Groundwater Assessment for Mining Permit and Reclamation Plan Amendment

CEMEX Cache Creek Mine, Yolo County

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Table of Contents

1 Introduction 1
1.1 Background 1
1.2 Revised Mining and Reclamation Plans 3
1.3 Active Off-Site Wells 4
2 Monitoring Program 6
3 Monitoring Well Network 8
4 Groundwater Analysis 9
4.1 Groundwater Levels 9
4.2 Groundwater Quality 10
4.2.1 Phase 1 Mining Area 11
4.2.1.1 General Minerals 11
4.2.1.2 Inorganic Constituent Testing 12
4.2.1.3 Other Water Quality Testing 12
4.2.2 Phases 3 and 4 Mining Area 13
4.2.2.1 General Minerals 13
4.2.2.2 Inorganic Constituent Testing 13
4.2.2.3 Other Water Quality Testing 14
4.2.3 Phases 5 and 6 Mining Area 14
4.2.3.1 General Minerals 14
4.2.3.2 Inorganic Constituent Testing 15
4.2.3.3 Other Water Quality Testing 15
4.3 Summary Discussion 15
5 Evaluation of Potential Project Effects on Groundwater 17
6 References 18

Figures, Tables, and Attachments

Figure 1 Location Map
Figure 2 Mining Phases (Existing Entitlements) and 1,000 ft Buffer
Figure 3 Proposed Project Mining Phases and 1,000 ft Buffer
Figure 4 Historical Groundwater Levels Well T10N/R1W-27F1
Figure 5 Historical Groundwater Levels Solano #1
Figure 6 Groundwater Levels Adjacent to Cache Creek
Figure 7 Groundwater Levels Southern Portion of Property
Figure 8 Contours of Equal Groundwater Elevation, March 2017
Figure 9 Contours of Equal Groundwater Elevation, September 2017
Figure 10 Phase 1 Area: Total Dissolved Solids (TDS) Concentrations
Figure 11 Phase 1 Area: Nitrate (as Nitrate) Concentrations
Figure 12 Phase 3 and 4 Area: Total Dissolved Solids (TDS) Concentrations
Figure 13 Phase 3 and 4 Area: Nitrate (as Nitrate) Concentrations
Figure 14 Phase 5 and 6 Area: Total Dissolved Solids (TDS) Concentrations
Figure 15 Phase 5 and 6 Area: Nitrate (as Nitrate) Concentrations

Table 1 Well Construction Details
Table 2 Phase-specific Monitoring Well Network
Table 3 Groundwater Elevation Levels
Table 4 Water Quality, Conventional Constituents
Table 5 Water Quality, Inorganic Constituents
Table 6 Water Quality, Organic Constituents

Attachment 1 Groundwater Hydrology Reports-Verne Scott 1993/1994
Attachment 2 Request for Information on Wells Within 1,000 Feet of Limits of Wet Pit Mining
Attachment 3 Groundwater Elevation Hydrographs
Attachment 4 Contours of Equal Groundwater Elevation, CEMEX Madison 2008-2016

Acronyms and Nomenclature

EC	electrical conductivity
MBAS	methylene blue active substances
OCSMO	Yolo County’s Off-Channel Surface Mining Ordinance
SMRO	Yolo County’s Surface Mining Reclamation Ordinance
TDS	total dissolved solids

<u>Chemical Elements and Components</u>

Ca	calcium
$CaCO_3$	calcium carbonate
Cl	chloride
CO_3^{2-}	carbonate ion
HCO_3^-	bicarbonate ion
K	potassium
Mg	magnesium
N	nitrogen
Na	sodium
NO_2^-	nitrite ion
NO_3^-	nitrate ion
OH^-	hydroxide ion
SO_4^{2-}	sulfate ion

1 Introduction

Pursuant to Section 10-4.502(b)(2) of the Yolo County Off-Channel Surface Mining Ordinance (OCSMO)[1], Luhdorff and Scalmanini Consulting Engineers (LSCE) has prepared this groundwater assessment for the CEMEX Cache Creek Mining Permit and Reclamation Plan Amendment Project (Project). Specifically, CEMEX proposes to modify Long-Term Off-Channel Mining Permit No. ZF #95-093, Reclamation Plan No. ZF #95-093 and Development Agreement No. 96-287 (as subsequently amended, "Existing Entitlements") with revised mining and reclamation plans and a 20-year time extension. The purpose of the groundwater assessment is to evaluate the potential effects of CEMEX's continued and proposed mining plans on groundwater levels and groundwater quality in off-site active wells that are within 1,000 feet (ft) of an existing or proposed mining pit boundary. The OCSMO Section 10-4.502(b)(2) specifically states:

> "If the maximum depth of proposed mining will exceed the average high groundwater level for the site, and the proposed pit boundaries are within 1,000 feet of an active off-site well, then a groundwater analysis shall be submitted to evaluate the effect of the proposed mining plan on the groundwater levels and quality of the off-site active wells. The analysis shall be consistent with the procedures described in Section 10-4.430[2] of this chapter. A detailed groundwater monitoring program shall be prepared in conformance with 10-4.419[3] of this chapter, including maps and hydrographs of the wells to be used in the monitoring network and their respective groundwater measurements. A well survey shall be conducted and all wells within 1,000 feet of the limits of mining plotted on a scaled map. Each property owner owning parcels within 1,000 feet of the proposed limits of wet pit mining shall be contacted and queried about wells that may be located near the wet pit mining area. Measures to reduce the potential for contamination shall be included within the analysis;"

This document was prepared because (i) the maximum depth of proposed mining will continue to exceed the average high groundwater level for the site and (ii) at least one proposed pit boundary may be within 1,000 feet of an active off-site well. This document also includes a groundwater monitoring program, as required by Section 10-4.417 of the OCSMO.

1.1 Background

The CEMEX Cache Creek Mine (sometimes referred to as the "Madison Plant") is located at 30288 Highway 16 in Yolo County (**Figure 1**). The facility (including the existing mine and

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[1] All references to OCSMO sections in this report are from the OCSMO adopted by the Yolo County Board of Supervisors by Ordinance 1190 on August 6, 1996.

[2] Section 10-4.430 *Site maintenance* is not applicable to groundwater analysis. It is unclear where procedures for groundwater analysis is provided in the Code, except when related to dewatering (Section 10-4.412 *Dewatering*).

[3] Section 10-4.419 *Haul roads* is not applicable to groundwater monitoring programs. It is likely that the Code's intent was to reference Section 10-4.417 *Groundwater monitoring programs*.

processing facilities) is presently operated under Long-Term Off-Channel Mining Permit No. ZF-#95-093, Reclamation Plan No. ZF #95-093 and Development Agreement No. 96-287 ("Existing Entitlements"), which were approved by Yolo County in 1996. The Existing Entitlements were originally issued to CEMEX's predecessor in interest Solano Concrete Company, Inc. ("Solano").

The Existing Entitlements allow for off-channel aggregate mining in seven phases totaling ±586 acres located south of Cache Creek (**Figure 2**) over a period of 30 years[4]. As stated in Development Agreement No. 96-287, the total tonnage approved to be mined under the Existing Entitlements is 32.17 million tons (26.7 million tons sold). As stated in Condition #2 of the existing mining permit, the annual permitted extraction is 1,204,819 tons mined (1 million tons sold), with allowance for the annual production level to be exceeded by 20 percent (to 1.2 million tons sold) in any one year, so long as the running ten-year production average does not exceed 10 million tons sold.

The Existing Entitlements specify that the mining pits would, with the exception of Phase 7, extend to depths below the groundwater table (maximally to a depth of 70 feet below ground surface (ft bgs)), resulting in the creation of open lakes that would be in hydraulic contact with the underlying aquifer. The Existing Entitlements include a reclamation plan for the mining pits to allow for the establishment of permanent lakes; woodland and marsh habitat; tree crop production; row crop production; and slopes and roads.

A series of groundwater hydrology reports were prepared by Verne H. Scott in the mid-1990s to satisfy the requirement for a groundwater assessment for the original Solano off-channel mining permit applications (**Attachment 1**). Scott's hydrology report indicated that Solano initiated a Groundwater Plan in February 1990 in anticipation of future mining; including water level and water quality data collection (see Section 4). For this purpose, twelve on-site observation wells were drilled in 1990. Also, as part of the then Interim Mining Permit Application (submitted August 1994), 143 boreholes were drilled to provide a better understanding of sub-surface conditions and provide an assessment of available aggregate resources. The results of the borehole investigation as well as lithologies encountered during the drilling and construction of the observation wells were used to create a comprehensive understanding of the geology beneath the site and are described in detail in Scott's reports. In brief, Scott's analysis of the original off-channel mining plan concluded that there would be no adverse impacts to groundwater levels or quality, and that there could actually be an enhancement to groundwater recharge due to the increased storage and hydraulic transmission characteristics (native clay layers would be excavated) of the backfill material, better efficiency in converting runoff to recharge and the introduction of recharge through the ponds. Backfill material was expected to have greater storage and yield capacity than the material that was being removed due to its uniformity and distribution of particle sizes. However, the backfill material would have a lower hydraulic conductivity. Scott concluded that this effect would not be significant on a regional basis because the groundwater is still free to

[4] At the time of the original off-channel permit application, most of Phase 1 had already been mined and reclaimed under a previous permit.

move beneath the backfilled areas, within sands and gravels around backfilled areas, through the agricultural buffer zones and through the backfilled area. Scott further concluded that backfilled materials would not impede recharge to groundwater.

Scott included an analysis on the effect of the Reclamation Plan on nearby water wells in regard to removing permeable gravels and backfilling with less permeable material. An evaluation by Woodward and Clyde (1980) was cited in Scott's report that describes the effects on nearby wells as 'largely minimal' and numerically describes an increased drawdown of 0.5 ft for a well approximately 0.5 miles from the center of the proposed mining wet pits and 2.0 ft for a well very close to the mining wet pits. Based on field data collected since 1990, Scott agreed that there would be little to no effect on water wells in the vicinity of the project site.

At the time the Environmental Impact Report (EIR) (1996) was published there were no off-site wells within 1,000 feet of proposed mining and therefore the project was not found to have a significant impact on off-site wells that would require mitigation. The EIR addressed the potential for the wet pit ponds to degrade water quality during mining, during reclamation and after reclamation. Concerns regarding the release of chemicals into the pond from equipment and/or agricultural affected tail-water runoff entering the ponds were listed as potential sources of contamination. Mitigation measures were established to prevent potential contaminations such as fueling and maintenance operations taking place under a Spill Prevention and Countermeasure Plan, installed fencing around ponds to reduce likelihood of illegal dumping and restrict access, as well as establishing a drainage network that directs runoff away from the ponds and Cache Creek. The EIR referenced the ongoing monitoring plan as a mitigation measure.

Continuous groundwater monitoring has been taking place in on-site wells at the Project site since 1990 and LSCE has been preparing annual monitoring reports with cumulative data evaluation since 2003, with the most recent one dated October 26, 2017 (LSCE, 2017). Results of the ongoing monitoring efforts provide a comprehensive data set of groundwater conditions in the vicinity of the Project including pre-mining conditions and conditions throughout mining and reclamation activities that have occurred to date. The existing data record shows no evidence or indication that the mining and plant operations have caused changes in groundwater levels or quality to date.

1.2 Revised Mining and Reclamation Plans

CEMEX's proposed Project provides for:

1. The continuation of mining on ±498 acres with reclamation on ±838 acres.
2. A change in phasing to promote the efficient and continuous operation of the electric dredge, eliminating the need to disassemble and relocate the dredge between phases (see **Figure 3**);
3. An increase in acres reclaimed to agriculture;

4. A minor change to the mining and reclamation plan footprint consistent with the Stipulated Order to Comply entered into between CEMEX and Yolo County on June 2, 2017; and
5. A 20-year extension of the mining permit through 2047 to allow for the extraction of aggregate reserves within the proposed mining footprint.

Surface mining is proposed to continue on 489± acres and reclamation is proposed to occur on 838± acres of the 1,902± acre property to a maximum depth of 70 feet in seven phases. Consistent with existing entitlements, all of the proposed mining areas are located outside the active channel of Cache Creek. The Project is designed to be consistent with the OCSMO and Yolo County Surface Mining Reclamation Ordinance (SMRO). The Project includes a less than 10 percent decrease of acreage that will be reclaimed to agriculture and a commensurate increase in acreage reclaimed to ponds. Except as outlined above, the Project proposes no change to any fundamental element of the Existing Entitlements or operation (e.g., mining methods, maximum depth of mining, aggregate processing operations including the use of on-site settling ponds to manage aggregate wash water and contain fine earthen materials, backfill of overburden, production limits, water use, truck traffic, or hours of operation).

1.3 Active Off-Site Wells

At the present time, there is no positive confirmation of any existing active off-site wells within 1,000 ft of current or proposed wet pit boundaries. The following online databases were checked:

- Department of Water Resources Water Data Library (DWRWDL)
- California Statewide Groundwater Elevation Monitoring (CASGEM)
- United States Geological Survey (USGS)

The Project's wet pit mining boundaries are not located within 1,000 feet of a municipal water supply well nor within 500 feet of a domestic water supply well. CASGEM indicates one active well on the eastern side of the Project. However, DWRWDL indicates that this well was destroyed in 1969. The data record on both websites stops in 1969. The USGS database did not show any wells within 1,000 feet of current or proposed wet pit boundaries. Verne Scott's reports show a well named Hayes 1 on an unscaled sketch, located north of Cache Creek across from OW-3, and include monitoring data from Hayes 1 and Hayes 2. It is unclear if these wells still exist.

The Solano EIR (1996) concluded that there "there are no off-site wells located within 1,000 feet of the proposed wet pit mining areas…" (see Draft EIR at p. 4.4-18). Recent aerial photography indicates an existing development within 1,000 ft, but greater than 500 feet, of the eastern boundary of Phase 6 (see **Figure 3**). Based on the available online database record, LSCE is unaware of any domestic water supply wells on this property. If such a well was constructed on this property after issuance of the Existing Entitlements, then the procedures set forth in OCSMO Section 10-4.427 should have been followed, which require in pertinent part:

> "Any new drinking water wells proposed for installation within one-thousand (1,000) feet of an approved wet pit mining area shall be subject to review by the Yolo County Environmental Health Department. The County shall determine, based on site specific hydrogeology and available water quality data, whether to approve the proposed well installation."

Notwithstanding, on November 13, 2017, CEMEX mailed the owners of the subject property a request for information related to any active wells on that property but has not received a response as of the date of this report (**Attachment 2**). For purposes of this report, the existence of a domestic water supply was conservatively assumed at that location to evaluate the potential effects of the proposed mining plan on the groundwater levels and quality.

2 MONITORING PROGRAM

OCSMO Section 10-4.502(b)(2) requires a groundwater monitoring program to be prepared if mining is proposed in groundwater. OCSMO Section 10-4.417 stipulates that the groundwater monitoring program shall consist of two components: water level measurements and water quality testing. This section describes the groundwater and mining pit surface water monitoring program (Monitoring Program) specific to CEMEX's Project, which is a continuation of the existing groundwater monitoring program that was designed to be consistent with the OCSMO and employed at the site since the onset of off-channel mining activity. The monitoring well network that will be used to implement the Monitoring Program is detailed in Section 3.

This Monitoring Program is specific to individual mining phases. The purpose of this Monitoring Program is to continuously assess the groundwater quality conditions in the vicinity of the mining areas, and to identify potential impacts to groundwater quality that may result from mining activities. Key items of the Monitoring Program are summarized below:

1. Groundwater level monitoring to begin 6 months prior to overburden removal and to continue through mining and reclamation (quarterly measurements).
2. Groundwater and mining pit water quality testing includes the following constituents and analyses:
   - Title 22 general minerals and inorganics (including nitrate),
   - total petroleum hydrocarbons (TPH) as diesel and motor oil (Modified EPA Method 8015),
   - benzene, toluene, ethyl benzene, and xylenes (BTEX) (EPA Method 8260B),
   - organophosphorus pesticides and chlorinated herbicides (EPA Methods 8141 and 8151), and
   - total coliform (with E. coli confirmation).
3. Groundwater quality testing begins 6 months prior to overburden removal and follows a semi-annual schedule. After 2 years of wet-pit mining, the groundwater testing frequency may be reduced to annual sampling and continues through active reclamation. Mining pit water quality testing is conducted on a semi-annual schedule for the duration of mining and active reclamation (i.e., no reduction to an annual schedule after 2 years of mining). After active reclamation, one year after all heavy equipment work has been completed in the vicinity of the pit, the TPH and BTEX analyses may be discontinued from groundwater and surface water monitoring. After completion of reclamation, groundwater and surface water monitoring is to be conducted every 2 years for a duration of 10 years. During this time, groundwater and surface water quality samples are to be analyzed for the following constituents:
   - Temperature, pH, and biological oxygen demand,
   - nutrients (phosphorus and nitrogen),

- total dissolved solids, and
- total coliform (with E. coli confirmation).

4. At a minimum, a groundwater monitoring program shall consist of 3 monitoring wells, with at least one well upgradient of the wet pit and one well downgradient of the wet pit to be used for water quality sampling. Proposed mining areas (i.e., mining phases) exceeding 100 acres of total proposed mining area require additional wells (one additional well for each 100 acres of wet pit mining).

3 Monitoring Well Network

The groundwater monitoring well network at the Project site presently consists of a total of 19 wells, including 15 dedicated observation wells and 4 production wells (**Table 1** and **Figure 3**). The intermediate-depth wells are used in the compliance monitoring networks for the individual mining phases. The phase-specific monitoring well networks meet or exceed the requirements set forth in Title 10, Section 10-4.417 (YCC).

The OCSMO requires parcels greater than100 acres but less than 200 acres to have quarterly groundwater level monitoring in at least 4 adjacent monitoring wells and groundwater quality monitoring from one upgradient and one downgradient monitoring well. Due to the adjacency of the mining phases, some monitoring wells serve as network wells for more than one mining phase. For example, OW-8d serves as a water level and quality sampling location downgradient from Phase 1 and upgradient from Phase 3. Similarly, OW-12 serves as a water level and quality sampling location downgradient from Phase 3 and upgradient from Phase 4. The phase-specific groundwater monitoring well network is summarized in **Table 2**.

4 GROUNDWATER ANALYSIS

Continuous groundwater monitoring has been taking place in on-site wells since 1990 and LSCE has been preparing annual monitoring reports with cumulative data evaluation since 2003, with the most recent one dated October 26, 2017 (LSCE, 2017). Results of the ongoing monitoring efforts provide a comprehensive data set of groundwater conditions in the vicinity of the Project including pre-mining conditions and conditions throughout mining and reclamation activities that have occurred to date.

4.1 Groundwater Levels

Historical groundwater level data, starting in 1951, from a nearby shallow irrigation well (State Well No. 10N/1W-27F1) exhibit the long-term groundwater level conditions near the Project (**Figure 4**). The highest observed levels occurred during the 1950s, with only slightly lower levels during the 1960s; since then, levels have temporarily declined during drought periods and subsequently recovered to the levels observed in the 1960s. Water levels declined from 2012 through fall of 2016. However, after a wet winter, spring 2017 levels were similarly high as in the 1960s. Seasonal groundwater level fluctuations were on the order of 15 to 20 feet prior to the early 1980's (at which time Indian Valley Reservoir was brought on-line); since then, fluctuations have been typically less than 10 feet. The groundwater levels measured since 1973 in this irrigation well are quite similar to those in the Solano #1 production well (**Figure 5**) in the magnitude and timing of seasonal and long-term fluctuations.

Groundwater levels beneath the Project area exhibit long-term stability since monitoring activities began at the Solano #1 production well in 1973, with temporary declines during the 1976-77 and 1988-92 drought periods on the order of 35 feet and 20 feet, respectively. Following these drought periods, groundwater levels recovered to pre-drought levels. The monitoring record of the Solano #1 well shows that the depth to water has ranged from 20 to 65 feet, with an average depth of approximately 32 feet. Quarterly static water level measurements have been difficult to obtain in recent years as this well is frequently pumped.

Groundwater levels in the monitoring wells have generally been retrieved monthly from 1990 until 2001 and quarterly thereafter through 2017 (**Table 3**). Hydrographs of groundwater levels in CEMEX' observation wells (**Figures 6** and **7**) show that the levels have been overall stable over the period of record. Groundwater levels near Cache Creek exhibit less seasonal variability than those in the southern portion of the site due to the interaction between creek and groundwater (e.g., the creek provides recharge to the groundwater when groundwater levels fall below the thalweg elevation). Specifically, the seasonal fluctuations are typically less than 10 feet in wells adjacent to Cache Creek although greater fluctuations were observed prior to 1995 and, more recently in OW-1d and OW-2 (**Figure 6**). Seasonal fluctuations are typically less than 15 feet in the wells along the southern edge of the mining phases (**Figure 7**). Highest water levels are typically observed during the winter or early spring. The individual groundwater level hydrographs for the network wells are provided in **Attachment 3**.

Water levels slightly declined from 2007 to 2016, with periods of some recovery observed in spring 2011, likely in response to fluctuating annual precipitation. After a wet winter, spring 2017 levels were similarly high as in the late 1990s, a period of five consecutive wet years.

In March 2017, the principal direction of groundwater flow was to the east (**Figure 8**). During this time, groundwater levels were above Cache Creek's theoretical thalweg elevations indicating that the groundwater was acting as a source of recharge to the creek. The conditions are typical for times of higher groundwater levels (winter and early spring) in the vicinity of the Project, and are consistent with the historical water level record. In September 2017, the principal direction of groundwater flow was to the east (**Figure 9**). During this time, groundwater levels were near to or below Cache Creek's theoretical thalweg elevations indicating that the creek acted as a source of recharge to the local groundwater. These conditions are typical for times of low groundwater levels (late summer and fall) in the vicinity of the Project, and are consistent with the historical water level record. Historical water level elevation contours are provided in **Attachment 4**.

The monitoring record shows no evidence or indication that the mining and plant operations have caused any changes in groundwater levels to date. This includes the dedicated monitoring wells that are located in immediate downgradient vicinity of actively mined wet pits.

4.2 Groundwater Quality

OCSMO Section 10-4.417 lists the following constituents to be analyzed: general minerals, nitrates, coliform (with E. Coli confirmation) (**Table 4**), inorganics (**Table 5**), petroleum hydrocarbons (TPH) as diesel and as motor oil, benzene, toluene, ethylbenzene, and xylenes (BTEX), and pesticides (EPA 8140 and 8150) (**Table 6**). These constituents have been analyzed in select network monitoring wells since the early to mid-1990's. Additional wells were added as mining progressed across the phases.

In the following sections, discussions of groundwater quality are provided in the context of the mining phases, specifically for Phase 1, Phases 3 and 4, and Phases 5 and 6. The discussion for Phases 3 and 4 is combined due to the continuous nature of the mining activities (i.e., the mining pit extends into both phases). The discussion for Phases 5 and 6 is also combined to accommodate the adjacency of these phases and the short data record. These phases have not been mined to date and the initial groundwater quality sampling was recently collected. To the best of CEMEX' knowledge, Phase 2 was not wet-mined by the previous mine owners. Therefore, groundwater monitoring is not required in this area. The discussions include the following comparative analysis, as applicable:

- Comparison of observed water quality to Maximum Contaminant Levels (MCLs) as reported in the California Code of regulations;
- Comparison of downgradient to upgradient water quality;
- Comparison of pre-project to project water quality; and
- Comparison of pond water quality to groundwater quality.

4.2.1 Phase 1 Mining Area

4.2.1.1 General Minerals

Phase 1 is shown on **Figure 2** and includes an existing pond referred to as Pond #4. Since the beginning of the monitoring record in 1994, Pond #4 tends to have lower total dissolved solids (TDS) concentrations than upgradient wells Solano #1a and #2, and downgradient well OW-8d (**Figure 10**). Pond #4 TDS concentrations exhibit similarities to those observed in Solano #1a, including short term variability and long-term trends. The relatively low TDS concentrations in the pond and at Solano #1a may be explained by their adjacency to Cache Creek, which typically provides recharge to groundwater along this reach during times of seasonally low groundwater level elevations. Overall, TDS concentrations in the Phase 1 area were relatively stable through the mid-2000s. Since then, concentrations have shown a trend to generally lower concentrations with the exception of the fall 2017 pond sample.

The predominant water types at the Project site are $MgNaHCO_3$ and $MgCaHCO_3$. In the southeastern portion of the facility, groundwater is of $NaMgHCO_3$ and $NaMgHCO_3Cl$ type. These conditions are similar to those characterized by Evenson (1985) for the Cache Creek area between Esparto and Yolo based on a comprehensive data collection effort in 1980 and 1981. Evenson (1985) found that groundwater in the area of the Project site east of Interstate 505 had TDS concentrations typically exceeding 500 mg/L; water types were of NaMg and MgNa (HCO_3) type or of CaMg and MgCa (HCO_3) type. The proportional distribution of major cations and anions is similar in water retrieved from Pond #4 and the monitoring wells, with magnesium being the most prevalent cation and bicarbonate being the most prevalent anion. Specifically, pond water is most typically of $MgNaHCO_3$ type and groundwater is most typically of $MgCaHCO_3$ type.

Similar to TDS, Pond #4 tends to have lower nitrate concentrations than those observed in groundwater (**Figure 11**). Nitrate concentrations in the Phase 1 area were relatively stable through the mid-2000s. Since then, concentrations have shown a trend to lower concentrations. In addition to generally lower general mineral and nitrate concentrations in pond water samples, the pH of surface water in the ponds exhibits greater pH than groundwater. This phenomenon is attributed to chemical reactions in bicarbonate-rich groundwater that is exposed to the atmosphere.

4.2.1.2 Inorganic Constituent Testing

The groundwater quality record documents very low metal concentrations across the Phase 1 area, most of which are below their respective reporting limits (i.e., nondetect). The only metal consistently detected in groundwater samples is barium. In addition, low concentrations (typically near the reporting limit) of aluminum, chromium, iron (and much more rarely magnesium and zinc) are sporadically detected. The historical water quality record from Pond #4 show metal concentrations similar to those in groundwater, with more frequent occurrences of low aluminum, arsenic and iron concentrations, which commonly correlate to higher turbidities encountered in the pond water. Metal concentrations are below their respective drinking water standards with the exception of very rare instances of iron detections in the production wells and the pond.

4.2.1.3 Other Water Quality Testing

Pesticides and herbicides have not been detected in any of the groundwater or pond water samples. Similarly, TPH and BTEX have not been detected in any of the groundwater or pond water samples (exceptions listed in Table 6, refer to table footnotes).

Coliform bacteria are commonly detected in pond water samples. The presence of coliform organisms (including fecal species) would typically be expected in open bodies of water such as the mining excavations that are freely accessible by wildlife.

Historically, coliform organisms have been sporadically detected in the Solano #1a and Solano #2 wells. Both Solano #1a (near Cache Creek) and Solano #2 (away from Cache Creek) are located upgradient of Pond #4 and there is no causal relationship between coliform detections in Pond #4 and these wells. There have been no coliform detections in the downgradient OW-8d to date. Coliform occurrences in groundwater samples have been attributed to the detachment of biofilms that exist on the well structure (Kranowski et al., 1990). Bacterial growth in the well structure occurs to a large extent in biofilms attached to the well casing, similar to bacterial growth in a porous medium, and purging of the well can cause portions of the biofilm to detach and affect the bacteria count in the water sample.

Monitoring wells in general, and the wells used for water quality sampling at the CEMEX facility in particular (including the production and irrigations wells), are not constructed and developed to the same standards as wells designed for the production of potable water. The wells' wellhead construction is different, they were not disinfected upon construction completion, water level measuring equipment is frequently lowered into the wells, and the monitoring wells are not equipped with dedicated pumps and sample taps for the retrieval of water quality samples. Also, maintenance work that includes the removal of the pump provides additional opportunity for the introduction of coliform bacteria to the well structure). Consequently, and given the natural occurrence of coliform bacteria in soils and sediments (Mansuy, 1999; Smith, 1995, Bouwer; 1978), it is not surprising to detect total coliform bacteria counts in groundwater samples at the facility. Fecal coliform bacteria can be introduced by aerosols during purging and sample retrieval or by contaminated purging/sampling equipment itself. However, this source of contamination should be minimized by the cleaning and careful handling of equipment.

Coliform organisms (even when introduced in great numbers and concentrations by the disposal of sewage sludge) are generally removed by filtering, adsorption, and die-off in a hostile environment, and generally do not penetrate more than several meters in medium-grained sand or finer materials (Krone et al., 1958).

4.2.2 Phases 3 and 4 Mining Area

4.2.2.1 General Minerals

Monitoring activities in wells OW-8d and OW-9 started several years prior to commencement of wet pit mining activities on the Phase 3 and 4 areas. The mining pit extends over the Phase 3 and 4 areas and is, therefore, sampled at two different locations, at Pond #3 (III) and at Pond #3 (IV). As expected, water quality at the two locations is extremely similar due to the well-mixed nature of the pond water (**Figure 12**). TDS concentrations in the pond tend to be lower than in the upgradient well OW-8d, well OW-9 (positioned downgradient of Phase 3 and upgradient of Phase 4) and its replacement well OW-12, and downgradient well OW-10. The pond's longer-term TDS concentration trends correlate well to groundwater conditions documented by the well record. Overall, TDS concentrations in the Phase 3 and 4 areas were relatively stable through the 2000s. Since then, concentrations have shown a trend to lower concentrations with the exception of the fall 2017 pond sample.

The proportional distribution of major cations and anions is similar in water retrieved from the pond and the monitoring wells, with magnesium being the most prevalent cation and bicarbonate being the most prevalent anion. Specifically, pond water and groundwater samples are most typically of $MgNaHCO_3$ type. Groundwater at OW-8d is most typically of $MgCaHCO_3$ type.

Similar to TDS, pond samples tend to have lower nitrate concentrations than those observed in groundwater (**Figure 13**). Nitrate concentrations (as NO_3) at OW-9 increased from approximately 20 mg/L to nearly 50 mg/L in the early to mid-1990s, and short-term variability of up to approximately 20 mg/L (and even greater variability at OW-8d). Overall, concentrations appeared relatively stable through the mid-2000s. Since then, concentrations have shown a trend to lower concentrations. In addition to generally lower general mineral and nitrate concentrations in pond water samples, the pH of surface water in the pond exhibits greater pH than groundwater. This phenomenon is attributed to chemical reactions in bicarbonate-rich groundwater that is exposed to the atmosphere.

4.2.2.2 Inorganic Constituent Testing

The groundwater quality record documents very low metal concentrations across the Phase 3 and 4 area, most of which are below their respective reporting limits (i.e., nondetect). The only metal consistently detected in groundwater samples is barium. In addition, low concentrations (typically near the reporting limit) of aluminum, chromium, iron (and a single zinc detection) are sporadically detected. The historical water quality record from the pond shows metal concentrations similar to those in groundwater, with more frequent occurrences of low aluminum, arsenic, iron, and manganese concentrations, which commonly correlate to higher turbidities encountered in the pond water. Metal concentrations are below their respective drinking water standards with the exception of some iron detections at OW-10 and pond samples.

4.2.2.3 Other Water Quality Testing

Pesticides and herbicides have not been detected in any of the groundwater or pond water samples. Similarly, TPH and BTEX have not been detected in any of the groundwater or pond water samples (exceptions listed in **Table 6**, refer to table footnotes). Historically, coliform organisms have been detected in OW-9 on two occasions. Coliform bacteria have never been detected in the downgradient well OW-10. Coliform bacteria are commonly detected in water samples from Pond #3. The presence of coliform organisms (including fecal species) would typically be expected in open bodies of water such as the mining excavations that are freely accessible by wildlife (see Section 4.2.1.3).

4.2.3 Phases 5 and 6 Mining Area

4.2.3.1 General Minerals

OW-9 (1992 through 2015Q2) and OW-12 provide upgradient water quality data for the Phase 6 area. OW-11 (and to a lesser extent OW-10) provides downgradient water quality for the Phase 6 area as well as upgradient water quality data for the Phase 5 area. OW-13 provides downgradient water quality for the Phase 5 area. Groundwater quality data collection in the recently constructed OW-11, OW-12, and OW-13 started in 2017Q2 in preparation for future mining activities in the Phase 5 and 6 mining areas. The spring 2017 TDS concentrations in OW-11, OW-12 and OW-13 represent background (i.e., pre-mining activity) groundwater conditions along the eastern portion of the facility, more specifically, Phases 5 and 6 (**Figure 14**). OW-9 and OW-10 provide historical context. Semi-annual water quality sampling will continue in accordance with the OCSMO Section 10-4.417 until two years of wet pit mining have been completed. Further analysis of trends and ranges will be assessed in the context of the mining pits that will be developed in these mining areas as more data become available, and will be documented in annual groundwater monitoring reports that will be submitted to the County in accordance with OCSMO Section 10.4.701(d).

The initial groundwater quality samples from the new wells suggest a slight change in the proportional distribution of major cations and anions toward the southeast of the Project. Specifically, groundwater at OW-12 is of $MgNaHCO_3$ type, which is similar to the water types at monitoring wells OW-9 and OW-10 and the existing mining pits. Groundwater at OW-11 and OW-13 exhibits a stronger proportional representation of sodium, and OW-13 additionally shows a different anionic composition as reflected by OW-11's $NaMgHCO_3$ type and OW-13's $NaMgHCO_3Cl$ type. Nitrate concentrations in the Phase 5 and 6 range from less than 10 mg/L (near Cache Creek) to over 80 mg/L (**Figure 15**).

4.2.3.2 Inorganic Constituent Testing

The initial groundwater quality samples from the new wells document very low metal concentrations across the Phase 5 and 6 areas, most of which are below their respective reporting limits (i.e., nondetect). The only metal consistently detected in groundwater samples is barium. In addition, low concentrations of aluminum and chromium were detected. With the exception of an iron concentration on 0.39 mg/L at OW-11 (which was associated with elevated sample turbidity), metal concentrations were below their respective drinking water standards.

4.2.3.3 Other Water Quality Testing

Pesticides and herbicides have not been detected in any of the groundwater samples. Similarly, TPH and BTEX have not been detected in any of the groundwater samples. Historically, coliform organisms have only been detected in OW-9 (on two occasions).

4.3 Summary Discussion

The groundwater level monitoring record documents fairly stable water level conditions since 1951 with temporary declines during drought periods and subsequent recovery to pre-drought levels. The principal groundwater flow direction is to the east. During the spring, the groundwater typically acts as a source of recharge for Cache Creek. During the fall, Cache Creek typically acts as a source of recharge to groundwater.

Groundwater quality conditions beneath the Project site documented for 2017 were similar to those during previous sampling events. The last few years have been characterized by generally decreasing groundwater TDS and nitrate concentrations. Concentrations of major cations and anions are below their respective MCLs[5] (including secondary standards). However, the groundwater at the Project site is naturally hard with EC and TDS concentrations frequently exceeding their respective secondary drinking water standards. Cache Creek provides a source of high-quality recharge to the shallow groundwater, which may explain lower TDS concentrations at the near-creek production well Solano #1a.

Despite generally decreasing nitrate concentrations, concentrations are higher than expected in groundwater bodies not affected by anthropogenic activities. Based on performance standards (protections) in the County's OCSMO and SMRO, mining activities, including aggregate washing activities, do not introduce or mobilize nitrate in groundwater. Nitrate concentrations are typically lower in the mining pits than in groundwater. Groundwater nitrate conditions in the

[5] The only exception was the initial sample retrieved from OW-13, which had a chloride concentration of 270 mg/L (the secondary drinking water standard is 250 mg/L).

vicinity of the Project is attributed to historical and ongoing farming activities on the Project site, on adjacent parcels, and in the region.

Metals concentrations in groundwater remain very low, predominantly below their respective reporting limits, and below their respective drinking water standards, with the exception of very sporadic iron concentrations, all of which have been associated with elevated sample turbidity.

There is no indication that pesticides, herbicides, or organic chemicals related to petroleum products have affected pit water or groundwater quality.

Coliform bacteria are commonly detected in pond water samples and the presence of coliform organisms (including fecal species) would typically be expected in open bodies of water such as the mining excavations or Cache Creek that are freely accessible by wildlife. There is no indication of downgradient migration of coliform bacteria. Occasionally, coliform bacteria are detected in groundwater samples; and most of the occurrences are in the two upgradient water production wells. Such detections are common in wells that are not constructed, developed, maintained and operated like wells designed to produce potable water (e.g., municipal water supply wells). Further, these occurrences are attributed to well-documented conditions within the well structure (including the aerated zone in the immediate vicinity of the screen section), and not of aquifer conditions.

In summary, the existing data record shows no evidence or indication that the mining and plant operations have caused changes in groundwater levels or quality to date. This includes the dedicated monitoring wells that are located in the immediate downgradient vicinity of actively mined wet pits.

5 Evaluation of Potential Project Effects on Groundwater

In the mid-1990s, detailed hydrogeological evaluations that were prepared in the context of the original Solano Long-Term Off-Channel Mining Permit Application concluded that there would be no adverse effects on groundwater levels or quality from planned mining and reclamation activities. This includes all aspects of mining activities ranging from the mining locations, depth of excavation, extraction rate, aggregate washing operations and the use of ponds to manage aggregate wash water and contain fine earthen materials, the backfill of overburden, production limits, and water use.

Since then, an extensive record of groundwater level, groundwater quality, and mining pit water quality has been aggregated in accordance with the requirements set forth in OCSMO Section 10-4.417 as mining and reclamation activities have progressed at the site. The entirety of this record shows no evidence or indication that the mining and plant operations have caused changes in groundwater levels or quality to date. This includes the dedicated monitoring wells that are located immediately downgradient of actively mined wet pits.

From a potential to impact groundwater perspective, CEMEX's revised mining and reclamation plans (see Section 1.2) do not constitute a substantive modification of the existing, approved mining and reclamation plans. This includes slight modifications in the layout of the mining phases, such as a clearer separation between Phases 3 and 4, and the use of Phase 3 as a settling pond; and a modification of the layout of areas reclaimed to agriculture and ponds. Also, CEMEX's proposed Project does not propose to increase production levels or water use. Therefore, the proposed Project is not expected to result in adverse effects on groundwater levels or quality. Specifically, it is not expected to substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. This includes potentially existing off-site wells.

The existing monitoring well network, including the four newly constructed monitoring wells OW11 to OW-14, and monitoring program fully address the requirements of OCSMO Section 10-4.417 for the proposed Project. No additional changes need to be made.

6 References

Application of Solano Concrete for Interim Off-Channel Mining Permit, Project Description, August 1, 1994

Draft Environmental Impact Report for Solano Long-Term Off-Channel Mining Permit Application, SCH# 96012034, Yolo County, June 3, 1996

Responses to Comments Environmental Impact Report for Solano Long-Term Off-Channel Mining Permit Application, SCH# 96012034, Yolo County, September 16, 1996

Evenson, K.D. **1985**. *Chemical Quality of Ground Water in Yolo and Solano Counties, California*. U.S. Geological Survey Water-Resource Investigations Report 84-4244.

Kranowski, K.M., Sinn, C.A., and Balkwill, D.L. **1990**. *Attached and Unattached Bacterial Populations in Deep Aquifer Sediments from a Site in South Carolina*. pp. 5-25 to 5-29. In C.B. Filermans and T.C. Hazen (Eds.), *Proceedings of The First International Symposium on Microbiology of the Deep Subsurface*. January 15-19, 1990, Orlando, Florida. WSRC Information Services, Aiken, SC. 1991.

Krone, R.B., Orlab, G.T., and Hodgkinson, C. **1958**. *Movement of coliform bacteria through porous media*. Sewage Industrial Wastes, 30, pp. 1-13.

Mansuy, Neil. **1999**. *Water Well Rehabilitation – A practical Guide to Understanding Well Problems and Solutions*. CRC Press, LLC. 174 p.

Scott, Verne H. **1993**. Groundwater Hydrology Report for Solano Concrete Madison Plant, Yolo County, California. By Verne H. Scott, Water Resources Consultant. Revised May 6, 1993.

Scott, Verne H. **199_**. Monitoring Plan, Groundwater Hydrology/Solano Concrete Madison Plant, Yolo County, California. By Verne H. Scott, Water Resources Consultant. Undated.

Scott, Verne H. **1994**. Groundwater Recharge for Reclamation Plan, Solano Concrete Madison Plant, Yolo County, California. By Verne H. Scott, Water Resources Consultant. Revised August 1994.

Smith, Stuart, A. **1995**. *Monitoring and Remediation Wells – Problem Prevention, Maintenance, and Rehabilitation*. CRC Press, Inc. 183 p.

Solano Concrete Co. Inc. Application for Long-Term Mining Permit, Project Description, December 1, 1995

Woodward and Clyde Associates: Aggregate Extraction in Yolo County, A Study of Impacts and Management Alternatives, August 1976

Figures

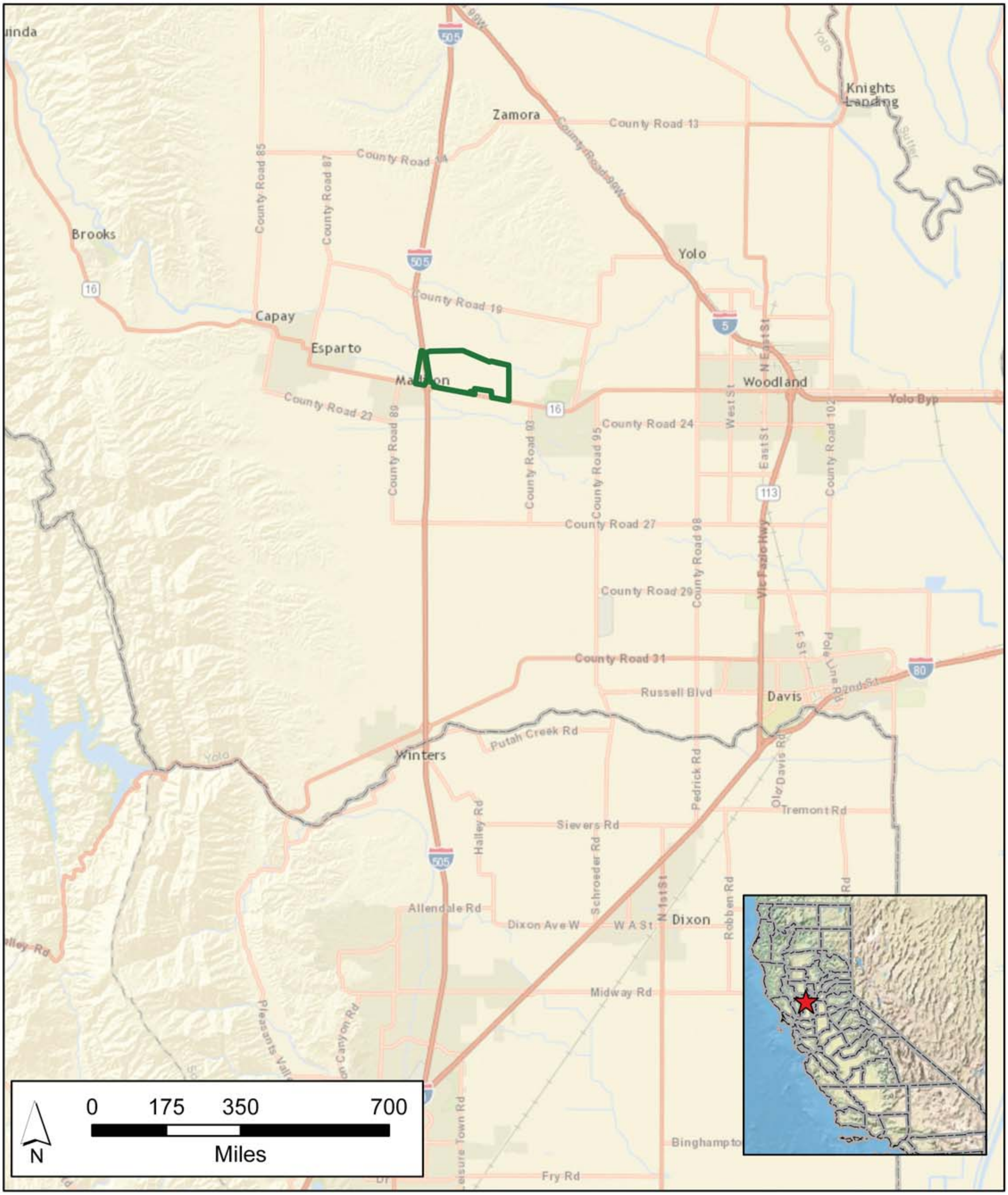

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FIGURE 1
Location Map
CEMEX Cache Creek Mine

Groundwater Assessment for Mining Permit and Reclamation Plan Ammendment CEMEX' Cache Creek Mine, Yolo County, CA

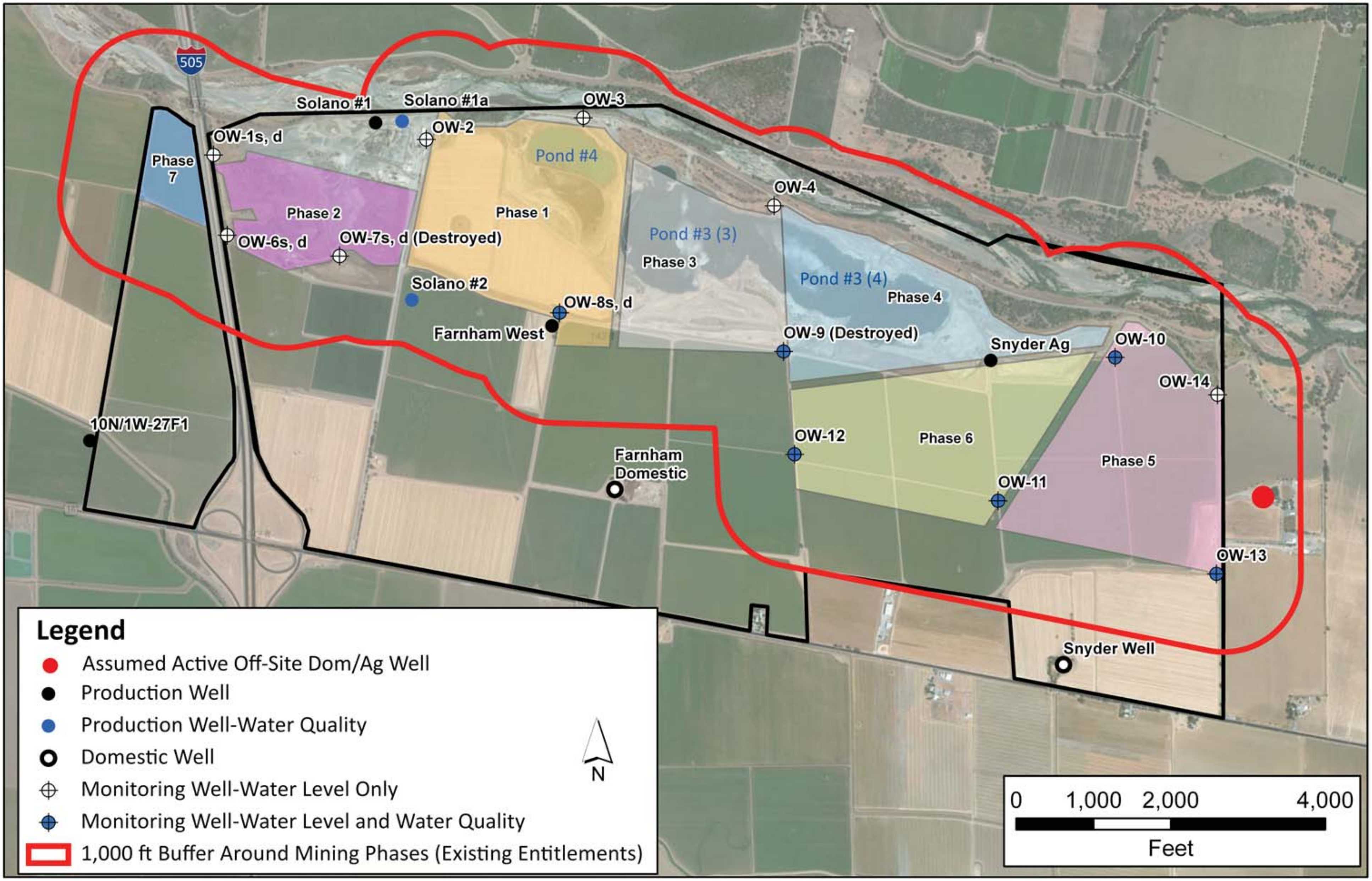

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FIGURE 2
Mining Phases (Existing Entitlements) and 1,000 ft Buffer
CEMEX Cache Creek Mine

Groundwater Assessment for Mining Permit and Reclamation Plan Ammendment CEMEX' Cache Creek Mine, Yolo County, CA

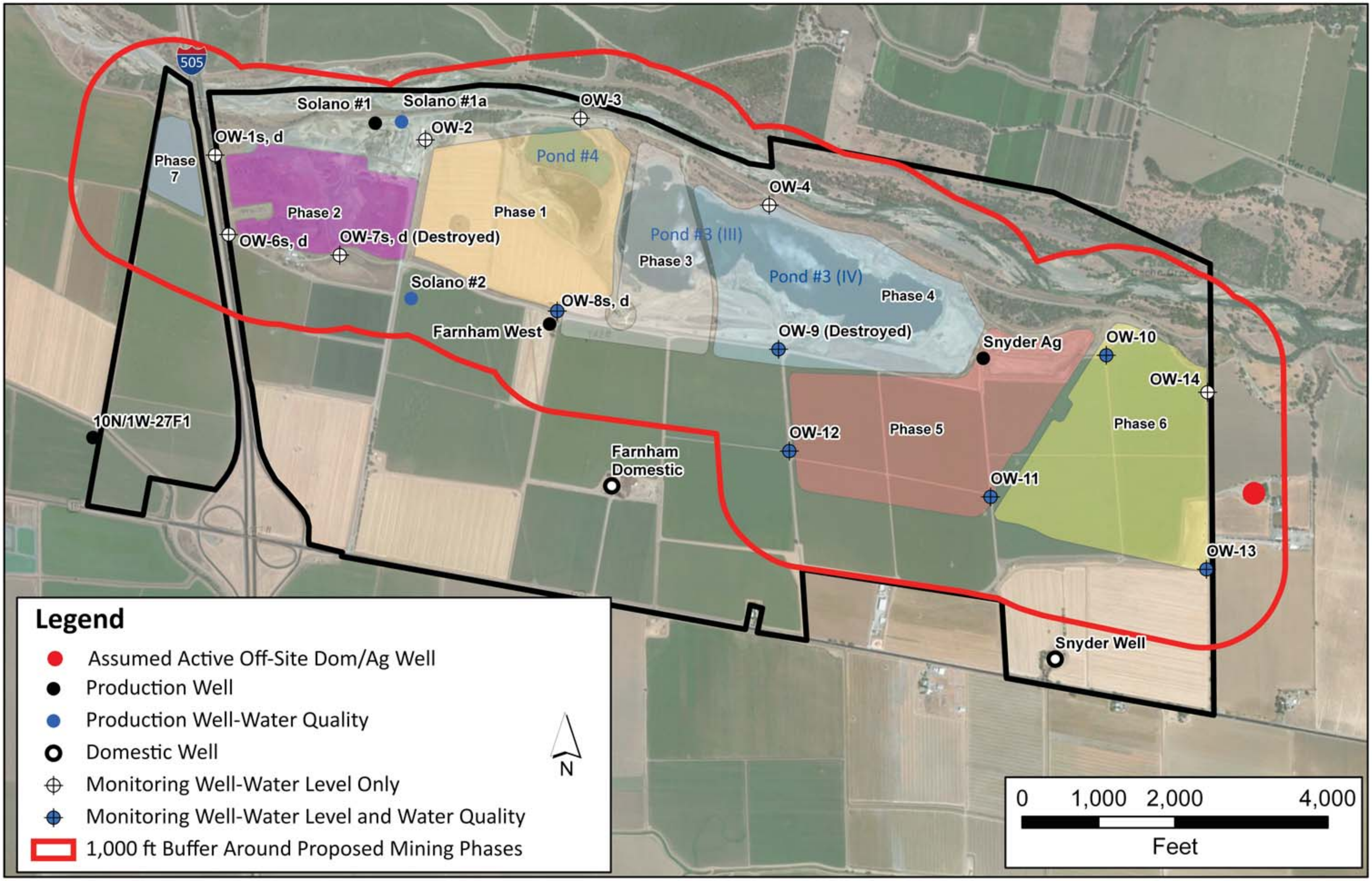

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FIGURE 3
Proposed Project Mining Phases and 1,000 ft Buffer
CEMEX Cache Creek Mine

Groundwater Assessment for Mining Permit and Reclamation Plan Ammendment CEMEX' Cache Creek Mine, Yolo County, CA

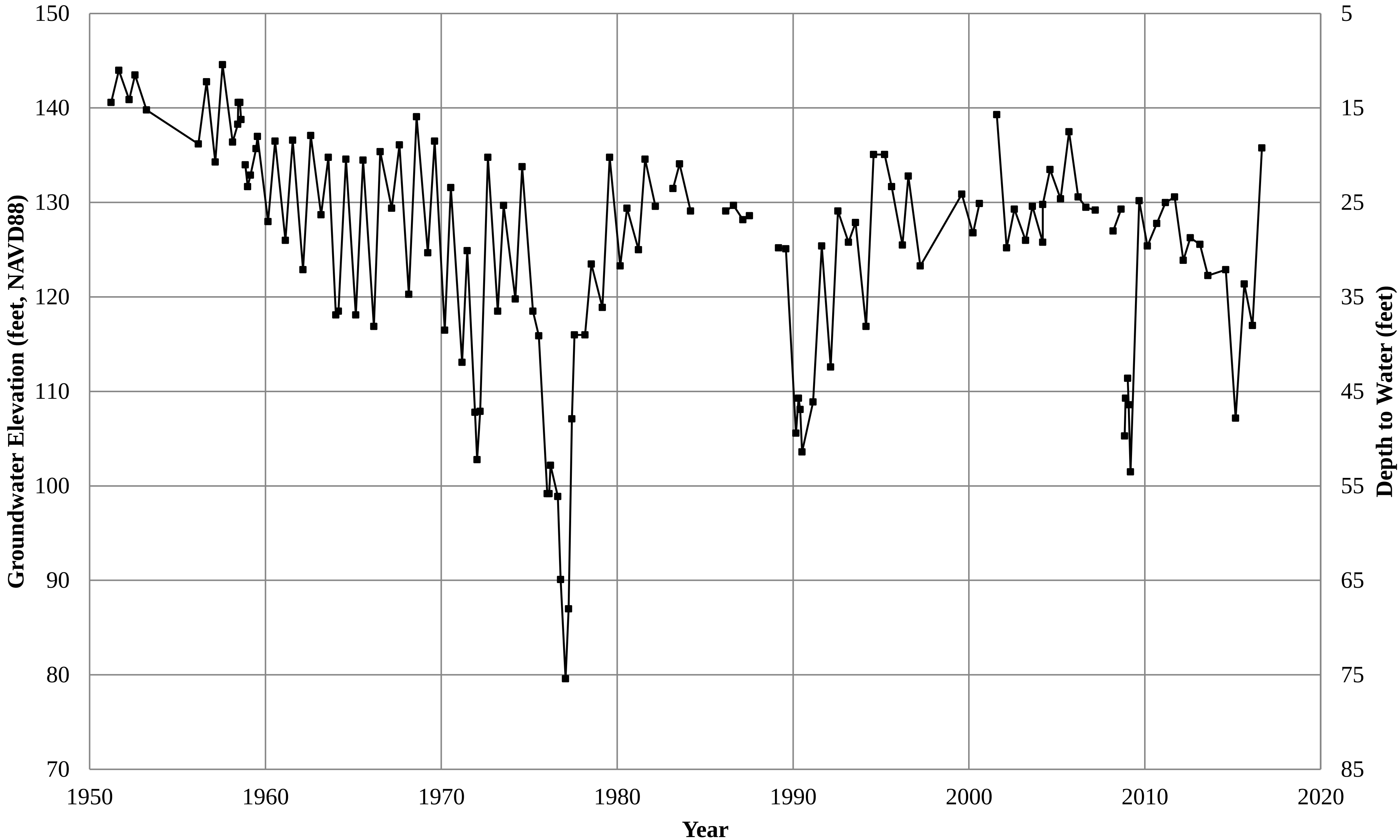

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Figure 4
Historical Groundwater Levels Well T10N/R1W-27F1
CEMEX - Cache Creek Mine, Yolo County, CA

Groundwater Assessment for Mining Permit and Reclamation Plan Ammendment CEMEX' Cache Creek Mine, Yolo County, CA

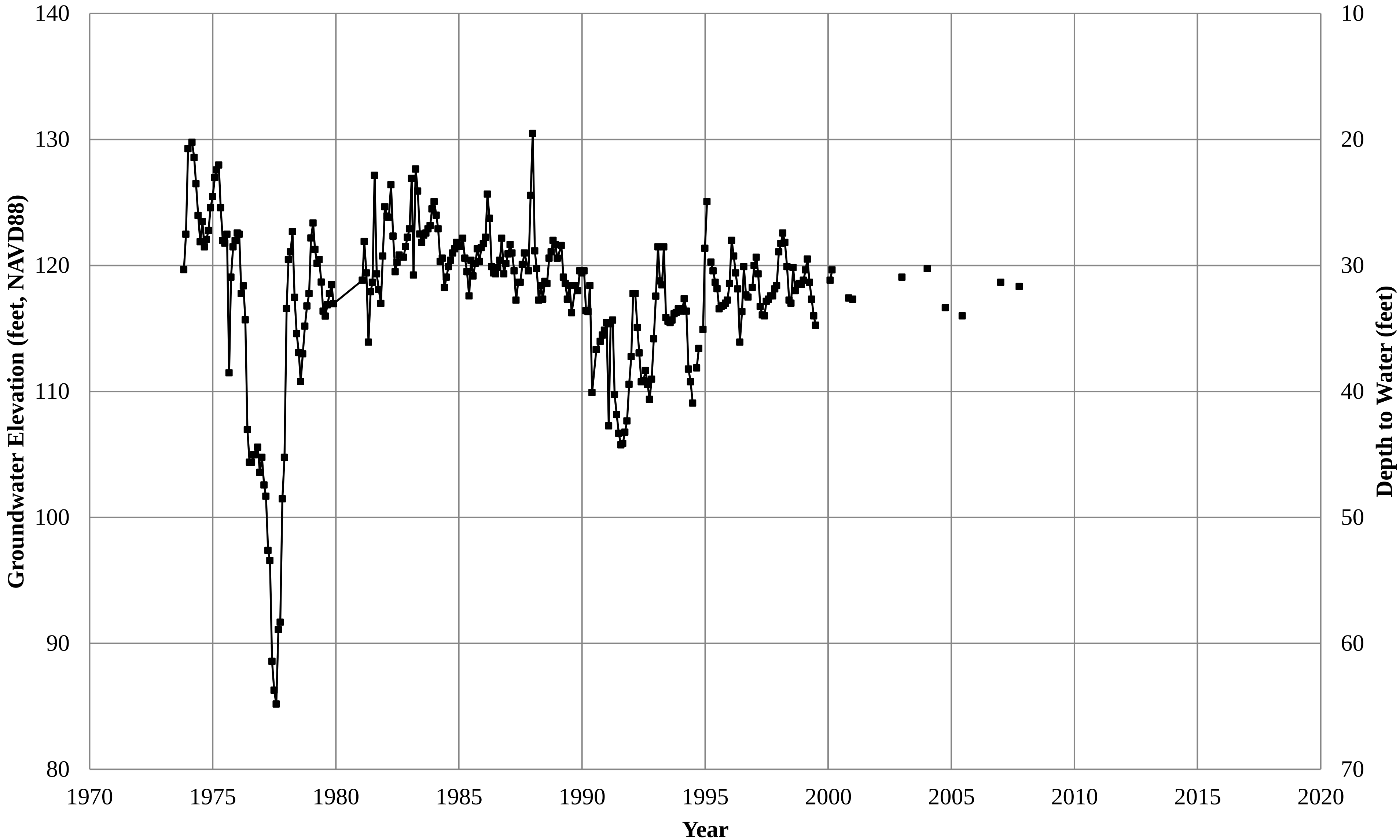

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Figure 5
Historical Groundwater Levels Solano #1
CEMEX - Cache Creek Mine, Yolo County, CA

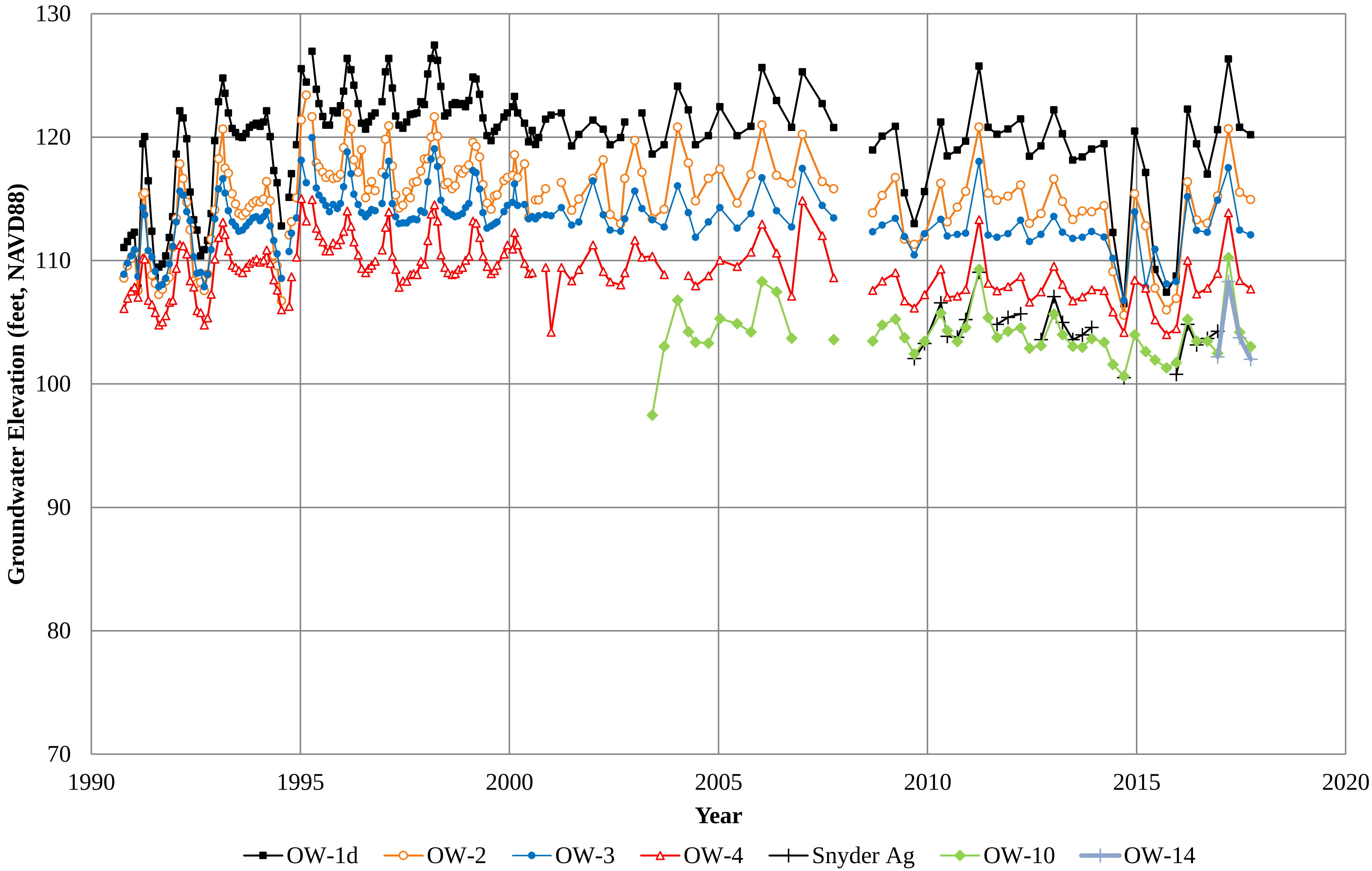

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Figure 6
Groundwater Levels Adjacent to Cache Creek
CEMEX - Cache Creek Mine, Yolo County, CA

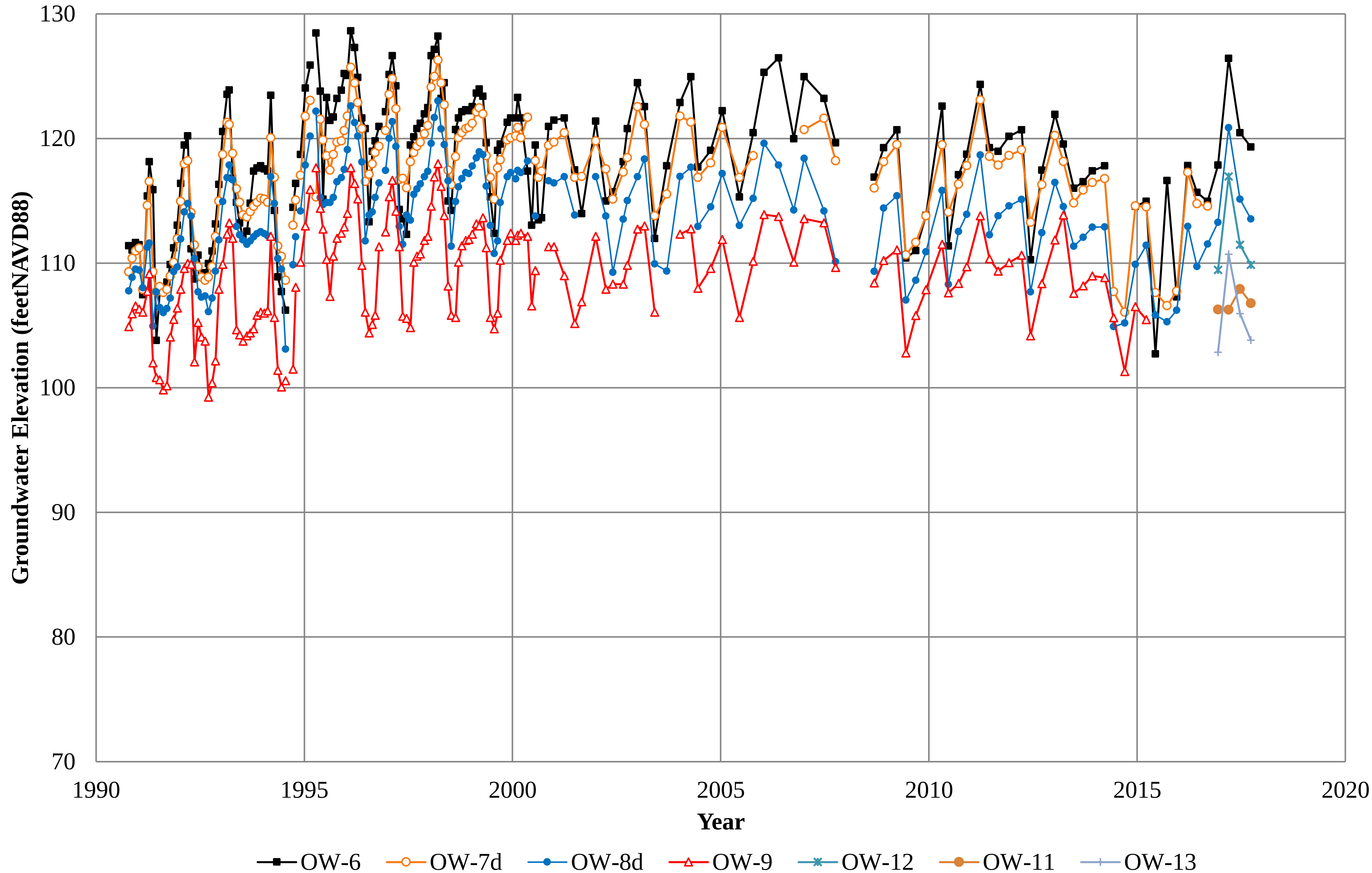

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Figure 7
Groundwater Levels Southern Portion of Property
CEMEX - Cache Creek Mine, Yolo County, CA

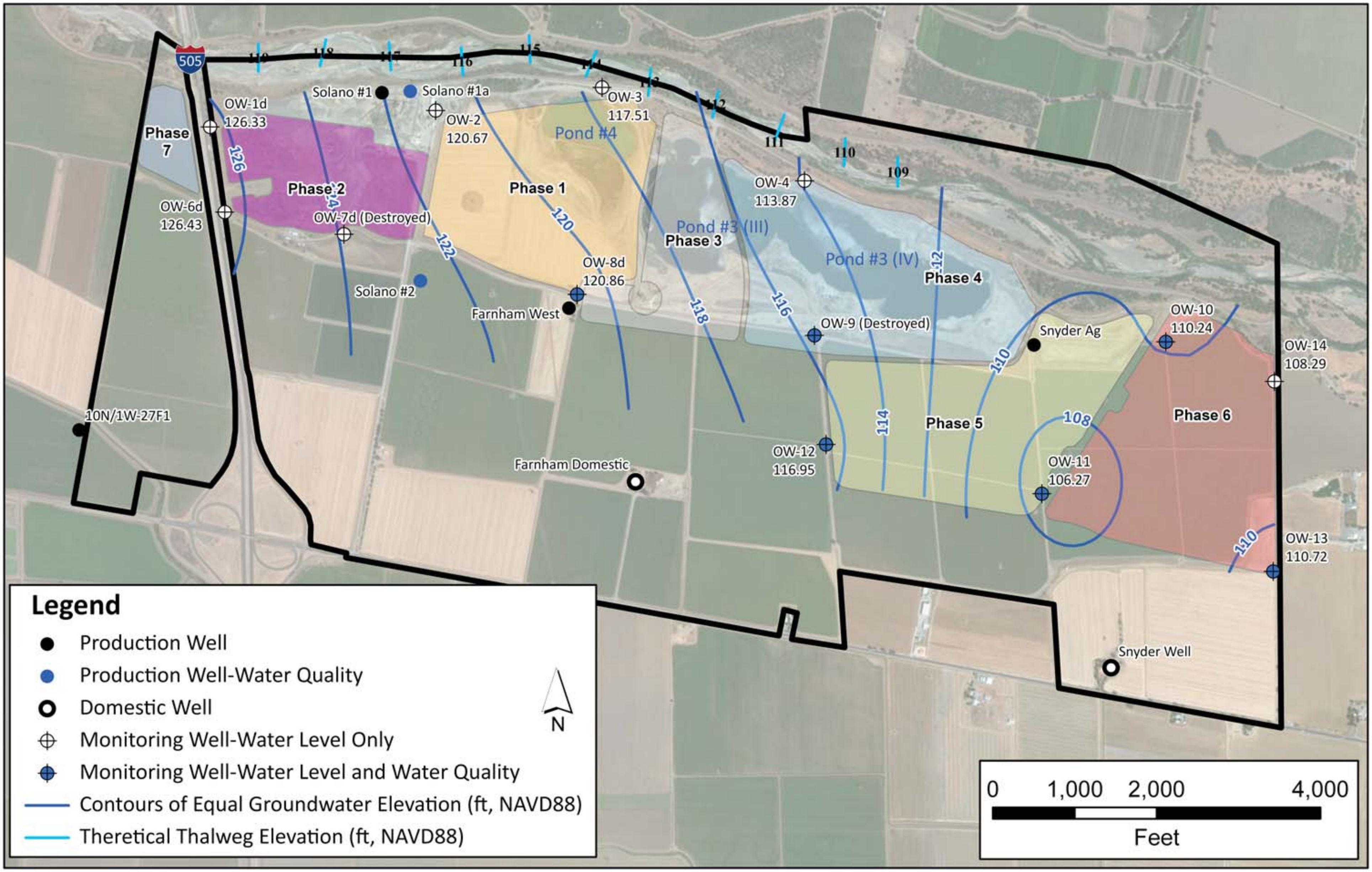

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FIGURE 8
Contours of Equal Groundwater Elevation, March 2017
CEMEX Cache Creek Mine

Groundwater Assessment for Mining Permit and Reclamation Plan Ammendment CEMEX' Cache Creek Mine, Yolo County, CA

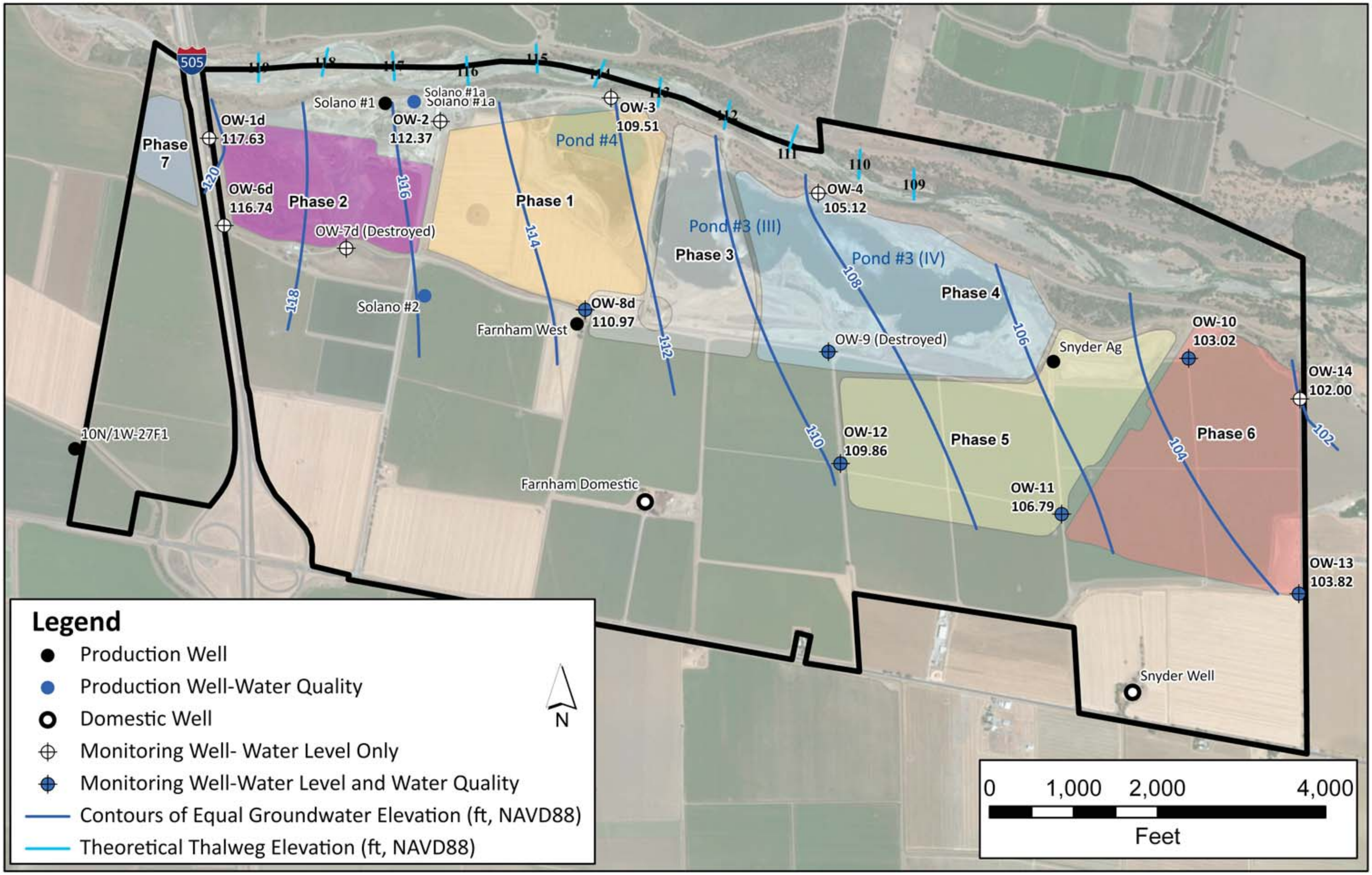

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FIGURE 9
Contours of Equal Groundwater Elevation, September 2017
CEMEX Madison Plant

Groundwater Assessment for Mining Permit and Reclamation Plan Ammendment CEMEX' Cache Creek Mine, Yolo County, CA

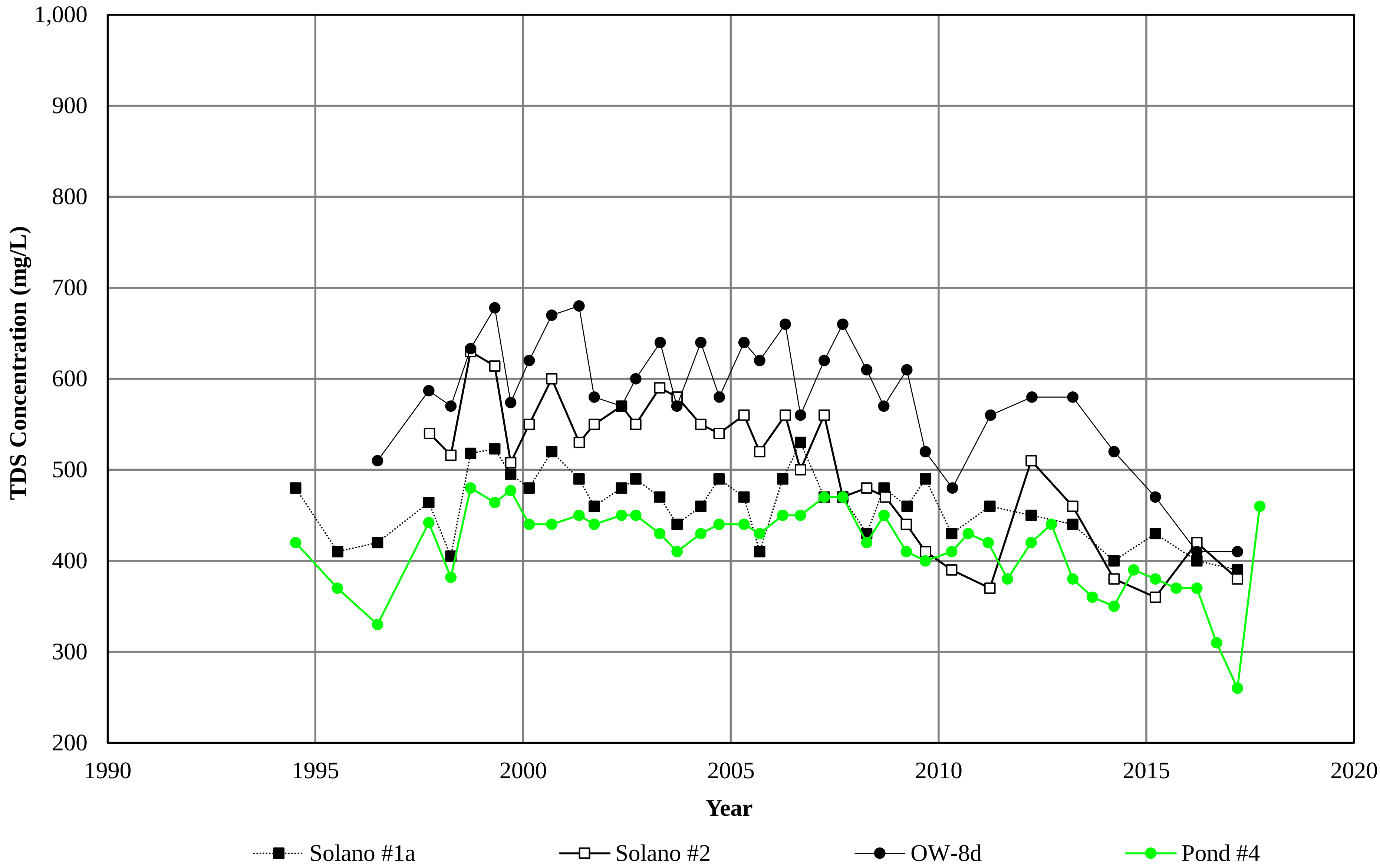

Figure 10
Phase 1 Area: Total Dissolved Solids (TDS) Concentrations
CEMEX - Cache Creek Mine, Yolo County, CA

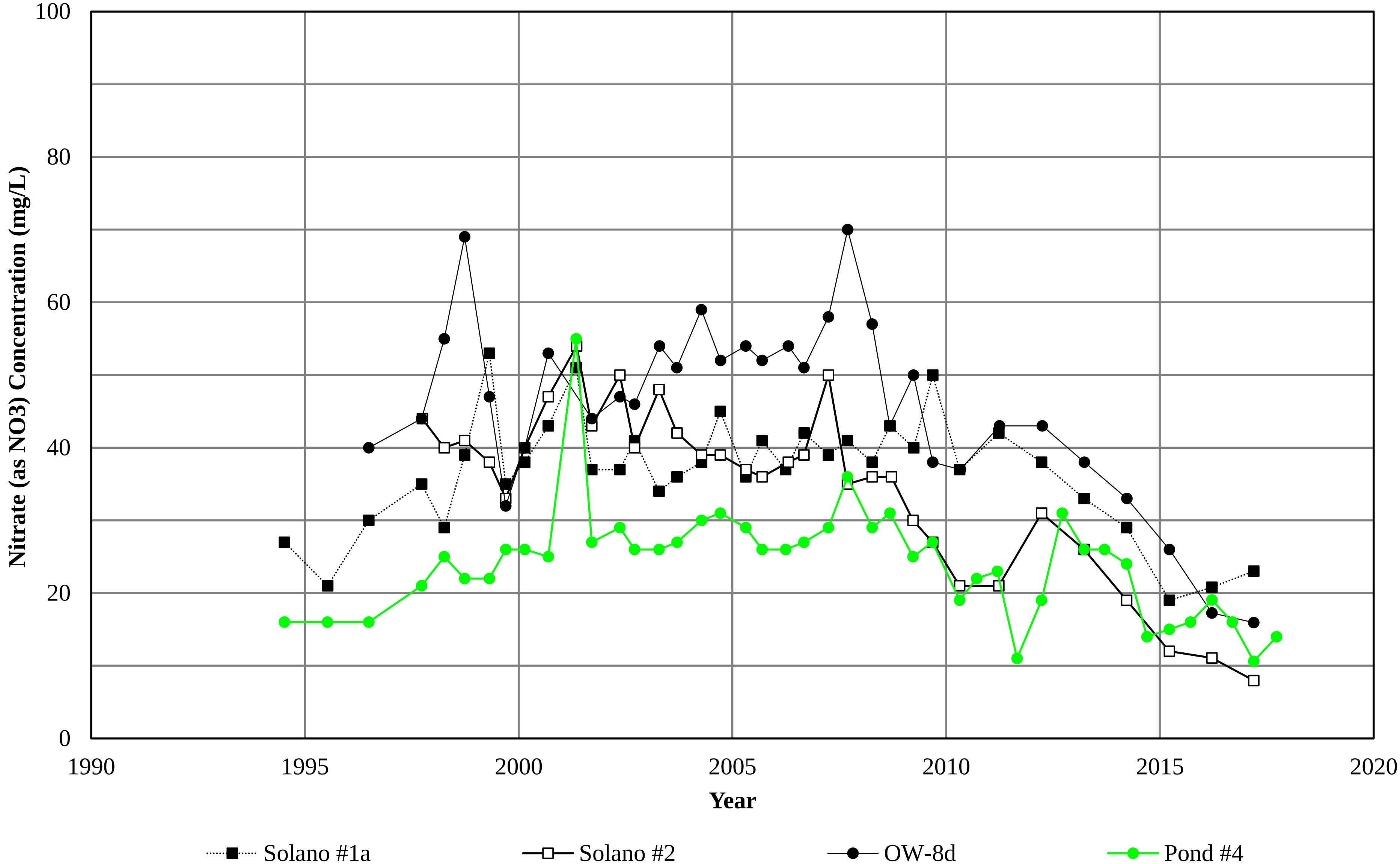

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Figure 11
Phase 1 Area: Nitrate (as Nitrate) Concentrations
CEMEX - Cache Creek Mine, Yolo County, CA

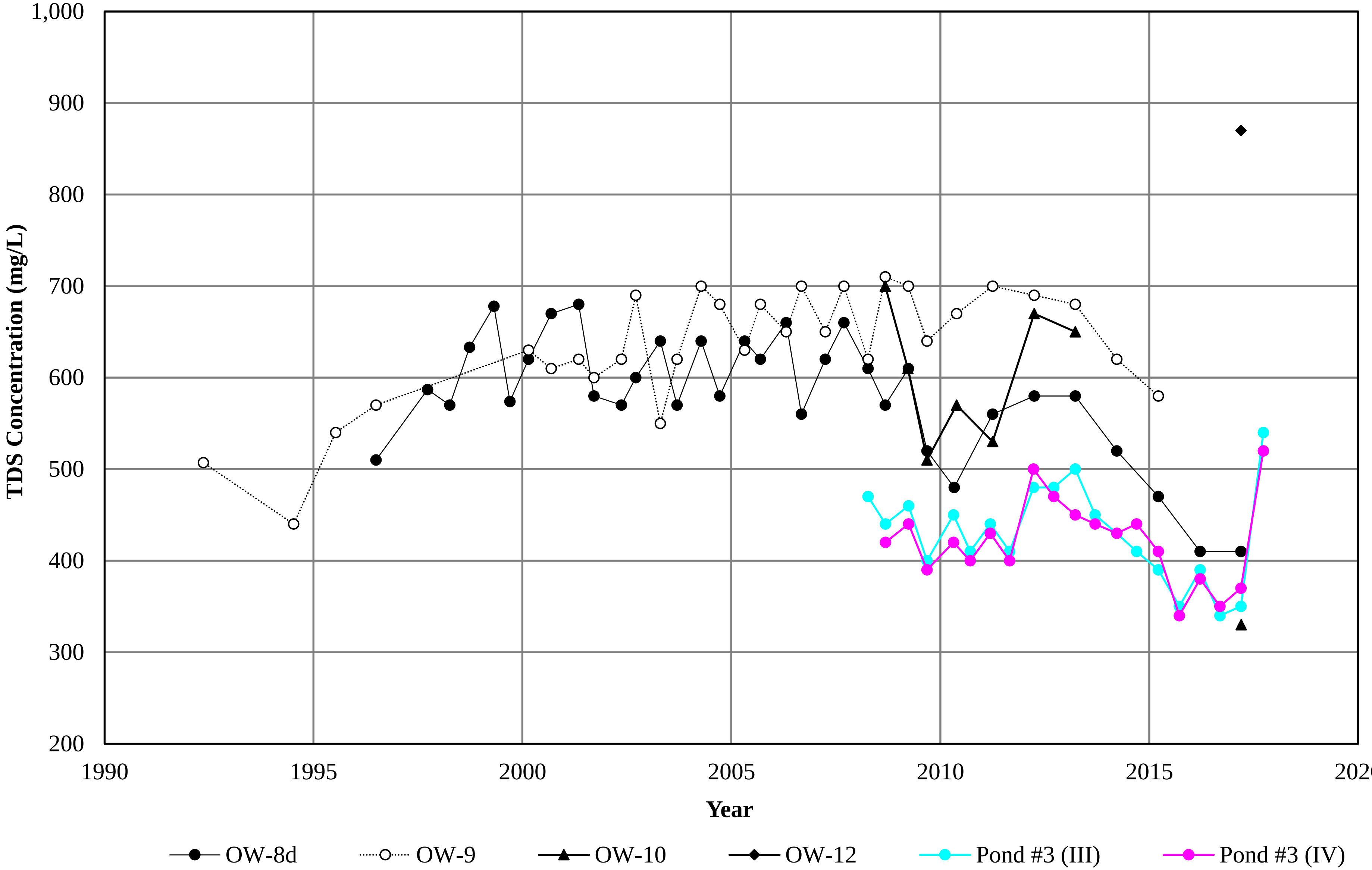

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Figure 12
Phase 3 and 4: Total Dissolved Solids (TDS) Concentrations
CEMEX - Cache Creek Mine, Yolo County, CA

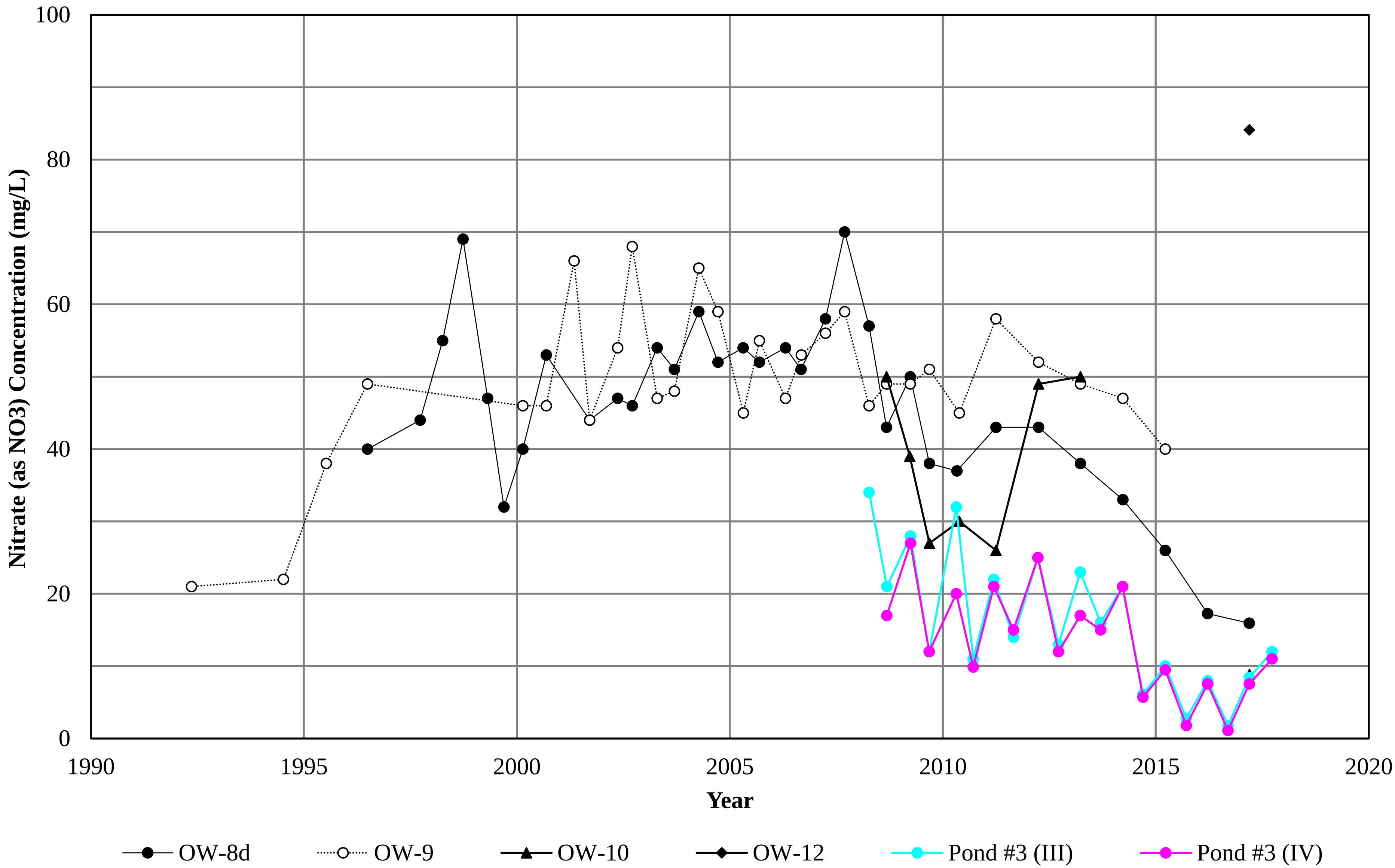

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Figure 13
Phase 3 and 4 Area: Nitrate (as Nitrate) Concentrations
CEMEX - Cache Creek Mine, Yolo County, CA

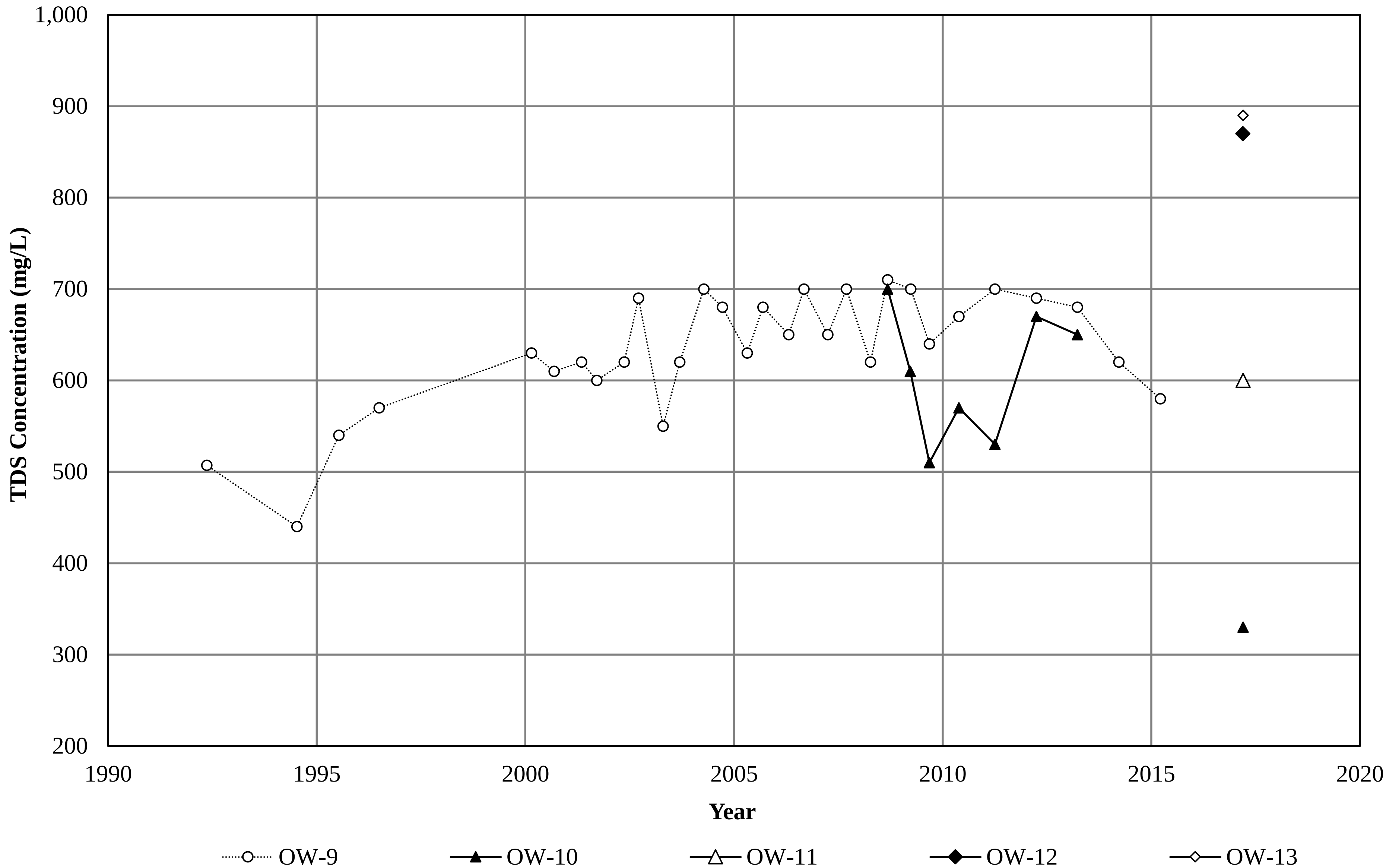

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Figure 14
Phase 5 and 6 Area: Total Dissolved Solids (TDS) Concentrations
CEMEX - Cache Creek Mine, Yolo County, CA

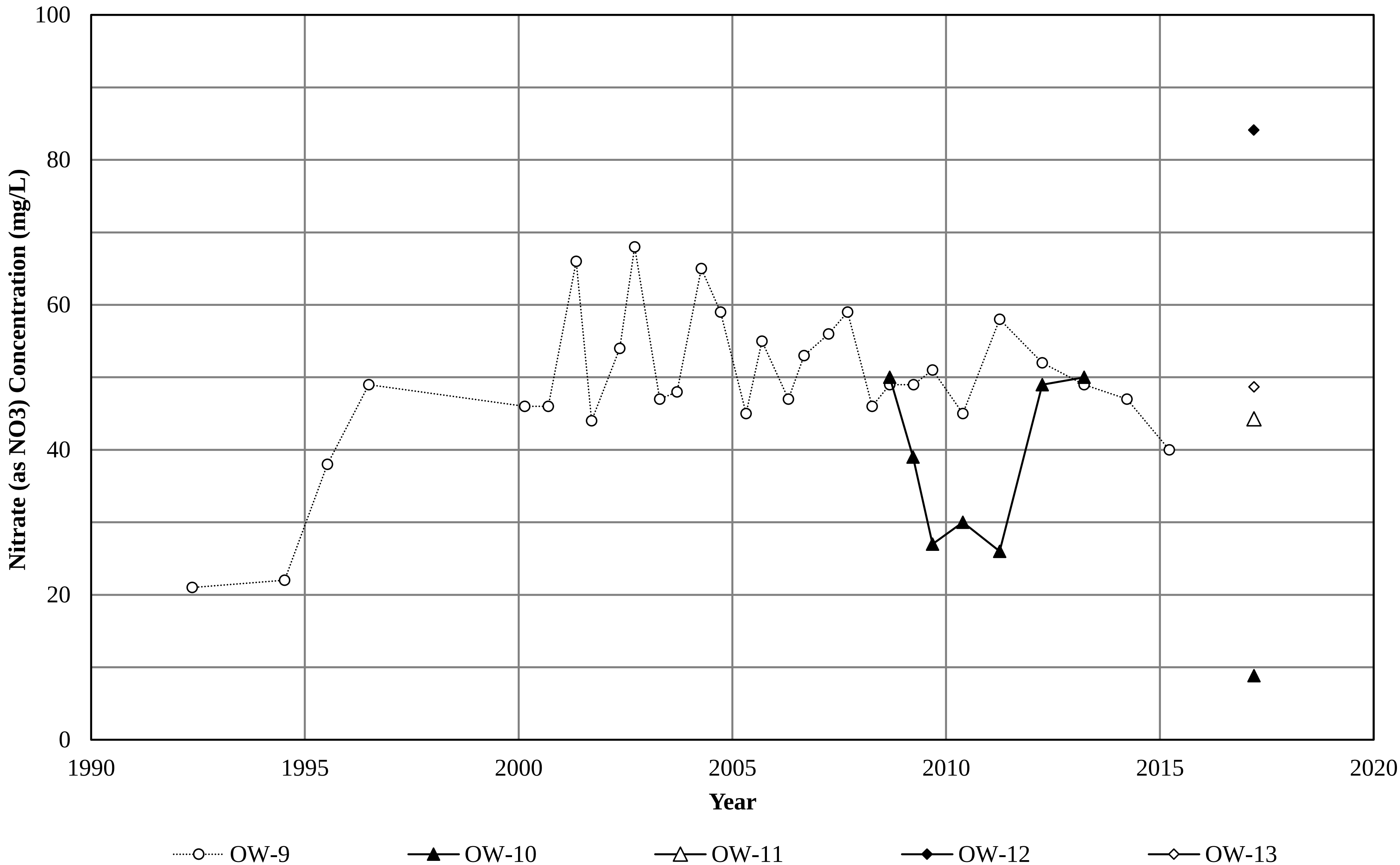

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Figure 15
Phase 5 and 6 Area: Nitrate (as Nitrate) Concentrations
CEMEX Cache Creek Mine, Yolo County, CA

Tables

Table 1
Well Construction Details
CEMEX - Cache Creek Mine, Yolo County, CA

Well Name	Depth Interval	Installation Completion Date	Driller	Depth of Borehole (feet, bgs)	Depth of Completed Well (feet, bgs)	Screened Interval (feet, bgs)	Slot Size (inches)	Casing Diameter (inches)	Casing Material	Top of Casing Elevation (feet, msl)[1]	Top of Casing Elevation NAVD88
OW-1s	Shallow	5/31/1990	CCD	41	41	21-41	0.040	2	Sch. 40 PVC[2]	149.78	152.35[3]
OW-1d	Intermediate	5/23/1990	CCD	90	90	20-90	0.040	2	"	149.72	152.29[3]
OW-2	Intermediate	5/23/1990	CCD	70	70	20-70	0.040	2	"	146.33	148.90[3]
OW-3	Intermediate	6/12/1990	CCD	70	70	40-70	0.040	2	"	134.97	137.50[3]
OW-4	Intermediate	6/13/1990	CCD	75	75	45-75	0.040	2	"	134.37	136.90[3]
OW-6s	Shallow	6/5/1990	CCD	35	35	25-35	0.040	2	"	149.81	152.38[3]
OW-6d	Intermediate	6/4/1990	CCD	85	85	35-85	0.040	2	"	149.40	151.97[3]
OW-7s	Shallow	6/7/1990	CCD	35	35	20-35	0.040	2	"	148.53	151.10[3]
OW-7d[4]	Intermediate	6/6/1990	CCD	100	100	55-100	0.040	2	"	150.06	152.63[3]
OW-8s	Shallow	6/11/1990	CCD	35	35	25-35	0.040	2	"	142.09	144.66[3]
OW-8d	Intermediate	6/8/1990	CCD	85	85	55-85	0.040	2	"	141.87	144.44[3]
OW-9[5]	Intermediate	6/14/1990	CCD	80	80	50-80	0.040	2	"	137.25	139.80[3]
OW-10	Intermediate	-	-	*Well bottom tagged at 44 ft (bgs) on 8/21/2008*				2[6]	Steel[6, 7]	130.55[8]	134.30[9]
OW-11	Intermediate	11/23/2016	NEWP	100	80	30-80	0.040	2	Sch. 40 PVC		134.57[9]
OW-12	Intermediate	11/29/2016	NEWP	77	75	25-75	0.040	2	Sch. 40 PVC		138.41[9]
OW-13	Intermediate	11/30/2016	NEWP	77	77	27-77	0.040	2	Sch. 40 PVC		133.33[9]
OW-14	Intermediate	12/1/2016	NEWP	70	70	25-70	0.040	2	Sch. 40 PVC		131.37[9]
Snyder Ag	Intermediate	Oct. 1947	A & A	94	67	37-67	0.250	16	Steel	133.00[10]	134.48[9,11]
Solano #1[12]	Intermediate	3/7/1989	LWC	185	132	68-78, 92-112	0.080	16	Steel	148.01	150.58[3]
Solano #1a	Intermediate	8/12/1991	LWC	140	117	77-97	0.080	15.5	Steel	148.01	150.58[3]
Solano #2	Intermediate	2/14/1977	Eaton	306	130	80-130	-	16	Steel	144.54	147.11[3]

Notes:
A & A = Aulman and Aulman; CCD = Cache Creek Drilling; Eaton = Eaton Drilling Company; LWC = Layne Western Company;
NEWP= National Exploration and Pumps; bgs = below ground surface; msl = mean sea level.
1. NGVD29; also know as the mean sea level datum.
2. Top 5-20 feet of casing is steel.
3. Converted from NGVD29 using National Oceanic and Atmospheric Administration (NOAA) Online Vertical Datum Transformation Website.
4. Well destroyed 2015Q2.
5. Well destroyed 2014Q4.
6. Surface observation (8/21/2008).
7. Replaced with Sch. 40 PVC in November 2016 after wellhead was damaged 2014Q1.
8. NGVD29 RPE elevation prior to wellhead being damaged.
9. Surveyed in December 2016 by Laugenour and Meikle.
10. NGVD estimated Reference Point Elevation used until well was surveyed in December 2016.
11. Surveyed RPE in December 2016 was ground surface, not measuring point.
12. Replacement well for earlier (abandoned) Solano #1 production well.

Table 2
Phase-specific Monitoring Well Network
CEMEX - Cache Creek Mine, Yolo County, CA

Mining Phase	Total Planned Mined Area (ac)	Monitoring Facility (upgradient)	Monitoring Facility (downgradient)	Monitoring Facility (wl)
Phase 1 (reclamation)	>100 & <200	Solano #1a (wq), Solano #2 (wq)	OW-8d (wl, wq)	OW-2, OW-3
Phase 3 (mining)	>100 & <200	OW-8d (wl, wq)	OW-12 (wl, wq)†	OW-3, OW-4
Phase 4 (mining)	>100 & <200	OW-12 (wl, wq)†	OW-10 (wl, wq)	OW-4, Snyder Ag
Phase 5 (future mining)	>100 & <200	OW-10 (wl, wq), OW-11(wl, wq)	OW-13 (wl, wq)	OW-14, Snyder Ag
Phase 6 (future mining)	>100 & <200	OW-12 (wl, wq)	OW-11 (wl, wq)	OW-10, Snyder Ag

wl = groundwater level monitoring; wq = groundwater quality monitoring

† Replacement for OW-9.

Table 3
Groundwater Elevation Levels
CEMEX - Cache Creek Mine, Yolo County, CA

Date	OW-1D	OW-2	OW-3	OW-4	OW-6D	OW-7D	OW-8D	OW-9	OW-10	Snyder Ag	OW-11	OW-12	OW-13	OW-14
RPElev. (NAVD 88)[1]	**152.29**	**148.90**	**137.54**	**136.94**	**151.97**	**152.63**	**144.44**	**139.82**	**134.30**	**134.48[2]**	**134.57**	**138.41**	**133.33**	**131.37**
10/15/1990	111.04	108.57	108.88	106.10	111.39	109.30	107.78	104.90						
11/15/1990	111.54	109.57	109.79	106.94	111.05	110.38	108.86	105.94						
12/15/1990	112.04	110.15	110.37	107.52	111.64	110.96	109.52	106.57						
1/15/1991	112.29	110.57	110.87	107.86	111.47	111.21	109.44	106.32						
2/15/1991	107.79	107.57	108.71	107.02	107.47	107.88	108.02	106.07						
3/28/1991	119.46	115.32	114.29	110.19	115.39	114.63	111.27	107.74						
4/15/1991	120.04	115.48	113.71	110.11	118.14	116.55	111.61	109.15						
5/15/1991	116.46	110.40	110.79	106.77	115.89	109.30	104.94	102.00						
6/15/1991	112.37	108.82	110.29	106.44	103.80	107.71	107.69	100.82						
7/15/1991	108.62	108.15	109.12	105.77	107.72	108.13	106.44	100.65						
8/15/1991	109.46	107.23	107.87	104.77	108.05	107.63	106.02	99.82						
9/15/1991	109.71	107.65	108.04	105.02	108.47	107.88	106.36	100.15						
10/15/1991	110.37	108.32	108.54	105.52	109.89	108.96	107.19	104.07						
11/15/1991	111.87	108.65	109.71	106.61	111.22	110.05	109.33	105.49						
12/15/1991	113.54	111.07	111.12	106.77	113.05	111.96	109.69	106.40						
1/15/1992	118.62	113.40	113.12	109.36	116.39	114.96	111.94	107.90						
2/15/1992	122.12	117.82	115.62	111.28	119.47	117.97	114.11	109.57						
3/15/1992	121.54	116.65	115.29	111.19	120.22	118.21	114.78	109.99						
4/15/1992	119.87	114.73	113.96	110.52	111.14	114.05	113.78	109.90						
5/15/1992	115.54	112.48	113.21	108.36	108.72	111.46	110.36	102.07						
6/15/1992	113.29	108.32	110.29	107.86	110.64	109.71	107.69	105.24						
7/15/1992	112.46	108.15	108.96	105.94	109.05	108.88	107.27	104.07						
8/15/1992	110.37	108.24	109.04	105.77	109.22	108.63	107.36	103.74						
9/15/1992	110.87	107.57	107.88	104.77	109.97	108.88	106.11	99.24						
10/15/1992	111.63	108.90	108.88	105.36	110.97	109.71	107.19	100.40						
11/15/1992	113.79	111.73	110.88	107.28	113.14	112.13	109.36	102.16						
12/15/1992	119.71	114.11	113.37	110.11	116.31	114.97	111.86	107.90						
1/18/1993	122.87	118.24	115.79	111.86	120.55	118.71	114.94	109.90						
2/24/1993	124.79	120.65	116.62	113.11	123.55	121.30	116.86	112.32						
3/15/1993	123.54	117.48	115.46	112.11	123.89	121.13	117.86	113.24						
4/15/1993	121.96	117.07	114.04	110.77	116.80	118.80	116.69	111.99						
5/17/1993	120.69	115.40	113.12	109.61	114.89	115.97	112.94	104.65						
6/15/1993	120.37	114.57	112.79	109.44	113.22	114.88	112.27	104.24						
7/15/1993	120.04	113.82	112.37	109.19	111.97	113.88	111.86	103.74						
8/16/1993	119.96	113.65	112.46	109.02	112.55	113.71	111.52	104.16						
9/15/1993	120.29	113.90	112.79	109.44	114.80	114.13	111.78	104.40						
10/15/1993	120.79	114.32	113.12	109.77	117.39	114.55	112.11	104.74						
11/15/1993	120.96	114.65	113.46	109.94	117.64	114.88	112.36	105.82						
12/15/1993	121.12	114.82	113.54	110.11	117.80	115.21	112.52	106.07						
1/17/1994	120.87	114.73	113.21	109.86	117.55	115.13	112.36	105.99						
2/15/1994	121.21	114.98	113.54	110.02	117.39	114.88	112.19	106.16						
3/15/1994	122.12	116.40	113.96	110.86	123.47	120.05	116.94	112.16						
4/15/1994	120.04	114.82	112.79	109.77	114.22	116.88	114.78	105.65						

Table 3
Groundwater Elevation Levels
CEMEX - Cache Creek Mine, Yolo County, CA

Date	OW-1D	OW-2	OW-3	OW-4	OW-6D	OW-7D	OW-8D	OW-9	OW-10	Snyder Ag	OW-11	OW-12	OW-13	OW-14
RPElev. (NAVD 88)[1]	**152.29**	**148.90**	**137.54**	**136.94**	**151.97**	**152.63**	**144.44**	**139.82**	**134.30**	**134.48[2]**	**134.57**	**138.41**	**133.33**	**131.37**
5/16/1994	117.29	110.40	111.62	108.44	108.89	111.38	110.36	101.40						
6/15/1994	116.29	109.57	110.54	107.61	107.72	110.55	109.52	100.07						
7/21/1994	112.79	106.73	108.54	106.02	106.22	108.63	103.11	100.57						
8/15/1994														
9/26/1994	115.12	112.07	110.71	106.28	114.47	113.05	109.86	101.49						
10/18/1994	117.04	113.15	112.21	108.69	116.39	115.05	112.11	108.07						
11/15/1994														
12/1/1994	119.37	115.07	113.46	110.28	118.72	117.05	114.19	110.07						
1/12/1995	125.54	121.40	118.12	115.02	124.05	121.78	117.86	112.99						
2/23/1995	124.46	123.40	116.29	113.19	125.89	123.05	120.19	115.90						
3/15/1995														
4/14/1995	126.96	121.65	119.96	114.94	128.47	115.30	122.19	117.65						
5/23/1995	123.87	117.90	115.88	112.61	123.80	121.55	115.27	114.40						
6/15/1995	122.71	117.57	115.29	112.02	115.13	119.88	114.69	112.74						
7/18/1995	121.67	117.15	114.88	111.52	123.30	118.63	114.86	110.32						
8/15/1995	120.96	116.73	114.46	110.77	121.46	117.46	114.86	107.32						
9/15/1995	120.96	116.98	113.96	110.77	121.72	118.71	115.27	110.57						
10/16/1995	122.12	116.65	114.54	111.44	123.21	119.71	116.52	111.99						
11/23/1995	121.96	116.73	114.21	111.28	123.88	119.80	116.86	112.40						
12/19/1995	122.54	116.98	114.62	111.69	125.21	120.63	117.52	112.90						
1/15/1996	123.71	119.15	115.96	112.36	125.05	121.80	119.11	113.99						
2/15/1996	126.37	121.90	118.79	114.02	128.64	125.71	122.61	117.65						
3/20/1996	125.46	120.65	117.04	112.77	127.31	124.46	121.27	116.40						
4/15/1996	124.21	118.15	115.37	111.52	124.89	122.88	120.19	115.16						
5/22/1996	122.71	117.15	114.54	110.44	121.64	120.80	118.11	109.82						
6/20/1996	121.12	118.98	113.88	109.36	120.80	116.55	111.78	106.07						
7/25/1996	120.63	115.07	113.54	109.02	113.31	117.13	113.86	104.40						
8/20/1996	121.21	115.73	113.79	109.36	118.97	117.97	114.11	105.07						
9/16/1996	121.71	116.40	114.12	109.61	119.80	118.88	115.27	105.82						
10/18/1996	121.96	115.65	114.04	109.94	120.97	119.38	116.44	111.32						
11/15/1996														
12/16/1996	122.87	117.15	114.62	110.86	122.14	120.63	117.44	112.49						
1/16/1997	125.29	119.82	116.88	112.69	125.14	123.55	120.02	115.32						
2/13/1997	126.37	120.90	118.04	113.94	126.64	124.80	121.36	116.65						
3/17/1997	123.96	117.65	114.62	110.36	124.22	122.38	119.36	114.16						
4/15/1997	121.71	115.32	113.54	109.28	114.31	116.71	112.94	111.32						
5/15/1997	120.96	114.24	112.99	107.84	113.55	116.80	111.52	105.74						
6/17/1997	120.71	114.48	113.04	108.36	112.31	116.05	113.86	105.57						
7/21/1997	121.21	115.57	113.04	108.31	119.47	118.13	113.44	104.82						
8/21/1997	121.81	115.07	113.29	108.86	120.14	118.88	115.52	110.07						
9/16/1997	121.87	116.32	113.37	108.94	120.80	119.38	115.94	110.57						
10/17/1997	121.96	116.40	113.29	108.86	121.22	119.71	116.36	110.74						
11/21/1997	122.87	117.24	114.04	109.94	121.97	120.38	116.94	111.82						
12/22/1997	122.63	118.24	113.88	109.69	122.47	121.05	117.36	112.16						

Table 3
Groundwater Elevation Levels
CEMEX - Cache Creek Mine, Yolo County, CA

Date	OW-1D	OW-2	OW-3	OW-4	OW-6D	OW-7D	OW-8D	OW-9	OW-10	Snyder Ag	OW-11	OW-12	OW-13	OW-14
RPElev. (NAVD 88)[1]	**152.29**	**148.90**	**137.54**	**136.94**	**151.97**	**152.63**	**144.44**	**139.82**	**134.30**	**134.48[2]**	**134.57**	**138.41**	**133.33**	**131.37**
1/19/1998	125.12	118.24	116.37	111.61	126.64	124.13	119.61	114.57						
2/17/1998	126.37	120.00	118.21	113.77	127.14	124.97	121.69	116.92						
3/20/1998	127.46	121.65	119.04	114.52	128.22	126.30	123.02	117.99						
4/16/1998	126.21	120.07	117.62	113.19	123.22	124.46	120.78	116.16						
5/15/1998	124.11	118.08	114.88	110.44	124.47	122.71	119.52	113.82						
6/18/1998	121.71	116.15	114.12	109.44	114.97	117.46	116.61	108.16						
7/15/1998	121.96	116.32	113.88	109.02	114.22	116.30	111.36	105.82						
8/21/1998	122.63	115.82	113.71	108.86	120.72	118.55	114.94	105.65						
9/17/1998	122.79	116.07	113.54	108.94	121.64	120.05	116.13	110.07						
10/15/1998	122.63	117.37	113.62	109.28	122.14	120.46	116.78	111.40						
11/19/1998	122.71	117.07	113.79	109.44	122.31	120.80	117.27	111.82						
12/16/1998	122.46	117.40	114.29	110.02	122.22	120.88	117.19	111.90						
1/15/1999	122.96	117.73	114.62	110.36	122.55	121.21	117.78	112.32						
2/19/1999	124.87	119.57	117.29	113.19	123.64	122.13	118.44	113.16						
3/17/1999	124.71	119.24	117.12	113.02	123.97	122.46	118.94	112.99						
4/19/1999	123.46	118.40	115.79	111.86	123.39	121.97	118.69	113.65						
5/18/1999	121.54	116.15	113.88	110.36	119.64	118.63	116.19	111.24						
6/22/1999	120.12	114.65	112.62	109.52	115.31	116.88	113.02	105.65						
7/27/1999	119.71	114.15	112.79	108.94	112.39	115.13	110.78	104.74						
8/26/1999	120.46	115.24	112.96	109.19	119.05	117.63	111.78	105.99						
9/18/1999	120.79	115.32	113.12	109.61	119.55	118.30	114.86	110.24						
11/18/1999	121.62	116.48	113.96	110.52	121.30	119.88	116.94	111.82						
12/17/1999	121.96	116.73	114.46	111.27	121.64	120.05	117.27	112.40						
1/31/2000	122.46	116.90	114.71	110.94	121.64	120.21	116.77	111.82						
2/17/2000	123.29	118.57	116.21	112.27	123.30	120.88	117.44	112.24						
3/15/2000	121.96	116.73	114.46	111.27	121.64	120.05	117.27	112.40						
5/15/2000	121.12	117.82	114.54	109.77	117.39	121.71	118.19	112.15						
6/20/2000	119.62	113.48	113.37	108.94	113.05			106.57						
7/21/2000	120.54		113.54	109.02	119.47	118.21	113.77	109.40						
8/18/2000	119.39	114.90	113.37		113.47	116.88								
9/15/2000	119.96	114.90	113.62		113.64	117.38								
11/15/2000	121.46	115.82	113.71	109.44	120.97	119.46	116.61	111.32						
1/1/2001	121.79		113.62	104.19	121.47	119.71	116.44	111.32						
4/1/2001	121.96	116.32	114.29	109.44	121.64	120.46	116.94	108.99						
7/1/2001	119.29	114.07	112.87	108.36	117.47	116.88	113.86	105.15						
9/1/2001	120.21	114.98	113.12	109.27	113.97	116.96		106.90						
1/1/2002	121.37	116.65	116.46	111.27	121.39	119.80	116.94	112.15						
4/1/2002	120.63	118.15	113.71	109.11	114.97	117.55	113.78	107.90						
6/1/2002	119.37	113.73	112.46	108.28	115.72	115.13	109.27	108.32						
9/1/2002	119.96	112.98	112.37	108.02	118.14	117.30	113.52	108.32						
10/7/2002	121.21	116.65	113.37	109.02	120.80	118.46	115.02	109.82						
1/3/2003		119.73	115.62	111.64	124.47	122.55	116.94	112.74						
3/6/2003	121.96	117.15	114.21	110.28	122.55	121.13	118.36	112.99						
6/3/2003	118.63	113.40	113.29	110.36	111.97	113.80	109.94	106.07	97.47					

Table 3
Groundwater Elevation Levels
CEMEX - Cache Creek Mine, Yolo County, CA

Date	OW-1D	OW-2	OW-3	OW-4	OW-6D	OW-7D	OW-8D	OW-9	OW-10	Snyder Ag	OW-11	OW-12	OW-13	OW-14
RPElev. (NAVD 88)[1]	**152.29**	**148.90**	**137.54**	**136.94**	**151.97**	**152.63**	**144.44**	**139.82**	**134.30**	**134.48[2]**	**134.57**	**138.41**	**133.33**	**131.37**
9/16/2003	119.37	114.15	112.71	108.86	117.80	115.55	109.36		103.05					
1/12/2004	124.12	120.82	116.04		122.89	121.80	116.96	112.32	106.78					
4/15/2004	122.21	117.90	113.88	108.78	124.96	121.31	117.70	112.75	104.23					
6/15/2004	119.37	114.82	111.88	107.94	117.72	116.88	112.94	107.99	103.38					
10/6/2004	120.12	116.65	113.12	108.77	119.05	118.05	114.52	109.57	103.30					
1/15/2005	122.46	117.40	114.29	110.02	122.22	120.88	117.19	111.90	105.30					
6/15/2005	120.12	114.65	112.62	109.52	115.31	116.88	113.02	105.65	104.88					
10/14/2005	120.87	116.98	113.79	110.69	120.47	118.63	115.19	110.16	104.22					
1/17/2006	125.63	120.98	116.71	112.94	125.31		119.61	113.90	108.30					
5/24/2006	122.96	116.90	114.04	110.61	126.47		117.86	113.74	107.47					
10/4/2006	120.79	116.24	112.71	107.11	119.97		114.27	110.07	103.70					
1/5/2007	125.29	120.24	117.46	114.86	124.96	120.71	118.41	113.57						
6/27/2007	122.71	116.40	114.46	112.02	123.22	121.63	114.19	113.24						
10/7/2007	120.77	115.82	113.46	108.61	119.64	118.21	110.11	109.65	103.59					
9/10/2008	118.95	113.85	112.32	107.59	116.89	116.02	109.34	108.42	103.48					
12/2/2008	120.07	115.27	112.87	108.33	119.26	118.13	114.42	110.22	104.78					
3/27/2009	120.87	116.72	113.42	109.02	120.70	119.52	115.40	111.06	105.26					
6/15/2009	115.48	111.72	111.94	106.72	110.41	110.66	107.03	102.79	103.74					
9/8/2009	112.98	111.31	110.44	106.15	111.00	111.67	108.62	105.80	102.42	102.06				
12/8/2009	115.58	111.96	112.18	107.24	113.84	113.80	110.92	107.86	103.46	103.28				
4/28/2010	121.22	116.26	113.34	109.31	122.59	119.50	115.84	111.52	105.74	106.57				
6/23/2010	118.46	113.13	111.97	107.03	111.37	114.09	108.29	107.61	104.33	103.85				
9/20/2010	118.95	114.33	112.11	107.11	117.09	116.33	112.54	108.37	103.44	103.79				
12/1/2010	119.66	115.60	112.22	107.65	118.73	117.83	113.92	109.71	104.58	105.22				
3/29/2011	125.76	120.82	118.02	113.32	124.34	123.10	118.68	113.79	109.28	109.06				
6/17/2011	120.79	115.44	112.06	108.17	119.27	118.56	112.27	110.35	105.37					
9/1/2011	120.23	114.88	111.88	107.55	118.98	117.86	113.80	109.36	103.76	104.82				
12/6/2011	120.65	115.22	112.17	107.89	120.18	118.64	114.59	110.04	104.27	105.39				
3/26/2012	121.48	116.12	113.25	108.70	120.69	119.09	115.11	110.64	104.53	105.68				
6/11/2012	118.44	113.00	111.53	106.63	110.27	113.28	107.69	104.16	102.89					
9/20/2012	119.28	113.80	112.12	107.46	117.45	116.30	112.44	108.36	103.10	103.58				
1/11/2013	122.20	116.60	113.57	109.54	121.94	120.25	116.48	111.86	105.67	107.08				
3/26/2013	120.26	114.78	112.29	108.07	119.55	118.15	114.54	113.85	104.00	104.98				
6/25/2013	118.14	113.31	111.79	106.73	116.00	114.82	111.35	107.58	103.05	103.58				
9/16/2013	118.40	114.01	111.89	107.06	116.53	115.87	112.07	108.18	102.98	103.98				
12/6/2013	119.03	113.96	112.35	107.63	117.40	116.48	112.89	108.97	103.67	104.58				
3/25/2014	119.46	114.44	111.91	107.57	117.81	116.79	112.91	108.84	103.38					
6/10/2014	112.26	109.09	110.17	105.84		107.72	104.90	105.63	101.57					
9/15/2014	106.49	105.56	106.77	104.18		106.06	105.20	101.31	100.62	100.51				
12/18/2014	120.48	115.40	113.93	108.41	114.56	114.60	109.90	106.52	103.98					
3/24/2015	117.13	112.82	107.86	107.75	114.96	114.52	111.44	105.46	102.63					
6/12/2015	109.27	107.76	110.91	105.20	102.72	107.63	105.83		101.95					
9/22/2015	107.43	106.00	108.11	104.00	116.62	106.59	105.29		101.30					

Table 3
Groundwater Elevation Levels
CEMEX - Cache Creek Mine, Yolo County, CA

Date	OW-1D	OW-2	OW-3	OW-4	OW-6D	OW-7D	OW-8D	OW-9	OW-10	Snyder Ag	OW-11	OW-12	OW-13	OW-14
RPElev. (NAVD 88)[1]	**152.29**	**148.90**	**137.54**	**136.94**	**151.97**	**152.63**	**144.44**	**139.82**	**134.30**	**134.48[2]**	**134.57**	**138.41**	**133.33**	**131.37**
12/16/2015	108.75	106.92	108.29	104.49	107.29	107.76	106.22		101.73	100.78				
3/22/2016	122.26	116.38	115.17	110.00	117.82	117.28	112.94		105.24	104.83				
6/10/2016	119.46	113.29	112.44	107.30	115.68	114.76	109.72		103.48	103.17				
9/12/2016	116.99	113.02	112.28	107.75	114.96	114.58	111.53		103.48	103.68				
12/12/2016	120.59	115.23	114.89	108.95	117.87		113.28		102.48	104.27	106.29	109.46	102.86	102.20
3/15/2017	126.33	120.67	117.51	113.87	126.43		120.86		110.24		106.27	116.95	110.72	108.29
6/22/2017	120.79	115.52	112.46	108.38	120.46		115.14		104.19		107.93	111.47	105.96	103.74
9/26/2017	120.20	114.94	112.08	107.69	119.31		113.54		103.02		106.79	109.86	103.82	102.00

1. All NGVD 1929 elevation data converted to NAVD 88 elevation using National Oceanic and Atmospheric Administration's Online Vertical Datum Transformation
2. RPE is ground surface.

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

											Alkalinity as CaCO3									Coliform		
Sampling Point	**Date**	**pH** (standard pH-units)	**TDS**	**EC** (µS/cm)	**Na**	**Ca**	**Mg**	**K**	**Cl**	**SO4**	**HCO3**	**CO3**	**OH**	**Total**	**F**	**Hardness as CaCO3**	**NO3 as NO3**	**NO2 as N**	**MBAS**	**Total** (MPN/100 mL)	**Fecal**	**E. Coli**
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Farnham West[2]	7/17/1995	7.9	**610**	**900**	62	74	52	2.8	80	55	370	ND	ND	-	0.11	400	**60**	ND	ND	ND	ND	-
OW-2	5/14/1992	7.5	**753**	890	53.3	63.2	47.6	-	73.8	49.9	376	ND	-	-	0.12	338	31	-	ND	-	-	-
OW-2	7/12/1994	7.3	**500**	750	46	58	43	1.9	65	57	310	ND	ND	-	ND	320	33	ND	ND	-	-	-
OW-4	5/14/1992	7.8	**656**	820	68.3	60.1	43.7	-	61.7	50.3	358	ND	-	-	0.14	332	37	-	ND	-	-	-
OW-4	7/13/1994	7.8	**530**	750	54	54	36	2.2	69	44	290	ND	ND	-	ND	280	31	ND	ND	-	-	-
OW-8d	7/2/1996	7.6	**510**	**950**	62	64	49	2.8	65	43	320	52	-	370	0.12	360	40	ND	ND	ND	ND	-
OW-8d	9/25/1997	7.6	**587**	**917**	62	74	55	3.3	65	44	345	ND	ND	345	0.16	413	44	-	ND	ND	ND	-
OW-8d	4/7/1998	7.4	**570**	890	69	75	58	3.6	60	48	381	ND	ND	381	ND	425	**55**	-	ND	ND	ND	-
OW-8d	9/28/1998	7.9	**633**	**989**	60	74	55	3.3	46	52	384	ND	ND	384	0.17	410	**69**	-	ND	ND	ND	-
OW-8d	4/28/1999	7.7	**678**	**1,060**	66	83	61	3.4	72	45	400	ND	ND	400	0.13	557	**47**	-	ND	ND	ND	-
OW-8d	9/15/1999	7.6	**574**	**946**	61	62	47	3	67	40	354	ND	ND	354	0.15	347	32	-	ND	ND	ND	-
OW-8d	2/24/2000	7.8	**620**	**1,000**	78	78	59	3.4	74	45	370	ND	ND	370	0.14	440	40	-	-	ND	ND	-
OW-8d	9/11/2000	7.6	**670**	**1,100**	80	82	62	3.3	74	56	400	ND	ND	400	ND	460	**53**	-	-	ND	ND	-
OW-8d	5/8/2001	7.6	**680**	**1,000**	59	37	47	2.4	160	110	370	ND	ND	370	0.12	290	-[2]	-	-	ND	ND	-
OW-8d	9/18/2001	7.7	**580**	**980**	73	80	60	3.1	68	50	360	ND	ND	360	ND	450	44	-	-	ND	ND	-
OW-8d	5/16/2002	7.5	**570**	830	67	69	51	2.9	70	54	320	ND	ND	320	0.2	380	**47**	-	-	ND	ND	-
OW-8d	9/19/2002	7.6	**600**	**930**	73	74	59	3.2	74	47	350	ND	ND	350	0.31	430	**46**	-	-	ND	ND	-
OW-8d	4/21/2003	7.54	**640**	**940**	74	73	56	2.9	78	50	390	ND	ND	390	ND	410	**54**	-	-	ND	ND	-
OW-8d	9/16/2003	7.50	**570**	880	70	76	57	3.0	77	49	360	ND	ND	360	ND	420	**51**	-	-	ND	ND	ND
OW-8d	4/12/2004	7.47	**640**	**1,000**	79	79	61	3.4	80	54	390	ND	ND	390	0.16	450	**59**	-	-	ND	ND	ND
OW-8d	9/22/2004	7.40	**580**	**960**	69	73	55	3.1	69	50	380	ND	ND	380	0.12	410	**52**	-	-	ND	ND	ND
OW-8d	4/27/2005	7.46	**640**	**920**	81	80	62	3.2	75	54	400	<5.0	<5.0	400	0.14	450	**54**	-	-	<2	<2	-
OW-8d	9/12/2005	7.46	**620**	**1,100**	79	78	59	3.3	74	51	390	<5.0	<5.0	390	0.12	440	**52**	-	-	<2	<2	-
OW-8d	4/25/2006	7.77	**660**	**1,100**	83	82	62	3.2	68	50	400	<5.0	<5.0	400	0.13	460	**54**	-	-	<1.8	<1.8	-
OW-8d	9/6/2006	7.38	**560**	**990**	74	73	57	3.0	74	49	390	<5.0	<5.0	390	0.14	420	**51**	-	-	<1.8	<1.8	<1.8
OW-8d	4/3/2007	7.26	**620**	**1,000**	77	77	56	3.1	74	52	370	<5.0	<5.0	370	<0.10	420	**58**	-	-	<1.8	<1.8	<1.8
OW-8d	9/13/2007	7.31	**660**	**1,100**	83	78	62	3.1	82	59	370	<5.0	<5.0	370	0.12	450	**70**	-	-	<1.8	<1.8	<1.8
OW-8d	4/10/2008	7.29	**610**	**1,100**	80	73	59	3.2	72	52	360	<5.0	<5.0	360	0.13	420	**57**	-	-	<1.8	<1.8	<1.8

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	Alkalinity as CaCO3 HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Coliform (MPN/100 mL) Total	Fecal	E. Coli
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
OW-8d	9/8/2008	7.35	**570**	**930**	76	71	55	3.3	61	42	350	<5.0	<5.0	350	0.13	410	43	-	-	<1.8	<1.8	<1.8
OW-8d	3/30/2009	7.25	**610**	**990**	64	59	46	2.5	63	47	370	<5.0	<5.0	370	0.13	340	**50**	-	-	<1.8	<1.8	<1.8
OW-8d	9/9/2009	7.30	**520**	850	70	59	49	2.9	61	40	330	<5.0	<5.0	330	<0.10	350	38	-	-	<1.8	<1.8	<1.8
OW-8d	5/3/2010	7.34	480	870	67	62	48	2.7	53	38	320	<5.0	<5.0	320	0.16	360	37	-	-	<1.8	<1.8	<1.8
OW-8d	4/4/2011	7.29	**560**	**920**	64	63	52	2.7	64	43	360	<5.0	<5.0	360	<0.10	370	43	-	-	<1.8	<1.8	<1.8
OW-8d	4/3/2012	7.36	**580**	**990**	79	73	57	3.0	60	45	370	<5.0	<5.0	370	0.18	420	43	-	-	<1.8	<1.8	<1.8
OW-8d	3/27/2013	7.29	**580**	**1,100**	72	72	59	3.0	64	43	400	<5.0	<5.0	400	0.12	420	38	-	-	<1.8	<1.8	<1.8
OW-8d	3/26/2014	7.37	**520**	**970**	70	72	53	3.2	61	39	360	<5.0	<5.0	360	<0.10	400	33	-	-	<1.8	<1.8	<1.8
OW-8d	3/24/2015	7.45	470	880	54	52	36	2.0	53	36	300	<5.0	<5.0	300	0.22	280	26	-	-	<1.8	<1.8	<1.8
OW-8d	3/22/2016	7.58	410	730	51	49	37	2.3	56	34	260	<5.0	<5.0	260	<0.10	280	17	-	-	<1.8	<1.8	<1.8
OW-8d	3/15/2017	7.58	410	840	55	56	38	2.9	87	39	270	<5.0	<5.0	270	<0.10	300	16	-	-	<1.8	<1.8	<1.8
OW-9	5/14/1992	7.7	**507**	680	45.4	44.9	34.4	-	60.5	42.5	275	ND	-	-	0.1	268	21	-	ND	-	-	-
OW-9	7/12/1994	7.6	440	650	46	45	33	2	64	57	250	ND	ND	-	ND	250	22	ND	ND	-	-	-
OW-9[3]	7/14/1995	7.6	**540**	**1,000**	56	65	50	2.6	80	42	820	ND	ND	-	0.15	370	38	ND	ND	ND	ND	-
OW-9	7/2/1996	7.6	**570**	**1,100**	68	71	56	3	70	57	380	ND	-	380	0.1	430	**49**	ND	ND	4	ND	-
OW-9	2/24/2000	7.9	**630**	**980**	96	73	56	3.3	77	56	370	ND	ND	370	0.12	410	**46**	-	-	ND	ND	-
OW-9	9/11/2000	7.6	**610**	**1,000**	92	69	54	3.2	72	62	350			350	ND	390	**46**	-	-	ND	ND	-
OW-9	5/8/2001	7.6	**620**	**980**	77	42	61	3.1	110	92	330	ND	ND	330	0.14	360	**66**	-	-	ND	ND	-
OW-9	9/18/2001	7.7	**600**	**980**	92	72	55	2.9	69	62	370	ND	ND	370	ND	410	44	-	-	ND	ND	-
OW-9	5/16/2002	7.6	**620**	880	88	68	51	2.9	75	66	350	ND	ND	350	0.21	380	**54**	-	-	ND	ND	-
OW-9	9/19/2002	7.6	**690**	**1,100**	100	75	60	3.1	82	68	390	ND	ND	390	0.32	430	**68**	-	-	ND	ND	-
OW-9	4/21/2003	7.58	**550**	**1,000**	94	63	48	2.8	73	55	370	ND	ND	370	0.10	360	**47**	-	-	ND	ND	-
OW-9	9/16/2003	7.55	**620**	**940**	94	70	53	3.6	76	60	370	ND	ND	370	0.13	390	**48**	-	-	ND	ND	ND
OW-9	4/12/2004	7.52	**700**	**1,100**	97	74	60	2.9	87	69	400	ND	ND	400	0.18	430	**65**	-	-	ND	ND	ND
OW-9	9/22/2004	7.43	**680**	**1,100**	100	74	55	3.2	76	74	420	ND	ND	420	0.14	410	**59**	-	-	ND	ND	ND
OW-9	4/28/2005	7.62	**630**	**990**	99	66	50	2.9	72	57	380	<5.0	<5.0	390	0.15	370	**45**	-	-	<2	<2	-
OW-9	9/12/2005	7.49	**680**	**1,200**	120	77	58	3.5	82	70	440	<5.0	<5.0	440	0.14	430	**55**	-	-	<2	<2	-
OW-9	4/25/2006	7.88	**650**	**1,100**	110	71	52	2.8	67	57	380	<5.0	<5.0	380	0.15	390	**47**	-	-	<1.8	<1.8	-
OW-9	9/7/2006	7.35	**700**	**1,100**	98	63	49	2.5	80	63	430	<5.0	<5.0	430	0.16	360	**53**	-	-	<1.8	<1.8	<1.8
OW-9	4/3/2007	7.29	**650**	**1,100**	100	70	51	3.0	68	66	390	<5.0	<5.0	390	<0.10	390	**56**	-	-	<1.8	<1.8	<1.8

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

											Alkalinity as CaCO3									Coliform		
Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Total (MPN/100 mL)	Fecal (MPN/100 mL)	E. Coli (MPN/100 mL)
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
OW-9	9/13/2007	7.40	**700**	**1,000**	110	72	57	3.1	81	74	410	<5.0	<5.0	410	0.15	410	**59**	-	-	2.0	2.0	2.0
OW-9	4/10/2008	7.36	**620**	**1,100**	110	66	52	3.0	69	64	380	<5.0	<5.0	380	0.15	380	**46**	-	-	<1.8	<1.8	<1.8
OW-9	9/8/2008	7.48	**710**	**1,100**	120	76	58	3.4	75	68	420	<5.0	<5.0	420	0.15	430	**49**	-	-	<1.8	<1.8	<1.8
OW-9	3/30/2009	7.46	**700**	**1,100**	96	58	45	2.5	75	70	390	<5.0	<5.0	390	0.15	330	**49**	-	-	<1.8	<1.8	<1.8
OW-9	9/9/2009	7.31	**640**	**1,100**	110	66	55	3.0	75	68	390	<5.0	<5.0	390	<0.10	390	**51**	-	-	<1.8	<1.8	<1.8
OW-9	5/24/2010	7.38	**670**	**1,100**	110	65	51	3.0	66	58	380	<5.0	<5.0	380	0.14	370	**45**	-	-	<1.8	<1.8	<1.8
OW-9	4/4/2011	7.38	**700**	**1,100**	110	66	54	2.8	82	67	400	<5.0	<5.0	400	<0.10	390	**58**	-	-	<1.8	<1.8	<1.8
OW-9	4/3/2012	7.37	**690**	**1,200**	130	77	59	3.1	78	68	430	<5.0	<5.0	430	0.20	440	**52**	-	-	<1.8	<1.8	<1.8
OW-9	3/27/2013	7.31	**680**	**1,200**	110	69	57	2.9	78	68	410	<5.0	<5.0	410	0.15	410	**49**	-	-	<1.8	<1.8	<1.8
OW-9	3/26/2014	7.41	**620**	**1,100**	100	69	51	3.0	68	66	390	<5.0	<5.0	390	<0.10	380	**47**	-	-	<1.8	<1.8	<1.8
OW-9	3/24/2015	7.46	**580**	**1,100**	81	50	35	1.9	56	48	350	<5.0	<5.0	350	0.24	270	40	-	-	<1.8	<1.8	<1.8
Well Destroyed 2015Q2																						
OW-10	9/8/2008	7.46	**700**	**1,100**	110	67	64	2.7	80	66	380	<5.0	<5.0	380	0.17	430	**50**	-	-	<1.8	<1.8	<1.8
OW-10	3/26/2009	7.30	**610**	**940**	90	50	48	2.1	80	65	350	<5.0	<5.0	350	0.11	320	39	-	-	<1.8	<1.8	<1.8
OW-10	9/9/2009	7.30	**510**	870	90	44	45	2.1	75	56	290	<5.0	<5.0	290	0.11	300	27	-	-	<1.8	<1.8	<1.8
OW-10	5/24/2010	7.34	**570**	**910**	91	50	50	2.2	72	55	300	<5.0	<5.0	300	0.16	330	30	-	-	<1.8	<1.8	<1.8
OW-10	4/4/2011	7.38	**530**	820	79	43	44	1.9	72	54	280	<5.0	<5.0	280	0.11	290	26	-	-	<1.8	<1.8	<1.8
OW-10	4/3/2012	7.32	**670**	**1,200**	110	70	68	2.5	83	68	400	<5.0	<5.0	400	0.20	450	**49**	-	-	<1.8	<1.8	<1.8
OW-10	3/27/2013	7.22	**650**	**1,200**	99	63	65	2.6	86	66	390	<5.0	<5.0	390	0.37	420	**50**	-	-	<1.8	<1.8	<1.8
No Access Due to Wellhead Damage																						
OW-10	3/16/2017	7.51	330	700	61	32	31	1.7	66	37	210	<5.0	<5.0	210	0.24	210	9	-	-	<1.8	<1.8	<1.8
OW-11	3/16/2017	7.54	**600**	**1,200**	94	66	47	3.0	87	68	400	<5.0	<5.0	400	0.12	360	44	-	-	<1.8	<1.8	<1.8
OW-11	11/1/2017	8.04	**640**	**1,170**	120	76	54	3.0	92	71	380	<8.2	<8.2	380	0.11	410	**59**	-	-	<1.1	<1.1	NR
OW-12	3/15/2017	7.41	**870**	**1,700**	110	90	67	2.9	180	120	460	<5.0	<5.0	460	0.11	500	**84**	-	-	<1.8	<1.8	<1.8
OW-12	11/1/2017	7.97	**690**	**1,240**	120	79	56	2.9	96	78	390	<8.2	<8.2	390	0.11	420	**76**	-	-	<1.1	<1.1	NR
OW-13	3/16/2017	7.29	**890**	**1,700**	120	93	62	3.5	**270**	130	420	<5.0	<5.0	420	<0.10	490	**49**	-	-	<1.8	<1.8	<1.8
OW-13	11/1/2017	7.90	**760**	**1,440**	160	100	69	3.2	120	130	450	<8.2	<8.2	450	0.09	530	**62**	-	-	<1.1	<1.1	NR

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

											Alkalinity as CaCO3									Coliform (MPN/100 mL)		
Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Total	Fecal	E. Coli
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Solano #1a	7/12/1994	7.6	480	700	44	57	38	2.9	61	55	280	ND	ND	-	ND	300	27	ND	ND	-	-	-
Solano #1a[3]	7/17/1995	8.0	410	700	41	54	36	2.4	60	33	250	ND	ND	-	0.16	280	21	ND	ND	ND	ND	-
Solano #1a	7/2/1996	7.8	420	750	49	57	41	2.5	56	17	250	91	-	330	0.14	300	30	ND	ND	ND	ND	-
Solano #1a	9/25/1997	7.7	464	725	49	64	44	3	57	34	278	ND	ND	278	0.18	342	35	-	ND	ND	ND	-
Solano #1a	4/7/1998	7.5	405	633	47	55	40	2.8	51	33	269	ND	ND	269	0.12	299	29	-	ND	ND	ND	-
Solano #1a	9/28/1998	7.7	**518**	809	47	63	44	2.8	56	36	304	ND	ND	304	0.21	339	39	-	ND	ND	ND	-
Solano #1a	4/28/1999	7.7	**523**	688	49	70	48	3.1	67	38	314	ND	ND	314	0.16	372	**53**	-	ND	30	ND	-
Solano #1a	9/15/1999	7.8	495	846	53	59	42	2.9	53	35	304	ND	ND	304	0.16	319	35	-	ND	ND	ND	-
Solano #1a	2/24/2000	8.0	480	800	60	64	45	2.9	61	34	300	ND	ND	300	0.14	340	38	-	-	ND	ND	-
Solano #1a	9/11/2000	7.8	**520**	860	60	66	47	2.9	56	36	300	ND	ND	300	ND	360	43	-	-	ND	ND	-
Solano #1a	5/8/2001	7.8	490	780	56	31	44	2.6	71	38	280	ND	ND	280	0.14	260	**51**	-	-	11	11	-
Solano #1a	9/18/2001	7.8	460	770	59	66	46	2.8	55	38	300	ND	ND	300	ND	350	37	-	-	ND	ND	-
Solano #1a	5/16/2002	7.8	480	700	59	60	42	2.9	53	37	290	ND	ND	290	0.22	330	37	-	-	140	ND	-
Solano #1a	9/19/2002	7.8	490	780	58	62	45	2.6	52	38	300	ND	ND	300	0.32	340	41	-	-	ND	ND	-
Solano #1a	4/17/2003	8.04	470	630	53	54	38	2.5	53	35	300	ND	ND	300	ND	290	34	-	-	2.0	ND	ND
Solano #1a	9/17/2003	7.69	440	770	60	67	46	2.7	52	34	310	ND	ND	310	0.13	360	36	-	-	8.0	ND	ND
Solano #1a	4/13/2004	7.69	460	780	54	61	41	2.2	50	36	300	ND	ND	300	0.17	320	38	-	-	2.0	ND	ND
Solano #1a	9/21/2004	7.71	490	840	58	65	44	2.9	51	37	320	ND	ND	320	0.14	350	**45**	-	-	ND	ND	ND
Solano #1a	4/27/2005	7.71	470	760	57	61	43	2.6	50	38	290	<5.0	<5.0	290	0.18	330	36	-	-	<2	<2	-
Solano #1a	9/13/2005	8.20	410	780	59	65	45	2.8	52	39	310	<5.0	<5.0	310	0.14	350	41	-	-	<2	<2	-
Solano #1a	4/3/2006	7.93	490	790	60	68	45	2.5	49	37	320	<5.0	<5.0	320	0.16	360	37	-	-	<2	<2	-
Solano #1a	9/7/2006	7.48	**530**	800	54	56	40	2.4	53	38	340	<5.0	<5.0	340	0.16	310	42	-	-	4.0	<1.8	<1.8
Solano #1a	4/2/2007	7.24	470	810	63	64	45	2.9	47	39	300	<5.0	<5.0	300	<0.10	340	39	-	-	<1.8	<1.8	<1.8
Solano #1a	9/12/2007	7.66	470	830	60	55	42	2.8	49	35	290	<5.0	<5.0	290	0.14	310	41	-	-	2.0	<1.8	<1.8
Solano #1a	4/11/2008	7.42	430	770	59	58	41	2.7	47	35	290	<5.0	<5.0	290	0.15	310	38	-	-	<1.8	<1.8	<1.8
Solano #1a	9/9/2008	7.56	480	780	61	59	43	2.9	45	36	310	<5.0	<5.0	310	0.17	330	43	-	-	4.5	<1.8	<1.8
Solano #1a	3/31/2009	7.62	460	760	51	50	34	2.4	45	36	280	<5.0	<5.0	280	0.14	270	40	-	-	<1.8	<1.8	<1.8
Solano #1a	9/10/2009	7.49	490	840	60	60	46	2.8	49	37	320	<5.0	<5.0	320	0.10	340	**50**	-	-	<1.8	<1.8	<1.8
Solano #1a	4/28/2010	7.55	430	780	57	50	38	2.5	45	36	270	<5.0	<5.0	270	0.14	280	37	-	-	<1.8	<1.8	<1.8
Solano #1a	3/29/2011	7.54	460	770	59	59	45	2.8	46	37	290	<5.0	<5.0	290	0.11	330	42	-	-	<1.8	<1.8	<1.8

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

											Alkalinity as CaCO3									Coliform		
Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Total (MPN/100 mL)	Fecal (MPN/100 mL)	E. Coli (MPN/100 mL)
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Solano #1a	3/27/2012	7.50	450	760	57	54	39	2.7	43	36	280	<5.0	<5.0	280	0.17	290	38	-	-	<1.8	<1.8	<1.8
Solano #1a	3/26/2013	7.43	440	760	53	56	38	2.4	46	34	270	<5.0	<5.0	270	0.15	300	33	-	-	<1.8	<1.8	<1.8
Solano #1a	3/25/2014	7.70	400	760	45	58	38	2.2	44	35	280	<5.0	<5.0	280	<0.10	300	29	-	-	4.5	<1.8	<1.8
Solano #1a	3/24/2015	7.53	430	830	52	47	31	1.8	68	34	240	<5.0	<5.0	240	0.24	250	19	-	-	<1.8	<1.8	<1.8
Solano #1a	3/22/2016	7.57	400	810	54	51	36	2.3	65	37	250	<5.0	<5.0	250	0.20	280	21	-	-	<1.8	<1.8	<1.8
Solano #1a	3/15/2017	7.46	390	760	52	49	32	2.7	68	37	260	<5.0	<5.0	260	0.11	260	23	-	-	<1.8	<1.8	<1.8
Solano #2	10/1/1997	7.5	**540**	845	60	74	58	3.3	79	46	354	ND	ND	354	ND	424	44	-	ND	ND	ND	-
Solano #2	4/7/1998	7.5	**516**	806	58	70	55	3.6	58	41	354	ND	ND	354	ND	400	40	-	ND	ND	ND	-
Solano #2	9/28/1998	7.5	**630**	**984**	56	75	57	3.4	73	42	364	ND	ND	364	0.17	424	41	-	ND	ND	ND	-
Solano #2	4/28/1999	7.6	**614**	**960**	57	73	53	3.4	71	40	360	ND	ND	360	0.14	403	38	-	ND	ND	ND	-
Solano #2	9/15/1999	7.8	**508**	864	55	55	41	2.9	66	37	303	ND	ND	303	0.13	309	33	-	ND	ND	ND	-
Solano #2	2/24/2000	7.7	**550**	890	68	68	53	3.3	72	39	320	ND	ND	320	0.12	390	40	-	-	2	ND	-
Solano #2	9/11/2000	7.6	**600**	**960**	69	74	57	3.4	73	43	330	ND	ND	330	ND	420	47	-	-	ND	ND	-
Solano #2	5/11/2001	7.5	**530**	850	62	68	51	2.9	89	62	280	ND	ND	280	0.12	280	**54**	-	-	ND	ND	-
Solano #2	9/18/2001	7.6	**550**	890	66	74	56	3.2	66	45	330	ND	ND	330	ND	410	43	-	-	ND	ND	-
Solano #2	5/16/2002	7.6	**570**	810	67	70	54	3.3	71	54	330	ND	ND	330	0.2	400	**50**	-	-	ND	ND	-
Solano #2	9/19/2002	7.7	**550**	840	67	67	53	3.1	67	41	330	ND	ND	330	0.31	390	40	-	-	13	ND	-
Solano #2	4/17/2003	7.93	**590**	780	63	65	50	3.2	72	44	340	ND	ND	340	ND	370	**48**	-	-	ND	ND	ND
Solano #2	9/17/2003	7.55	**580**	**920**	69	78	57	3.1	72	45	350	ND	ND	350	0.10	430	42	-	-	ND	ND	ND
Solano #2	4/13/2004	8.04	**550**	**920**	62	71	52	1.1	66	42	350	ND	ND	350	0.16	390	39	-	-	ND	ND	ND
Solano #2	9/21/2004	7.71	**540**	**930**	63	70	51	3.2	62	45	360	ND	ND	360	0.12	380	39	-	-	4.0	ND	ND
Solano #2	4/28/2005	7.77	**560**	870	64	70	52	3.1	65	38	360	<5.0	<5.0	360	0.13	390	37	-	-	<2	<2	-
Solano #2	9/13/2005	8.01	**520**	**910**	65	71	53	2.9	66	41	360	<5.0	<5.0	360	0.11	400	36	-	-	<2	<2	-
Solano #2	4/25/2006	7.75	**560**	**920**	65	72	54	3.0	59	39	370	<5.0	<5.0	370	0.13	400	38	-	-	<1.8	<1.8	-
Solano #2	9/6/2006	7.35	**500**	**910**	62	64	49	2.8	62	39	360	<5.0	<5.0	360	0.13	360	39	-	-	<1.8	<1.8	<1.8
Solano #2	4/3/2007	7.31	**560**	**930**	64	70	52	3.1	65	42	330	<5.0	<5.0	330	<0.10	390	**50**	-	-	23	13	23
Solano #2	9/12/2007	7.52	470	840	65	54	45	3.0	57	39	300	<5.0	<5.0	300	0.11	320	35	-	-	4.5	<1.8	<1.8
Solano #2	4/10/2008	7.31	480	850	62	58	46	2.9	57	39	300	<5.0	<5.0	300	0.12	330	36	-	-	<1.8	<1.8	<1.8
Solano #2	9/22/2008	7.48	470	800	64	56	45	3.0	55	40	270	<5.0	<5.0	270	0.17	330	36	-	-	<1.8	<1.8	<1.8
Solano #2	3/26/2009	7.44	440	720	54	46	35	2.4	51	36	280	<5.0	<5.0	280	<0.10	260	30	-	-	<1.8	<1.8	<1.8

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	Alkalinity as CaCO3 HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Coliform (MPN/100 mL) Total	Fecal	E. Coli
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Solano #2	9/10/2009	7.50	410	730	56	49	40	2.8	50	35	280	<5.0	<5.0	280	<0.10	290	27	-	-	4.5	<1.8	<1.8
Solano #2	4/28/2010	7.45	390	710	53	42	35	2.5	48	34	250	<5.0	<5.0	250	0.12	250	21	-	-	<1.8	<1.8	<1.8
Solano #2	3/29/2011	7.47	370	650	54	47	39	2.7	49	32	250	<5.0	<5.0	250	<0.10	280	21	-	-	46	<1.8	<1.8
Solano #2	3/27/2012	7.34	**510**	**900**	60	60	47	2.9	54	39	330	<5.0	<5.0	330	0.16	340	31	-	-	2.0	<1.8	<1.8
Solano #2	3/26/2013	7.38	460	880	55	59	44	2.6	58	35	300	<5.0	<5.0	300	0.12	330	26	-	-	2.0	<1.8	<1.8
Solano #2	3/25/2014	7.61	380	740	49	50	36	2.5	55	35	260	<5.0	<5.0	260	<0.10	270	19	-	-	<1.8	<1.8	<1.8
Solano #2	3/24/2015	7.63	360	690	44	39	28	1.9	48	29	240	<5.0	<5.0	240	0.23	210	12	-	-	4.5	4.5	4.5
Solano #2	3/22/2016	7.68	420	760	46	49	38	2.6	79	39	220	<5.0	<5.0	220	<0.10	280	11	-	-	4.5	<1.8	<1.8
Solano #2	3/15/2017	7.49	380	770	47	49	34	2.9	98	37	220	<5.0	<5.0	220	<0.10	260	8	-	-	1.8	<1.8	<1.8
Pond #2	5/14/1992	**8.5**	**578**	754	47.3	40.7	42.1	-	69.5	25.6	271	12.2	-	-	0.25	280	27	-	ND	-	-	-
Pond #3 (III)	4/11/2008	8.20	470	850	73	47	52	2.8	65	46	300	<5.0	<5.0	300	0.15	330	34	-	-	39	<1.8	<1.8
Pond #3 (III)	9/9/2008	8.48	440	740	74	30	48	3.1	61	43	250	18	<5.0	270	0.18	270	21	-	-	9.3	<1.8	<1.8
Pond #3 (III)	3/31/2009	8.47	460	810	62	37	41	2.5	63	46	280	13	<5.0	280	0.14	260	28	-	-	17	<1.8	<1.8
Pond #3 (III)	9/8/2009	**8.59**	400	680	72	21	46	2.9	66	45	230	24	<5.0	250	0.12	240	12	-	-	70	<1.8	<1.8
Pond #3 (III)	4/28/2010	8.23	450	740	61	43	44	3.0	48	39	270	<5.0	<5.0	270	0.14	290	32	-	-	33	2.0	2.0
Pond #3 (III)	9/20/2010	8.42	410	700	80	27	49	3.3	59	39	240	<5.0	<5.0	240	0.10	270	11	-	-	49	4.5	4.5
Pond #3 (III)	3/16/2011	8.29	440	730	66	36	45	2.4	60	43	270	<5.0	<5.0	270	<0.10	280	22	-	-	130	23	7.8
Pond #3 (III)	9/1/2011	8.49	410	730	85	26	53	3.3	61	41	220	33	<5.0	250	<0.10	280	14	-	-	350	12	12
Pond #3 (III)	3/27/2012	8.22	480	840	76	43	48	3.2	66	47	300	<5.0	<5.0	300	0.16	310	25	-	-	540	79	27
Pond #3 (III)	9/20/2012	**8.52**	480	790	89	30	55	3.2	63	43	260	22	<5.0	280	0.06	300	13	-	-	110	2.0	<1.8
Pond #3 (III)	3/26/2013	8.20	**500**	880	71	47	47	2.7	67	47	300	<5.0	<5.0	300	0.13	310	23	-	-	220	<1.8	<1.8
Pond #3 (III)	9/16/2013	8.44	450	820	78	27	45	3.0	67	47	260	24	<5.0	280	0.13	250	16	-	-	350	240	240
Pond #3 (III)	3/25/2014	8.45	430	850	54	36	34	2.9	65	49	290	10	<5.0	300	0.11	230	21	-	-	1600	6.8	6.8
Pond #3 (III)	9/15/2014	**8.99**	410	770	73	21	38	2.8	66	44	160	60	<5.0	220	0.17	210	6.1	-	-	920	2.0	2.0
Pond #3 (III)	3/24/2015	8.39	390	800	62	33	33	2.1	60	39	250	6	<5.0	260	0.27	220	10	-	-	540	13	13
Pond #3 (III)	9/22/2015	**8.82**	350	710	70	21	40	2.4	64	42	200	44	<5.0	240	0.13	220	3	-	-	240	49	49
Pond #3 (III)	3/22/2016	8.45	390	760	66	38	40	2.7	56	37	230	12	<5.0	240	0.18	260	8	-	-	240	17	17
Pond #3 (III)	9/12/2016	**9.05**	340	710	74	18	42	2.5	67	41	140	62	<5.0	210	0.22	220	2	-	-	540	79	70
Pond #3 (III)	3/15/2017	8.40	350	740	58	31	35	2.8	76	41	230	11	<5.0	240	0.14	220	8	-	-	130	17	17

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CEMEX - Cache Creek Mine, Yolo County, CA

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Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	Alkalinity as CaCO3 HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Coliform Total (MPN/100 mL)	Fecal	E. Coli
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Pond #3 (III)	9/26/2017	8.59	**540**	806	74	30	49	2.7	84	43	230	27	<4.1	260	0.14	280	12	-	-	>23	NR	5.1
Pond #3 (IV)	9/9/2008	**8.67**	420	720	80	26	43	2.9	67	46	210	28	<5.0	240	0.19	240	17	-	-	140	9.2	4.0
Pond #3 (IV)	3/31/2009	**8.56**	440	810	63	34	40	2.4	64	47	250	17	<5.0	250	0.14	250	27	-	-	14	<1.8	<1.8
Pond #3 (IV)	9/8/2009	**8.58**	390	680	69	24	38	2.6	70	49	210	23	<5.0	230	0.13	210	12	-	-	110	11	11
Pond #3 (IV)	4/28/2010	8.32	420	740	67	31	42	2.4	57	41	240	<5.0	<5.0	240	0.13	250	20	-	-	220	110	79
Pond #3 (IV)	9/20/2010	**8.52**	400	700	80	24	46	3.0	62	41	210	23	<5.0	230	<0.10	250	9.9	-	-	350	17	17
Pond #3 (IV)	3/16/2011	8.36	430	710	66	34	44	2.3	61	44	250	<5.0	<5.0	250	<0.10	270	21	-	-	9.3	<1.8	<1.8
Pond #3 (IV)	9/1/2011	**8.59**	400	730	87	23	51	3.6	63	43	220	28	<5.0	250	<0.10	270	15	-	-	79	13	4.5
Pond #3 (IV)	3/27/2012	8.34	**500**	840	79	41	48	3.3	66	47	280	14	<5.0	290	0.16	300	25	-	-	140	13	13
Pond #3 (IV)	9/20/2012	**8.50**	470	790	85	27	52	3.1	63	44	250	20	<5.0	270	0.16	280	12	-	-	920	4.5	4.5
Pond #3 (IV)	3/26/2013	**8.50**	450	810	74	30	48	2.7	68	47	260	<5.0	<5.0	260	0.13	270	17	-	-	350	4.5	4.5
Pond #3 (IV)	9/16/2013	8.48	440	840	83	25	47	3.1	68	48	250	23	<5.0	270	<0.10	260	15	-	-	540	7.8	7.8
Pond #3 (IV)	3/25/2014	8.46	430	860	75	38	44	3.1	66	49	270	13	<5.0	280	0.11	280	21	-	-	170	17	17
Pond #3 (IV)	9/15/2014	**8.96**	440	760	75	19	39	2.8	67	45	180	58	<5.0	240	0.16	210	5.7	-	-	220	8	4.5
Pond #3 (IV)	3/24/2015	8.43	410	780	61	31	33	2.0	59	39	240	8	<5.0	250	0.26	210	9.5	-	-	170	23	23
Pond #3 (IV)	9/22/2015	**9.00**	340	760	72	16	42	2.4	69	44	180	48	<5.0	220	0.14	210	2	-	-	350	33	33
Pond #3 (IV)	3/22/2016	8.46	380	740	65	35	40	2.4	65	43	240	9.2	<5.0	250	0.18	250	8	-	-	240	8	11
Pond #3 (IV)	9/12/2016	**9.18**	350	710	74	14	41	2.4	68	42	120	67	<5.0	190	0.22	210	1	-	-	130	33	33
Pond #3 (IV)	3/15/2017	**8.51**	370	770	60	32	35	3.0	78	42	220	16	<5.0	240	0.14	220	8	-	-	23	7.8	7.8
Pond #3 (IV)	9/26/2017	**8.70**	**520**	794	73	29	50	2.9	83	42	220	37	<4.1	260	0.15	280	11	-	-	>23	NR	5.1
Pond #4	7/12/1994	**8.6**	420	600	50	36	32	2.6	71	61	210	12	ND	-	0.12	220	16	ND	ND	-	-	-
Pond #4[3]	7/14/1995	**8.7**	370	700	49	30	40	2.4	70	40	180	ND	ND	-	0.19	240	16	ND	ND	3000	13	-
Pond #4	7/2/1996	**8.6**	330	680	50	33	37	2.6	59	34	190	69	-	250	0.2	220	16	ND	ND	17	ND	-
Pond #4	9/25/1997	**8.5**	442	691	56	34	48	3	66	42	236	ND	ND	236	0.18	285	21	-	ND	220	4	-
Pond #4	4/7/1998	8.3	382	597	49	44	43	2.5	53	36	269	ND	ND	269	0.16	286	25	-	ND	8	8	-
Pond #4	9/28/1998	8.4	480	750	61	38	49	3	80	40	254	ND	ND	254	0.25	296	22	-	ND	22	4	-
Pond #4	4/28/1999	8.4	464	725	47	41	47	2.2	66	34	252	2.5	ND	255	0.24	297	22	-	ND	70	8	-
Pond #4	9/15/1999	**8.5**	477	820	60	36	48	3	69	42	270	4.5	ND	275	0.19	287	26	-	ND	110	17	-
Pond #4	2/24/2000	**8.5**	440	760	64	41	49	2.8	72	37	240	12	ND	250	0.18	300	26	-	-	8	4	-

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Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

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											Alkalinity as CaCO3									Coliform		
Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Total (MPN/100 mL)	Fecal (MPN/100 mL)	E. Coli (MPN/100 mL)
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Pond #4	9/11/2000	**8.6**	440	730	66	33	48	3.1	70	40	220	15	ND	230	0.12	280	25	-	-	70	11	-
Pond #4	5/8/2001	8.4	450	730	60	37	47	2.4	130	78	230	6.6	ND	240	0.2	290	**55**	-	-	30	ND	-
Pond #4	9/18/2001	**8.6**	440	710	65	31	51	2.7	68	42	220	18	ND	240	0.15	290	27	-	-	13	4	-
Pond #4	5/16/2002	**8.5**	450	710	63	42	47	2.7	64	41	240	12	ND	250	0.25	300	29	-	-	80	2	-
Pond #4	9/19/2002	**8.5**	450	730	68	29	54	2.8	69	43	240	17	ND	260	0.35	300	26	-	-	21	ND	-
Pond #4	4/17/2003	8.44	430	680	56	42	42	2.4	57	37	260	12	ND	270	0.15	280	26	-	-	110	2.0	2.0
Pond #4	9/17/2003	**8.56**	410	720	67	35	49	2.2	62	41	220	20	ND	240	0.27	290	27	-	-	170	8.0	2.0
Pond #4	4/13/2004	**8.52**	430	720	58	45	43	2.0	59	38	250	12	ND	260	0.21	290	30	-	-	30	ND	ND
Pond #4	9/21/2004	**8.61**	440	760	67	33	48	4.6	61	46	250	22	ND	270	0.20	280	31	-	-	500	4.0	2.0
Pond #4	4/27/2005	**8.51**	440	720	59	44	45	2.9	56	37	270	12	<5.0	290	0.18	300	29	-	-	900	50	-
Pond #4	9/13/2005	**8.53**	430	760	67	34	50	3.2	64	42	250	14	<5.0	260	0.20	290	26	-	-	80	2.0	-
Pond #4	4/3/2006	8.30	450	770	58	50	46	2.5	54	36	280	<5.0	<5.0	280	0.18	320	26	-	-	8.0	2.0	-
Pond #4	9/6/2006	8.38	450	740	63	35	49	3.1	62	42	260	6.4	<5.0	270	0.18	290	27	-	-	13	<1.8	<1.8
Pond #4	4/2/2007	7.28	470	810	67	48	53	3.1	59	43	300	<5.0	<5.0	300	0.11	340	29	-	-	79	<1.8	<1.8
Pond #4	9/12/2007	8.34	470	840	72	34	52	3.4	61	46	280	<5.0	<5.0	280	0.16	300	36	-	-	17	2.0	2.0
Pond #4	4/11/2008	8.18	420	770	61	48	45	2.9	52	39	260	<5.0	<5.0	260	0.18	300	29	-	-	17	4.5	4.5
Pond #4	9/9/2008	8.27	450	760	69	36	48	3.5	53	39	270	<5.0	<5.0	270	0.19	290	31	-	-	19	<1.8	<1.8
Pond #4	3/26/2009	8.42	410	680	53	36	36	2.5	50	38	220	13	<5.0	240	<0.10	240	25	-	-	4.5	<1.8	<1.8
Pond #4	9/8/2009	8.43	400	700	61	33	44	3.3	55	39	240	9.2	<5.0	250	0.12	260	27	-	-	14	<1.8	<1.8
Pond #4	4/28/2010	8.39	410	710	69	29	41	2.4	58	42	230	15	<5.0	240	0.13	240	19	-	-	70	<1.8	<1.8
Pond #4	9/20/2010	8.49	430	700	71	34	53	3.7	51	39	240	13	<5.0	260	0.10	300	22	-	-	27	4.0	2.0
Pond #4	3/16/2011	8.26	420	680	56	39	45	2.8	49	38	270	<5.0	<5.0	270	0.10	280	23	-	-	9.3	2.0	2.0
Pond #4	9/1/2011	8.31	380	680	74	37	52	4.2	49	38	240	22	<5.0	260	0.11	310	11	-	-	33	2.0	2.0
Pond #4	3/27/2012	8.32	420	700	53	41	38	2.9	49	35	250	7.6	<5.0	260	0.17	260	19	-	-	49	23	23
Pond #4	9/20/2012	8.21	440	680	68	43	44	3.0	47	39	260	<5.0	<5.0	260	0.21	290	31	-	-	130	<1.8	<1.8
Pond #4	3/26/2013	8.15	380	700	52	45	37	2.6	49	34	250	<5.0	<5.0	250	0.19	270	26	-	-	130	<1.8	<1.8
Pond #4	9/16/2013	8.25	360	680	62	29	35	3.4	48	37	220	<5.0	<5.0	220	0.13	220	26	-	-	7.8	<1.8	<1.8
Pond #4	3/25/2014	8.41	350	670	60	43	37	3.2	44	36	220	7.2	<5.0	230	<0.10	260	24	-	-	130	<1.8	<1.8
Pond #4	9/15/2014	**8.86**	390	690	57	22	36	2.9	51	39	170	32	<5.0	200	0.25	200	14	-	-	23	<1.8	<1.8
Pond #4	3/24/2015	8.44	380	750	47	33	31	1.8	58	38	220	10	<5.0	230	0.27	210	15	-	-	13	4.5	4.5
Pond #4	9/22/2015	8.41	370	740	56	34	37	2.3	61	40	220	14	<5.0	240	0.17	240	16	-	-	130	7.8	7.8

Table 4
Water Quality, Conventional Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	pH (standard pH-units)	TDS	EC (µS/cm)	Na	Ca	Mg	K	Cl	SO4	Alkalinity as CaCO3 HCO3	CO3	OH	Total	F	Hardness as CaCO3	NO3 as NO3	NO2 as N	MBAS	Coliform (MPN/100 mL) Total	Fecal	E. Coli
MCL[1]		*6.5/8.5*	*500*	*900*					*250*	*250*					2		45	1	*0.5*			
Pond #4	3/22/2016	8.41	370	700	54	44	39	2.4	60	39	220	5.6	<5.0	220	0.18	270	19	-	-	33	2.0	<1.8
Pond #4	9/12/2016	8.42	310	730	57	37	36	2.5	57	39	220	15	<5.0	240	0.32	240	16	-	-	23	2.0	2.0
Pond #4	3/15/2017	8.36	260	520	37	29	25	1.9	46	25	170	<5.0	<5.0	170	<0.10	180	11	-	-	23	<1.8	<1.8
Pond #4	9/26/2017	8.50	460	692	40	38	40	2.9	70	35	200	19	<4.1	220	0.20	260	14	-	-	>23	NR	<1.1

Notes:

Beginning in 2005, all non-detected (ND) values are given as "<reporting limit".

NR= Not Reported

1. Maximum Contaminant Levels in *italic font style* are secondary drinking water standards. For EC, TDS, chloride, and sulfate, the recommended (lower) values are given. Measured constituent concentrations at or exceeding the MCL are highlighted with bold font style.
2. Result of 120 mg/L is questionable, removed from table and figures.
3. Samples for coliform analyses were retrieved November 9, 1995.

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
Farnham West[2]	7/17/1995	ND	ND	ND	-	0.35	ND	ND	0.012	ND	0.034	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.09
OW-2	5/14/1992	ND	ND	ND	-	0.28	-	ND	ND	ND	0.11	ND	ND	-	ND	-	ND	-	ND	-	-
OW-2	7/12/1994	ND	0.1	ND	1.9	0.24	ND	ND	ND	ND	0.042	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
OW-4	5/14/1992	ND	ND	ND	-	0.25	-	ND	ND	ND	0.088	ND	ND	-	ND	-	ND	-	ND	-	-
OW-4	7/13/1994	ND	0.16	ND	2.4	0.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.09	-
OW-8d	7/2/1996	ND	ND	ND	-	0.29	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	-
OW-8d	9/25/1997	ND	ND	ND	-	0.34	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	4/7/1998	ND	ND	ND	-	0.36	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	0.04	-	0.2
OW-8d	9/28/1998	ND	ND	ND	-	0.34	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	4/28/1999	ND	ND	ND	-	0.39	-	ND	0.012	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.4
OW-8d	9/15/1999	ND	ND	ND	-	0.31	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.5
OW-8d	2/24/2000	-	ND	ND	-	0.31	-	ND	0.011	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	9/11/2000	-	ND	ND	-	0.33	-	ND	0.018	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	5/8/2001	-	ND	-	-	0.4	-	ND	0.01	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-8d	9/18/2001	-	ND	-	-	0.34	-	ND	0.013	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-8d	5/16/2002	-	0.05	-	-	0.3	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-8d	9/19/2002	-	ND	-	-	0.32	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-8d	4/21/2003	-	ND	ND	-	0.350	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	9/16/2003	-	ND	ND	-	0.340	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	4/12/2004	-	ND	ND	-	0.380	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	9/22/2004	-	ND	ND	-	0.320	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-8d	4/27/2005	-	<0.050	<0.0050	-	0.380	-	<0.010	0.011	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	9/12/2005	-	<0.050	<0.0050	-	0.330	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	<0.0010	<0.020	-	<0.50
OW-8d	4/25/2006	-	<0.050	<0.0050	-	0.390	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	9/6/2006	-	<0.050	<0.0050	-	0.360	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	4/3/2007	-	<0.050	<0.0050	-	0.370	-	<0.010	0.020	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	9/13/2007	-	<0.050	<0.0050	-	0.380	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	4/10/2008	-	<0.050	<0.0050	-	0.360	-	<0.010	0.015	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	9/8/2008	-	<0.050	<0.0020	-	0.340	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	3/30/2009	-	<0.050	<0.0020	-	0.310	-	<0.010	0.014	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	9/9/2009	-	<0.050	<0.0020	-	0.310	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
OW-8d	5/3/2010	-	<0.050	<0.0020	-	0.300	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	4/4/2011	-	<0.050	<0.0020	-	0.290	-	<0.010	0.016	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	4/3/2012	-	<0.050	<0.0020	-	0.350	-	<0.010	0.011	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	3/27/2013	-	<0.050	<0.0020	-	0.340	-	<0.010	0.015	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	3/26/2014	-	<0.050	<0.0020	-	0.310	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	3/24/2015	-	<0.050	<0.0020	-	0.240	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.59
OW-8d	3/22/2016	-	<0.050	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	0.15	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-8d	3/15/2017	-	<0.050	<0.0020	-	0.250	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	5/14/1992	ND	ND	ND	-	0.22	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	-
OW-9	7/12/1994	ND	ND	ND	2.2	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
OW-9[2]	7/14/1995	ND	0.06	ND	-	0.3	ND	ND	ND	ND	0.12	ND	ND	ND	ND	ND	ND	ND	0.01	ND	0.24
OW-9	7/2/1996	ND	ND	ND	-	0.33	-	ND	0.01	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	-
OW-9	2/24/2000	-	ND	ND	-	0.29	-	ND	0.01	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-9	9/11/2000	-	ND	ND	-	0.29	-	ND	0.016	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-9	5/8/2001	-	ND	-	-	0.33	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-9	9/18/2001	-	ND	-	-	0.34	-	ND	0.018	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-9	5/16/2002	-	ND	-	-	0.32	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-9	9/19/2002	-	ND	-	-	0.33	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
OW-9	4/21/2003	-	ND	ND	-	0.310	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-9	9/16/2003	-	ND	ND	-	0.330	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-9	4/12/2004	-	ND	ND	-	0.330	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-9	9/22/2004	-	ND	ND	-	0.310	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
OW-9	4/28/2005	-	<0.050	<0.0050	-	0.330	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	9/12/2005	-	<0.050	<0.0050	-	0.340	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	<0.0010	<0.020	-	<0.50
OW-9	4/25/2006	-	<0.050	<0.0050	-	0.360	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	9/7/2006	-	<0.050	<0.0050	-	0.300	-	<0.010	0.015	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	4/3/2007	-	<0.050	<0.0050	-	0.340	-	<0.010	0.015	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	9/13/2007	-	<0.050	<0.0050	-	0.310	-	<0.010	0.012	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	4/10/2008	-	<0.050	<0.0050	-	0.310	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	9/8/2008	-	<0.050	<0.0020	-	0.350	-	<0.010	0.016	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	3/30/2009	-	<0.050	<0.0020	-	0.300	-	<0.010	0.016	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	9/9/2009	-	<0.050	<0.0020	-	0.340	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	5/24/2010	-	<0.050	<0.0020	-	0.300	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
OW-9	4/4/2011	-	<0.050	<0.0020	-	0.310	-	<0.010	0.014	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	4/3/2012	-	<0.050	<0.0020	-	0.360	-	<0.010	0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	3/27/2013	-	<0.050	<0.0020	-	0.310	-	<0.010	0.024	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	3/26/2014	-	<0.050	<0.0020	-	0.300	-	<0.010	0.014	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
OW-9	3/24/2015	-	<0.050	<0.0020	-	0.240	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Well Destroyed 2015Q2																					
OW-10	9/8/2008	-	<0.050	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.6
OW-10	3/26/2009	-	0.069	<0.0020	-	0.190	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.2
OW-10	9/9/2009	-	0.063	<0.0020	-	0.170	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.7
OW-10	5/24/2010	-	0.110	<0.0020	-	0.170	-	<0.010	<0.010	<0.010	0.170	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.3
OW-10	4/4/2011	-	0.084	<0.0020	-	0.150	-	<0.010	<0.010	<0.010	0.110	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	4.3
OW-10	4/3/2012	-	<0.050	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.92
OW-10	3/27/2013	-	0.760	0.002	-	0.200	-	<0.010	0.015	<0.010	**0.830**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	17
No Access Due to Wellhead Damage																					
OW-10	3/16/2017	-	0.410	<0.0020	-	0.100	-	<0.010	0.010	<0.010	**0.550**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	4.7
OW-11	3/16/2017	-	0.350	<0.0020	-	0.260	-	<0.010	0.012	<0.010	**0.390**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	5.2
OW-11	11/1/2017	-	0.120	0.0015	-	0.300	-	<0.001	0.012	0.0016	0.10	0.000068	0.005	-	0.0001	-	0.0023	-	0.006	-	1.8
OW-12	3/15/2017	-	0.062	<0.0020	-	0.290	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.88
OW-12	11/1/2017	-	**1.2**	0.00095	-	0.290	-	<0.001	0.035	0.0042	**1.9**	0.00009	**0.054**	-	0.00064	-	0.0024	-	0.0095	-	11
OW-13	3/16/2017	-	0.069	<0.0020	-	0.110	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.2
OW-13	11/1/2017	-	0.028	<0.0020	-	0.093	-	<0.001	0.0077	0.0022	<0.050	<0.00020	0.0017	-	<0.001	-	0.0014	-	0.0036	-	0.62
Solano #1a	7/12/1994	ND	ND	ND	1.8	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Solano #1a[2]	7/17/1995	ND	ND	ND	-	0.2	ND	ND	ND	ND	0.053	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27
Solano #1a	7/2/1996	ND	ND	ND	-	0.2	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	-
Solano #1a	9/25/1997	ND	ND	ND	-	0.23	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #1a	4/7/1998	ND	ND	ND	-	0.2	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	0.02	-	0.27
Solano #1a	9/28/1998	ND	ND	ND	-	0.23	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #1a	4/28/1999	ND	ND	ND	-	0.25	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	-
Solano #1a	9/15/1999	ND	ND	ND	-	0.23	-	ND	0.01	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.6

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
Solano #1a	2/24/2000	-	ND	ND	-	0.18	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #1a	9/11/2000	-	ND	ND	-	0.21	-	ND	0.014	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #1a	5/8/2001	-	ND	-	-	0.23	-	ND	0.013	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #1a	9/18/2001	-	ND	-	-	0.23	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #1a	5/16/2002	-	ND	-	-	0.21	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #1a	9/19/2002	-	ND	-	-	0.2	-	ND	0.011	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #1a	4/17/2003	-	ND	ND	-	0.210	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #1a	9/17/2003	-	ND	ND	-	0.200	-	ND	0.016	ND	ND	ND	ND	-	ND	-	ND	-	0.022	-	ND
Solano #1a	4/13/2004	-	ND	ND	-	0.220	-	ND	ND	ND	**0.540**	ND	0.024	-	ND	-	ND	-	ND	-	ND
Solano #1a	9/21/2004	-	0.076	ND	-	0.220	-	ND	0.013	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #1a	4/27/2005	-	<0.050	<0.0050	-	0.220	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	9/13/2005	-	<0.050	<0.0050	-	0.210	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	4/3/2006	-	<0.050	<0.0050	-	0.230	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	9/7/2006	-	<0.050	<0.0050	-	0.210	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	4/2/2007	-	<0.050	<0.0050	-	0.230	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	9/12/2007	-	<0.050	<0.0050	-	0.210	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	4/11/2008	-	<0.050	<0.0050	-	0.220	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	3.0
Solano #1a	9/9/2008	-	<0.050	<0.0020	-	0.230	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/31/2009	-	<0.050	<0.0020	-	0.190	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	9/10/2009	-	<0.050	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	4/28/2010	-	<0.050	<0.0020	-	0.210	-	<0.010	0.0087	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/29/2011	-	<0.050	<0.0020	-	0.210	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/27/2012	-	<0.050	<0.0020	-	0.210	-	<0.010	0.016	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/26/2013	-	<0.050	<0.0020	-	0.200	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.00020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/25/2014	-	<0.050	<0.0020	-	0.200	-	<0.010	<0.010	<0.010	0.140	<0.00020	<0.00020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/24/2015	-	<0.050	<0.0020	-	0.180	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.00020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/22/2016	-	<0.050	<0.0020	-	0.180	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.00020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #1a	3/15/2017	-	0.054	<0.0020	-	0.180	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.00020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	10/1/1997	ND	ND	ND	-	0.35	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	4/7/1998	ND	ND	ND	-	0.32	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.4
Solano #2	9/28/1998	ND	ND	ND	-	0.34	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.13
Solano #2	4/28/1999	ND	ND	ND	-	0.35	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	0.026	-	0.4
Solano #2	9/15/1999	ND	ND	ND	-	0.26	-	ND	ND	ND	0.12	ND	ND	-	ND	-	ND	-	ND	-	1.2

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
Solano #2	2/24/2000	-	ND	ND	-	0.26	-	ND	0.011	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	9/11/2000	-	ND	ND	-	0.3	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	5/11/2001	-	ND	-	-	0.29	-	ND	0.013	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #2	9/18/2001	-	ND	-	-	0.31	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #2	5/16/2002	-	ND	-	-	0.32	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #2	9/19/2002	-	ND	-	-	0.28	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Solano #2	4/17/2003	-	ND	ND	-	0.310	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	9/17/2003	-	ND	ND	-	0.300	-	ND	0.015	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	4/13/2004	-	ND	ND	-	0.320	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	9/21/2004	-	0.052	ND	-	0.320	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Solano #2	4/28/2005	-	<0.050	<0.0050	-	0.320	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	9/13/2005	-	<0.050	<0.0050	-	0.290	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	4/25/2006	-	<0.050	<0.0050	-	0.360	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	9/6/2006	-	<0.050	<0.0050	-	0.300	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.2
Solano #2	4/3/2007	-	<0.050	<0.0050	-	0.330	-	<0.010	0.017	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.56
Solano #2	9/12/2007	-	<0.050	<0.0050	-	0.260	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	4/10/2008	-	<0.050	<0.0050	-	0.290	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	9/22/2008	-	0.058	<0.0020		0.270	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	3/26/2009	-	<0.050	<0.0020	-	0.240	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	9/10/2009	-	<0.050	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	4/28/2010	-	<0.050	<0.0020	-	0.220	-	<0.010	0.006	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.75
Solano #2	3/29/2011	-	<0.050	<0.0020	-	0.210	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.5
Solano #2	3/27/2012	-	<0.050	<0.0020	-	0.290	-	<0.010	0.016	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	3/26/2013	-	<0.050	<0.0020	-	0.270	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	3/25/2014	-	<0.050	<0.0020	-	0.190	-	<0.010	<0.010	<0.0020	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	3/24/2015	-	<0.050	<0.0020	-	0.190	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Solano #2	3/22/2016	-	0.890	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	**1.600**	<0.00020	0.030	-	<0.0050	-	<0.0050	-	<0.020	-	3.2
Solano #2	3/15/2017	-	0.220	<0.0020	-	0.220	-	<0.010	<0.010	<0.010	**0.350**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.57
Pond #2	5/14/1992	ND	ND	ND	-	0.12	-	ND	0.017	ND	**4.7**	ND	**0.096**	-	ND	-	ND	-	ND	-	-
Pond #3 (III)	4/11/2008	-	<0.050	<0.0050	-	0.180	-	<0.010	0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Pond #3 (III)	9/9/2008	-	<0.050	0.0026	-	0.120	-	<0.010	0.012	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.4
Pond #3 (III)	3/31/2009	-	<0.050	<0.0020	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.72

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(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
Pond #3 (III)	9/8/2009	-	<0.050	0.0029	-	0.074	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.59
Pond #3 (III)	4/28/2010	-	<0.050	<0.0020	-	0.170	-	<0.010	0.0045	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.7
Pond #3 (III)	9/20/2010	-	<0.050	<0.0020	-	0.120	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	<0.50
Pond #3 (III)	3/16/2011	-	<0.050	0.0020	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.6
Pond #3 (III)	9/1/2011	-	<0.050	0.0022	-	0.110	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.5
Pond #3 (III)	3/27/2012	-	<0.050	<0.0020	-	0.180	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.74
Pond #3 (III)	9/20/2012	-	0.088	0.0031	-	0.130	-	<0.010	0.013	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.010	-	3.2
Pond #3 (III)	3/26/2013	-	0.050	0.0022	-	0.190	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.6
Pond #3 (III)	9/16/2013	-	0.056	0.003	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	3.7
Pond #3 (III)	3/25/2014	-	0.110	<0.002	-	0.130	-	<0.010	<0.010	<0.0020	0.110	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.0
Pond #3 (III)	9/15/2014	-	<0.050	0.0039	-	0.100	-	<0.010	<0.010	<0.010	0.170	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.0
Pond #3 (III)	3/24/2015	-	<0.050	<0.002	-	0.120	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.2
Pond #3 (III)	9/22/2015	-	0.480	0.0039	-	0.097	-	<0.010	<0.010	<0.010	**0.770**	<0.00020	0.026	-	<0.0050	-	<0.0050	-	<0.020	-	4.9
Pond #3 (III)	3/22/2016	-	0.190	0.0026	-	0.150	-	<0.010	<0.010	<0.010	**0.310**	<0.00020	0.036	-	<0.0050	-	<0.0050	-	<0.020	-	3.6
Pond #3 (III)	9/12/2016	-	<0.050	0.0043	-	0.063	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.7
Pond #3 (III)	3/15/2017	-	0.057	<0.0020	-	0.110	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.0
Pond #3 (III)	9/26/2017	-	0.018 J	0.0020	-	0.120	-	<0.001	0.0026 J	0.0012 J	0.048 J	<0.00020	0.011	-	<0.0010	-	0.0012 J	-	0.0021 J	-	2.0
Pond #3 (IV)	9/9/2008	-	<0.050	0.0042	-	0.110	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.8
Pond #3 (IV)	3/31/2009	-	0.130	<0.0020	-	0.130	-	<0.010	<0.010	<0.010	0.160	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	5.0
Pond #3 (IV)	9/8/2009	-	0.220	0.003	-	0.100	-	<0.010	<0.010	<0.010	**0.370**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	**17**
Pond #3 (IV)	4/28/2010	-	0.230	<0.0020	-	0.130	-	<0.010	0.0043	<0.010	**0.330**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.3
Pond #3 (IV)	9/20/2010	-	0.080	0.0022	-	0.110	-	<0.010	<0.010	<0.010	0.110	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.9
Pond #3 (IV)	3/16/2011	-	0.088	<0.020	-	0.130	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.9
Pond #3 (IV)	9/1/2011	-	0.083	0.0025	-	0.100	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.9
Pond #3 (IV)	3/27/2012	-	<0.050	<0.0020	-	0.170	-	<0.010	<0.010	<0.010	0.250	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	**8.1**
Pond #3 (IV)	9/20/2012	-	0.170	0.0027	-	0.130	-	<0.010	<0.010	<0.010	0.240	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.010	-	**6.1**
Pond #3 (IV)	3/26/2013	-	<0.050	0.0024	-	0.110	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.95
Pond #3 (IV)	9/16/2013	-	<0.050	0.0035	-	0.130	-	<0.010	<0.010	0.012	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.30
Pond #3 (IV)	3/25/2014	-	<0.050	0.0025	-	0.170	-	<0.010	<0.010	<0.002	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	4.5
Pond #3 (IV)	9/15/2014	-	<0.050	0.0039	-	0.098	-	<0.010	<0.010	<0.010	0.21	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	**5.7**
Pond #3 (IV)	3/24/2015	-	0.110	0.0024	-	0.110	-	<0.010	<0.010	<0.010	0.140	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.6
Pond #3 (IV)	9/22/2015	-	0.270	0.0045	-	0.074	-	<0.010	<0.010	<0.010	**0.450**	<0.00020	0.022	-	<0.0050	-	<0.0050	-	<0.020	-	7.1
Pond #3 (IV)	3/22/2016	-	0.097	0.0026	-	0.130	-	<0.010	<0.010	<0.010	0.130	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.2

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
Pond #3 (IV)	9/12/2016	-	0.062	0.0043	-	0.052	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.9
Pond #3 (IV)	3/15/2017	-	0.250	<0.002	-	0.100	-	<0.010	<0.010	<0.010	**0.310**	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	4.5
Pond #3 (IV)	9/26/2017	-	0.058	0.0028	-	0.120	-	<0.001	0.0027 J	0.0011 J	0.13	<0.00020	0.014	-	<0.001	-	0.0012 J	-	0.0022 J	-	1.0
Pond #4	7/12/1994	ND	0.33	ND	2.2	0.13	ND	ND	ND	ND	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Pond #4[2]	7/14/1995	ND	0.18	ND	-	0.12	ND	ND	ND	ND	0.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8
Pond #4	7/2/1996	ND	0.34	ND	-	0.12	-	ND	ND	ND	**0.45**	ND	0.0087	-	ND	-	ND	-	ND	-	-
Pond #4	9/25/1997	ND	ND	ND	-	0.14	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.55
Pond #4	4/7/1998	ND	0.11	ND	-	0.12	-	ND	ND	ND	0.13	ND	ND	-	ND	-	ND	-	0.06	-	4.5
Pond #4	9/28/1998	ND	0.07	ND	-	0.16	-	ND	ND	ND	0.11	ND	ND	-	ND	-	ND	-	ND	-	3.3
Pond #4	4/28/1999	ND	0.12	ND	-	0.1	-	ND	ND	ND	0.16	ND	0.026	-	ND	-	ND	-	ND	-	3.4
Pond #4	9/15/1999	ND	0.062	ND	-	0.15	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	**6.5**
Pond #4	2/24/2000	-	ND	ND	-	0.1	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	0.5
Pond #4	9/11/2000	-	0.089	ND	-	0.11	-	ND	ND	ND	0.11	ND	0.013	-	ND	-	ND	-	ND	-	**5.5**
Pond #4	5/8/2001	-	ND	-	-	0.12	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	0.8
Pond #4	9/18/2001	-	ND	-	-	0.1	-	ND	0.01	ND	0.12	ND	ND	-	ND	ND	ND	-	ND	-	0.52
Pond #4	5/16/2002	-	ND	-	-	0.11	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	ND
Pond #4	9/19/2002	-	ND	-	-	0.097	-	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	-	ND	-	0.55
Pond #4	4/17/2003	-	ND	ND	-	0.110	-	ND	ND	ND	0.180	ND	ND	-	ND	-	ND	-	ND	-	0.52
Pond #4	9/17/2003	-	ND	ND	-	0.095	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	ND
Pond #4	4/13/2004	-	0.056	ND	-	0.120	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	**6.6**
Pond #4	9/21/2004	-	0.076	ND	-	0.110	-	ND	ND	ND	ND	ND	ND	-	ND	-	ND	-	ND	-	1.7
Pond #4	4/27/2005	-	<0.050	<0.0050	-	0.110	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.89
Pond #4	9/13/2005	-	<0.050	<0.0050	-	0.100	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.1
Pond #4	4/3/2006	-	<0.050	<0.0050	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	3.8
Pond #4	9/6/2006	-	<0.050	<0.0050	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.65
Pond #4	4/2/2007	-	<0.050	<0.0050	-	0.170	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.75
Pond #4	9/12/2007	-	<0.050	<0.0050	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.78
Pond #4	4/11/2008	-	0.073	<0.0050	-	0.160	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	3.6
Pond #4	9/9/2008	-	<0.050	0.0021	-	0.150	-	<0.010	0.017	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.6
Pond #4	3/26/2009	-	0.065	<0.0020	-	0.150	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.8
Pond #4	9/8/2009	-	<0.050	<0.0020	-	0.130	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.9
Pond #4	4/28/2010	-	0.220	0.0025	-	0.110	-	<0.010	0.004	<0.010	0.300	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	**8.0**
Pond #4	9/20/2010	-	<0.050	<0.0020	-	0.140	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.81

Table 5
Water Quality, Inorganic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in mg/L, unless otherwise specified)

Sampling Point	Date	Ag	Al	As	B	Ba	Be	Cd	Cr	Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Tl	Zn	CN	Turbidity (NTU)
MCL[1]		*0.1*	1	0.05		1	0.004	0.005	0.05	*1*	*0.3*	0.002	*0.05*	0.1	0.05	0.006	0.05	0.002	*5*	0.15	*5*
Pond #4	3/16/2011	-	<0.050	<0.0020	-	0.150	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	0.62
Pond #4	9/1/2011	-	<0.050	0.0024	-	0.160	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.1
Pond #4	3/27/2012	-	0.085	<0.0020	-	0.130	-	<0.010	0.015	<0.010	0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	3.2
Pond #4	9/20/2012	-	0.093	0.003	-	0.150	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.010	-	2.1
Pond #4	3/26/2013	-	0.097	<0.0020	-	0.160	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.010	-	3.5
Pond #4	9/16/2013	-	0.082	0.002	-	0.140	-	<0.010	<0.010	0.012	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.2
Pond #4	3/25/2014	-	<0.050	<0.0020	-	0.220	-	<0.010	<0.010	<0.0020	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.1
Pond #4	9/15/2014	-	<0.050	0.0023	-	0.100	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.3
Pond #4	3/24/2015	-	0.074	<0.0020	-	0.092	-	<0.010	<0.010	<0.010	<0.100	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	2.1
Pond #4	9/22/2015	-	0.110	<0.0020	-	0.110	-	<0.010	<0.010	<0.010	0.200	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.8
Pond #4	3/22/2016	-	0.130	<0.0020	-	0.110	-	<0.010	<0.010	<0.010	0.190	0.00056	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.9
Pond #4	9/12/2016	-	0.190	<0.0020	-	0.086	-	<0.010	<0.010	<0.010	0.200	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	3.9
Pond #4	3/15/2017	-	0.110	<0.0020	-	0.070	-	<0.010	<0.010	<0.010	0.110	<0.00020	<0.020	-	<0.0050	-	<0.0050	-	<0.020	-	1.7
Pond #4	9/26/2017	-	0.068	0.0020	-	0.120	-	<0.0010	0.0036	0.0010 J	0.110	<0.00020	0.0074	-	<0.001	-	0.0010 J	-	<0.010	-	3.2

Notes:

Beginning in 2005, all non-detected (ND) values are given as "<reporting limit".

1. Maximum Contaminant Levels in *italic font style* are secondary, i.e., non-enforceable drinking water standards. For EC, TDS, chloride, and sulfate, the recommended (lower) values are given. Measured constituent concentrations at or exceeding the MCL are highlighted with bold font style.
2. Samples for turbidity analysis were retrieved November 9, 1995.

J= Reported result is an estimate. Result is less than Practical Quantitative Limit (PQL) but greater than or equal to the Method Detection Limit (MDL).

Table 6
Water Quality, Organic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in µg/L)

Sampling Point	Date	VOC's[1] EPA 502.2	VOC's EPA 601	PAH[2] EPA 8310	EPA 8141A[3]	EPA 8151A[4]	TPH-Gasoline EPA 8015	TPH-Diesel EPA 8015	TPH-Motor Oil EPA 8015	MTBE EPA 8020/602	BTEX[5] EPA 8260B
Farnham West[6]	7/17/1995	-	-	-	ND	ND	ND	ND	ND	-	ND
OW-2	5/14/1992	ND	-	-	-	-	-	-	-	-	-
OW-2	7/12/1994	-	ND	-	-	-	-	-	-	-	-
OW-4	5/14/1992	ND	-	-	-	-	-	-	-	-	-
OW-4	7/13/1994	-	ND	-	-	-	-	-	-	-	-
OW-8d	7/2/1996	-	-	-	ND	ND	-	ND	ND	ND	ND
OW-8d	9/25/1997	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	4/7/1998	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/28/1998	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	4/28/1999	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/15/1999	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	2/24/2000	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/11/2000	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	5/8/2001	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/18/2001	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	5/16/2002	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/19/2002	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	4/21/2003	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/16/2003	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	4/12/2004	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	9/22/2004	-	-	-	ND	ND	-	ND	ND	-	ND
OW-8d	4/27/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
OW-8d	9/12/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
OW-8d	4/25/2006	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
OW-8d	9/6/2006	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	4/3/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	9/13/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	4/10/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	9/8/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	3/30/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	9/9/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	0.52[6]
OW-8d	5/3/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	4/4/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	4/3/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	3/27/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	3/26/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	3/24/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<10	<10	-	<0.50 - <1.0
OW-8d	3/22/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-8d	3/15/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	5/14/1992	ND	-	-	-	-	-	-	-	-	-
OW-9	7/12/1994	-	ND	-	-	-	-	-	-	-	-
OW-9[7]	7/14/1995	-	-	ND	ND	ND	ND	ND	ND	-	ND
OW-9	7/2/1996	-	-	-	ND	ND	-	ND	ND	ND	ND
OW-9	2/24/2000	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	9/11/2000	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	5/8/2001	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	9/18/2001	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	5/16/2002	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	9/19/2002	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	4/21/2003	-	-	-	ND	ND	-	ND	ND	-	ND

Table 6
Water Quality, Organic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in µg/L)

Sampling Point	Date	VOC's[1] EPA 502.2	VOC's EPA 601	PAH[2] EPA 8310	EPA 8141A[3]	EPA 8151A[4]	TPH-Gasoline EPA 8015	TPH-Diesel EPA 8015	TPH-Motor Oil EPA 8015	MTBE EPA 8020/602	BTEX[5] EPA 8260B
OW-9	9/16/2003	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	4/12/2004	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	9/22/2004	-	-	-	ND	ND	-	ND	ND	-	ND
OW-9	4/28/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
OW-9	9/12/2005	-	-	-	<0.3 - <5	<0.13 - <0.25		<50	<100	-	<0.50
OW-9	4/25/2006	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
OW-9	9/7/2006	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	4/3/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	9/13/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	4/10/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	9/8/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	3/30/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	9/9/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	5/24/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	4/4/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	4/3/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	3/27/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	3/26/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-9	3/24/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<10	<10	-	<0.50 - <1.0
Well Destroyed 2015Q2											
OW-10	9/8/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-10	3/26/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-10	9/9/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-10	5/24/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-10	4/4/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-10	4/3/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-10	3/27/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
No Access Due to Wellhead Damage											
OW-10	3/16/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-11	3/16/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-11	11/1/2017	-	-	-	<0.20	<0.05 - <10	-	<200	<500	-	<0.50 - <1.0
OW-12	3/15/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-12	11/1/2017	-	-	-	<0.20	<0.05 - <10	-	<200	<500	-	<0.50 - <1.0
OW-13	3/16/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
OW-13	11/1/2017	-	-	-	<0.20	<0.05 - <10	-	<200	<500	-	<0.50 - <1.0
Solano #1a	7/12/1994	-	ND	-	-	-	-	-	-	-	-
Solano #1a[7]	7/17/1995	-	-	-	ND	ND	ND	ND	ND	-	ND
Solano #1a	7/2/1996	-	-	-	ND	ND	-	ND	ND	ND	ND
Solano #1a	9/25/1997	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	4/7/1998	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	9/28/1998	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	4/28/1999	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	9/15/1999	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	2/24/2000	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	9/11/2000	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	5/8/2001	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	9/18/2001	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	5/16/2002	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	9/19/2002	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	4/17/2003	-	-	-	ND	ND	-	ND	ND	-	ND

Table 6
Water Quality, Organic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA
(all units in µg/L)

Sampling Point	Date	VOC's[1] EPA 502.2	VOC's EPA 601	PAH[2] EPA 8310	EPA 8141A[3]	EPA 8151A[4]	TPH-Gasoline EPA 8015	TPH-Diesel EPA 8015	TPH-Motor Oil EPA 8015	MTBE EPA 8020/602	BTEX[5] EPA 8260B
Solano #1a	9/17/2003	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	4/13/2004	-	-	-	ND	ND	-	58[8]	ND	-	ND
Solano #1a	9/21/2004	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #1a	4/27/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Solano #1a	9/13/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Solano #1a	4/3/2006	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Solano #1a	9/7/2006	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	4/2/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	9/12/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	4/11/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	9/9/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/31/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	9/10/2009	-	-	-	<0.05 - <0.1	<0.2 - <250		<50	<50		<0.50 - <1.0
Solano #1a	4/28/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/29/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/27/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/26/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/25/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/24/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<10	<10	-	<0.50 - <1.0
Solano #1a	3/22/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #1a	3/15/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	10/1/1997	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	4/7/1998	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/28/1998	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	4/28/1999	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/15/1999	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	2/24/2000	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/11/2000	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	5/11/2001	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/18/2001	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	5/16/2002	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/19/2002	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	4/17/2003	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/17/2003	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	4/13/2004	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	9/21/2004	-	-	-	ND	ND	-	ND	ND	-	ND
Solano #2	4/28/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Solano #2	9/13/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Solano #2	4/25/2006	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Solano #2	9/6/2006	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	4/3/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	9/12/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	4/10/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	9/22/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	3/26/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	9/10/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	4/28/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	3/29/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	3/27/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	3/26/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	3/25/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Solano #2	3/24/2015	-	-	-	<0.05 - <0.1	<0.22-<280	-	<10	<10	-	<0.50 - <1.0
Solano #2	3/22/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0

Table 6
Water Quality, Organic Constituents
CEMEX - Cache Creek Mine, Yolo County, CA

(all units in µg/L)

Sampling Point	Date	VOC's[1] EPA 502.2	VOC's EPA 601	PAH[2] EPA 8310	EPA 8141A[3]	EPA 8151A[4]	TPH-Gasoline EPA 8015	TPH-Diesel EPA 8015	TPH-Motor Oil EPA 8015	MTBE EPA 8020/602	BTEX[5] EPA 8260B
Solano #2	3/15/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #2	5/14/1992	ND	-	-	-	-	-	-	-	-	-
Pond #3 (III)	4/11/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/9/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/31/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/8/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	4/28/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/20/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/16/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/1/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/27/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/20/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/26/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/16/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/25/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/15/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/24/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<10	<10	-	<0.50 - <1.0
Pond #3 (III)	9/22/2015	-	-	-	<0.06 - <0.12	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	3/22/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/12/2016	-	-	-	<0.06 - <0.11	<0.23 - <290	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/26/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (III)	9/26/2017	-	-	-	<0.20	<0.05 - <10	-	<200	<500	-	<0.50 - <1.0
Pond #3 (IV)	9/9/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/31/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/8/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	4/28/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/20/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/16/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/1/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/27/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/20/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/26/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/16/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/25/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/15/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/24/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<10	<10	-	<0.50 - <1.0
Pond #3 (IV)	9/22/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/22/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/12/2016	-	-	-	<0.06 - <0.11	<0.24 - <300	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	3/15/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #3 (IV)	9/26/2017	-	-	-	<0.20	<0.05 - <10	-	<200	<500	-	<0.50 - <1.0
Pond #4	7/12/1994	-	ND	-	-	-	-	-	-	-	-
Pond #4[7]	7/14/1995	-	-	ND	ND	ND	ND	ND	ND	-	ND
Pond #4	7/2/1996	-	-	-	ND	ND	-	ND	ND	ND	ND
Pond #4	9/25/1997	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	4/7/1998	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	9/28/1998	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	4/28/1999	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	9/15/1999	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	2/24/2000	-	-	-	ND	ND	-	ND	ND	-	ND

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Sampling Point	Date	VOC's[1] EPA 502.2	VOC's EPA 601	PAH[2] EPA 8310	EPA 8141A[3]	EPA 8151A[4]	TPH-Gasoline EPA 8015	TPH-Diesel EPA 8015	TPH-Motor Oil EPA 8015	MTBE EPA 8020/602	BTEX[5] EPA 8260B
Pond #4	9/11/2000	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	5/8/2001	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	9/18/2001	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	5/16/2002	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	9/19/2002	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	4/17/2003	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	9/17/2003	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	4/13/2004	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	9/21/2004	-	-	-	ND	ND	-	ND	ND	-	ND
Pond #4	4/27/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Pond #4	9/13/2005	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50 (0.74)[9]
Pond #4	4/3/2006	-	-	-	<0.3 - <5	<0.13 - <0.25	-	<50	<100	-	<0.50
Pond #4	9/6/2006	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	4/2/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/12/2007	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	4/11/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/9/2008	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/26/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/8/2009	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	4/28/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/20/2010	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/16/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/1/2011	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/27/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/20/2012	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/26/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/16/2013	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/25/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/15/2014	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/24/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<10	<10	-	<0.50 - <1.0
Pond #4	9/22/2015	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/22/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/12/2016	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	3/15/2017	-	-	-	<0.05 - <0.1	<0.2 - <250	-	<50	<50	-	<0.50 - <1.0
Pond #4	9/26/2017	-	-	-	<0.20	<0.05 - <10	-	<200	<500	-	<0.50 - <1.0

Notes:

Beginning in 2005, all non-detected (ND) values are given as "<reporting limit".

1. Includes BTEX.
2. Polynuclear Aromatic Hydrocarbons.
3. Organophosphorus Pesticides, EPA 8141A (previously EPA 8140).
4. Organochlorine Herbicides, EPA 8151A (previously EPA 8150).
5. Benzene, toluene, ethylbenzene, and total xylenes, EPA 8260B (previously EPA 8020).
6. Benzene was detected slightly above the reporting limit (I.e., 0.50 µg/L) at 0.52 µg/L. Benzene analysis was re-run and nondetect in spare sample volume (personal communication between Till Angermann [LSCE] and Alison Burkett [CLS] October 2, 2009).
7. Samples for turbidity analysis were retrieved November 9, 1995.
8. Suspected biogenic source (not petroleum).
9. Toluene was reported at a concentration slightly above the detection limit at 0.74 µg/L. Neither toluene nor any of the other BTEX constituents were detected in a follow-up sample retrieved September 30, 2005.

Attachments

Attachment 1	Groundwater Hydrology Reports- Verne Scott 1993/1994
Attachment 2	Request for Information on Wells Within 1,000 Feet of Limits of Wet Pit Mining
Attachment 3	Groundwater Elevation Hydrographs
Attachment 4	Contours of Equal Groundwater Elevation, CEMEX Madison 2008-2016

Attachment 1

Groundwater Hydrology Reports- Verne Scott 1993/1994

GROUNDWATER HYDROLOGY REPORT FOR SOLANO CONCRETE MADISON PLANT YOLO COUNTY, CALIFORNIA*

As part of its planning for the future mining of gravel off-channel, Solano Concrete Company (Company) initiated a Groundwater Plan for the Solano Concrete Madison Plant in February 1990 that would provide information necessary for making applications for additional mining of gravel on its property.

OVERALL GOAL

The major goal of the Groundwater Plan is to determine if there is any adverse effect on storage, movement, or quality of groundwater by current or future mining activities by the Company at its Madison Plant in Yolo County, and if so, what can be done to ameliorate the adverse conditions.

OBJECTIVES

The Plan has several objectives as follows:

(1) Defining the underground stratigraphy.

(2) Determining groundwater elevations, changes, movement, and quality.

(3) Establishing a groundwater monitoring system and making systematic measurements and relating these measurements to the regional and local groundwater hydrology.

(4) Determining the influence of on-site gravel mining and ground surface activities on groundwater storage, movement and quality.

(5) Mitigating any existing adverse impacts.

(6) Assessing the influence of reclamation options on groundwater hydrology.

BACKGROUND INFORMATION

A number of sources were used as background information. These included groundwater studies of Yolo and surrounding counties, water level reports by the Yolo County Flood Control and Water Conservation District and the California Department of Water Resources, logs and discharge of water wells and test bore logs on Solano Concrete Company properties, and logs of wells on property in the immediate vicinity of the Madison Plant.

*By Verne H. Scott, Ph.D., Water Resources Consultant.

In addition, the Company took a number of important actions, such as: boring test holes; conducting pump tests of its production wells; measuring production well water levels; sampling and analyzing groundwater quality; examining pit excavations and pumping conducted by the Company; and reviewing ground level activities pertaining to waste disposal and underground monitoring of storage tanks.

Background information was also available in the reports of the County's Gravel Mining Task Force and of its consultant Dames and Moore.

The DEIR Report prepared by Dames and Moore (May 1991) provided important background information including data on regional groundwater levels beginning in 1970.

Finally, workshops held by the Yolo County Planning Department in May and June of 1992 provided additional data and information.

PRODUCTION WELLS

The Company has a program of monthly water level measurements in production wells beginning in 1973. Two wells (Solano 1 and Snyder) are on and two wells (Hayes 1 and 2) are off Company property (Figure 1). In 1979 an additional production well (Solano 2) was added to the measurement program. The measurements are on a consecutive monthly basis, except for the entire year of 1980 when all records were lost.

TEST HOLES

The Company contracted to have 143 test hole borings distributed over the Company's parcels of land in the vicinity of its Madison Plant for the purpose of defining the underground stratigraphy (see Figure 2). The depth of the holes varied depending on the type of material encountered.

OBSERVATION WELLS

The Solano Concrete Company undertook to drill twelve Observation Wells during May and June of 1990. These wells were located at strategic sites on the property in order to more adequately define the underground stratigraphy and the water level in shallow and deep aquifers under the Madison Plant property. The wells were drilled by Cache Creek Drilling Company. They are located on Figure 2.

The Observation Wells included four pairs of shallow and deep wells (Numbers 1 S&D, 6 S&D, 7 S&D, 8 S&D) and four deep wells (Numbers 2, 3, 4, 9). The purpose of the paired shallow and deep wells was to distinguish water level variations in the shallow and deep sand and gravels.

All of the Observation Wells were carefully logged, cased and sealed with blank casing from the surface down 20 feet and then perforated in sections opposite sand and gravel aquifers.

Sand and rock samples were taken at incremental depths using a coring device. These samples were put through a sieve analysis in order to determine the various fractions of sand and gravel.

Water level measurements in these wells was initiated on October 5, 1990 and maintained on a monthly schedule. In addition other production wells measured monthly included: two wells on the Madison Plant property, Hayes Wells 1 and 2, which are north of the property, and the Snyder Well, which is south and east. Some of these wells have been measured beginning in 1973.

Two Observation Wells were installed in the channel of Cache Creek for the purpose of measuring water level elevations in the Creek and correlating these with the levels in the observation wells. Measurements were taken in the Creek Observation Wells on a monthly basis and augmented by daily measurements during those periods when the Creek had flow, namely, March 25 through April 5, 1991, January 6-14, 1992 and February 1-20, 1992.

REGIONAL GROUNDWATER ELEVATIONS

Groundwater elevation measurements have been made on Yolo County wells by several agencies, including the California Department of Water Resources, Yolo County Flood Control and Water Conservation District and the University of California, over a relatively long period of time.

These measurements provide a valuable source of information that can be used to examine the short and long term local and regional groundwater hydrology of the area.

GROUND SURFACE ACTIVITIES

Since surface activities, such as the storage and use of petroleum products, disposal of wastes, and runoff water, etc., can be sources of groundwater pollution, the Company's Groundwater Plan included a review of past, present and future activities, and a plan for eliminating any adverse impacts on groundwater quality.

DATA

Underground Geologic Stratigraphy: Field logs of 143 test hole borings, irrigation wells, and the 12 observation wells provided excellent information upon which the underground geologic stratigraphy could be level of groundwater elevations following the construction of the Indian Valley Dam which improved the yield of Cache Creek; and (4) the cyclic changes in high and low elevations on an annual basis.

The hydrographs of three production wells on the Company's property for the period of 1973-93 (Figure 10) show a remarkably similar pattern to the pattern for the regional wells.

Ground Surface Activities: A review of past and current activities involving potential sources of groundwater pollution was achieved by field observations, review of operational notes and conversations and field inspection with management personnel.

Potential problems examined included: underground storage tanks, above ground storage of gasoline, diesel fuel, motor oil and lubricants, and asphalt emulsion; filling and draining processes for all products; spill prevention and response procedures; storage and disposal of hazardous wastes; and septic tank locations and operation.

Two underground storage tanks were removed in 1990 in accordance with Yolo County requirements and inspection. One tank had been used for diesel oil and the other for gasoline. There was no evidence of any leakage.

Two new diesel tanks have been installed, one underground in 1988 and the other above ground in May 1990. The 12,000 gallon underground tank is a steel and fiberglass, double walled tank with automatic leak and overflow detection devices. The 10,000 gallon surface storage diesel tank is contained by an oversized concrete tank with a controlled spill outlet.

Two 20,000 gallon asphalt tanks, which require no containment, have daily inventory control.

A biodegradable, water based fluid has replaced diesel oil as the pre-surfacing fluid applied to asphalt trucks. This drinkable fluid is contained in tanks on the ground surface.

Oil changes and grease operations are performed in a limited area on a concrete pad and there is no surface evidence of spills. When minor spills have occurred, spoilage sand is distributed over the area to absorb the spill and then returned to the asphalt supply pile for normal processing.

Waste petroleum products are stored temporarily in a tank with secondary containment which is emptied periodically and the fluid hauled off-site to a designated waste site.

Miscellaneous wastes are collected in a storage bin and hauled off-site weekly.

Two septic tanks installed when the Madison Plant was constructed have functioned without difficulty.

Well water used to fill portable water tanks occasionally spills, but is contained in a pipe line that discharges into Pit II.

Similarly, waste water from the rock plant is collected, and conveyed in the same pipeline to Pit II.

Two improvements recently completed, which will insure no pollution of groundwater, include: (1) construction of facilities to store and contain all other hazardous materials and wastes, and (2) a surface and storm water drainage plan. The latter includes construction of a berm around the perimeter of the Madison Plant yard and along the haul road adjacent to the Creek.

Water Quality: In order to compare the quality of the groundwater and the gravel plant water, wash samples were taken on March 15, 1990 and March 17, 1992 from the rock plant production well and from the plant wash water. The analysis, provided by Ken Aoyama, Consulting Agronomist, is given in Table 1.

On May 14, 1992 samples were taken in Observation Wells 2, 4 and 9, and Pit II and analyzed for minerals, inorganic constituents and volatile halogenated organics. A summary of the May 1992 analysis, provided by Chemwest Analytical Laboratory, is given in Table 2.

Pit Pumping: From May 11-29, 1992, water was pumped from Pit Number III and delivered to five acres of reclaimed land adjacent to that pit. Detail measurements included the rate of pumping, the total hours, and the net loss or gain in water level elevation on a daily basis.

RESULTS

Underground Geologic Stratigraphy: In general, the geologic stratigraphy is relatively complex. Beneath the parcels east of the Madison Plant site, thick continuous sands and gravel occur from near the surface to a depth of about 70-80 feet along Cache Creek. Below these deposits of gravel is a clay unit referred to in some logs as the "bottom clay". Moving southward away from the Creek, the sands and gravels are split in some areas by an intervening clay bed of varying thickness. This clay is termed the "middle clay" between the overlying upper sand and gravel and the underlying sand and gravel aquifers. Where this "middle clay" layer exists, it creates a perched water table in the upper sand and gravels. The top of the middle clay occurs at a depth of about 25-45 feet and has a thickness of 1-15 feet. This clay layer is not continuous over the entire site area. It tends to pinch out in places allowing the upper and lower sands and gravels to become one aquifer. The upper sand and gravel is overlain by fine grain top soil of about 2-15 feet. The upper sand and gravel is about 10-20 feet thick.

Where the middle clay layer exists, the top of the lower sand and gravel is from 30 to 45 feet below the ground surface and ranges from 30-50 feet or more in thickness. In areas where the middle clay does not exist, the lower sand and gravel extends to depths greater than 75 feet and has a thickness of 50 to 65 feet. Test holes drilled on the floor of Pit III indicate that the lower sand and gravel reaches thicknesses of 60 feet or more.

In addition, well logs of production wells on the Madison Plant site, north of Cache Creek and south of Hwy. 16, were examined and provided additional evidence of the upper perched sand and gravel layer and the lower sand and gravel layer separated by the middle clay lens.

The combination of these upper and lower sand and gravel layers is identified regionally as a shallow unconfined aquifer which exists in addition to a semi-confined intermediate aquifer (80-200 feet), and the deep confined aquifers (below 200 feet)

<u>Local Groundwater Elevations</u>: The monthly observation of groundwater elevations the Observation Wells and six nearby production wells over the period from October 15, 1990 to March 15, 1993 provided data which clearly showed a difference in water levels of the upper and lower sand and gravel layers, i.e., the shallow unconfined aquifer during drought years.

In general, the water levels encountered in the shallow unconfined aquifer corresponded to water levels recorded during the 1976-1977 drought years.

The water levels in the shallow sands and gravels are higher than in the deeper sands and gravels during the winter months. They decline in the spring and maintain a fairly constant level during the summer, and rebound in the winter in response to winter rains and flow from the Creek. This demonstrates that the groundwater in the upper sands and gravels drains downward or flows to the southeast. Further, the upper sands and gravels are generally dry during the summer months. In contrast, the water level in the lower sands and gravels responds to regional pumping. During intensive regional pumping for agricultural irrigation purposes in February 1991, the water levels dropped dramatically, rebounding during March and April, and then dropping to lower levels during the irrigation season from May until September.

The water levels in the shallow unconfined aquifer also correlate directly with water levels in the Creek showing a quick response to flow in the Creek. Therefore, there is a direct hydrologic connection between the Creek and this aquifer.

The water levels in the shallow unconfined aquifer confirmed a hydraulic gradient from northwest to southeast. At certain times of the year the gradient was more north to south.

In general the hydraulic gradient under the Solano Concrete property to the south and southeast will vary depending on the water elevation in the Creek and on local and regional groundwater elevations which respond to pumping.

At times each year there will be a small hydraulic gradient between the Creek and the open water ponds and between the individual ponds. This gradient will essentially disappear in the spring and summer as the ponds adjust to the control of the groundwater elevation in the most south-easterly pond. The magnitude of the hydraulic gradient at any time is not expected to create groundwater velocities that will cause piping through the Creek levee or through the levees between the ponds. Continuous monitoring of groundwater elevations is essential.

The water levels in the four production wells, which were monitored, showed the typical seasonal drawdown during the agricultural irrigation season and returned to normal higher levels during the winter.

Regional Groundwater Elevations: The hydrographs of 31 and 34 irrigation wells for the period of 1970-88 in the Hungry Hallow and Esparto areas, respectively, were analyzed with reference to: (1) precipitation and Cache Creek flows; (2) the groundwater elevations in the Company's observation and production wells; and (3) extreme high and low groundwater elevations.

There is a very close correlation between precipitation, Cache Creek flows and regional groundwater elevations.

Prior to 1981, Cache Creek flows and groundwater elevations had large variations. Since 1981 flow in the Creek has been stabilized by releases from Indian Valley Dam. Consequently extremes in groundwater elevations do not occur, except during a drought (such as in 1975-77 and 1987-92).

In general the groundwater elevations of the Company's observation and production wells correspond very closely to the regional groundwater elevations annual pattern. Specifically, the magnitude of change is essentially the same. The magnitude of annual change in the Hungry Hallow and Esparto areas is 6.7 feet, whereas, within the Company's property the change is 7.2 feet for all years of record, excluding the extreme change during the droughts of 1975-77 and 1987-92.

The maximum recorded decrease in groundwater elevations was during the period of 1975-77. The average lowering for the Hungry Hallow and Esparto areas was 34.5 feet, whereas, on the Company's property it averaged 38.0 feet.

Water Quality: Analysis of the water quality samples taken in 1990 in the production well and in three Observation Wells and Pit II in 1992 provided: (1) a basis for establishing background information, (2) an opportunity to detect any notable quality differences between the wells and the pit, and (3) a reference for evaluating any future changes.

Referring to the summary of groundwater quality for the general mineral and inorganic constituents given in Table 1 and 2, there appears to be no significant difference between the water quality of the wells and the pit. The total dissolved solids (TDS) concentration from all four sources are in the range of 507-753 mg/l. These values exceed the recommended secondary standard for drinking water (500 mg/l) but meet the upper standard (1000 mg/l). They are satisfactory for agricultural and other purposes.

Since the concentration in the pit lies in between the values obtained in the Observation Wells, it is concluded that local shallow groundwater quality is in that range. In other words, there does not appear to be any local impact on total dissolved solids or individual mineral constituents associated with the open pit operations.

The nitrate concentrations (4.7 to 8.2 mg/l NO3 as nitrogen, or 21.2 to 36.9 mg/l NO3 as nitrate) are slightly higher compared to what is normally considered "background" levels in this area. It is noted, however, that all values are below the primary drinking water standards of 10 mg/l NO3-N or 45 mg/l NO3 as nitrate.

The higher nitrate concentrations can probably be linked to historic farming and fertilization practices on the Solano Concrete parcels and on adjacent properties.

The general mineral constituents of dissolved iron and manganese are higher in the sample from the pit than the surrounding observation wells. The concentrations of iron (4.7 mg/l) and manganese (.096 mg/l) in the pit both exceed the secondary drinking water standards for those constituents. These values seem to be a slight anomaly and may be associated with variations in sampling and analytical techniques. Further sampling on a systematic basis is recommended.

Concerning the inorganic analysis conducted of samples from the monitoring wells and the pit, there is nothing of note since all the values are substantially below recommended levels. Further there were no organic chemicals detected in any of the samples, which were analyzed by EPA methodology to detect the presence of common regulated and unregulated organic compounds.

Pit Pumping: Water was pumped from Pit III during the period of May 11 to May 29, 1992 for the purpose of providing irrigation on five acres of reclaimed land adjacent to that pit. A flow of 1620 gallons per minute was pumped for a period of 78 hours. This accounted for 11.7 acre feet during that period. This is a relatively small amount of water pumped.

No influence was observed on the water levels in the Observation Wells during the time that pumping was taking place from the pit.

It was also observed that the water level in the pit increased during the time when the pump was turned off each day, and when it was turned on the next day. This demonstrated that the pit was being readily recharged during the off pumping time by flow from the hydraulically connected aquifer around the perimeter of the pit.

Ecological Considerations: Potential ecological impacts of the anticipated groundwater elevations and seasonal and long-term changes were considered, such as the effects on planted crops in the reclaimed agricultural areas, phreatophytic vegetation and aquatic ecosystems. Specific groundwater responses that might have an impact include slow or rapid changes in groundwater elevations, high and low elevations, land subsidence and accretions to or depletions in the Creek flow.

The long-term records of regional groundwater elevations and short-term records of detailed monitoring of groundwater on the Company property provided the basis for the examination of the ecological impacts. Included was the setting of the highest and lowest average groundwater elevations which were used to establish the best range of elevations to accommodate the reclaimed agricultural land and the bio-mass vegetation and to establish the slopes of the levees surrounding the open water ponds.

CONCLUSIONS

Test hole borings coupled with well logs of production and observation wells document the underground geologic stratigraphy. Under the topsoil of 2-15 feet in some areas is a shallow perched sand and gravel layer ranging in thickness of 10-20 feet. When these sands and gravels exist, there is a relatively thin layer of clay underlying them which varies in thickness of 1-15 feet. This clay is underlain by deeper sands and gravels which vary in thickness from 30-50 feet and which provide the major source of gravel. In some areas the clay lens does not exist. The shallow and deeper sands and gravels are connected hydraulically when the thin clay layer pinches out, and the two layers become essentially one shallow unconfined aquifer.

The combination of the upper and lower sand and gravel layers down to the "bottom" or major clay lens at 70-90 feet below the ground surface constitutes a shallow unconfined aquifer.

Groundwater flow is generally northwest to southeast during the summer months and more northerly to southerly during the winter.

Some groundwater flow from the north and west is intercepted by the Creek and some flow proceeds underneath.

There is a definite relationship between water levels in the Creek, the pits, and production and observation wells.

When the clay layer exists and separates the two sand and gravel layers, the upper layer has a perched water level that is 5-10 feet higher than the water level in the deeper layer. During the late spring, water drains from the upper into the lower materials. This drainage results in a loss of all of its stored water either from slow vertical movement or from lateral movement into the lower sands and gravels. Water levels in the shallow sands and gravels show no change over a period of two to four summer months.

Groundwater elevations in both the shallow and deep sands and gravels rebound during the winter months to essentially historic elevations for the shallow unconfined aquifer in this region.

The lowering of groundwater elevations is not related to a loss in groundwater storage as illustrated by the seasonal recharge of both the shallow and deep sands and gravels.

Groundwater elevations in the local area (under the Company's property) continues to correspond closely to regional groundwater elevations in terms of patterns and magnitude of annual change during normal periods of precipitation and Creek flows and during droughts.

The development of pits by removing gravel has not had an adverse effect on groundwater storage, movement, or quality.

Open pits with a free water surface will actually enhance the flow of groundwater over the length and width of the pits because of: (1) their hydraulic connection with the deeper aquifer, and (2) the lack of resistance normally encountered by flow through sands and gravel aquifers.

Groundwater quality under the Madison Plant parcels is typical and characteristic of the region with no adverse affects being associated with the mining of gravel or with ground surface activities involving the use, storage, or disposal of petroleum products or other wastes.

Pits with a free water surface on this site have the potential for wildfowl or fish ponds, artificial recharge, storage, or other reclamation projects, which, if properly designed and maintained would not adversely affect the groundwater system.

Since the design and operation of the proposed mining and reclamation plan by the Company will not have an adverse effect on the long-term regional or local groundwater hydrology, little or no adverse ecological impacts can occur.

Revised May 6, 1993

LIST OF FIGURES AND TABLES

Figures

1 Location of Test Bores
2 Location of Observation Wells
3 Water Levels: 1 S&D, 2, 3, 4, and Creek
4 Water Levels: 1 S&D, 6 S&D, 7 S&D
5 Water Levels: 3, 4, 8 S&D, 9
6 Water Levels: 7 S&D, 8 S&D, 9
7 Water Levels: Creek, Hayes 1, Solano 1 & 2, Snyder 1
8 Water Levels: Hungry Hallow Area
9 Water Levels: Esparto Area
10 Water Levels: Solano 1 & 2 and Synder

Tables

1 Water Quality: Production Well and Wash Water, March 1990 and 1992.
2 Water Quality: Observation Wells and Pit II, May 1992

TABLE 1
GROUNDWATER QUALITY
Production Well 1 and Wash Water
Madison Plant, Solano Concrete Company

Characteristic		Well 1		Wash Water	
		1990	1992	1990	1992
pH		7.70	7.20	7.70	7.44
Boron	- ppm	1.89	1.58	1.85	1.48
E.C.	- mmho/cm	0.70	0.76	0.71	0.78
T.D.S.	- ppm	574.0	499.2	570.0	486.4

E.C. = Electrical Conductivity
T.D.S. = Total Dissolved Solids

TABLE 2
GROUNDWATER QUALITY
General Mineral and Inorganic Constituents
Observation Wells and Pit II
Madison Plant, Solano Concrete Co.
May 1992

All units mg/l except where noted

	Pit II	OW-2	OW-4	OW-9
GENERAL MINERAL				
Calcium	40.7	63.2	60.1	44.9
Copper	<.05	<.05	<.05	<.05
Iron	4.7	.11	.088	<.05
Magnesium	42.1	47.6	43.7	34.4
Manganese	.096	<.015	<.015	<.015
Sodium	47.3	53.3	68.3	45.4
Zinc	<.02	<.02	<.02	<.02
Chloride	69.5	73.8	61.7	60.5
Sulfate	25.6	49.9	50.3	42.5
Hardness	280	338	332	268
MBAS	<.025	<.025	<.025	<.025
Alkalinity (Total)	283	376	358	275
Bicarbonate	271	376	358	275
Carbonate	12.2	<1.0	<1.0	<1.0
Specific Conductance (unknown)	754	890	820	680
pH (pH units)	8.5	7.5	7.8	7.7
TDS	578	753	656	507
INORGANIC				
Aluminum	<.1	<.1	<.1	<.1
Arsenic	<.01	<.01	<.01	<.01
Barium	.12	.28	.25	.22
Cadmium	<.005	<.005	<.005	<.005
Chronium, Total	.017	<.01	<.01	<.01
Lead	<.005	<.005	<.005	<.005
Mercury	<.0002	<.0002	<.0002	<.0002
Selenium	<.005	<.005	<.005	<.005
Silver	<.01	<.01	<.01	<.01
Fluoride	0.25	0.12	0.14	0.10
Nitrate as N	6.1	6.9	8.2	4.7

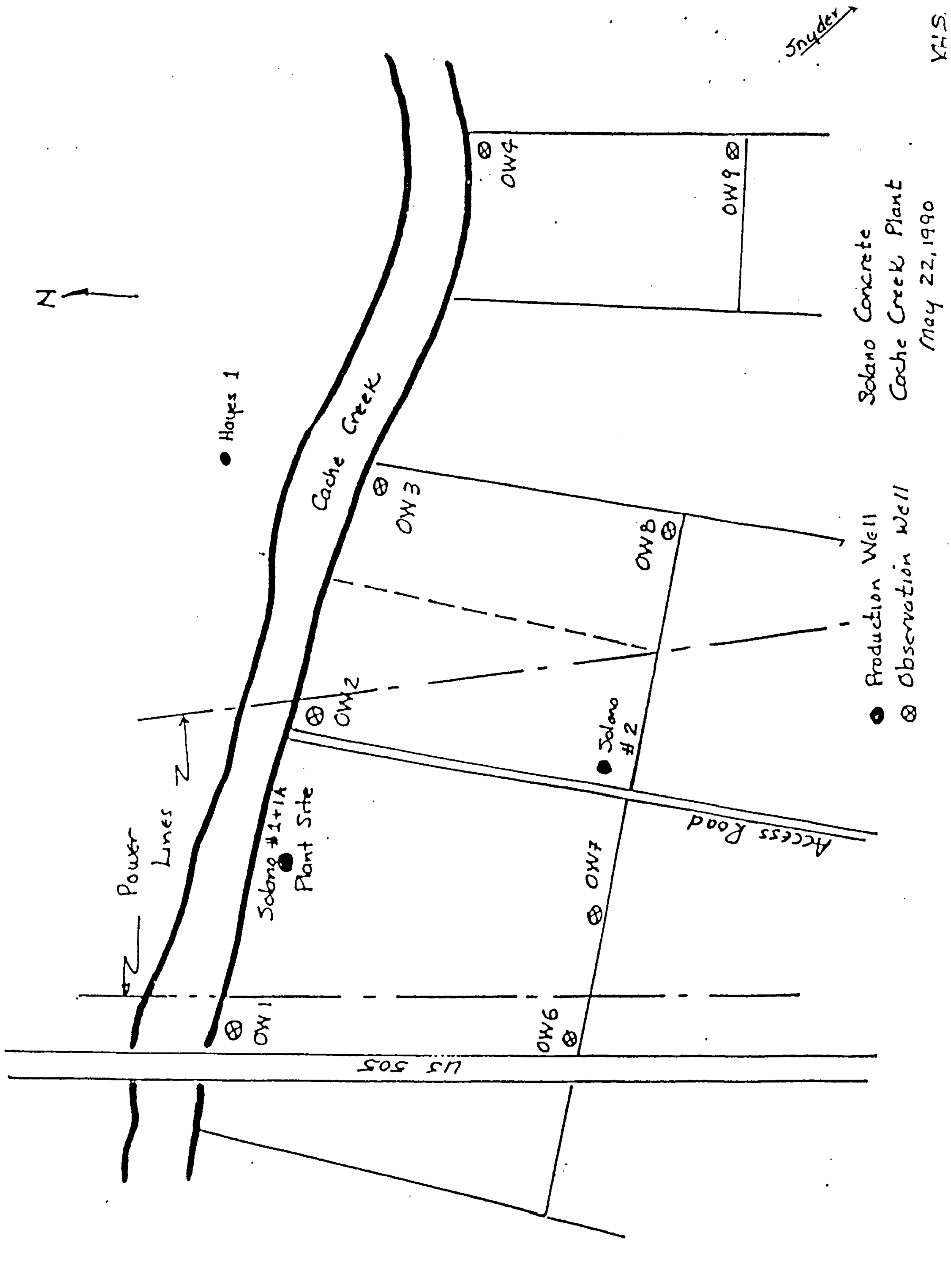

Snyder
N
Cache Creek
Hayes 1
OW1
OW2
OW3
OW4
OW6
OW7
OW8
OW9
Solano #1+1A Plant Site
Solano #2
Access Road
US 505
Power Lines
Production Well
Observation Well
Solano Concrete
Cache Creek Plant
May 22, 1990

Figure 1

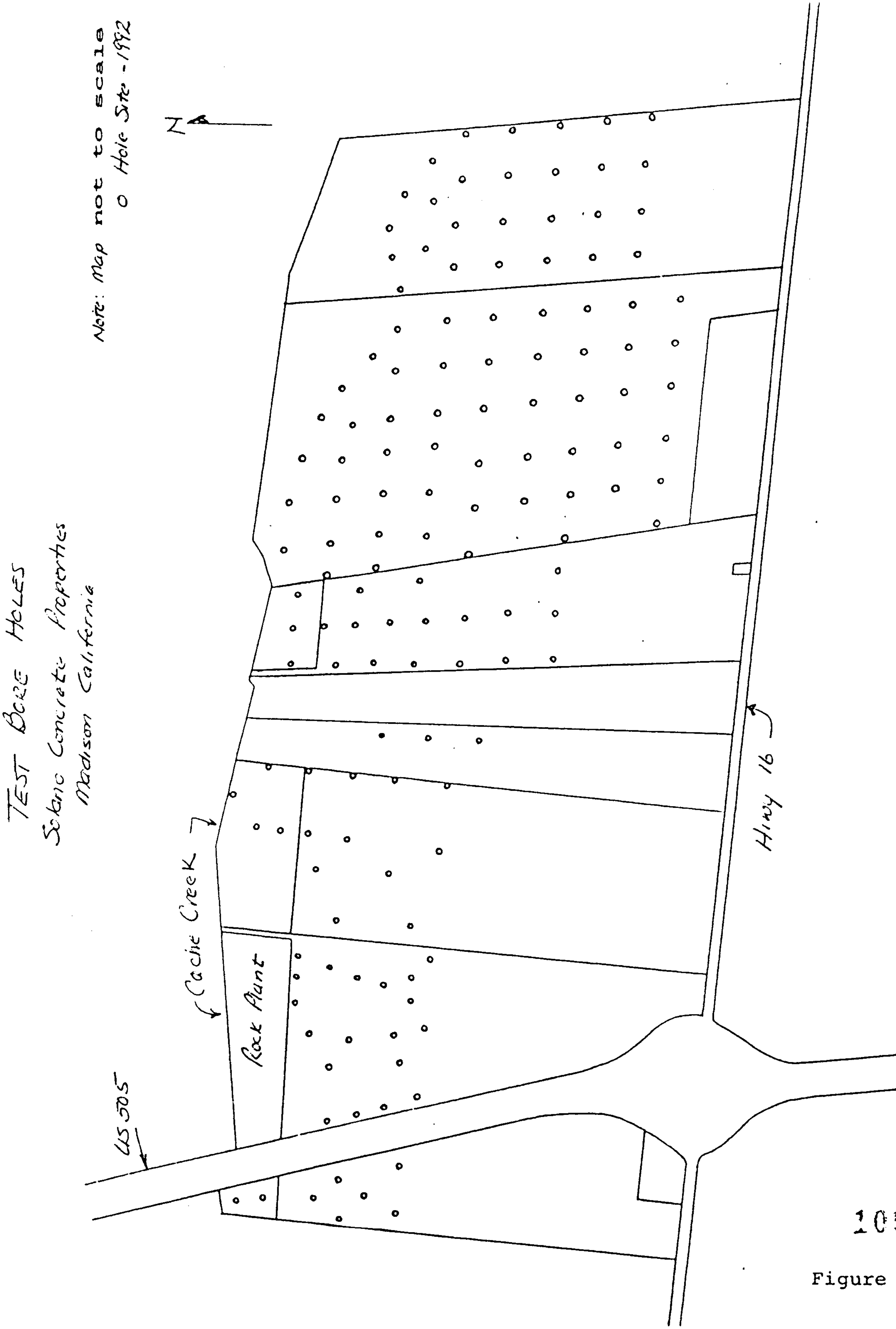

TEST BORE HOLES
Solano Concrete Properties
Madison California
Note: Map not to scale
o Hole Site - 1992
N
Cache Creek
Rock Plant
US 505
Hwy 16

Figure 2

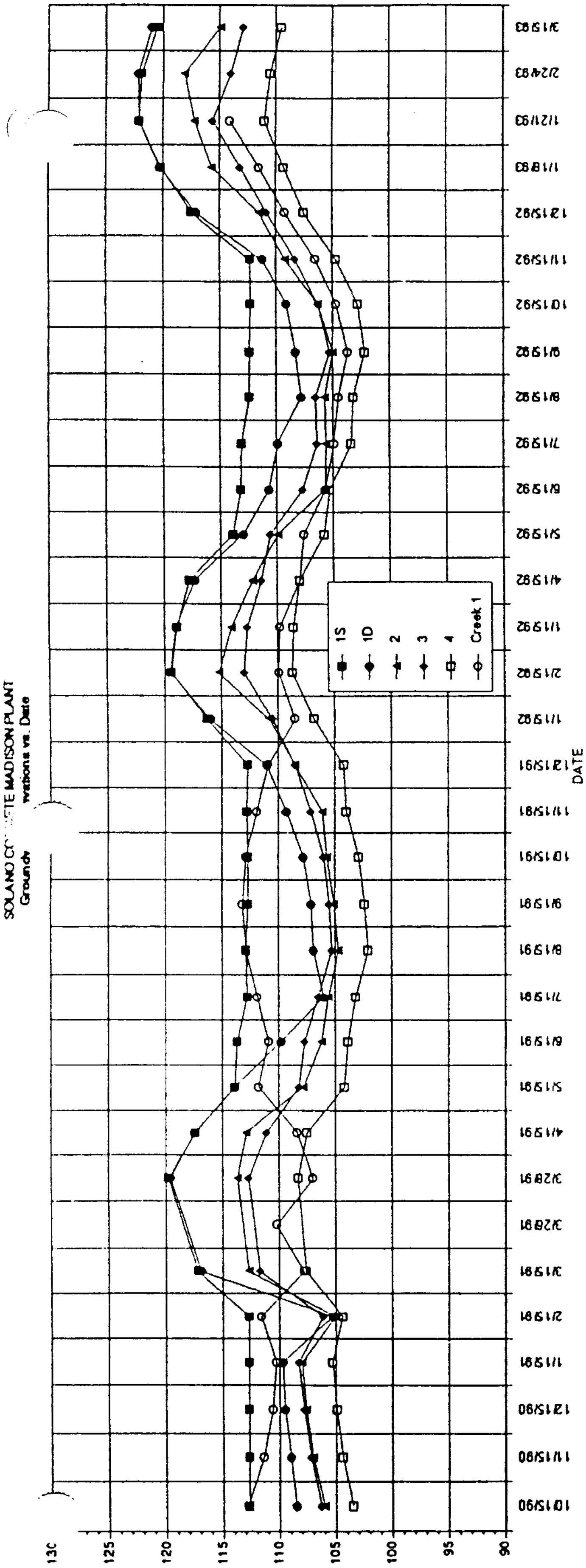


Figure 3

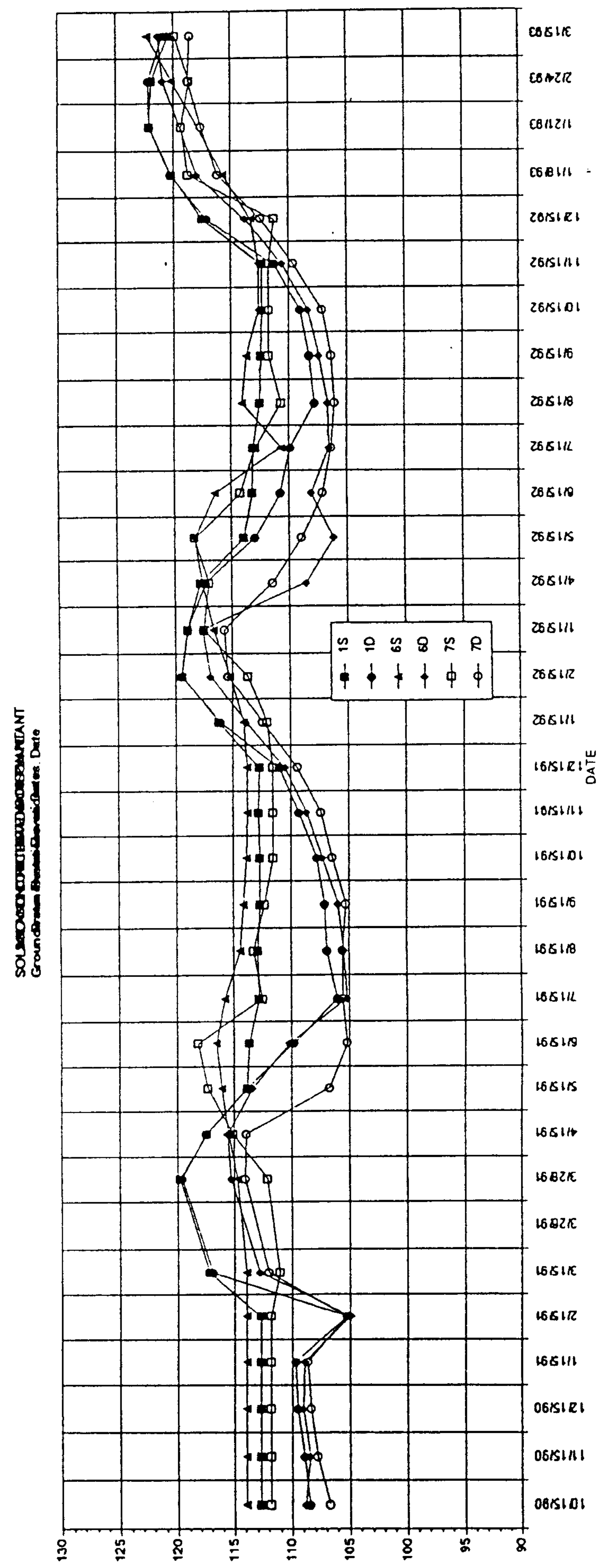


Figure 4

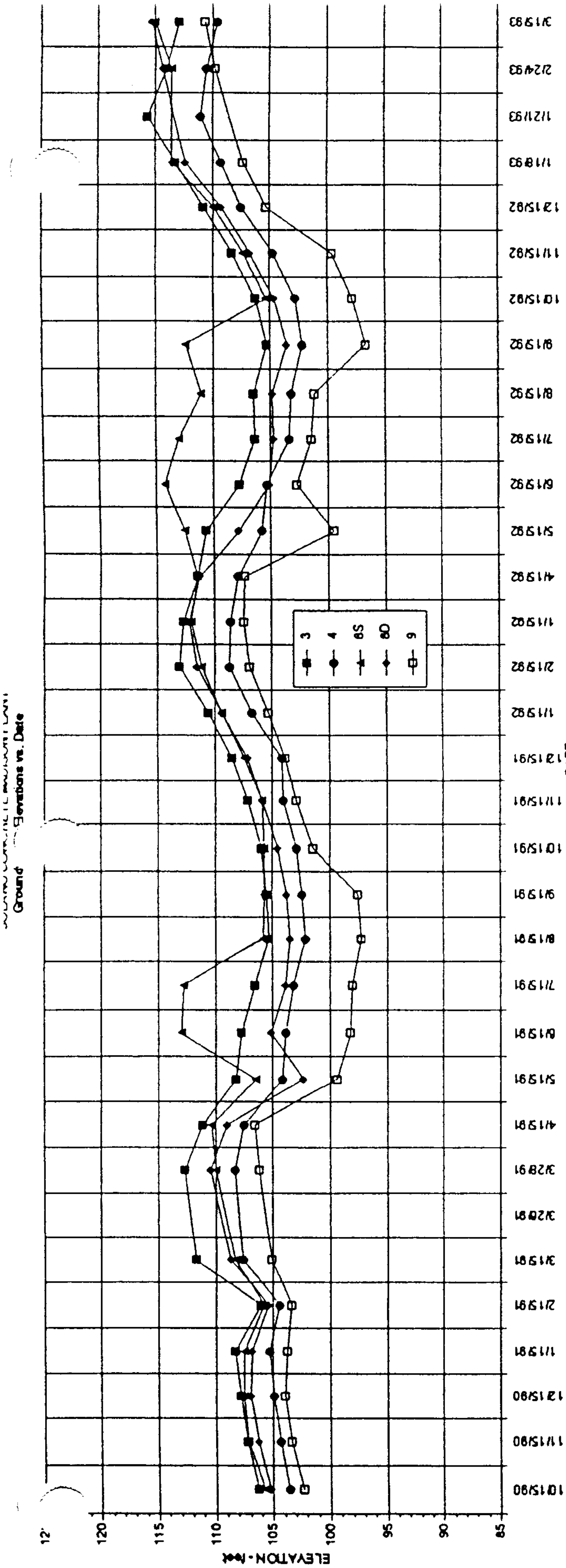


Figure 5

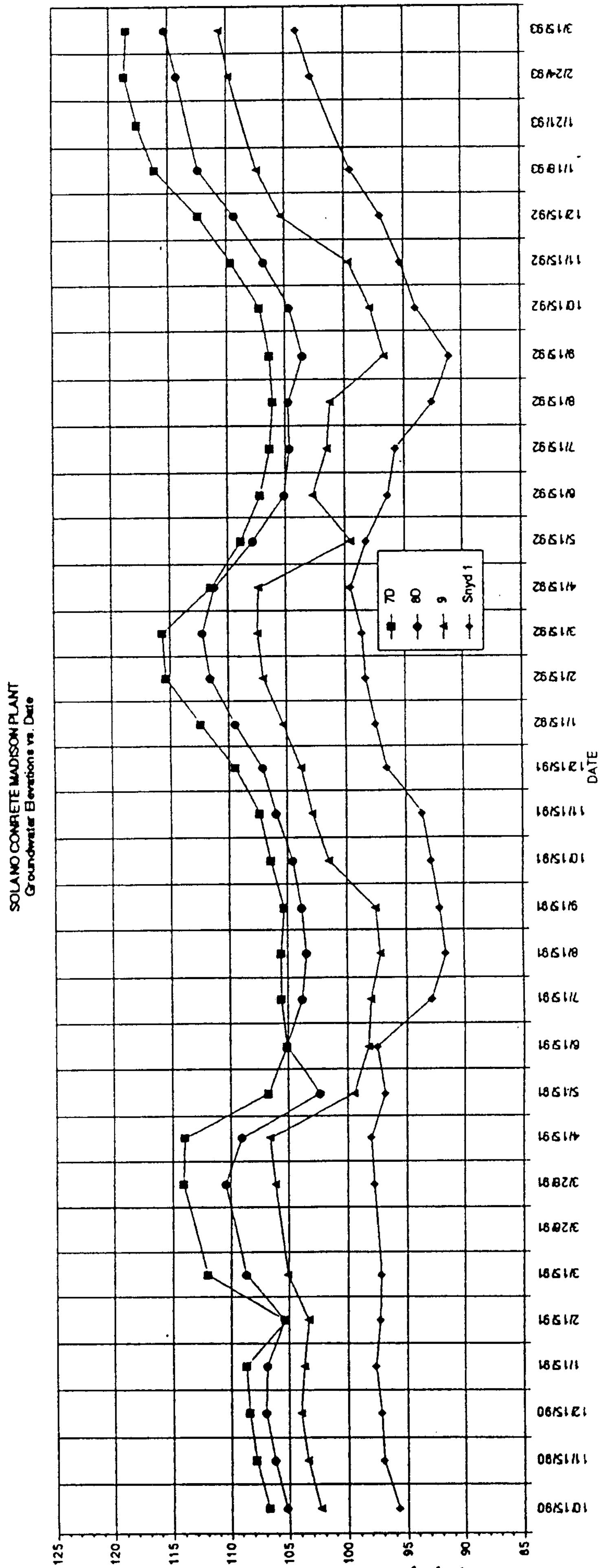
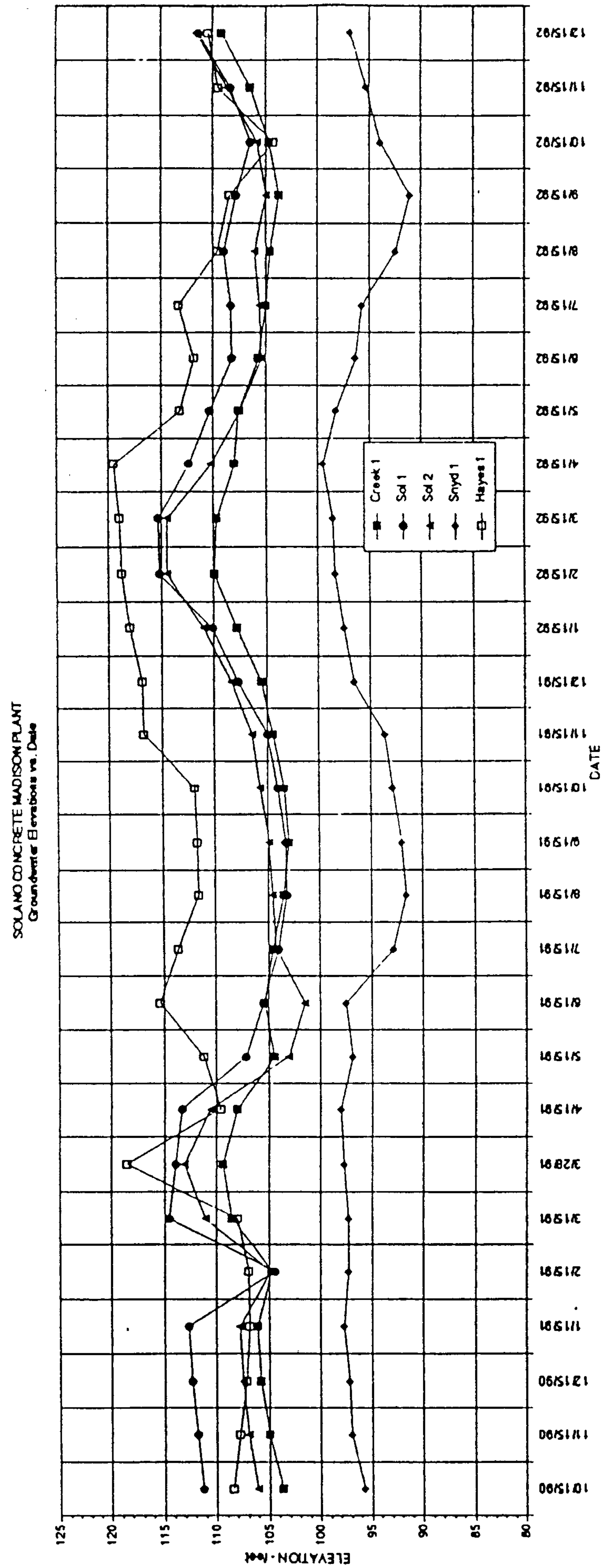


Figure 6



SOLANO CONCRETE MADISON PLANT
Groundwater Elevations vs. Date
ELEVATION - feet
125
120
115
110
105
100
95
90
85
80
DATE
10/15/90
11/15/90
12/15/90
1/15/91
2/15/91
3/15/91
3/28/91
4/15/91
5/15/91
6/15/91
7/15/91
8/15/91
9/15/91
10/15/91
11/15/91
12/15/91
1/15/92
2/15/92
3/15/92
4/15/92
5/15/92
6/15/92
7/15/92
8/15/92
9/15/92
10/15/92
11/15/92
12/15/92
Creek 1
Sol 1
Sol 2
Snyd 1
Hayes 1

Figure 7

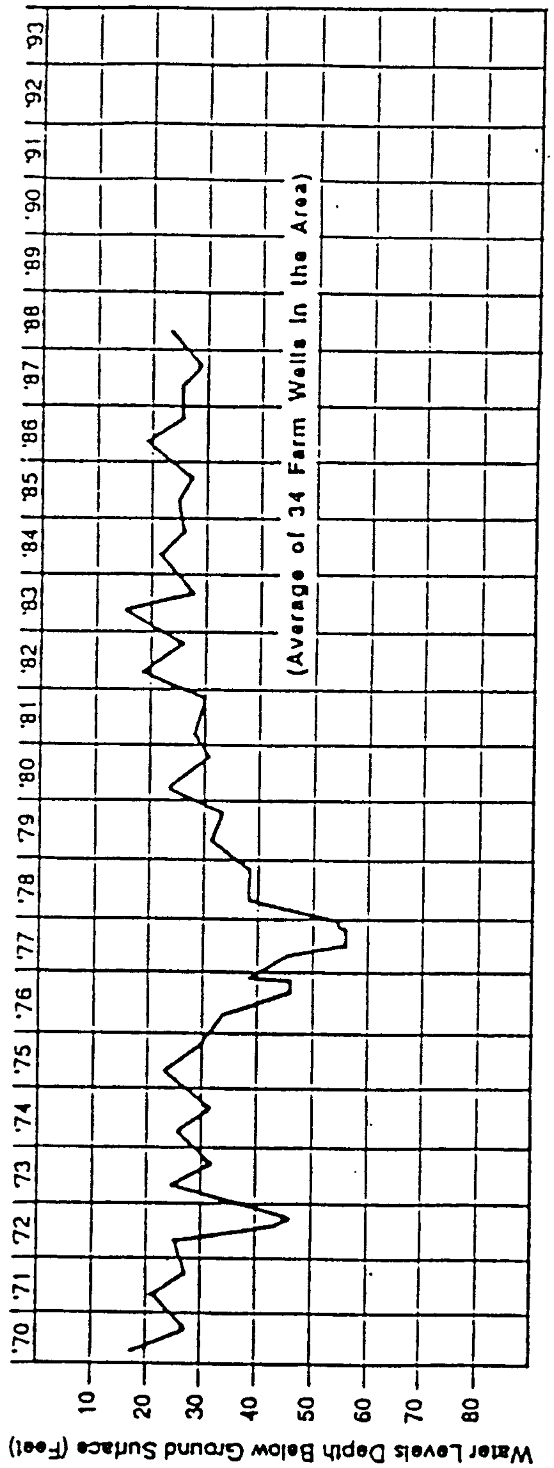


FIGURE 3

HYDROGRAPH FOR
34 IRRIGATION WELLS
IN THE
ESPARTO AREA

(from Dames & Moore)

113

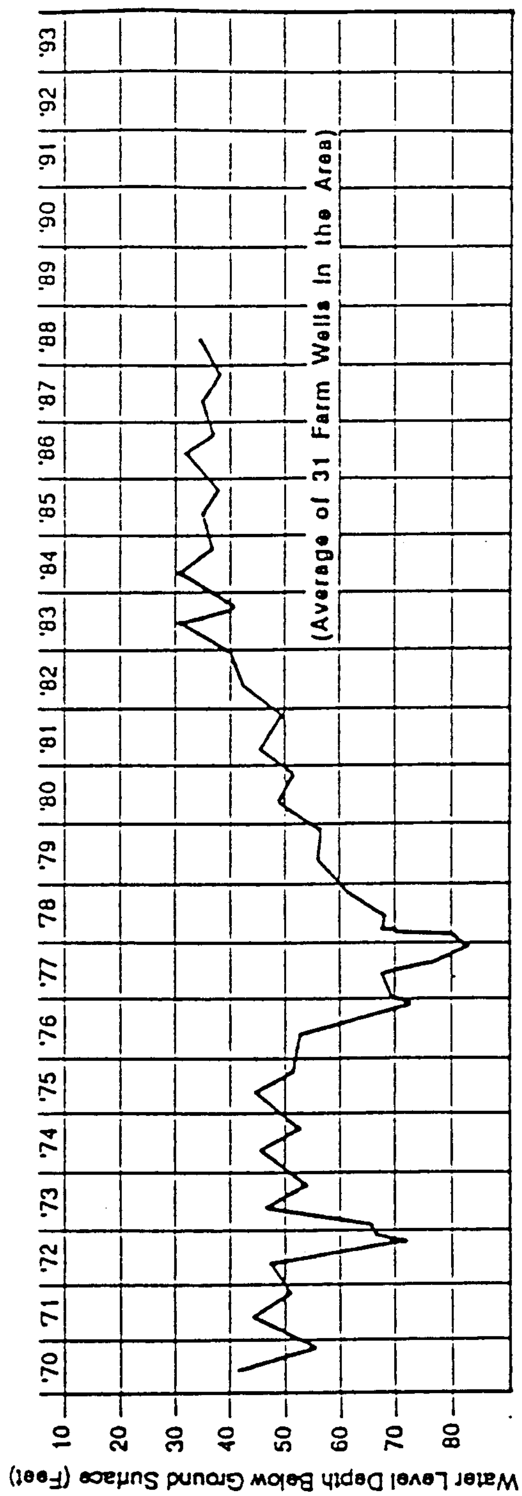


FIGURE 2

HYDROGRAPH FOR
31 IRRIGATION WELLS
IN THE
HUNGRY HOLLOW AREA
(from Dames & Moore)

Figure 9

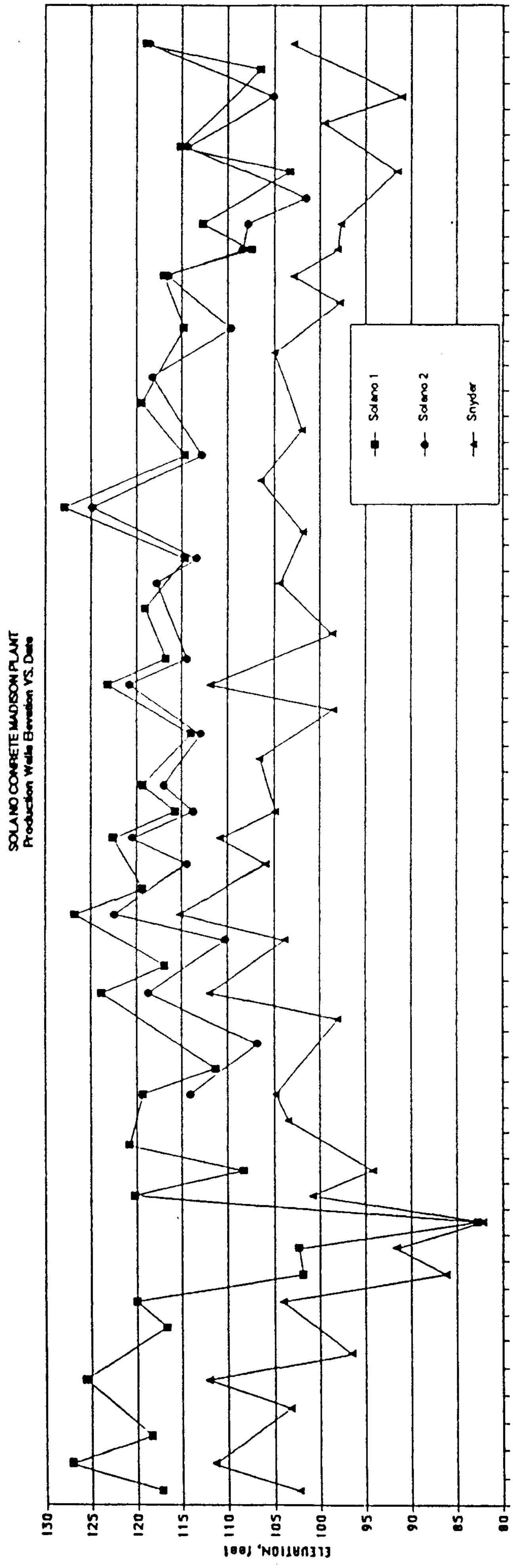

SOLANO CONCRETE MADISON PLANT
Production Wells Elevation VS. Date
ELEVATION, feet
DATE
Solano 1
Solano 2
Snyder

Figure 10

VERNE H. SCOTT
WATER RESOURCES CONSULTANT
437 F STREET
DAVIS, CALIFORNIA 95616
(916) 756-2291
FAX: (916) 756-9141

Re: **MONITORING PLAN, GROUNDWATER HYDROLOGY/Solano Concrete Madison Plant, Yolo County, California**

Objective: To provide details on a comprehensive groundwater hydrology monitoring plan that will satisfy the expectations of Yolo County and the State of California as part of Solano Concrete's Mining and Reclamation Plan.

Background: Solano Concrete initiated a Groundwater Plan in 1990 with the goal of determining if there is or would be any adverse effect on the storage, movement or quality of groundwater by current or future mining and reclamation activities. This Plan was preceded by some pump tests and water level measurements beginning in 1973.

Hydrology Monitoring Plan: The on-going monitoring plan includes the following:

Water Levels: Mid-monthly measurements in:

1. Solano Observation Wells (Figure 1)
   a. Four pairs of shallow and deep wells (1S&D, 6S&D, 7S&D, and 8S&D)
   b. Four deep wells (2,3,4, and 9)
   c. Two Creek wells (1 and 2)

2. Production Wells (Figure 1)
   a. Solano 1 or 1A
   b. Snyder 1
   c. Hayes 1 and 2 (off Solano property to the North)
   d. Gnos 1 (off Solano property to the South)

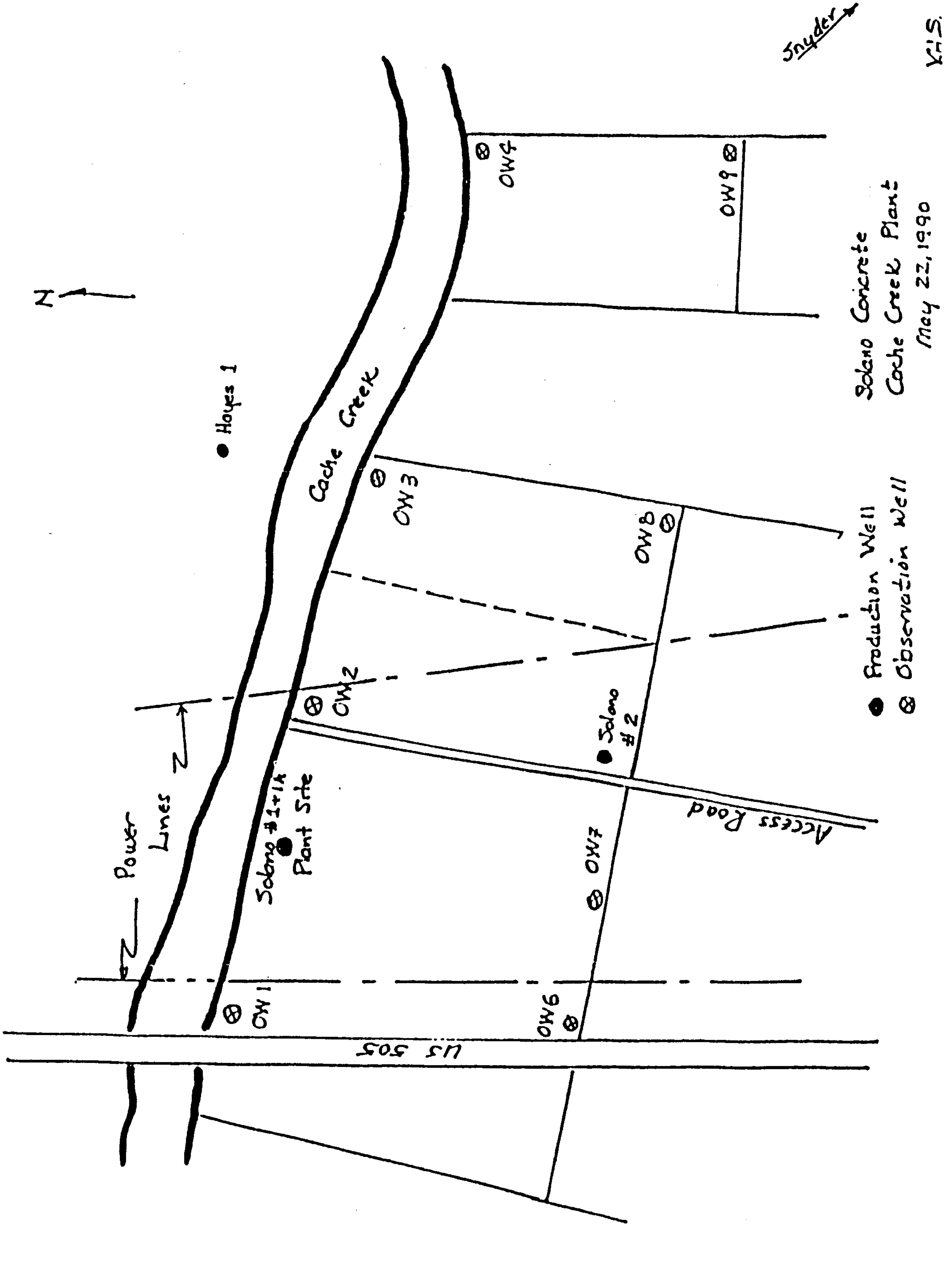
Water Quality: Annual sampling and analysis of minerals, inorganic constituents and halogenated organics in:

1. A Production Well (Solano 1 or 1A)

2. Three Observation Wells (2, 4, and 9)

3. A Pit or Pond

Analysis, Recommendations and Action: The information obtained from monitoring will be analyzed consistently and periodically by the Water Resources Consultant. If any significant adverse impacts are noted due to mining and/or reclamation activities, a plan to mitigate these impacts will be recommended and implemented.



Snyder
Y.H.S.
OW4
OW9
N
Solano Concrete
Cache Creek Plant
May 22, 1990
Hayes 1
Cache Creek
OW3
OW8
Production Well
Observation Well
OW2
Solano #2
N
Access Road
Power Lines
Solano #1+1k
Plant Site
OW7
N
OW1
OW6
US 505

Figure 1

SOLANO CONCRETE CO., INC.

WELL READINGS FOR THE PERIOD
NOVEMBER 1973 thru JUNE 1976

SOLANO CONCRETE #1	Elev 129.50	SNYDER	HAYES #1 136.50	Elev	HAYES #2
30.9' 75	103.25	27.3' 25	23.4' 33	113.17	22.8' 67
28.1' 08	106.17	23.4' 33	20.0' 00	116.50	20.3' 25
21.3' 25	110.75	18.9' 75	17.5' 42	119.08	17.0' 00
20.8' 67	111.42	18.1' 08	17.5' 42	119.08	16.1' 08
22.0' 00	110.42	19.1' 08	17.1' 08	[illegible]	16.9' 75
24.1' 08	108.50	21.0' 00	18.5' 42	118.08	18.0' 00
26.6' 50	106.00	23.6' 50	20.3' 25	116.25	19.6' 50
28.7' 58	104.08	25.5' 42	22.0' 00	114.50	20.0' 00
27.1' 08	103.25	26.3' 25	22.1' 08	114.42	20.4' 33
29.1' 08	102.50	27.0' 00	21.3' 25	115.25	20.0' 00
28.5' 42	103.75	25.9' 75	23.4' 33	113.17	22.0' 00
27.8' 67	104.50	25.0' 00	22.5' 42	114.08	21.7' 58
26.0' 00	105.50	24.0' 00	22.1' 08	114.42	21.2' 17
25.1' 08	105.42	24.1' 08	21.9' 75	114.75	21.3' 25
23.6' 50	108.50	21.0' 00	19.5' 42	117.08	18.10' 83
23.0' 00	111.33	18.2' 17	17.8' 67	118.83	17.4' 33
22.6' 50	112.08	17.5' 42	16.4' 33	120.17	16.0' 00
26.0' 00	110.00	19.6' 50	20.0' 00	116.50	29.10' 83
28.6' 50	103.17	26.4'* 33	18.4' 33	118.17	18.2' 17
28.8' 67	101.50	28.0' 00	26.6' 50	110.00	32.8'* 67
28.10' 83	98.33	31.2'* 17	30.6'* 50	106.00	31.4'* 33
39.10'* 83	96.50	33.0' 00	33.0'* 00	103.50	25.4' 33
31.8' 42	99.17	30.4' 33	22.7' 58	113.92	22.3' 25
29.10' 83	101.50	28.0' 00	22.2' 17	114.33	21.11' 92
28.6' 50	102.00	27.6' 50	22.0' 00	114.50	21.8' 67
28.0' 00	104.00	25.6' 50	21.9' 75	114.75	21.6' 50
28.10' 83	104.17	25.4' 33	22.9' 75	113.75	22.5' 42
32.8' 67	103.67	25.10' 83	34.7'* 58	101.92	34.0'* 00
32.2' 17	101.83	27.8' 67	34.4'* 33	102.17	22.11' 83
34.9' 75	96.50	33.0'* 00	25.6' 50	111.00	24.4' 33
43.6' 50	94.33	35.2' 17	24.2' 17	112.33	22.8' 67
46.2' 67	89.75	39.9'* 75	24.11' 92	111.58	23.8' 67

	HAYES #2
0	22'½" 00
0	22'1" 08
3	20'10" 83
0	22'9" 75
12	21'11½" 92
8	23'2½" 17
0	30'11" 92
3	24'9"* 75
0	28'4" 33
	22'1" 08
2	21'1" 08
33	22' 00
92	19'5½" 43
92	18'6" 50
75	16'6½" 50
75	17'3½" 25
"83	18'4½" 33
75	19'7" 58
08	21'1" 08
33	20'10½" 83
17	20'9" 75
42	20' 00
58	19'1" 08
50	16'3½" 25
08	13'4" 33
42	13' 00
75	14'8" 67
25	15'8½" 67
50	17'8½" 67
00	18'2" 17
67	17'10" 83
50	18'1" 08
33	18'6" 50
42	17'10½" 83
42	16'5" 42
"92	16'8" 67
33	16'9½" 75
08	24'6"* 50
*75	21'4½" 33
25	19'10" 83
'42	22'11½" 92
25	19'6" 50
33	19'6" 50
17	19'11" 92
58	20' 00
50	19' 00
00	19'6½" 50
08	19'7" 58
25	19'5" 42
25	21'5" 42

SOLANO CONCRETE CO., INC.

**No Water
*Pump Running

WELL READINGS FOR THE PERIOD
MAY 1985 thru AUGUST 1989

DATE	SOLANO CONCRETE #1	144.54	SOLANO CONCRETE #2	136.50	SNYDER	HAYES #1	HAYES #2
5-85	31'1" 08	114.87	29'8½" 67	101.67	27'10" 83	19'3½" 25	18'5"
6-85	33' 00	112.96	31'7" 58	99.92	29'7"* 58	21'2"* 17	21'4½"
7-85	30'2" .17	115.87	28'8½" 67	98.58	30'11"* 92	25'7"* 58	21'6½"
8-85	31'5" .42	114.37	30'2" 17	100.93	28'8" 67	23'1½" 08	22'2½"
9-85	30'5" .42	115.71	28'10" 83	98.42	31'1"* 08	22'8" 67	21'10"
10-85	29'3½" .25	116.54	28' 00	104.50	25'½" 00	20'7" 58	20'1"
11-85	30'3" .25	110.46	34'1" 08	103.92	25'7" 58	22'2" 17	21'4"
12-85	29'2" .17	116.71	27'10" 83	104.58	24'11½" 92	21'5" 42	21'
1-86	28'10" .83	116.96	27'7" 58	104.92	24'7" 58	20'7" 58	19'10"
2-86	28'4" .33	117.46	27'1" 08	107.33	22'2½" 17	19'3½" 25	18'9"
3-86	24'11" .92	120.79	23'9" 75	111.92	17'7" 58	14'5½" 42	14'1½"
4-86	26'10½" .83	118.87	25'8" 67	110.17	19'4" 33	14'11" 92	15'1"
5-86	30'8" .67	115.29	29'3½" 25	102.17	27'4" 33	18'10" 83	18'
6-86	31'2" .17	114.54	30' 00	105.00	24'6½" 50	19'4½" 33	18'6"
7-86	31'3½" .25	114.46	30'1" 08	103.50	26' 00	18'11½" 92	18'6"
8-86	30'9½" .75	114.96	29'7" 58	102.33	27'2" 17	21'1" 08	20'7½"
9-86	30'2" .17	115.87	28'8" 67	98.58	30'11" 92	22'6" 50	21'7½"
10-86	28'5" .42	117.29	27'3" 25	104.67	24'10" 83	25'9"* 75	21'6½"
11-86	31'3½" .25	114.46	30'1" 08	104.00	25'6" 50	20'4½" 33	19'6"
12-86	30'5" .42	115.37	29'2" 17	103.83	25'8" 67	21'4" 33	20'4"
1-87	29'8" .67	115.62	28'11" 92	104.33	25'2" 17	20'8" 67	20'2"
.-87	28'11" .92	116.54	28' 00	104.25	25'3" 25	20'1" 08	19'8"
3-87	29'7" .58	117.79	26'9" 75	104.33	25'2" 17	20'3" 25	19'9"
4-87	31' 00	115.54	29' 00	104.00	25'6" 50	25'6" 50	22'10"
5-87	33'4" .33	113.46	31'1" 08	102.08	27'5" 42	19'9" 67	17'4"
6-87	31'11" .92	114.37	30'2" 17	104.50	25' 00	17'7" 58	17'
7-87	31'11" .92	113.79	30'9" .75	101.83	27'8" 67	25'9" 75	21'6"
8-87	30'6" .50	115.21	29'4" .33	100.75	28'9" 75	22'10" 83	21'9"
9-87	29'7" .58	116.37	28'2" 17	101.92	27'7" 58	21'9" 75	20'7½"
10-87							
11-87	30' 00	117.54	27' 00	108.17	21'4" 33	20'7" 58	25'2"
12-87	25' 00	123.79	20'9" .75	108.75	20'9" 75	29'6" 50	26'6"
1-88	20'1" .08	124.87	19'8" 67	105.58	23'11" 92	28' 00	25'9"
2-88	29'5" .42	118.29	26'3" 25	106.50	23' 00	19'4" 33	19'2"
3-88	30'10" .83	115.54	29' 00	105.83	23'8" 67	25'6" 50	21'5"
4-88	33'4" 33	112.79	31'9" 75	104.33	25'2" 17	25'1" 08	21'2"
5-88	32'2" 17	114.62	29'11" 92	104.00	25'6" 50	19'5" 42	18'9"
6-88	33'3"* .25	112.79	31'9* 75	102.67	26'10" 83	20'6" 50	22'2"*
7-88	31'10" 83	114.37	30'2" 17	101.92	27'7" 58	21'5" 42	22'3"*
8-88	32' 00	114.96	29'7"* 58	101.67	27'10" 83	21'3" 25	20'
9-88	30'* 00	116.37	28'2" 17	103.08	26'5" 42	23'* 00	20'2"
10-88	29'6" 50	117.04	27'6" 50	104.33	25'2" 17	20'9" 75	20'
11-88	28'7" 58	117.21	27'4" 33	104.58	24'11" 92	20'7" 58	20'
12-88	28'11"* 92	118.29	26'3" 25	104.50	25' 00	20'9" 75	20'2"
1-89	30'* 00	117.71	26'10" 83	105.00	24'6" 50	20'9" 75	20'
3-89	29' 00	118.04	26'6" 50	104.75	24'9" 75	21'3" 25	20'6"
-89	31'6" 50	112.79	31'9"* 75	103.33	26'2" 17	20'2" 17	19'6"
5-89	32' 00	110.87	33'8"* 67	100.00	29'6" 50	19' 00	18'8"
6-89	33'3" 25	109.71	34'10" 83	99.67	29'10"* 83	20'7" 58	19'8"
7-89	32'2"* 17	112.04	32'6" 50	98.42	31'1" 08	27'1"* 08	23'
8-89	34'4"* 33	112.96	31'7" 58	97.83	31'8"* 67	27'10"	25'

031

⊗

SOLANO CONCRETE CO., INC.

**No Water
*Pump Running

WELL READINGS FOR THE PERIOD
OCTOBER 1989 thru JANUARY 1990

144.54 136.50

DATE	SOLANO CONCRETE #1		SOLANO CONCRETE #2		SNYDER	HAYES #1	HAYES #2
10-89	32'2" 17	114.79	29'9" 75	100.50	29' 00	23'6" 50	24'6" 50
11-89	32'7" 58	115.04	29'6" 50	101.50	28' 00	23'2" 17	22'8" 67
12-89	31' 00	115.21	29'4" 33	102.33	27'2" 17	23' 00	22'6" 50
1-90	31'2"* 17	116.46	28'1" 08	102.50	27' 00	22'6" 50	22' 00
2-90	31'0" 00	116.54	28'6" 50	102.83	26'8" 67	22'0" 00	21'4" 33
3-90	34'2"* 17	115.29	29'3" 25	102.67	26'10" 83	22'6" 50	22' 00
(Solano #1-first measurement since switching to new well. Explains difference between February & March readings.)							
4-90	34'3" 25	113.62	30"11" 92	101.17	28'4" 33	22'2" 17	21'7" 58
5-90	32'2" 17	110.54	34'0" 00	97.92*	31'7" 58	24'6" 50	26'2" 17
6-90	40'8" 67	108.46	36'1" 08	98.00	31'6" 50	28'10" 83	24'4" 33
7-90							
8-90	37'3" 25	105.71	38'10" 83	99.67	29'10" 83	27'2" 17	26'0" 00

9-90 (?)

1980 missing

ATE		HAYES #1
81	—	114.00
81	—	114.00
81	—	115.17
81	—	114.00
[illegible]	—	114.08
[illegible]	—	112.93
81	—	102.50
81	—	109.92
81	—	114.00
81	-	113.50
81	-	114.08
82	-	116.67
82	-	116.58
82	-	117.68
82	-	119.75
82	-	118.75
82	-	117.67
82	-	117.75
82	-	113.42
82	-	115.17
82	-	115.33
82	-	116.08
83	-	116.92
83	-	120.00
83	-	123.42
83	-	123.08
83	-	121.75
83	-	120.25
[illegible]	-	118.00
[illegible]	-	118.50
83	-	117.83
83	-	118.00
83	-	117.17
83	-	118.08
84	-	120.08
84	-	119.68
84	-	119.17
84	-	110.42
84	-	110.75
84	-	112.25
84	-	109.58
84	-	116.25
84	-	116.17
84	-	116.33
84	-	115.92
84	-	117.50
85	-	116.50
85	-	116.42
85	-	116.25
85	-	112.25

DATE		HAYES #1
5-85	-	117.25
6-85	-	115.33
7-85	-	110.92
8-85	-	113.42
9-85	-	113.83
10-85	-	115.92
11-85	-	114.33
12-85	-	115.08
1-86	-	115.92
2-86	-	117.25
3-86	-	122.08
4-86	-	121.58
5-86	-	117.67
6-86	-	117.17
7-86	-	117.58
8-86	-	115.42
9-86	-	114.00
10-86	-	110.75
11-86	-	110.75
12-86	-	116.17
1-87	-	115.17
2-87	-	115.83
3-87	-	116.42
4-87	-	116.25
5-87	-	111.00
6-87	-	116.83
7-87	-	118.92
8-87	-	110.75
9-87	-	113.67
10-87	-	114.75
11-87	-	—
12-87	-	115.92
1-88	-	107.00
2-88	-	108.50
3-88	-	117.17
4-88	-	111.00
5-88	-	111.42
6-88	-	117.08
7-88	-	116.00
8-88	-	115.08
9-88	-	115.25
10-88	-	113.50
11-88	-	115.75
12-88	-	115.92
1-89	-	115.75
3-89	-	115.75
4-89	-	115.25
5-89	-	116.33
6-89	-	117.50
[illegible]	-	[illegible]

DATE		HAYES #1
7-89	-	109.42
7-89	-	108.67
10-89	-	113.00
11-89	-	113.33
12-89	-	113.50
1-90	-	114.00
2-90	-	114.50
3-90	-	114.00
4-90	-	114.33
5-90	-	112.00
6-90	-	107.67
7-90	-	—
8-90	-	109.33
9-90	-	Missing

SOLANO CONCRETE CO., INC.

WELL READINGS

DATE	SNYDER ELEVATIONS
1-84	110.83
2-84	108.67
3-84	107.92
4-84	106.00
5-84	105.50
6-84	104.83
7-84	104.33
8-84	104.58
9-84	105.17
10-84	104.83
11-84	104.33
12-84	105.50
1-85	105.50
2-85	106.58
3-85	105.17
4-85	104.33
5-85	101.67
6-85	99.92
7-85	98.58
8-85	100.83
9-85	98.42
10-85	104.50
11-85	103.92
12-85	104.58
1-86	104.92
2-86	107.33
3-86	111.92
4-86	110.17
5-86	102.17
6-86	105.00
7-86	103.50
8-86	102.33
9-86	98.58
10-86	104.67
11-86	104.00
12-86	103.83

DATE	SNYDER ELEVATIONS
1-87	104.33
2-87	104.25
3-87	104.33
4-87	104.00
5-87	102.08
6-87	104.50
7-87	101.83
8-87	100.75
9-87	101.92
10-87	
11-87	108.17
12-87	108.75
1-88	105.58
2-88	106.50
3-88	105.83
4-88	104.33
5-88	104.00
6-88	102.67
7-88	101.92
8-88	101.67
9-88	103.08
10-88	104.33
11-88	104.58
12-88	104.50
1-89	105.00
2-89	
3-89	104.75
4-89	103.33
5-89	100.00
6-89	99.67
7-89	98.42
8-89	97.83
9-89	
10-89	100.50
11-89	101.50
12-89	102.33
1-90	102.50
2-90	102.83
3-90	102.67
4-90	101.17
5-90	97.92
6-90	98.00
7-90	
8-90	99.67

WATER LEVEL MEASUREMENTS
Solano Concrete Rock Plant

OW No.	Top Elev.	Date 10-15-90 Depth	WL Elev.	Date 11-15-90 Depth	WL Elev.	Date 12-15-90 Depth	WL Elev.	Date 1-15-91 Depth	WL Depth
1S	149.78	37'1"	DRY@112.70	37'1"	DRY 112.70	37'1"	Dry 112.70	37'1"	Dry 112.78
1D	149.72	41'3"	108.47	40'9"	108.97	40'3"	109.47	40'0"	109.72
2	146.33	40'4"	106.00	39'4"	107.00	38'9"	107.58	38'4"	108.00
3	134.97	28'8"	106.31	27'9"	107.22	27'2"	107.80	26'8"	108.31
4	134.37	30'10"	103.53	30'0"	104.37	29'5"	104.95	29'1"	105.29
6S	149.81	35'10"	DRY@113.97	35'10"	DRY 113.97	35'10"	Dry 113.97	35'10"	Dry 113.97
SD	149.40	40'7"	108.82	40'11"	108.48	40'4"	109.07	40'6"	108.90
7S	148.53	36'8"	DRY@111.87	36'9"	111.78	36'9"	Dry 111.78	36'9"	111.78
7D	150.06	43'4"	106.73	42'3"	107.81	41'8"	108.40	41'5"	108.64
8S	142.09	36'5"	105.68	34'11"	107.07	34'7"	107.51	34'6"	107.59
8D	141.87	36'8"	105.21	35'7"	106.29	34'11"	106.95	35'0"	106.87
9	137.25	34'11"	102.33	33'10"	103.37	33'3"	104.00	33'6"	103.75
Sol 1	148.01	36'8"	111.35	36'2"	111.84	35'8"	112.35	35'4"	112.68
Sol 2	144.54	38'5"	106.13	37'7"	106.96	37'0	107.54	36'8"	107.88
Snyd 1		33'9		32'6"		32'4"		31'11"	
Hayes 1		28'1"		28'8"		29'4"		29'7"	
Hayes 2		27'7"		27'10"		28'6"		28'7"	
Creek 1	108.20	-4.6	104.30	-3'3"	105.55	-2'5"	106.38	-2'1"	106.72
Creek 2	115.07	N/A	N/A	N/A		Dry		Dry	

Notes:

WATER LEVEL MEASUREMENTS

SOLANO CONCRETE ROCK PLANT

OW No.	TOP ELEV.	DATE February 15, '91 Depth	WL Elev.	DATE March 15, 1991 Depth	WL Elev.	DATE April 15, 1991 Depth	WL Elev.	DATE May 15, 1991 Depth	WL Elev.
1S	149.78	37'1"	Dry @112.70	32'7"	117.20	32'4"	117.45	35'11"	113.86
1D	149.72	44'6"	105.22	32'10"	116.89	32'3"	117.47	35'10"	113.89
2	146.33	41'4"	105.00	33'7"	112.75	33'5"	112.91	38'6"	107.83
3	134.97	28'10"	106.14	23'3"	111.72	23'10"	111.14	26'9"	108.22
4	134.37	29'11"	104.45	26'9"	107.62	26'10"	107.54	30'2"	104.20
6S	149.81	35'10"	Dry 113.97	Mud-Dry 35'10"	113.97	34'4"	115.48	33'9"	116.06
6D	149.40	44'6"	104.90	36'7"	112.82	33'10"	115.57	46'1"	103.32
7S	148.53	36'9"	Dry 111.78	Mud-Dry 37'6"	111.03	33'5"	115.11	31'2"	117.36
	150.06	44'9"	105.31	38'0"	112.06	36'1"	113.98	43'4"	106.73
8S	142.09	36'3"	105.84	33'9"	108.34	31'9"	110.34	35'7"	106.51
8D	141.87	36'5"	105.45	33'2"	108.70	32'10"	109.04	39'6"	102.37
9	137.25	33'9"	103.50	32'1"	105.17	30'8"	106.58	37'10"	99.42
Sol 1	148.01	43'6"	104.51	35'5"	112.59	34'9"	113.26	40'11"	107.09
Sol 2	144.54	39'8"	104.88	33'5"	111.12	33'11"	110.62	41'6"	103.04
Snyd 1		32'2"		32'3"	N/A	31'0"		32'9"	N/A
Hayes 1		29'6"		28'5"	N/A	26'10"		25'4"	N/A
Hayes 2		28'10"		27'9"	N/A	25'11"		25'2"	N/A
Creek 1	108.20	-3'5"	105.38	0'5"	109.22	2" Below Gauge	108.63	3'7" Below gauge	105.33
Creek 2	115.07	N/A		N/A	N/A	N/A	Dry	N/A	N/A

Sent 2/19/91   Sent 3/19/91   Sent 4-17-91   Sent 5-29-91

NOTES: May 15, 1991: OW6 One nearby irrigation pump running
OW8 Three nearby irrigation pumps running

WATER LEVEL MEASUREMENTS

SOLANO CONCRETE ROCK PLANT

OW No.	TOP ELEV.	DATE		DATE		DATE		DATE	
		June 15, 1991		July 15, 1991		August 15, 1991		September 15, 91	
		Depth	WL Elev.	Depth	WL Elev.	Depth	WL Elev.	Depth	WL Elev.
1S	149.78	36'1"	113.70	37'0"	112.78	36'11"	112.86	37'1" Dry	112.70
1D	149.72	39'11"	109.08	43'8"	106.06	42'10"	106.89	42'7"	107.14
2	146.33	40'1"	106.25	40'9"	105.58	41'8"	104.66	41'3"	105.08
3	134.97	27'3"	107.72	28'5"	106.55	29'8"	105.30	29'6"	105.47
4	134.37	30'6"	103.87	31'2"	103.20	32'3"	102.20	31'11"	102.45
6S	149.81	33'3"	116.56	34'0"	115.81	35'5"	114.39	35'8"	114.15
6D	149.40	48'2"	101.23	44'3"	105.15	43'11"	105.48	43'6"	105.90
7S	148.53	30'4"	118.20	36'1"	112.45	35'3"	113.28	36'3"	112.28
	150.06	44'11"	105.14	44'6"	105.56	45'0"	105.06	44'9"	105.31
8S	142.09	29'1"	113.01	29'4"	112.76	36'3"	105.84	36'5" Dry	105.67
8D	141.87	36'9"	105.12	38"0"	103.87	38'5"	103.45	38'1"	103.79
9	137.25	39'0"	98.25	39'2"	98.08	40'0"	97.25	39'8"	97.59
Sol 1	148.01	42'6"	105.51	44'0"	104.01	44'10"	103.18	44'8"	103.35
Sol 2	144.54	43'1"	101.46	40'3"	104.29	40'0"	104.54	39'8"	104.88
Snyd 1		32.0"	N/A	36'8"	N/A	37'11"	N/A	37'5"	
Hayes 1		21'1"	N/A	22'10"	N/A	24'10"	N/A	24'9"	
Hayes 2		21/3"	N/A	22'1"	N/A	24'6"	N/A	24'5"	
Creek 1	108.20	2'9"Below Gage	106.05	3'8"Below	105.14	4'8"Below	104.13	5/0" Below	103.80
Creek 2	115.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		sent 6-17-91		sent 7-19-91		sent 8-26-91		sent 9-30-91	

NOTES: July: Solano #1 well reading taken at 12:30pm. The pump had been shut off for 30 minutes after running approximately 5 hours.

WATER LEVEL MEASUREMENTS

SOLANO CONCRETE ROCK PLANT

W. NO.	TOP ELEV.	DATE Oct. 15, 1991		DATE Nov. 15, 1991		DATE Dec. 15, 1991		DATE Jan. 15, 1992	
		Depth	WL Elev	Depth	WL Elev	Depth	WL Elev	Depth	WL Elev
1S	149.78	37'1" Dry	112.70	37" Dry	112.70	37'1"Dry	112.70	33'6"	116.28
1D	149.72	41'11"	107.80	40'5"	109.30	38'9"	110.97	33'8"	116.06
2	146.33	40'7"	105.75	40'3"	106.08	37'10"	108.50	35'6"	110.83
3	134.97	29'0"	105.97	27'10"	107.14	26'5"	108.55	24'5"	110.55
4	134.37	31'5"	102.95	30'4"	104.04	30'2"	104.20	27'7"	106.79
6S	149.81	35'11"	113.89	36'1"	113.73	36'1"Mud	113.73	35'9"	114.06
6D	149.40	42'1"	107.32	40'9"	108.65	38'11"	110.40	35'7"	113.82
7S	148.53	37'0" Dry	111.53	Same		37'0"Dry	111.53	36'6"	112.03
7D	150.06	48'9"	101.31	42'7"	107.48	40'8"	109.40	37'8"	112.40
8S	142.09	36'5" Dry	105.67	36.2"	105.92	34'8"	107.43	32'8"	109.43
8D	141.87	37'3"	104.62	35'11"	106.76	34'9"	107.12	32'6"	109.37
9	137.25	35'9"	101.50	34'4"	102.92	33'5"	103.83	31'11"	105.33
Sol 1	148.01	43'11"	104.09	43'0"	105.01	40'3"	107.76	37'10"	110.18
Sol 2	144.54	38'10"	105.71	38'1"	106.46	36'2"	108.37	33'7"	110.96
Snyd 1		36'8"	N/A	35'11"	N/A	32'11"	N/A	32'0"	N/A
Hayes 1		24'7"	N/A	29"9"	N/A	29'7"	N/A	28'6"	N/A
Hayes 2		24'3"	N/A	28'0"	N/A	28'5"	N/A	28'0"	N/A
Creek 1	108.20	4'9" Below	104.05	3'9" Below	105.05	Below 2'8"Gauge	106.14	Below 4"Gauge	108.47
Creek 2	115.07	N/A		N/A		N/A	N/A	N/A	N/A

NOTES: Sent to Professor Scott 1/17/92.

WATER LEVEL MEASUREMENTS

SOLANO CONCRETE ROCK PLANT

OW No.	TOP ELEV.	DATE Feb. 15, 1992		DATE Mar. 15, 1992		DATE Apr. 15, 1992		DATE May 15, 1992	
		Depth	WL Elev	Depth	WL Elev	Depth	WL Elev	Depth	WL Elev.
1S	149.78	30'1"	119.40	30'10"	118.95	32'0"	117.78	35'10"	113.95
1D	149.72	30'2"	119.55	30'9"	118.97	32'5"	117.30	36'9"	112.97
2	146.33	31'1"	115.25	32'3"	114.08	34'2"	112.16	36'5"	109.91
3	134.97	21'11"	113.05	22'3"	112.72	23'7"	111.39	24'4"	110.64
4	134.37	25'8"	108.71	25'9"	108.62	26'5"	107.95	28'7"	105.79
6S	149.81	34'7"	115.23	33'2"	116.64	32'2"	117.64	31'6"	118.31
6D	149.40	32'6"	116.90	31'9'	117.65	40'10"	108.57	43'3"	106.15
7S	148.53	34'11"	113.61	31'0"	117.53	31'6"	117.03	30'3"	118.28
	150.06	34'8"	115.40	34'5"	115.64	38'7"	111.48	41'2"	108.89
8S	142.09	30'11"	111.17	30'1"	112.01	30'8"	111.43	29'7"	112.51
8D	141.87	30'4"	111.54	29'8"	112.21	30'8"	111.21	34'1"	107.79
9	137.25	30'3"	107.00	29'10"	107.42	29'11"	107.33	37'9"	99.50
Sol 1	148.01	32'10"	115.18	32'9"	115.26	35'8"	112.35	37'8"	110.35
Sol 2	144.54	30'1"	114.46	30'1"	114.46	34'4"	110.21	37'0"	107.54
Snyd 1		31'2"	N/A	30'11"	N/A	30'0"	N/A	31'3"	N/A
Hayes 1		27'9"	N/A	27'6"	N/A	27'0"	N/A	23'4"	N/A
Hayes 2		27'1"	N/A	26'11"	N/A	23'8"	N/A	22'0"	N/A
Creek 1	108.20	Above 1'9" Zero	110.55	Above 1'7" Zero	110.38	Below Gage 0'2"	108.63	Below Gage 0'7"	108.22
Creek 2	115.07	N/A	N/A	N/A	N/A				
GNOS #1				27'6"	N/A	27'11"	N/A	32'3"	N/A

NOTES: 4-15-92: Solano #2 Pump Running, OW#6 Nearby Pump running, Hays #1 Nearby Pump Runnin

5-15-92: Pumps running near OW6, Solano #1 pump was running

WATER LEVEL MEASUREMENTS

SOLANO CONCRETE ROCK PLANT

OW No.	TOP ELEV.	DATE June 15, 1992 Depth	WL Elev	DATE July 15, 1992 Depth	WL Elev	DATE Depth	WL Elev	DATE Depth	WL Elev
1S	149.78	36'7"	113.20	36'8"	113.12				
1D	149.72	39'0"	110.72	39'10"	109.89				
2	146.33	40'7"	105.75	40'9"	105.58				
3	134.97	27'3"	107.72	28'7"	106.39				
4	134.37	29'1"	105.29	31'0"	103.37				
6S	149.81	33'4"	116.48	39'2"	110.64				
6D	149.40	41'4"	108.07	42'11"	106.48				
7S	148.53	34'2"	114.26	35'8"	112.87				
	150.06	42'11"	107.14	43'9"	106.31				
8S	142.09	27'10"	114.26	29'1"	113.01				
8D	141.87	36'9"	105.12	37'2"	104.70				
9	137.25	34'7"	102.67	35'9"	101.50				
Sol 1	148.01	39'9"	108.26	39'8"	108.35				
Sol 2	144.54	39'1"	105.46	38'11"	105.62				
Snyd 1		33'2"	N/A	33'10"					
Hayes 1		24'9"	N/A	23'2"					
Hayes 2		25'5"	N/A	22'1"					
Creek 1	108.20	2'6" Below Gage	106.30	3'4" Below Gage	105.47				
Creek 2	115.07								
GNOS		41'3"	N/A	40'6"					

NOTES:

Gnos Pump was running, Hayes # 2 pump was running. 6-15-92
OW9 - Nearby pump running 7-15-92
Gnos - Pump running before reading 7-15-92

GROUNDWATER RECHARGE
FOR
RECLAMATION PLAN
Solano Concrete Madison Plant
Yolo County, California*

The potential for groundwater recharge by Cache Creek and on lands adjacent to the Creek has been cited in a number of technical reports (Woodward and Clyde Associates, 1976, 1979 & 1980; Environ, 1980, Wahler Associates, 1981 & 1982; Borcalli and Associates, 1990 & 1992). It was also cited in the Reclamation Plan submitted by the Applicant in 1979 as it pertained to the Hutson parcel.

In general, groundwater recharge of the Solano Concrete Madison Plant parcels results from several sources, namely vertical infiltration of rainfall, irrigation water in excess of crop water requirements and soil retention, leakage from unlined ditches, infiltration along Cache Creek during periods of flow and underground flow from the north and west. The major sources of groundwater recharge are rainfall and excess irrigation water.

The contribution from Cache Creek is largely upstream of highway I-505, which was identified by Woodward and Clyde (1979) as a losing reach of the Creek. However, simultaneous measurements of water levels in the Creek and observation wells adjacent to the Creek on Solano parcels since October 1990 indicate a direct correlation between these water levels (Scott, 1992). This relationship demonstrates a hydraulic connection between the Creek and the adjacent land to the south of the Creek. Therefore, infiltration from the Creek does take place along the north boundary of the Solano parcels. This also indicates that the Creek channel along the Solano property is a losing reach during the hydrologic conditions that existed during the recent drought. Water infiltrating from the Creek joins the general groundwater flow to the south and east.

Discharge of groundwater from the Solano parcels takes place as underground flow to the south, southeast, and east depending on groundwater gradients in those directions. Some of the flow to the east may appear in the Creek downstream of Moore Dam in a section defined by Woodward and Clyde (1976) as a gaining reach.

*By Verne H. Scott, Water Resources Consultant, 437 'F' St, Davis, CA 95616, 916-756-2291, Fax 916-756-9141

The Reclamation Plan of the Applicant includes depressed reclamation areas which combine reclaimed agricultural areas and agricultural buffer zones. Both will facilitate groundwater recharge.

Precipitation on all the land areas of the depressed reclamation area will have the potential to percolate into the groundwater. There will be no runoff beyond the reclaimed areas due to the combination of the depressed surfaces and designed control of the surface runoff into agricultural reclaimed areas. Natural recharge will not be reduced, but will be enhanced by confining all the runoff from rain that falls within the depressed areas.

The backfill material, which will replace the mined gravel and be placed in accordance with predetermined design procedures, will actually have greater storage and yield capacity than the removed gravel because of its uniformity and distribution of particle sizes. The specific yield of the in-situ alluvium is in the range of 6 to 10 percent by volume, whereas, the yield of the backfill material will be in the range of 10 to 20 percent. The backfill material will, however, yield this contained groundwater more slowly because of a relatively lower hydraulic conductivity, and it will act as a slight impediment to the movement of groundwater in the alluvium surrounding it. This effect is insignificant on a regional basis as the groundwater is still free to move: (a) within the sands and gravels around the backfilled areas; (b) beneath the backfilled areas; (c) through the agricultural buffer zones; and (d) through the backfilled areas itself.

Further evidence that the backfill materials will provide adequate recharge to the groundwater is demonstrated by the performance of the existing settling ponds. Relatively well graded, fine materials have been discharged into the settling ponds from the Plant. The pond water level moves up and down similar to the groundwater levels as measured in the observation wells with no apparent adverse effect on infiltration over a period of years.

When the clay layers which now exist in some areas within alluvium and which impede groundwater movement are removed by mining and are replaced by backfill material, the vertical and horizontal movement of water will be greater than under natural conditions. This is because the hydraulic conductivity of the backfill material (in the range of 4.1 to 40.8m/day) will be greater than the hydraulic conductivity of the clay layers (in range of 0.041 to 0.408m/day).

During the mining process, ponds will be created which will extend below the water table. These ponds will provide maximum storage of water within their boundaries, since 100 per cent of the mined volume will be water. This means an increased increment of storage in the range of 10 to 16 times more than would be stored in the in-situ alluvium.

When the mining ponds are converted in the future to wet ponds, the same advantage would be expected.

In addition, the mined areas of the Solano project have been identified within an overall county-wide concept of water management as suitable areas for potential artificial ground water recharge and extraction (Borcalli, 1990 & 1992). The primary considerations relative to suitability are geologic and hydrologic conditions, i.e., (1) depth and extent of surface soils; (2) horizontal and vertical extent of coarse grained alluvium materials and direct contact with these materials; hydraulic characteristics (hydraulic gradients, transmissivity and hydraulic conductivity) of alluvium materials; and (3) depth to the groundwater table. The extraction component of the management concept means that the introduction of permanent wet ponds could serve as temporary storage for water that would be pumped into the Creek and/or into surface canals or ditches at a later, more advantageous time.

The County has received public comment regarding perceived risks of groundwater contamination through accidental spillage of toxic contaminates directly into the ponds. This risk is extremely low considering the levying of the depressed areas, storage and confinement of toxic materials within the plant site, and the potential for the alluvial materials to absorb some organics in the transmission process of groundwater flow. Thousands of ponds and reservoirs throughout California are subject to the same risk of accidents involving toxic materials.

Another general question that may be raised is the effect of the Reclamation Plan on nearby water wells. The specific question is: will the excavation of the gravel and subsequent filling with backfill material result in a permanent change in the aquifer system beneath the property which in turn would have an adverse effect on the production of nearby wells? An evaluation by Woodward and Clyde (1980) on the effects created by refilling all the excavated volume on the Hutson property was stated to be "largely minimal", i.e., "an increase in drawdown of 0.5 feet for a well approximately 0.5 miles from the center of the proposed pits to two feet for a well very close to the pits" for the completed project.

Field results of groundwater monitoring since 1990 indicate that this evaluation is correct. Seasonal water levels in and near the excavations and reclaimed areas indicate little or no effect on water wells in the vicinity of the project site.

Summary: The proposed mining and reclamation plan will have essentially no impact on the groundwater hydrology of the region. In fact, there could be an enhancement to groundwater recharge through increased storage, better hydraulic transmission characteristics, optimum efficiency in transferring runoff into recharge and potential for integration of artificial groundwater recharge storage and extraction for regional distribution. Little or no effect on nearby wells can be expected.

Finally, a systematic monitoring and analysis program will be maintained to detect any adverse effects. This program includes: (a) the regular monthly monitoring of water levels in the observation and production wells and in the Creek, (b) annual measurement of production well discharge and efficiency, and (c) annual sampling and analysis of water quality in the observation and production wells. All of this data will be analyzed and related to local and regional hydrologic conditions.

REFERENCES

Borcalli and Associates: Cache Creek - Capay to Yolo: A Concept of Water Resources Management, May 1990.

Draft Yolo-Solano Supplemental Water Supplies Reconnaissance Level Investigation of Alternatives, May 1992.

Environ: Draft Environmental Impact Report on the Sand and Gravel Operation Along Cache Creek Between Capay and Yolo, Yolo County, 1980.

Pruitt, W.O.: "Development of Crop Coefficients Using Lysimeters", Proceedings, International Symposium on Lysimetry, July 1991.

Scott, V.H.: Groundwater Hydrology Report, November 1992.

Wahler Associates: Preliminary Hydrologic Report, Cache Creek Aggregate Resources, Yolo County, California, June 1981.

Geologic Report, Cache Creek Aggregate Resources, Yolo County, California, April 1982.

Woodward and Clyde Associates: Aggregate Extraction in Yolo County, A Study of Impacts and Management Alternatives, August 1976.

Report on Evaluation of Groundwater Changes, Upper Cache Creek Groundwater Basin, September, 1979.

Report on Sail Drainage and Groundwater Evaluation, Hutson Property, Yolo County, 1980.

Attachment 2

Request for Information on Wells Within 1,000 Feet of Limits of Wet Pit Mining

AGGREGATE RESOURCES
2365 Iron Point Rd Ste. 120
Folsom, CA 95630

VIA: U.S. Mail with Return Receipt Confirmation

November 13, 2017

Defty Family Trust
P.O. Box 8608
Woodland, California 95776

Subject: **CEMEX Cache Creek Facility (Yolo County Zone File #95-093)**
Request for Information on Wells Within 1,000 Feet of Limits of Wet Pit Mining
For APNs 025-450-019, -020, -021, and -022

To Whom It May Concern:

As you may know, CEMEX Construction Materials Pacific, LLC. ("CEMEX") operates the existing Cache Creek mining and processing facility pursuant to the Solano Concrete Long-Term Off-Channel Mining Permit Zone File #95-093. CEMEX is developing an application to amend its mining and reclamation plan, including a modification to the phasing configuration and sequence for wet-pit mining within 1,000 feet of your properties bearing APN numbers 025-450-019, -020, -021, and -022. As part of its application, CEMEX has commissioned a groundwater analysis to evaluate the effect of the proposed changes in the mining plan on the groundwater levels and quality of off-site active wells.

Yolo County Code, Section 10-4.502(b)(2) stipulates that each property owner owning parcels within 1,000 feet of the proposed limits of wet pit mining shall be contacted and queried about wells that may be located near the wet pit mining area. Although you are not required to do so, we would appreciate your cooperation in providing the following to better inform our technical review:

- Well depth and all available construction information
- Construction date for well(s)
- Well use (for example, domestic or agricultural irrigation)
- Detailed location (coordinates or scaled map such as google earth printout)

For your convenience, we have included a self-addressed envelope with postage. You may also send us this information by email. Please feel free to contact 316.640.6305 if you have any questions or wish to discuss.

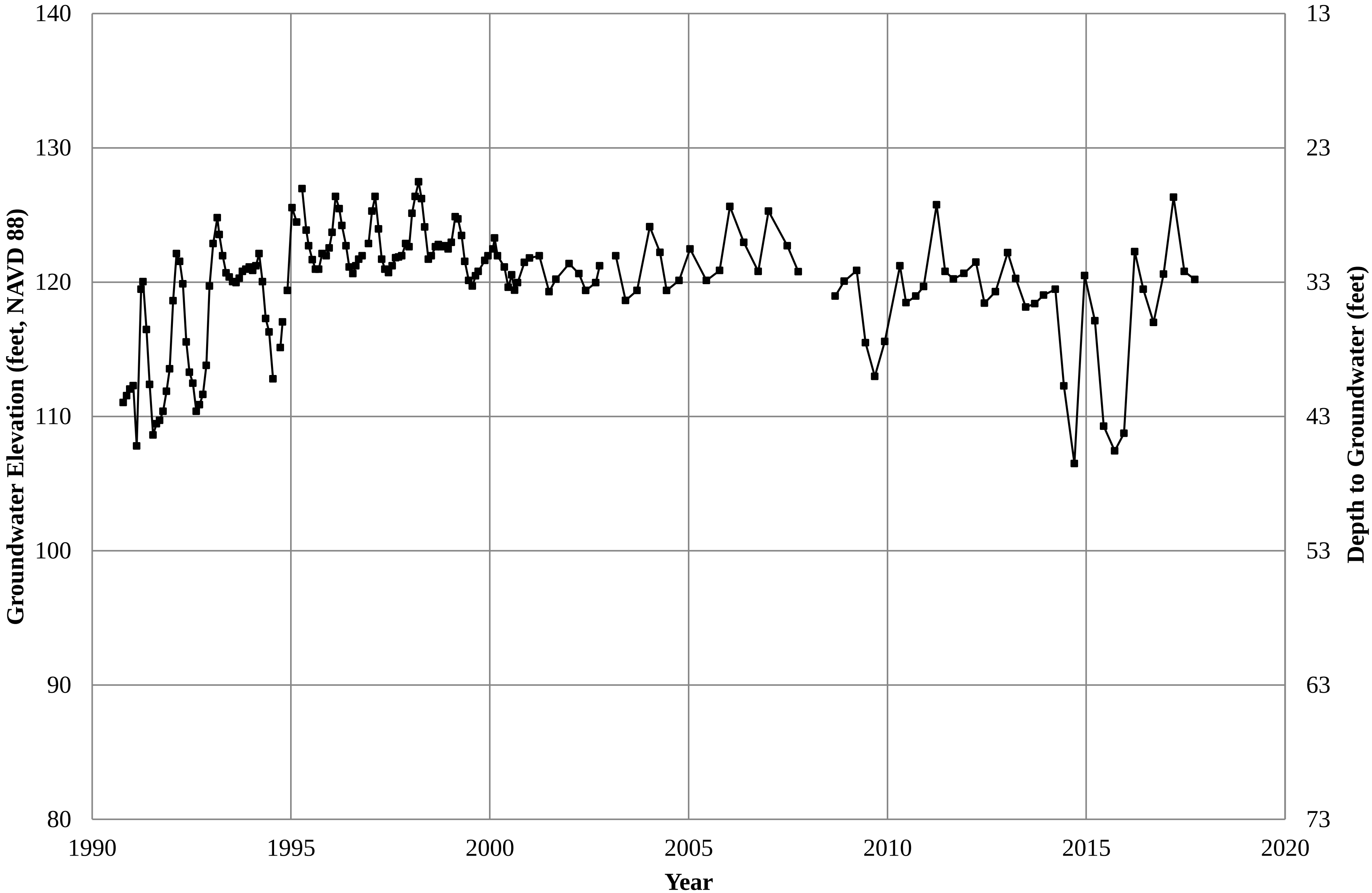
Regards,

Tim Stranimier
Manager – Aggregate Resources
timothys.stranimier@cemex.com

cc: Elisa Sabatini, Yolo County

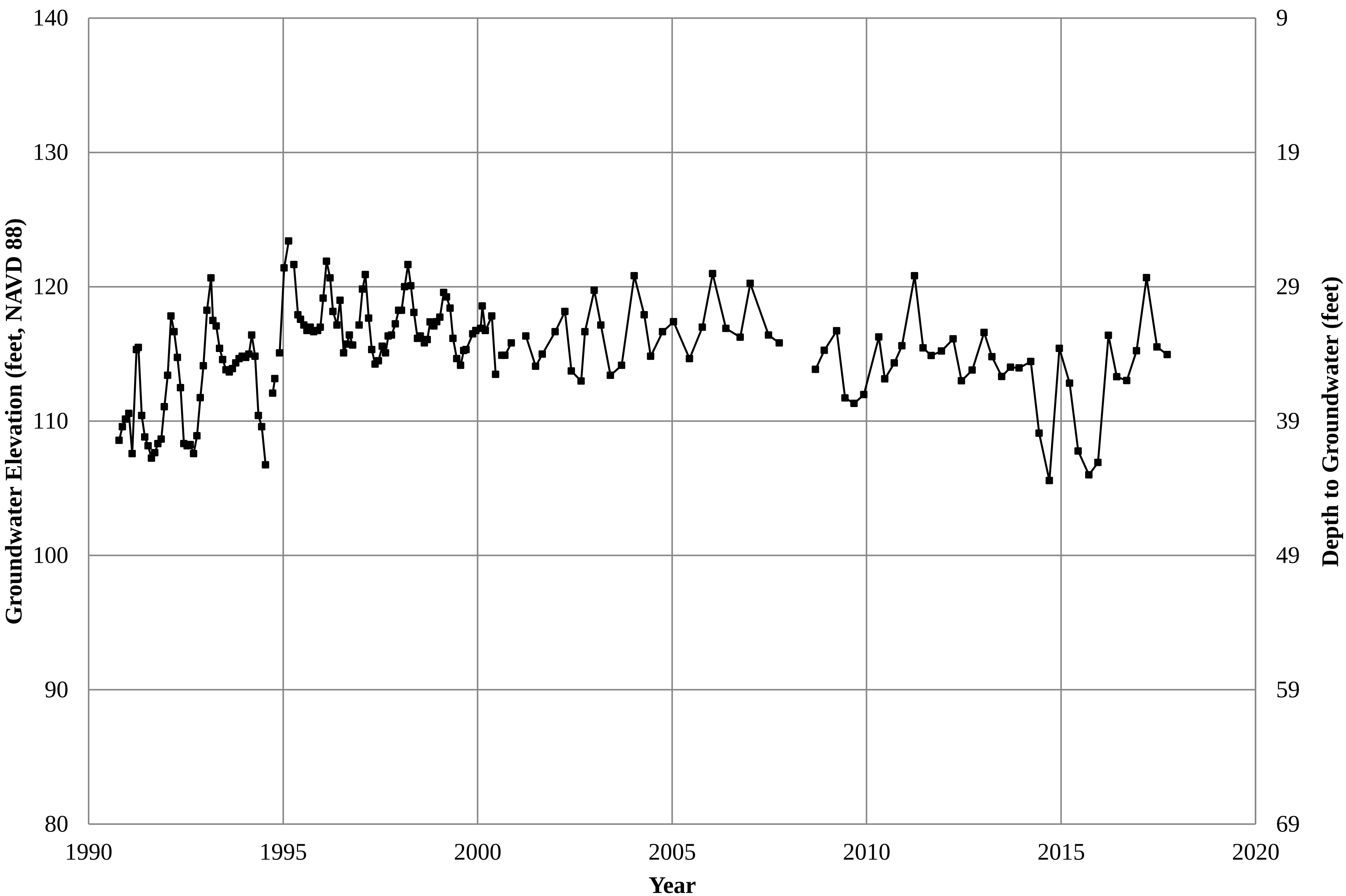
Attachment 3

Groundwater Elevation Hydrographs



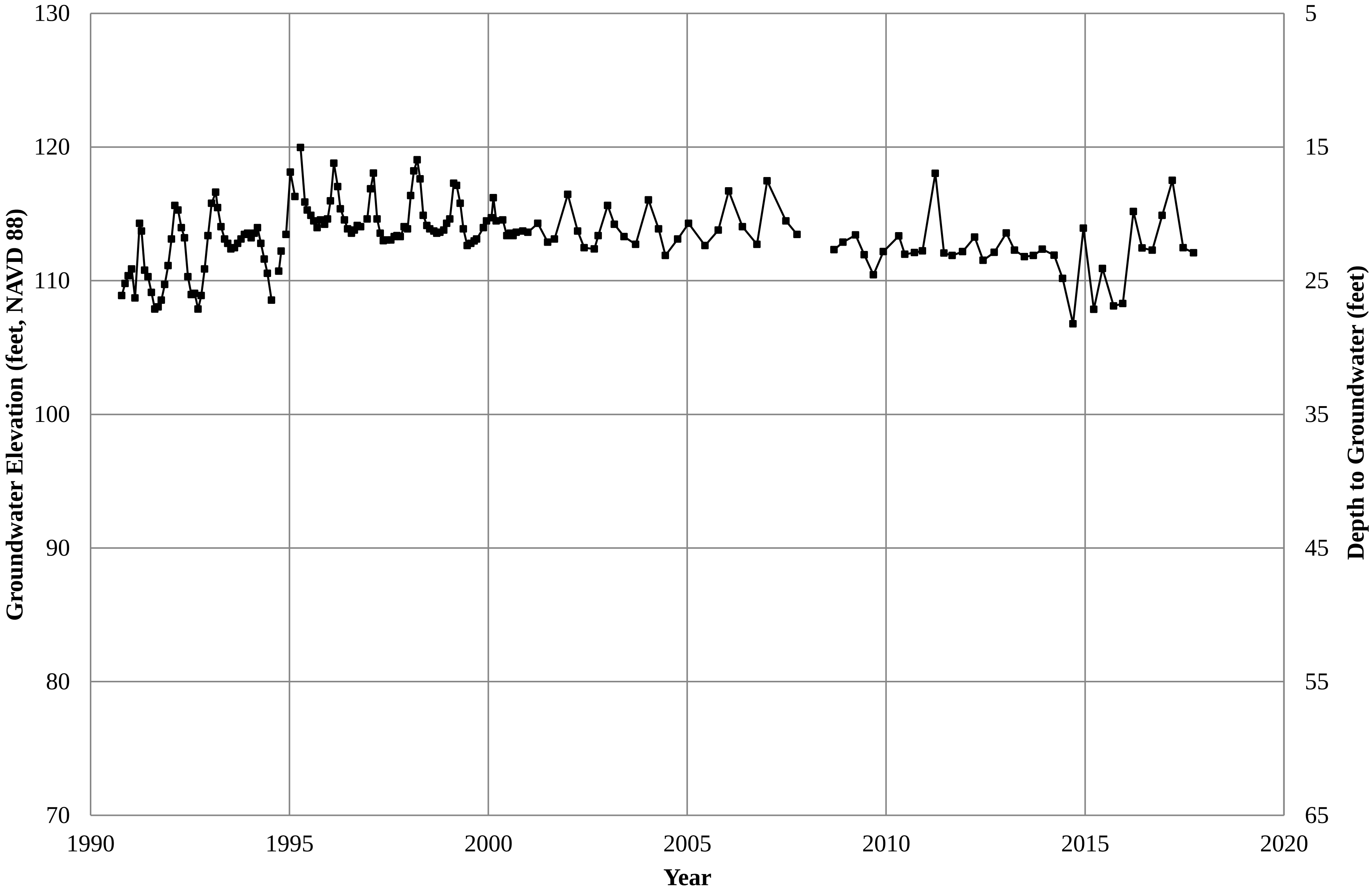
LUHDORFF & SCALMANINI CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-1d



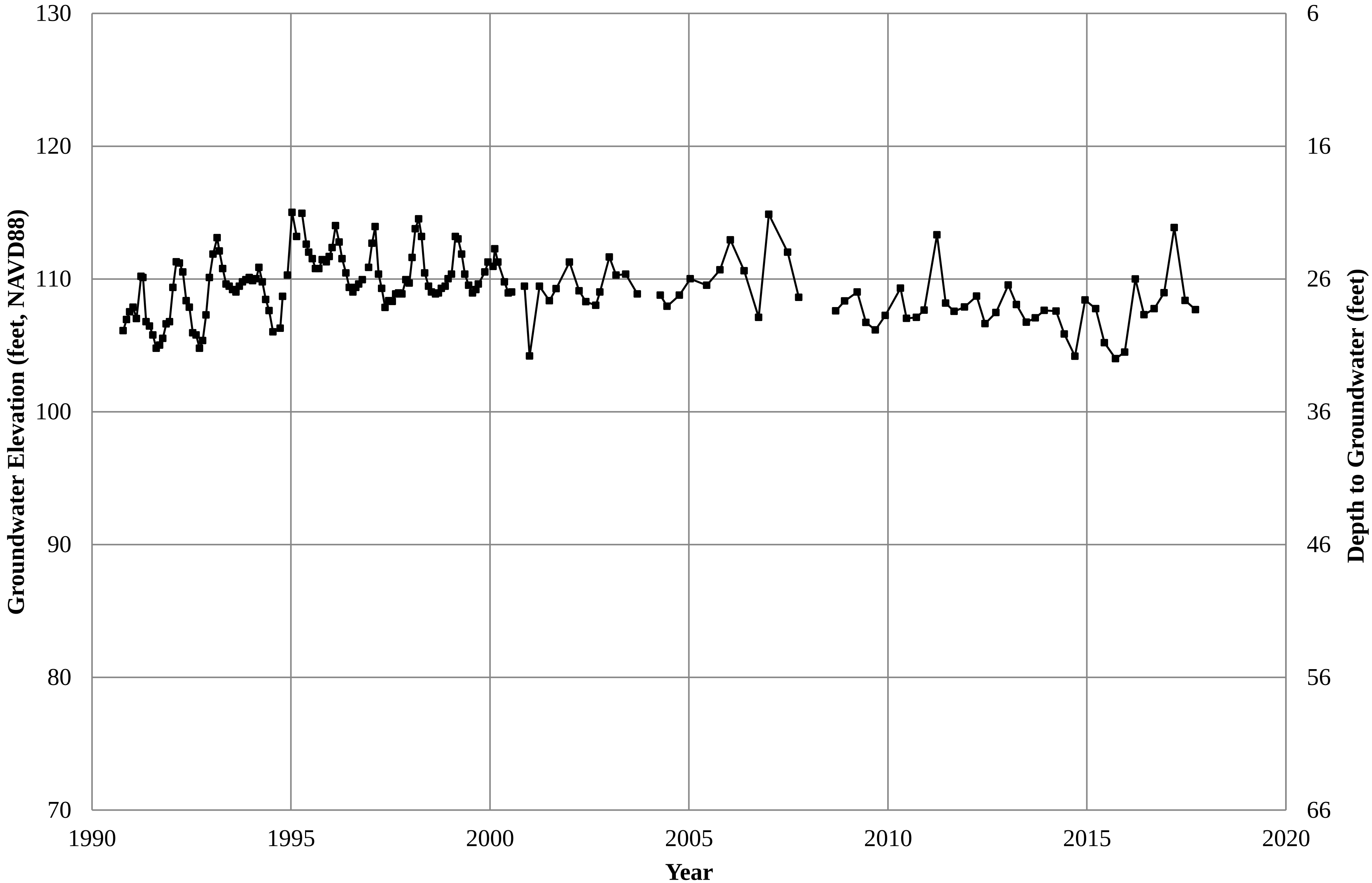
LUHDORFF & SCALMANINI CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-2



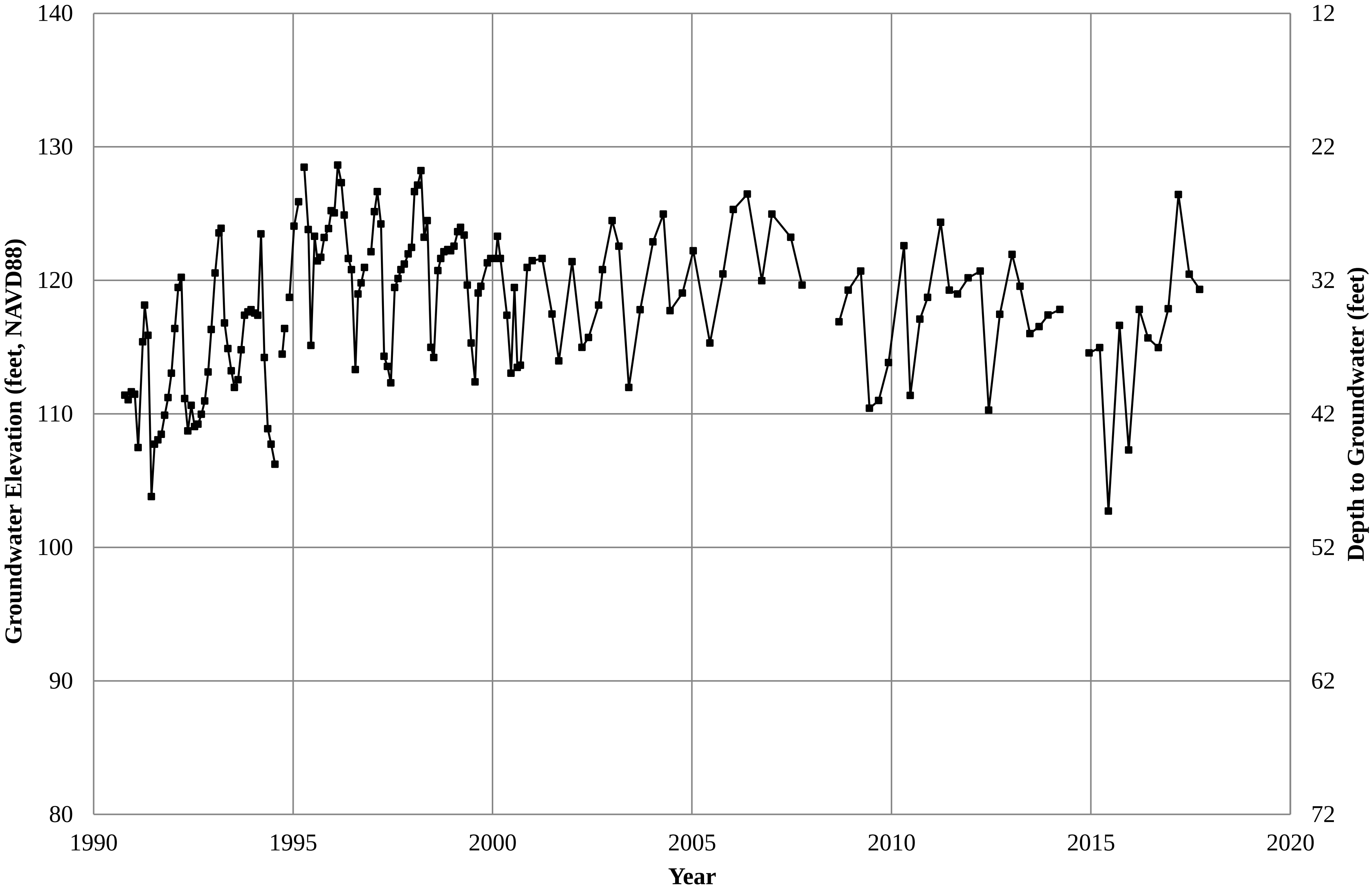
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-3



LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-4



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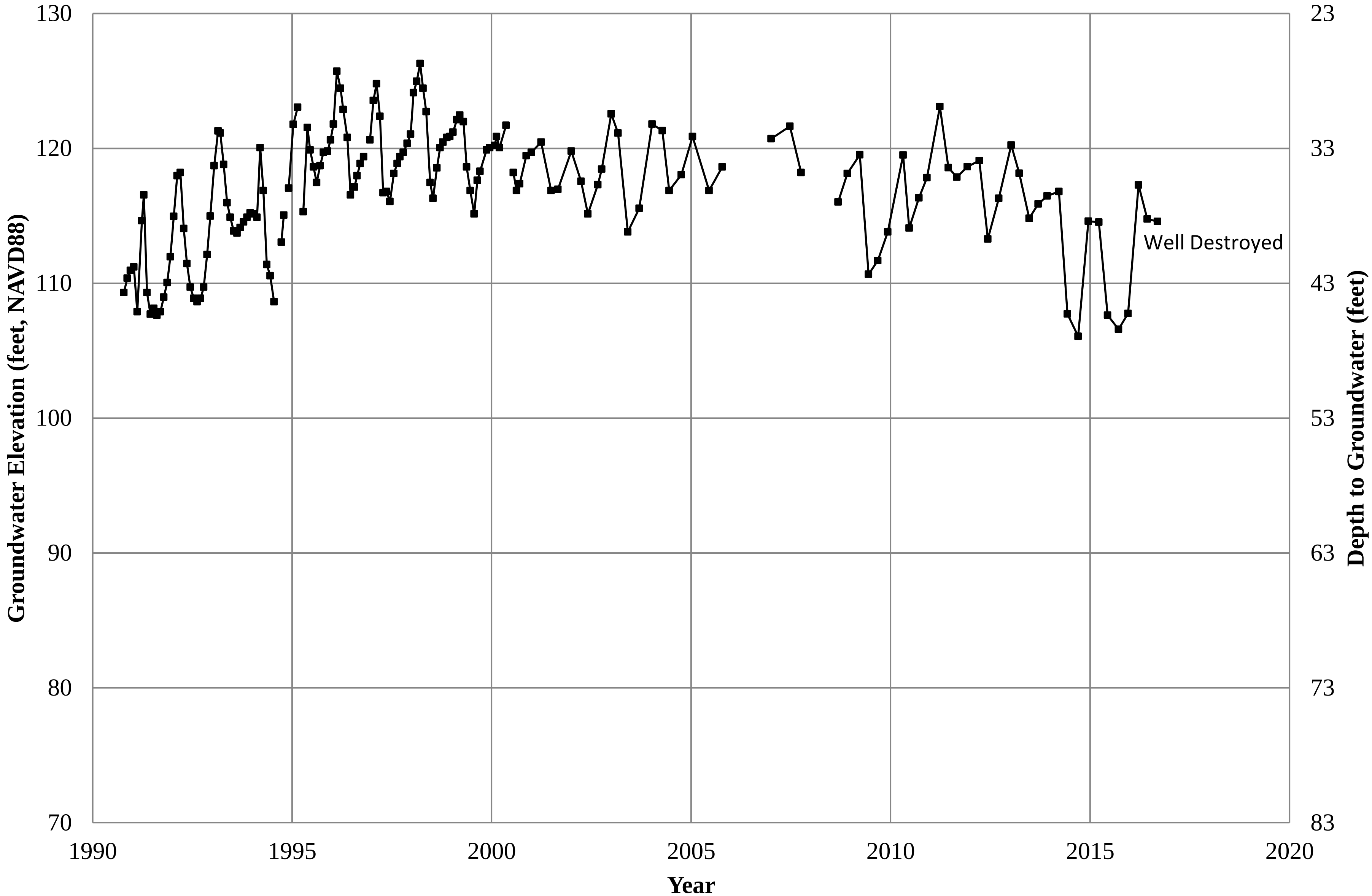
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-6d



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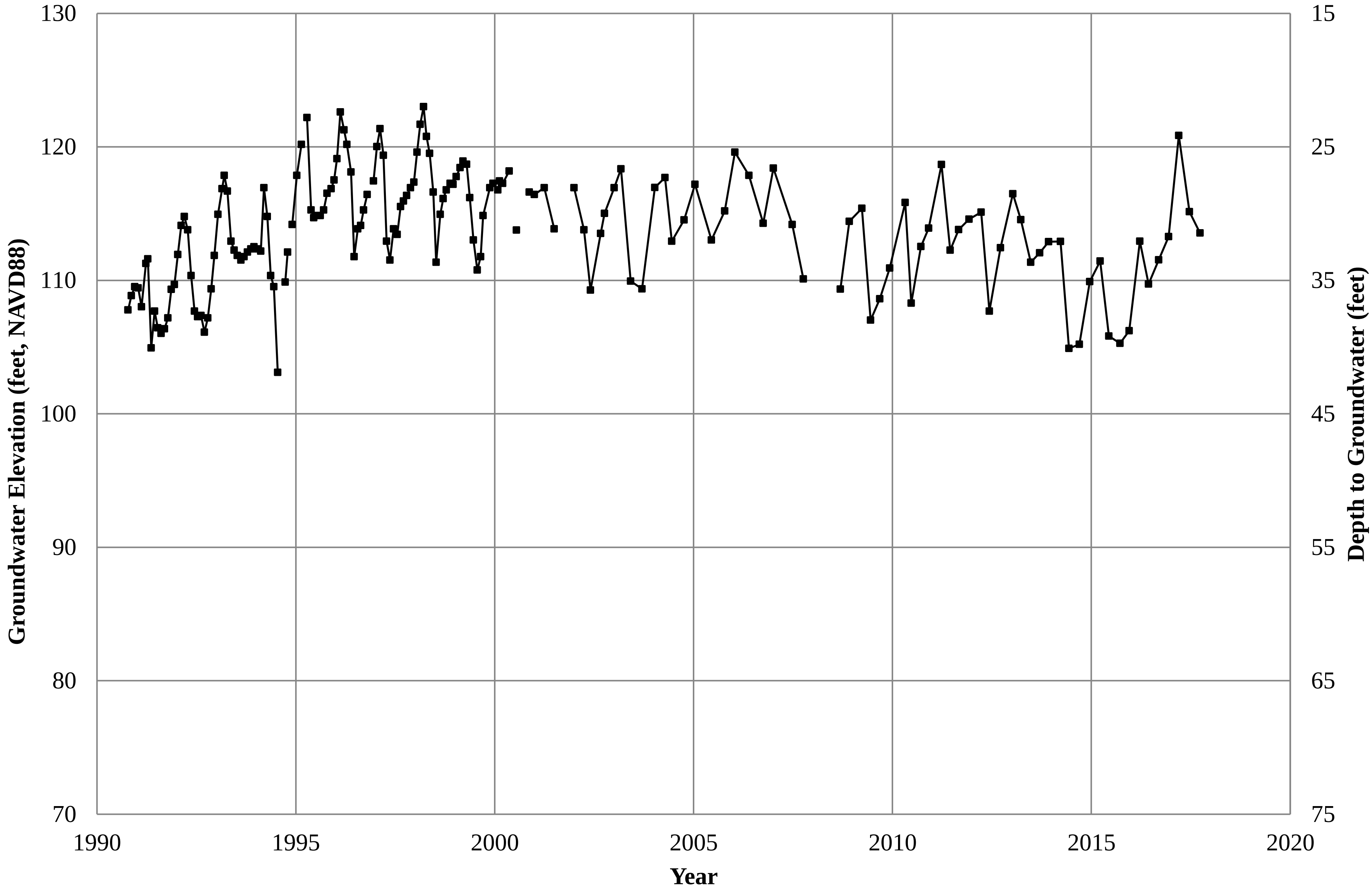
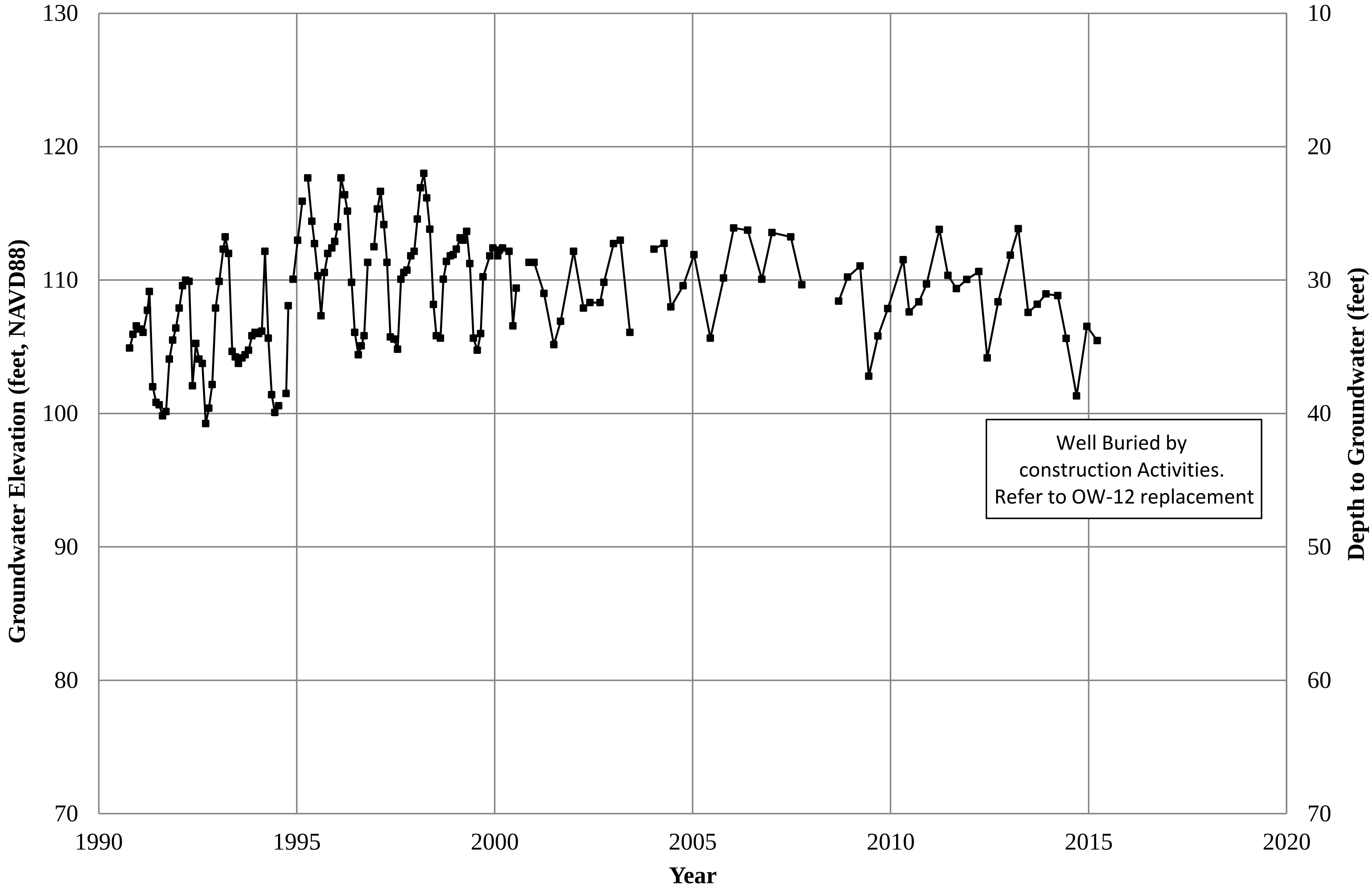
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-7d



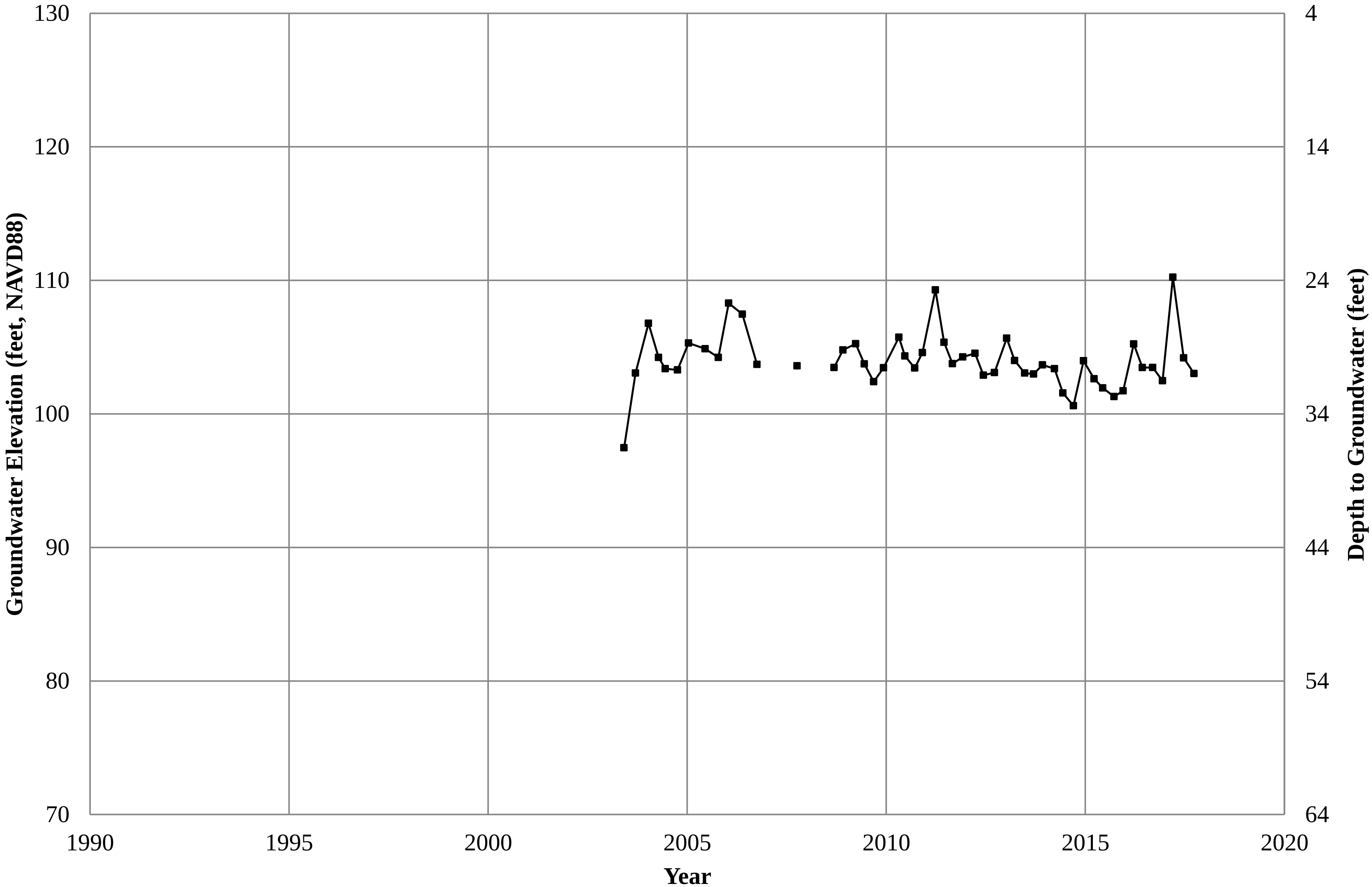
LUHDORFF & SCALMANINI CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-8d



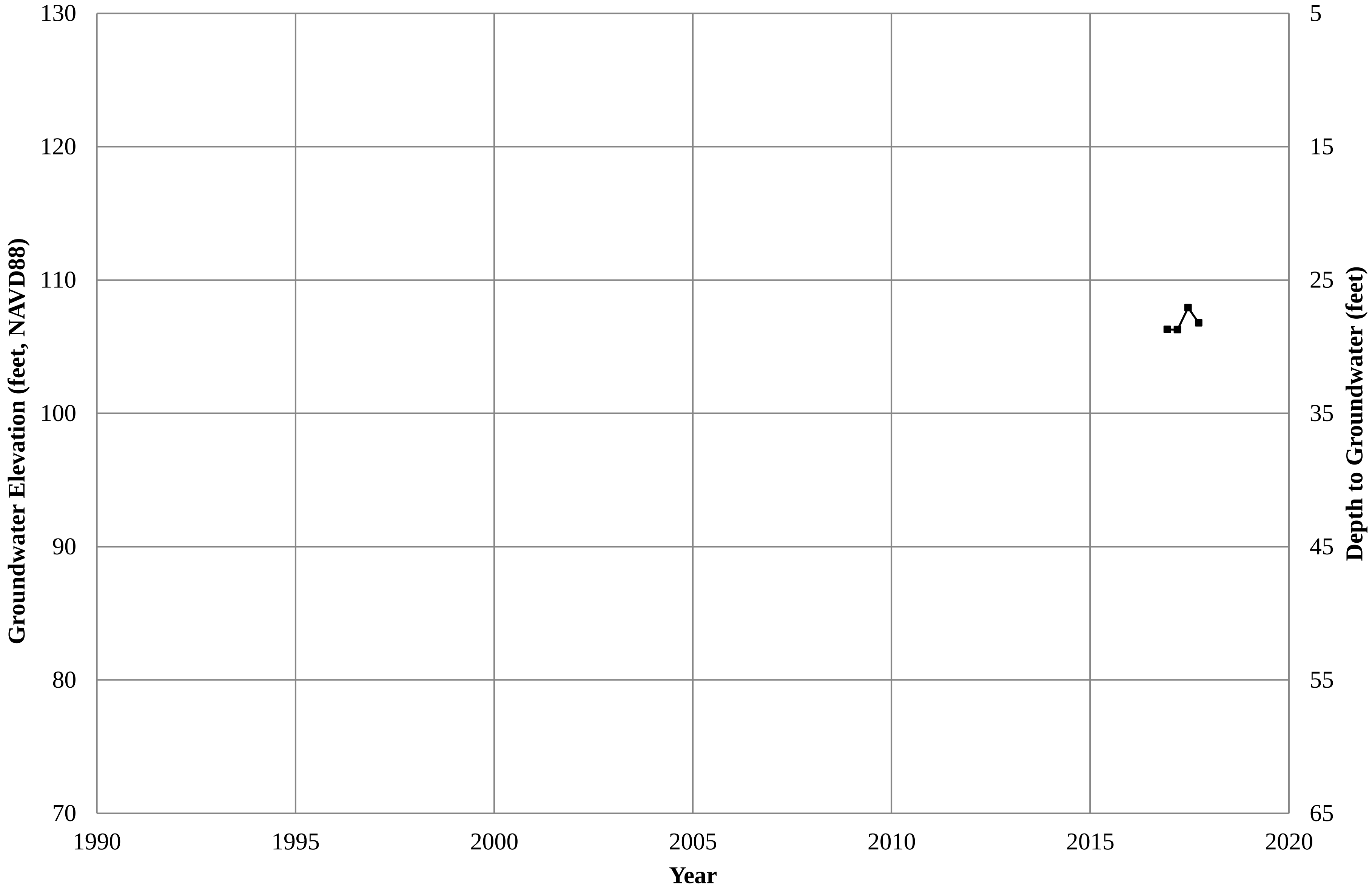
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-9



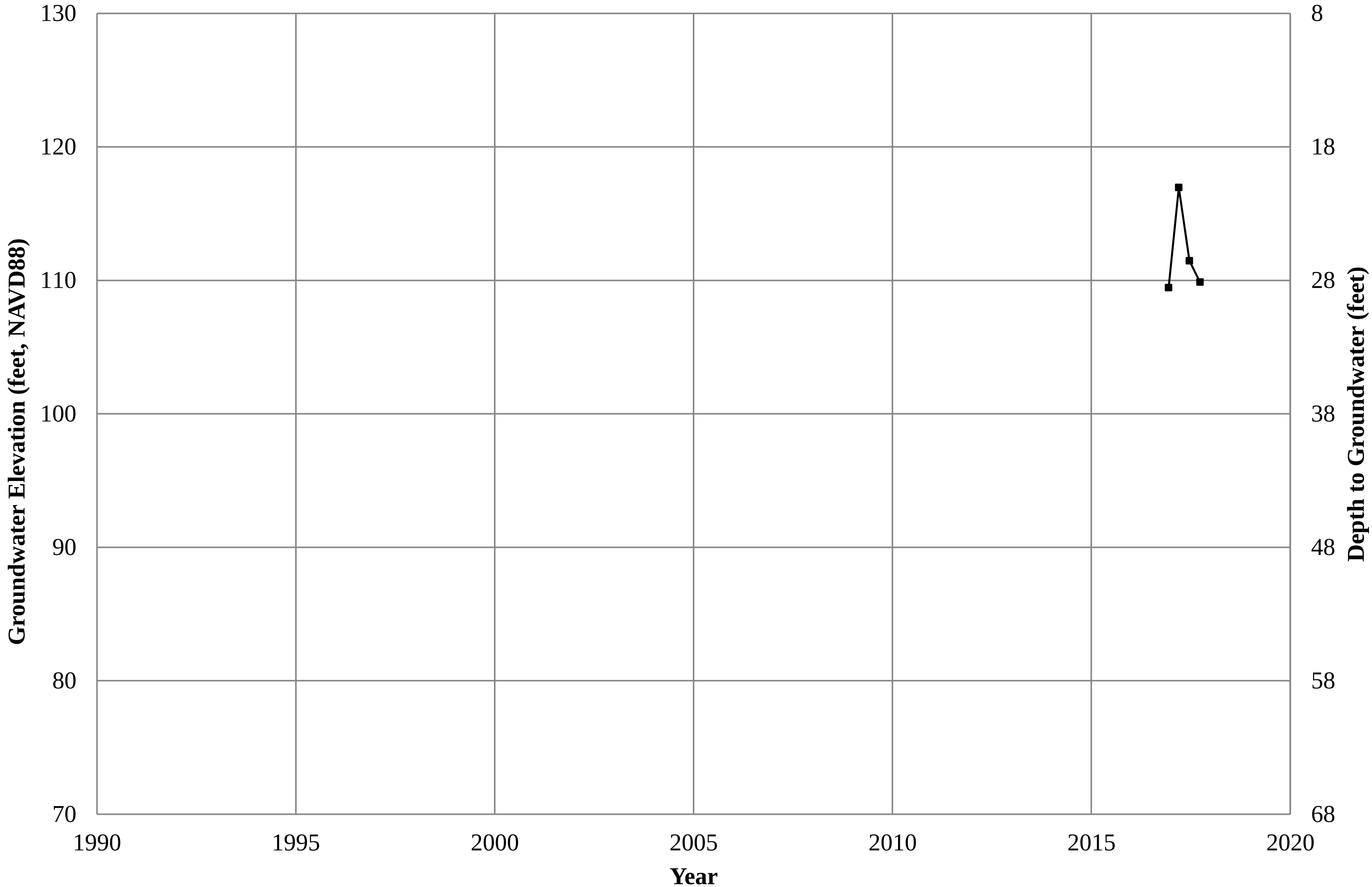
LUHDORFF & SCALMANINI CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-10



LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-11



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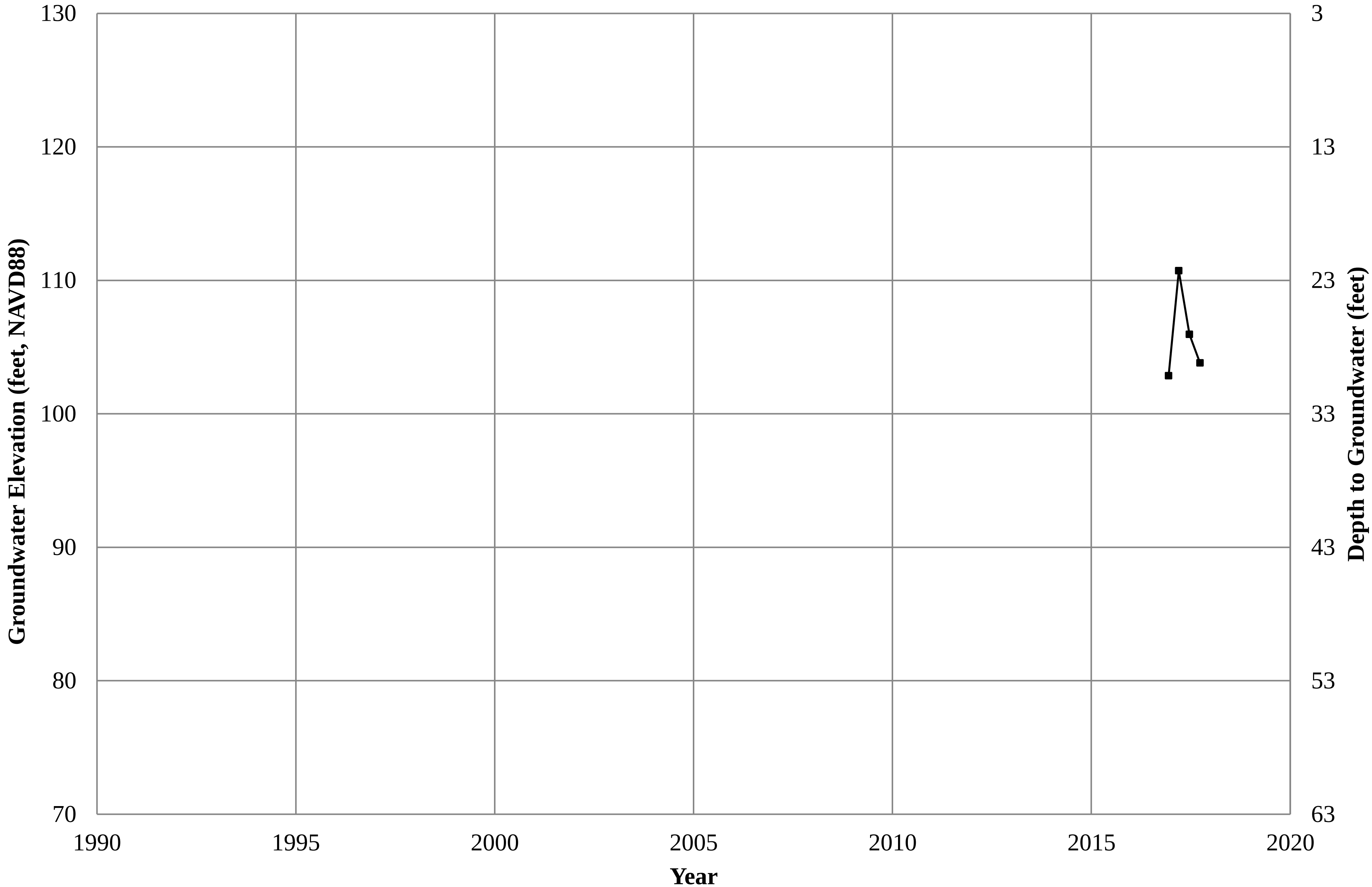
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-12



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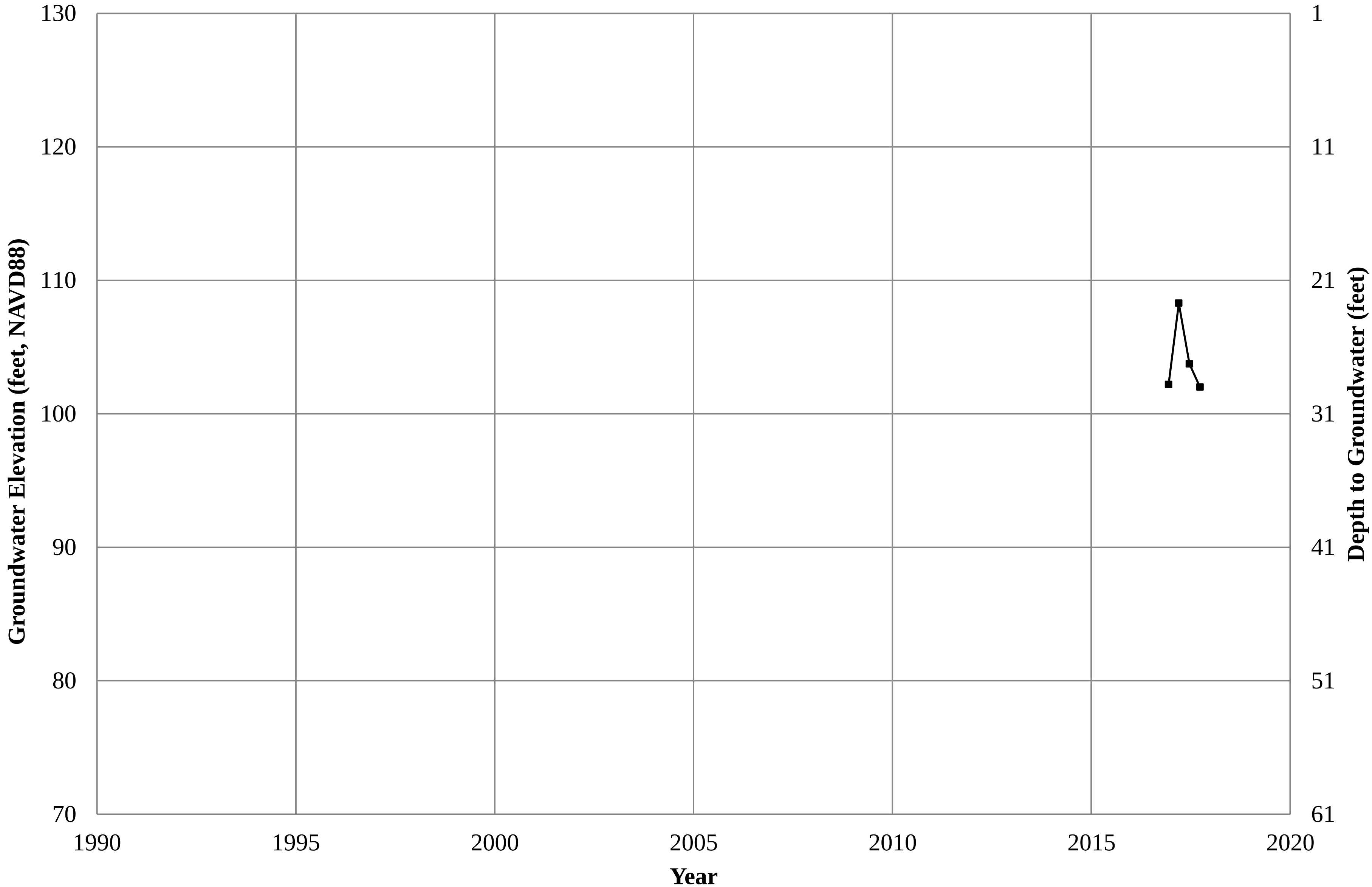
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-13



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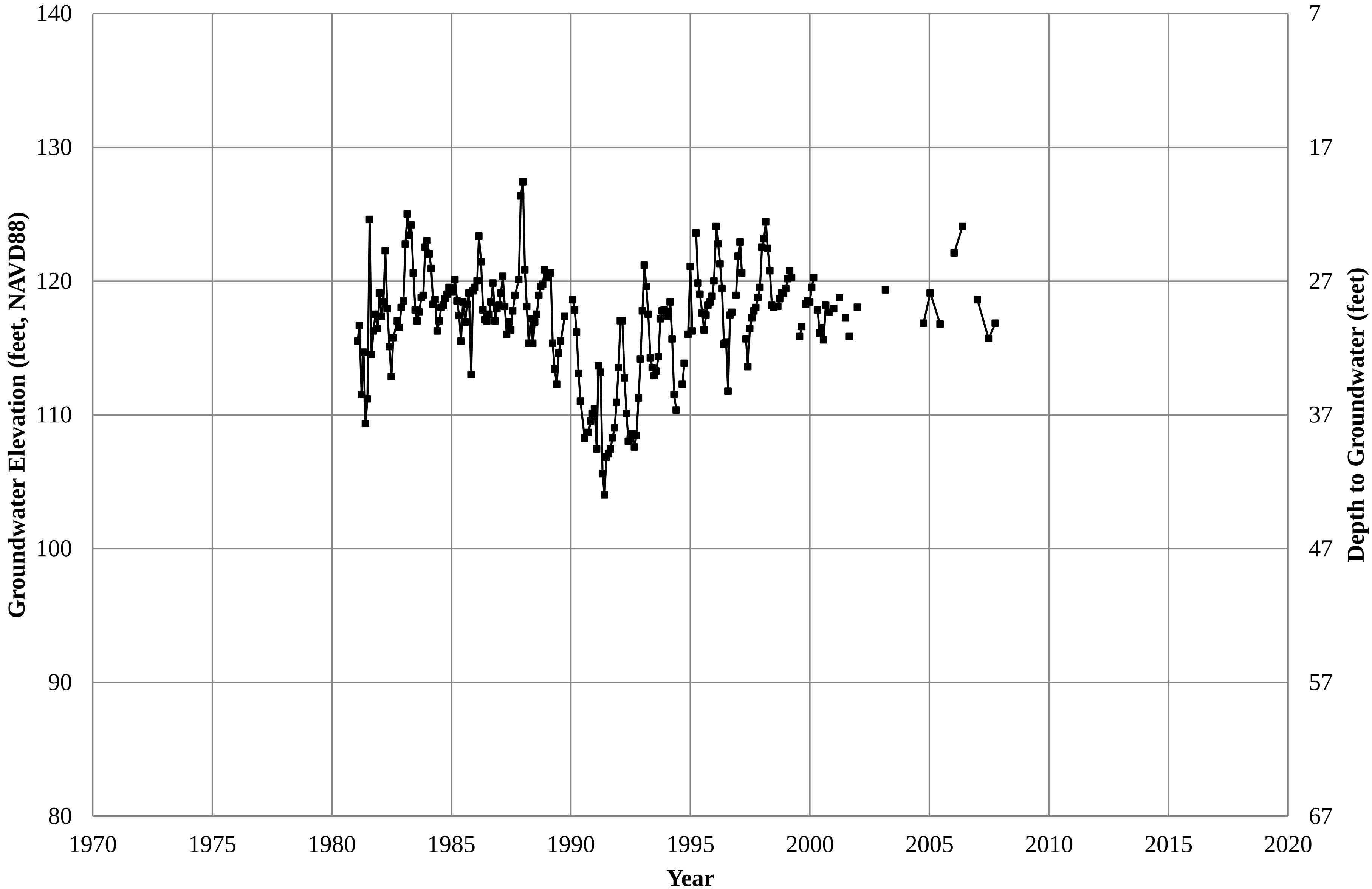
CONSULTING ENGINEERS

CEMEX - Cache Creek Mine, Yolo County, CA
Observation Well OW-14



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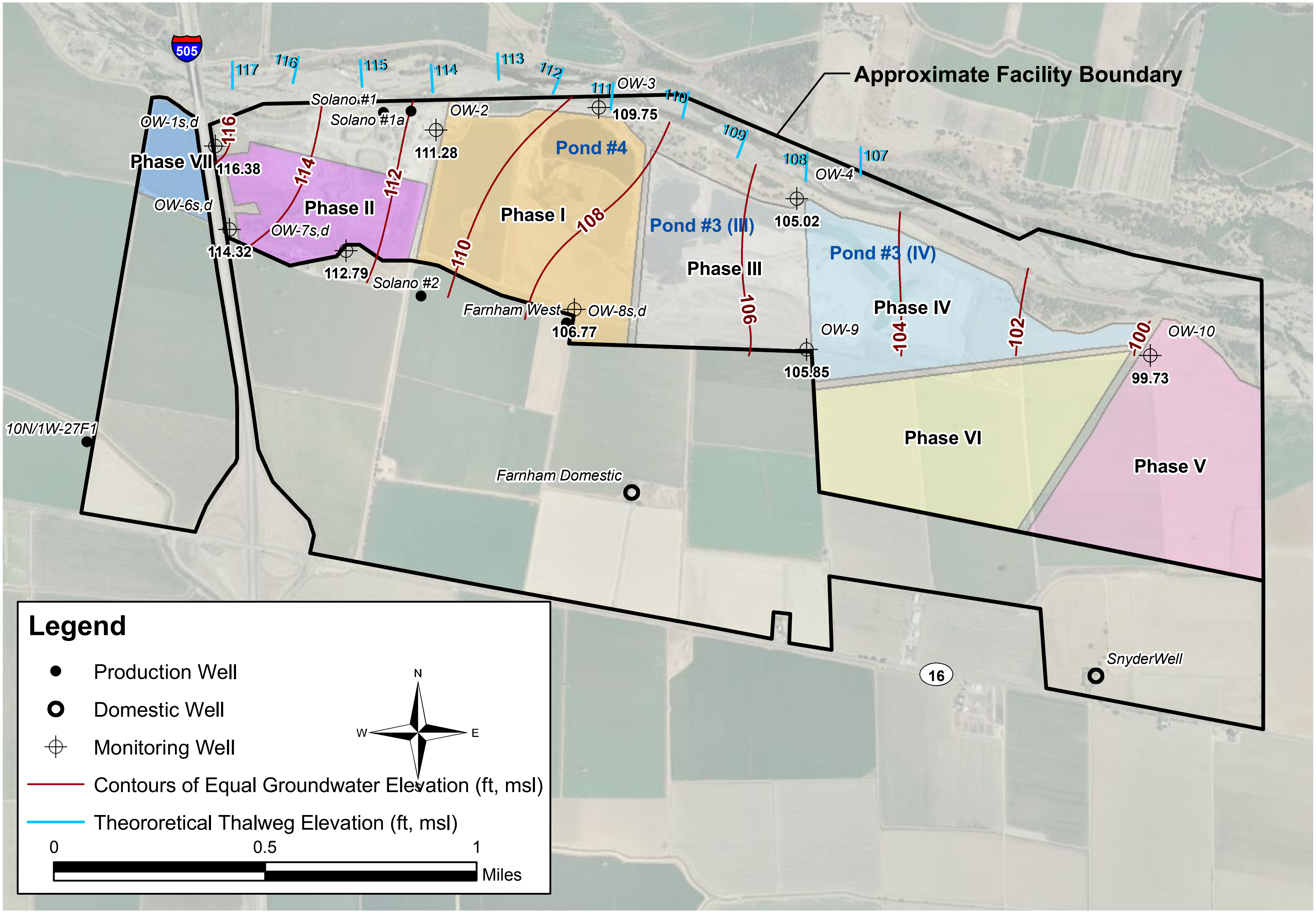
CEMEX - Cache Creek Mine, Yolo County, CA
Solano 2 Production Well

Attachment 4

Contours of Equal Groundwater Elevation, CEMEX Madison 2008-2016



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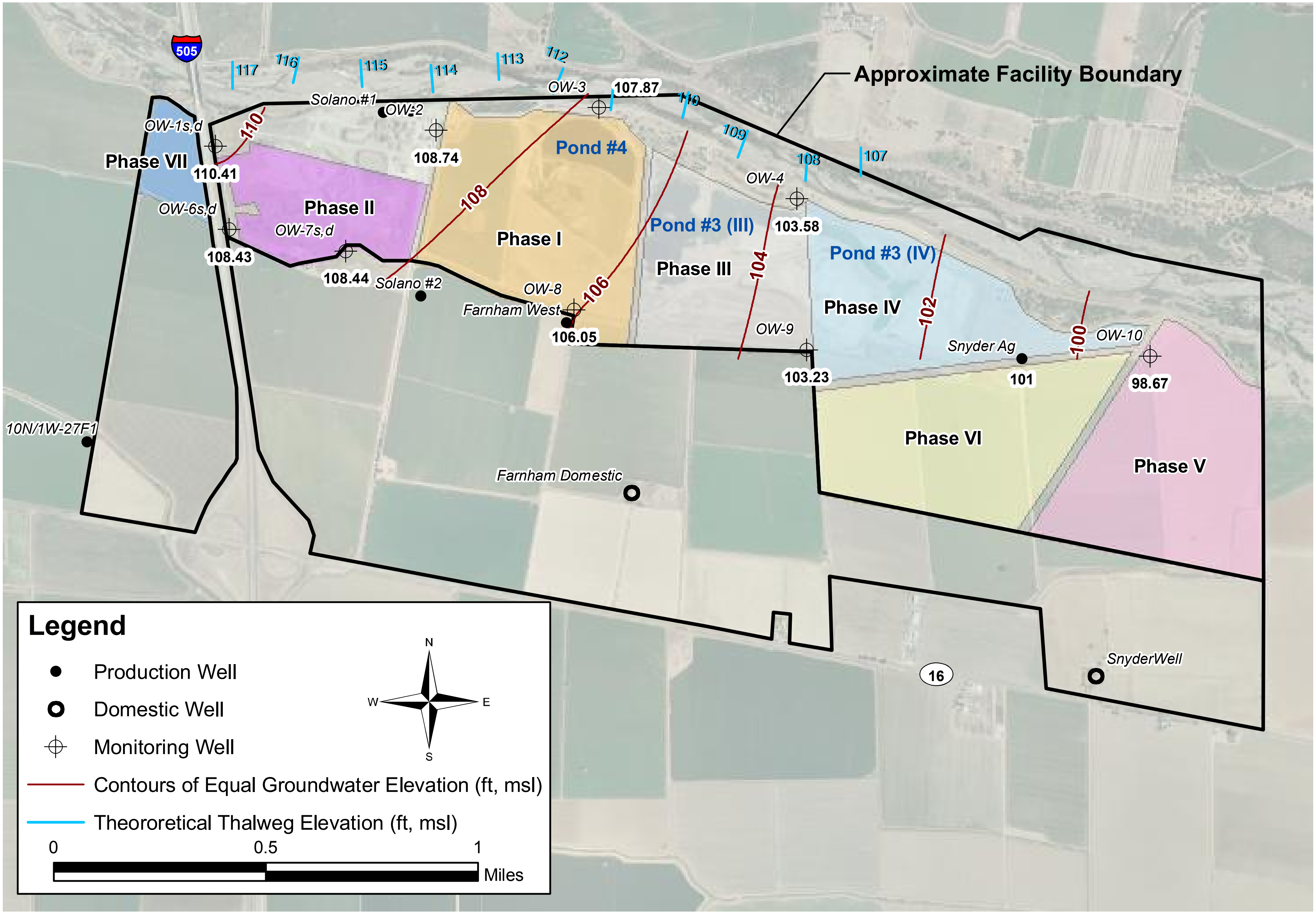
Contours of Equal Groundwater Elevation, September 2008
CEMEX - Cache Creek Mine, Yolo County, CA



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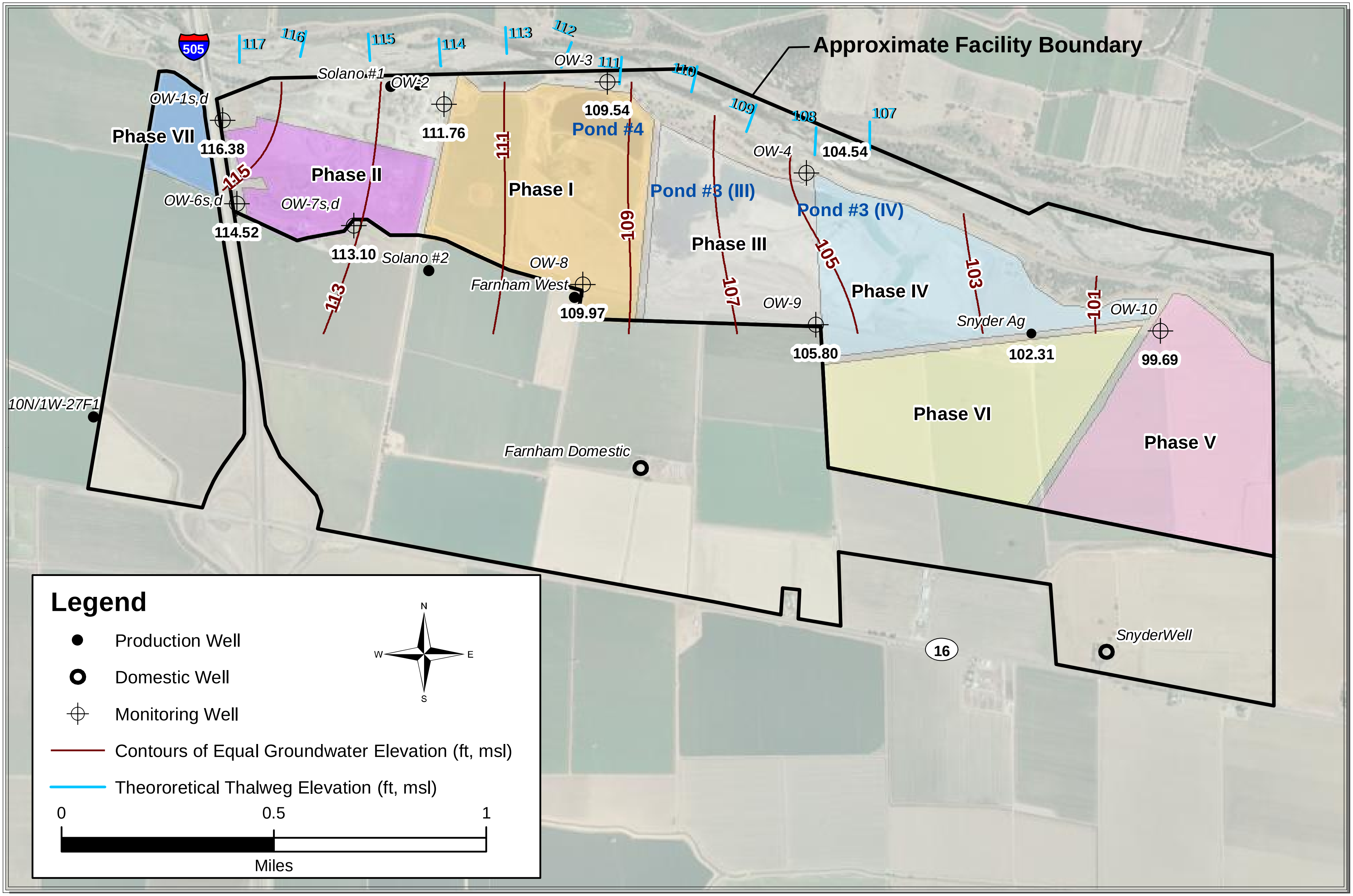
Contours of Equal Groundwater Elevation, September 2009
CEMEX - Cache Creek Mine, Yolo County, CA



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Contours of Equal Groundwater Elevation, September 2010
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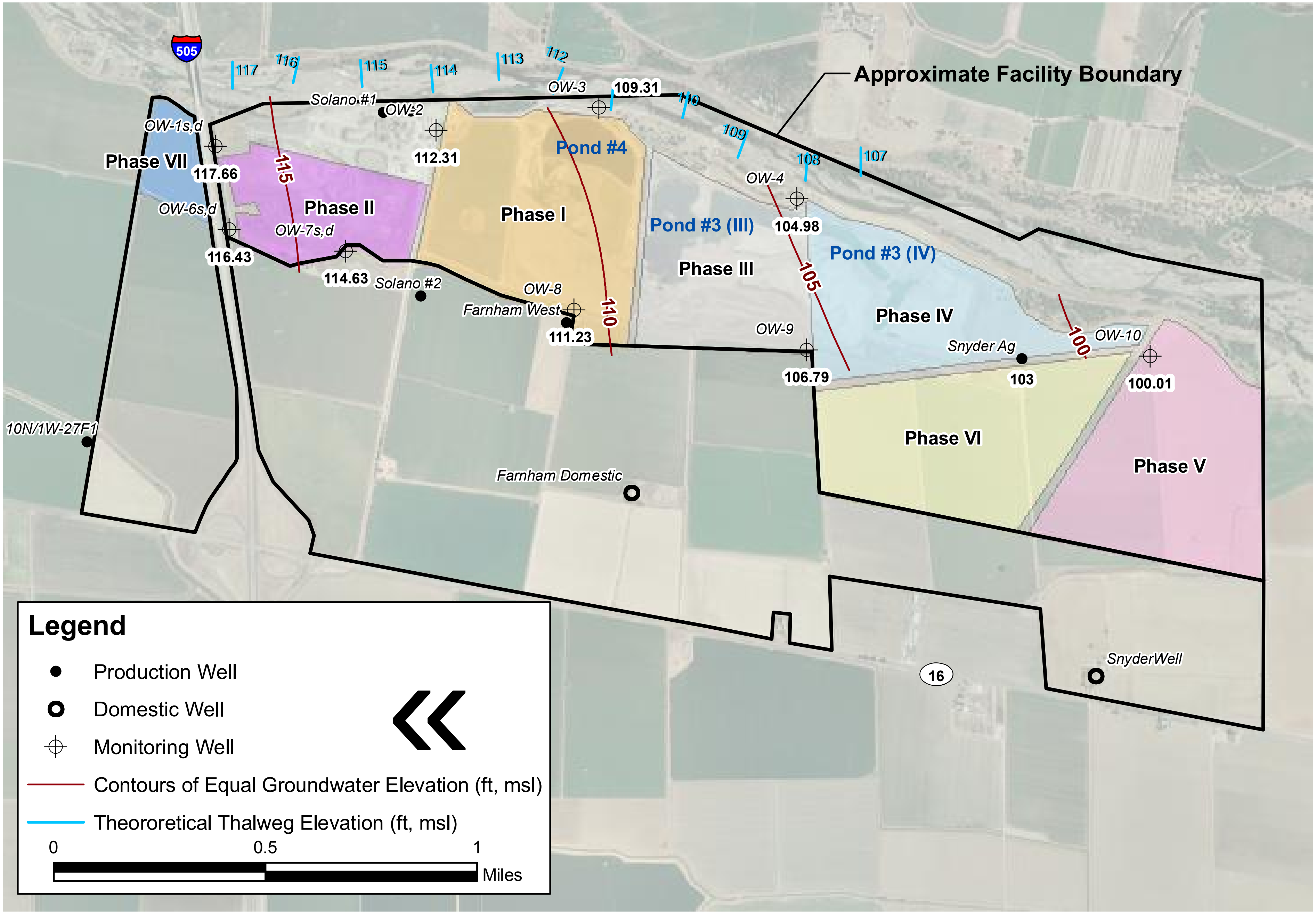

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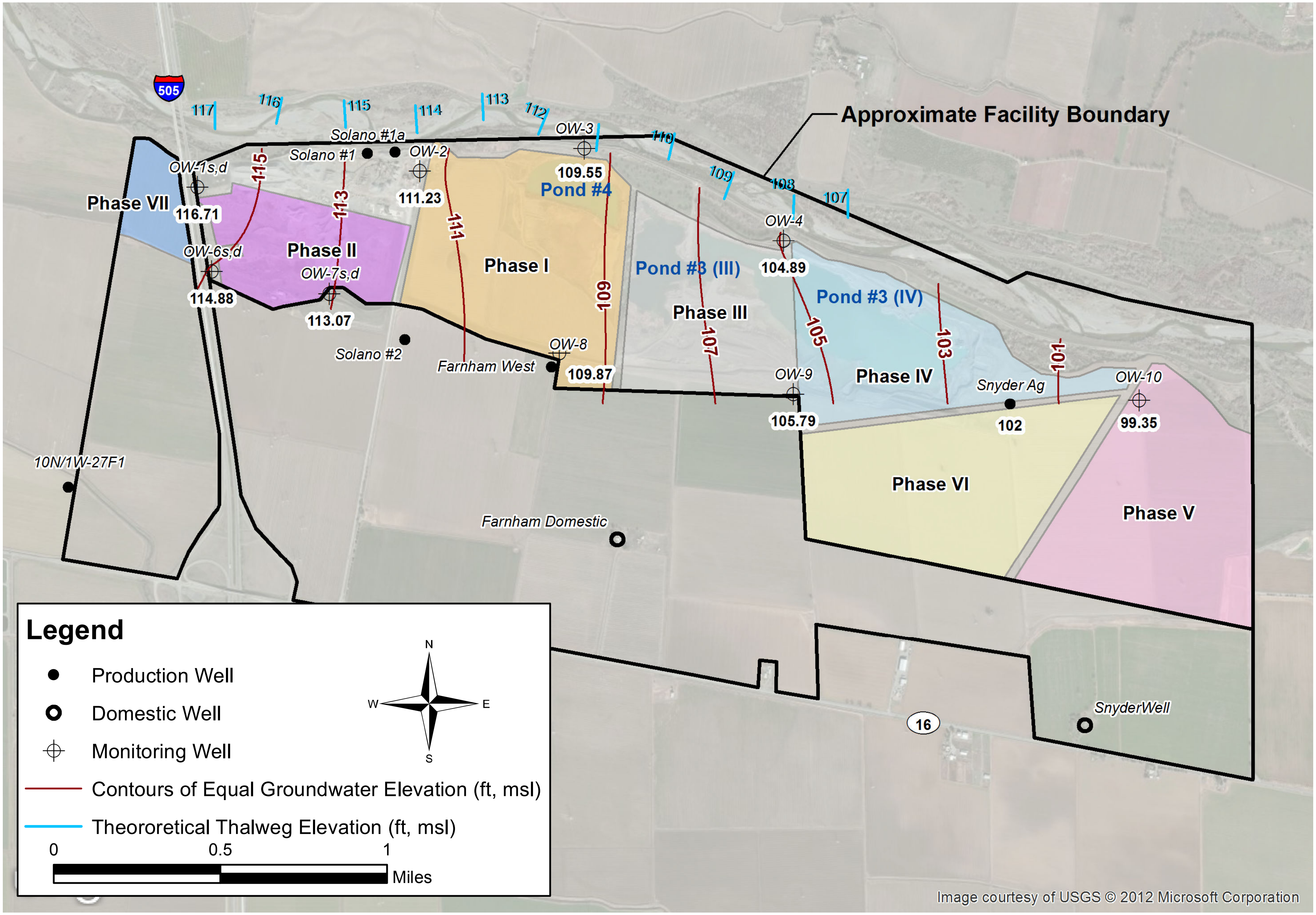
Contours of Equal Groundwater Elevation, September 2011
CEMEX - Cache Creek Mine, Yolo County, CA



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Contours of Equal Groundwater Elevation, September 2012
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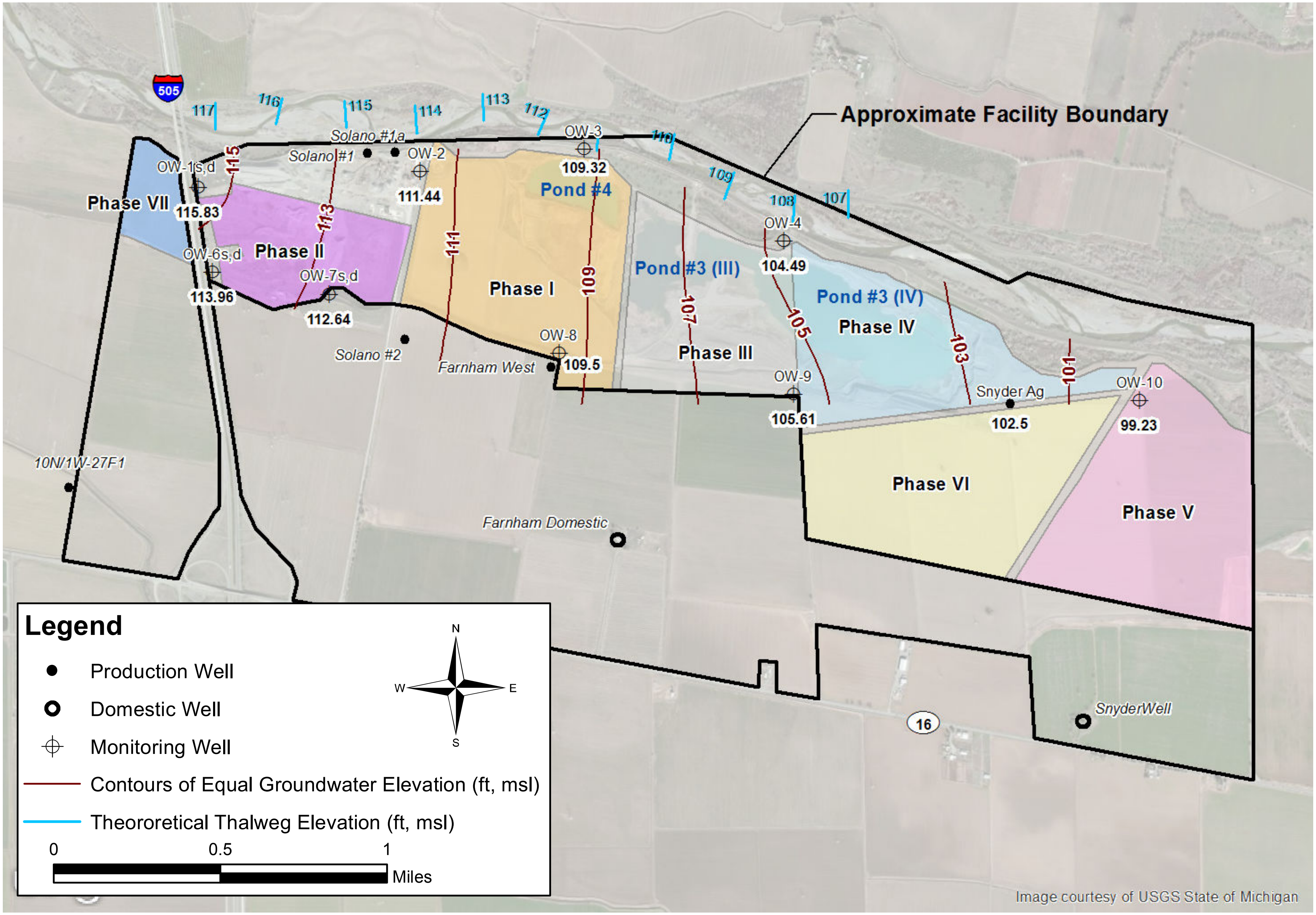

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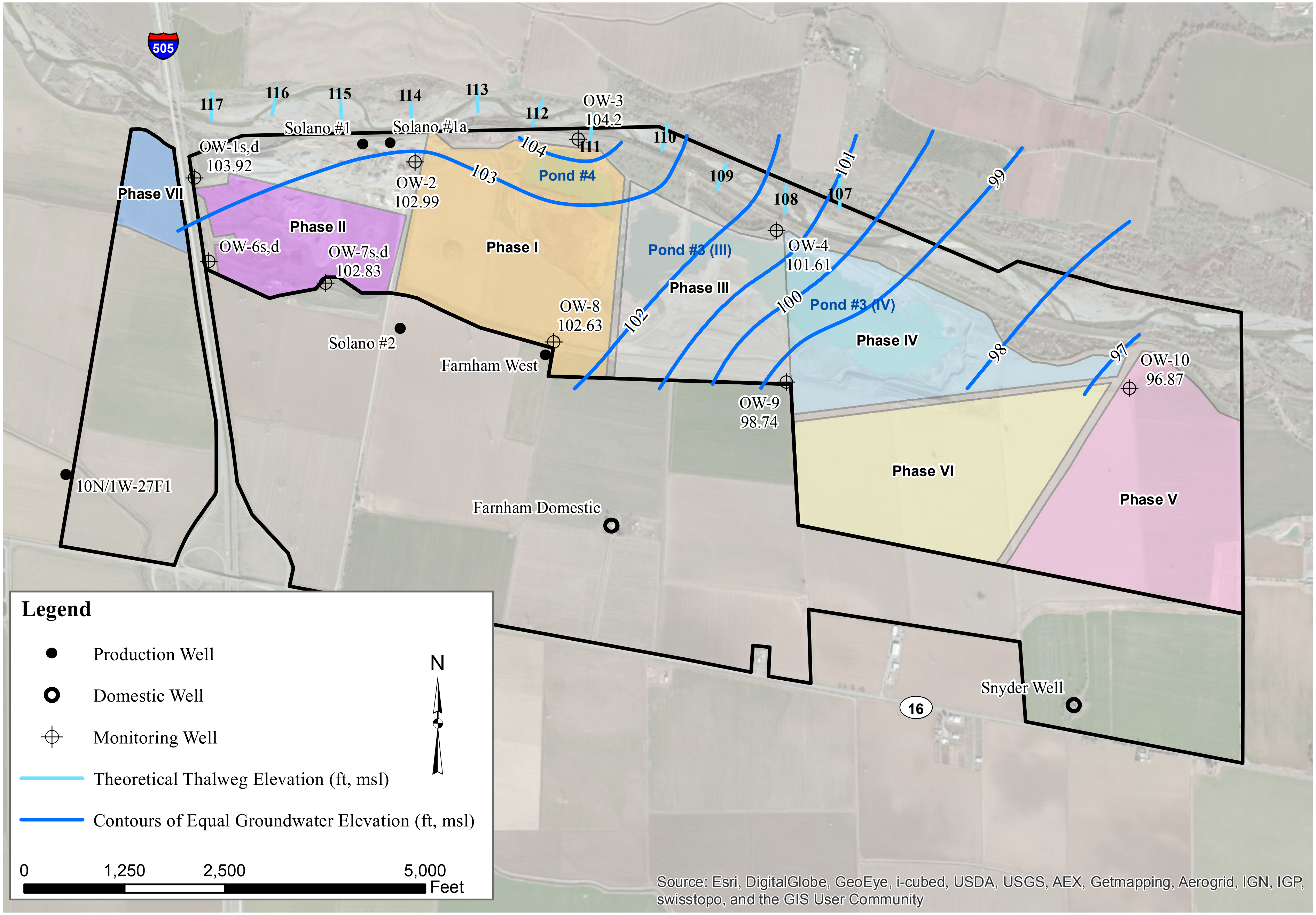
Contours of Equal Groundwater Elevation, September 2013
CEMEX - Cache Creek Mine, Yolo County, CA



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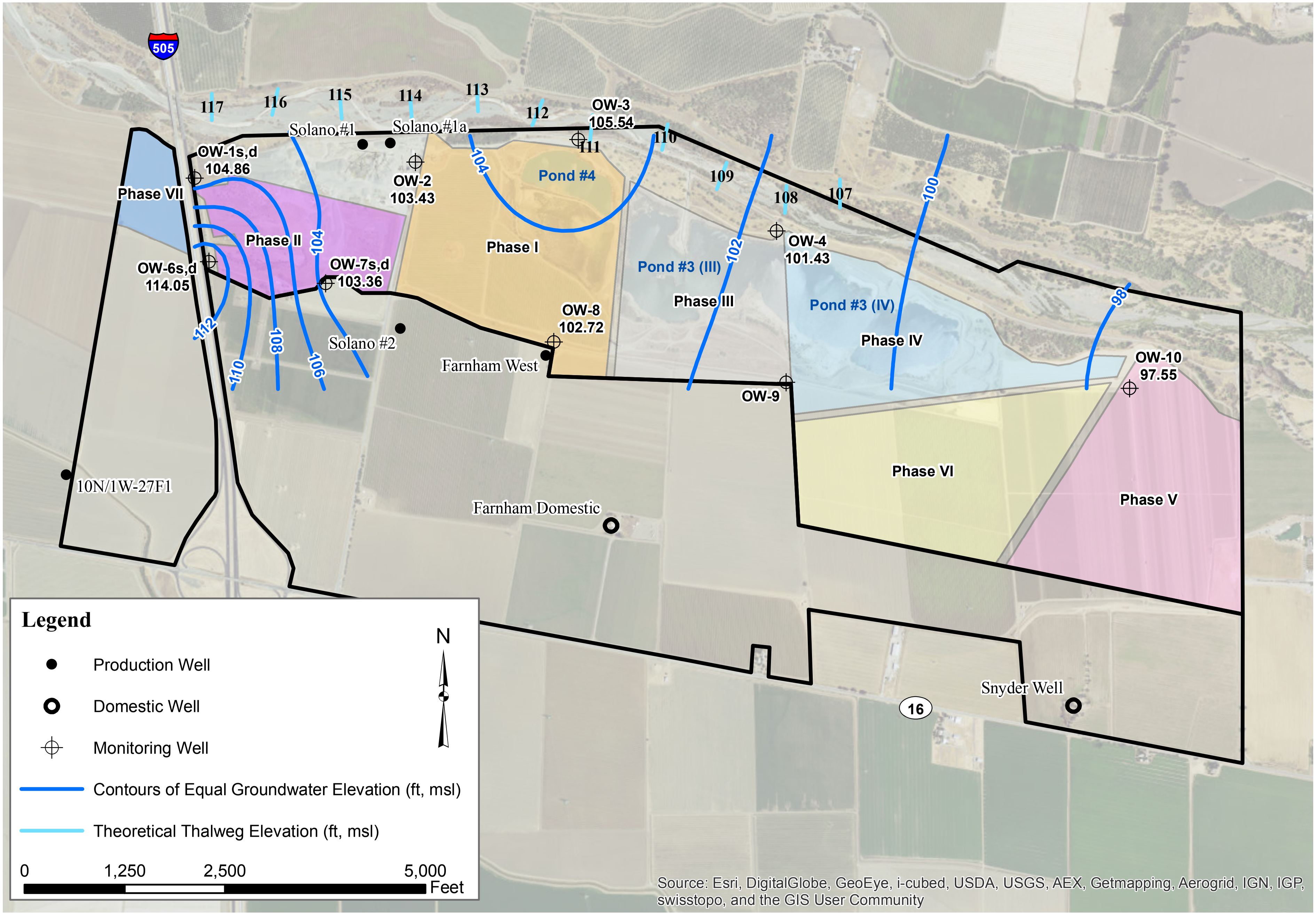
Contours of Equal Groundwater Elevation, September 2014
CEMEX - Cache Creek Mine, Yolo County, CA



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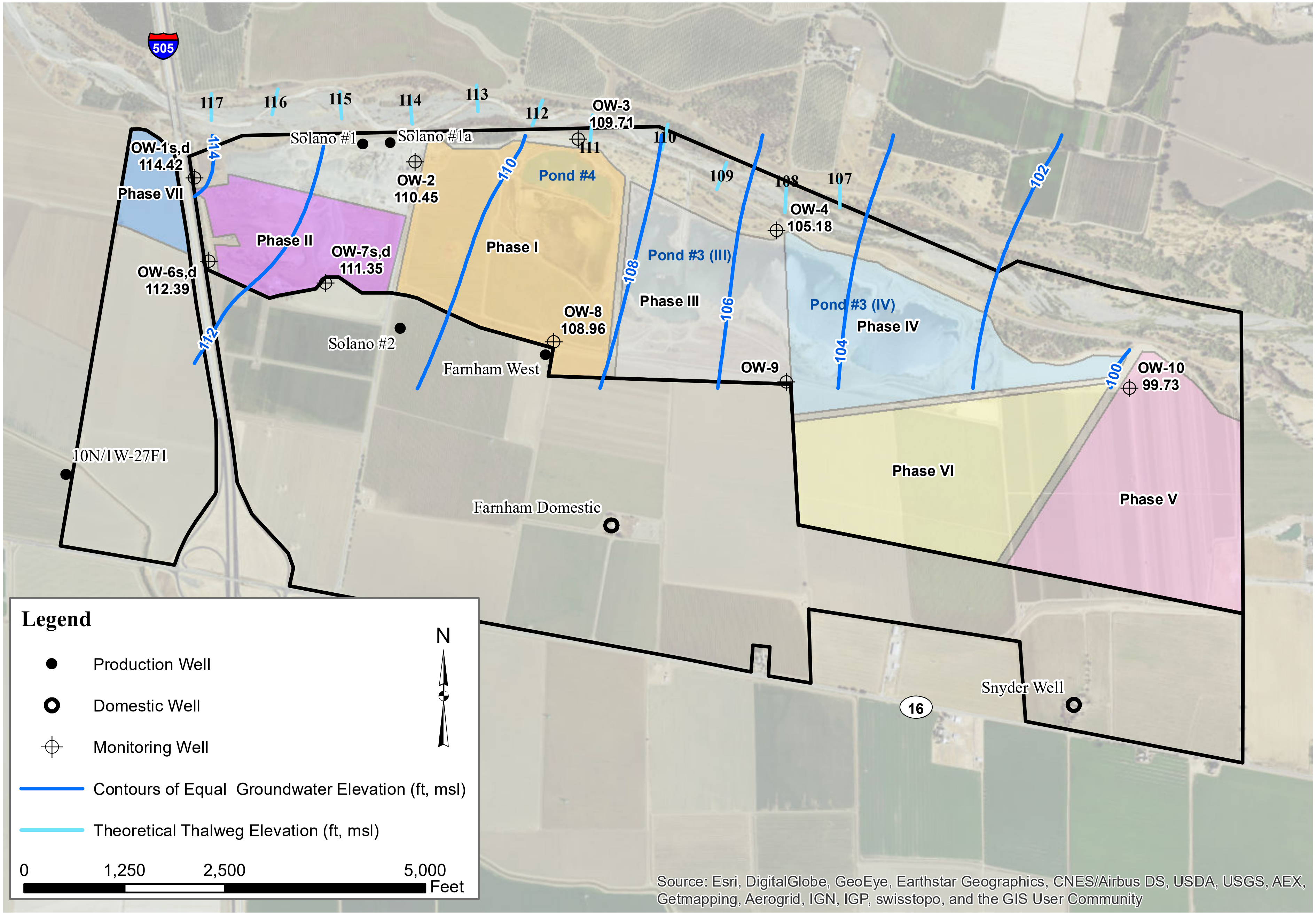
Contours of Equal Groundwater Elevation, September 2015
CEMEX - Cache Creek Mine, Yolo County, CA



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CONSULTING ENGINEERS

Contours of Equal Groundwater Elevation, September 2016
CEMEX - Cache Creek Mine, Yolo County, CA