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Draft Addendum to the Pre-Remedial Design Report Pre-Remedial Design Groundwater Monitoring Program Baldwin Park Operable Unit San Gabriel Basin, California

Prepared for

Baldwin Park Operable Unit Steering Committee

HLA Project No. 39860 320

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1.0 INTRODUCTION

Harding Lawson Associates (HLA) and Dudek & Associates (Dudek), on behalf of the Baldwin Park Operable Unit Steering Committee (BPOUSC), has prepared this Addendum to the Pre-Remedial Design Report (Addendum) for the Baldwin Park Operable Unit (BPOU), Pre-Remedial Design Groundwater Monitoring Program dated September 4, 1997 (Camp Dresser and McKee [CDM], 1997). This addendum was prepared at the request of U.S. Environmental Protection Agency (EPA) following the completion of Phase 2A and 2B sampling activities in the BPOU. These activities were undertaken at the request of EPA following the discovery of perchlorate in the BPOU in mid-1997. A comprehensive description of pre-remedial design investigations is presented in Section 1.2 of this report.

1.1 Objectives

As stated in the previous Pre-Remedial Report (CDM, 1997), the objectives of the Pre-Remedial Design Monitoring Program were to:

- Collect sufficient data to determine the location, depth, and pumping rate of the proposed extraction wells for the implementation of EPA's remedy defined in the BPOU Record of Decision (ROD) issued in March 1994.

- Ensure that sufficient information is gathered for all parameters necessary to allow for detailed design and construction of the extraction wells.

- Collect sufficient data to allow for development, calibration, and the use of a 3-dimensional flow and transport model, using the data both to assist in the design process, and to evaluate the performance of various pumping scenarios.

Additional objectives specific to this Addendum are as follows:

- Present additional groundwater quality and water-level elevation data collected to evaluate the downgradient and vertical extent of volatile organic compounds (VOCs), n-nitrosodimethylamine (NDMA), perchlorate, and 1,4-dioxane in the southernmost (Subarea 3) portion of the BPOU.

- Evaluate appropriate modifications to the previous extraction plan submitted to EPA to ensure that updated extraction plans meet both EPA's remedial action objectives and the water delivery requirements of water purveyors in San Gabriel Basin.

- Present an extraction plan that meets Watermaster's objectives of containment while restoring water supply to in-basin users.

- Present the data necessary to estimate the quality of groundwater that will be influent to BPOU treatment facilities and to support the evaluation of treatment technologies for perchlorate, NDMA, and 1,4-dioxane in groundwater.

1.2 Summary of Previous Pre-Remedial Design Investigations

Pre-remedial design investigations for the BPOU began in June 1995 with the installation of multiport Monitoring Well MW5-03. A total of eight multiport monitoring wells were installed in two phases, Phases 1A and 1B. The installation of the last well, MW5-08, was completed in July 1996. Groundwater samples were collected from the multiport monitoring wells after installation through September 1996 when the sampling specified in the Sampling

and Analysis Plan (SAP) was completed. Also in 1996, groundwater samples were collected from 26 existing water-supply and monitoring wells to aid in the characterization of groundwater quality in the BPOU and provide supporting data for remedial design activities.

Following the completion of well installation and groundwater sampling activities, the results of the pre-remedial design investigations were submitted to EPA in a report entitled Draft Final Pre-Remedial Design Report, Baldwin Park Operable Unit dated September 1997. This report also included a description of the development and calibration of a numerical model to evaluate the effectiveness of various groundwater extraction scenarios. EPA requested additional information associated with Draft Pre-Remedial Design Report in letters dated January 15, February 27, and March 4, 1997. The BPOUSC and CDM provided a series of responses to these requests beginning on January 31, 1997 and ending on April 29, 1997. EPA issued their comments on the Draft Pre-Remedial Design Report in a letter to the BPOUSC dated May 23, 1997. In their comments, EPA stated, "We believe that the remedial objectives of the Baldwin Park Operable Unit Record of Decision can best be met with the extraction of a total of 20,000 gallons per minute of contaminated groundwater: 6,500 gallons per minute (gpm) from Subarea 1 and 13,500 gpm from Subarea 3."

In May 1997, CDM, on behalf of the BPOUSC, collected additional groundwater samples from multiport monitoring wells and selected water-supply wells in the BPOU to provide supplemental water quality data in support of (1) discussions with downstream water users regarding the quality of delivery water, and (2) remedial design of treatment facilities. Also in May and June 1997, the California Department of Health Services (DHS) detected perchlorate in groundwater supply wells in the San Gabriel Basin. This prompted the Main San Gabriel Basin Watermaster and the BPOUSC to perform additional groundwater sampling and analysis to quantify the distribution of perchlorate in groundwater. The BPOUSC compiled perchlorate data on more than 50 monitoring and production wells in the vicinity of the BPOU and submitted these data to EPA in a draft report entitled The Distribution and Treatability of Perchlorate in Groundwater, Baldwin Park Operable Unit, San Gabriel Basin dated July 15, 1997 (HLA, 1997a).

Evaluation of the initial data presented in the report referenced above indicated that perchlorate concentrations in some monitoring and production wells exceeded the DHS provisional action level of 18 micrograms per liter (µg/l). As a result, EPA requested (1) the installation of additional monitoring wells to evaluate the downgradient extent of perchlorate concentrations in Subarea 3 and (2) an evaluation of potential technologies that may remove perchlorate from water.

1.3 Phase 2A and 2B, Pre-Remedial Design Activities

To meet the objectives stated above, an approach for the installation and sampling of additional multiport monitoring wells in the southern portion of the BPOU was developed and described in an Addendum to the Sampling and Analysis Plan (HLA, 1997b). This approach consisted of the phased installation and sampling of four additional monitoring wells in the Subarea 3 portion of the BPOU. EPA provided recommended well locations and stated that it would consider the installation of two wells in the first phase followed by "the likely installation of additional wells further up and/or downgradient in a second phase." The first phase of well installation and sampling results, referred to as Phase 2A, consisted of the installation and sampling of two monitoring wells, Wells MW5-20 and MW5-23. The results of Phase 2A activities were submitted to EPA in a report dated April 29, 1998 (HLA, 1998). This report also presented recommendations for the second phase

(Phase 2B) of well installation and sampling. Phase 2B consisted of the installation of two additional monitoring wells, MW5-19 and MW5-22. The results of Phase 2A and 2B field activities are presented later in this report.

In addition to the Phase 2A and 2B well installation and sampling activities described above, EPA requested that the BPOUSC update and recalibrate the existing 3-dimensional groundwater model using hydrologic data collected after 1994. EPA also requested that the BPOUSC re-evaluate the previously submitted extraction plan considering water quality data collected during the Phase 2A and 2B sampling activities. Consequently, this report presents the results of the update and recalibration of the groundwater model and re-evaluates extraction plans in light of the most recent water quality data in the BPOU.

2.0 ADDITIONAL PROJECT REQUIREMENTS

The previous Pre-Remedial Design Report dated September 1997 (CDM, 1997) specified a number of EPA and water delivery requirements which must be considered in developing and selecting a BPOU groundwater extraction plan. Since that time several new constituents have been discovered in BPOU groundwater. This discovery has led to new water delivery considerations. This section describes project requirements that have developed since issuance of the previous Pre-Remedial Design Report (CDM, 1997).

2.1 Additional EPA Requirements

Beginning in mid-1997, several constituents that were not previously listed as chemicals of potential concern in the March 31, 1994 ROD were discovered in groundwater within the BPOU. The March 1994 ROD was written to address the presence of VOCs in BPOU groundwater. Consequently, EPA requested that the BPOUSC characterize the distribution of perchlorate, NDMA, and 1-4 dioxane in BPOU groundwater.

In addition, the March 1994 ROD addressed potential use of several technologies that would effectively remove VOCs from extracted groundwater. These technologies are not technically or cost effective for removal of perchlorate, NDMA, or 1,4-dioxane from water. Therefore modification of the ROD to accommodate treatment for these new chemicals is necessary. The EPA requested that the BPOUSC perform treatability studies to evaluate and select preferred technologies. These studies are in progress and reported elsewhere.

Federal or state Maximum Contaminant Levels (MCLs) have not been promulgated for perchlorate, NDMA, or 1,4-dioxane, however, the California DHS has established the following action levels which are applicable to drinking water supplies.

Constituent	Action Level (μg/l)	Source of Action Level
Perchlorate	18	DHS AL
NDMA	0.002	DHS AL
1,4-Dioxane	3	DHS AL

DHS AL – California Department of Health Services Action Level

Based on the Phase 2A and 2B investigations regarding the extent of these constituents, it follows that EPA's containment objectives for the BPOU will require modification. In the ROD, EPA stated the following objective for containment of contaminated groundwater in the BPOU, "EPA analyses indicate approximately 10,500 gpm of groundwater must be extracted more or less continuously in the lower area; approximately 8,500 gpm must be extracted in the upper area." EPA defined the northern part of the BPOU, generally the area north of Arrow Highway, as the upper area or Subarea 1. The lower area, also referred to as Subarea 3, was defined as the area in the southern part of the BPOU north of Interstate 10. As demonstrated later in this report, various chemicals are also presented in groundwater south of Interstate 10. Therefore, for the purposes of this report, the lower area or Subarea 3 has been extended south of Interstate 10.

EPA has indicated that it is in the process of revising the ROD to include constituents not previously identified as chemicals of potential concern and to consider the distribution of these chemicals in groundwater.

2.2 Additional Water Delivery Requirements

As stated in the Previous Pre-Remedial Design Report (CDM, 1997), a primary objective of this project was to meet the objectives of the March 1994 ROD for the BPOU. Accordingly the analyses presented in this Addendum focus on the most effective means of achieving EPA's requirements as defined in the ROD as modified considering the presence and distribution of newly discovered chemicals. However, the feasibility of the water delivery aspects of this project are critical to the overall success and implementation of the project. Although, this Addendum does not specifically address such water-supply requirements, the eventual selection of a groundwater extraction plan must be consistent with all such water delivery constraints.

Previous groundwater extraction plans were for the BPOU Consensus Plan where a majority of the groundwater extracted and treated in the BPOU would be exported from the basin and delivered to Metropolitan Water District's (MWD's) customers. However, the discovery of perchlorate and NDMA in several water supply wells in the BPOU forced the shutdown of these wells. Resultant discussions with local water producers and the Main San Gabriel Basin Watermaster increased consideration given to the in-basin use of treated water. This report presents extraction plan alternatives that meet EPA requirements as well as the water-supply demands of both in-basin users and MWD. Specifically, this report presents alternative extraction plans, two of which are modifications of the previous Consensus Plan, and a third alternative which relies heavily on the infrastructure of local water utilities to extract, treat, and distribute water to local customers.

3.0 FIELD ACTIVITIES PERFORMED

Phase 2 field activities described in this report were performed using field methods and procedures consistent with those described in the Sampling and Analysis Plan developed for the Baldwin Park Operable Unit, Pre-Remedial Design Groundwater Monitoring Program dated June 13, 1995 (CDM, 1995) and the Addendum to the Sampling and Analysis Plan (ASAP) dated October 1, 1997 (HLA, 1997). However, these sampling and analysis plans did not address laboratory analytical methods required for the analysis of NDMA and 1,4-dioxane. Consequently, analytical methods for these constituents are described in this report.

3.1 Multiport Well Installation

Four multiport monitoring wells, MW5-19, MW5-20, MW5-22, and MW5-23 were drilled and installed at the locations shown in Figure 3.1. These wells were installed by CDM, and construction details and logs will be presented in forthcoming well completion reports to be issued by CDM. Details of the well installation are presented in Table 3.1.

Multiport Wells MW-20 and MW-23 were installed as part of the Phase 2A sampling program. These wells were located based on the distribution of perchlorate in groundwater. During the Phase 2B program, multiport Wells MW-19 and MW-22 were installed at locations based on the distribution of NDMA and perchlorate in groundwater. These four wells were designed to collect groundwater samples within 6 or 7 sampling ports from the water table to a total depth of approximately 1,000 feet below ground surface (bgs). Geophysical logs were used to identify the apparent zones of highest permeability for placement of screened intervals within the multiport wells. The screened intervals were reviewed and approved by EPA and their contractor, CH2M-Hill.

3.2 Water-Level Elevation Measurements

Following installation of MW5-20 and MW5-23 described above, water-level elevations were measured. A review of these data indicated that a significant head difference existed between the upper and lower sampling ports. It has been assumed that this head difference creates a downward gradient and resulting potential for downward vertical flow. This downward gradient was not observed in other BPOU multiport wells during previous water level measurements and appears to be unique to Subarea 3. Water-level elevation measurements performed following the installation of the Phase 2B Wells MW5-19 and MW5-22 confirmed the presence of the downward gradients in Subarea 3.

Based on these results, a water-level measurement program was implemented to characterize vertical gradients throughout the entire BPOU. This program increased the frequency of water-level measurements to monthly in all multiport wells within the BPOU. Water levels in the BPOU multiport wells were measured in May, June, July, August, and October 1998. Water-level elevation data are summarized in Table 3.2.

3.3 Groundwater Sampling

Groundwater samples were collected from wells listed in Table 3.3 and analyzed for NDMA, perchlorate, nitrate, 1,4-dioxane, and VOCs. Phase 2A sampling occurred in January and February 1998; Phase 2B sampling occurred in August and September 1998. Following installation of the Phase 2A and 2B wells (MW5-19, MW5-20, MW5-22, and MW5-23) two groundwater sampling events were performed to provide initial post-development sampling results. One additional sampling event was performed in March 1998 due to

matrix interference problems associated with high concentrations of VOCs and elevated detection limits for samples collected during the January 1998 event. As a result, Wells MW5-01, MW5-03, MW5-13, and MW5-15 were re-sampled and samples were analyzed for VOCs.

The Watermaster and CDM also sampled production wells for perchlorate, VOCs, and 1,4-dioxane. One sampling round consisting of 31 wells occurred between January and March 1998. A second sampling event was performed between May and September 1998 to characterize the distribution of NDMA. Wells sampled and analytical results are also presented in Table 3.3. Wells sampled are presented in Figure 3.2.

3.4 Laboratory Methods

A number of laboratories and analytical methods were utilized in the Phase 2A and 2B sampling events. A brief description of the laboratories and analytical methods used is provided below.

Perchlorate and 1,4-dioxane were analyzed by WECK Laboratories in City of Industry, California. Some 1,4-dioxane analyses were performed by West Coast Analytical Laboratory. NDMA was analyzed by Datachem Laboratories in Salt Lake City, Utah. VOCs and nitrate were analyzed by Quanterra Laboratories in Santa Ana, California.

The analytical method used for analyses of perchlorate in groundwater samples was based on EPA Method 300 - The Determination of Inorganic Anions in Water by Ion Chromatography as modified by the State of California Department of Health Services Sanitation & Radiation Laboratories Branch Method - Determination of Perchlorate by Ion Chromatography. The analytical method used for the analysis of 1,4-dioxane was EPA Modified 8270. NDMA was analyzed using U.S. Army Method UM34. The analytical method used for the analyses of VOCs in groundwater was EPA Method 8260A and the method used for the analysis of nitrate (as N) in groundwater was EPA Method 300.0. The laboratory reporting limits (RL) and method detection limits (MDL) for VOCs, NDMA, perchlorate, and 1,4-dioxane are outlined below. Currently, commercial laboratories do not have the capability to quantify NDMA at concentrations equal to or below the DHS AL. Therefore, NDMA was characterized to a reporting limit of 0.033 µg/l.

Compound	Reporting Limit (µg/l)	Method Detection Limit (µg/l)
TCE	0.5	0.2
PCE	0.5	0.2
1,2-DCA	0.5	0.2
cis-1,2-DCE	0.5	0.3
CTC	1	0.3
1,1,1-TCA	0.5	0.2
1,4-Dioxane	2	1.81
Perchlorate	4	1.6
NDMA	0.033	0.020

1,2 – DCE	1,2-Dichloroethene
1,1,1-TCA	1,1,1-Trichloroethane
cis-1,2-DCE	cis-1,2-Dichloroethene
CTC	Carbon Tetrachloride
PCE	Tetrachloroethene
TCE	Trichloroethene

Laboratory analytical method requirements and quality control procedures for VOCs and perchlorate were defined in the SAP (CDM, 1995) and ASAP (HLA, 1997b). However, details of the method requirements and laboratory quality control procedures for NDMA and 1,4-dioxane were not provided in the SAP and ASAP. These details are provided in Table 3.4.

4.0 DATA PRESENTATION AND EVALUATION

This section presents and evaluates groundwater-level and chemistry data collected during Phases 2A and 2B field activities. Data evaluation included the development of potentiometric head maps, an evaluation of horizontal and vertical hydraulic gradients, and development of updated contaminant distribution maps and chemical cross sections. A brief description of each of these activities is presented in the following sections.

4.1 Lateral and Vertical Extent of Contamination

Utilizing groundwater quality data collected between January and September 1998, the contaminant distribution within the BPOU was evaluated through the construction of contaminant plume maps and chemical cross sections. Data from multiport wells were supplemented with the most recent post-January 1998 data from production wells. These production well data were obtained from the Watermaster, CDM, or EPA databases to provide more comprehensive areal coverage for the BPOU.

Depth-specific plume maps were developed by dividing chemical data into two depth-specific zones representing data collected above and below an elevation of -200 feet mean sea level (ft msl). Data from wells screened above -200 ft msl and below -200 ft msl were then contoured separately. These shallow and deep plume maps were prepared because of the differences in hydraulic head and groundwater flow direction that occur at a depth of approximately -200 ft msl as described in Section 4.2. Further, the shallow and deep plume maps in conjunction with chemical cross sections provide a better representation of the horizontal extent of the various contaminants at various depths within the alluvial aquifer.

In developing the plan view plume maps, the maximum concentration detected at a specific location was used for the pre-design and EPA multiport monitoring wells. However, data from production wells were used to determine the location of an isoconcentration contour if there was a difference in concentration between adjacent production wells and the multiport monitoring well. In developing the cross section maps, the data from the multiport monitoring wells were weighted more heavily than the production well data. The intent of the cross sections was to show depth specific variations rather than concentrations representative of a thick section of the aquifer.

4.1.1 Volatile Organic Chemicals

Depth-specific VOC plume maps and chemical cross sections were developed using data collected from January through September 1998. Cross section locations are shown on Figure 3.2. A list of figures illustrating the lateral and vertical distribution of VOCs is provided below.

	Figure Numbers	
Chemical	**Plume Maps**	**Cross Section**
TCE	4.1 and 4.2	4.3 through 4.7
CTC	4.8 and 4.9	4.10 through 4.14
PCE	4.15 and 4.16	4.17 through 4.21
1,2-DCA	4.22 and 4.23	Not prepared

4.1.2 Perchlorate

Depth-specific plume maps were developed for perchlorate using data collected from January through September 1998 and are shown in Figures 4.24 and 4.25. The vertical distribution of perchlorate is shown on chemical cross sections presented as Figures 4.26 through 4.30.

4.1.3 NDMA

Depth-specific plume maps were developed for NDMA using data collected from May through September, 1998 and are shown on Figures 4.31 through 4.32. The vertical distribution of NDMA is shown on chemical cross sections presented as Figures 4.33 through 4.37.

4.1.4 1,4-Dioxane

Depth-specific plume maps were developed for 1,4-dioxane using data collected from January through September 1998 and are shown as Figures 4.38 and 4.39.

4.2 Horizontal Hydraulic Gradients

To assess horizontal hydraulic gradients within the BPOU, potentiometric maps were constructed for three elevation intervals. The elevation intervals were selected based on observed differences in groundwater flow directions. Elevation intervals evaluated include above -200 ft msl (shallow zone), -200 to -500 ft msl (intermediate zone), and -500 to -800 ft msl (deep zone). Maps were constructed for the May, June, July, August, and October 1998 water level measurements. A listing of the potentiometric maps and associated figure numbers are outlined below.

Figure Numbers	Depth Interval	Period of Measurement
4.40 – 4.44	Shallow	May–Oct. 1998
4.45 – 4.49	Intermediate	May–Oct. 1998
4.50 – 4.51	Deep	Sept–Oct. 1998

To evaluated temporal differences in groundwater flow direction between the shallow (above -200 ft msl) and the intermediate zones (-200 to -500 ft msl), and the intermediate (-200 to -500 ft msl) and the deeper zones (-500 to -800 ft msl), potentiometric contours were superimposed onto a single map. These maps are shown at monthly intervals for May through October 1998 on Figures 4.52 through 4.58.

Groundwater flow directions appear to vary seasonally between the shallow (above -200 ft msl), intermediate (-200 to -500 ft msl) and deeper zones (-500 and -800 ft msl). In the shallow zone, groundwater flow direction is consistently to the southwest. In the intermediate zone, groundwater flow direction is toward the south-southwest. The difference in groundwater flow directions between the shallow and intermediate zones is greatest during the May 1998 event. Results of the August 1998 event indicate that groundwater flow directions in the shallow and intermediate zones are generally consistent. However, a divergence in flow directions is again observed in the October 1998 measurement event (Figure 4.58).

4.3 Vertical Hydraulic Gradients

Groundwater levels in multiport wells were measured between May and October 1998. As observed during the January 1998 event and discussed in Section 3.2, strong downward gradients were measured in Subarea 3, and only small head differences (less than 0.5 ft) were measured in Subareas 1 and 2. Within Subarea 3, in MW5-19, MW5-20, MW5-22, and MW5-23, the maximum head differences ranged from 6.6 to 11.67 feet during 1998.

4.4 Discussion of Results

Groundwater samples were collected from the multiport monitoring wells and various production wells throughout the BPOU during two comprehensive sampling events in 1998. Analytical results include VOCs, nitrates, perchlorate, NDMA, and 1,4-dioxane. Data have been evaluated through contouring both horizontally and in cross section. Water levels have been measured from the multiport monitoring wells throughout the BPOU in five monthly events. Observations based on these evaluations are as follows:

- Water quality data indicate the presence of VOCs, primarily TCE, PCE, and carbon tetrachloride, perchlorate, and NDMA at levels greater than MCLs or DHS Action Levels downgradient of the previously defined extent of Subarea 3. As defined in this report, the terminus of the contaminant plumes extends south of Interstate 10.

- The nature and extent of the VOCs, perchlorate, NDMA, and 1,4-dioxane in groundwater in the BPOU have been sufficiently characterized to permit the design of the proposed groundwater extraction system and treatment facility.

- Based on measurement of multiport water-level elevations, different flow directions have been observed for different depth intervals at some times during the year. The flow direction in the shallow zone is approximately southwest and the flow direction in the intermediate zone is approximately south-southwest. At other times of the year, flow direction in these two zones is the same.

- Strong downward vertical gradients were observed during all six water-level monitoring events within Subarea 3. Head differences between multiports were observed in Wells MW5-19, MW5-20, MW5-22, and MW5-23. In Subareas 1 and 2, these head differences were not observed.

5.0 GROUNDWATER MODEL UPDATES

Groundwater extraction scenarios for the BPOU were originally developed and evaluated by CDM and documented in the Draft Final Pre-Remedial Design Report (CDM, 1997). The evaluation of these extraction scenarios was performed by developing and calibrating a 3-dimensional groundwater model using the CDM Dynflow and DynTrack software.

As requested by the EPA, the CDM groundwater model was revised and updated to re-evaluate the effectiveness of groundwater extraction in light of the additional water quality and potentiometric head data collected in the Phase 2 sampling program. As a result, re-evaluation of the previous CDM model was undertaken to achieve the following objectives:

- Further verify the model's ability to simulate observed groundwater flow conditions by extending the end of the transient calibration period from 1994 through 1997 for a total of 15 years.
- Improve the model's ability to simulate horizontal and vertical flow conditions in Subarea 3 by modifying horizontal hydraulic conductivity and anisotropy and ensuring the model simulates the vertical hydraulic gradients observed in Subarea 3.
- Reduce potential boundary effects on simulated flow direction and drawdown south of Interstate-10 by moving the Puente Valley boundary location approximately 1/2-mile to the southeast farther from proposed extraction well locations.

To achieve these objectives, several modifications to the model were completed. These model modifications are described below.

5.1 Update of Transient Calibration

The original CDM model was calibrated for the period from October 1982 through August 1994. Data collected since the completion of this previous effort allowed for the extension of the model transient calibration through December 1997. To extend the transient model calibration period, the following information was obtained:

- Recharge data for spreading basins in the San Gabriel Basin were obtained from Los Angeles County
- Pumping rates for production wells were obtained from the Watermaster
- Water-level elevation data for the Whittier Narrows area were obtained from the Water Replenishment District of So. California
- Water level elevation data from 1994 to 1997 was obtained from the CH2MHill/EPA database

5.2 Modifications to Model Grid

Modifications to the original model grid developed by CDM were undertaken to reduce possible hydraulic interference between Subarea 3 extraction wells and the mouth of Puente Valley. Although proposed extraction wells are several miles from the mouth of Puente Valley, the model grid was modified to extend the model boundary approximately 2,500 feet to the east (up Puente Valley). A comparison of the revised grid and the original model grid is shown in Figure 5.1.

In addition to moving the model boundary in Puente Valley, the constant head value assigned for this boundary condition was also adjusted based on water-level elevations measured in Puente Valley.

The other modification to the original CDM grid consisted of deepening nodes at the location of selected pumping wells. Additional information collected since the CDM Pre-Remedial Design Report indicated that several production well owners within the basin either had reported pumping to the Watermaster at erroneous depths or had deepened their wells. For example, San Gabriel Valley Water Company (SGVWC) reported that all pumping from Wells B5A, B5B, and B5C came only from Well B5B. As each of these wells is screened over different depth intervals, this complicates model calibration. Consequently, the model grid was modified by adjusting the elevation of model layers at specific nodes to provide a more accurate representation of the depth and location of pumping from these wells.

5.3 Recalibration of Revised Model

Following updates to input files associated with extending the transient calibration period through 1997 and modifications to the model grid, recalibration of the transient model was initiated. In general, the model calibration proceeded through a trial and error process similar to the original CDM modeling effort. Adjustments to aquifer hydraulic conductivity, storativity, and anisotropy were made to minimize the difference between simulated and observed water levels using the same observation wells used for calibration of the original CDM model.

To quantify calibration progress, a statistic, the root mean square (RMS) error was calculated for each simulation to measure the model's ability to reproduce the observed water-level data from 1982 through 1997. The RMS error was calculated for each observation well used in the calibration and then summed for all wells. The RMS error is calculated by first squaring and summing the differences (or residuals) between the observed and simulated water levels for each observation well for each time step in the transient calibration. Then the square root of sum of the squared residuals is calculated and divided by the number of residuals. Using the RMS error to assess the model's ability to reproduce the observed data is preferable to merely taking the average of the residuals because it avoids the cancellation of positive and negative residuals and penalizes larger residuals.

Approximately 50 model simulations were performed during the recalibration process. Each model simulation consisted of varying hydraulic conductivity or anisotropy in the zones of interest. The different hydraulic conductivity and anisotropy for each simulation is shown in Tables 5.1 and 5.2, respectively. The RMS data for each simulation described by the aforementioned hydraulic conductivity zones are presented in Table 5.3. In this table, the RMS error for CDM's original model was included for comparison purposes. Also shown for comparison purposes are: (1) original hydraulic conductivity zones and anisotropy zones (Figures 5.2 through 5.4), and (2) revised hydraulic conductivity and anisotropy zones (Figures 5.5 through 5.10). Hydrographs illustrating simulated and observed water-level elevations for the original 1997 model and this 1999 revised model are shown in Plate 5.1 and in Appendix A.

Finally, the model recalibration focused on representing the vertical head differences observed in the multiport wells at the southern extent of Subarea 3. Simulated vertical head differences for each recalibration simulation are presented in Table 5.4. The vertical head differences are presented as differences between ports one and six of the multiports MW5-19, MW5-20, MW5-22, and MW5-23. Port one is the deep port whereas port six is the shallowest port. During model recalibration, the vertical head differences in Subarea 1 were also evaluated to ensure that the model was adequately representing the smaller vertical head differences observed in Subarea 1.

5.4 Discussion of Results

Based on the results of the comparison of both well hydrographs, vertical gradients, and calibration statistics, the overall calibration of the BPOU model has been improved. As shown on Table 5.1, the total RMS error for the 16 observation wells used in transient calibration was 248.74 feet whereas RMS error for the revised model decreased to 228.32 feet. This decrease in RMS error resulted in an improved match between observed and simulated water levels in 9 of 16 observation wells.

In addition to the RMS error, the selection of the parameters that represent the revised model considered the model's ability to match observed vertical head differences in Subarea 3. In December 1997, the revised model simulated vertical head differences in Subarea 3 up to 7.9 feet as compared to observed vertical head differences of up to 10.6 feet in January 1998. Consequently, the revised model provides a better representation of vertical head differences in Subarea 3 than the original CDM model, which did not consider vertical gradients.

Based on both the vertical head differences and the improved RMS error, the revised model appears to better represent hydrologic conditions in the BPOU and the San Gabriel Basin. Moreover, the revised model is calibrated over a longer time period and further demonstrates the model's ability to simulate groundwater flow conditions in the San Gabriel Basin. This demonstrated ability to simulate historic groundwater flow conditions decreases uncertainties associated with the model's ability to predict future groundwater conditions as required for the evaluation of various extraction scenarios as described in the following section of this report.

6.0 REMEDIAL EXTRACTION PLAN SIMULATIONS

This section presents the evaluation of several remedial groundwater extraction scenarios using the revised groundwater model described earlier in this report. Three scenarios were developed and simulated to evaluate the effectiveness of various groundwater extraction well configurations with respect to the project requirements described in Section 2.0. These groundwater extraction scenarios and associated assumptions are listed below and are described in more detail later in this section:

- Watermaster/BPOUSC Extraction Plan
- Consensus Plan – Option A
- Consensus Plan – Option B

Each of these extraction plans was evaluated by assessing the effectiveness of hydraulic containment of the proposed extraction well configurations using the particle tracking code, DYNTRACK. DYNTRACK plots the starting locations of particles captured by extraction wells to provide an estimate of the hydraulic capture area for each well. The extent of groundwater plumes for TCE, CTC, perchlorate, and NDMA are also shown on the particle containment plots. The outer extent of the plumes is defined by concentrations of 5 µg/l, 0.5 µg/l, 18 µg/l, and 0.05 µg/l for TCE, CTC, perchlorate, and NDMA, respectively.

6.1 Modeling Assumptions

Model simulations presented in Section 5.0, represent the simulation of historical hydrologic conditions from 1982 through 1997. The output from these simulations demonstrates the model's ability to accurately match groundwater flow conditions under a variety of hydrologic conditions.

Model simulations presented in the remainder of this report represent a prediction of future conditions. Because the 15-year historical record (1982 – 1997) contains both several periods of drought and above average rainfall, but on balance represents average conditions, future hydrologic conditions in San Gabriel Basin were assumed to be similar to the historical hydrologic conditions. Several exceptions to these historical-based assumptions were noted and adjusted in the model accordingly. These exceptions are as follows:

- Changes in climatic conditions and associated recharge
- Modifications to basin pumpage
- Continuous pumping from BPOU wells
- Recharge of replenishment water

Each of these exceptions to the 1982 – 1997 historical conditions is described in detail below.

6.1.1 Climatic Conditions and Recharge

In order to simulate the hydraulic containment of groundwater extraction well configurations under a variety of hydrologic conditions (normal, wet, and drought conditions), model simulations assumed transient conditions incorporating the historical recharge and pumpage from 1982 through 1997. This period incorporated the notably wet years of 1992 and 1993 as well as the severe drought from 1987 to 1991. In order to extend the duration of the extraction simulations, these same recharge data were repeated twice resulting in a 30-year simulation period. Modifications to the historical recharge at Valley Boulevard Rubber Dam are discussed below.

Extraction plan simulations include a seasonal varying recharge rate for the Valley Boulevard Rubber Dam. This seasonal rate was calculated by distributing the historic annual recharge rates for the period of 1995 through 1997 using the percentages listed below.

Month	Acre-Feet/ Year	Percent by Quarter
Jan-Feb-Mar	1,507	30.7
Apr-May-Jun	854	17.4
Jul-Aug-Sep	431	8.8
Oct-Nov-Dec	2,109	43.0

6.1.2 Basin Pumpage

Historical groundwater production as reported by Watermaster was incorporated into the extraction plan simulations. For production wells in the vicinity of the BPOU that are not part of the proposed extraction plans, the average pumping rate for the next 5 years as presented in the Watermaster Draft Five-Year Plan (Stetson, 1998) was used. There were several exceptions to the projected Five-Year Plan pumping rates as listed below:

- Pumping by California Domestic Mutual Water Company (CDWC) was lowered from the Draft Five-Year Plan projections of 22,000 acre-feet per year (AF/YR) to an average of 15,000 AF/YR, which is approximately equivalent to production rates over the past several years. This adjustment to the Draft Five-Year Plan production rates was implemented at the suggestion of Stetson Engineers.

- For the Joint Watermaster/BPOUSC Extraction Plan, no pumpage from SGVWC Wells B4B and B4C was incorporated into this simulation because these wells were not considered part of this extraction plan. Further, it is not clear that the required treatment would be available to treat all constituents of concern or that the water would be needed given the amounts proposed to be extracted from other SGVWC wells.

- For the Consensus Plan simulations, no pumpage from SGVWC Wells B4 and B6 was simulated because these wells are located within the footprint of the plume and currently do not have treatment systems capable of treating all constituents of concern. In addition, La Puente Valley County Water District (LPVCWD) wells were assumed to operate at a total production rate of 2,500 gpm with local treatment for all constituents of concern. However, LPVCWD wells were not included in pumpage totals for the various extraction scenarios.

- No pumpage from Covina Irrigating Company (CIC) well (CONTRACT), City of Glendora Well 7-G, and the Valley County Water District's (VCWD) Big Dalton well was simulated in any of the extraction plan simulations.

The total annual pumpage projected in the Draft Five-Year Plan was divided into the four quarters of the year as follows based on historical seasonal percentages:

Month	Percent by Quarter
Jan-Feb-Mar	26
Apr-May-Jun	31
Jul-Aug-Sep	24
Oct-Nov-Dec	19

The projected pumping rates from the Draft Five-Year Plan were adjusted quarterly for the entire period of the extraction simulations to simulate seasonal variations in well production. A listing of production wells included in the Joint Watermaster/BPOUSC Extraction Plan is shown in Table 6.1 and production wells

included in the Consensus Plan scenarios are listed in Table 6.2.

6.1.3 Continuous Pumping from Extraction Wells

Wells included in the various extraction plan scenarios were assumed to pump continuously at a constant rate without seasonal variation. Watermaster has indicated that this is a reasonable assumption because the individual purveyors involved would be willing to base load their delivery systems with water from these wells using them in preference to other wells not part of the extraction plans.

6.1.4 Recharge of Replenishment Water

Extraction plan simulations also considered the effects of additional recharge for replenishment water. For the Joint Watermaster/BPOUSC Extraction Plan it was assumed that the purveyors whose wells are incorporated in the extraction plan (SGVWC, LPVCWD, and VCWD) either have sufficient water rights for the proposed pumping or have historically purchased enough replenishment water to cover the proposed extractions. Therefore, recharge of replenishment water for the Joint Watermaster/ BPOUSC extraction plan was based on historical recharge of replenishment water from 1982 to 1997.

For the Consensus Plan simulations, recharge was incorporated in the model simulations to simulate the recharge of replenishment water.

6.2 Extraction Plan Simulation Results

6.2.1 Watermaster/BPOUSC Extraction Plan

The proposed Joint Watermaster/BPOUSC Extraction Plan consists of extraction from wells owned by LPVCWD, SGVWC, and VCWD and 3 new extraction wells. The proposed extraction well system consists of 13 wells extracting a combined 23,000 gpm or 37,100 AF/YR. Well identification names and recordation numbers and well owner/operator and pumping rates are presented in Table 6.3. The existing wells incorporated into the well field were selected as they were already impacted by the plume or were best located to prevent the further migration of the groundwater contaminant plumes. For example, 6,500 gpm of extraction from the SGVWC B5 wells and extraction from a new well downgradient of multiport Well MW5-5 was included to prevent impact to the CDWC wells rather than extract from the CDWC wells which have historically remained relatively clean.

Figures 6.1 through 6.4 present the results of hydraulic capture for particles started at 4 different elevations. Illustrations of containment at four elevations are provided to represent capture at discrete depths within the plume of contaminated groundwater.

6.2.2 Consensus Plan – Option A

The Consensus Plan - Option A, consists of a modification to the previous extraction plan submitted to EPA in April 1997. Modifications to the previous extraction plan consist of the siting of extraction wells in the Subarea 1, Subarea 2 and Subarea 3 including the area south of Interstate 10. The total extraction rate for this scenario is 18,000 gpm with groundwater extraction focused in the areas of highest of contaminant concentrations along the longitudinal axis of the contaminant plume. The proposed extraction well system for the Consensus Plan – Option A, consists of 11 extraction wells at 9 locations extracting a combined 18,000 gpm or 29,034 AF/YR as shown in Table 6.4.

In the previous extraction plan submitted to EPA (April 1997), hydraulic containment in the BPOU was achieved with a total extraction rate of 19,000 gpm; 5,500 gpm in Subarea 1 and 13,500 gpm in Subarea 3. EPA commented in a letter dated May 23, 1997, that extraction of

5,500 gpm in Subarea 1 did not provide an adequate margin of safety to contain source areas in Subarea 1 and recommended extraction rates of 6,500 gpm in Subarea 1 for a total extraction rate of 20,000 gpm. Consensus Plan – Option A, provides an additional margin of safety by extracting in Subarea 2 and provides backup to the hydraulic containment of Subarea 1 source areas at an extraction rate of 5,500 gpm. Figures 6.5 through 6.8 present the results of hydraulic capture for particles started at 4 different elevations.

6.2.3 Consensus Plan – Option B

Consensus Plan – Option B, is also a modification to the previous extraction plan submitted to EPA in April 1997. Modifications include the relocation of extraction wells in the southern portion of the BPOU. This Consensus Plan (Option B) shifts extraction in the southern part of the BPOU to locations adjacent to and approximately 1 mile south of Interstate-10 and achieves hydraulic containment in this area with an extraction rate of 14,500 gpm.

The proposed extraction well system for this Consensus Plan - Option B, consists of 7 extraction wells at 11 locations extracting a combined flow of 20,000 gpm or 32,260 AF/YR as shown in Table 6.5. Figures 6.9 through 6.12 present the results of hydraulic capture for particles started at 4 different elevations.

6.3 Discussion of Results

The three extraction scenarios presented above were developed and evaluated in light of our understanding of the project requirements as described in Section 2 of this report. However some uncertainty exists related to EPA requirements given that the existing BPOU ROD does not address remedial action objectives for additional constituents of concern such as perchlorate, NDMA, and 1-4 dioxane. In addition, the existing BPOU ROD does not address remedial action objectives for VOCs in the southern portion of Subarea 3 (area south of Interstate-10).

In addition to uncertainties related to EPA's project requirements, considerable uncertainty also exists regarding the water delivery requirements associated with the implementation of EPA's remedy. The Consensus Plan extraction plan options consider extraction from new extraction well locations and the delivery of water to Metropolitan Water District. The Watermaster/BPOUSC extraction plan assumes extraction primarily from existing wells and treatment with in-basin use. These water delivery options result in considerable variability in water treatment and conveyance system needs for the implementation of a selected project. Although these uncertainties do not directly affect the effectiveness of extraction scenarios, they may influence selection of an extraction plan for a preferred project.

Given the uncertainties stated above, it appears that any of proposed extraction plans evaluated may meet EPA's project requirements for containment. However given uncertainties in the water delivery requirements for this project, a preferred extraction plan was not selected at this time.

7.0 SUMMARY AND CONCLUSIONS

This report represents an Addendum to the previous Pre-Remedial Design Report (CDM, 1997) submitted in 1997. Objectives specific to this Addendum are as follows:

- Present additional groundwater quality and water-level elevation data collected to evaluate the downgradient and vertical extent of VOCs, perchlorate, NDMA, and 1,4-dioxane in the southernmost (Subarea 3) portion of the BPOU.
- Evaluate appropriate modifications to the previous extraction plan submitted to EPA to ensure that the updated extraction plan meets both EPA's remedial action objectives and the water delivery requirements of water purveyors in San Gabriel Basin.
- Present the data necessary to estimate the quality of groundwater that will be influent to BPOU treatment facilities and to support the evaluation of treatment technologies for perchlorate, NDMA, and 1,4-dioxane in groundwater.

Significant conclusions specific to the objectives of this Addendum are as follows:

- Water quality data collected during Phase 2A and 2B investigations indicated the presence of VOCs, perchlorate, and NDMA above MCLs or interim action levels downgradient of the previously defined southern terminus of the VOC plume.
- The nature and extent of VOCs, perchlorate, NDMA, and 1,4-dioxane in the BPOU have been characterized adequately to permit the design of groundwater extraction and treatment facilities.
- The evaluation of groundwater extraction plan alternatives in this report demonstrates that EPA requirements for the implementation of the BPOU groundwater remedy can be achieved with total extraction rates of 18,000 to 23,000 gpm depending on specific extraction well locations and rates.
- Extraction rates of 5,500 to 6,000 gpm were determined to adequately contain contaminant migration from Subarea 1. In Subareas 2 and 3, extraction rates of 12,500 to 17,000 gpm were demonstrated to meet containment objectives depending on extraction well locations and rates.
- Extraction plans for the BPOU will require further refinement and adjustment as water delivery requirements become more clearly defined.

8.0 REFERENCES

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TABLES

Table 3.1: Well Completion, Coordinate, and Elevation Data for Phase 2A and 2B Predesign Wells

Well ID	Multiport Zone	Depth (feet bgs)	UTM Coordinates (meters) Northing	UTM Coordinates (meters) Easting	Ground Elevation
MW5-19	6	225 to 235	3768710	407388	281.2
	5	430 to 440			
	4	615 to 625			
	3	730 to 740			
	2	874 to 884			
	1	985 to 995			
MW5-20	7	210 to 220	3769253.75	409892.9	318.6
	6	400 to 410			
	5	594 to 604			
	4	672 to 682			
	3	760 to 770			
	2	850 to 860			
	1	940 to 950			
MW5-22	6	235 to 245	3768149	408420	296.58
	5	410 to 420			
	4	600 to 610			
	3	694 to 704			
	2	790 to 800			
	1	950 to 960			
MW5-23	6	240 to 250	3769208.58	408574.64	307.37
	5	426 to 436			
	4	566 to 576			
	3	700 to 710			
	2	888 to 898			
	1	980 to 990			

feet bgs Feet below ground surface
ID Identification number

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
MW5-01	1	1/13/98	402.70	160.75	241.95	
	2	1/13/98	402.70	160.59	242.11	
	3	1/13/98	402.70	160.57	242.13	
	4	1/13/98	402.70	160.59	242.11	
	5	1/13/98	402.70	160.45	242.25	
	6	1/13/98	402.70	160.08	242.62	
	7	1/13/98	402.70	160.17	242.53	
	8	1/13/98	402.70	160.06	242.64	
	9	1/13/98	402.70	159.90	242.80	
	10	1/13/98	402.70	159.92	242.78	
	11	1/13/98	402.70	159.91	242.79	
	12	1/13/98	402.70	159.91	242.79	
	13	1/13/98	402.70	159.97	242.73	
MW5-03	1	1/13/98	474.41	227.43	246.98	
	2	1/13/98	474.41	227.22	247.19	
	3	1/13/98	474.41	227.23	247.18	
	4	1/13/98	474.41	227.00	247.41	
	5	1/13/98	474.41	226.93	247.48	
	6	1/13/98	474.41	227.15	247.26	
	7	1/13/98	474.41	226.99	247.42	
	8	1/13/98	474.41	226.96	247.45	
	9	1/13/98	474.41	227.13	247.28	
	10	1/13/98	474.41	227.07	247.34	
MW5-05	1	1/19/98	342.52	105.35	237.17	
	2	1/19/98	342.52	104.71	237.81	
	3	1/19/98	342.52	104.68	237.84	
	4	1/19/98	342.52	104.36	238.16	
MW5-08	1	1/15/98	339.20	103.37	235.83	
	2	1/15/98	339.20	103.19	236.01	
	3	1/15/98	339.20	103.26	235.94	
	4	1/15/98	339.20	102.92	236.28	
MW5-11	1	1/12/98	493.60	244.77	248.83	
	2	1/12/98	493.60	244.49	249.11	
	3	1/12/98	493.60	244.71	248.89	
MW5-13	1	1/11/98	530.80	279.72	251.08	
	2	1/11/98	530.80	279.50	251.30	
	3	1/11/98	530.80	279.63	251.17	
MW5-15	1	1/15/98	359.99	121.39	238.60	
	2	1/15/98	359.99	121.02	238.97	
	3	1/15/98	359.99	120.98	239.01	
MW5-17	1	1/19/98	509.40	260.53	248.87	
	2	1/19/98	509.40	260.37	249.03	
	3	1/19/98	509.40	260.45	248.95	
MW5-18	1	1/12/98	359.99	110.21	249.78	
	2	1/12/98	359.99	110.10	249.89	
	3	1/12/98	359.99	110.31	249.68	
MW5-20	1	1/15/98	318.60	89.28	229.32	
	2	1/15/98	318.60	89.10	229.50	
	3	1/15/98	318.60	86.81	231.79	
	4	1/15/98	318.60	86.20	232.40	
	5	1/15/98	318.60	86.74	231.86	
	6	1/15/98	318.60	83.36	235.24	
	7	1/15/98	318.60	81.76	236.84	
MW5-23	1	1/28/98	307.37	80.17	227.20	
	2	1/28/98	307.37	79.68	227.69	
	3	1/28/98	307.37	79.00	228.37	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
	4	1/28/98	307.37	76.50	230.87	
	5	1/28/98	307.37	75.53	231.84	
	6	1/28/98	307.37	72.84	234.53	
MW5-01	1	05/01/98	402.70	140.94	261.76	
	2	05/01/98	402.70	141.28	261.42	
	3	05/01/98	402.70	141.31	261.39	
	4	05/01/98	402.70	141.55	261.15	
	5	05/01/98	402.70	141.79	260.91	
	6	05/01/98	402.70	142.34	260.36	
	7	05/01/98	402.70			Tool landed in incorrect port
	8	05/01/98	402.70	142.65	260.05	
	9	05/01/98	402.70	142.83	259.87	
	10	05/01/98	402.70	143.35	259.35	
	11	05/01/98	402.70	143.74	258.96	
	12	05/01/98	402.70	143.68	259.02	
	13	05/01/98	402.70	143.94	258.76	
MW5-03	1	05/01/98	474.41	205.14	269.27	
	2	05/01/98	474.41	205.16	269.25	
	3	05/01/98	474.41	205.20	269.21	
	4	05/01/98	474.41	205.33	269.08	
	5	05/01/98	474.41	205.41	269.00	
	6	05/01/98	474.41	205.61	268.80	
	7	05/01/98	474.41	205.74	268.67	
	8	05/01/98	474.41	205.98	268.43	
	9	05/01/98	474.41	206.29	268.12	
	10	05/01/98	474.41	211.78	262.63	
MW5-05	1	05/01/98	342.52	89.45	253.07	
	2	05/01/98	342.52	89.34	253.18	
	3	05/01/98	342.52	89.31	253.21	
	4	05/01/98	342.52	90.14	252.38	
MW5-08	1	05/01/98	339.20	86.17	253.03	
	2	05/01/98	339.20	86.18	253.02	
	3	05/01/98	339.20	85.94	253.26	
	4	05/01/98	339.20	85.95	253.25	
MW5-15	1	05/01/98	359.99	105.05	254.94	
	2	05/01/98	359.99	105.44	254.55	
	3	05/01/98	359.99	105.85	254.14	
MW5-19	1	05/01/98	281.20		NM	
	2	05/01/98	281.20		NM	
	3	05/01/98	281.20		NM	
	4	05/01/98	281.20		NM	
	5	05/01/98	281.20		NM	
	6	05/01/98	281.20		NM	
MW5-20	1	05/01/98	318.60	76.22	242.38	
	2	05/01/98	318.60	76.24	242.36	
	3	05/01/98	318.60	75.40	243.20	
	4	05/01/98	318.60	75.40	243.20	
	5	05/01/98	318.60	74.49	244.11	
	6	05/01/98	318.60	72.92	245.68	
	7	05/01/98	318.60	72.75	245.85	
MW5-22	1	05/01/98	296.58		NM	
	2	05/01/98	296.58		NM	
	3	05/01/98	296.58		NM	
	4	05/01/98	296.58		NM	
	5	05/01/98	296.58		NM	
	6	05/01/98	296.58		NM	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
MW5-23	1	05/01/98	307.37	67.93	239.44	
	2	05/01/98	307.37	68.70	238.67	
	3	05/01/98	307.37	69.53	237.84	
	4	05/01/98	307.37	67.95	239.42	
	5	05/01/98	307.37	66.96	240.41	
	6	05/01/98	307.37	62.88	244.49	
MW6-01	9	05/01/98	302.00	64.55	237.45	
	8	05/01/98	302.00	67.01	234.99	
	7	05/01/98	302.00	66.70	235.30	
	6	05/01/98	302.00	67.68	234.32	
	5	05/01/98	302.00	65.97	236.03	
	4	05/01/98	302.00	66.01	235.99	
	3	05/01/98	302.00	65.05	236.95	
	2	05/01/98	302.00	63.48	238.52	
	1	05/01/98	302.00	63.24	238.76	
MW5-01	1	06/01/98	402.70	131.97	270.73	
	2	06/01/98	402.70	132.06	270.64	
	3	06/01/98	402.70	132.07	270.63	
	4	06/01/98	402.70	132.23	270.47	
	5	06/01/98	402.70	132.36	270.34	
	6	06/01/98	402.70	132.87	269.83	
	7	06/01/98	402.70	132.97	269.73	
	8	06/01/98	402.70	133.21	269.49	
	9	06/01/98	402.70	133.37	269.33	
	10	06/01/98	402.70	133.76	268.94	
	11	06/01/98	402.70	133.98	268.72	
	12	06/01/98	402.70	134.06	268.64	
	13	06/01/98	402.70	134.04	268.66	
MW5-03	1	06/01/98	474.41	195.39	279.02	
	2	06/01/98	474.41	195.13	279.28	
	3	06/01/98	474.41	195.07	279.34	
	4	06/01/98	474.41	194.99	279.42	
	5	06/01/98	474.41	195.04	279.37	
	6	06/01/98	474.41	195.06	279.35	
	7	06/01/98	474.41	195.08	279.33	
	8	06/01/98	474.41	195.29	279.12	
	9	06/01/98	474.41	195.35	279.06	
	10	06/01/98	474.41	195.73	278.68	
MW5-05	1	06/01/98	342.52	81.80	260.72	
	2	06/01/98	342.52	81.74	260.78	
	3	06/01/98	342.52	81.63	260.89	
	4	06/01/98	342.52	82.17	260.35	
MW5-08	1	06/01/98	339.20	78.62	260.58	
	2	06/01/98	339.20	78.43	260.77	
	3	06/01/98	339.20	78.29	260.91	
	4	06/01/98	339.20	78.19	261.01	
MW5-15	1	06/01/98	359.99	96.69	263.30	
	2	06/01/98	359.99	96.94	263.05	
	3	06/01/98	359.99	97.16	262.83	
MW5-19	1	06/01/98	281.20		NM	
	2	06/01/98	281.20		NM	
	3	06/01/98	281.20		NM	
	4	06/01/98	281.20		NM	
	5	06/01/98	281.20		NM	
	6	06/01/98	281.20		NM	
MW5-20	1	06/01/98	318.60	72.01	246.59	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
	2	06/01/98	318.60	71.90	246.70	
	3	06/01/98	318.60	70.46	248.14	
	4	06/01/98	318.60	70.45	248.15	
	5	06/01/98	318.60	69.12	249.48	
	6	06/01/98	318.60	67.33	251.27	
	7	06/01/98	318.60	69.10	249.50	
MW5-22	1	06/01/98	296.58		NM	
	2	06/01/98	296.58		NM	
	3	06/01/98	296.58		NM	
	4	06/01/98	296.58		NM	
	5	06/01/98	296.58		NM	
	6	06/01/98	296.58		NM	
MW5-23	1	06/01/98	307.37	65.05	242.32	
	2	06/01/98	307.37	64.97	242.40	
	3	06/01/98	307.37	64.77	242.60	
	4	06/01/98	307.37	63.12	244.25	
	5	06/01/98	307.37	62.84	244.53	
	6	06/01/98	307.37	58.36	249.01	
MW6-01	1	06/01/98	302.00	59.44	242.56	
	2	06/01/98	302.00	59.70	242.30	
	3	06/01/98	302.00	61.16	240.84	
	4	06/01/98	302.00	62.46	239.54	
	5	06/01/98	302.00	62.36	239.64	
	6	06/01/98	302.00	64.31	237.69	
	7	06/01/98	302.00	65.03	236.97	
	8	06/01/98	302.00	65.15	236.85	
	9	06/01/98	302.00	61.63	240.37	
MW5-01	1	07/01/98	402.70	133.01	269.69	
	2	07/01/98	402.70	133.11	269.59	
	3	07/01/98	402.70	133.10	269.60	
	4	07/01/98	402.70	133.02	269.68	
	5	07/01/98	402.70	133.11	269.59	
	6	07/01/98	402.70	132.95	269.75	
	7	07/01/98	402.70	132.96	269.74	
	8	07/01/98	402.70	133.12	269.58	
	9	07/01/98	402.70	133.19	269.51	
	10	07/01/98	402.70	133.28	269.42	
	11	07/01/98	402.70	133.48	269.22	
	12	07/01/98	402.70	133.43	269.27	
	13	07/01/98	402.70	133.33	269.37	
MW5-03	1	07/01/98	474.41	196.09	278.32	
	2	07/01/98	474.41	195.71	278.70	
	3	07/01/98	474.41	195.44	278.97	
	4	07/01/98	474.41	195.23	279.18	
	5	07/01/98	474.41	195.21	279.20	
	6	07/01/98	474.41	195.12	279.29	
	7	07/01/98	474.41	195.20	279.21	
	8	07/01/98	474.41	195.19	279.22	
	9	07/01/98	474.41	195.15	279.26	
	10	07/01/98	474.41	195.32	279.09	
MW5-05	1	07/01/98	342.52	82.02	260.50	
	2	07/01/98	342.52	81.27	261.25	
	3	07/01/98	342.52	81.26	261.26	
	4	07/01/98	342.52	81.13	261.39	
MW5-08	1	07/01/98	339.20	79.19	260.01	
	2	07/01/98	339.20	79.12	260.08	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
	3	07/01/98	339.20	79.19	260.01	
	4	07/01/98	339.20	78.66	260.54	
MW5-15	1	07/01/98	359.99	96.74	263.25	
	2	07/01/98	359.99	96.62	263.37	
	3	07/01/98	359.99	96.56	263.43	
MW5-19	1	07/01/98	281.20		NM	
	2	07/01/98	281.20		NM	
	3	07/01/98	281.20		NM	
	4	07/01/98	281.20		NM	
	5	07/01/98	281.20		NM	
	6	07/01/98	281.20		NM	
MW5-20	1	07/01/98	318.60	72.23	246.37	
	2	07/01/98	318.60	72.13	246.47	
	3	07/01/98	318.60	70.58	248.02	
	4	07/01/98	318.60	70.54	248.06	
	5	07/01/98	318.60	69.07	249.53	
	6	07/01/98	318.60	67.00	251.60	
	7	07/01/98	318.60	66.14	252.46	
MW5-22	1	07/01/98	296.58	59.52	237.06	
	2	07/01/98	296.58	58.31	238.27	
	3	07/01/98	296.58	58.03	238.55	
	4	07/01/98	296.58	57.90	238.68	
	5	07/01/98	296.58	54.77	241.81	
	6	07/01/98	296.58	50.46	246.12	
MW5-23	1	07/01/98	307.37	64.80	242.57	
	2	07/01/98	307.37	64.89	242.48	
	3	07/01/98	307.37	64.89	242.48	
	4	07/01/98	307.37	63.02	244.35	
	5	07/01/98	307.37	62.38	244.99	
	6	07/01/98	307.37	57.57	249.80	
MW6-01	1	07/01/98	302.00	58.23	243.77	
	2	07/01/98	302.00	58.44	243.56	
	3	07/01/98	302.00	59.90	242.10	
	4	07/01/98	302.00	61.15	240.85	
	5	07/01/98	302.00	60.97	241.03	
	6	07/01/98	302.00	63.10	238.90	
	7	07/01/98	302.00	64.25	237.75	
	8	07/01/98	302.00	64.82	237.18	
	9	07/01/98	302.00	61.11	240.89	
MW5-01	1	08/01/98	402.70	136.75	265.95	
	2	08/01/98	402.70	136.65	266.05	
	3	08/01/98	402.70	136.47	266.23	
	4	08/01/98	402.70	136.39	266.31	
	5	08/01/98	402.70	136.34	266.36	
	6	08/01/98	402.70	135.78	266.92	
	7	08/01/98	402.70	135.76	266.94	
	8	08/01/98	402.70	135.78	266.92	
	9	08/01/98	402.70	135.79	266.91	
	10	08/01/98	402.70	135.68	267.02	
	11	08/01/98	402.70	135.73	266.97	
	12	08/01/98	402.70	135.59	267.11	
	13	08/01/98	402.70	135.61	267.09	
MW5-03	1	08/01/98	474.41	199.00	275.41	
	2	08/01/98	474.41	198.49	275.92	
	3	08/01/98	474.41	198.32	276.09	
	4	08/01/98	474.41	198.16	276.25	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
	5	08/01/98	474.41	197.99	276.42	
	6	08/01/98	474.41	198.03	276.38	
	7	08/01/98	474.41	197.83	276.58	
	8	08/01/98	474.41	197.95	276.46	
	9	08/01/98	474.41	197.90	276.51	
	10	08/01/98	474.41	197.99	276.42	
MW5-05	1	08/01/98	342.52	84.19	258.33	
	2	08/01/98	342.52	82.99	259.53	
	3	08/01/98	342.52	82.78	259.74	
	4	08/01/98	342.52	81.65	260.87	
MW5-08	1	08/01/98	339.20	82.31	256.89	
	2	08/01/98	339.20	82.22	256.98	
	3	08/01/98	339.20	81.95	257.25	
	4	08/01/98	339.20	81.06	258.14	
MW5-18	1	08/01/98	359.99	99.11	260.88	
	2	08/01/98	359.99	98.37	261.62	
	3	08/01/98	359.99	98.14	261.85	
MW5-19	1	08/01/98	281.20	52.14	229.06	
	2	08/01/98	281.20	49.27	231.93	
	3	08/01/98	281.20	51.34	229.86	
	4	08/01/98	281.20	51.62	229.58	
	5	08/01/98	281.20	52.49	228.71	
	6	08/01/98	281.20	43.27	237.93	
MW5-20	1	08/01/98	318.60	75.66	242.94	
	2	08/01/98	318.60	75.36	243.24	
	3	08/01/98	318.60	72.89	245.71	
	4	08/01/98	318.60	72.75	245.85	
	5	08/01/98	318.60	71.20	247.40	
	6	08/01/98	318.60	67.38	251.22	
	7	08/01/98	318.60	65.25	253.35	
MW5-22	1	08/01/98	296.58	62.97	233.61	
	2	08/01/98	296.58	60.63	235.95	
	3	08/01/98	296.58	60.57	236.01	
	4	08/01/98	296.58	61.13	235.45	
	5	08/01/98	296.58	60.49	236.09	
	6	08/01/98	296.58	50.87	245.71	
MW5-23	1	08/01/98	307.37	68.16	239.21	
	2	08/01/98	307.37	67.65	239.72	
	3	08/01/98	307.37	66.93	240.44	
	4	08/01/98	307.37	63.90	243.47	
	5	08/01/98	307.37	62.93	244.44	
	6	08/01/98	307.37	57.06	250.31	
MW6-01	1	08/01/98	302.00	60.74	241.26	
	2	08/01/98	302.00	61.10	240.90	
	3	08/01/98	302.00	62.84	239.16	
	4	08/01/98	302.00	64.80	237.20	
	5	08/01/98	302.00	64.45	237.55	
	6	08/01/98	302.00	67.03	234.97	
	7	08/01/98	302.00	69.90	232.10	
	8	08/01/98	302.00	70.14	231.86	
	9	08/01/98	302.00	65.35	236.65	
MW5-01	1	10/16/98	402.70	138.86	263.84	
	2	10/16/98	402.70	138.50	264.20	
	3	10/16/98	402.70	138.45	264.25	
	4	10/16/98	402.70	138.12	264.58	
	5	10/16/98	402.70	138.00	264.70	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
	6	10/16/98	402.70	137.08	265.62	
	7	10/16/98	402.70	137.04	265.66	
	8	10/16/98	402.70	137.00	265.70	
	9	10/16/98	402.70	137.06	265.64	
	10	10/16/98	402.70	136.74	265.96	
	11	10/16/98	402.70	136.67	266.03	
	12	10/16/98	402.70	136.62	266.08	
	13	10/16/98	402.70	136.55	266.15	
MW5-03	1	10/16/98	474.41	203.18	271.23	
	2	10/16/98	474.41	202.33	272.08	
	3	10/16/98	474.41	201.93	272.48	
	4	10/16/98	474.41	201.60	272.81	
	5	10/16/98	474.41	201.39	273.02	
	6	10/16/98	474.41	201.27	273.14	
	7	10/16/98	474.41	201.09	273.32	
	8	10/16/98	474.41	201.00	273.41	
	9	10/16/98	474.41	200.85	273.56	
	10	10/16/98	474.41	200.86	273.55	
MW5-08	1	10/16/98	339.20	83.59	255.61	
	2	10/16/98	339.20	83.38	255.82	
	3	10/16/98	339.20	83.10	256.10	
	4	10/16/98	339.20	82.00	257.20	
MW5-11	1	10/16/98	493.60	222.23	271.37	
	2	10/16/98	493.60	222.01	271.59	
	3	10/16/98	493.60	221.56	272.04	
MW5-15	1	10/16/98	359.99	100.02	259.97	
	2	10/16/98	359.99	98.41	261.58	
	3	10/16/98	359.99	98.13	261.86	
MW5-19	1	10/15/98	281.20	50.88	230.32	
	2	10/15/98	281.20	48.22	232.98	
	3	10/15/98	281.20	51.33	229.87	
	4	10/15/98	281.20	51.75	229.45	
	5	10/15/98	281.20	50.77	230.43	
	6	10/15/98	281.20	41.36	239.84	
MW5-20	1	10/15/98	318.60	73.64	244.96	
	2	10/15/98	318.60	73.60	245.00	
	3	10/15/98	318.60	71.57	247.03	
	4	10/15/98	318.60	71.53	247.07	
	5	10/15/98	318.60	70.24	248.36	
	6	10/15/98	318.60	65.83	252.77	
	7	10/15/98	318.60	63.62	254.98	
MW5-22	1	10/15/98	296.58	60.90	235.68	
	2	10/15/98	296.58	59.46	237.12	
	3	10/15/98	296.58	59.52	237.06	
	4	10/15/98	296.58	59.38	237.20	
	5	10/15/98	296.58	54.90	241.68	
	6	10/15/98	296.58	49.23	247.35	
MW5-23	1	10/16/98	307.37	28.21	279.16	
	2	10/16/98	307.37	28.63	278.74	
	3	10/16/98	307.37	29.47	277.90	
	4	10/16/98	307.37	30.10	277.27	
	5	10/16/98	307.37	30.74	276.63	
	6	10/16/98	307.37	31.61	275.76	
MW6-01	1	10/16/98	302.00	58.84	243.16	
	2	10/16/98	302.00	59.19	242.81	
	3	10/16/98	302.00	61.05	240.95	

Table 3.2: Groundwater Elevation Data, January - October 1998, (in feet)

Well	Zone	Date	Ground Surface Elevation (feet)	Depth to Water (feet)	Water-level Elevation (feet msl)	Comment
	4	10/16/98	302.00	62.69	239.31	
	5	10/16/98	302.00	62.58	239.42	
	6	10/16/98	302.00	64.93	237.07	
	7	10/16/98	302.00	65.50	236.50	
	8	10/16/98	302.00	65.44	236.56	
	9	10/16/98	302.00	62.76	239.24	

NM No measurement
msl Mean sea level

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
MW5-01		EPA	13		1/14/98	0.31 J	1 U	0.5 U		0.99 J	0.5 U	0.38 J	0.05 U		1.7	4 U	4
					8/10/98	1 U	1 U	0.2 P	2 U	1.2	0.2 P	1 U	0.1 U	0.033 U	3	7.18	9.1
			12		1/14/98	0.96 J	1.6	0.78 J		2.6	0.5 U	2.6	5.6		5.7	19.5	28
				DUP	1/14/98	1.1	2	0.77		2.8	0.5 U	2.8	5.6		7.2	17	32
				avg		1.03	1.8	0.775		2.7	0.5 U	2.7	5.6		6.45	18.25	30
					8/10/98	1.4	6.6	1	2 U	4	0.2 P	3.8	8.3	0.117	18	20.2	64
				DUP	8/10/98	1.3	5.3	1	2 U	3.9	0.2 P	3.7	8.3	0.104	16	21.1	60
				avg		1.4	3.6	1	2 U	4	0.2 P	3.8	8.3	0.111	17	20.7	62
			11		1/14/98	1.4	10	0.69		4	0.5 U	2.9	0.26		17	11.1	53
					8/10/98									0.981			
					8/11/98	2.6	22	2.5 U	2.14	10	2.5 U	8	2.9		49	37.2	170
			10		1/14/98	2.3 D	0.88 DJ	2.7 D		5.9 D	1 UD	8.3 D	6.4		7.4 D	74.6	100 D
					3/26/98	1.7	0.58 J	2.6		4.7	1.6	7.1			7		78
					8/10/98									0.723			
					8/11/98	2.5 U	2.5 U	3	2.44	6.5	2.5 U	8.6	8.2		8.5	91.4	120
			9		1/14/98	1.9 DJ	1.1 DJ	4 D		5.2 D	2.7 D	9 D	6		8 D	104	130 D
					8/11/98	2.5 U	2.5 U	4.4	3.68	5.3	3.1	9.4	10		7.7	103	150
					8/12/98									0.8			
			8		1/14/98	1.1 DJ	1.5 DJ	4.2 D		4.4 D	5.5 D	7.3 D	6.4		7.8 D	107	190 D
					8/12/98	2 U	2 U	2 U	2.48	1.6	3.7	3.5	7.7		7.1	49.2	110
					8/17/98									0.2			
			7		1/14/98	2 UD	0.34 DJ	3 D		1.5 DJ	13 D	2.4 D	2.3		2 UD	63	110 D
					8/12/98	1 U	1 U	1.3	2 U	0.87	8.9	1.2	2.3	0.056	1 U	28.5	51
			6		1/14/98	2 UD	2 UD	1 UD		2 UD	22 D	0.72 DJ	2		2 UD	4 U	0.55 DJ
					3/26/98	1 U	1 U	0.5 U		1 U	9.2	0.33 J			1 U		0.2 J
					8/12/98	1 U	1 U	0.2 P	2 U	0.5 U	11	1 U	2.3	0.033 U	1 U	4 U	0.24 J
			5		1/14/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.44		1 U	4 U	0.36 J
					8/12/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.67	0.033 U	1 U	4 U	1 U
			4		1/13/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.061		1 U	4 U	0.24 J
			3		1/13/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.05 U		1 U	4 U	0.17 J
			2		1/13/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.067		1 U	4 U	1
			1		1/13/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.11		1 U	4 U	1 U
MW5-03		BPOUSC	10		1/14/98	13	22	0.5 U		27	0.5 U	0.8 J	2.7		4.7	7.75	18
				DUP	1/14/98	10	16	0.5 U		22	0.5 U	0.68 J	2.7		3.6	7.18	13
				avg		11.5	19	0.5 U		24.5	0.5 U	0.74	2.7		4.15	7.47	15.5
					8/5/98	6	11	0.2 P	24.9	11	0.2 P	1 U	1.5	0.033 U	6.2	4 U	16
			9		1/14/98	12	15	0.11 J		10	0.5 U	1 U	0.05 U		1.3	7.26	4.2
					8/5/98	2.5 U	7.4	2.5 U	4.79	7	2.5 U	4.6	3.2	0.025 J	37	264	150
			8		1/14/98	7.8 D	140 D	1 UD		8.8 D	1 UD	1.1 DJ	3.5		17 D	5.53	57 D
					3/27/98	5	180 D	0.49 J		5.8	0.5 U	0.96 J			19		61
				DUP	3/27/98	5.19	140 D	0.47 J		6.19	0.5 U	1			21		64
				avg		5.095	160	0.48		5.995	0.5 U	0.98			20		62.5
					8/5/98	5 U	170	5 U		6.5	5 U	5 U	3.9	0.13	30	4 U	76
			7		1/13/98	5 UD	7.1 D	2.5 UD		9.4 D	2.5 UD	1.8 DJ	4.1		230 D	6.6	310 D
					3/27/98	0.69	31	1.1		8.2	2.1	4.2			260 D		360 D

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
					8/4/98									0.43			
					8/5/98	5 U	43	5 U	2 U	10	5 U	5 U	1.9		230	6.7	180
			6		1/13/98	5 UD	7.3 D	2.5 UD		10 D	2.5 UD	1.9 DJ	4.3		250 D	5.82	320 D
					3/27/98	0.44 J	11	0.53		10	1.4	2.3			260 D		330 D
					8/4/98									0.066			
					8/5/98	5 U	5 U	5 U	2 U	11	5 U	5 U	5.1		280	5.3	320
			5		1/13/98	2 UD	4.7 D	1 UD		1.6 DJ	1 UD	0.9 DJ	0.05 U		53 D	4 U	95 D
					8/4/98	1 U	5.8	0.2 P	2 U	1.5	0.2 P	1 U	0.1 U	0.033 U	42	4 U	82
			4		1/13/98	0.74 J	1	0.5 U		0.69 J	0.5 U	0.84 J	0.05 U		3.2	4 U	2.8
					8/4/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.1 U	0.033 U	2.4	4 U	1.9
			3		1/13/98	1 U	1 U	0.5 U		1 U	1.6	2.2	0.05 U		1 U	4 U	0.39 J
					8/4/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	3	0.1 U	0.033 U	1 U	4 U	1 U
			2		1/13/98	0.59 J	0.65 J	0.5 U		0.57 J	0.5 U	2.8	0.05 U		3	4 U	2.3
			1		1/13/98	0.76 J	0.46 J	0.5 U		0.45 J	0.5 U	0.43 J	0.064		2.6	4 U	1.4
MW5-05		BPOUSC	4		1/19/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	10.1		1.2	9.42	0.29 J
					8/21/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	10.4	0.033 U	2.6	12	1 U
			3		1/19/98	0.19 J	6.1	5 U		4.6	0.5 U	1.3	3.1		27	9.03	40
				DUP	1/19/98	0.44 J	16	0.5 U		10	0.5 U	1.3	3.2		64	10.4	93
				avg		0.315	11.05	0.5 U		7.3	0.5 U	1.3	3.15		45.5	9.72	66.5
					8/21/98	2 U	8.9	2 U	2.43	12	2 U	2	3.6	0.033 U	52	6.9	95
			2		1/19/98	1 U	1 U	0.5 U		1 U	0.5 U	1.6	1.2		1 U	4 U	0.14 J
					8/21/98	2.5 U	17	2.5 U	2.4	13	2.5 U	2.5 U	3.9	0.033 U	80	6.79	120
			1		1/19/98	1 U	1 U	0.5 U		1 U	5.4	0.29 J	2		1 U	4 U	0.12 J
					8/21/98	1 U	1 U	0.2 P	2 U	0.5 U	8.7	1 U	2	0.033 U	1 U	4 U	1 U
MW5-08		BPOUSC	4		1/19/98	1 U	2.2	0.5 U		1.3	0.5 U	0.14 J	3.4		14	4 U	15
					8/27/98									0.033 U			
				DUP	8/27/98									0.033 U			
				avg										0.033 U			
					8/28/98	1	7.5	1	2 U	5.3	1	1	3.3		43	4 U	53
				DUP	8/28/98	1	9.4	1	2 U	6.1	1	1	3.3		50	4 U	60
				avg		1	4.3	1	2 U	5.7	1	1	3.3		47	4 U	57
			3		1/15/98	1 U	1 U	0.5 U		1 U	3.7	1 U	1.1		1 U	4 U	1 U
				DUP	1/15/98	1 U	1 U	0.5 U		1 U	3.8	1 U	1.1		1 U	4 U	1 U
				avg		1 U	1 U	0.5 U		1 U	3.75	1 U	1.1		1 U	4 U	1 U
					8/27/98									0.033 U			
					8/28/98	1	1	1	2 U	0.5	4.8	1	1.2		1	4 U	1 U
			2		1/15/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	1.4		1 U	4 U	1 U
					8/27/98									0.033 U			
					8/28/98	1	1	1	2 U	0.5	1	1	1.4		1	4 U	1 U
			1		1/15/98	1 U	1 U	0.5 U		1 U	1.5	1 U	1		1 U	4 U	1 U
					8/27/98									0.033 U			
					8/28/98	1	1	1	2 U	0.5	1.4	1	1.3		1	4 U	1 U
MW5-11		BPOUSC	3		1/12/98	0.39 J	3.9	2.2		4.3	0.82	5.8	3.5		24	340	88
					8/26/98	5 U		5 U	6.33	14	6.2	6.3	6.8	0.079	140	319	280
				DUP	8/26/98	5 U		5 U	5.6	14	5.4	6.2	6.7		120	4 U	270

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
				avg		5 U	13	5 U	5.97	14	5.8	6.3	6.8		130	160.5	275
			2		1/12/98	2.5 UD	0.69 DJ	1.4 DJ		23 D	1.3 DJ	2.5 D	0.59		510 D	4 U	420 D
					8/26/98	5 U	5 U	5 U	2 U	17	5 U	5 U	4.5	0.033 U	370	316	370
			1		1/12/98	1 U	0.22 J	0.5 U		1.6	0.78	0.34 J	1.1		53	4 U	120
					8/24/98									0.033 U			
MW5-13		BPOUSC	3		1/14/98	12 UD	5.6 DJ	7.2 DJ		58 D	6.2 UD	31 D	7.8		510 D	549	830 D
					3/27/98	1.5	8.4	8.4		79	22	36			1100 D		1400 D
					8/26/98	5 U	5 U	5 U		13	15	5.6	6.4		330	146	410
					8/27/98									0.59			
					8/28/98				3.35								
			2		1/14/98	10 UD	1.1 DJ	5 UD		16 D	5 UD	4.4 DJ	5.7		400 D	5.1	250 D
					3/27/98	1 U	0.35	0.17 J		4.3	0.51	0.4 J			280 D		140 D
					8/26/98	1 U	1 U	0.2 P	2 U	1.7	0.67	1 U	4.6	0.033 U	110	146	61
			1		1/14/98	1 U	0.14 J	0.5 U		0.34 J	0.5 U	0.4 J	0.45		8.1	18.4	11
					8/26/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.23	0.033 U	1.5	4 U	1 U
MW5-15		BPOUSC	3		1/15/98	2.5 UD	21 D	1.2 UD		27 D	1.2 UD	2.8 D	4.2		69 D	61.5	180 D
					1/29/98								4.6				
					3/26/98	1.4	19	0.72		26	0.5 U	2.6			51		150 D
					8/25/98	2 U	17	2 U	6.63	29	2 U	3.1	4.6	0.033 U	53	51.1	170
			2		1/15/98	10 UD	49 D	5 UD		31 D	5 UD	10 UD	3.9		380 D	160	420 D
					1/29/98								4.2				
					3/26/98	2.2	38	2.3		30	2.1	6			310 D		350 D
					8/24/98	5 U	31	5 U	9.61	26	5 U	5.3	4	0.048	230	115	270
			1		1/15/98	1 U	1 U	1.6		1 U	2.3	1.2	3.7		1 U	61.2	45
					1/29/98								3.9				
					8/24/98	1 U	1 U	3.7	11.4	0.69	1.8	1.7	4.3	0.028 J	1 U	92.7	51
MW5-17		BPOUSC	3		1/12/98	0.25 J	16	1.3		7.4	1	1.2	7.1		170 D	120	70
					8/27/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	3.5	0.033 U	1.8	4 U	1 U
			2		1/12/98	1 U	1 U	0.5 U		0.34 J	0.1 J	1 U	3.9		19	4 U	13
					8/27/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	3.5	0.033 U	1 U	4 U	1 U
			1		1/12/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.76		1 U	4 U	1 U
					8/27/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.9	0.033 U	1 U	4 U	1 U
MW5-18		BPOUSC	3		1/12/98	0.76 J	29	0.22 J		3.6	0.5 U		1.4		47	5	54
					8/27/98	1 U	5.8	0.2 P	2 U	3.6	0.2 P	1.1	2.4	0.029 J	72	5.85	57
			2		1/12/98	0.26 J	4.9	0.5 U		3.9	0.75	0.74 J	7.9		120 D	5	140 D
					8/27/98	2 U	2 U	2 U	2 U	5.1	2 U	2 U	8	0.033 U	130	7.95	170
			1		1/12/98	1 U	1 U	0.5 U		1 U	1.4	0.19 J	1.2		1 U	4 U	1.3
					8/27/98	1 U	1 U	0.2 P	2 U	0.5 U	1.1	1 U	4.3	0.033 U	1 U	4 U	2.5
MW5-19		BPOUSC	6		8/7/98	1 U	1 U	0.5 U	1 U	1 U	0.2 P	1 U	4.8		1 U		1 U
					9/3/98				1 U								
					9/4/98		1 U	0.5 U		1 U	0.2 P	1 U	4.5	0.033 U	1 U	4 U	1 U
			5		8/7/98	1 U	1 U	0.44 J	1 U	0.96 J	1.4	0.75 J	17 U		4.7		12
				DUP	8/7/98	1 U	0.69 J	0.43 J	1 U		2.1				6.3		13
				avg	8/7/98	1 U	1 U	0.435 J	1 U		1.75				5.5		12.5
					9/3/98				1 U								

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
					9/4/98		0.53 J	0.46 J		0.92 J	1.8	0.68 J	17	0.053	5.5	15.5	11
			4		8/6/98	1 U	1 U	0.5 U	1 U	1 U	4.1	1 U	1.3		1 U		1 U
					9/3/98		1 U	0.5 U	1 U	1 U	4.4	1 U	1.3	0.033 U	1 U	4 U	1 U
				DUP	9/3/98		1 U	0.5 U	1 U	1 U	4.7	0.26 J	1.3	0.033 U	1 U	4 U	1 U
				avg			1 U	0.5 U	1 U	1 U	4.6	0.38	1.3	0.033 U	1 U	4 U	1 U
			3		8/6/98	1 U	1 U	0.5 U	1 U	1 U	1	1 U	1.1		1 U		1 U
					9/3/98		1 U	0.5 U	1 U	1 U	1	1 U	1.1	0.033 U	1 U	4 U	1 U
			2		8/6/98	1 U	1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.59		1 U		1 U
					9/3/98		1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.52	0.033 U	1 U	4 U	1 U
			1		8/6/98	1 U	1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.89 U		1 U		1 U
					9/3/98		1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.8	0.033 U	1 U	4 U	1 U
MW5-20		BPOUSC	7		1/15/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	19.3		2.5	11.6	0.12 J
				DUP	1/15/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.06 J		1 U		1 U
				avg		1 U	1 U	0.5 U		1 U	0.5 U	1 U	9.68		1.75		0.56 J
					6/4/98									0.033 U			
					8/13/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	20.3	0.2	3.5	12.2	1 U
			6		1/15/98	1 U	1 U	3.1		0.39 J	1.4	1.9	16.9		3.8	44.2	22
				DUP	1/15/98	1 U	1 U	2.7		0.3 J	0.5 U	1.6	17.4		2.2	44.2	15
				avg		1 U	1 U	2.9		0.345	0.95	1.75	17.15		3	44.2	18.5
					6/4/98									0.098			
				DUP	6/4/98									0.097			
				avg										0.098			
					8/13/98	1 U	1 U	3.1	2 U	0.5 U	1.3	1.9	15.9	1.1	2.5	41.1	22
			5		1/15/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.25		1 U	4 U	0.28 J
					8/13/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.26	0.033 U	1 U	4 U	1 U
				DUP	8/13/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.26	0.033 U	1 U	4 U	1 U
				avg		1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	0.26	0.033 U	1 U	4 U	1 U
			4		1/15/98	1 U	0.61 J	0.9		0.93 J	4.5	0.81 J	3.6		1.3	24.6	13
					6/3/98									0.11			
					8/13/98	1 U	1 U	1.4	2 U	1.2	6.8	1	0.1 U	0.17	2	28.8	19
			3		1/15/98	1 U	1 U	0.5 U		1 U	7.8	0.42 J	2.7		1 U	4 U	1.4
					6/3/98									0.033 U			
					8/14/98	1 U	1 U		2 U	0.5 U	14	1 U	3.3	0.033 U	1 U	6.08	2.7
			2		1/15/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.24 J		1 U	4 U	0.84 J
					6/3/98									0.033 U			
					8/14/98	1 U	1 U		2 U	0.5 U	6.4	1 U	0.43		1 U	4 U	1 U
			1		1/15/98	1 U	1 U	0.5 U		1 U	3.7	0.23 J	1.1		1.4	4 U	1.3
					6/3/98									0.033 U			
					8/14/98	1 U	1 U		2 U	0.5 U	6.4	1 U	1.4	0.033 U	1 U	4 U	1 U
MW5-22		BPOUSC	6		7/20/98									0.033 U			
					7/21/98	1 U	1 U	0.5 U	1 U	1 U	0.2 P	0.61 J	10		1 U	4 U	1 U
					9/1/98				1 U								
					9/2/98		1 U	0.5 U		1 U.	0.2 P	0.85 J	10	0.033 U	1 U	6.01	1 U
			5		7/20/98	1 U	1 U	2.9	1 U	0.27 J	1.4	2	15	0.68	5 U	36.4	23
					9/1/98				2								

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
					9/2/98		1 U	3.7		1 U	1.4	2.1	15	0.73	4.8	45.4	24
			4		7/20/98	1 U	1 U	0.5 U	1 U	1 U	1.6	1 U	2.1	0.033 U	1 U	4 U	1 U
				DUP	7/20/98	1 U	1 U	0.5 U	1 U	1 U	1.5	1 U	2	0.033 U	1 U	4 U	1 U
				avg		1 U	1 U	0.5 U	1 U	1 U	1.6	1 U	2.1	0.033 U	1 U	4 U	1 U
					9/1/98		1 U	0.5 U	1 U	1 U	1.5	1 U	1	0.033 U	1 U	4 U	1 U
				DUP	9/1/98		1 U	0.5 U	.	1 U	1.2	1 U	1	0.033 U	1 U	4 U	1 U
				avg			1 U	0.5 U		1 U	1.4	1 U	1	0.033 U	1 U	4 U	1 U
			3		7/20/98	1 U	1 U	0.5 U	1 U	1 U	0.98	1 U	1.8	0.033 U	1 U	4 U	1 U
					9/1/98		1 U	0.5 U	1 U	1 U	2.9	1 U	1.7	0.033 U	1 U	4 U	1 U
			2		7/20/98	1 U	1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.42	0.033 U	1 U	4 U	1 U
					9/1/98		1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.51	0.033 U	1 U	4 U	1 U
			1		7/20/98	1 U	1 U	0.5 U	1 U	1 U	0.2 P	1 U	1.6	0.033 U	1 U	5.6	1 U
					9/1/98		1 U	0.5 U	1 U	1 U	0.2 P	1 U	0.6	0.033 U	1 U	4 U	1 U
MW5-23		BPOUSC	6		1/28/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.2		1 U	4 U	0.2 J
					2/18/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	0.23		1 U	4 U	1 U
					6/5/98									0.033 U			
					8/17/98									0.033 U			
				DUP	8/17/98									0.033 U			
														0.033 U			
					8/18/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	1.9		1 U	4 U	1 U
				DUP	8/18/98	1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	1.9		1 U	4 U	1 U
				avg		1 U	1 U	0.2 P	2 U	0.5 U	0.2 P	1 U	1.9		1 U	4 U	1 U
			5		1/28/98	0.42 J	2.4	2.8		2.7	2.9	2.4	12.6		7.9	63.2	37
				DUP	1/28/98	0.39 J	1.5	2.7		2.6	1.6	2.3	12.7		5.6	62.6	31
				avg		0.405	1.95	2.75		2.65	2.25	2.35	12.65		6.75	62.9	34
					2/18/98	0.51 J	2.7	3.1		3.3	3.1	2.6	12.6		8.6	58.7	41
					6/5/98									0.66			
					8/17/98									0.63			
					8/18/98	0.48 J	1.7	2.1	2.11	2.8	2.1	2.1	13.6		8.2	46.7	33
			4		1/28/98	1 U	0.1 J	1.3		0.33 J	3.6	0.9 J	5		0.77 J	22.7	11
					2/18/98	1 U	1 U	1.3		0.51 J	5	1.2	4.8		0.97 J	21.7	14
				DUP	2/18/98	1 U	0.2 J	1.5		0.46 J	5.6	1.1	4.8		1.1	24.5	15
				avg		1 U	0.6 J	1.4		0.485	5.3	1.15	4.8		1.035	23.1	14.5
					6/5/98									0.22			
					8/17/98									0.25			
					8/18/98	1 U	0.28 J	1.5	2 U	0.54 J	5.8	1.2	5.1		1.4	23.3	18
			3		1/28/98	1 U	1 U	0.1 J		1 U	4.3	0.52 J	0.11		1 U	4 U	1.3
					2/18/98	1 U	1 U	0.5 U		1 U	3.7	1.3	0.05 U		1 U	4 U	0.91 J
					6/5/98									0.023 J			
					8/17/98	1 U	1 U	0.2 P	2 U	0.5 U	8.5	0.9 J	0.12	0.033 U	1 U	4 U	0.47 J
			2		1/28/98	1 U	1 U	0.5 U		1 U	0.5 U	0.16 J	0.11		1 U	4 U	1.2
					2/18/98	1 U	1 U	0.5 U		1 U	0.28 J	0.25 J	1.6		0.37 J	5.93	1.9
					6/5/98									0.024 J			
					8/17/98	1 U	1 U	0.2 P	2 U	0.5 U	1.2	1 U	0.52	0.033 U	1 U	4 U	1 U
			1		1/28/98	1 U	1 U	0.5 U		1 U	0.5 U	0.17 J	0.31		1 U	4 U	0.86 J

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
					2/18/98	1 U	1 U	0.5 U		1 U	2.3	0.11 J	0.97		1 U	4 U	1 U
					6/5/98									0.033			
					8/17/98	1 U	1 U	0.2 P	2 U	0.5 U	2.4	1 U	1.4	0.033 U	1 U	4 U	1 U
MW6-1		EPA	1		2/20/98											5 U	
			2		2/20/98											5 U	
			3		2/20/98											5 U	
			4		2/19/98											5 U	
			5		2/19/98											5 U	
			6		2/19/98											5 U	
			7		2/19/98											5 U	
			8		2/19/98											5 U	
			9		2/19/98											5 U	
MW6-2A		EPA	2A		2/20/98											5 U	
MW6-2B		EPA	2B		2/20/98											5 U	
W11AJMW1		Aerojet			1/13/98	1 U	1 U	1 U		0.5 U	1 U	1 U	10		1 U	4.2	1 U
					3/26/98									0.033 U			
					3/27/98				2 U								
					6/17/98											160	
W11AJMW2		Aerojet			1/13/98	50 U	50 U	50 U			50 U		8.8		2000	440	2300
				DUP	1/13/98	50 U	50 U	50 U			50 U		8.8		2000	440	2400
				avg		50 U	50 U	50 U			50 U		8.8		2000	440	2350
					3/26/98									1.6			
					3/27/98				7.5								
					4/6/98				6.7					2.1			
				DUP	4/6/98				6.4					2.2			
				avg					6.6					2.2			
					6/17/98											790	
W11AJMW3		Aerojet			1/14/98	100 U	100 U	100 U		50 U	100 U	100 U	10.3		10000	6.53	190
					3/26/98									0.033 U			
					3/27/98				2.8								
					4/6/98				2 U					0.033 U			
					6/17/98											6.5	
W11AJMW4		Aerojet			1/14/98	50 U	50 U	50 U		25 U	50 U	50 U	8.2		3200	58.1	1000
					3/27/98				2 U								
					3/31/98									0.033 U			
				DUP	3/31/98									0.033 U			
				avg										0.033 U			
					4/6/98				2 U					0.033 U			
					6/17/98											420	
W11AJMW5		Aerojet			1/13/98	1 U	1 U	1 U		0.5 U	1 U	1 U	5		1 U	4 U	1 U
					3/26/98									0.033 U			
					3/27/98				2 U								
					6/17/98											4 U	
W11AZW03		Azusa			1/13/98								5.2			49.3	
W11AZW06		Azusa			1								5			110	

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
W11AZW09		Azusa			1/13/98								6.5			117	
W11AZW10		Azusa			4/3/98				1 U								
W11AZW1R		Azusa			1/13/98								1.8			4 U	
2	01901181	CDWC			1/20/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	4.7		1 U	4 U	0.22 J
	01901181				6/3/98									0.033 U			
3	01903057	CDWC			1/20/98	1 U	1 U	0.5 U		1 U	3	0.17 J	3		1 U	4 U	0.12 J
	01903057				6/3/98									0.033 U			
6	01902967	CDWC			1/20/98	1 U	1 U	0.5 U		1 U	3.1	0.1 J	4.6		1 U	4 U	1 U
	01902967				6/3/98									0.033 U			
8	01903081	CDWC			1/20/98	1 U	1 U	0.5 U		1 U	0.5 U	0.22 J	3.9		1 U	4 U	0.56 J
	01903081				6/3/98									0.033 U			
5A	08000100	CDWC			1/20/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	1.1		1 U	4 U	1 U
Bal-1	01900885	CIC			1/21/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	1.5		1 U	4 U	1 U
	01900885				6/3/98									0.033 U			
Bal-2	01900883	CIC			1/21/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	2.8		1	4 U	1 U
	01900883				6/5/98									0.033 U			
Bal-3	01900882	CIC			8/4/98				1 U								
3	08000078	IW			6/3/98									0.033 U			
4	08000096	IW			1/23/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	2.8		1 U	4 U	1
	08000096				6/3/98									0.033 U			
	08000096				7/17/98	0.5 U	0.5 U	0.5 U		0.5 U	0.2 P	0.5 U			0.5 U		0.7
5	08000097	IW			1/23/98	1 U	1 U	0.22 J		1 U	0.5 U	0.16 J	2.1		1 U	4 U	2
	08000097				6/3/98									0.033			
	08000097				6/17/98									0.033 U			
	08000097			DUP	6/17/98									0.033 U			
	08000097			avg										0.033 U			
	08000097				8/6/98	0.5 U	0.5 U	0.5 U		0.5 U	0.2 P	0.5 U			0.5 U		2.1
	08000097				8/14/98				1 U								
3030F (Key Well)	Z1000006	LACO			1/15/98	3.3 D	110 D	2.6 D		73 D	1.2 UD	31 D	7.9		590 D	38.8	830 D
	Z1000006			DUP	1/15/98	3.3 D	110 D	2.5 DJ		73 D	1.2 UD	31 D	7.9		540 D	38.6	760 D
	Z1000006			avg		3.3	110	2.55		73	1.2 U	31	7.9		565	38.7	795
2	01901460	LPVCWD			2/6/98	0.35 J	0.57 J	4.6		1.4	4.3	2.7	5.4		3.6	183	62
	01901460				6/11/98	0.5 U	0.6	5.2	1	1.3	4.5	2.7		0.87	4.7	110	77.8
3	01902859	LPVCWD			2/6/98	0.29 J	0.35 J	5.8		1.4	4.1	3.2	5.8		3.2	163	63
	01902859				6/11/98	0.5 U	0.5 U	4.3	1.9	0.8	2.6	2.2		0.92	2.6	110	68.4
1	01902169	Polopolus			3/12/98	1.4	22	0.93		27	0.57	63	6.6		270 D	4 U	180 D
2	11900038	S Down (AZ-2)			1/13/98	8.8 D	480 D	2.5 UD		1.9 DJ	2.5 UD	5 UD	14		18 D	4.17	120 D
	11900038			DUP	1/13/98	8.5 D	460 D	2.5 UD		1.8 DJ	2.5 UD	5 UD	13.9		18 D	4 U	120 D
	11900038			avg		8.65	470	2.5 U		1.85	2.5 U	5 U	13.95		18	4.1	120
	11900038				4/28/98	3.4	208.4	1.1		0.7	0.5 U	0.5 U			12.4	1 U	65.2
B11A	91901439	SGVWC			6/3/98									0.033 U			
B11B	98000108	SGVWC			6/3/98									0.033 U			
	98000108				8/20/98				1 U								
B5A	61900718	SGVWC			5/7/98									0.069			
	61900718				5/29/98									0.01 J			

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
	61900718			DUP	5/29/98									0.033 U			
	61900718			avg										0.013			
	61900718				7/31/98	0.5 U	0.5 U	0.5 U		0.5 U	0.6	1.6			0.9		4.5
	61900718				8/20/98				1 U								
B5B	61900719	SGVWC			6/5/98									0.033 U			
	61900719				7/31/98	0.5 U	0.5 U	0.5 U		0.5 U	0.2 P	1.4			0.5 U		0.5 U
B5C	08000112	SGVWC			6/3/98									0.033 U			
	08000112				7/31/98	0.5 U	0.5 U	0.5 U		0.5 U	0.2 P	0.5 U			0.5 U		0.5 U
	08000112				8/20/98				1 U								
B6D	78000098	SGVWC			6/3/98									0.024 J			
	78000098				6/17/98									0.023 J			
	78000098			DUP	6/17/98									0.023 J			
	78000098			avg										0.023 J			
	78000098				7/31/98	0.5 U	0.5 U	1		0.5 U	6.2	0.7			0.9		21.8
2	01902971	Sonoco			1/15/98	1 U	0.96 J	0.5 U		1 U	0.5 U	1	11.2		1 U	5.15	0.39 J
	01902971				2/12/98	0.5 U	5.9	0.5 U		0.5 U	0.8	4.1			0.8	10	0.7
126W-2	08000092	SWS			1/23/98	0.19 J	1 U	0.35 J		1 U	0.5 U	0.14 J	6.7		1 U	4 U	1 U
				DUP	1/23/98	1 U	1 U	0.5 U		1 U	0.5 U	0.14 J	6.7		1 U	4 U	1 U
				avg		0.595 J	1 U	0.43 J		1 U	0.5 U	0.14 J	6.7		1 U	4 U	1 U
139W-2	01901599	SWS			1/22/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	11.8		1 U	12.3	0.15 J
	01901599				5/7/98									0.033 U			
	01901599				7/23/98	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U			0.5 U		0.5 U
139W-4	08000069	SWS			1/22/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	8.1		1 U	9.28	1 U
	08000069				5/7/98									0.033 U			
139W-5	08000095	SWS			6/19/98									0.033 U			
	08000095				7/23/98				1 U								
139W-6	08000152	SWS			1/22/98	1 U	1 U	0.17 J		1 U	0.5 U	0.14 J	2.9		1 U	8.62	7.5
	08000152				5/7/98									0.033 U			
140W-3	01903067	SWS			1/22/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	12.4		1 U	8.6	1 U
	01903067				5/7/98									0.033 U			
	01903067				7/23/98				1 U								
140W-4	08000093	SWS			1/22/98	1 U	1 U	0.4 J		1 U	0.5 U	0.23 J	5.8		1 U	10.2	3.4
	08000093				5/7/98									0.073			
	08000093				5/29/98									0.09			
	08000093			DUP	5/29/98									0.064			
	08000093			avg										0.077			
	08000093				8/12/98				1 U								
140W-5	08000145	SWS			1/22/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	2		1 U	4 U	0.61 J
	08000145				6/5/98									0.033 U			
147W-3	08000077	SWS			1/22/98	0.14 J	1.6	0.5 U		1 U	0.5 U	1 U	2		1 U	4 U	1.9
201W-4	11901433	SWS			1/19/98	0.12 J	0.2 J	0.5 U		2	0.5 U	1 U	0.97		0.86 J	4 U	0.88 J
201W-5	11901432	SWS			1/19/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	1.4		1 U	4 U	0.23 J
201W-6	11901434	SWS			1/19/98	0.13 J	0.3 J	0.5 U		1.6	0.5 U	1 U	0.86		0.79 J	4 U	1.2
Big Dalton	01900035	VCWD			2/4/98			0.5 U			0.5 U				0.98	16.3	9.6
	01900035				6/3/98				1.01								

Table 3.3: Groundwater Chemistry Data, January - October 1998 (in µg/l)

Well	Well Recordation Number	Owner	Zone	Value Flag	Sample Date	11DCA	11DCE	12DCA	1,4-Dioxane	C12DCE	Carbon Tet	Chloroform	Nitrate*	NDMA	PCE	Perchlorate	TCE
	01900035				7/1/98				1.01					0.076			
	01900035				8/6/98	0.5 U	0.5 U	2.2		0.59	0.77	1.4			1.6	29.7	17
East Main	01900027	VCWD			4/2/98				1 U								
	01900027				6/5/98									0.033 U			
	01900027				8/6/98	0.5 U	0.5 U	0.5 U		0.5 U	0.2 P	0.5 U			0.5 U		0.5 U
Joanbridge	01900032	VCWD			4/2/98				1 U								
Lante	08000060	VCWD			1/14/98	3.1 DJ	50 D	6.2 D		29 D	6.2 UD	26 D	4.8		620 D	93.6	660 D
	08000060				4/2/98	0.5 U	8.6	10.1		33.2	14.4	45.6			943		1315
	08000060				5/7/98									3			
	08000060				6/11/98									2.8			
	08000060			DUP	6/11/98									2.5			
	08000060			avg										2.65			
Morada	01900029	VCWD			2/17/98											16.9	
Paddy Lane	01900031	VCWD			2/16/98	2.8	3	5		12	3	6.2	7.2		12	154	95
Palm	08000039	VCWD			2/13/98	1 U	2.4	0.5 U		1.4	0.58	0.17 J	2.8		8.6	4 U	14
Santa Fe	08000070	VCWD			1/12/98	1 U	1 U	0.5 U		1 U	0.5 U	1 U	1.4		1 U	4 U	3.3
West Main	01900028	VCWD			4/2/98				1 U								
03	01902951	WFI			9/24/98				1.5						160		3.9
5R	01903072	WFI			9/24/98				1.6						4.4		0.8

avg	Average
D	Diluted sample
J	Estimated value
P	U and J qualifiers
U	Not detected
DUP	Duplicate sample
BPOUSC	Baldwin Park Operation Unit Steering Committee
CDWC	California Domestic Water Company
CIC	Covina Irrigating Company
EPA	Environmental Protection Agency
IW	City of Industry
LACO	Los Angeles County
LPVCWD	La Puente Valley County Water District
S Down	South Down
SWS	Suburban Water Systems
VCWD	Valley County Water District
WFI	Woodland Farms, Inc.

*All Concentrations in ug/l except N; which is in mg/l.

11DCA	1,1 - Dichloroethane
11DCE	1,1 - Dichloroethene
12DCA	1,2 - Dichloroethane
C12DCE	cis - 1,2 - dichloroethene
Carbon Tet	Carbon Tetrachloride
NDMA	N - Nitrosodimethylamine
PCE	Tetrachloroethene
TCE	Trichloroethene

Table 3.4: Analytical Method Requirements and Laboratory Quality Control Procedures, NDMA and 1,4-Dioxane

Analytical Method Requirements

Compound	Method	Preservative	Holding Time	Sample Container	Sample Volume	Method Detection Limit	Reporting Limit
NDMA	UM-34	Cool 4°C	7 days	amber glass	1 liter	0.020 ug/L	0.033 ug/L
1,4-dioxane	EPA Mod. 8270	Cool 4°C	7 days	amber glass	1 liter	1.81 ug/L	2.0 ug/L

Laboratory Quality Control Procedures

Compound	Method	Initial Calibration	Continuing Calibration	Method Blank		Laboratory Control Sample (LCS)		LCS Duplicate	
				Control Limit	Min. Freq.	Control Limit (%R)	Min. Freq.	Control Limit (RPD)	Min. Freq.
NDMA	UM-34	6 points	every 12 hours	< MDL	1 per batch	75-125	1 per batch	+/-25	1 per batch

Compound	Method	Initial Calibration	Continuing Calibration	Method Blank		Matrix Spike		Matrix Spike Duplicate	
				Control Limit	Min. Freq.	Control Limit (%R)	Min. Freq.	Control Limit (RPD)	Min. Freq.
1,4-dioxane	EPA Mod. 8270	5 points	every 12 hours	< MDL	1 per batch	70 - 130	1 per batch	+/-30	1 per batch

NDMA	N-Nitrosodimethylamine
Mod	Modified
MDL	Method detection limit
%R	Percent recovery
min. Freq.	Minimum frequency
RPD	Relative Percent Difference

Table 5.1: Horizontal Hydraulic Conductivity Values in the Revised Model (in Feet per Day)

	Zones of Interest *									
Run	14	15	24	25	78	79	81	82	84	85
108b	40	250	175	350						
108c	40	250	175	350						
108d	100	300	175	350						
109a	200	400	175	350						
109b	200	400	175	350	150					
109c	200	400	175	350	150	250				
109d	200	400	175	350	150	250				
1010a	200	400	175	350	100	250				
1010b	200	400	175	350	100	250				
1010c	200	400	125	300	100	250				
1012a	200	400	75	200	100	250				
1012b	200	400	75	200	75	250				
1012c	200	400	125	300	100	250				
1012d	200	400	125	300	100	250				
1015a	200	400	125	300	100	300				
1015b	200	400	125	300	100	300				
1015c	200	400	125	300	100	300				
1020a	200	350	125	300	100	300				
1020b	100	250	125	350	100	300				
1020c	100	375	125	350	100	300				
1021a	40	375	125	350	100	300				
1021b	150	400	100	350	100	300				
1021c	200	400	125	350	100	300				
1021d	150	400	100	350	100	300				
1021e	150	400	100	350	100	300				
1021f	150	400	100	350	100	300				
1022a	150	400	100	350	100	300				
1022b	150	400	100	350	100	300				
1022c	150	400	100	350	100	300				
1023a	50	400	100	350	75	150				
1023b	50	250	100	350	75	150				
1023c	150	250	100	350	50	150				
1023d	150	350	100	350	50	150				
1024a	150	250	100	350	50	150	75	50		
1024c	175	250	125	350	50	150	75	50		
1025a	125	250	125	350	50	150	75	50		
1025b	125	250	150	350	50	150	75	50		
1025c	100	250	150	350	50	125	75	50		
1026a	100	250	150	350	50	125	75	50		
1027a	100	250	150	350	50	125	75	50		
1027b	50	250	175	350	50	125	75	50		
1028a	150	400	100	350	100	300				
1028b	150	400	100	350	100	300				
1028c	150	400	100	350	100	300				
1028d	150	400	100	350	100	300				
1028e	150	400	100	350	100	300				
1029a	150	400	100	350	100	300			350	
1029b	150	400	100	350	100	300			350	
1029c	200	400	125	350	100	300			350	
1030a	225	400	150	350	100	300			350	
p1030b	175	400	125	350	100	300			350	

Zone *	Description
14	Whittier Narrows Layer 1
24	Whittier Narrows Layers 2 - 5
15	BPOU Layer 1
25	BPOU Layers 2 - 3
84	BPOU Layer 4 - 5
79	SA3 Layer 1
78	SA3 Layers 2 - 3
85	SA3 Layer 4 - 5
81	SA3 Layers 2 - 5
82	SA3 Layer 1

Table 5.1: Horizontal Hydraulic Conductivity Values in the Revised Model (in Feet per Day)

	Zones of Interest *									
Run	14	15	24	25	78	79	81	82	84	85
p1030c	200	400	125	350	100	300			350	
p1030d	200	400	125	350	100	300			300	
p1030e	200	400	125	350	100	300			350	75
p1030f	200	400	125	350	100	300			350	75
p1030g	200	400	125	350	100	300			300	75
p1030h	200	400	125	350	100	300			350	75
p1030i	200	400	125	350	100	300			350	75
p1102a	200	400	125	350	100	300			350	75
p1102b	200	400	125	350	100	300			350	75
p1102c	225	400	150	350	100	300			350	75
p1102d	240	400	175	350	100	300			350	75
p1102e	240	250	175	350	300	100			350	75
p1102f	240	250	175	350	300	100			350	75
1102g	240	250	175	350	300	100			350	75
1102h	240	250	175	350	250	50			350	50
1102i	150	250	300	350	300	100			350	75
1102j	150	250	300	350	300	100			350	75
1103a	240	250	175	350	250	50			350	50
1103b	240	250	175	350	250	50			350	150
1103c	240	250	175	350	300	100			350	75
1103d	225	400	150	350	100	300			350	75
1103e	250	400	150	350	100	300			350	75
1103f	250	400	150	350	100	300			350	75
1104a	250	400	150	350	100	300			350	75
1104b	250	400	150	350	100	300			350	75
1104c	250	400	150	350	100	300			350	75
1105a	250	400	150	350	100	300			350	75
1105b	250	400	150	350	100	300			350	75
1105c	250	400	150	350	250	50			350	300
1105d	250	400	175	350	250	50			350	300

Zone *	Description
14	Whittier Narrows Layer 1
24	Whittier Narrows Layers 2 - 5
15	BPOU Layer 1
25	BPOU Layers 2 - 3
84	BPOU Layer 4 - 5
79	SA3 Layer 1
78	SA3 Layers 2 - 3
85	SA3 Layer 4 - 5
81	SA3 Layers 2 - 5
82	SA3 Layer 1

Table 5.2: Anisotropy Values in the Revised Model

	Zones of Interest *									
Run	14	15	24	25	78	79	81	82	84	85
108b	200	100	100	30						
108c	200	100	100	30						
108d	100	120	100	30						
109a	100	100	100	30						
109b	100	100	100	30	100					
109c	100	100	100	30	100	100				
109d	100	100	100	30	100	100				
1010a	100	100	100	30	1000	1000				
1010b	100	100	1000	1000	1000	1000				
1010c	100	100	1000	1000	1000	1000				
1012a	100	100	1000	1000	1000	1000				
1012b	100	100	1000	1000	1000	1000				
1012c	10	10	1000	1000	200	10				
1012d	10	10	1000	1000	1000	10				
1015a	10	10	1000	1000	2000	100				
1015b	1000	1000	1000	1000	2000	1000				
1015c	1000	1000	1000	1000	2000	1000				
1020a	1000	1000	1000	1000	2000	1000				
1020b	100	100	100	100	100	100				
1020c	100	100	100	100	100	100				
1021a	100	100	100	100	1000	1000				
1021b	100	100	100	100	1000	1000				
1021c	100	100	100	100	1000	1000				
1021d	500	100	500	100	1000	1000				
1021e	100	500	100	500	1000	1000				
1021f	500	500	500	500	1000	1000				
1022a	500	500	500	100	1000	1000				
1022b	100	100	100	500	1000	1000				
1022c	100	500	100	100	1000	1000				
1023a	100	500	100	100	1000	1000				
1023b	100	300	100	100	1000	1000				
1023c	100	300	100	100	1000	1000				
1023d	100	500	100	100	1000	1000				
1024a	100	300	100	100	1000	1000	1000	1000		
1024c	100	300	100	100	1000	1000	1000	1000		
1025a	100	300	100	100	1000	1000	1000	1000		
1025b	100	300	120	100	1000	1000	1000	1000		
1025c	100	300	120	100	1000	1000	1000	1000		
1026a	100	100	100	100	1000	104	1000	1000		
1027a	100	100	100	100	100	100	100	100		
1027b	100	100	100	100	100	100	100	100		
1028a	500	500	500	500	500	500				
1028b	100	500	100	500	500	500				
1028c	100	100	100	100	100	100				
1028d	100	100	100	100	100	100				
1028b	100	250	100	250	500	500				
1029a	100	100	100	100	500	500			250	
1029b	100	100	100	100	500	500			250	
1029c	100	100	100	100	500	500			250	
1030a	100	100	100	100	500	500			250	

Zone	Description
14	Whittier Narrows Layer 1
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15	BPOU Layer 1
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84	BPOU Layer 4 - 5
79	SA3 Layer 1
78	SA3 Layers 2 - 3
85	SA3 Layer 4 - 5
81	SA3 Layers 2 - 5
82	SA3 Layer 1

Table 5.2: Anisotropy Values in the Revised Model

	Zones of Interest *									
Run	14	15	24	25	78	79	81	82	84	85
1030b	100	100	100	100	500	500			250	
1030c	100	100	100	100	500	500			250	
1030d	100	100	100	100	500	500			100	
1030e	100	100	100	100	100	100			100	250
1030f	100	10	100	10	100	100			100	250
1030g	100	10	100	10	100	100			10	500
1030h	100	10	100	10	100	100			10	500
1030i	100	10	100	10	250	250			10	500
1102a	100	100	100	100	100	100			100	250
1102b	100	100	100	100	500	500			100	250
1102c	10	10	10	10	500	500			100	250
1102d	10	10	10	10	500	500			10	250
1102e	10	30	10	10	500	2000			10	250
1102f	10	30	10	30	500	500			30	500
1102g	10	10	10	10	500	500			10	500
1102h	10	10	10	10	100	100			10	100
1102i	100	10	100	10	500	500			10	500
1102j	100	30	100	30	500	500			10	500
1103a	10	30	10	30	100	100			10	100
1103b	10	10	10	10	100	100			10	100
1103c	10	30	10	30	500	500			30	500
1103d	10	10	10	10	500	500			100	250
1103e	10	10	100	10	500	500			100	250
1103f	10	10	10	10	500	500			100	250
1104a	10	10	10	10	500	500			100	250
1104b	10	10	10	10	500	500			100	250
1104c	10	10	10	10	500	500			100	250
1105a	10	10	10	10	500	500			100	250
1105b	10	10	10	10	500	500			100	250
1105c	10	10	10	10	100	100			100	100
1105d	10	10	10	10	100	100			100	100

Zone	Description
14	Whittier Narrows Layer 1
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15	BPOU Layer 1
25	BPOU Layers 2 - 3
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79	SA3 Layer 1
78	SA3 Layers 2 - 3
85	SA3 Layer 4 - 5
81	SA3 Layers 2 - 5
82	SA3 Layer 1

Table 5.3: Revised Model RMS Error

	RMS Total	Well Recordation Number															
		01900358	01900831	01900918	01901200	01901526	01902271	01902272	Z1000001	Z1000002	Z1000003	Z1000005	Z1000006	Z1000007	Z1000008	Z1000009	Z1000011
CDM Model	248.74	15.27	6.94	21.60	28.59	60.06	18.99	17.56	5.73	7.19	7.17	7.36	5.47	17.52	7.02	11.13	11.16
Simulation Title																	
108a	228.77	19.35	6.14	22.78	21.52	46.92	19.42	12.81	6.46	6.86	7.86	8.30	4.83	16.76	6.70	11.10	10.96
108b	227.32	19.34	6.12	22.72	21.52	46.97	19.43	12.80	6.41	6.86	7.62	8.27	4.65	15.81	6.83	11.09	10.87
108c	224.75	19.31	6.05	24.02	21.52	47.07	19.43	12.81	7.05	6.90	8.19	10.62	4.41	9.69	7.65	10.39	9.66
108d	225.34	19.70	5.78	23.08	21.52	47.97	19.42	12.81	6.52	6.89	8.96	9.05	4.80	9.93	6.51	11.31	11.09
109a	234.65	20.04	9.11	21.92	21.68	47.83	19.40	12.62	6.11	6.86	9.67	7.04	8.45	10.91	6.42	13.06	13.54
109b	233.40	20.04	8.66	21.80	21.67	47.86	19.40	12.62	6.02	6.87	9.48	7.08	7.98	10.89	6.27	13.15	13.62
109c	234.11	20.04	8.90	21.83	21.67	47.84	19.39	12.62	6.06	6.87	9.56	7.05	8.19	10.89	6.34	13.20	13.66
109d	234.11	20.04	8.90	21.83	21.67	47.84	19.39	12.62	6.06	6.87	9.56	7.05	8.19	10.89	6.34	13.20	13.66
1010a	234.19	20.04	8.88	21.56	21.67	47.86	19.40	12.62	5.80	6.87	9.52	7.11	8.23	10.89	6.36	13.49	13.89
1010b	232.35	19.81	9.34	19.92	21.51	48.11	19.44	12.76	4.58	6.97	4.68	8.23	9.15	12.20	6.59	14.72	14.34
1010c	226.27	19.94	8.13	20.59	21.66	47.96	19.41	12.62	4.68	7.03	5.08	8.06	8.08	11.55	5.55	13.10	12.83
1012a	223.20	19.79	7.72	20.74	21.67	48.32	19.41	12.62	4.63	7.15	4.71	8.15	7.91	11.45	4.91	11.90	12.14
1012b	223.16	19.79	7.70	20.73	21.67	48.32	19.41	12.62	4.63	7.16	4.66	8.16	7.86	11.48	4.87	11.95	12.17
1012c	231.47	19.99	9.33	20.29	21.68	47.85	19.40	12.62	4.64	7.01	5.94	7.69	9.22	11.84	6.26	13.99	13.73
1012d	231.58	19.99	9.28	20.28	21.67	47.85	19.40	12.62	4.65	7.01	5.91	7.78	9.20	11.87	6.23	14.05	13.78
1013a	231.85	19.53	6.41	22.58	21.52	46.87	19.42	12.81	6.45	6.86	8.17	7.93	5.30	18.25	6.66	11.58	11.51
1013b	237.73	19.87	8.41	19.94	21.52	48.53	19.42	12.81	4.45	7.15	5.08	6.58	9.63	20.56	6.18	13.79	13.81
1013c	247.41	20.12	10.64	19.59	21.52	48.10	19.42	12.81	4.66	7.00	6.15	6.35	10.91	21.42	7.85	15.59	15.27
1013d	247.41	20.12	10.64	19.59	21.52	48.10	19.42	12.81	4.66	7.00	6.15	6.35	10.91	21.42	7.85	15.59	15.27
1014b	238.65	19.87	8.48	20.08	21.52	48.52	19.42	12.81	4.53	7.15	4.83	6.82	9.73	20.95	6.20	13.81	13.93
1014c	247.87	20.11	10.88	19.57	21.59	47.94	19.43	12.72	4.66	6.99	6.10	6.24	11.15	21.57	7.94	15.62	15.36
1014d	247.87	20.11	10.88	19.57	21.59	47.94	19.43	12.72	4.66	6.99	6.10	6.24	11.15	21.57	7.94	15.62	15.36
1015b	239.06	20.02	9.03	19.39	21.61	48.17	19.43	12.72	4.52	7.02	4.52	6.39	9.54	21.08	6.62	14.69	14.32
1015c	220.23	19.97	6.77	20.53	21.59	48.30	19.44	12.72	4.43	7.04	5.00	8.28	6.70	10.07	5.06	12.38	11.95
1020a	242.21	24.22	7.20	14.88	21.60	53.46	19.43	12.72	12.95	6.93	2.02	10.05	6.63	14.27	5.57	15.32	14.96
1020b	246.77	24.04	12.54	19.56	21.60	54.29	19.44	12.72	4.75	7.08	9.68	13.28	7.81	10.48	10.80	9.76	8.93
1020c	246.58	24.49	7.11	22.02	21.60	53.53	19.44	12.72	3.58	7.12	13.84	15.54	6.75	10.62	9.29	10.17	8.79
1021a	294.47	24.32	13.57	26.92	21.60	53.90	19.45	12.72	5.22	7.72	14.85	23.73	14.09	14.43	14.73	14.35	12.87
1021b	233.47	24.65	5.71	19.58	21.61	53.17	19.43	12.72	5.06	6.97	12.09	10.85	4.38	9.84	6.80	10.57	10.04
1021c	239.04	24.58	8.31	17.80	21.70	52.80	19.30	12.74	7.11	6.89	10.16	7.84	6.83	10.80	6.86	12.56	12.77
1021d	230.13	24.50	6.12	19.88	21.71	53.04	19.29	12.74	4.73	7.02	10.45	10.38	4.26	9.64	6.83	10.08	9.46
1021e	233.12	24.31	6.14	16.59	21.61	53.22	19.29	12.84	8.31	6.95	6.99	9.73	5.88	11.22	6.15	11.99	11.92
1021f	228.93	24.27	6.10	16.94	21.67	53.08	19.31	12.74	7.76	7.02	5.90	9.39	5.56	10.91	5.62	11.34	11.33
1022a	230.02	24.27	6.20	16.97	21.57	53.26	19.30	12.84	7.76	7.03	5.89	9.54	5.60	10.95	5.91	11.50	11.43
1022b	234.30	24.52	6.07	19.48	21.60	53.16	19.30	12.84	5.13	6.99	12.09	10.65	4.42	9.96	7.10	10.81	10.19
1022c	233.12	24.31	6.14	16.59	21.61	53.22	19.29	12.84	8.31	6.95	6.99	9.73	5.88	11.22	6.15	11.99	11.92
1022d	238.06	24.31	6.17	16.60	25.81	53.22	18.47	14.58	8.28	6.89	6.99	9.57	5.87	11.22	6.11	12.02	11.94
1023a	260.38	24.08	12.11	20.92	25.80	53.74	18.48	14.58	3.85	7.51	9.13	17.39	11.17	11.14	10.08	10.22	10.18
1023b	257.91	23.54	17.24	18.25	25.80	54.68	18.49	14.58	6.16	7.61	4.82	14.12	11.10	10.96	11.71	9.37	9.48
1023c	242.27	23.69	10.75	15.29	25.80	54.27	18.48	14.58	10.56	6.88	3.39	9.75	6.19	11.62	6.84	11.68	12.50
1023d	238.70	24.09	7.37	15.82	25.81	53.54	18.48	14.58	9.53	6.89	4.94	9.67	6.05	11.53	6.05	12.10	12.26
1024a	242.52	23.69	10.68	15.27	25.80	54.25	18.48	14.58	10.61	6.88	3.45	9.74	6.21	11.67	6.82	11.79	12.59
1024b	242.52	23.69	10.68	15.27	25.80	54.25	18.48	14.58	10.61	6.88	3.45	9.74	6.21	11.67	6.82	11.79	12.59
1024c	243.55	23.73	9.70	15.01	25.80	54.17	18.48	14.58	11.39	6.85	3.20	9.75	6.14	12.14	6.29	12.70	13.62
1025a	243.39	23.65	11.97	15.70	25.82	54.33	18.47	14.57	9.66	6.94	3.85	10.16	6.74	11.28	7.73	10.95	11.58
1025b	243.39	23.65	11.97	15.70	25.82	54.33	18.47	14.57	9.66	6.94	3.85	10.16	6.74	11.28	7.73	10.95	11.58
1025c	246.25	23.60	13.67	16.25	25.80	54.44	18.48	14.58	8.71	7.03	4.21	10.91	7.82	11.02	9.01	10.12	10.59
1026a	254.45	23.79	13.89	19.11	25.80	54.42	18.49	14.59	5.17	7.03	8.77	12.44	8.60	10.63	12.25	10.23	9.23
1027a	254.69	23.80	14.06	19.15	25.79	54.44	18.48	14.5[illegible]	5.09	7.03	8.78	12.70	8.89	10.34	12.38	10.07	9.10

Table 5.3: Revised Model RMS Error

	RMS Total	Well Recordation Number															
		01900358	01900831	01900918	01901200	01901526	01902271	01902272	Z1000001	Z1000002	Z1000003	Z1000005	Z1000006	Z1000007	Z1000008	Z1000009	Z1000011
CDM Model	248.74	15.27	6.94	21.60	28.59	60.06	18.99	17.56	5.73	7.19	7.17	7.36	5.47	17.52	7.02	11.13	11.16
Simulation Title																	
1027b	283.62	23.66	19.00	22.27	25.80	54.73	18.49	14.58	3.30	7.51	9.88	18.15	14.21	12.44	16.47	12.34	10.81
1028a	233.51	24.31	7.83	17.44	21.61	53.40	19.30	12.84	7.13	7.06	5.79	12.26	6.95	10.82	5.80	10.34	10.63
1028b	236.51	24.31	7.71	17.10	21.60	53.36	19.30	12.84	7.65	6.98	6.89	12.39	7.18	11.12	5.99	10.92	11.16
1028c	255.27	24.28	8.96	21.99	21.61	53.55	19.30	12.84	3.49	7.12	13.11	17.19	9.02	11.55	10.08	11.13	10.05
1028d	255.27	24.28	8.96	21.99	21.61	53.55	19.30	12.84	3.49	7.12	13.11	17.19	9.02	11.55	10.08	11.13	10.05
1028e	242.33	24.52	8.02	19.59	21.35	53.29	19.88	12.77	4.91	7.04	10.14	14.53	7.51	10.74	7.72	10.25	10.08
1029a	244.22	24.53	7.85	20.06	21.34	53.30	19.89	12.77	4.57	7.11	10.29	14.99	7.78	10.96	8.11	10.43	10.24
1029b	242.17	24.30	7.62	19.94	21.33	53.29	19.89	12.78	4.63	7.10	10.25	14.66	7.52	10.62	7.84	10.28	10.12
1029c	233.59	24.39	5.87	18.06	21.36	53.11	19.89	12.77	6.43	7.00	8.56	11.56	6.12	10.89	5.95	10.65	10.99
1030a	233.77	24.41	5.79	17.32	21.34	53.06	19.89	12.77	7.38	6.97	7.73	10.55	6.38	11.40	5.49	11.35	11.93
1030c	230.97	24.39	5.90	17.99	21.34	53.10	19.90	12.77	6.43	6.12	8.56	10.94	6.04	10.78	5.61	10.32	10.78
1030d	230.60	24.36	5.93	18.54	21.34	53.22	19.89	12.77	5.77	6.12	9.54	11.00	5.43	10.37	6.18	9.96	10.16
1030e	230.46	24.36	5.89	18.91	21.35	53.21	19.89	12.77	5.19	6.12	10.03	10.99	5.26	10.63	6.24	9.74	9.88
1030f	243.28	24.37	7.96	21.08	21.33	53.37	19.89	12.78	3.64	6.07	12.17	15.09	7.60	10.15	8.77	9.82	9.18
1030g	244.20	24.36	8.22	21.16	21.35	53.40	19.89	12.77	3.61	6.07	12.32	15.13	7.61	10.13	9.02	9.92	9.23
1030h	244.53	24.31	8.11	21.27	21.34	53.39	19.90	12.78	3.57	6.07	12.47	15.27	7.64	10.14	9.00	9.99	9.26
1030i	244.56	24.36	8.09	21.29	21.34	53.39	19.90	12.77	3.56	6.07	12.50	15.28	7.62	10.11	9.00	10.01	9.27
1102a	232.07	24.30	6.37	18.88	21.28	53.38	19.90	12.80	5.20	6.11	9.70	11.14	5.64	11.59	6.59	9.54	9.66
1102b	231.28	24.34	6.31	18.87	21.34	53.31	19.89	12.78	5.23	6.11	9.74	10.83	5.37	11.43	6.51	9.55	9.69
1102c	236.39	24.42	6.32	19.10	21.35	53.24	19.88	12.78	5.10	6.08	12.60	11.87	6.09	11.17	6.74	9.68	9.97
1102d	234.35	24.20	5.71	18.40	21.79	53.10	19.32	12.82	5.86	6.09	12.29	10.53	5.50	11.72	6.15	10.12	10.73
1102e	227.94	14.99	7.96	17.13	21.80	54.87	19.32	12.83	7.28	6.10	9.25	9.56	5.80	12.61	7.94	9.89	10.60
1102f	225.99	15.00	7.05	16.82	21.78	54.82	19.32	12.82	7.79	6.12	8.89	8.91	5.23	13.05	7.14	10.17	11.07
1102g	228.05	14.99	8.06	17.26	21.78	54.87	19.32	12.82	7.13	6.10	9.46	9.67	5.95	12.33	7.93	9.80	10.59
1102h	231.55	14.98	9.59	17.10	21.78	54.98	19.33	12.82	7.33	6.10	8.66	9.79	6.96	12.42	9.57	9.76	10.35
1102i	256.81	14.96	14.90	21.52	21.78	55.26	19.33	12.82	3.46	6.09	11.78	16.44	12.60	10.51	13.93	11.57	9.84
1102j	247.30	14.97	13.22	20.69	21.78	55.19	19.33	12.82	3.82	6.11	11.11	14.83	10.81	10.36	12.50	10.64	9.13
1103a	228.59	14.99	8.40	16.67	21.78	54.89	19.33	12.83	8.00	6.12	8.16	9.07	5.82	13.14	8.56	10.03	10.79
1103b	231.39	14.99	9.18	17.16	21.78	54.97	19.33	12.82	7.22	6.10	8.95	9.74	6.66	13.30	9.15	9.70	10.34
1103c	225.99	15.00	7.05	16.82	21.78	54.82	19.32	12.82	7.79	6.12	8.89	8.91	5.23	13.05	7.14	10.17	11.07
1103c	225.98	15.00	7.05	16.82	21.78	54.82	19.32	12.82	7.79	6.12	8.89	8.91	5.23	13.05	7.14	10.17	11.07
1103d	228.25	14.99	6.39	18.97	21.79	54.38	19.32	12.82	5.09	6.08	12.55	11.94	6.13	10.75	6.94	9.98	10.13
1103e	225.70	15.01	5.71	18.29	21.79	54.80	19.32	12.82	5.87	6.09	11.52	10.65	5.75	11.00	6.06	10.16	10.86
1104a	224.18	15.02	5.66	18.27	21.77	54.81	19.32	12.82	5.85	6.09	11.44	10.16	5.57	10.98	5.84	9.90	10.67
1104a_2	224.20	15.02	5.66	18.14	21.77	54.29	19.32	12.82	5.93	6.09	11.44	10.17	5.58	11.23	5.84	10.11	10.77
1104b	224.18	15.02	5.66	18.14	21.77	54.30	19.32	12.82	5.93	6.09	11.44	10.17	5.57	11.23	5.84	10.10	10.77
1104c	224.18	15.02	5.66	18.14	21.77	54.30	19.32	12.82	5.93	6.09	11.44	10.17	5.57	11.23	5.84	10.10	10.77
1105a	226.99	16.35	7.46	18.36	21.38	54.08	20.91	12.08	5.60	6.04	11.13	10.09	6.51	12.33	7.15	8.53	9.00
1105b	224.35	15.02	5.69	18.17	21.79	54.28	19.32	12.82	5.89	6.09	11.49	10.19	5.60	11.27	5.81	10.14	10.79
1105c	226.99	16.35	7.46	18.36	21.38	54.08	20.91	12.08	5.60	6.04	11.13	10.09	6.51	12.33	7.15	8.53	9.00
* Calibrated Model*																	
1105d	228.32	15.00	6.72	18.03	21.78	54.45	19.31	12.82	5.97	6.09	10.54	10.63	6.17	13.14	7.36	9.91	10.39

RMS Root Mean Square

Table 5.4: Vertical Head Difference for the Multiport Wells (Head Difference in feet)

Simulation Title	MW5-01	MW5-03	MW5-19	MW5-20	MW5-22	MW5-23
1021a			3.1	1.23	4.96	5.57
1021b			3.32	1.36	5.36	5.74
1021c			3.28	1.41	5.25	5.81
1021d			3.07	1.3	5.01	5.48
1021e			9.48	6.36	10.42	12.13
1021f			9.61	6.46	10.63	12.38
1022a			9.6	6.47	10.6	12.36
1022b			3.31	1.37	5.25	5.59
1022c			9.48	6.36	10.42	12.13
1022d			9.54	6.37	10.54	12.23
1023a			8.6	6.14	9.01	10.95
1023b			8.84	5.36	9.61	12.23
1023c			10.22	5.87	12.14	13.99
1023d			10.59	7.21	11.86	13.6
1024a			10.3	5.97	12.21	14.04
1024b			10.3	5.97	12.21	14.04
1024c			10.66	6.04	12.69	14.49
1025a			10.05	5.94	11.63	13.82
1025b			10.05	5.94	11.63	13.82
1025c			9.95	5.78	11.43	13.64
1026a			5.04	1.8	7.8	8.45
1027a			5.18	2.03	7.4	8.57
1027b			4.47	1.92	7.17	7.86
1028a			9.86	6.18	11.03	12.71
1028b			9.75	6.05	10.93	12.59
1028c			3.69	1.55	5.24	5.82
1028d			3.69	1.55	5.24	5.82
1028e			6.66	3.47	8.1	9.22
1029a			4.22	1.43	5.78	6.56
1029b			4.2	1.42	5.82	6.58
1029c			4.32	1.5	6.23	6.8
1030a	2.85	4.42	4.46	0.95	6.28	6.83
1030b	2.78	4.45	4.28	0.98	5.97	6.71
1030c	2.82	4.4	4.44	0.91	6.25	6.86
1030d	2.5	3.79	4.28	0.29	6.31	7.03
1030e	2.58	4.06	4.15	0.73	5.98	6.67
1030f	0.05	-0.26	1	-0.73	2.1	2.36
1030g	0.01	0.06	0.41	-0.51	1.07	1.57
1030h	0.02	0.08	0.42	-0.45	1.04	1.51
1030i	0.02	0.07	0.41	-0.51	0.98	1.5
1102a	3.49	4.27	4.01	0.37	4.72	7.95
1102b	3.6	4.21	4.36	0.1	5.42	8.59
1102c	0.14	-0.28	1.39	-1.76	3.22	4.28
1102d	0.12	0.09	0.98	-1.84	3.31	3.64
1102e	0.47	0.46	1.2	-0.36	4.26	3.82
1102f	0.41	0.61	1.89	0.04	3	4.74
1102g	-0.04	0.07	0.73	-0.38	2.5	2.91
1102h	-0.13	0.07	0.71	-0.62	4.36	3.38
1102i	-0.04	0.07	0.49	-0.39	1.54	2.46
1102j	0.37	0.69	1.32	-0.09	2.14	4.06
1103a	0.13	0.68	1.7	-0.37	4.37	4.84
1103b	-0.22	0.08	1.1	-0.63	5.03	3.64
1103c	0.42	0.61	1.9	0.06	3.01	4.75
1103c	0.54	0.62	2.17	0.43	3.88	5.2
1103d	0.16	-0.24	1.58	-1.16	4.35	4.74
1103e	-0.1	-0.33	-0.56	5.87	20.91	8.76
1104a	-0.15	-0.37	-0.73	4.96	21.63	8.76
1104a_2	0.22	-0.19	1.47	-3.72	3.46	4.13
1104b	0.12	-0.3	1.11	-2.67	1.22	3.66
1104c	0.2	-0.26	1.55	-1.2	3.74	4.3
1105a	0.24	-0.25	1.58	-5.69	4.03	4.41
1105b	0.12	-0.4	6.27	-5.62	-1.35	-0.29
1105c	0.2	-0.25	7.88	0.54	1.75	3.2
1105d	0.24	0.25	7.95	1	1.88	3.33

Table 6.1: Projected Production Rates for Extraction Simulations, Watermaster/BPOUSC Extraction Plan

Recordation No.	Owner	Well Name	1st Quarter Production (AF)	2nd Quarter Production (AF)	3rd Quarter Production (AF)	4th Quarter Production (AF)	Annual Production (AF)
08000103	AZUSA VALLEY WATER COMPANY (AZUSA LIGHT AND WATER)	8	552.4	416.5	331.8	462.4	1763.2
01903018	CALIFORNIA AMERICAN WATER COMPANY	CR HV	77.3	58.3	46.4	64.7	246.8
08000140	CALIFORNIA AMERICAN WATER COMPANY	LASL 2	220.9	166.5	132.7	184.9	705.0
01901181	CALIFORNIA DOMESTIC WATER COMPANY	2	165.3	124.6	99.3	138.4	527.5
01903081	CALIFORNIA DOMESTIC WATER COMPANY	8	332.7	250.9	199.8	278.5	1061.9
01902967	CALIFORNIA DOMESTIC WATER COMPANY	6	1636.3	1233.8	982.8	1369.7	5222.5
08000100	CALIFORNIA DOMESTIC WATER COMPANY	5A	841.5	634.5	505.4	704.4	2685.8
01903057	CALIFORNIA DOMESTIC WATER COMPANY	3	1604.5	1209.8	963.8	1343.1	5121.2
01903088	CONROCK (CALMAT) COMPANY	1 REL	327.1	246.7	196.5	273.8	1044.1
08000063	CONROCK (CALMAT) COMPANY	W DUR	10.1	7.6	6.1	8.5	32.3
01902920	CONROCK (CALMAT) COMPANY	E DUR	487.9	367.9	293.0	408.4	1557.2
01900883	COVINA IRRIGATING COMPANY	2 BAL	406.9	306.8	244.4	340.6	1298.7
01900885	COVINA IRRIGATING COMPANY	1 BAL	500.8	377.6	300.8	419.2	1598.4
01900882	COVINA IRRIGATING COMPANY	3 BAL	907.7	684.4	545.2	759.8	2897.1
01900331	DEL RIO MUTUAL WATER COMPANY	BURKE	47.7	36.0	28.7	39.9	152.2
08000096	INDUSTRY, CITY OF	4	286.6	216.1	172.1	239.9	914.6
08000097	INDUSTRY, CITY OF	5	285.8	215.5	171.6	239.2	912.0
08000075	MILLER BREWING COMPANY	1	1077.9	812.7	647.4	902.2	3440.2
98000108	SAN GABRIEL VALLEY WATER COMPANY	B11B	719.9	542.8	432.4	602.6	2297.7
91901439	SAN GABRIEL VALLEY WATER COMPANY	B11A	156.5	118.0	94.0	131.0	499.5
98000099	SAN GABRIEL VALLEY WATER COMPANY	B9B	313.0	236.0	188.0	262.0	999.0
98000068	SAN GABRIEL VALLEY WATER COMPANY	B7C	876.4	660.8	526.4	733.6	2797.2
01902971	SONOCO PRODUCTS COMPANY	2	28.6	21.6	17.2	23.9	91.2
08000046	SOUTHERN CALIFORNIA EDISON COMPANY	110RH	3.8	2.9	2.3	3.2	12.1
08000047	SOUTHERN CALIFORNIA EDISON COMPANY	MURAT	52.0	39.2	31.2	43.5	165.8
08000092	SUBURBAN WATER SYSTEMS	140W4	555.7	419.0	333.8	465.2	1773.8
08000095	SUBURBAN WATER SYSTEMS	139W5	1169.6	881.9	702.5	979.1	3733.1
08000069	SUBURBAN WATER SYSTEMS	139W4	904.1	681.7	543.1	756.8	2885.7
01901600	SUBURBAN WATER SYSTEMS	139W3	500.3	377.2	300.5	418.8	1596.7
08000077	SUBURBAN WATER SYSTEMS	147W3	882.7	665.5	530.2	738.8	2817.2
01900027	VALLEY COUNTY WATER DISTRICT	EMAIN	321.2	242.1	192.9	268.8	1025.0
01900028	VALLEY COUNTY WATER DISTRICT	WMAIN	83.8	63.0	50.2	70.0	266.8
01900032	VALLEY COUNTY WATER DISTRICT	EJOAN	1254.3	945.7	753.4	1049.9	4003.2
01902356	VALLEY COUNTY WATER DISTRICT	WJOAN	1144.3	862.8	687.3	957.9	3652.3
01900364	VALLEY VIEW MUTUAL WATER COMPANY	2	30.1	22.7	18.1	25.2	96.0
01900363	VALLEY VIEW MUTUAL WATER COMPANY	1	256.0	193.0	153.8	214.3	817.0
01902951	WOODLAND FARMS INC.	3	56.2	42.4	33.7	47.0	179.3
01903072	WOODLAND FARMS INC.	5R	53.4	40.2	32.1	44.7	170.4

AF - Acre-feet

Table 6.2: Projected Production Rates for Extraction Simulations, Consensus Plan - Options A and B

Recordation No.	Owner	Well Name	1st Quarter Production (AF)	2nd Quarter Production (AF)	3rd Quarter Production (AF)	4th Quarter Production (AF)	Annual Production (AF)
08000103	AZUSA VALLEY WATER COMPANY (AZUSA LIGHT AND WATER)	8	552.4	416.5	331.8	462.4	1763.2
01903018	CALIFORNIA AMERICAN WATER COMPANY	CR HV	77.3	58.3	46.4	64.7	246.8
08000140	CALIFORNIA AMERICAN WATER COMPANY	LASL 2	220.9	166.5	132.7	184.9	705.0
01901181	CALIFORNIA DOMESTIC WATER COMPANY	2	165.3	124.6	99.3	138.4	527.5
01903057	CALIFORNIA DOMESTIC WATER COMPANY	3	1604.5	1209.8	963.8	1343.1	5121.2
08000100	CALIFORNIA DOMESTIC WATER COMPANY	5A	841.5	634.5	505.4	704.4	2685.8
01902967	CALIFORNIA DOMESTIC WATER COMPANY	6	1636.3	1233.8	982.8	1369.7	5222.5
01903081	CALIFORNIA DOMESTIC WATER COMPANY	8	332.7	250.9	199.8	278.5	1061.9
01903088	CONROCK (CALMAT) COMPANY	1 REL	327.1	246.7	196.5	273.8	1044.1
01902920	CONROCK (CALMAT) COMPANY	E DUR	487.9	367.9	293.0	408.4	1557.2
08000063	CONROCK (CALMAT) COMPANY	W DUR	10.1	7.6	6.1	8.5	32.3
01900885	COVINA IRRIGATING COMPANY	1 BAL	500.8	377.6	300.8	419.2	1598.4
01900883	COVINA IRRIGATING COMPANY	2 BAL	406.9	306.8	244.4	340.6	1298.7
01900882	COVINA IRRIGATING COMPANY	3 BAL	907.7	684.4	545.2	759.8	2897.1
01900331	DEL RIO MUTUAL WATER COMPANY	BURKE	47.7	36.0	28.7	39.9	152.2
08000096	INDUSTRY, CITY OF	4	286.6	216.1	172.1	239.9	914.6
08000097	INDUSTRY, CITY OF	5	285.8	215.5	171.6	239.2	912.0
01901460	LA PUENTE VALLEY COUNTY WATER DISTRICT	2	409.9	309.1	246.2	343.1	1308.2
01902859	LA PUENTE VALLEY COUNTY WATER DISTRICT	3	219.7	165.6	131.9	183.9	701.1
08000062	LA PUENTE VALLEY COUNTY WATER DISTRICT	4	99.2	74.8	59.6	83.1	316.8
08000075	MILLER BREWING COMPANY	1	1077.9	812.7	647.4	902.2	3440.2
91901439	SAN GABRIEL VALLEY WATER COMPANY	B11A	156.5	118.0	94.0	131.0	499.5
98000108	SAN GABRIEL VALLEY WATER COMPANY	B11B	719.9	542.8	432.4	602.6	2297.7
61900718	SAN GABRIEL VALLEY WATER COMPANY	B5A	688.6	519.2	413.6	576.4	2197.8
61900719	SAN GABRIEL VALLEY WATER COMPANY	B5B	169.0	127.4	101.5	141.5	539.5
08000112	SAN GABRIEL VALLEY WATER COMPANY	B5C	156.5	118.0	94.0	131.0	499.5
98000068	SAN GABRIEL VALLEY WATER COMPANY	B7C	876.4	660.8	526.4	733.6	2797.2
98000099	SAN GABRIEL VALLEY WATER COMPANY	B9B	313.0	236.0	188.0	262.0	999.0
01902971	SONOCO PRODUCTS COMPANY	2	28.6	21.6	17.2	23.9	91.2
08000046	SOUTHERN CALIFORNIA EDISON COMPANY	110RH	3.8	2.9	2.3	3.2	12.1
08000047	SOUTHERN CALIFORNIA EDISON COMPANY	MURAT	52.0	39.2	31.2	43.5	165.8
01901600	SUBURBAN WATER SYSTEMS	139W3	500.3	377.2	300.5	418.8	1596.7
08000069	SUBURBAN WATER SYSTEMS	139W4	904.1	681.7	543.1	756.8	2885.7
08000095	SUBURBAN WATER SYSTEMS	139W5	1169.6	881.9	702.5	979.1	3733.1
08000092	SUBURBAN WATER SYSTEMS	140W4	555.7	419.0	333.8	465.2	1773.8
08000077	SUBURBAN WATER SYSTEMS	147W3	882.7	665.5	530.2	738.8	2817.2
01900032	VALLEY COUNTY WATER DISTRICT	EJOAN	1254.3	945.7	753.4	1049.9	4003.2
01900027	VALLEY COUNTY WATER DISTRICT	EMAIN	321.2	242.1	192.9	268.8	1025.0
01902356	VALLEY COUNTY WATER DISTRICT	WJOAN	1144.3	862.8	687.3	957.9	3652.3
01900028	VALLEY COUNTY WATER DISTRICT	WMAIN	83.6	63.0	50.2	70.0	266.8
01900363	VALLEY VIEW MUTUAL WATER COMPANY	1	256.0	193.0	153.8	214.3	817.0
01900364	VALLEY VIEW MUTUAL WATER COMPANY	2	30.1	22.7	18.1	25.2	96.0
01902951	WOODLAND FARMS INC.	3	56.2	42.4	33.7	47.0	179.3
01903072	WOODLAND FARMS INC.	5R	53.4	40.2	32.1	44.7	170.4

AF - Acre-feet

Table 6.3: Proposed Extraction System, Watermaster/BPOUSC Extraction Plan

Well Name	Recordation No.	Well Owner	Screened Interval (ft bgs)	Pumping Rate (AF/YR)	Pumping Rate (gpm)
Subarea 1					
Arrow	01900034	Valley County Water District	300 - 524	3226	2000
SBA-1 North	N/A	N/A	300 - 600	1613	1000
SBA-1 East	N/A	N/A	300 - 600	4839	3000
Subarea 3					
SGVWC-5A	61900718	San Gabriel Valley Water Company	110 - 481	3629	2250
SGVWC-B5B	61900719	San Gabriel Valley Water Company	172 - 478	3629	2250
SGVWC-B5C	08000112	San Gabriel Valley Water Company	1013 -1275	3226	2000
SGVWC-B6B	71900721	San Gabriel Valley Water Company	272-506	2823	1750
SGVWC-B6C	71903093	San Gabriel Valley Water Company	275-506	2823	1750
SGVWC-B6D	78000098	San Gabriel Valley Water Company	760 - 1032	3226	2000
LPVCWD-2	01901460	LaPuente Valley County Water District	600 - 947	807	500
LPVCWD-3	01902859	LaPuente Valley County Water District	620 - 770	807	500
LPVCWD-4	08000062	LaPuente Valley County Water District	550 - 725	807	500
SBA-3	N/A	N/A	400 - 700	5646	3500
			Totals =	37099	23000

AF - Acre-feet
ft bgs - Feet below ground surface
gpm - Gallons per minute
N/A - Not applicable

Table 6.4: Proposed Extraction System, Consensus Plan - Option A

Well Name	Recordation No.	Well Owner	Screened Interval (ft bgs)	Pumping Rate (AF/YR)	Pumping Rate (gpm)
Subarea 1					
SA1-1	N/A	N/A	250 - 700	4,033	2,500
SA1-2	N/A	N/A	250 - 700	4,839	3,000
Subarea 3					
SA2-1	N/A	N/A	200 - 600	2,420	1,500
SA2-2	N/A	N/A	200 - 600	2,420	1,500
Subarea 3					
SA3-1	N/A	N/A	200 - 600	1,613	1,000
SA3-2	N/A	N/A	200 - 600	1,613	1,000
SA3-3	N/A	N/A	200 - 600	1,613	1,000
SA3-4A	N/A	N/A	200 - 600	2,823	1,750
SA3-4B	N/A	N/A	600 - 1400	1,613	1,000
SA3-5A	N/A	N/A	200 - 600	2,420	1,500
SA3-5B	N/A	N/A	600 - 1300	3,629	2,250
			Totals =	29,034	18,000

AF - Acre-feet
ft bgs - Feet below ground surface
gpm - Gallons per minute
N/A - Not applicable

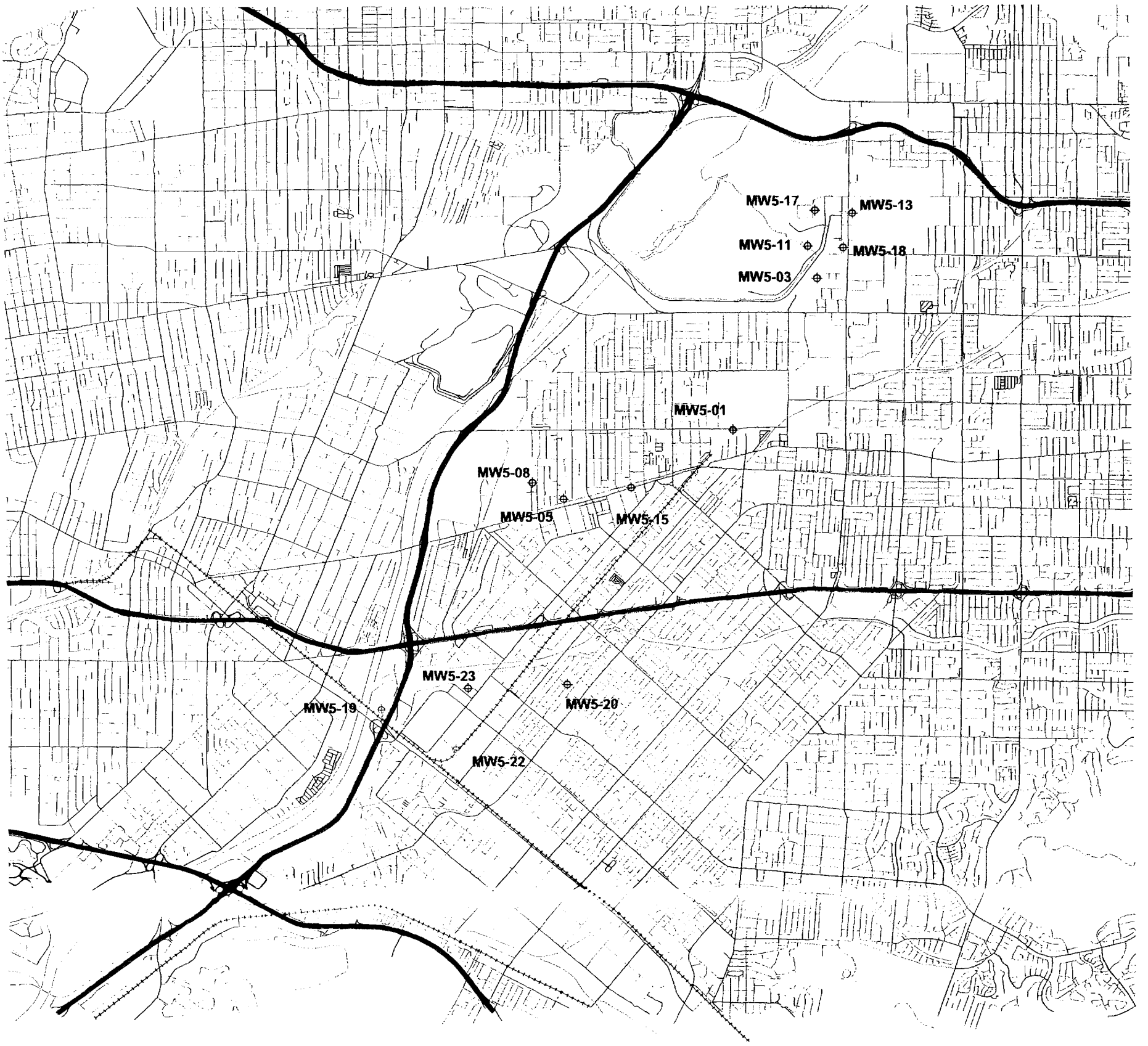
Table 6.5: Proposed Extraction System, Consensus Plan - Option B

Well Name	Recordation No.	Well Owner	Screened Interval (ft bgs)	Pumping Rate (AF/YR)	Pumping Rate (gpm)
Subarea 1					
SA1-1	N/A	N/A	250 - 700	4,033	2,500
SA1-2	N/A	N/A	250 - 700	4,839	3,000
Subarea 3					
SA3-1A	N/A	N/A	600 - 1300	3,494	2,166
SA3-1B	N/A	N/A	300 - 600	3,494	2,166
SA3-2	N/A	N/A	300 - 1300	5,914	3,666
SA3-3A	N/A	N/A	150 - 500	7,259	4,500
SA3-3B	N/A	N/A	500 - 1300	3,226	2,000
			Totals =	32,259	20,000

AF - Acre-feet
ft bgs - Feet below ground surface
gpm - Gallons per minute
N/A - Not applicable

FIGURES

L:\00000\00001\geoana\aarojet_multiport_98\aaro_200 apr



Explanation

Station ID for earlier Pre-Design Wells

Station ID for Phase 2A Wells

Station ID for Phase 2B Wells

N

1 0 1 2 Miles

Harding Lawson Associates

Engineering and
Environmental Services

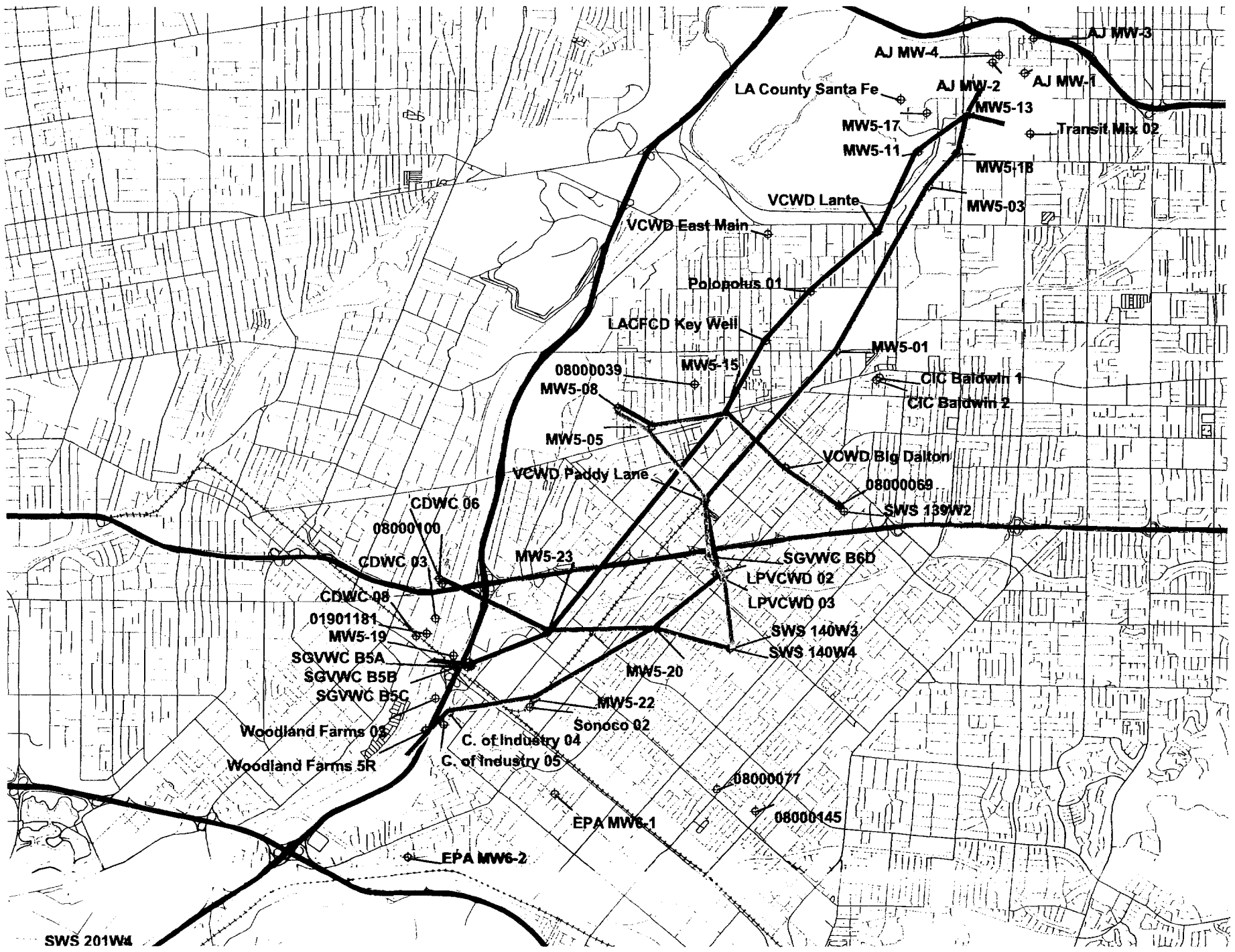
Location of BPOU Multiport Wells

Baldwin Park Operable Unit Steering Committee
California

FIGURE
3.1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	12/98

L:\00000\00001\geoanaañaerojet_multiport_98\aero_200.apr



Explanation

Station ID

Cross Section Locations

A - A'

B - B'

C - C'

D - D'

E - E'

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

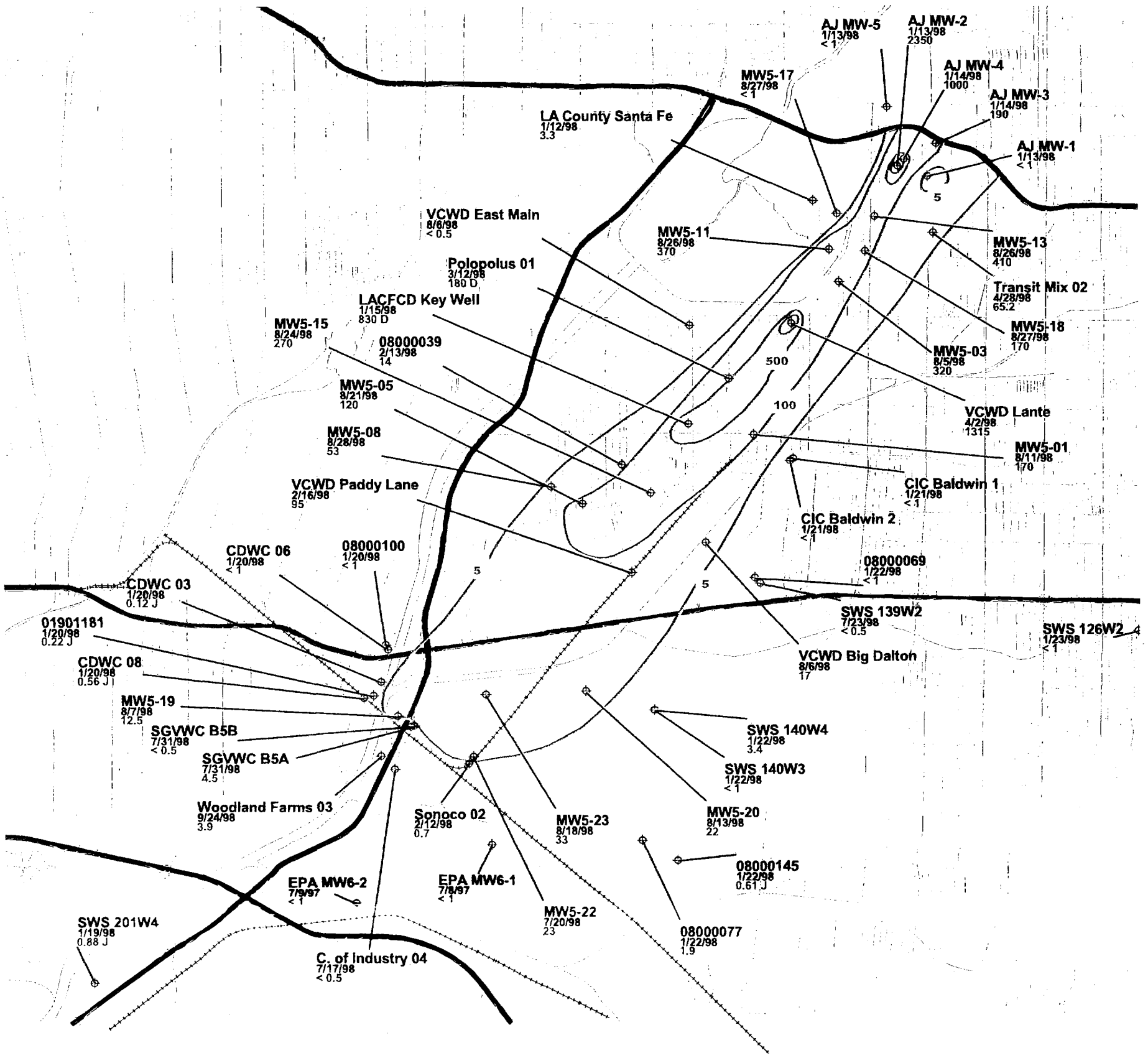
Harding Lawson Associates
Engineering and Environmental Services

Location of BPOU Wells and Cross Sections
Baldwin Park Operable Unit Steering Committee
California

FIGURE 3.2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoana\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Trichloroethene isoconcentration contour (5, 100, 500, 1000 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

Duplicate analyses were averaged

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

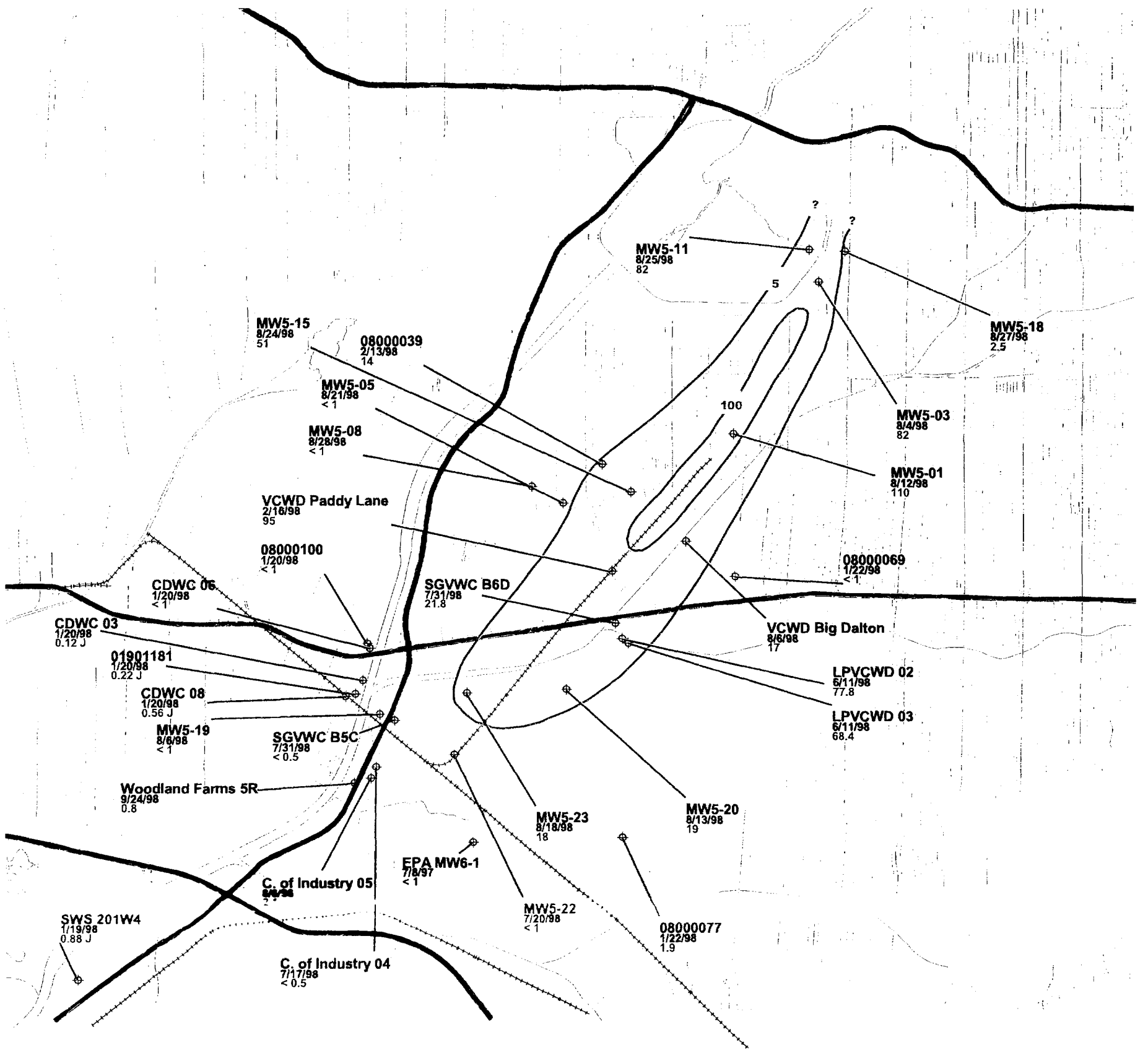
Harding Lawson Associates
Engineering and Environmental Services

Concentration of Trichloroethene in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Trichloroethene isoconcentration contour (5, 100 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

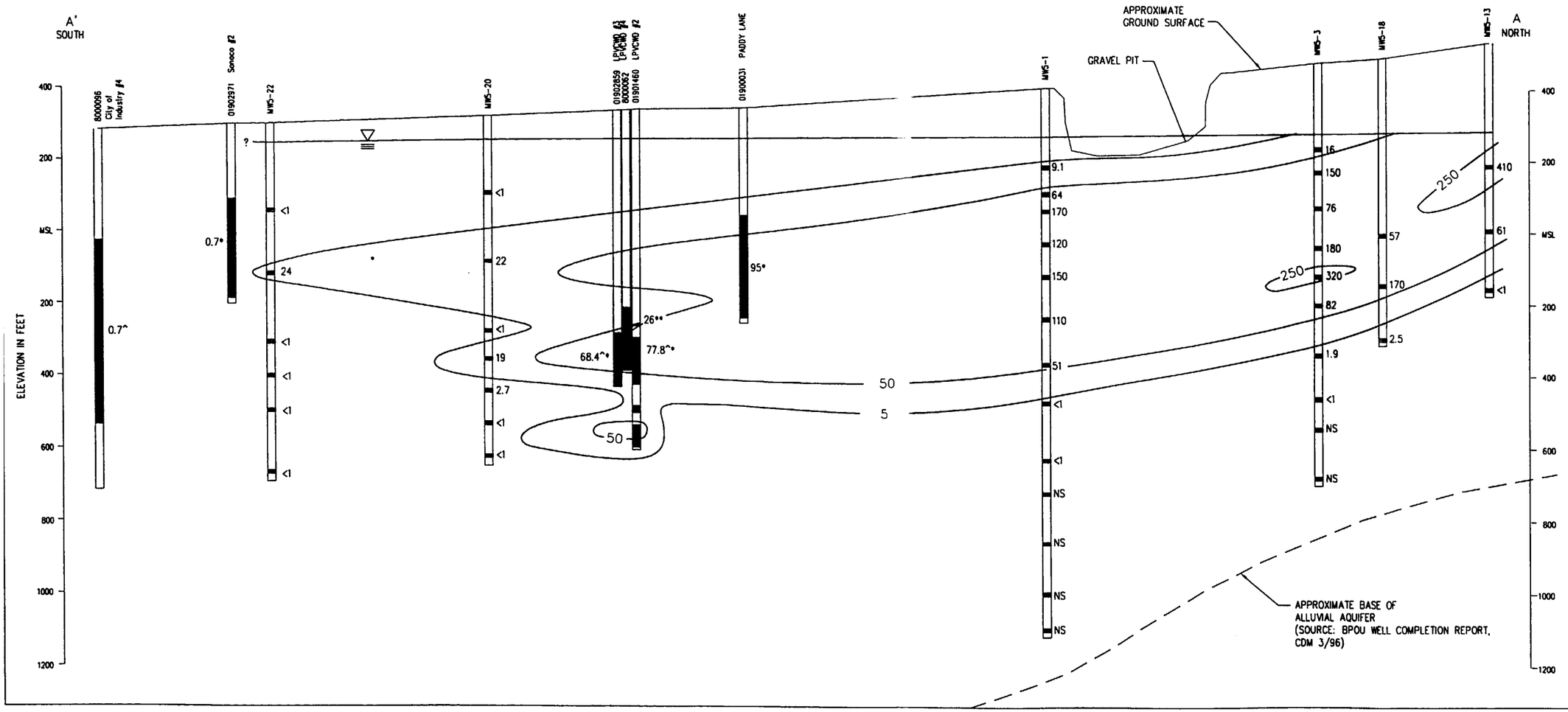
1 0 1 2 Miles

Harding Lawson Associates
Engineering and Environmental Services

Concentration of Trichloroethene in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99



LEGEND

MWS-3 — WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC TCE CONCENTRATION (µg/l)

NOTES:
SCHEMATIC
NS = NO SAMPLE COLLECTED FROM THIS ZONE
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JULY 1998
*DATA COLLECTED FEBRUARY 1998
^*DATA COLLECTED JUNE 1998
**DATA COLLECTED APRIL 1997
CONTOURS BASED ON 1998 DATA
TCE MCL = 5 ug/l

SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'

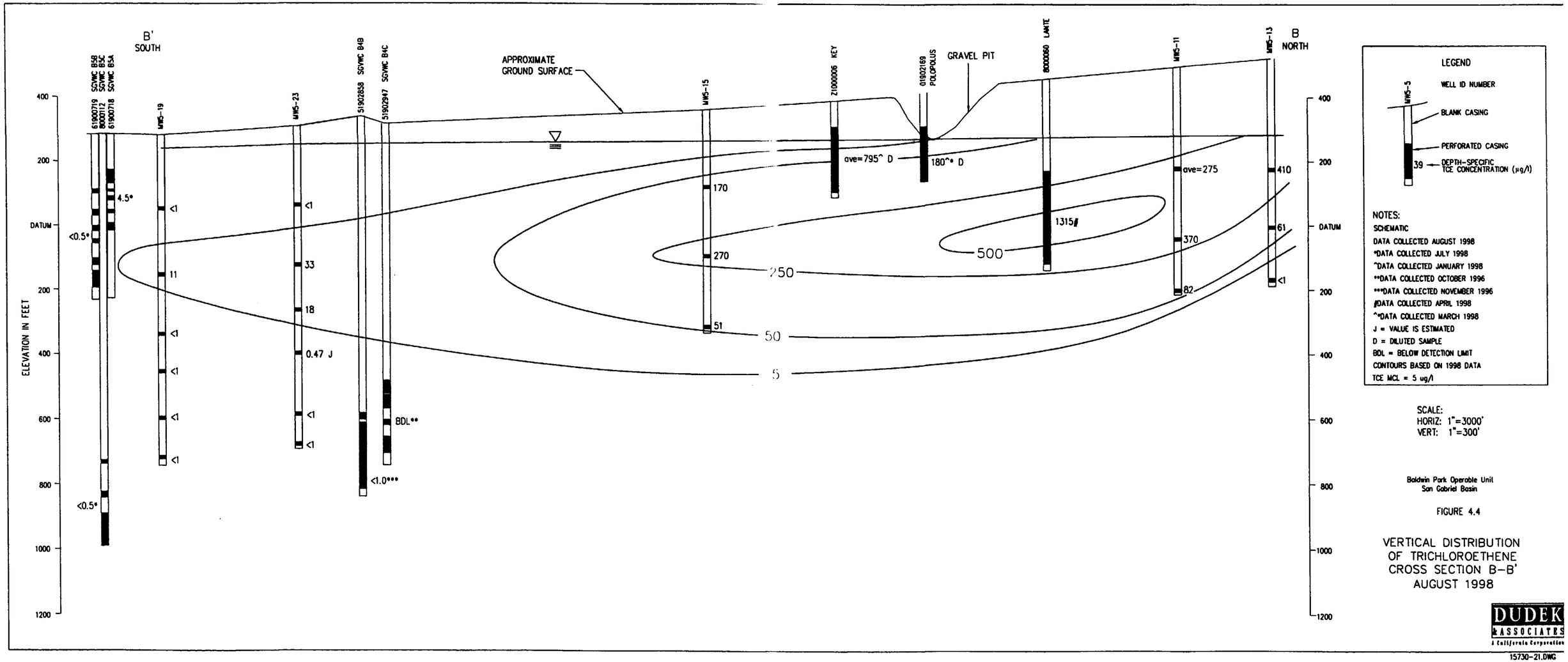
Baldwin Park Operable Unit
San Gabriel Basin

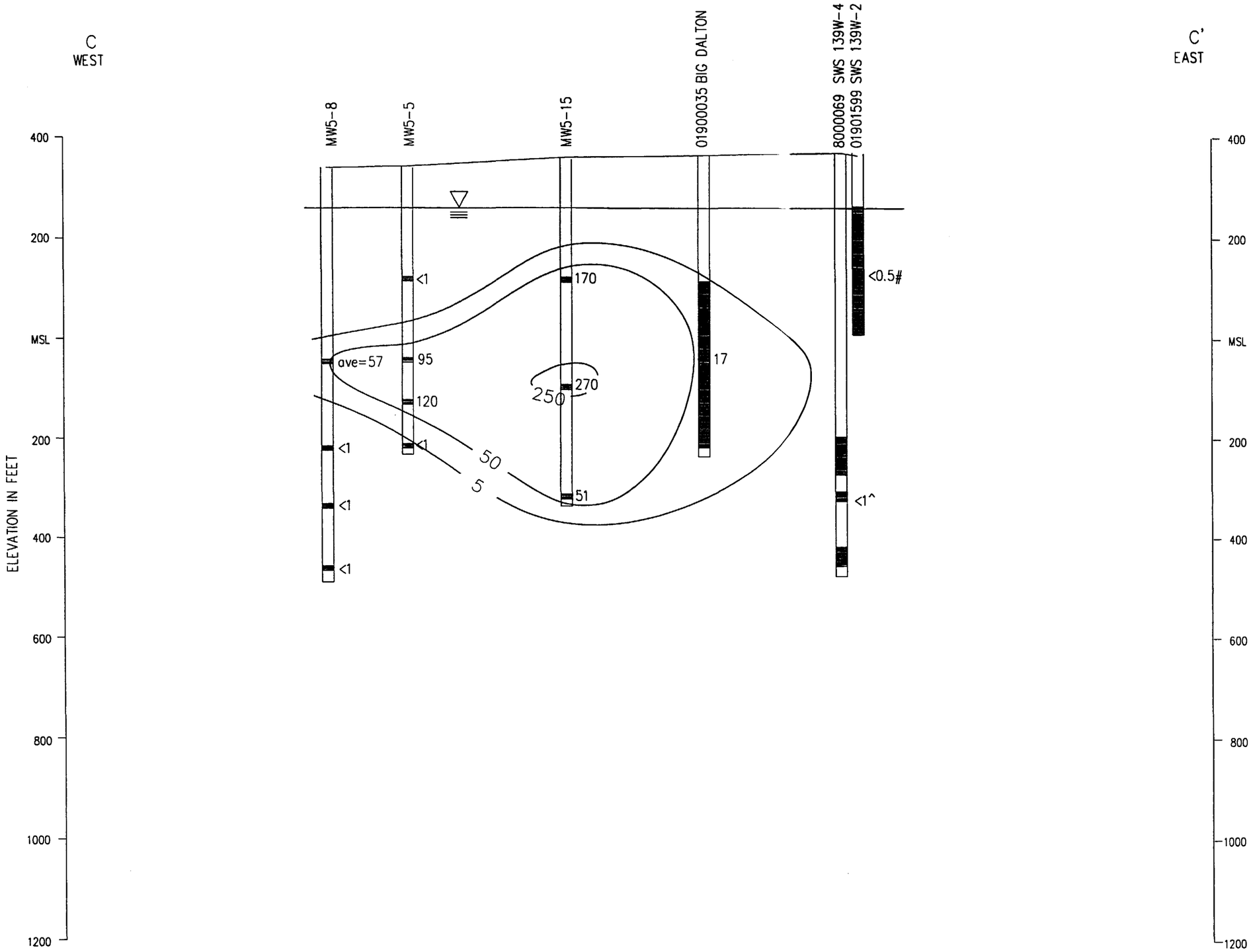
FIGURE 4.3

VERTICAL DISTRIBUTION OF TRICHLOROETHENE CROSS SECTION A–A' AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

15730-16.DWG


B'
SOUTH
B
NORTH
APPROXIMATE
GROUND SURFACE
GRAVEL PIT
ELEVATION IN FEET
DATUM
400
200
DATUM
200
400
600
800
1000
1200
61900719 SGVWC B5B
8000112 SGVWC B5C
61900718 SGVWC B5A
MW5-19
MW5-23
51902858 SGVWC B4B
51902947 SGVWC B4C
MW5-15
Z1000006 KEY
01902169 POLOPOLUS
8000060 LAWTE
MW5-11
MW5-13
4.5*
<0.5*
<0.5*
<1
11
<1
<1
<1
<1
33
18
0.47 J
<1
<1
<1.0***
BDL**
170
270
51
ave=795^ D
180^* D
1315#
ave=275
370
82
410
61
<1
500
250
50
5
LEGEND
MW5-5
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC TCE CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
*DATA COLLECTED JULY 1998
^DATA COLLECTED JANUARY 1998
**DATA COLLECTED OCTOBER 1996
***DATA COLLECTED NOVEMBER 1996
#DATA COLLECTED APRIL 1998
^*DATA COLLECTED MARCH 1998
J = VALUE IS ESTIMATED
D = DILUTED SAMPLE
BDL = BELOW DETECTION LIMIT
CONTOURS BASED ON 1998 DATA
TCE MCL = 5 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.4
VERTICAL DISTRIBUTION
OF TRICHLOROETHENE
CROSS SECTION B-B'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
15730-21.DWG



LEGEND

WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC TCE CONCENTRATION (µg/l)

NOTES:

SCHEMATIC

DATA COLLECTED AUGUST 1998

^DATA COLLECTED JANUARY 1998

#DATA COLLECTED JULY 1998

? = WHERE INFERRED

CONTOURS BASED ON 1998 DATA

TCE MCL = 5 ug/l

SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'

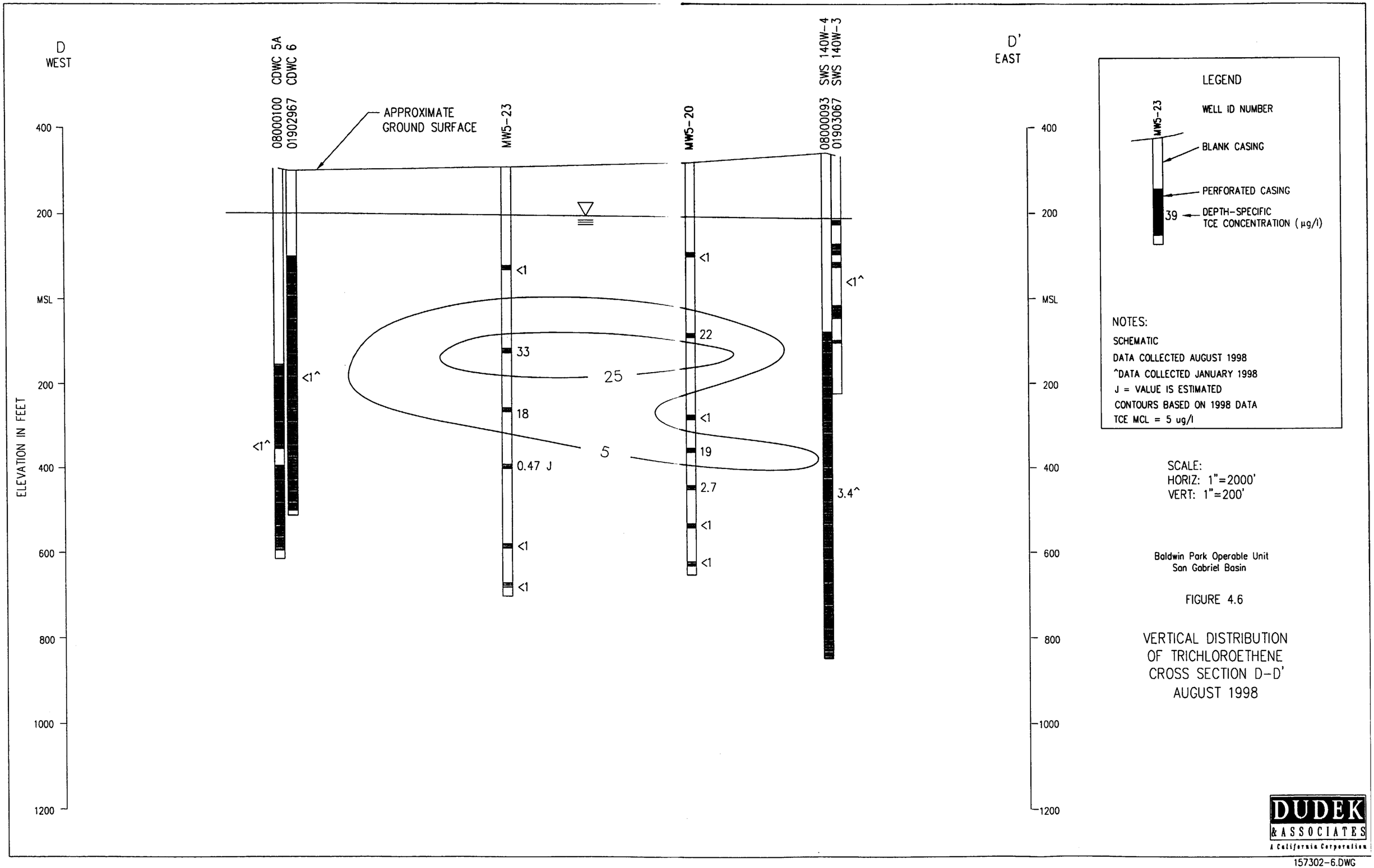
Baldwin Park Operable Unit
San Gabriel Basin

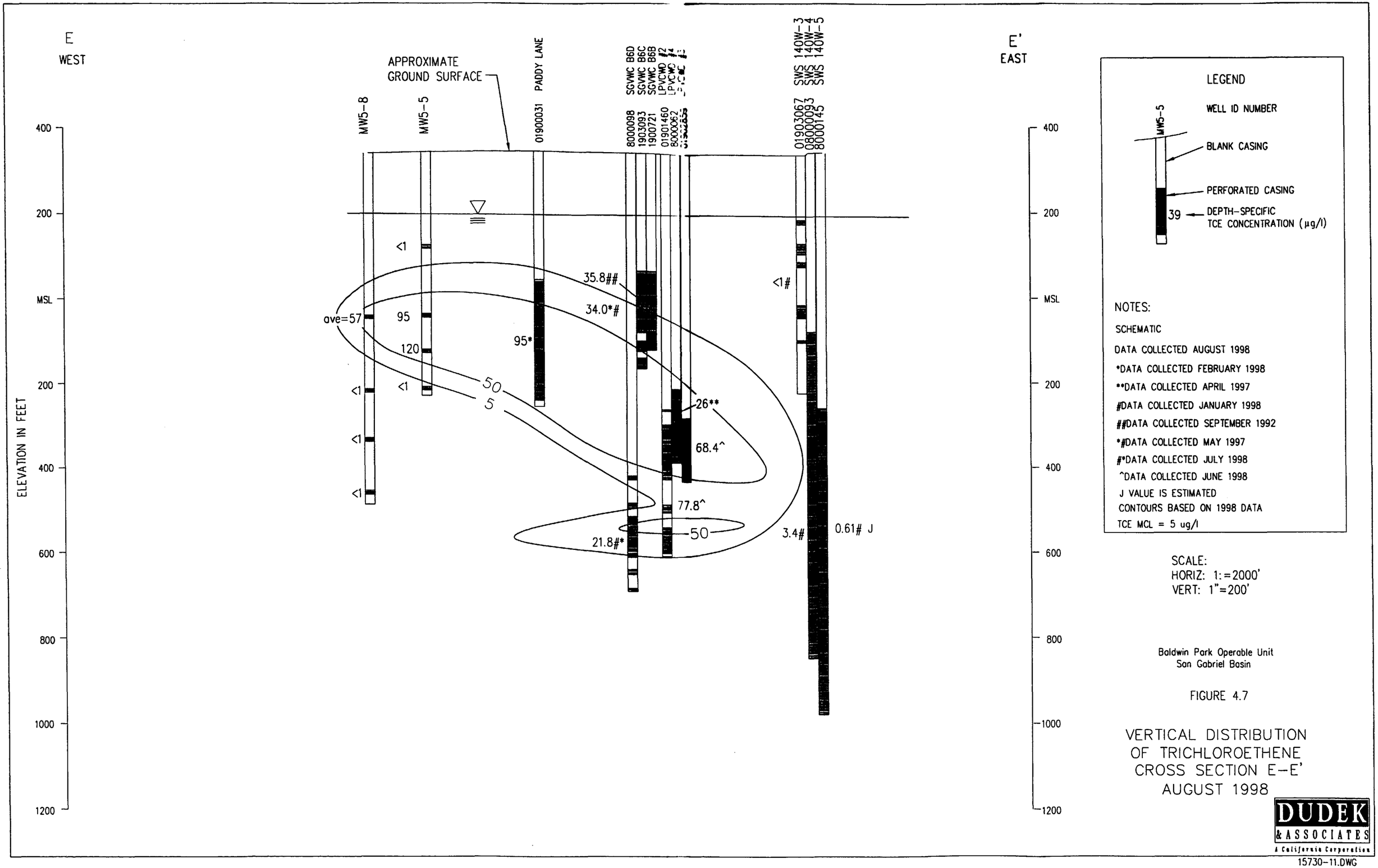
FIGURE 4.5

VERTICAL DISTRIBUTION
OF TRICHLOROETHENE
CROSS SECTION C–C'
AUGUST 1998

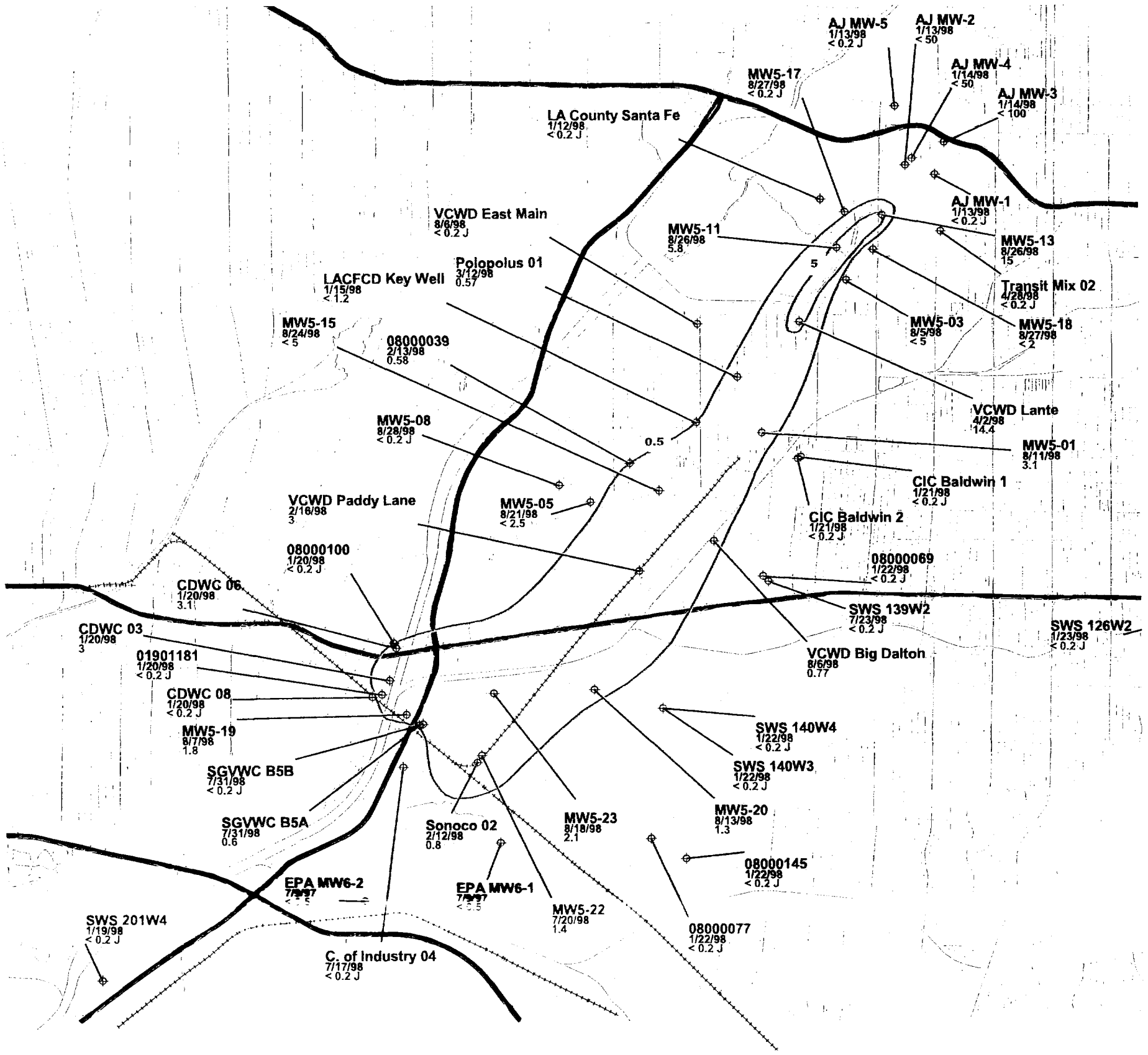
DUDEK
& ASSOCIATE
A California Corporati

157302-2.DWG


D
WEST
D'
EAST
08000100 CDWC 5A
01902967 CDWC 6
MW5-23
MW5-20
08000093 SWS 140W-4
01903067 SWS 140W-3
APPROXIMATE GROUND SURFACE
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
<1^
<1^
<1
33
18
0.47 J
<1
<1
<1
22
<1
19
2.7
<1
<1
<1^
3.4^
25
5
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC TCE CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
J = VALUE IS ESTIMATED
CONTOURS BASED ON 1998 DATA
TCE MCL = 5 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.6
VERTICAL DISTRIBUTION
OF TRICHLOROETHENE
CROSS SECTION D-D'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
157302-6.DWG


E
WEST
E'
EAST
APPROXIMATE GROUND SURFACE
MW5-8
MW5-5
01900031 PADDY LANE
8000098 SGVWC B6D
1903093 SGVWC B6C
1900721 SGVWC B6B
01901460 LPVCWD #2
8000062 LPVCWD #4
01903067 SWS 140W-3
08000093 SWS 140W-4
8000145 SWS 140W-5
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
<1
95
120
<1
<1
<1
<1
ave=57
95*
35.8##
34.0*#
50
5
26**
68.4^
77.8^
50
21.8#*
3.4#
0.61# J
<1#
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39 DEPTH-SPECIFIC TCE CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
*DATA COLLECTED FEBRUARY 1998
**DATA COLLECTED APRIL 1997
#DATA COLLECTED JANUARY 1998
##DATA COLLECTED SEPTEMBER 1992
*#DATA COLLECTED MAY 1997
#*DATA COLLECTED JULY 1998
^DATA COLLECTED JUNE 1998
J VALUE IS ESTIMATED
CONTOURS BASED ON 1998 DATA
TCE MCL = 5 ug/l
SCALE:
HORIZ: 1:=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.7
VERTICAL DISTRIBUTION OF TRICHLOROETHENE CROSS SECTION E-E'
AUGUST 1998
DUDEK & ASSOCIATES
A California Corporation
15730-11.DWG

L:\00000\00001\geoana\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Carbon tetrachloride isoconcentration contour (0.5, 5 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

Duplicate analyses were averaged

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

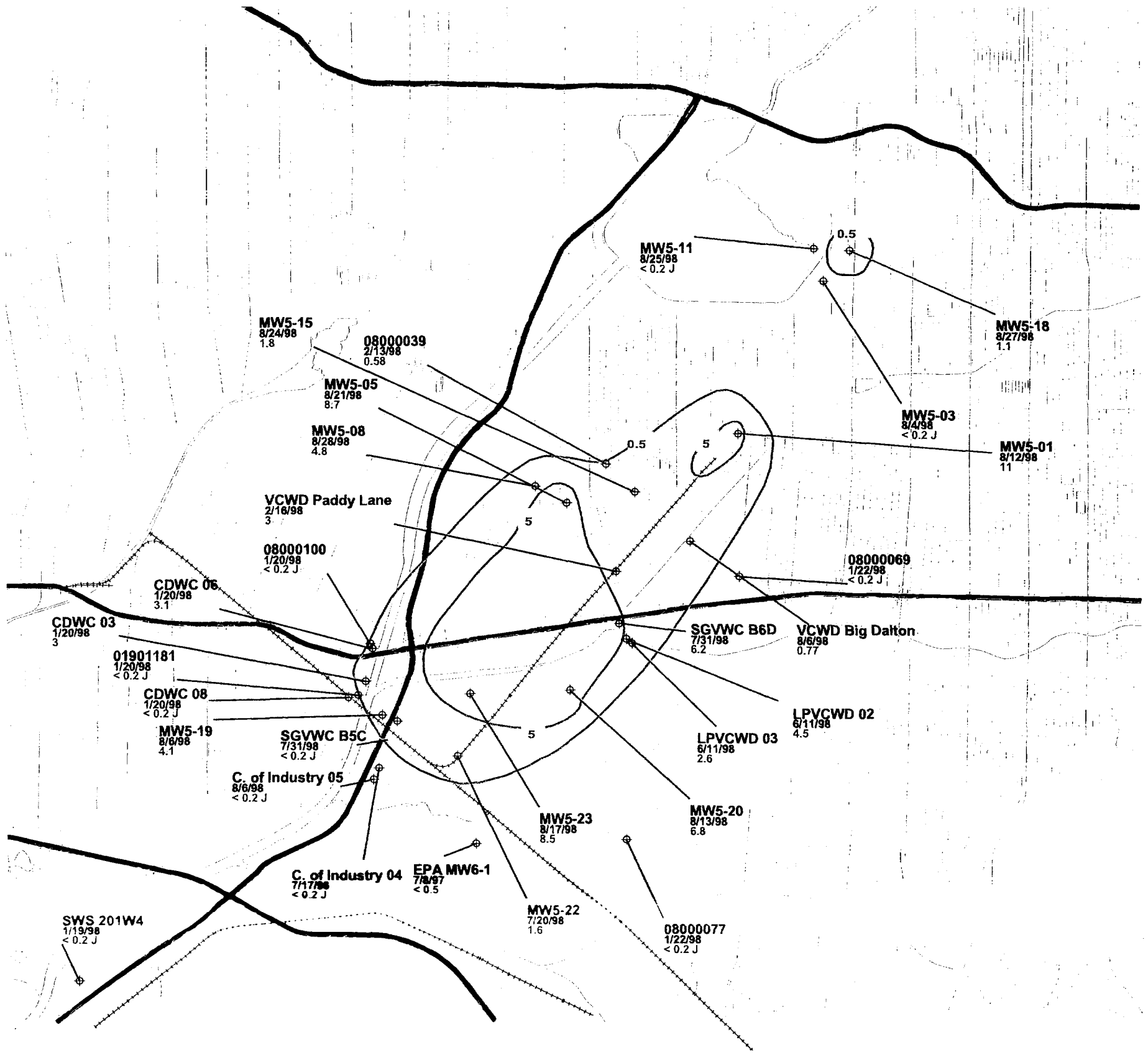
Harding Lawson Associates
Engineering and Environmental Services

Concentration of Carbon Tetrachloride in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.8

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoana\aerojet_multiport_98\aero_200 apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Carbon tetrachloride isoconcentration contour (0.5, 1, 5 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

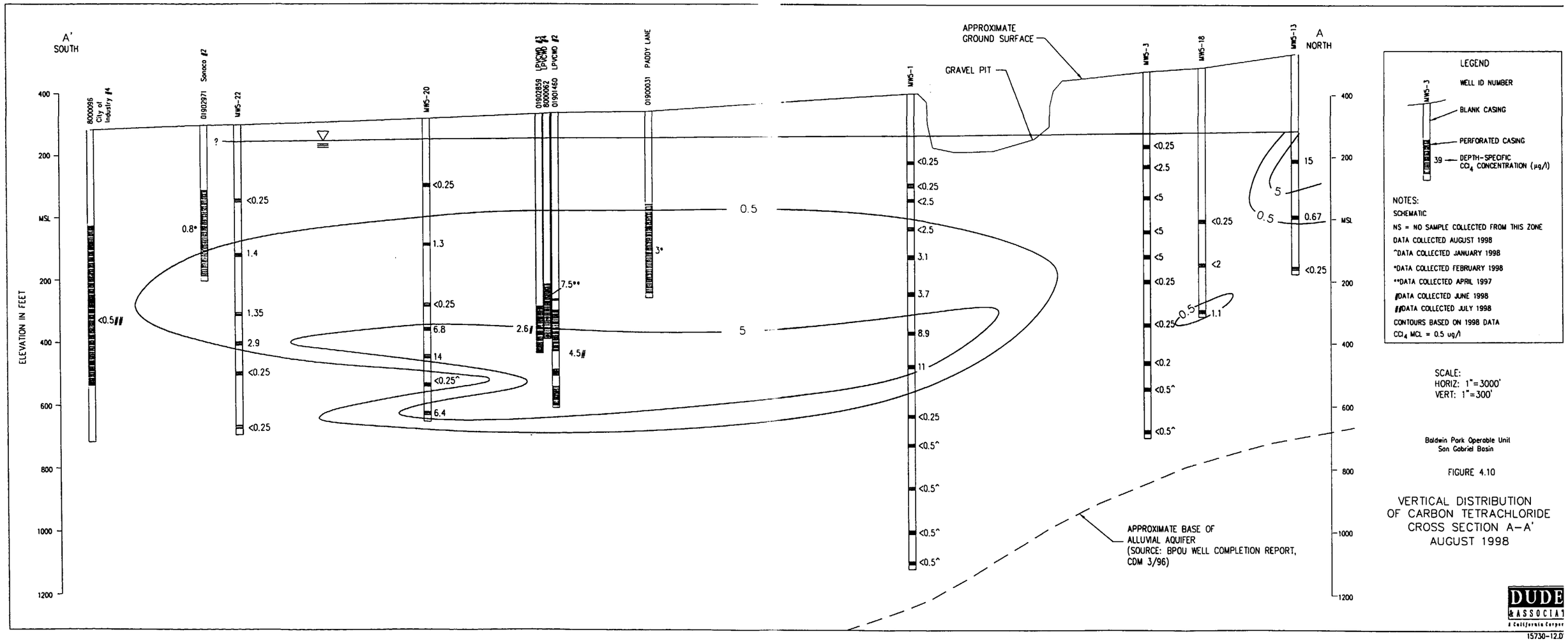
1 0 1 2 Miles

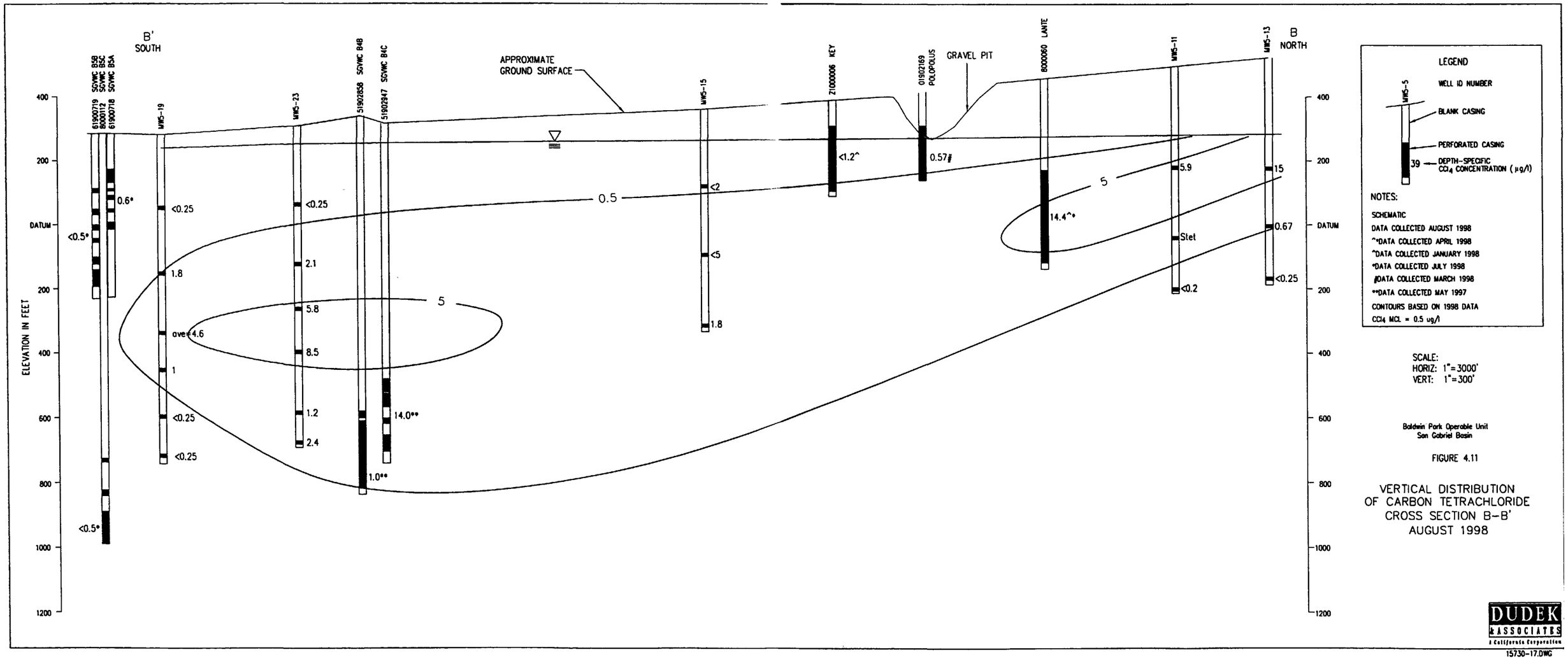
Harding Lawson Associates
Engineering and Environmental Services

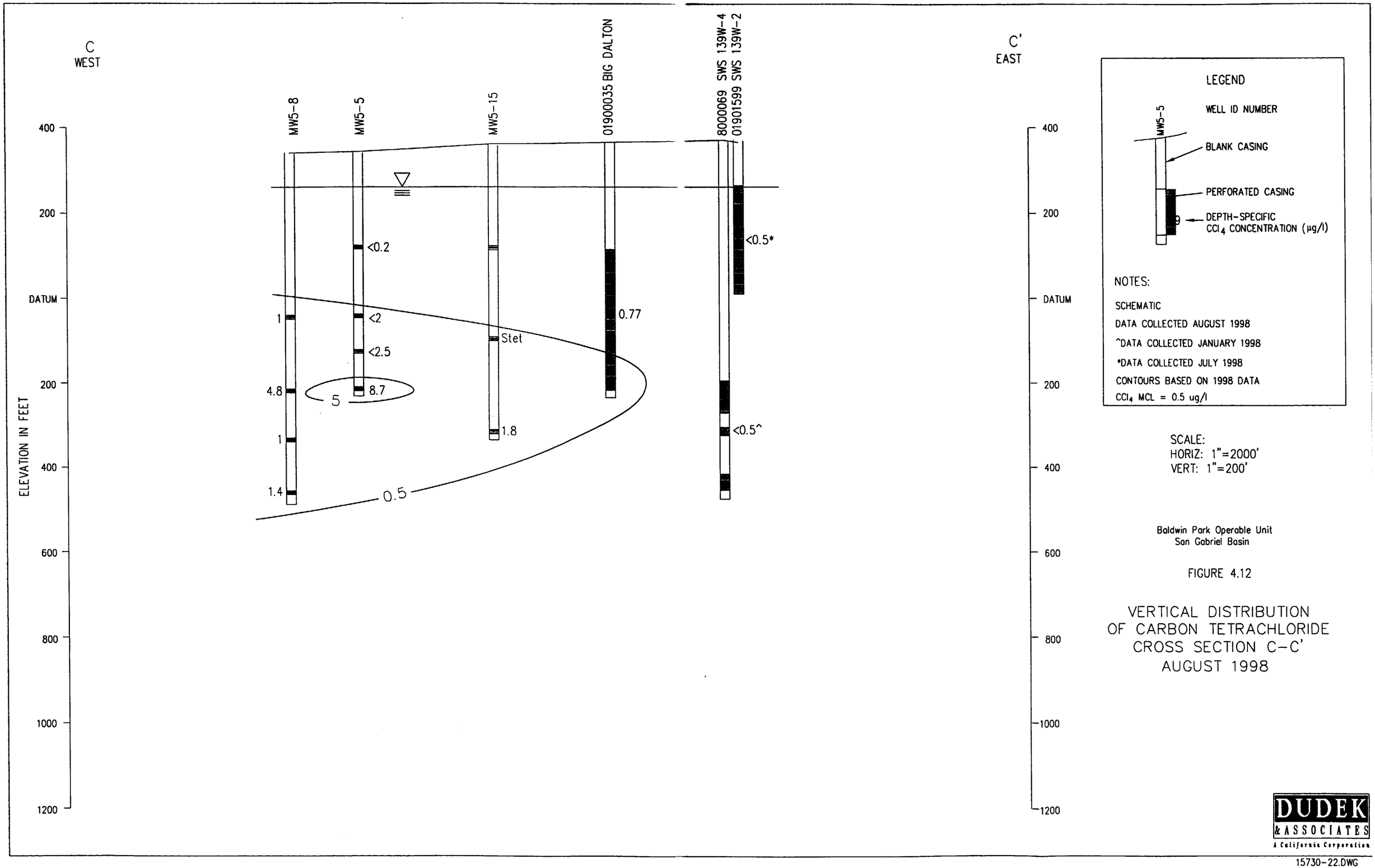
Concentration of Carbon Tetrachloride in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

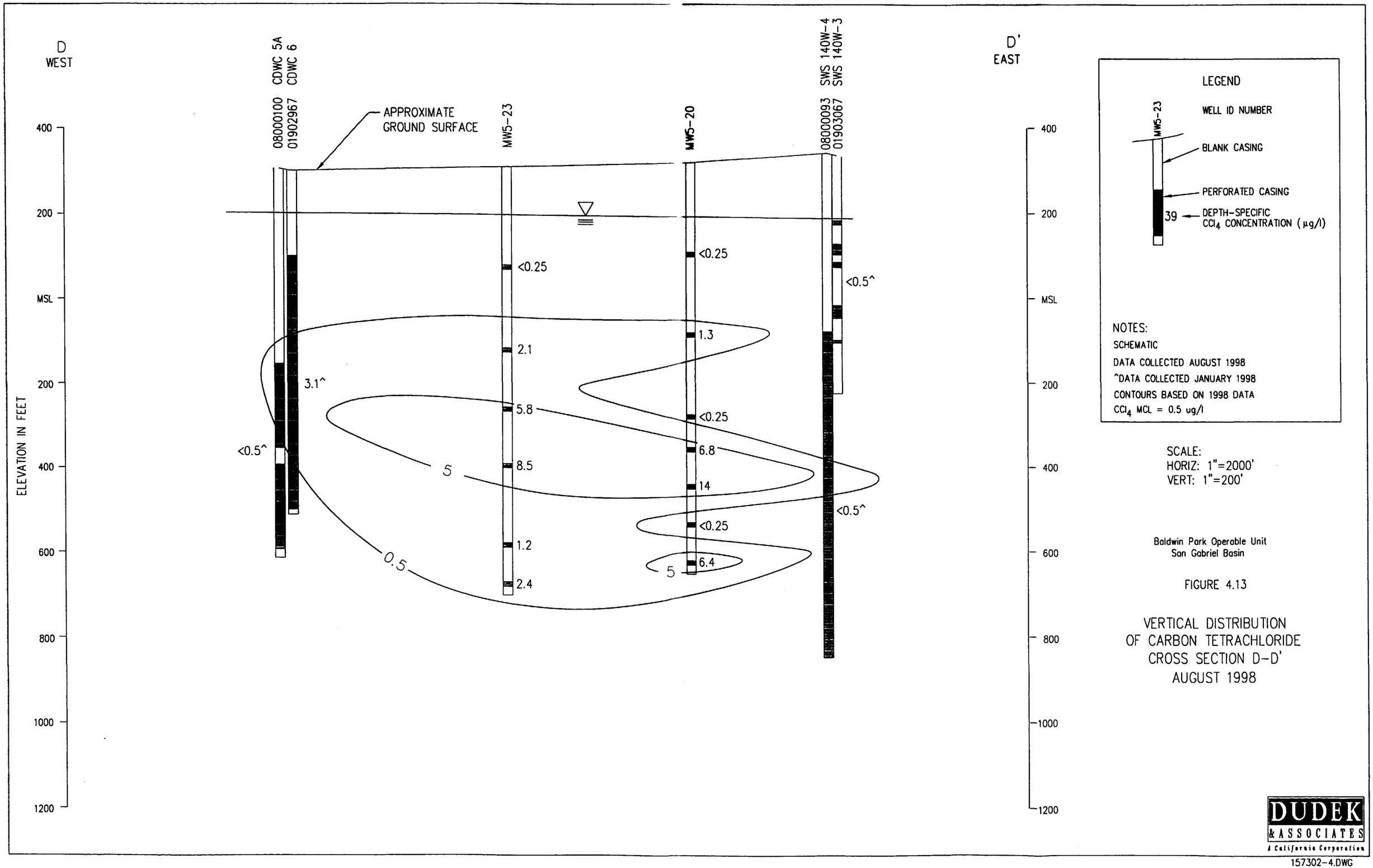
FIGURE 4.9

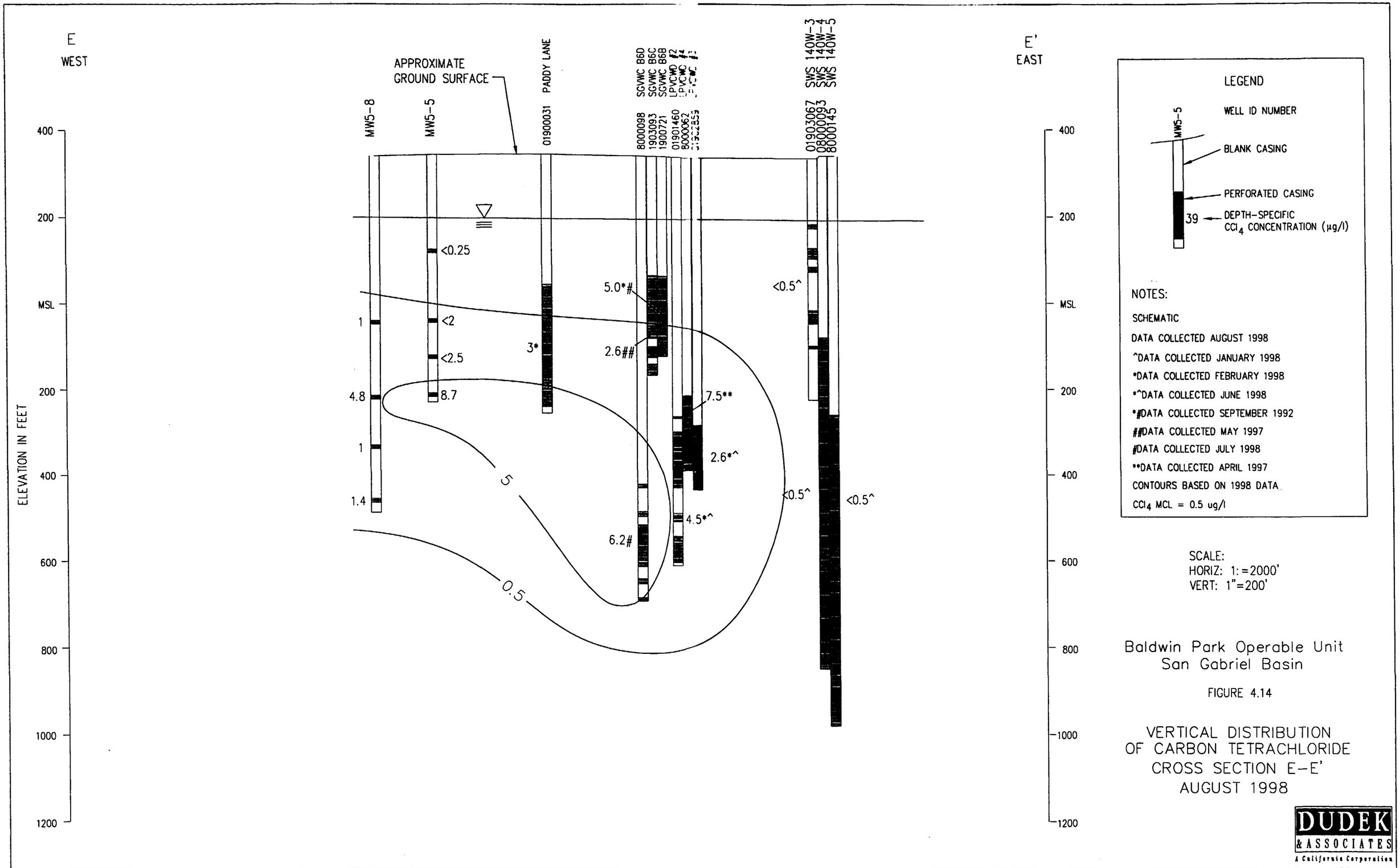
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99


A'
SOUTH
A
NORTH
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
8000095 City of Industry #4
01902971 Sonoco #2
MW5-22
MW5-20
01902859 LPVCMD #3
8000062 LPVCMD #4
01901460 LPVCMD #2
01900031 PADDY LANE
MW5-1
MW5-3
MW5-18
MW5-13
APPROXIMATE GROUND SURFACE
GRAVEL PIT
APPROXIMATE BASE OF ALLUVIAL AQUIFER (SOURCE: BPOU WELL COMPLETION REPORT, CDM 3/96)
<0.5///
0.8*
<0.25
1.4
1.35
2.9
<0.25
<0.25
<0.25
1.3
<0.25
6.8
14
<0.25^
6.4
2.6/
7.5**
4.5/
3*
0.5
5
<0.25
<0.25
<2.5
<2.5
3.1
3.7
8.9
11
<0.25
<0.5^
<0.5^
<0.5^
<0.5^
<0.5^
<0.25
<2.5
<5
<5
<5
<0.25
<0.25
<0.2
<0.5^
<0.5^
<0.25
<2
1.1
0.5
0.5
15
0.67
<0.25
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39 — DEPTH-SPECIFIC CCl_4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
NS = NO SAMPLE COLLECTED FROM THIS ZONE
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED FEBRUARY 1998
**DATA COLLECTED APRIL 1997
/DATA COLLECTED JUNE 1998
//DATA COLLECTED JULY 1998
CONTOURS BASED ON 1998 DATA
CCl_4 MCL = 0.5 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.10
VERTICAL DISTRIBUTION OF CARBON TETRACHLORIDE CROSS SECTION A–A'
AUGUST 1998
DUDE & ASSOCIATES
A California Corporation
15730-12.D

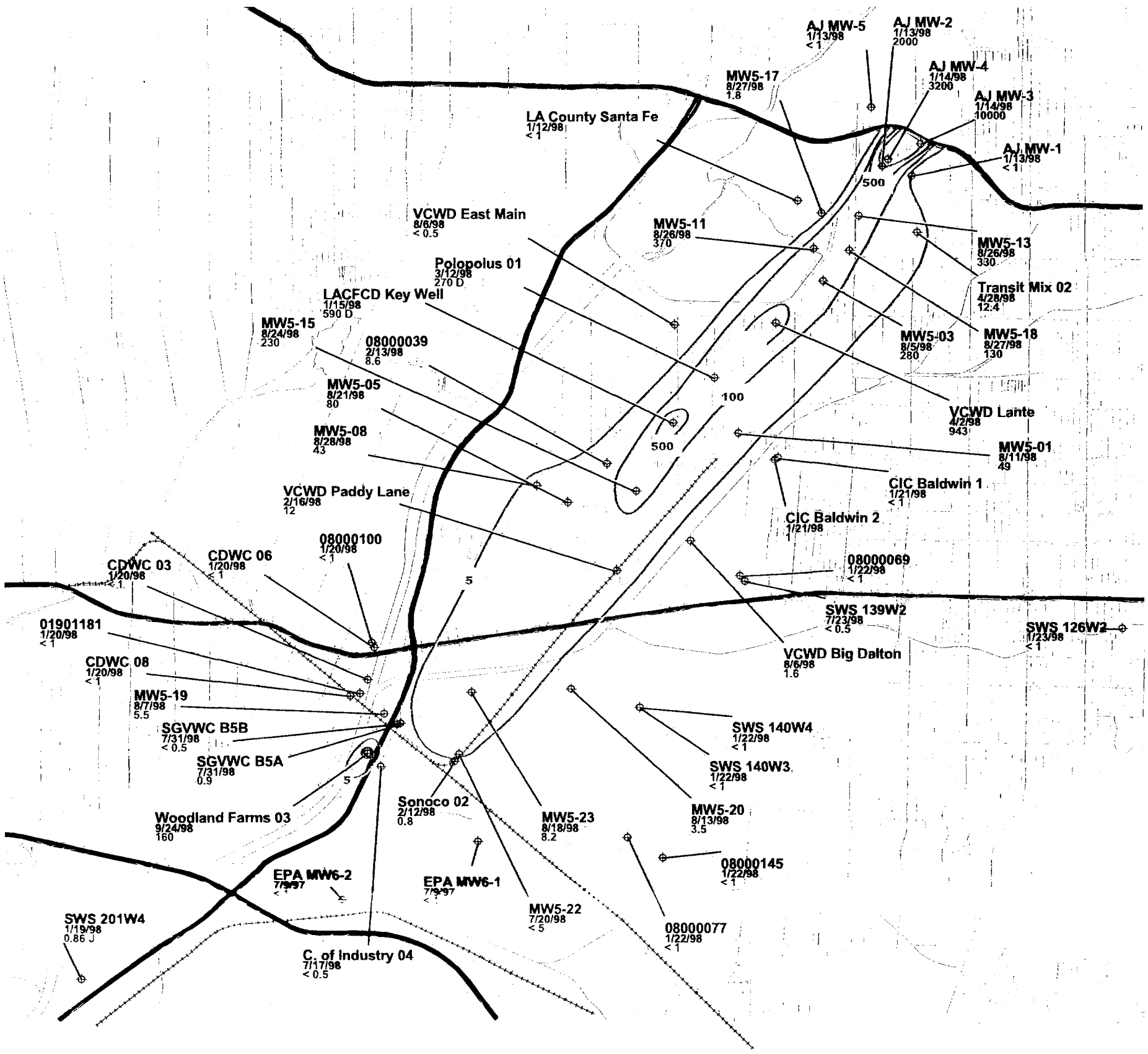

B'
SOUTH
B
NORTH
ELEVATION IN FEET
DATUM
APPROXIMATE GROUND SURFACE
GRAVEL PIT
61900719 SGVWC B5B
SGVWC B5C
8030112
61900718 SGVWC B5A
MW5-19
MW5-23
51902858 SGVWC B4B
51902947 SGVWC B4C
MW5-15
Z1000006 KEY
01902169 POLOPOLUS
8000060 LANTE
MW5-11
MW5-13
<0.5*
0.6*
<0.25
1.8
ave=4.6
1
<0.25
<0.25
<0.5*
<0.25
2.1
5.8
8.5
1.2
2.4
1.0**
14.0**
0.5
5
<2
<5
1.8
<1.2^
0.57#
14.4^*
5
5.9
Stet
<0.2
15
0.67
<0.25
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39 DEPTH-SPECIFIC CCl4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^*DATA COLLECTED APRIL 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED JULY 1998
#DATA COLLECTED MARCH 1998
**DATA COLLECTED MAY 1997
CONTOURS BASED ON 1998 DATA
CCl4 MCL = 0.5 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.11
VERTICAL DISTRIBUTION
OF CARBON TETRACHLORIDE
CROSS SECTION B-B'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
15730-17.DWG


C
WEST
C'
EAST
MW5-8
MW5-5
MW5-15
01900035 BIG DALTON
8000069 SWS 139W-4
01901599 SWS 139W-2
ELEVATION IN FEET
400
200
DATUM
200
400
600
800
1000
1200
<0.2
<2
<2.5
8.7
5
1
4.8
1
1.4
0.5
Stet
1.8
0.77
<0.5*
<0.5^
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
DEPTH-SPECIFIC
CCl4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED JULY 1998
CONTOURS BASED ON 1998 DATA
CCl4 MCL = 0.5 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.12
VERTICAL DISTRIBUTION
OF CARBON TETRACHLORIDE
CROSS SECTION C-C'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
15730-22.DWG


D
WEST
D'
EAST
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
08000100 CDWC 5A
01902967 CDWC 6
APPROXIMATE GROUND SURFACE
MW5-23
MW5-20
08000093 SWS 140W-4
01903067 SWS 140W-3
<0.25
2.1
5.8
8.5
1.2
2.4
3.1^
<0.5^
5
0.5
<0.25
1.3
<0.25
6.8
14
<0.25
6.4
5
<0.5^
<0.5^
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39 DEPTH-SPECIFIC CCl4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
CONTOURS BASED ON 1998 DATA
CCl4 MCL = 0.5 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.13
VERTICAL DISTRIBUTION
OF CARBON TETRACHLORIDE
CROSS SECTION D-D'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
157302-4.DWG


E
WEST
E'
EAST
APPROXIMATE GROUND SURFACE
MW5-8
MW5-5
01900031 PADDY LANE
8000098 SGVWC B6D
1903093 SGVWC B6C
1900721 SGVWC B6B
01901460 LPVCWD #2
8000062 LPVCWD #4
01903067 SWS 140W-3
08000093 SWS 140W-4
8000145 SWS 140W-5
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
<0.25
<2
<2.5
8.7
1
4.8
1
1.4
3*
5.0*#
2.6##
6.2#
7.5**
2.6*^
4.5*^
<0.5^
<0.5^
<0.5^
5
0.5
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC CCl4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED FEBRUARY 1998
*^DATA COLLECTED JUNE 1998
*#DATA COLLECTED SEPTEMBER 1992
##DATA COLLECTED MAY 1997
#DATA COLLECTED JULY 1998
**DATA COLLECTED APRIL 1997
CONTOURS BASED ON 1998 DATA
CCl4 MCL = 0.5 ug/l
SCALE:
HORIZ: 1:=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.14
VERTICAL DISTRIBUTION
OF CARBON TETRACHLORIDE
CROSS SECTION E-E'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
157302-8.DWG

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< **Less than detection limit**

D **Dilution**

J **Estimated value**

Tetrachloroethene isoconcentration contour (5, 100, 500, 1000 ug/l)

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

Note: **The maximum concentration from any port was used for the multiport wells**

Duplicate analyses were averaged

N

1 0 1 2 Miles

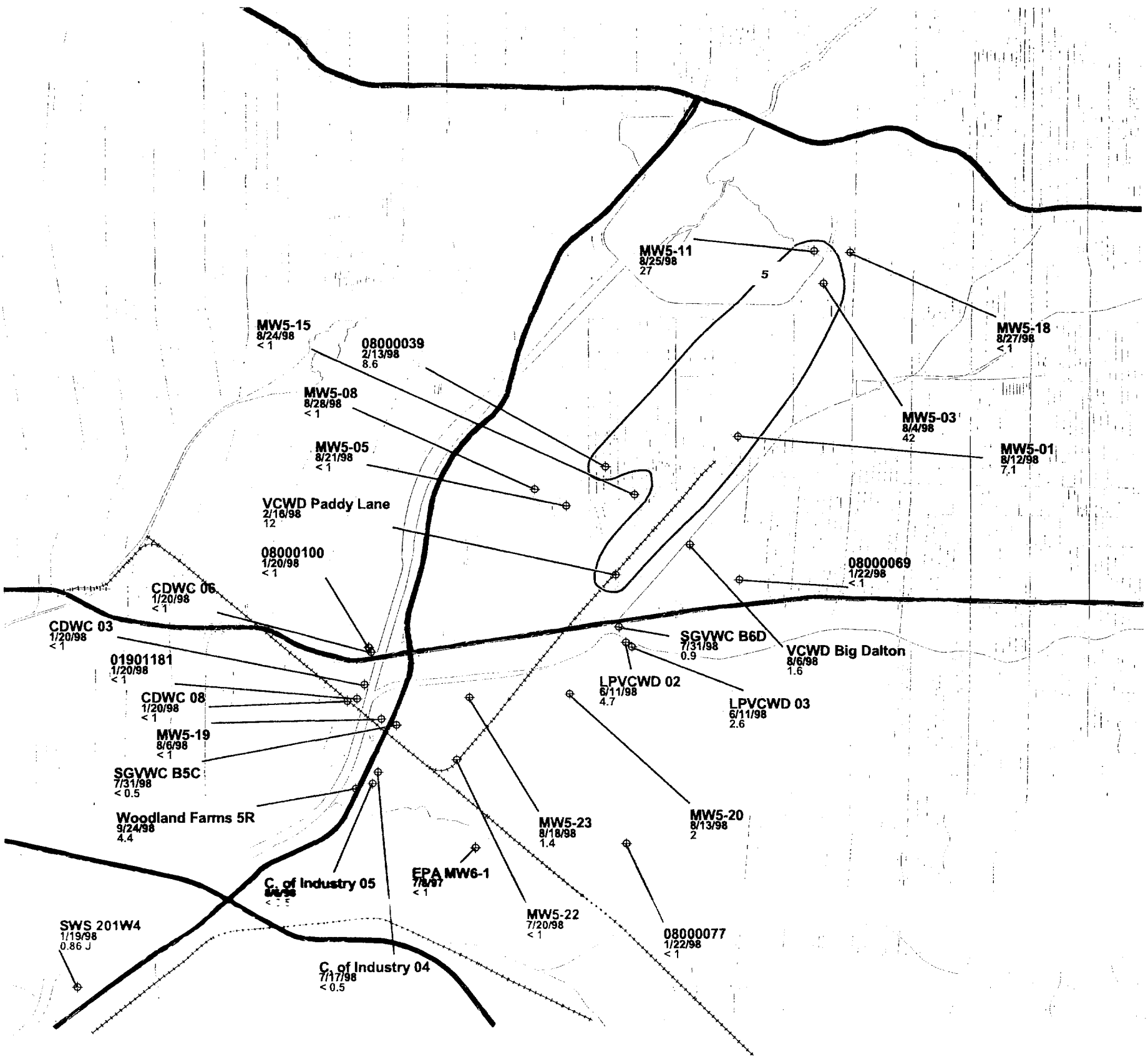
Harding Lawson Associates
Engineering and Environmental Services

Concentration of Tetrachloroethene in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE
4.15

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoana\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Tetrachloroethene isoconcentration contour (5 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

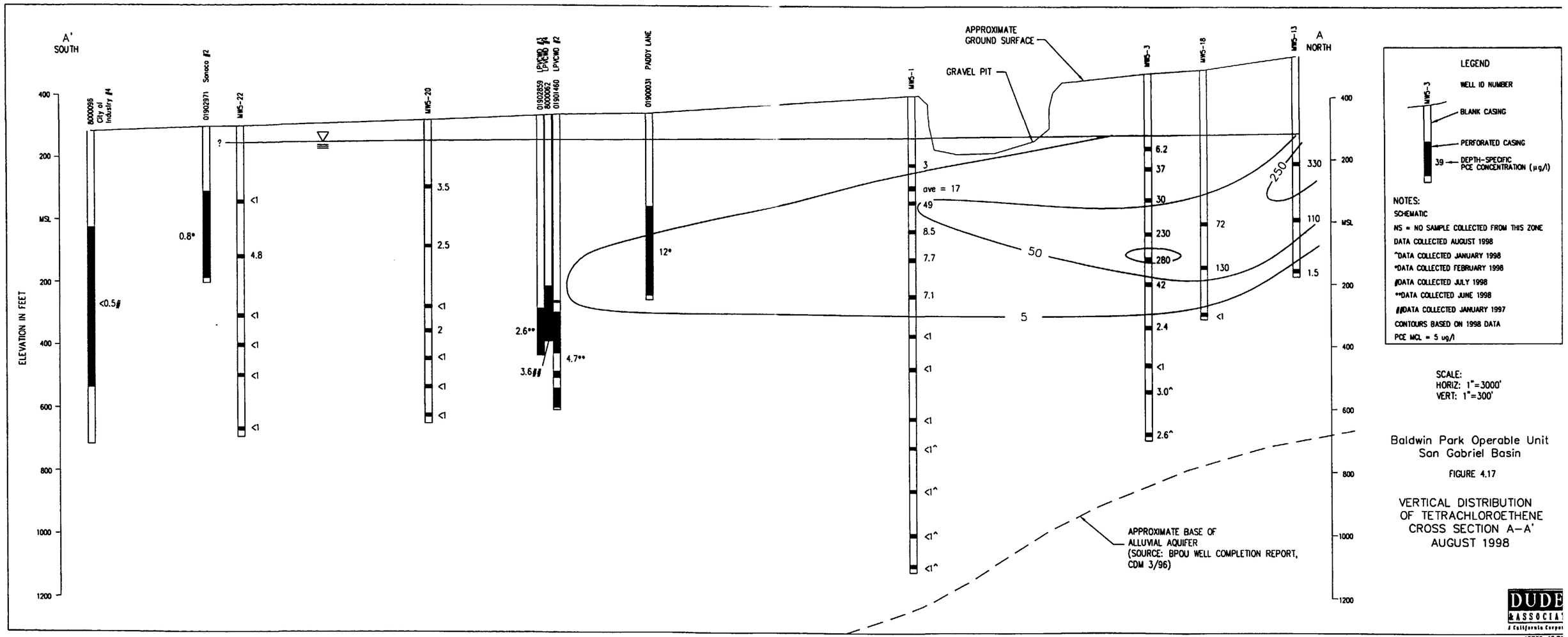
1 0 1 2 Miles

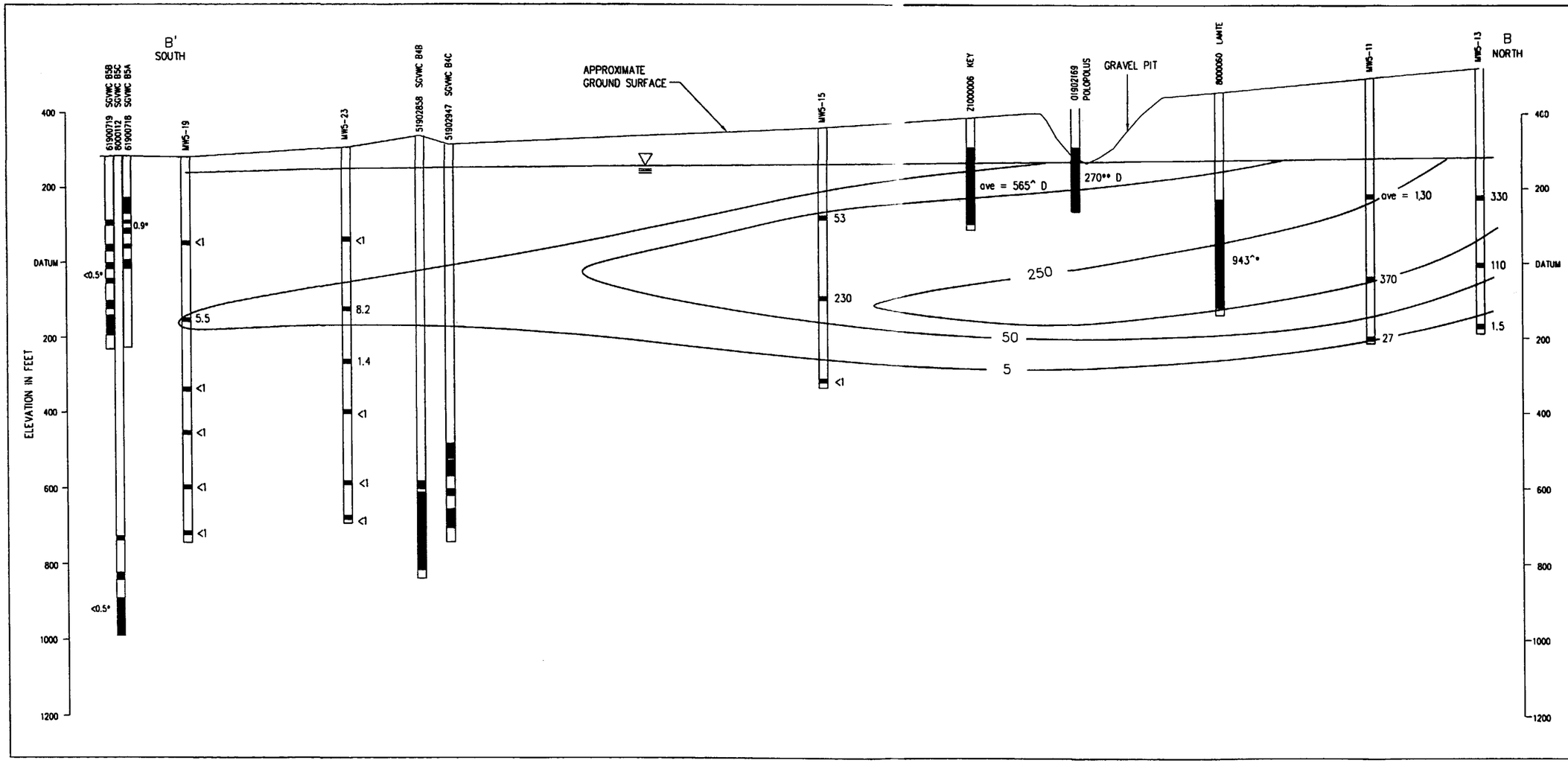
Harding Lawson Associates
Engineering and Environmental Services

Concentration of Tetrachloroethene in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.16

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99


A'
SOUTH
A
NORTH
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
8000096 City of Industry #4
01902971 Sonoco #2
MW5-22
MW5-20
01902859 LPVCWD #3
8000062 LPVCWD #4
01901460 LPVCWD #2
01900031 PADDY LANE
MW5-1
MW5-3
MW5-18
MW5-13
APPROXIMATE GROUND SURFACE
GRAVEL PIT
?
<0.5//
0.8*
<1
4.8
<1
<1
<1
3.5
2.5
<1
2
<1
<1
<1
2.6**
3.6//
4.7**
12*
3
ave = 17
49
8.5
7.7
7.1
<1
<1
<1
<1^
<1^
<1^
<1^
6.2
37
30
230
280
42
2.4
<1
3.0^
2.6^
72
130
<1
330
110
1.5
250
50
5
APPROXIMATE BASE OF ALLUVIAL AQUIFER (SOURCE: BPOU WELL COMPLETION REPORT, CDM 3/96)
LEGEND
MW5-3
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC PCE CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
NS = NO SAMPLE COLLECTED FROM THIS ZONE
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED FEBRUARY 1998
//DATA COLLECTED JULY 1998
**DATA COLLECTED JUNE 1998
//DATA COLLECTED JANUARY 1997
CONTOURS BASED ON 1998 DATA
PCE MCL = 5 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.17
VERTICAL DISTRIBUTION OF TETRACHLOROETHENE CROSS SECTION A–A'
AUGUST 1998
DUDE
15730-15.DI



LEGEND

MW5-5 — WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC PCE CONCENTRATION (µg/l)

NOTES:

SCHEMATIC

DATA COLLECTED AUGUST 1998

^DATA COLLECTED JANUARY 1998

**DATA COLLECTED MARCH 1998

*DATA COLLECTED JULY 1998

^*DATA COLLECTED APRIL 1998

D = DILUTED SAMPLE

CONTOURS BASED ON 1998 DATA

PCE MCL = 5 ug/l

SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'

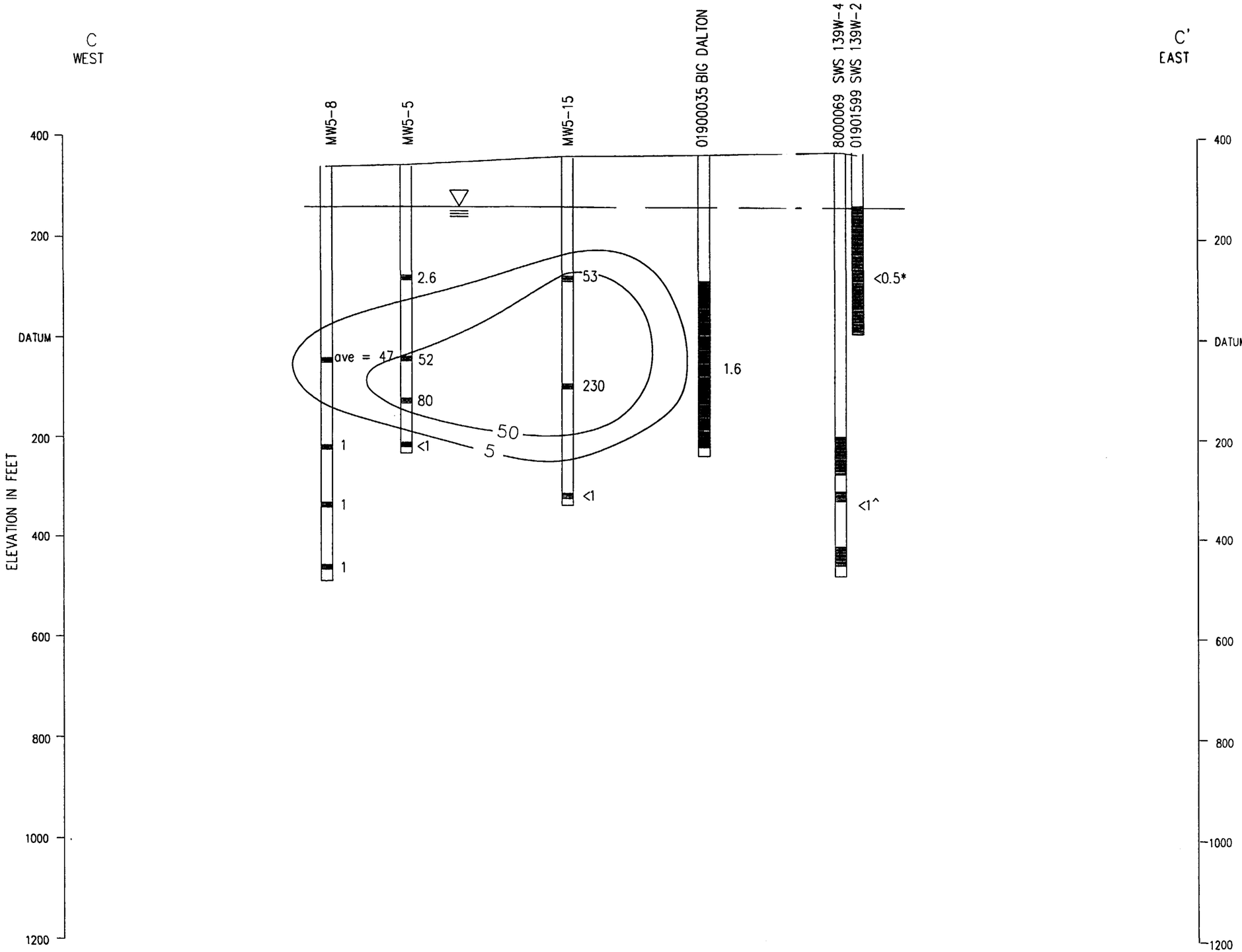
Baldwin Park Operable Unit
San Gabriel Basin

FIGURE 4.18

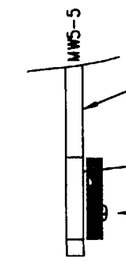
VERTICAL DISTRIBUTION OF TETRACHLOROETHENE CROSS SECTION B-B' AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

15730-20.DWG



LEGEND



WELL ID NUMBER

BLANK CASING

PERFORATED CASING

DEPTH-SPECIFIC PCE CONCENTRATION (µg/l)

NOTES:

SCHEMATIC

DATA COLLECTED AUGUST 1998

^DATA COLLECTED JANUARY 1998

*DATA COLLECTED JULY 1998

CONTOURS BASED ON 1998 DATA

PCE MCL = 5 ug/l

SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'

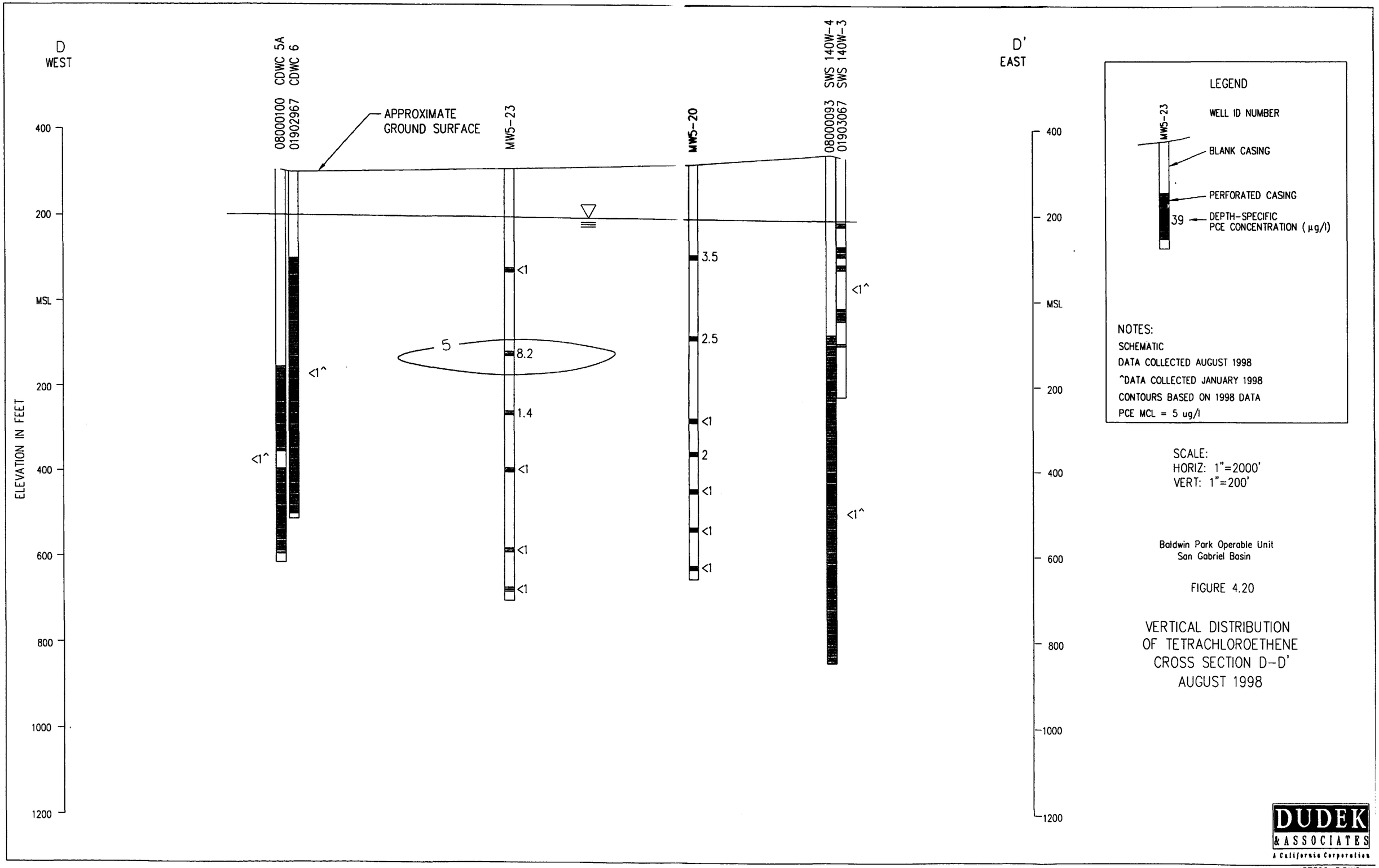
Baldwin Park Operable Unit
San Gabriel Basin

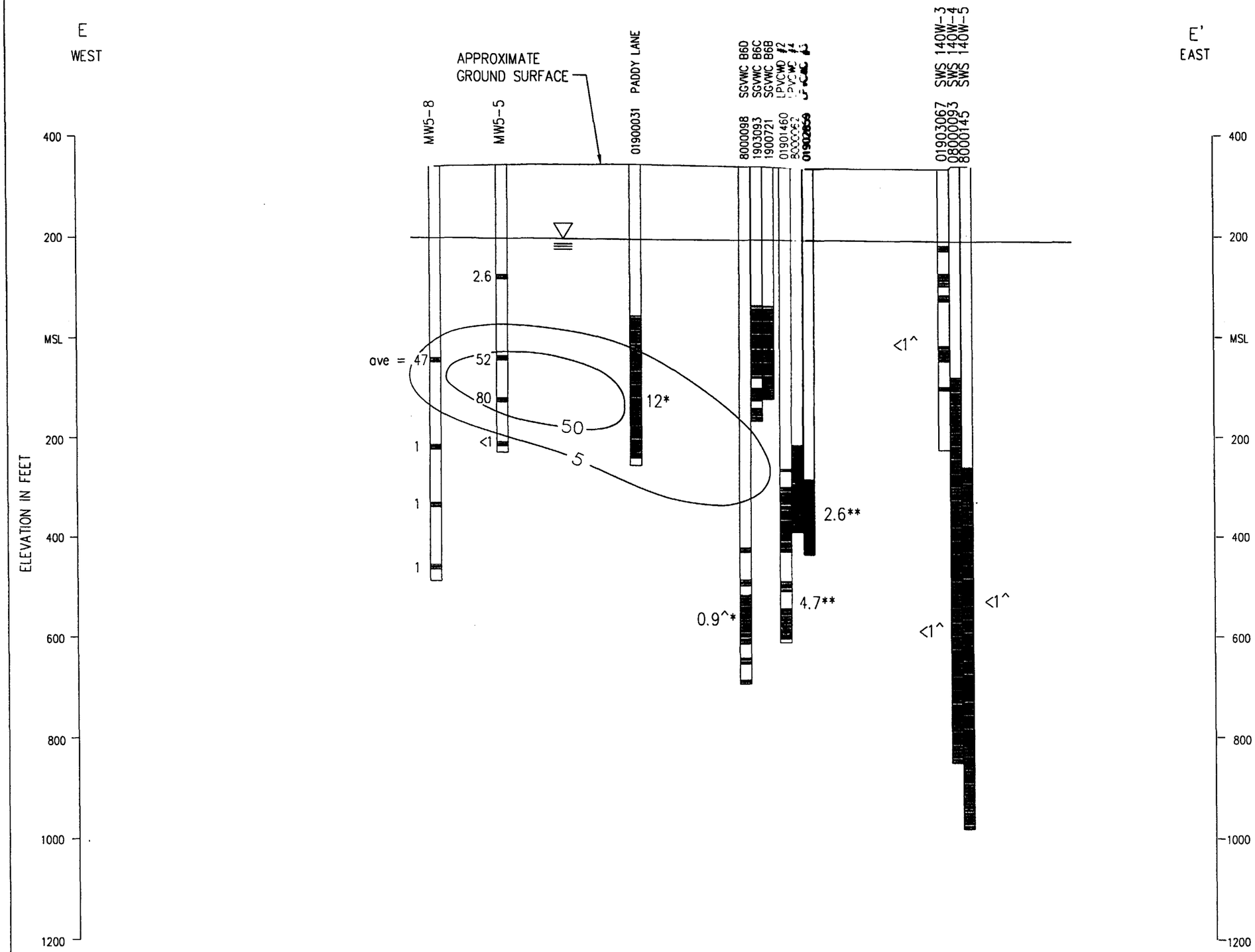
FIGURE 4.19

VERTICAL DISTRIBUTION
OF TETRACHLOROETHENE
CROSS SECTION C–C'
AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

15730-25.DWG


D
WEST
D'
EAST
08000100 CDWC 5A
01902967 CDWC 6
APPROXIMATE GROUND SURFACE
MW5-23
MW5-20
08000093 SWS 140W-4
01903067 SWS 140W-3
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
<1^
<1^
5
8.2
1.4
<1
<1
<1
<1
3.5
2.5
<1
2
<1
<1
<1
<1^
<1^
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC PCE CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
CONTOURS BASED ON 1998 DATA
PCE MCL = 5 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.20
VERTICAL DISTRIBUTION
OF TETRACHLOROETHENE
CROSS SECTION D-D'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
157302-3.DWG



LEGEND

MW5-5 WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 DEPTH-SPECIFIC PCE CONCENTRATION (µg/l)

NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED FEBRUARY 1998
**DATA COLLECTED JUNE 1998
^*DATA COLLECTED JULY 1998
CONTOURS BASED ON 1998 DATA
PCE MCL = 5 ug/l

SCALE:
HORIZ: 1:=2000'
VERT: 1"=200'

Baldwin Park Operable Unit
San Gabriel Basin

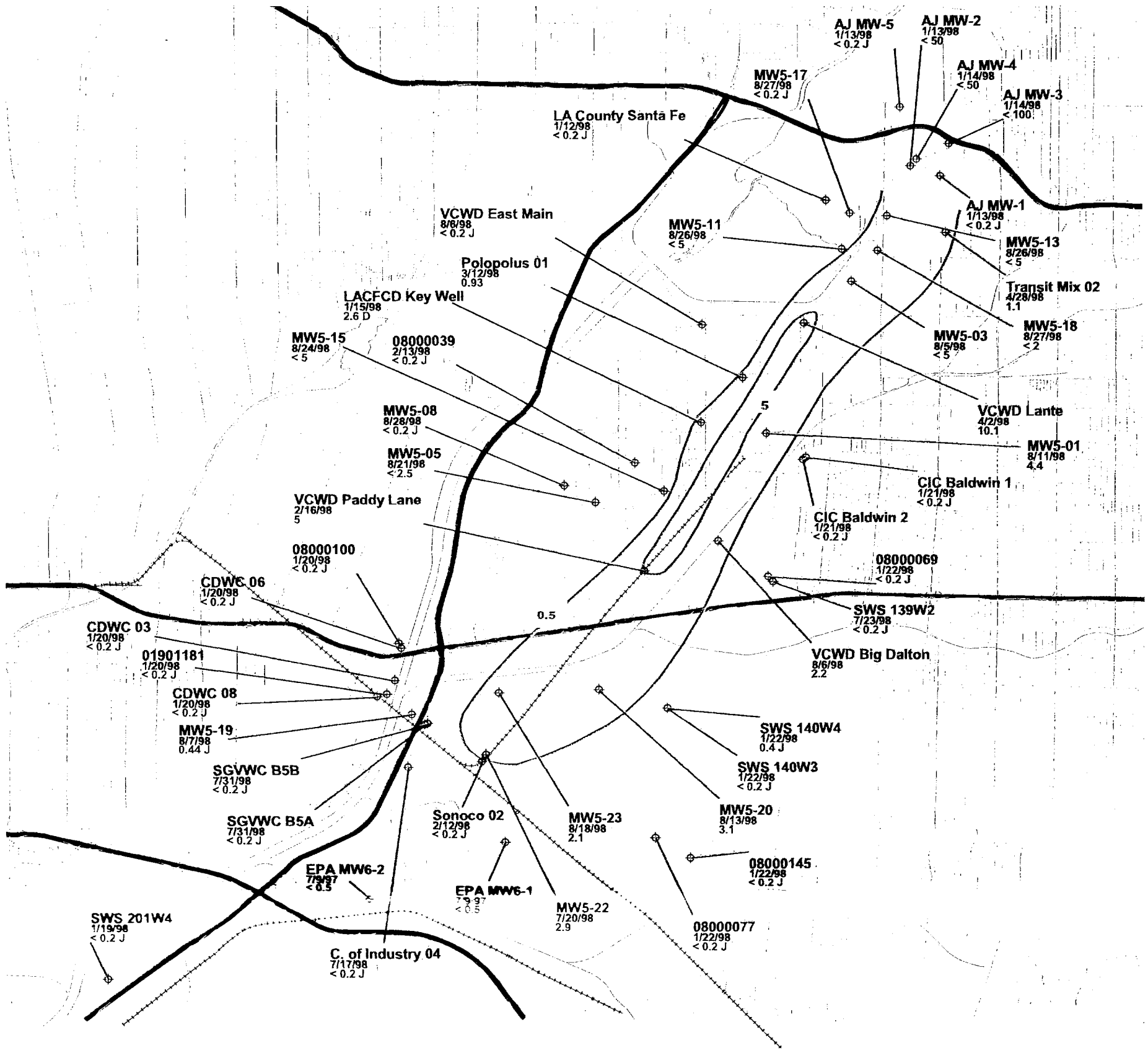
FIGURE 4.21

VERTICAL DISTRIBUTION OF TETRACHLOROETHENE CROSS SECTION E–E' AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

15730-10.DWG

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

1,2 Dichloroethane isoconcentration contour (0.5, 5 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

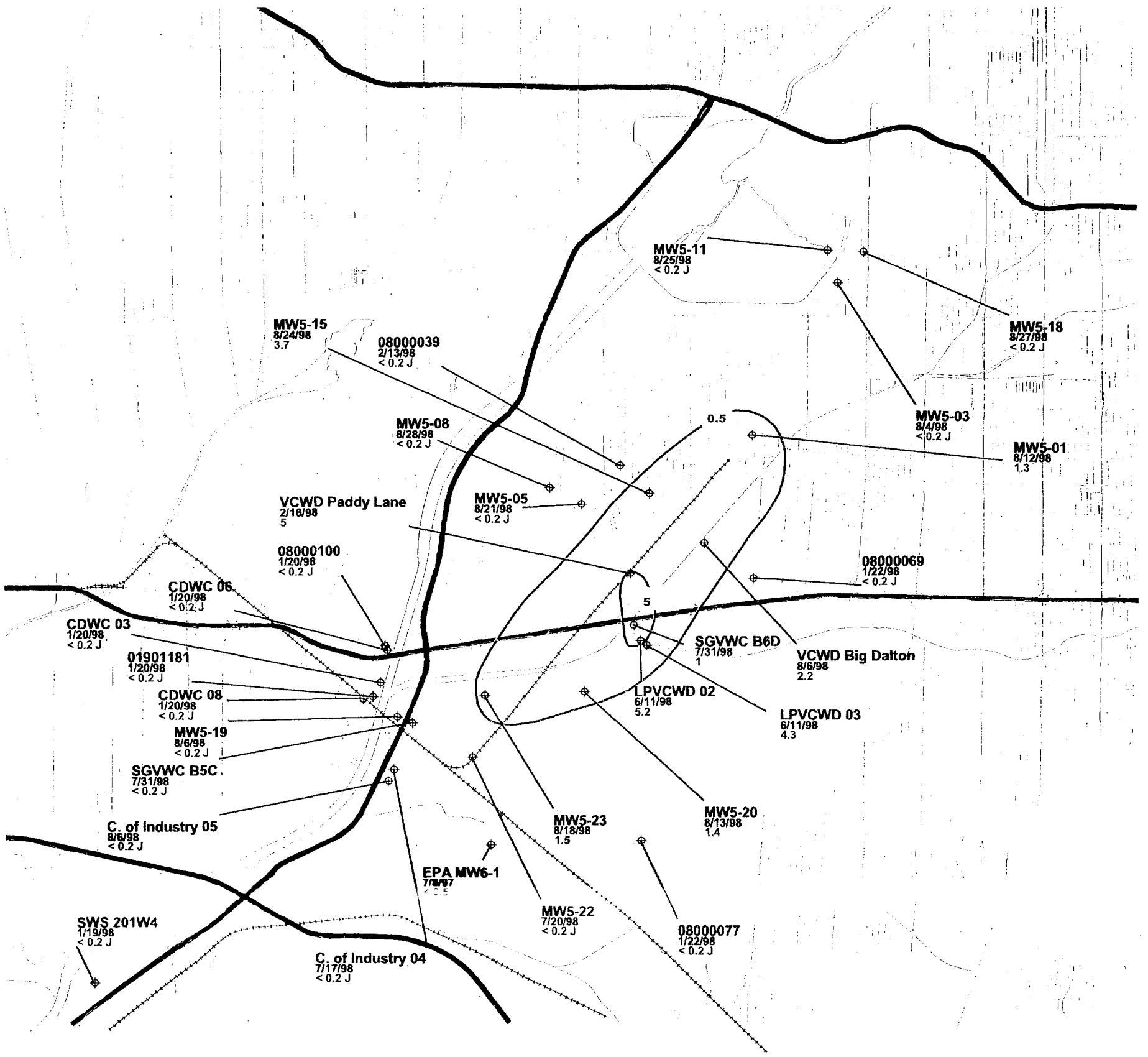
Harding Lawson Associates
Engineering and Environmental Services

Concentration of 1,2 Dichloroethane in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.22

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoana\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug1

< Less than detection limit

D Dilution

J Estimated value

1,2 Dichloroethane isoconcentration contour (0.5, 5 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

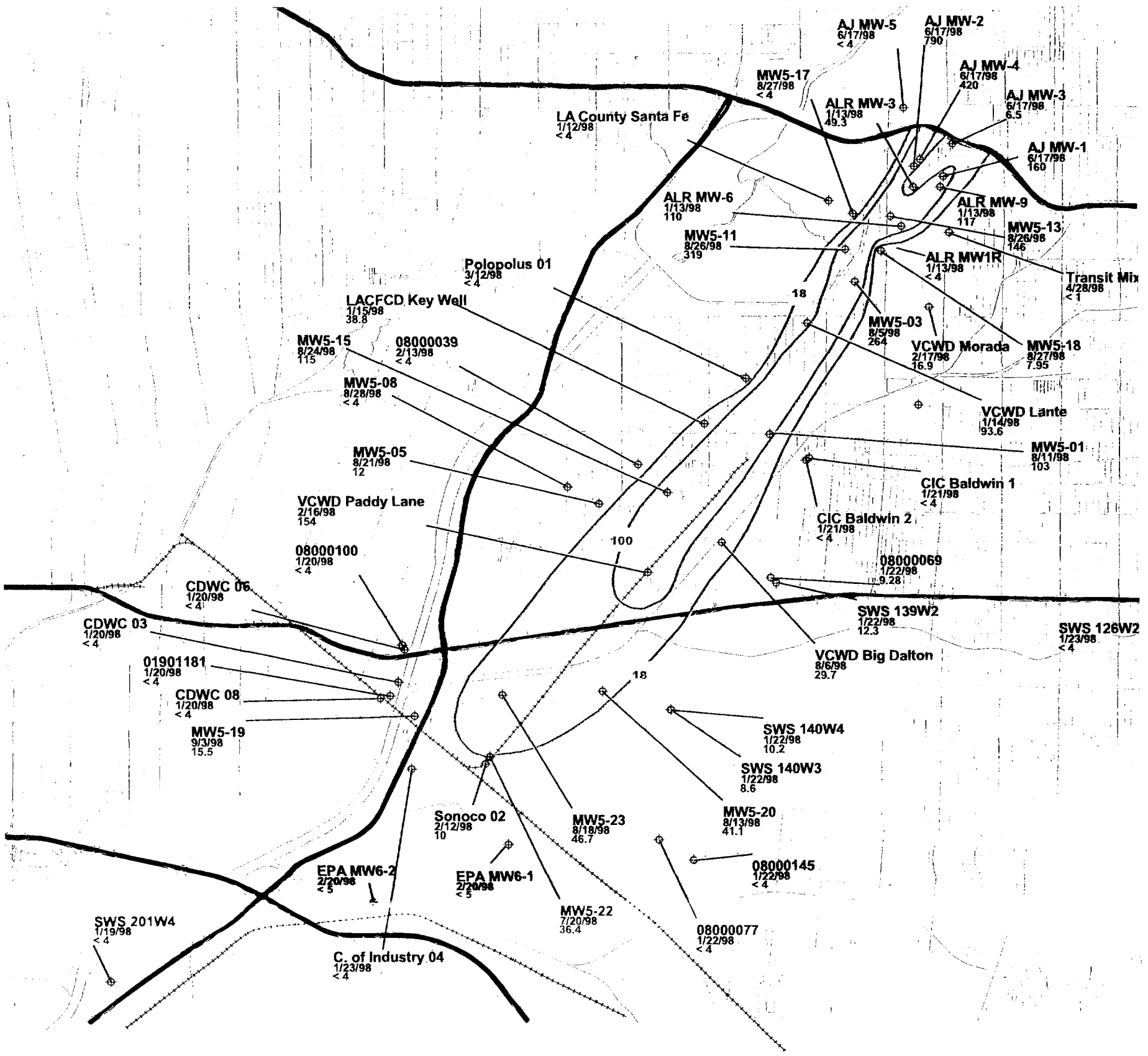
Harding Lawson Associates
Engineering and Environmental Services

Concentration of 1,2 Dichloroethane in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE
4.23

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Perchlorate isoconcentration contour (18, 100, 500 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

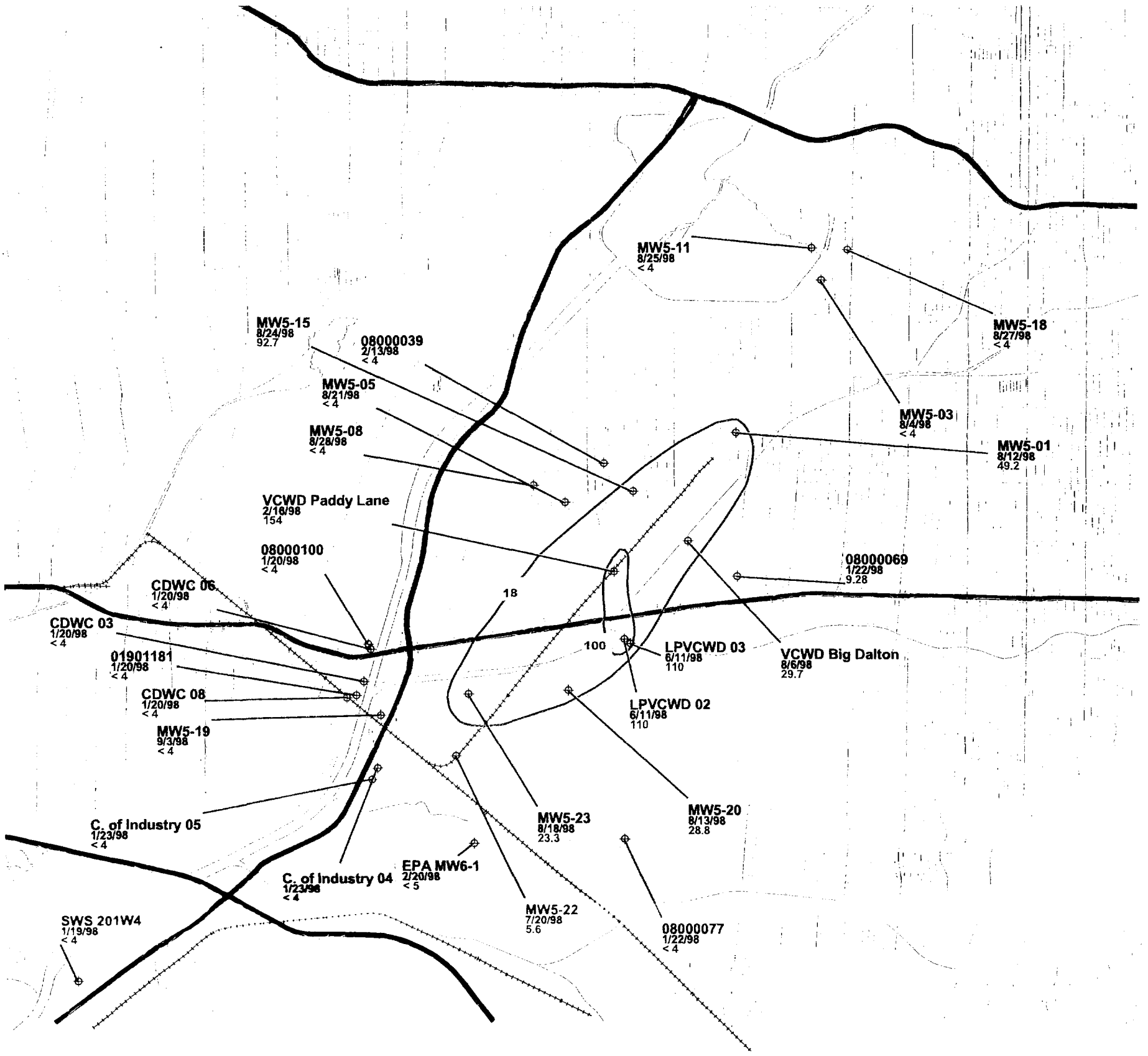
Harding Lawson Associates
Engineering and Environmental Services

Concentration of Perchlorate in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE
4.24

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

Perchlorate isoconcentration contour (18, 100 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

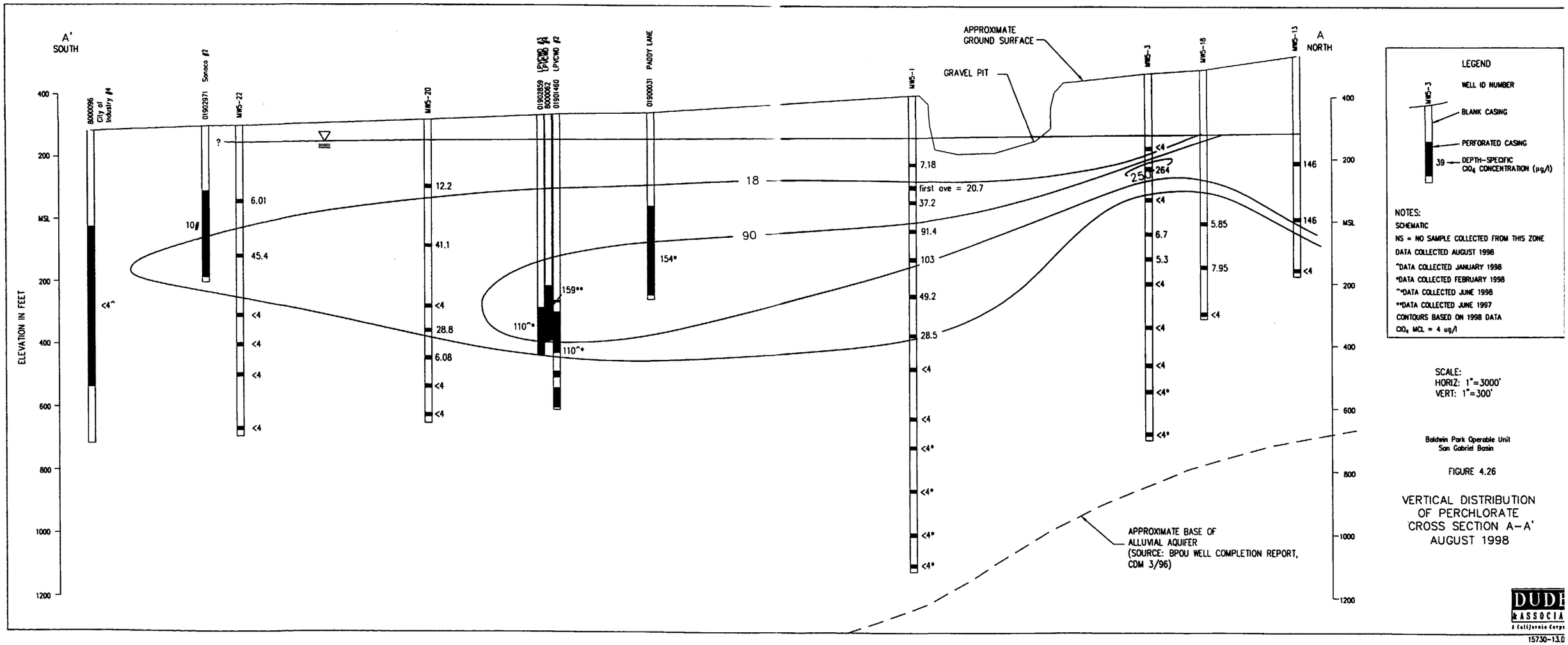
1 0 1 2 Miles

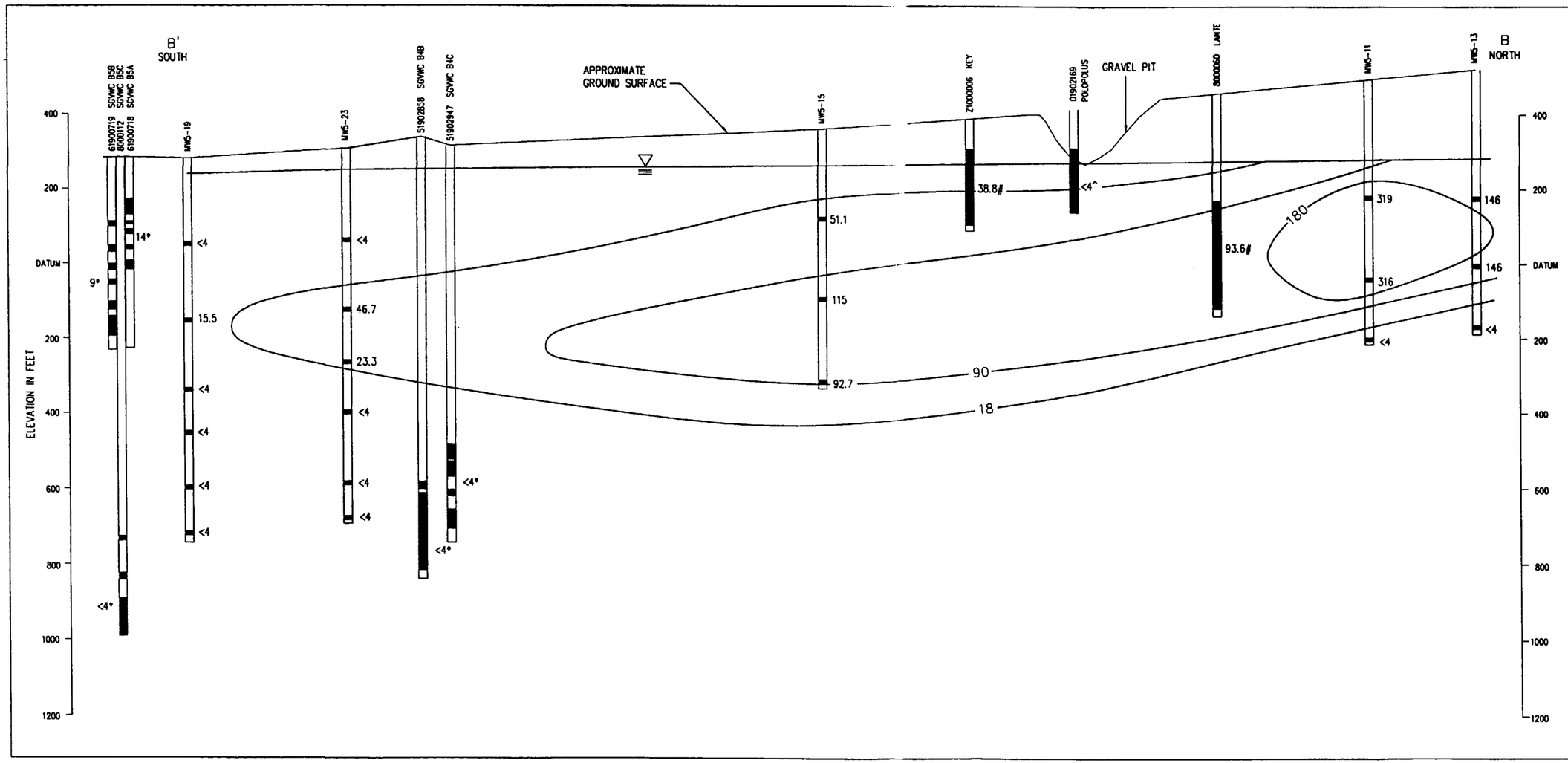
Harding Lawson Associates
Engineering and Environmental Services

Concentration of Perchlorate in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.25

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99


A'
SOUTH
A
NORTH
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
8000096 City of Industry #4
01902971 Sonoco #2
MW5-22
MW5-20
01902859 LPVCMD #3
8000062 LPVCMD #4
01901460 LPVCMD #2
01900031 PADDY LANE
MW5-1
MW5-3
MW5-18
MW5-13
APPROXIMATE GROUND SURFACE
GRAVEL PIT
18
90
250
10#
<4^
6.01
45.4
<4
<4
<4
<4
12.2
41.1
<4
28.8
6.08
<4
<4
154*
159**
110^*
110^*
7.18
first ave = 20.7
37.2
91.4
103
49.2
28.5
<4
<4
<4*
<4*
<4*
<4*
<4
264
<4
6.7
5.3
<4
<4
<4
<4*
<4*
5.85
7.95
<4
146
146
<4
APPROXIMATE BASE OF ALLUVIAL AQUIFER (SOURCE: BPOU WELL COMPLETION REPORT, CDM 3/96)
LEGEND
MW5-3
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC ClO_4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
NS = NO SAMPLE COLLECTED FROM THIS ZONE
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
*DATA COLLECTED FEBRUARY 1998
^*DATA COLLECTED JUNE 1998
**DATA COLLECTED JUNE 1997
CONTOURS BASED ON 1998 DATA
ClO_4 MCL = 4 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.26
VERTICAL DISTRIBUTION OF PERCHLORATE CROSS SECTION A-A' AUGUST 1998
DUDE
& ASSOCIA
A California Corpo
15730-13.D



LEGEND

MW5-5 — WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC ClO_4 CONCENTRATION (µg/l)

NOTES:

SCHEMATIC

DATA COLLECTED AUGUST 1998

#DATA COLLECTED JANUARY 1998

^DATA COLLECTED MARCH 1998

*DATA COLLECTED JUNE 1997

CONTOURS BASED ON 1998 DATA

ClO_4 MCL = 4 ug/l

SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'

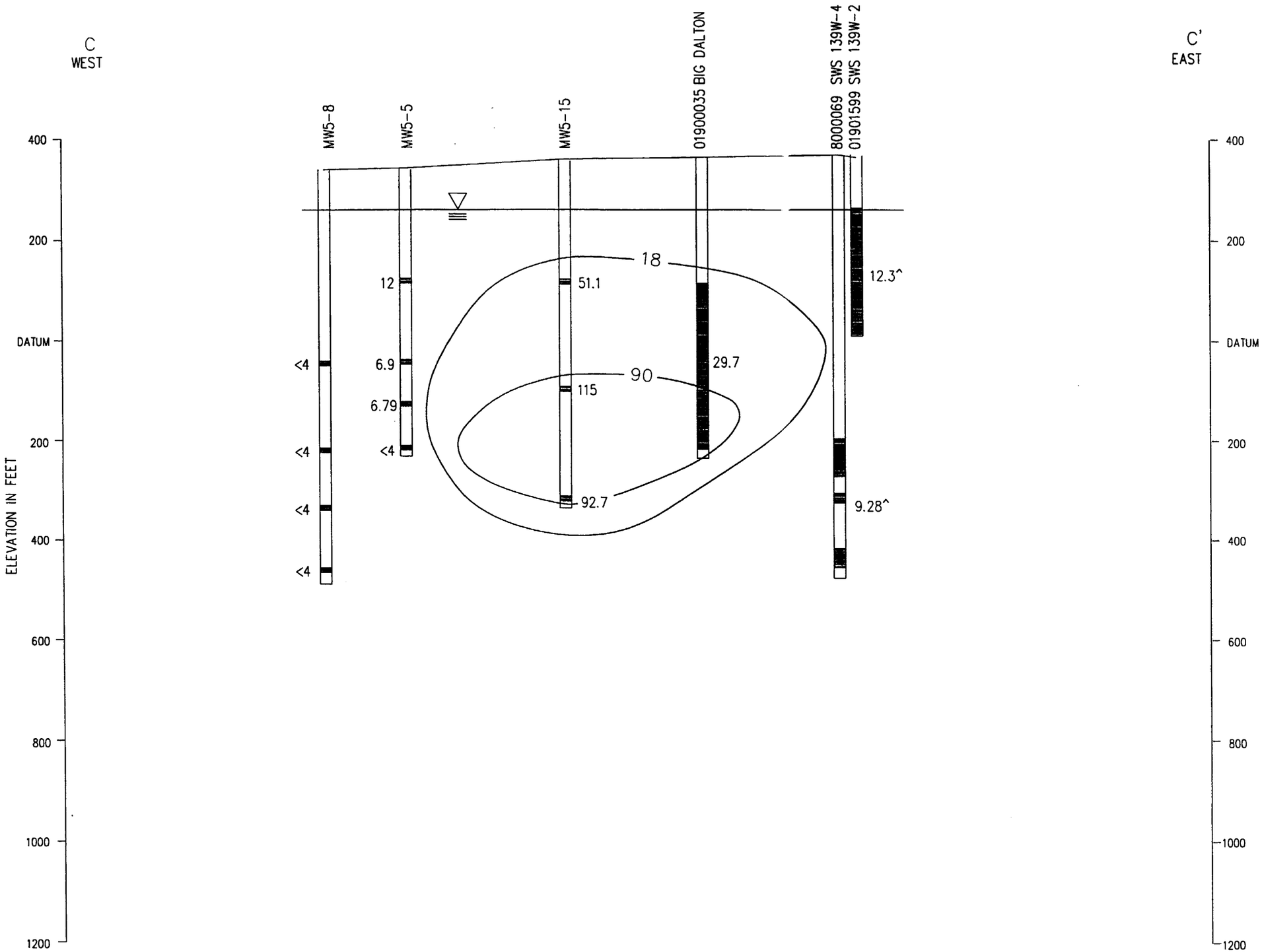
Baldwin Park Operable Unit
San Gabriel Basin

FIGURE 4.27

VERTICAL DISTRIBUTION
OF PERCHLORATE
CROSS SECTION B–B'
AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

15730-18.DWG



LEGEND

WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC ClO_4 CONCENTRATION (µg/l)

NOTES:

SCHEMATIC

DATA COLLECTED AUGUST 1998

^DATA COLLECTED JANUARY 1998

CONTOURS BASED ON 1998 DATA

ClO_4 MCL = 4 ug/l

SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'

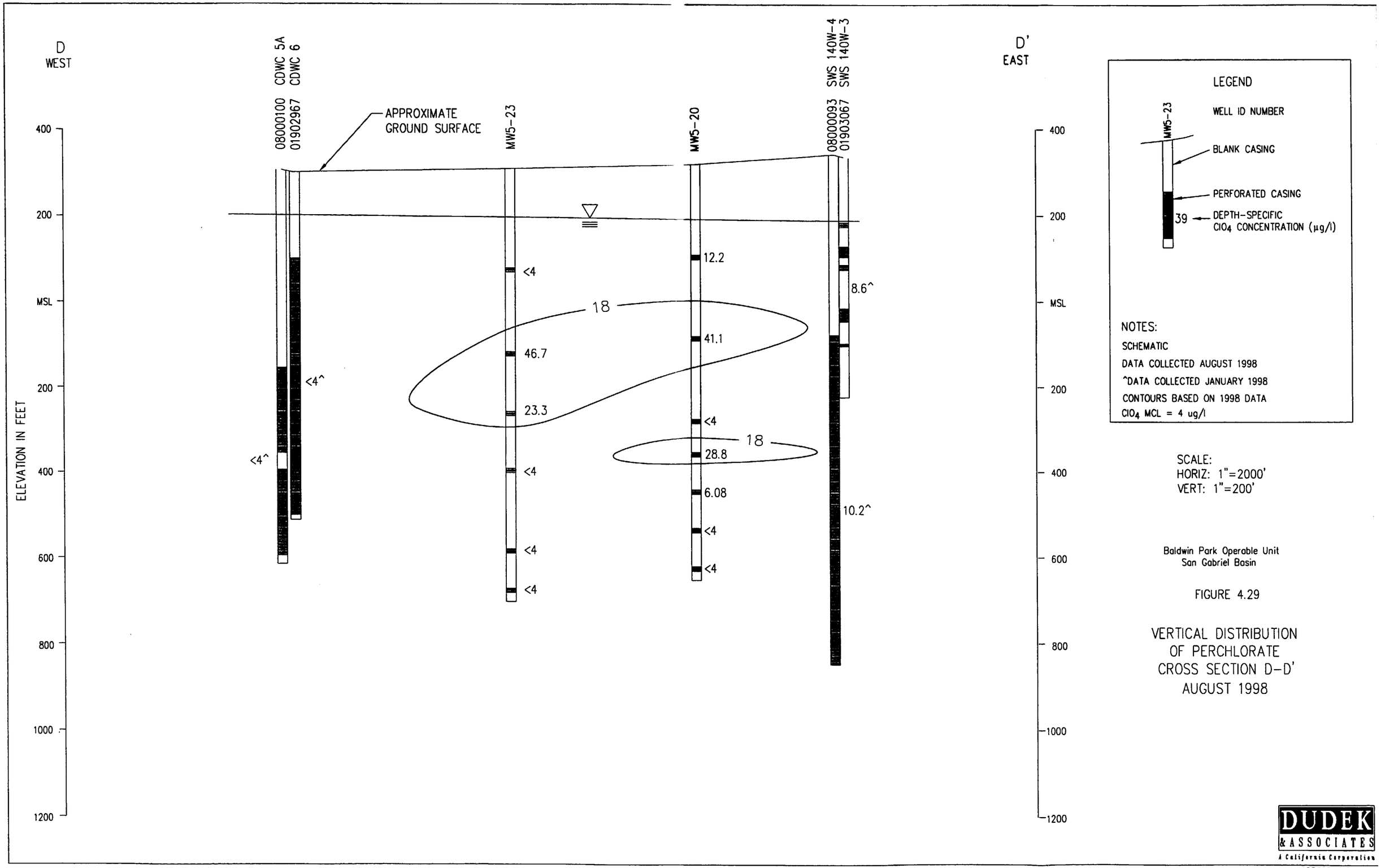
Baldwin Park Operable Unit
San Gabriel Basin

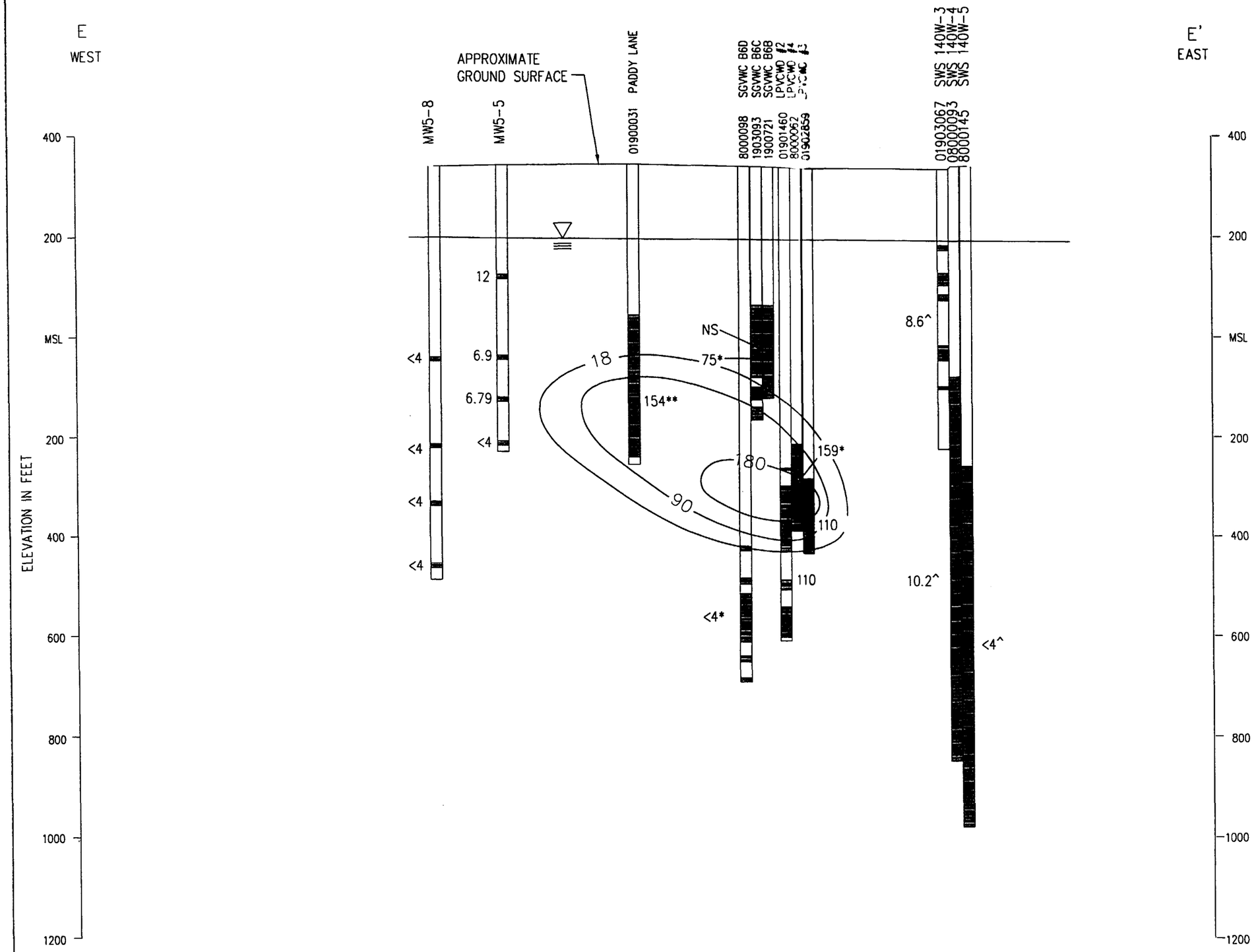
FIGURE 4.28

VERTICAL DISTRIBUTION
OF PERCHLORATE
CROSS SECTION C–C'
JANUARY 1998

DUDEK & ASSOCIATES
A California Corporation

15730-23.DWG


D
WEST
D'
EAST
08000100 CDWC 5A
01902967 CDWC 6
MW5-23
MW5-20
08000093 SWS 140W-4
01903067 SWS 140W-3
APPROXIMATE GROUND SURFACE
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
<4
46.7
23.3
<4
<4
<4
<4
<4^
<4^
18
12.2
41.1
<4
28.8
6.08
<4
<4
18
8.6^
10.2^
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC ClO4 CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JANUARY 1998
CONTOURS BASED ON 1998 DATA
ClO4 MCL = 4 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.29
VERTICAL DISTRIBUTION
OF PERCHLORATE
CROSS SECTION D-D'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
157302-5.DWG



LEGEND

WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC ClO_4 CONCENTRATION (µg/l)

NOTES:

SCHEMATIC

DATA COLLECTED AUGUST 1998

^DATA COLLECTED JANUARY 1998

*DATA COLLECTED JUNE 1997

**DATA COLLECTED FEBRUARY 1998

NS = NOT SAMPLED

CONTOURS BASED ON 1998 DATA

ClO_4 MCL = 4 ug/l

SCALE:
HORIZ: 1:=2000'
VERT: 1"=200'

Baldwin Park Operable Unit
San Gabriel Basin

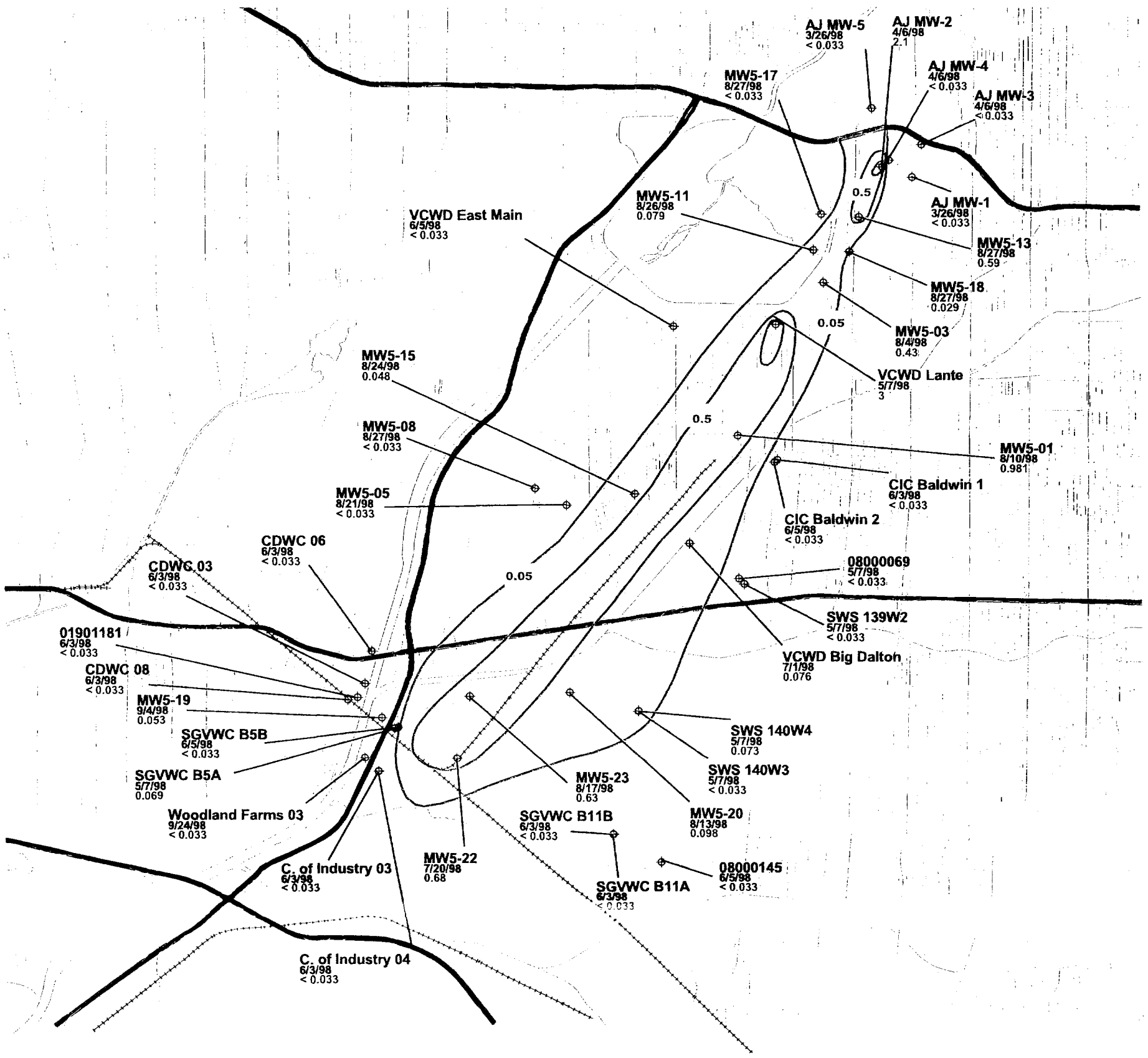
FIGURE 4.30

VERTICAL DISTRIBUTION OF PERCHLORATE CROSS SECTION E-E' AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

157302-7.DWG

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200 apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

N-Nitrosodimethylamine isoconcentration contour (0.05, 0.5, 1 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

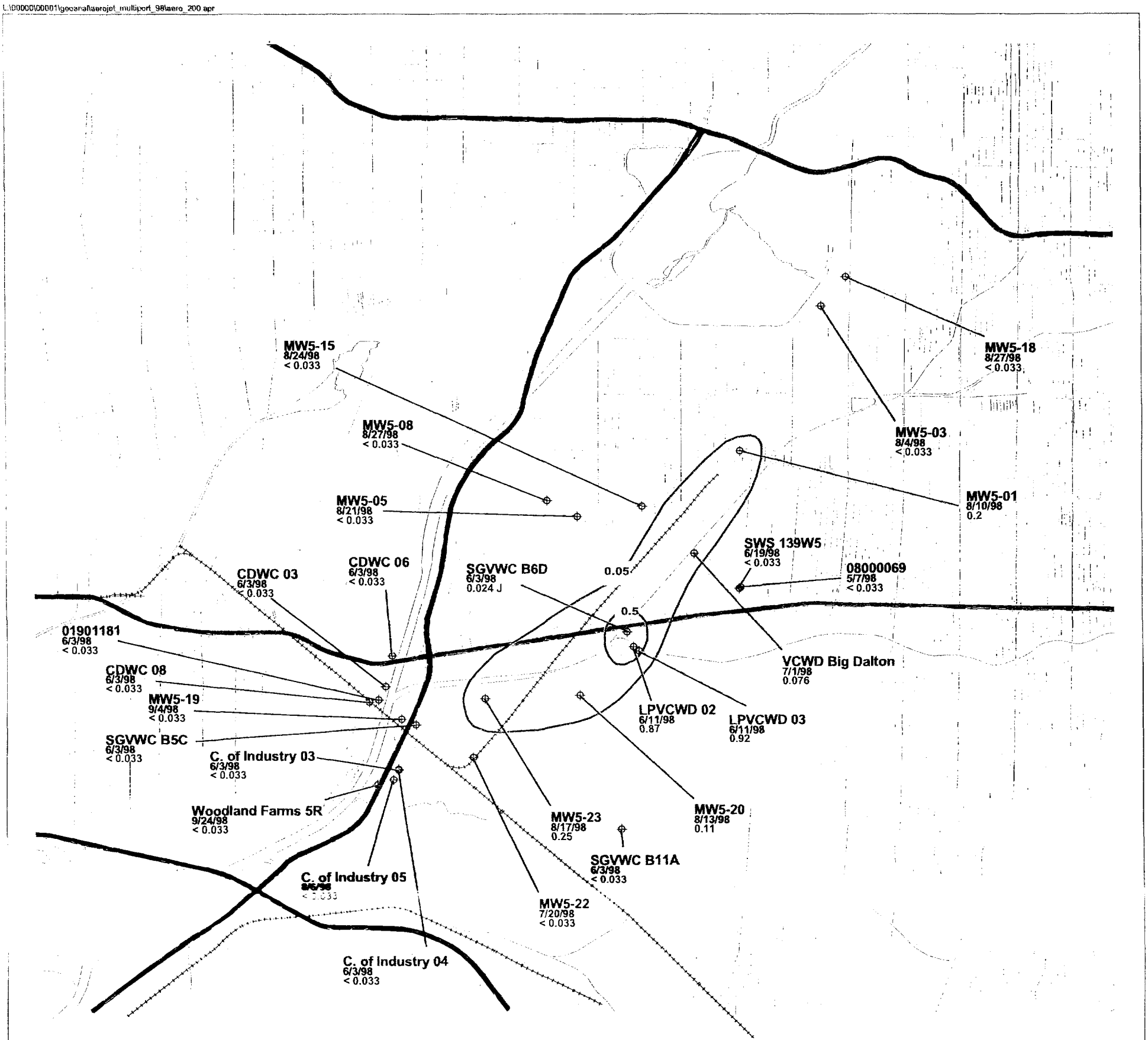
Harding Lawson Associates
Engineering and Environmental Services

Concentration of N-Nitrosodimethylamine in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE 4.31

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99

L:\00000\00001\geoana\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

N-Nitrosodimethylamine isoconcentration contour (0.05, 0.5, 1 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

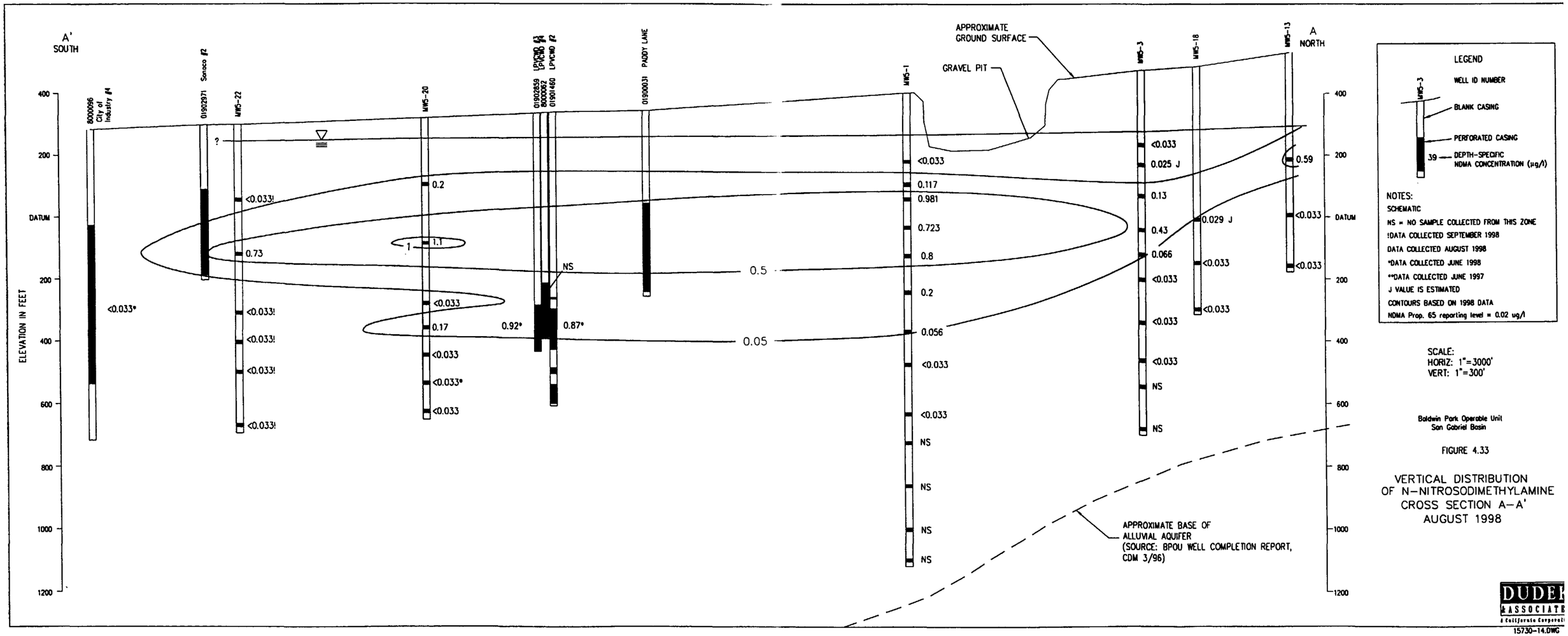
1 0 1 2 Miles

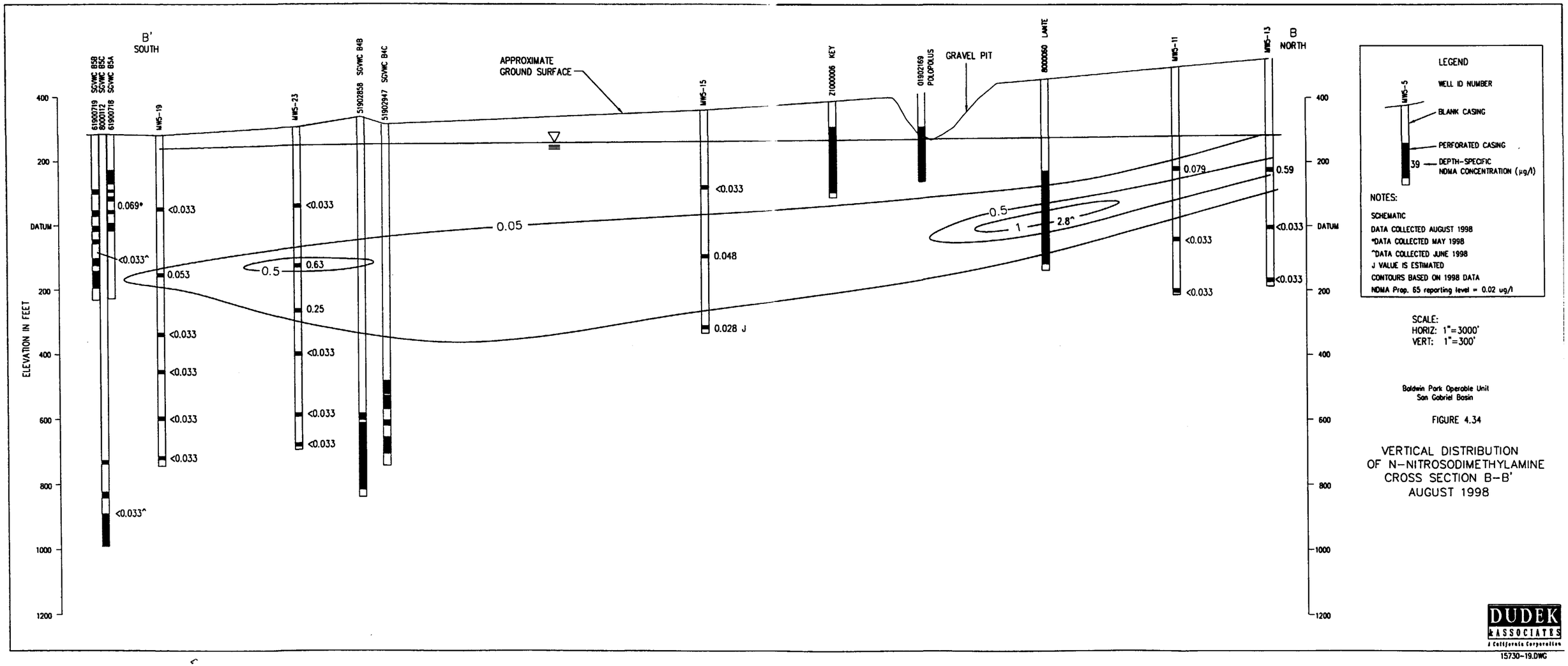
Harding Lawson Associates
Engineering and Environmental Services

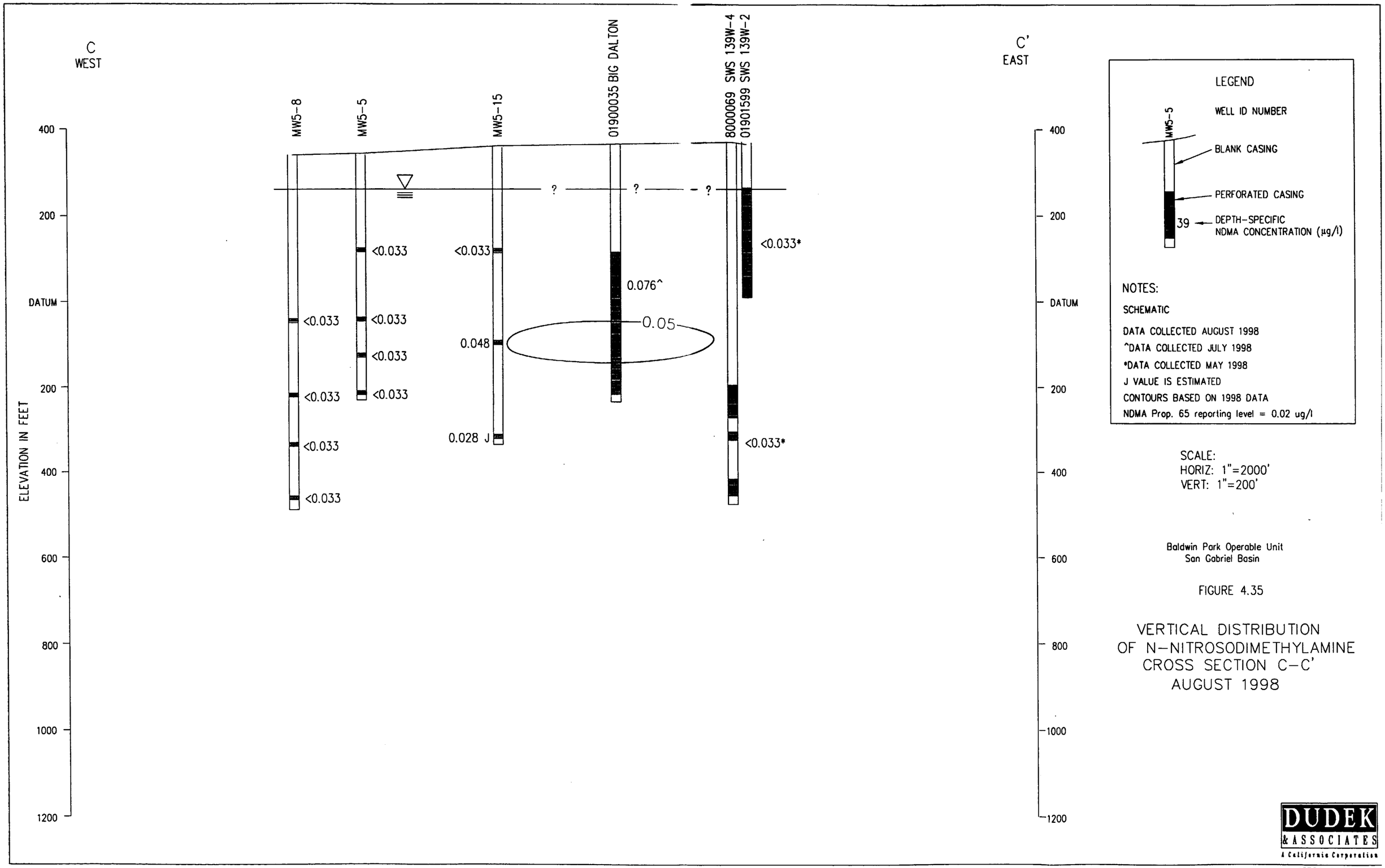
Concentration of N-Nitrosodimethylamine in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

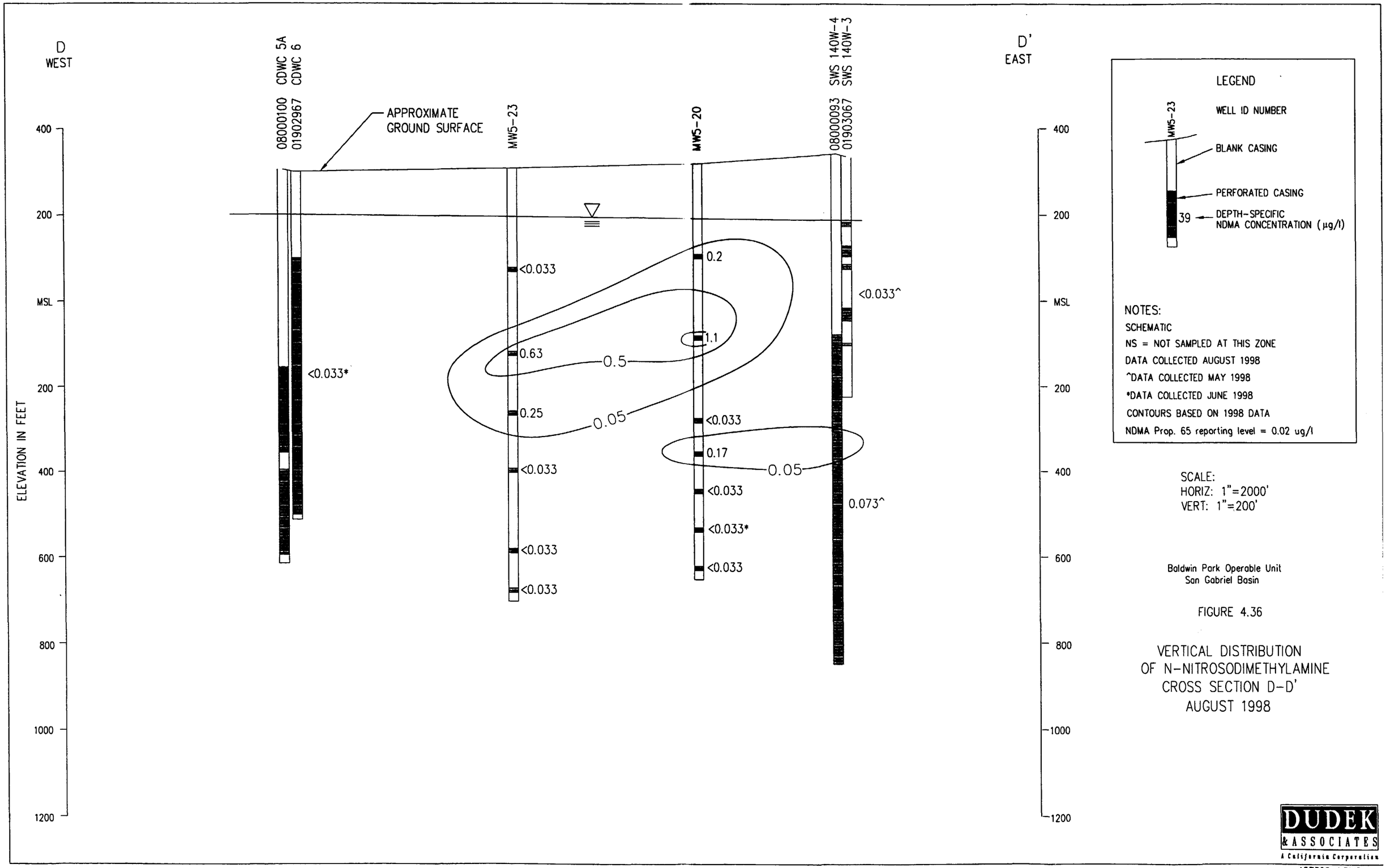
FIGURE 4.32

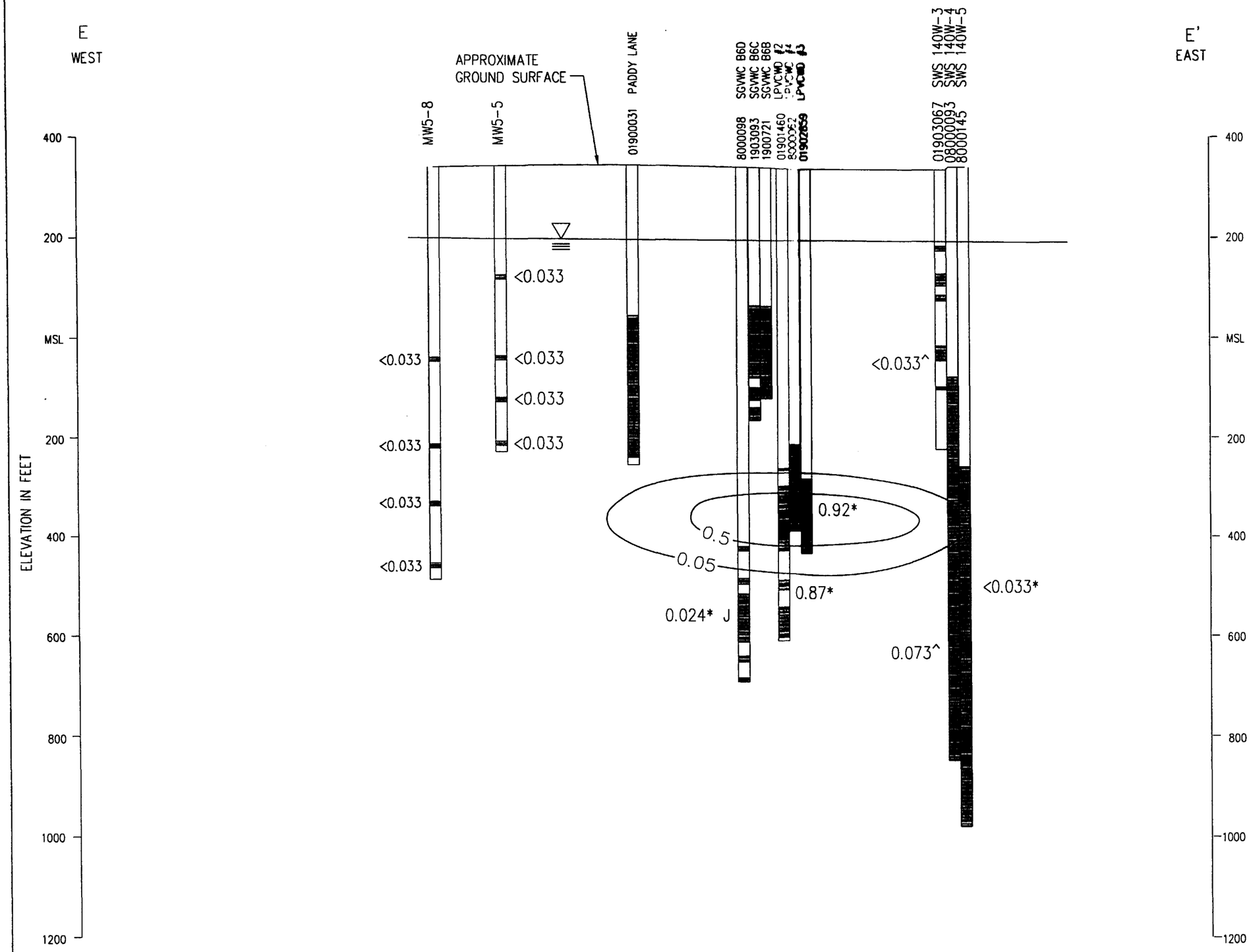
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	10/98	1/99


A'
SOUTH
A
NORTH
ELEVATION IN FEET
DATUM
8000096 City of Industry #4
01902971 Sonoco #2
MW5-22
MW5-20
01902859 LPVCMD #3
8000062 LPVCMD #4
01901460 LPVCMD #2
01900031 PADDY LANE
MW5-1
MW5-3
MW5-18
MW5-13
APPROXIMATE GROUND SURFACE
GRAVEL PIT
APPROXIMATE BASE OF ALLUVIAL AQUIFER (SOURCE: BPOU WELL COMPLETION REPORT, CDM 3/96)
0.5
0.05
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39 DEPTH-SPECIFIC NDMA CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
NS = NO SAMPLE COLLECTED FROM THIS ZONE
!DATA COLLECTED SEPTEMBER 1998
DATA COLLECTED AUGUST 1998
*DATA COLLECTED JUNE 1998
**DATA COLLECTED JUNE 1997
J VALUE IS ESTIMATED
CONTOURS BASED ON 1998 DATA
NDMA Prop. 65 reporting level = 0.02 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.33
VERTICAL DISTRIBUTION OF N-NITROSODIMETHYLAMINE CROSS SECTION A-A'
AUGUST 1998
DUDEK & ASSOCIATES
15730-14.DWG


B'
SOUTH
B
NORTH
61900719 SGVWC B5B
8000112 SGVWC B5C
61900718 SGVWC B5A
MWS-19
MWS-23
51902858 SGVWC B4B
51902947 SGVWC B4C
APPROXIMATE
GROUND SURFACE
MWS-15
Z1000006 KEY
01902169 POLOPOLUS
GRAVEL PIT
8000060 LAWTE
MWS-11
MWS-13
ELEVATION IN FEET
400
200
DATUM
200
400
600
800
1000
1200
0.069*
<0.033^
<0.033
0.053
<0.033
<0.033
<0.033
<0.033^
<0.033
0.63
0.25
<0.033
<0.033
<0.033
<0.033
0.05
0.5
<0.033
0.048
0.028 J
0.5
1
2.8^
0.079
<0.033
<0.033
0.59
<0.033
<0.033
LEGEND
MWS-5
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC
NDMA CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
*DATA COLLECTED MAY 1998
^DATA COLLECTED JUNE 1998
J VALUE IS ESTIMATED
CONTOURS BASED ON 1998 DATA
NDMA Prop. 65 reporting level = 0.02 ug/l
SCALE:
HORIZ: 1"=3000'
VERT: 1"=300'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.34
VERTICAL DISTRIBUTION
OF N-NITROSODIMETHYLAMINE
CROSS SECTION B-B'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
15730-19.DWG


C
WEST
C'
EAST
MW5-8
MW5-5
MW5-15
01900035 BIG DALTON
8000069 SWS 139W-4
01901599 SWS 139W-2
ELEVATION IN FEET
400
200
DATUM
200
400
600
800
1000
1200
<0.033
<0.033
<0.033
<0.033
<0.033
<0.033
<0.033
<0.033
<0.033
0.048
0.028 J
0.076^
0.05
<0.033*
<0.033*
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC NDMA CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED JULY 1998
*DATA COLLECTED MAY 1998
J VALUE IS ESTIMATED
CONTOURS BASED ON 1998 DATA
NDMA Prop. 65 reporting level = 0.02 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.35
VERTICAL DISTRIBUTION
OF N-NITROSODIMETHYLAMINE
CROSS SECTION C-C'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
15730-24.DWG


D
WEST
D'
EAST
ELEVATION IN FEET
400
200
MSL
200
400
600
800
1000
1200
08000100 CDWC 5A
01902967 CDWC 6
APPROXIMATE GROUND SURFACE
MW5-23
MW5-20
08000093 SWS 140W-4
01903067 SWS 140W-3
<0.033*
<0.033
0.63
0.25
<0.033
<0.033
<0.033
0.2
1.1
<0.033
0.17
<0.033
<0.033*
<0.033
<0.033^
0.073^
0.5
0.05
0.05
LEGEND
WELL ID NUMBER
BLANK CASING
PERFORATED CASING
39
DEPTH-SPECIFIC NDMA CONCENTRATION (µg/l)
NOTES:
SCHEMATIC
NS = NOT SAMPLED AT THIS ZONE
DATA COLLECTED AUGUST 1998
^DATA COLLECTED MAY 1998
*DATA COLLECTED JUNE 1998
CONTOURS BASED ON 1998 DATA
NDMA Prop. 65 reporting level = 0.02 ug/l
SCALE:
HORIZ: 1"=2000'
VERT: 1"=200'
Baldwin Park Operable Unit
San Gabriel Basin
FIGURE 4.36
VERTICAL DISTRIBUTION
OF N-NITROSODIMETHYLAMINE
CROSS SECTION D-D'
AUGUST 1998
DUDEK
& ASSOCIATES
A California Corporation
157302-1.DWG



LEGEND

WELL ID NUMBER

BLANK CASING

PERFORATED CASING

39 — DEPTH-SPECIFIC NDMA CONCENTRATION (µg/l)

NOTES:
SCHEMATIC
DATA COLLECTED AUGUST 1998
^DATA COLLECTED MAY 1998
*DATA COLLECTED JUNE 1998
J VALUE IS ESTIMATED
CONTOURS BASED ON 1998 DATA
NDMA Prop. 65 reporting level = 0.02 ug/l

SCALE:
HORIZ: 1:=2000'
VERT: 1"=200'

Baldwin Park Operable Unit
San Gabriel Basin

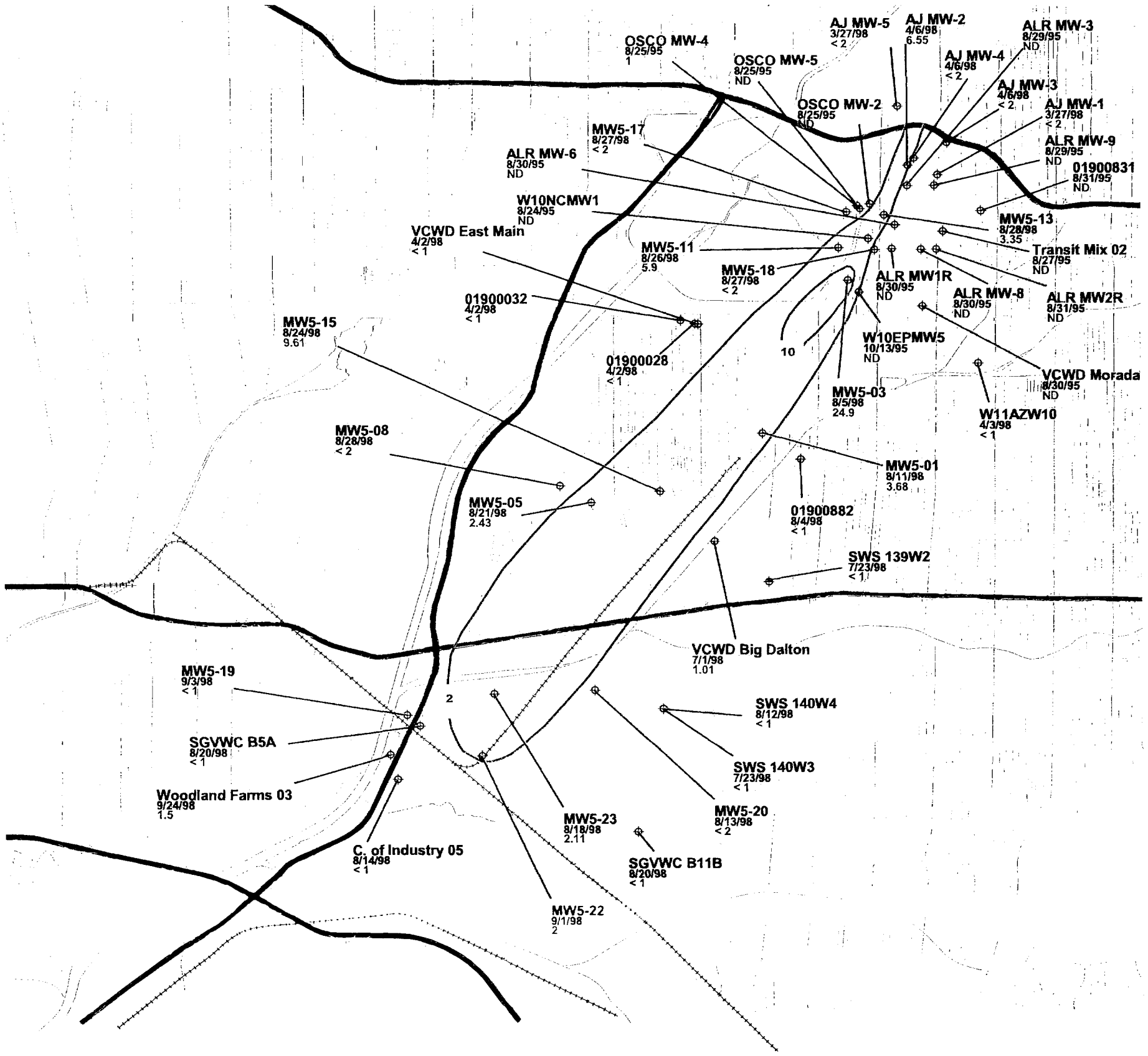
FIGURE 4.37

VERTICAL DISTRIBUTION
OF N-NITROSODIMETHYLAMINE
CROSS SECTION E-E'
AUGUST 1998

DUDEK & ASSOCIATES
A California Corporation

157302-9.DWG

L:\00000\00001\geoanal\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< Less than detection limit

D Dilution

J Estimated value

1,4-Dioxane isoconcentration contour (2 ,10 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

1 0 1 2 Miles

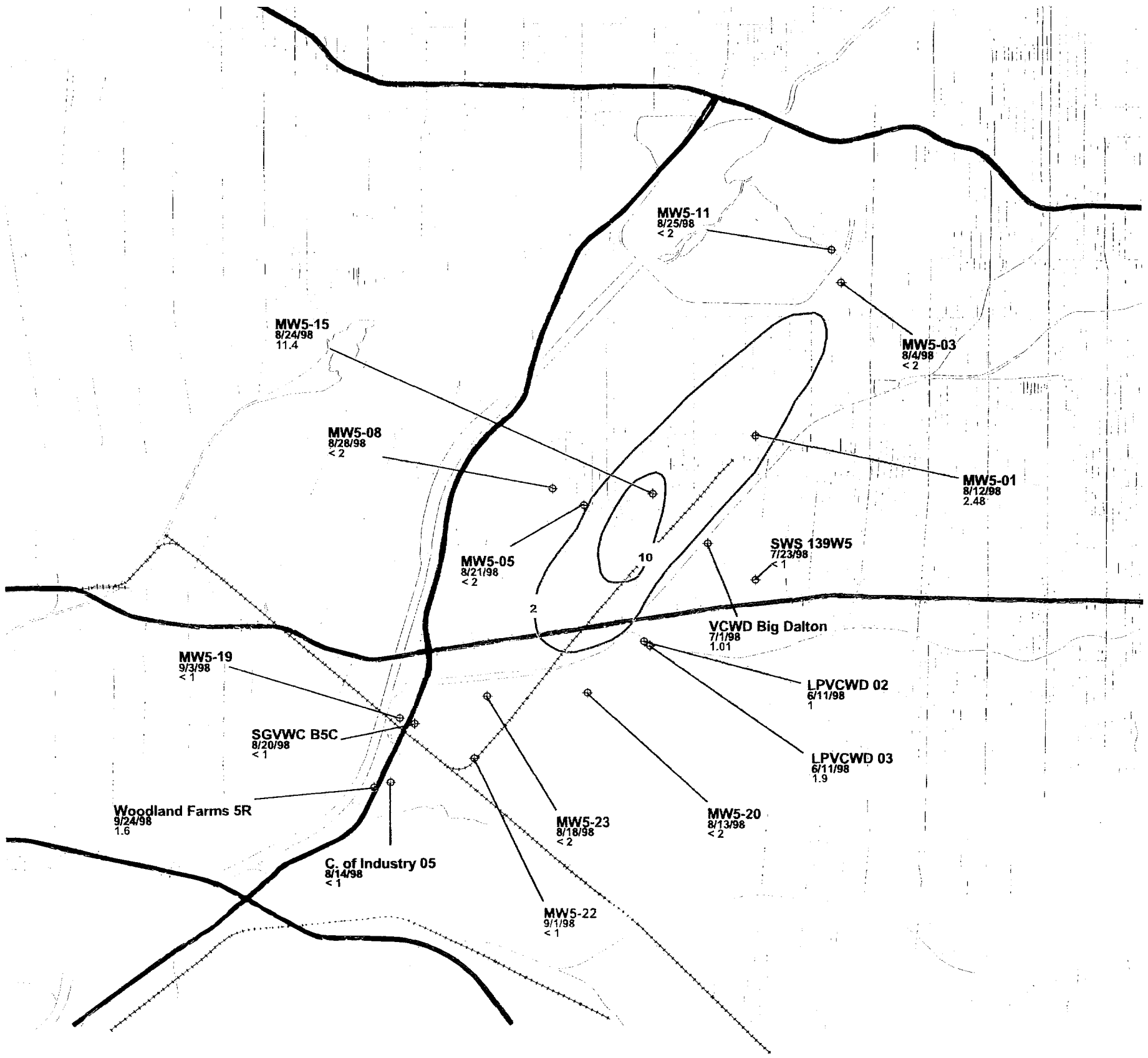
Harding Lawson Associates
Engineering and Environmental Services

Concentration of 1,4-Dioxane in Groundwater above -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE
4.38

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	1/99

L:\00000\00001\geoana\aerojet_multiport_98\aero_200.apr



Explanation

Station ID
Date
Value in ug/l

< **Less than detection limit**

D **Dilution**

J **Estimated value**

1,4-Dioxane isoconcentration contour (2 ug/l)

Note: The maximum concentration from any port was used for the multiport wells

ALR - Azusa Land Reclamation
AJ - Aerojet
CIC - Covina Irrigating Company
CDWC - California Domestic Water Company
LPVCWD - La Puente Valley County Water District
SGVWC - San Gabriel Valley County Water Company
SWS - Suburban Water Systems
VCWD - Valley County Water District

N

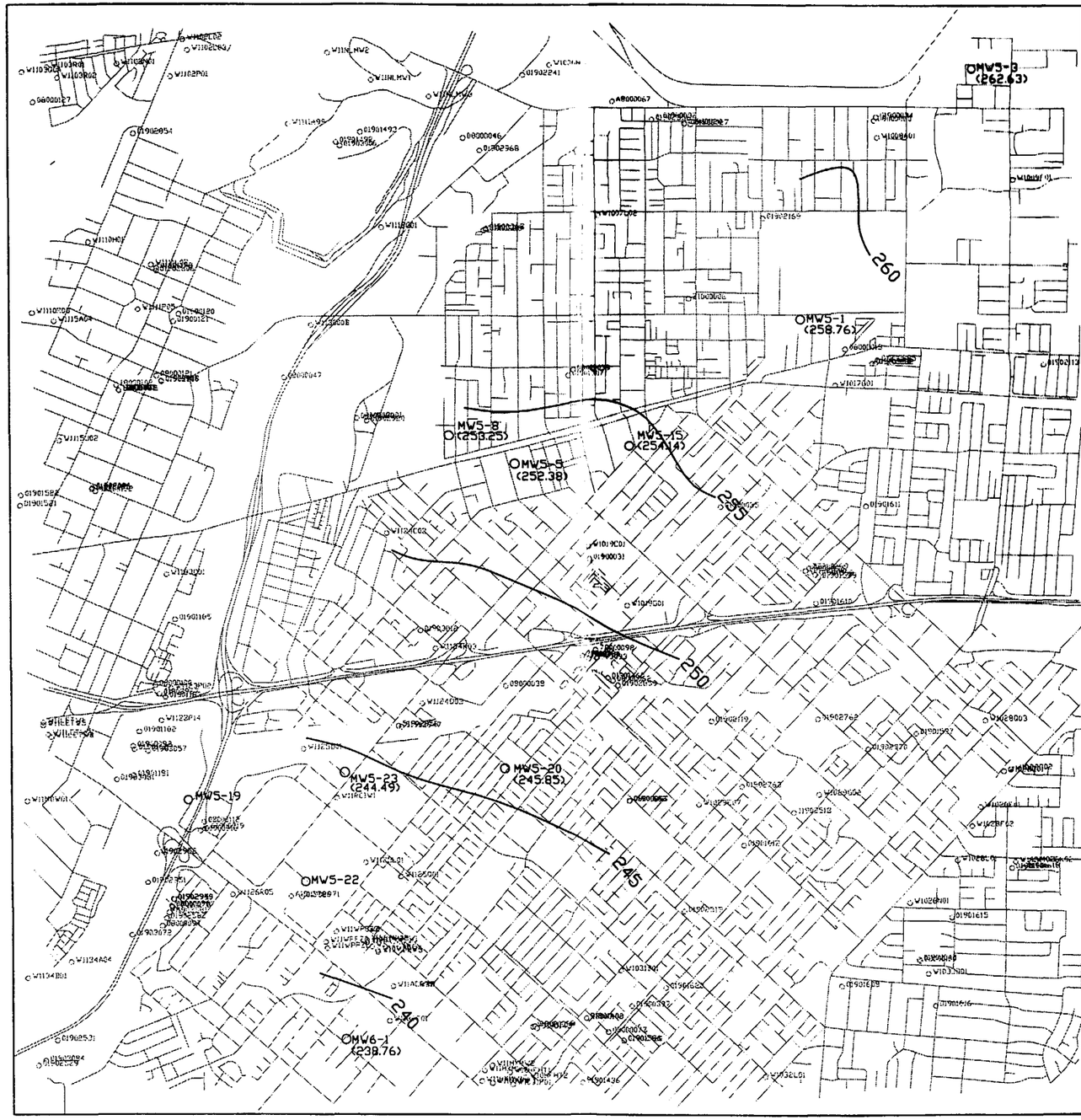
1 0 1 2 Miles

Harding Lawson Associates
Engineering and Environmental Services

Concentration of 1,4-Dioxane in Groundwater below -200 Ft. MSL, January - September 1998
Baldwin Park Operable Unit Steering Committee
California

FIGURE
4.39

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	1/99



Baldwin Park Operable Unit

Legend

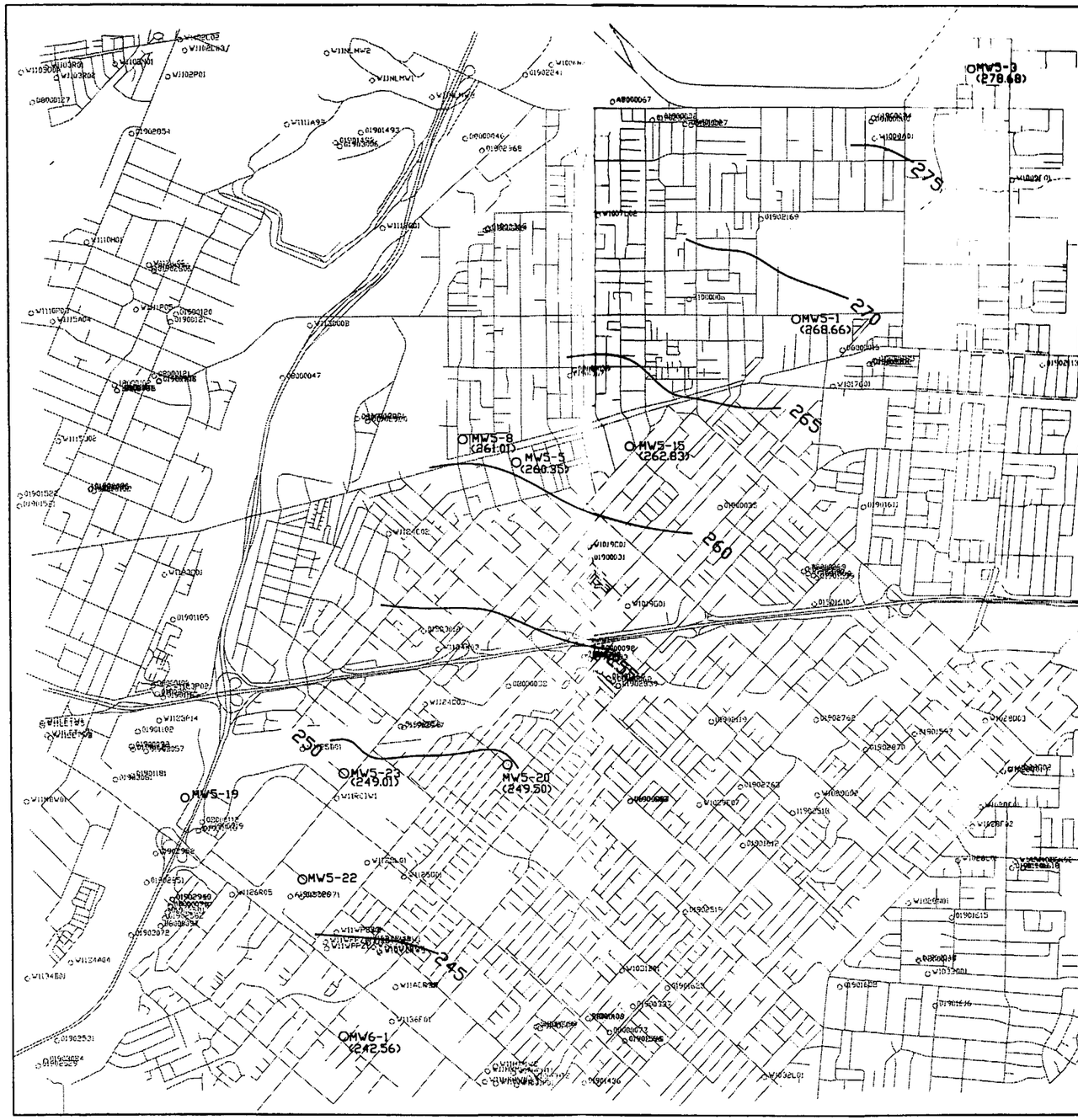
MW5-1	Well ID
(258.76)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.40
Groundwater Elevations
Above -200 feet msl,
May 1998

DUDEK & ASSOCIATES
A California Corporation

mayshallow.DWG



Baldwin Park Operable Unit

Legend

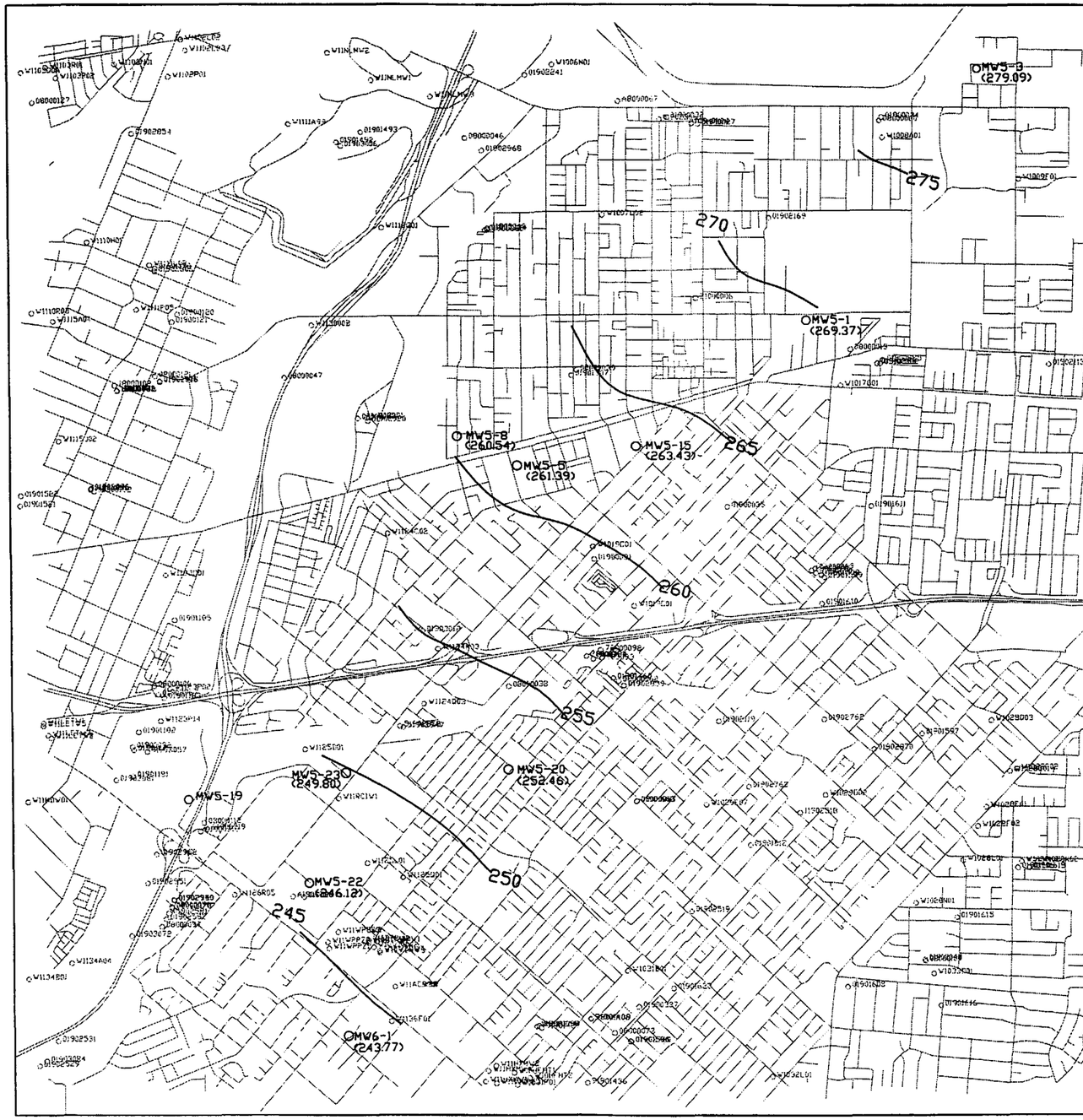
MW5-1	Well ID
(268.66)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.41
Groundwater Elevations
Above -200 feet msl,
June 1998

DUDEK & ASSOCIATES
A California Corporation

juneshallowDWG



Baldwin Park Operable Unit

Legend

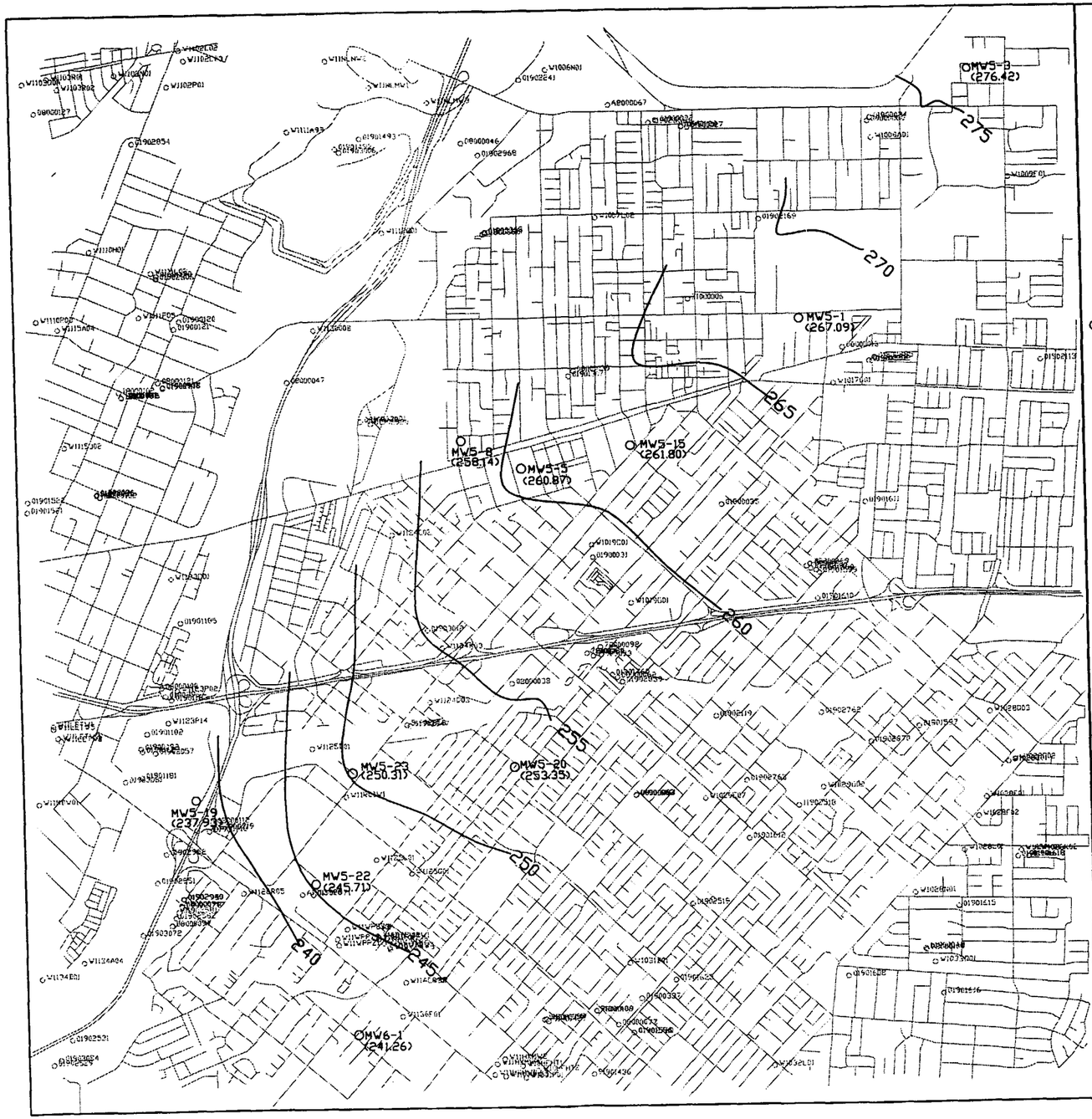
MW5-1	Well ID
(269.37)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.42
Groundwater Elevations
Above -200 feet msl,
July 1998

DUDEK & ASSOCIATES
A California Corporation

julyshallow.DWG



Baldwin Park Operable Unit

Legend

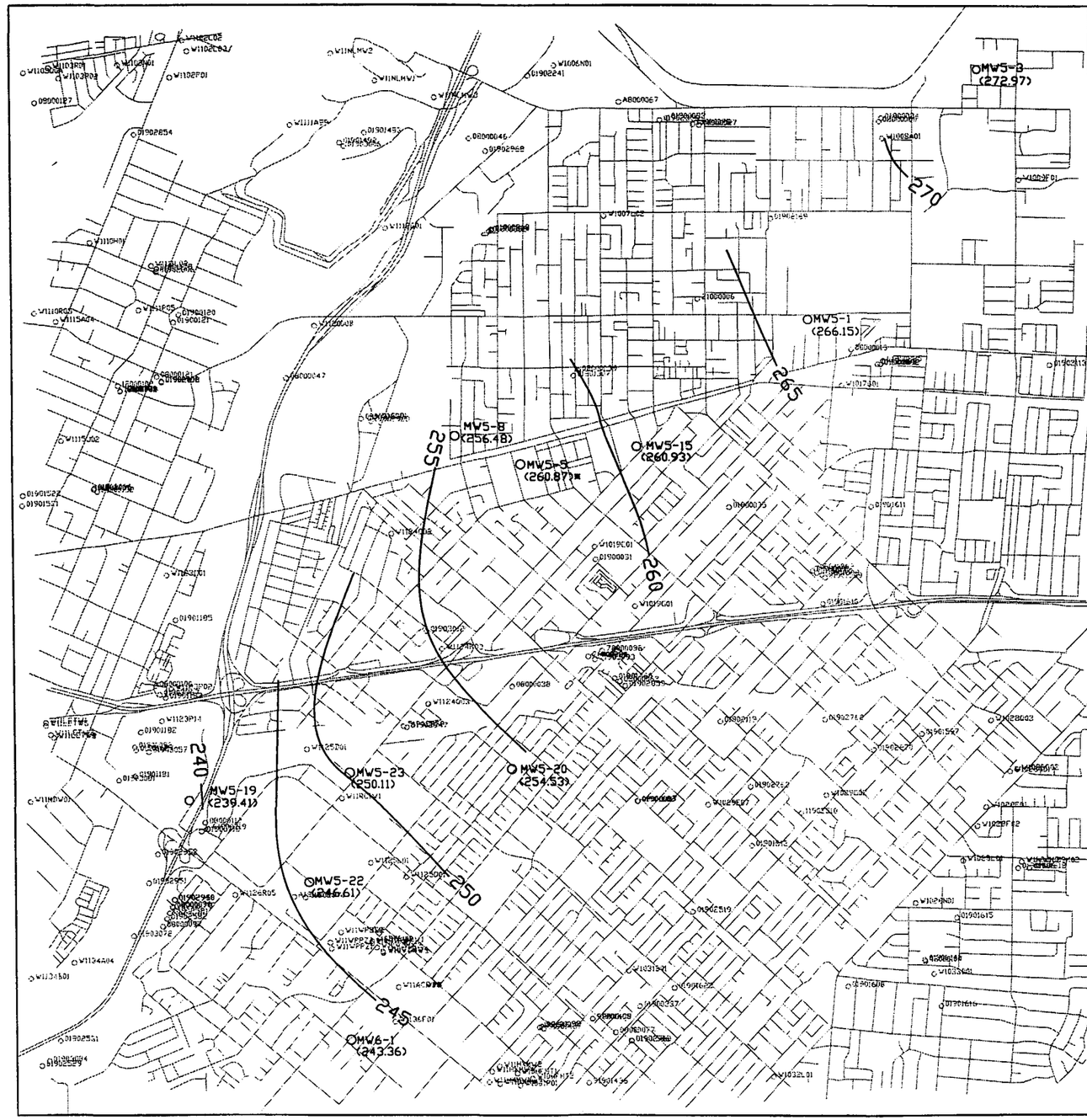
MW5-1	Well ID
(267.09)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.43
Groundwater Elevations
Above -200 feet msl,
August 1998

DUDEK & ASSOCIATES
A California Corporation

AUGSHALLOW1.DWG



Baldwin Park Operable Unit

Legend

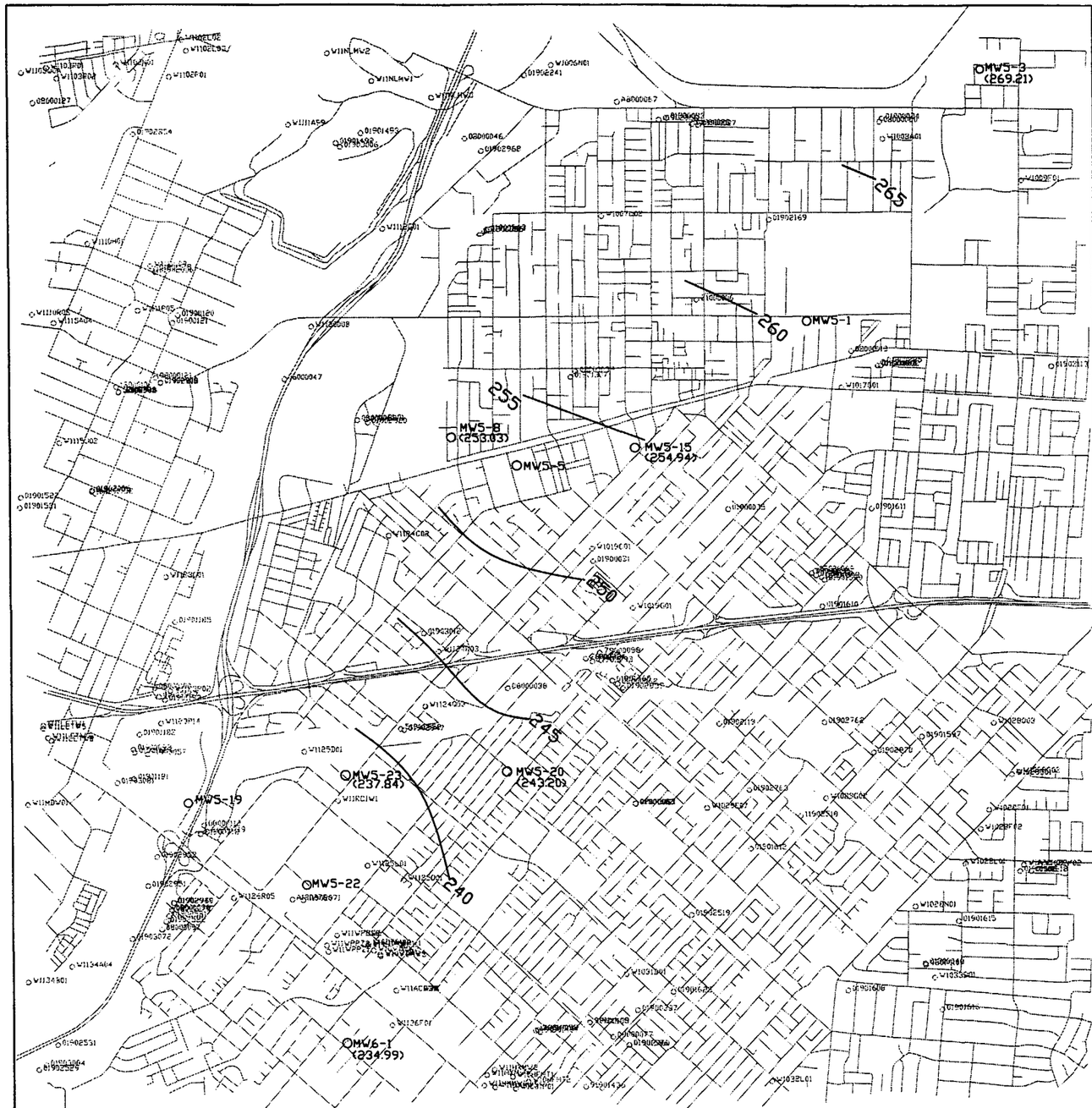
MW5-1	Well ID
(266.15)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.44
Groundwater Elevations
Above -200 feet msl,
October 1998

DUDEK & ASSOCIATES
A California Corporation

octshallow.DWG



Baldwin Park Operable Unit

Legend

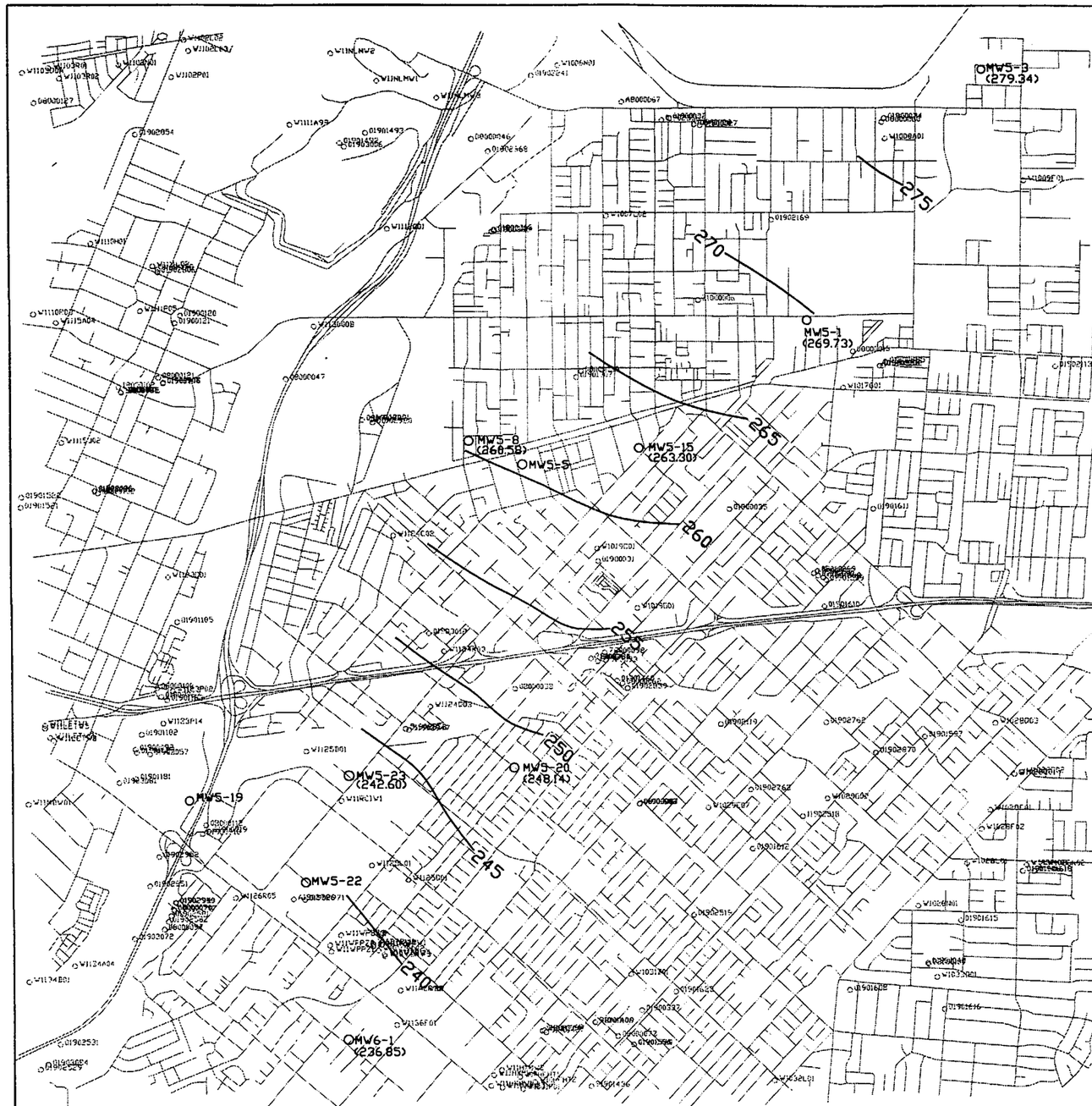
MW5-3 (269.21)	Well ID Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.45
Groundwater Elevations
Between -200 and
-500 feet msl,
May 1998

DUDEK & ASSOCIATES
A California Corporation

may400msl.DWG



Baldwin Park Operable Unit

Legend

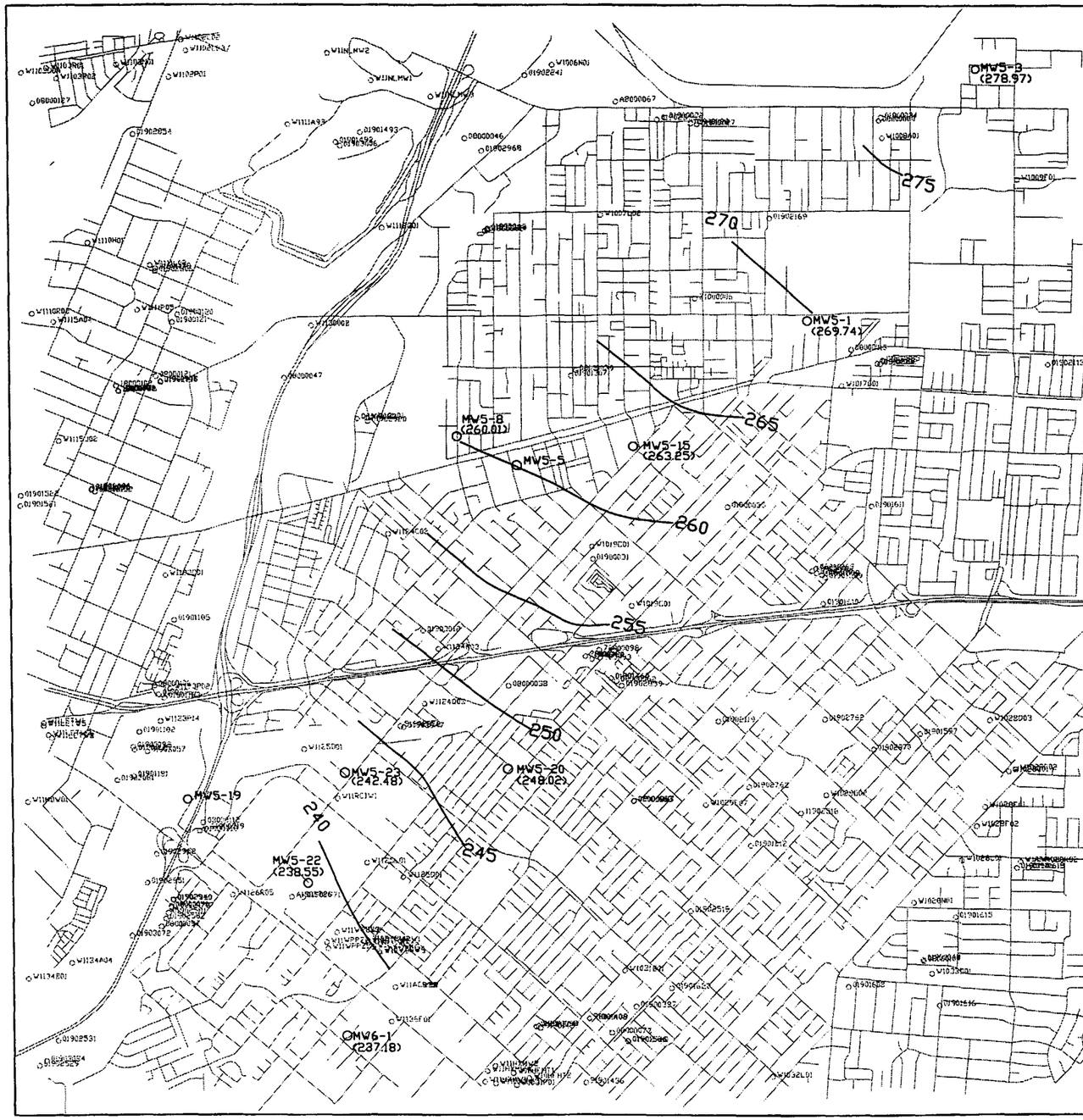
MW5-3	Well ID
(279.34)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.46
Groundwater Elevations
Between -200 and
-500 feet msl,
June 1998

DUDEK & ASSOCIATES
A California Corporation

june400msl.DWG



Baldwin Park Operable Unit

Legend

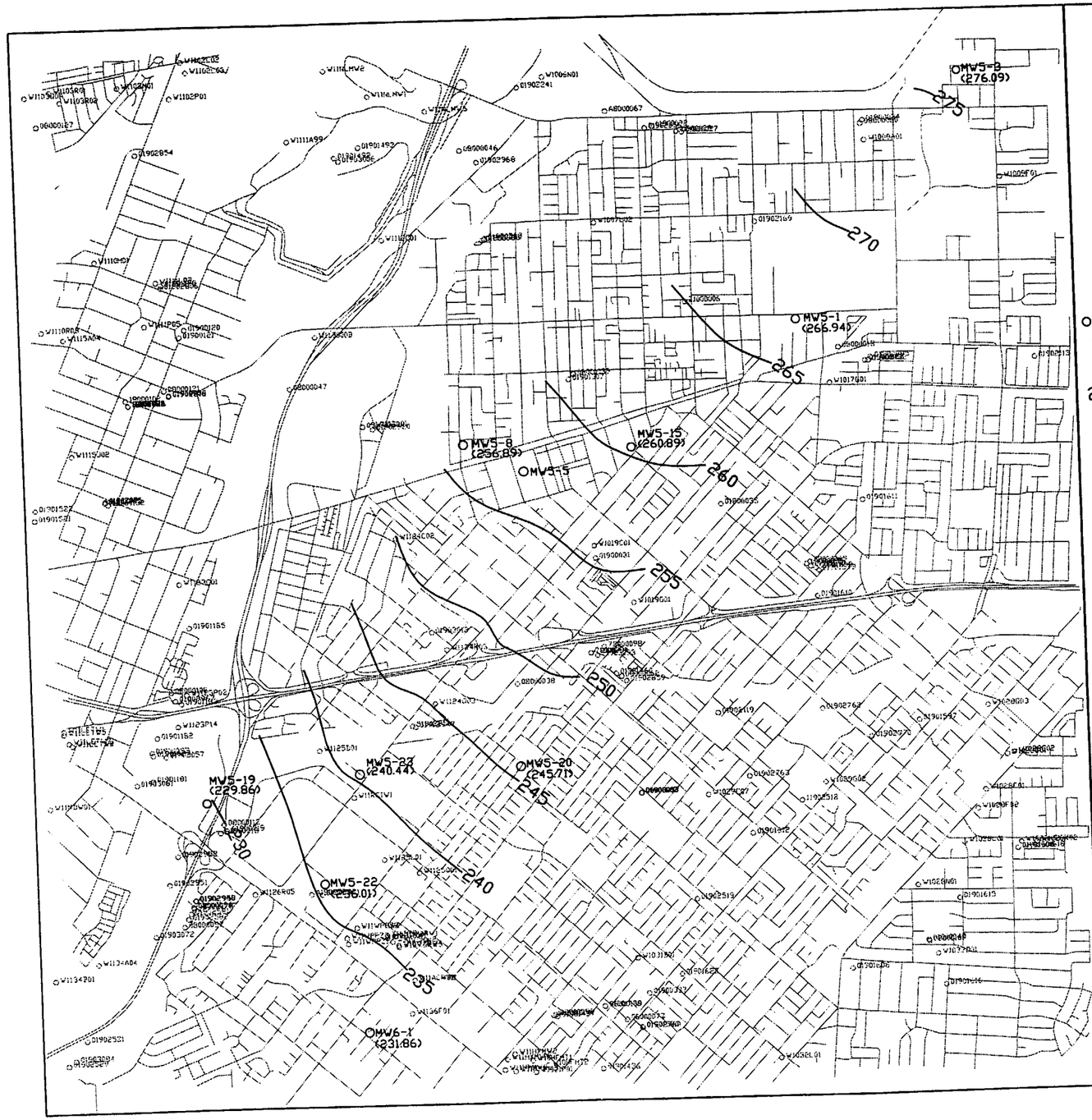
MW5-3	Well ID
(278.97)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.47
Groundwater Elevations
Between -200 and
-500 feet msl,
July 1998

DUDEK & ASSOCIATES
A California Corporation

july400msl.DWG



Baldwin Park Operable Unit

Legend

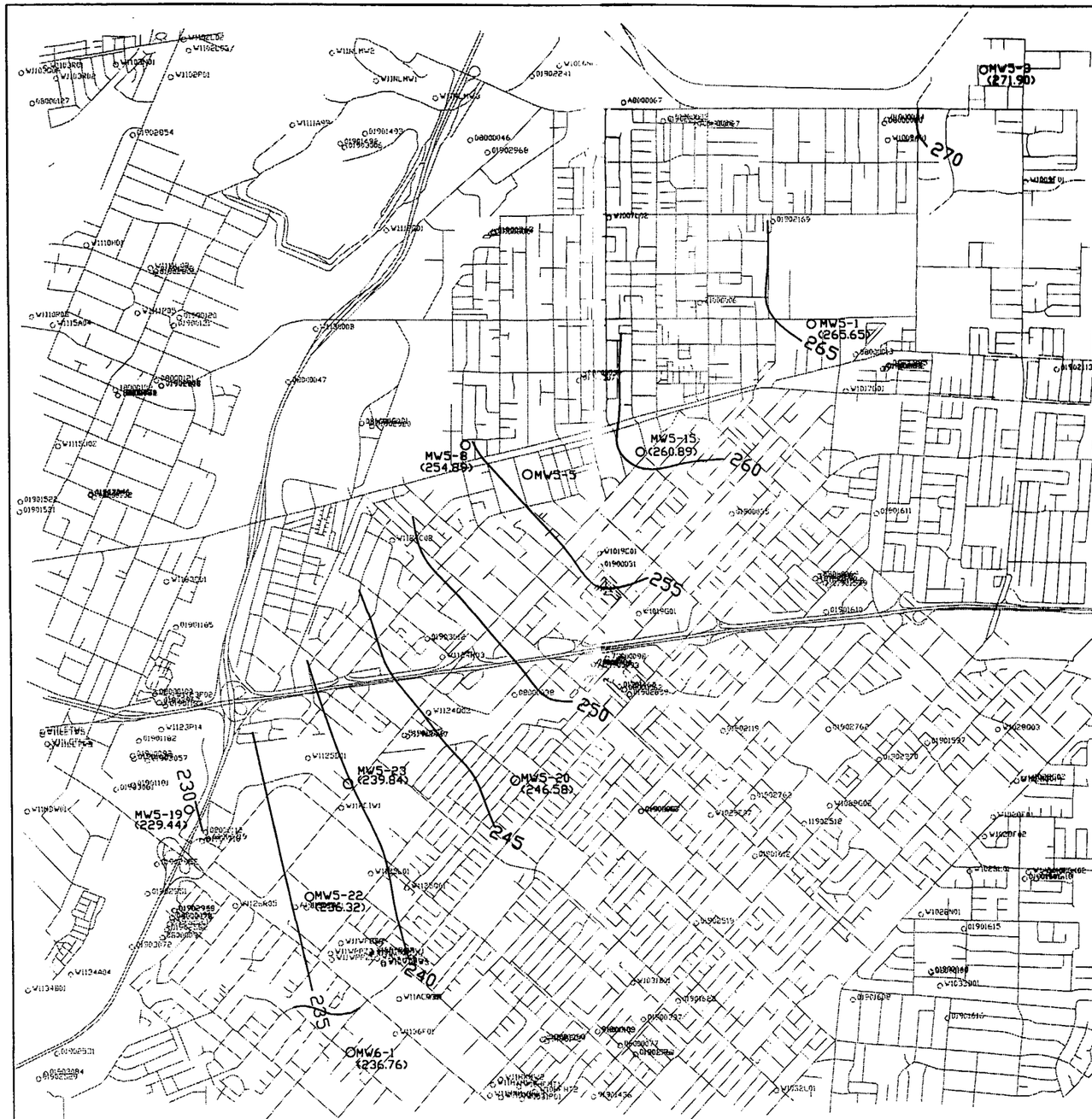
MW5-3 — Well ID
(276.09) — Groundwater Elevation in ft.
245 — Piezometric Contours in ft.
msl — Mean Sea Level
ft. — Feet

Scale: 1 in. = 1000 m

Figure 4.48
Groundwater Elevations
Between -200 and
-500 feet msl,
August 1998

DUDEK & ASSOCIATES
A California Corporation

AUG400msl.DWG



Baldwin Park Operable Unit

Legend

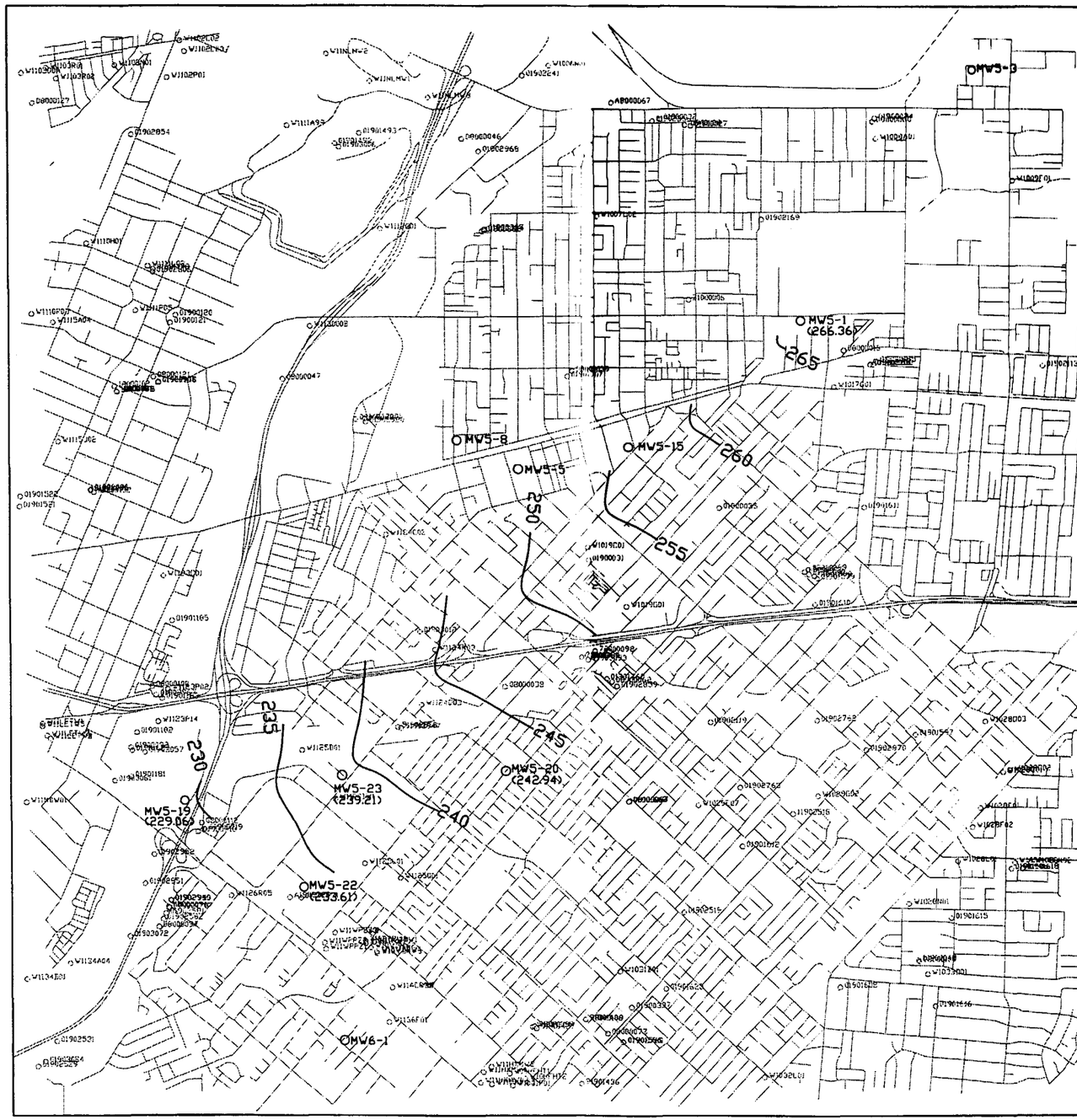
MW5-3 (271.90)	Well ID Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.49
Groundwater Elevations
Between -200 and
-500 feet msl,
October 1998

DUDEK & ASSOCIATES
A California Corporation

OCT400msl.DWG



Baldwin Park Operable Unit

Legend

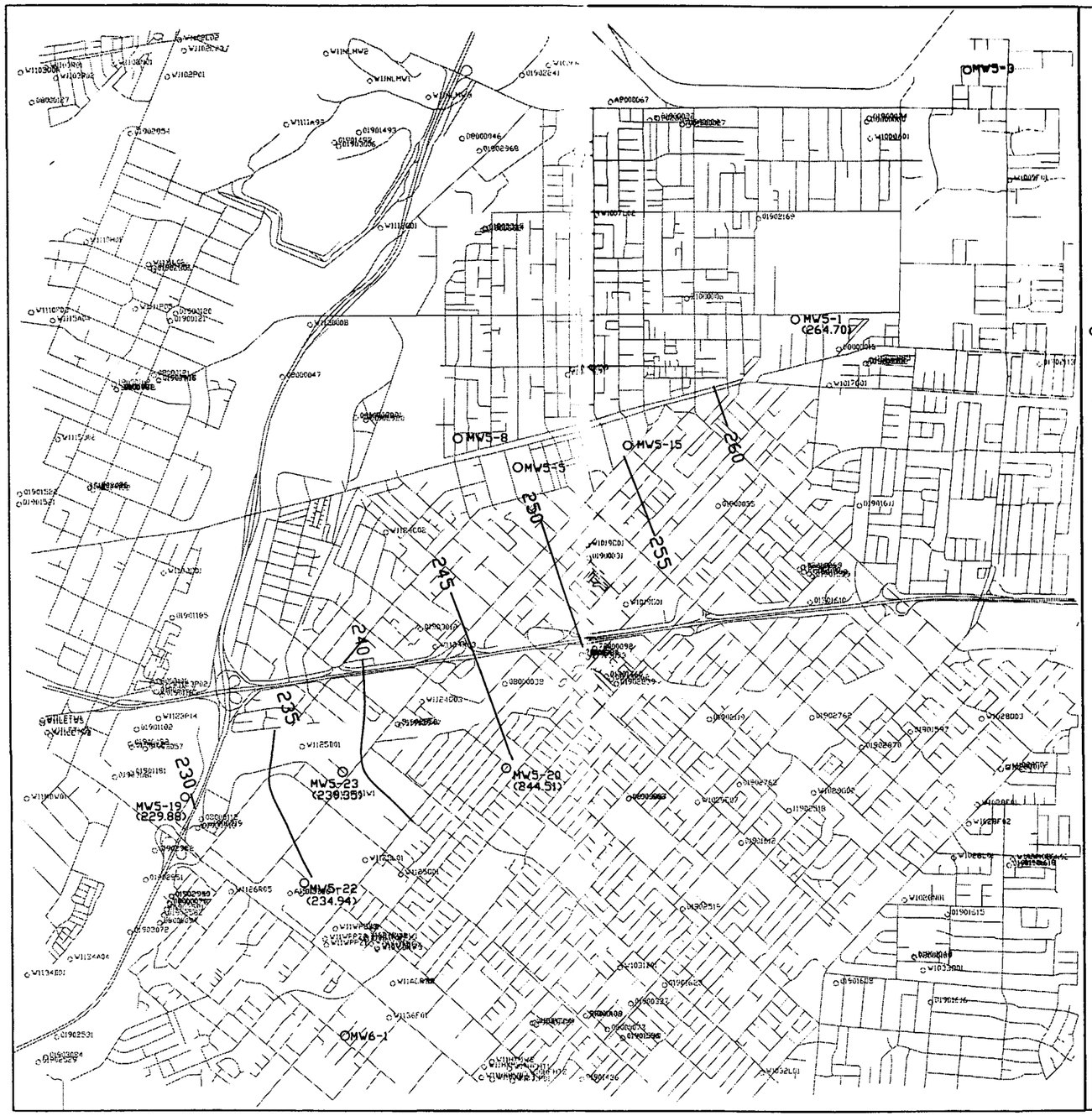
MW5-1	Well ID
(266.36)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.50
Groundwater Elevations
Between -500 and
-800 feet msl,
August 1998

DUDEK & ASSOCIATES
A California Corporation

AUG600msl.DWG



Baldwin Park Operable Unit

Legend

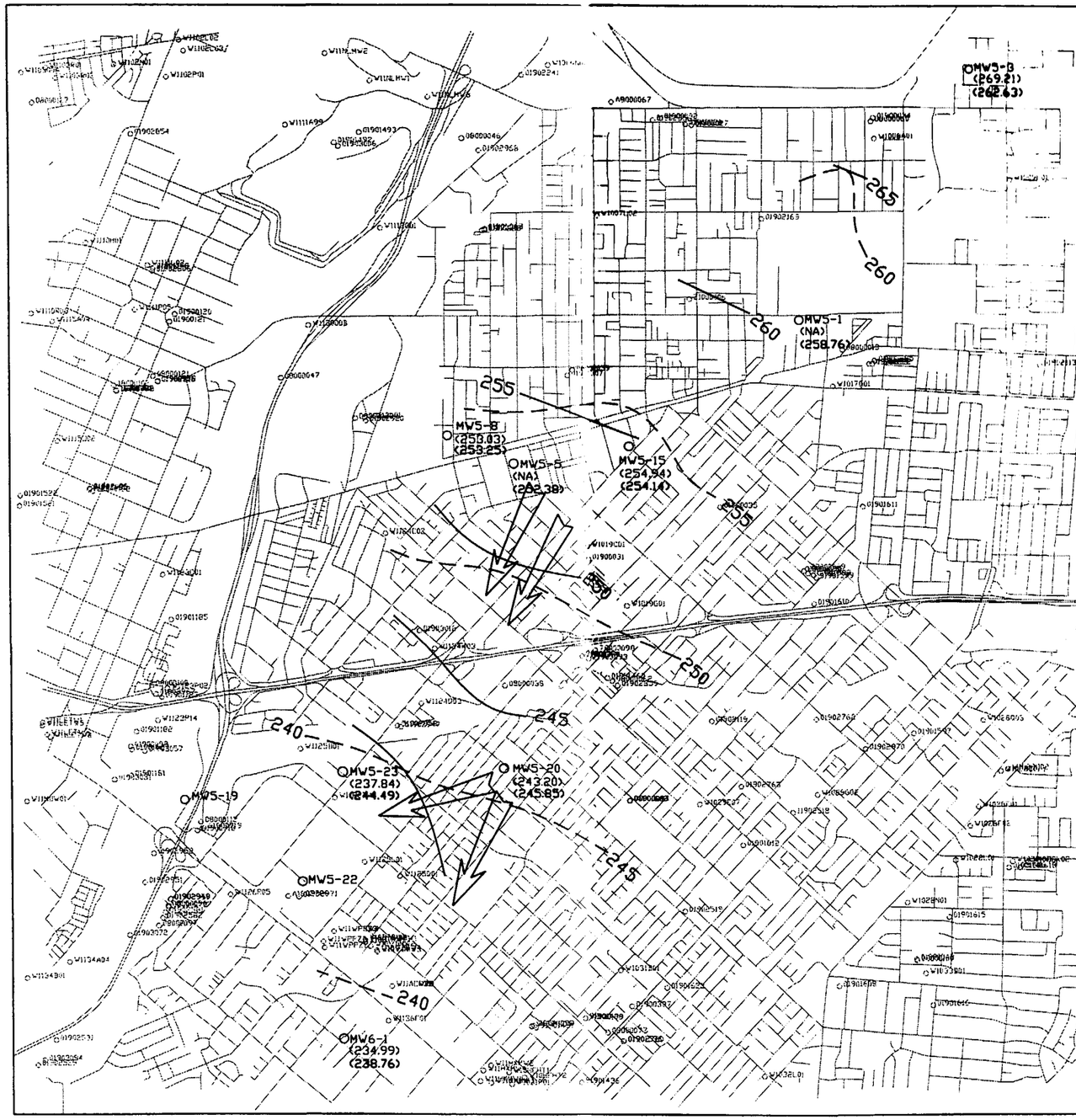
MW5-1	Well ID
(264.70)	Groundwater Elevation in ft.
245	Piezometric Contours in ft.
msl	Mean Sea Level
ft.	Feet

Scale: 1 in. = 1000 m

Figure 4.51
Groundwater Elevations
Between -500 and
-800 feet msl,
October 1998

DUDEK & ASSOCIATES
A California Corporation

oct600msl.DWG



Baldwin Park Operable Unit

Legend

- Water Level Contours (-200 to -500 ft. msl)
- Water Level Contours (above -200 ft. msl)
- MW5-3 — Well ID
- (269.21) — Intermediate Water Level Elevation in ft.
- (262.63) — Shallow Water Level Elevation in ft.
- msl — Mean Sea Level
- NA — Not available
- ft. — Feet
- Groundwater Flow Direction

Scale: 1 in. = 1000 m

Figure 4.52
Groundwater Flow Direction Comparison, above -200 : -200 to -500 feet msl, May 1998

DUDEK & ASSOCIATES
A California Corporation

mayall.DWG

Baldwin Park Operable Unit

Legend

Water Level Contours (-200 to -500 ft. msl)

Water Level Contours (above -200 ft. msl)

MW5-1 — Well ID
(269.73) — Intermediate Water Level Elevation in ft.
(268.66) — Shallow Water Level Elevation in ft.

msl Mean Sea Level

NA Not available

ft. Feet

Groundwater Flow Direction

Scale: 1 in. = 1000 m

Figure 4.53
Groundwater Flow Direction Comparison, above -200 : -200 to -500 feet msl, June 1998

DUDEK & ASSOCIATES
A California Corporation

juneall.DWG

Baldwin Park Operable Unit

Legend

Water Level Contours (-200 to -500 ft. msl)

Water Level Contours (above -200 ft. msl)

MW5-1 — Well ID
(269.37) — Intermediate Water Level Elevation in ft.
(269.74) — Shallow Water Level Elevation in ft.

msl Mean Sea Level

NA Not available

ft. Feet

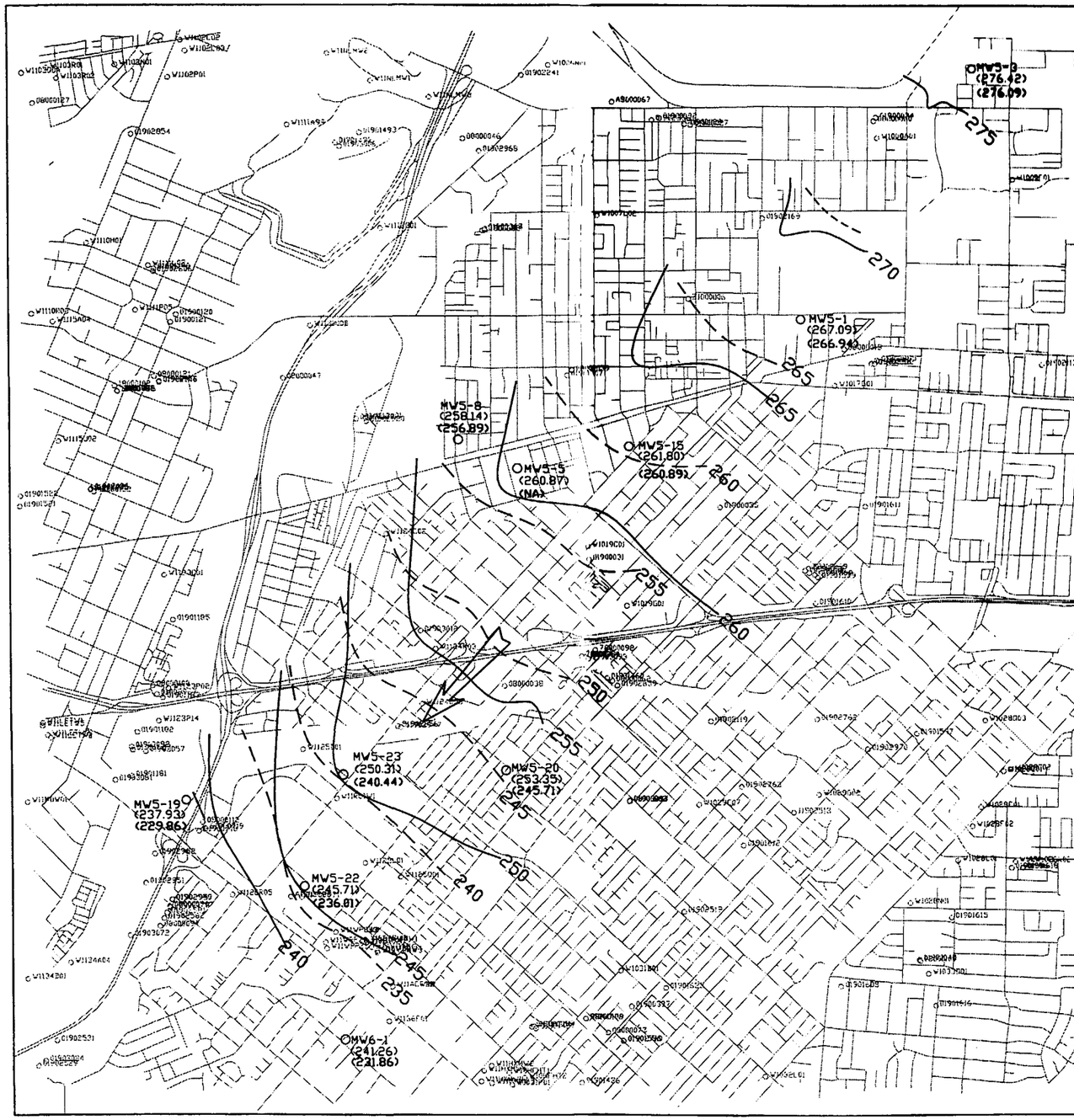
Groundwater Flow Direction

Scale: 1 in. = 1000 m

Figure 4.54
Groundwater Flow Direction Comparison, above -200 : -200 to -500 feet msl, July 1998

DUDEK & ASSOCIATES
A California Corporation

julyall.DWG



Baldwin Park Operable Unit

Legend

Water Level Contours (-200 to -500 ft. msl)

Water Level Contours (above -200 ft. msl)

MW5-1 — Well ID
(267.09) — Intermediate Water Level Elevation in ft.
(266.94) — Shallow Water Level Elevation in ft.

msl Mean Sea Level

NA Not available

ft. Feet

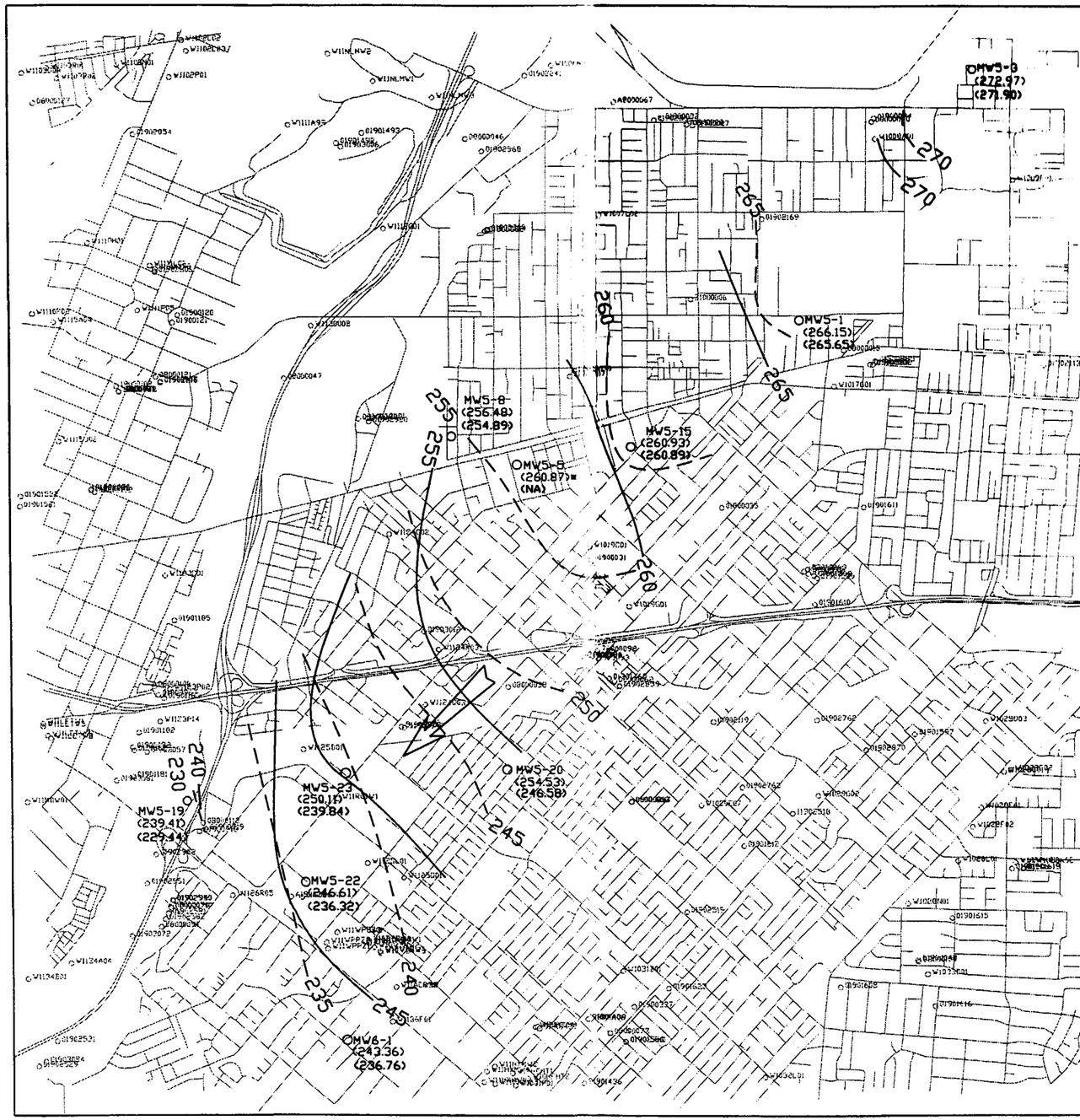
Groundwater Flow Direction

Scale: 1 in. = 1000 m

Figure 4.55
Groundwater Flow Direction Comparison, above -200 : -200 to -500 feet msl, August 1998

DUDEK & ASSOCIATES
A California Corporation

AUGall.DWG



Baldwin Park Operable Unit

Legend

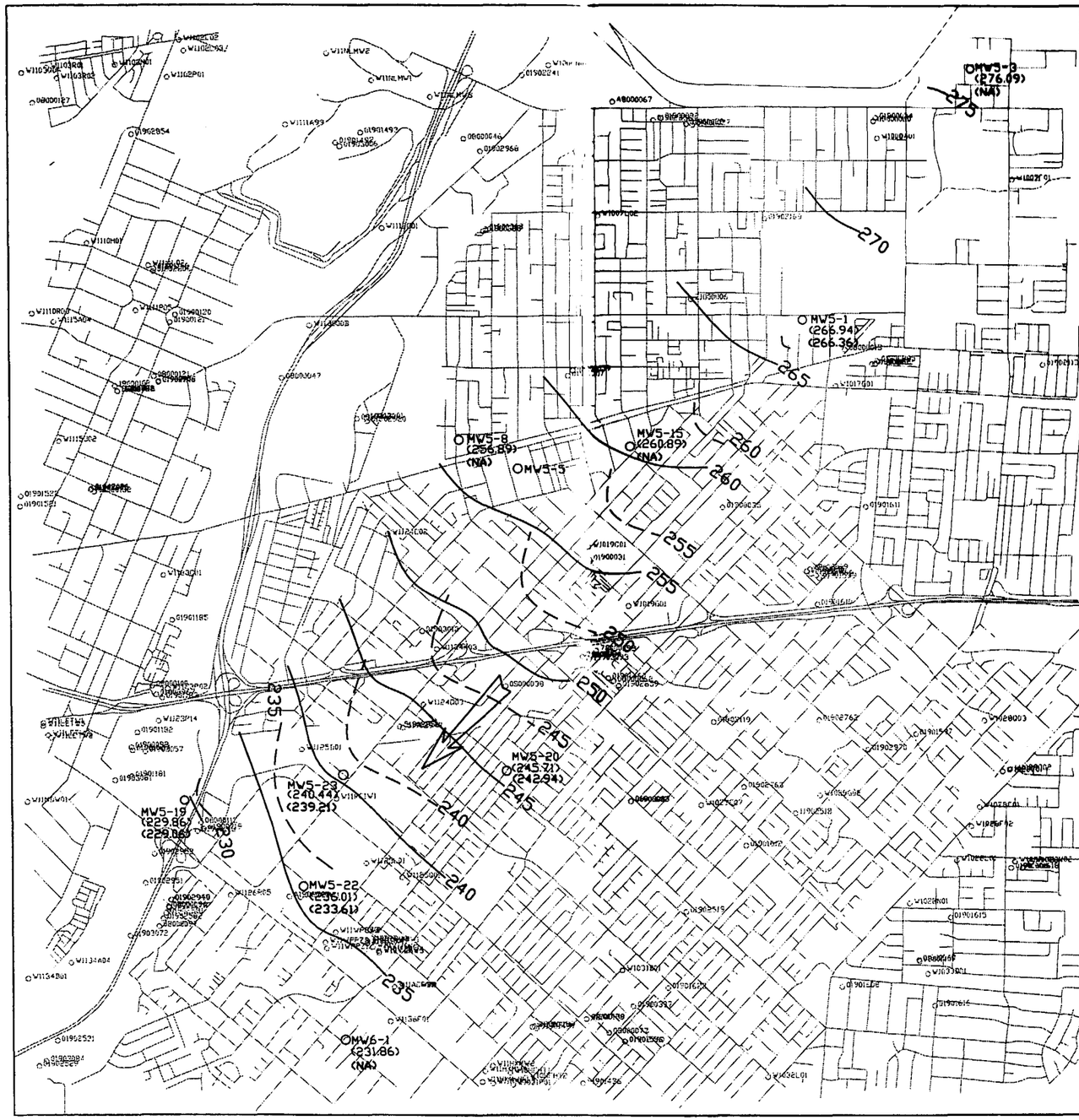
- Water Level Contours (-200 to -500 ft. msl)
- Water Level Contours (above -200 ft. msl)
- MW5-1 — Well ID
- (266.15) — Intermediate Water Level Elevation in ft.
- (265.65) — Shallow Water Level Elevation in ft.
- * Anomalous Data, Not Contoured
- msl Mean Sea Level
- NA Not available
- ft. Feet
- Groundwater Flow Direction

Scale: 1 in. = 1000 m

Figure 4.56
Groundwater Flow Direction Comparison, above -200 : -200 to -500 feet msl, October 1998

DUDEK & ASSOCIATES
A California Corporation

octall2.DWG



Baldwin Park Operable Unit

Legend

Intermediate Water Level Contours (-200 to -500 ft. msl)

Deep Water Level Contours (-500 to -800 ft. msl)

MW5-1 — Well ID
(266.94) — Intermediate Water Level Elevation in ft.
(266.36) — Deep Water Level Elevation in ft.

msl Mean Sea Level

NA Not available

ft. Feet

Groundwater Flow Direction

Scale: 1 in. = 1000 m

Figure 4.57
Groundwater Flow Direction Comparison, -200 to -500 : -500 to -800 feet msl, August 1998

DUDEK & ASSOCIATES
A California Corporation

AUG012.DWG

Baldwin Park Operable Unit

Legend

Intermediate Water Level Contours (-200 to -500 ft. msl)

Deep Water Level Contours (-500 to -800 ft. msl)

MW5-1 — Well ID
(265.65) — Intermediate Water Level Elevation in ft.
(264.70) — Deep Water Level Elevation in ft.

msl Mean Sea Level

NA Not available

ft. Feet

Groundwater Flow Direction

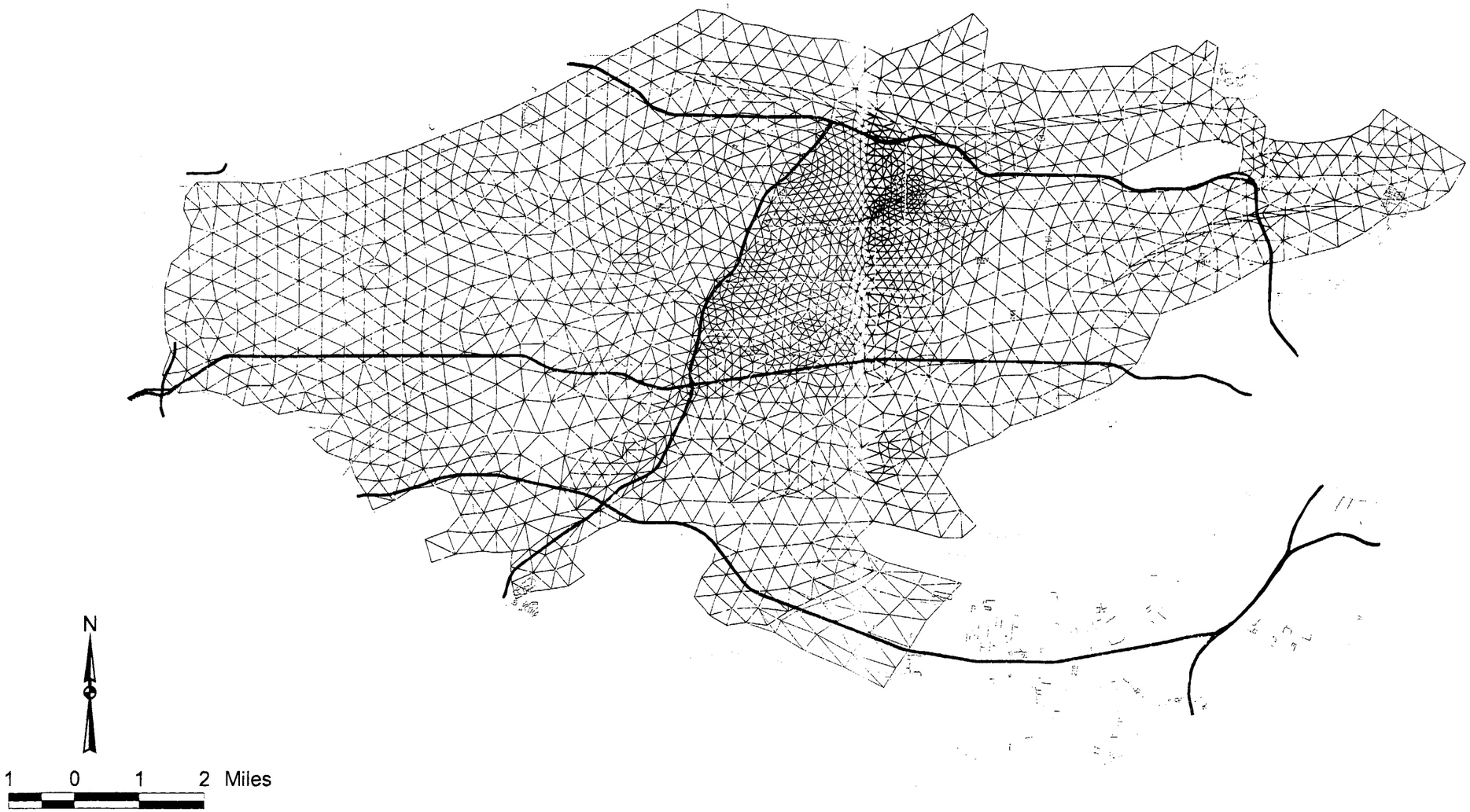
Scale: 1 in. = 1000 m

Figure 4.58
Groundwater Flow Direction Comparison, -200 to -500 : -500 to -800 feet msl, October 1998

DUDEK & ASSOCIATES
A California Corporation

DCTall.DWG

I:\00000\00001\geoanal\phase2b_model\apr\model.apr



Legend

Original Model Grid
Revision to Original Model

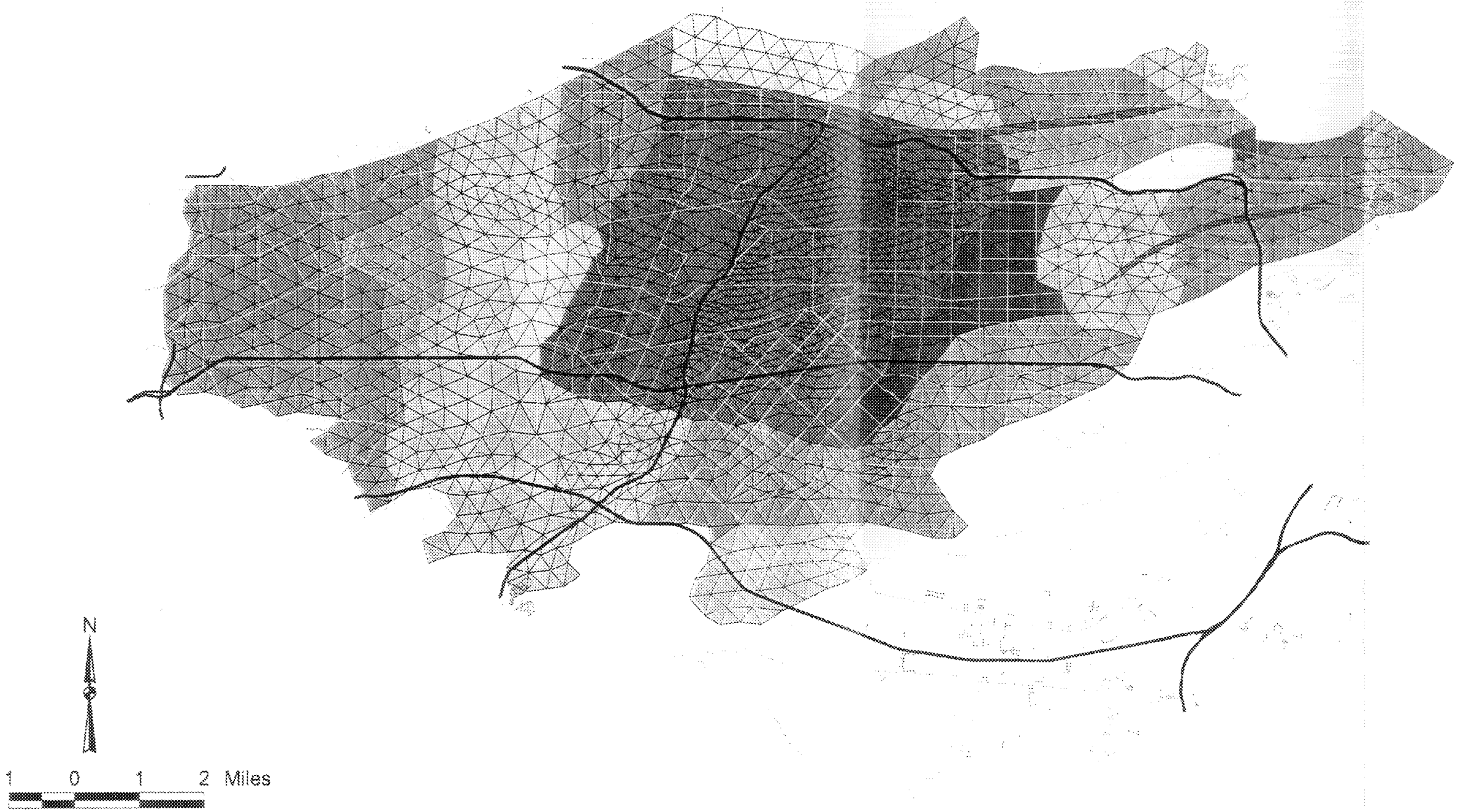
Harding Lawson Associates
Engineering and Environmental Services

Comparison of Model Grids
Original versus Revised Model
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\00000\00001\geoanal\phase2b_models\apr\model.apr



Hydraulic Conductivity in Feet/day

7	40
10	50
15	60
20	105
25	125
30	250

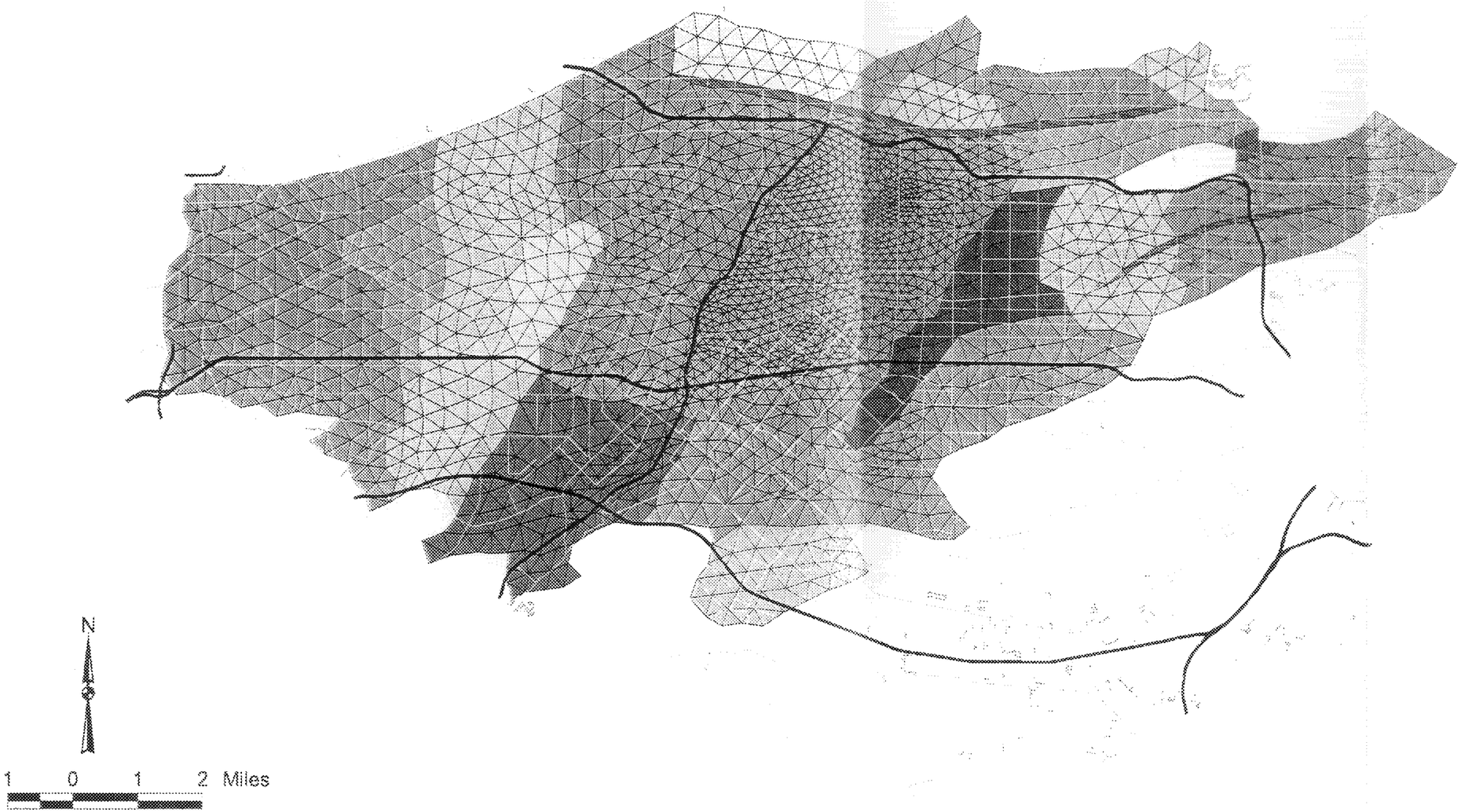
Harding Lawson Associates
Engineering and Environmental Services

Original Model Hydraulic Conductivity
Layer 1
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\00000\00001\gaoanal\phase2b_model\apr\model.apr



Hydraulic Conductivity in Feet/day

7	40
10	50
15	60
20	105
25	125
30	250

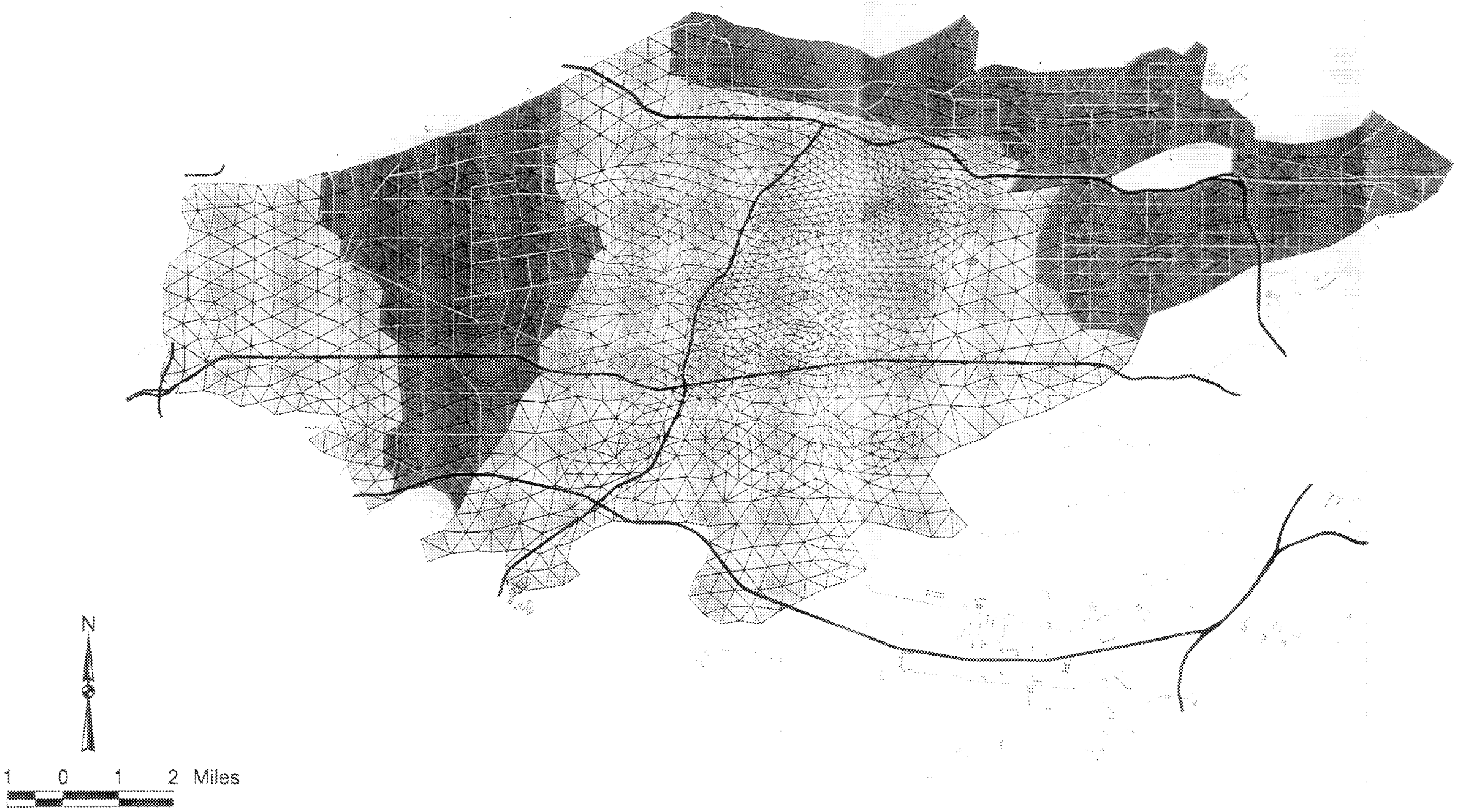
Harding Lawson Associates
Engineering and Environmental Services

Original Model Hydraulic Conductivity
Layers 2 through 5
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\30000\0000 1\geoana\phase2b_model\apr\model.apr



Anisotropy

- 10
- 30
- 100

Harding Lawson Associates
Engineering and Environmental Services

Original Model Anisotropy
All Layers
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

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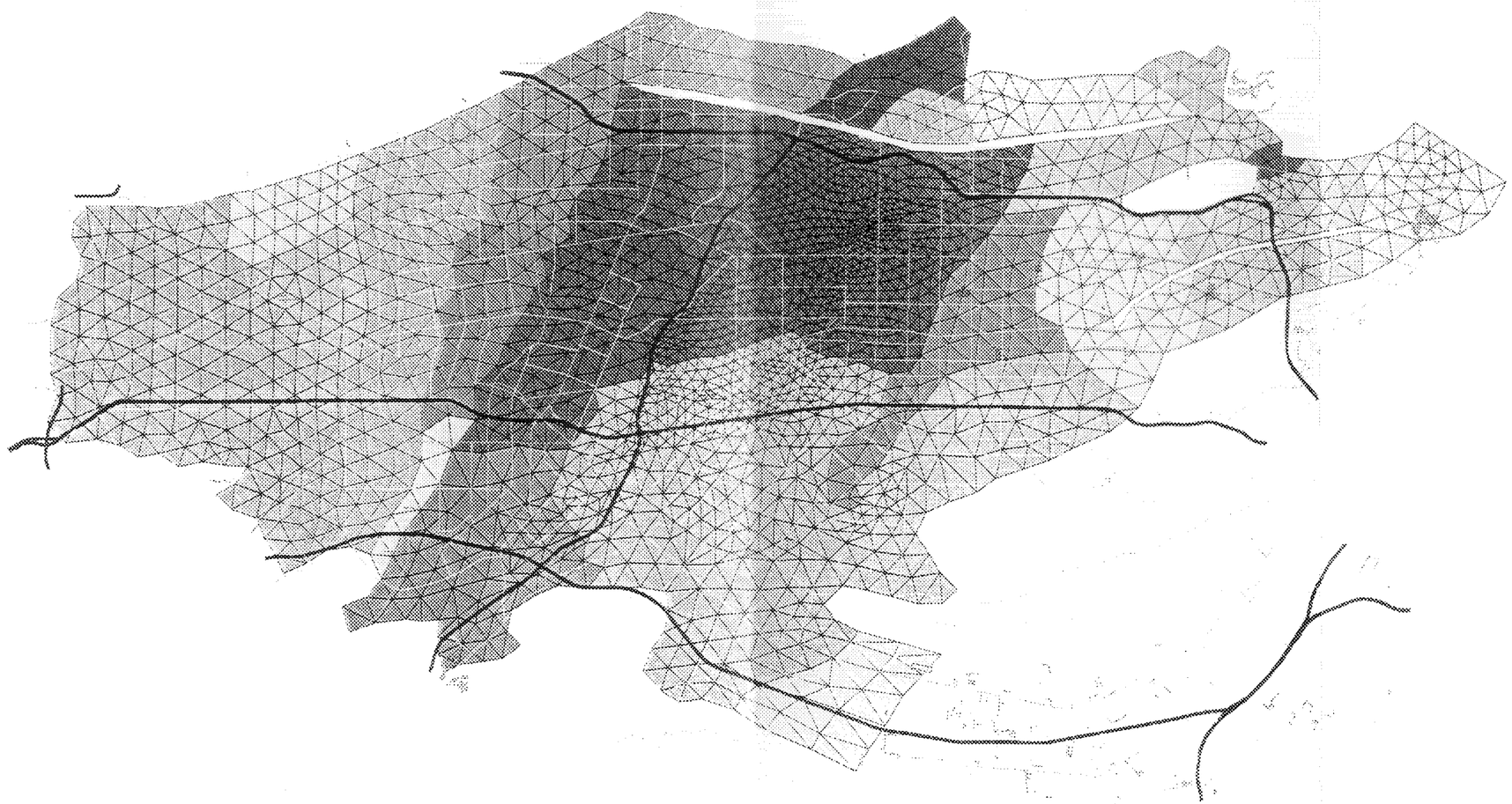


N

1 0 1 2 Miles

Hydraulic Conductivity in Feet/day

0
10
15
20
25
30
40
50
60
105
125
250
400

Harding Lawson Associates

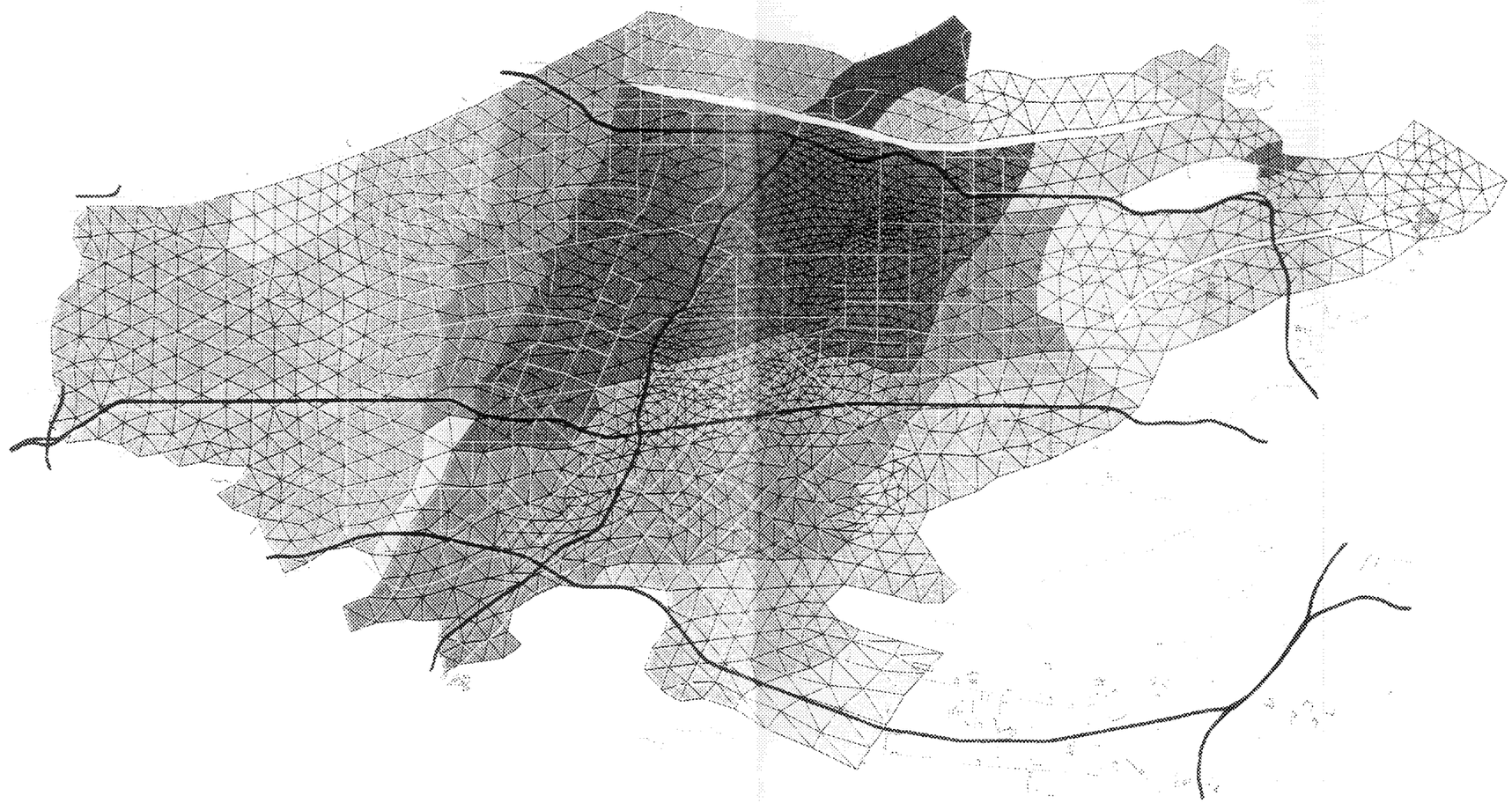
Engineering and Environmental Services

Hydraulic Conductivity Revised Model
Layer 1
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\00000\00001\geoana\phase2b_model\apr\model.apr



N

1 0 1 2 Miles

Hydraulic Conductivity in Feet/day

0
10
15
20
25
30
40
50
60
105
125
250
400

Harding Lawson Associates

Engineering and Environmental Services

Hydraulic Conductivity Revised Model
Layers 2 and 3
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\00000\00001\geoanal\phase2b_model\apr\model.apr

N

1 0 1 2 Miles

Hydraulic Conductivity in Feet/day

0	50
10	80
15	105
20	125
25	250
30	400
40	

Harding Lawson Associates

Engineering and Environmental Services

Hydraulic Conductivity Revised Model
Layers 4 and 5
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\000000000031\geoanal\phase2b_model\aprimodel.apr

N

1 0 1 2 Miles

Anisotropy Layer 1

1

10

100

Harding Lawson Associates

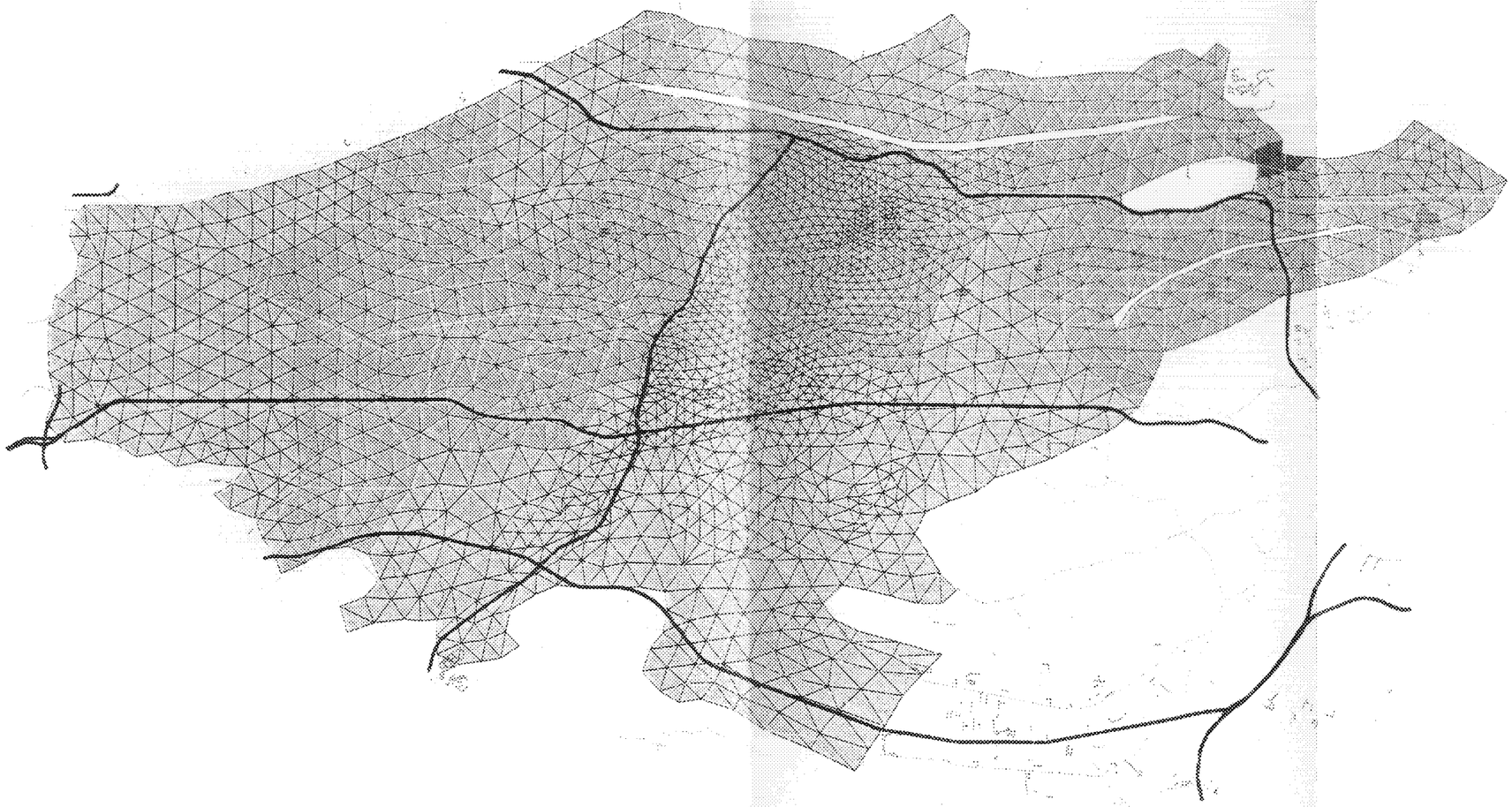
Engineering and Environmental Services

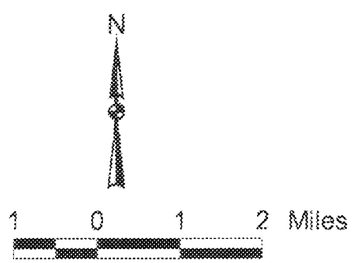
Anisotropy Revised Model
Layer 1
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.8

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\G0000\0G001\geoanal\phase2b_model\apr\model.apr





Anisotropy Layers 2 and 3

1
10
100

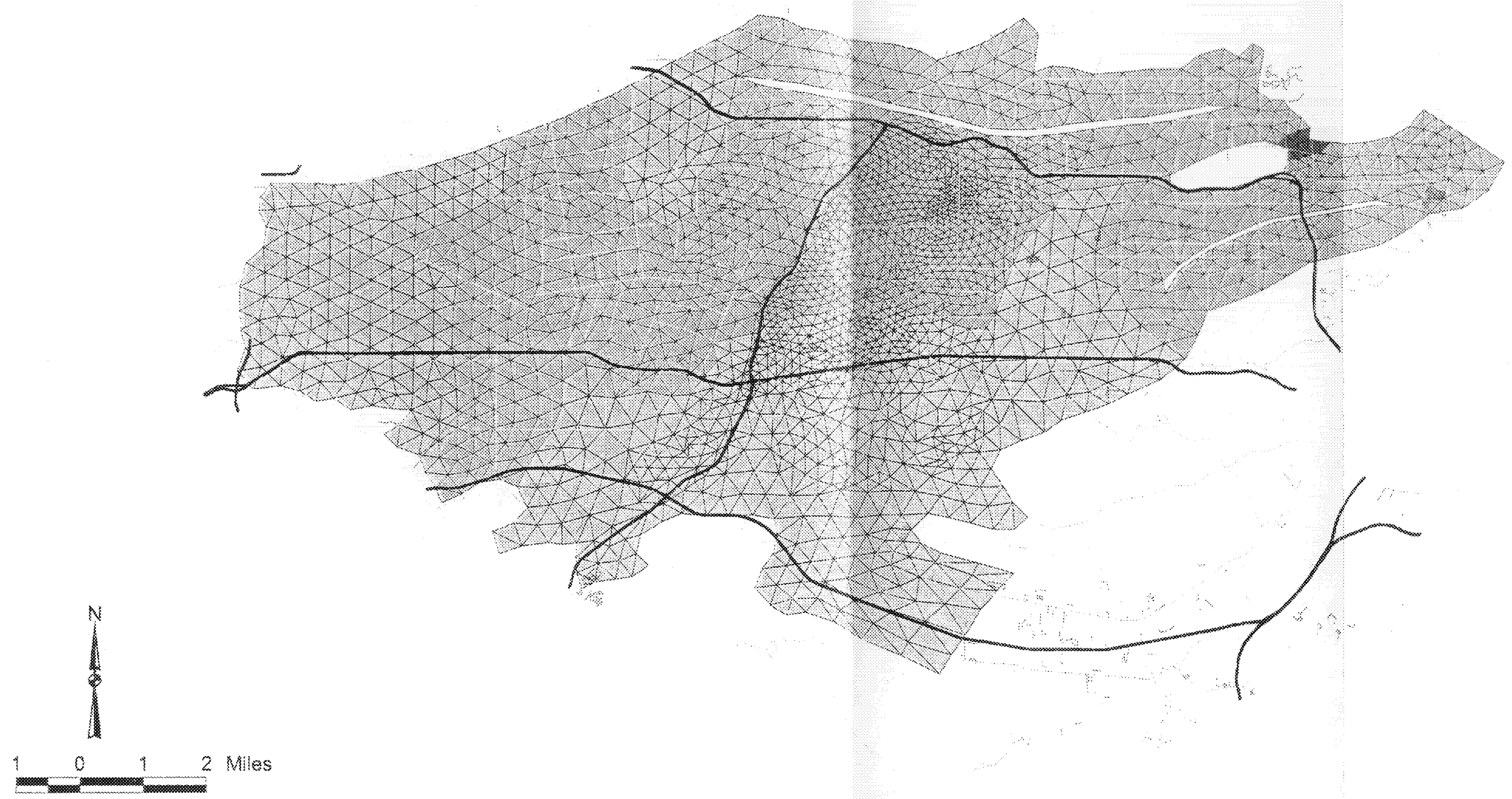
Harding Lawson Associates
Engineering and Environmental Services

Anisotropy Revised Model
Layers 2 and 3
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

I:\00000\00001\geoanal\phase2b_modelapr\model.apr



Anisotropy Layers 4 and 5

- 1
- 10
- 100

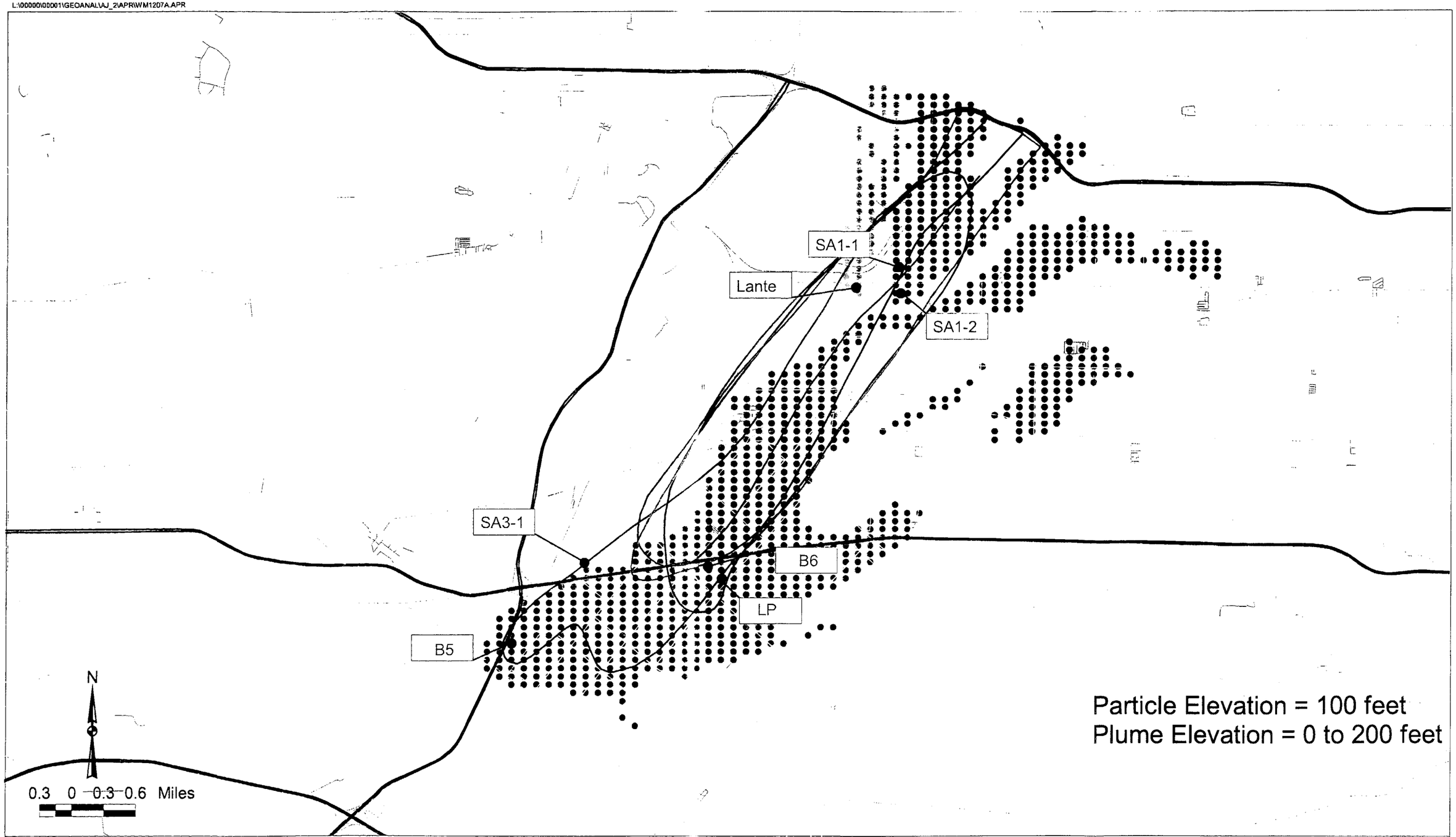
Harding Lawson Associates
Engineering and Environmental Services

Anisotropy Revised Model
Layers 4 and 5
Baldwin Park Operable Unit Steering Committee
California

FIGURE 5.10

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	11/98	11/98

L:\00000\00001\GEOANAL\AJ_2\APR\WM1207A.APR



SubArea 1
- **SA1-1 = 1,000 gpm**
- **SA1-2 = 3,000 gpm**
- **Lante (VCWD) = 2,000 gpm**

Total Extraction = 23,000 gpm
SGVWC - San Gabriel Valley Water Company
LPVWD - La Puente Valley Water District
VCWD - Valley County Water District

SubArea 3
SA3-1 = 4,500 gpm
- **B5 (SGVWC B5) = 6,000 gpm**
- **B6 (SGVWC B6) = 5,000 gpm**
- **LP (LPVWD wells) = 1,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run wm1207a
Time = 10,950 days

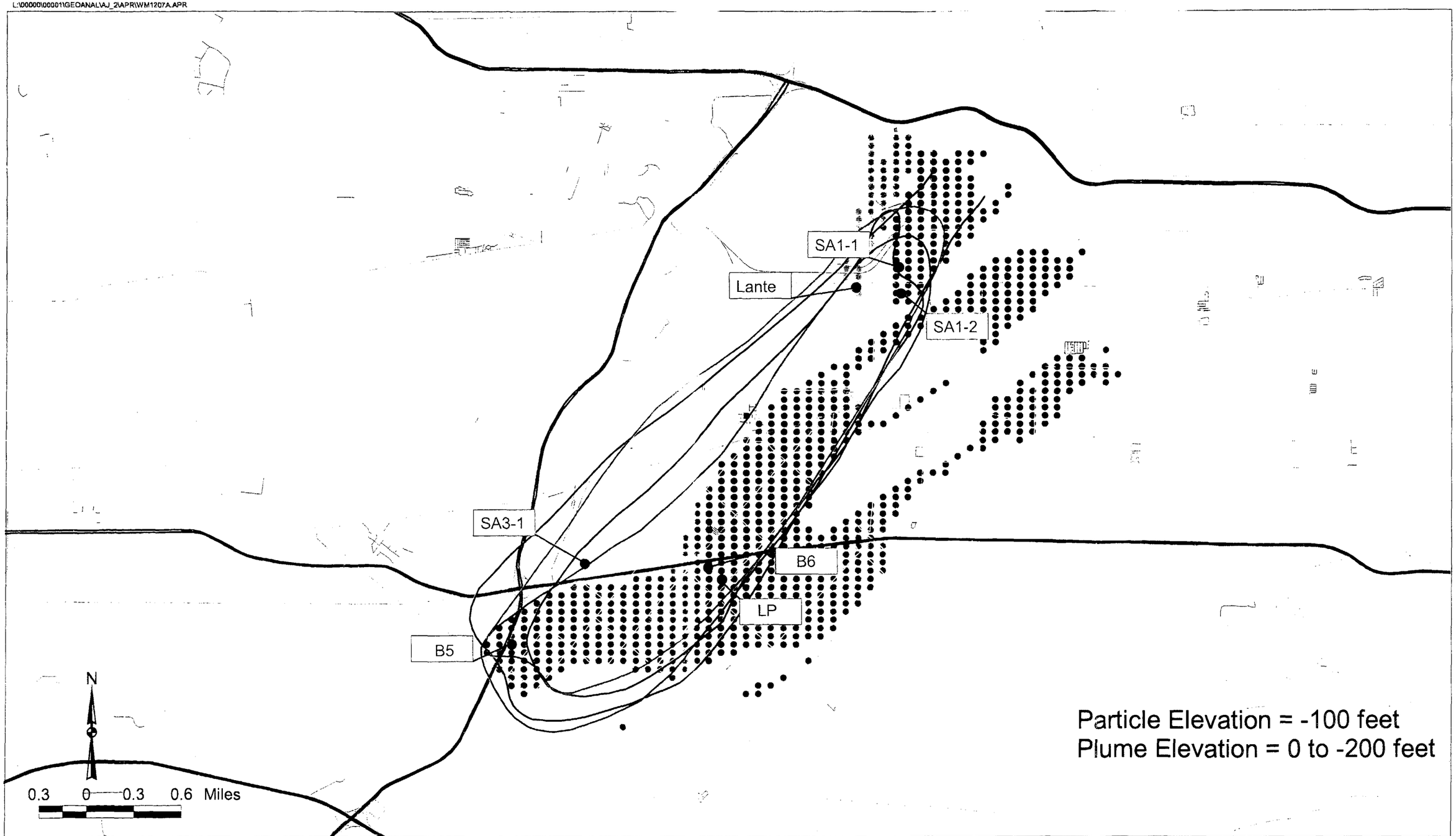
Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Joint Watermaster/BPOUSC Extraction Plan, Particle Elevation = 100 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

L:\00000\00001\GEOANAL\AJ_2\APR\WM1207A.APR



SubArea 1
- **SA1-1 = 1,000 gpm**
- **SA1-2 = 3,000 gpm**
- **Lante (VCWD) = 2,000 gpm**

Total Extraction = 23,000 gpm
SGVWC - San Gabriel Valley Water Company
LPVWD - La Puente Valley Water District
VCWD - Valley County Water District

SubArea 3
SA3-1 = 4,500 gpm
- **B5 (SGVWC B5) = 6,000 gpm**
- **B6 (SGVWC B6) = 5,000 gpm**
- **LP (LPVWD wells) = 1,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run wm1207a
Time = 10,950 days

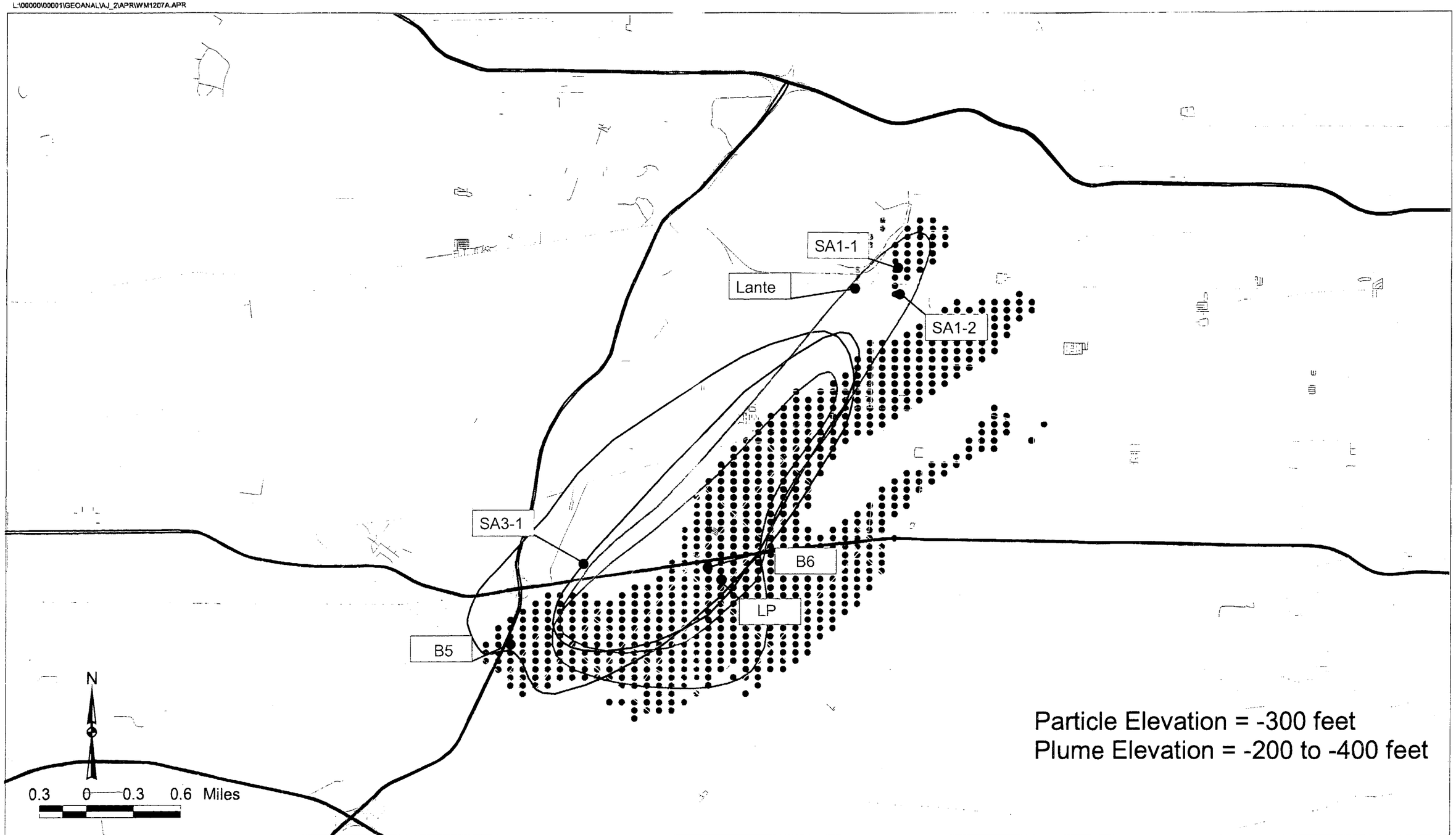
Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Joint Watermaster/BPOUSC Extraction Plan, Particle Elevation = -100 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

L:\00000\00001\GEOANAL\AJ_2\APR\WM1207A.APR



SubArea 1
- **SA1-1 = 1,000 gpm**
- **SA1-2 = 3,000 gpm**
- **Lante (VCWD) = 2,000 gpm**

Total Extraction = 23,000 gpm
SGVWC - San Gabriel Valley Water Company
LPVWD - La Puente Valley Water District
VCWD - Valley County Water District

SubArea 3
SA3-1 = 4,500 gpm
- **B5 (SGVWC B5) = 6,000 gpm**
- **B6 (SGVWC B6) = 5,000 gpm**
- **LP (LPVWD wells) = 1,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run wm1207a
Time = 10,950 days

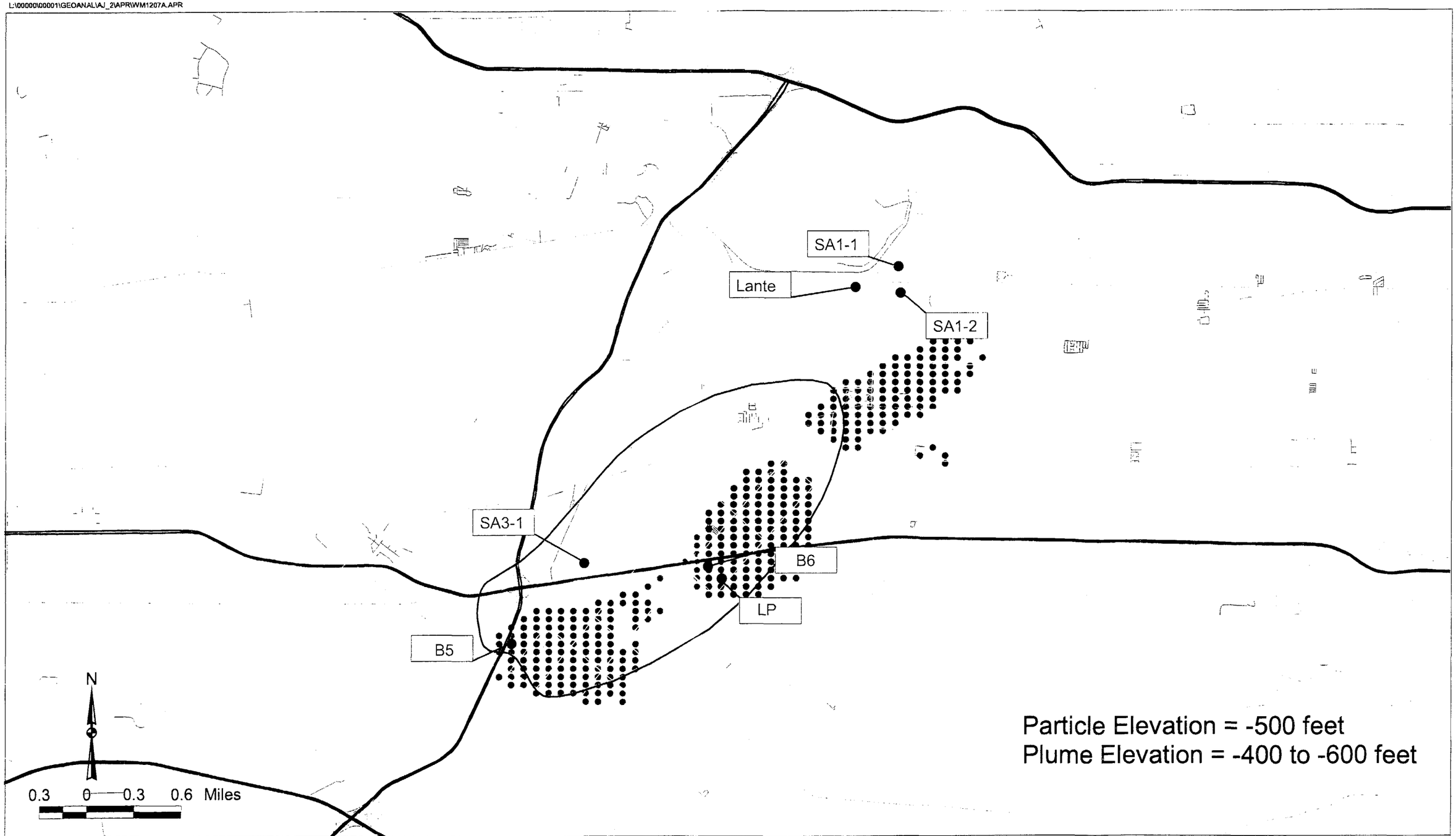
Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Joint Watermaster/BPOUSC Extraction Plan, Particle Elevation = -300 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

L:\00000\00001\GEOANAL\AJ_2\APR\WM1207A.APR



SubArea 1
- **SA1-1 = 1,000 gpm**
- **SA1-2 = 3,000 gpm**
- **Lante (VCWD) = 2,000 gpm**

Total Extraction = 23,000 gpm
SGVWC - San Gabriel Valley Water Company
LPVWD - La Puente Valley Water District
VCWD - Valley County Water District

SubArea 3
SA3-1 = 4,500 gpm
- **B5 (SGVWC B5) = 6,000 gpm**
- **B6 (SGVWC B6) = 5,000 gpm**
- **LP (LPVWD wells) = 1,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run wm1207a
Time = 10,950 days

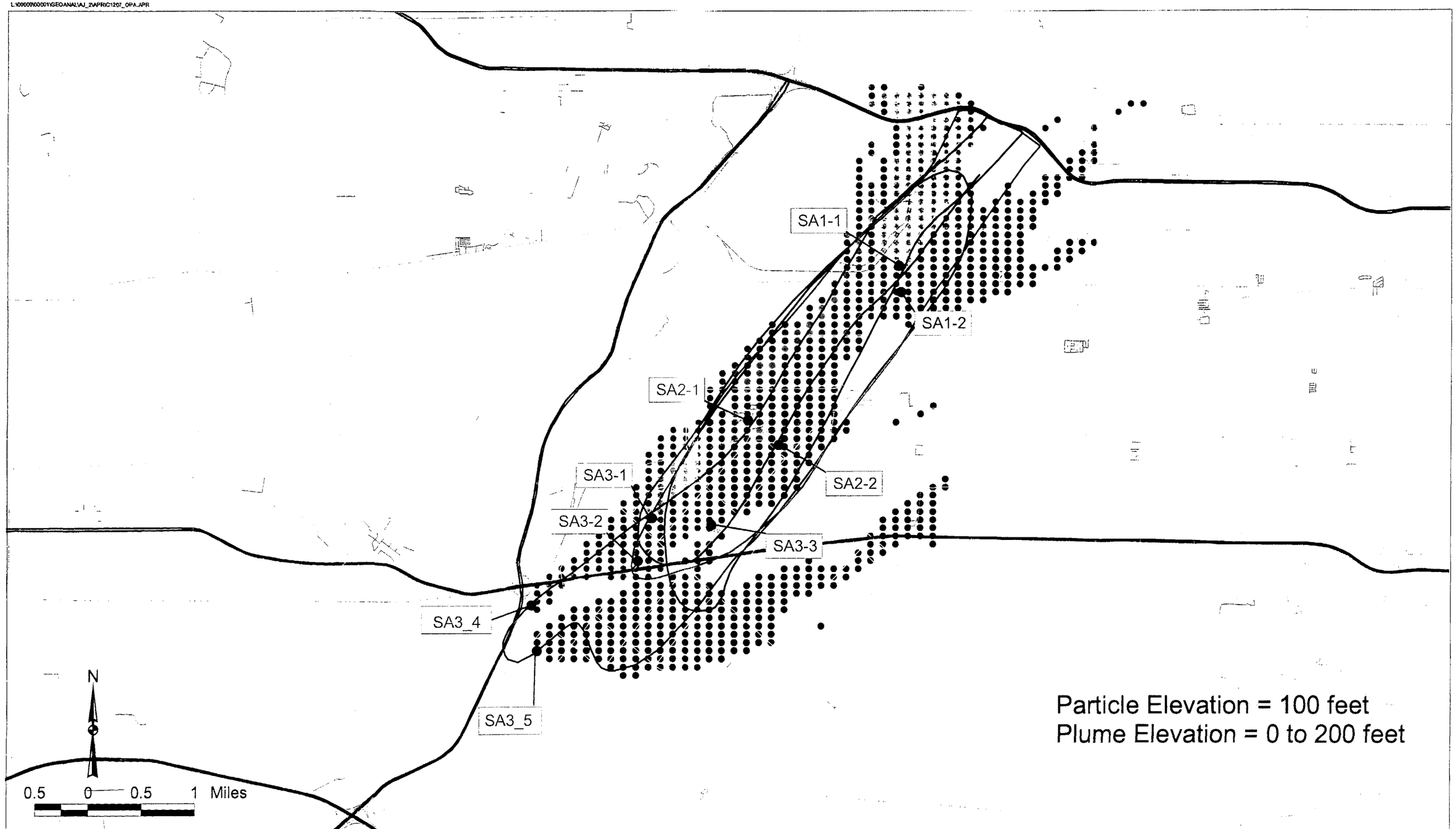
Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Joint Watermaster/BPOUSC Extraction Plan, Particle Elevation = -500 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

L:\00000000001\GEOANAL\AJ_2\APR\C1207_OPA.APR



SubArea 1
SA1-1 = 3,000 gpm
SA1-2 = 2,500 gpm

SubArea 2
SA2-1 = 1,500 gpm
SA2-2 = 1,500 gpm

SubArea 3
SA3-1 = 1,000 gpm
SA3-2 = 1,000 gpm
SA3-3 = 1,000 gpm
SA3-4 = 2,750 gpm
SA3-5 = 3,750 gpm

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run Ptq1207a
Time = 10,950 days

Total Extraction = 18,000 gpm

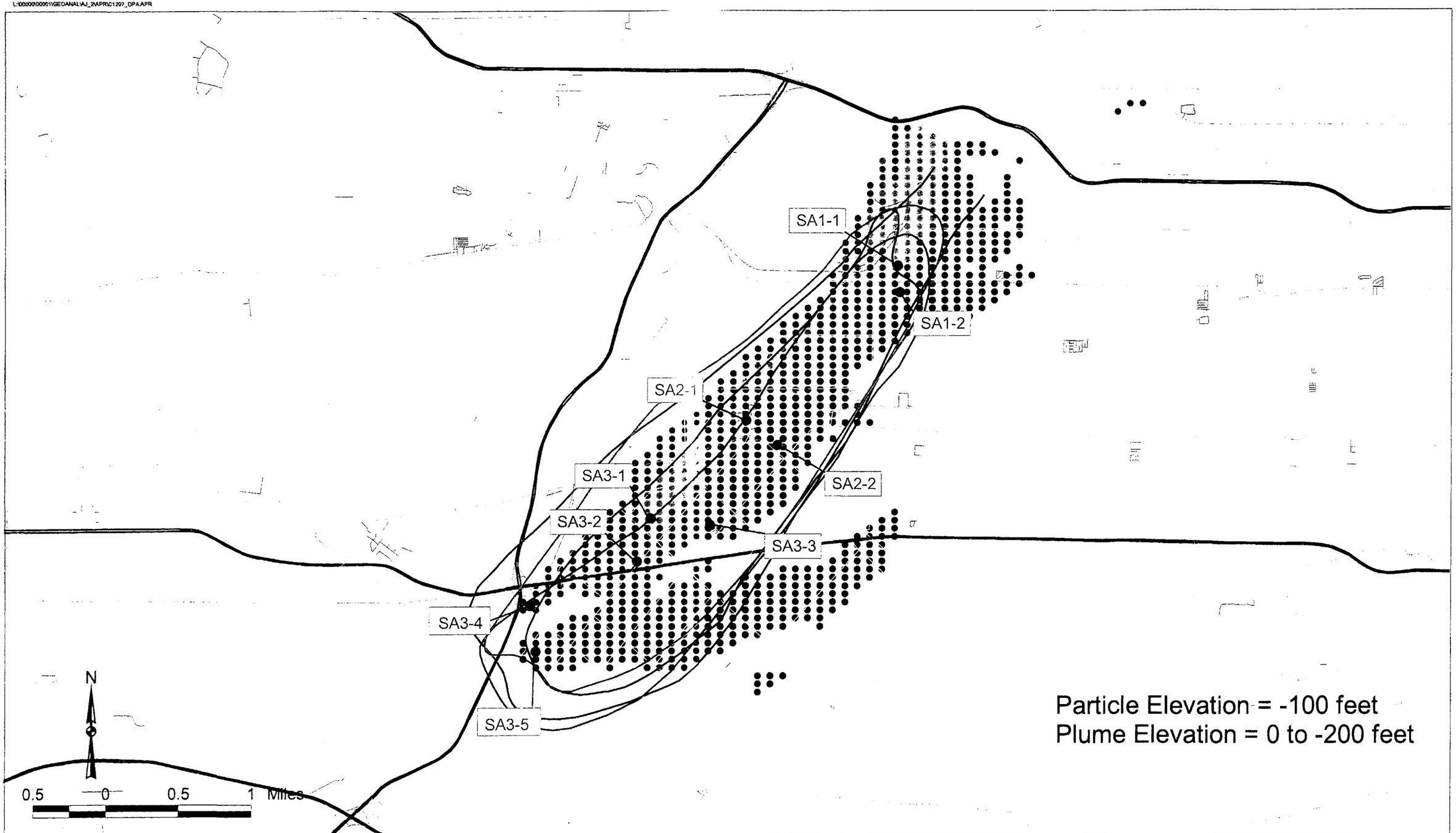
Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option A
Particle Elevation = 100 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

L:\00000\00001\GEOANAL\AJ_2APR\C1207_0PA.APR



SubArea 1
SA1-1 = 3,000 gpm
SA1-2 = 2,500 gpm

SubArea 2
SA2-1 = 1,500 gpm
SA2-2 = 1,500 gpm

SubArea 3
SA3-1 = 1,000 gpm
SA3-2 = 1,000 gpm
SA3-3 = 1,000 gpm
SA3-4 = 2,750 gpm
SA3-5 = 3,750 gpm

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run Ptq1207a
Time = 10,950 days

Total Extraction = 18,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option A
Particle Elevation = -100 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

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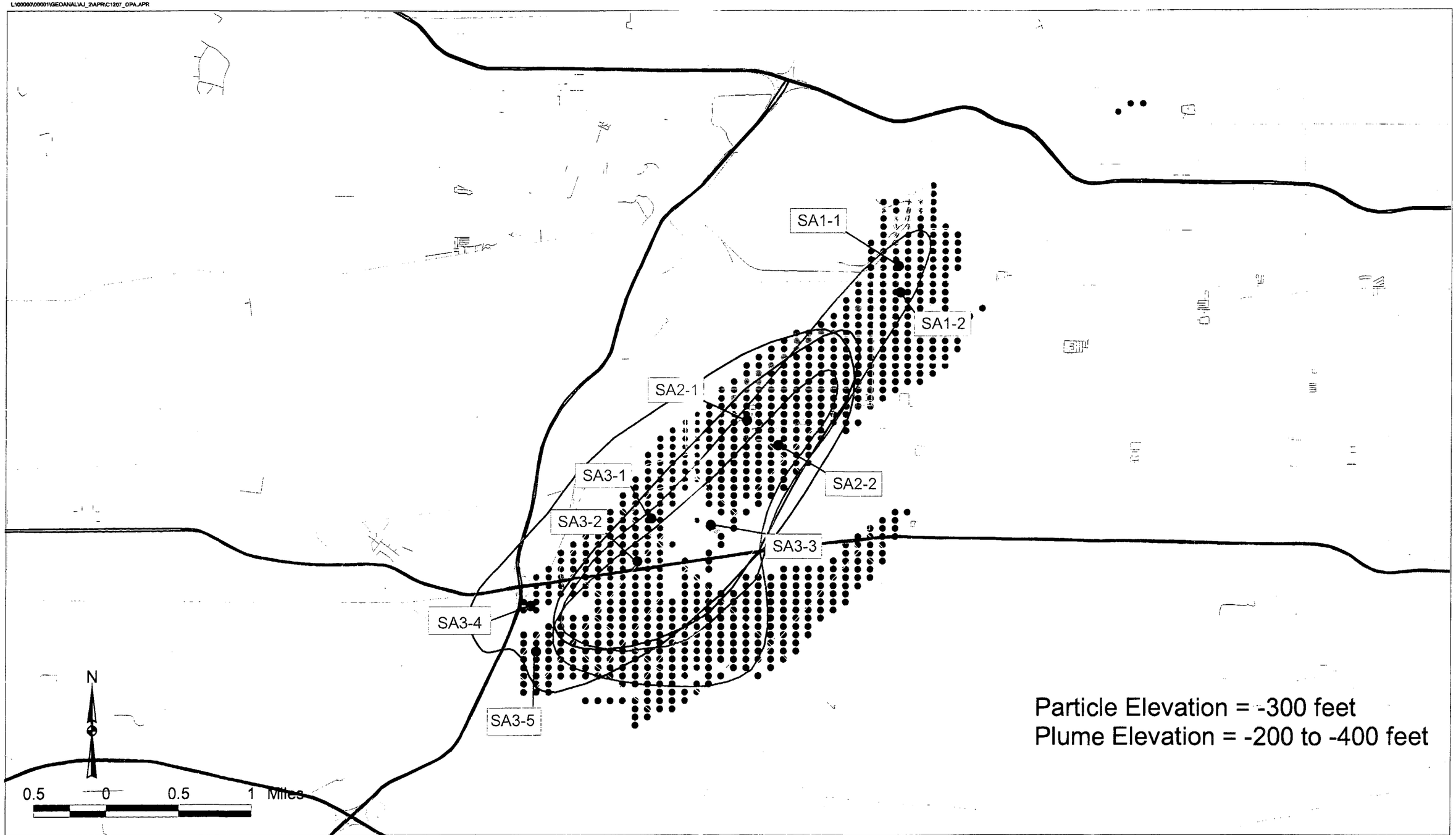

SubArea 1
SA1-1 = 3,000 gpm
SA1-2 = 2,500 gpm

SubArea 2
SA2-1 = 1,500 gpm
SA2-2 = 1,500 gpm

SubArea 3
SA3-1 = 1,000 gpm
SA3-2 = 1,000 gpm
SA3-3 = 1,000 gpm
SA3-4 = 2,750 gpm
SA3-5 = 3,750 gpm

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run Ptq1207a
Time = 10,950 days

Total Extraction = 18,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option A
Particle Elevation = -300 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

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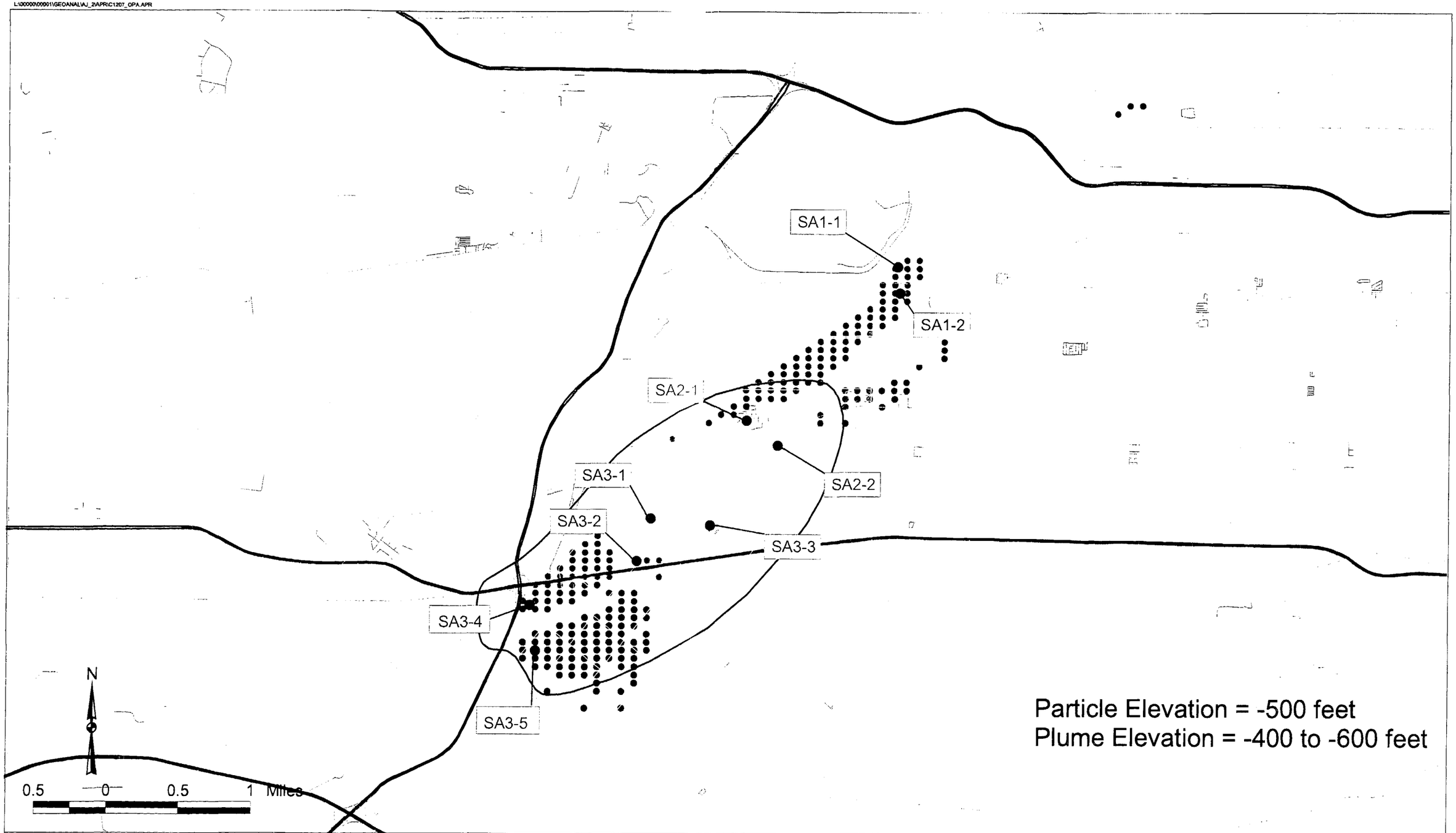

SubArea 1
SA1-1 = 3,000 gpm
SA1-2 = 2,500 gpm

SubArea 2
SA2-1 = 1,500 gpm
SA2-2 = 1,500 gpm

SubArea 3
SA3-1 = 1,000 gpm
SA3-2 = 1,000 gpm
SA3-3 = 1,000 gpm
SA3-4 = 2,750 gpm
SA3-5 = 3,750 gpm

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run Ptq1207a
Time = 10,950 days

Total Extraction = 18,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option A
Particle Elevation = -500 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.8

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

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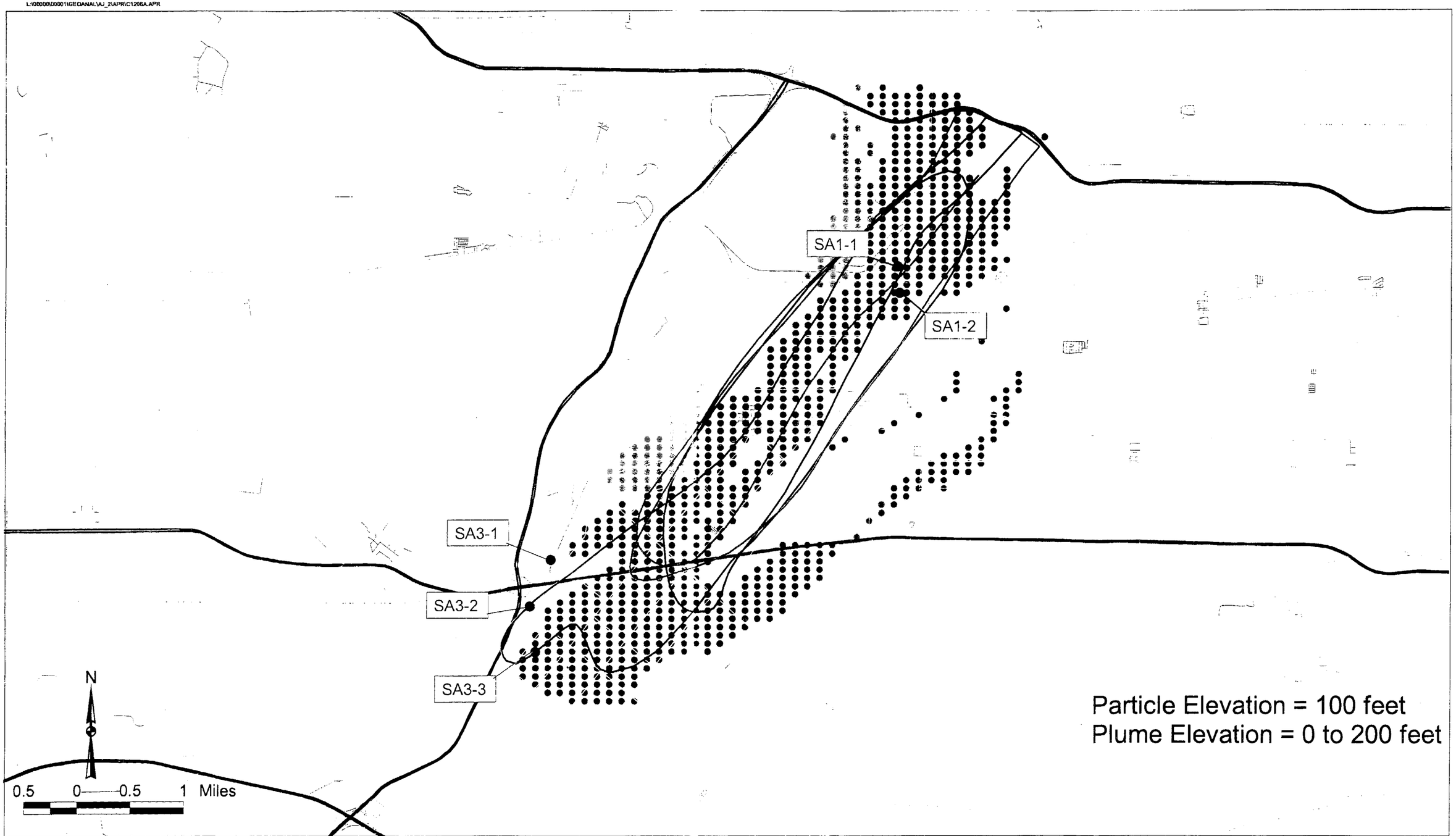

SubArea 1
- SA1-1 = 2,500 gpm
- SA1-2 = 3,000 gpm

SubArea 3
- SA3-1 = 4,333 gpm
- SA3-2 = 3,666 gpm
- SA3-3 = 6,500 gpm

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run C1206a
Time = 10,950 days

Total Extraction = 20,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option B,
Particle Elevation = 100 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE 6.9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

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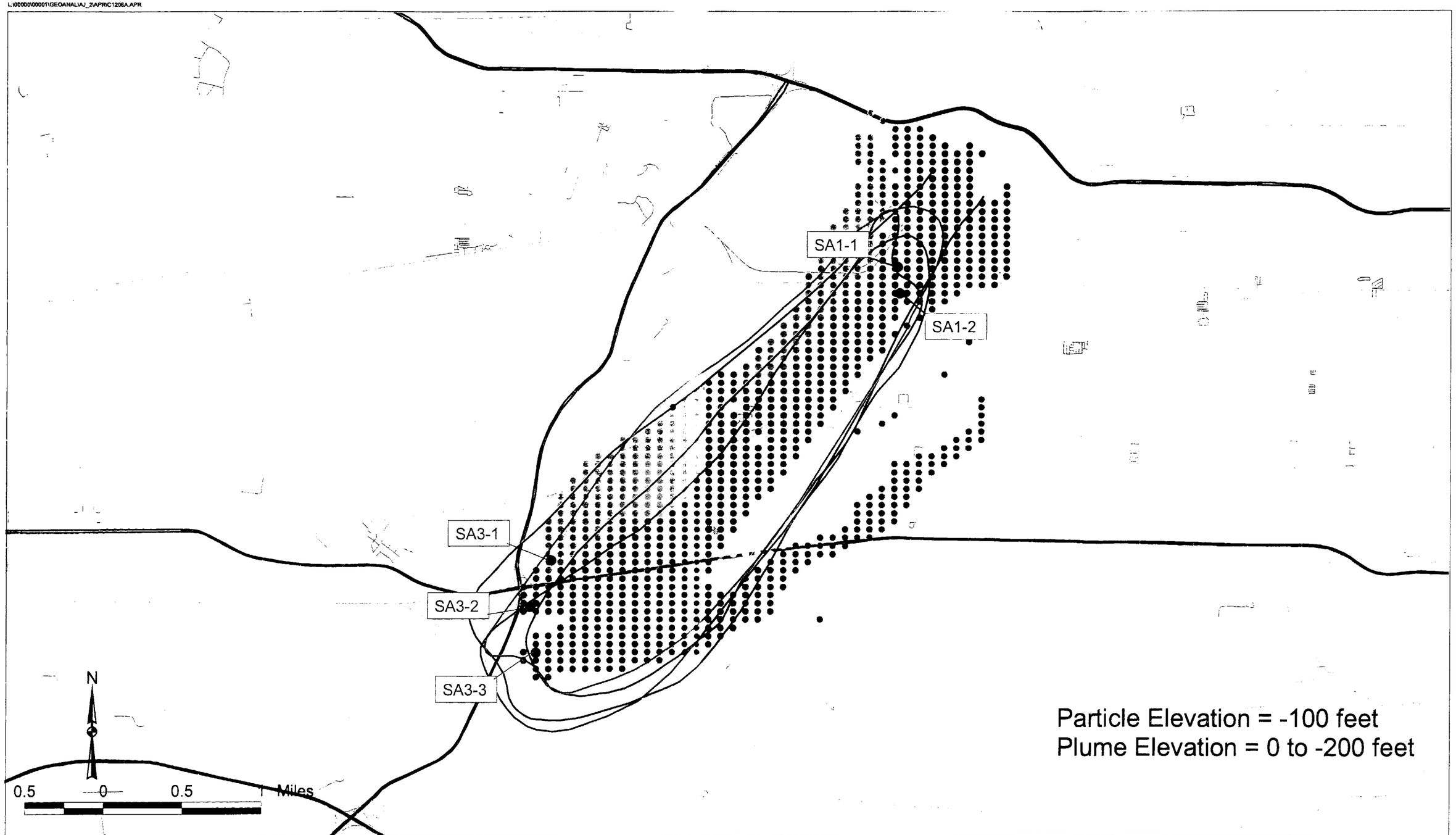

SubArea 1
- **SA1-1 = 2,500 gpm**
- **SA1-2 = 3,000 gpm**

SubArea 3
- **SA3-1 = 4,333 gpm**
- **SA3-2 = 3,666 gpm**
- **SA3-3 = 6,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run C1206a
Time = 10,950 days

Total Extraction = 20,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option B
Particle Elevation = -100 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.10

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

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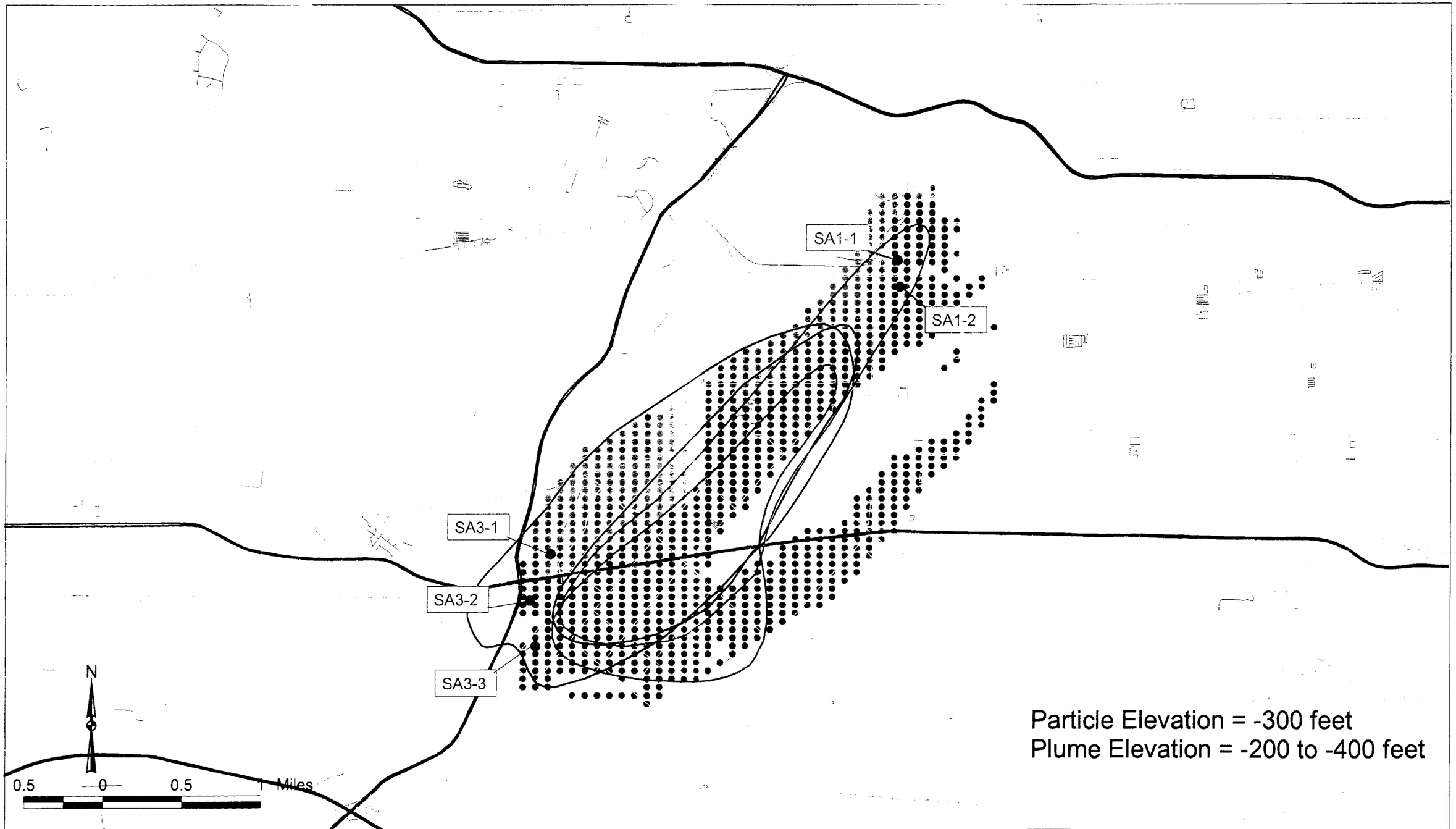

SubArea 1
- **SA1-1 = 2,500 gpm**
- **SA1-2 = 3,000 gpm**

SubArea 3
- **SA3-1 = 4,333 gpm**
- **SA3-2 = 3,666 gpm**
- **SA3-3 = 6,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run C1206a
Time = 10,950 days

Total Extraction = 20,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option B
Particle Elevation = -300 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.11

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

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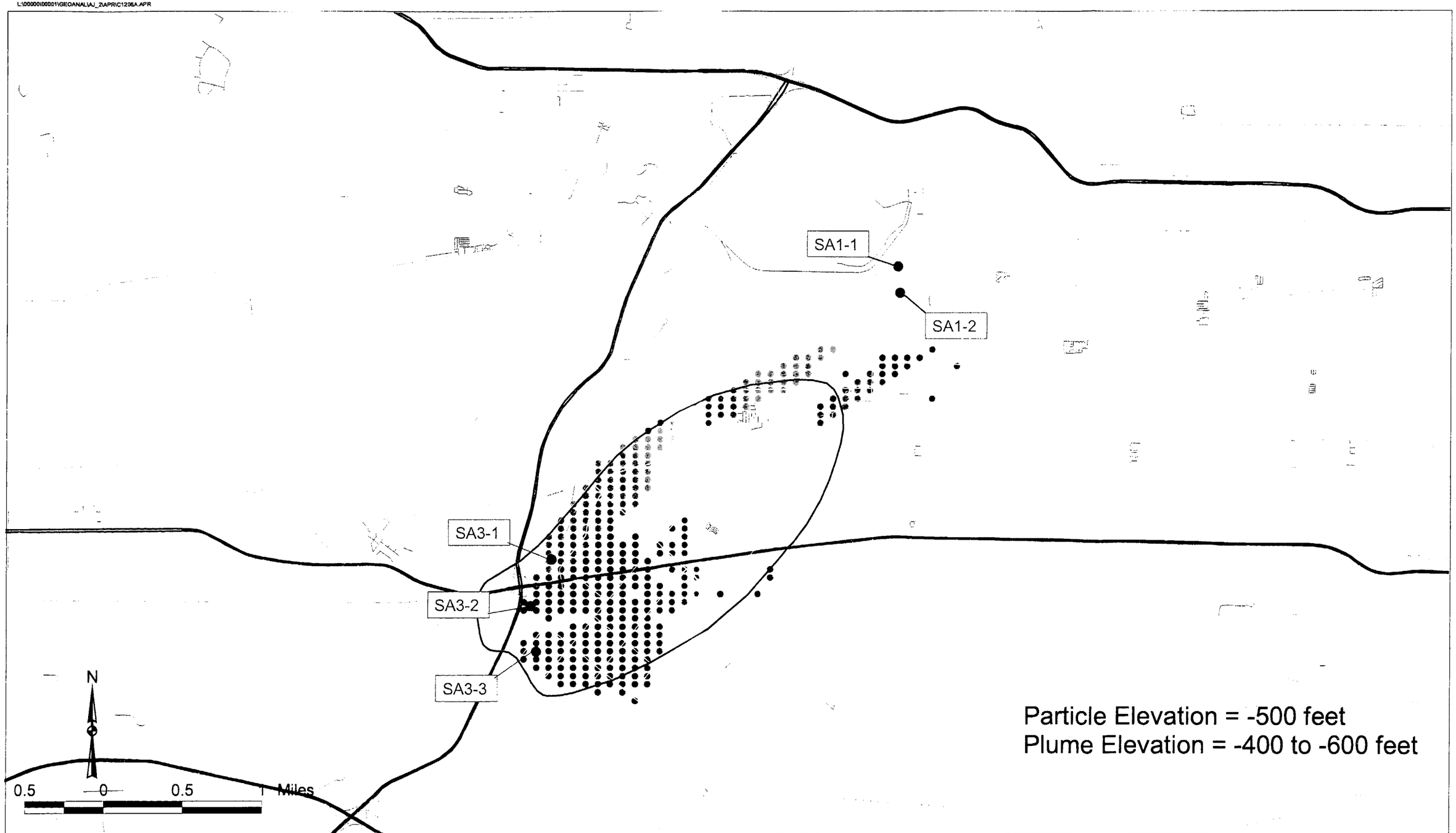


SubArea 1
- **SA1-1 = 2,500 gpm**
- **SA1-2 = 3,000 gpm**

SubArea 3
- **SA3-1 = 4,333 gpm**
- **SA3-2 = 3,666 gpm**
- **SA3-3 = 6,500 gpm**

TCE 5 ug/L
Perchlorate 18 ug/L
NDMA 0.033 ug/L
Carbon Tetrachloride 0.5 ug/L

Flow Run C1206a
Time = 10,950 days

Total Extraction = 20,000 gpm

Harding Lawson Associates
Engineering and Environmental Services

Particles Captured: Consensus Plan Option B
Particle Elevation = -500 feet MSL
Baldwin Park Operable Unit Steering Committee
California

FIGURE
6.12

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BDK	39860.320	MJS	12/98	1/99

PARTIALLY SCANNED
OVERSIZE ITEM (S)

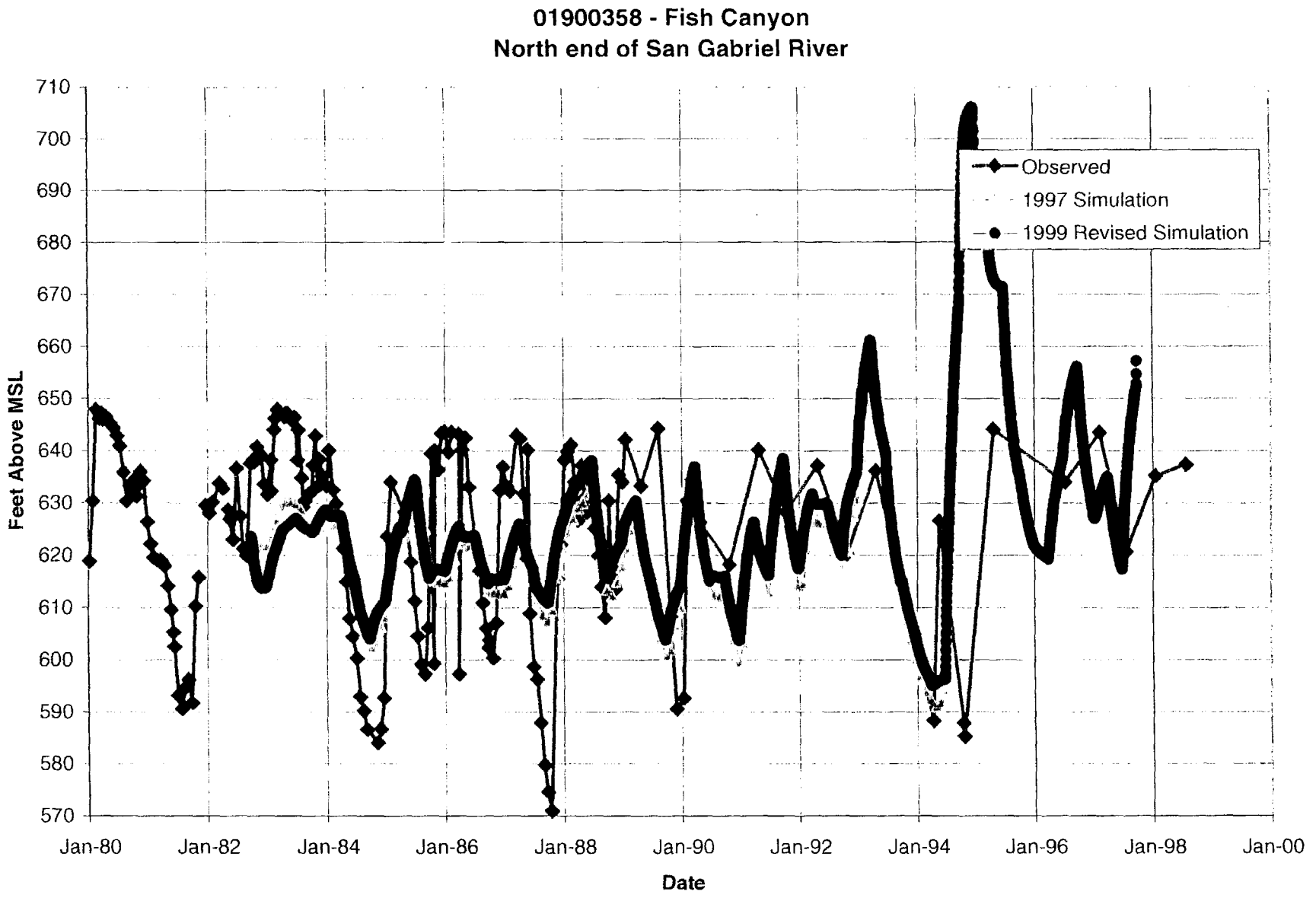
See Document # 47650
for partially scanned image(s).

For complete version of oversize document(s),
see paper copy.

OVD-parent

Appendix A

CALIBRATED MODEL HYDROGRAPHS



pq_1214a.xls-01900358
1/20/99

Figure A-1 Observed and Calibrated Water Levels for 01900358

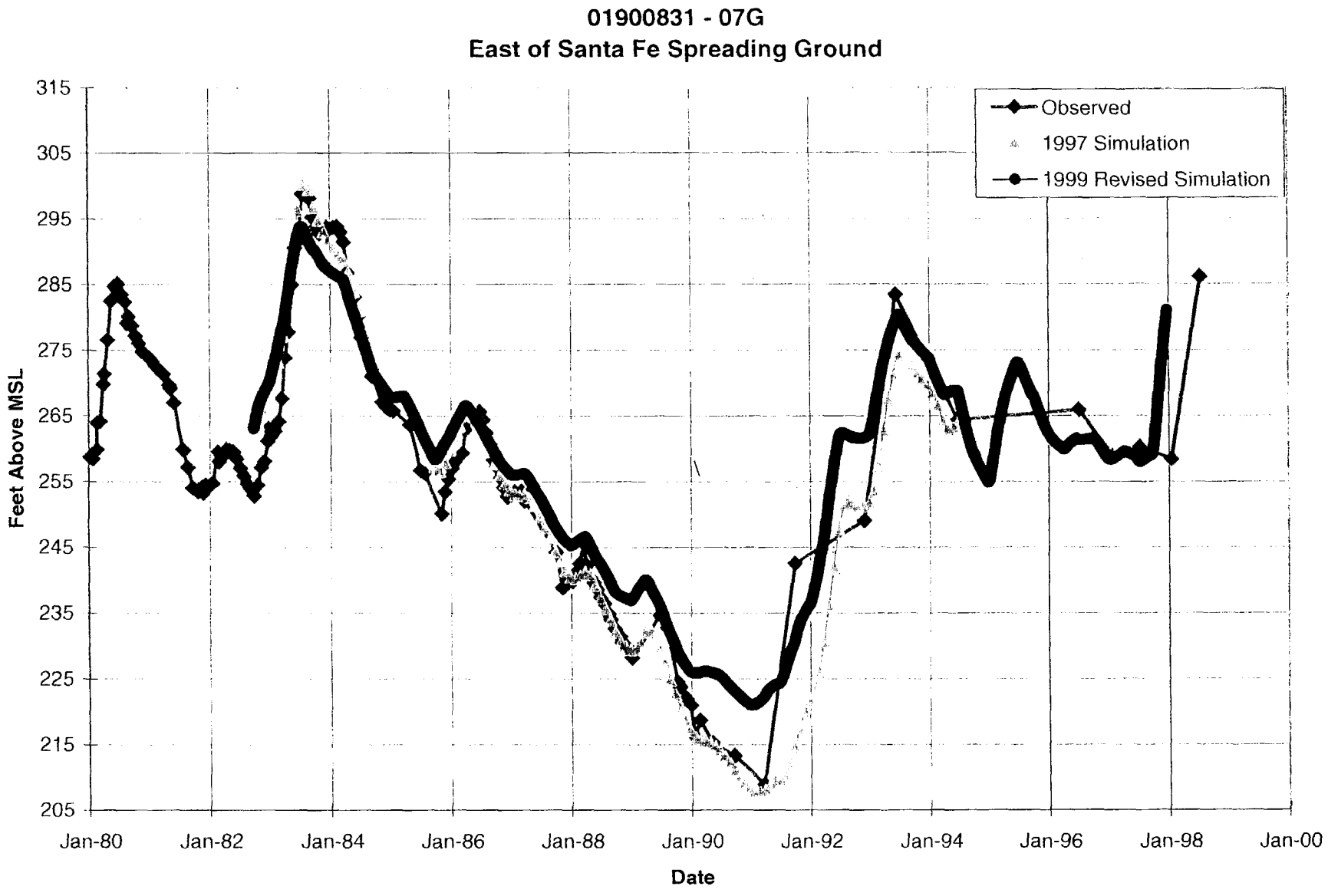


Figure A-2 Observed and Calibrated Water Levels for 01900831

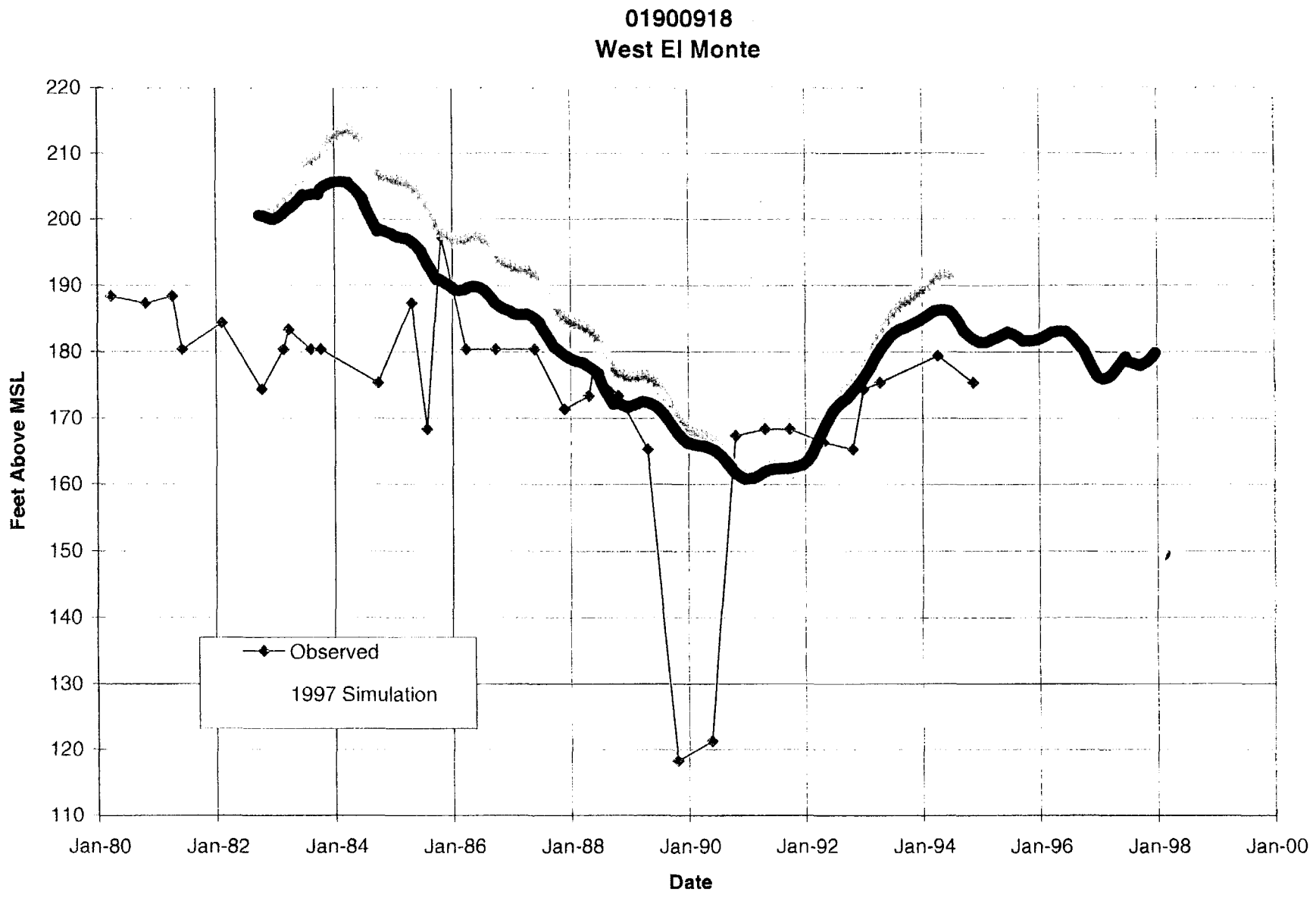


Figure A-3 Observed and Calibrated Water Levels for 01900918

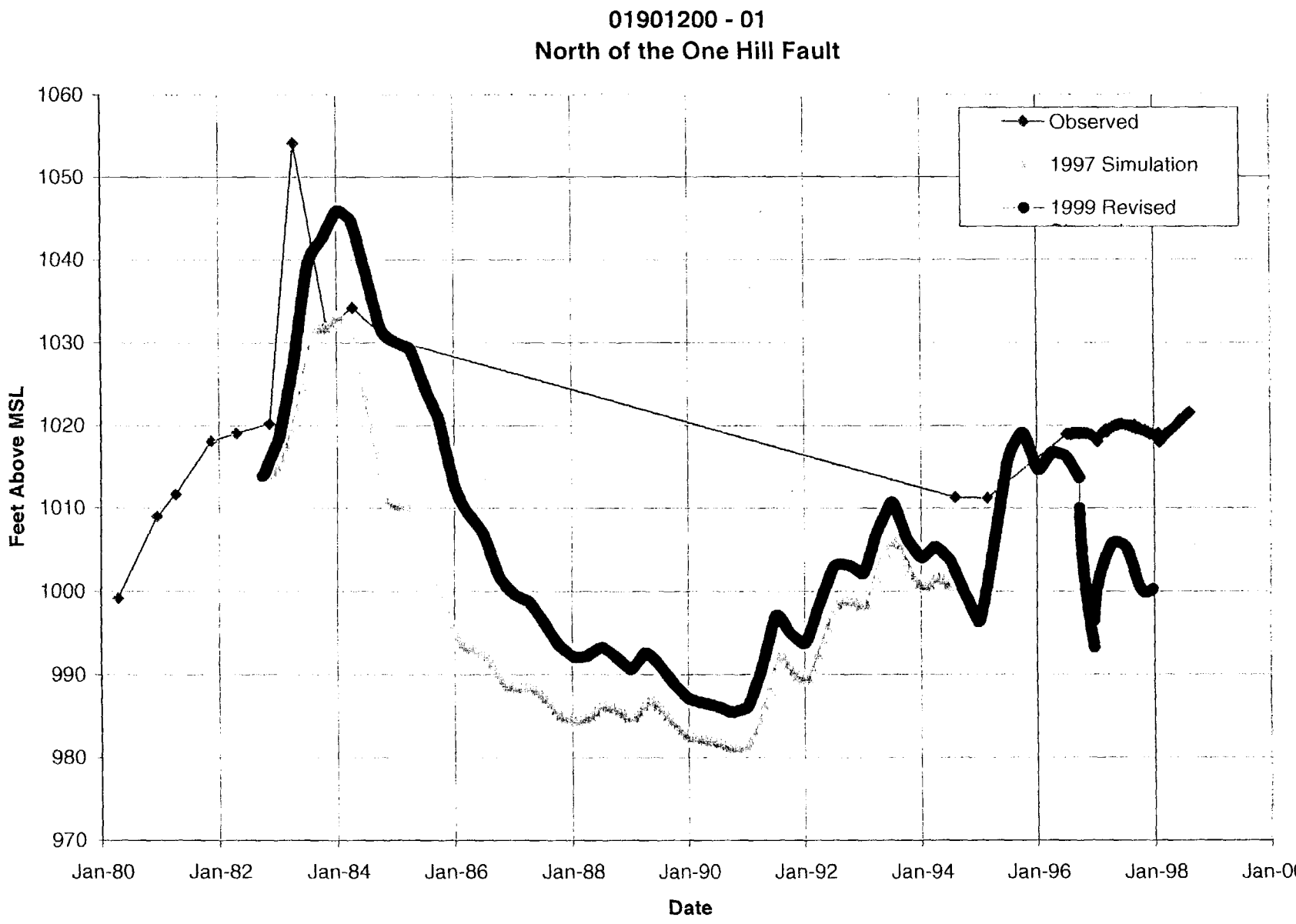


Figure A-4 Observed and Calibrated Water Levels for 01901200

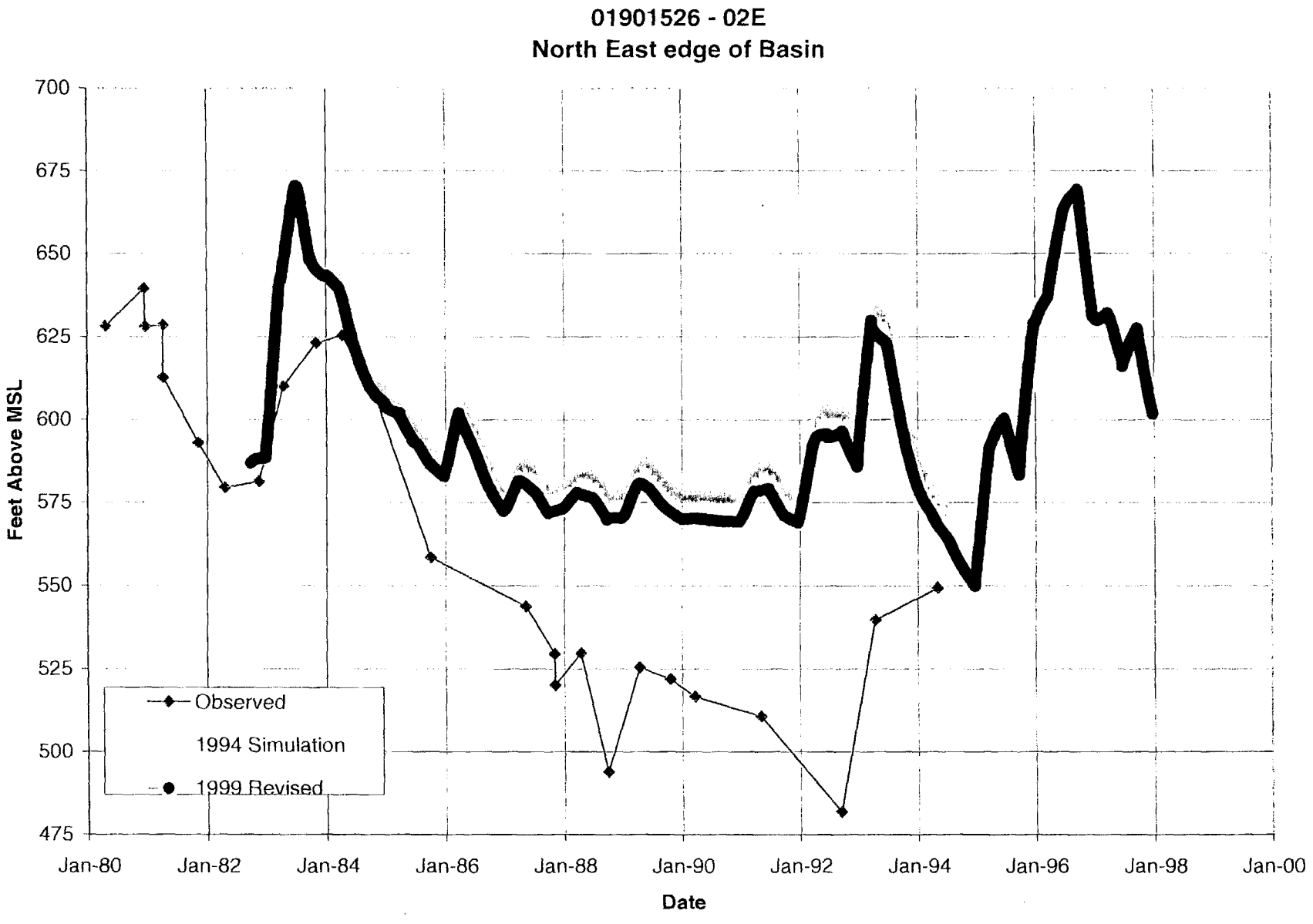


Figure A-5 Observed and Calibrated Water Levels for 01901526

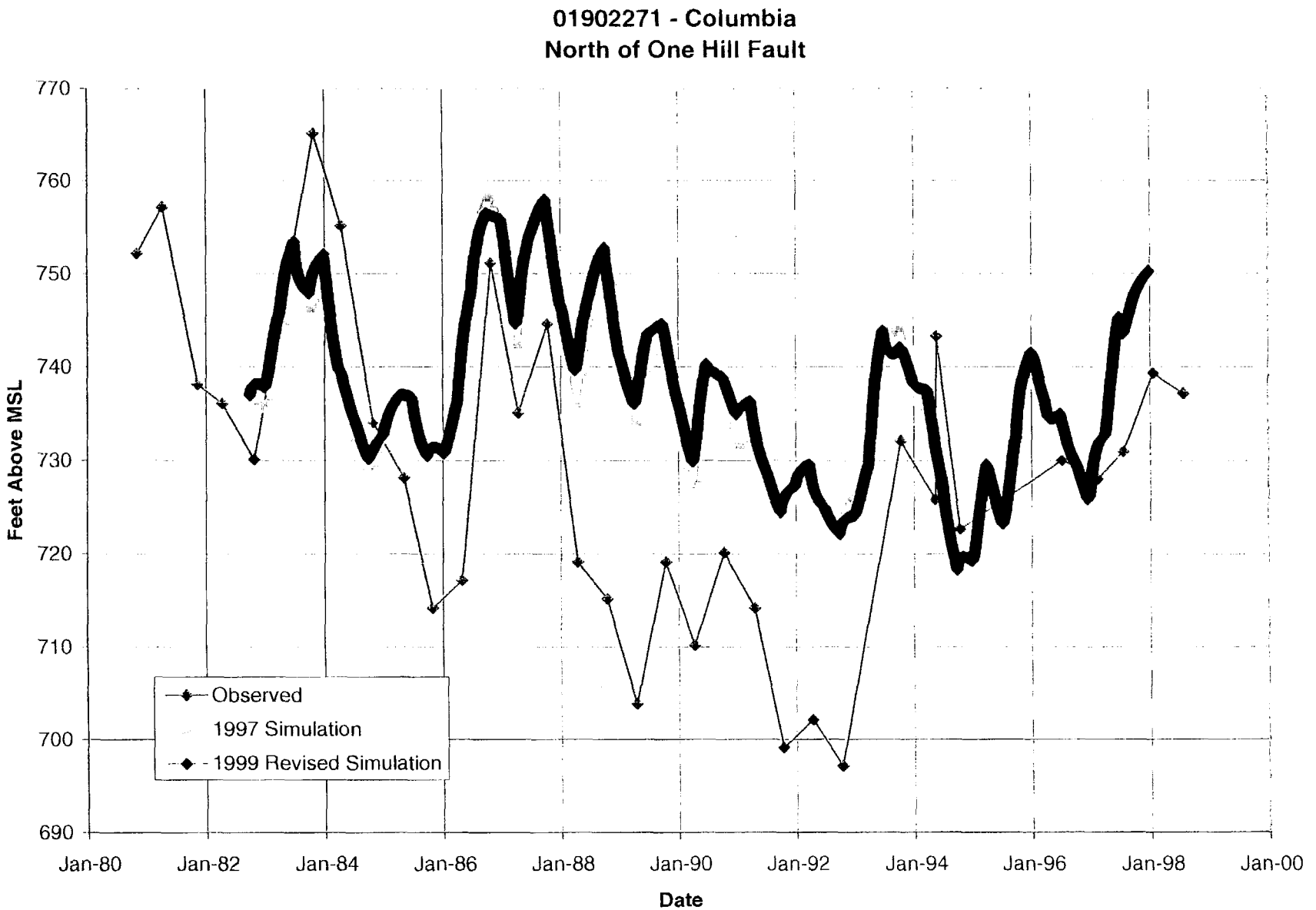


Figure A-6 Observed and Calibrated Water Levels for 01902271

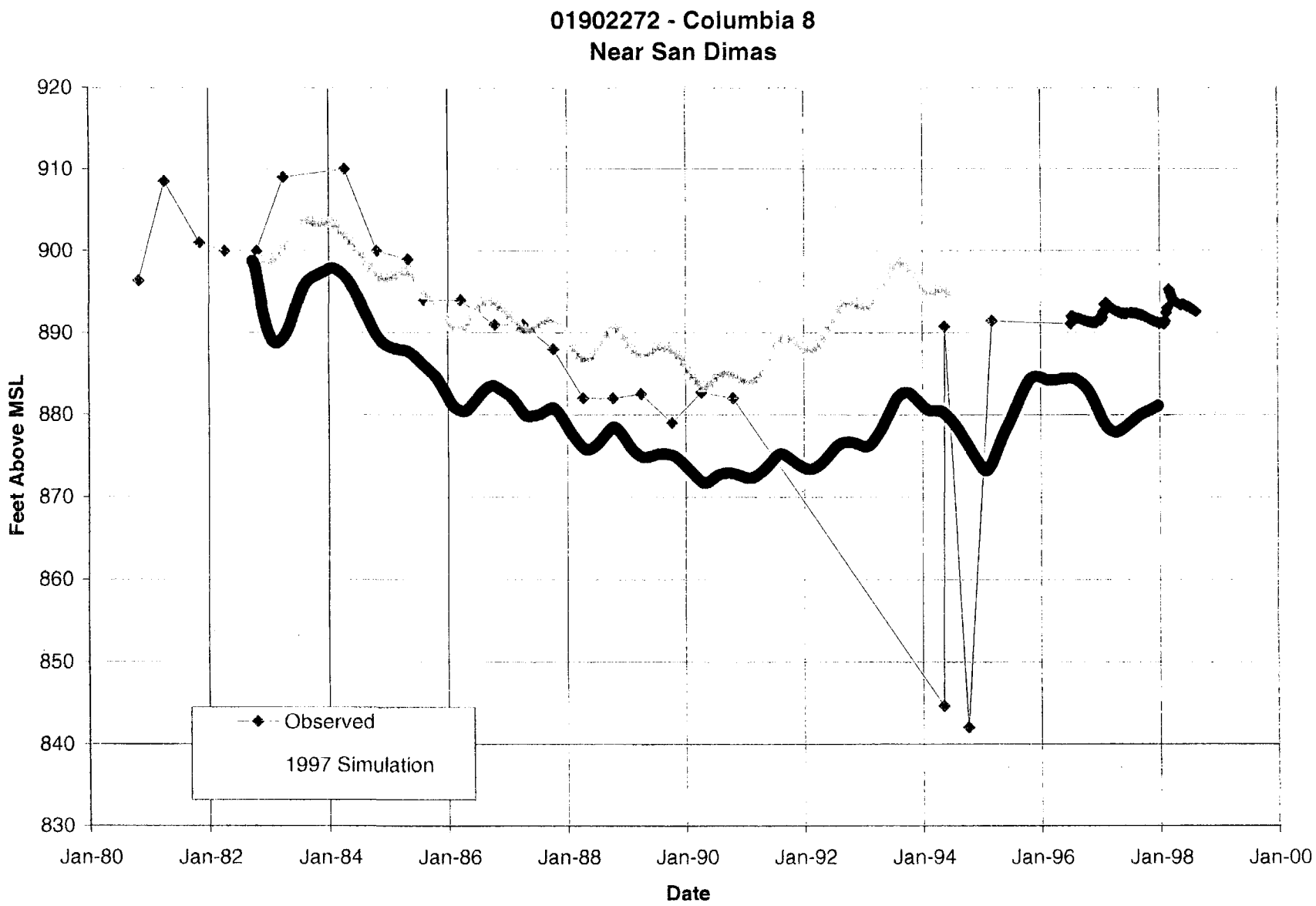


Figure A-7 Observed and Calibrated Water Levels for 01902272

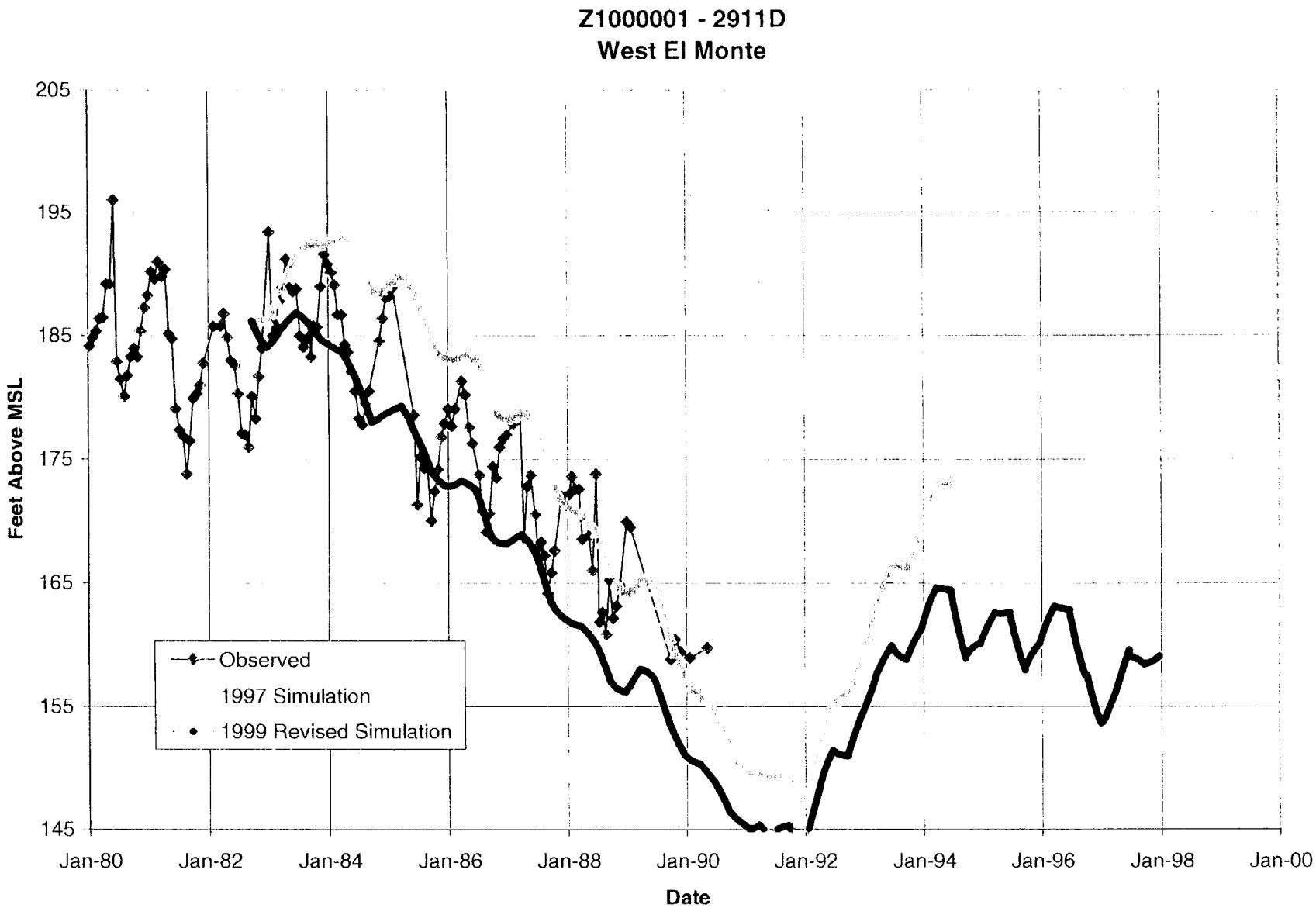


Figure A-8 Observed and Calibrated Water Levels for Z1000001

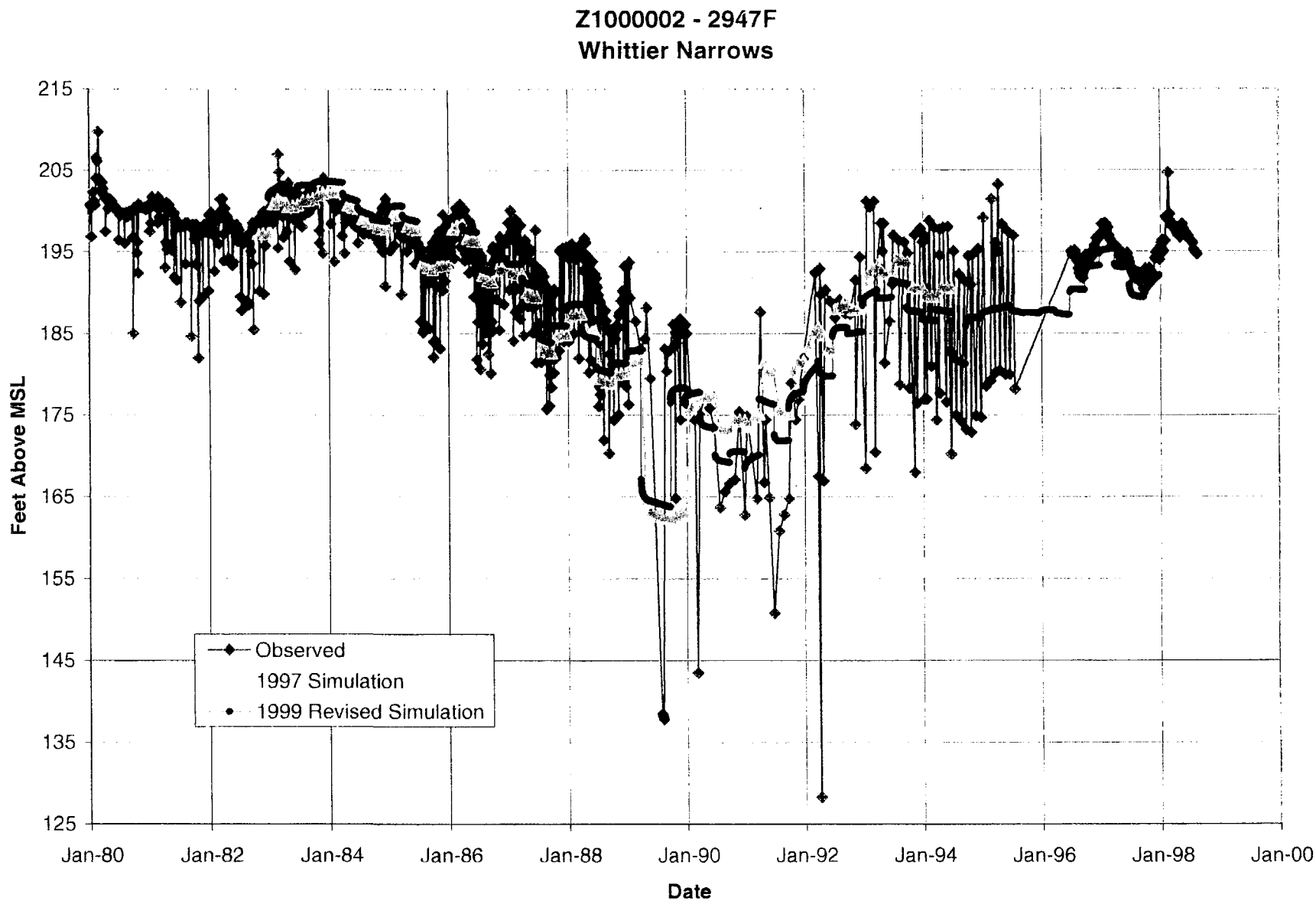


Figure A-9 Observed and Calibrated Water Levels for Z1000002

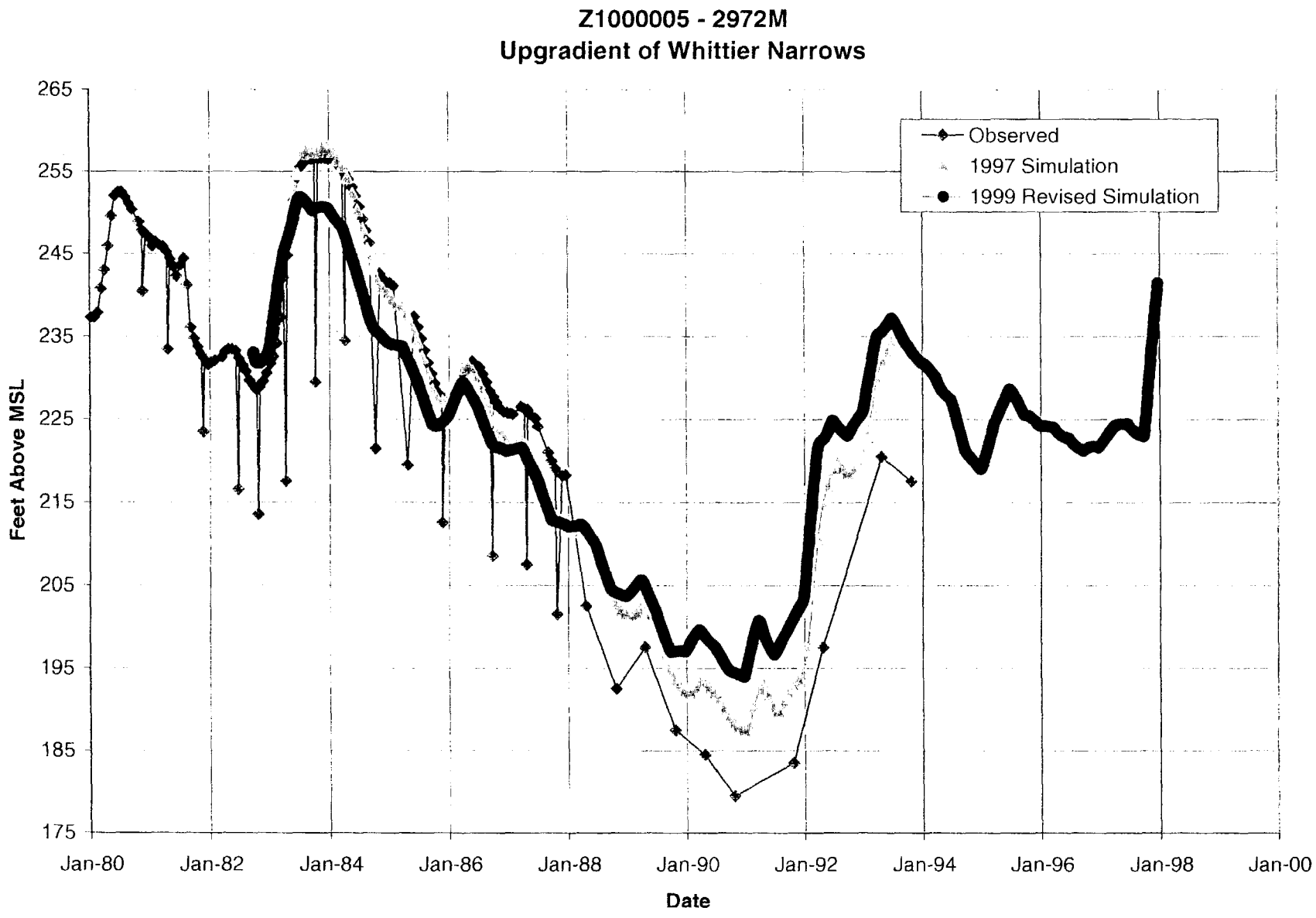


Figure A-10 Observed and Calibrated Water Levels for Z1000005

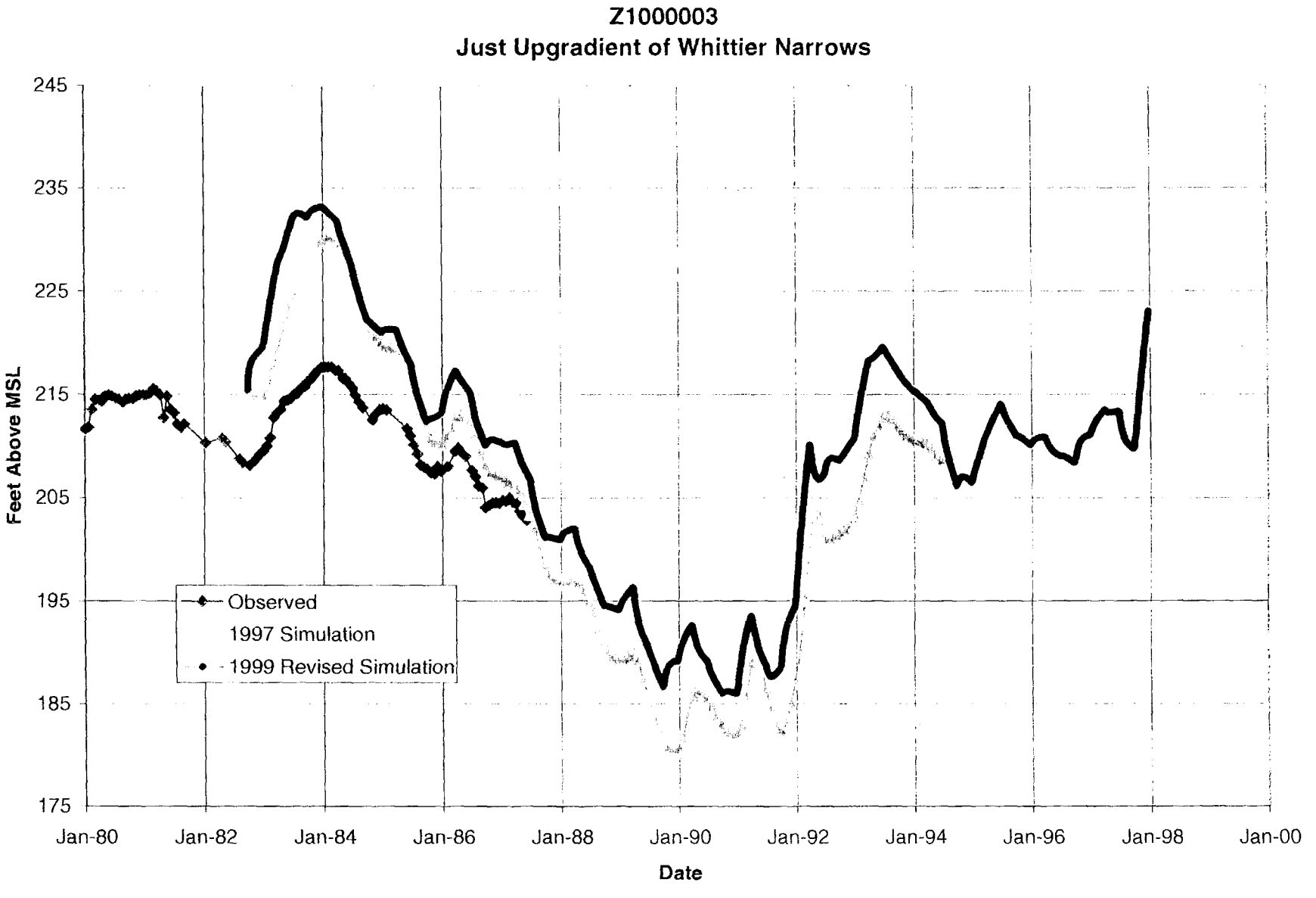


Figure A-11 Observed and Calibrated Water Levels for Z1000003

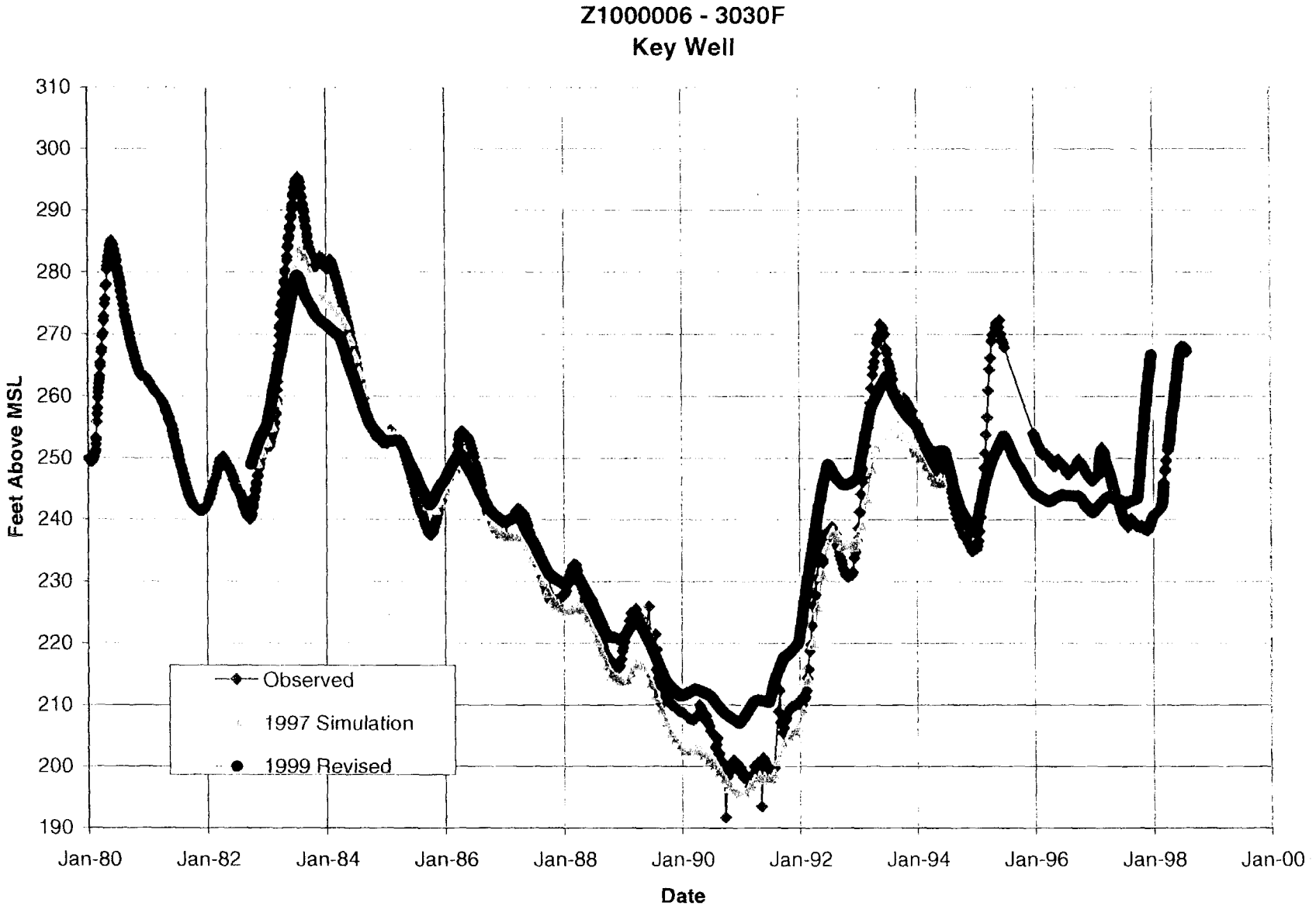


Figure A-12 Observed and Calibrated Water Levels for Z1000006

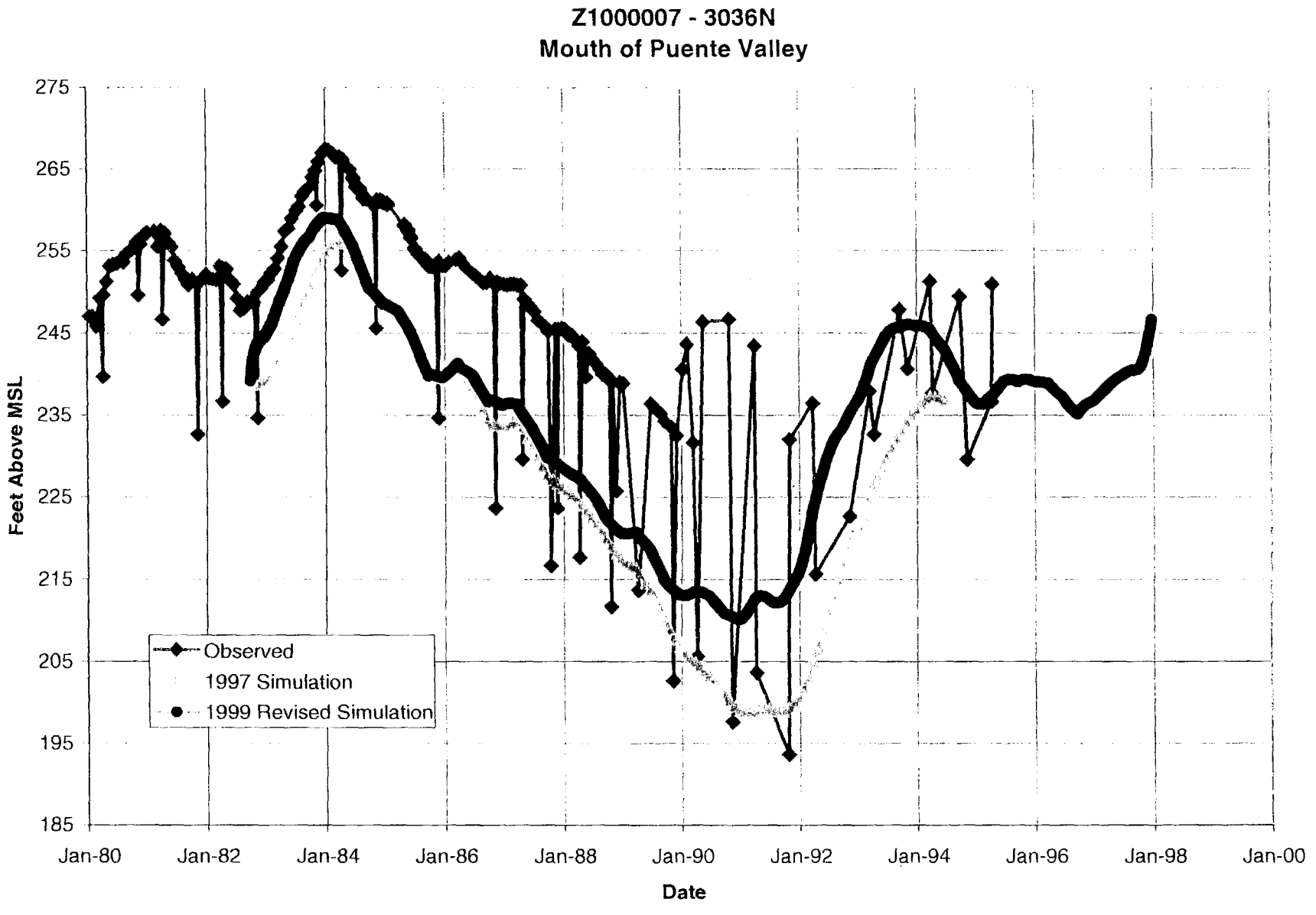


Figure A-13 Observed and Calibrated Water Levels for Z1000007

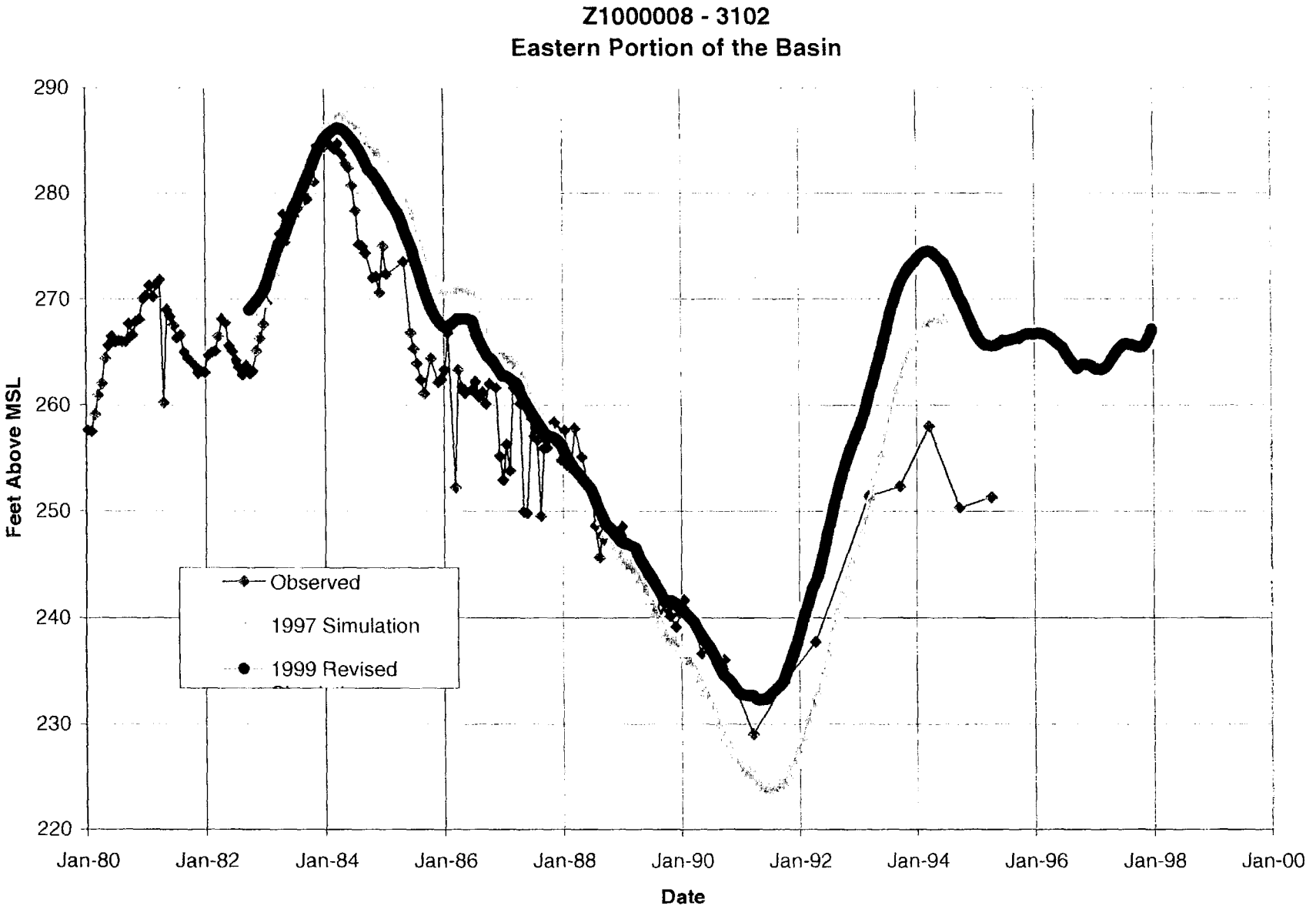


Figure A-14 Observed and Calibrated Water Levels for Z1000008

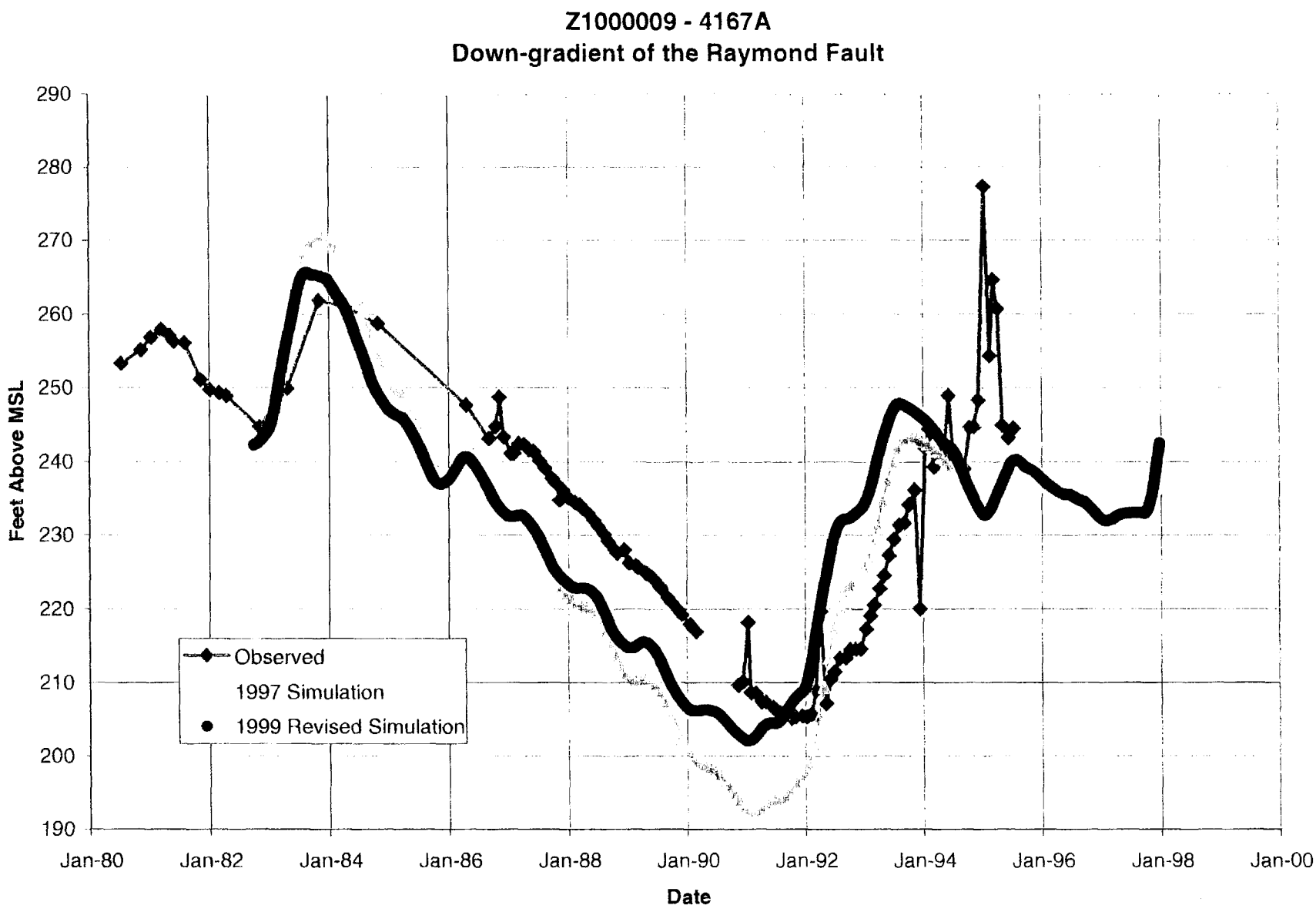


Figure A-15 Observed and Calibrated Water Levels for Z1000009

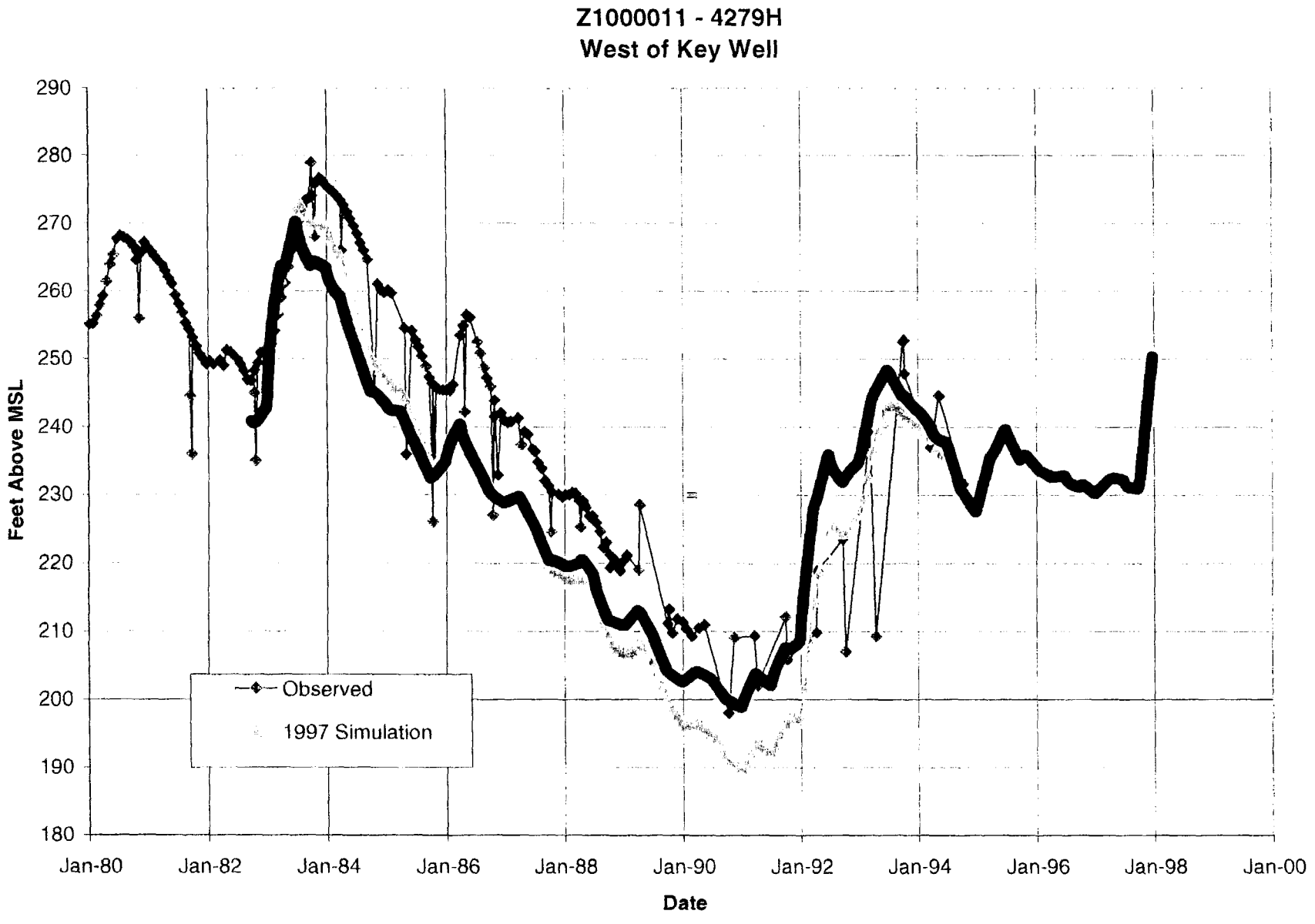


Figure A-16 Observed and Calibrated Water Levels for Z1000011