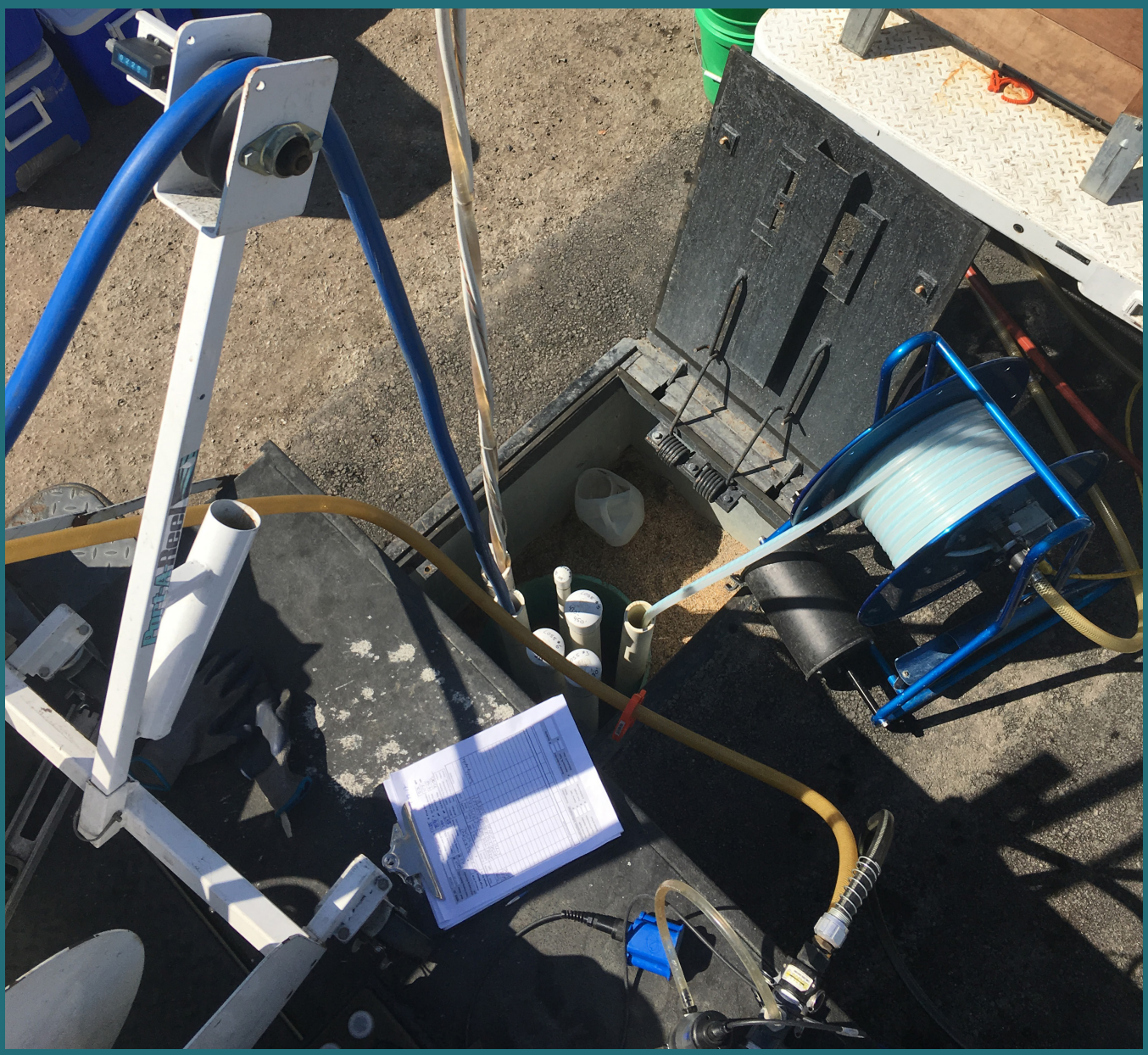
Water Replenishment District
of Southern California



REGIONAL GROUNDWATER MONITORING REPORT
WATER YEAR 2017-2018

Central and West Coast Basins
Los Angeles County, California

March 2019

WRD
WATER REPLENISHMENT DISTRICT
OF SOUTHERN CALIFORNIA

Water Replenishment District
Of Southern California

REGIONAL GROUNDWATER MONITORING REPORT
CENTRAL BASIN AND WEST COAST BASIN
LOS ANGELES COUNTY, CALIFORNIA
WATER YEAR 2017-2018

MARCH 2019

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Cover photo – Looking down into the well vault at WRD's newest addition to its nested monitoring well network, Los Angeles #5. Three of seven individual well zones are being pumped simultaneously in this photograph from three different pumping systems.

Executive Summary

The Water Replenishment District of Southern California (WRD or the District) was formed in 1959 to manage the groundwater replenishment and groundwater quality activities for four million people in 43 cities that overlie the Central Basin and West Coast Basin (CBWCB) in southern Los Angeles County. WRD's service area encompasses nearly the entire Central Basin and all of the West Coast Basin. These two basins currently supply over 40 percent of the water used by the population in the region. Our mission is to protect and preserve high-quality groundwater in the basins through innovative, cost-effective, and environmentally sensitive management practices for the benefit of residents and businesses within the WRD service area.

WRD has been monitoring the CBWCB for nearly 60 years, and this year's annual report presents the most comprehensive information to date utilizing WRD's network of aquifer-specific monitoring wells and in-depth water quality analysis. To that end, WRD has a dedicated Board and staff that engage in year-round activities to closely monitor groundwater conditions. The Regional Groundwater Monitoring Program (RGWMP) currently consists of a network of 331 monitoring wells at 59 locations throughout the District. WRD performs extensive collection, analysis, and reporting of groundwater data to ensure proper resource management. The publication of this Regional Groundwater Monitoring Report (RGWMR) is one result of those efforts. It presents information on groundwater levels and groundwater quality over the past Water Year (WY), which runs from October 1 through September 30. This current report is for WY 2017-18. Detailed information is presented in the body of the report with a summary below:

Groundwater Levels

Across the WRD service area water levels have both increased and decreased over the water year, and in some areas they have remained essentially unchanged. On average they fell 4 feet across the District. In just the Central Basin, water levels decreased nearly everywhere which is mostly attributed to a very dry year. Water levels in the West Coast Basin increased or remained relatively unchanged since WY 2016-17; this can be attributed

to a reduction in pumping by West Coast Basin groundwater producers. Overall groundwater storage loss across the District was 80,200 Acre-Feet (AF); 72,400 AF of that loss in storage occurred in the unconfined Montebello Forebay. Groundwater storage loss in the Los Angeles Forebay was 3,900 AF; the Whittier Area experienced a loss of 3,200 AF; and 1,100 AF of storage was lost in the Central Basin Pressure Area. The West Coast Basin gained 340 AF in storage compared to WY 2016-17.

Groundwater Quality

In WY2017-18, WRD collected over 550 groundwater samples from its monitoring well network and analyzed them for more than 100 water quality constituents to produce over 55,000 individual data points to help track the water quality in the CBWCB. Included in the data for the first time this year are the analytical results for Los Angeles #5, WRD's most recently installed nested monitoring well. Analytical results from Los Angeles #5 are included in the Tables, Figures, and discussion in the body of this report.

Analysis for this report uses water quality maps and trend graphs to focus on 12 key water quality constituents to represent overall groundwater quality in the basins, including total dissolved solids (TDS), iron, manganese, chloride, nitrate, trichloroethylene (TCE), tetrachloroethylene (PCE), arsenic, perchlorate, hexavalent chromium, 1,4-Dioxane and Tertiary butyl alcohol (TBA). Also included is an analysis for additional constituents that are often found associated with perchlorate in the manufacture, storage, disposal and military use of explosives; 2,4,6-Trinitrotoluene (TNT), Octogen (HMX), and Cyclonite (RDX). Overall, the groundwater quality in the District remains very good, with only some areas facing poor water quality from natural or anthropogenic sources that WRD staff continue to monitor closely to determine increasing or decreasing trends.

This report also complies with the State's Recycled Water Policy to present information for the adopted Salt and Nutrient Management Plan (SNMP) for the CBWCB. Through the RGWMP, 13 key WRD nested monitoring wells track salt and nutrient water quality trends throughout the District and in the most critical areas of the basins, including areas near groundwater recharge projects that utilize recycled water (i.e. the seawater intrusion

barriers and the Montebello Forebay Spreading Grounds). Overall, the data show that salt and nutrient concentrations in groundwater are generally stable, and in some locations improving and other areas rising.

Future Activities

WRD remains committed to its statutory charge to protect and preserve groundwater resources in its service area. To that end, WRD plans an expansion of its groundwater monitoring well network in the CBWCB to fill data gaps and enhance the tracking of replenishment water by installing two new wells downgradient of the spreading grounds and an additional well in the unadjudicated North Central Basin area to provide data about groundwater flowing into WRD's service area.

WRD will continue to use the data generated by the RGWMP along with WRD's Geographic Information System (GIS) capabilities to address current and potential upcoming issues related to water quality and groundwater replenishment in its service area. WRD staff will be working on refining the hydrogeologic conceptual model of the CBWCB using data from the RGWMP along with an update to the groundwater model, developed and expected to be published by the United States Geological Survey (USGS) in 2019, to improve the framework for understanding the groundwater system and for use as a planning tool.

Further information is available on the WRD web site at *http://www.wrd.org*, or by calling WRD at (562) 921-5521. WRD welcomes any comments or suggestions to this RGWMR.

TABLE OF CONTENTS

Glossary of Acronyms

Section 1
Introduction

Section 2
Groundwater Levels

Section 3
Groundwater and Replenishment Water Quality

Section 4
Salt and Nutrients in Groundwater

Section 5
Summary of Findings

Section 6
Future Activities

Section 7
References

List of Tables

List of Figures

GLOSSARY OF ACRONYMS

AF	Acre-Feet
ARC	Albert Robles Center for Water Recycling and Environmental Learning
AWTF	Advanced Water Treatment Facility
BGS	Below Ground Surface
CASGEM	California Statewide Groundwater Elevation Monitoring
CEC	Chemical of Emerging Concern
CSDLAC	County Sanitation Districts of Los Angeles County
CBWCB	Central Basin and West Coast Basin
CBPA	Central Basin Pressure Area
DDW	State Water Resources Control Board, Division of Drinking Water
DME	Designated Monitoring Entity
DWR	California Department of Water Resources
ELWRF	Edward C. Little Water Recycling Facility
ESR	Engineering Survey and Report
GIS	Geographic Information System
GPS	Global Positioning System
GRIP	Groundwater Reliability Improvement Program
HMX	Octogen
LACDPW	Los Angeles County Department of Public Works
LAX	Los Angeles International Airport
MCL	Maximum Contaminant Level
mg/L	Milligram per Liter
µg/L	Microgram per Liter
MSL	Mean Sea Level
MTBE	Methyl Tert-Butyl Ether
MWD	Metropolitan Water District of Southern California
NAVD88	North American Vertical Datum of 1988
NDMA	N-Nitrosodimethylamine
NL	Notification Level
OEHHA	Office of Environmental Health Hazard Assessment

GLOSSARY OF ACRONYMS (continued)

PCE	Tetrachloroethylene or Perchloroethylene
PDF	Portable Document Format
PFAS	Perfluoralkyl and Polyfluoralkyl Substances
PHG	Public Health Goal
Policy	Recycled Water Policy
RDX	Cyclonite
RGWMP	Regional Groundwater Monitoring Program
RGWMR	Regional Groundwater Monitoring Report
RL	Response Level
SMCL	Secondary Maximum Contaminant Level
SNMP	Salt and Nutrient Management Plan
SWRCB	State Water Resources Control Board
TBA	Tertiary Butyl Alcohol
TCE	Trichloroethylene
TDS	Total Dissolved Solids
TIWRP	Terminal Island Water Reclamation Plant
TNT	2,4,6 Trinitrotoluene
UCMR	Unregulated Contaminant Monitoring Rule
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WBMWD	West Basin Municipal Water District
WQO	Water Quality Objective
WRD	Water Replenishment District of Southern California
WRP	Water Reclamation Plant
WY	Water Year

SECTION 1
INTRODUCTION

The Water Replenishment District of Southern California (WRD or the District) manages groundwater replenishment and water quality activities for the Central Basin and West Coast Basin (CBWCB) in southern Los Angeles County (**Figure 1.1**). WRD's service area encompasses nearly the entire Central Basin and all of the West Coast Basin. Our mission is to protect and preserve high-quality groundwater in the basins through innovative, cost-effective, and environmentally sensitive management practices for the benefit of residents and businesses within WRD's service area.

As part of accomplishing this mission, WRD maintains a thorough and current understanding of groundwater conditions in its service area and strives to predict and prepare for future conditions. This is achieved through groundwater monitoring, modeling, and planning, which provide the necessary information to determine the "health" of the basins. This information in turn provides WRD, the groundwater pumpers in WRD's service area, other interested stakeholders, and the public with the knowledge necessary for responsible water resources planning and management. Each year WRD compiles the most recently collected information into a Regional Groundwater Monitoring Report (RGWMR) that presents the most current understanding of conditions in the basins; the RGWMR is just one of the efforts by WRD to fulfill its mission.

1.1 BACKGROUND OF THE REGIONAL GROUNDWATER MONITORING PROGRAM

Since its formation in 1959, WRD has been actively involved in groundwater replenishment, water quality monitoring, contamination prevention, data management, and data publication. Historical over-pumping of the CBWCB caused overdraft, seawater intrusion, and other groundwater management problems related to supply and quality. Adjudication of the basins in the early 1960s set a limit on allowable groundwater extractions in order to control the over-pumping. Concurrent with adjudication, WRD was

formed to address issues of groundwater recharge and groundwater quality. The Regional Groundwater Monitoring Program (RGWMP) is an important District program which tracks groundwater levels and groundwater quality in the WRD service area to ensure the sustainability of this groundwater resource.

Prior to 1995, WRD relied heavily upon groundwater data collected, interpreted, and presented by other entities such as the Los Angeles County Department of Public Works (LACDPW), the California Department of Water Resources (DWR), and the private sector for understanding basin conditions. However, these data were collected primarily from production wells, which are typically screened across multiple aquifers to maximize water inflow. The result is a mixing of waters from different aquifers into a single well casing, causing an averaging of water levels and water quality.

In order to obtain more accurate data for specific aquifers from which to infer localized water level and water quality conditions, depth-specific (nested) monitoring wells that tap discrete aquifer zones are necessary. **Figure 1.2** illustrates the capabilities of nested monitoring wells to assess individual aquifers compared to typical production wells.

Data for the RGWMRs are provided for a Water Year (WY), which occurs from October 1 to September 30. During WY 1994-95, WRD and the United States Geological Survey (USGS) began a cooperative study to improve the understanding of the geohydrology and geochemistry of the CBWCB. The initial study was documented in USGS Water Resources Investigations Report 03-4065, *Geohydrology, Geochemistry and Ground-Water Simulation-Optimization of the Central Basin and West Coast Basin, Los Angeles County, California* (Reichard et al. 2003). That study is the nucleus of WRD's ongoing RGWMP. In addition to compiling existing available data, that study recognized that the sampling of production wells did not adequately characterize the layered multiple aquifer systems of the CBWCB. The study focused on new data collection through drilling and construction of nested groundwater monitoring wells and conducting depth-specific groundwater monitoring.

Figure 1.3 is a District map showing the locations of wells in WRD's nested monitoring well network that are used in the RGWMP. Currently, there are 331 wells at 59 locations; a few of these wells are used exclusively to monitor groundwater elevations, but most are used to monitor both groundwater elevations and water quality within the WRD service area. A listing and depth details for the WRD nested wells used in the RGWMP are presented in **Table 1.1.** Listing and depth details for other wells used to prepare the groundwater elevation contour and groundwater elevation change maps that are included in this report are presented in **Table 1.2**.

An *Annual Report on the Results of Water Quality Monitoring* (*Annual Report*) was published by WRD each year for WYs 1972-73 through 1994-95, and was based on a basinwide monitoring program outlined in the *Report on Program of Water Quality Monitoring* (Bookman-Edmonston Engineering, Inc., January 1973). The latter report recommended a substantial expansion of the then-existing program, particularly the development of a detailed and intensive program for the monitoring of groundwater quality in the Montebello Forebay. The RGWMP was designed to serve as an expanded, more representative basinwide monitoring program for the CBWCB. WRD's RGWMR is published annually in lieu of the previous *Annual Reports*.

On November 4, 2009 the State Legislature amended the Water Code with SBx7-6, mandating a statewide groundwater elevation monitoring program to track seasonal and long-term trends in California's groundwater basins. In accordance with this amendment, DWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program. In October 2011, WRD was assigned as the Designated Monitoring Entity (DME) responsible for collecting and reporting CBWCB groundwater level data to CASGEM. Through the RGWMP, WRD collects groundwater level data from within its service area, tracks seasonal and long-term trends and provides that data to the CASGEM program.

1.2 CONCEPTUAL HYDROGEOLOGIC MODEL

As described above, the RGWMP has changed the focus of groundwater monitoring efforts

in the WRD service area from production wells with averaged groundwater level and groundwater quality information, to a layered multiple aquifer system with individual zones of groundwater quality and groundwater levels. WRD views each aquifer as a significant component of the groundwater system and recognizes the importance of the interrelationships between aquifers. The most accepted hydrogeologic description of the basins and the names of water-bearing zones are provided in California Department of Water Resources, *Bulletin No. 104: Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A–Ground Water Geology* (DWR, 1961). WRD generally follows the naming conventions defined in Bulletin 104; however, in some cases WRD's in-house interpretation has resulted in aquifer classifications that differ from those predicted by that report. During WY 2017-18, WRD updated its interpretation of the aquifer classifications assigned to each well so that they more closely match those of Bulletin 104. This has resulted in changes to designations at some wells from those that have been previously used and published by WRD. **Table 1.1** lists the specific aquifer assigned to each well used in the RGWMP, and indicates whether that designation follows Bulletin 104 or is the result of WRD's most current interpretation.

The locations of idealized geologic cross-sections AA' and BB' through the WRD service area are shown on **Figure 1.3**. These cross-sections are presented on **Figures 1.4** and **1.5**, respectively. These cross-sections are modified versions of cross-sections presented in Bulletin 104, and illustrate a simplified aquifer system in the CBWCB. The main potable production aquifers described in Bulletin 104 are shown, including the deeper Lynwood, Silverado, and Sunnyside aquifers of the lower Pleistocene San Pedro Formation. Other shallower aquifers, which locally produce potable water, include the Gage and Gardena aquifers of the upper Pleistocene Lakewood Formation. Also shown on the geologic sections are the aquitards separating aquifers. Throughout this report the aquifers shown on the geologic sections are referred to as discrete groundwater zones. Many references are made to the Silverado Aquifer, typically thought of as the main producing aquifer in the CBWCB. Substantial pumping can come from the Lynwood and Sunnyside aquifers as well.

1.3 GIS DEVELOPMENT AND IMPLEMENTATION

WRD uses a Geographic Information System (GIS) as a tool for groundwater management in its service area. Much of the GIS data was compiled during the WRD/USGS cooperative study. The GIS links spatially-related information (e.g., well locations, geologic features, cultural features, contaminated sites) to data on well production, water quality, water levels, and replenishment amounts. WRD uses industry standard Esri ArcGIS® software for data analysis and preparation of spatially-related information (maps and graphics tied to data).

WRD utilizes Global Positioning System (GPS) technology to determine and document the locations of basinwide production wells, nested monitoring wells, and other geographic features for use in the GIS database. During WY 2015-16, WRD updated and modernized its database so that a consistent reference surface datum is used when describing the mean sea level (MSL) elevation at each monitoring well. This update required a re-survey of the measurement reference point at each of WRD's wells relative to the North American Vertical Datum of 1988 (NAVD88) reference plane. This update resulted in adjustment for some of the "reference point elevations" that have previously been used and published by WRD. Current NAVD88 reference point elevations are listed in **Table 2.1**.

WRD is constantly updating the GIS with new data and newly-acquired archives of data acquired by staff or provided by pumpers and other agencies. The GIS is a primary tool for WRD and other water-related agencies to more accurately track current and past use of groundwater, track groundwater quality, and project future water demands, thus allowing improved management of the basins.

In early 2003, WRD completed the development of its Internet-based GIS and Interactive Well Search Tool, which was made available to the public for access to CBWCB groundwater information. In 2018, a major upgrade to this site was completed to enhance its capabilities. WRD's internet-based GIS can be accessed through our GIS website at *http://gis.wrd.org* . The website provides the public with access to much of the water level

and water quality data contained in this report. The well information on the website can be accessed through interactive maps or text searches, and the results can be displayed in both tabular and graphical formats.

1.4 SCOPE OF REPORT

This report updates information on groundwater conditions in the WRD service area for WY 2017-18, and discusses the status of the RGWMP. Section 1 provides an overview of the WRD and its RGWMP. Section 2 discusses district-wide groundwater levels for WY 2017-18. Section 3 presents water quality data for the WRD nested monitoring wells, basin-wide production wells, and replenishment water. Section 4 summarizes salt and nutrient management in the CBWCB and presents water quality trends for TDS and chloride. Section 5 summarizes findings from the evaluation of data in this report. Section 6 presents future regional groundwater monitoring and related activities. Section 7 lists the references used in this report. Tables and figures are presented in separate sections at the end of the report. This current WY 2017-18 RGWMR, along with previously published reports for past WYs, can be viewed online and downloaded in Portable Document Format (PDF) form from the WRD website at *http://www.wrd.org* .

SECTION 2
GROUNDWATER LEVELS

Groundwater levels are a direct indication of the amount of groundwater in the basins. Groundwater levels can identify areas of recharge and discharge from the basins. Differences in groundwater levels suggest which way groundwater is moving so that recharge water or contaminants can be tracked. WRD uses groundwater levels to determine when additional replenishment water is required and to calculate groundwater storage changes. Groundwater levels can also be used to identify possible source areas and pathways for seawater intrusion, and to demonstrate the effectiveness of seawater barrier injection wells. Groundwater levels are dependent on both regional precipitation and on the amount of water extracted by pumping.

WRD tracks groundwater levels throughout the year by measuring the depth to water in monitoring wells and production wells located throughout its service area. Groundwater elevations are calculated by comparing depth to water measurements to the MSL elevation at the measuring point of each well. **Table 2.1** presents manual groundwater level measurements collected from the District's nested monitoring wells during WY 2017-18. In order to capture the daily and seasonal variations in water levels, WRD has installed automatic data-logging equipment in most of the nested monitoring wells to collect water levels more frequently than practical for manual measurements. WRD also obtains water level data from cooperating entities such as area pumpers, DWR, and LACDPW, who collect water levels from their own wells. These data are entered into WRD's GIS water level database for archiving and analysis.

From the water level database, a groundwater elevation contour map, change in groundwater level map, and groundwater elevation hydrographs for selected wells were prepared to aid in analysis and illustrate the current and historical groundwater conditions in the basins. These are presented and explained in the following sections.

2.1 GROUNDWATER ELEVATION CONTOURS

A contour map showing the groundwater elevations measured across the WRD service area in the deeper, main producing aquifers during the fall of 2018 is presented in **Figure 2.1**. Specific well zones used to develop the groundwater contour map are identified on **Table 2.1**. The fall 2018 Contour Map shows that in the Central Basin water levels range from highs in excess of 150 feet above MSL to lows deeper than 110 feet below MSL. The highest water levels are in the Montebello Forebay; water levels decrease to the south and west towards the Long Beach area, the Newport-Inglewood Uplift, and the Los Angeles Forebay.

In the West Coast Basin, water levels range from highs of nearly 10 feet above MSL to lows of nearly 60 feet below MSL. The highest water levels are along the West Coast Basin Seawater Intrusion Barrier; they decrease to the east where they are at their lowest elevations in the City of Gardena between the Charnock Fault and Newport-Inglewood Uplift, both of which are geologic structural features that partially restrict groundwater flow.

2.2 CHANGES IN GROUNDWATER LEVELS

Groundwater levels measured in fall 2018 compared to those measured in fall 2017 are illustrated on **Figure 2.2**, which is a groundwater level change map. Specific well zones used to develop the groundwater level change map are identified on **Table 2.1**. During WY 2017-18, groundwater levels across the WRD service area have increased in some areas, decreased in others, and are essentially unchanged elsewhere.

In the Central Basin, groundwater levels have decreased nearly everywhere in WY 2017-18. Across the unconfined Montebello Forebay the greatest decreases in water levels are observed in close vicinity to the spreading grounds where water levels are as much as 34 feet lower than they were last year. The decrease in water levels becomes less pronounced moving away from the spreading grounds; while along the eastern reach of the Forebay

they are as much as 24 feet lower than they were in fall 2017, along the western reach they average about eight feet lower and along the southern reach they are about five feet lower than in fall 2017. Across the unconfined Los Angeles Forebay, water levels have decreased slightly or remain relatively unchanged in WY 2017-18 from those measured in fall 2017. Water levels in the western portion of the Forebay are relatively unchanged, while those in the eastern portion have decreased by as much as about four feet and appear to be influenced by a localized area of groundwater depression. Water levels in the Whittier Area have also decreased or remained relatively unchanged in WY 2017-18; in the west they are as much as 24 feet lower than they were in fall 20107. In the eastern reach of the Whittier Area water levels are essentially unchanged from fall 2017.

Water levels have generally decreased across the rest of the Central Basin in WY 2017-18. In the north-central portion of the Central Basin Pressure Area (CBPA) water levels have decreased this year by as much as eight feet; along the eastern edge of the CBPA water levels are as much as 16 feet lower than they were last year. Across most of the rest of the CBPA water levels range from about one to four feet lower than they were in fall 2017. In the northwestern tip of the CBPA water levels are relatively unchanged from fall 2017.

In the West Coast Basin water levels have generally increased or remain relatively unchanged in fall 2017. Across much of the coastal area water levels range from about one to 10 feet higher this year than in fall 2017. In the Carson/Long Beach area, water levels are as much as 12 feet higher than they were in WY 2016-17, and in the Gardena area between the Newport-Inglewood and Charnock Faults, water levels are as much as 18 feet higher this year than they were last year. Water levels did not change significantly over the southern portion of the coastal area, or in the Carson/Torrance area north into southwest Los Angeles in WY 2017-18. However, water levels have decreased by as much as two feet in the westernmost portion of Torrance.

District wide, groundwater levels decreased nearly four feet in WY 2017-18, although across the Montebello Forebay region water levels decreased by an average of just over 15 feet. Overall groundwater storage loss across the District in WY 2017-18 was 80,200 Acre-

Feet (AF); 72,400 AF of that loss in storage occurred in the Montebello Forebay. Groundwater storage loss in the Los Angeles Forebay was 3,900 AF, 1,100 AF of storage was lost in the CBPA, and the Whittier Area saw a decrease of 3,200 AF. The West Coast Basin gained 340 AF in storage compared to WY 2016-17.

2.3 GROUNDWATER LEVEL HYDROGRAPHS

WRD relies on hydrographs to track the changes in water levels in wells over time. Hydrographs reveal the seasonal fluctuations of water levels caused by variations in natural and artificial recharge, and the effects of pumping and other basin discharge. Historical hydrographs of water level data going back to the 1930s and 1940s in the Montebello Forebay, Los Angeles Forebay, CBPA, and West Coast Basin are presented in the annual WRD Engineering Survey and Report (ESR). In general, the hydrographs show that in the Central Basin, water levels were in steep decline through the 1930s and into the late 1950's as a result of excessive pumping (overdraft). Initiation of groundwater management policies in the late 1950s and early 1960s including formation of the WRD, adjudication of the basins, and installation of seawater barrier wells are evident on the hydrographs in the form of a distinct reversal in water level decline followed by a steady increase through the 1960s. Despite repeated fluctuation between periods of decreasing and increasing trends, water levels in the Central Basin have generally been relatively stable since the 1960s, although over the past several years they have been in decline. In the West Coast Basin, the hydrographs show a similar steep decline in water levels in the 1930s through 1950s as a result of overdraft, followed by stabilization and steady increase through the 1960s that continues to the present day. ESR hydrographs are not presented in this RGWMR; however they can be viewed in the ESR reports online and downloaded from the WRD website at *http://www.wrd.org* .

Hydrographs for WRD nested monitoring wells that plot water level measurements from individual aquifer zones against time provide WRD with a graphical method to observe changes in water level and can aid in identifying current and historic trends in aquifer conditions. The data for these annual hydrographs are collected from WRD's network of

nested monitoring wells. **Figures 2.3 through 2.15** are hydrographs of 13 key WRD nested monitoring wells, including three in the Montebello Forebay, one in the Los Angeles Forebay, four in the CBPA, one in the Whittier Area, and four in the West Coast Basin. The 13 key nested monitoring well locations are shown on **Figure 1.3**. These hydrographs illustrate that there can be distinct groundwater elevation differences, up to 90 feet, between adjacent aquifers at a single nested well location. The differences in elevation are influenced by variable discharge (i.e. pumping from wells) and recharge (i.e. injection, percolation, or underflow) and the degree of hydraulic communication between aquifers. These hydrographs are particularly useful in identifying the zones that are in the main flow system and the zones that show the greatest depth and seasonal fluctuations in groundwater levels during the water year. A discussion of the hydrographs shown on **Figures 2.3 through 2.15** is presented in the following sections.

2.4 GROUNDWATER LEVELS IN THE MONTEBELLO FOREBAY

Figure 2.3 is a hydrograph for WRD's Rio Hondo #1 key nested monitoring well located in the Montebello Forebay at the Rio Hondo Spreading Grounds. There are six individual wells (zones) that are screened, from shallowest to deepest, in the Gardena, Hollydale, Silverado, and Sunnyside (two zones) Aquifers, and the Pico Formation, with depths ranging from 140 to 1,130 feet BGS. Because this well is located in the Montebello Forebay, where the aquifers are in general hydraulic communication with each other, water level responses in all of the aquifers are similar. Seasonal highs and lows are in response to recharge and pumping. Groundwater elevations are lowest in Zone 4, the Silverado Aquifer, suggesting that this aquifer is the most heavily pumped in the area. Water levels in Zone 4 decreased more than 18 feet over the past water year, bringing them to about the levels last observed in WY 2015-16.

Figure 2.4 is a hydrograph for WRD's Pico #2 key nested monitoring well, also located in the Montebello Forebay adjacent to the San Gabriel River and just south of the San Gabriel River Spreading Grounds. There are six individual wells (zones) that are screened, from shallowest to deepest, in the Gaspur/Gage, Lynwood, Silverado, and Sunnyside (three

deepest zones) Aquifers, with depths ranging from 100 to 1,200 feet BGS. Groundwater elevations are lowest in Zones 1, 2, and 3, all of which are screened in the Sunnyside Aquifer, suggesting that the Sunnyside Aquifer is the most heavily pumped in this area. Water levels in Zone 3 decreased more than 20 feet over the past water year, returning them to levels last observed at this location in WY 2015-16.

Figure 2.5 is a hydrograph for WRD's Norwalk #2 key nested monitoring well located in the Montebello Forebay, 3.5 miles south of the San Gabriel River Spreading Grounds. There are six individual wells (zones) that are screened in the following aquifers (from shallowest to deepest): Gardena, Silverado, Sunnyside (two zones) Aquifers, and the Pico Formation (two deepest zones), with depths ranging from 236 to 1,480 feet BGS. Norwalk #2 is the third key well representing the Montebello Forebay and is at the southern margin of the Forebay where it transitions into the CBPA. Unlike Rio Hondo #1 and Pico #2, water level responses to seasonal discharge and recharge influences are less pronounced at Norwalk #2, with seasonal swings of around 20 feet compared to the greater than 30-foot seasonal swings at Rio Hondo #1 and Pico #2. Groundwater elevations are deepest in Zone 3 and Zone 4, which are both screened in the Sunnyside Aquifer, suggesting that this aquifer is the most heavily pumped in the area. The water level in Zone 3 decreased nearly 12 feet over the past water year, bringing it to about the level last observed here in WY 2015-16.

2.5 GROUNDWATER LEVELS IN THE LOS ANGELES FOREBAY

Figure 2.6 is a hydrograph for WRD's Huntington Park #1 key nested monitoring well located in the Los Angeles Forebay near the intersection of Slauson Avenue and Alameda Street. There are five individual wells (zones) that are screened in the following aquifers (from shallowest to deepest): Gaspur, Gage, Hollydale, Lynwood, and Silverado, with depths ranging from 114 to 910 feet BGS. Only four of the zones are shown on the hydrograph because the shallowest well (screened from 114 to 134 feet BGS in the Gaspur Aquifer) is currently dry. There is a large separation in water levels between Zone 4 and the three deeper zones, suggesting the presence of a low permeability aquitard(s) above

Zone 3 that hydraulically isolates the Gage Aquifer from the deeper aquifers. Water levels in the deepest two zones, the Lynwood and Silverado Aquifers, are generally similar. Water levels in the Lynwood Aquifer decreased by about 1.6 feet and in the Silverado Aquifer they decreased by about 1.3 feet over WY 2017-18. Unlike recent decreases over the past seven years in the Montebello Forebay, water levels in the Los Angeles Forebay have remained relatively stable over the past 18 years.

2.6 GROUNDWATER LEVELS IN THE CENTRAL BASIN PRESSURE AREA

Figure 2.7 is a hydrograph for WRD's South Gate #1 key nested monitoring well, which is located in the north-central portion of the CBPA, just outside the Montebello and Los Angeles Forebays. There are five individual wells (zones) that are screened, from shallowest to deepest, in the Exposition, Lynwood, Silverado, and Sunnyside (two deepest zones) Aquifers, with depths ranging from 220 to 1,460 feet BGS. Water levels in Zones 1 through 4 generally behave similarly in response to seasonal discharge and recharge. The upper Zone 5 has much shallower water levels, shows little seasonal response, and is isolated from the aquifers below by an aquitard, resulting in the observed hydraulic separation. South Gate #1 water levels decreased by between seven and 10 feet in the deeper aquifers over WY 2017-18.

Figure 2.8 is a hydrograph for WRD's Willowbrook #1 key nested monitoring well, which is located in the CBPA, about seven miles down-gradient of the Montebello Forebay. There are four individual wells (zones) that are screened, from shallowest to deepest, in the Gage, Lynwood, Silverado, and Sunnyside Aquifers, with depths ranging from 200 to 905 feet BGS. Zone 1 is screened in the deepest responding aquifer. The upper three zones have generally shallower water levels than Zone 1. Zones 3 and 4 track very closely. These trends suggest some hydraulic separation (aquitards) between Zones 1 and 2, and between Zones 2 and 3. Zones 3 and 4 have little hydraulic separation. Water levels have decreased nearly three feet in Zone 1 and about 0.75 foot in Zone 2 over WY 2017-18. Water levels in Zones 3 and 4 have decreased by slightly less than 0.5-foot over WY 2017-18. Water levels in Willowbrook #1 have generally declined over the past 19 years.

Figure 2.9 is a hydrograph for key nested monitoring well Long Beach #6 located in the southern portion of the CBPA. There are six individual wells (zones) that are screened, from shallowest to deepest, in the Gage, Lynwood, Silverado, and Sunnyside (two zones) Aquifers, and Pico Formation, with depths ranging from 220 to 1,510 feet BGS. Because this portion of the CBPA has multiple confined aquifers separated by substantial aquitards, and experiences heavy local seasonal pumping cycles, water level fluctuations can be larger than in other areas. For example, water levels in Zones 4 and 5 are the deepest responders; they are screened in the Silverado and Lynwood Aquifers, can rise and fall by more than 100 feet through typical seasonal cycles, and have been recorded historically at elevations ranging from highs near sea level to lows deeper than 120 feet below sea level. Water levels in the other zones also generally show significant seasonal variation. **Figure 2.9** shows minor decreases to slight increases in water levels in Zones 1, 2, 3, and 6 over WY 2017-18; water levels in Zones 4 and 5 have decreased nearly nine feet from WY 2016-17.

Seal Beach #1 is included as a key nested monitoring well for the CBPA due to its proximity inland of the Alamitos Gap Seawater Intrusion Barrier Recycled Water Project. Historical groundwater elevations for Seal Beach #1 are shown on **Figure 2.10**. There are seven individual wells (zones) that are screened, from shallowest to deepest, in the Artesia, Gage, Lynwood, Silverado, and Sunnyside (three deepest zones) Aquifers, with depths ranging from 60 to 1,365 feet BGS. Zone 4, screened in the Silverado Aquifer, is the deepest responding unit at Seal Beach #1. Zone 5 responds similarly to Zone 4, but draws down less during heavily pumped periods. Zones 1, 2, and 3 overlay on the hydrograph and have decreased about four feet in WY 2017-18. Zones 6 and 7 show a smaller seasonal response than the five lower zones, with groundwater elevations at or slightly below sea level, suggesting partial isolation from the lower aquifer systems. Groundwater levels in Zone 4 decreased more than 16 feet this water year compared to WY 2016-17.

2.7 GROUNDWATER LEVELS IN THE WHITTIER AREA

The Whittier Area of the Central Basin extends from the Puente Hills south and southwest to the Santa Fe Springs-Coyote Hills uplift. The western boundary is an arbitrary line separating the Whittier Area from the Montebello Forebay and the eastern boundary is the Orange County line. **Figure 2.11** is a hydrograph from WRD's Whittier #1 key nested monitoring well located in the eastern part of the Whittier Area. There are five individual wells (zones) that are screened, from shallowest to deepest, in the Jefferson, Silverado, and Sunnyside Aquifers, and the Pico Formation (two deepest zones), with depths ranging from 200 to 1,200 feet BGS. Groundwater levels in the Whittier Area do not show a seasonal fluctuation typical of other areas of the Central Basin and adjacent Montebello Forebay Area, which suggests limited groundwater discharge and recharge. Zones 1 through 4 have similar groundwater elevations and track very closely over time while the Zone 5 groundwater elevation is more than 80 feet higher suggesting substantial isolation by an aquitard(s). The Whittier #1 hydrograph indicates that groundwater levels in the Whittier Area have decreased between one and two feet over WY 2017-18 and have decreased about 10 feet over the past 18 years.

2.8 GROUNDWATER LEVELS IN THE WEST COAST BASIN

Figure 2.12 is a hydrograph for WRD's PM-4 Mariner key nested monitoring well, which is located in the City of Torrance, in the coastal area inland from the West Coast Basin Seawater Intrusion Barrier. There are four individual wells (zones) that are screened, from shallowest to deepest, in the Gardena, Lynwood, Silverado, and Sunnyside Aquifers, with depths ranging from 200 to 710 feet BGS. All four zones respond similarly to seasonal fluctuations. Water levels in Zone 1 (Sunnyside) are deepest, separated from Zone 2 (Silverado) which is several feet higher. Water levels in Zones 3 and 4 (Lynwood and Gardena) are both about two feet above those in Zone 2. Water levels have increased less than 0.5 foot in Zone 1 and have decreased by about 1.5 feet in Zones 2, 3, and 4 at PM-4 Mariner in WY 2017-18.

Figure 2.13 is a hydrograph for WRD's Carson #1 key nested monitoring well, which is located in the inland region of the West Coast Basin. There are four individual wells (zones) that are screened, from shallowest to deepest in the Gage, Lynwood, and Silverado (two deepest zones) Aquifers, with depths ranging from 250 to 1,010 feet BGS. Water levels in Zone 1 track very similar to Zone 2 throughout the year and are the deep responding aquifers at this location. Zone 3 tracks similar to Zone 4. Groundwater elevations currently differ by about 25 feet between the upper two and lower two zones, which suggests the presence of a low permeability aquitard(s) between them that hydraulically isolate the shallow aquifers from the deeper ones. Water levels in Zones 1 and 2 have both increased about 11 feet over WY 2017-18, but have generally increased about 35 feet over the past 19 years.

Manhattan Beach #1 is designated as a key nested monitoring well for the West Coast Basin due to its proximity one half mile inland of the West Coast Basin Seawater Intrusion Barrier. **Figure 2.14** is a hydrograph for Manhattan Beach #1, which includes seven individual wells (zones) that are screened, from shallowest to deepest, in the Gage, Silverado, and Sunnyside (two zones) Aquifers, and the Pico Formation (three deepest zones), with depths ranging from 180 to 1,990 feet BGS. Zone 3 is screened in the Pico Formation and has the deepest groundwater levels, as much as 30 feet lower than Zones 1, 2, 4, and 5 which generally track together. Water levels in Zones 6 and 7 are six to eight feet above Zones 1, 2, 4, and 5. Seasonal fluctuations are not pronounced at the Manhattan Beach #1 location and groundwater levels did not change significantly over the past water year. Water levels in Zone 3 have increased about two feet over the past water year and about eight feet since this well was installed.

Figure 2.15 is a hydrograph for WRD's Wilmington #2 key nested monitoring well, which is located in the West Coast Basin, inland of the Dominguez Gap Seawater Intrusion Barrier. There are five individual wells (zones) that are screened, from shallowest to deepest, in the Gage, Lynwood, Silverado (two zones), and Sunnyside Aquifers with depths ranging from 120 to 970 feet BGS. Water levels in Zones 1 through 4 are generally deeper and behave similarly in response to seasonal influences. The upper Zone 5 has shallower

water levels, and shows less seasonal change suggesting hydraulic separation from the lower 4 zones. Wilmington #2 water levels have increased by between three and six feet in the deeper aquifers over WY 2017-18, and have increased by as much as 30 feet over the past 20 years.

SECTION 3
GROUNDWATER AND REPLENISHMENT WATER QUALITY

This section discusses the vertical and horizontal distribution of water quality constituents in WRD's service area based on data from WRD's nested monitoring wells, purveyors' production wells, and source waters used for CBWCB groundwater replenishment. Regional groundwater quality maps included herein depict constituents of interest to WRD and District stakeholders in the nested monitoring wells and production wells where water quality data is available.

Comparison of water quality results to various regulatory standards are made throughout this section. A brief discussion describing the regulatory standards used in the report follows. A Primary Maximum Contaminant Level (MCL) is an enforceable drinking water standard that the California Environmental Protection Agency, State Water Resources Control Board, Division of Drinking Water (DDW) establishes after health effects, risk assessment, detection capability, treatability, and economic feasibility are considered. A Secondary Maximum Contaminant Level (SMCL) is established for constituents that impact aesthetics of the water, such as taste, odor, and color, but do not impact health. A Public Health Goal (PHG) is an advisory level that is developed by the Office of Environmental Health Hazard Assessment (OEHHA) after a thorough review of health effects and risk assessment studies. A Notification Level (NL) and Response Level (RL) are non-enforceable health-based advisory levels established by the DDW based on preliminary reviews of health effects studies for which enforceable levels have not been established. NLs and RLs replaced State Action Levels effective January 1, 2005 per California Health and Safety Code Section 116455. It should also be noted that constituents with NLs often are considered unregulated contaminants for which additional monitoring may be required to determine the extent of exposure before MCLs and/or PHGs are established.

3.1 QUALITY OF GROUNDWATER

The focus of this section is groundwater quality in samples collected from WRD nested monitoring wells and purveyors' production wells. Section 1 of this report described the value of data from aquifer-specific nested monitoring wells and that these data provide the most valuable insight into CBWCB groundwater quality. Groundwater samples collected from WRD's nested wells are submitted immediately after collection to a State-certified laboratory for analysis for general water quality constituents, known or suspected natural and man-made contaminants, and other select constituents of interest.

Historically, WRD has performed groundwater sampling of its nested monitoring wells on a semi-annual schedule, and over the past few decades has compiled an enormous database of analytical results. In WY 2017-18, WRD conducted an intensive review of this database specifically to determine if the frequency of sampling could be reduced at some wells without compromising its current high quality assessment of groundwater conditions in the CBWCB. Using criteria such as the length of time a well has been in service, and the nature of concentration trends within each zone at a nested monitoring well site, WRD was able to identify 11 nested wells where the sampling frequency could be reduced from semi-annual to annual. Commencing in WY 2017-18, semi-annual sampling was not conducted during the fall 2018 sampling event at Bell Gardens #1, Carson #2, Cerritos #1, Commerce #1, Compton #2, Hawthorne #1, Lakewood #1, Long Beach #2, Long Beach #8, Norwalk #1 and Whittier #2; however, annual sampling was conducted from those wells in the spring 2018 round of sampling. This reduction in sampling will produce a net cost savings without sacrificing the quality of data provided by WRD. As the quantity of data from each nested well site continues to increase, WRD will periodically review that data and where conditions allow, will reduce the sampling frequency at additional nested well sites. WRD will closely monitor the data collected from the reduced frequency wells to assure that conditions that allowed their reductions still exist; if they do not, sampling will be resumed on a semi-annual schedule.

Table 3.1 presents water quality analytical results from 34 WRD nested monitoring wells

(197 individual well zones) in the Central Basin during WY 2017-18. **Table 3.2** presents water quality analytical results from 22 WRD nested monitoring wells (112 individual well zones) in the West Coast Basin during WY 2017-18. Complementing the data from the nested monitoring well network, data for CBWCB production wells were obtained from the DDW based on results submitted over the past three years by purveyors for their DDW Title 22 drinking water compliance.

Water quality maps for nested monitoring wells and production wells are presented herein for 12 water quality constituents (**Figures 3.1 – 3.24**). The 12 constituents include total dissolved solids (TDS), iron, manganese, chloride, nitrate, trichloroethylene (TCE), tetrachloroethylene (PCE), arsenic, perchlorate, hexavalent chromium, 1,4-Dioxane, and tertiary butyl alcohol (TBA). The maps illustrate areal and vertical differences in water quality and compare the aquifer-specific water quality data from WRDs nested monitoring wells to the averaged water quality data collected from purveyors' production wells.

3.1.1 Total Dissolved Solids (TDS)

TDS is a measure of the total mineralization of water and is indicative of general water quality. In general, the higher the TDS, the less desirable a given water supply is for beneficial uses. The SMCL for TDS ranges from 500 milligrams per liter (mg/L), which is the recommended level, to an upper level of 1,000 mg/L, and to 1,500 mg/L, which is the level allowed for short-term use. WRD uses the 1,000 mg/L upper level SMCL for water quality comparisons and analyses.

WRD nested monitoring well data for WY 2017-18 indicate relatively low TDS concentrations for groundwater in the producing aquifers of the Central Basin. As shown on **Figure 3.1**, in the Central Basin, TDS was detected in WRD nested monitoring wells at concentrations above the SMCL in 19 out of 197 individual well zones (10%). In the West Coast Basin, TDS was detected in WRD nested monitoring wells at concentrations above the SMCL in 36 out of 112 individual well zones (32%). Elevated TDS concentrations in the West Coast Basin were observed along the coast from Redondo Beach to Los Angeles International Airport (LAX), in the Inglewood area, and the Dominguez Gap area.

Figure 3.2 presents DDW water quality data for the maximum TDS detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. In the Central Basin, TDS was not detected above the Upper Level SMCL of 1,000 mg/L in any of the 214 production wells sampled for TDS during this period. In the West Coast Basin, TDS was detected at concentrations above the SMCL in five out of 30 production wells (17%). The elevated TDS levels detected in the West Coast Basin may be caused by seawater intrusion, connate brines, or possibly oil field brines.

3.1.2 Iron

Iron occurs naturally in groundwater. Sources for iron in the water supply are both natural and man-made. Iron is leached from sediments in subsurface aquifers and steel pipes used for construction of water wells and distribution systems. Sufficient concentrations of iron in water can affect its suitability for domestic or industrial purposes. Some industrial processes cannot tolerate more than 0.1 mg/L iron. The SMCL for iron in drinking water is 0.3 mg/L. High concentrations of iron in water can stain plumbing fixtures and clothing, encrust well screens, clog pipes, and may impart a salty taste. While these problems are recognized, iron is considered an essential nutrient, important for human health, and does not pose significant health effects except in special cases.

Nested monitoring well data do not indicate iron to be a widespread water quality problem in groundwater in the WRD service area. As shown on **Figure 3.3,** in the Central Basin, iron was detected in WRD nested monitoring wells at concentrations above the SMCL in 14 out of 197 individual well zones (7%). In the West Coast Basin, iron was detected in WRD nested monitoring wells at concentrations above the SMCL in 19 out of 112 individual well zones (17%).

Figure 3.4 presents DDW water quality data for the maximum iron detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. In the Central Basin, iron was detected at concentrations above the SMCL in 23 out of 218 production wells (11%). In the West Coast Basin, iron was detected at concentrations

above the SMCL in 9 out of 31 production wells (29%).

3.1.3 Manganese

Manganese is naturally-occurring and in high concentrations may be objectionable in water in the same manner as is iron. Stains caused by manganese are black and are more unsightly and harder to remove than those caused by iron. While manganese is considered an essential nutrient for human health at low levels, an SMCL of 50 micrograms per liter (µg/L) is established for manganese due to its undesirable aesthetic qualities; manganese also has an NL of 500 mg/L.

Manganese concentrations in the WRD nested monitoring wells exhibit widespread vertical and horizontal variations across the WRD service area. In the southern portion of the Central Basin, elevated manganese typically occurs in shallower aquifers above the Silverado producing zones. In the northern portion of the Central Basin, manganese is present in shallow zones, the Silverado zones, and the deeper zones. As shown in **Figure 3.5**, in the Central Basin nested well sites, manganese concentrations exceed the SMCL in 58 out of 197 individual well zones (29%), and in three of those 58 zones (5%) manganese was detected at concentrations above the NL. In West Coast Basin nested well sites, manganese was detected at concentrations above the SMCL in 51 out of 112 individual well zones (46%), and in five of those 51 zones (10%) it was detected at concentrations above the NL.

Figure 3.6 presents DDW water quality data for the maximum manganese detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. Manganese was detected in Central Basin production wells at concentrations above the MCL in 44 out of 225 production wells (20%), and in two of those 44 wells (5%) manganese was detected at concentrations above the NL. Manganese was detected in West Coast Basin production wells at concentrations above the SMCL in 20 out of 31 production wells (65%), but was not detected at concentrations above the NL in any of those 20 wells.

3.1.4 Chloride

Chloride at elevated levels causes water to taste salty and it is the characteristic constituent used to identify seawater intrusion. The recommended SMCL for chloride is 250 mg/L with an upper SMCL of 500 mg/L, and a short term SMCL of 600 mg/L.

Figure 3.7 presents water quality data for chloride in WRD nested monitoring wells in the WRD service area during WY 2017-18. In the Central Basin, with only a few exceptions all 34 nested well sites generally have low chloride concentrations. As shown on Figure 3.7, in the Central Basin chloride was detected in WRD nested monitoring wells at concentrations above the upper SMCL in six out of 197 individual well zones (3%). In the West Coast Basin, chloride was detected in WRD nested monitoring wells at concentrations above the upper SMCL in 26 out of 112 individual well zones (23%).

Figure 3.8 presents DDW water quality data for the maximum chloride detection in production wells in the WRD service area for a three year period spanning WYs 2015-18. Chloride was not detected above the upper SMCL in any of the 214 Central Basin production wells sampled for chloride during this period. In the West Coast Basin, four of the 30 (13%) production wells tested, all of which are located on the west side of the basin near the coast, had chloride concentrations above the upper SMCL.

3.1.5 Nitrate

MCLs were established by DDW for two forms of nitrogen in drinking water, nitrate and nitrite. Nitrate (measured as Nitrate) has an MCL of 45 mg/L, which corresponds to 10 mg/L of nitrate as Nitrogen. Nitrite (measured as Nitrogen) has an MCL of 1 mg/L. The combined total of the nitrate and nitrite, measured as total nitrogen, has an MCL of 10 mg/L. These constituents are regulated because they present possible acute health risks and can cause anoxia in infants. When consumed in excess of the MCLs, they reduce the uptake of oxygen causing shortness of breath, lethargy, and a bluish skin color.

Nitrate concentrations in groundwater are also a concern because their presence indicates that a degree of contamination has occurred due to the degradation of organic matter.

Native groundwater typically does not contain nitrate. It can be introduced into groundwater from agricultural practices such as fertilization of crops or lawns and leaching of animal wastes. Low concentrations of nitrogen compounds, including nitrate and nitrite, are present in treated recycled water below regulatory and permitted limits and may be a source of nitrate loading to groundwater. Typically, organic nitrogen and ammonia are the initial byproducts of the decomposition of human or animal wastes. Upon oxidation, the organic nitrogen and ammonia are converted first to nitrite and then to nitrate ions in the subsurface. A portion of the nitrate and nitrite are converted to nitrogen gas and are returned to the atmosphere.

Figure 3.9 presents nitrate (as Nitrogen) water quality data for nested monitoring wells in the WRD service area during WY 2017-18. In the Central Basin, nitrate was detected in WRD nested monitoring well locations at concentrations above the MCL in two out of 197 individual well zones (1%). Nested monitoring wells in the immediate vicinity of the Montebello and Los Angeles Forebays typically contain nitrate at concentrations below the MCL in the shallower zones. Some wells downgradient from the Montebello Forebay have middle zones with nitrate detections below the MCL. Nested wells further downgradient from the forebays generally do not have detectable concentrations of nitrate. In the West Coast Basin, nitrate was detected in WRD nested monitoring well locations at concentrations above the MCL in one out of 112 individual well zones (<1%).

Figure 3.10 presents DDW water quality data for the maximum nitrate detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. One Central Basin production well, located in the Los Angeles Forebay, contained nitrate above the MCL. The nitrate MCL was not exceeded in any production well in the West Coast Basin during WYs 2015-18.

3.1.6 Trichloroethylene (TCE)

TCE is a solvent used in metal degreasing, textile processing, and dry cleaning. In addition to multiple acute health effects, TCE is also classified as a probable human carcinogen. The MCL for TCE in drinking water is 5 µg/L. If present in water, TCE can be removed

easily by common treatment processes, including air stripping or vapor extraction utilizing granular activated carbon filtration media.

As shown on **Figure 3.11**, in the Central Basin TCE was detected in WRD nested monitoring well locations at concentrations above the MCL in five out of 197 individual well zones (3%). In the West Coast Basin, TCE was detected in WRD nested monitoring well locations at concentrations above the MCL in one out of 112 individual well zones (<1%).

Figure 3.12 presents DDW water quality data for the maximum TCE detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. As shown on Figure 3.12, in the Central Basin TCE was detected at concentrations above the MCL in 20 out of 231 production wells (9%). Wells impacted by TCE are generally located in the northern portion of the Central Basin, within or near the Montebello and Los Angeles Forebays. In the West Coast Basin, TCE was not detected at concentrations above the MCL in any of the West Coast Basin production wells during WYs 2015-18.

3.1.7 Tetrachloroethylene (PCE)

PCE (also known as tetrachloroethylene, perc, perclene, and perchlor) is a solvent used commonly in the dry cleaning industry, as well as in metal degreasing and textile processing. The MCL for PCE in drinking water is 5 µg/L. In addition to multiple acute health effects, PCE is also classified as a probable human carcinogen. If present in water, PCE can be removed easily by common treatment processes, including air stripping or vapor extraction utilizing granular activated carbon filtration media.

As shown on **Figure 3.13**, in the Central Basin PCE was detected in WRD nested monitoring well locations at concentrations above the MCL in two of 197 individual wells zones (1%). In West Coast Basin nested wells, PCE was not detected in any of the individual well zones.

Figure 3.14 presents DDW water quality data for the maximum PCE detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. In the Central Basin, PCE was detected at concentrations above the MCL in 13 out of 231 production wells (6%). Production wells with detectable PCE concentrations are primarily located within the vicinity of the Los Angeles and Montebello Forebays and extend southwestward and southward into the CBPA. PCE was not detected in any of the West Coast Basin production wells.

3.1.8 Arsenic

Arsenic is an element that occurs naturally in the earth's crust and accordingly there are natural sources of arsenic, including weathering and erosion of rocks, deposition of arsenic in water bodies, and uptake of the metal by animals and plants. Consumption of food and water are the major sources of arsenic exposure for the majority of U.S. citizens. Over 90% of commercial arsenic is used as a wood preservative in the form of chromate copper arsenate to prevent dry rot, fungi, molds, termites, and other pests. People may also be exposed from industrial applications, such as semiconductor manufacturing, petroleum refining, animal feed additives, and herbicides. Arsenic is classified as a known human carcinogen by the United States Environmental Protection Agency (USEPA), and also causes other health effects, such as high blood pressure and diabetes. The DDW established an MCL of 10 µg/L for arsenic.

Figure 3.15 presents water quality data for arsenic in WRD nested monitoring wells during WY 2017-18. In the Central Basin, arsenic was detected in WRD nested monitoring well locations at concentrations above the MCL in 18 out of 197 individual well zones (9%). In the West Coast Basin, arsenic was detected in WRD nested well locations at concentrations above the MCL at seven out of 112 individual well zones (6%).

Figure 3.16 presents DDW water quality data for the maximum arsenic detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. In the Central Basin, arsenic was detected at concentrations above the MCL in eight out of 219 (4%) production wells. In the West Coast Basin, arsenic was not detected at a

concentration above the MCL in any of the production wells.

3.1.9 Perchlorate

Perchlorate is used in a variety of defense and industrial applications, such as rockets, missiles, road flares, fireworks, air bag inflators, lubricating oils, tanning and finishing leather, and the production of paints and enamels. Under certain conditions, perchlorate is also reported to occur naturally in groundwater (Trumpolt, 1995). When ingested, it can inhibit the proper uptake of iodide by the thyroid gland, which causes a decrease in hormones for normal growth and development and normal metabolism. In October 2007, the DDW established an MCL of 6 µg/L for perchlorate.

Figure 3.17 presents perchlorate water quality data for WRD nested monitoring wells during WY 2017-18. In the Central Basin, perchlorate was detected in WRD nested monitoring well locations at concentrations above the MCL in one out of 197 individual well zones (<1%). In the West Coast Basin, perchlorate was detected in WRD nested monitoring well locations at concentrations above the MCL in one out of 112 individual well zones (<1%).

Figure 3.18 presents DDW water quality data for the maximum perchlorate detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. In the Central Basin, perchlorate was detected at concentrations above the MCL in two out of 225 production wells (<1%). Perchlorate was not detected in any of the West Coast Basin production wells.

3.1.10 Hexavalent Chromium

Hexavalent chromium (chromium-6) and trivalent chromium (chromium-3) are two forms of the metal chromium found in groundwater. Together, these two forms of chromium are designated “total chromium”. The MCL for total chromium is 50 µg/L. In 2014 California established an MCL of 10 µg/L for hexavalent chromium; however, on May 31, 2017, a judgement was issued by the Superior Court of California that invalidated the MCL for hexavalent chromium in drinking water. The Court has ordered the State Water Resources

Control Board (SWRCB) to adopt a new MCL; in the meantime the MCL for Total Chromium will remain in place. The SWRCB will use data collected since the standard was adopted in 2014 to help establish a new MCL; they note that it generally takes between 18 and 24 months to develop regulation. To remain consistent with prior reporting and aid in assessing concentration trends, WRD will continue to discuss hexavalent chromium results herein in terms of the historic MCL value of 10 µg/L until a new MCL is established by the SWRCB.

Both forms of chromium occur naturally in groundwater and are also introduced to soil and groundwater through disposal practices from commercial and industrial operations. Only hexavalent chromium is considered to pose health risks. It has been known to increase cancer risk when inhaled and has recently been shown to increase the risk of cancer if ingested.

Figure 3.19 shows hexavalent chromium concentrations in WRD nested monitoring wells in the WRD service area. In the Central Basin, hexavalent chromium was detected at concentrations above the MCL in three out of 197 individual well zones (2%). In the West Coast Basin, hexavalent chromium was not detected at concentrations above the MCL in any of the individual well zones.

Figure 3.20 presents DDW water quality data for the maximum hexavalent chromium detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. Hexavalent chromium was not detected at a concentration above the MCL in any of the production wells that were tested for hexavalent chromium in either the Central Basin or West Coast Basin.

3.1.11 1,4-Dioxane

1,4-Dioxane is a synthetic organic compound. It is used as a stabilizer for solvents (in particular 1,1,1-trichloroethane) and as a solvent itself in a number of industrial and commercial applications. 1,4-Dioxane is also found in trace amounts in some cosmetic and personal care products such as detergents and shampoos. 1,4-Dioxane is highly soluble

in water, does not readily bind to soils, readily leaches to groundwater, and is resistant to naturally occurring biodegradation processes. EPA classifies 1,4-dioxane as a probable human carcinogen and a known irritant, and as a result it is included in the Third Unregulated Contaminant Monitoring Rule (UCMR 3). In November 2010, the SWRCB established a drinking water NL of 1 µg/L, and a RL of 35 µg/L, for 1,4-Dioxane.

Figure 3.21 shows 1,4-Dioxane concentrations in WRD nested monitoring wells in the WRD service area. In the Central Basin, 1,4-Dioxane was detected at concentrations above the NL in 24 out of 197 individual well zones (12%). In the West Coast Basin, 1-4 Dioxane was detected at two out of 112 individual well zones (2%). 1,4-Dioxane was not detected at concentrations above the RL in any of the individual well zones in the CBWCB.

Figure 3.22 presents DDW water quality data for the maximum 1,4-Dioxane detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. In the Central Basin 1,4-Dioxane was detected at concentrations above the NL in 72 of the 101 (71%) production wells that were tested. In the West Coast Basin, 1,4-Dioxane was not detected in any of the production wells. 1,4-Dioxane was not detected at concentrations above the RL in any CBWCB production wells.

3.1.12 Tertiary Butyl Alcohol (TBA)

Tertiary butyl alcohol (TBA) is a fuel oxygenate and breakdown by-product of methyl tert-butyl ether (MTBE). TBA is quite mobile in groundwater and is resistant to degradation. Exposure to TBA can lead to irritation of the mucous membranes, nausea, defatting of the skin, and intoxication. TBA is believed to be a potential carcinogen. Currently there is no Federal drinking water standard for TBA, although California has established a drinking water NL of 12 µg/L.

Figure 3.23 shows TBA concentrations in WRD nested monitoring wells in the WRD service area. In the Central Basin, TBA was detected at a concentration above the NL in one out of 197 individual well zones (<1%). In the West Coast Basin, TBA was detected at concentrations above the NL in six out of 112 individual well zones (5%).

Figure 3.24 presents DDW water quality data for the maximum TBA detection in production wells across the WRD service area for a three year period spanning WYs 2015-18. TBA was not detected at a concentration above the NL in any of the production wells that were tested in either the Central Basin or West Coast Basin.

3.1.13 2,4,6-Trinitrotoluene (TNT), HMX (Octogen), and RDX (Cyclonite)

TNT, HMX, and RDX are high explosive compounds that can be found along with perchlorate at sites where explosives were manufactured, stored, disposed or used for military or training purposes in the past. When ingested, TNT has been associated with liver and blood damage, anorexia, and anemia. HMX and RDX have been associated with systemic poisoning affecting the liver and bone marrow. Both TNT and RDX have been classified as possible human carcinogens. The DDW has established the following NLs for these constituents: TNT = 0.001 mg/L, HMX = 0.035 mg/L, RDX = 0.0003 mg/L. Because of their association with perchlorate, WRD sampled for all three of these constituents in WY 2017-18 to assess their presence in groundwater, particularly in wells where perchlorate was detected. None of these constituents were detected in any WRD nested wells in either the CBWCB.

3.2 QUALITY OF REPLENISHMENT WATER

This section discusses water quality data for key water quality constituents in CBWCB replenishment water and local surface water. Although numerous constituents are monitored, the constituents discussed and reported here are the ones found to be most prevalent at elevated levels or are of current regulatory interest. The data are classified according to their sources. The key water quality parameters of this discussion were also discussed for the WRD nested monitoring wells: TDS, iron, manganese, chloride, nitrate, TCE, PCE, arsenic, perchlorate, and hexavalent chromium. Monitoring of these constituents helps to understand the general chemical nature of the recharge source, and its suitability for replenishing the groundwater basins.

3.2.1 Quality of Imported Water

Surface water is imported by the Metropolitan Water District of Southern California (MWD) to the WRD service area from the Colorado River and from Northern California via the State Water Project for potable supply and for groundwater recharge. Colorado River water deliveries have been suspended due to the potential presence of quagga mussels; however, 9,792 AF of State Water Project water was received for replenishment in WY 2017-18. Currently, treated imported water and advanced treated recycled water are injected into the three seawater intrusion barriers. Treated imported water meets all drinking water standards and thus, is suitable for direct injection. Untreated imported water, when available, is used for recharge at the Montebello Forebay Spreading Grounds. Average water quality data for treated and untreated imported water are presented in **Table 3.3.**

In 2017, the average TDS concentration of untreated Colorado River water was 605 mg/L and the average TDS concentration of untreated water from the State Water Project was 221 mg/L. Only untreated State Water Project water was received for recharge in the Montebello Forebay spreading grounds in 2017.

In 2017, average concentrations of nitrate (as Nitrogen) were below detection limits in untreated Colorado River water and the average nitrate concentration in water from the untreated State Water Project was 0.4 mg/L. Recently and historically, both Colorado River and State Water Project nitrate concentrations have remained below the MCL.

In 2017, the average iron and manganese concentrations in untreated Colorado River water was below detection limits. Untreated State Water Project water contained iron at an average concentration of 194 µg/L, and average manganese concentrations were below detection limits. Both Colorado River and State Water Project iron and manganese concentrations have recently and historically been below the SMCL.

The average chloride concentrations in water from the Colorado River and State Water Project have not changed significantly over the past several years. State Water Project and

Colorado River chloride concentrations have historically been below the SMCL of 500 mg/L for chloride.

According to the MWD, TCE, PCE, hexavalent chromium, and perchlorate have not been detected in water from the Colorado River or State Water Project during calendar year 2017. Both Colorado River and State Water Project TCE, PCE, hexavalent chromium, and perchlorate concentrations have recently and historically been below the historical MCL of 10 µg/L.

3.2.2 Quality of Recycled Water

Recycled water is used for groundwater recharge in the WRD Service Area for percolation through the Montebello Forebay spreading grounds, which is comprised of the Rio Hondo Coastal Spreading Grounds and the San Gabriel Coastal Spreading Grounds, and for injection into the seawater barriers. In the Montebello Forebay, tertiary-treated recycled water produced by the County Sanitation Districts of Los Angeles County (CSDLAC) at their Whittier Narrows WRP, San Jose Creek East WRP, San Jose Creek West WRP, and Pomona WRP facilities is diverted into the Montebello Forebay spreading grounds where it percolates into the subsurface to recharge underlying aquifers. The effluent from these WRPs is carefully controlled and monitored, as required by permits and other regulations, and typically shows little water quality variation over time. Average water quality data for the effluent from these WRPs is shown in **Table 3.3**. All constituents listed have remained stable over recent WYs. Furthermore, arsenic, TCE, PCE, perchlorate, and hexavalent chromium have either not been detected or have been detected well below their respective MCLs in recycled water from the four WRPs. 1,4-Dioxane concentrations in recycled water from the Whittier Narrows, San Jose Creek West, and Pomona WRPs, and San Jose Creek East WRP are all slightly above the NL of 1.0 µg/L, but they are well below the RL of 35 µg/L. N-nitrosodimethylamine (NDMA) has been detected above its NL of 10 µg/L in recycled water from the Whittier Narrows, San Jose Creek West, San Jose Creek East, and Pomona WRPs.

Currently, both treated imported water and advanced treated recycled water produced by

the West Basin Municipal Water District (WBMWD) Edward C. Little Water Recycling Facility (ELWRF) are injected at the West Coast Basin Barrier to prevent the intrusion of seawater and replenish the groundwater basin. Treatment processes at the ELWRF includes microfiltration, reverse osmosis, ultraviolet light, advanced oxidation with hydrogen peroxide, and chemical stabilization. The advanced treated recycled water complies with all drinking water standards and thus, is suitable for direct injection. The ELWRF was expanded in September 2013 and it is expected that advanced treated recycled water will replace nearly all of the imported water used for injection at the West Coast Basin Barrier. **Table 3.3** presents average water quality data for the advanced treated recycled water produced by the ELWRF.

The Alamitos Gap Seawater Intrusion Barrier currently receives both treated imported water and advanced treated recycled water produced by WRD's Leo J. Vander Lans Advanced Water Treatment Facility (Vander Lans AWTF) for injection. The Vander Lans AWTF treats disinfected tertiary effluent from the CSDLAC Long Beach Water Reclamation Plant using microfiltration, reverse osmosis, ultraviolet light, and advanced oxidation using hydrogen peroxide. The advanced treated recycled water meets drinking water quality standards and other stringent regulations for direct injection into the aquifers. The Vander Lans AWTF was expanded in 2014 to allow additional capacity and to replace nearly all of the imported water used for injection at the Alamitos Gap Seawater Intrusion Barrier. **Table 3.3** presents average water quality data for the advanced treated recycled water produced by the Vander Lans AWTF.

The City of Los Angeles Terminal Island Water Reclamation Plant/Advanced Water Treatment Facility (TIWRP) produces advanced treated recycled water using microfiltration, reverse osmosis, and disinfection with chlorine. This water meets drinking water quality standards and other stringent regulations for direct injection into aquifers. Currently, treated imported water is blended with advanced treated recycled water from the TIWRP for injection at the Dominguez Gap Seawater Intrusion Barrier. Expansion of the TIWRP was completed in December 2016 and included the installation of an advanced oxidation process into the treatment train. It is anticipated that advanced treated recycled

water will replace nearly all of the imported water used for injection into the Dominguez Gap Seawater Intrusion Barrier. Ongoing work associated with upgrades to the TIWRP along with routine plant maintenance have interrupted the plant's monitoring schedule, and as a result only limited water quality data was available at the time this report was published. Average water quality data that was available as of March 2019 for the advanced treated recycled water produced by the TIWRP is presented in **Table 3.3**.

3.2.3 Quality of Stormwater

Stormwater infiltrates the subsurface to varying degrees throughout the WRD service area. It is also intentionally diverted from the major storm channels and used for groundwater recharge along with imported and recycled water at the Montebello Forebay Spreading Grounds. Routine stormwater quality analyses are performed by LACDPW and other entities. Average stormwater quality data provided by LACDPW for WY 2016-17 are presented on **Table 3.3**. Several of the constituents that are typically reported by LACDPW were not available as of March 2019; however, the average TDS, chloride, and nitrate concentrations in stormwater are relatively low.

3.3 MINERAL CHARACTERISTICS OF GROUNDWATER IN THE CENTRAL BASIN AND WEST COAST BASIN

Major minerals data obtained from the WRD nested monitoring wells were used to characterize groundwater of discrete vertical zones (**Table 3.4**). Research by the USGS led to three distinct groupings of groundwater compositions. Group A groundwater is typically calcium bicarbonate or calcium bicarbonate/sulfate dominant. Group B groundwater has a typically calcium-sodium bicarbonate or sodium bicarbonate character. Group C has a sodium chloride character. A few of the WRD wells yield results that do not fall into one of the three major groups and are thus classified separately as Group D.

Groundwater from Group A likely represents recent recharge water containing a significant percentage of imported water. Group B represents older native groundwater replenished by natural local recharge. Group C represents groundwater impacted by seawater intrusion or connate saline brines. **Table 3.4** lists the groundwater group for each WRD nested monitoring well. Comparison of groundwater groups with well locations indicates that, in general, Group A groundwater is found at and immediately downgradient from the Montebello Forebay Spreading Grounds in all but the deepest zones. Group B groundwater is found farther down the flow path within the Central Basin and inland of the West Coast Basin Seawater Intrusion Barrier. Group C groundwater is generally found near the coastlines or in deeper zones. Several wells, grouped as "Other" on **Table 3.4**, exhibit a chemical character range different from Groups A, B, or C and indicate unique waters not characteristic of the dominant flow systems in the basins. The USGS is conducting ongoing research on trace element isotopes in water from these wells to identify their hydrogeologic source(s).

The major mineral compositions of water from the WRD nested monitoring wells sampled this WY have not changed substantially from previous years. It is expected that continued analysis will show gradual changes in major mineral compositions over time, as older native water is extracted from the basins and replaced by younger naturally and artificially replenished water.

SECTION 4
SALT AND NUTRIENTS IN GROUNDWATER

In February 2009, the SWRCB adopted Resolution No. 2009-0011, which established a statewide Recycled Water Policy (Policy). This Policy encourages increased use of recycled water and local stormwater for groundwater recharge across the State. It also requires local entities to develop a Salt and Nutrient Management Plan (SNMP) for each groundwater basin in California to monitor groundwater quality and any impact due to increased recycled water and stormwater recharge.

A SNMP Workplan was jointly prepared by the CBWCB stakeholders and approved by the Los Angeles Regional Water Quality Control Board in December 2011. The SNMP for the CBWCB was finalized February 12, 2015 and adopted in July 2015. The full text of the "2015 Salt Nutrient Management Plan – 2015" can be found at *http://www.wrd.org/content/other-reports*

The objective of the SNMP is to manage salts and nutrients from all sources "… on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses." Future groundwater quality and assimilative capacity were calculated based on predicted salt and nutrient loading through 2025 in the CBWCB. Accordingly, current and proposed projects through 2025 were identified and used to develop strategies to manage salt and nutrient loading. The SNMP included the following:

- Stormwater and Recycled Water Use/Recharge Goals and Objectives,
- Characterization of the Hydrogeologic Conceptual Model/Water Quality,
- Estimation of Current and Future Salt and Nutrient Loading,
- A Basin-Wide Water Quality Monitoring Plan,
- Estimation of Salt and Nutrient Assimilative Capacity,
- An Anti-degradation Analysis,
- Implementation Measures to Manage Salt and Nutrient Loading, and
- California Environmental Quality Act analysis of the SNMP.

WRD's RGWMP was used to develop the SNMP monitoring program. The groundwater data evaluated in the annual RGWMRs provide an annual assessment of salt and nutrients in groundwater. In addition to the water quality maps generated and discussed in Section 3, historical trend graphs at key monitoring well locations, as described in the following sections, were used to assess salt and nutrient concentrations in groundwater.

4.1 SALT AND NUTRIENT MONITORING LOCATIONS

As discussed in the SNMP, TDS, chloride, and nitrate were identified as the most appropriate indicators of salt and nutrients in the CBWCB. These constituents, as well as other constituents of concern identified in the SNMP, are monitored in the WRD nested monitoring wells along with production wells located throughout the CBWCB.

As part of the SNMP monitoring program, 13 key monitoring well locations in the CBWCB were selected to evaluate past and current salt and nutrient concentrations in groundwater with respect to applicable water quality objectives (WQOs). As established in the Basin Plan, the WQO for TDS in the Central Basin and West Coast Basin is 700 mg/L and 800 mg/L, respectively; the WQO for chloride in the Central Basin and West Coast Basin is 150 mg/L and 250 mg/L, respectively; and the MCL/WQO in both basins for nitrate (as Nitrogen) is 10 mg/L.

In accordance with the Policy, the 13 selected nested well locations are in the most critical areas of the basins, particularly their proximity to water supply wells and groundwater recharge projects that utilize recycled water, including the seawater intrusion barriers (Alamitos Gap Barrier, Dominguez Gap Barrier, and West Coast Basin Barrier) and the Montebello Forebay Spreading Grounds. There are three nested well locations in the Montebello Forebay, one in the Los Angeles Forebay, four in the CBPA, one in the Whittier Area, and four in the West Coast Basin. Monitoring locations in the Montebello Forebay and Los Angeles Forebay target groundwater where connectivity with adjacent surface waters is possible.

The 13 key nested well locations are shown as a different symbol set on **Figure 1.3**. These locations include 70 individual monitoring zones, screened in specific CBWCB aquifers. The depths and aquifer designation for these key monitoring wells are provided in **Table 1.1**. WRD is the entity, designated by the SWRCB, responsible for collecting TDS, chloride, and nitrate samples (on a semi-annual basis) from these nested wells.

4.2 SALT AND NUTRIENT MONITORING RESULTS AND EVALUATION

Concentrations of salt and nutrients have been and continue to be closely monitored in all WRD nested monitoring wells and purveyors' production wells and results are discussed in **Section 3**. Concentrations of TDS, chloride, and nitrate (as nitrogen) for all WRD nested wells sampled during WY 2017-18 are shown on maps (**Figures 3.1, 3.7, and 3.9**, respectively) and summarized along with other monitored constituents identified in **Tables 3.1** and **3.2**. TDS, chloride, and nitrate (as nitrogen) concentrations in production wells, sampled during WYs 2015-2018 are presented on maps (**Figures 3.2, 3.8**, and **3.10** respectively). Trends for TDS and chloride concentrations at the 13 key well locations discussed above in Section 4.1 are plotted on graphs and compared to SMCLs and WQOs (**Figures 4.1** through **4.13**). Nitrate generally has not been detected in the monitoring wells, or it has been detected only at concentrations significantly below the MCLs and WQOs, and thus, trend graphs for nitrate have not been prepared. However, nitrate will continue to be monitored as part of the RGWMP and will be reported in **Section 3** of the annual RGWMRs.

In the Montebello Forebay, TDS and chloride concentration trends for the key well locations Rio Hondo #1 (six zones), Pico #2 (six zones), and Norwalk #2 (six zones) are presented on **Figures 4.1** through **4.3**, respectively. TDS and chloride concentrations have historically been below the SMCLs and WQOs at all three well locations, and while they remain below the SMCLs and WQOs at Rio Hondo #1 and Norwalk #2, fall 2018 sampling for chloride detected a concentration equal to the WQO of 150 mg/L in the shallow zone at Pico #2. Several middle zones at Rio Hondo #1 and Pico #2 show slightly increasing trends for TDS and chloride, while concentrations in the shallow zones fluctuate more.

Otherwise, trends do not indicate significant increasing salt concentrations in the Montebello Forebay.

In the Los Angeles Forebay, the key well is Huntington Park #1 (four zones). TDS and chloride concentration trend graphs are shown on **Figure 4.4**. The deeper two zones of this well show stable trends for TDS and chloride at concentrations below the SMCLs and WQOs. The upper two zones indicate very slight increases in TDS and chloride concentrations over the past few years, but concentrations remain below the SMCLs. In the upper two zones chloride concentrations are below the WQO, but TDS concentrations are above the WQO of 700 mg/L.

In the CBPA, key wells include South Gate #1 (five zones), Willowbrook #1 (four zones), Long Beach #6 (six zones), and Seal Beach #1 (seven zones). TDS and chloride trends are shown on **Figures 4.5** through **4.8,** respectively. At South Gate #1, the four deeper zones show TDS and chloride concentrations at relatively consistent values below the SMCLs and WQOs. TDS and chloride concentrations in South Gate #1 Zone 5 have increased somewhat since initial sampling but have remained relatively stable over the past 10 years and are below both the WQOs and SMCLs. At all four zones of Willowbrook #1 and the upper four zones at Long Beach #6, TDS and chloride concentrations are quite stable and are below both the SMCLs and WQOs. In Zone 1, the deepest zone of Long Beach #6, TDS is typically detected very close to the WQO of 700 mg/L. TDS concentrations in Zone 2 fluctuate by as much as 50% with historic highs near the WQO; over the past six years TDS concentrations have stabilized somewhat and appear to be slightly decreasing. Chloride concentrations in Zones 1 and 2 remain stable and are significantly below the SMCL and WQO. At Seal Beach #1, the deeper six zones contain TDS and chloride at concentrations below the WQOs and SMCLs. Zone 7, the shallowest zone, contains TDS and chloride at concentrations that steadily increased during the first six years after the wells were installed; they appear to have stabilized since then however, and concentrations are steady and slightly decreasing. TDS and chloride concentrations in Zone 7 are well above the WQOs and SMCLs, likely due to seawater intrusion.

In the Whittier Area, represented by key well Whittier #1 (five zones), TDS and chloride trends are shown on **Figure 4.9**. TDS in Zones 4 and 5 has been stable over the past 15 years, is below the SMCL, and meets the WQO. TDS in Zones 1, 2, and 3 has historically exceeded the SMCL and WQO, and generally shows a stable to slightly increasing trend. Chloride in Zones 4 and 5 has been historically below the SMCL and meets the WQO. Chloride in Zones 1, 2, and 3 has historically exceeded the WQO, but has been historically below the SMCL, and generally shows a stable trend.

In the West Coast Basin, key wells include PM-4 Mariner (four zones), Carson #1 (four zones), Manhattan Beach #1 (seven zones), and Wilmington #2 (five zones). TDS and chloride trends are presented on **Figures 4.10** through **4.13**, respectively. At PM-4 Mariner, Zones 1, 3, and 4 show TDS and chloride at relatively consistent concentrations below the SMCLs and WQOs. However at PM-4 Mariner Zone 2, TDS and chloride concentrations are well above the SMCLs and WQOs and have increased since monitoring began around 1998. This is attributed to historical seawater intrusion prior to the construction of the West Coast Basin Seawater Barrier. At Carson #1, all four zones contain TDS and chloride concentrations below both the SMCLs and WQOs; here the three deeper zones show relatively stable TDS and chloride concentrations, while concentrations of these constituents in the shallow Zone 4 have decreased since initial sampling in 1998. At Manhattan Beach #1, groundwater in this coastal area shows evidence of impact by seawater intrusion. While this well was constructed in 2011 and thus only sampled nine times over the past seven years, TDS concentrations in five of the seven zones exceed the WQO and SMCL, and in four zones the WQO and SMCL for chloride are exceeded. TDS and chloride concentrations in all seven of the zones at Manhattan Beach #1 appear to be rather stable. At Wilmington #2, TDS in Zones 1 and 3 has historically been below the WQO and SMCL, but has steadily increased over the past six years. TDS in Zone 2 has been both stable and consistently above the WQO and SMCL. TDS and chloride in Zone 4 were initially above the WQOs and SMCLs, but have steadily decreased. TDS and chloride concentrations in Zone 4 have been below the WQOs and SMCLs for at least the past five years, likely due to the implementation measures discussed in Section 4.3 below. TDS and chloride in Zone 5 are much higher than the WQOs and SMCLs; however, they have

steadily decreased and are currently at concentrations far below those observed during the first years of sampling.

4.3 IMPLEMENTATION MEASURES TO MANAGE SALT AND NUTRIENT LOADING

As summarized in the previous section, overall TDS and chloride concentrations are generally stable at most of the 13 key nested monitoring locations in the CBWCB. While a few individual zones show increasing trends, a comparable number show decreasing trends. Notably, TDS and chloride concentrations in the two shallowest zones at nested well location Rio Hondo #1 and the three shallowest zones at Pico #2, each of which is beneath and adjacent to the Montebello Forebay recharge basins, generally fluctuate within the same concentration range since 1998. At the key well location in the Los Angeles Forebay, the shallow zones have variable TDS concentrations at and above the WQO, but deeper zones do not show increasing TDS levels. In the CBPA, TDS concentrations in the shallowest zone at key well location South Gate #1 fluctuate slightly but remain relatively stable, and chloride concentrations have steadily decreased over the past five years. TDS and chloride concentrations in the four lower zones are stable. Key nested monitoring well locations near the coast, including PM-4 Mariner, Manhattan Beach #1, and Seal Beach #1, have zones that show increasing TDS and chloride concentration trends that can be attributed to historical seawater intrusion. In the relatively isolated Whittier Area, historically high TDS and chloride concentrations in the middle depth zones are stable and are not expected to fluctuate in response to anticipated management practices.

As discussed in the SNMP, TDS and chloride concentrations in the Central Basin are not expected to exceed WQOs in the future, and current and proposed projects in the basin are not expected to increase salt and nutrient concentrations above the available assimilative capacity. Two notable projects in the Central Basin include the increased use of advanced treated recycled water for injection at the Alamitos Gap Seawater Intrusion Barrier and the increased use of recycled water at the Montebello Forebay Spreading Grounds through the implementation of the Albert Robles Center for Water Recycling and Environmental

Learning (ARC) formerly known as the Groundwater Reliability Improvement Project (GRIP) which includes tertiary treated and advanced treated recycled waters.

In the West Coast Basin, average TDS and chloride concentrations can exceed WQOs due to historical seawater intrusion. However, these concentrations are decreasing and are anticipated to achieve WQOs in the future due to implementation measures such as the increased use of advanced treated recycled water for injection at the West Coast Basin and Dominguez Gap Seawater Intrusion Barrier and the continued operation of the desalter wells located in Torrance.

Nitrate concentrations in the CBWCB remain low and are not expected to increase above the MCL or WQO in the future. Overall, the data show that salt and nutrient concentrations in groundwater are stable as a result of past and current groundwater management practices. Based on the existing water quality of the CBWCB and the future groundwater quality as estimated from the SNMP analysis, existing and planned implementation measures appear adequate to manage salt and nutrient loading on a sustainable basis.

SECTION 5
SUMMARY OF FINDINGS

This RGWMR was prepared by WRD to provide a comprehensive review of groundwater conditions in the WRD service area during WY 2017-18. A summary of findings is presented below.

- Artificial replenishment activities combined with natural replenishment and controlled pumping have ensured a sustainable, reliable supply of groundwater in the WRD service area. Artificial replenishment water sources used by WRD include imported water supplied by the member agencies to the MWD, tertiary-treated recycled water produced by the CSDLAC, and advanced treated recycled water produced by WBMWD, the City of Los Angeles, and WRD.
- Groundwater levels (heads) are monitored continuously in the WRD service area throughout the year. The WRD nested monitoring wells show clear, significant differences in groundwater elevations between the various aquifers. The water level differences in these nested wells reflect both hydrogeologic and pumping conditions in the WRD service area. Vertical head differences of up to 90 feet occur between zones above and within the producing aquifers. The greatest head differences between aquifers tend to occur in the southern area of the Central Basin (Long Beach) and the inland, eastern areas of the West Coast Basin (Gardena and Carson), while the smallest differences occur in the recharge area of the Montebello Forebay, and the southern area of the West Coast Basin (Torrance), which has merged and unconfined aquifers.
- Hydrographs and groundwater elevations measured in basin-wide nested monitoring wells and key production wells indicate decreases across most of the Central Basin and increases across much of the West Coast Basin during WY 2017-18. In the unconfined Montebello Forebay, water levels have decreased due to the very dry year and lack of natural replenishment water; in the vicinity of the spreading grounds they are as much as 34 feet lower than they were in WY 2016-

17. Across the unconfined Los Angeles Forebay, water levels have decreased slightly or remain relatively unchanged from those measured in WY 2016-17. Water levels in the Whittier Area have also either decreased or have remained relatively unchanged in WY 2017-18. In the CBPA, water levels decreased as much as 16 feet over the 2017-18 WY.

- In the West Coast Basin, water levels generally increased or remained relatively unchanged in WY 2017-18. Across much of the coastal area, water levels range from about one to 10 feet higher in WY 2017-18 than in WY 2016-17. In the Carson/Long Beach area, water levels are as much as 12 feet higher than they were in WY 2016-17, and in the Gardena area between the Newport-Inglewood and Charnock Faults, water levels are as much as 18 feet higher in WY 2017-18 than they were in WY 2016-17. Water levels did not change significantly over the southern portion of the coastal area, or in the Carson/Torrance area north into southwest Los Angeles in WY 2017-18. However, water levels have decreased by as much as two feet in the westernmost portion of Torrance.
- Taking an average District wide, groundwater levels decreased nearly four feet in WY 2017-18. As a result, groundwater storage loss was calculated at 80,200 AF; 72,400 AF of that loss in storage occurred just in the Montebello Forebay which is unconfined and responds the most to spreading grounds recharge or discharge events. Groundwater storage loss in the Los Angeles Forebay was 3,900 AF; 1,100 AF of storage was lost in the CBPA, and the Whittier Area saw a decrease of 3,200 AF. The West Coast Basin gained 340 AF in storage in WY 2017-18 compared to WY 2016-17.
- For an assessment of groundwater quality, WRD collected over 500 samples from its nested wells throughout the WY and also obtained water quality data from potable wells in the District from the DDW database. We use 12 chemical compounds to summarize overall water quality, although results for over 100 compounds are present in our databases. A discussion of the 12 follows:
- TDS concentrations for wells located in the Central Basin are relatively low, while those in the West Coast Basin are elevated in certain portions, primarily the coastal areas from Redondo Beach to LAX and the Inglewood and Dominguez Gap areas.

The elevated TDS concentrations (above the secondary MCL) may be caused by seawater intrusion, connate brines, or possibly oil field brines.

- Iron is generally common at low concentrations across the WRD service area. In Central Basin nested wells, iron concentrations above the secondary MCL are observed in and around the Los Angeles and Montebello Forebays, while in production wells iron concentrations above the secondary MCL extend southward from the forebays into the CBPA. Across the West Coast Basin in both nested and production well sites, iron is present at concentrations above the secondary MCL at numerous locations.
- Manganese is very common in groundwater across the CBWCB and detected at all of the nested wells and nearly half of the production well sites. It is present in the Central Basin at concentrations above the secondary MCL in 20% - 30% of the samples but only present above its NL in about 5% of those wells. Manganese is even more widespread in the West Coast Basin, where it was detected above the secondary MCL between around 46% and 65% of well sites. It was only detected above the NL in 10% of the nested well zones and is not detected above the NL in any of the production well sites.
- Chloride concentrations are reasonably low in the Central Basin and in wells within the inland areas of the West Coast Basin. Some coastal areas of the West Coast Basin are impacted by seawater intrusion and thus, have high chloride concentrations in groundwater.
- Nitrate concentrations in WRD nested monitoring wells in the CBWCB are generally below the MCL. The few nested wells that have nitrate concentrations approaching or exceeding the MCL tend to be limited to the shallowest zone at a given location and are likely due either to localized surface recharge, or isolated areas of shallow impacts from industrial operations.
- TCE and PCE detections above the MCL in Central Basin nested wells are only observed within and in close proximity to the Los Angeles Forebay, but in Central Basin production wells elevated TCE and PCE concentrations are observed within the general vicinity of Los Angeles Forebay, west of the Rio Hondo spreading grounds, and downgradient of the San Gabriel River Spreading grounds. TCE is

observed at a concentration above the MCL in the West Coast Basin in just one individual well zone in the Hawthorne area, and PCE is not detected in any of the West Coast Basin nested wells. Neither TCE nor PCE was detected in any of the West Coast Basin production wells.

- Arsenic is present at low concentrations in groundwater from most of the WRD nested well sites. With few exceptions, arsenic in nested wells at concentrations above the MCL is generally restricted to areas within the southeastern portion of the Central Basin and along the western area of the West Coast Basin. Arsenic at concentrations above the MCL in West Coast Basin production wells was not detected, however those higher concentrations are present in a few production wells located in the southeastern portion of the Central Basin.
- Perchlorate is relatively common at low concentrations within and downgradient of the nested wells located in the Los Angeles and Montebello Forebays in the Central Basin, but is rarely detected in West Coast Basin nested wells. Perchlorate in Central Basin production wells is restricted to the Los Angeles Forebay; it is absent elsewhere in CBWCB production wells.
- Hexavalent chromium is present in the CBWCB at low concentrations in nearly every nested well site, but it is only found at concentrations above the former MCL in a small number of nested well sites in the Los Angeles Forebay. In production wells, hexavalent chromium is only present at low concentrations in a few wells located within and downgradient of the Los Angeles and Montebello Forebays in the Central Basin, and was not detected in any of the West Coast Basin production wells.
- 1,4-Dioxane is present at concentrations above the NL in Central Basin nested and production wells east of the Los Angeles Forebay and extending southward into the CBPA, as well as within the Montebello Forebay and extending southward in to the CBPA adjacent to the San Gabriel River. In the West Coast Basin, 1,4-Dioxane was rarely detected in the nested wells, and was not detected in any of production wells.
- TBA is present in groundwater within a few of nested wells in the vicinity of the Wilmington area (southern West Coast Basin), and in one nested well in the

Inglewood area (northeastern West Coast Basin), but otherwise is generally not present in CBWCB nested or production well sites.

- The water quality of key constituents in untreated imported water recharged at the Montebello Forebay Spreading Grounds and treated imported water injected at the seawater barriers remains in compliance with regulatory limits. Average TDS, iron, manganese, chloride, nitrate, and arsenic concentrations in imported water used for recharge do not exceed their respective MCLs. Meanwhile, TCE, PCE, hexavalent chromium, and perchlorate were not detected in the untreated imported water.
- The water quality of key constituents in recycled water used for recharge at the Montebello Forebay Spreading Grounds and injection at the seawater intrusion barriers complies with regulatory limits and is monitored regularly to ensure its safe use.
- Stormwater samples are collected and analyzed for various water quality parameters by the LACDPW and other entities in the CBWCB. Available data from LACDPW for WY 2016-17 show that average TDS, chloride, and nitrate concentrations in stormwater are lower than most other sources of replenishment water and other constituent concentrations confirm that stormwater is a good replenishment source.
- A total of 13 WRD nested groundwater monitoring wells across the CBWCB are designated for salt and nutrient (specifically, TDS, chloride, and nitrate) sampling and reporting as part of the SNMP monitoring program. Overall TDS and chloride concentrations are generally stable at most of the 13 key nested monitoring locations in the CBWCB. While a few individual zones show increasing trends, a comparable number show decreasing trends. Nitrate concentrations remain below the MCL at all 13 monitoring locations. In the Central Basin, local exceedances of the WQO for TDS are observed in the three deep zones at Whittier #1, and the shallow zones at Seal Beach #1 and Huntington Park #1. While TDS concentrations at Whittier #1 and Seal Beach #1 are relatively stable and at historic levels, TDS in the shallow zone at Huntington Park #1 has steadily increased. TDS first began to be consistently detected at Huntington Park #1 at concentrations above the WQO in about 2010; TDS increased slightly over the next few years, but

has remained relatively stable over the past four years. Chloride concentrations in the shallow zone at Seal Beach #1 also exceed the WQOs, but like TDS, it remains relatively stable and at historic values. Elsewhere in the Central Basin average TDS and chloride concentrations do not currently exceed WQOs and are not expected to do so in the future. In the West Coast Basin, average TDS and chloride concentrations exceed WQOs locally due to historical seawater intrusion. However, these concentrations are decreasing and are anticipated to achieve WQOs in the future as a result of current groundwater management practices.

As shown by the data presented herein, groundwater in the WRD service area is of generally good quality and is suitable for use by the pumpers in the District, the stakeholders, and the public. Groundwater from localized areas with marginal to poor water quality can still be utilized but may require treatment prior to being used as a potable source.

SECTION 6
FUTURE ACTIVITIES

WRD will continue to update and augment its RGWMP to best serve the needs of the District, the pumpers, and the public. Some of the activities planned for the RGWMP in the current WY 2018-19 are listed below.

- WRD continues refining the regional understanding of groundwater occurrence, movement, and quality. Water levels will continue to be recorded using automatic dataloggers to monitor groundwater elevation differences throughout the year. Conductivity sensors are being utilized at selected nested monitoring wells to track water quality changes and supplement the automated water level data. Telemetry technology is being implemented to send real-time water level data to WRD from several locations with a goal of real-time display of water levels on the WRD website. A Supervisory Control and Data Acquisition system is being developed which will allow electronic transfer of water level data from the source of measurement to a centralized location that can be accessed remotely for real-time data observation and analysis.
- WRD continually evaluates the need to fill data gaps in water level data, water quality data, and the hydrogeologic conceptual model with additional geologic data provided from drilling, construction, and monitoring of nested wells. One such well is planned for installation in the unadjudicated North Central Basin to expand WRD's monitoring network to provide data about groundwater flowing into WRD's service area. Two additional wells are planned for installation in the Central Basin downgradient of the spreading grounds that will enhance tracking of replenishment water.
- WRD will continue to sample groundwater from nested monitoring wells, and analyze the samples for general water quality constituents. In addition, the focus will continue on constituents of interest to WRD, the pumpers, and other stakeholders, such as TCE, PCE, manganese, arsenic, perchlorate, and hexavalent chromium. As regulators consider new water quality standards for CECs that have not been comprehensively

monitored in the past, WRD's nested monitoring well network is in good position to screen for emerging CECs in groundwater which may include, pesticides, pharmaceuticals and personal care products, oil and gas field indicators, and other CECs. This year WRD anticipates assessing groundwater in the vicinity of the spreading grounds for the presence of Per- and Polyfluoroalkyl Substance (PFAS) constituents, including Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA). WRD will be working on refining the hydrogeologic conceptual model of the CBWCB using data from the RGWMP along with an update to the groundwater model, developed and expected to be published by the USGS in 2019, to improve the framework for understanding the groundwater system and for use as a planning tool.

- Consistent with WRD's mission to provide, protect, and preserve high quality groundwater and as required by the State's Recycled Water Policy, a SNMP is in place and is being implemented. Based on the existing water quality of the CBWCB and results from the SNMP analysis, it has been shown that salt and nutrient loading to groundwater is not a concern and that salt and nutrient concentrations overall in groundwater are either stable or improving due to past and current groundwater management practices. Existing and planned implementation measures are protective of groundwater quality and its beneficial uses and the increased use of recycled water in the WRD service area is consistent with the goals of the Policy and necessary to ensure a sustainable water supply.
- On November 4, 2009, the State Legislature amended the Water Code with SBx7-6, mandating a statewide groundwater elevation monitoring program to track seasonal and long-term trends in California's groundwater basins. In accordance with this amendment DWR developed the CASGEM program. In October 2011, WRD was assigned as the DME responsible for collecting and reporting CBWCB groundwater level data to CASGEM. Through the RGWMP, WRD will continue to collect CBWCB groundwater level data, track seasonal and long-term trends and provide the data to the CASGEM program.
- WRD will continue to monitor the quality of replenishment water sources to ensure the CBWCB are being recharged with high-quality water.

- WRD will continue to use the data generated by the RGWMP along with WRD's GIS capabilities to address current and potential water quality issues and groundwater replenishment in its service area.

SECTION 7

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TABLES

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
Bell #1	1	102041	1750	1730	1750	Pico Formation [2]
	2	102042	1215	1195	1215	Sunnyside
	3	102043	985	965	985	Sunnyside
	4	102044	635	615	635	Silverado
	5	102045	440	420	440	Jefferson
	6	102046	270	250	270	Gage
Bell Gardens #1	1	101954	1795	1775	1795	Sunnyside [2]
	2	101955	1410	1390	1410	Sunnyside [2]
	3	101956	1110	1090	1110	Sunnyside
	4	101957	875	855	875	Sunnyside
	5	101958	575	555	575	Silverado
	6	101959	390	370	390	Lynwood
Carson #1	1	100030	1010	990	1010	Silverado
	2	100031	760	740	760	Silverado
	3	100032	480	460	480	Lynwood
	4	100033	270	250	270	Gage [2]
Carson #2	1	101787	1250	1230	1250	Sunnyside [2]
	2	101788	870	850	870	Sunnyside [2]
	3	101789	620	600	620	Silverado
	4	101790	470	450	470	Silverado
	5	101791	250	230	250	Lynwood
Carson #3	1	102075	1800	1600	1620	Pico Formation [2]
	2	102076	1240	1220	1240	Sunnyside [2]
	3	102077	1100	1080	1100	Silverado [2]
	4	102078	890	870	890	Silverado
	5	102079	640	620	640	Silverado
	6	102080	380	360	380	Lynwood
Cerritos #1	1	100870	1215	1155	1175	Sunnyside [2]
	2	100871	1020	1000	1020	Silverado [2]
	3	100872	630	610	630	Lynwood
	4	100873	290	270	290	Gage
	5	100874	200	180	200	Artesia
	6	100875	135	125	135	Artesia
Cerritos #2	1	101781	1470	1350	1370	Sunnyside [2]
	2	101782	935	915	935	Silverado
	3	101783	760	740	760	Lynwood [2]
	4	101784	510	490	510	Hollydale
	5	101785	370	350	370	Gage
	6	101786	170	150	170	Artesia
Chandler #3B	1	100082	363	341	363	Silverado [2]
Chandler #3A	2	100083	192	165	192	Lynwood [2]
Commerce #1	1	100881	1390	1330	1390	Pico Formation [2]
	2	100882	960	940	960	Sunnyside
	3	100883	780	760	780	Sunnyside [2]
	4	100884	590	570	590	Silverado
	5	100885	345	325	345	Jefferson
	6	100886	225	205	225	Hollydale

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.

2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
Compton #1	1	101809	1410	1370	1390	Sunnyside [2]
	2	101810	1170	1150	1170	Sunnyside [2]
	3	101811	820	800	820	Silverado
	4	101812	480	460	480	Hollydale
	5	101813	325	305	325	Gage
Compton #2	1	101948	1495	1475	1495	Pico Formation [2]
	2	101949	850	830	850	Sunnyside [2]
	3	101950	605	585	605	Silverado
	4	101951	400	380	400	Lynwood [2]
	5	101952	315	295	315	Hollydale [2]
	6	101953	170	150	170	Exposition
Downey #1	1	100010	1190	1170	1190	Sunnyside [2]
	2	100011	960	940	960	Sunnyside [2]
	3	100012	600	580	600	Silverado
	4	100013	390	370	390	Jefferson
	5	100014	270	250	270	Gage
	6	100015	110	90	110	Gaspur
Gardena #1	1	100020	990	970	990	Pico Formation [2]
	2	100021	465	445	465	Silverado
	3	100022	365	345	365	Lynwood [2]
	4	100023	140	120	140	Gage
Gardena #2	1	101804	1335	1275	1335	Pico Formation [2]
	2	101805	790	770	790	Silverado
	3	101806	630	610	630	Silverado
	4	101807	360	340	360	Lynwood
	5	101808	255	235	255	Gardena
Hawthorne #1	1	100887	990	910	950	Pico Formation [2]
	2	100888	730	710	730	Sunnyside [2]
	3	100889	540	520	540	Sunnyside [2]
	4	100890	420	400	420	Silverado
	5	100891	260	240	260	Lynwood
	6	100892	130	110	130	Gage
Huntington Park #1	1	100005	910	890	910	Silverado
	2	100006	710	690	710	Lynwood
	3	100007	440	420	440	Hollydale
	4	100008	295	275	295	Gage
	5	100009	134	114	134	Gaspur
Inglewood #1	1	100091	1400	1380	1400	Pico Formation [2]
	2	100092	885	865	885	Pico Formation [2]
	3	100093	450	430	450	Silverado
	4	100094	300	280	300	Lynwood [2]
	5	100095	170	150	170	Gage
Inglewood #2	1	100824	860	800	840	Pico Formation [2]
	2	100825	470	450	470	Silverado [2]
	3	100826	350	330	350	Lynwood [2]
	4	100827	245	225	245	Gage [2]

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.

2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
Inglewood #3	1	102138	1940	1900	1940	Pico Formation [2]
	2	102139	1460	1440	1460	Pico Formation [2]
	3	102140	1275	1255	1275	Pico Formation [2]
	4	102141	910	890	910	Pico Formation [2]
	5	102142	560	540	560	Silverado
	6	102143	390	370	390	Lynwood
	7	102144	265	245	265	Gage
Lakewood #1	1	100024	1009	989	1009	Sunnyside
	2	100025	660	640	660	Lynwood
	3	100026	470	450	470	Hollydale
	4	100027	300	280	300	Gage
	5	100028	160	140	160	Artesia
	6	100029	90	70	90	Bellflower
Lakewood #2	1	102151	2000	1960	2000	Sunnyside [2]
	2	102152	1760	1740	1760	Sunnyside [2]
	3	102153	1320	1300	1320	Sunnyside [2]
	4	102154	1015	995	1015	Silverado
	5	102155	710	690	710	Lynwood
	6	102156	575	555	575	Jefferson
	7	102157	275	255	275	Gage
	8	102158	120	110	120	Artesia
La Mirada #1	1	100876	1150	1130	1150	Sunnyside
	2	100877	985	965	985	Silverado [2]
	3	100878	710	690	710	Lynwood [2]
	4	100879	490	470	490	Jefferson [2]
	5	100880	245	225	245	Gage
Lawndale #1	1	102171	1400	1360	1400	Pico Formation [2]
	2	102172	905	885	905	Sunnyside [2]
	3	102173	635	615	635	Silverado
	4	102174	415	395	415	Silverado
	5	102175	310	290	310	Lynwood
	6	102176	190	170	190	Gardena
Lomita #1	1	100818	1340	1240	1260	Pico Formation [2]
	2	100819	720	700	720	Silverado
	3	100820	570	550	570	Silverado
	4	100821	420	400	420	Lynwood
	5	100822	240	220	240	Gage [2]
	6	100823	120	100	120	Gage [2]
Long Beach #1	1	100920	1470	1430	1450	Sunnyside [2]
	2	100921	1250	1230	1250	Sunnyside
	3	100922	990	970	990	Silverado [2]
	4	100923	619	599	619	Lynwood [2]
	5	100924	420	400	420	Jefferson [2]
	6	100925	175	155	175	Artesia
Long Beach #2	1	101740	1090	970	990	Sunnyside
	2	101741	740	720	740	Silverado [2]
	3	101742	470	450	470	Silverado
	4	101743	300	280	300	Lynwood
	5	101744	180	160	180	Gage
	6	101745	115	95	115	Gaspur

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2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
Long Beach #3	1	101751	1390	1350	1390	Pico Formation [2]
	2	101752	1017	997	1017	Silverado
	3	101753	690	670	690	Silverado [2]
	4	101754	550	530	550	Silverado [2]
	5	101755	430	410	430	Lynwood
Long Beach #4	1	101759	1380	1200	1220	Pico Formation [2]
	2	101760	820	800	820	Sunnyside [2]
Long Beach #6	1	101792	1530	1490	1510	Pico Formation [2]
	2	101793	950	930	950	Sunnyside
	3	101794	760	740	760	Sunnyside
	4	101795	500	480	500	Silverado
	5	101796	400	380	400	Lynwood
	6	101797	240	220	240	Gage
Long Beach #8	1	101819	1495	1435	1455	Pico Formation [2]
	2	101820	1040	1020	1040	Sunnyside [2]
	3	101821	800	780	800	Silverado [2]
	4	101822	655	635	655	Silverado [2]
	5	101823	435	415	435	Silverado [2]
	6	101824	185	165	185	Lynwood [2]
Los Angeles #1	1	100926	1370	1350	1370	Sunnyside [2]
	2	100927	1100	1080	1100	Sunnyside
	3	100928	940	920	940	Sunnyside
	4	100929	660	640	660	Silverado
	5	100930	370	350	370	Lynwood [2]
Los Angeles #2	1	102003	1370	1330	1370	Pico Formation [2]
	2	102004	730	710	730	Sunnyside
	3	102005	525	505	525	Silverado
	4	102006	430	410	430	Lynwood
	5	102007	265	245	265	Hollydale [2]
	6	102008	155	135	155	Gardena
Los Angeles #3	1	102069	1570	1210	1230	Pico Formation [2]
	2	102070	895	875	895	Sunnyside [2]
	3	102071	725	705	725	Sunnyside [2]
	4	102072	570	550	570	Sunnyside
	5	102073	350	330	350	Silverado [2]
	6	102074	210	190	210	Gage [2]
Los Angeles #4	1	102131	1780	1740	1780	Pico Formation [2]
	2	102132	1230	1190	1230	Sunnyside [2]
	3	102133	740	720	740	Sunnyside
	4	102134	510	490	510	Silverado
	5	102135	375	355	375	Lynwood
	6	102136	255	235	255	Gage
Los Angeles #5	1	103029	2000	1960	2000	Pico Formation [2]
	2	103030	1255	1235	1255	Sunnyside [2]
	3	103031	770	750	770	Sunnyside
	4	103032	575	555	575	Sunnyside
	5	103033	450	430	450	Silverado
	6	103034	235	215	235	Lynwood [2]
	7	103035	105	95	105	Exposition

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.

2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
Lynwood #1	1	102211	2900	2880	2900	Pico Formation [2]
	2	102212	2450	2430	2450	Pico Formation [2]
	3	102213	1670	1650	1670	Sunnyside [2]
	4	102214	1465	1445	1465	Sunnyside [2]
	5	102215	1220	1200	1220	Silverado [2]
	6	102216	900	880	900	Silverado [2]
	7	102217	660	640	660	Lynwood
	8	102218	335	315	335	Gardena
	9	102219	180	160	180	Gaspur
Manhattan Beach #1	1	102081	1990	1950	1990	Pico Formation [2]
	2	102082	1590	1570	1590	Pico Formation [2]
	3	102083	1270	1250	1270	Pico Formation [2]
	4	102084	885	865	885	Sunnyside [2]
	5	102085	660	640	660	Sunnyside [2]
	6	102086	340	320	340	Silverado
	7	102087	200	180	200	Gage
Montebello #1	1	101770	980	900	960	Pico Formation [2]
	2	101771	710	690	710	Sunnyside
	3	101772	520	500	520	Sunnyside
	4	101773	390	370	390	Silverado
	5	101774	230	210	230	Lynwood
	6	101775	110	90	110	Gage
Norwalk #1	1	101814	1420	1400	1420	Sunnyside
	2	101815	1010	990	1010	Silverado
	3	101816	740	720	740	Lynwood
	4	101817	450	430	450	Hollydale
	5	101818	240	220	240	Gage
Norwalk #2	1	101942	1480	1460	1480	Pico Formation [2]
	2	101943	1280	1260	1280	Pico Formation [2]
	3	101944	980	960	980	Sunnyside [2]
	4	101945	820	800	820	Sunnyside [2]
	5	101946	500	480	500	Silverado
	6	101947	256	236	256	Gardena
Pico #1	1	100001	900	860	900	Pico Formation [2]
	2	100002	480	460	480	Silverado
	3	100003	400	380	400	Silverado
	4	100004	190	170	190	Gardena [2]
Pico #2	1	100085	1200	1180	1200	Sunnyside [2]
	2	100086	850	830	850	Sunnyside [2]
	3	100087	580	560	580	Sunnyside
	4	100088	340	320	340	Silverado
	5	100089	255	235	255	Lynwood
	6	100090	120	100	120	Gaspur/Gage [2]
PM-2 Police Station	1	102237	665	645	665	Sunnyside [2]
	2	102238	540	520	520	Silverado
	3	102239	390	370	390	Lynwood/Silverado [2]
	4	102240	260	240	260	Lynwood

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.

2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
PM-3 Madrid	1	100034	685	640	680	Sunnyside [2]
	2	100035	525	480	520	Silverado
	3	100036	285	240	280	Lynwood
	4	100037	190	145	185	Gardena
PM-4 Mariner	1	100038	720	670	710	Sunnyside [2]
	2	100039	550	500	540	Silverado
	3	100040	390	340	380	Lynwood
	4	100041	250	200	240	Gardena
PM-5 Columbia Park	1	102047	1480	1360	1380	Pico Formation [2]
	2	102048	960	940	960	Pico Formation [2]
	3	102049	790	770	790	Sunnyside [2]
	4	102050	600	580	600	Silverado
	5	102051	340	320	340	Lynwood [2]
	6	102052	160	140	160	Gardena
PM-6 Madrona Marsh	1	102053	1235	1195	1235	Pico Formation [2]
	2	102054	925	905	925	Sunnyside [2]
	3	102055	790	770	790	Sunnyside [2]
	4	102056	550	530	550	Silverado
	5	102057	410	390	410	Lynwood
	6	102058	260	240	260	Lynwood
Rio Hondo #1	1	100064	1150	1110	1130	Pico Formation [2]
	2	100065	930	910	930	Sunnyside [2]
	3	100066	730	710	730	Sunnyside
	4	100067	450	430	450	Silverado
	5	100068	300	280	300	Hollydale
	6	100069	160	140	160	Gardena
Seal Beach #1	1	102062	1485	1345	1365	Sunnyside [2]
	2	102063	1180	1160	1180	Sunnyside [2]
	3	102064	1040	1020	1040	Sunnyside [2]
	4	102065	795	775	795	Silverado
	5	102066	625	605	625	Lynwood [2]
	6	102067	235	215	235	Gage
	7	102068	70	60	70	Artesia
South Gate #1	1	100893	1460	1440	1460	Sunnyside [2]
	2	100894	1340	1320	1340	Sunnyside [2]
	3	100895	930	910	930	Silverado [2]
	4	100896	585	565	585	Lynwood
	5	100897	250	220	240	Exposition [2]
South Gate #2	1	102180	1760	1740	1760	Sunnyside [2]
	2	102181	1430	1410	1430	Sunnyside [2]
	3	102182	1082	1062	1082	Sunnyside
	4	102183	690	670	690	Silverado [2]
	5	102184	430	410	430	Hollydale
	6	102185	225	205	225	Gaspur [2]
Westchester #1	1	101776	860	740	760	Pico Formation [2]
	2	101777	580	560	580	Sunnyside [2]
	3	101778	475	455	475	Sunnyside [2]
	4	101779	330	310	330	Silverado
	5	101780	235	215	235	Silverado

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.

2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation [1]
Whittier #1	1	101735	1298	1180	1200	Pico Formation [2]
	2	101736	940	920	940	Pico Formation [2]
	3	101737	620	600	620	Sunnyside
	4	101738	470	450	470	Silverado
	5	101739	220	200	220	Jefferson
Whittier #2	1	101936	1390	1370	1390	Pico Formation [2]
	2	101937	1110	1090	1110	Pico Formation [2]
	3	101938	675	655	675	Sunnyside
	4	101939	445	425	445	Silverado
	5	101940	335	315	335	Silverado
	6	101941	170	150	170	Gage [2]
Whittier Narrows #1	1	100046	810	749	769	Sunnyside
	2	100047	810	610	629	Sunnyside
	3	100048	810	463	482.5	Sunnyside
	4	100049	810	393	402	Silverado
	5	100050	810	334	343.5	Silverado
	6	100051	810	273	282.5	Lynwood
	7	100052	810	234	243	Lynwood
	8	100053	810	163	173	Gardena
	9	100054	810	95	104.5	Gaspur
Whittier Narrows #2	1	100055	720	659	678.4	Pico Formation [2]
	2	100056	720	579	598.2	Pico Formation [2]
	3	100057	720	469	488.2	Pico Formation [2]
	4	100058	720	419	428.2	Pico Formation [2]
	5	100059	720	329	338.3	Pico Formation [2]
	6	100060	720	263	273.3	Lynwood
	7	100061	720	214	223.3	Lynwood
	8	100062	720	136	145.3	Gardena [2]
	9	100063	720	91	100.3	Gardena
Willowbrook #1	1	100016	905	885	905	Sunnyside [2]
	2	100017	520	500	520	Silverado
	3	100018	380	360	380	Lynwood
	4	100019	220	200	220	Gage
Wilmington #1	1	100070	1040	915	935	Sunnyside [2]
	2	100071	800	780	800	Silverado
	3	100072	570	550	570	Silverado
	4	100073	245	225	245	Lynwood
	5	100074	140	120	140	Gage
Wilmington #2	1	100075	1030	950	970	Sunnyside [2]
	2	100076	775	755	775	Silverado
	3	100077	560	540	560	Silverado
	4	100078	410	390	410	Lynwood
	5	100079	140	120	140	Gage

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.
2 - Aquifer designation is based on WRD's in-house interpretation.

TABLE 1.2
CONSTRUCTION INFORMATION FOR WELLS USED TO PREPARE
FIGURES 2.1 AND 2.2

Well Name	Zone	Reference Point Elevation (feet msl)	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Date	Groundwater Elevation (feet msl)	Aquifer Designation [1]
Hawkins #1	3	147.75	296	286	296	9/18/2018	32.77	Lynwood
Koontz #1	1	135.17	491	481	491	9/18/2018	21.72	Lynwood
LADWP-MH-MW1A	2	133.91	580	510	560	9/13/2018	-13.61	Silverado
LHCWD-MW1	1	151.00	570	540	560	9/19/2018	71.28	Sunnyside
LongBeach #7	2	16.35	670	650	670	9/11/2018	-29.7	Silverado
Sepulveda #1	1	90.00	550	370	530	9/18/2018	1.92	Silverado
Vernon #1	1	210.45	530	520	530	9/11/2018	-26.08	Silverado

1 - Aquifer designations are based on DWR's Bulletin 104.

TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Bell #1									Reference Point Elevation: 149.25
Depth of Screen Interval	1730-1750	1195-1215	965-985	615-635	420-440	250-270			
Aquifer Name [1]	Pico Form. [2]	Sunnyside	Sunnyside	Silverado	Jefferson	Gage			
12/18/2017	-18.48	-23.05	-16.22	-21.39	-14.51	11.26			
1/10/2018	-20.25	-21.27	-15.84	-20.25	-13.33	11.52			
3/16/2018	-24.89	-21.78	-16.67	-20.10	-12.49	11.74			
5/17/2018	-26.39	-29.58	-18.27	-23.26	-14.27	10.42			
6/14/2018	-30.90	-32.30	-19.95	-25.57	-16.85	10.04			
9/17/2018	-33.85	-35.65	-24.77	-27.70	-19.85	7.80			
Bell Gardens #1									Reference Point Elevation: 121.03
Depth of Screen Interval	1775-1795	1390-1410	1090-1110	855-875	555-575	370-390			
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Sunnyside	Sunnyside	Silverado	Lynwood			
12/18/2017	0.14	-0.74	1.02	5.28	8.04	7.98			
3/20/2018	0.94	-0.09	1.87	6.76	11.13	10.18			
5/1/2018	0.44	-1.19	0.90	5.72	9.24	8.72			
7/5/2018	-3.66	-5.55	-3.88	2.09	6.02	5.31			
9/17/2018	-8.02	-9.95	-8.28	-2.92	0.93	0.28			
Carson #1									Reference Point Elevation: 26.86
Depth of Screen Interval	990-1010	740-760	460-480	250-270					
Aquifer Name [1]	Silverado	Silverado	Lynwood	Gage [2]					
10/4/2017	-40.54	-39.90	-12.01	-10.69					
11/7/2017	-40.82	-39.84	-11.17	-10.02					
12/5/2017	-42.85	-41.69	-11.44	-10.15					
12/18/2017	-42.04	-41.04	-11.37	-10.11					
1/2/2018	-41.96	-40.98	-11.34	-10.09					
3/7/2018	-38.33	-37.58	-10.94	-9.81					
4/6/2018	-40.59	-39.54	-11.17	-9.84					
5/4/2018	-41.39	-40.18	-11.25	-9.99					
6/6/2018	-40.16	-38.94	-11.16	-9.89					
6/20/2018	-40.21	-39.12	-11.20	-9.91					
7/3/2018	-40.23	-39.06	-11.26	-9.95					
8/7/2018	-39.58	-38.44	-11.65	-10.20					
9/11/2018	-34.00	-32.98	-10.88	-9.79					
Carson #2									Reference Point Elevation: 43.04
Depth of Screen Interval	1230-1250	850-870	600-620	450-470	230-250				
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Silverado	Silverado	Lynwood				
12/21/2017	-30.05	-25.76	-25.50	-22.41	-20.21				
3/14/2018	-28.46	-24.19	-23.99	-21.11	-19.10				
3/19/2018	-28.33	-24.11	-23.88	-20.93	-18.97				
6/20/2018	-29.00	-25.01	-24.74	-21.78	-19.67				
9/11/2018	-26.09	-22.37	-22.16	-19.53	-17.64				
Carson #3									Reference Point Elevation: 20.18
Depth of Screen Interval	1600-1620	1220-1240	1080-1100	870-890	620-640	360-380			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Silverado [2]	Silverado	Silverado	Lynwood			
10/23/2017	-28.96	-34.46	-34.83	-36.30	-36.34	-14.05			
12/18/2017	-29.02	-34.63	-35.04	-37.02	-36.95	-14.03			
1/2/2018	-28.96	-34.61	-34.91	-36.60	-36.48	-13.97			
3/14/2018	-28.77	-33.69	-33.87	-34.74	-34.76	-13.57			
4/25/2018	-28.00	-33.87	-34.29	-36.17	-35.95	-13.75			
6/20/2018	-28.46	-34.08	-34.49	-36.08	-36.09	-13.74			
9/11/2018	-28.26	-32.91	-33.25	-33.57	-33.82	-13.15			
Cerritos #1									Reference Point Elevation: 43.35
Depth of Screen Interval	1155-1175	1000-1020	610-630	270-290	180-200	125-135			
Aquifer Name [1]	Sunnyside [2]	Silverado [2]	Lynwood	Gage	Artesia	Artesia			
12/18/2017	-24.07	-32.69	-12.95	20.15	21.53	21.62			
3/26/2018	-24.76	-36.07	-13.02	20.86	22.23	22.54			
6/18/2018	-39.73	-49.08	-27.12	18.19	20.34	20.40			
6/27/2018	-41.07	-50.13	-26.63	18.04	20.19	20.28			
9/10/2018	-50.04	-56.74	-33.86	16.57	19.06	19.14			

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- Shaded cell indicates the zone and measurement used in Figures 2.1 and 2.2.

TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Cerritos #2									Reference Point Elevation: 76.47
Depth of Screen Interval	1350-1370	915-935	740-760	490-510	350-370	150-170			
Aquifer Name [1]	Sunnyside [2]	Silverado	Lynwood [2]	Hollydale	Gage	Artesia			
10/25/2017	-18.60	-41.11	-34.75	-9.36	15.19	23.21			
12/21/2017	-17.36	-33.33	-29.69	-5.99	16.14	23.46			
3/12/2018	-20.26	-32.06	-26.92	-4.81	16.62	23.69			
3/20/2018	-20.81	-31.48	-23.86	-3.39	17.08	23.77			
6/18/2018	-27.22	-41.29	-36.13	-10.42	14.87	22.92			
7/2/2018	-28.21	-43.86	-34.61	-9.52	15.02	22.90			
9/12/2018	-31.67	-47.19	-40.72	-13.90	13.57	22.15			
Chandler #3									Reference Point Elevation: 156.01
Depth of Screen Interval	341-363	165-192							
Aquifer Name [1]	Silverado [2]	Lynwood [2]							
12/21/2017	-13.66	-13.52							
03/14/2018	-12.64	-12.60							
4/5/2018	-12.52	-12.42							
6/15/2018	-13.14	-12.90							
9/18/2018	-13.57	-13.21							
Commerce #1									Reference Point Elevation: 159.30
Depth of Screen Interval	1330-1390	940-960	760-780	570-590	325-345	205-225			
Aquifer Name [1]	Pico Form. [2]	Sunnyside	Sunnyside [2]	Silverado	Jefferson	Hollydale			
12/18/2017	28.39	24.76	21.66	-10.29	-9.70	29.27			
3/16/2018	28.00	24.40	21.22	-10.99	-9.52	28.96			
4/12/2018	27.79	24.32	21.17	-11.57	-9.58	28.88			
6/19/2018	28.48	22.46	18.66	-11.60	-10.87	28.09			
9/17/2018	29.20	18.87	14.91	-18.19	-13.91	27.32			
Compton #1									Reference Point Elevation: 68.84
Depth of Screen Interval	1370-1390	1150-1170	800-820	460-480	305-325				
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Silverado	Hollydale	Gage				
12/11/2017	-54.64	-54.35	-26.49	-27.97	-13.49				
3/12/2018	-51.33	-51.01	-23.35	-25.98	-12.58				
4/3/2018	-51.84	-51.55	-22.87	-26.08	-11.79				
5/4/2018	-53.66	-53.39	-25.05	-28.43	-15.12				
6/15/2018	-55.46	-55.17	-27.94	-21.02	-15.88				
7/9/2018	-56.79	-56.49	-30.29	-32.21	-19.95				
9/18/2018	-68.51	-63.26	-32.81	-36.17	-22.26				
Compton #2									Reference Point Elevation: 76.97
Depth of Screen Interval	1479-1495	830-850	585-605	380-400	295-315	150-170			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Silverado	Lynwood [2]	Hollydale [2]	Exposition			
12/11/2017	-28.27	-47.01	-45.04	-44.62	-37.29	-32.39			
3/23/2018	-25.54	-40.74	-41.04	-40.70	-35.82	-32.20			
5/3/2018	-24.74	-40.79	-43.40	-42.28	-35.60	-31.16			
6/20/2018	-24.79	-45.87	-44.81	-45.03	-38.45	-32.91			
9/18/2018	-26.32	-50.87	-44.71	-43.90	-37.86	-33.29			
Downey #1									Reference Point Elevation: 99.39
Depth of Screen Interval	1170-1190	940-960	580-600	370-390	250-270	90-110			
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Silverado	Jefferson	Gage	Gaspur			
11/21/2017	-4.91	-4.04	-4.22	0.74	24.49	28.27			
12/18/2017	-6.40	-5.20	-4.29	0.37	24.48	28.16			
3/20/2018	-5.27	-4.42	-1.76	-0.17	24.53	28.26			
5/3/2018	-6.48	-6.18	-5.85	-1.62	24.16	28.06			
6/12/2018	-9.04	-8.29	-7.59	-2.47	23.84	28.04			
9/10/2018	-15.70	-14.10	-12.57	-8.12	22.60	27.63			
Gardena #1									Reference Point Elevation: 84.23
Depth of Screen Interval	970-990	445-465	345-365	120-140					
Aquifer Name [1]	Pico Form. [2]	Silverado	Lynwood [2]	Gage					
12/15/2017	-37.61	-78.41	-50.89	-6.58					
3/15/2018	-37.39	-77.74	-49.97	-6.38					
6/15/2018	-37.25	-76.05	-50.82	-6.18					
9/15/2018	-38.29	-58.13	-52.99	-6.09					

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TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Gardena #2									Reference Point Elevation: 29.45
Depth of Screen Interval	1275-1335	770-790	610-630	340-360	235-255				
Aquifer Name [1]	Pico Form. [2]	Silverado	Silverado	Lynwood	Gardena				
12/18/2017	-31.58	-44.51	-45.43	-15.83	-5.18				
3/14/2018	-31.19	-42.32	-43.25	-15.53	-5.21				
3/23/2018	-31.37	-42.25	-43.04	-15.75	-5.27				
6/19/2018	-31.16	-44.56	-45.67	-15.73	-5.51				
9/19/2018	-31.00	-44.83	-46.03	-14.83	-4.69				
Hawthorne #1									Reference Point Elevation: 88.98
Depth of Screen Interval	910-950	710-730	520-540	400-420	240-260	110-130			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Lynwood	Gage			
12/22/2017	-41.99	-8.91	-8.24	-8.11	-3.67	5.40			
3/19/2018	-40.12	-9.05	-8.29	-8.12	-3.64	5.67			
4/23/2018	-39.77	-7.89	-6.99	-6.84	-3.07	5.72			
5/24/2018	-39.06	-7.16	-6.58	-6.33	-2.47	5.67			
6/15/2018	-38.69	-7.40	-6.68	-6.51	-2.59	5.80			
9/13/2018	-33.05	-4.92	-4.38	-4.21	-0.92	5.90			
Huntington Park #1									Reference Point Elevation: 179.44
Depth of Screen Interval	890-910	690-710	420-440	275-295	114-134				
Aquifer Name [1]	Silverado	Lynwood	Hollydale	Gage	Gaspur				
12/20/2017	-32.10	-39.79	-22.06	11.19	Dry				
3/20/2018	-30.04	-35.29	-20.17	11.19	Dry				
5/30/2018	-29.10	-36.02	-21.95	10.61	Dry				
6/19/2018	-31.75	-39.17	-22.52	10.24	Dry				
9/11/2018	-33.26	-41.59	-22.81	9.98	Dry				
Inglewood #1									Reference Point Elevation: 112.82
Depth of Screen Interval	1380-1400	865-885	430-450	280-300	150-170				
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Silverado	Lynwood [2]	Gage				
10/2/2017	-29.03	-33.07	-20.56	1.97	6.42				
12/19/2017	-28.82	-33.03	-20.31	1.72	6.07				
3/19/2018	-28.38	-32.67	-19.46	1.81	6.14				
4/4/2018	-28.29	-32.56	-19.24	1.87	6.06				
4/10/2018	-28.34	-32.91	-19.19	1.82	6.04				
6/19/2018	-28.15	-32.26	-18.69	1.74	6.02				
9/13/2018	-28.30	-31.70	-17.09	2.18	6.10				
Inglewood #2									Reference Point Elevation: 219.82
Depth of Screen Interval	800-840	450-470	330-350	225-245					
Aquifer Name [1]	Pico Form. [2]	Silverado [2]	Lynwood [2]	Gage [2]					
12/18/2017	-22.56	-15.35	-1.76	1.93					
3/21/2018	-23.08	-15.48	-1.91	1.67					
6/18/2018	-22.66	-15.20	-1.89	1.72					
9/12/2018	-22.44	-15.15	-1.83	1.72					
Inglewood #3									Reference Point Elevation: 72.20
Depth of Screen Interval	1900-1940	1440-1460	1255-1275	890-910	540-560	370-390	245-265		
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Pico Form. [2]	Pico Form. [2]	Silverado	Lynwood	Gage		
12/15/2017	-30.83	-31.25	-38.05	-43.02	-44.75	-8.76	3.98		
3/19/2018	-31.10	-31.10	-37.90	-40.86	-42.41	-8.26	3.99		
5/11/2018	-31.27	-30.91	-37.64	-40.11	-41.46	-6.47	4.35		
6/20/2018	-31.40	-30.82	-37.46	-39.42	-40.80	-7.26	4.19		
9/20/2018	-31.85	-30.72	-36.97	-33.97	-34.33	-4.40	4.77		
Lakewood #1									Reference Point Elevation: 53.87 (Zones 5 and 6) and 53.14 (Zones 1, 2, 3 and 4)
Depth of Screen Interval	989-1009	640-660	450-470	280-300	140-160	70-90			
Aquifer Name [1]	Sunnyside	Lynwood	Hollydale	Gage	Artesia	Bellflower			
12/15/2017	-82.37	-36.75	-30.97	-17.36	-1.84	20.84			
3/15/2018	-54.77	-31.72	-29.63	-15.45	-0.65	20.74			
6/26/2018	-57.22	-38.62	-36.24	-17.88	-3.37	20.29			
9/15/2018	-91.79	-41.84	-38.94	-23.86	-7.31	19.30			

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TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Lakewood #2								Reference Point Elevation: 40.51	
Depth of Screen Interval	1960-2000	1740-1760	1300-1320	995-1015	690-710	555-575	255-275	110-120	
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Lynwood	Jefferson	Gage	Artesia	
12/18/2017	-12.55	-31.72	-34.44	-49.83	-18.77	-6.94	17.51	19.81	
3/13/2018	-12.98	-33.31	-36.32	-51.46	-18.11	-6.83	18.08	20.34	
5/21/2018	-19.96	-40.37	-44.22	-61.36	-31.73	-14.64	17.20	19.62	
6/18/2018	-23.04	-43.51	-46.64	-61.23	-30.13	-15.14	16.56	19.06	
9/10/2018	-29.22	-46.87	-50.16	-67.86	-35.64	-19.63	15.56	18.11	
La Mirada #1								Reference Point Elevation: 78.24	
Depth of Screen Interval	1130-1150	965-985	690-710	470-490	225-245				
Aquifer Name [1]	Sunnyside	Silverado [2]	Lynwood [2]	Jefferson [2]	Gage				
12/21/2017	3.31	7.21	-4.83	-28.84	0.70				
3/8/2018	3.35	5.15	-9.19	-23.70	0.92				
3/28/2018	1.28	3.50	-4.65	-27.20	1.16				
6/12/2018	-11.29	-5.89	-14.51	-38.84	-7.99				
9/10/2018	-17.41	-12.03	-29.72	-55.61	-16.86				
Lawndale #1								Reference Point Elevation: 48.93	
Depth of Screen Interval	1360-1400	895-905	615-635	395-415	290-310	170-190			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Silverado	Silverado	Lynwood	Gardena			
12/13/2017	-28.89	-46.32	-8.59	-8.73	-6.30	-5.12			
3/23/2018	-28.87	-44.50	-9.27	-8.60	-6.19	-1.39			
4/11/2018	-28.69	-44.83	-8.01	-7.22	-5.78	-4.23			
6/19/2018	-28.48	-45.98	-8.13	-7.71	-6.25	-5.63			
9/19/2018	-28.30	-45.50	-4.64	-4.19	-2.89	-4.11			
Lomita #1								Reference Point Elevation: 79.48	
Depth of Screen Interval	1240-1260	700-720	550-570	400-420	220-240	100-120			
Aquifer Name [1]	Pico Form. [2]	Silverado	Silverado	Lynwood	Gage [2]	Gage [2]			
12/21/2017	-24.74	-16.37	-12.66	-14.63	-12.01	-11.92			
3/27/2018	-22.42	-15.65	-11.77	-13.92	-11.33	-11.24			
4/9/2018	-22.50	-15.74	-11.69	-13.96	-11.20	-11.16			
6/18/2018	-24.24	-16.11	-12.23	-14.20	-11.40	-11.35			
9/17/2018	-22.15	-14.92	-11.32	-13.42	-10.95	-10.92			
Long Beach #1								Reference Point Elevation: 30.54	
Depth of Screen Interval	1430-1450	1230-1250	970-990	599-619	400-420	155-175			
Aquifer Name [1]	Sunnyside [2]	Sunnyside	Silverado [2]	Lynwood [2]	Jefferson [2]	Artesia			
12/18/2017	-33.39	-36.46	-46.79	-21.89	-18.16	1.07			
3/21/2018	-29.99	-33.18	-55.10	-27.53	-23.33	-1.67			
3/26/2018	-30.18	-33.25	-54.79	-27.23	-24.00	-1.44			
6/18/2018	-31.85	-34.85	-66.31	-37.37	-33.95	-8.98			
9/10/2018	-35.32	-38.42	-74.95	-39.76	-36.08	-11.08			
Long Beach #2								Reference Point Elevation: 44.20	
Depth of Screen Interval	970-990	720-740	450-470	280-300	160-180	95-115			
Aquifer Name [1]	Sunnyside	Silverado [2]	Silverado	Lynwood	Gage	Gaspur			
12/18/2017	-72.76	-46.99	-40.23	-14.62	-3.80	-1.71			
1/3/2018	-70.33	-44.70	-39.22	-14.42	-3.60	-1.48			
3/27/2018	-71.48	-42.06	-38.03	-13.61	-3.24	-1.27			
4/10/2018	-73.19	-42.92	-39.68	-13.62	-3.19	-1.24			
6/20/2018	-75.38	-49.65	-45.67	-15.03	-3.65	-1.51			
7/2/2018	-75.94	-50.06	-45.22	-15.30	-3.76	-1.55			
9/11/2018	-84.12	-52.54	-44.60	-16.64	-4.56	-1.99			
Long Beach #3								Reference Point Elevation: 26.67	
Depth of Screen Interval	1350-1390	997-1017	670-690	530-550	410-430				
Aquifer Name [1]	Pico Form. [2]	Silverado	Silverado [2]	Silverado [2]	Lynwood				
12/11/2017	-32.55	-43.87	-43.86	-44.37	-1.67				
3/20/2018	-31.97	-39.60	-39.70	-40.00	-1.27				
3/27/2018	-31.81	-41.29	-41.32	-41.86	-1.53				
6/20/2018	-31.74	-41.93	-32.01	-42.50	-2.05				
6/27/2018	-31.77	-41.91	-41.88	-42.50	-2.05				
9/11/2018	-30.92	-34.28	-34.29	-34.88	-5.55				

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TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Long Beach #4									Reference Point Elevation: 12.34
Depth of Screen Interval	1200-1220	800-820							
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]							
12/21/2017	-28.01	-9.82							
03/28/2018	-26.97	-9.26							
6/20/2018	-27.87	-11.06							
9/19/2018	-25.10	-9.96							
Long Beach #6									Reference Point Elevation: 34.47
Depth of Screen Interval	1490-1510	930-950	740-760	480-500	380-400	220-240			
Aquifer Name [1]	Pico Form. [2]	Sunnyside	Sunnyside	Silverado	Lynwood	Gage			
12/18/2017	-52.78	-68.40	-69.75	-87.38	-87.16	-32.74			
3/8/2018	-48.30	-65.88	-67.67	-89.02	-88.91	-32.82			
6/20/2018	-48.78	-66.93	-68.73	-95.44	-95.22	-36.63			
7/10/2018	-48.11	-64.98	-67.36	-95.65	-95.95	-36.60			
9/10/2018	-50.61	-72.07	-74.94	-110.36	-110.43	-38.41			
Long Beach #8									Reference Point Elevation: 21.20
Depth of Screen Interval	1435-1455	1020-1040	780-800	635-655	415-435	165-185			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Silverado [2]	Silverado [2]	Silverado [2]	Lynwood [2]			
12/13/2017	-12.18	-27.03	-37.24	-35.23	-34.80	4.29			
4/2/2018	-11.82	-26.42	-35.10	-33.33	-32.85	4.46			
6/20/2018	-11.75	-26.25	-35.47	-33.63	-33.22	4.13			
9/12/2018	-11.67	-25.86	-29.30	-27.83	-27.54	3.77			
Los Angeles #1									Reference Point Elevation:176.21
Depth of Screen Interval	1350-1370	1080-1100	920-940	640-660	350-370				
Aquifer Name [1]	Sunnyside [2]	Sunnyside	Sunnyside	Silverado	Lynwood [2]				
12/18/2017	-21.62	-20.58	-21.53	-23.15	-15.48				
3/21/2018	-20.47	-20.17	-21.00	-22.07	-14.09				
6/8/2018	-21.28	-20.26	-21.05	-22.44	-14.14				
6/20/2018	-21.40	-20.52	-21.26	-22.66	-14.19				
9/13/2018	-23.48	-21.73	-22.29	-23.73	-14.66				
Los Angeles #2									Reference Point Elevation: 220.33
Depth of Screen Interval	1330-1370	710-730	505-525	410-430	245-265	135-155			
Aquifer Name [1]	Pico Form. [2]	Sunnyside	Silverado	Lynwood	Hollydale [2]	Gardena			
12/11/2017	45.98	-5.97	-6.32	-18.12	-25.47	Dry			
3/28/2018	45.88	-5.50	-5.86	-17.73	-24.93	Dry			
5/30/2018	45.89	-5.90	-6.38	-17.40	-24.42	Dry			
6/20/2018	45.83	-6.52	-7.05	-17.67	-24.46	Dry			
9/14/2018	45.31	-7.19	-7.62	-18.42	-25.03	Dry			
Los Angeles #3									Reference Point Elevation: 145.35
Depth of Screen Interval	1210-1230	875-895	705-725	550-570	330-350	190-210			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Sunnyside	Silverado [2]	Gage [2]			
12/18/2017	-14.57	-5.86	-10.22	-13.70	-11.46	4.90			
3/20/2018	-13.29	-5.45	-9.74	-13.20	-10.95	4.93			
4/23/2018	-13.13	-5.32	-9.57	-12.93	-10.73	4.91			
6/13/2018	-13.51	-5.26	-9.54	-12.72	-10.53	4.98			
6/20/2018	-13.68	-5.34	-9.66	-12.82	-10.51	4.87			
9/13/2018	-15.02	-5.73	-10.18	-12.91	-10.41	4.79			
Los Angeles #4									Reference Point Elevation: 136.04
Depth of Screen Interval	1740-1780	1190-1230	720-740	490-510	355-375	235-255			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside	Silverado	Lynwood	Gage			
12/11/2017	-23.96	-32.01	-29.91	-27.91	-29.98	-17.81			
3/19/2018	-21.78	-29.84	-28.11	-26.61	-26.83	-17.27			
4/18/2018	-21.47	-29.59	-28.10	-26.34	-26.59	-17.10			
6/19/2018	-21.79	-30.59	-29.65	-27.22	-27.31	-17.32			
9/13/2018	-23.16	-33.48	-32.01	-28.01	-27.97	-17.42			

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TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Los Angeles #5							Reference Point Elevation: 104.11		
Depth of Screen Interval	1960-2000	1235-1255	750-770	555-575	430-450	215-235	95-105		
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside	Sunnyside	Silverado	Lynwood [2]	Exposition		
10/3/2017	6.70	7.98	8.39	6.26	2.63	33.27	62.53		
10/30/2017	6.75	7.95	10.23	6.27	2.56	33.28	62.42		
12/11/2017	6.73	7.89	8.79	6.31	2.75	33.21	62.41		
3/23/2018	6.99	8.35	11.46	6.73	3.19	33.17	62.36		
5/8/2018	7.06	8.28	9.14	6.86	3.39	33.12	62.49		
6/20/2018	7.11	8.32	8.31	7.10	3.63	33.06	62.56		
9/12/2018	7.10	8.14	7.75	7.26	3.92	33.00	62.48		
Lynwood #1							Reference Point Elevation: 88.86 (Zones 3, 4, 5, 6, 7 and 9) and 89.29 (Zones 1, 2 and 8)		
Depth of Screen Interval	2880-2900	2430-2450	1650-1670	1445-1465	1200-1220	880-900	640-660	315-335	160-180
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Silverado [2]	Silverado [2]	Lynwood	Gardena	Gaspur
12/13/2017	-22.44	-38.89	-45.46	-40.09	-27.86	-29.15	-30.34	-21.95	36.57
3/12/2018	-20.66	-35.73	-42.26	-37.24	-24.86	-25.19	-26.42	-21.66	36.30
6/4/2018	-20.18	-36.03	-44.97	-39.92	-28.56	-28.38	-29.79	-27.45	36.00
6/12/2018	-20.24	-36.26	-45.68	-40.67	-29.97	-30.94	-30.90	-28.11	36.01
9/17/2018	-22.21	-39.33	-52.31	-47.19	-36.06	-33.85	-34.66	-31.22	35.28
Manhattan Beach #1							Reference Point Elevation: 128.71		
Depth of Screen Interval	1950-1990	1570-1590	1250-1270	865-885	640-660	320-340	180-200		
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Gage		
12/12/2017	-0.11	-2.39	-28.40	-1.14	0.28	9.23	10.63		
2/28/2018	4.02	-2.04	-28.17	-0.81	0.92	9.51	11.79		
3/23/2018	0.26	-2.60	-28.19	-0.96	0.79	9.26	11.48		
6/15/2018	0.20	-2.18	-27.91	-0.61	-0.84	7.39	9.52		
9/11/2018	0.21	-2.17	-27.75	1.06	-0.04	8.39	10.51		
Montebello #1							Reference Point Elevation: 193.11		
Depth of Screen Interval	900-960	690-710	500-520	370-390	210-230	90-110			
Aquifer Name [1]	Pico Form. [2]	Sunnyside	Sunnyside	Silverado	Lynwood	Gage			
11/9/2017	66.78	58.93	58.13	55.64	59.19	Dry			
12/18/2017	64.21	56.29	55.62	53.61	57.05	Dry			
3/16/2018	61.90	54.66	53.99	51.91	54.43	Dry			
3/27/2018	61.89	55.40	54.85	52.85	54.20	Dry			
6/19/2018	58.37	50.37	49.72	47.89	51.73	Dry			
7/19/2018	55.62	47.27	46.73	45.26	50.20	Dry			
9/12/2018	51.87	43.09	42.50	41.16	46.83	Dry			
Norwalk #1							Reference Point Elevation: 96.18		
Depth of Screen Interval	1400-1420	990-1010	720-740	430-450	220-240				
Aquifer Name [1]	Sunnyside	Silverado	Lynwood	Hollydale	Gage				
12/15/2017	26.91	-12.00	8.95	-8.27	-6.96				
3/13/2018	30.60	-20.32	9.30	-8.67	-5.70				
4/26/2018	30.12	-24.48	7.51	-10.61	-6.55				
6/11/2018	28.41	-25.12	4.77	-11.97	-7.90				
9/18/2018	25.29	-26.77	-0.53	-15.21	-10.94				
Norwalk #2							Reference Point Elevation: 116.73		
Depth of Screen Interval	1460-1480	1260-1280	960-980	800-820	480-500	236-256			
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Gardena			
12/21/2017	7.57	7.65	2.17	4.81	7.77	14.48			
3/13/2018	9.98	10.03	1.41	5.13	10.03	15.63			
4/19/2018	10.28	10.35	0.62	0.62	7.20	14.68			
6/11/2018	8.61	8.62	-2.39	0.85	4.15	12.89			
9/18/2018	4.16	4.18	-8.58	-6.08	0.89	10.05			
Pico #1							Reference Point Elevation: 182.89		
Depth of Screen Interval	860-900	460-480	380-400	170-190					
Aquifer Name [1]	Pico Form. [2]	Silverado	Silverado	Gardena [2]					
12/15/2017	119.81	102.59	101.88	98.97					
3/15/2018	116.02	106.08	106.75	96.29					
6/15/2018	113.14	95.75	95.17	92.96					
9/15/2018	101.78	84.97	84.23	81.43					

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GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Pico #2									Reference Point Elevation: 151.83
Depth of Screen Interval	1180-1200	830-850	560-580	320-340	235-255	100-120			
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Sunnyside	Silverado	Lynwood	Gaspur/Gage [2]			
12/15/2017	51.73	51.31	58.19	75.19	78.14	84.36			
3/15/2018	51.65	53.17	59.32	81.74	84.05	92.33			
6/15/2018	47.24	47.22	55.27	77.83	81.06	93.18			
9/15/2018	38.66	38.67	47.05	68.92	68.33	75.02			
PM-1 Columbia									Reference Point Elevation: 81.39
Depth of Screen Interval	555-595	460-500	240-280	160-200					
Aquifer Name [1]	Silverado	Silverado	Lynwood	Gardena					
12/19/2017	-1.77	-0.97	not measured	0.44					
3/29/2018	-1.40	-0.68	not measured	0.62					
4/25/2018	-1.73	-0.91	not measured	not measured					
6/20/2018	-2.28	-1.74	not measured	0.09					
9/10/2018	-1.53	-1.01	not measured	0.12					
PM-2 Police Station									Reference Point Elevation: 88
Depth of Screen Interval	635-655	520-540	370-390	240-260					
Aquifer Name [1]	Sunnyside [2]	Silverado	Silver/Lyn [2]	Lynwood					
12/12/2017	-5.00	1.58	2.02	2.18					
3/15/2018	-4.53	2.13	2.59	2.71					
4/13/2018	-4.96	1.24	1.67	1.82					
6/18/2018	-5.64	0.37	0.88	1.01					
9/18/2018	-5.50	0.10	0.65	0.77					
PM-3 Madrid									Reference Point Elevation: 73.12
Depth of Screen Interval	640-680	480-520	240-280	145-185					
Aquifer Name [1]	Sunnyside [2]	Silverado	Lynwood	Gardena					
12/19/2017	-6.58	-3.63	-3.52	-3.60					
3/15/2018	-5.96	-3.37	-3.28	-3.29					
4/12/2018	-5.94	-3.36	-3.29	-3.29					
6/18/2018	-6.55	-3.90	-3.75	-3.76					
9/12/2018	-5.71	-3.32	-3.21	-3.15					
PM-4 Mariner									Reference Point Elevation: 100.38
Depth of Screen Interval	670-710	500-540	340-380	200-240					
Aquifer Name [1]	Sunnyside [2]	Silverado	Lynwood	Gardena					
12/19/2017	-1.00	-0.03	3.39	3.44					
3/15/2018	-0.99	2.07	5.30	5.33					
5/6/2018	-0.97	1.39	4.55	4.61					
6/18/2018	-1.82	-0.35	3.04	3.09					
9/18/2018	-0.92	0.03	3.42	3.47					
PM-5 Columbia Park									Reference Point Elevation: 78.57
Depth of Screen Interval	1360-1380	940-960	770-790	580-600	320-340	140-160			
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Sunnyside [2]	Silverado	Lynwood [2]	Gardena			
12/18/2017	-28.20	-34.90	-4.26	-2.53	3.55	3.77			
3/7/2018	-27.99	-33.97	-4.47	-2.47	4.22	4.33			
3/15/2018	-27.91	-33.84	-4.50	-2.31	4.31	4.47			
6/18/2018	-27.86	-34.79	-4.90	-3.09	2.25	2.41			
9/11/2018	-27.68	-34.13	-3.18	-1.91	3.31	3.47			
PM-6 Madrona Marsh									Reference Point Elevation: 80.88
Depth of Screen Interval	1195-1235	905-925	770-790	530-550	390-410	240-260			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Lynwood	Lynwood			
12/21/2017	-30.40	-8.93	-7.80	0.01	1.35	1.79			
3/27/2018	-28.68	-8.25	-7.07	0.54	2.03	2.32			
3/29/2018	-27.23	-8.37	-7.50	0.51	1.78	2.26			
6/18/2018	-29.85	-9.03	-8.12	-0.36	0.94	1.35			
9/18/2018	-28.57	-8.45	-7.00	-0.32	0.78	1.25			
Rio Hondo #1									Reference Point Elevation: 146.51
Depth of Screen Interval	1110-1130	910-930	710-730	430-450	280-300	140-160			
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside	Silverado	Hollydale	Gardena			
12/19/2017	46.42	45.15	44.48	38.35	44.12	47.60			
3/16/2018	45.15	42.57	42.03	36.65	44.28	48.31			
3/29/2018	46.04	44.79	44.14	38.31	44.77	48.57			
6/21/2018	41.77	38.24	37.53	32.18	41.14	45.42			
9/18/2018	33.41	30.06	29.41	24.76	33.86	38.36			

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	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Seal Beach #1								Reference Point Elevation: 9.06	
Depth of Screen Interval	1345-1365	1160-1180	1020-1040	775-795	605-625	215-235	60-70		
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Lynwood [2]	Gage	Artesia		
12/21/2017	-31.20	-31.46	-31.24	-33.58	-19.18	4.03	3.72		
4/4/2018	-27.88	-28.10	-27.93	-44.87	-29.93	-1.22	2.13		
4/30/2018	-28.57	-28.80	-28.68	-48.95	-33.95	-3.85	1.00		
6/18/2018	-29.80	-29.99	-29.88	-55.86	-39.72	-8.36	-0.95		
9/10/2018	-33.09	-33.32	-33.18	-63.62	-42.45	-5.19	0.37		
South Gate #1									Reference Point Elevation: 102.50
Depth of Screen Interval	1440-1460	1320-1340	910-930	565-585	220-240				
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Silverado [2]	Lynwood	Exposition [2]				
12/21/2017	-11.60	-9.81	-6.13	-3.71	30.26				
3/12/2018	-9.99	-8.48	-4.35	-3.15	30.22				
4/3/2018	-9.25	-7.66	-3.84	-2.48	30.34				
6/20/2018	-14.07	-12.16	-7.97	-10.63	29.59				
6/26/2018	-14.58	-12.81	-8.14	-7.81	29.46				
9/13/2018	-18.54	-16.53	-13.04	-16.25	28.62				
South Gate #2									Reference Point Elevation: 120.29
Depth of Screen Interval	1740-1760	1410-1430	1062-1082	670-690	410-430	205-225			
Aquifer Name [1]	Sunnyside [2]	Sunnyside [2]	Sunnyside	Silverado [2]	Hollydale	Gaspur [2]			
12/15/2017	-31.99	-31.93	-29.62	-24.49	37.56	43.81			
3/23/2018	-28.73	-28.44	-26.16	-22.19	37.26	43.47			
6/13/2018	-32.24	-32.37	-29.65	-27.39	37.24	43.26			
6/15/2018	-32.50	-32.50	-29.92	-27.74	37.08	43.25			
9/17/2018	-36.04	-35.47	-28.72	-26.69	36.32	42.86			
Westchester #1									Reference Point Elevation: 126.95
Depth of Screen Interval	740-760	560-580	455-475	310-330	215-235				
Aquifer Name [1]	Pico Form. [2]	Sunnyside [2]	Sunnyside [2]	Silverado	Jefferson				
12/12/2017	-0.70	8.80	9.20	9.40	9.55				
3/26/2018	-0.59	9.62	10.10	10.38	10.53				
3/29/2018	-0.59	9.62	10.10	10.38	10.53				
6/18/2018	-0.41	9.37	9.77	9.99	10.22				
9/12/2018	0.13	9.21	9.61	9.78	10.00				
Whittier #1									Reference Point Elevation: 217.35 (Zones 1, 2, 4 and 5) and 217.81 (Zone 3)
Depth of Screen Interval	1180-1200	920-940	600-620	450-470	200-220				
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Sunnyside	Silverado	Jefferson				
12/15/2017	102.33	102.34	96.49	94.99	194.63				
3/19/2018	102.80	102.81	97.01	95.53	194.55				
4/16/2018	102.21	102.17	96.46	95.06	194.64				
6/11/2018	102.01	102.03	96.76	94.80	194.39				
9/14/2018	101.66	101.69	95.52	93.95	193.80				
Whittier #2									Reference Point Elevation: 167.55
Depth of Screen Interval	1370-1390	1090-1110	655-675	425-445	315-335	150-170			
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Sunnyside	Silverado	Silverado	Gage [2]			
12/21/2017	72.39	73.17	65.70	64.43	95.79	105.19			
3/13/2018	71.01	71.96	66.29	70.32	97.61	106.59			
4/24/2018	71.63	72.61	65.21	65.62	98.73	106.24			
6/21/2018	69.58	70.32	60.27	59.97	93.62	104.13			
9/10/2018	64.39	65.35	52.19	50.44	89.60	101.05			
Whittier Narrows #1									Reference Point Elevation: 214.66
Depth of Screen Interval	749-769	610-629	463-483	393-402	334-344	273-283	234-243	163-173	95-105
Aquifer Name [1]	Sunnyside	Sunnyside	Sunnyside	Silverado	Silverado	Lynwood	Lynwood	Gardena	Gaspur
3/15/2018	156.95	157.30	159.21	162.37	163.24	164.44	164.35	164.37	166.72
9/12/2018	140.69	141.71	144.02	149.11	150.00	151.30	151.33	151.23	153.27
Whittier Narrows #2									Reference Point Elevation: 209.15
Depth of Screen Interval	659-678	579-598	469-488	419-428	328-338	263-273	214-223	136-145	91-100
Aquifer Name [1]	Pico Form. [2]	Pico Form. [2]	Pico Form. [2]	Pico Form. [2]	Pico Form. [2]	Lynwood	Lynwood	Gardena [2]	Gardena
3/16/2018	-18.51	-18.37	-18.05	-10.55	89.91	136.85	138.23	139.31	152.50
9/12/2018	-21.10	-21.07	-20.84	-13.27	78.23	122.79	123.85	128.36	150.89

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.
2 - Aquifer designation is based on WRD's in-house interpretation.
- Shaded cell indicates the zone and measurement used in Figures 2.1 and 2.2.

TABLE 2.1
GROUNDWATER ELEVATIONS, WATER YEAR 2017-2018

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8	ZONE 9
Willowbrook #1									Reference Point Elevation: 98.87
Depth of Screen Interval	885-905	500-520	360-380	200-220					
Aquifer Name [1]	Sunnyside [2]	Silverado	Lynwood	Gage					
12/11/2017	-44.09	-37.90	-42.17	-41.57					
3/20/2018	-39.52	-36.74	-40.55	-40.18					
4/18/2018	-41.75	-37.07	-40.94	-40.39					
6/13/2018	-45.09	-37.94	-41.95	-41.14					
9/6/2018	-50.32	-39.19	-43.80	-42.89					
9/18/2018	-49.92	-38.95	-43.44	-42.61					
Wilmington #1									Reference Point Elevation: 40.74
Depth of Screen Interval	915-935	780-800	550-570	225-245	120-140				
Aquifer Name [1]	Sunnyside [2]	Silverado	Silverado	Lynwood	Gage				
12/19/2017	-39.00	-39.37	-39.62	-11.79	-8.69				
2/26/2018	-36.46	-37.07	-37.14	-11.45	-8.28				
3/14/2018	-35.51	-35.87	-36.09	-11.02	-8.07				
5/21/2018	-37.65	-37.98	-38.19	-11.90	-8.96				
6/20/2018	-37.44	-37.81	-38.00	-11.77	-8.77				
9/11/2018	-28.76	-29.15	-29.37	-11.00	-8.72				
Wilmington #2									Reference Point Elevation: 32.30
Depth of Screen Interval	950-970	755-775	540-560	390-410	120-140				
Aquifer Name [1]	Sunnyside [2]	Silverado	Silverado	Lynwood	Gage				
10/17/2017	-26.55	-22.97	-18.85	-17.85	-2.74				
12/19/2017	-27.17	-23.18	-19.01	-18.02	-2.81				
2/27/2018	-25.50	-22.17	-18.42	-17.26	-2.75				
3/14/2018	-25.10	-21.60	-17.82	-16.85	-2.74				
5/15/2018	-25.86	-21.83	-18.07	-17.28	-2.85				
6/19/2018	-26.27	-22.65	-18.83	-17.91	-2.77				
9/11/2018	-21.46	-19.37	-16.48	-15.80	-2.79				

1 - Unless otherwise noted, aquifer designations are based on DWR's Bulletin 104.
2 - Aquifer designation is based on WRD's in-house interpretation.
- Shaded cell indicates the zone and measurement used in Figures 2.1 and 2.2.

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Bell #1											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				5/17/2018	9/24/2018	5/17/2018	9/24/2018	5/17/2018	9/24/2018	5/17/2018	9/24/2018	5/17/2018	9/24/2018	5/17/2018	9/24/2018
General Minerals															
Alkalinity	mg/l			600	600	160	160	160	160	170	170	180	180	260	260
Anion Sum	meq/l			17	17	5.5	5.5	5.2	5.1	5.6	5.7	7.6	7.4	11	11
Bicarbonate as HCO3	mg/l			740	730	200	200	190	190	210	210	220	220	320	320
Boron	mg/l	1	N	**1.7**	**1.6**	0.13	0.13	0.13	0.13	0.15	0.15	0.14	0.14	0.16	0.16
Bromide	ug/l			1300	1300	110	100	160	150	130	120	190	170	400	410
Calcium, Total	mg/l			16	14	52	52	46	45	58	58	77	74	130	120
Carbon Dioxide	mg/l			8.2	8.3	2.7	2.8	3.4	5.7	4	6.3	6	5.5	16	16
Carbonate as CO3	mg/l			7.1	6.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			16	17	5.6	5.6	5.3	5.2	6	5.9	7.8	7.4	12	12
Chloride	mg/l	500	S	160	170	22	22	30	29	25	27	52	50	98	100
Fluoride	mg/l	2	P	0.38	0.41	0.21	0.24	0.38	0.42	0.38	0.43	0.34	0.38	0.33	0.37
Hardness (Total, as CaCO3)	mg/l			62	58	170	170	160	150	200	200	270	260	460	430
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			300	290	38	32	37	38	34	38	ND	ND	ND	ND
Iron, Total	mg/l	0.3	S	0.095	ND	0.024	0.024	ND	ND	0.02	0.022	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.78	0.73	0.66	0.63	0.46	0.23	0.58	0.38	0.56	0.58	0.69	0.66
Magnesium, Total	None			5.4	5.6	10	10	10	10	13	13	19	18	32	32
Manganese, Total	ug/l	50	S	28	26	**75**	**69**	50	45	**72**	**66**	ND	ND	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	9.2	8.4	7.4	7.6
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	2.1	1.9	1.7	1.7
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			6.8	ND	2.4	2.5	3.3	3.3	3.2	3.2	2.9	2.8	2.9	2.9
Sodium, Total	mg/l			330	360	48	48	47	46	43	42	52	49	61	60
Sulfate	mg/l	500	S	ND	ND	77	77	57	55	70	71	110	110	150	150
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	990	1000	340	350	320	340	350	360	480	460	690	700
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	2.1	1.9	1.7	1.7
General Physical Properties															
Apparent Color	ACU	15	S	**250**	**150**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.5	8.5	8.2	8.2	8.1	8.1	8.1	8.2	8.2	8.1	8	8
Odor	TON	3	S	**8**	2	2	2	2	1	2	ND	1	ND	ND	1
Specific Conductance	umho/cm	1600	S	1600	1600	540	540	510	510	560	560	740	720	1100	1100
Turbidity	NTU	5	S	0.29	0.28	0.15	ND	0.11	ND	0.16	ND	0.46	ND	0.25	0.29
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.6	ND	ND	ND	ND	ND	1.1	1	3.6	3.2	1.7	1.4
Barium, Total	ug/l	1000	P	19	18	35	37	34	35	75	78	230	230	130	130
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	2.6	1.6	4.6	3.9
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.13	0.041	0.02	ND	0.026	ND	0.021	ND	2.4	1.6	4.2	4
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	7.3	ND	ND	ND	ND	ND	ND	ND	6.5	5.7	7.8	6.3
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.54**	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.79	0.84
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	2.5	1.4	**49**	**45**
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			17	17	0.36	0.42	0.46	0.56	ND	ND	ND	0.31	0.44	0.54
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	2.1	2.4	2.4	2.4
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Bell Gardens #1					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018	5/1/2018
General Minerals									
Alkalinity	mg/l			160	160	140	110	120	130
Anion Sum	meq/l			7.1	5	6.8	4.8	4.8	5.5
Bicarbonate as HCO3	mg/l			200	190	170	130	150	160
Boron	mg/l	1	N	0.054	0.12	0.17	0.14	0.14	0.14
Bromide	ug/l			120	130	130	78	160	100
Calcium, Total	mg/l			97	42	70	45	48	56
Carbon Dioxide	mg/l			9.2	2.3	16	3.5	28	23
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			7.3	5.1	6.8	4.8	5	5.5
Chloride	mg/l	500	S	48	34	63	41	34	46
Fluoride	mg/l	2	P	0.2	0.28	0.31	0.4	0.23	0.33
Hardness (Total, as CaCO3)	mg/l			300	140	220	140	160	180
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			6.8	15	ND	ND	ND	ND
Iron, Total	mg/l	0.3	S	0.041	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.39	0.59	-0.13	0.11	-0.66	-0.43
Magnesium, Total	None			14	8	12	8.1	9.4	10
Manganese, Total	ug/l	50	S	28	39	ND	ND	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	10	6.9	7.5	8.7
Nitrate as Nitrogen	mg/l	10	P	ND	ND	2.3	1.5	1.7	2
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2	2.2	3.2	2.8	2.6	2.9
Sodium, Total	mg/l			29	52	50	42	40	41
Sulfate	mg/l	500	S	120	44	97	65	64	70
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	420	280	400	300	280	330
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	2.3	1.5	1.7	2
General Physical Properties									
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.2	8.3	8	8	7.8	7.9
Odor	TON	3	S	1	2	ND	ND	1	1
Specific Conductance	umho/cm	1600	S	700	510	700	500	500	570
Turbidity	NTU	5	S	0.17	0.13	ND	0.11	0.11	0.1
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	2.9	ND	2.7	2.3	1.1	1.8
Barium, Total	ug/l	1000	P	95	65	110	44	49	48
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.026	0.38	0.52	0.68	0.54
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	1.7	1.4	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.59	1.4
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	0.69
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	0.56	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			0.38	0.41	0.4	ND	0.3	ND
Perchlorate	ug/l	6	P	ND	ND	0.65	ND	0.5	ND
1,4-Dioxane	ug/l	0	0	**1.7**	ND	**1.4**	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Cerritos #1					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				3/26/2018	3/26/2018	3/26/2018	3/26/2018	3/26/2018	3/26/2018
General Minerals									
Alkalinity	mg/l			160	160	160	180	180	190
Anion Sum	meq/l			4.7	4	5.1	4.9	4.5	4.5
Bicarbonate as HCO3	mg/l			200	200	200	210	220	230
Boron	mg/l	1	N	0.085	0.058	0.084	0.084	0.086	0.08
Bromide	ug/l			45	33	63	50	38	55
Calcium, Total	mg/l			36	36	41	47	40	48
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND
Carbonate as CO3	mg/l			3.3	3.3	2.6	2.2	2.3	2.4
Cation Sum	meq/l			4.7	4.3	5.1	5	4.6	4.8
Chloride	mg/l	500	S	14	9.5	18	14	10	9.6
Fluoride	mg/l	2	P	0.28	0.35	0.4	0.52	0.45	0.32
Hardness (Total, as CaCO3)	mg/l			110	110	130	160	140	160
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			9.8	14	16	14	11	100
Iron, Total	mg/l	0.3	S	ND	0.02	0.029	0.089	0.064	0.044
Langelier Index - 25 degree	None			0.79	0.77	0.75	0.74	0.72	0.79
Magnesium, Total	None			4.7	5.5	6.1	11	9.6	9.3
Manganese, Total	ug/l	50	S	23	32	44	**83**	**110**	**130**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.1	2.1	2	1.9	1.9	2.2
Sodium, Total	mg/l			56	46	57	38	42	37
Sulfate	mg/l	500	S	49	25	59	44	29	25
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	280	260	330	290	280	270
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND
General Physical Properties									
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.4	8.4	8.3	8.2	8.2	8.2
Odor	TON	3	S	2	1	2	2	2	2
Specific Conductance	umho/cm	1600	S	460	400	500	480	440	440
Turbidity	NTU	5	S	0.11	0.12	0.14	0.3	0.19	0.2
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	**16**	**12**	**22**	6.1	10	**38**
Barium, Total	ug/l	1000	P	47	96	120	60	74	94
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.02	ND	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			ND	ND	ND	ND	ND	0.42
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Cerritos #2											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				3/20/2018	8/29/2018	3/20/2018	8/29/2018	3/20/2018	8/29/2018	3/20/2018	8/29/2018	3/20/2018	8/29/2018	3/20/2018	8/29/2018
General Minerals															
Alkalinity	mg/l			150	140	160	160	160	160	180	180	180	180	330	190
Anion Sum	meq/l			3.6	3.4	7.9	7.7	3.7	3.6	4.1	4.1	4	4	12	9.2
Bicarbonate as HCO3	mg/l			180	170	200	190	190	190	220	220	210	220	400	230
Boron	mg/l	1	N	0.051	0.056	0.16	0.17	0.058	0.063	0.073	0.077	0.069	0.076	0.1	0.11
Bromide	ug/l			22	22	150	140	18	18	21	22	21	20	220	220
Calcium, Total	mg/l			42	44	88	90	45	46	51	54	50	54	150	150
Carbon Dioxide	mg/l			ND	3.4	ND	3.3	2.5	2.6	ND	4.2	ND	4.3	27	17
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	2.2	ND	ND	ND
Cation Sum	meq/l			3.6	3.8	8.1	8.1	3.8	3.9	4.2	4.4	4.1	4.3	12	12
Chloride	mg/l	500	S	5.7	5.7	73	72	5.1	5.1	6	6	5.6	5.7	69	69
Fluoride	mg/l	2	P	0.29	0.29	0.38	0.38	0.3	0.3	0.4	0.43	0.35	0.36	0.36	0.36
Hardness (Total, as CaCO3)	mg/l			120	130	280	290	140	140	160	170	150	160	490	490
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			1.5	2	1.5	2.3	4.5	5.8	5.1	6.9	5.2	7.9	15	29
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	0.034	0.035	0.073	0.077	**0.35**	**0.37**
Langelier Index - 25 degree	None			0.49	0.35	0.71	0.77	0.58	0.9	0.69	0.55	0.74	0.54	0.71	0.45
Magnesium, Total	None			5.1	5.3	16	16	5.8	5.9	8.1	8.3	6.9	7.2	28	29
Manganese, Total	ug/l	50	S	6.2	6.4	ND	ND	37	38	**87**	**89**	**110**	**110**	**280**	**280**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	13	12	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	2.9	2.8	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.7	2.5	4.4	4	2.4	2.2	2.6	2.3	2.6	2.5	4.2	4
Sodium, Total	mg/l			24	25	51	50	23	24	21	21	21	22	48	50
Sulfate	mg/l	500	S	20	21	110	110	17	16	18	17	16	15	160	160
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	230	220	500	490	230	220	240	250	240	250	720	740
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	2.9	2.8	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5	5
Lab pH	Units			8.1	8.4	7.9	8.1	8.2	8.4	8.1	8.4	8.2	8.3	7.7	8.2
Odor	TON	3	S	2	ND	1	ND	**4**	2	2	ND	2	ND	2	2
Specific Conductance	umho/cm	1600	S	350	350	800	790	360	360	400	400	390	390	1100	1100
Turbidity	NTU	5	S	0.1	ND	0.11	ND	0.3	0.77	0.15	0.11	0.26	0.19	2.8	1.6
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	2.4	2.6	2.2	2.4	3.2	3.5	8	8.5	**18**	**19**	4.2	4.4
Barium, Total	ug/l	1000	P	96	100	120	130	110	120	150	170	160	180	97	120
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.15	0.18	0.67	0.65	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	5.4	ND	ND	ND	ND	ND	ND	ND	7.8
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			ND	ND	0.57	0.52	ND	ND	ND	ND	ND	ND	0.91	0.86
Perchlorate	ug/l	6	P	ND	ND	0.86	0.81	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	**3.7**	**3**	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Commerce #1					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				4/12/2018	4/12/2018	4/12/2018	4/12/2018	4/12/2018	4/12/2018
General Minerals									
Alkalinity	mg/l			470	300	240	190	170	180
Anion Sum	meq/l			230	11	12	8	7	7.7
Bicarbonate as HCO3	mg/l			580	370	290	230	210	220
Boron	mg/l	1	N	**8.4**	0.76	0.32	0.24	0.14	0.13
Bromide	ug/l			47000	940	1300	340	270	320
Calcium, Total	mg/l			230	50	56	41	68	73
Carbon Dioxide	mg/l			23	11	7	8.1	12	10
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			260	12	12	7.8	7.1	7.8
Chloride	mg/l	500	S	**7900**	150	230	81	67	79
Fluoride	mg/l	2	P	0.18	0.42	0.33	0.5	0.35	0.43
Hardness (Total, as CaCO3)	mg/l			1400	220	220	170	240	280
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			14000	290	270	34	ND	ND
Iron, Total	mg/l	0.3	S	**1.5**	ND	0.029	0.1	ND	ND
Langelier Index - 25 degree	None			1.3	0.57	0.6	0.2	0.17	0.32
Magnesium, Total	None			190	22	20	16	18	23
Manganese, Total	ug/l	50	S	**120**	10	**62**	**58**	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	20	38
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	4.5	8.5
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			67	ND	4.2	3.3	2	1.9
Sodium, Total	mg/l			5300	180	160	98	50	51
Sulfate	mg/l	500	S	3	9.6	21	90	63	58
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**14000**	620	680	490	440	470
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	4.5	8.5
General Physical Properties									
Apparent Color	ACU	15	S	**180**	**40**	5	5	ND	ND
Lab pH	Units			8	8.1	8.1	8.2	7.9	7.9
Odor	TON	3	S	2	**200**	2	1	1	2
Specific Conductance	umho/cm	1600	S	**24000**	1100	1200	820	720	800
Turbidity	NTU	5	S	**10**	0.16	0.27	0.21	0.24	0.33
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	**13**	1.6	1.6	ND	1.2	1.3
Barium, Total	ug/l	1000	P	630	65	110	220	76	70
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	7.8	11
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.21	0.045	0.02	7.6	**11**
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	**120**	ND	8.8	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	1.1	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	1.2
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	**5.4**	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			9.1	12	4.6	0.88	0.3	1.3
Perchlorate	ug/l	6	P	ND	ND	ND	ND	2.7	4
1,4-Dioxane	ug/l	0	0	ND	ND	ND	**3.8**	**1.9**	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Compton #1							
				Zone 1		Zone 2		Zone 3		Zone 4	
				4/3/2018	8/22/2018	4/3/2018	8/22/2018	4/3/2018	8/22/2018	4/3/2018	8/22/2018
General Minerals											
Alkalinity	mg/l			130	120	140	160	160	160	170	170
Anion Sum	meq/l			4	4.1	4.4	4.9	5	5	5.4	5.4
Bicarbonate as HCO3	mg/l			160	150	170	190	190	190	200	200
Boron	mg/l	1	N	0.15	0.16	0.099	0.1	0.11	0.11	0.093	0.093
Bromide	ug/l			100	110	110	110	120	130	100	100
Calcium, Total	mg/l			22	23	37	39	50	50	61	63
Carbon Dioxide	mg/l			ND	3.2	ND	2	3	3.8	4	2.1
Carbonate as CO3	mg/l			2.1	ND	ND	ND	ND	ND	ND	2
Cation Sum	meq/l			3.9	4.1	4.5	4.6	5.1	5.2	5.6	5.6
Chloride	mg/l	500	S	18	19	20	22	23	23	21	20
Fluoride	mg/l	2	P	0.31	0.32	0.37	0.38	0.32	0.31	0.3	0.29
Hardness (Total, as CaCO3)	mg/l			62	65	100	110	160	160	180	180
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			13	21	16	22	16	26	18	21
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	0.022	0.02	0.075	0.07
Langelier Index - 25 degree	None			0.39	-0.012	0.6	0.62	0.55	0.45	0.56	0.86
Magnesium, Total	None			1.8	1.8	3	3.1	8.6	8.7	6.2	6.2
Manganese, Total	ug/l	50	S	12	9.8	15	14	50	50	**77**	**78**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			1.4	1.4	1.6	1.4	2.6	2.7	2.4	2.2
Sodium, Total	mg/l			61	64	54	54	42	42	44	43
Sulfate	mg/l	500	S	46	50	50	53	56	57	69	70
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	260	260	280	280	310	310	360	350
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties											
Apparent Color	ACU	15	S	**30**	**25**	15	10	ND	ND	ND	ND
Lab pH	Units			8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3
Odor	TON	3	S	2	2	2	ND	2	2	2	1
Specific Conductance	umho/cn	1600	S	420	420	460	500	500	500	540	540
Turbidity	NTU	5	S	0.14	0.12	0.13	ND	0.19	0.16	0.44	0.29
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	**19**	**19**
Barium, Total	ug/l	1000	P	11	10	11	10	61	62	150	150
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	3.9	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.081	0.039	0.038	0.024	0.02	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			1.9	1.8	0.82	0.83	1	0.56	ND	0.23
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Compton #2					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				5/3/2018	5/3/2018	5/3/2018	5/3/2018	5/3/2018	5/3/2018
General Minerals									
Alkalinity	mg/l			460	270	160	180	180	180
Anion Sum	meq/l			9.7	5.9	4.9	6.1	6.3	7.7
Bicarbonate as HCO3	mg/l			560	330	190	220	220	220
Boron	mg/l	1	N	0.68	0.17	0.1	0.11	0.12	0.15
Bromide	ug/l			200	95	100	120	140	290
Calcium, Total	mg/l			12	26	47	66	65	78
Carbon Dioxide	mg/l			6.5	14	2.8	11	3.5	11
Carbonate as CO3	mg/l			5.1	ND	ND	ND	ND	ND
Cation Sum	meq/l			9.7	5.7	4.9	6	6.3	7.5
Chloride	mg/l	500	S	13	13	20	30	32	64
Fluoride	mg/l	2	P	0.41	0.26	0.22	0.24	0.3	0.37
Hardness (Total, as CaCO3)	mg/l			38	85	140	200	220	260
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			38	27	30	33	35	2.6
Iron, Total	mg/l	0.3	S	0.042	0.048	ND	0.032	0.028	ND
Langelier Index - 25 degree	None			0.53	0.083	0.56	0.21	0.73	0.3
Magnesium, Total	None			2	4.8	6.6	10	13	17
Manganese, Total	ug/l	50	S	12	35	30	45	**120**	29
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	2.2
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	0.5
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.8	4.1	2.3	2.3	3.6	3.7
Sodium, Total	mg/l			200	91	45	42	42	49
Sulfate	mg/l	500	S	0.62	ND	59	81	82	110
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	600	350	310	380	380	480
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	0.5
General Physical Properties									
Apparent Color	ACU	15	S	**120**	**35**	ND	ND	ND	ND
Lab pH	Units			8.5	8.1	8.3	8.1	8.2	7.9
Odor	TON	3	S	**4**	2	1	ND	ND	2
Specific Conductance	umho/cm	1600	S	910	560	490	600	630	770
Turbidity	NTU	5	S	1	0.86	0.12	0.14	0.68	0.81
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.2	ND	ND	ND	1.4	4.5
Barium, Total	ug/l	1000	P	13	18	32	37	100	83
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.15	0.054	0.03	0.024	ND	0.58
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	7.3
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	1.8	ND	2.1	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			15	3.2	0.55	0.3	ND	0.33
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Downey #1											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				5/3/2018	9/10/2018	5/3/2018	9/10/2018	5/3/2018	9/10/2018	5/3/2018	9/10/2018	5/3/2018	9/10/2018	5/3/2018	9/10/2018
General Minerals															
Alkalinity	mg/l			150	150	150	150	170	180	190	190	210	210	380	380
Anion Sum	meq/l			3.5	3.5	6	6	8.1	8.1	9.1	8.9	7.6	7.6	17	17
Bicarbonate as HCO3	mg/l			180	180	180	180	210	210	230	230	260	260	470	460
Boron	mg/l	1	N	ND	0.058	0.055	0.064	0.096	0.1	0.18	0.19	0.083	0.091	0.26	0.25
Bromide	ug/l			17	22	94	93	140	140	170	170	140	140	420	420
Calcium, Total	mg/l			40	41	78	77	99	99	94	94	98	98	210	200
Carbon Dioxide	mg/l			10	ND	4.5	5.2	8.8	9.7	15	15	16	13	54	46
Carbonate as CO3	mg/l			ND	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			3.6	3.7	6.1	6.1	8	8	8.8	8.8	7.7	7.8	19	17
Chloride	mg/l	500	S	5.1	5.3	36	36	71	72	82	79	44	43	110	110
Fluoride	mg/l	2	P	0.31	0.32	0.29	0.3	0.33	0.34	0.38	0.4	0.39	0.41	0.32	0.32
Hardness (Total, as CaCO3)	mg/l			120	120	240	240	320	320	310	310	320	320	690	660
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			ND	ND	ND	ND	ND	ND	5.3	3.8	8.3	9.6	6	4.9
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.021	0.02
Langelier Index - 25 degree	None			-0.11	0.99	0.53	0.46	0.47	0.43	0.28	0.3	0.37	0.48	0.69	0.72
Magnesium, Total	None			5.5	5.6	12	12	18	17	19	19	18	18	40	38
Manganese, Total	ug/l	50	S	ND	ND	ND	ND	ND	ND	ND	ND	**110**	**120**	**120**	**120**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	9.3	9	16	16	7.8	7.8	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	2.1	2	3.7	3.6	1.8	1.8	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.6	2.6	3.4	3.3	3.5	3.5	4.3	4.3	3.7	3.7	7.1	6.6
Sodium, Total	mg/l			25	26	26	26	35	36	57	57	28	28	120	100
Sulfate	mg/l	500	S	18	17	88	84	110	110	140	130	100	100	320	300
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	230	210	390	380	530	490	600	580	510	470	**1100**	**1100**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	2.1	2	3.7	3.6	1.8	1.8	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.2	8.2	8.1	8.1	8.1	8	7.9	7.9	8	7.9	7.7	7.8
Odor	TON	3	S	1	ND	1	ND	1	ND	ND	ND	2	ND	ND	ND
Specific Conductance	umho/cm	1600	S	350	350	600	600	800	790	890	880	730	740	1600	1600
Turbidity	NTU	5	S	ND	ND	0.11	ND	0.11	ND	0.11	ND	0.23	ND	0.25	0.18
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3	3.2	2.4	2.5	3.1	3.3	2.1	2.2	4.3	4.5	2.8	3.2
Barium, Total	ug/l	1000	P	94	100	160	170	130	140	83	89	230	250	72	78
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	4	3.8	2.1	1.9	1.4	1.2	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	4	3.9	1.9	1.9	1.2	1.2	0.32	0.37	ND	0.056	ND	0.053
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	5.3	ND	5.8	ND	5	5.2	10
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			ND	ND	ND	ND	ND	0.31	0.42	0.47	ND	0.3	0.81	0.86
Perchlorate	ug/l	6	P	ND	ND	2.8	2.8	1.8	1.8	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	**4.4**	**4**	**7.9**	**8.7**	**3**	**2.9**	**1.1**	**1.1**	**1.4**	**1.4**
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Huntington Park #1							
				Zone 1		Zone 2		Zone 3		Zone 4	
				5/30/2018	8/23/2018	5/30/2018	8/23/2018	5/30/2018	8/23/2018	5/30/2018	8/23/2018
General Minerals											
Alkalinity	mg/l			180	170	180	180	240	240	380	380
Anion Sum	meq/l			6	6.1	6.3	6.4	11	11	14	14
Bicarbonate as HCO3	mg/l			210	210	220	220	290	290	460	460
Boron	mg/l	1	N	0.14	0.14	0.14	0.14	0.22	0.22	0.2	0.2
Bromide	ug/l			110	110	120	120	440	430	870	720
Calcium, Total	mg/l			63	64	66	66	120	120	160	160
Carbon Dioxide	mg/l			15	16	7.9	10	12	13	41	33
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			6.2	6.3	6.5	6.6	11	11	14	14
Chloride	mg/l	500	S	22	23	27	29	88	90	84	82
Fluoride	mg/l	2	P	0.52	0.49	0.45	0.43	0.32	0.35	0.33	0.36
Hardness (Total, as CaCO3)	mg/l			220	220	230	230	410	420	560	560
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			28	30	ND	ND	38	29	24	20
Iron, Total	mg/l	0.3	S	0.28	0.29	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.056	0.03	0.38	0.26	0.67	0.66	0.69	0.79
Magnesium, Total	None			15	15	16	16	28	29	40	40
Manganese, Total	ug/l	50	S	43	47	ND	ND	4.8	5.4	3.9	4.2
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	2.5	2.8	1.4	1.5	21	20
Nitrate as Nitrogen	mg/l	10	P	ND	ND	0.57	0.62	0.32	0.34	4.7	4.6
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			3.1	3.2	3.2	3.3	4.2	4.4	5.4	5.4
Sodium, Total	mg/l			40	41	42	43	59	60	67	65
Sulfate	mg/l	500	S	89	91	89	91	170	170	160	160
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	**1.5**	**1.6**	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	380	370	390	390	720	720	850	850
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	0.57	0.62	0.32	0.34	4.7	4.6
General Physical Properties											
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.1	8	8.2	8	8.1	8	8	7.8
Odor	TON	3	S	ND	ND	1	ND	**17**	2	**8**	2
Specific Conductance	umho/cn	1600	S	590	590	620	620	1000	1000	1300	1300
Turbidity	NTU	5	S	1.2	1.7	0.12	0.37	0.12	ND	0.12	ND
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	1	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	57	61	73	75	96	100	94	95
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	1.2	1.4
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	0.91	0.82	0.11	0.052	1.2	1.1
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	5	ND	6.8
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	5.7	8.3
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	1.2	1.2	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	**6.2**	**6.3**	**46**	**55**
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	1.2	1.2	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	190	200
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.69	0.74	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	**14**	**15**	0.62	0.99
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			ND	ND	ND	ND	6.5	6.2	0.79	0.79
Perchlorate	ug/l	6	P	ND	ND	ND	ND	1	1.2	2.4	3.3
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Lakewood #1					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018	4/30/2018
General Minerals									
Alkalinity	mg/l			94	140	150	170	180	170
Anion Sum	meq/l			2.8	3.4	3.6	4.4	4.3	8.2
Bicarbonate as HCO3	mg/l			110	170	180	200	210	210
Boron	mg/l	1	N	0.051	ND	0.066	0.067	0.08	0.079
Bromide	ug/l			110	30	44	140	66	900
Calcium, Total	mg/l			10	37	41	48	52	110
Carbon Dioxide	mg/l			ND	ND	ND	2.4	4.3	6.9
Carbonate as CO3	mg/l			5.8	2.4	2.1	ND	ND	ND
Cation Sum	meq/l			2.8	3.6	3.9	4.5	4.4	8.2
Chloride	mg/l	500	S	20	6.5	8.8	26	14	140
Fluoride	mg/l	2	P	0.45	0.26	0.31	0.32	0.44	0.21
Hardness (Total, as CaCO3)	mg/l			26	110	120	140	160	320
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			42	9.3	18	44	26	110
Iron, Total	mg/l	0.3	S	ND	ND	0.02	0.046	0.12	0.1
Langelier Index - 25 degree	None			0.53	0.69	0.69	0.67	0.5	0.6
Magnesium, Total	None			0.35	3.8	4.9	5.5	8	11
Manganese, Total	ug/l	50	S	4	17	24	**70**	**74**	**240**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	1.8	2	3.7	2.4	4
Sodium, Total	mg/l			52	32	32	36	26	41
Sulfate	mg/l	500	S	16	17	15	13	16	36
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	0.14
Total Dissolved Solid (TDS)	mg/l	1000	S	180	200	220	250	250	550
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND
General Physical Properties									
Apparent Color	ACU	15	S	15	ND	ND	ND	ND	ND
Lab pH	Units			8.5	8.3	8.2	8.2	8.2	8.1
Odor	TON	3	S	2	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	290	330	360	440	420	870
Turbidity	NTU	5	S	2.8	0.75	1.8	0.18	0.38	3.2
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	**13**	**16**	1.5	8.1	3.8	**28**
Barium, Total	ug/l	1000	P	15	24	28	160	120	320
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.11	0.031	0.024	0.03	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			0.78	0.3	0.3	ND	ND	0.84
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Lakewood #2															
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7		Zone 8	
				5/21/2018	9/5/2018	5/21/2018	9/5/2018	5/21/2018	9/5/2018	5/21/2018	9/13/2018	5/21/2018	9/5/2018	5/21/2018	9/13/2018	5/21/2018	9/13/2018	5/21/2018	9/13/2018
General Minerals																			
Alkalinity	mg/l			100	100	130	130	130	130	180	180	170	170	180	180	170	170	200	200
Anion Sum	meq/l			3.4	3.3	3.1	3.1	3	3	4.8	4.8	3.9	3.9	4	4	3.9	3.9	4.4	4.4
Bicarbonate as HCO3	mg/l			120	120	160	160	160	160	220	220	200	200	220	220	210	210	250	250
Boron	mg/l	1	N	0.057	0.06	0.054	0.054	ND	ND	0.069	0.071	0.06	0.061	0.062	0.064	0.063	0.066	0.075	0.078
Bromide	ug/l			46	45	25	24	29	28	35	32	20	20	18	17	20	20	38	35
Calcium, Total	mg/l			12	12	26	26	26	26	64	64	42	44	44	45	53	54	56	58
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND	4.8	4.3	3	3.7	2.8	ND	3.1	ND	5.3	5.3
Carbonate as CO3	mg/l			5.3	8.7	2.2	ND	2.9	7.9	ND	ND	ND	ND	ND	5.2	ND	4	ND	ND
Cation Sum	meq/l			3.3	3.4	3.2	3.2	3	3	5	5	4.1	4.1	4.2	4.1	4.1	4.1	4.6	4.6
Chloride	mg/l	500	S	12	12	5.3	5.3	5.4	5.4	12	12	5.6	5.6	5.1	4.9	5.4	5.2	6.4	6.3
Fluoride	mg/l	2	P	0.41	0.42	0.34	0.32	0.28	0.27	0.42	0.45	0.27	0.28	0.34	0.36	0.23	0.25	0.34	0.38
Hardness (Total, as CaCO3)	mg/l			32	32	79	79	74	74	200	200	120	130	140	140	150	150	170	170
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			19	30	10	9.4	14	13	ND	ND	7.4	7.7	6.8	5.1	9.2	7.2	27	25
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	0.031	0.048	0.05	0.053	0.073	0.072	0.068	0.067
Langelier Index - 25 degree	None			0.56	0.77	0.51	0.41	0.61	1	0.57	0.62	0.52	0.46	0.65	1.1	0.64	1.1	0.59	0.6
Magnesium, Total	None			0.39	0.4	3.5	3.4	2.3	2.2	9.5	9.5	4.6	4.8	6.4	6.5	3.7	3.7	7	7.1
Manganese, Total	ug/l	50	S	4.5	5	13	13	15	15	ND	ND	**76**	**84**	**140**	**150**	**99**	**100**	**170**	**190**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	1.4	1.5	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.33	0.33	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	ND	2	2	1.4	1.5	2.9	2.8	2.3	2.4	2.6	2.4	2.1	2	2.5	2.4
Sodium, Total	mg/l			62	63	36	36	34	34	22	22	36	35	31	29	24	24	25	25
Sulfate	mg/l	500	S	45	45	14	15	8.5	8.9	40	39	17	18	9	8.9	14	14	6.1	6.3
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	210	210	190	200	190	170	280	300	240	240	240	240	240	240	270	280
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.33	0.33	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties																			
Apparent Color	ACU	15	S	10	10	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.6	8.6	8.3	8.4	8.4	8.5	8.1	8.2	8.2	8.3	8.2	8.3	8.2	8.2	8.1	8.2
Odor	TON	3	S	2	2	2	ND	1	2	2	ND	2	1	2	2	2	2	1	2
Specific Conductance	umho/cn	1600	S	350	350	300	300	290	290	470	460	380	380	380	380	380	380	420	420
Turbidity	NTU	5	S	0.26	ND	0.13	ND	0.13	ND	0.14	ND	**19**	2.4	0.16	ND	0.23	0.18	0.2	0.22
Metals																			
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	**15**	**16**	ND	ND	1.8	1.9	3.7	3.8	**26**	**25**	**11**	**11**	**45**	**42**	**44**	**45**
Barium, Total	ug/l	1000	P	15	15	7.8	8	11	10	100	110	110	120	60	65	130	140	100	110
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.062	0.047	0.03	ND	0.028	ND	0.66	0.59	0.029	ND	0.025	0.02	0.024	0.021	0.023	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds																			
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others																			
Total Organic Carbon	mg/l			0.53	0.49	0.4	0.9	0.6	0.55	ND	ND	0.37	1.4	0.48	0.43	ND	ND	0.35	0.4
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	0.61	0.69	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	La Mirada #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				3/8/2018	8/22/2018	3/8/2018	8/22/2018	3/8/2018	8/22/2018	3/8/2018	8/22/2018	3/8/2018	8/22/2018
General Minerals													
Alkalinity	mg/l			140	140	130	140	180	180	180	190	180	190
Anion Sum	meq/l			5.6	5.7	4	4.1	5.2	5.3	7.2	7.4	12	18
Bicarbonate as HCO3	mg/l			180	180	160	160	220	220	220	230	220	240
Boron	mg/l	1	N	0.14	0.14	0.099	0.097	0.15	0.14	0.13	0.13	0.15	0.17
Bromide	ug/l			86	91	44	44	58	63	250	260	570	1000
Calcium, Total	mg/l			14	16	9.5	9.6	22	24	53	53	95	160
Carbon Dioxide	mg/l			26	ND	21	ND	31	2.6	32	6.1	33	15
Carbonate as CO3	mg/l			ND	2.9	ND	4.1	ND	2	ND	ND	ND	ND
Cation Sum	meq/l			6.2	5.5	4	4	5.3	5.3	7.5	7.5	13	19
Chloride	mg/l	500	S	24	27	14	14	16	17	55	57	200	370
Fluoride	mg/l	2	P	0.79	0.84	0.6	0.62	0.77	0.81	0.52	0.58	0.47	0.32
Hardness (Total, as CaCO3)	mg/l			50	57	29	29	84	90	210	210	370	620
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			22	21	8.5	7	23	18	42	31	9.8	1.1
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			-0.98	0.41	-1.2	0.35	-0.7	0.42	-0.32	0.43	-0.082	0.55
Magnesium, Total	None			3.6	4.1	1.4	1.3	7	7.4	19	19	32	53
Manganese, Total	ug/l	50	S	7.1	9.5	3.6	3.2	17	17	13	19	25	14
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	1.9	1.8	**52**	**100**
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.42	0.4	**12**	**24**
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2	1.8	1.5	1.3	2.4	2.3	3	2.8	3.7	4.8
Sodium, Total	mg/l			120	99	77	77	81	80	74	74	120	140
Sulfate	mg/l	500	S	94	96	46	46	56	56	92	95	100	120
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	370	360	260	260	320	330	460	460	750	**1300**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.42	0.4	**12**	**24**
General Physical Properties													
Apparent Color	ACU	15	S	ND	ND	ND	ND	5	ND	ND	ND	ND	ND
Lab pH	Units			8.4	8.4	8.4	8.5	8.3	8.3	8.2	8.2	7.8	7.9
Odor	TON	3	S	ND	ND	1	ND	1	ND	1	ND	ND	ND
Specific Conductance	umho/cm	1600	S	590	580	420	420	520	530	740	740	1300	**1900**
Turbidity	NTU	5	S	0.1	ND	ND	ND	0.1	ND	0.14	ND	0.12	ND
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	6.2	6.4	8	8.5	6.8	6.8	2.9	3.5	2.2	2.2
Barium, Total	ug/l	1000	P	36	40	24	24	39	39	47	46	86	140
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.034	0.07	0.039	0.072	0.043	0.075	0.036	0.069	0.59	1.7
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.9
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	8.7	9.5	11	20
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			0.34	0.24	ND	ND	0.5	1.8	ND	ND	1.4	2
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	5.2	**9.4**
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Long Beach #1											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				3/26/2018	8/1/2018	3/26/2018	8/1/2018	3/26/2018	8/1/2018	3/26/2018	8/1/2018	3/26/2018	8/1/2018	3/26/2018	8/1/2018
General Minerals															
Alkalinity	mg/l			150	150	150	150	120	120	130	130	130	130	260	250
Anion Sum	meq/l			3.6	3.5	3.4	3.4	3	3	3.6	3.6	12	12	17	17
Bicarbonate as HCO3	mg/l			180	180	180	180	140	140	150	160	160	160	310	310
Boron	mg/l	1	N	ND	0.17	ND	0.16	0.086	0.086	0.056	0.072	0.15	0.15	0.12	0.12
Bromide	ug/l			110	110	81	82	44	44	36	42	440	410	530	550
Calcium, Total	mg/l			ND	3.2	ND	2.4	5.3	5.3	23	21	57	55	190	190
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1	ND	9.9
Carbonate as CO3	mg/l			9.3	6.9	9.3	13	5.7	8.9	2.4	2.7	ND	ND	2.5	ND
Cation Sum	meq/l			3.1	3.4	3	3.3	3.1	3	3.7	3.7	12	12	18	18
Chloride	mg/l	500	S	15	15	14	14	11	11	12	12	170	170	200	190
Fluoride	mg/l	2	P	0.6	0.64	0.57	0.59	0.62	0.69	0.37	0.45	0.28	0.31	0.26	0.3
Hardness (Total, as CaCO3)	mg/l			ND	9.1	ND	6.4	14	14	66	60	180	170	610	610
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			22	29	17	19	5.6	8.2	3.1	7.3	1.9	9.6	13	62
Iron, Total	mg/l	0.3	S	ND	0.022	ND	ND	ND	ND	ND	ND	0.035	0.033	0.2	0.18
Langelier Index - 25 degree	None			-0.59	0.099	-0.56	0.22	0.63	0.4	0.54	0.48	0.75	0.58	1.4	1.4
Magnesium, Total	None			ND	0.27	ND	0.11	0.24	0.24	2	1.8	8.1	7.9	33	33
Manganese, Total	ug/l	50	S	4.5	3.4	ND	ND	2.4	2.3	16	14	**63**	**59**	**400**	**380**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	ND	ND	ND	ND	ND	1.1	1.1	3.2	3.1	4.8	4.4
Sodium, Total	mg/l			70	74	68	73	64	62	53	58	190	200	120	120
Sulfate	mg/l	500	S	0.72	ND	ND	ND	14	14	34	30	210	220	300	290
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	230	220	220	210	210	170	240	210	770	720	1000	1000
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	**180**	**150**	**100**	**120**	**45**	**35**	5	**20**	5	ND	3	5
Lab pH	Units			8.9	8.9	8.9	9	8.8	8.8	8.4	8.4	8.2	8.2	8.1	8.1
Odor	TON	3	S	2	2	2	1	2	2	2	1	2	1	2	ND
Specific Conductance	umho/cm	1600	S	350	350	340	340	300	300	360	360	1300	1200	1600	1600
Turbidity	NTU	5	S	0.38	0.25	0.21	0.17	0.79	0.16	2.2	0.33	2.9	1.2	0.71	0.73
Metals															
Aluminum, Total	ug/l	1000	P	32	29	28	23	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	1.1	ND	ND	ND	ND	ND	1	1.5	8.7	9.2
Barium, Total	ug/l	1000	P	3.1	2.6	ND	ND	ND	ND	7.7	7.8	43	44	180	180
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.17	0.12	0.16	0.13	0.18	0.14	0.024	0.07	0.021	0.028	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.6	6.4
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			3.7	4.6	2.9	3.5	1.6	1.8	0.46	0.94	1.2	1.3	1.4	1.5
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Long Beach #2					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				4/10/2018	4/10/2018	4/10/2018	4/10/2018	4/10/2018	4/10/2018
General Minerals									
Alkalinity	mg/l			300	190	150	150	280	280
Anion Sum	meq/l			6.7	4.4	3.8	6.3	16	18
Bicarbonate as HCO3	mg/l			370	230	180	180	340	350
Boron	mg/l	1	N	0.54	0.2	0.14	0.096	0.3	0.28
Bromide	ug/l			200	140	140	210	1100	900
Calcium, Total	mg/l			7.1	15	13	56	180	220
Carbon Dioxide	mg/l			ND	2.6	ND	2	18	18
Carbonate as CO3	mg/l			7.6	2.2	3.1	ND	ND	ND
Cation Sum	meq/l			7.2	4.5	3.7	6.3	17	19
Chloride	mg/l	500	S	22	20	23	60	120	150
Fluoride	mg/l	2	P	0.61	0.44	0.5	0.29	0.18	0.26
Hardness (Total, as CaCO3)	mg/l			23	44	37	160	560	690
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			ND	37	37	15	4.9	7.4
Iron, Total	mg/l	0.3	S	ND	0.025	ND	0.027	0.24	0.23
Langelier Index - 25 degree	None			0.47	0.28	0.36	0.73	0.84	0.96
Magnesium, Total	None			1.4	1.6	1.1	6.1	28	34
Manganese, Total	ug/l	50	S	13	13	6.3	24	**180**	**340**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	1.5	1	3	5.4	6
Sodium, Total	mg/l			150	82	68	67	130	120
Sulfate	mg/l	500	S	ND	ND	ND	77	340	410
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	410	270	250	400	970	**1100**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND
General Physical Properties									
Apparent Color	ACU	15	S	**220**	**45**	**35**	5	ND	ND
Lab pH	Units			8.6	8.5	8.6	8.3	8	8
Odor	TON	3	S	**8**	**17**	**4**	3	2	2
Specific Conductance	umho/cm	1600	S	650	430	370	640	1500	**1700**
Turbidity	NTU	5	S	0.38	0.2	0.16	0.15	0.93	1.1
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.6	ND	ND	1.1	5.3	7.6
Barium, Total	ug/l	1000	P	5.8	8.6	4.8	31	55	69
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	1.2	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.1	0.073	0.14	0.029	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	8.1	10
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	6.2	5.2
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	0.64
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	0.52
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	1.6	**11**
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	6.7	**15**
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	3.3	12	2.2	**610**
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	1
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			11	5	3.6	2.1	1.2	1.5
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	**1.3**	**3.2**
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Long Beach #6											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				3/8/2018	8/20/2018	3/8/2018	8/20/2018	3/8/2018	8/20/2018	3/8/2018	8/20/2018	3/8/2018	8/20/2018	3/8/2018	8/20/2018
General Minerals															
Alkalinity	mg/l			530	530	400	370	160	160	140	130	120	120	130	130
Anion Sum	meq/l			11	11	8.5	7.9	3.7	3.7	3.4	3.3	3.1	3	4.5	4.5
Bicarbonate as HCO3	mg/l			650	650	480	450	190	190	160	160	140	140	150	160
Boron	mg/l	1	N	**1.2**	**1.2**	0.74	0.76	0.24	0.23	0.13	0.12	0.083	0.087	ND	ND
Bromide	ug/l			340	340	260	240	120	130	81	71	77	86	360	360
Calcium, Total	mg/l			7.9	8.2	5.3	5.8	5.1	5.1	6.5	7.5	12	12	48	49
Carbon Dioxide	mg/l			ND	8.3	ND	2.6	ND	ND	ND	ND	ND	ND	2.1	2.6
Carbonate as CO3	mg/l			17	5.4	12	8.4	6.2	8.3	5.1	3.4	3.6	4.2	ND	ND
Cation Sum	meq/l			11	12	8	8.5	3.6	3.5	3.1	3.3	3	3	4.6	4.7
Chloride	mg/l	500	S	17	17	17	17	16	16	14	13	15	17	57	56
Fluoride	mg/l	2	P	0.7	0.7	0.68	0.69	0.64	0.62	0.6	0.62	0.53	0.58	0.24	0.25
Hardness (Total, as CaCO3)	mg/l			26	27	17	19	14	14	18	20	33	33	140	140
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			100	120	74	76	32	34	19	18	29	28	84	89
Iron, Total	mg/l	0.3	S	0.079	ND	0.086	ND	0.04	0.028	0.029	0.022	ND	ND	0.056	0.052
Langelier Index - 25 degree	None			0.85	0.39	0.56	0.43	0.27	0.38	0.27	0.16	0.39	0.45	0.5	0.45
Magnesium, Total	None			1.6	1.6	0.96	1	0.21	0.2	0.34	0.41	0.77	0.74	4.7	4.6
Manganese, Total	ug/l	50	S	14	15	14	14	4.2	4.4	16	16	4.3	4	**61**	**58**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			1.8	ND	1.2	ND	ND	ND	ND	ND	ND	ND	2	1.9
Sodium, Total	mg/l			240	260	180	190	77	74	64	66	54	54	41	41
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	11	12	12	9.8	17	17
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	680	710	510	510	240	240	220	220	190	200	290	290
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	**220**	**300**	**200**	**250**	**140**	**150**	**60**	**100**	ND	**45**	ND	ND
Lab pH	Units			8.6	8.6	8.6	8.6	8.7	8.9	8.7	8.6	8.6	8.5	8.2	8.3
Odor	TON	3	S	**17**	2	**17**	2	2	1	**8**	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	1000	1000	810	760	380	370	340	340	320	310	480	470
Turbidity	NTU	5	S	2	0.44	0.78	0.53	0.23	0.63	0.28	0.24	0.18	0.17	0.18	0.24
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	2.4	4.4	ND	2.4	ND	1.1	ND	1.3	ND	ND	3	2.6
Barium, Total	ug/l	1000	P	6.9	6.4	7.2	6.2	4.1	4	7.2	6.9	2.5	2.5	19	19
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.13	0.06	0.14	0.064	0.099	0.057	0.11	0.048	0.1	0.053	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			29	23	23	16	8.7	4.6	3.4	2.6	2.3	1.9	0.64	0.73
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Los Angeles #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				6/8/2018	9/25/2018	6/8/2018	9/25/2018	6/8/2018	9/25/2018	6/8/2018	9/25/2018	6/8/2018	9/25/2018
General Minerals													
Alkalinity	mg/l			180	180	180	180	180	180	200	200	220	220
Anion Sum	meq/l			5.7	5.7	5.9	6	5.9	6	7.7	7.6	10	11
Bicarbonate as HCO3	mg/l			220	220	220	220	220	220	240	240	270	270
Boron	mg/l	1	N	0.15	0.15	0.14	0.14	0.15	0.15	0.16	0.16	0.19	0.19
Bromide	ug/l			130	110	100	100	110	110	180	160	330	320
Calcium, Total	mg/l			57	56	62	62	64	62	83	82	110	110
Carbon Dioxide	mg/l			3.4	6	8.6	11	5.1	8.1	7.5	12	9.9	7.9
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			5.8	5.8	6.1	6.1	6.3	6.2	8	8	10	11
Chloride	mg/l	500	S	22	23	21	22	21	23	41	39	76	79
Fluoride	mg/l	2	P	0.3	0.29	0.49	0.48	0.39	0.4	0.46	0.45	0.4	0.42
Hardness (Total, as CaCO3)	mg/l			190	190	210	220	220	220	290	290	390	390
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			39	29	33	24	1.5	ND	20	12	ND	ND
Iron, Total	mg/l	0.3	S	ND	ND	0.19	0.2	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.92	0.41	0.83	0.19	0.56	0.34	0.58	0.38	0.67	0.78
Magnesium, Total	None			12	12	14	15	15	15	21	20	28	29
Manganese, Total	ug/l	50	S	19	17	48	43	8.9	7.1	ND	ND	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	22	18	**69**	**70**
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	4.9	4	**16**	**16**
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			3.7	3.9	3.1	3.2	3.1	3.2	3.8	3.9	4.4	4.6
Sodium, Total	mg/l			44	44	39	39	40	40	48	48	57	59
Sulfate	mg/l	500	S	72	71	81	82	79	84	110	110	140	140
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	350	340	370	370	360	370	480	470	650	690
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	4.9	4	**16**	**16**
General Physical Properties													
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	10	10
Lab pH	Units			8.3	8.2	8.1	8	8	8	7.8	8.1	7.8	8
Odor	TON	3	S	ND	2	ND	ND	1	ND	ND	ND	ND	ND
Specific Conductance	umho/cm	1600	S	560	550	580	580	590	580	770	740	1000	1000
Turbidity	NTU	5	S	0.15	0.11	0.84	0.23	0.32	ND	0.33	0.11	0.11	ND
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	1	1.2	ND	ND
Barium, Total	ug/l	1000	P	28	28	49	48	73	73	110	100	160	150
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	**130**	**100**	**450**	**440**
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.051	0.022	ND	ND	0.28	0.26	**140**	**100**	**460**	**450**
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	5.8	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	**1.3**	**1.5**
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	1.6	1.4	ND	ND	ND	ND	1.1	0.92	3.1	3.9
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	0.8	0.89
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	3.7	2.5	ND	ND	ND	ND	**14**	**13**	**49**	**62**
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			0.45	0.41	ND	ND	ND	1.2	ND	1.6	0.43	0.48
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	1.4	1.2	4.3	4.7
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Los Angeles #2							
				Zone 2		Zone 3		Zone 4		Zone 5	
				5/30/2018	8/29/2018	5/30/2018	8/29/2018	5/30/2018	8/29/2018	5/30/2018	8/29/2018
General Minerals											
Alkalinity	mg/l			300	310	300	310	320	320	300	300
Anion Sum	meq/l			19	19	19	19	20	19	24	24
Bicarbonate as HCO3	mg/l			370	370	370	370	400	400	370	370
Boron	mg/l	1	N	0.25	0.25	0.24	0.25	0.27	0.28	0.44	0.43
Bromide	ug/l			560	570	530	530	660	670	740	700
Calcium, Total	mg/l			210	210	200	210	200	210	230	240
Carbon Dioxide	mg/l			31	32	40	39	45	45	9.6	ND
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	2.4
Cation Sum	meq/l			20	20	20	20	20	20	24	24
Chloride	mg/l	500	S	250	250	260	270	250	240	160	150
Fluoride	mg/l	2	P	0.23	0.21	0.3	0.31	0.32	0.34	0.29	0.32
Hardness (Total, as CaCO3)	mg/l			740	750	700	730	700	730	840	860
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			120	88	100	83	120	89	94	43
Iron, Total	mg/l	0.3	S	0.18	0.18	**1.2**	**1.2**	**1.4**	**1.4**	0.24	**0.58**
Langelier Index - 25 degree	None			0.73	0.73	0.62	1.4	0.62	0.64	1.3	1.5
Magnesium, Total	None			53	54	50	50	49	50	64	64
Manganese, Total	ug/l	50	S	**340**	**360**	**170**	**170**	**110**	**110**	**690**	**720**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	0.71	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.16	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			10	10	7.2	7	7.9	7.7	11	10
Sodium, Total	mg/l			120	99	120	110	130	130	170	150
Sulfate	mg/l	500	S	280	280	250	240	280	290	**620**	**630**
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	0.1	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**1100**	**1100**	**1100**	**1200**	**1200**	**1200**	**1500**	**1500**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.16	ND
General Physical Properties											
Apparent Color	ACU	15	S	ND	ND	**25**	**30**	**30**	**30**	**25**	10
Lab pH	Units			7.9	8.1	7.9	8	7.9	7.9	7.8	8
Odor	TON	3	S	ND	ND	1	ND	1	ND	**4**	2
Specific Conductance	umho/cn	1600	S	**1800**	**1800**	**1800**	**1800**	**1800**	**1800**	**2000**	**2000**
Turbidity	NTU	5	S	1.3	0.57	**10**	3.1	**13**	1.1	2.6	**5.4**
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	**39**	**20**
Arsenic, Total	ug/l	10	P	ND	1.3	ND	1.3	ND	1.2	7.1	6.6
Barium, Total	ug/l	1000	P	77	79	130	140	97	100	46	55
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	6.3	2
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	11	ND	12	5.9	11	7	16
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	5.3
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	370	150
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	0.85	0.55
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			0.59	0.59	0.61	0.59	0.64	0.62	4	2.6
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Los Angeles #3											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				6/13/2018	8/3/2018	6/13/2018	8/3/2018	6/13/2018	8/3/2018	6/13/2018	8/3/2018	6/13/2018	8/3/2018	6/13/2018	8/3/2018
General Minerals															
Alkalinity	mg/l			240	240	180	180	180	180	190	190	210	210	240	230
Anion Sum	meq/l			6.3	6.3	5.8	5.7	5.9	5.9	6.5	6.6	8.9	8.8	12	12
Bicarbonate as HCO3	mg/l			290	290	220	210	220	220	230	230	260	250	290	280
Boron	mg/l	1	N	0.35	0.35	0.14	0.14	0.14	0.14	0.15	0.15	0.19	0.19	0.2	0.2
Bromide	ug/l			250	240	130	130	100	110	220	220	250	250	520	540
Calcium, Total	mg/l			16	16	60	57	62	60	70	68	97	93	140	130
Carbon Dioxide	mg/l			3.6	3.1	4.9	9.3	7.9	12	7.2	12	8.9	16	12	14
Carbonate as CO3	mg/l			2.5	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			6.7	7	6	5.8	6.1	6.1	6.8	6.8	9.2	9	12	12
Chloride	mg/l	500	S	35	37	25	24	22	22	40	43	54	53	120	120
Fluoride	mg/l	2	P	0.31	0.33	0.34	0.35	0.45	0.49	0.41	0.44	0.33	0.37	0.34	0.37
Hardness (Total, as CaCO3)	mg/l			63	63	210	200	210	210	240	230	340	320	480	450
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			77	60	41	36	41	29	49	36	ND	ND	ND	ND
Iron, Total	mg/l	0.3	S	ND	ND	0.037	0.031	ND	ND	0.065	0.063	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.35	0.4	0.54	0.21	0.36	0.16	0.49	0.26	0.63	0.35	0.74	0.67
Magnesium, Total	None			5.5	5.6	14	13	14	14	15	15	23	22	31	31
Manganese, Total	ug/l	50	S	22	24	**94**	**90**	**54**	**56**	42	45	ND	ND	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	**46**	44	30	29
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	10	10	6.7	6.5
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			4.3	4.3	3.5	3.5	3.7	3.7	4.2	4.1	4.4	4.3	4.5	4.5
Sodium, Total	mg/l			120	130	41	40	41	42	45	45	55	54	62	63
Sulfate	mg/l	500	S	23	24	74	73	78	77	73	76	120	120	180	170
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	390	390	380	350	380	350	420	400	560	580	750	780
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	10	10	6.7	6.5
General Physical Properties															
Apparent Color	ACU	15	S	**40**	**25**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.4	8.3	8.3	8	8.1	7.9	8.1	7.9	8.1	7.8	8	7.8
Odor	TON	3	S	2	2	ND	1	ND	ND	2	1	2	ND	2	ND
Specific Conductance	umho/cm	1600	S	630	620	560	560	570	570	650	650	870	870	1200	1200
Turbidity	NTU	5	S	0.13	0.13	0.24	0.15	0.18	0.11	0.24	0.28	0.26	0.12	0.5	0.18
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	9	8.8	21	21	44	44	74	71	120	120	110	120
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	2.3	2.3	5.2	5.7
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.053	0.044	0.042	0.028	0.039	0.029	0.032	0.024	2.1	2.2	5.3	5.3
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.8	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	15
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.2**	**5.6**
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	0.98	0.9	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	0.66	0.72	0.72	0.81
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			2	1.9	0.33	ND	ND	ND	ND	ND	0.44	0.46	0.51	0.35
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	2.1	2.2	1.1	1.2
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Los Angeles #4											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				4/18/2018	8/28/2018	4/18/2018	8/28/2018	4/18/2018	8/28/2018	4/18/2018	8/28/2018	4/18/2018	8/28/2018	4/18/2018	8/28/2018
General Minerals															
Alkalinity	mg/l			1500	1500	440	440	170	170	170	170	170	160	160	160
Anion Sum	meq/l			32	32	9	8.9	5.5	5.6	5.6	5.6	5.6	5.4	6.5	6.3
Bicarbonate as HCO3	mg/l			1900	1900	540	530	210	210	210	210	210	200	200	190
Boron	mg/l	1	N	**5.5**	**4.5**	0.49	0.5	0.13	0.13	0.12	0.13	0.13	0.14	0.15	0.15
Bromide	ug/l			600	590	67	65	95	94	98	97	97	95	240	240
Calcium, Total	mg/l			12	ND	17	17	57	56	56	58	58	59	59	61
Carbon Dioxide	mg/l			26	39	6.9	12	3.6	3.5	3.8	6.9	2.6	4.2	4	4
Carbonate as CO3	mg/l			14	9.8	4.5	2.5	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			33	26	8.6	8.8	5.7	5.6	5.7	5.8	5.8	5.8	6.5	6.6
Chloride	mg/l	500	S	32	29	7.1	7.1	20	20	20	20	20	20	54	54
Fluoride	mg/l	2	P	0.37	0.38	0.25	0.27	0.29	0.32	0.37	0.4	0.32	0.37	0.12	0.13
Hardness (Total, as CaCO3)	mg/l			54	20	71	72	190	180	190	200	190	200	200	200
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			170	200	14	120	14	32	17	42	15	34	4.7	9.3
Iron, Total	mg/l	0.3	S	**0.55**	**0.48**	0.12	0.12	ND	ND	0.02	0.02	0.054	0.056	ND	ND
Langelier Index - 25 degree	None			0.96	-0.57	0.62	0.65	0.6	0.61	0.59	0.34	0.77	0.51	0.54	0.51
Magnesium, Total	None			5.9	5	7	7.2	11	11	12	13	12	12	12	12
Manganese, Total	ug/l	50	S	17	16	50	49	37	38	**53**	**55**	**61**	**64**	45	46
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.3	4.4
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.97	1
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			12	ND	8.5	11	3	2.9	3.5	3.6	3.7	3.6	3.6	3.4
Sodium, Total	mg/l			720	580	160	160	43	42	41	42	42	41	56	56
Sulfate	mg/l	500	S	ND	ND	ND	ND	76	76	76	75	77	76	79	78
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**2100**	**2000**	530	520	340	350	350	360	350	340	410	410
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.97	1
General Physical Properties															
Apparent Color	ACU	15	S	**2000**	**800**	**100**	**100**	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.4	8.4	8.3	8.1	8.2	8.5	8.1	8.3	8.2	8.4	8.1	8.2
Odor	TON	3	S	2	2	2	2	2	ND	2	1	2	2	2	2
Specific Conductance	umho/cm	1600	S	**2900**	**2800**	860	850	550	540	560	550	550	550	670	660
Turbidity	NTU	5	S	0.65	0.68	**13**	1.8	0.22	ND	0.19	ND	0.32	0.29	0.77	0.25
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.1	3.3	8.3	8.2	ND	ND	2.3	2.2	1.6	1.4	3.3	2.7
Barium, Total	ug/l	1000	P	31	35	33	36	16	16	58	61	55	57	42	46
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	3.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	2.3	2.2	1.5	ND	ND	ND	ND	ND	ND	ND	1.2	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.13	0.1	0.13	0.056	0.023	ND	ND	ND	ND	ND	0.92	0.82
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			130	140	6.9	7.8	ND	0.3	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Los Angeles #5											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				5/9/2018	9/19/2018	5/8/2018	9/18/2018	5/8/2018	9/18/2018	5/8/2018	9/18/2018	5/9/2018	9/18/2018	5/9/2018	9/18/2018
General Minerals															
Alkalinity	mg/l			850	860	880	870	160	150	230	220	210	220	190	180
Anion Sum	meq/l			120	120	31	44	5.4	5.1	9.3	9.2	8.1	8.1	6.9	6.8
Bicarbonate as HCO3	mg/l			1000	1000	1100	1100	200	190	280	270	260	260	230	220
Boron	mg/l	1	N	**7.8**	**7.6**	**2.5**	**3.2**	0.12	0.11	0.25	0.26	0.15	0.16	0.15	0.15
Bromide	ug/l			33000	33000	4300	8500	100	100	1100	1000	710	730	150	140
Calcium, Total	mg/l			46	44	21	24	44	50	77	88	80	82	72	76
Carbon Dioxide	mg/l			30	33	25	38	3.6	3.7	8.2	8.2	6	10	5.8	8.8
Carbonate as CO3	mg/l			3.5	3.2	5.2	3.3	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			110	110	31	42	5.3	5.4	9	9.5	8.1	8.3	7.2	7.4
Chloride	mg/l	500	S	**3600**	**3600**	480	**940**	22	21	150	150	110	110	29	28
Fluoride	mg/l	2	P	0.12	0.12	0.24	0.22	0.24	0.22	0.3	0.3	0.32	0.32	0.39	0.37
Hardness (Total, as CaCO3)	mg/l			320	310	100	130	140	160	270	310	280	280	240	260
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			10000	13000	110	3000	26	31	300	280	160	160	39	44
Iron, Total	mg/l	0.3	S	**0.39**	**0.37**	0.23	0.24	0.035	0.037	0.065	0.082	0.14	0.14	0.04	0.025
Langelier Index - 25 degree	None			0.96	0.91	0.76	0.63	0.45	0.46	0.63	0.66	0.72	0.52	0.58	0.4
Magnesium, Total	None			49	48	12	17	8.4	8.8	19	21	19	19	16	16
Manganese, Total	ug/l	50	S	40	32	**56**	49	40	32	**93**	**97**	**120**	**120**	34	29
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			44	44	16	19	3.4	3	5.7	5.5	4.3	4.4	3.3	3.2
Sodium, Total	mg/l			2400	2300	650	900	54	48	78	73	56	58	51	49
Sulfate	mg/l	500	S	1.9	0.72	3.9	1.3	73	69	25	24	37	33	110	110
Surfactants	mg/l	0.5	S	0.16	0.15	ND	0.12	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**7000**	**5500**	**1800**	**2500**	350	330	550	540	500	480	440	420
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	**100**	**150**	**220**	**150**	ND	ND	ND	ND	ND	ND	3	ND
Lab pH	Units			8.3	8.3	8.4	8.4	8.2	8.2	8.1	8.1	8.2	8.2	8.1	8
Odor	TON	3	S	2	2	**17**	2	2	2	2	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	**12000**	**12000**	**3100**	**4400**	540	510	950	940	820	820	670	670
Turbidity	NTU	5	S	0.38	0.55	0.36	0.43	0.87	0.19	1.2	0.38	0.55	1.3	**5.1**	0.16
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	7.9	4.1	4.6	1.5	ND	ND	1.2	1.5	ND	1.1	ND	ND
Barium, Total	ug/l	1000	P	67	63	29	38	19	19	42	53	75	80	55	60
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	0.06	0.034	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	**160**	16	20	ND	ND	ND	5	7.1	ND	5.1	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			22	25	35	29	0.89	0.56	4.6	0.62	0.44	0.38	ND	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	0.74	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Lynwood #1																	
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7		Zone 8		Zone 9	
				6/5/2018	9/26/2018	6/4/2018	9/27/2018	6/5/2018	9/26/2018	6/5/2018	9/26/2018	6/5/2018	9/26/2018	6/5/2018	9/27/2018	6/5/2018	9/26/2018	6/4/2018	9/27/2018	6/5/2018	9/26/2018
General Minerals																					
Alkalinity	mg/l			560	560	130	130	110	110	130	130	150	150	160	160	180	180	180	180	290	290
Anion Sum	meq/l			11	12	4.1	4.2	4.4	4.5	4.9	5	4.7	4.8	5.3	5.3	6.2	6.2	7.3	7.4	18	18
Bicarbonate as HCO3	mg/l			680	680	160	160	140	140	160	160	190	190	200	200	220	220	220	220	360	350
Boron	mg/l	1	N	**1.3**	**1.3**	0.16	0.17	0.1	0.1	0.088	0.087	0.088	0.089	0.12	0.13	0.12	0.12	0.13	0.14	0.18	0.18
Bromide	ug/l			150	130	120	120	99	100	100	98	100	110	100	100	130	120	140	140	580	590
Calcium, Total	mg/l			9.7	10	5	5.3	42	41	47	47	46	47	54	54	70	67	83	83	220	220
Carbon Dioxide	mg/l			7.9	6.9	ND	ND	ND	ND	ND	2.2	ND	2.3	2	2.8	3.4	4.3	3.6	8.3	27	4.4
Carbonate as CO3	mg/l			6.2	7.2	7.9	7.4	2.3	ND	ND	ND	2.1	ND	2.1	ND	ND	ND	ND	ND	ND	2.9
Cation Sum	meq/l			11	12	3.9	4	4.6	4.6	5	5	4.8	4.9	5.4	5.4	6.6	6.4	7.5	7.6	18	18
Chloride	mg/l	500	S	9.9	11	21	22	21	21	21	22	20	22	20	21	28	29	48	50	160	160
Fluoride	mg/l	2	P	0.52	0.52	0.42	0.42	0.3	0.3	0.26	0.27	0.28	0.28	0.36	0.4	0.31	0.31	0.39	0.43	0.31	0.32
Hardness (Total, as CaCO3)	mg/l			32	34	14	14	130	120	140	140	130	130	180	180	230	220	280	280	740	750
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			46	26	38	33	36	27	41	27	43	33	41	28	45	38	ND	ND	330	210
Iron, Total	mg/l	0.3	S	0.074	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.025	0.026	0.085	0.086	ND	ND	**0.37**	**0.36**
Langelier Index - 25 degree	None			0.52	0.62	0.34	0.33	0.71	0.52	0.64	0.52	0.72	0.63	0.79	0.64	0.77	0.64	0.81	0.45	0.8	1.6
Magnesium, Total	None			2	2.1	0.27	0.28	5.5	5.6	5.9	5.9	2.8	3	11	11	14	13	18	18	47	48
Manganese, Total	ug/l	50	S	14	11	2.4	2.5	14	14	28	30	24	28	**57**	**61**	**98**	**100**	2.5	ND	**220**	**220**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.9	6.8	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	1.5	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.6	ND	ND	ND	1.1	1.1	1.6	1.6	1.9	2	3.3	3.3	3	3	3.2	3.4	5.3	5.3
Sodium, Total	mg/l			240	260	83	87	46	46	50	49	51	51	38	39	44	42	42	42	76	76
Sulfate	mg/l	500	S	0.64	0.62	41	43	75	76	78	79	48	51	68	70	86	85	110	110	350	360
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	690	660	270	270	280	280	310	310	290	290	320	320	390	370	480	460	**1100**	**1100**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	1.5	ND	ND
General Physical Properties																					
Apparent Color	ACU	15	S	**200**	**200**	**100**	**75**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND
Lab pH	Units			8.5	8.6	8.6	8.8	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.3	8.2	8.2	8.1	8.1	7.9	7.9
Odor	TON	3	S	**8**	2	2	1	2	1	2	2	2	1	2	ND	1	ND	1	2	2	ND
Specific Conductance	umho/cm	1600	S	1100	1100	430	420	450	450	490	490	460	470	520	520	610	610	720	720	1600	1600
Turbidity	NTU	5	S	3.1	0.56	0.31	0.26	0.15	ND	0.11	ND	0.13	ND	0.14	ND	0.29	0.23	0.21	ND	**9.4**	1.4
Metals																					
Aluminum, Total	ug/l	1000	P	ND	ND	27	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	**230**	**200**	1.7	ND	ND	ND	ND	ND	5.2	5.5	1.3	1.3	3.2	3.4	2	2.1	8.2	8
Barium, Total	ug/l	1000	P	13	14	ND	ND	5.7	5.4	140	150	100	110	43	45	100	100	120	120	170	170
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.13	0.073	0.094	0.041	0.037	ND	0.04	ND	0.035	ND	0.033	ND	0.032	ND	0.68	0.62	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.6	7.4
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds																					
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.8**	3.5	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.55	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others																					
Total Organic Carbon	mg/l			18	14	2.5	2	0.41	0.44	0.39	0.36	ND	ND	ND	0.38	0.35	0.36	0.3	0.3	1.1	1
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.54	0.69	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.4**	**2.6**	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Montebello #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				3/27/2018	8/27/2018	3/27/2018	8/27/2018	3/27/2018	8/27/2018	3/27/2018	8/27/2018	3/27/2018	8/27/2018
General Minerals													
Alkalinity	mg/l			880	870	560	550	190	180	190	170	210	210
Anion Sum	meq/l			37	38	15	15	7.3	7.4	8.3	7.7	8.6	8.3
Bicarbonate as HCO3	mg/l			1100	1100	680	670	230	220	240	210	260	260
Boron	mg/l	1	N	**6.6**	**6.4**	**2.2**	**2.3**	0.22	0.22	0.19	0.17	0.22	0.2
Bromide	ug/l			4100	4200	820	860	240	240	230	220	190	190
Calcium, Total	mg/l			14	14	17	17	84	82	86	85	89	83
Carbon Dioxide	mg/l			16	23	ND	10	ND	3.7	ND	4.4	ND	16
Carbonate as CO3	mg/l			8	5.5	14	4.7	2.4	ND	2	ND	ND	ND
Cation Sum	meq/l			36	34	14	16	7.7	7.4	8.4	8.2	9	8.3
Chloride	mg/l	500	S	**700**	**730**	120	130	58	61	70	67	73	68
Fluoride	mg/l	2	P	0.48	0.46	0.34	0.33	0.2	0.2	0.29	0.3	0.36	0.37
Hardness (Total, as CaCO3)	mg/l			60	59	71	71	270	260	280	270	290	270
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			930	710	230	230	21	47	19	40	ND	ND
Iron, Total	mg/l	0.3	S	0.16	0.15	0.19	0.2	0.041	0.038	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.77	1.1	1.1	0.98	1.1	0.81	0.94	0.7	0.8	0.31
Magnesium, Total	None			6	5.9	6.9	6.9	14	13	15	15	17	16
Manganese, Total	ug/l	50	S	8.2	8.7	27	30	**70**	**72**	20	12	ND	2.3
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	2	17	15
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	0.44	3.8	3.5
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			8.1	9.1	ND	5.4	3.6	3.4	3.7	3.5	3.8	3.4
Sodium, Total	mg/l			800	750	300	320	53	50	63	59	69	63
Sulfate	mg/l	500	S	ND	ND	ND	ND	90	94	120	110	95	91
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**2100**	**2200**	890	900	460	480	520	520	520	530
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	0.44	3.8	3.5
General Physical Properties													
Apparent Color	ACU	15	S	**500**	**350**	**200**	**20**	10	10	5	ND	ND	ND
Lab pH	Units			8.5	8.4	8.5	8.4	8.2	8.2	8.1	7.9	7.9	7.8
Odor	TON	3	S	**4**	2	2	2	2	1	1	ND	1	2
Specific Conductance	umho/cm	1600	S	**3600**	**3700**	1400	1400	730	740	820	820	840	830
Turbidity	NTU	5	S	0.43	0.5	0.29	0.39	0.32	0.14	0.2	ND	0.12	ND
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.8	4.5	1.6	1.9	ND	ND	1.9	1.8	1.6	2
Barium, Total	ug/l	1000	P	35	40	22	25	35	37	69	70	57	62
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	1.5	1.3	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.23	0.17	0.11	0.1	0.04	0.026	0.02	0.028	0.19	0.26
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	18	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	0.56	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			44	39	27	25	1.2	1.1	0.82	0.58	0.46	0.51
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	0.96	0.92
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	**4.1**	**4.4**	**2.8**	**2.3**	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Norwalk #1				
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
				4/26/2018	4/26/2018	4/26/2018	4/26/2018	4/26/2018
General Minerals								
Alkalinity	mg/l			260	170	150	130	200
Anion Sum	meq/l			8.3	5.1	5.3	3.4	7.9
Bicarbonate as HCO3	mg/l			320	200	180	150	240
Boron	mg/l	1	N	0.39	0.2	0.062	ND	0.08
Bromide	ug/l			290	260	440	110	630
Calcium, Total	mg/l			13	9.1	36	28	71
Carbon Dioxide	mg/l			3.3	ND	2	ND	10
Carbonate as CO3	mg/l			3.3	8.2	ND	ND	ND
Cation Sum	meq/l			8.6	4.9	5.2	3.4	7.8
Chloride	mg/l	500	S	63	58	82	23	140
Fluoride	mg/l	2	P	0.52	0.6	0.27	0.32	0.31
Hardness (Total, as CaCO3)	mg/l			59	28	100	91	240
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND
Iodide	mg/l			89	94	120	37	120
Iron, Total	mg/l	0.3	S	ND	ND	0.032	0.024	0.12
Langelier Index - 25 degree	None			0.38	0.62	0.38	0.31	0.36
Magnesium, Total	None			6.4	1.2	3.2	5.2	16
Manganese, Total	ug/l	50	S	2.4	6	27	36	**140**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.6	1.2	2.4	1.6	3.6
Sodium, Total	mg/l			170	100	72	35	65
Sulfate	mg/l	500	S	56	ND	3.3	7.5	6.3
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	0.25
Total Dissolved Solid (TDS)	mg/l	1000	S	520	300	310	210	470
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND
General Physical Properties								
Apparent Color	ACU	15	S	**30**	**45**	ND	5	10
Lab pH	Units			8.1	8.5	8.2	8.3	8.1
Odor	TON	3	S	**200**	2	1	**8**	**8**
Specific Conductance	umho/cm	1600	S	850	520	560	340	820
Turbidity	NTU	5	S	0.13	0.18	0.24	0.69	2.7
Metals								
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	5.1	**18**	**11**
Barium, Total	ug/l	1000	P	15	6.4	110	120	350
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.14	0.11	0.045	0.052	0.041
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	7.8	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND
Volatile Organic Compounds								
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	3.7
Chloromethane	ug/l			ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	2.1
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND
Others								
Total Organic Carbon	mg/l			2.2	3	0.68	0.38	1.7
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Norwalk #2											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				4/19/2018	8/15/2018	4/19/2018	8/15/2018	4/19/2018	8/15/2018	4/19/2018	8/15/2018	4/19/2018	8/15/2018	4/19/2018	8/15/2018
General Minerals															
Alkalinity	mg/l			190	190	170	180	150	150	160	160	160	160	190	180
Anion Sum	meq/l			6.7	6.7	4.6	4.6	4.1	4.1	5.7	5.8	7.8	7.7	7.9	7.8
Bicarbonate as HCO3	mg/l			230	230	210	210	180	180	200	200	190	200	230	220
Boron	mg/l	1	N	0.26	0.24	0.23	0.23	ND	ND	0.056	ND	0.18	0.15	0.18	0.18
Bromide	ug/l			310	310	130	140	46	46	71	74	160	170	140	130
Calcium, Total	mg/l			23	22	12	12	44	45	68	73	79	81	80	80
Carbon Dioxide	mg/l			ND	3.7	2.9	ND	5.8	2.3	9	5.6	2.6	6.5	16	13
Carbonate as CO3	mg/l			3.3	ND	ND	2.5	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			7.3	7.3	4.6	4.6	4.2	4.3	5.7	6.1	7.7	8	8.1	8
Chloride	mg/l	500	S	64	63	29	29	13	14	29	30	76	74	64	63
Fluoride	mg/l	2	P	0.38	0.39	0.48	0.45	0.21	0.22	0.29	0.29	0.26	0.28	0.37	0.39
Hardness (Total, as CaCO3)	mg/l			75	72	39	39	130	130	220	230	260	270	270	260
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			97	93	40	33	6.5	7.1	ND	ND	4.1	15	ND	ND
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.62	0.28	0.037	0.24	0.16	0.56	0.24	0.48	0.82	0.46	0.18	0.78
Magnesium, Total	None			4.3	4.2	2.2	2.2	5.1	5.2	11	12	16	16	17	16
Manganese, Total	ug/l	50	S	8.7	7	16	15	21	19	ND	ND	13	12	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	6.2	6.4	12	11	9.2	9.4
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	1.4	1.4	2.6	2.6	2.1	2.1
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			4	4.2	2.2	2.3	2.4	2.5	3.1	3.4	4	4.2	4	4
Sodium, Total	mg/l			130	130	87	87	36	36	31	33	54	59	60	59
Sulfate	mg/l	500	S	54	50	12	12	39	37	76	75	110	100	100	100
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	420	430	280	300	280	260	360	380	500	490	480	510
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	1.4	1.4	2.6	2.6	2.1	2.1
General Physical Properties															
Apparent Color	ACU	15	S	10	10	**20**	**20**	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.2	8.3	8.4	8.5	8.3	8.3	8.1	8.2	8	8	7.8	8
Odor	TON	3	S	1	1	2	2	2	2	1	ND	1	1	1	ND
Specific Conductance	umho/cm	1600	S	710	700	460	460	410	410	570	580	790	790	800	780
Turbidity	NTU	5	S	0.12	0.11	0.15	0.12	0.14	0.12	ND	0.1	0.11	0.18	0.13	0.11
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	5.2	5.6	ND	ND	ND	ND	1.8	2.2	1.9	2.5	1.2	1.6
Barium, Total	ug/l	1000	P	40	36	10	9.7	31	30	160	150	73	67	55	51
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	3	2.8	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.072	0.074	0.096	0.083	0.034	0.037	3	2.9	0.6	0.56	0.81	0.84
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	0.74	0.65	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	0.54	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			1.6	1.7	1.1	1.2	0.4	0.37	ND	0.26	0.49	0.56	0.38	0.44
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	2.1	2.3	0.83	0.82	0.61	0.76
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	**3**	**3**	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Pico #1						
				Zone 1	Zone 2		Zone 3		Zone 4	
				5/1/2018	5/1/2018	9/12/2018	5/1/2018	9/12/2018	5/1/2018	9/12/2018
General Minerals										
Alkalinity	mg/l			280	160	160	200	190	210	220
Anion Sum	meq/l			5.7	5.2	5	9.3	9.3	10	10
Bicarbonate as HCO3	mg/l			340	200	190	240	240	260	270
Boron	mg/l	1	N	0.62	0.067	0.068	0.11	0.11	0.25	0.25
Bromide	ug/l			26	59	53	190	190	200	200
Calcium, Total	mg/l			8.6	68	66	120	120	96	95
Carbon Dioxide	mg/l			5.1	10	6.7	21	18	29	28
Carbonate as CO3	mg/l			2.4	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			6.2	5.4	5.3	9.7	9.5	10	10
Chloride	mg/l	500	S	3	19	17	84	84	100	100
Fluoride	mg/l	2	P	0.26	0.26	0.27	0.3	0.3	0.3	0.29
Hardness (Total, as CaCO3)	mg/l			34	220	210	380	380	310	310
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			8.1	4.4	3.9	18	18	ND	ND
Iron, Total	mg/l	0.3	S	0.095	0.29	0.28	**0.51**	**0.51**	ND	ND
Langelier Index - 25 degree	None			0.064	0.18	0.33	0.3	0.35	0.12	0.17
Magnesium, Total	None			3	12	11	20	20	18	18
Manganese, Total	ug/l	50	S	34	22	20	15	15	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	14	16
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	3.3	3.6
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			3.7	2.7	2.7	4.2	4.2	5.2	5.2
Sodium, Total	mg/l			120	23	23	40	40	86	89
Sulfate	mg/l	500	S	ND	70	65	140	140	130	120
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	360	320	310	570	570	620	630
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	3.3	3.6
General Physical Properties										
Apparent Color	ACU	15	S	**45**	5	5	15	10	ND	ND
Lab pH	Units			8.3	8.1	8.1	7.8	8	7.8	8
Odor	TON	3	S	2	2	2	ND	1	ND	ND
Specific Conductance	µmho/cn	1600	S	550	520	500	920	910	1000	1000
Turbidity	NTU	5	S	2.6	1.7	1.6	**5.3**	5	0.12	ND
Metals										
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	6.1	ND	ND	ND	ND	2.7	3
Barium, Total	ug/l	1000	P	15	80	84	77	88	57	64
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	9	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.044	ND	ND	ND	ND	0.71	0.78
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	6.3	ND	5.6
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	5.9	8.9
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds										
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND
Others										
Total Organic Carbon	mg/l			3.1	ND	ND	0.42	0.44	0.45	0.45
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	0.52	0.64
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND		ND		ND	
HMX	ug/l	350	N	ND	ND		ND		ND	
RDX	ug/l	0.3	N	ND	ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Pico #2											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				4/25/2018	9/5/2018	4/25/2018	9/5/2018	4/25/2018	9/5/2018	4/25/2018	9/5/2018	4/25/2018	9/5/2018	4/25/2018	9/5/2018
General Minerals															
Alkalinity	mg/l			200	200	210	210	190	200	150	150	120	130	120	140
Anion Sum	meq/l			8.7	8.4	10	9.9	8.9	8.8	9.1	9	7.9	7.6	8	10
Bicarbonate as HCO3	mg/l			240	240	250	250	230	240	180	180	150	160	150	180
Boron	mg/l	1	N	0.058	0.06	0.15	0.16	0.16	0.16	0.24	0.26	0.24	0.23	0.2	0.29
Bromide	ug/l			180	160	220	210	180	160	150	150	150	140	140	130
Calcium, Total	mg/l			120	120	120	130	100	94	74	80	58	54	53	72
Carbon Dioxide	mg/l			12	10	14	14	12	13	19	16	19	17	30	36
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			8.7	9	10	10	9.1	8.4	8.6	9.2	7.8	7.3	7.7	9.8
Chloride	mg/l	500	S	57	53	96	94	81	76	120	120	110	100	120	150
Fluoride	mg/l	2	P	0.24	0.26	0.26	0.28	0.31	0.33	0.31	0.34	0.36	0.4	0.33	0.31
Hardness (Total, as CaCO3)	mg/l			380	390	400	430	340	320	250	270	210	200	200	270
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	4.4	5	ND	3
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.53	0.59	0.49	0.52	0.45	1.1	-0.13	-0.018	-0.38	0.52	-0.63	-0.43
Magnesium, Total	None			20	21	24	25	21	20	16	17	16	15	16	21
Manganese, Total	ug/l	50	S	ND	ND	ND	2.7	ND	ND	ND	ND	34	30	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	14	14	12	12	14	13	24	23	20	18	26	18
Nitrate as Nitrogen	mg/l	10	P	3.3	3.1	2.6	2.7	3.1	3	5.3	5.3	4.6	4.1	5.8	4.2
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			3.9	3.9	4.1	4.2	4.6	4.1	4.6	5.1	5.2	4.8	9.5	11
Sodium, Total	mg/l			26	27	41	43	46	45	79	85	79	75	81	96
Sulfate	mg/l	500	S	130	130	140	140	120	120	110	110	94	87	79	130
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	550	550	610	610	550	560	570	570	510	470	500	610
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	3.3	3.1	2.6	2.7	3.1	3	5.3	5.3	4.6	4.1	5.8	4.2
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8	8.2	7.7	8.2	7.9	8.2	7.7	8	7.7	8	7.5	7.8
Odor	TON	3	S	ND	ND	2	ND	1	ND	ND	1	ND	ND	2	1
Specific Conductance	umho/cm	1600	S	840	830	980	970	880	870	930	940	840	770	840	1000
Turbidity	NTU	5	S	0.1	ND	0.16	ND	0.29	ND	0.13	ND	0.15	ND	0.28	0.33
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.4	1.7	1.8	2.4	1.4	1.9	2.1	2.7	ND	1.1	9.7	9.2
Barium, Total	ug/l	1000	P	120	110	100	98	94	94	72	74	91	80	160	200
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	3.3
Chromium, Total	ug/l	50	P	1.3	1.8	ND	1.1	1.1	1.5	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	1.3	1.3	0.79	0.77	1.2	1.2	0.57	0.42	0.41	0.35	0.25	0.18
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	5.1	ND	5.9	ND	5	ND	5.2	ND	ND	ND	8
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	0.85	0.6	1	0.76	2.5	2.2	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	5.8	5.4	ND	ND	12	8.4
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			ND	1.6	0.35	1.6	0.3	0.3	0.51	1.6	0.7	0.73	1	2.8
Perchlorate	ug/l	6	P	2	1.9	0.59	0.57	1	1	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	**3**	**2.9**	ND	ND	**1.5**	**1.7**	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Rio Hondo #1											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				3/29/2018	8/28/2018	3/29/2018	8/28/2018	3/29/2018	8/28/2018	3/29/2018	8/28/2018	3/29/2018	8/28/2018	3/29/2018	8/28/2018
General Minerals															
Alkalinity	mg/l			140	140	160	150	180	180	130	120	130	120	98	100
Anion Sum	meq/l			4.3	4.3	6.7	6.4	7.4	7.5	5.8	5.8	6.2	6	4.6	5.5
Bicarbonate as HCO3	mg/l			170	170	200	180	220	220	150	150	160	150	120	120
Boron	mg/l	1	N	0.062	0.064	0.053	0.054	0.15	0.16	0.14	0.15	0.16	0.17	0.16	0.17
Bromide	ug/l			95	95	120	120	140	140	120	130	100	110	100	110
Calcium, Total	mg/l			41	41	91	91	86	87	52	52	58	57	36	44
Carbon Dioxide	mg/l			2.7	2.5	7.5	6.6	10	10	10	9.8	15	13	14	15
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			4.4	4.5	7.1	7	7.7	7.7	5.9	6	6.4	6.3	4.6	5.5
Chloride	mg/l	500	S	17	17	41	42	60	62	58	62	66	65	49	66
Fluoride	mg/l	2	P	0.24	0.27	0.21	0.23	0.29	0.31	0.31	0.35	0.27	0.28	0.32	0.32
Hardness (Total, as CaCO3)	mg/l			140	140	290	290	280	280	170	170	190	190	130	160
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			24	28	5	6.6	ND	ND	ND	ND	ND	ND	ND	ND
Iron, Total	mg/l	0.3	S	ND	ND	0.069	0.073	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.41	0.46	0.45	0.42	0.37	0.38	-0.17	-0.16	-0.24	-0.24	-0.65	-0.59
Magnesium, Total	None			8	8.1	16	16	15	15	9.9	10	12	12	9.1	11
Manganese, Total	ug/l	50	S	19	19	30	28	ND	ND	ND	ND	ND	ND	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	8.9	8.8	12	11	15	14	10	14
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	2	2	2.8	2.6	3.4	3.2	2.3	3.1
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.7	2.7	3.4	3.3	3.9	3.8	3.5	3.4	3.6	3.6	3.6	3.9
Sodium, Total	mg/l			39	39	25	25	46	46	54	56	55	54	45	52
Sulfate	mg/l	500	S	46	46	110	110	97	100	68	69	73	71	53	63
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	270	280	430	440	470	480	360	370	390	390	280	350
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	2	2	2.8	2.6	3.4	3.2	2.3	3.1
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.3	8.3	8.1	8.1	8	8.2	7.9	8.1	7.8	8	7.7	7.9
Odor	TON	3	S	1	ND	1	1	2	ND	ND	ND	ND	1	ND	ND
Specific Conductance	umho/cm	1600	S	430	430	680	670	760	760	620	610	660	640	490	570
Turbidity	NTU	5	S	0.84	0.21	0.22	0.26	0.1	ND	0.11	ND	0.22	0.36	0.61	0.52
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	2.2	2.4	2.6	2.7	1.9	1.8	1.3	1.3
Barium, Total	ug/l	1000	P	15	17	47	51	110	120	49	52	65	68	68	90
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.021	ND	ND	ND	0.56	0.55	0.44	0.44	0.56	0.59	0.68	0.65
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	0.8	0.71	2.2	2	1.3	3.4
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			1.5	ND	1.1	ND	0.52	0.46	0.44	0.3	0.3	ND	0.38	0.33
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	0.69	0.65	0.65	0.61	0.58	0.69
1,4-Dioxane	ug/l	0	0	ND	ND	**4.4**	**4.7**	**1.4**	**1.4**	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Seal Beach #1													
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7	
				4/30/2018	9/6/2018	4/30/2018	9/6/2018	4/30/2018	9/6/2018	4/30/2018	9/6/2018	4/30/2018	9/6/2018	4/30/2018	9/6/2018	4/30/2018	9/6/2018
General Minerals																	
Alkalinity	mg/l			210	220	160	160	150	150	180	180	85	85	100	100	240	270
Anion Sum	meq/l			4.8	4.8	3.6	3.6	3.4	3.4	4.1	4.1	5.6	5.8	7.1	6.9	36	37
Bicarbonate as HCO3	mg/l			260	260	190	190	180	180	220	220	100	100	120	120	290	330
Boron	mg/l	1	N	ND	0.24	ND	0.14	ND	0.19	ND	0.23	0.062	0.065	0.15	0.15	0.24	0.25
Bromide	ug/l			180	180	100	100	82	81	130	130	390	410	160	150	2800	2700
Calcium, Total	mg/l			ND	5.1	ND	3.6	ND	3.6	5.7	5.7	27	28	68	62	320	350
Carbon Dioxide	mg/l			2.2	ND	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	58	20
Carbonate as CO3	mg/l			3.3	8.5	4.2	11	2.8	11	5.1	8.4	ND	2	3.4	ND	ND	ND
Cation Sum	meq/l			4.7	5.2	3.7	3.6	3.4	3.4	4.6	4.1	5.6	5.7	7.6	7	36	37
Chloride	mg/l	500	S	17	17	14	14	13	13	18	18	110	120	83	78	**820**	**800**
Fluoride	mg/l	2	P	0.41	0.39	0.51	0.5	0.57	0.56	0.77	0.71	0.35	0.33	0.33	0.33	0.3	0.27
Hardness (Total, as CaCO3)	mg/l			ND	14	ND	10	ND	9.9	16	17	76	78	220	200	1100	1200
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			54	53	27	24	20	18	38	35	6.2	9.4	11	13	190	230
Iron, Total	mg/l	0.3	S	ND	0.049	ND	0.025	ND	0.02	ND	0.046	ND	ND	0.023	0.021	0.29	0.23
Langelier Index - 25 degree	None			-1	0.38	-0.93	0.35	-1.1	0.33	0.2	0.42	-0.39	0.49	1.1	0.5	0.44	1
Magnesium, Total	None			ND	0.4	ND	0.33	ND	0.22	0.52	0.61	2	1.9	12	11	71	74
Manganese, Total	ug/l	50	S	6.2	6	3.9	3.6	2.4	2.4	8	8.6	15	16	**97**	**90**	**780**	**910**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	1.4	1.7	2.2	2.2	8.4	8.9
Sodium, Total	mg/l			110	110	85	77	79	74	97	87	93	94	72	68	310	310
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	ND	ND	30	30	130	130	390	430
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	300	310	230	230	200	220	270	270	330	350	460	460	**2300**	**2400**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties																	
Apparent Color	ACU	15	S	**250**	**300**	**180**	**100**	**100**	**100**	**200**	**100**	5	5	ND	ND	ND	ND
Lab pH	Units			8.7	8.8	8.9	8.9	8.9	8.9	8.6	8.7	8.2	8.4	8.2	8.3	7.8	8
Odor	TON	3	S	2	2	2	2	2	1	2	2	1	1	2	ND	2	2
Specific Conductance	umho/cm	1600	S	470	470	360	360	340	340	410	410	620	640	750	720	**3500**	**3600**
Turbidity	NTU	5	S	0.35	0.34	0.35	0.24	0.27	0.21	0.89	0.44	0.2	0.12	0.13	ND	**6.2**	1.3
Metals																	
Aluminum, Total	ug/l	1000	P	31	32	30	32	25	26	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1	ND	ND	4.7	8.6
Barium, Total	ug/l	1000	P	6.8	6.8	3.8	3.7	3.3	3.3	4.6	4.8	28	30	100	100	100	110
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.15	0.1	0.14	0.083	0.13	0.074	0.16	0.11	0.089	ND	0.073	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.2	17
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	18
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds																	
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others																	
Total Organic Carbon	mg/l			16	9	8	3.7	4.2	2.9	7	5.1	0.7	0.42	1.4	1	2.5	0.7
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	South Gate #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				4/3/2018	8/7/2018	4/3/2018	8/7/2018	4/3/2018	8/7/2018	4/3/2018	8/7/2018	4/3/2018	8/7/2018
General Minerals													
Alkalinity	mg/l			160	160	140	140	150	150	160	160	200	200
Anion Sum	meq/l			4.9	5	6.2	6.3	6.4	6.5	6.7	6.9	8.6	8.9
Bicarbonate as HCO3	mg/l			200	200	170	170	180	180	190	190	250	250
Boron	mg/l	1	N	0.11	0.11	0.14	0.14	0.12	0.12	0.16	0.16	0.13	0.14
Bromide	ug/l			100	100	120	120	110	110	140	140	370	380
Calcium, Total	mg/l			48	49	66	67	71	75	69	73	90	94
Carbon Dioxide	mg/l			3.7	3.1	5.8	6.8	7.1	6.9	10	8.6	14	12
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			5	5.1	6.3	6.5	6.5	6.8	6.7	7.1	8.6	9
Chloride	mg/l	500	S	20	21	49	51	44	45	51	53	83	90
Fluoride	mg/l	2	P	0.32	0.31	0.33	0.31	0.39	0.39	0.4	0.39	0.44	0.44
Hardness (Total, as CaCO3)	mg/l			150	150	210	220	230	250	220	240	320	330
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			14	26	3.6	8.3	ND	ND	ND	ND	26	96
Iron, Total	mg/l	0.3	S	0.029	0.033	ND	ND	ND	ND	ND	ND	0.1	0.11
Langelier Index - 25 degree	None			0.49	0.58	0.28	0.22	0.3	0.32	0.15	0.26	0.38	0.46
Magnesium, Total	None			7.4	7.6	12	12	14	15	13	14	23	24
Manganese, Total	ug/l	50	S	39	41	3.4	4	ND	ND	ND	ND	**120**	**110**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	9.3	9.5	9.2	9.5	6.8	6.8	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	2.1	2.1	2.1	2.1	1.5	1.5	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.3	2.3	3.1	3.2	2.7	2.8	3	3.1	2.8	2.9
Sodium, Total	mg/l			44	45	45	47	39	41	47	50	50	52
Sulfate	mg/l	500	S	50	52	89	92	94	97	95	100	100	110
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	300	320	410	410	420	430	430	460	530	580
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	2.1	2.1	2.1	2.1	1.5	1.5	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.2	8.2	8.1	8	8.1	8	8	7.9	8.1	7.8
Odor	TON	3	S	2	1	1	ND	2	ND	1	ND	1	ND
Specific Conductance	umho/cm	1600	S	490	490	650	650	660	650	700	690	870	870
Turbidity	NTU	5	S	0.13	0.13	0.11	0.12	0.1	0.1	0.11	0.1	0.36	0.4
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	2.1	2.8	2.8	3.2	2.8	3.8	2	2.4	2.3	4
Barium, Total	ug/l	1000	P	120	120	86	85	140	140	64	66	210	210
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	1	1.3	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.035	0.037		0.86	0.88	0.6	0.59	ND	0.028
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	4	3.6	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	1.2	1.1	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			ND	0.33	0.32	0.32	ND	0.26	ND	0.29	0.86	0.84
Perchlorate	ug/l	6	P	ND	ND	0.79	0.82	1.9	2	0.8	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	**2.1**	**1.8**	**3.6**	**3.3**	**1.3**	**1.2**	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	South Gate #2											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				6/15/2018	9/14/2018	6/15/2018	9/14/2018	6/15/2018	9/14/2018	6/15/2018	9/14/2018	6/15/2018	9/14/2018	6/15/2018	9/14/2018
General Minerals															
Alkalinity	mg/l			170	170	180	180	170	170	170	170	170	170	190	190
Anion Sum	meq/l			5.6	5.5	5.7	5.6	5.5	5.4	6.1	6	5.6	5.6	6.2	6.1
Bicarbonate as HCO3	mg/l			210	210	220	220	200	210	210	210	200	210	240	240
Boron	mg/l	1	N	0.13	0.13	0.13	0.13	0.11	0.12	0.14	0.14	0.13	0.14	0.14	0.15
Bromide	ug/l			100	96	95	94	96	93	130	120	100	94	110	110
Calcium, Total	mg/l			58	61	60	62	57	58	63	64	58	58	64	65
Carbon Dioxide	mg/l			ND	ND	4	5.1	3.4	4.1	3.2	ND	2.3	5.1	4.1	2.3
Carbonate as CO3	mg/l			2.4	4.5	ND	ND	ND	ND	ND	3	ND	ND	ND	2.7
Cation Sum	meq/l			5.8	6	5.9	6.1	5.7	5.8	6.3	6.4	5.8	5.9	6.3	6.5
Chloride	mg/l	500	S	21	20	21	19	21	19	29	27	21	20	23	22
Fluoride	mg/l	2	P	0.39	0.41	0.37	0.39	0.31	0.3	0.42	0.45	0.41	0.43	0.46	0.49
Hardness (Total, as CaCO3)	mg/l			200	200	200	210	180	190	220	220	190	190	220	220
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			23	19	23	19	28	22	2.8	3	22	18	14	11
Iron, Total	mg/l	0.3	S	0.052	0.057	0.13	0.14	0.036	0.036	ND	ND	ND	ND	ND	0.02
Langelier Index - 25 degree	None			0.89	1.2	0.62	0.53	0.61	0.56	0.7	1	0.78	0.47	0.71	0.98
Magnesium, Total	None			13	13	13	13	10	10	15	16	12	12	15	15
Manganese, Total	ug/l	50	S	**59**	**59**	40	38	**78**	**81**	13	12	32	30	**75**	**72**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	1.6	1.6	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.37	0.35	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			3.2	3.3	3.4	3.4	2.4	2.4	3.2	3.4	3	3.1	2.6	2.7
Sodium, Total	mg/l			40	40	41	42	44	46	41	43	42	43	42	44
Sulfate	mg/l	500	S	78	75	76	73	74	71	87	83	78	75	78	75
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	350	350	350	360	340	350	370	380	350	340	380	390
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.37	0.35	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.2	8.3	8.2	8.3	8.2	8.3	8.1	8.2	8.2	8.3	8.1	8.2
Odor	TON	3	S	1	2	1	2	2	2	1	2	ND	ND	ND	ND
Specific Conductance	umho/cm	1600	S	540	540	550	550	540	540	590	590	550	550	590	590
Turbidity	NTU	5	S	0.13	0.1	0.3	0.32	0.16	0.1	0.15	ND	0.14	ND	0.13	ND
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	2.2	2.1	3.1	3	1.3	1.3	1.1	1.1	1	ND
Barium, Total	ug/l	1000	P	61	60	72	72	74	73	70	72	100	100	96	96
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	1.6	1.8	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.037	ND	0.037	ND	0.039	ND	1.9	1.8	0.034	ND	0.043	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			0.3	0.33	1.2	ND	ND	0.36	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Whittier #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				4/16/2018	9/5/2018	4/16/2018	9/5/2018	4/16/2018	9/5/2018	4/16/2018	9/5/2018	4/16/2018	9/5/2018
General Minerals													
Alkalinity	mg/l			260	260	280	280	290	290	250	260	230	200
Anion Sum	meq/l			41	40	39	39	32	32	11	11	11	10
Bicarbonate as HCO3	mg/l			320	320	350	350	350	350	310	310	280	240
Boron	mg/l	1	N	0.91	0.88	1	0.96	0.71	0.7	0.2	0.19	0.16	0.16
Bromide	ug/l			1300	1300	1200	1200	960	950	310	290	320	300
Calcium, Total	mg/l			200	200	200	190	200	190	83	80	83	84
Carbon Dioxide	mg/l			34	31	37	30	27	38	26	31	22	24
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			40	40	38	38	32	32	12	12	11	12
Chloride	mg/l	500	S	280	260	240	240	210	200	79	77	84	81
Fluoride	mg/l	2	P	0.28	0.29	0.3	0.32	0.44	0.46	0.21	0.21	0.31	0.34
Hardness (Total, as CaCO3)	mg/l			1100	1000	1000	1000	950	890	350	340	370	370
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			44	180	38	160	31	140	66	130	ND	3.4
Iron, Total	mg/l	0.3	S	**0.58**	**0.57**	**0.46**	**0.45**	**0.38**	**0.37**	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.56	0.6	0.58	0.65	0.72	0.56	0.25	1.1	0.23	0.088
Magnesium, Total	None			140	130	130	130	110	100	35	35	39	40
Manganese, Total	ug/l	50	S	**53**	**52**	**72**	**70**	**75**	**78**	23	23	2.8	2.6
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	18	17	23	23
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	4	3.9	5.2	5.1
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			13	14	12	12	8.8	8.6	4.1	4	3.4	3.4
Sodium, Total	mg/l			420	430	400	420	290	300	110	110	86	90
Sulfate	mg/l	500	S	**1300**	**1300**	**1300**	**1300**	**970**	**960**	180	180	180	170
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**2800**	**2700**	**2600**	**2600**	**2100**	**2100**	720	690	700	680
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	4	3.9	5.2	5.1
General Physical Properties													
Apparent Color	ACU	15	S	**25**	**25**	**20**	10	15	10	ND	ND	ND	ND
Lab pH	Units			7.9	8	7.9	8	7.9	8.1	7.8	8.2	7.7	8.1
Odor	TON	3	S	2	2	2	1	2	2	2	ND	ND	ND
Specific Conductance	umho/cm	1600	S	**3500**	**3500**	**3300**	**3300**	**2800**	**2800**	1100	1100	1100	950
Turbidity	NTU	5	S	4.5	3.9	2.2	3	1.9	2.4	0.11	ND	0.11	ND
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.3	ND	3.1	ND	2.4	ND	2.4	1.7	2	1.1
Barium, Total	ug/l	1000	P	18	17	17	17	23	24	33	33	27	27
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	3.6	3.8
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	ND	ND	ND	ND	0.039	ND	3.4	3.3
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	10	9.6	9.6	8.9	9	9.3	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	10	8.4	9.5	7.4	6.9	6.1	15	17	20	22
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			1.8	4.4	2.3	4.8	1.7	4.5	ND	ND	ND	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	1.4	1.4	2.7	2.5
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Whittier #2					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018
General Minerals									
Alkalinity	mg/l			220	160	200	390	220	350
Anion Sum	meq/l			13	4.2	12	28	12	16
Bicarbonate as HCO3	mg/l			260	190	250	470	270	420
Boron	mg/l	1	N	0.71	0.22	0.24	0.82	0.2	0.34
Bromide	ug/l			1400	140	590	970	360	330
Calcium, Total	mg/l			47	24	86	120	120	150
Carbon Dioxide	mg/l			16	10	32	48	14	38
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			13	4.1	13	26	11	17
Chloride	mg/l	500	S	230	23	120	230	120	100
Fluoride	mg/l	2	P	0.42	0.32	0.31	0.48	0.26	0.29
Hardness (Total, as CaCO3)	mg/l			200	76	360	630	390	530
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			ND	36	2.7	34	ND	ND
Iron, Total	mg/l	0.3	S	0.13	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.059	-0.31	-0.009	0.53	0.56	0.62
Magnesium, Total	None			20	4	35	80	23	37
Manganese, Total	ug/l	50	S	**52**	38	29	**140**	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	3.4	11	22	30
Nitrate as Nitrogen	mg/l	10	P	ND	ND	0.76	2.5	4.9	6.9
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			4	2.2	4.2	4.6	4.8	5
Sodium, Total	mg/l			200	57	120	300	77	140
Sulfate	mg/l	500	S	99	16	230	**630**	170	290
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	780	270	750	**1700**	740	1000
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	0.76	2.5	4.9	6.9
General Physical Properties									
Apparent Color	ACU	15	S	5	ND	ND	ND	ND	ND
Lab pH	Units			7.8	8.2	7.9	7.6	7.8	7.6
Odor	TON	3	S	2	ND	2	ND	2	ND
Specific Conductance	umho/cm	1600	S	1400	420	1200	**2500**	1100	1500
Turbidity	NTU	5	S	0.44	0.12	0.12	0.11	0.16	0.2
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.6	ND	1.2	ND	1.2	1.5
Barium, Total	ug/l	1000	P	14	25	47	14	72	28
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	3.1	ND	2.3	4.2
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.032	0.059	3	0.063	2.2	4.1
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	9.4	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	0.86
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	0.76	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			0.96	0.42	0.42	0.52	0.47	0.54
Perchlorate	ug/l	6	P	ND	ND	1.9	1.9	2.3	2.5
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	**3.2**	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Whittier Narrows #1								
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9
				3/14/2018	3/14/2018	3/14/2018	3/14/2018	3/14/2018	3/14/2018	3/14/2018	3/14/2018	3/14/2018
General Minerals												
Alkalinity	mg/l			90	110	130	150	150	140	170	160	170
Anion Sum	meq/l			22	3	7.2	8.5	8.2	8.7	9.7	8.5	8.8
Bicarbonate as HCO3	mg/l			110	130	160	190	180	170	210	200	210
Boron	mg/l	1	N	**1.6**	0.15	0.084	0.19	0.16	0.25	0.25	0.28	0.23
Bromide	ug/l			7100	180	180	190	170	180	180	200	190
Calcium, Total	mg/l			64	10	97	100	100	77	88	66	64
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			20	3.1	7.2	8.6	8.2	9	9.8	8.6	8.9
Chloride	mg/l	500	S	**710**	24	82	100	100	120	120	110	110
Fluoride	mg/l	2	P	0.79	0.38	0.22	0.22	0.24	0.24	0.23	0.26	0.38
Hardness (Total, as CaCO3)	mg/l			210	26	280	300	310	250	280	210	230
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			1500	38	ND	11	7.6	14	8.4	13	14
Iron, Total	mg/l	0.3	S	**12**	0.045	**0.65**	ND	ND	ND	0.02	ND	ND
Langelier Index - 25 degree	None			-0.44	-0.16	0.83	0.78	0.8	0.86	0.86	0.68	0.62
Magnesium, Total	None			13	0.35	9.3	12	14	14	15	11	17
Manganese, Total	ug/l	50	S	**770**	13	2.4	7	5.4	9.6	35	17	**89**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	6.3	8.7	10	4.2	19	12	9.5
Nitrate as Nitrogen	mg/l	10	P	ND	ND	1.4	2	2.2	0.96	4.4	2.7	2.1
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	0.88	ND	0.26	ND
Potassium, Total	mg/l			4.1	1.5	2.8	4.8	4.8	6	6	5.5	7.6
Sodium, Total	mg/l			350	58	34	56	46	89	93	97	96
Sulfate	mg/l	500	S	0.99	11	100	110	110	120	120	94	100
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**1400**	180	460	520	510	540	600	530	530
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	1.4	2	2.2	1.8	4.4	3	2.1
General Physical Properties												
Apparent Color	ACU	15	S	**150**	3	5	ND	ND	ND	ND	ND	10
Lab pH	Units			7.2	8.2	8.1	8	8	8.2	8	8	7.9
Odor	TON	3	S	**4**	**4**	ND	ND	ND	2	2	2	2
Specific Conductance	umho/cm	1600	S	**2400**	320	760	880	850	920	1000	900	920
Turbidity	NTU	5	S	**160**	0.79	1.2	0.45	0.6	0.43	0.48	0.94	0.87
Metals												
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	8.2	2.1	2.7	1.5	1.3	1.6	1.7	1.5	ND
Barium, Total	ug/l	1000	P	480	22	150	150	220	100	94	64	59
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	2.2	ND	2.5	ND	2.4	3.3	5.2
Chromium, Total	ug/l	50	P	1.8	ND	**88**	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	0.86	0.046	0.14	ND	0.02	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	14	6.4	5.6	12	5.6	5.6	17
Selenium, Total	ug/l	50	P	23	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	27	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds												
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	2.6	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others												
Total Organic Carbon	mg/l			9.8	0.72	0.58	0.83	0.73	1.3	1.3	1.4	1.6
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.1
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Willowbrook #1							
				Zone 1		Zone 2		Zone 3		Zone 4	
				4/18/2018	9/6/2018	4/18/2018	9/6/2018	4/18/2018	9/6/2018	4/18/2018	9/6/2018
General Minerals											
Alkalinity	mg/l			220	230	180	180	180	180	180	190
Anion Sum	meq/l			5.3	5.3	5	5	5.7	5.6	5.8	5.9
Bicarbonate as HCO3	mg/l			270	280	220	220	210	220	230	230
Boron	mg/l	1	N	0.16	0.16	0.12	0.12	0.12	0.13	0.12	0.12
Bromide	ug/l			100	100	95	95	100	100	120	120
Calcium, Total	mg/l			41	40	51	52	58	60	60	61
Carbon Dioxide	mg/l			5.3	5.5	2.7	4.4	5.7	7.5	5.2	5.3
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			5.4	5.4	5.2	5.2	5.6	5.9	5.8	6
Chloride	mg/l	500	S	18	16	20	20	21	20	29	30
Fluoride	mg/l	2	P	0.3	0.31	0.28	0.3	0.38	0.41	0.35	0.37
Hardness (Total, as CaCO3)	mg/l			140	130	160	170	190	200	190	190
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			15	31	20	31	16	37	27	45
Iron, Total	mg/l	0.3	S	0.065	0.066	ND	ND	0.08	0.086	ND	ND
Langelier Index - 25 degree	None			0.53	0.52	0.73	0.53	0.43	0.35	0.54	0.55
Magnesium, Total	None			8.1	7.7	9.2	9.3	12	12	10	10
Manganese, Total	ug/l	50	S	50	**52**	43	45	28	27	**86**	**93**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			4	4	2.4	2.6	3.3	3.5	2.8	3
Sodium, Total	mg/l			59	62	41	41	39	41	44	46
Sulfate	mg/l	500	S	14	12	38	36	76	74	62	60
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	310	330	300	300	340	350	350	370
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties											
Apparent Color	ACU	15	S	**20**	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.3	8.3	8.3	8.4	8.1	8.3	8.1	8.4
Odor	TON	3	S	2	2	2	ND	2	ND	2	ND
Specific Conductance	umho/cn	1600	S	520	520	490	490	560	560	580	580
Turbidity	NTU	5	S	1.5	0.12	0.14	ND	0.28	0.25	**8.2**	1.7
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	5.2	5.3	ND	ND	3.3	3.3	5.8	5.6
Barium, Total	ug/l	1000	P	45	45	48	51	73	78	140	140
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.055	0.026	0.036	ND	0.028	ND	0.033	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			1.3	1.5	0.31	ND	ND	0.33	ND	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not Detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Carson #1							
				Zone 1		Zone 2		Zone 3		Zone 4	
				3/7/2018	8/21/2018	3/7/2018	8/21/2018	3/7/2018	8/21/2018	3/7/2018	8/21/2018
General Minerals											
Alkalinity	mg/l			140	140	160	170	160	160	180	180
Anion Sum	meq/l			3.4	3.4	3.9	4	5.2	5.2	6.4	6.5
Bicarbonate as HCO3	mg/l			170	170	200	200	200	200	220	220
Boron	mg/l	1	N	0.094	0.094	0.1	0.1	0.1	0.1	0.12	0.12
Bromide	ug/l			100	100	100	100	110	110	240	250
Calcium, Total	mg/l			20	22	32	33	44	45	54	56
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND	ND	5
Carbonate as CO3	mg/l			2.8	2.6	3.3	2.8	2.6	2.3	ND	ND
Cation Sum	meq/l			3.5	3.6	4	4	5.2	5.3	6.5	6.6
Chloride	mg/l	500	S	19	20	20	21	22	23	44	48
Fluoride	mg/l	2	P	0.24	0.27	0.21	0.23	0.3	0.32	0.42	0.41
Hardness (Total, as CaCO3)	mg/l			66	71	110	110	160	160	200	200
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			28	24	27	24	27	21	60	69
Iron, Total	mg/l	0.3	S	ND	ND	0.023	0.024	ND	ND	0.082	0.082
Langelier Index - 25 degree	None			0.48	0.52	0.77	0.72	0.78	0.76	0.73	0.51
Magnesium, Total	None			3.8	4	6.4	6.5	12	12	15	15
Manganese, Total	ug/l	50	S	18	17	13	13	29	26	**96**	**93**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.5	2.5	2.1	2	2.7	2.6	3.4	3.3
Sodium, Total	mg/l			48	49	41	41	45	44	58	56
Sulfate	mg/l	500	S	ND	ND	ND	ND	59	59	69	69
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	220	220	240	240	320	320	390	400
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties											
Apparent Color	ACU	15	S	5	10	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.4	8.4	8.4	8.4	8.3	8.3	8.1	8.1
Odor	TON	3	S	2	2	2	1	2	ND	2	ND
Specific Conductance	umho/cn	1600	S	350	340	390	390	520	510	650	650
Turbidity	NTU	5	S	0.18	0.12	0.11	0.15	0.14	ND	0.37	0.4
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	15	14	37	34	66	61	160	140
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.037	0.071	0.034	0.061	0.038	0.075	0.026	0.064
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			0.88	0.83	0.51	0.48	0.37	0.33	0.48	0.46
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Carson #2				
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
				3/19/2018	3/19/2018	3/19/2018	3/19/2018	3/19/2018
General Minerals								
Alkalinity	mg/l			160	190	180	180	170
Anion Sum	meq/l			3.8	4.4	4.8	4.3	4.5
Bicarbonate as HCO3	mg/l			200	230	210	220	210
Boron	mg/l	1	N	0.13	0.13	0.12	0.11	0.11
Bromide	ug/l			120	100	100	110	98
Calcium, Total	mg/l			2.7	11	32	34	41
Carbon Dioxide	mg/l			ND	ND	2.1	3.1	3.3
Carbonate as CO3	mg/l			8.2	4.5	2.3	ND	ND
Cation Sum	meq/l			3.6	4.3	4.6	4.2	4.5
Chloride	mg/l	500	S	18	20	22	21	20
Fluoride	mg/l	2	P	0.34	0.25	0.29	0.22	0.3
Hardness (Total, as CaCO3)	mg/l			8.5	43	120	130	140
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND
Iodide	mg/l			34	28	38	31	31
Iron, Total	mg/l	0.3	S	ND	ND	ND	ND	0.058
Langelier Index - 25 degree	None			0.08	0.44	0.6	0.5	0.52
Magnesium, Total	None			0.42	3.7	10	10	8.9
Manganese, Total	ug/l	50	S	2.8	6.2	13	7.8	45
Mercury	ug/l	2	P	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND
Potassium, Total	mg/l			1.6	3.9	4.2	3.5	2.9
Sodium, Total	mg/l			78	77	49	36	38
Sulfate	mg/l	500	S	ND	0.63	31	ND	23
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	240	270	290	240	280
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND
General Physical Properties								
Apparent Color	ACU	15	S	**45**	15	5	3	ND
Lab pH	Units			8.8	8.6	8.4	8.3	8.2
Odor	TON	3	S	2	2	3	2	2
Specific Conductance	umho/cm	1600	S	380	440	480	420	450
Turbidity	NTU	5	S	0.15	0.12	0.12	0.11	0.18
Metals								
Aluminum, Total	ug/l	1000	P	21	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	ND	6.2	15	17	24
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	1.1	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.038	0.034	0.022	0.021	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND
Volatile Organic Compounds								
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND
Others								
Total Organic Carbon	mg/l			1.6	0.88	0.54	0.46	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Carson #3											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				4/25/2018	8/27/2018	4/25/2018	8/27/2018	4/25/2018	8/27/2018	4/25/2018	8/27/2018	4/25/2018	8/27/2018	4/25/2018	8/27/2018
General Minerals															
Alkalinity	mg/l			350	350	150	150	160	160	160	160	170	170	170	170
Anion Sum	meq/l			7.4	7.3	3.8	3.8	3.8	3.8	3.8	3.8	4.1	4.1	5.1	5.1
Bicarbonate as HCO3	mg/l			430	420	180	180	200	200	200	200	210	210	210	210
Boron	mg/l	1	N	0.68	0.69	0.1	0.1	0.1	0.1	0.09	0.088	0.11	0.1	0.12	0.12
Bromide	ug/l			340	330	100	100	110	100	99	100	100	98	96	98
Calcium, Total	mg/l			8.2	8.6	20	20	17	17	25	24	32	31	48	48
Carbon Dioxide	mg/l			10	5	ND	ND	ND	ND	6.2	2.7	ND	2.6	11	4.2
Carbonate as CO3	mg/l			ND	3.8	4.2	2.3	4.3	2.4	ND	ND	3.5	ND	ND	ND
Cation Sum	meq/l			7.7	7.7	3.7	3.7	3.8	3.7	3.9	3.8	4.1	4.1	5.2	5.2
Chloride	mg/l	500	S	11	12	20	20	20	20	20	20	21	20	21	21
Fluoride	mg/l	2	P	0.55	0.54	0.24	0.24	0.3	0.3	0.25	0.25	0.26	0.26	0.36	0.36
Hardness (Total, as CaCO3)	mg/l			30	31	65	65	55	54	88	85	110	110	170	170
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			61	120	30	25	33	29	29	26	29	28	11	23
Iron, Total	mg/l	0.3	S	0.048	0.051	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0.029
Langelier Index - 25 degree	None			-0.073	0.63	0.66	0.41	0.6	0.33	-0.031	0.32	0.79	0.71	0.043	0.46
Magnesium, Total	None			2.2	2.3	3.6	3.6	3	2.9	6.3	6.2	8	7.8	12	12
Manganese, Total	ug/l	50	S	15	15	16	14	35	32	45	41	24	21	48	46
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			2.8	2.3	3	2.9	3.2	3.1	3.7	3.6	2.9	2.8	3.4	3.3
Sodium, Total	mg/l			160	160	54	54	60	59	46	44	42	41	40	40
Sulfate	mg/l	500	S	ND	ND	11	11	ND	ND	ND	ND	ND	ND	52	51
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	480	470	240	240	220	240	240	240	240	250	320	320
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	**150**	**100**	15	5	**20**	**20**	3	ND	ND	ND	ND	ND
Lab pH	Units			8.6	8.5	8.4	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.2	8.2
Odor	TON	3	S	2	2	2	2	2	2	2	1	2	2	2	2
Specific Conductance	umho/cm	1600	S	700	690	380	380	380	380	380	380	400	400	510	500
Turbidity	NTU	5	S	0.28	0.28	0.15	ND	0.16	ND	0.12	ND	0.12	ND	0.68	0.33
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.2	1.8	ND	ND	ND	ND	ND	ND	ND	ND	1.2	1.6
Barium, Total	ug/l	1000	P	7.2	7.1	17	15	19	18	24	21	30	28	70	62
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.12	0.088	0.064	0.025	0.058	0.026	0.032	ND	0.033	ND	0.026	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			13	14	0.91	0.85	1.1	1.1	0.66	0.69	0.44	0.45	ND	0.48
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Chandler #3			
				Zone 1		Zone 2	
				4/5/2018	8/23/2018	4/5/2018	8/23/2018
General Minerals							
Alkalinity	mg/l			360	350	360	430
Anion Sum	meq/l			12	12	14	16
Bicarbonate as HCO3	mg/l			440	430	430	530
Boron	mg/l	1	N	0.19	0.2	0.27	0.29
Bromide	ug/l			660	680	650	400
Calcium, Total	mg/l			98	95	130	160
Carbon Dioxide	mg/l			23	33	46	69
Carbonate as CO3	mg/l			ND	ND	ND	ND
Cation Sum	meq/l			13	13	14	17
Chloride	mg/l	500	S	150	140	180	140
Fluoride	mg/l	2	P	0.22	0.24	0.17	0.18
Hardness (Total, as CaCO3)	mg/l			360	340	480	590
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND
Iodide	mg/l			42	ND	1.3	2.3
Iron, Total	mg/l	0.3	S	0.24	0.21	ND	ND
Langelier Index - 25 degree	None			0.68	0.5	0.5	0.59
Magnesium, Total	None			28	26	38	46
Manganese, Total	ug/l	50	S	**83**	**76**	16	12
Mercury	ug/l	2	P	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	27	26
Nitrate as Nitrogen	mg/l	10	P	ND	ND	6.1	5.9
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND
Potassium, Total	mg/l			4.3	4.2	4.1	4.3
Sodium, Total	mg/l			130	130	97	120
Sulfate	mg/l	500	S	37	32	43	150
Surfactants	mg/l	0.5	S	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	710	690	790	970
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	6.1	5.9
General Physical Properties							
Apparent Color	ACU	15	S	5	ND	ND	ND
Lab pH	Units			8.1	7.9	7.9	7.6
Odor	TON	3	S	2	1	2	ND
Specific Conductance	umho/cm	1600	S	1200	1200	1400	1500
Turbidity	NTU	5	S	1.1	1.1	1.8	0.39
Metals							
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.9	2.7	2.5	2.6
Barium, Total	ug/l	1000	P	27	27	100	140
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	1.6	4.7
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	0.35	4.3
Lead, Total	ug/l	15	P	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	**110**	91
Selenium, Total	ug/l	50	P	ND	ND	25	10
Silver, Total	ug/l	100	S	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND
Volatile Organic Compounds							
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND
Others							
Total Organic Carbon	mg/l			1.1	1.2	0.63	0.72
Perchlorate	ug/l	6	P	ND	ND	1.4	1.6
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND	
HMX	ug/l	350	N	ND		ND	
RDX	ug/l	0.3	N	ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Gardena #1							
				Zone 1		Zone 2		Zone 3		Zone 4	
				6/7/2018	9/17/2018	6/7/2018	9/17/2018	6/7/2018	9/17/2018	6/7/2018	9/17/2018
General Minerals											
Alkalinity	mg/l			270	270	190	190	160	170	220	220
Anion Sum	meq/l			5.9	5.9	4.7	5.2	5.3	5.4	38	40
Bicarbonate as HCO3	mg/l			330	330	230	230	200	200	260	260
Boron	mg/l	1	N	0.33	0.36	0.12	0.13	0.12	0.12	0.15	0.15
Bromide	ug/l			130	130	100	100	100	100	2900	2800
Calcium, Total	mg/l			14	15	42	48	53	57	440	440
Carbon Dioxide	mg/l			3.9	5.4	3.3	8.2	2.7	4.8	37	93
Carbonate as CO3	mg/l			3	2.1	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			5.5	5.8	4.8	5.5	5.4	5.7	40	40
Chloride	mg/l	500	S	18	18	24	32	22	22	**1100**	**1200**
Fluoride	mg/l	2	P	0.2	0.21	0.46	0.48	0.38	0.39	0.14	0.15
Hardness (Total, as CaCO3)	mg/l			63	68	140	160	180	190	1600	1700
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			41	35	31	24	40	29	ND	ND
Iron, Total	mg/l	0.3	S	0.16	0.17	ND	ND	0.042	0.042	ND	ND
Langelier Index - 25 degree	None			0.35	0.24	0.6	0.26	0.66	0.45	0.68	0.28
Magnesium, Total	None			6.8	7.3	9.6	10	11	11	130	140
Manganese, Total	ug/l	50	S	45	35	30	32	49	38	ND	ND
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	**92**	**95**
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	**21**	**22**
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			11	11	3.4	3.7	3	3.1	8.7	8.5
Sodium, Total	mg/l			92	96	42	48	41	43	160	150
Sulfate	mg/l	500	S	ND	ND	11	21	66	66	57	58
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	340	370	290	330	340	350	**2500**	**2900**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	**21**	**22**
General Physical Properties											
Apparent Color	ACU	15	S	**45**	**40**	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.4	8.4	8.3	8.3	8.1	8.2	7.7	7.6
Odor	TON	3	S	2	2	**67**	2	1	ND	ND	ND
Specific Conductance	umho/cn	1600	S	570	570	470	510	530	530	**4000**	**4000**
Turbidity	NTU	5	S	3.1	0.63	1.5	0.71	**9.7**	0.46	**6.4**	1.3
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	**22**	**20**	ND	ND	ND	ND	5.7	8.5
Barium, Total	ug/l	1000	P	16	15	39	42	37	30	510	500
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	2.5	3
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	8.5	8
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.059	0.022	0.075	0.02	0.066	ND	7.3	7.1
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	14	21
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	16	23
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			2.4	2.5	0.46	0.56	ND	0.34	1.2	0.31
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	**10**	**10**
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Gardena #2									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				3/14/2018	8/23/2018	3/14/2018	8/23/2018	3/14/2018	8/23/2018	3/14/2018	8/23/2018	3/14/2018	8/23/2018
General Minerals													
Alkalinity	mg/l			280	280	170	180	170	180	170	170	190	190
Anion Sum	meq/l			5.9	6	5.3	5.3	5.1	5.2	3.9	4	5.2	5.2
Bicarbonate as HCO3	mg/l			340	340	210	210	210	210	200	200	230	230
Boron	mg/l	1	N	0.31	0.3	0.16	0.15	0.13	0.13	0.097	0.096	0.12	0.12
Bromide	ug/l			120	120	100	98	100	100	100	100	160	160
Calcium, Total	mg/l			16	16	40	40	50	49	30	30	51	51
Carbon Dioxide	mg/l			ND	4.2	ND	4	ND	4.6	ND	3.6	ND	3.4
Carbonate as CO3	mg/l			5.6	2.9	2.2	ND	ND	ND	ND	ND	2.4	ND
Cation Sum	meq/l			6.6	6.5	5.5	5.5	5.5	5.4	4.1	4.1	5.4	5.5
Chloride	mg/l	500	S	12	12	22	20	22	20	20	21	45	44
Fluoride	mg/l	2	P	0.24	0.26	0.26	0.28	0.37	0.39	0.28	0.28	0.29	0.31
Hardness (Total, as CaCO3)	mg/l			65	64	150	150	170	170	110	110	170	170
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			32	32	29	18	29	18	26	27	27	27
Iron, Total	mg/l	0.3	S	0.029	0.029	0.036	0.07	0.045	0.042	0.07	0.07	0.026	ND
Langelier Index - 25 degree	None			0.67	0.4	0.66	0.42	0.7	0.44	0.41	0.31	0.88	0.67
Magnesium, Total	None			6.1	5.9	13	13	12	12	8.6	8.7	11	11
Manganese, Total	ug/l	50	S	24	24	26	26	41	37	47	47	48	45
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			5.8	5.6	6.2	6	4	3.8	3.2	3.1	3.2	3.1
Sodium, Total	mg/l			120	120	53	52	44	44	41	42	44	45
Sulfate	mg/l	500	S	ND	ND	57	59	51	51	ND	ND	1.9	7.4
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	350	350	320	340	310	330	240	230	300	310
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	**40**	**30**	5	ND	5	ND	5	ND	ND	ND
Lab pH	Units			8.4	8.4	8.2	8.2	8.1	8.2	8.1	8.2	8.2	8.3
Odor	TON	3	S	2	2	2	1	2	1	2	2	2	2
Specific Conductance	umho/cm	1600	S	580	580	540	530	520	510	400	390	530	520
Turbidity	NTU	5	S	0.89	0.22	0.13	ND	0.16	ND	0.15	0.1	**14**	3.8
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	19	20	18	18	23	21	36	35	90	89
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.081	ND	0.073	ND	0.072	ND	0.057	ND	0.021
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			3.6	3.4	0.57	0.47	0.31	0.41	0.5	0.57	ND	ND
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Hawthorne #1					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018
General Minerals									
Alkalinity	mg/l			680	640	410	310	180	260
Anion Sum	meq/l			15	14	9.7	7.4	12	18
Bicarbonate as HCO3	mg/l			820	780	500	380	220	320
Boron	mg/l	1	N	**1.4**	**1.1**	0.52	0.37	0.12	0.2
Bromide	ug/l			280	330	320	230	840	890
Calcium, Total	mg/l			15	16	36	34	120	160
Carbon Dioxide	mg/l			22	11	10	7.8	5.7	26
Carbonate as CO3	mg/l			3.3	5.7	2.5	2	ND	ND
Cation Sum	meq/l			15	14	10	8.4	13	19
Chloride	mg/l	500	S	44	41	56	42	290	310
Fluoride	mg/l	2	P	0.11	0.23	0.2	0.38	0.29	0.26
Hardness (Total, as CaCO3)	mg/l			91	81	180	150	460	590
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			71	100	60	50	47	82
Iron, Total	mg/l	0.3	S	0.17	0.14	0.15	0.067	ND	0.14
Langelier Index - 25 degree	None			0.44	0.71	0.7	0.57	0.78	0.56
Magnesium, Total	None			13	10	23	15	38	46
Manganese, Total	ug/l	50	S	13	**56**	**53**	29	**100**	**420**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			23	16	14	9.6	7.9	5.4
Sodium, Total	mg/l			280	280	140	120	79	160
Sulfate	mg/l	500	S	ND	1.4	ND	ND	25	210
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	0.13
Total Dissolved Solid (TDS)	mg/l	1000	S	890	870	570	440	870	**1100**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND
General Physical Properties									
Apparent Color	ACU	15	S	**220**	**300**	**45**	**30**	ND	10
Lab pH	Units			8.3	8.3	8.3	8.2	8.1	7.8
Odor	TON	3	S	2	**8**	1	2	2	2
Specific Conductance	umho/cm	1600	S	1400	1300	940	720	1300	**1800**
Turbidity	NTU	5	S	0.26	0.74	0.15	0.14	0.13	**16**
Metals									
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.4	1.9	ND	ND	ND	2.7
Barium, Total	ug/l	1000	P	31	30	31	26	110	42
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	1.6	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.051	0.067	0.03	0.032	0.033	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	0.5
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	**12**
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	0.62
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	**31**
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			13	14	4	2.6	0.9	1.6
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Inglewood #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				4/10/2018	8/21/2018	4/10/2018	8/21/2018	4/10/2018	8/21/2018	4/10/2018	8/21/2018	4/10/2018	8/21/2018
General Minerals													
Alkalinity	mg/l			1400	1200	650	660	330	330	230	230	320	310
Anion Sum	meq/l			74	64	26	26	23	22	15	15	23	23
Bicarbonate as HCO3	mg/l			1700	1500	790	800	410	400	280	280	380	380
Boron	mg/l	1	N	**10**	**7.6**	**1.5**	**1.4**	0.49	0.48	0.2	0.19	0.25	0.24
Bromide	ug/l			16000	14000	2800	2600	4100	4300	1200	1300	1900	2000
Calcium, Total	mg/l			60	68	82	71	170	170	120	120	220	210
Carbon Dioxide	mg/l			58	59	56	60	42	34	12	22	58	56
Carbonate as CO3	mg/l			5.3	4.1	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			68	54	27	24	23	22	15	14	24	24
Chloride	mg/l	500	S	**1700**	**1400**	440	420	460	440	290	280	440	440
Fluoride	mg/l	2	P	0.32	0.35	0.28	0.3	0.44	0.47	0.38	0.27	0.22	0.24
Hardness (Total, as CaCO3)	mg/l			300	320	340	300	690	680	500	500	860	820
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			ND	4100	650	490	ND	880	28	86	ND	2.3
Iron, Total	mg/l	0.3	S	**1.8**	**0.6**	**1**	**0.8**	**0.57**	**0.56**	**0.41**	**0.4**	ND	ND
Langelier Index - 25 degree	None			1.2	1.2	0.73	0.65	0.59	0.67	0.66	0.4	0.51	0.51
Magnesium, Total	None			36	36	34	30	65	63	50	49	75	72
Manganese, Total	ug/l	50	S	**70**	**63**	**64**	**58**	**390**	**390**	**220**	**220**	7.8	7.8
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	37	34
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	8.4	7.7
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			37	29	17	18	9.4	9	11	10	10	9.4
Sodium, Total	mg/l			1400	1100	450	390	210	200	120	96	160	150
Sulfate	mg/l	500	S	0.64	9.2	38	37	160	150	100	100	190	180
Surfactants	mg/l	0.5	S	0.2	0.26	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**4100**	**3700**	**1400**	**1500**	**1300**	**1300**	820	850	**1400**	**1400**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	8.4	7.7
General Physical Properties													
Apparent Color	ACU	15	S	**450**	**300**	**100**	**100**	ND	10	10	10	ND	ND
Lab pH	Units			8.3	8.2	8.1	8.1	7.9	7.9	8	8	7.7	7.6
Odor	TON	3	S	**17**	2	**8**	2	1	1	2	1	2	ND
Specific Conductance	umho/cm	1600	S	**7100**	**6200**	**2600**	**2600**	**2300**	**2300**	1500	1500	**2300**	**2300**
Turbidity	NTU	5	S	0.76	0.86	2.6	2.5	3.1	3	1.9	2.1	0.12	0.39
Metals													
Aluminum, Total	ug/l	1000	P	ND	**1900**	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	3.2	ND	**13**	9.4	3.2	1.1	1.8	ND	3.8	1.6
Barium, Total	ug/l	1000	P	170	160	110	110	52	52	110	120	140	140
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.031	0.02	ND	ND	ND	ND	ND	0.16	0.18
Lead, Total	ug/l	15	P	ND	0.53	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	7.8	5.7	5.5	ND	10	7.4
Selenium, Total	ug/l	50	P	**52**	9.8	6.3	ND	25	21	7	ND	18	17
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	43	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	0.51	0.55
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			90	70	12	11	1.6	1.2	2	0.68	3.3	0.7
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	2.4	2.2
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Inglewood #3													
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7	
				5/11/2018	9/20/2018	5/11/2018	9/20/2018	5/11/2018	9/20/2018	5/11/2018	9/20/2018	5/11/2018	9/20/2018	5/11/2018	9/20/2018	5/11/2018	9/20/2018
General Minerals																	
Alkalinity	mg/l			680	680	1100	1100	550	550	780	790	440	430	210	200	230	230
Anion Sum	meq/l			45	46	23	23	11	11	16	16	11	11	8.5	8.1	18	18
Bicarbonate as HCO3	mg/l			830	830	1300	1300	670	670	960	960	530	520	250	250	280	280
Boron	mg/l	1	N	**4.1**	**4.3**	**5.6**	**5**	**1.1**	**1.2**	**2.1**	**2.2**	0.57	0.58	0.1	0.11	ND	0.11
Bromide	ug/l			8800	8700	1700	1700	160	150	160	160	640	620	520	450	1400	1400
Calcium, Total	mg/l			20	21	12	11	5.6	5.9	15	16	54	54	73	70	190	180
Carbon Dioxide	mg/l			22	38	22	21	8.9	8.7	23	24	18	28	8.8	84	15	94
Carbonate as CO3	mg/l			3.2	ND	8.2	8.4	5.4	5.5	4.2	4.1	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			43	44	28	23	11	12	16	17	11	11	8.2	8	18	18
Chloride	mg/l	500	S	**1100**	**1100**	49	53	14	16	24	26	98	100	150	140	420	440
Fluoride	mg/l	2	P	0.47	0.45	0.51	0.5	0.24	0.23	0.22	0.22	0.25	0.25	0.34	0.31	0.37	0.34
Hardness (Total, as CaCO3)	mg/l			91	98	58	53	26	27	79	81	200	210	280	260	700	670
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			2700	3100	93	450	18	40	58	52	160	180	41	38	72	79
Iron, Total	mg/l	0.3	S	0.24	0.21	**0.59**	**0.55**	0.15	0.16	**0.38**	**0.4**	0.056	0.061	ND	ND	0.13	0.12
Langelier Index - 25 degree	None			0.56	0.34	0.76	0.72	0.22	0.25	0.55	0.56	0.69	0.5	0.49	-0.51	0.76	-0.04
Magnesium, Total	None			10	11	6.7	6.2	2.8	3.1	10	10	17	18	23	22	54	54
Manganese, Total	ug/l	50	S	**59**	**56**	21	21	20	20	37	38	45	46	**110**	**100**	**340**	**400**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			18	19	15	13	6.2	6.8	17	17	12	13	7.4	7.1	6.2	7.8
Sodium, Total	mg/l			930	960	610	500	240	260	320	340	160	160	58	56	93	92
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.7	5.6	50	50
Surfactants	mg/l	0.5	S	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.13	0.12	**0.85**	**0.83**
Total Dissolved Solid (TDS)	mg/l	1000	S	**2600**	**2600**	**1500**	**1500**	680	690	990	990	650	650	520	470	**1300**	**1200**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties																	
Apparent Color	ACU	15	S	**300**	**200**	**1000**	**800**	**450**	**200**	**500**	**600**	**20**	**30**	ND	ND	ND	ND
Lab pH	Units			8.4	8.3	8.5	8.4	8.5	8.5	8.4	8.5	8.2	8.2	8.2	8.3	8	8
Odor	TON	3	S	**4**	ND	2	ND	2	ND	2	ND	2	ND	**8**	ND	2	ND
Specific Conductance	umho/cm	1600	S	**4700**	**4700**	**2100**	**2100**	1100	1000	1500	1500	1100	1100	890	820	**1900**	**1900**
Turbidity	NTU	5	S	0.48	0.4	0.66	0.62	1.4	0.4	0.42	0.41	0.23	0.11	0.14	ND	0.52	0.53
Metals																	
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	20	ND	36	33	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	2.5	ND	3.4	1.4	4.4	1.9	ND	ND	ND	ND	6.6	3.8
Barium, Total	ug/l	1000	P	60	65	25	25	14	14	45	45	51	49	74	66	240	250
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	2.8	4.3	ND	2.9	2.1	2.1	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	5.4	5	1.9	1.5	3	2.2	1.9	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.073	0.02	0.15	0.054	0.13	0.054	0.14	0.056	0.057	ND	0.055	ND	0.032	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.6	6.5
Selenium, Total	ug/l	50	P	41	5.8	9.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.1	7.1
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds																	
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	2
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**68**	**53**
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.8	2.7	**34**	**30**
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**14**
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.2**	**0.96**
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others																	
Total Organic Carbon	mg/l			28	27	130	100	14	9.8	26	25	3.6	3.6	2.1	1.6	4.8	4.9
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Lawndale #1											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				4/11/2018	9/4/2018	4/11/2018	9/4/2018	4/11/2018	9/4/2018	4/11/2018	9/4/2018	4/11/2018	9/4/2018	4/11/2018	9/4/2018
General Minerals															
Alkalinity	mg/l			450	450	620	600	240	230	190	190	190	190	220	210
Anion Sum	meq/l			9.5	9.4	13	13	5.5	5.4	6.4	6.5	6.6	6.6	22	22
Bicarbonate as HCO3	mg/l			550	540	750	740	290	280	230	230	230	230	270	260
Boron	mg/l	1	N	0.81	0.88	**1.2**	**1.2**	0.18	0.19	0.11	0.12	0.1	0.1	0.3	0.29
Bromide	ug/l			390	380	200	200	120	120	190	200	200	210	1300	1300
Calcium, Total	mg/l			10	11	4.6	4.5	18	19	54	59	55	58	200	210
Carbon Dioxide	mg/l			6.5	2.9	9.8	9.6	3.9	3.7	5.4	ND	5	4.6	28	5
Carbonate as CO3	mg/l			4.9	11	6.1	6	2.3	2.2	ND	3.4	ND	ND	ND	ND
Cation Sum	meq/l			9.1	9.5	12	12	5.5	5.7	6.5	6.9	6.8	7.1	23	23
Chloride	mg/l	500	S	13	14	28	28	25	25	53	57	55	59	**510**	**520**
Fluoride	mg/l	2	P	0.43	0.43	0.34	0.32	0.32	0.31	0.38	0.39	0.43	0.42	0.24	0.24
Hardness (Total, as CaCO3)	mg/l			38	42	26	26	86	89	210	220	210	220	710	740
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			140	130	5.6	70	32	36	14	43	12	40	4.3	50
Iron, Total	mg/l	0.3	S	0.073	0.075	0.12	0.12	0.027	0.029	0.065	0.073	0.034	0.033	ND	ND
Langelier Index - 25 degree	None			0.46	0.84	0.2	0.18	0.36	0.36	0.5	1	0.53	0.58	0.49	1.2
Magnesium, Total	None			3.2	3.5	3.6	3.6	10	10	18	19	17	18	51	52
Manganese, Total	ug/l	50	S	13	14	33	34	32	34	**76**	**77**	**69**	**71**	**130**	**120**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	12
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6	2.8
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			5.7	6.2	9.8	9.7	9.3	9.8	4.4	4.6	5	5.3	8.7	8.7
Sodium, Total	mg/l			190	190	270	270	80	84	50	52	58	60	190	190
Sulfate	mg/l	500	S	ND	ND	ND	ND	1	0.89	47	48	58	56	140	120
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	580	560	770	760	320	330	390	400	390	410	**1400**	**1500**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6	2.8
General Physical Properties															
Apparent Color	ACU	15	S	**150**	**75**	**450**	**200**	15	10	ND	ND	3	ND	ND	ND
Lab pH	Units			8.5	8.6	8.5	8.6	8.4	8.5	8.2	8.3	8.2	8.2	7.8	7.8
Odor	TON	3	S	**8**	2	**8**	**8**	2	2	2	2	2	2	2	1
Specific Conductance	umho/cm	1600	S	900	890	1200	1200	540	530	650	640	670	670	**2300**	**2200**
Turbidity	NTU	5	S	0.4	0.29	0.34	0.35	0.14	ND	0.19	0.14	0.17	ND	0.16	ND
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.6	1.4	2	1.8	ND	ND	1.8	2.1	ND	ND	5.4	2.6
Barium, Total	ug/l	1000	P	11	11	12	11	14	16	30	31	95	100	87	89
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.1	0.06	0.13	0.12	0.071	0.023	0.053	ND	0.062	ND	0.19	0.16
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	8.6
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	9.7
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	0.81
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			12	12	12	8.9	1.6	1.6	0.51	0.47	0.48	0.58	0.46	0.45
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.3	4.3
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Lomita #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				4/9/2018	9/17/2018	4/9/2018	9/17/2018	4/9/2018	9/17/2018	4/9/2018	9/17/2018	4/9/2018	9/17/2018
General Minerals													
Alkalinity	mg/l			270	280	280	280	320	290	250	240	280	280
Anion Sum	meq/l			28	28	27	26	15	14	15	15	32	31
Bicarbonate as HCO3	mg/l			330	340	340	340	390	350	300	300	340	340
Boron	mg/l	1	N	0.56	0.6	0.6	0.6	0.48	0.47	0.61	0.55	0.72	0.7
Bromide	ug/l			7800	8100	7100	7000	2500	2600	3400	3200	8400	8800
Calcium, Total	mg/l			210	230	210	200	91	96	110	110	250	260
Carbon Dioxide	mg/l			24	57	24	48	6.8	42	14	31	31	56
Carbonate as CO3	mg/l			ND	ND	ND	ND	2.4	ND	ND	ND	ND	ND
Cation Sum	meq/l			26	28	26	26	15	15	16	16	30	30
Chloride	mg/l	500	S	**810**	**800**	**750**	**710**	290	290	360	340	**910**	**880**
Fluoride	mg/l	2	P	0.14	0.13	0.14	0.14	0.2	0.2	0.24	0.25	0.1	0.1
Hardness (Total, as CaCO3)	mg/l			760	850	760	740	330	350	410	400	910	940
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			ND	1600	ND	1300	ND	530	ND	640	ND	1600
Iron, Total	mg/l	0.3	S	0.14	0.1	0.28	0.26	0.046	0.044	0.16	0.17	0.15	0.16
Langelier Index - 25 degree	None			0.76	0.43	0.77	0.46	1.1	0.21	0.63	0.26	0.75	0.49
Magnesium, Total	None			58	66	58	58	26	27	33	31	70	71
Manganese, Total	ug/l	50	S	**410**	**400**	**380**	**340**	**130**	**120**	**180**	**160**	**440**	**420**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	0.58	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	0.13	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			17	18	17	17	10	10	12	11	19	19
Sodium, Total	mg/l			230	250	250	240	180	170	180	170	270	260
Sulfate	mg/l	500	S	11	9.2	29	20	20	14	6.9	6.2	30	25
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**1800**	**2000**	**1700**	**1800**	840	850	950	970	**1800**	**2200**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	0.13	ND	ND	ND	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	5	ND	**20**	**20**	**30**	**25**	**20**	ND	5	ND
Lab pH	Units			8	8	8	8	8.1	8.2	8.1	8.2	7.9	8
Odor	TON	3	S	**17**	**200**	2	2	**8**	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	**3000**	**3000**	**2800**	**2700**	1500	1500	1600	1600	**3300**	**3200**
Turbidity	NTU	5	S	**29**	**20**	2.4	1.4	0.94	0.56	0.73	0.19	0.66	0.66
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	6.1	3.4	5.9	3	2.1	1.8	2.5	1.1	7.4	3.7
Barium, Total	ug/l	1000	P	120	130	120	120	54	56	71	65	150	150
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	ND	ND	0.03	0.03	0.02	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	10	10	11	9.2	ND	ND	5.4	ND	13	12
Selenium, Total	ug/l	50	P	**55**	**59**	46	49	16	20	23	24	**53**	**63**
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			1.1	1.2	1.1	1.2	3.1	2.6	2.5	2.5	0.89	0.97
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Long Beach #3									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				3/20/2018	8/2/2018	3/20/2018	8/2/2018	3/20/2018	8/2/2018	3/20/2018	8/2/2018	3/20/2018	8/2/2018
General Minerals													
Alkalinity	mg/l			370	360	130	130	150	150	120	120	140	140
Anion Sum	meq/l			7.9	7.8	3.7	3.7	3.8	3.7	30	27	32	30
Bicarbonate as HCO3	mg/l			450	440	160	160	180	180	140	140	170	170
Boron	mg/l	1	N	0.38	0.36	0.12	0.12	0.12	0.13	0.11	0.12	0.11	0.12
Bromide	ug/l			220	220	110	120	9600	180	7400	6700	160	7500
Calcium, Total	mg/l			12	11	16	17	18	18	340	300	370	360
Carbon Dioxide	mg/l			ND	4.8	ND	ND	ND	ND	ND	6.2	ND	7.3
Carbonate as CO3	mg/l			9.2	4.3	2.6	2.6	3.4	2	ND	ND	ND	ND
Cation Sum	meq/l			8.2	7.8	3.6	3.7	3.7	3.8	30	28	33	32
Chloride	mg/l	500	S	17	16	19	19	27	26	**930**	**820**	**970**	**920**
Fluoride	mg/l	2	P	0.51	0.52	0.35	0.4	0.33	0.37	0.16	0.2	0.16	0.18
Hardness (Total, as CaCO3)	mg/l			44	41	51	54	57	57	1200	1100	1200	1200
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			57	57	42	27	47	46	2100	1800	2300	200
Iron, Total	mg/l	0.3	S	ND	0.04	ND	ND	0.029	0.028	0.24	0.22	0.29	0.28
Langelier Index - 25 degree	None			0.75	0.42	0.41	0.38	0.54	0.31	0.96	0.77	1.1	0.93
Magnesium, Total	None			3.4	3.2	2.6	2.7	3	3	83	77	81	80
Manganese, Total	ug/l	50	S	11	11	6.9	7.1	8.6	8.7	**260**	**230**	**360**	**350**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	3.5	1.9	1.9	2.3	2.1	15	14	12	12
Sodium, Total	mg/l			170	160	58	60	56	59	150	140	160	150
Sulfate	mg/l	500	S	ND	ND	22	22	ND	ND	71	68	80	79
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	460	460	230	240	240	230	**1800**	**1800**	**2000**	**2000**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	**75**	**50**	**20**	15	**30**	**25**	5	ND	10	ND
Lab pH	Units			8.5	8.5	8.4	8.4	8.2	8.3	7.7	7.8	7.8	7.8
Odor	TON	3	S	2	2	2	2	2	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	750	740	380	380	380	370	**3200**	**2900**	**3400**	**3200**
Turbidity	NTU	5	S	0.48	0.25	0.13	0.12	0.15	0.12	1.2	0.83	1.3	1.4
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.1	ND	ND	ND	ND	ND	3.5	3.9	4.2	4.8
Barium, Total	ug/l	1000	P	8.4	9	14	13	7.1	7	95	89	160	160
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	2
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.05	0.071	0.028	0.07	ND	0.037	ND	0.026	ND	0.02
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	11	11	13	13
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	37	34	39	38
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	10	8.4	9.3	10
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			7.2	7.9	1.4	1.4	2.3	2.3	0.7	0.65	0.74	0.76
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Long Beach #8					
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				4/2/2018	4/2/2018	4/2/2018	4/2/2018	4/2/2018	4/2/2018
General Minerals									
Alkalinity	mg/l			520	450	610	390	300	200
Anion Sum	meq/l			11	9.9	14	24	18	18
Bicarbonate as HCO3	mg/l			640	540	740	480	360	250
Boron	mg/l	1	N	**1.1**	0.77	**1.2**	1	0.6	0.2
Bromide	ug/l			340	430	680	4200	3200	1600
Calcium, Total	mg/l			7.5	9.6	10	48	66	110
Carbon Dioxide	mg/l			5.4	7	8.8	12	10	15
Carbonate as CO3	mg/l			8.1	4.4	6.6	2	ND	ND
Cation Sum	meq/l			11	10	14	23	19	17
Chloride	mg/l	500	S	19	32	80	**570**	440	470
Fluoride	mg/l	2	P	0.85	0.84	0.6	0.25	0.2	0.51
Hardness (Total, as CaCO3)	mg/l			26	37	45	260	280	420
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Iodide	mg/l			66	140	120	1100	820	40
Iron, Total	mg/l	0.3	S	0.19	0.15	0.21	0.18	0.23	**0.77**
Langelier Index - 25 degree	None			0.52	0.37	0.58	0.72	0.7	0.4
Magnesium, Total	None			1.9	3.1	4.8	34	28	36
Manganese, Total	ug/l	50	S	16	21	21	14	46	**310**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			ND	ND	6.7	12	9.5	7.5
Sodium, Total	mg/l			240	220	300	410	300	200
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	20
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	680	610	880	**1400**	**1100**	**1100**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND
General Physical Properties									
Apparent Color	ACU	15	S	**400**	**250**	**250**	**100**	**75**	15
Lab pH	Units			8.6	8.5	8.6	8.3	8.3	7.9
Odor	TON	3	S	**8**	**8**	**4**	2	2	2
Specific Conductance	umho/cm	1600	S	1000	940	1400	**2500**	**2000**	**1900**
Turbidity	NTU	5	S	0.6	0.48	0.58	0.81	1.4	**6.2**
Metals									
Aluminum, Total	ug/l	1000	P	27	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	2.5	1.6	2.1	1.9	2.2	1.3
Barium, Total	ug/l	1000	P	9.4	8.2	12	20	20	100
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	2.8	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	1.8	1.3	1.5	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.22	0.19	0.25	0.05	0.049	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	14	8.8	6.2
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Others									
Total Organic Carbon	mg/l			26	22	34	19	14	1
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND	ND	ND	ND	ND	ND
HMX	ug/l	350	N	ND	ND	ND	ND	ND	ND
RDX	ug/l	0.3	N	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Manhattan Beach #1													
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7	
				3/1/2018	7/31/2018	3/1/2018	7/31/2018	2/28/2018	7/30/2018	2/28/2018	7/30/2018	3/1/2018	7/31/2018	2/28/2018	7/31/2018	3/1/2018	7/31/2018
General Minerals																	
Alkalinity	mg/l			580	570	440	430	930	910	480	470	130	120	160	160	130	140
Anion Sum	meq/l			120	130	49	49	22	22	10	10	390	400	140	140	9.8	9.9
Bicarbonate as HCO3	mg/l			700	690	540	530	1100	1100	580	580	150	150	190	190	160	170
Boron	mg/l	1	N	**16**	**16**	**6.9**	**6.5**	**3.5**	**3.6**	0.41	0.4	0.56	0.61	ND	ND	0.18	0.18
Bromide	ug/l			27000	26000	9600	9500	2200	2300	320	320	42000	44000	14000	14000	350	350
Calcium, Total	mg/l			49	51	30	31	15	16	28	27	2000	2000	960	960	48	49
Carbon Dioxide	mg/l			ND	22	ND	12	ND	31	ND	12	ND	27	ND	19	ND	3.1
Carbonate as CO3	mg/l			4.5	2.3	3.5	2.6	11	4.2	9.5	2.9	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			120	120	42	44	20	20	11	11	390	380	140	140	10	10
Chloride	mg/l	500	S	**4000**	**4200**	**1400**	**1400**	120	120	33	34	**13000**	**13000**	**4300**	**4400**	120	120
Fluoride	mg/l	2	P	0.75	0.8	0.57	0.62	0.36	0.4	0.21	0.23	0.088	0.093	0.15	0.16	0.32	0.31
Hardness (Total, as CaCO3)	mg/l			270	280	120	130	83	89	120	110	9000	9100	3500	3500	180	180
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			7300	6300	2500	3000	610	ND	130	ND	240	130	29	24	41	30
Iron, Total	mg/l	0.3	S	**0.51**	**0.56**	0.18	0.16	0.21	0.22	ND	ND	**4.1**	**4.5**	**1.8**	**1.8**	ND	ND
Langelier Index - 25 degree	None			1.1	0.81	0.78	0.64	0.96	0.57	1.2	0.64	1.5	0.99	1.6	1	0.38	0.42
Magnesium, Total	None			36	36	12	12	11	12	11	10	980	990	270	270	14	14
Manganese, Total	ug/l	50	S	**59**	49	**61**	45	46	44	**68**	**62**	**920**	**800**	**1100**	**990**	**66**	**64**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	7.4
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	1.7
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			35	26	21	17	26	26	9.5	9.2	170	140	49	48	5.5	5.7
Sodium, Total	mg/l			2600	2600	890	940	400	410	200	200	4700	4600	1500	1500	150	150
Sulfate	mg/l	500	S	ND	ND	ND	ND	0.58	0.83	ND	ND	**1600**	**1600**	**570**	**550**	180	170
Surfactants	mg/l	0.5	S	0.2	0.14	ND	0.13	ND	0.15	ND	ND	ND	0.1	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**7400**	**7300**	**2700**	**2800**	**1300**	**1300**	600	610	**24000**	**21000**	**8400**	**7700**	620	630
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	1.7
General Physical Properties																	
Apparent Color	ACU	15	S	**75**	**120**	**150**	**180**	**220**	**300**	**40**	**45**	**100**	**150**	**25**	**30**	ND	ND
Lab pH	Units			8	8	8	8.2	8.2	8.2	8.4	8.2	7.5	7.3	7.7	7.6	8	8.1
Odor	TON	3	S	**40**	**4**	**8**	2	**8**	2	2	2	2	1	2	2	2	ND
Specific Conductance	umho/cm	1600	S	**13000**	**13000**	**5000**	**5000**	**2000**	**2000**	990	980	**34000**	**34000**	**13000**	**13000**	1000	1000
Turbidity	NTU	5	S	0.32	0.47	0.48	0.3	0.47	0.34	0.22	0.17	**45**	**52**	**18**	**18**	0.92	0.62
Metals																	
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	7.2	6.8	2.2	2.2	1.2	ND	1.4	ND	**61**	ND	**17**	ND	4.4	4.9
Barium, Total	ug/l	1000	P	590	690	180	200	82	94	46	40	200	180	210	210	25	17
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	2	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	1.7	1.8	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	ND	0.02	0.18	0.07	0.052	0.037	ND	ND	ND	ND	0.022	0.038
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	**110**	55	51	ND	ND	ND
Selenium, Total	ug/l	50	P	**76**	10	29	7.8	8.1	ND	ND	ND	**330**	**190**	**100**	**62**	5.6	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds																	
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	1.4	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others																	
Total Organic Carbon	mg/l			17	17	36	34	43	46	5.1	5.4	1.5	1.8	0.47	0.6	0.98	1.2
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.96	0.93
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	PM-2 Police Station							
				Zone 1		Zone 2		Zone 3		Zone 4	
				4/13/2018	9/13/2018	4/13/2018	9/13/2018	4/13/2018	9/13/2018	4/13/2018	9/13/2018
General Minerals											
Alkalinity	mg/l			120	120	150	150	140	140	160	150
Anion Sum	meq/l			180	180	46	47	13	14	12	12
Bicarbonate as HCO3	mg/l			140	140	180	190	180	180	190	190
Boron	mg/l	1	N	0.18	0.18	0.23	0.24	0.34	0.34	0.45	0.42
Bromide	ug/l			20000	20000	5100	5000	830	870	260	1100
Calcium, Total	mg/l			1200	1200	410	410	88	89	74	72
Carbon Dioxide	mg/l			13	3.4	3.5	15	21	3.8	2.6	ND
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	3.6
Cation Sum	meq/l			180	180	44	44	13	14	13	12
Chloride	mg/l	500	S	**5800**	**5800**	**1400**	**1500**	180	200	190	180
Fluoride	mg/l	2	P	0.15	0.16	0.72	0.74	0.38	0.42	0.36	0.37
Hardness (Total, as CaCO3)	mg/l			5200	5300	1600	1600	340	340	280	270
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			20	99	130	130	76	120	130	170
Iron, Total	mg/l	0.3	S	0.22	0.24	**1.3**	**1.2**	ND	ND	ND	ND
Langelier Index - 25 degree	None			1	1.6	1.4	0.76	-0.11	0.64	0.78	1.1
Magnesium, Total	None			530	560	130	130	28	28	24	23
Manganese, Total	ug/l	50	S	**400**	**430**	**1800**	**1300**	**170**	**160**	**71**	**76**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			110	98	19	19	8.3	8.1	8.2	7.5
Sodium, Total	mg/l			1600	1800	290	290	150	150	160	150
Sulfate	mg/l	500	S	**640**	**630**	69	68	230	230	170	180
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**14000**	**9600**	**2800**	**2800**	810	810	760	740
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties											
Apparent Color	ACU	15	S	10	10	**35**	**25**	5	ND	5	ND
Lab pH	Units			7.6	7.7	7.7	7.8	8	8.1	8.1	8.2
Odor	TON	3	S	1	2	**40**	2	**4**	2	2	2
Specific Conductance	umho/cn	1600	S	**17000**	**18000**	**4700**	**4800**	1300	1400	1300	1200
Turbidity	NTU	5	S	1	1.5	**9**	**13**	0.11	ND	0.14	ND
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	**29**	**25**	**17**	4.2	2.6	4.6	2
Barium, Total	ug/l	1000	P	250	250	270	280	33	34	42	42
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	2.7	2.7	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	1.9	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	ND	ND	ND	0.058	ND	0.055	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	85	26	27	5.7	ND	ND	ND
Selenium, Total	ug/l	50	P	**57**	**180**	41	43	7	6.2	ND	8.4
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			0.76	0.83	0.55	0.6	1.4	1.4	1.5	1.4
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	PM-3 Madrid							
				Zone 1		Zone 2		Zone 3		Zone 4	
				4/12/2018	9/12/2018	4/12/2018	9/12/2018	4/12/2018	9/12/2018	4/12/2018	9/12/2018
General Minerals											
Alkalinity	mg/l			310	310	190	190	190	190	200	200
Anion Sum	meq/l			6.8	6.8	9.4	8.8	11	11	15	15
Bicarbonate as HCO3	mg/l			370	370	230	230	230	230	240	240
Boron	mg/l	1	N	0.34	0.35	0.18	0.18	0.2	0.21	0.39	0.39
Bromide	ug/l			120	130	1000	1000	1600	1600	1900	1900
Calcium, Total	mg/l			12	12	80	74	90	97	110	110
Carbon Dioxide	mg/l			9.4	ND	5.8	8.8	8.8	11	14	3.9
Carbonate as CO3	mg/l			ND	12	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			7.2	7.3	9.3	8.9	11	11	14	15
Chloride	mg/l	500	S	22	22	200	180	260	260	320	320
Fluoride	mg/l	2	P	0.3	0.3	0.3	0.32	0.33	0.32	0.32	0.32
Hardness (Total, as CaCO3)	mg/l			65	67	290	270	330	360	410	410
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			32	34	120	140	200	230	230	250
Iron, Total	mg/l	0.3	S	0.043	0.046	0.25	0.24	0.1	0.11	**0.45**	**0.52**
Langelier Index - 25 degree	None			0.001	0.91	0.63	0.41	0.51	0.46	0.42	0.98
Magnesium, Total	None			8.6	9	23	21	26	28	32	32
Manganese, Total	ug/l	50	S	21	21	**62**	**56**	**57**	**58**	**310**	**330**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			12	13	5	4.8	5.5	5.8	6.8	6.9
Sodium, Total	mg/l			130	130	76	76	89	95	150	150
Sulfate	mg/l	500	S	ND	ND	ND	ND	4	3.9	87	87
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	400	400	620	540	760	710	930	900
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties											
Apparent Color	ACU	15	S	**45**	**45**	15	5	10	ND	10	10
Lab pH	Units			8.4	8.5	8	8.2	8	8.2	7.8	8
Odor	TON	3	S	2	2	2	2	1	2	2	2
Specific Conductance	umho/cn	1600	S	660	660	1000	930	1200	1200	1600	1600
Turbidity	NTU	5	S	0.58	0.2	0.79	0.74	3.6	0.74	3.4	4.6
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	1.2	ND	1.2	ND	9.3	9.7
Barium, Total	ug/l	1000	P	19	20	33	32	65	69	76	80
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.043	0.02	ND	ND	0.02	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	6	5.6
Selenium, Total	ug/l	50	P	ND	ND	6.6	6.7	10	11	12	12
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	1.8	1.4	**8.5**	3
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	0.75	0.56	3.1	3.2
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	1.2	0.9
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			3	3.2	2.5	0.81	0.79	0.81	0.95	1
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	**1**	**2**
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	PM-4 Mariner							
				Zone 1		Zone 2		Zone 3		Zone 4	
				5/6/2018	8/12/2018	5/6/2018	8/12/2018	5/6/2018	8/12/2018	5/6/2018	8/12/2018
General Minerals											
Alkalinity	mg/l			250	250	150	150	150	140	190	200
Anion Sum	meq/l			5.8	5.8	220	220	9.6	8.8	11	10
Bicarbonate as HCO3	mg/l			310	310	180	180	180	170	240	240
Boron	mg/l	1	N	0.16	0.17	0.25	ND	0.26	0.26	0.25	0.24
Bromide	ug/l			160	160	23000	23000	250	210	420	410
Calcium, Total	mg/l			27	27	1500	1500	52	52	72	71
Carbon Dioxide	mg/l			15	6.7	17	21	2	ND	12	5.2
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			5.8	5.9	210	220	9.9	9.2	11	11
Chloride	mg/l	500	S	28	26	**7100**	**7000**	110	92	130	130
Fluoride	mg/l	2	P	0.32	0.35	0.11	0.11	0.41	0.41	0.26	0.26
Hardness (Total, as CaCO3)	mg/l			110	110	5600	5800	190	190	260	260
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			71	57	89	75	34	24	68	57
Iron, Total	mg/l	0.3	S	0.066	0.06	0.22	0.22	0.024	0.021	0.15	0.14
Langelier Index - 25 degree	None			0.0012	0.36	1.2	1.2	0.72	0.69	0.28	0.66
Magnesium, Total	None			11	11	460	490	14	14	19	19
Manganese, Total	ug/l	50	S	30	27	**980**	**1000**	39	40	**73**	**69**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			7.3	7.4	80	62	6.2	6	6.8	6.7
Sodium, Total	mg/l			78	78	2100	2300	140	120	130	120
Sulfate	mg/l	500	S	ND	ND	**860**	**810**	170	160	140	140
Surfactants	mg/l	0.5	S	ND	ND	0.48	0.21	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	350	340	**18000**	**16000**	610	560	670	670
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties											
Apparent Color	ACU	15	S	10	10	5	5	15	10	5	5
Lab pH	Units			8.2	8.3	7.6	7.7	8.3	8.3	8.2	8.2
Odor	TON	3	S	ND	ND	1	1	2	1	2	1
Specific Conductance	umho/cn	1600	S	570	570	**20000**	**21000**	970	920	1000	1100
Turbidity	NTU	5	S	0.12	0.11	1.4	1.8	0.48	0.41	0.31	0.34
Metals											
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	**12**	5.6	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	20	18	190	180	77	75	46	47
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.042	0.049	ND	ND	0.044	0.047	0.027	0.029
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	56	50	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	**120**	**130**	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Others											
Total Organic Carbon	mg/l			1.8	1.8	0.87	0.83	1.4	1.6	1.4	1.1
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	PM-5 Columbia Park											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				3/7/2018	8/6/2018	3/7/2018	8/6/2018	3/7/2018	8/6/2018	3/7/2018	8/6/2018	3/7/2018	8/6/2018	3/7/2018	8/6/2018
General Minerals															
Alkalinity	mg/l			680	680	900	890	410	410	290	290	180	180	210	210
Anion Sum	meq/l			16	16	18	18	9.1	8.9	6.6	6.6	36	35	12	12
Bicarbonate as HCO3	mg/l			820	830	1100	1100	500	500	350	350	220	220	260	260
Boron	mg/l	1	N	**2.4**	**2.7**	**2**	**1.9**	0.36	0.39	0.18	0.19	0.19	0.2	0.2	0.2
Bromide	ug/l			1600	1600	200	200	270	260	180	170	2700	2600	680	710
Calcium, Total	mg/l			12	14	7.4	7.2	13	15	26	28	280	270	91	91
Carbon Dioxide	mg/l			ND	19	ND	27	ND	9.2	ND	8.9	ND	14	ND	6.8
Carbonate as CO3	mg/l			11	3.9	23	4.8	10	2.9	4.5	ND	ND	ND	2.7	ND
Cation Sum	meq/l			15	17	19	19	9.2	9.4	6.7	7	36	35	12	13
Chloride	mg/l	500	S	98	98	14	14	28	28	29	32	**840**	**830**	140	150
Fluoride	mg/l	2	P	0.66	0.64	0.34	0.33	0.28	0.29	0.31	0.33	0.19	0.18	0.36	0.35
Hardness (Total, as CaCO3)	mg/l			53	60	40	39	62	69	120	120	980	950	310	310
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			630	520	93	77	130	120	1.1	54	19	16	86	77
Iron, Total	mg/l	0.3	S	0.18	0.2	**0.31**	0.3	ND	0.054	0.031	0.028	0.1	0.1	ND	ND
Langelier Index - 25 degree	None			0.91	0.47	0.94	0.28	0.84	0.37	0.84	0.35	1.2	0.75	1.1	0.73
Magnesium, Total	None			5.7	6.2	5.3	5.2	7.1	7.6	13	13	69	67	21	21
Manganese, Total	ug/l	50	S	44	46	28	28	34	34	23	23	**250**	**220**	**120**	**120**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			12	12	10	9	13	17	11	12	14	13	6.4	6.3
Sodium, Total	mg/l			320	350	420	410	180	180	93	97	360	350	140	150
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	ND	ND	400	400	170	180
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	1000	1000	**1100**	**1100**	540	520	360	390	**2200**	**2100**	770	770
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	**250**	**200**	**500**	**400**	**25**	**75**	**20**	**25**	ND	ND	ND	ND
Lab pH	Units			8.3	8.2	8.5	8.4	8.5	8.4	8.3	8.2	7.9	7.7	8.2	8.1
Odor	TON	3	S	2	**8**	2	2	2	2	2	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	1600	1600	**1700**	1600	860	860	650	640	**3600**	**3400**	1200	1200
Turbidity	NTU	5	S	0.4	0.33	0.41	0.43	0.33	0.2	0.24	0.21	0.58	0.4	0.17	0.21
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.6	ND	4	3.7	ND	ND	ND	ND	1.4	3	ND	ND
Barium, Total	ug/l	1000	P	84	95	21	24	25	26	22	20	100	88	170	150
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	2.6	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	1.2	2.6	3.4	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.072	0.067	0.11	0.087	0.048	0.063	0.034	0.053	ND	0.038	0.034	0.044
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	5.1	9.3	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	8.1	12	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			44	39	36	26	7.2	7	3.2	3.1	1.1	1.2	1.2	1.2
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	PM-6 Madrona Marsh											
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
				3/27/2018	8/8/2018	3/27/2018	8/8/2018	3/27/2018	8/8/2018	3/27/2018	8/8/2018	3/27/2018	8/8/2018	3/27/2018	8/8/2018
General Minerals															
Alkalinity	mg/l			380	400	120	120	120	120	230	230	160	160	160	150
Anion Sum	meq/l			77	67	86	83	200	200	6.5	6.4	52	50	10	9.7
Bicarbonate as HCO3	mg/l			460	480	150	150	150	150	280	280	200	200	190	180
Boron	mg/l	1	N	0.63	0.75	0.58	0.58	0.26	0.26	0.24	0.25	0.39	0.39	0.19	0.18
Bromide	ug/l			8100	7100	9800	10000	24000	24000	280	290	4400	4500	340	340
Calcium, Total	mg/l			350	310	200	200	1200	1200	19	20	250	250	73	70
Carbon Dioxide	mg/l			ND	18	5.2	7.1	18	21	4.8	4.2	ND	11	2	4.3
Carbonate as CO3	mg/l			4.7	ND	ND	ND	ND	ND	ND	2	ND	ND	2	ND
Cation Sum	meq/l			70	64	77	77	190	200	6.4	7	48	47	11	10
Chloride	mg/l	500	S	**2400**	**2100**	**3000**	**2900**	**6900**	**7100**	65	62	**1500**	**1400**	190	170
Fluoride	mg/l	2	P	0.34	0.36	0.087	0.087	0.098	0.098	0.53	0.5	0.16	0.15	0.26	0.27
Hardness (Total, as CaCO3)	mg/l			1900	1700	910	900	6200	6200	97	99	950	940	270	250
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			140	140	310	450	240	250	60	58	26	47	17	26
Iron, Total	mg/l	0.3	S	ND	0.028	0.12	0.13	0.13	0.11	0.065	0.071	**0.76**	**0.74**	0.21	0.19
Langelier Index - 25 degree	None			1.9	1.4	0.7	0.58	0.94	0.87	0.27	0.34	1.2	0.71	0.96	0.51
Magnesium, Total	None			250	230	100	97	780	790	12	12	80	78	21	19
Manganese, Total	ug/l	50	S	12	9.4	**180**	**180**	**87**	**82**	**61**	**62**	**520**	**510**	**91**	**86**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			40	44	60	62	110	110	5.8	5.8	25	24	6.2	5.7
Sodium, Total	mg/l			710	670	1300	1300	1600	1600	99	110	640	620	130	120
Sulfate	mg/l	500	S	9	10	ND	ND	52	54	ND	ND	380	350	100	93
Surfactants	mg/l	0.5	S	0.14	0.16	ND	ND	0.32	0.31	ND	ND	0.13	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	**5300**	**4600**	**5600**	**5500**	**16000**	**15000**	390	380	**3600**	**3100**	670	630
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties															
Apparent Color	ACU	15	S	**200**	**200**	15	10	10	ND	**30**	**25**	**30**	**25**	10	10
Lab pH	Units			8.2	8.1	8	8	7.6	7.7	8.3	8.4	8	8	8.2	8.2
Odor	TON	3	S	**200**	2	2	2	**200**	**200**	2	2	2	2	3	2
Specific Conductance	umho/cm	1600	S	**7700**	**6700**	**8600**	**8700**	**20000**	**20000**	640	640	**5000**	**4900**	1100	1000
Turbidity	NTU	5	S	**6**	3.4	0.64	0.39	1.6	0.68	0.17	0.12	**6.8**	3.9	0.62	0.5
Metals															
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	1.4	1.4	ND	**13**	3.1	ND	ND	3.9	1.4	2.4	1.9
Barium, Total	ug/l	1000	P	930	870	490	520	**2400**	**2900**	21	24	120	120	18	18
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	2.6	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	ND	0.047	ND	ND	ND	ND	0.029	0.058	ND	ND	0.023	0.047
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	6.1	6.1	34	ND	ND	ND	7.3	6.6	ND	ND
Selenium, Total	ug/l	50	P	32	5	42	**51**	**95**	18	ND	ND	17	20	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	0.72	0.75	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others															
Total Organic Carbon	mg/l			4.8	6.7	1.1	1.8	1	2.4	2.3	8.4	1.2	2.9	1.4	1.4
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Westchester #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				3/29/2018	8/22/2018	3/29/2018	8/22/2018	3/29/2018	8/22/2018	3/29/2018	8/22/2018	3/29/2018	8/22/2018
General Minerals													
Alkalinity	mg/l			490	520	530	520	420	430	340	340	270	280
Anion Sum	meq/l			13	14	12	12	10	10	10	10	8.9	9.2
Bicarbonate as HCO3	mg/l			600	640	640	640	510	520	420	410	330	340
Boron	mg/l	1	N	0.76	0.75	0.8	0.82	0.37	0.41	0.23	0.23	0.22	0.22
Bromide	ug/l			500	570	450	470	75	400	350	360	320	320
Calcium, Total	mg/l			69	58	32	31	56	54	70	73	62	65
Carbon Dioxide	mg/l			ND	23	ND	14	18	16	ND	18	ND	13
Carbonate as CO3	mg/l			7.8	ND	10	3	ND	ND	3.4	ND	3.4	ND
Cation Sum	meq/l			14	13	13	12	11	11	10	10	9	9.1
Chloride	mg/l	500	S	81	82	68	66	61	59	63	64	65	67
Fluoride	mg/l	2	P	0.27	0.29	0.26	0.28	0.26	0.27	0.27	0.29	0.32	0.36
Hardness (Total, as CaCO3)	mg/l			290	240	150	150	240	230	290	300	250	260
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			120	140	130	130	86	90	47	63	41	58
Iron, Total	mg/l	0.3	S	0.17	0.16	0.14	0.12	0.25	0.22	0.13	0.14	0.28	0.29
Langelier Index - 25 degree	None			1.5	0.77	1.3	0.72	0.67	0.75	1.1	0.6	1	0.53
Magnesium, Total	None			28	24	18	18	24	23	28	28	24	24
Manganese, Total	ug/l	50	S	**120**	**100**	48	41	**140**	**130**	**110**	**110**	**120**	**130**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			11	11	15	16	11	11	9.6	9.3	7.3	7.1
Sodium, Total	mg/l			190	170	220	210	130	140	95	93	85	84
Sulfate	mg/l	500	S	48	46	ND	ND	20	12	74	77	79	81
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	770	810	710	730	590	620	580	600	520	550
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	**200**	**200**	**70**	**100**	**25**	**35**	10	10	10	15
Lab pH	Units			8.3	8.1	8.4	8.4	8.3	8.3	8.1	8.2	8.2	8.1
Odor	TON	3	S	2	2	2	2	2	1	1	1	1	1
Specific Conductance	umho/cm	1600	S	1200	1300	1200	1200	1000	1000	980	970	880	890
Turbidity	NTU	5	S	4.7	0.28	1.1	0.22	0.38	0.25	0.34	0.25	0.61	0.66
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	1.4	1.2	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	ug/l	1000	P	85	94	110	110	63	63	70	71	58	62
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.089	0.053	0.057	0.037	ND	ND	ND	ND	ND	ND
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			13	20	8.2	14	3.3	7	5.2	4.2	3.5	1.3
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Wilmington #1									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				2/26/2018	8/13/2018	2/26/2018	8/13/2018	2/26/2018	8/13/2018	2/26/2018	8/13/2018	2/26/2018	8/13/2018
General Minerals													
Alkalinity	mg/l			140	140	160	160	180	180	140	140	150	180
Anion Sum	meq/l			11	11	21	21	31	32	16	15	13	15
Bicarbonate as HCO3	mg/l			170	170	190	190	230	230	170	170	180	210
Boron	mg/l	1	N	0.27	0.27	0.2	0.2	0.27	0.29	0.21	0.22	0.19	0.22
Bromide	ug/l			2200	2300	2500	2700	4100	4200	1200	1200	1000	1200
Calcium, Total	mg/l			62	62	140	150	150	170	85	81	100	100
Carbon Dioxide	mg/l			3.1	3.7	8	8.4	12	10	4.4	4.5	5.1	9.5
Carbonate as CO3	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cation Sum	meq/l			11	11	21	21	26	29	16	15	14	16
Chloride	mg/l	500	S	280	290	**550**	**570**	**930**	**960**	360	340	260	300
Fluoride	mg/l	2	P	0.13	0.14	0.072	0.076	0.075	0.076	0.14	0.14	0.14	0.14
Hardness (Total, as CaCO3)	mg/l			240	240	490	530	530	600	340	320	380	390
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			830	780	330	350	480	530	33	38	67	93
Iron, Total	mg/l	0.3	S	ND	ND	ND	**39**	ND	ND	ND	ND	ND	**80**
Langelier Index - 25 degree	None			0.53	0.45	0.57	0.58	0.6	0.7	0.53	0.48	0.57	0.46
Magnesium, Total	None			20	20	35	38	38	43	31	30	32	35
Manganese, Total	ug/l	50	S	23	22	17	18	6.2	5.8	13	13	40	**78**
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			8.1	8.9	7.9	8.8	10	11	6.3	7	6.4	8
Sodium, Total	mg/l			130	140	260	230	350	380	200	200	130	170
Sulfate	mg/l	500	S	ND	ND	100	100	53	37	160	150	150	150
Surfactants	mg/l	0.5	S	**0.72**	**0.7**	**0.52**	0.46	**0.53**	0.45	0.18	0.18	0.42	**0.7**
Total Dissolved Solid (TDS)	mg/l	1000	S	640	730	**1300**	**1500**	**1900**	**2200**	990	990	820	950
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	ND	ND	ND	ND	10	5	ND	ND	ND	ND
Lab pH	Units			8.1	8.2	7.8	8.1	7.9	8	8	8.1	8	8.1
Odor	TON	3	S	2	**200**	2	**67**	**200**	**200**	2	**8**	**200**	**200**
Specific Conductance	umho/cm	1600	S	1200	1200	**2200**	**2300**	**3400**	**3400**	**1800**	**1700**	1400	1600
Turbidity	NTU	5	S	0.11	0.16	0.2	0.18	0.2	0.12	0.12	0.12	0.22	0.21
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	2	ND	2.7	ND	1.2	ND	ND	ND
Barium, Total	ug/l	1000	P	12	11	11	10	23	27	33	29	79	96
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.032	0.034	0.02	0.029	ND	0.02	0.026	0.037	ND	0.024
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	6.5	ND	ND	ND	ND	ND	ND	ND
Selenium, Total	ug/l	50	P	13	9.8	16	11	12	ND	6.8	ND	9.8	6.3
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			8.5	7.3	21	20	9.4	9.3	ND	ND	3.7	5
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	1.4	1.2	**17**	**25**
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	**91**	**89**	**93**	**91**	**76**	**61**	**18**	**20**	**69**	**92**
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			3.7	3.4	3.6	2.7	2.1	1.7	2.3	2.2	3.9	4.5
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.2
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2017-18

Constituents	Units	MCL	MCL Type	Wilmington #2									
				Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
				2/27/2018	8/14/2018	2/27/2018	8/14/2018	2/27/2018	8/14/2018	2/27/2018	8/14/2018	2/27/2018	8/14/2018
General Minerals													
Alkalinity	mg/l			280	280	500	490	150	140	270	270	160	160
Anion Sum	meq/l			12	13	26	26	13	13	11	10	66	68
Bicarbonate as HCO3	mg/l			330	330	600	590	180	180	330	330	200	200
Boron	mg/l	1	N	0.54	0.57	**1.8**	**1.9**	0.19	0.2	0.62	0.63	0.5	0.52
Bromide	ug/l			1000	1100	4200	4300	2500	2600	1200	1200	6200	7700
Calcium, Total	mg/l			5.2	6	26	28	64	66	20	20	190	200
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbonate as CO3	mg/l			8.5	8.5	9.8	9.6	ND	ND	5.4	5.4	ND	ND
Cation Sum	meq/l			13	12	24	26	12	13	10	10	63	63
Chloride	mg/l	500	S	240	270	**570**	**560**	350	360	180	180	**2000**	**2100**
Fluoride	mg/l	2	P	0.74	0.64	0.5	0.46	0.18	0.17	0.82	0.73	0.22	0.21
Hardness (Total, as CaCO3)	mg/l			30	34	140	150	250	260	86	86	830	880
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodide	mg/l			120	91	1400	1100	1000	990	390	270	62	33
Iron, Total	mg/l	0.3	S	ND	**23**	**54**	ND	**34**	**34**	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.39	0.42	1.2	1.2	0.83	0.8	0.76	0.74	1.1	1.1
Magnesium, Total	None			4.1	4.6	19	20	23	24	8.8	8.7	87	92
Manganese, Total	ug/l	50	S	3.6	3.8	8.6	9.8	12	12	6	6.4	43	49
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (as NO3)	mg/l	45	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as Nitrogen	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, as Nitrogen	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/l			6.7	7.8	12	11	8.8	8.5	5	5.4	23	17
Sodium, Total	mg/l			280	270	480	520	160	160	190	190	1100	1000
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	ND	ND	320	330
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solid (TDS)	mg/l	1000	S	740	780	**1500**	**1500**	780	910	610	630	**3800**	**3900**
Total Nitrogen, Nitrate+Nitrite	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
General Physical Properties													
Apparent Color	ACU	15	S	**100**	**75**	**120**	**180**	5	**20**	**100**	**100**	10	**20**
Lab pH	Units			8.6	8.6	8.4	8.4	8.2	8.2	8.4	8.4	8	7.9
Odor	TON	3	S	2	2	2	2	2	2	2	2	2	2
Specific Conductance	umho/cm	1600	S	1300	1400	**2700**	**2700**	1400	1400	1100	1100	**6700**	**6800**
Turbidity	NTU	5	S	0.19	0.18	0.27	0.24	0.11	0.12	0.57	0.18	0.16	0.14
Metals													
Aluminum, Total	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	6	ND
Barium, Total	ug/l	1000	P	4.9	5.3	41	41	20	20	14	15	57	56
Beryllium, Total	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	ug/l	1300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	ug/l	10	P	0.14	0.19	0.19	0.24	0.027	0.03	0.26	0.29	0.023	0.053
Lead, Total	ug/l	15	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	8.5	6.6
Selenium, Total	ug/l	50	P	ND	ND	14	10	13	11	ND	ND	43	31
Silver, Total	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/l	70	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	300	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ug/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l	12	N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	ug/l	80	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride (VC)	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Others													
Total Organic Carbon	mg/l			8	6.2	22	21	2.2	2.2	12	9.4	1.4	1.5
Perchlorate	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trinitrotoluene (TNT)	ug/l	1	N	ND		ND		ND		ND		ND	
HMX	ug/l	350	N	ND		ND		ND		ND		ND	
RDX	ug/l	0.3	N	ND		ND		ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (N): Notification Level (ND): Not detected

TABLE 3.3
QUALITY OF REPLENISHMENT WATER

Constituent	Units	Regulatory Limit	IMPORTED WATER			RECYCLED WATER							LOCAL WATER
			Treated Blend of Colorado River & State Water Project [A]	Untreated Colorado River [B]	Untreated State Water Project [C]	WBMWD ELWRF [D]	LADWP TIWRP [E]	WRD LVL AWTF [F]	SDLAC Pomona WRP [G]	SDLAC San Jose Creek East WRP [G]	SDLAC San Jose Creek West WRP [G]	SDLAC Whittier Narrows WRP [G]	Stormwater [H]
			2017	2017	2017	2017	2017	2018	2017-2018	2017-2018	2017-2018	2017-2018	2016-2017
Arsenic	µg/L	MCL = 10	ND/ 2.4	2.2	ND	ND	NA	ND	0.293	1.25	0.928	0.363	NA
Chloride	mg/L	SMCL = 500	81.7 [I] / 57.9 [I]	94 [I]	60 [I]	14	96 [J]	41	138	138	115	114	23.7
Hexavalent Chromium	µg/L	MCL = 10	ND / ND	ND	ND	0.18	NA	0.14	0.07	0.1	0.09	0.06	NA
Iron	µg/L	SMCL = 300	ND / ND	ND	194	ND	NA	ND	46	47	45	38.1	NA
Manganese	µg/L	SMCL = 50	ND / ND	ND	ND	0.28	NA	ND	8.46	6.13	10.1	1.61	NA
Nitrate (as N)	mg/L	MCL = 10	ND / 0.6	ND	0.4	0.37	0.65	1.37	5.81	6.16	6.46	6.53	3.9
Perchlorate	µg/L	MCL = 6	ND / ND	ND	ND	ND	NA	ND	0.36	0.31	0.5	0.4	NA
Tetrachloroethylene (PCE)	µg/L	MCL = 5	ND / ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA
Trichloroethylene (TCE)	µg/L	MCL = 5	ND / ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA
Total Dissolved Solids (TDS)	mg/L	SMCL = 1,000	447 [I] / 247 [I]	605 [I]	221 [I]	95	248 [J]	165	579	597	555	597	436
Alkalinity	mg/L	None	91 [I] / 73 [I]	118 [I]	67 [I]	70	NA	NA	160	148	169	159	NA
Boron	µg/L	NL = 1,000	100/190	120	110	420	595 [J]	240	280	310	340	290	NA
Chromium, Total	µg/L	MCL = 50	ND / ND	ND	ND	0.3	NA	ND	1.5	0.90	1.0	0.95	1.58
Copper, Total	µg/L	SMCL = 1,000	ND / ND	ND	ND	2.1	NA	ND	5.25	3.73	5.55	3.48	6.5
1,4-Dioxane	ug/L	NL = 1	NA	NA	NA	ND	NA	NA	1.4	1.1	1.1	1.0	NA
Hardness	mg/L	None	192 [I] / 93 [I]	276 [I]	87 [I]	48	NA	36	211	206	202	207	75
Lead, Total	µg/L	AL = 15	ND / ND	ND	ND	0.22	NA	NA	0.36	0.16	0.17	0.089	4.38
Methyl tertiary butyl ether (MTBE)	µg/L	SMCL = 5	ND / ND	ND	ND	ND	NA	ND	ND	ND	0.13	ND	NA
Nitrite (as N)	mg/L	MCL = 1	ND / ND	ND	ND	0.13	ND	0.03	0.13	0.0034	0.1	0.083	ND
n-Nitrosodimethylamine (NDMA)	ng/L	NL = 10	ND / 3.2	NA	NA	5.0	NA	2.8	249	49	308	28	ND
pH	pH Units	None	8.6 / 8.3	8.3	7.7	8.0	8.1	8.2	7.4	7.0	7.2	7.3	NA
Selenium	µg/L	MCL = 50	ND / ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA
Specific Conductance	µS/cm	SMCL = 1,600	753 [I] / 445 [I]	979 [I]	400 [I]	91	NA	270	NA	NA	NA	NA	344
Sulfate	mg/L	SMCL = 500	151 [I] / 48 [I]	236 [I]	33 [I]	0.66	2.84 [J]	0.36	68	97.4	79	108	56.3
Total Organic Carbon (TOC)	mg/L	None [K]	3.0 / 3.1	3.11 [I]	3.66 [I]	0.38	0.26	0.24	6.9	6.25	5.46	5.55	NA
Turbidity	NTU	SMCL = 5	0.05 [I] / 0.04 [I]	1.0 [I]	0.8 [I]	0.08	NA	ND	0.61	0.63	0.83	0.37	NA

See footnotes on following page.

TABLE 3.3
QUALITY OF REPLENISHMENT WATER

Notes:

A = Used at the seawater intrusion barriers: generally, Diemer Plant effluent / Jensen Plant effluent (Data Source #1).

B = Used at the Montebello Forebay spreading grounds (Lake Mathews) (Data Source #1).

C = Used at the Montebello Forebay spreading grounds (Silverwood Lake) (Data Source #1).

D = Effluent of Edward C. Little Water Recycling Facility (ELWRF) before blending with treated water from Colorado River/State Water Project; used at the West Coast Basin Seawater Intrusion Barrier (Data Source #4).

E = Effluent of Terminal Island Water Reclamation Plant/Advanced Water Treatment Facilities (TIWRP) before blending with treated water from Colorado River/State Water Project; used at the Dominguez Gap Seawater Intrusion Barrier.

F = Effluent of Leo J. Vander Lans Advanced Water Treatment Facility (LVL AWTF) before blending with treated water from Colorado River/State Water Project; used at the Alamitos Gap Seawater Intrusion Barrier (Data Source #7).

G = Effluent of water reclamation plants (WRPs); used at the Montebello Forebay spreading grounds (Data Source #3).

H = Average concentration of water samples collected from LACDPW San Gabriel River Monitoring Station S14 from December 2016 through March 2017 (four storm events total) (Data Source #5).

I = Average concentration for Water Year October 2017 through September 2018 (Data Source #2).

J = Average concentration in blended water (treatment plant effluent & treated water from Colorado River/State Water Project), which is delivered to the Dominguez Gap Seawater Intrusion Barrier (Data Source #6).

K = California's 2014 Groundwater Replenishment Using Recycled Water Regulations specify the following TOC limits for groundwater replenishment projects:

- For surface spreading (surface application), TOC limit = 0.5 mg/L divided by the 120-month running monthly average recycled water contribution (e.g., the TOC limit for a 100% recycled water project would be 0.5 mg/L.) For compliance determination, TOC may be monitored in one of the following: 1) undiluted recycled municipal wastewater prior to application or within the zone of percolation; 2) diluted percolated recycled municipal wastewater, with the value amended to negate the effect of the diluent water; or 3) undiluted recycled municipal wastewater prior to application, with the value amended using a soil-aquifer treatment factor approved by the Division of Drinking Water.
- For injection (subsurface application), TOC limit = 0.5 mg/L. For compliance determination, TOC is monitored in the applied recycled municipal wastewater.

NA = Not Available/Analyzed
ND = Not Detected
NS = Not sampled due to plant shutdown
mg/L = milligrams per liter
µg/L = micrograms per liter
µS/cm = microSiemen per centimeter

NTU = Nephelometric Turbidity Units
MCL = Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Level
AL = Action Level
NL = Notification Level
WRP = Water Reclamation Plant

LACDPW = Los Angeles County Department of Public Works
LADWP = Los Angeles Department of Water and Power
MWD = Metropolitan Water District of Southern California
SDLAC = County Sanitation Districts of Los Angeles County
WBMWD = West Basin Municipal Water District
WRD = Water Replenishment District of Southern California

Sources of Data:

(1) 2017 Water Quality Report to MWD Member Agencies (Metropolitan Water District of Southern California, March 2018)

(2) Table D, Monthly Analyses of the District Water Supplies (Metropolitan Water District of Southern California, October 2017 - September 2018)

(3) October 2017 - September 2018 Annual Monitoring Report, Montebello Forebay Groundwater Recharge (County Sanitation Districts of Los Angeles County [SDLAC], December 14, 2018)

(4) Annual West Coast Basin Barrier Project Monitoring Report for 2017, Edward C. Little Water Recycling Facility (West Basin Municipal Water District [WBMWD], March 27, 2018)

(5) Annual stormwater monitoring data provided by Los Angeles County (Los Angeles County Department of Public Works [LACDPW])

(6) Annual Monitoring Report - January-December 2017, Harbor Water Recycling/Dominguez Gap Barrier Project (City of Los Angeles, Bureau of Sanitation)

(7) 2018 Annual Summary Report, Alamitos Barrier Recycled Water Project, Leo J. Vander Lans Water Treatment Facility (Water Replenishment District of Southern California [WRD], April 2019)

TABLE 3.4
MAJOR MINERAL WATER QUALITY GROUPS

NESTED MONITORING WELL LOCATIONS	GROUP A ZONES Generally Calcium Bicarbonate or Calcium Bicarbonate/Sulfate Dominant	GROUP B ZONES Generally Calcium-Sodium-Bicarbonate or Sodium-Bicarbonate Dominant	GROUP C ZONES Generally Sodium-Chloride Dominant	OTHER ZONES Generally Different Than Groups A, B, and C
CENTRAL BASIN				
Bell #1	2, 3, 4, 5, 6	1		
Bell Gardens #1	1, 2, 3, 4, 5, 6			
Cerritos #1	4, 5, 6	1, 2, 3		
Cerritos #2	1, 2, 3, 4, 5, 6			
Commerce #1	3, 4, 5, 6		1	2
Compton #1	2, 3, 4, 5	1		
Compton #2	2, 3, 4, 5	1		6
Downey #1	1, 2, 3, 4, 5, 6			
Huntington Park #1	1, 2, 3, 4			
Inglewood #2		1, 2, 3		
Lakewood #1	2, 3, 4, 5, 6	1		
Lakewood #2		1, 2, 3, 4, 5, 6, 7, 8		
La Mirada #1	4, 5	1, 2, 3		
Long Beach #1	4	1, 2, 3, 5		6
Long Beach #2	4, 5, 6	1, 2, 3		
Long Beach #6	6	1, 2, 3, 4, 5		
Los Angeles #1	1, 2, 3, 4, 5			
Los Angeles #2	2, 3, 4			
Los Angeles #3	2, 3, 4, 5, 6	1		
Los Angeles #4	3, 4, 5, 6	1, 2		
Los Angeles #5			1, 2	3, 4, 5, 6
Lynwood #1	3, 4, 5, 6, 7, 8, 9	1, 2		
Montebello #1	3, 4, 5	2		1
Norwalk #1	4, 5	1, 2, 3		
Norwalk #2	3, 4, 5, 6	1, 2		
Rio Hondo #1	1, 2, 3, 4, 5, 6			
Pico #1	2, 3, 4	1		
Pico #2	1, 2, 3, 4, 5, 6			
Seal Beach #1	6	1, 2, 3, 4, 5		7
South Gate #1	1, 2, 3, 4, 5			
Willowbrook #1	2, 3, 4	1		
Whittier #1	3, 4, 5		1, 2	
Whittier #2	1, 3, 4, 5, 6	2		
Whittier Narrows #1	3, 4, 5, 6, 7, 8, 9	2	1	
WEST COAST BASIN				
Carson #1	3, 4	1, 2		
Carson #2	1, 2, 3, 4, 5			
Carson #3	5, 6	1, 2, 3, 4		
Chandler #3	2	1		
Gardena #1	2, 3	1	4	
Gardena #2	2, 3, 4, 5	1		
Hawthorne #1	5, 6	1, 2, 3, 4		
Inglewood #1	3, 4, 5			1
Inglewood #3		1, 2, 3, 4, 5	6, 7	
Lawndale #1	4, 5	1, 2, 3		6
Lomita #1	2, 3, 4, 5			1
Long Beach #3		1, 2, 3	4, 5	
Long Beach #8		1, 2, 3	6	4, 5
Manhattan Beach #1		3	5,6	7
PM-2 Police Station			1,2,4	3
PM-3 Madrid	3, 4	1, 2		
PM-4 Mariner	4	1	2	3
PM-5 Columbia Park	6	1, 2, 3, 4	5	
PM-6 Madrona Marsh	6	2, 4	3, 5	1
Westchester #1		1, 2, 3, 4, 5		
Wilmington #1			1, 2, 3, 4, 5	
Wilmington #2		1	2, 3, 4, 5	

Note - Values shown above represent the various zones at each nested well location classified by major mineral water quality group.

FIGURES

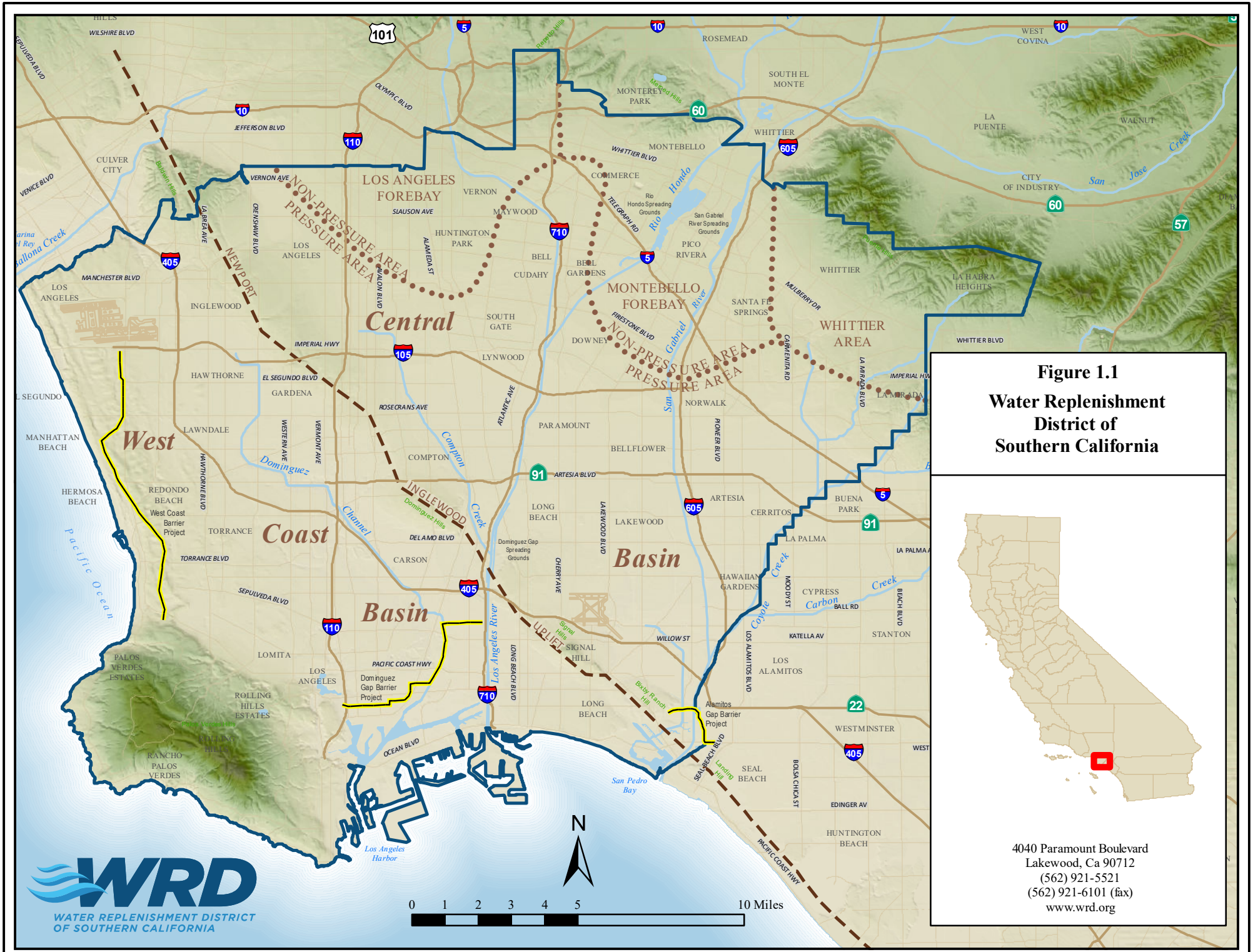
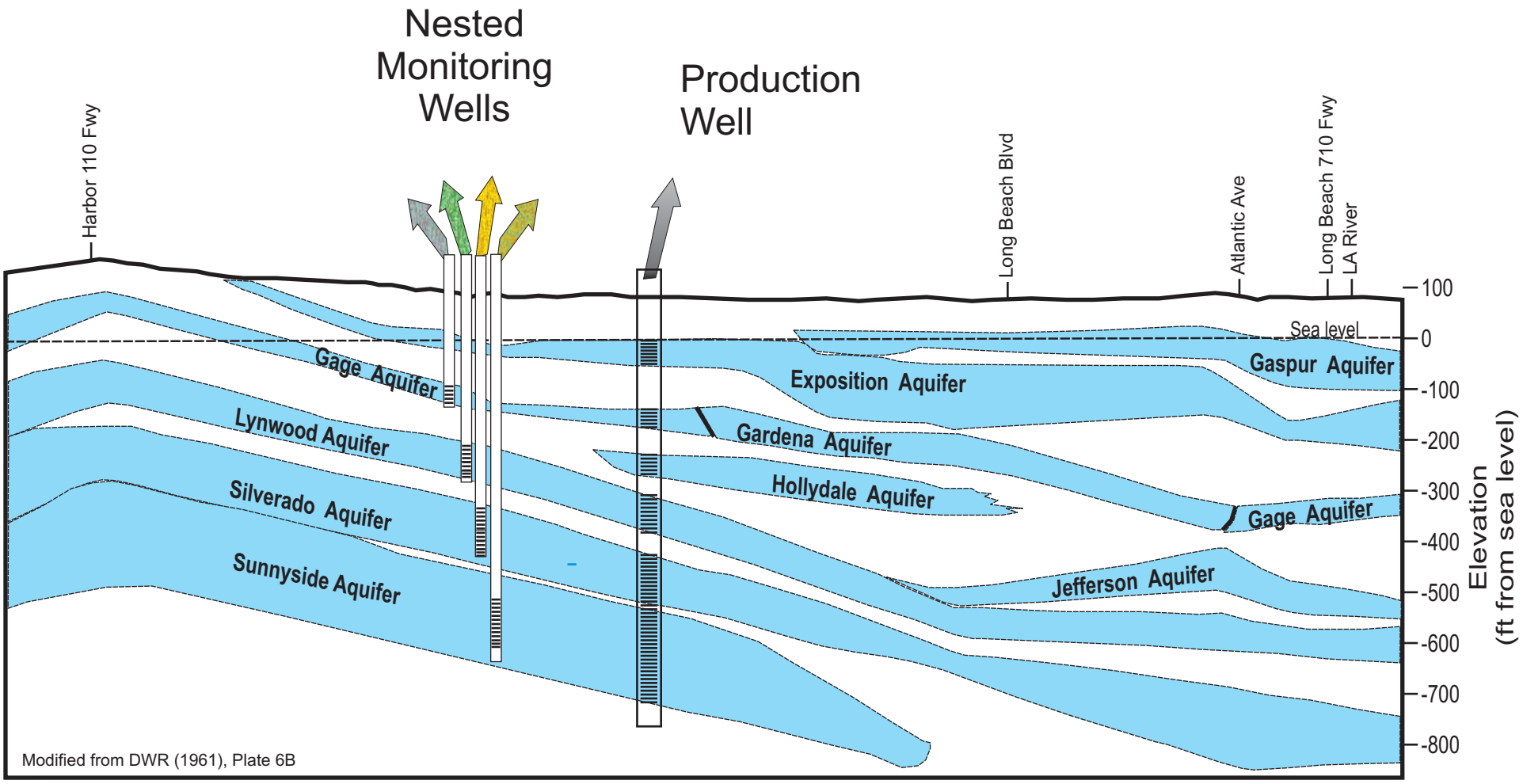


Figure 1.1
Water Replenishment District of Southern California
4040 Paramount Boulevard
Lakewood, Ca 90712
(562) 921-5521
(562) 921-6101 (fax)
www.wrd.org
WRD
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA
West Coast Basin
Central Basin
LOS ANGELES FOREBAY
MONTEBELLO FOREBAY
NON-PRESSURE AREA
PRESSURE AREA
WHITTIER AREA
Dominguez Gap Barrier Project
West Coast Barrier Project
Alamitos Gap Barrier Project
Rio Hondo Spreading Grounds
San Gabriel River Spreading Grounds
Dominguez Gap Spreading Grounds
Los Angeles Harbor
San Pedro Bay
Pacific Ocean
0 1 2 3 4 5 10 Miles
N

FIGURE 1.2
NESTED WELLS vs. PRODUCTION WELLS
FOR AQUIFER-SPECIFIC DATA



Production wells are typically perforated across multiple aquifers producing an average water quality. Nested monitoring wells are screened in a portion of a specific aquifer, providing water quality and water level information for the specific zone.

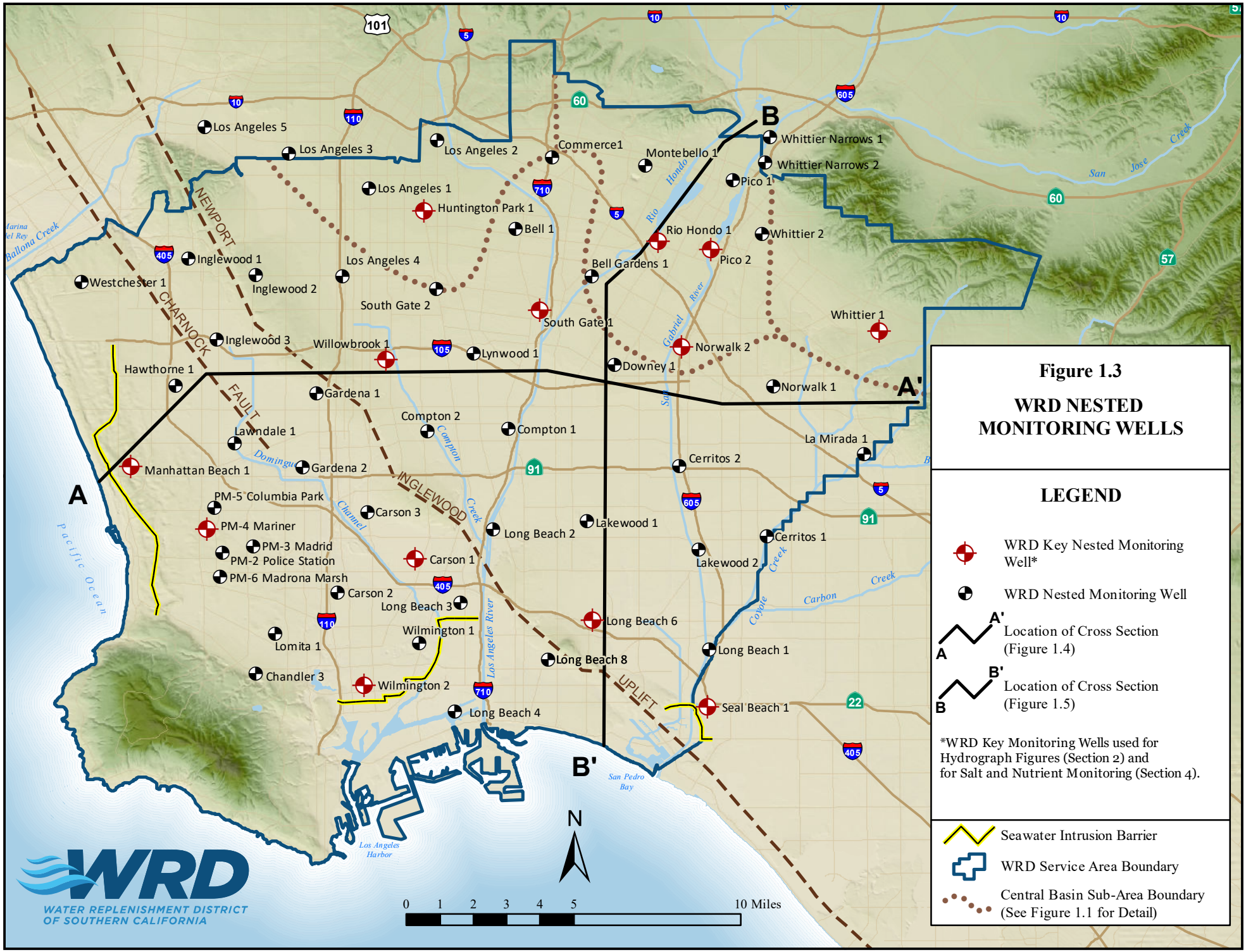
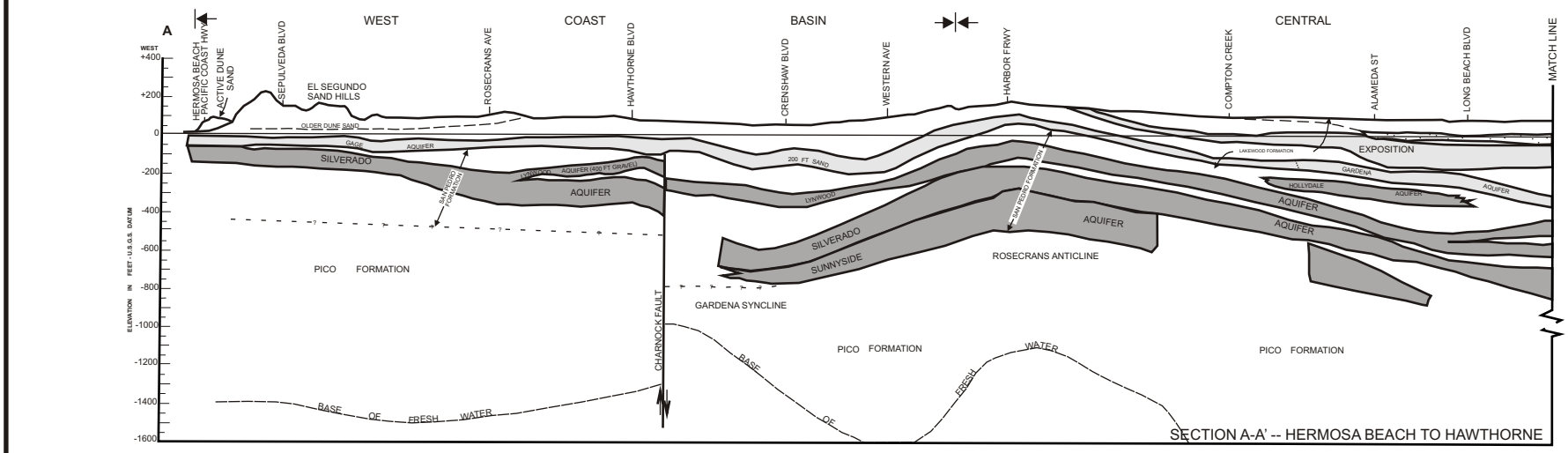
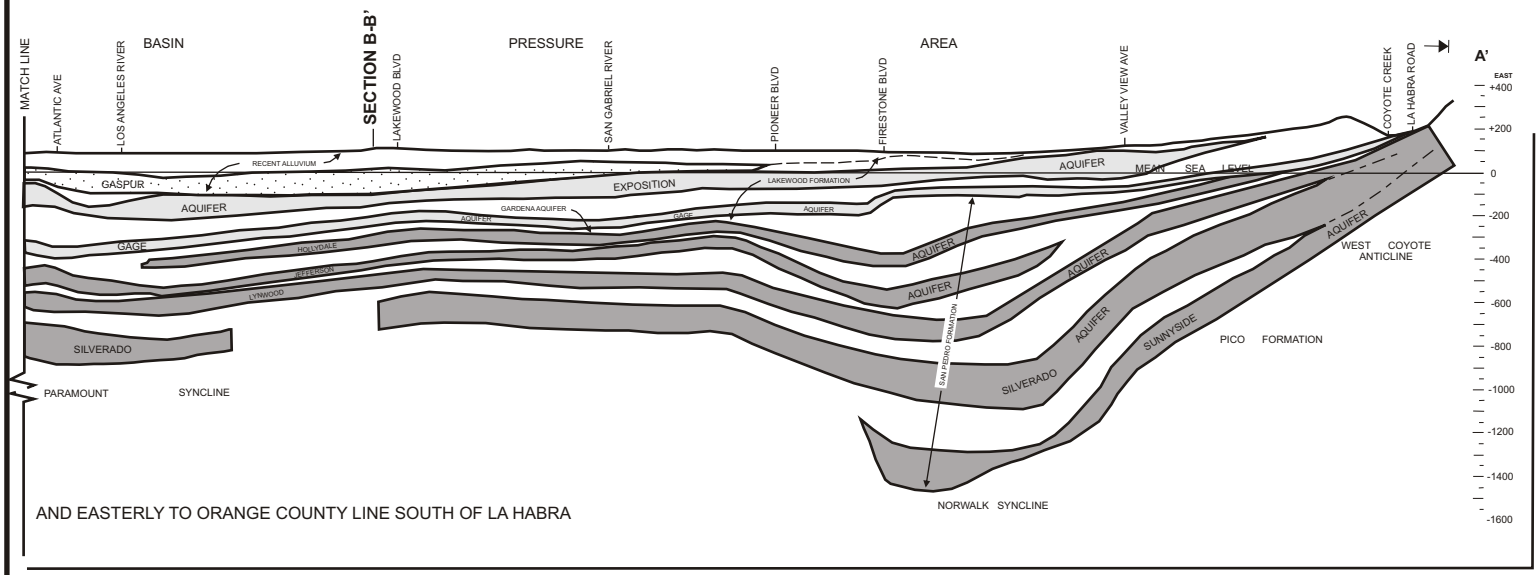


Figure 1.3
WRD NESTED MONITORING WELLS
LEGEND
WRD Key Nested Monitoring Well*
WRD Nested Monitoring Well
A'
A
Location of Cross Section (Figure 1.4)
B'
B
Location of Cross Section (Figure 1.5)
*WRD Key Monitoring Wells used for Hydrograph Figures (Section 2) and for Salt and Nutrient Monitoring (Section 4).
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 2
Commerce1
Montebello 1
Whittier Narrows 1
Whittier Narrows 2
Pico 1
Los Angeles 1
Huntington Park 1
Bell 1
Rio Hondo 1
Whittier 2
Pico 2
Inglewood 1
Los Angeles 4
Bell Gardens 1
Westchester 1
Inglewood 2
South Gate 2
South Gate 1
Whittier 1
Inglewood 3
Willowbrook 1
Lynwood 1
Norwalk 2
Hawthorne 1
Downey 1
Norwalk 1
Gardena 1
Compton 2
Compton 1
Lawndale 1
La Mirada 1
Manhattan Beach 1
Gardena 2
Cerritos 2
PM-5 Columbia Park
Carson 3
Lakewood 1
PM-4 Mariner
Long Beach 2
Cerritos 1
PM-3 Madrid
PM-2 Police Station
Carson 1
Lakewood 2
PM-6 Madrona Marsh
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Long Beach 8
Long Beach 1
Chandler 3
Wilmington 2
Seal Beach 1
Long Beach 4
NEWPORT
CHARNOCK
FAULT
INGLEWOOD
UPLIFT
Los Angeles River
Compton Creek
Rio Hondo
San Gabriel River
Coyote Creek
Carbon Creek
Dominguez Channel
Ballona Creek
San Jose Creek
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA





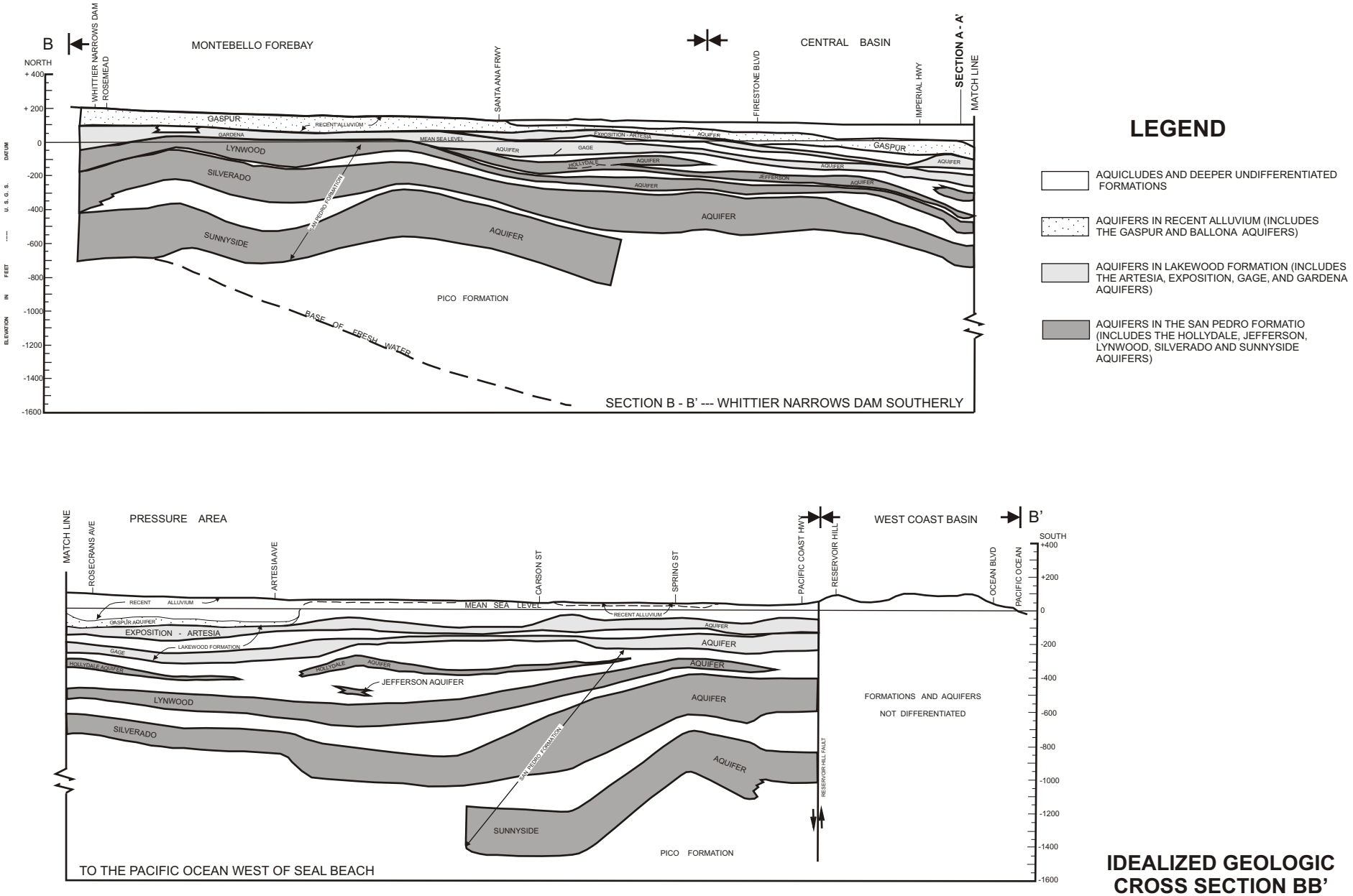
LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN THE SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO AND SUNNYSIDE AQUIFERS)

IDEALIZED GEOLOGIC CROSS SECTION AA'

Adapted from
CDWR Bull. 104 App. B

FIGURE 1.4



LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN THE SAN PEDRO FORMATIO (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO AND SUNNYSIDE AQUIFERS)

IDEALIZED GEOLOGIC CROSS SECTION BB'

Adapted from
CDWR Bull. 104 App. B

FIGURE 1.5

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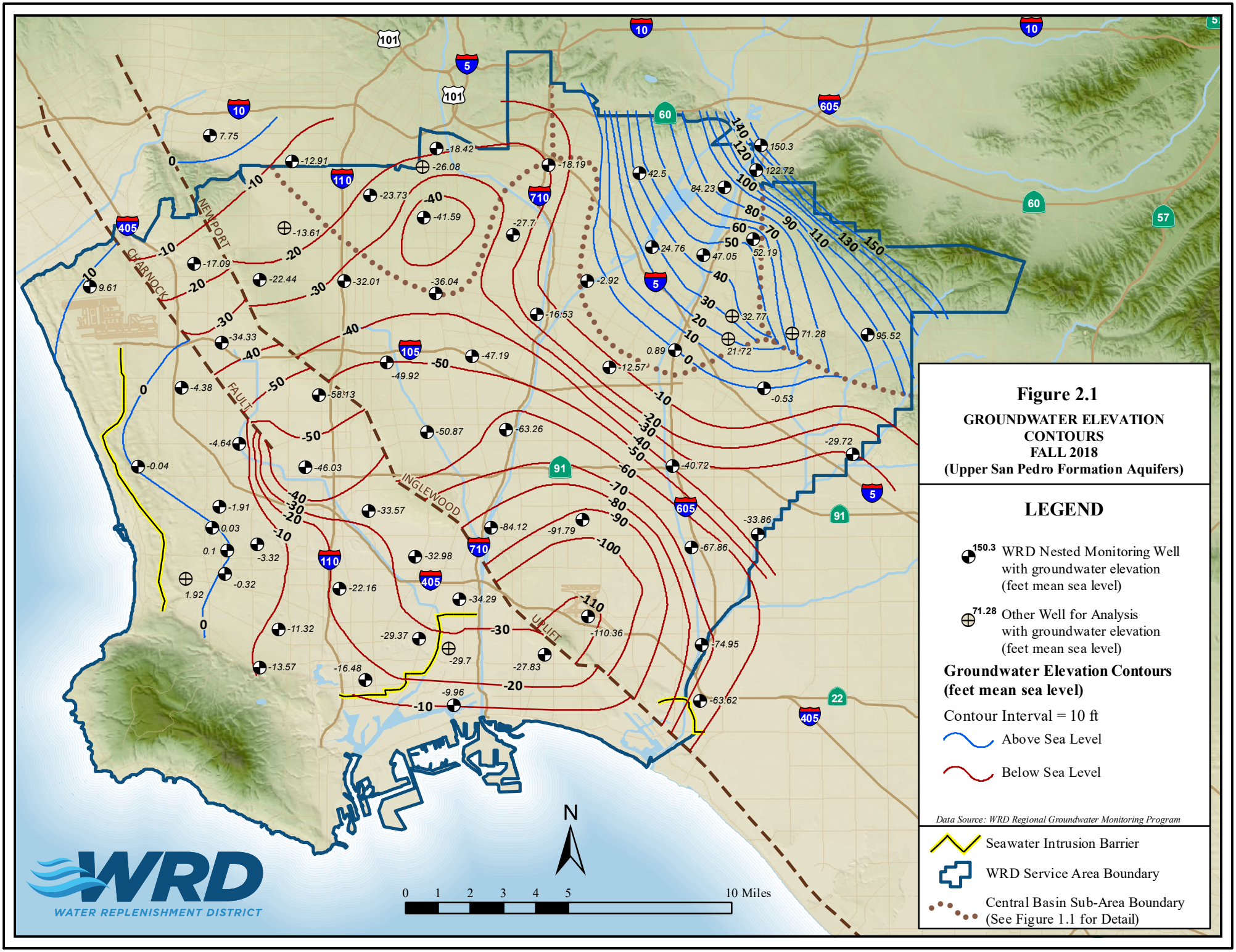


Figure 2.1
GROUNDWATER ELEVATION CONTOURS
FALL 2018
(Upper San Pedro Formation Aquifers)
LEGEND
150.3 WRD Nested Monitoring Well with groundwater elevation (feet mean sea level)
71.28 Other Well for Analysis with groundwater elevation (feet mean sea level)
Groundwater Elevation Contours (feet mean sea level)
Contour Interval = 10 ft
Above Sea Level
Below Sea Level
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
NEWPORT
CHARNOCK
FAULT
INGLEWOOD
UPLIFT
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

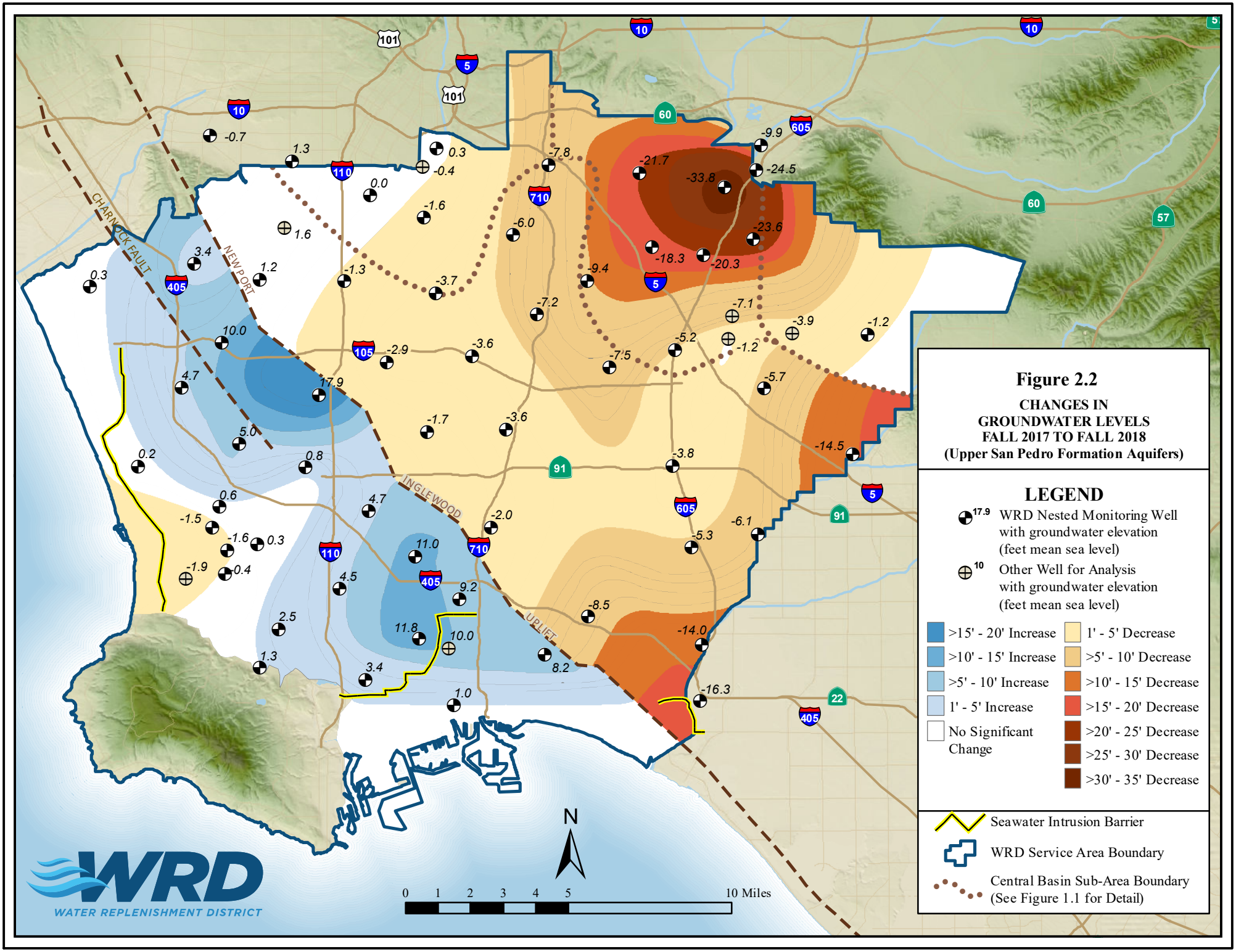


Figure 2.2
CHANGES IN
GROUNDWATER LEVELS
FALL 2017 TO FALL 2018
(Upper San Pedro Formation Aquifers)
LEGEND
17.9 WRD Nested Monitoring Well with groundwater elevation (feet mean sea level)
10 Other Well for Analysis with groundwater elevation (feet mean sea level)
>15' - 20' Increase
>10' - 15' Increase
>5' - 10' Increase
1' - 5' Increase
No Significant Change
1' - 5' Decrease
>5' - 10' Decrease
>10' - 15' Decrease
>15' - 20' Decrease
>20' - 25' Decrease
>25' - 30' Decrease
>30' - 35' Decrease
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
CHARNOCK FAULT
NEWPORT
INGLEWOOD
UPLIFT
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

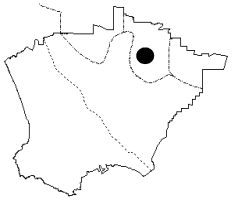


FIGURE 2.3
WATER LEVELS IN WRD KEY NESTED MONITORING WELL RIO HONDO #1

Reference point elevation 146.51 feet above mean sea level

Feet Above Mean Sea Level

Zones 1, 2and 3 overlay

6

5

4

Zone 1 (1110' - 1130', Pico Fm)
Zone 2 (910' - 930', Sunnyside)
Zone 3 (710' - 730', Sunnyside)
Zone 4 (430' - 450', Silverado)
Zone 5 (280' - 300', Hollydale)
Zone 6 (140' - 160', Gardena)

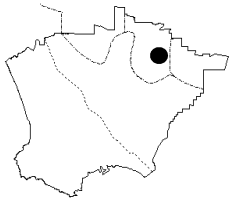


FIGURE 2.4
WATER LEVELS IN WRD KEY NESTED MONITORING WELL PICO #2

Reference point elevation 151.83 feet above mean sea level

Feet Above Mean Sea Level

140 130 120 110 100 90 80 70 60 50 40 30 20

Jan-99 Jul-99 Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

6
4
5
3
1
2

Zone 1 (1180' - 1200', Sunnyside)
Zone 2 (830' - 850', Sunnyside)
Zone 3 (560' - 580', Sunnyside)
Zone 4 (320' - 340', Silverado)
Zone 5 (235' - 255', Lynwood)
Zone 6 (100' - 120', Gaspur/Gage)

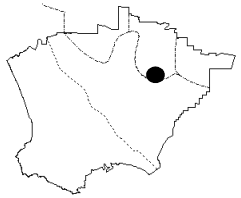


FIGURE 2.5
WATER LEVELS IN WRD KEY NESTED MONITORING WELL NORWALK #2

Reference point elevation 116.73 feet above mean sea level

Feet Above Mean Sea Level

80 70 60 50 40 30 20 10 0 -10 -20 -30

Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

6
5
4
3

Zones 1 and 2 overlay

Zone 1 (1460 - 1480', Pico Fm)
Zone 2 (1260 - 1280', Pico Fm)
Zone 3 (960 - 980', Sunnyside)
Zone 4 (800 - 820', Sunnyside)
Zone 5 (480 - 500', Silverado)
Zone 6 (236 - 256', Gardena)

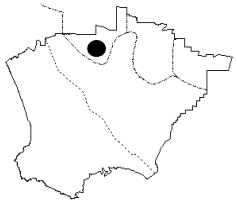
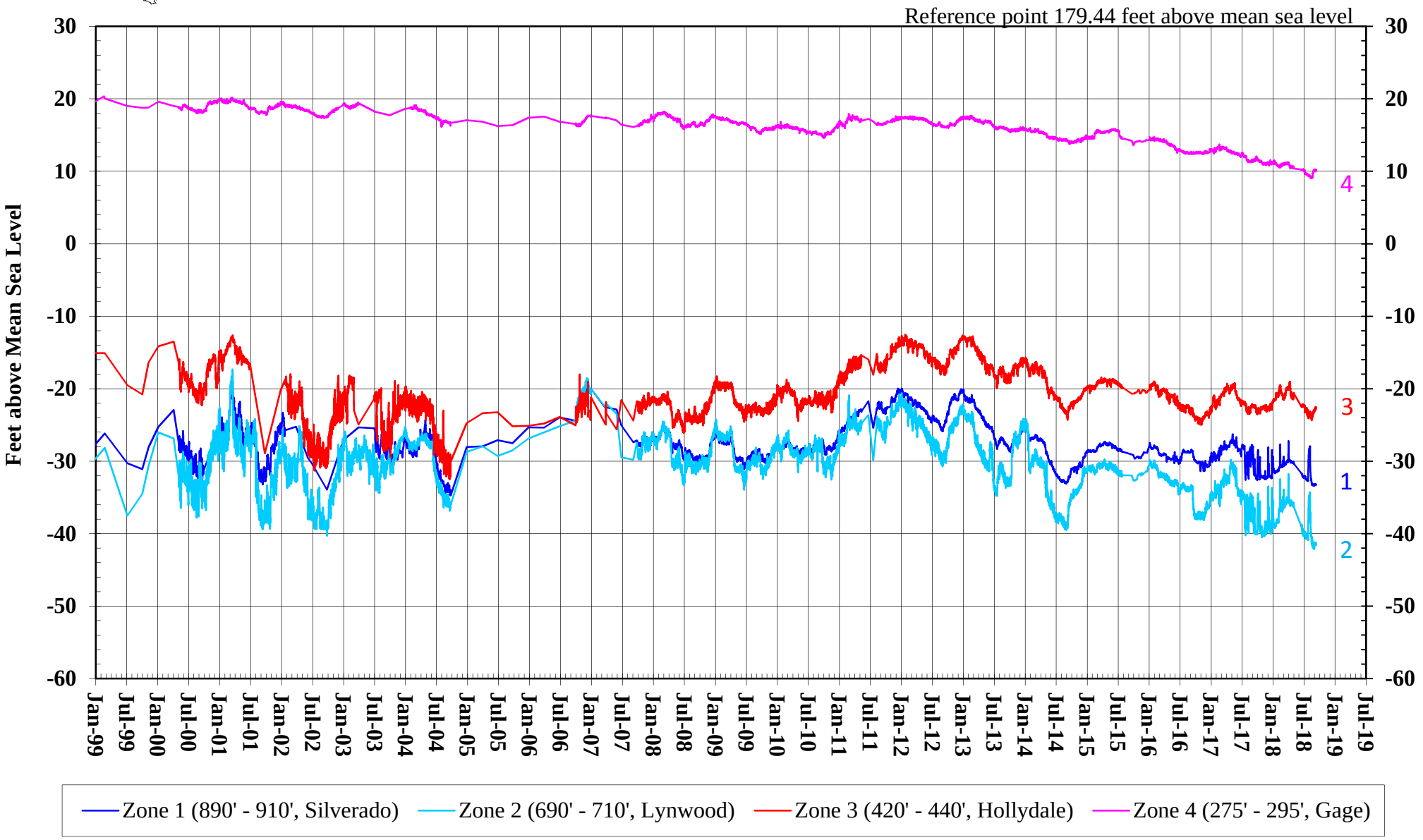


FIGURE 2.6
WATER LEVELS IN WRD KEY NESTED MONITORING WELL HUNTINGTON PARK #1



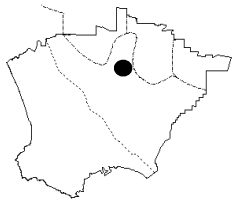


FIGURE 2.7
WATER LEVELS IN WRD KEY NESTED MONITORING WELL SOUTH GATE #1

Reference point elevation 102.50 feet above mean sea level

Feet Above Mean Sea Level

60 50 40 30 20 10 0 -10 -20 -30 -40

Jan-99 Jul-99 Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

5
2
3
4
1

Zone 1 (1440' - 1460', Sunnyside)
Zone 2 (1320' - 1340', Sunnyside)
Zone 3 (910' - 930', Silverado)
Zone 4 (565' - 585', Lynwood)
Zone 5 (220' - 240', Exposition)

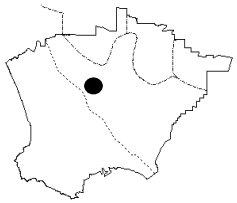


FIGURE 2.8
WATER LEVELS IN WRD KEY NESTED MONITORING WELL WILLOWBROOK #1

Reference point elevation 98.87 feet above mean sea level

Feet Above Mean Sea Level

0 -10 -20 -30 -40 -50 -60 -70 -80

Jan-99 Jul-99 Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

2
4
3
1

Zone 1 (885' - 905', Sunnyside) Zone 2 (500' - 520', Silverado) Zone 3 (360' - 380', Lynwood) Zone 4 (200' - 220', Gage)

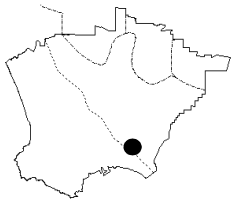
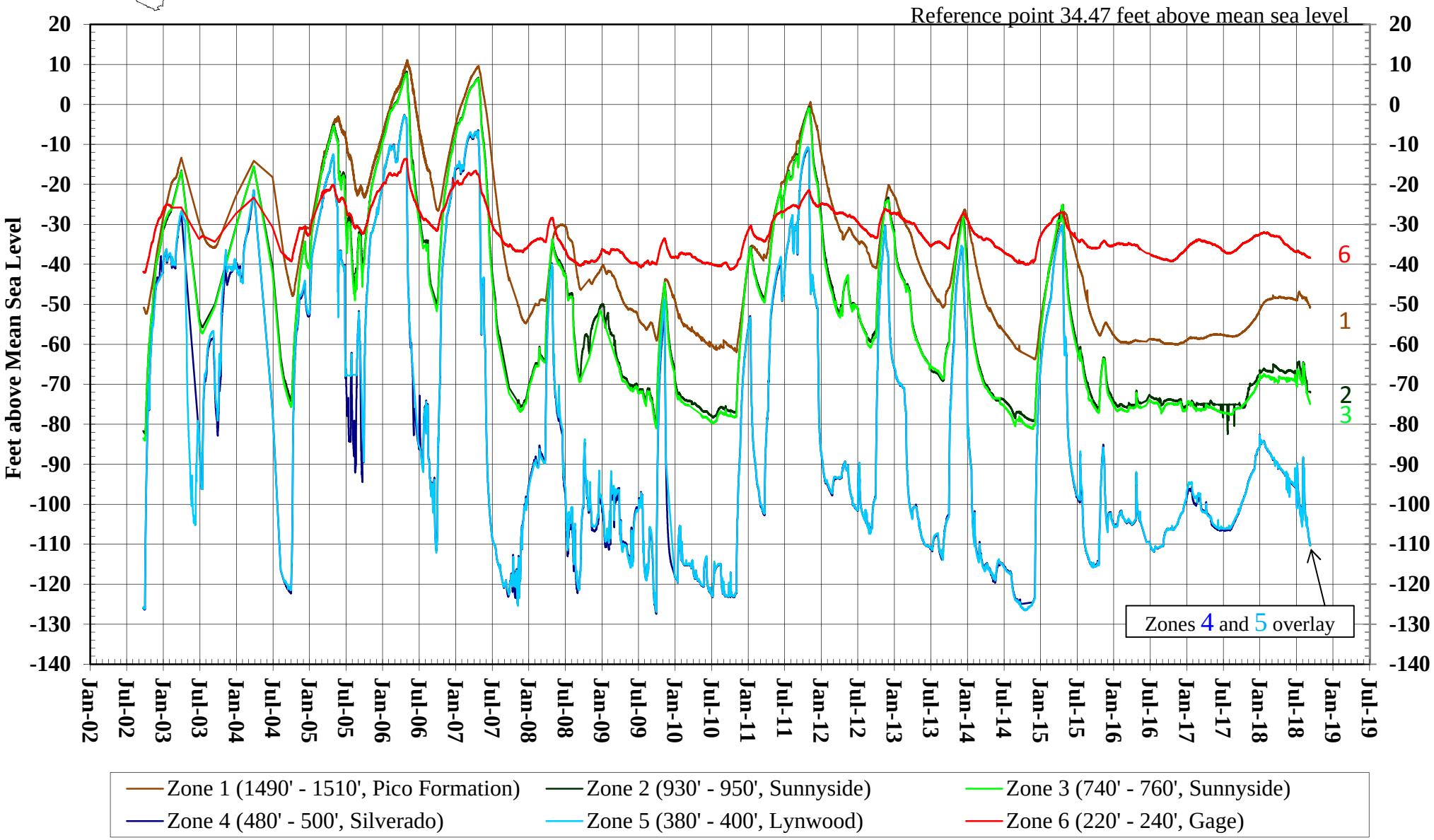


FIGURE 2.9
WATER LEVELS IN WRD KEY NESTED MONITORING WELL LONG BEACH #6



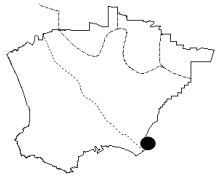


FIGURE 2.10
WATER LEVELS IN WRD KEY NESTED MONITORING WELL SEAL BEACH #1

Reference Point Elevation 9.06 ft above mean sea level

Feet Above Mean Sea Level

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90

Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

7
6
1, 2, 3
5
4

Zone 1 (1345'-1365', Sunnyside)
Zone 2 (1160' - 1180', Sunnyside)
Zone 3 (1020' - 1040', Sunnyside)
Zone 4 (775' - 795', Silverado)
Zone 5 (605' - 625', Lynwood)
Zone 6 (215' - 235', Gage)
Zone 7 (60' - 70', Artesia)

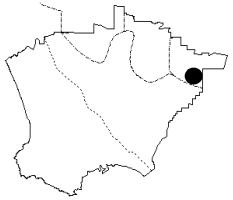


FIGURE 2.11
WATER LEVELS IN WRD KEY NESTED MONITORING WELL WHITTIER #1

Reference point elevations 217.35 (Zones 1, 2, 4 and 5) and 217.81 (Zone 3) feet above mean sea level

Feet Above Mean Sea Level

220 200 180 160 140 120 100 80 60 40 20 0

Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

Zones 1 and 2 overlay

5

3

4

Zone 1 (1180' - 1200', Pico Fm)
Zone 2 (920' - 940', Pico Fm)
Zone 3 (600' - 620', Sunnyside)
Zone 4 (450' - 470', Silverado)
Zone 5 (200' - 220', Jefferson)

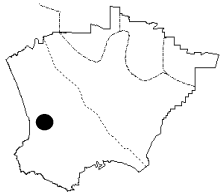


FIGURE 2.12
WATER LEVELS IN WRD NESTED MONITORING WELL PM-4 MARINER

Reference point elevation 100.38 feet above mean sea level

Feet Above Mean Sea Level

40 30 20 10 0 -10 -20 -30 -40 -50

Jan-99 Jul-99 Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

Zones 3, 4 overlay

2

1

Zone 1 (670' - 710', Sunnyside)

Zone 2 (500' - 540', Silverado)

Zone 3 (340' - 380', Lynwood)

Zone 4 (200' - 240', Gardena)

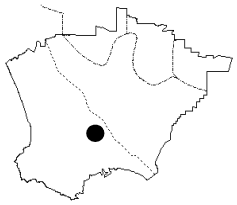
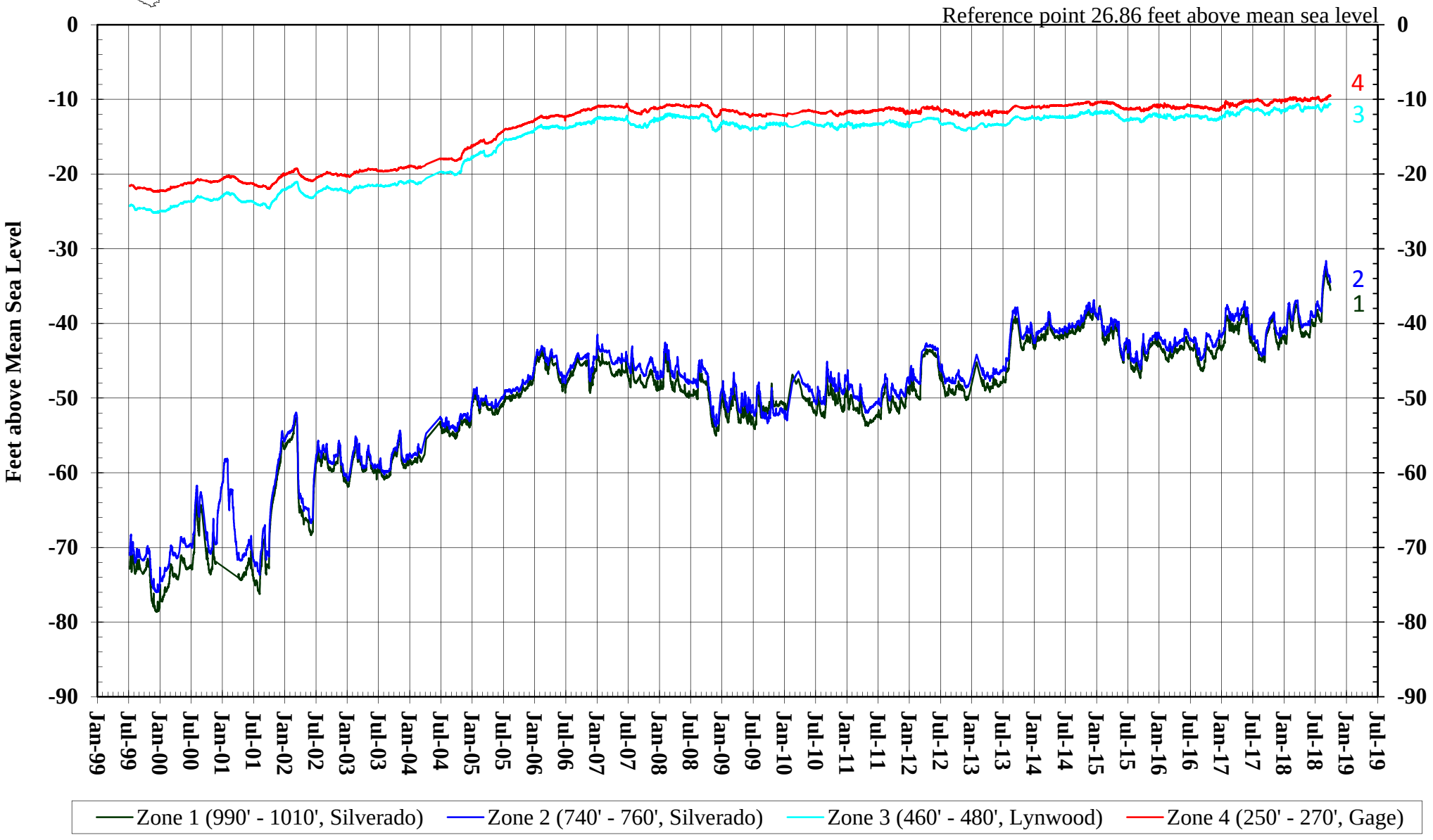


FIGURE 2.13
WATER LEVELS IN WRD KEY NESTED MONITORING WELL CARSON #1



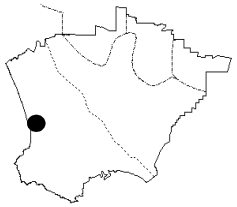


FIGURE 2.14
WATER LEVELS IN WRD KEY NESTED MONITORING WELL MANHATTAN BEACH #1

Reference point elevation 128.71 feet above mean sea level

Feet above Mean Sea Level

30
20
10
0
-10
-20
-30
-40
-50

Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

7
6
4
1
5
2
3

Zone 1 (1950-1990', Pico Fm)
Zone 2 (1570-1590', Pico Fm)
Zone 3 (1250-1270', Pico Fm)
Zone 4 (865-885', Sunnyside)
Zone 5 (640-660', Sunnyside)
Zone 6 (320-340', Silverado)
Zone 7 (180-200', Gage)

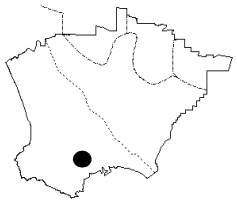


FIGURE 2.15
WATER LEVELS IN WRD KEY NESTED MONITORING WELL WILMINGTON #2

Reference point elevation 32.30 feet above mean sea level

Feet Above Mean Sea Level

0
-10
-20
-30
-40
-50
-60
-70
-80

Jul-98 Jan-99 Jul-99 Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19

5
4
3
2
1

Zone 1 (950' - 970', Sunnyside)
Zone 2 (755' - 775', Silverado)
Zone 3 (540' - 560', Silverado)
Zone 4 (390' - 410', Lynwood)
Zone 5 (120' - 140', Gage)

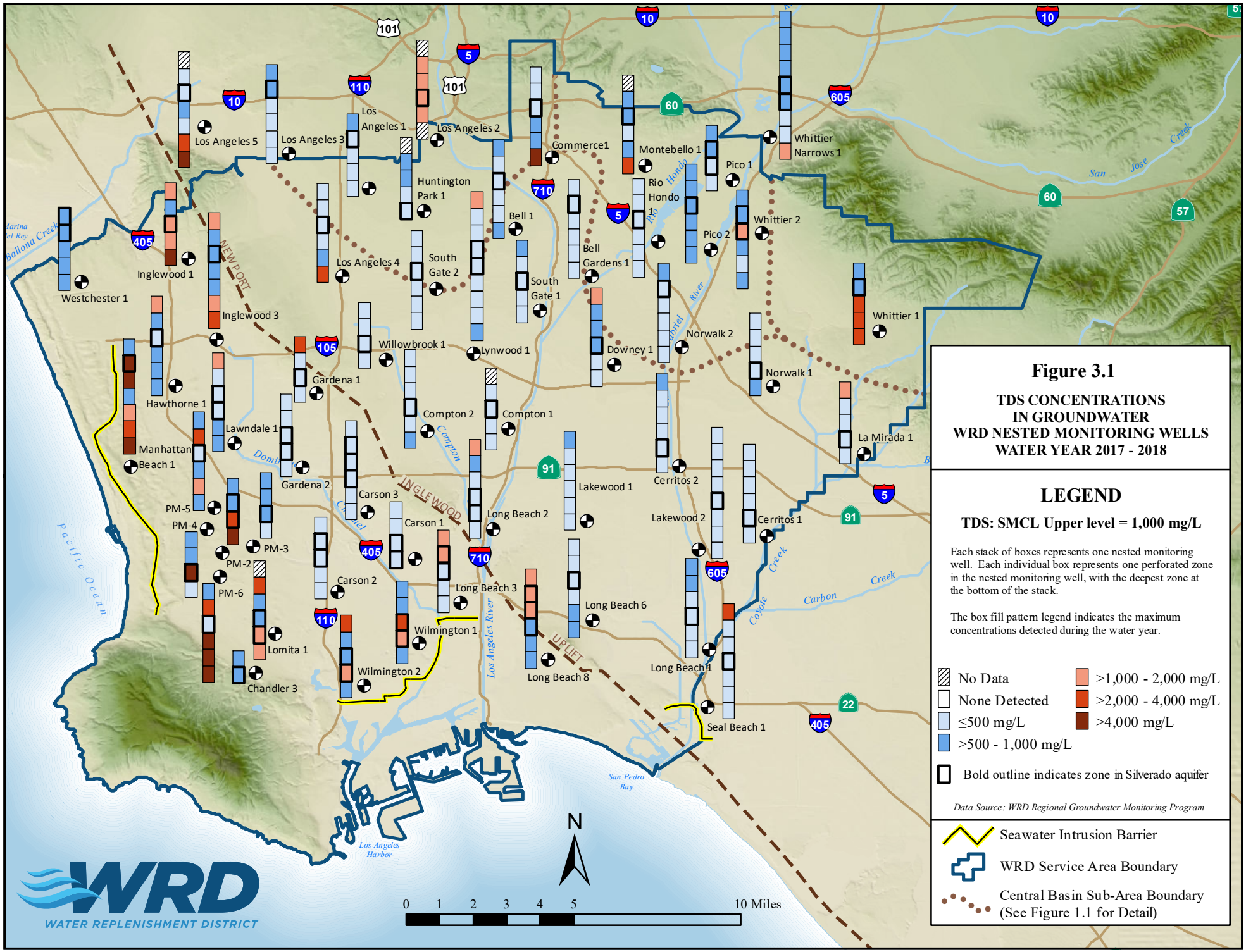


Figure 3.1
TDS CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
TDS: SMCL Upper level = 1,000 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤500 mg/L
>500 - 1,000 mg/L
>1,000 - 2,000 mg/L
>2,000 - 4,000 mg/L
>4,000 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Long Beach 8
Long Beach 1
Wilmington 2
Chandler 3
Seal Beach 1
Pacific Ocean
Los Angeles River
Coyote Creek
Carbon Creek
San Pedro Bay
Los Angeles Harbor
NEWPORT
INGLEWOOD
UPLIFT
Compton
Dominguez
Centinela
Ballona Creek
Rio Hondo
Hondo River
San Jose Creek
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

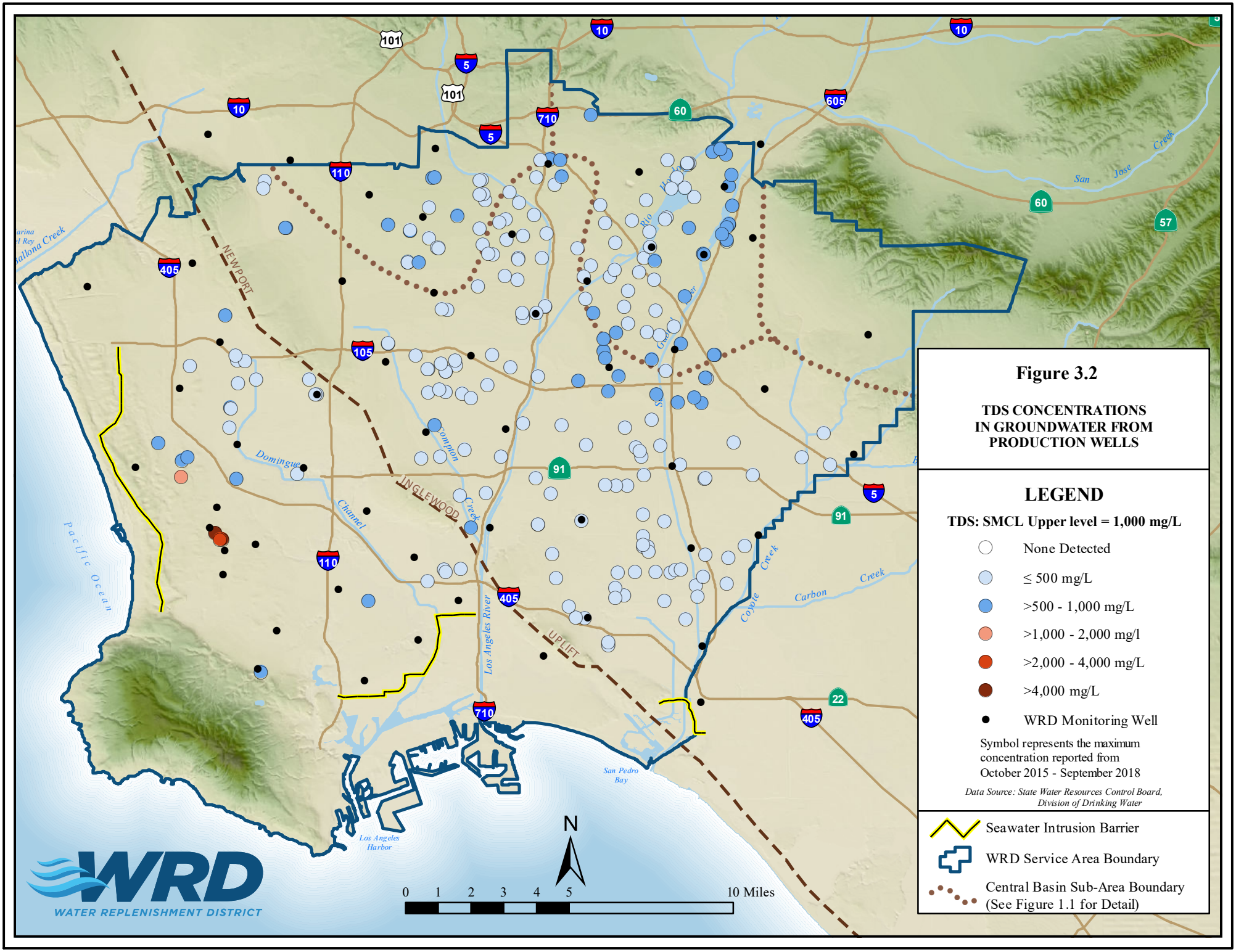


Figure 3.2
TDS CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TDS: SMCL Upper level = 1,000 mg/L
None Detected
≤ 500 mg/L
>500 - 1,000 mg/L
>1,000 - 2,000 mg/l
>2,000 - 4,000 mg/L
>4,000 mg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
NEWPORT
INGLEWOOD
UPLIFT
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

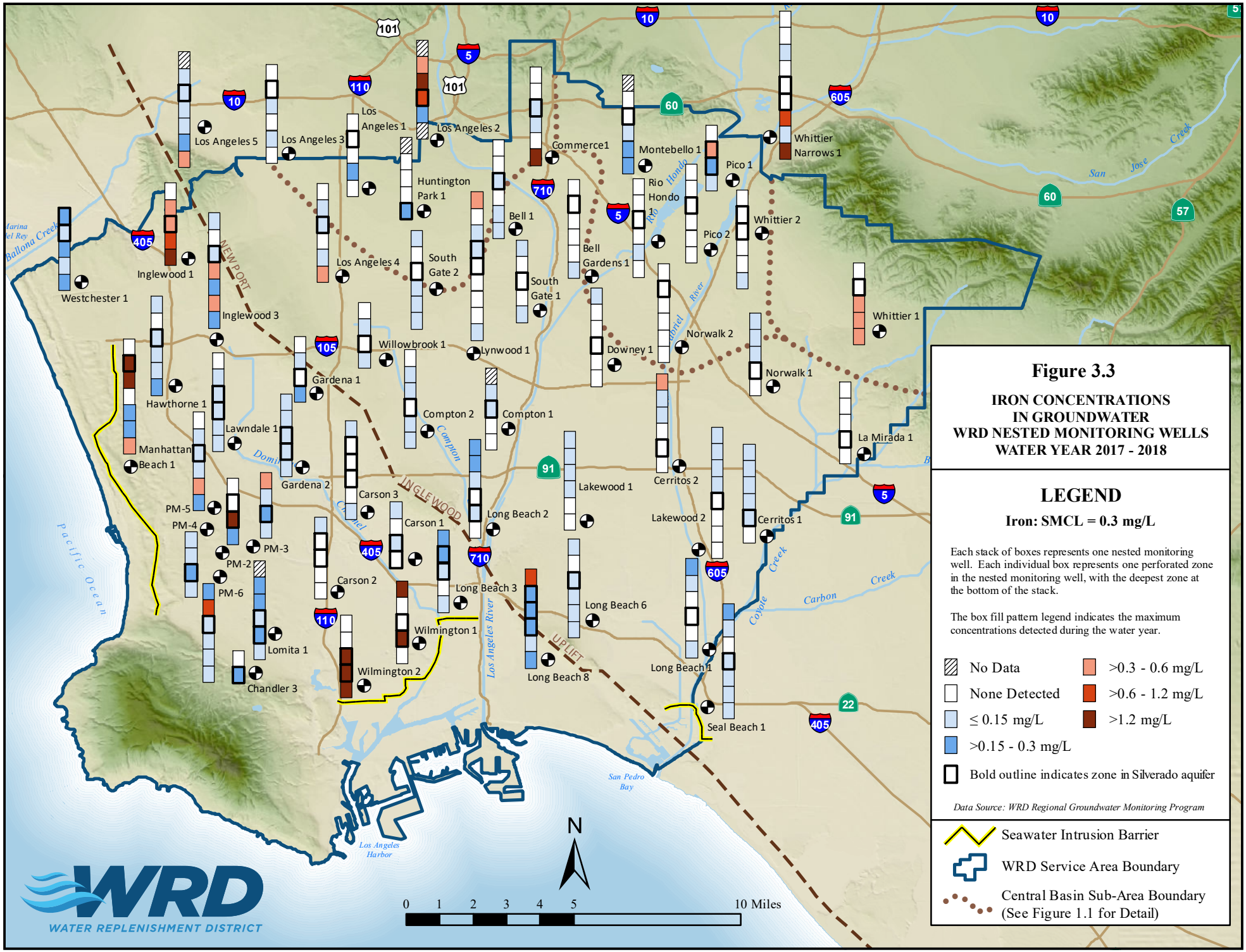


Figure 3.3
IRON CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Iron: SMCL = 0.3 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤ 0.15 mg/L
>0.15 - 0.3 mg/L
>0.3 - 0.6 mg/L
>0.6 - 1.2 mg/L
>1.2 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Wilmington 2
Chandler 3
Long Beach 8
Long Beach 1
Seal Beach 1
Pacific Ocean
Los Angeles River
San Pedro Bay
Los Angeles Harbor
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
Rio Hondo
Compton
Dominguez
Torrance
NEWPORT
INGLEWOOD
UPLIFT
101
5
10
110
405
710
60
605
57
105
91
22
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

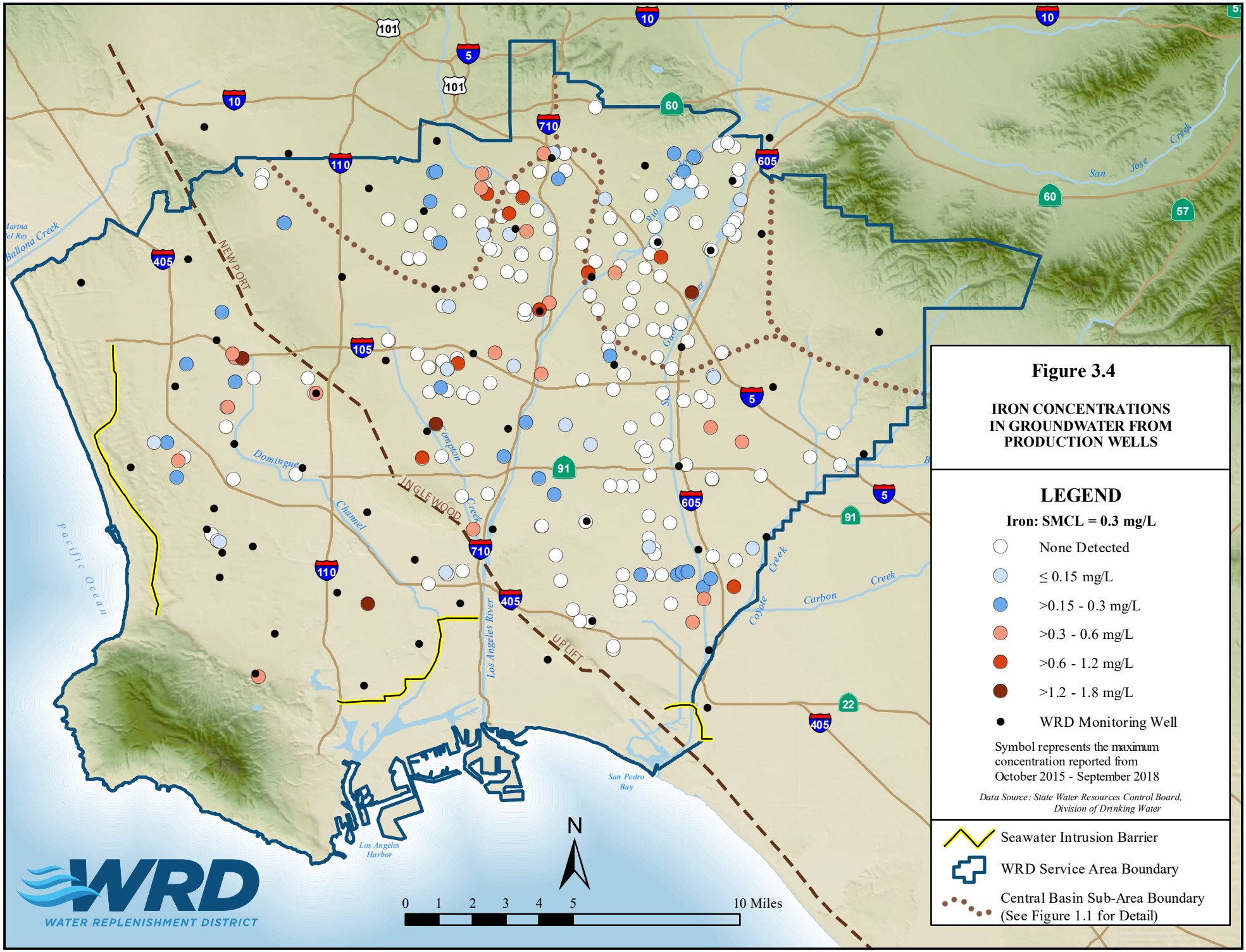


Figure 3.4
IRON CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Iron: SMCL = 0.3 mg/L
None Detected
≤ 0.15 mg/L
>0.15 - 0.3 mg/L
>0.3 - 0.6 mg/L
>0.6 - 1.2 mg/L
>1.2 - 1.8 mg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Rio Hondo
San Gabriel River
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

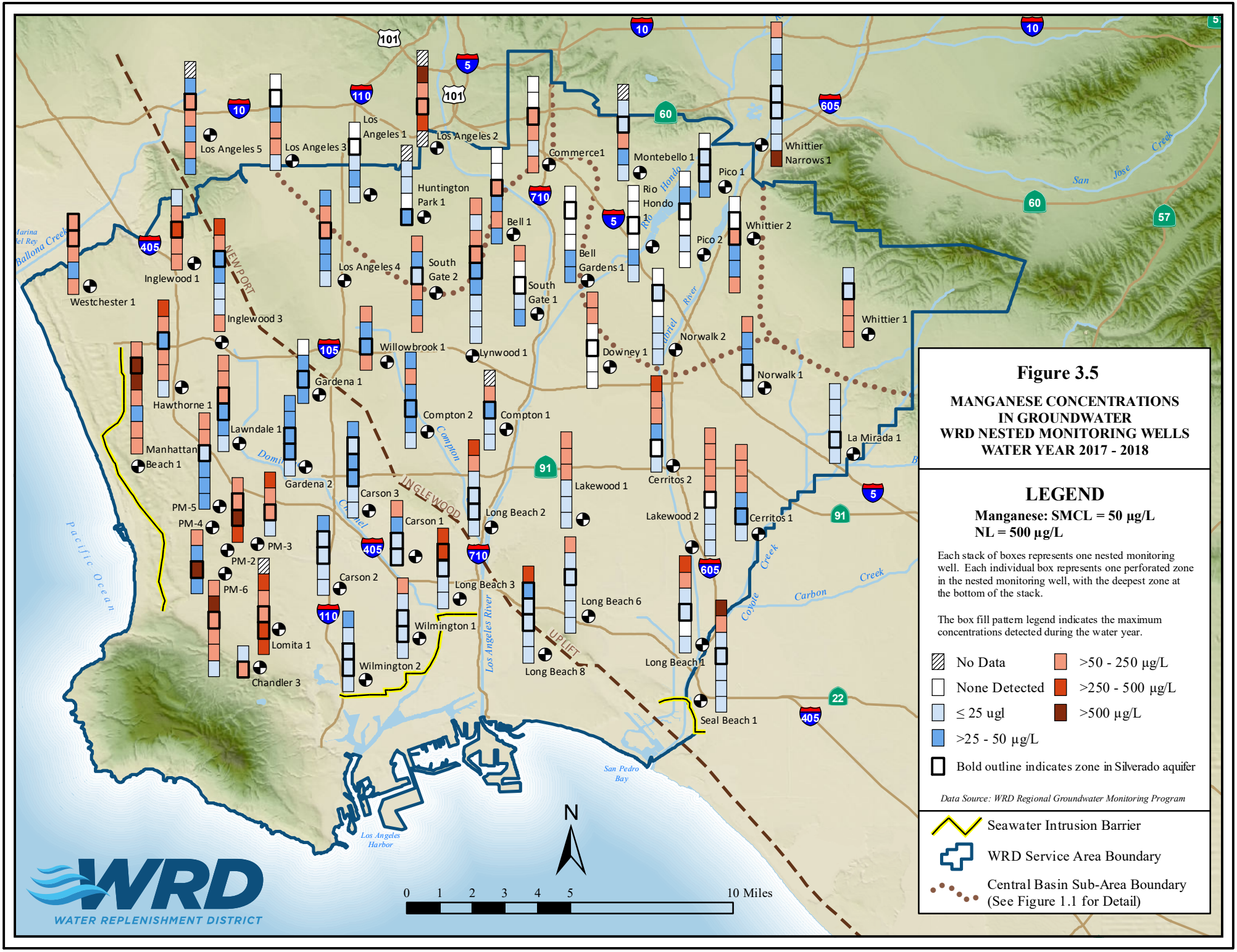


Figure 3.5
MANGANESE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Manganese: SMCL = 50 µg/L
NL = 500 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤ 25 ugl
>25 - 50 µg/L
>50 - 250 µg/L
>250 - 500 µg/L
>500 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Chandler 3
Wilmington 2
Long Beach 8
Long Beach 1
Seal Beach 1
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
NEWPORT
INGLEWOOD
UPLIFT
Los Angeles River
Rio Hondo
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
0 1 2 3 4 5 10 Miles
N
WRD
WATER REPLENISHMENT DISTRICT

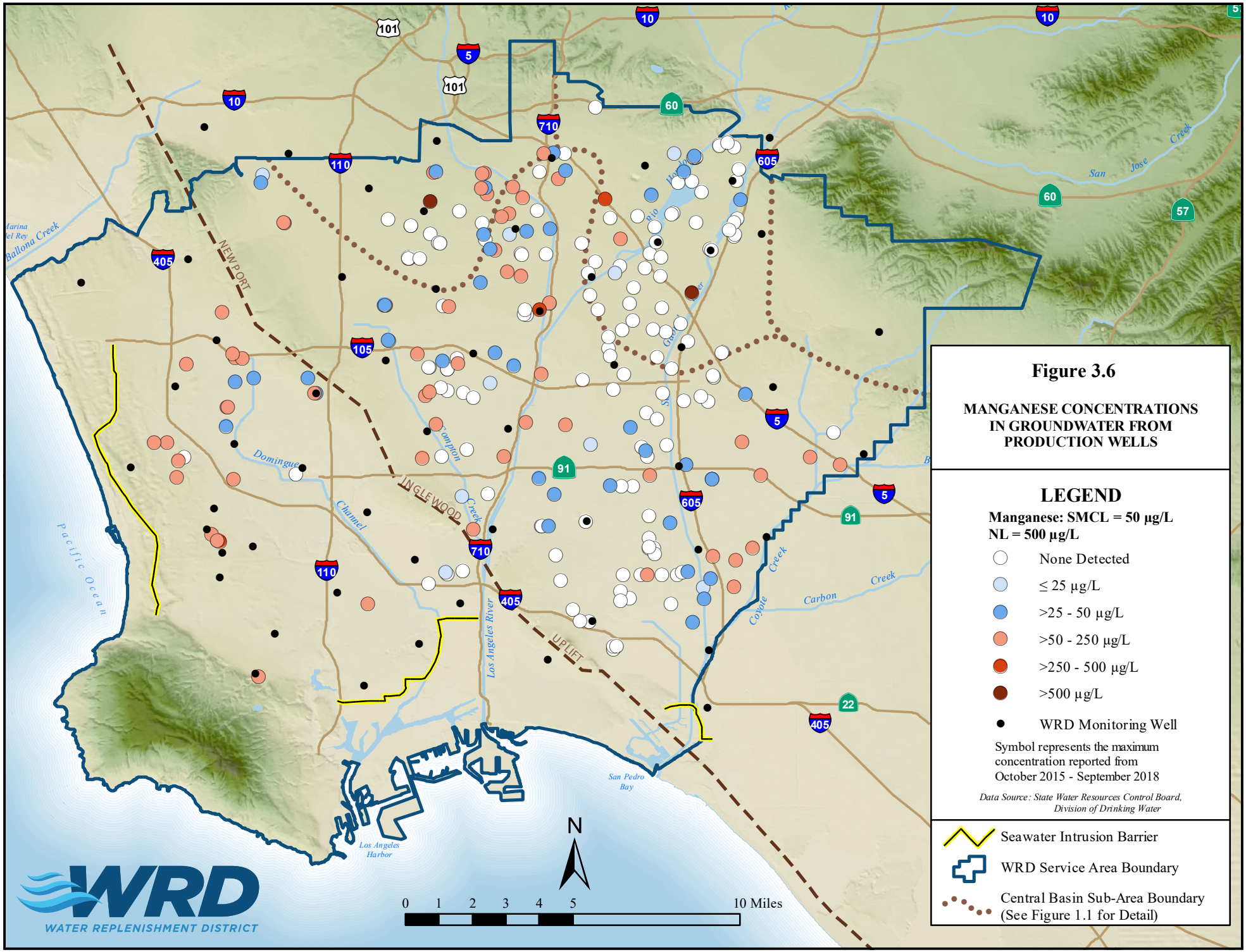


Figure 3.6
MANGANESE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Manganese: SMCL = 50 µg/L
NL = 500 µg/L
None Detected
≤ 25 µg/L
>25 - 50 µg/L
>50 - 250 µg/L
>250 - 500 µg/L
>500 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
NEWPORT
INGLEWOOD
UPLIFT
Dominguez Channel
Los Angeles River
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Ballona Creek
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

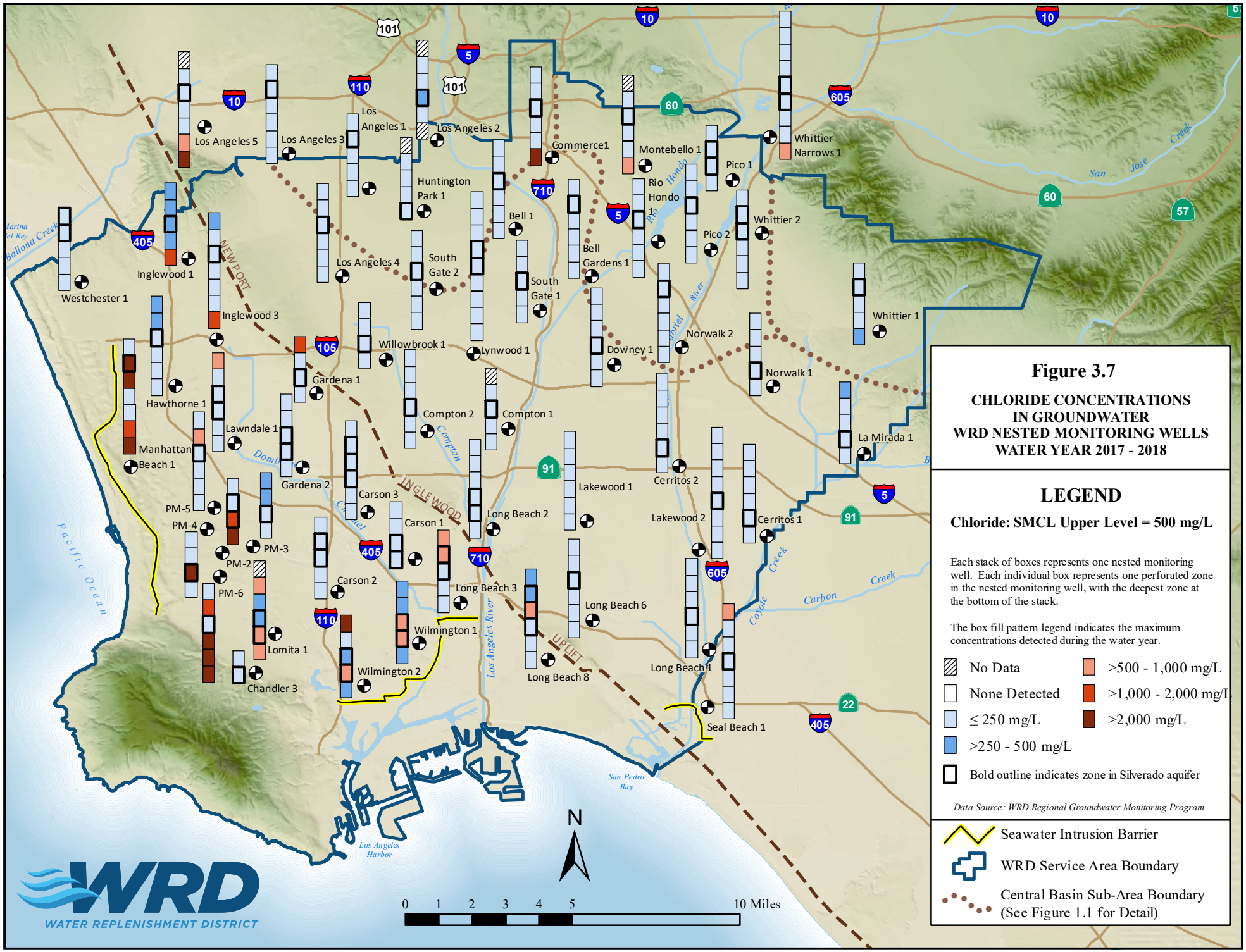


Figure 3.7
CHLORIDE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Chloride: SMCL Upper Level = 500 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤ 250 mg/L
>250 - 500 mg/L
>500 - 1,000 mg/L
>1,000 - 2,000 mg/L
>2,000 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Long Beach 8
Long Beach 1
Wilmington 2
Chandler 3
Seal Beach 1
Pacific Ocean
Los Angeles River
Coyote Creek
Carbon Creek
San Pedro Bay
Los Angeles Harbor
NEWPORT
INGLEWOOD
UPLIFT
Dominguez
Compton
Centinela
Ballona Creek
Rio Hondo
Hondo River
San Jose Creek
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

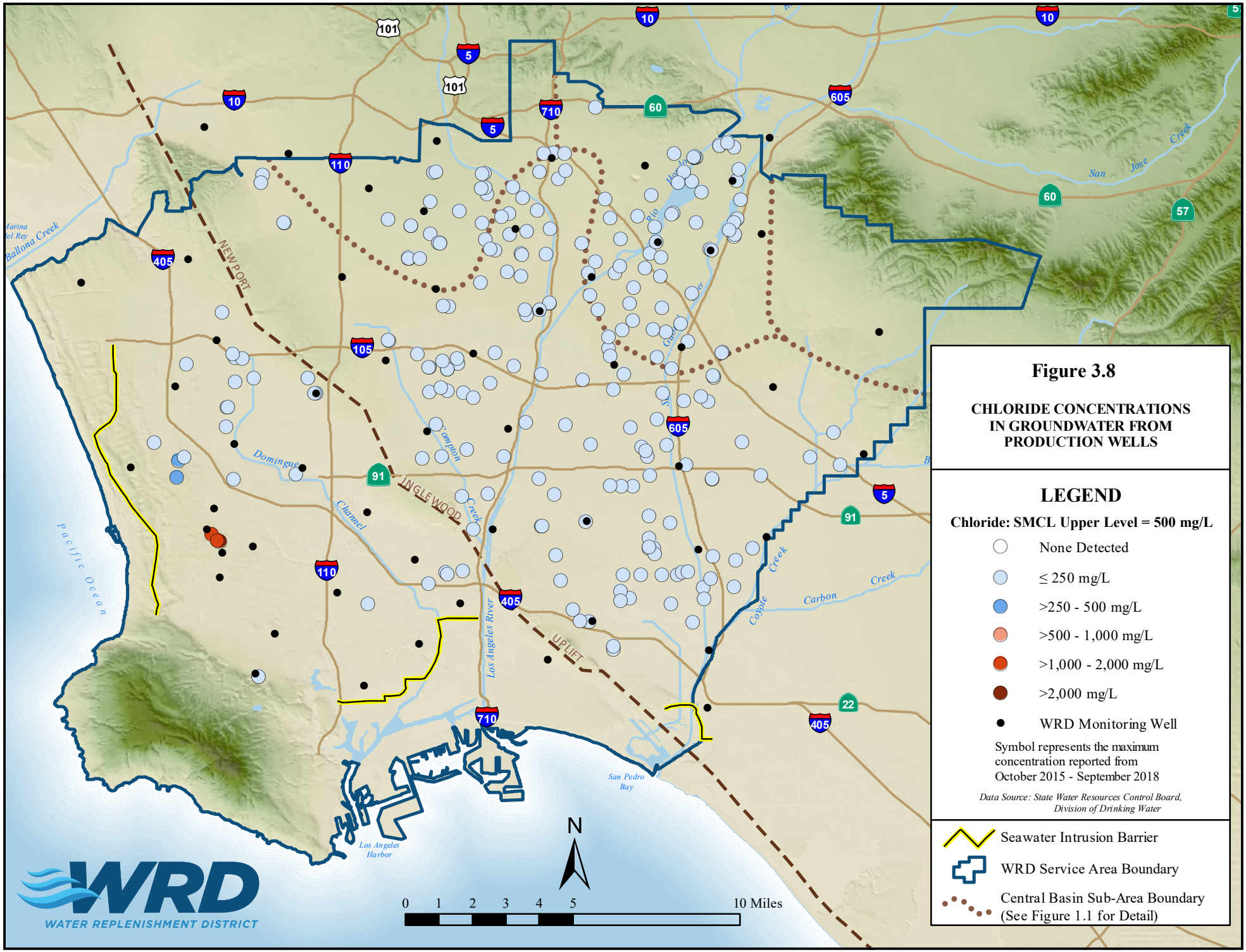


Figure 3.8
CHLORIDE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Chloride: SMCL Upper Level = 500 mg/L
None Detected
≤ 250 mg/L
>250 - 500 mg/L
>500 - 1,000 mg/L
>1,000 - 2,000 mg/L
>2,000 mg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

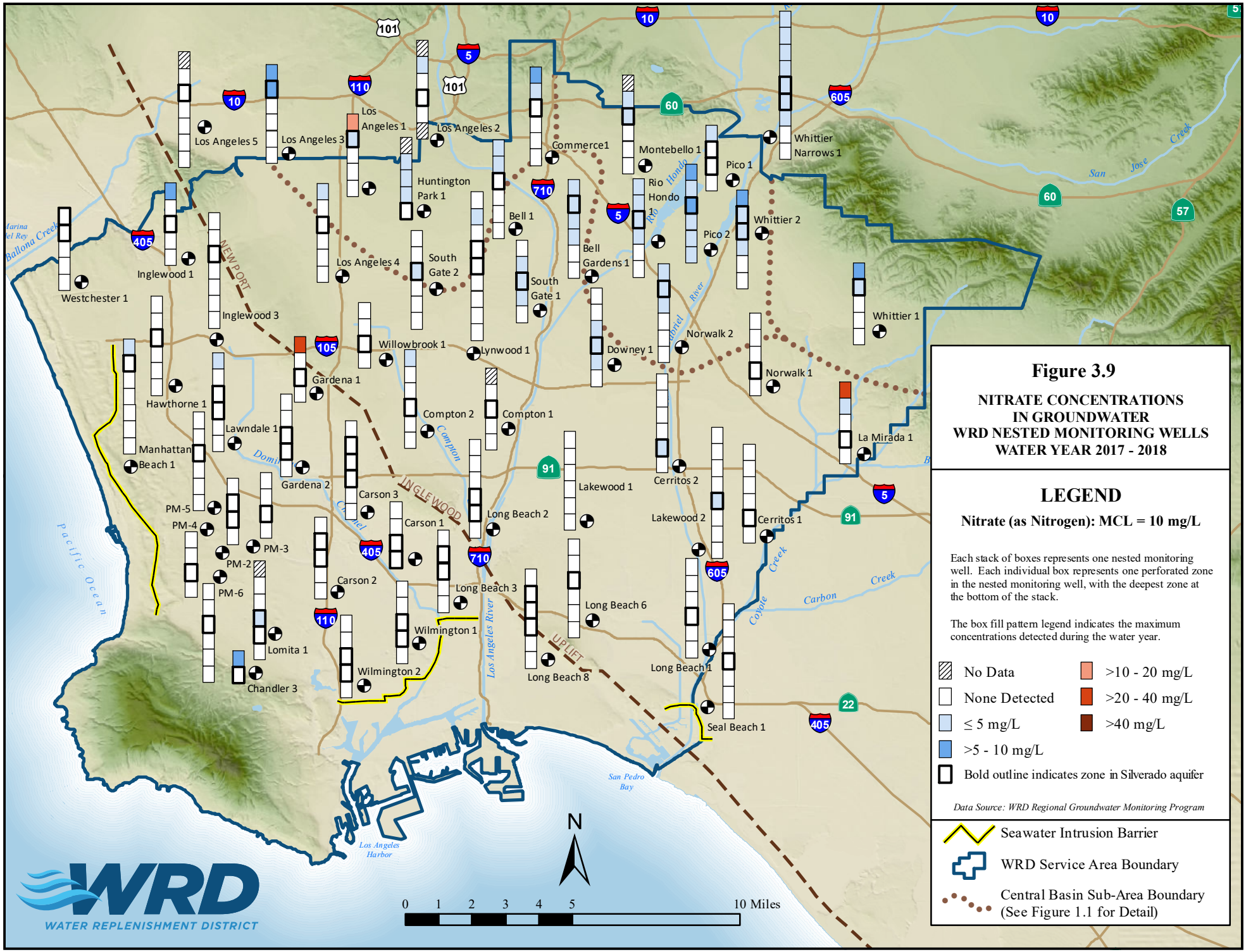


Figure 3.9
NITRATE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Nitrate (as Nitrogen): MCL = 10 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤ 5 mg/L
>5 - 10 mg/L
>10 - 20 mg/L
>20 - 40 mg/L
>40 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Whittier 2
Whittier 1
Rio Hondo 1
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Inglewood 3
Westchester 1
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
La Mirada 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
Lawndale 1
Gardena 2
Manhattan Beach 1
Carson 3
Carson 1
Long Beach 2
Lakewood 1
Cerritos 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Chandler 3
Wilmington 2
Long Beach 8
Long Beach 1
Seal Beach 1
NEWPORT
INGLEWOOD
UPLIFT
Los Angeles River
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Compton
Dominguez
Ballona Creek
Marina del Rey
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

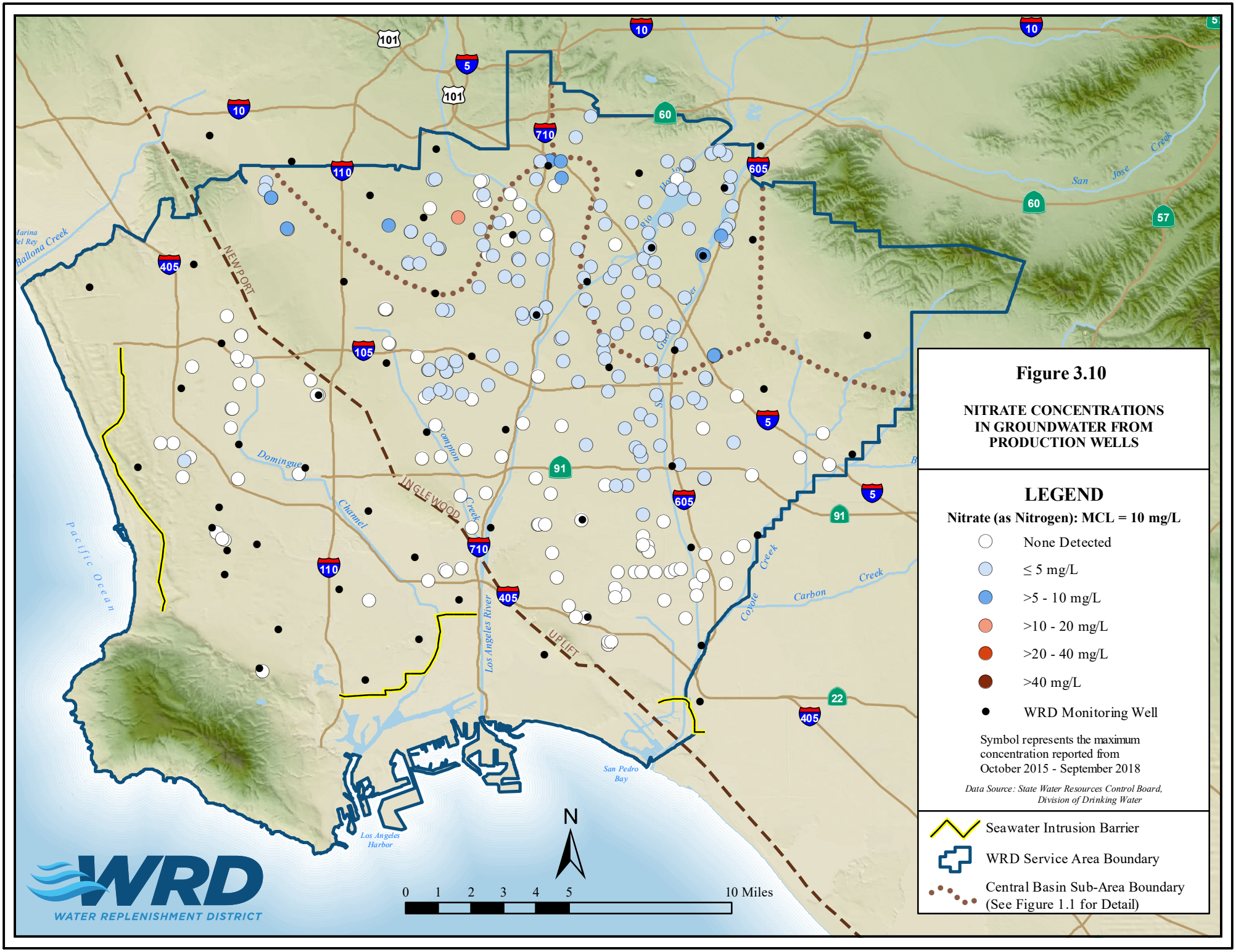


Figure 3.10
NITRATE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Nitrate (as Nitrogen): MCL = 10 mg/L
None Detected
≤ 5 mg/L
>5 - 10 mg/L
>10 - 20 mg/L
>20 - 40 mg/L
>40 mg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

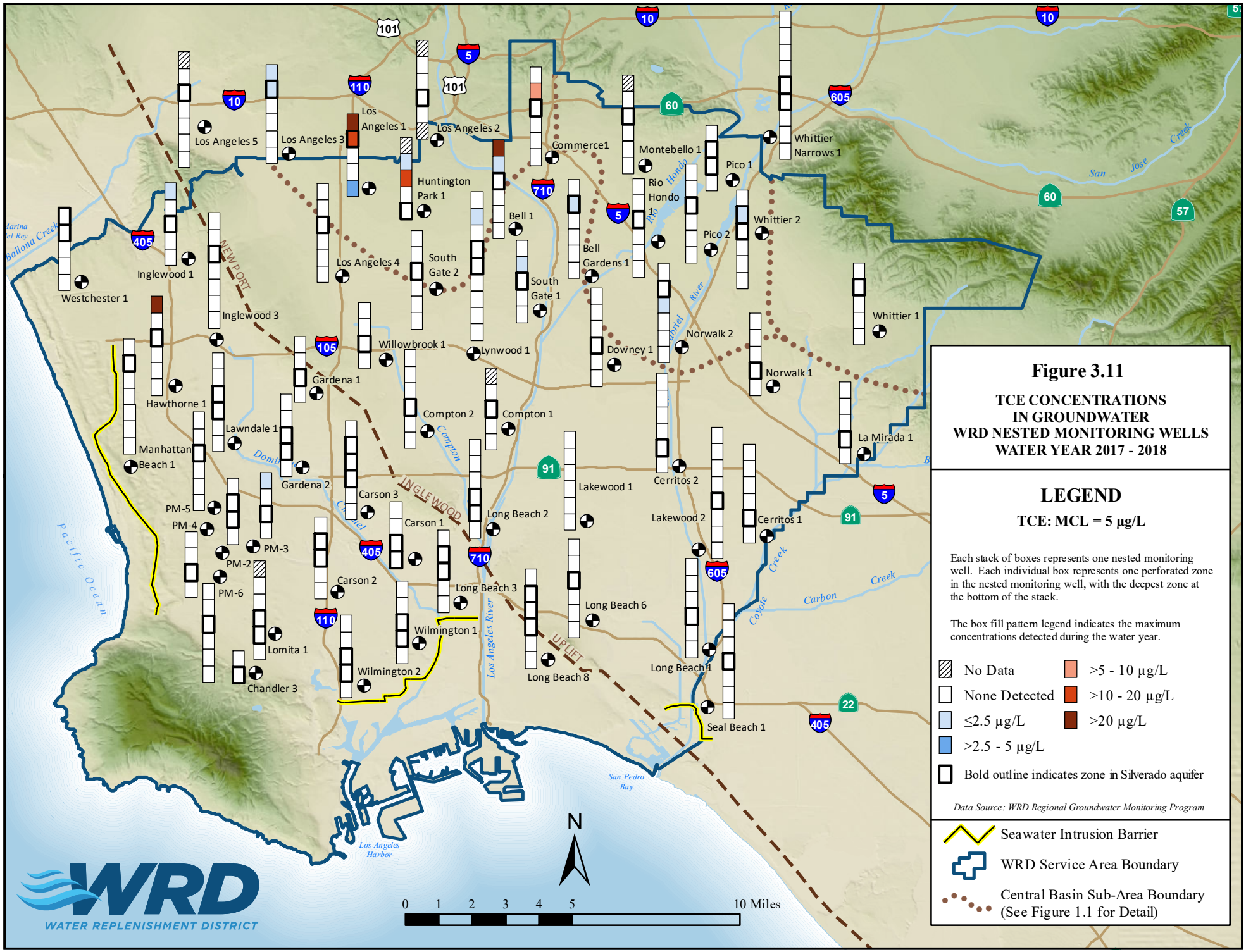


Figure 3.11
TCE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
TCE: MCL = 5 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤2.5 µg/L
>2.5 - 5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Chandler 3
Wilmington 2
Long Beach 8
Long Beach 1
Seal Beach 1
Pacific Ocean
Los Angeles River
Coyote Creek
Carbon Creek
San Pedro Bay
Los Angeles Harbor
Rio Hondo
San Jose Creek
Ballona Creek
Dominguez Channel
Compton Creek
NEWPORT
INGLEWOOD
UPLIFT
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

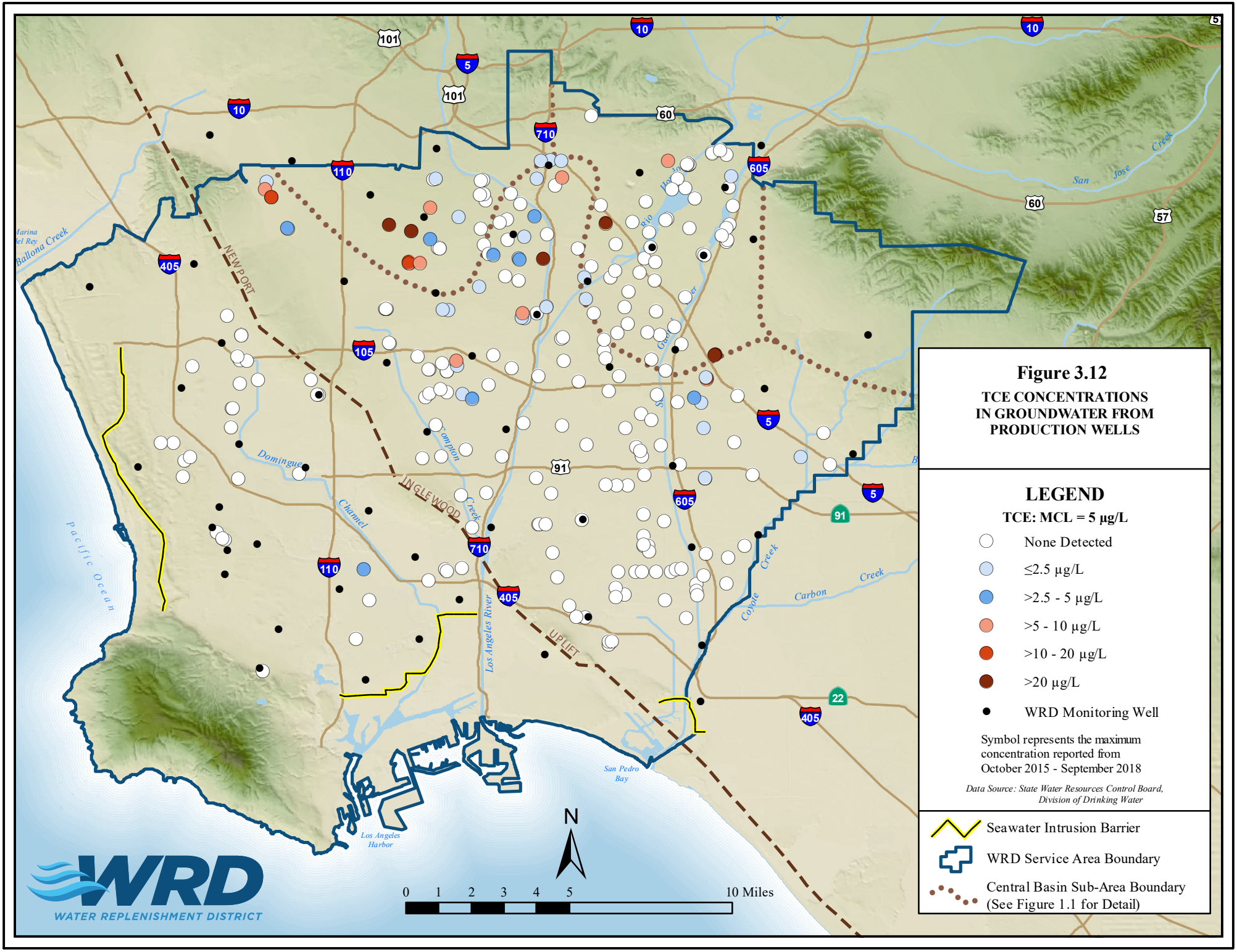


Figure 3.12
TCE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TCE: MCL = 5 µg/L
None Detected
≤2.5 µg/L
>2.5 - 5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

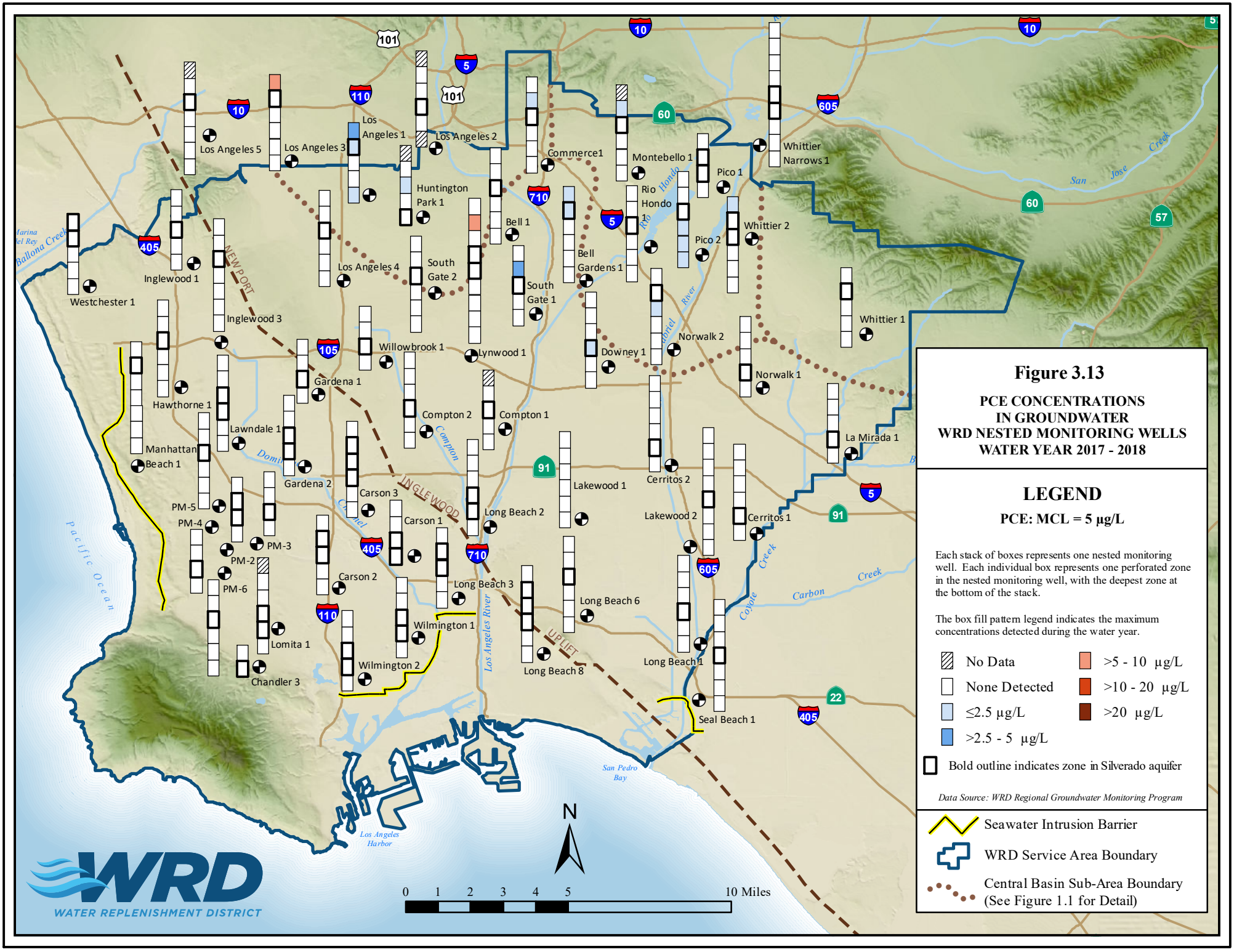


Figure 3.13
PCE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
PCE: MCL = 5 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤2.5 µg/L
>2.5 - 5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Whittier 2
Pico 2
Rio Hondo 1
Bell 1
Bell Gardens 1
South Gate 2
South Gate 1
Los Angeles 4
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
La Mirada 1
Gardena 1
Hawthorne 1
Lawndale 1
Compton 2
Compton 1
Manhattan Beach 1
Gardena 2
Carson 3
Carson 1
Long Beach 2
Lakewood 1
Cerritos 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Wilmington 2
Chandler 3
Long Beach 8
Long Beach 1
Seal Beach 1
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Dominguez Channel
Compton Creek
NEWPORT
INGLEWOOD
UPLIFT
Ballona Creek
Marina del Rey
0 1 2 3 4 5 10 Miles
N
WRD
WATER REPLENISHMENT DISTRICT

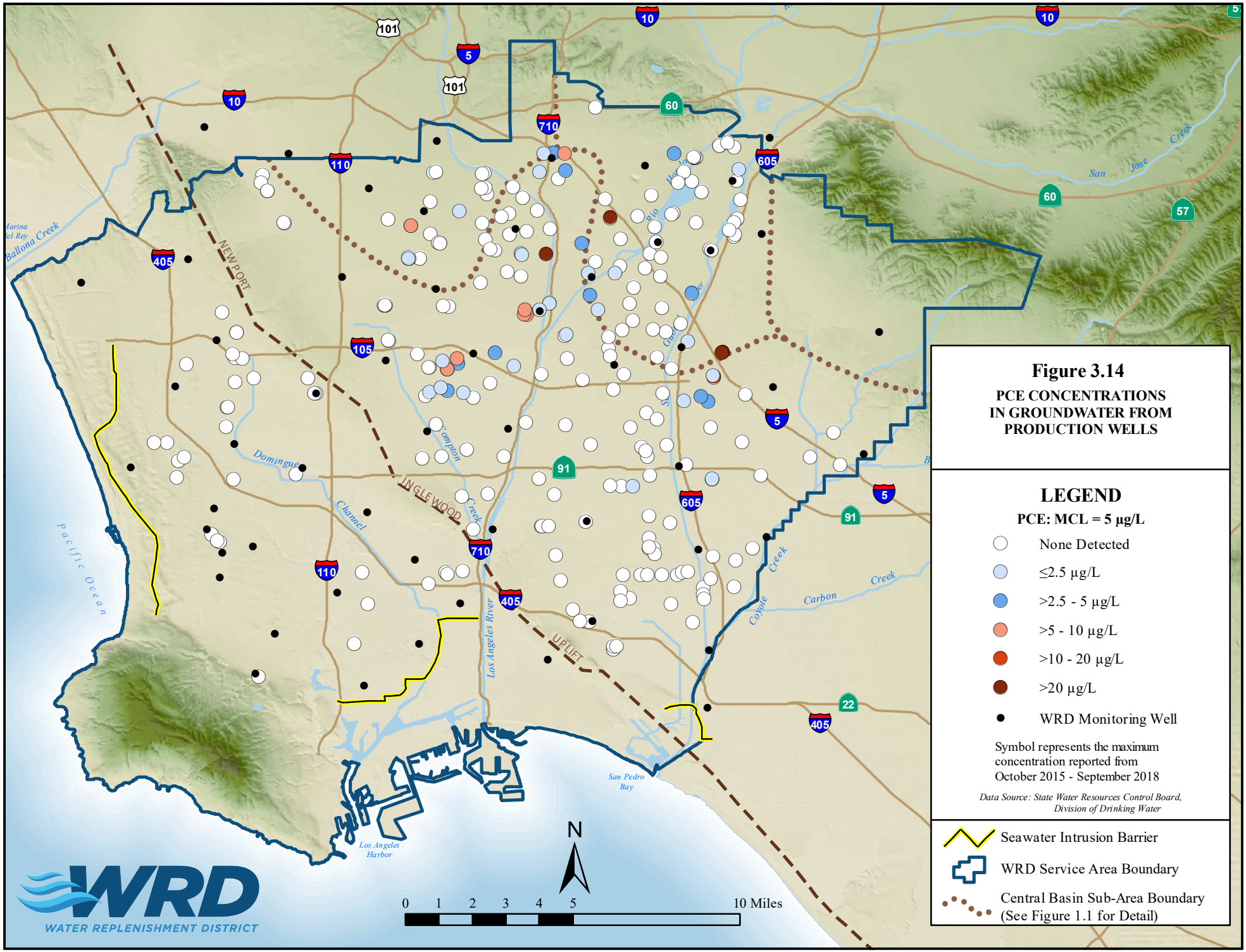


Figure 3.14
PCE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
PCE: MCL = 5 µg/L
None Detected
≤2.5 µg/L
>2.5 - 5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

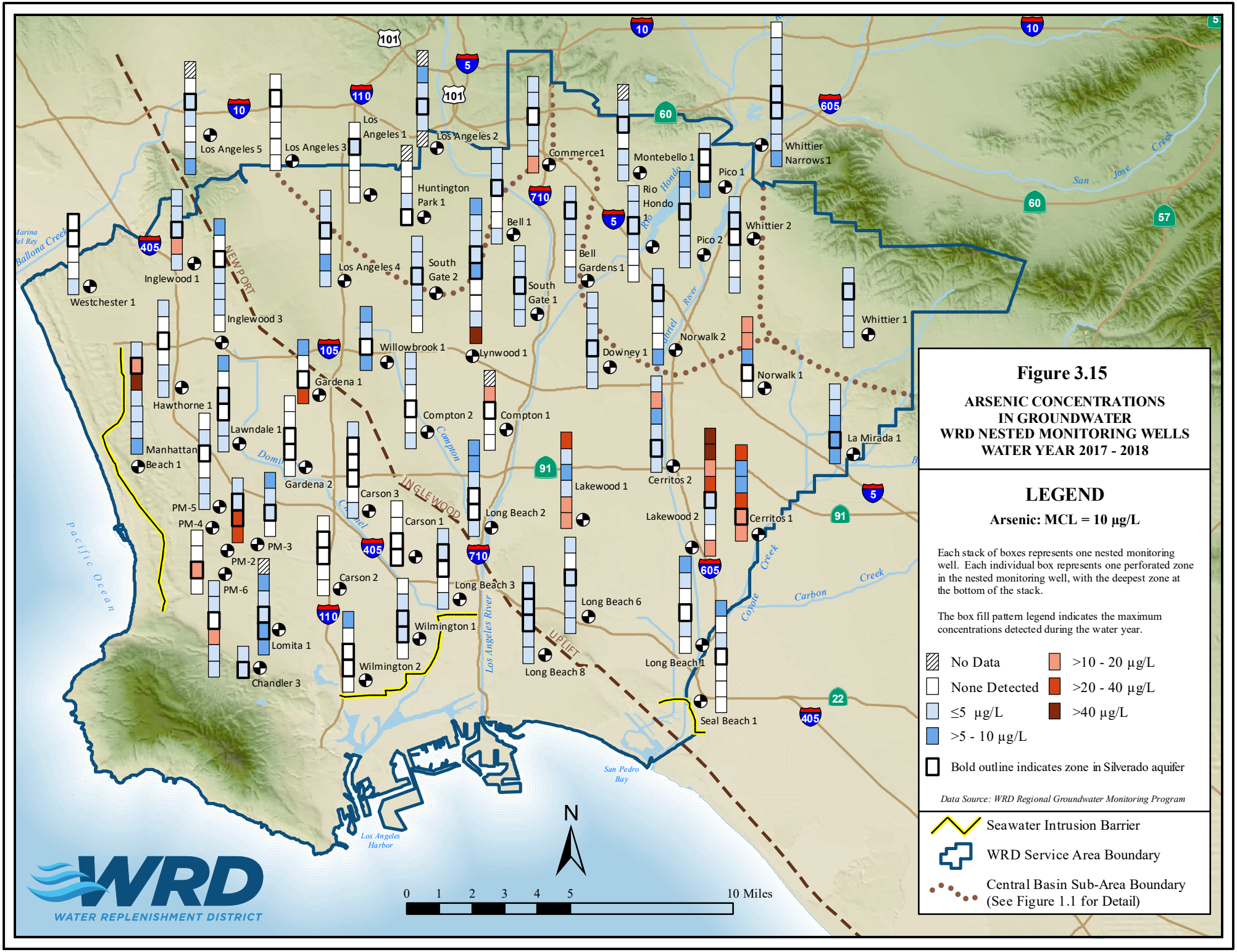


Figure 3.15
ARSENIC CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Arsenic: MCL = 10 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 - 40 µg/L
>40 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Whittier 2
Pico 2
Rio Hondo 1
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Carson 1
Lakewood 1
Cerritos 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Long Beach 2
Long Beach 3
Long Beach 6
Carson 2
Wilmington 1
Lomita 1
Wilmington 2
Chandler 3
Long Beach 8
Long Beach 1
Seal Beach 1
NEWPORT
INGLEWOOD
UPLIFT
Los Angeles River
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Compton
Dominguez
Ballona Creek
Marina del Rey
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

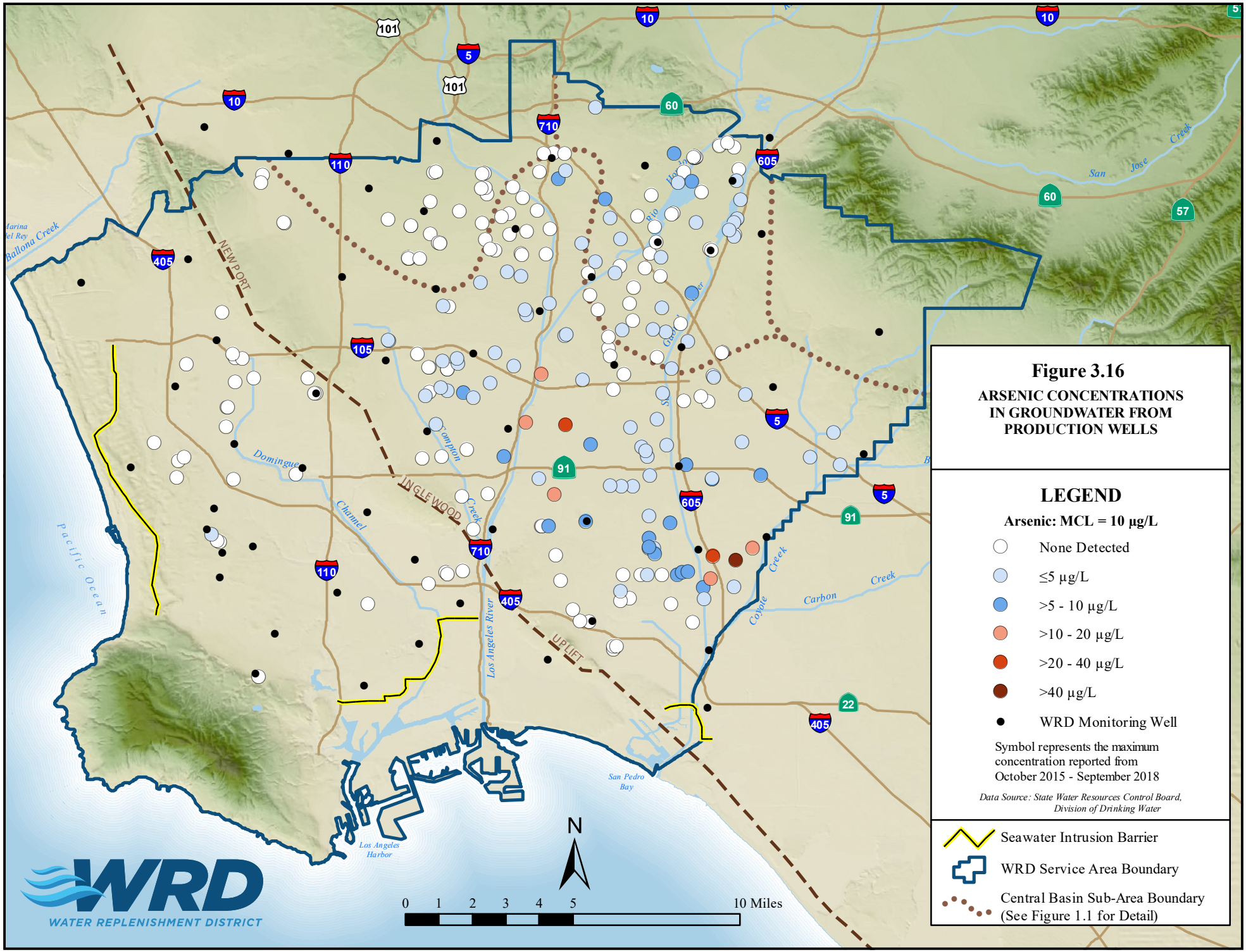


Figure 3.16
ARSENIC CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Arsenic: MCL = 10 µg/L
None Detected
≤5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 - 40 µg/L
>40 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

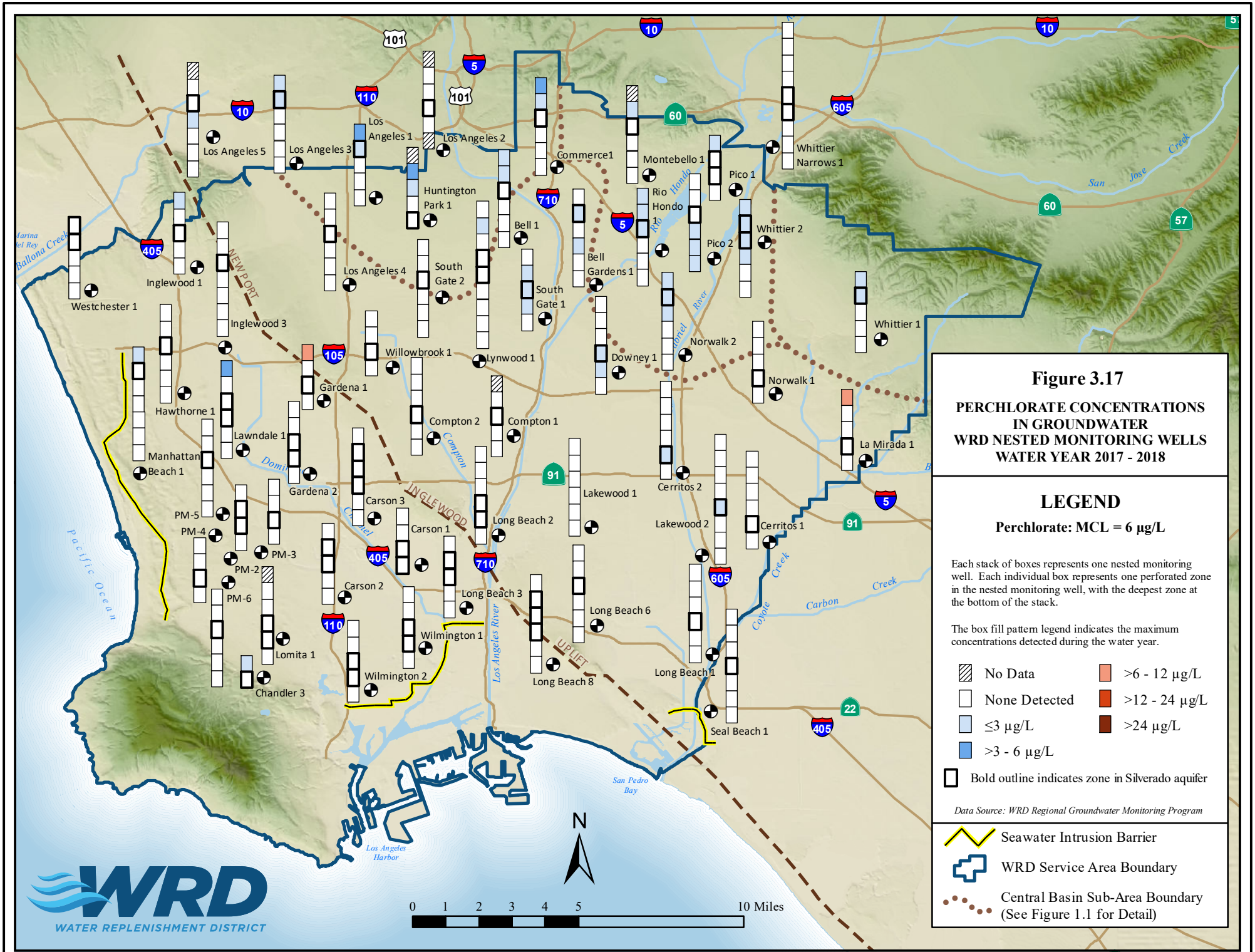


Figure 3.17
PERCHLORATE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Perchlorate: MCL = 6 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤3 µg/L
>3 - 6 µg/L
>6 - 12 µg/L
>12 - 24 µg/L
>24 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Long Beach 1
Wilmington 2
Long Beach 8
Chandler 3
Seal Beach 1
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Compton
Dominguez
Centinela
NEWPORT
INGLEWOOD
UPLIFT
Ballona Creek
Marina del Rey
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

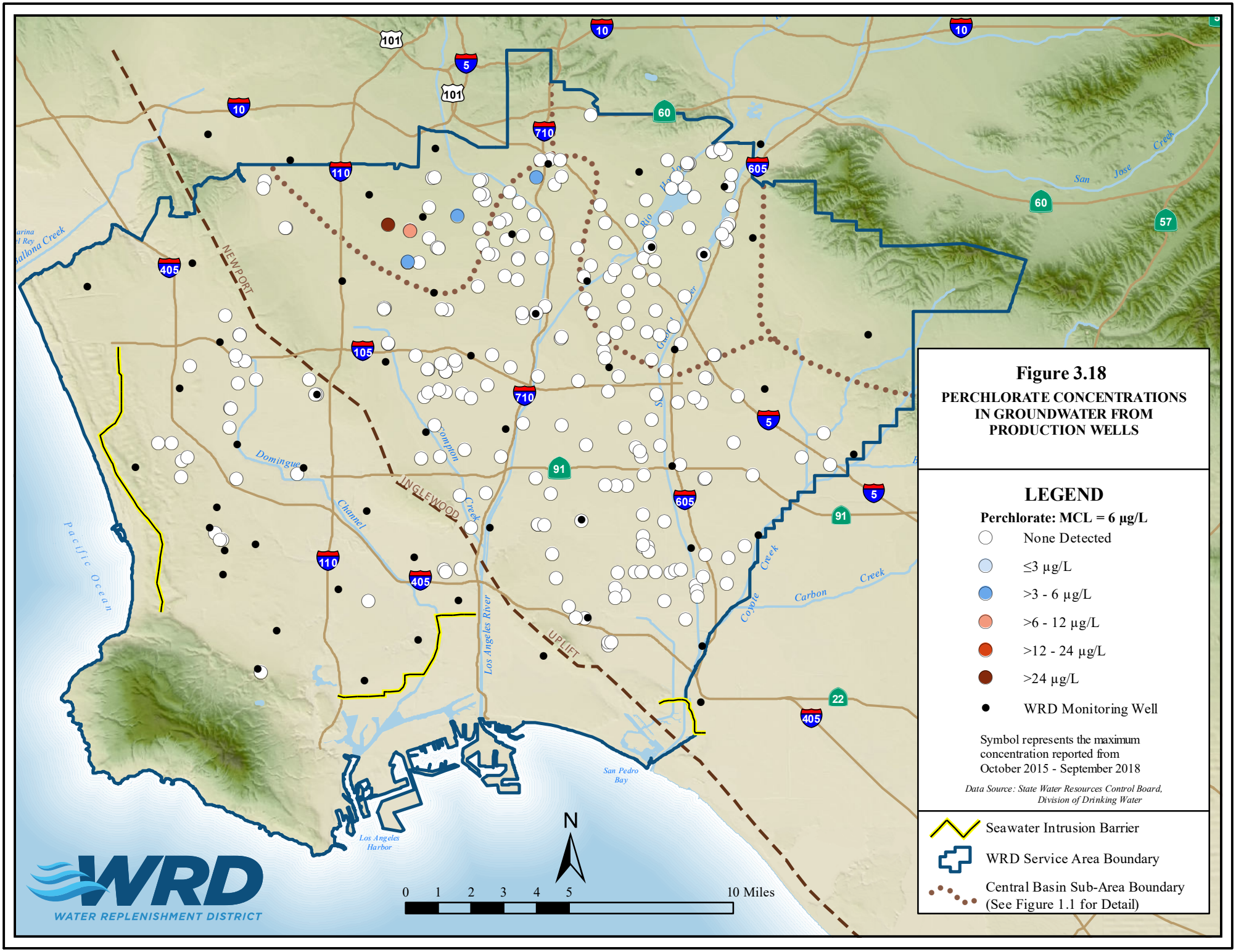


Figure 3.18
PERCHLORATE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Perchlorate: MCL = 6 µg/L
None Detected
≤3 µg/L
>3 - 6 µg/L
>6 - 12 µg/L
>12 - 24 µg/L
>24 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Coyote Creek
Carbon Creek
San Jose Creek
NEWPORT
INGLEWOOD
UPLIFT

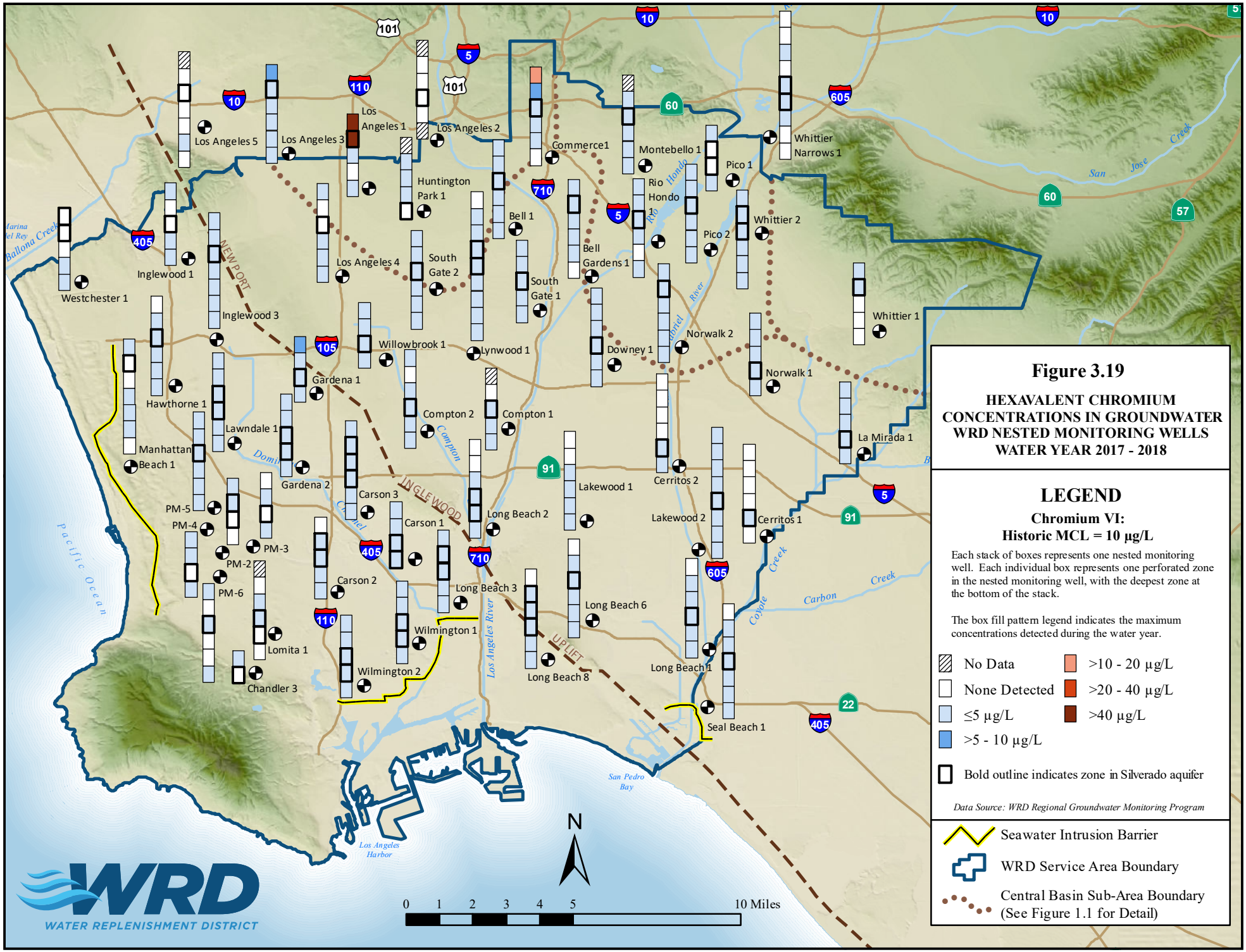


Figure 3.19
HEXAVALENT CHROMIUM CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
Chromium VI:
Historic MCL = 10 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 - 40 µg/L
>40 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
South Gate 2
South Gate 1
Los Angeles 4
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
Carson 1
Long Beach 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Wilmington 2
Long Beach 8
Long Beach 1
Chandler 3
Seal Beach 1
Pacific Ocean
Los Angeles River
San Pedro Bay
Los Angeles Harbor
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Dominguez
Compton
Torrel
River
NEWPORT
INGLEWOOD
UPLIFT
Ballona Creek
Marina del Rey
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

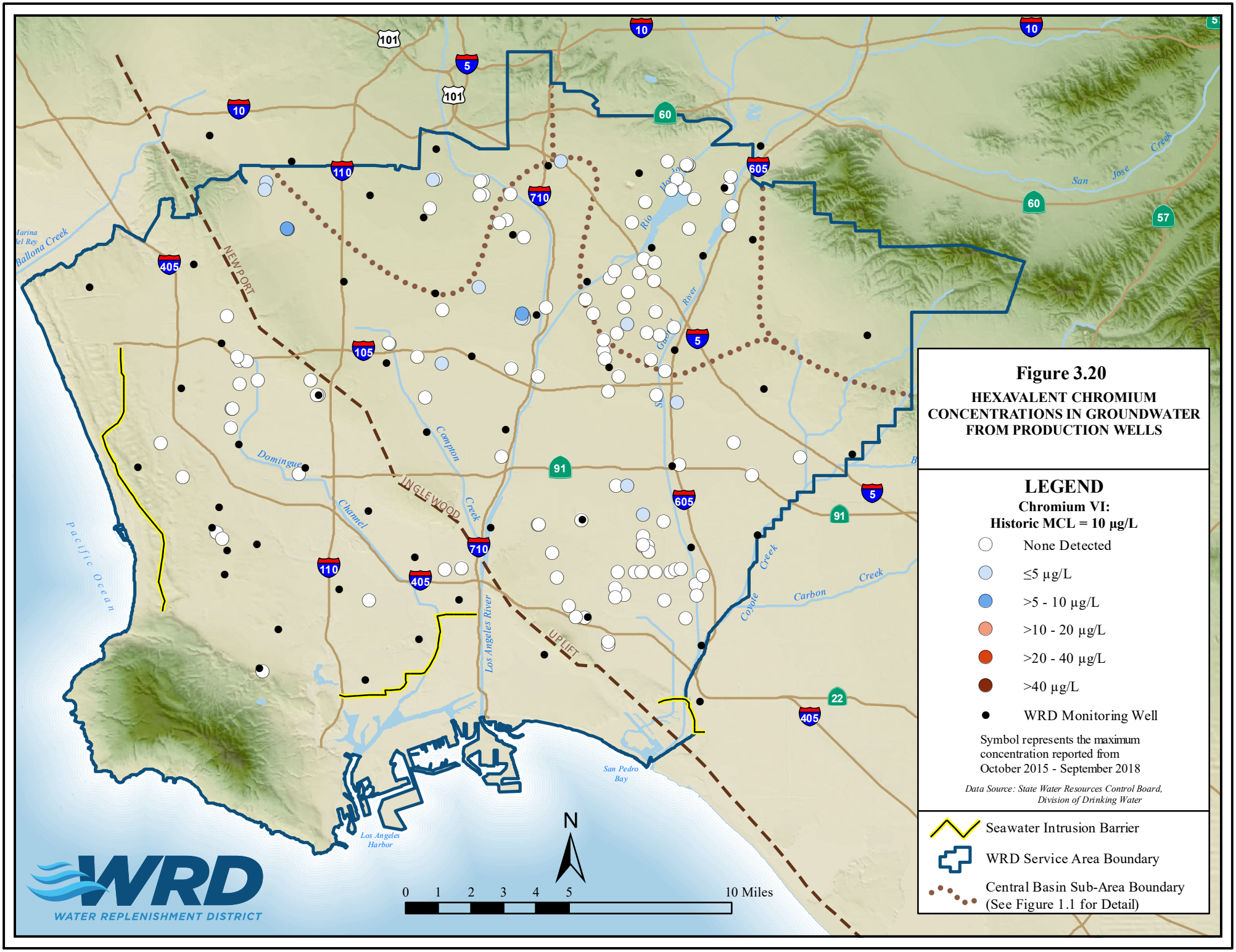


Figure 3.20
HEXAVALENT CHROMIUM CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Chromium VI:
Historic MCL = 10 µg/L
None Detected
≤5 µg/L
>5 - 10 µg/L
>10 - 20 µg/L
>20 - 40 µg/L
>40 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
NEWPORT
INGLEWOOD
UPLIFT
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Ballona Creek
101
5
10
60
605
710
110
405
91
105
57
22

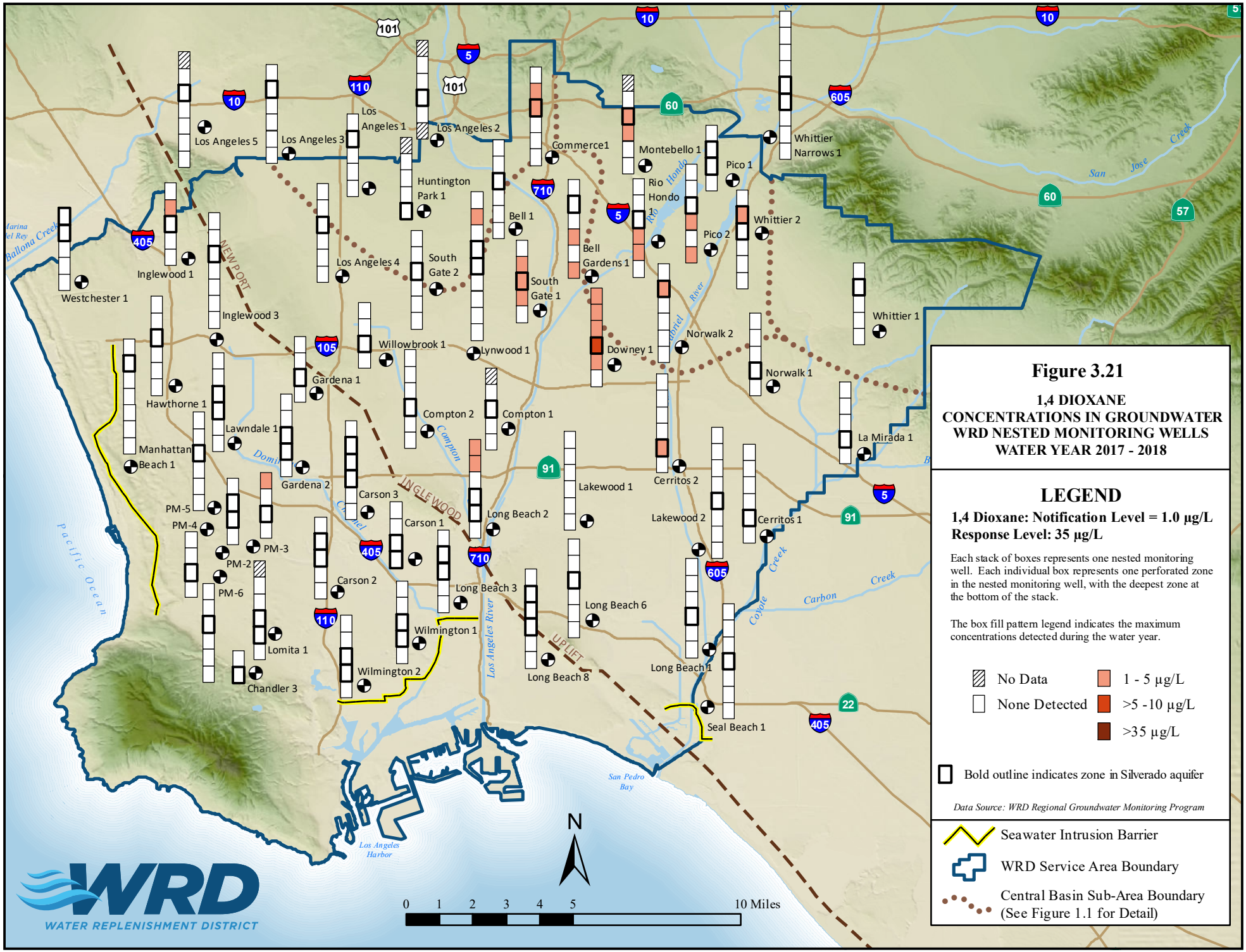


Figure 3.21
1,4 DIOXANE
CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2017 - 2018
LEGEND
1,4 Dioxane: Notification Level = 1.0 µg/L
Response Level: 35 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
1 - 5 µg/L
>5 -10 µg/L
>35 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary
(See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Rio Hondo 1
Pico 2
Whittier 2
Bell 1
Bell Gardens 1
Los Angeles 4
South Gate 2
South Gate 1
Inglewood 1
Westchester 1
Inglewood 3
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
Gardena 1
Hawthorne 1
Compton 2
Compton 1
La Mirada 1
Lawndale 1
Manhattan Beach 1
Gardena 2
Carson 3
Lakewood 1
Cerritos 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 1
Long Beach 2
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Chandler 3
Wilmington 2
Long Beach 8
Long Beach 1
Seal Beach 1
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
Los Angeles River
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Compton
Dominguez
Alondra
INGLEWOOD
NEWPORT
UPLIFT
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

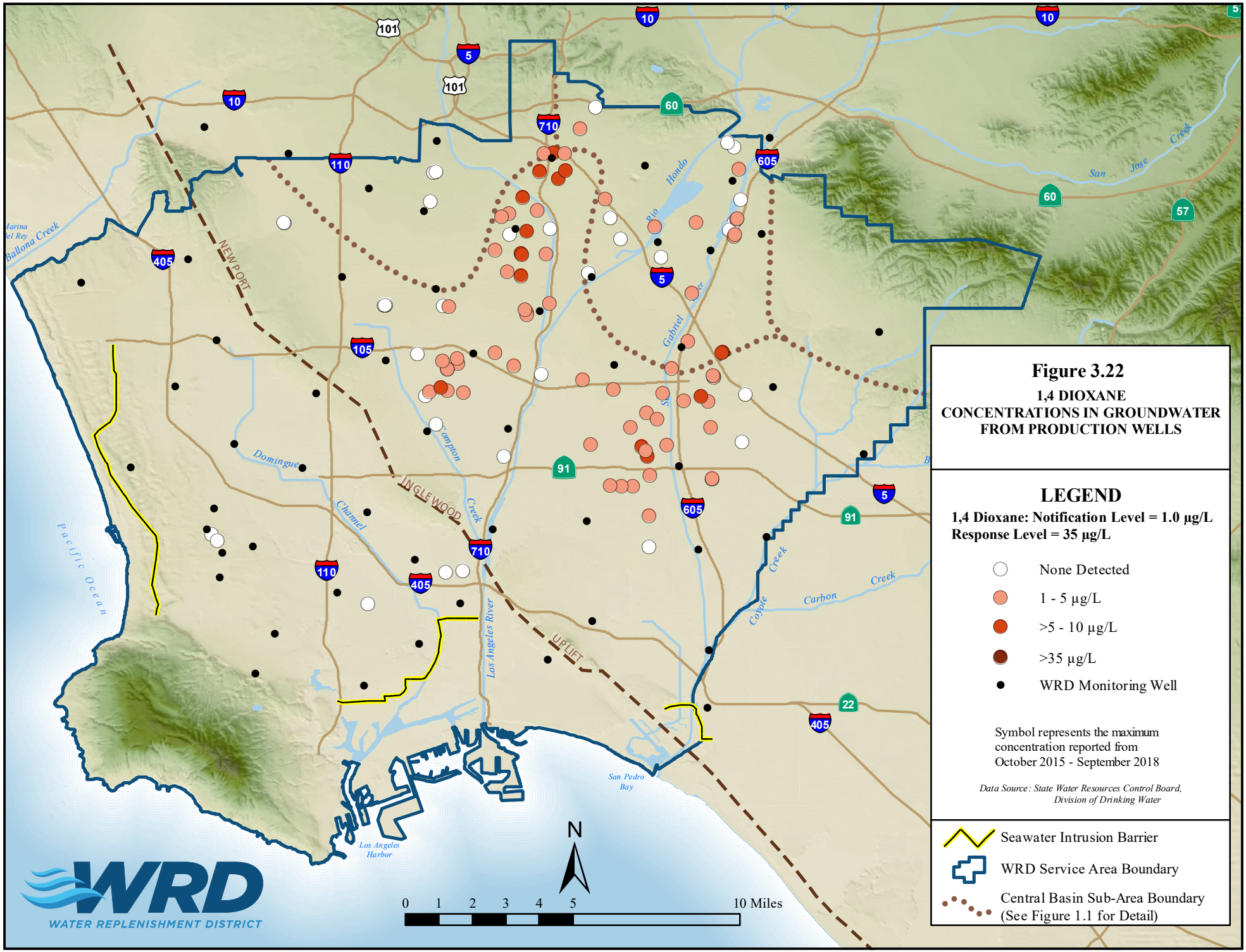


Figure 3.22
1,4 DIOXANE
CONCENTRATIONS IN GROUNDWATER
FROM PRODUCTION WELLS
LEGEND
1,4 Dioxane: Notification Level = 1.0 µg/L
Response Level = 35 µg/L
None Detected
1 - 5 µg/L
>5 - 10 µg/L
>35 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Dominguez Channel
Compton Creek
Rio Hondo
San Gabriel River
Coyote Creek
Carbon Creek
San Jose Creek
Ballona Creek
NEWPORT
INGLEWOOD
UPLIFT

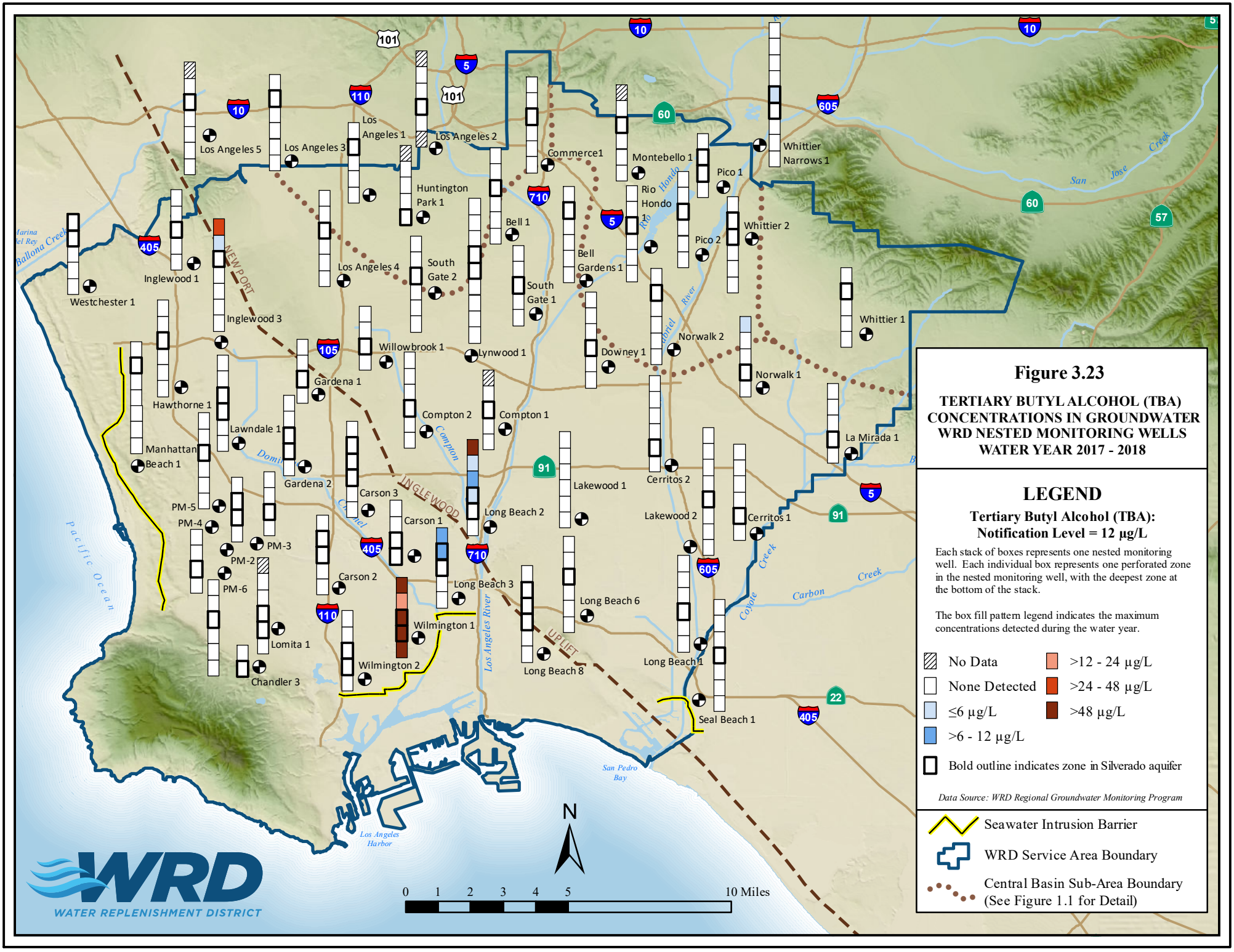


Figure 3.23
TERTIARY BUTYL ALCOHOL (TBA) CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2017 - 2018
LEGEND
Tertiary Butyl Alcohol (TBA): Notification Level = 12 µg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
≤6 µg/L
>6 - 12 µg/L
>12 - 24 µg/L
>24 - 48 µg/L
>48 µg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
Los Angeles 5
Los Angeles 3
Los Angeles 1
Los Angeles 2
Huntington Park 1
Commerce1
Montebello 1
Whittier Narrows 1
Pico 1
Whittier 2
Pico 2
Rio Hondo 1
Bell 1
Bell Gardens 1
South Gate 2
South Gate 1
Los Angeles 4
Inglewood 1
Westchester 1
Inglewood 3
NEWPORT
Willowbrook 1
Lynwood 1
Downey 1
Norwalk 2
Norwalk 1
Whittier 1
La Mirada 1
Gardena 1
Hawthorne 1
Lawndale 1
Gardena 2
Compton 2
Compton 1
Manhattan Beach 1
Carson 3
Carson 1
Long Beach 2
Lakewood 1
Cerritos 2
Lakewood 2
Cerritos 1
PM-5
PM-4
PM-3
PM-2
PM-6
Carson 2
Long Beach 3
Long Beach 6
Wilmington 1
Lomita 1
Wilmington 2
Chandler 3
Long Beach 8
Long Beach 1
Seal Beach 1
INGLEWOOD
UPLIFT
Los Angeles River
Coyote Creek
Carbon Creek
San Jose Creek
Rio Hondo
Dominguez Channel
Compton Creek
Ballona Creek
Marina del Rey
Pacific Ocean
San Pedro Bay
Los Angeles Harbor
N
0 1 2 3 4 5 10 Miles
WRD
WATER REPLENISHMENT DISTRICT

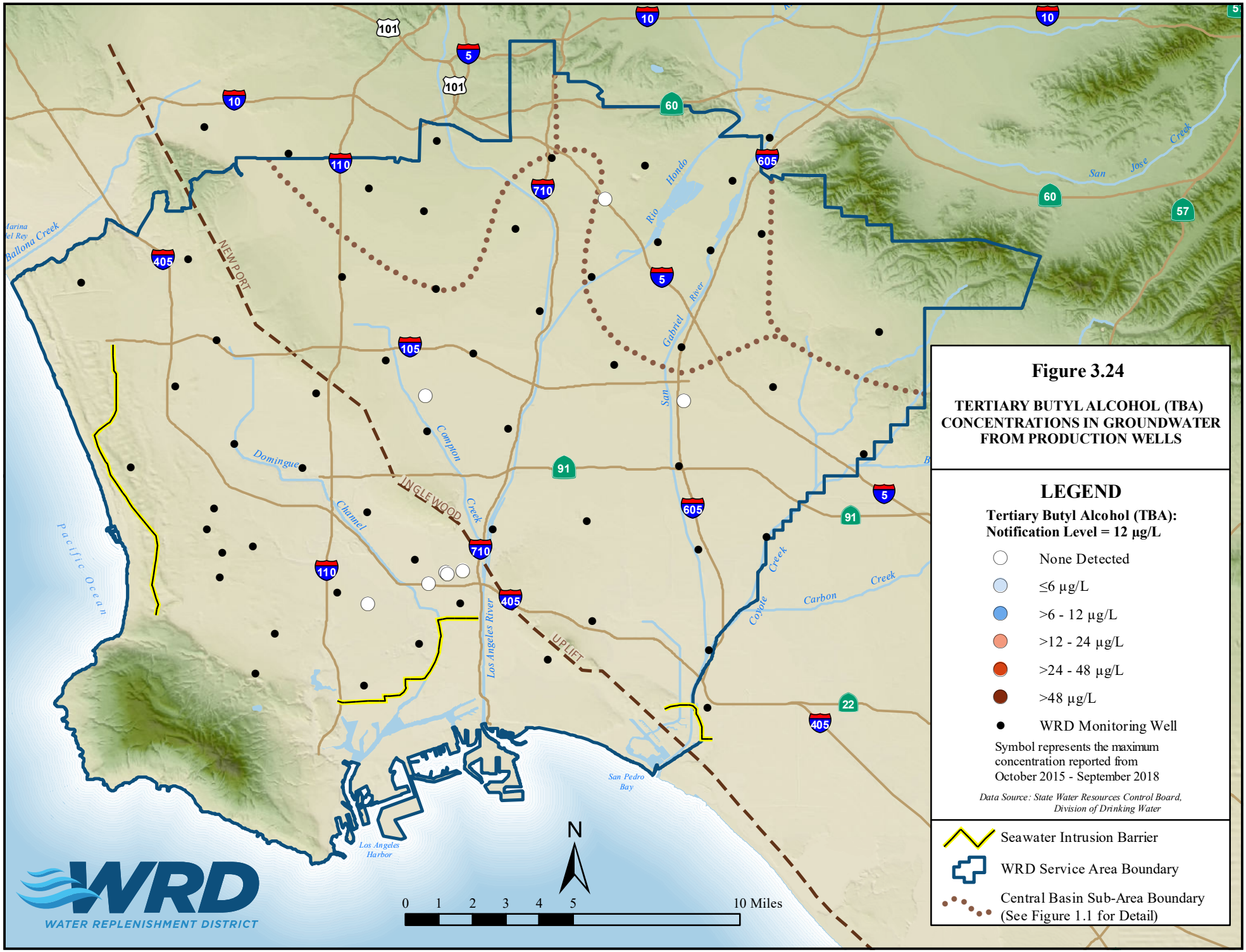
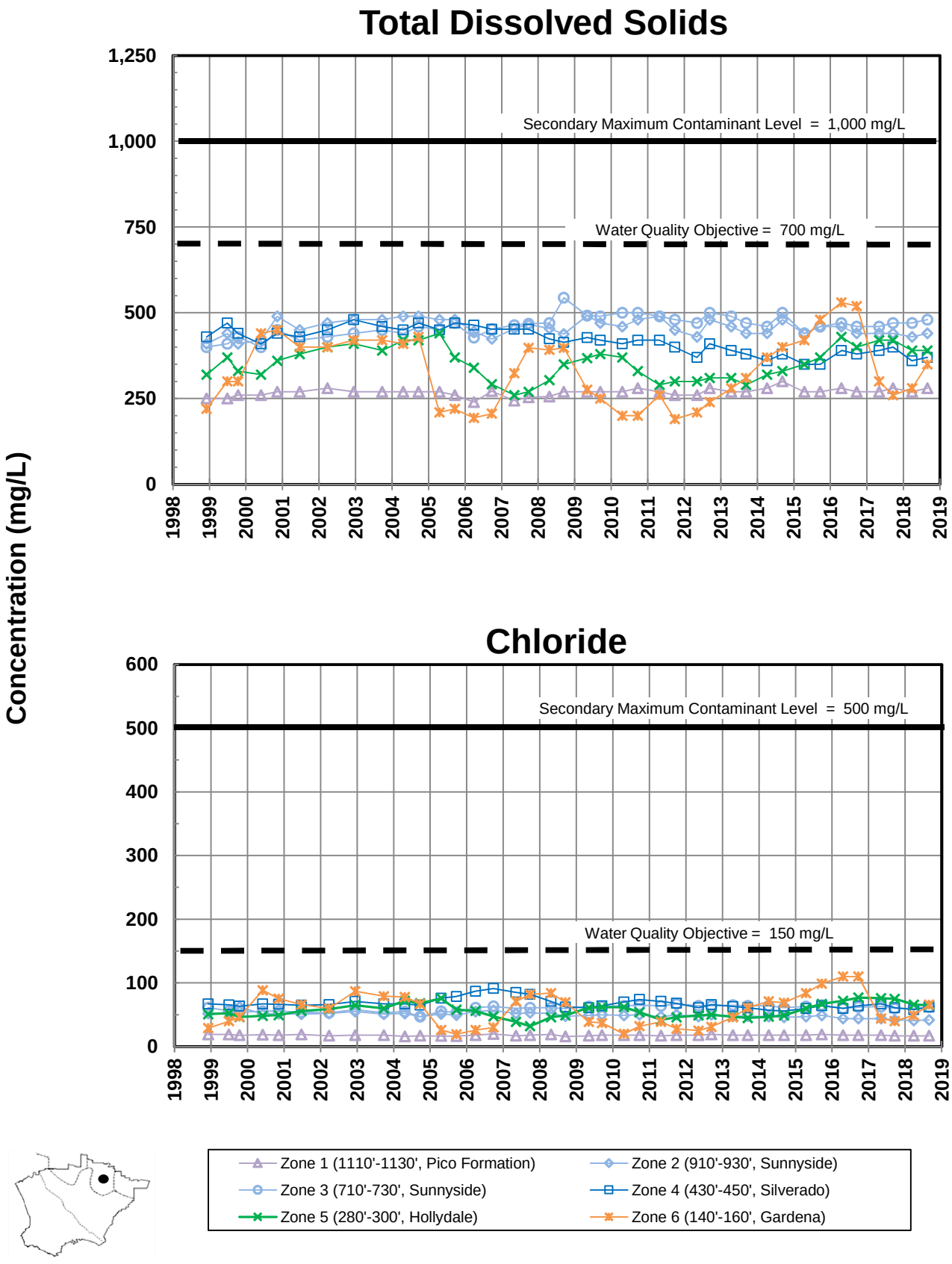
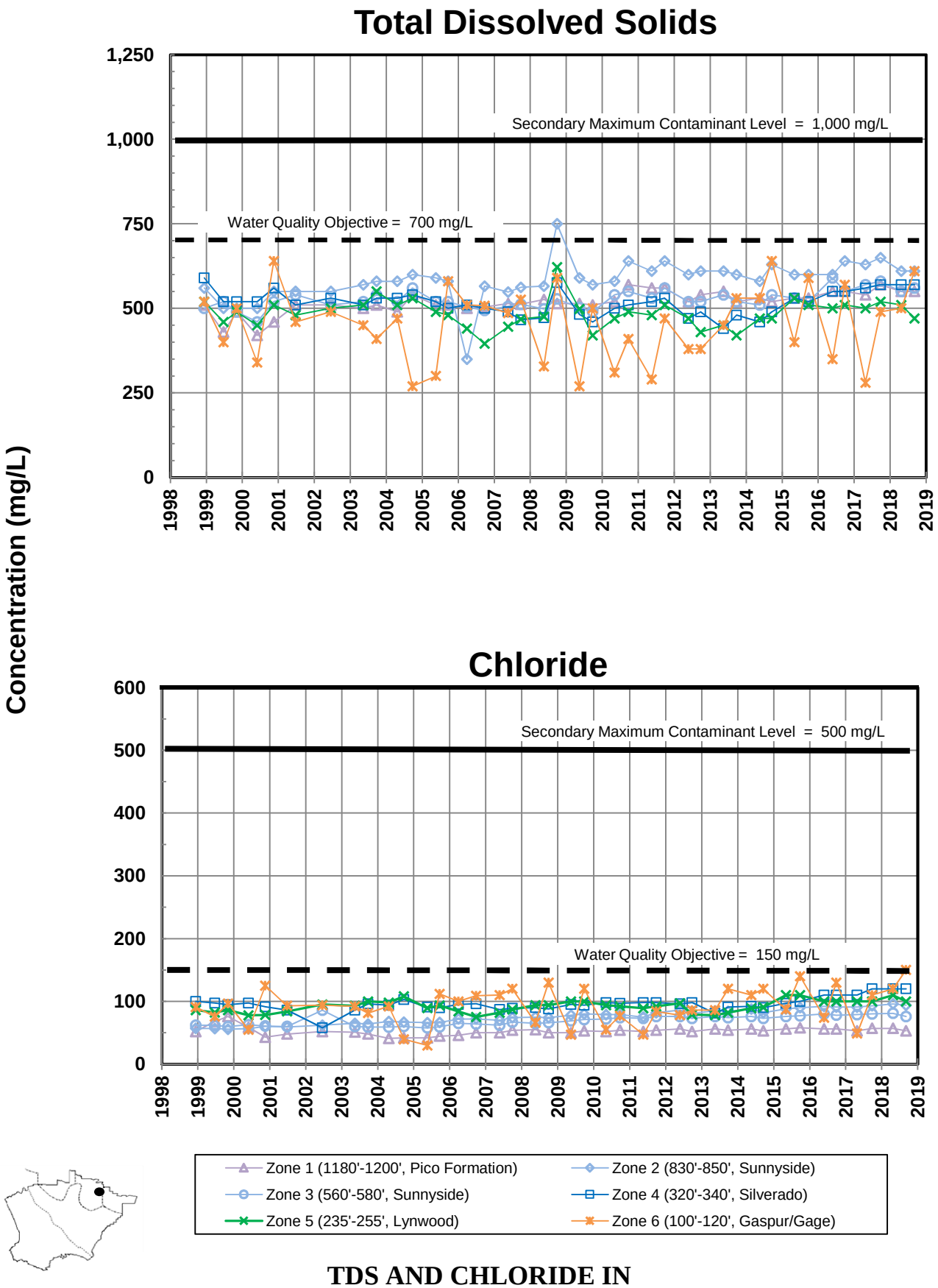


Figure 3.24
TERTIARY BUTYL ALCOHOL (TBA) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Tertiary Butyl Alcohol (TBA): Notification Level = 12 µg/L
None Detected
≤6 µg/L
>6 - 12 µg/L
>12 - 24 µg/L
>24 - 48 µg/L
>48 µg/L
WRD Monitoring Well
Symbol represents the maximum concentration reported from October 2015 - September 2018
Data Source: State Water Resources Control Board, Division of Drinking Water
Seawater Intrusion Barrier
WRD Service Area Boundary
Central Basin Sub-Area Boundary (See Figure 1.1 for Detail)
WRD
WATER REPLENISHMENT DISTRICT
N
0 1 2 3 4 5 10 Miles
Pacific Ocean
Los Angeles Harbor
San Pedro Bay
Los Angeles River
Ballona Creek
Marina del Rey
Dominguez Channel
Compton Creek
Rio Hondo
San Gabriel River
San Jose Creek
Coyote Creek
Carbon Creek
NEWPORT
INGLEWOOD
UPLIFT
101
5
10
60
605
710
110
405
105
91
57
22



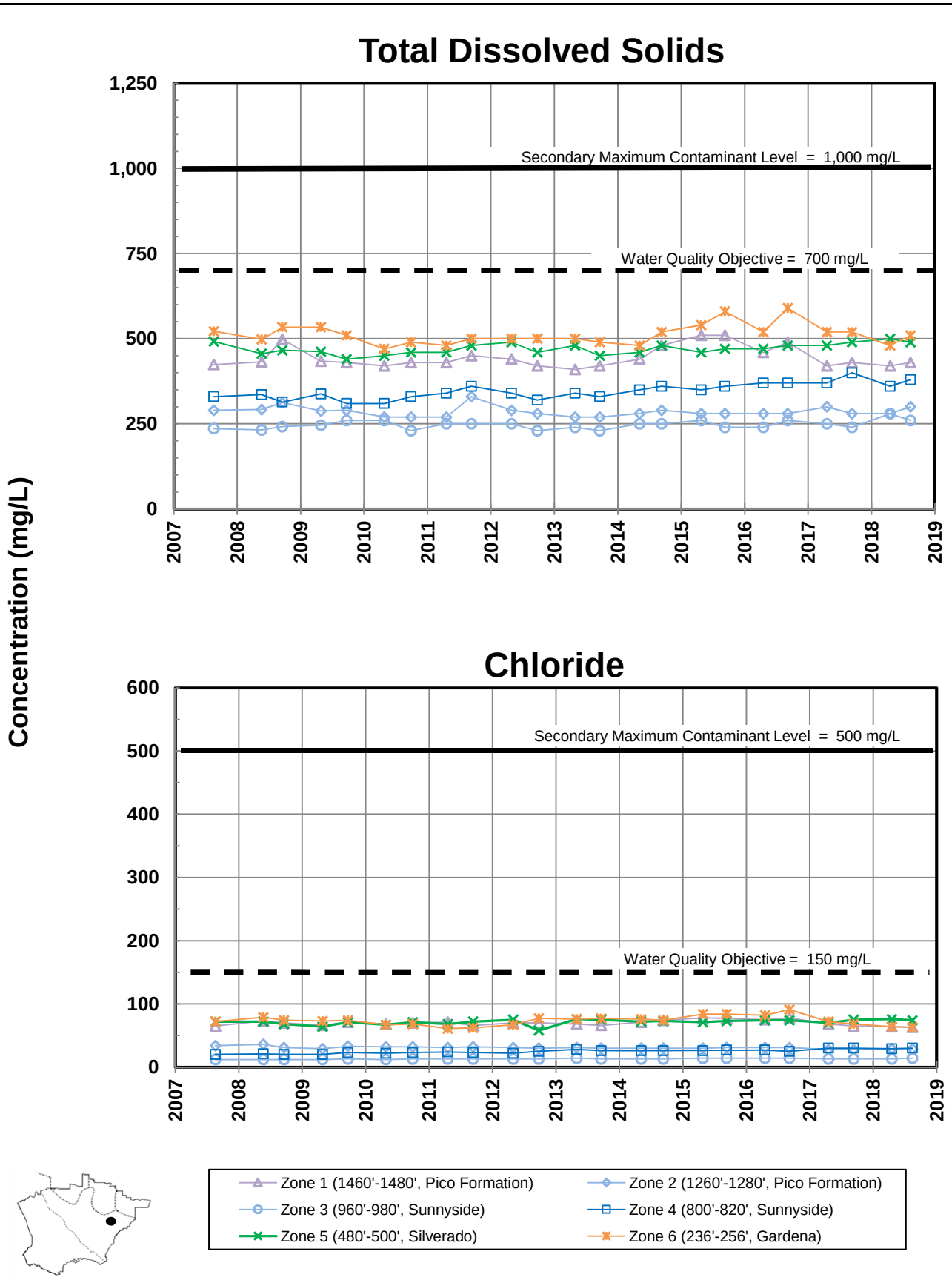
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL RIO HONDO #1

FIGURE 4.1



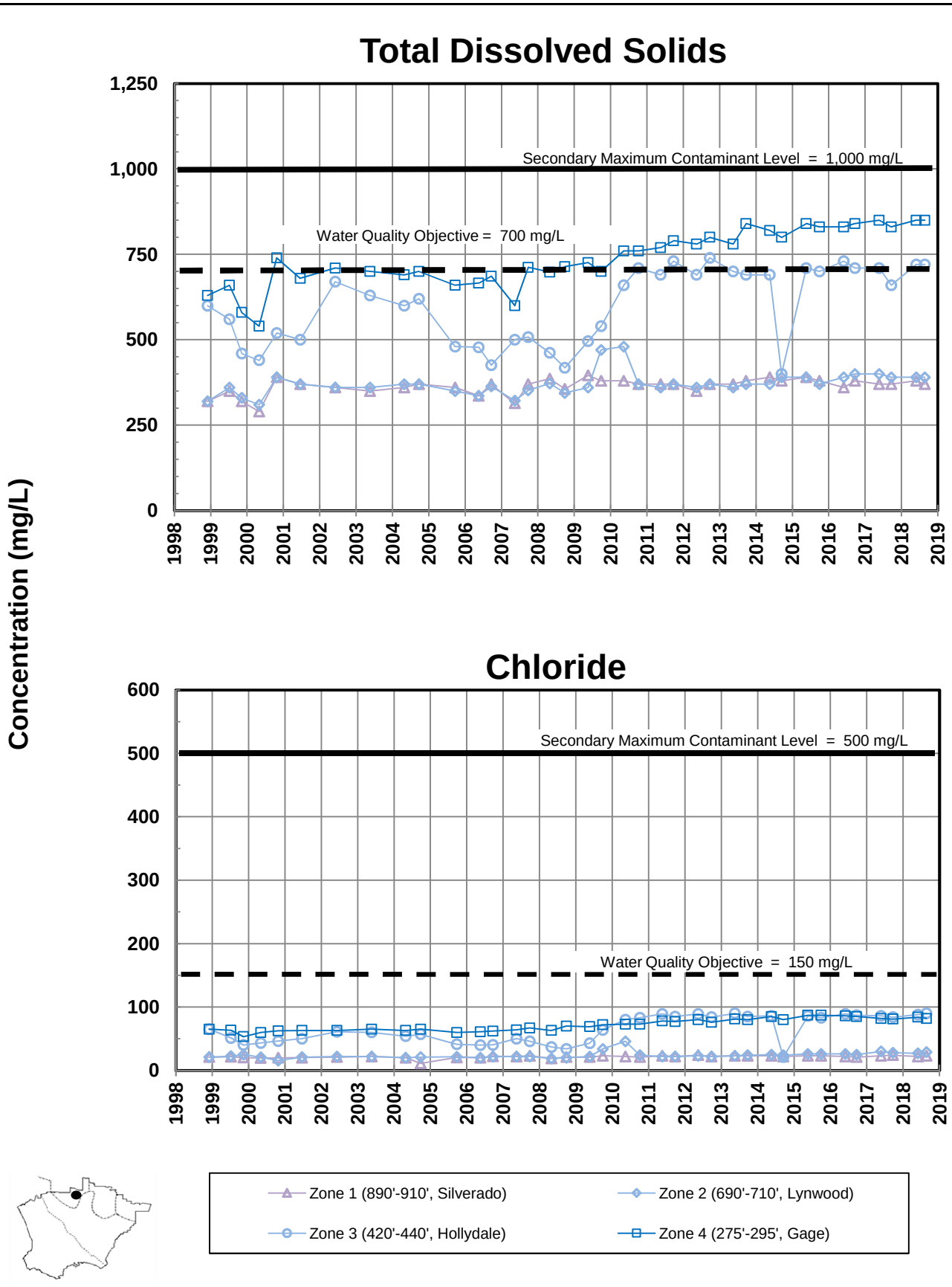
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL PICO #2

FIGURE 4.2



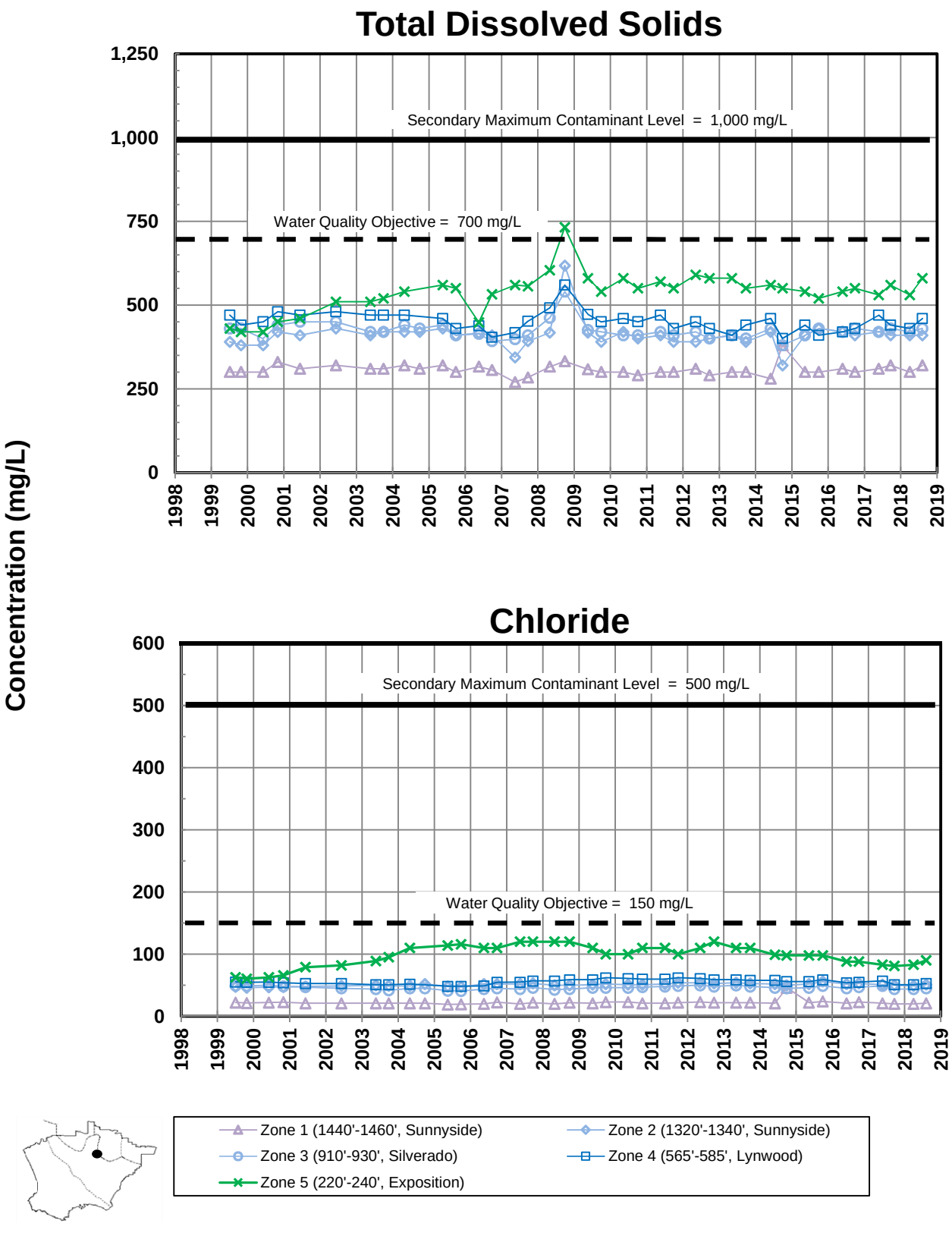
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL NORWALK #2

FIGURE 4.3



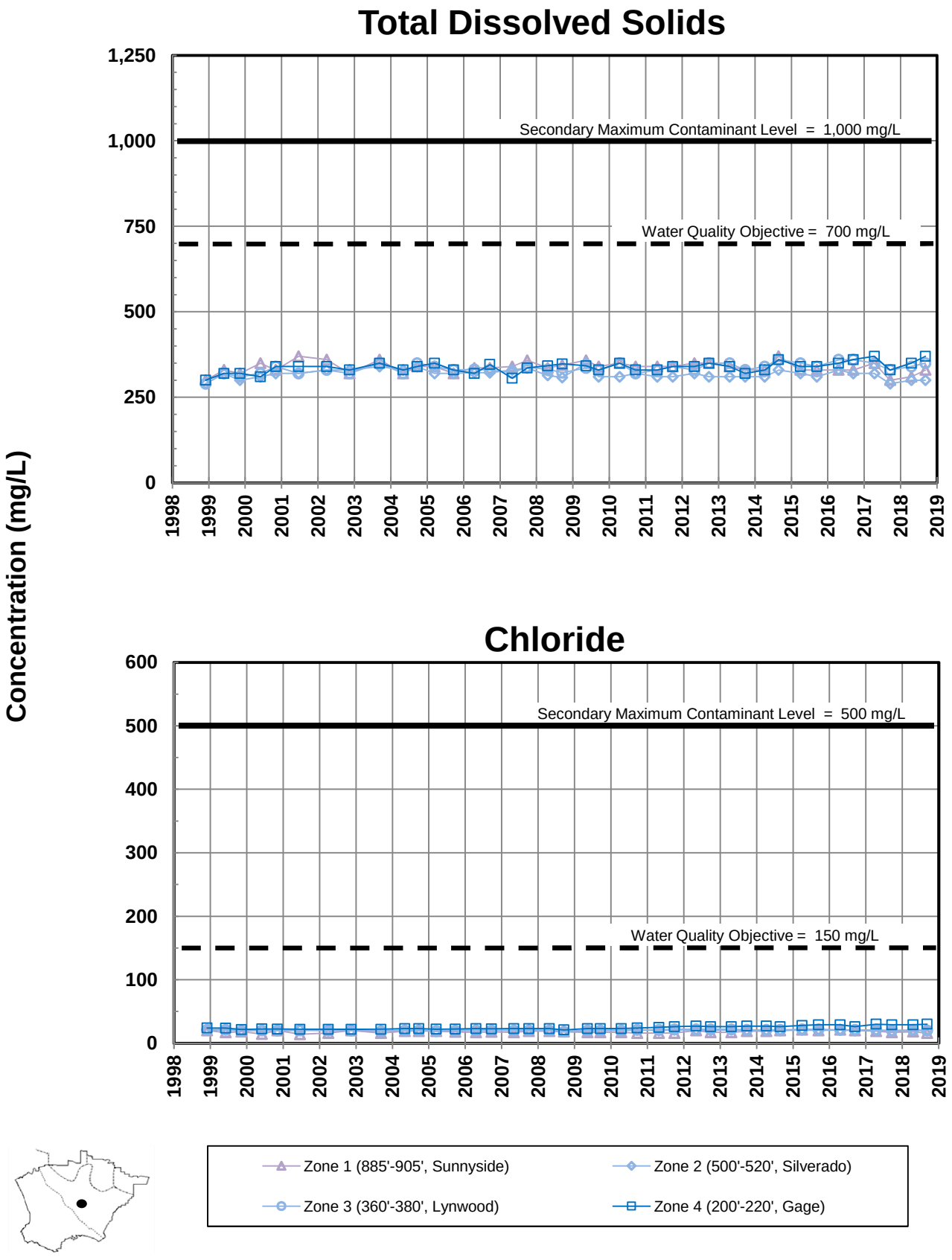
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL HUNTINGTON PARK #1

FIGURE 4.4



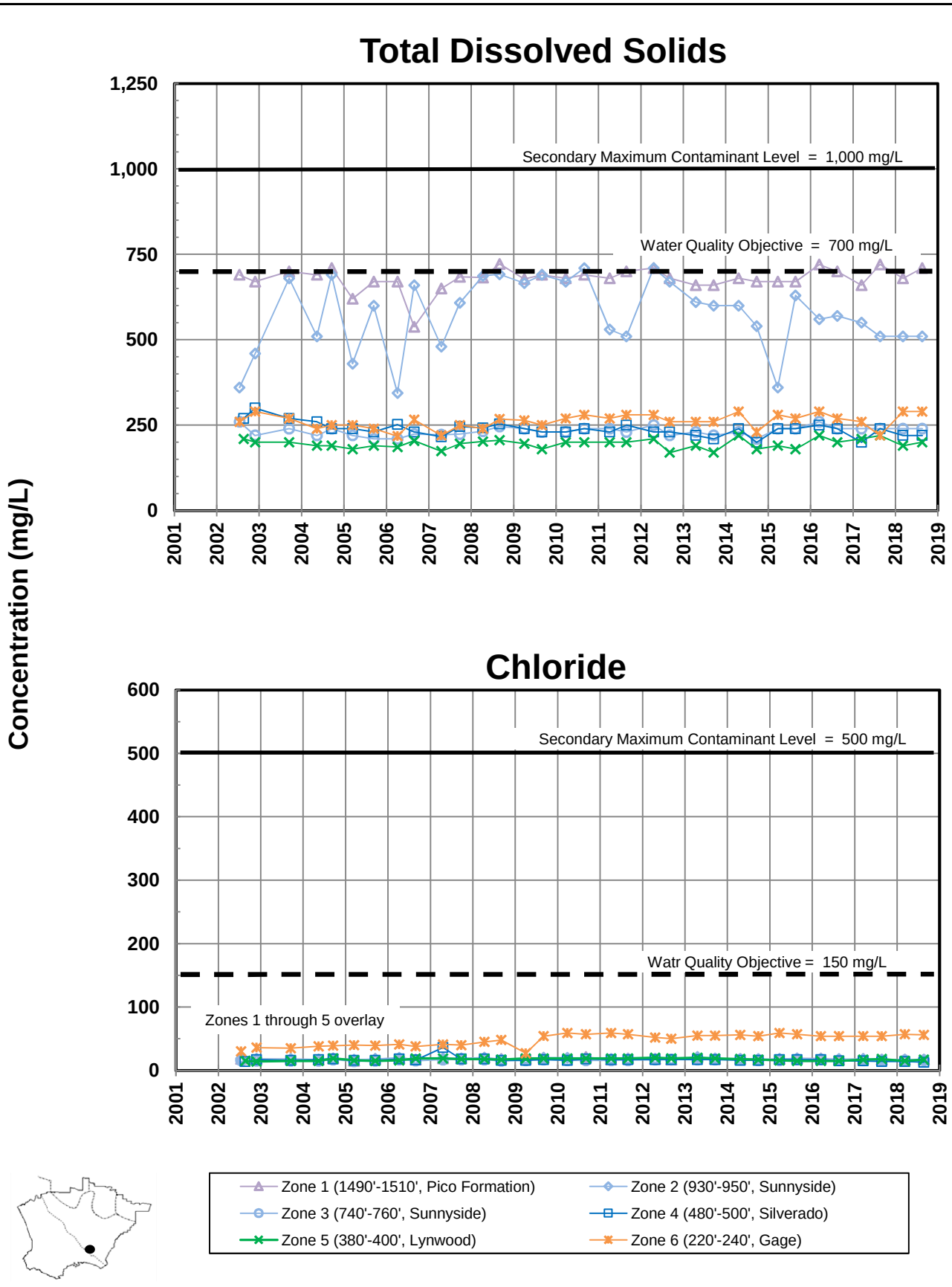
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL SOUTH GATE #1

FIGURE 4.5



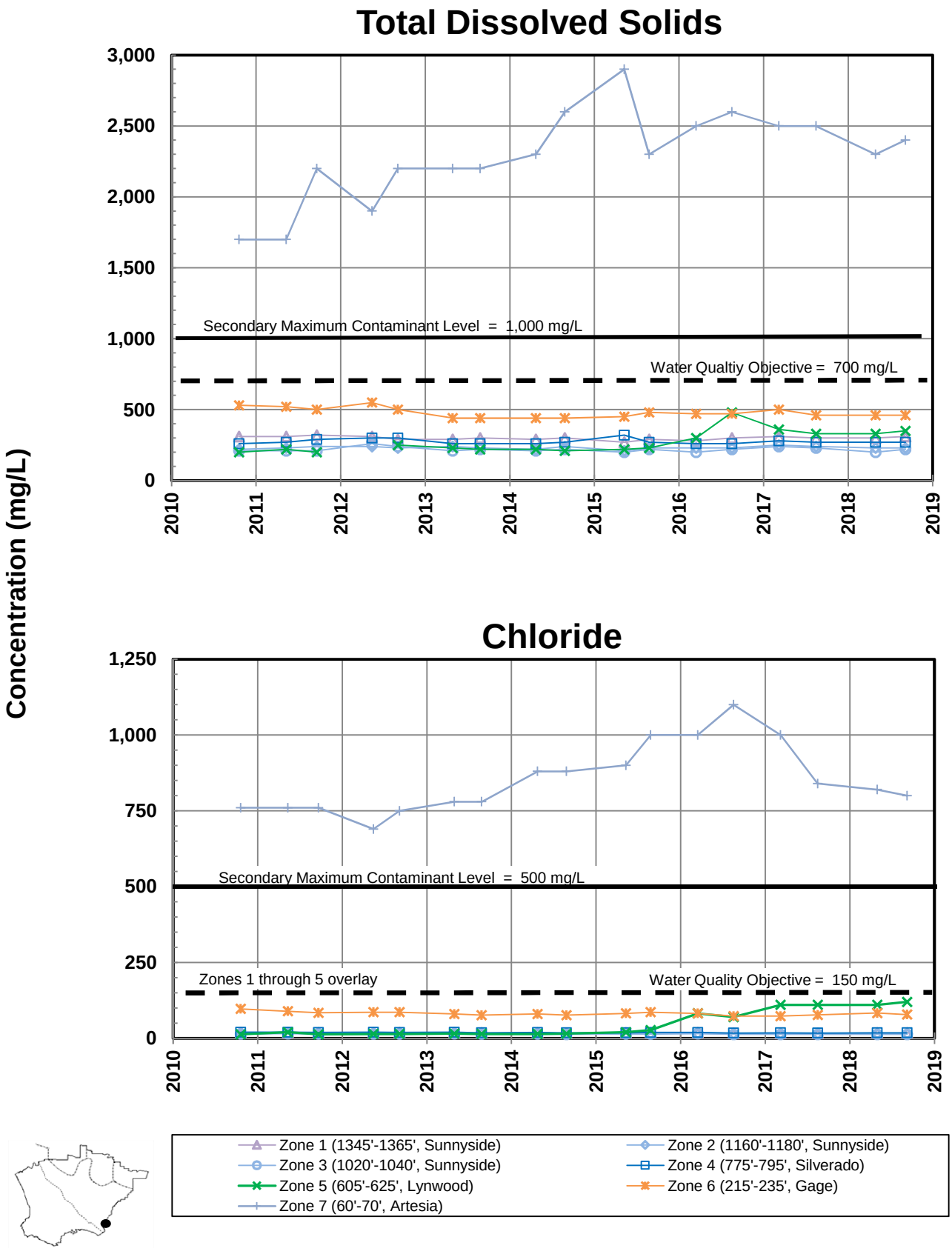
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL WILLOWBROOK #1

FIGURE 4.6



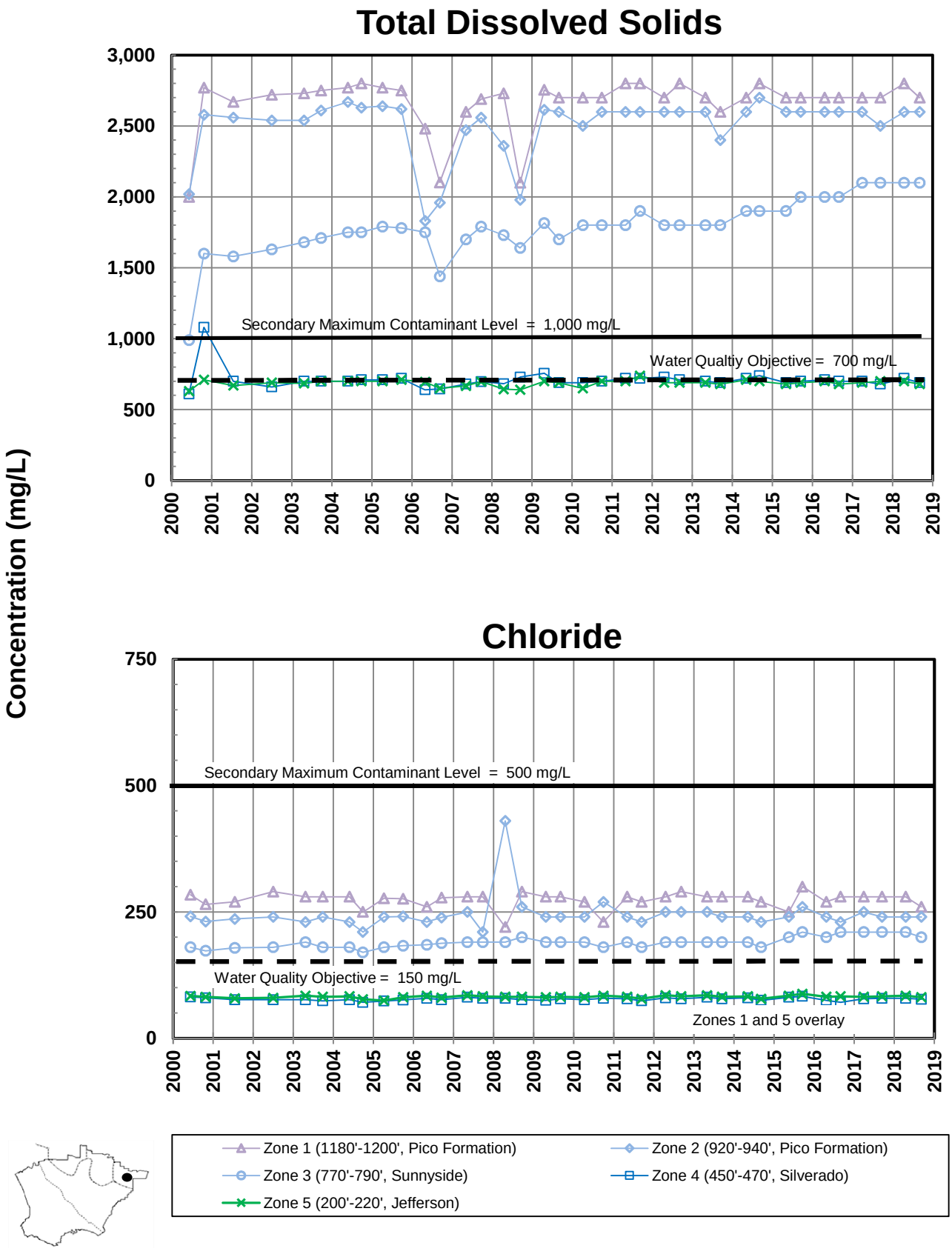
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL LONG BEACH #6

FIGURE 4.7



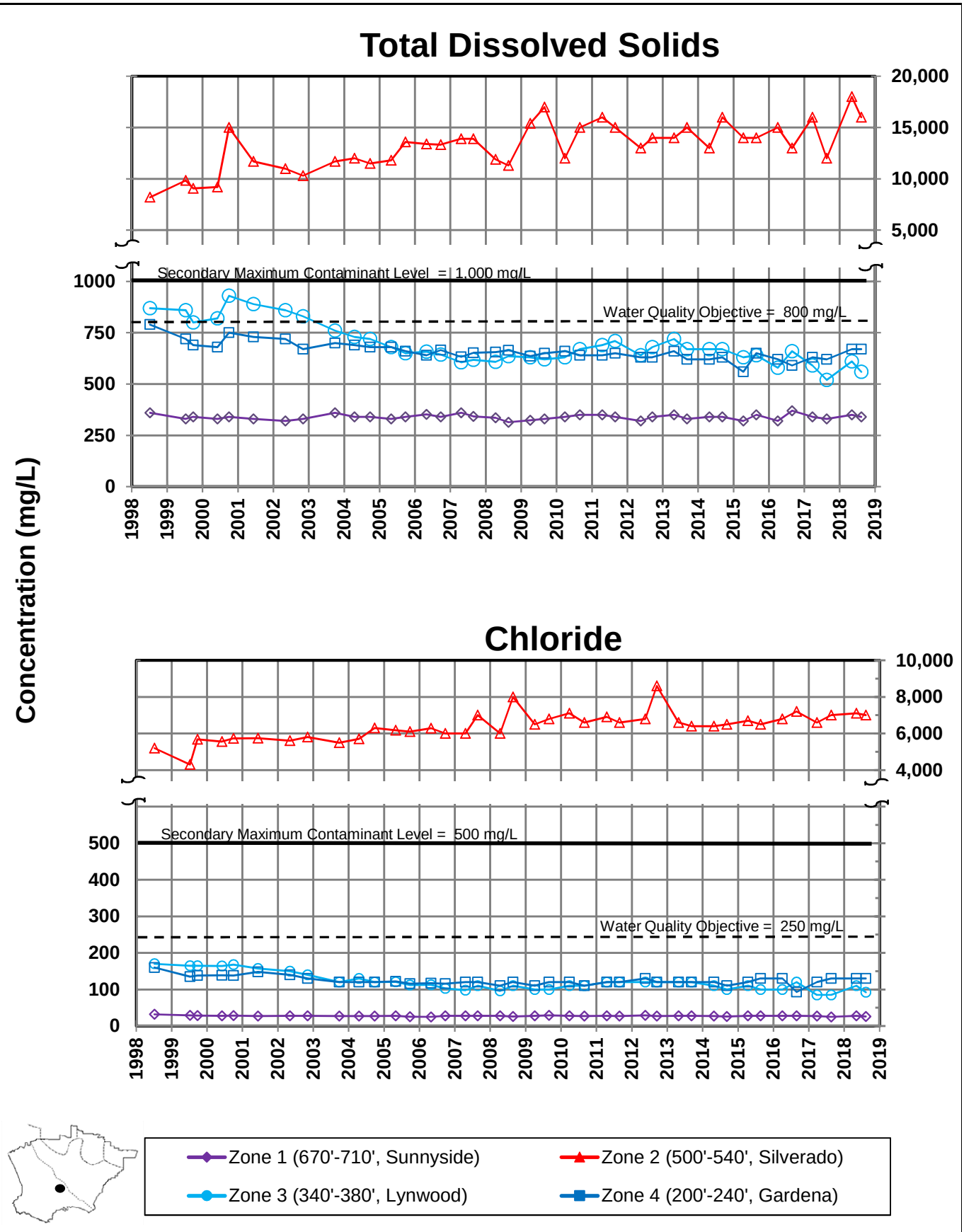
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL SEAL BEACH #1

FIGURE 4.8



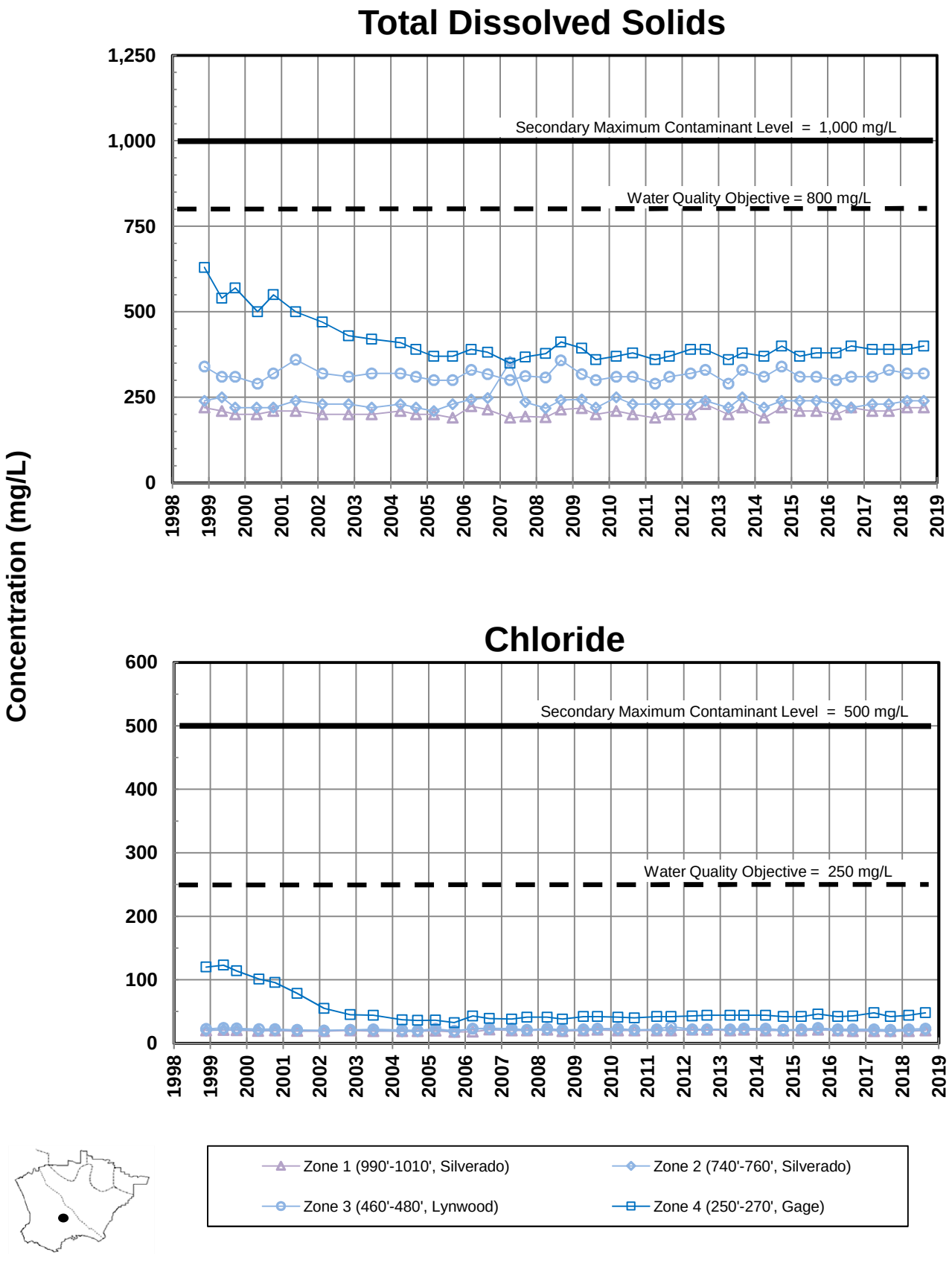
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL WHITTIER #1

FIGURE 4.9



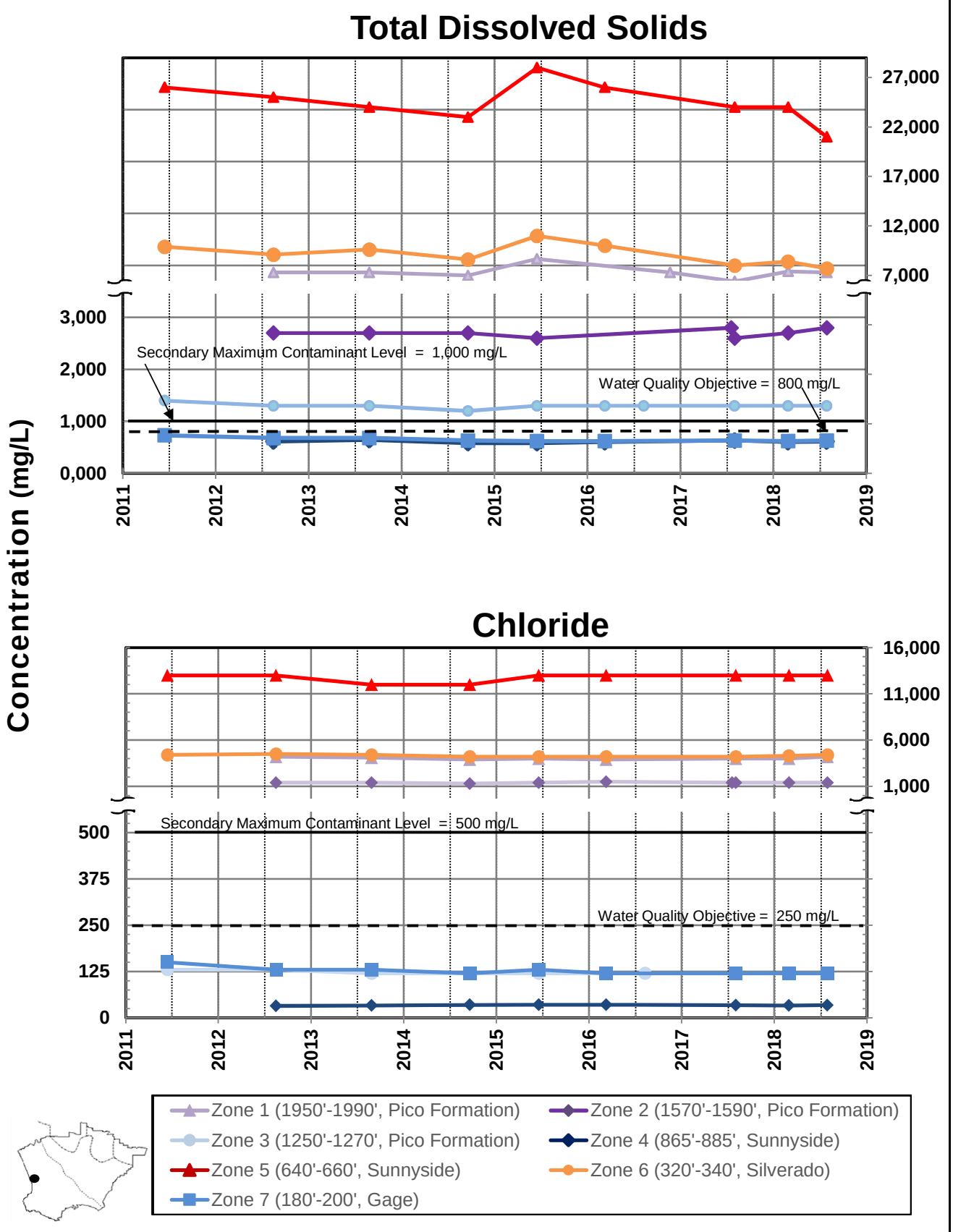
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL PM-4 MARINER

FIGURE 4.10



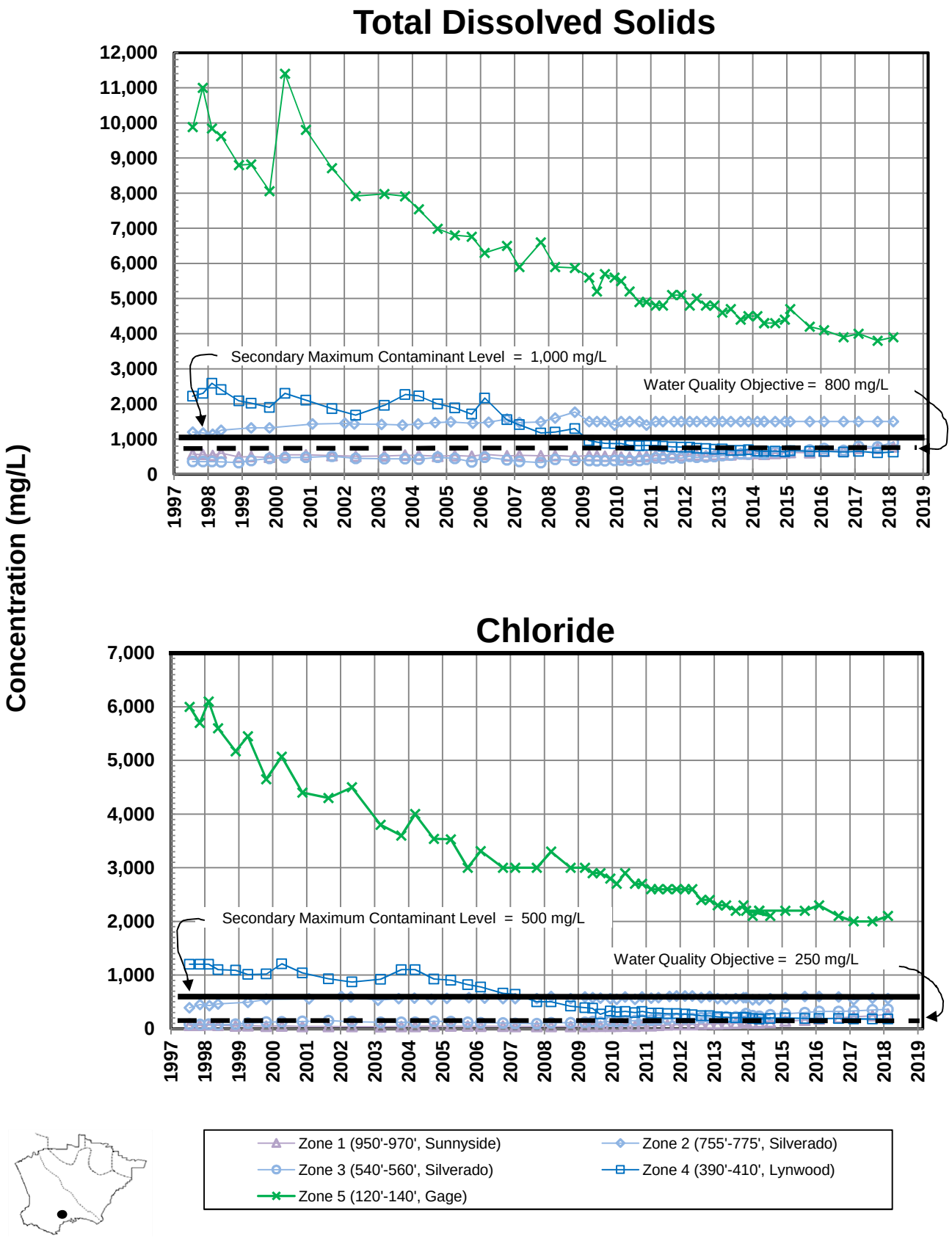
TDS AND CHLORIDE IN
WRD KEY MONITORING WELL CARSON #1

FIGURE 4.11



TDS AND CHLORIDE IN WRD KEY MONITORING WELL
MANHATTAN BEACH #1

FIGURE 4.12



TDS AND CHLORIDE IN
WRD KEY MONITORING WELL WILMINGTON #2

FIGURE 4.13

Mission:

"To provide, protect and preserve high-quality groundwater through innovative, cost-effective and environmentally sensitive basin management practices for the benefit of residents and businesses of the Central and West Coast Basins."

WRD
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