened interval and completion depth, and is currently the best available well to monitor conditions in the eastern part of the OVGB. Groundwater levels in well 04N22W04Q001S fluctuate by approximately 50 feet on a seasonal basis in response to recharge from precipitation and groundwater extraction.

VCPWA-14 Comment #14: A chart or graph accompanying Section 2.3.3 depicting annual estimated recharge from precipitation would more clearly illustrate the importance of rainfall for Basin recharge.

As described in Section 2.4.1.1 Precipitation Recharge and Irrigation Return Flows, approximately 6,500 AF of precipitation and irrigation return flows recharged the OVGB annually between water years 1971 and 2014. Of the 6,500 AFY, approximately 77% of the recharge was from precipitation and the remaining 23% is attributed to irrigation return flows. Figure 2-42 Historical and Current Conditions Water Budget shows annual estimated recharge form precipitation and irrigation return flows.

VCPWA-15 Comment #15: Section 2.4.3.2 lists the estimated groundwater in storage in 2018. There have been consecutive dry years since 2018, so an updated estimate closer to the current date would be beneficial. Generally, has a basin-wide storage reduction contributed to inelastic or elastic subsidence? The TRE Altamira InSAR dataset from January 2015 through September 2019 showed that 41% of the OVGB experienced negative vertical displacement (subsidence) along the boundaries of the Basin. Also, the Draft states that subsidence has been largely unmonitored until recently and the OVGB is estimated to currently be at a high risk for future subsidence. It appears that these factors could significantly affect future monitoring and pumping regulation programs.

As described in Section 2.3.4.5 Land Subsidence, although subsidence has been largely unmonitored until recently, the OVGB is estimated to currently be at a high risk for land subsidence based on groundwater level trends, but at a medium to low overall risk for future subsidence (DWR 2014). In addition, there is no documentation of physical evidence of subsidence such as well casing failure, infrastructure disruption, or earth fissures within the OVGB. As noted, variations in land surface elevation may result from temporary elastic or tectonic deformation and fluctuating groundwater levels. Available data indicates insignificant subsidence, likely from causes other than inelastic deformation.

VCPWA-16 Comment #16: Figure 2-41 displays the cumulative change in groundwater in storage from 1971 through 2019. It's noted that the decrease in groundwater in storage in 2016 was nearly three times greater than the drought of 1990.

Noted.

VCPWA-17 Comment #17: The TDS discussion of Section 2.4.4.4 shows that wells in the western end of the Basin tend to have higher TDS concentrations. Does this indicate a loading of solids due to a decreased hydraulic conductivity or natural geologic barrier (i.e. consolidated formation/bedrock)? Would this be an indicator of a discontinuity between the OVGB and the Upper Ventura River Valley Subbasin?

Recharge to the OVGB primarily occurs in the northern and eastern parts of the basin which may naturally result in lower TDS levels in those areas. Additionally, anthropogenic activities may contribute to higher TDS levels in the southern and western parts of the OVGB. The Los Angeles Basin Plan groundwater quality objectives for identified constituents of concern including TDS, sulfate, chloride, and boron are higher for the portion of the OVGB west of San Antonio-Senior Canyon than the portion east of San Antonio-Senior Canyon. In addition to variable water quality laterally across the OVGB, vertical differences in water quality between aquifer types has been recently documented in the OBGMA's new nested monitoring well, South-Central Nested Depth-Discrete Monitoring Well (Kear 2021). "Analyses by AGQ revealed a dynamic range of water character with electrical conductivities between 936 μS/cm (Main Aquifer) and 1740 μS/cm (Perched Aquifer). The initial Perched Aquifer and the Deep Intermediate samples have a similar calcium-bicarbonate water character, with elevated sulfate also in the Perched Aquifer. The initial Shallow Intermediate and Main Aquifer have a sodium-bicarbonate/chloride water character" (Kear 2021).

As indicated in Section 2.1, The eastern and western boundaries of the OVGB correspond to recognized bedrock highs that limit groundwater exchange flow between the OVGB and adjacent basins (DWR 2004; Kear 2005). As described in Section 2.4 Water Budget, underflow from the OVGB to the Upper Ventura River Groundwater Subbasin is estimated to be approximately 70 to 90 AFY.

VCPWA-18 Comment #18: On page 2-125, the review of historic oilfields includes a cluster of active, inactive, idle, plugged and/or abandoned wells along the southern boundary of the OVGB. There should be a brief discussion of naturally occurring oil and gas seeps that are commonly found in the fractured Monterrey Formation of this area.

As described in Section 2.3.4.4 Groundwater Quality, there is a cluster of active, idle, inactive, plugged and/or abandoned oil and gas wells adjacent to the southern edge of the OVGB. One well within the cluster falls within the OVGB and it is an idle oil and gas well. Lion Mountain Ranch immediately south of the OVGB has historically supported oil and gas development since the 1860's when shallow oil wells were drilled in the vicinity of historical oil seeps (County of Ventura 2016). Subsequent oil wells were drilled in the 1940s, 1950s, 1960s, and 1980s that supplied oil and gas. There are 3 active wells at Lion Mountain Ranch, all located outside of the OVGB, that continue to produce oil and gas. Oil is transported off-site to Santa Paula by truck and gas is currently flared on-site.

VCPWA-19 Comment #19: Section 2.4.7 includes discussion of "safe yield" and concludes based on projected water budgets that the "sustainable yield" is the same as the "safe yield." However, the analysis that pumping at the safe yield will avoid undesirable results and therefore is the same as the sustainable yield is not well supported.

As described in Section 2.4.7 Sustainable Yield Estimate, based on the projected water budgets and work completed to date to develop sustainable management criteria, the provisional estimate of the sustainable yield of the OVGB is approximately equivalent to the safe yield of 4,100 AFY. It should be noted that 4,100 AFY is a provisional estimate of the sustainable yield and that the sustainability strategy, as described in Chapter 3, is to ensure that the OVGB continues to operate within its sustainable yield and does not exhibit undesirable results within the planning and implementation horizon of this GSP (50 years). As described in Chapters 3 and 4, this will be accomplished through establishment of minimum thresholds and measurable objectives for each sustainability indicator, monitoring of groundwater conditions, and implementation of projects and management actions.

VCPWA-20 Comment #20: Section 2.4.7 states that recharge to the San Antonio Spreading Grounds could be limited by water rights of downstream users. This would appear to be negligible, especially given the number of recent dry years of less than average rainfall.

Noted. The San Antonio Creek Spreading Grounds is discussed in Sections 2.1.1.2 Water Agencies Relevant to the Plan Area, 2.3.3 Recharge and Water Deliveries, 2.4.1.3 San Antonio Creek Spreading Grounds, 2.4.8 Surface Water Available for Groundwater Recharge or In-Lieu Use, and 4.4.3 Explore Opportunity to Implement Focused Recharge.

VCPWA-21 Comment #21: Section 3.2 discussion of undesirable results essentially states that there have been no undesirable results from past declines in water levels because the water levels later recovered. The discussion does not contain analysis of wells that are known to have gone dry during these historical periods of low water levels and resultant potential undesirable results.

As stated in Section 3.2.1 Chronic Lowering of Groundwater Levels – Undesirable Results, lowering of groundwater levels is significant and unreasonable if sufficient in magnitude to lower the rate of production of existing groundwater wells below that necessary to meet the minimum required to support the overlying beneficial uses, where alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s). Although limited available information indicates that a number of shallow groundwater production wells located near the edge of the OVGB have experienced production issues during periods of prolonged drought, the OBGMA and local groundwater users have determined that the conditions do not constitute an undesirable result because other sources of water have been available. The OBGMA will continue to monitor groundwater levels in wells located throughout the OVGB and collect information from private well owners to reevaluate and update, if needed, the minimum thresholds and measurable objectives for groundwater levels.

VCPWA-22 Comment #22: Section 3.3 sets the minimum thresholds for water levels at the lowest historical levels measured in 1951. However, there is no analysis if there were resulting undesirable results during this period of record low water levels.

As stated in Chapter 3, undesirable results have not historically occurred in the OVGB, including during the period of record low groundwater levels in 1951. The OBGMA and local groundwater users have determined that conditions constitute an undesirable result only if alternative means of obtaining sufficient groundwater resources or local surface water resources from Lake Casitas are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the OBGMA, or other available assistance/grant program(s).

VCPWA-23 Comment #23: Section 3.5.2.1 outlines the proposed groundwater monitoring network and states in Section 3.5.3.3 that the network of existing wells is capable of providing an adequate assessment of groundwater quality trends. Groundwater quality wells are heavily concentrated in the center of the Basin. It would be beneficial to add or reassign water quality monitoring sites to the lower/downgradient (western) portion of the Basin.

As described in Chapter 2, groundwater extraction is greatest in the central part of the OVGB. As described in Section 3.5.2 Description of Existing Monitoring Network and shown in Figure 3-3 Groundwater Monitoring Network, several wells located in the western part of the OVGB are monitored for groundwater quality including wells 04N23W12B003S, 04N23W12H002S, and 04N23W01K002S. Additional existing wells or new monitoring wells may be identified and included in the groundwater monitoring network during GSP implementation if accessible.

VCPWA-24 Comment #24: The Draft states in Section 3.5.7.2 that data gaps associated with relevant agencies are not known to currently exist. What is the confidence level of this assessment and how does the Draft arrive at this conclusion?

As described in Section 2.1 Description of the Plan Area, there are a number of existing programs and plans currently in place to protect public health and safety and the natural environment including the Porter-Cologne Water Quality Control Act, Clean Water Act, a number of Senate Bills, California Well Standards, Ventura County Ordinances, Ventura County 2040 General Plan, City of Ojai General Plan, CEQA Guidelines, and others. The only known data gaps are surrounding instream flows, groundwater-surface water connections, and GDEs. Certainty regarding the identified data gaps are based on availability of data/information and comments received from agencies on the Draft GSP. The GSP will be revised to clarify the statement regarding data gaps associated with relevant agencies.

VCPWA-25 Comment #25: There are no proposed infrastructure projects or physical improvements in Section 4 of the Draft. Does the OBGMA have any potential projects to add to the Draft? Are there any opportunities for collaboration with other agencies, entities or stakeholders?

Chapter 4 Projects and Management Actions describes all of the projects and management actions that are proposed at this time. As described in Section 4.4.3 Explore Opportunity to Implement Focused Recharge, the OBGMA is interested in working collaboratively with Ventura County to bring the San Antonio Creek Spreading Grounds back online as well as work with the City of Ojai and Ventura County to implement projects that would enhance shallow and deep aquifer recharge. The OBGMA will continue to explore opportunities for collaboration with other agencies, entities, and stakeholders throughout the GSP implementation period.

VCPWA-26 Comment #26: In Section 4.2.5, does the OBGMA plan to be able to share information from their proposed data management system with Ventura County Watershed Protection? The County would be able to incorporate the data into annual groundwater reporting.

The OBGMA will work collaboratively with VCWPD to develop and share data from the data management system.

VCPWA-27 Comment #27: In Section 4.3.2, there are no thresholds to determine if groundwater allocations need to be developed. Can the quarterly metering started in 2015 serve to establish these along with an ongoing metering program? Determining action items are vaguely spelled out. Suggest expanding this section.

The OBGMA does not plan to develop a groundwater allocation at this time. As discussed in Section 4.3.2 Develop Groundwater Allocation, a groundwater allocation would potentially by developed by OBGMA in the event that groundwater extraction rates regularly exceed the sustainable yield of the OVGB and undesirable results are determined to be occurring or likely to occur.

VCPWA-28 Comment #28: Section 4.3.3 does not mention the water conservation measures of the Ojai Valley Area Plan.

Goal OV-64 of the Ojai Valley Area Plan is “To ensure the employment of water conservation measures in new construction and encourage water conservation practices in agricultural, municipal, industrial, and recreational uses and in existing development.” Section 4.3.3 Develop Water Conservation Program will be revised to include reference to the Ojai Valley Area Plan.

VCPWA-29 Comment #29: What are the determining circumstances for implementation of a salt and nutrient management plan? What are the action item thresholds? (Section 4.4.1) Also, Section 4.4.2 might be an alternative mitigation measure tied to the necessity to implement a salt and nutrient management plan.

As described in Section 4.4.1 Develop Salt and Nutrient Management Plan, development of a SNMP will occur if required by the RWQCB, or if undesirable results are determined to be occurring or likely to occur.