

GROUNDWATER INVESTIGATION REPORT TO VERIFY CURRENT RADIOACTIVITY CONDITIONS

**Former Canoga Park Facility
8433 Fallbrook Avenue
Canoga Park, California
SLIC No. 0693, Site ID No. 2043T00**

**Oneida Total Integrated Enterprises Project No. 2009025
August 2009**

**Prepared for:
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TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	GROUNDWATER SAMPLING AND ANALYSIS.....	2
2.1	GROUNDWATER SAMPLING	2
2.2	INVESTIGATION DERIVED WASTE.....	2
2.3	SAMPLE ANALYSIS.....	2
3.0	QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM	4
3.1	FIELD QC SAMPLES.....	4
3.1.1	Field Duplicates.....	4
3.1.2	Equipment Rinsate Samples	4
3.2	LABORATORY QC SAMPLES	4
4.0	RADIOLOGICAL DATA VALIDATION	5
4.1	VALIDATION PROCEDURES.....	5
4.2	DATA VALIDATION QUALIFIERS AND REASON CODES	6
4.3	DATA VALIDATION REPORT	6
5.0	RESULTS	7
5.1	MONITORING WELL LABORATORY SAMPLE RESULTS	7
5.2	MONITORING WELL FIELD PARAMETER RESULTS.....	7
5.3	QA/QC RESULTS	8
6.0	SUMMARY	9
7.0	DATA EVALUATION DISCUSSION	10
7.1	EVALUATION OF FILTERED VERSUS UNFILTERED CONCENTRATIONS	10
7.2	EVALUATION OF RADIUM VERSUS TOTAL DISSOLVED SOLIDS AND FIELD PARAMETERS... 10	
7.3	EVALUATION OF GROSS ALPHA VERSUS TOTAL DISSOLVED SOLIDS AND FIELD PARAMETERS	11
7.4	EVALUATION OF URANIUM VERSUS TOTAL DISSOLVED SOLIDS AND FIELD PARAMETERS. 11	
8.0	CONCLUSIONS	12
9.0	REFERENCES	13

FIGURES

- Figure 1 Site Vicinity Map
Figure 2 Radiological Concentrations in Groundwater, May 2009

TABLES

- Table 1 Radiological Sampling Results, May 2009
Table 2 Relative Mass Ratios of Uranium Isotopes in Groundwater, May 2009
Table 3 Historical Radiological Concentrations in Groundwater
Table 4 Measure Field Parameters in Groundwater, May 2009

GRAPHS

- Graph 1 Filtered vs Unfiltered Results, Combined Radium
Graph 2 Filtered vs Unfiltered Results, Gross Alpha
Graph 3 Filtered vs Unfiltered Results, Total Uranium
Graph 4a Combined Radium and Average TDS
Graph 4b Combined Radium and pH
Graph 4c Combined Radium and Turbidity
Graph 4d Combined Radium and Oxidation Reduction Potential (ORP)
Graph 4e Oxidation Reduction Potential (ORP) vs Detected Combined Radium, Filtered Samples
Graph 4f Oxidation Reduction Potential (ORP) vs Detected Combined Radium, Unfiltered Samples
Graph 5a Gross Alpha and Average TDS
Graph 5b Gross Alpha and pH
Graph 5c Gross Alpha and Turbidity
Graph 5d Gross Alpha and Oxidation Reduction Potential (ORP)
Graph 5e TDS vs Gross Alpha, Filtered Samples
Graph 5f TDS vs Gross Alpha, Unfiltered Samples
Graph 6a Total Uranium and Average TDS
Graph 6b Total Uranium and pH
Graph 6c Total Uranium and Turbidity
Graph 6d Total Uranium and Oxidation Reduction Potential (ORP)
Graph 6e TDS vs Total Uranium, Filtered Samples
Graph 6f TDS vs Total Uranium, Unfiltered Samples
Graph 6g Oxidation Reduction Potential (ORP) vs Total Uranium, Filtered Samples
Graph 6h Oxidation Reduction Potential (ORP) vs Total Uranium, Unfiltered Samples

APPENDICES (PDF FORMAT ON CD-ROM)

- Appendix A Regulatory Correspondence
Appendix B Groundwater Sampling Field Sheets
Appendix C Laboratory Reports
Appendix D Data Validation Report

ACRONYMS AND ABBREVIATIONS

CEL	Calscience Environmental Laboratory
CDPH	California Department of Public Health
DTSC	Department Toxics Substance Control
ERDU	Evaluation of Radiochemical Data Usability
GPL	GPL Laboratory, LLC
LARWQCB	California Regional Water Quality Control Board, Los Angeles Region
LDC	Laboratory Data Consultants, Inc.
MARLAP	Multi-Agency Radiological Laboratory Analytical Protocol
MCLs	Maximum Contaminant Levels
MDA	minimum detectable activity
mg/L	milligrams per liter
mV	milli-volts
NELAP	National Environmental Laboratory Accreditation Program
NTU	nephelometric turbidity units
NFGs	National Functional Guidelines
NTIS	National Technical Information Service
OTIE	Oneida Total Integrated Enterprises
ORP	Oxidation Reduction Potential
pCi/L	picocuries per liter
QC	quality control
Ra-226	Radium-226
Ra-228	Radium-228
Raytheon	Raytheon Company
RPD	relative percent difference
R ²	coefficient of determination
SM	Standard Methods
SOP	Standard Operating Practice
TDS	Total Dissolved Solids
TN&A	T N & Associates, Inc.
U	Uranium
USEPA	US Environmental Protection Agency

1.0 INTRODUCTION

Oneida Total Integrated Enterprises (OTIE), formerly T N & Associates, Inc. (TN&A), has prepared this report on behalf of Raytheon Company (Raytheon), documenting the recent groundwater investigation to verify current radioactivity conditions at the former facility located at 8433 Fallbrook Avenue in Canoga Park, California, as illustrated in [Figure 1](#) (“Former Canoga Park Facility”). The work was conducted following the work plan titled *Work Plan Revision 01 for Groundwater Investigation to Verify Current Radioactivity Conditions* prepared by TN&A (TN&A, 2008b) and submitted to the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB) in December 2008.

Raytheon's predecessor, Hughes Missile Systems, Inc., conducted a comprehensive investigation in 1990 and 1991 at the request of the LARWQCB to determine radioactivity levels in groundwater at the site including eight sampling events between September 1990 and December 1991. These findings were submitted to the LARWQCB in 1992 (GRC, 1992) and indicated that a subset of the well samples had radiological parameters exceeding California Maximum Contaminant Levels (MCLs), but that the concentrations were naturally occurring based on the relative abundances of the individual uranium isotopes. After 1992, no additional testing for radiological parameters was done as there was no further correspondence from the LARWQCB concerning the subject. Therefore, Raytheon considered the investigation to be complete and continued efforts remediating the Volatile Organic Compound (VOC) concentrations in shallow groundwater underlying the northwest portion of the site.

On March 5, 2008, the LARWQCB requested additional information and a work plan for an investigation to assess the current conditions for radioactivity in groundwater (LARWQCB, 2008a, [Appendix A](#)). Raytheon responded and provided LARWQCB with the requested site information in addition to all the historical radiological data in a letter dated April 3, 2008 (Raytheon, 2008a; [Appendix A](#)). The LARWQCB subsequently requested additional information from Raytheon during a teleconference on May 21, 2008. This information was provided in a June 3, 2008 letter from Raytheon to the LARWQCB (Raytheon, 2008b; [Appendix A](#)).

Based on the LARWQCB review of the requested data, a letter was then issued on July 15, 2008, re-iterating the requirement for Raytheon to submit a work plan for a site-wide groundwater investigation to verify current radioactivity conditions at the site (LARWQCB, 2008b; [Appendix A](#)). TN&A prepared a work plan for the sampling and submitted it on September 12, 2008 (TN&A, 2008a). The LARWQCB reviewed the work plan and provided comments in a letter dated October 21, 2008 (LARWQCB, 2008c; [Appendix A](#)), mainly discussing the specific laboratory methodologies and sample collection protocols. These comments were addressed by coordinating a collaborative effort between Raytheon, OTIE-TN&A, the LARWQCB, and the California Department of Public Health (CDPH). Through a series of conference calls and e-mail correspondence that occurred between October 2008 and December 2008, OTIE-TN&A developed a sampling and analytical program that met the data quality objectives for all stakeholders involved. A revised work plan entitled: *Work Plan Revision 01 for Groundwater Investigation to Verify Current Radioactivity Conditions* (TN&A, 2008b) was then prepared, incorporating all the agreed upon sampling protocols and analytical methodologies, and submitted to the LARWQCB in December 2008. The revised work plan was approved by the LARWQCB in their January 29, 2009 letter (LARWQCB, 2009; [Appendix A](#)).

The field activities and laboratory analyses documented in this report are in accordance with the approved December 2008 work plan.

2.0 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected from 11 site wells (wells MW-16, MW-19S, MW-20D, MW-21S, MW-21D, CM-8D, CM-9D, CM-10, CM-12, CM-17, and CM-18) at locations shown on [Figure 2](#), as required by the LARWQCB. The wells were sampled following OTIE-TN&A's standard operating procedures as presented in the approved work plan. As required by the LARWQCB, both filtered and unfiltered groundwater samples were collected to allow comparison and to determine whether the suspended sediments have any effect on the analytical results. In all, 28 groundwater samples were submitted for analysis: 11 unfiltered well samples, 11 filtered well samples, field duplicates from two wells (each with an unfiltered and filtered sample) and two equipment rinsate blanks. Samples were submitted to Calscience Environmental Laboratory (CEL) (NELAP ID# 03220CA) and GPL laboratory, LLC (GPL) (NELAC ID #NLC080001) for analysis.

2.1 GROUNDWATER SAMPLING

Groundwater sampling for radiological analyses was conducted concurrent with the semiannual groundwater sampling event between May 26 and May 27, 2009. Prior to sampling, each well was gauged for depth to water measurements on May 26, 2009 and then purged using a "low-flow" technique with a decontaminated submersible pump and dedicated tubing, as described in the OTIE-TN&A's Standard Operating Practice (SOP) No. TNFLD008F (previously submitted in the work plan). During purging, the groundwater was monitored for the stabilization of pH, temperature, oxidation reduction potential (ORP), dissolved oxygen, conductivity, and turbidity. Field measurements were recorded on well sampling sheets for each well and are included in [Appendix B](#). Upon stabilization of the field parameters, the unfiltered samples were decanted into the appropriate laboratory-supplied containers described in the work plan. Samples designated for field-filtering were filtered using a disposable 0.45-micron filter prior to decanting into the appropriate laboratory-supplied containers. Each sample container was labeled with sample identification, requested analysis, date and time of collection and placed on ice in a cooler in accordance with OTIE-TN&A's SOP No. TNFLD010C (previously submitted). Samples were shipped priority overnight under chain-of-custody protocol to the two laboratories (CEL and GPL) at temperatures between 2 and 6 degrees Celsius.

2.2 INVESTIGATION DERIVED WASTE

Well purge water generated from this event was containerized in an UN-approved 55-gallon drum. The drum was properly labeled and stored on site pending treatment/disposal. A sample of the purge water was collected and analyzed for VOCs and metals to confirm that the material was not a Resource Conservation and Recovery Act (RCRA) Federal hazardous waste or California hazardous waste. Waste characterization data is provided in [Appendix C](#). Results indicated that the purge water is not a RCRA or California Hazardous waste. Disposal of IDW will be performed in accordance with applicable state and federal regulations. Profiling and manifest documentation will be kept on file by Raytheon and OTIE, and available at LARWQCB request.

2.3 SAMPLE ANALYSIS

Each of the 28 groundwater samples was analyzed for total dissolved solids (TDS) at CEL in Chatsworth, California. The remaining sample containers were submitted to GPL in Montgomery, Alabama for analysis of gross beta, total uranium, radium-226 (Ra-226) and radium-228 (Ra-228). Gross alpha analysis was performed after receipt of the TDS results. If the TDS value for a sample was less than 500 milligrams per liter (mg/L), the corresponding

sample at GPL was analyzed for gross alpha by EPA Method 900.0. If TDS concentration was greater than 500 mg/L, the sample was analyzed for gross alpha using Method SM 7110C. Samples for Isotopic uranium were also submitted to GPL from each well for potential analysis. If the total uranium concentration for any sample exceeded the MCL of 20 picocuries per liter (pCi/L), it was then further speciated for their respective isotopes (U^{234} , U^{235} , and U^{238}).

Samples were analyzed by the following methods:

Parameter	Method
total dissolved solids (TDS)	SM 2540C
gross alpha* (method based on TDS results)	EPA 900.0 (if TDS <500 mg/L) or SM 7110C (if TDS >500 mg/L)
gross beta	EPA 900.0
uranium	EPA 908.0
Ra-226	EPA 903.1
Ra-228	EPA 904.0
uranium Isotopes (U^{234} , U^{235} , and U^{238})	NTIS 7500-UC-00

* - Natural uranium was used as calibration standard for gross alpha determination by EPA 900.0 for samples with solid content below 500 mg/L and SM 7110C for samples with solid content above 500 mg/L. Use of the natural uranium standard is not the standard operating procedure for the method, but was requested by the LARWQCB in e-mail correspondence between Dr. Ann Chang of the LARWQCB and Ms. Ewelina Mutkowska of OTIE-TN&A on December 12, 2008.

3.0 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM

OTIE assessed the quality of field data through collection and analysis of field quality control (QC) samples. Laboratory QC samples were analyzed in accordance with referenced analytical method protocols to ensure that laboratory procedures and analyses were conducted properly to meet data quality objectives.

3.1 FIELD QC SAMPLES

QC samples were collected in the field and analyzed to check sampling and analytical precision, accuracy, and representativeness. The following section discusses the types of field QC samples that were collected for this project.

3.1.1 *Field Duplicates*

Field duplicate samples were collected from two wells. Samples CP-0905023 (filtered) and CP-0905024 (unfiltered) were collected from well MW-16. Samples CP-0905025 (filtered) and CP-0905026 (unfiltered) were collected from well CM-17. These four duplicate samples were submitted for identical analyses.

3.1.2 *Equipment Rinsate Samples*

Two equipment rinsate samples were collected during the sampling program, one for each day of sampling. Samples CP-0905027 and CP-0905028 were not filtered and were submitted for the same analyses as the normal samples.

The equipment rinsate blanks were prepared by pouring steamed distilled water over the recently decontaminated sampling equipment into appropriate sample containers and sent to the laboratory for analysis.

3.2 LABORATORY QC SAMPLES

Laboratory QC samples were prepared and analyzed at the laboratory to evaluate the effectiveness of sample preparation and analysis and to assess analytical precision and accuracy. Method blanks and laboratory control samples were used for this project by the laboratories. Samples CP-0905006 (from well CM-8D, filtered) and CP-0905019 (from well CM-17, unfiltered) were submitted as matrix spike and matrix spike duplicate samples. The two samples were analyzed for Ra-226 and Ra-228. Additional details on the laboratory QC are included in the data validation section below.

4.0 RADIOLOGICAL DATA VALIDATION

Upon receipt of the radiological laboratory data from GPL, the data packages were submitted to third-party consultant Laboratory Data Consultants, Inc. (LDC) of Carlsbad, California, for the data validation.

Radiological data validation was conducted in accordance with the Final Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (USEPA, 2004a), Evaluation of Radiochemical Data Usability (ERDU) Guidelines (USDOE, 1997), and National Functional Guidelines (NFGs) for Inorganic Data Evaluation (USEPA, 2004b). Copies of these documents are provided on a CD-ROM in Attachment C of the work plan (TN&A, 2008b.)

Analytical data validation, including field and laboratory data review, is defined as a systematic process, performed external from the data generator (i.e., analytical laboratory performing analyses), which applies a defined set of performance-based criteria to a body of data, which may result in qualification of the data. Data validation provides a level of assurance, based on a technical evaluation, that an analyte is present or absent, and if present, the level of uncertainty associated with the measurement, and occurs prior to drawing a conclusion from a body of data.

Analytical data validation for radiochemistry includes a technical review of a laboratory data package covering the evaluation of quality-indicator samples, the identification and quantitation of analytes, and the effect of deficiencies in quality control on analytical sample data.

4.1 VALIDATION PROCEDURES

The following aspects of the data were reviewed by LDC for data validity:

- Custody of Samples and Sample Documentation;
- Sample Preservation;
- Holding Time Requirements;
- Aliquant Size;
- Chemical Separation (Yield);
- Initial Calibration and Calibration Verification;
- Quality-Indicator Samples;
- Laboratory Control Sample;
- Laboratory Duplicate;
- Field Duplicates;
- Matrix Spike;
- Method Blank;
- Equipment Blank; and
- Nuclide Identification and Quantification

LDC's Radiological data validation report is provided in [Appendix D](#).

4.2 DATA VALIDATION QUALIFIERS AND REASON CODES

Data qualifier flags are used in an effort to best describe the quality of each piece of data to the data user. These flags are letter codes appended to the numerical data. A series of standard remarks is used to give a more detailed explanation of the data. The following data qualifiers along with the United States Environmental Protection Agency (USEPA) definitions were used during the data validation process.

The following qualifiers are used during the data validation process to identify data points that do not meet the project QA/QC limits or other analytical process requirements listed in this report and/or referenced guideline documents:

- U** - The radionuclide was analyzed for but not detected. The value preceding the U is the minimum detectable activity (MDA).
- J** - The identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of accuracy (i.e., the quantitative value is considered estimated).
- R** - Data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample. Re-sampling and analysis are necessary to confirm or deny the presence of the analyte.
- UJ** - This flag is a combination of the U and J qualifiers, which indicates that the analyte is not present. The reported value is considered to be an estimated MDA.

4.3 DATA VALIDATION REPORT

A validation report including the results of validation activities in accordance with procedures described in the work plan (TN&A, 2008b) was completed by the data validator, LDC ([Appendix D](#)). Justification for each qualified data is provided using either reason code or additional explanations for qualification only if the reason codes do not adequately describe justification for qualification. The data validation report includes a narrative, data validation checklist, chain of custody copies, and pages of the laboratory report with assigned validation qualifiers and reasons for the qualifiers where applicable.

5.0 RESULTS

For all radiological analytical results, the laboratory provided the activity value (result), a total error, and the MDA. As a conservative measure, the activity results were adjusted based on the error provided and are referred to as “adjusted results” in the discussion herein, as is standard practice in the industry. [Table 1](#) presents the results, the adjusted results, and the California MCLs for each of the radiological analytes, as well as the TDS results. The results are also summarized on [Figure 2](#). For discussion purposes, the radiological results presented below refer to the adjusted results corresponding with the highest detected values between the filtered and unfiltered samples.

5.1 MONITORING WELL LABORATORY SAMPLE RESULTS

Detected gross alpha concentrations ranged from 3.87 pCi/L (well MW-19S) to 64.89 pCi/L (well MW-21D). For the gross alpha results to be compared to the MCL value of 15 pCi/L, the adjusted total uranium value was subtracted from the adjusted gross alpha concentration, per the California Department of Public Health (CDPH, 2008). Of the 11 wells sampled, the MCL was exceeded in samples from three wells: MW-16, MW-20D, and MW-21D ([Table 1](#)).

Gross beta results ranged from 4.77 pCi/L (MW-19S) to 54.77 pCi/L (CM-18). None of the samples exceeded the MCL of 20,000 pCi/L for gross beta.

Detected Ra-226 concentrations ranged from 0.885 pCi/L (CM-17) to 16.12 pCi/L (well MW-21D), while Ra-228 values ranged from 1.46 pCi/L (well MW-20D) to 2.81 pCi/L (well MW-19S). The MCL for radium is the sum of Ra-226 and Ra-228 at 5.0 pCi/L. Combined radium values in the 11 wells sampled ranged from 2.11 pCi/L (CM-17) to 18.62 pCi/L (MW-21D). Two of the 11 wells sampled had concentrations exceeding the MCL of 5.0 pCi/L (MW-20D and MW-21D).

Total uranium concentrations ranged from 3.17 pCi/L (CM-17) to 126.5 pCi/L (CM-10). Sixteen samples from seven wells (CM-8D, MW-21S, CM-9D, CM-10, CM-12, CM-17 and CM-18) exceeded the MCL of 20 pCi/L. The 16 samples exceeding the uranium MCL were also speciated for isotopic uranium (U^{234} , U^{235} and U^{238}) as summarized in [Table 1](#). The isotopic analyses were performed in order to calculate the relative mass ratios to determine if the origin of the uranium was man-made (enriched or depleted) or was consistent with naturally occurring sources. This evaluation technique is an industry standard and was agreed upon per the LARWQCB-approved revised work plan (TN&A, 2008b). [Table 2](#) presents ratios for the three isotopes for the May 2009 samples along with the relative mass ratio calculations. The average mass ratio values for all of the samples were: U-234 (0.0055%); U-235 (0.6712%) and U-238 (99.3233%). These are consistent with typical “natural isotopic mass ratios” which are U-234 (0.0055%); U-235 (0.7200%) and U-238 (99.27%) according to the United States Department of Energy’s *Guide of Good Practices for Occupational Radiological Protection in Uranium Facilities* (USDOE, 2004). The same calculations were previously performed for the October 1991 and December 1991 analytical results and yielded similar ratios.

All historical radiological analytical data for the 11 groundwater monitoring wells sampled for this event were tabulated and are presented in [Table 3](#). Laboratory reports for the May 2009 event are included on CD in [Appendix C](#).

5.2 MONITORING WELL FIELD PARAMETER RESULTS

The key geochemical field parameters collected during the purging sequence are summarized in [Table 4](#) and include the following ranges:

- ORP: +189 milli-volts (mV) (CM-10) to -372 mV (MW-21D)
- pH: 7.72 (CM-10) to 8.16 (CM-12)
- turbidity: 8.2 nephelometric turbidity units (NTU) (CM-10) to 59.6 NTU (CM-18).

5.3 QA/QC RESULTS

The relative percent difference (RPD) between field duplicate pair samples was calculated (by LDC) to evaluate precision. The RPDs were found to range from 7% to 200%. RPDs for the Ra-228 analyses ranged from 9% to 200%. The Ra-228 results were flagged due to exceedence in percent recovery.

Validation report number 21179 generated by LDC dated August 10, 2009 was reviewed by OTIE-TN&A to assess data quality, data qualification decisions, and validation completeness. A memo summarizing the review is included in [Appendix D](#). No major issues were identified. Minor issues include qualification for blank contamination, tracer recovery deficiencies, and chemical surrogate recovery deficiencies. Minor validation deficiencies are summarized in [Table 2](#) (in memo, [Appendix D](#)). Laboratory data reporting forms, along with handwritten data qualifications, where warranted, are included in [Attachment 1](#) of the memo ([Appendix D](#)).

The analytical results meet the data quality objectives defined by the applicable method and validation guidance documentation and are of sufficient quality to meet the project objectives.

6.0 SUMMARY

The data presented in this report fulfills the request by the LARWQCB to verify the current radiological conditions at the Former Canoga Park Facility located at 8433 Fallbrook Ave, Canoga Park, California, as stated in the March 5, 2008 letter. All work was performed by OTIE, on behalf of Raytheon, as described in the LARWQCB-approved work plan (TN&A, 2008b).

The following bullets summarize the activities and data findings for the verification of current radiological conditions at the site.

- On May 26 and May 27, 2009, the following 11 wells were sampled: CM-8D, CM-9D, CM-10, CM-12, CM-17, CM-18, MW-16, MW-19S, MW-20D, MW-21S and MW-21D and the samples analyzed for radiological parameters;
- A total of 28 groundwater samples were collected and submitted for analysis: 11 unfiltered well samples, 11 filtered well samples, field duplicates from 2 wells (each with an unfiltered and filtered sample) and 2 equipment rinsate blanks. All samples were analyzed for TDS (SM 2540C), gross alpha (EPA 900.0 or SM 7110C), gross beta (EPA 900.0), Ra-226 (EPA 903.1), Ra-228 (EPA 904.0), and Total uranium (EPA 908.0). Select samples were also analyzed for Isotopic uranium by Method NTIS 7500-UC-00. TDS analysis was performed at CEL and the radiological analyses were performed at GPL;
- Third party data validation was conducted by Laboratory Data Consultants, Inc., between July 20 and August 10, 2009;
- TDS values in the 26 well samples (filtered and unfiltered) ranged from 975 mg/L (CM-12, filtered) to 3,440 mg/L (CM-10, filtered);
- Detected Ra-226 concentrations ranged from 0.855 pCi/L (CM-17, unfiltered) to 16.12 pCi/L (sample MW-21D, unfiltered);
- Detected Ra-228 values ranged from 0.47 pCi/L (CM-10, filtered) to 2.81 pCi/L (MW-19S, unfiltered);
- Combined radium results (Ra-226 + Ra-228) indicate that two of the 11 wells (MW-20D and MW-21D) exceed the combined radium MCL of 5 pCi/L;
- Detected gross alpha concentrations ranged from 3.87 pCi/L (MW-19S, unfiltered) to 64.89 pCi/L (MW-21D, unfiltered), adjusting these results by subtracting total adjusted uranium per the California MCL protocol, indicated that three of the 11 wells (MW-16, MW-20D and MW-21D) exceeded the MCL for gross alpha particle activity;
- Detected gross beta results ranged from 4.77 pCi/L (MW-19S, unfiltered) to 54.77 pCi/L (CM-18, unfiltered), none of the samples exceeded the MCL of 20,000 pCi/L;
- Total detected uranium concentrations ranged from 3.17 pCi/L (MW-19S, unfiltered) to 126.5 pCi/L (CM-10, filtered) and indicated that seven of the 11 wells (CM-8D, MW-21S, CM-9D, CM-10, CM-12, CM-17 and CM-18) exceeded the MCL of 20 pCi/L; and
- All isotopic uranium results indicated that the relative mass ratios were consistent with a naturally occurring source (i.e., not enriched or depleted) per USDOE evaluation protocol.

7.0 DATA EVALUATION DISCUSSION

As indicated by the results listed above, there is no consistent pattern between the distribution of wells with samples that exceeded MCLs for radiological parameters. For example, wells exceeding the radium or gross alpha MCLs are different from the wells that exceed the uranium MCL. Furthermore, the distribution of concentrations are not consistent with a site release and transport via groundwater flow as there is not a defined area where the concentrations in wells on site are markedly higher than the concentrations detected in the perimeter wells. All of the concentrations exceeding MCLs are generally of the same order of magnitude, more indicative of naturally occurring ambient levels, possibly associated with the distribution of native minerals comprising the aquifer material and/or the distribution of varying geochemical conditions within the aquifer zones.

Heterogeneities in these geochemical parameters could be related to the heterogeneities in the radiological parameter levels. To evaluate this premise, OTIE-TN&A compared the differences in concentrations of combined radium, gross alpha and uranium with the different sampling methods (filtered versus unfiltered), the levels of TDS, and against other field parameters (pH, turbidity and ORP). A discussion of the results for these analyses are provided below.

7.1 EVALUATION OF FILTERED VERSUS UNFILTERED CONCENTRATIONS

A comparison was made with filtered versus unfiltered laboratory results for combined radium gross alpha and total uranium. Radium was only detected in both filtered and non-filtered samples from wells MW-20D and MW-21D, of which the filtered sample was higher in the MW-20D pair and the unfiltered sample was higher between the MW-21D pair ([Graph 1](#)).

The gross alpha result comparison ([Graph 2](#)) showed that of the 11 sample pairs, results for two of the sample pairs were identical, six of the sample pairs had higher concentrations in the unfiltered sample, and three of the pairs had higher concentrations in the filtered sample.

Of the 11 sample pairs analyzed for uranium, concentrations were higher in the unfiltered sample in five of the pairs and higher in the filtered sample in four pairs ([Graph 3](#)). Uranium was undetected in two sample pairs.

Based on these comparisons, no consistent correlation was able to be drawn between the filtered versus unfiltered sample results.

7.2 EVALUATION OF RADIUM VERSUS TOTAL DISSOLVED SOLIDS AND FIELD PARAMETERS

[Graphs 4a through 4d](#) present the combined radium concentrations against TDS, pH, turbidity and ORP values for each well sample, respectively. In reviewing the graphs, it is apparent that there is no correlation between radium levels and any of the geochemical parameters, except possibly for ORP where high radium levels appear to coincide with low negative ORP values.

To further evaluate a possible correlation, the detected radium levels were graphed against ORP levels and a regression analysis was performed by using the trend line fitting tool in Microsoft Excel[®] (polynomial, order 2). This is presented graphically in [Graphs 4e and 4f](#). A valuable evaluation metric produced by the regression analysis is the coefficient of determination (R^2). In general, an R^2 value of 1.0 would indicate that the data is perfectly correlated, R^2 values over 0.80 indicate a generally good correlation and R^2 values between 0.6 and 0.8 are possibly correlated, but suspect ([Bulmer, 1979](#)). R^2 values below 0.6 indicate that there is unlikely any correlation between the data.

The regression analysis for combined radium versus ORP resulted in a R^2 values of 0.945 (filtered) and 0.871 (unfiltered). This indicates that there is likely a correlation; however, this is based on only 4 data points for each series as there were only a total of 8 detections out of the 22 samples analyzed.

7.3 EVALUATION OF GROSS ALPHA VERSUS TOTAL DISSOLVED SOLIDS AND FIELD PARAMETERS

Graphs 5a through 5d present the gross alpha concentrations against TDS, pH, turbidity and ORP values for each well sample, respectively. In reviewing the graphs, it is apparent that there is no correlation between gross alpha levels and any of the geochemical parameters, except possibly for TDS where high TDS appear to coincide with some of the elevated gross alpha levels. Therefore, a regression analysis was performed for TDS values versus gross alpha as illustrated in Graphs 5e and 5f. The regression analysis resulted in R^2 values of 0.254 (filtered) and 0.121 (unfiltered), indicating that there is not likely a correlation between TDS and gross alpha.

7.4 EVALUATION OF URANIUM VERSUS TOTAL DISSOLVED SOLIDS AND FIELD PARAMETERS

Graphs 6a through 6d present the total uranium concentrations against TDS, pH, turbidity and ORP values for each well sample, respectively. In reviewing the graphs, it is apparent that there is no correlation between total uranium levels and any of the geochemical parameters, except possibly TDS and ORP, where high TDS and low negative ORP appears to coincide with some of the elevated uranium levels. Therefore, a regression analysis was performed for TDS versus total uranium and ORP versus total uranium, as illustrated in Graphs 6e through 6h. The regression analysis for TDS versus total uranium resulted in R^2 values of 0.542 (filtered) and 0.257 (unfiltered) and the regression analysis for ORP versus total uranium resulted in R^2 values of 0.800 (filtered) and 0.618 (unfiltered). These values indicate that there is not likely a correlation between TDS and total uranium, however, there is possibly a correlation between ORP and total uranium levels.

8.0 CONCLUSIONS

The data produced during this groundwater investigation are consistent with previous results collected in 1990 and 1991 ([Table 3](#)). Samples collected from 10 of the 11 wells exceeded one or more California MCL for gross alpha, combined radium and/or total uranium. However, from all the data collected to date, it is evident that the radiological parameters in groundwater are unrelated to a release at the former Canoga Park facility per the following lines of evidence:

- 1) The uranium isotopic relative mass abundances are consistent with naturally occurring sources according to the evaluation method published by the DOE, and accepted by the LARWQCB per the approved work plan.
- 2) None of the levels exceed more than one order of magnitude of the MCLs (i.e., no point source area with highly elevated levels exists per the data).
- 3) The distributions of the parameters exceeding MCL are not consistent with a site release.
- 4) An analysis of the geochemical parameters indicates that the elevated radiological levels for these parameters could possibly be related to the native geochemistry in regards to ORP conditions.

OTIE does not recommend any further action at the site relative to radiological parameters. This current investigation and the 1990/1991 investigation work have determined that the levels of radiological isotopes detected in groundwater at the former facility are attributable to naturally occurring sources in the underlying aquifer matrix and geochemical system.

Raytheon will continue to work with the LARWQCB and Department Toxics Substance Control (DTSC) to fully address the VOC levels that are currently being remediated in the northwest portion of the site and awaits the determination for NFA status for the southern parcels of the site. A request to the LARWQCB was sent on behalf of Raytheon in a June 27, 2006 technical memorandum ([Appendix A](#)) requesting a no further action "NFA" status for the southern portion of the site (Assessor Parcel Number's 2005-02-009, 2005-02-011 and 2005-02-901), which contain wells CM-10, CM-11A, CM-12, CM-15, CM-17, MW-28, MW-29, MW-30 and MW-31. Samples from these wells have had VOC concentrations that were non-detectable or below California MCLs since 1999. Therefore, it was requested that the NFA status be given to those southern parcels and that those wells be abandoned. The LARWQCB allowed these wells to be removed from the monitoring program, however, the NFA status and abandonment approval was never received due to the concerns about the radiological parameters in groundwater previously reported in the 1992 GRC documents. Per the results of the verification sampling reported in this document, it is evident that there are no levels of radiological parameters that are related to historical uses at the Former Canoga Park facility, therefore, OTIE, on behalf of Raytheon, requests that an NFA status be given to the southern parcels of the site and that the LARWQCB accept the findings of the site wide radiological investigation as complete.

9.0 REFERENCES

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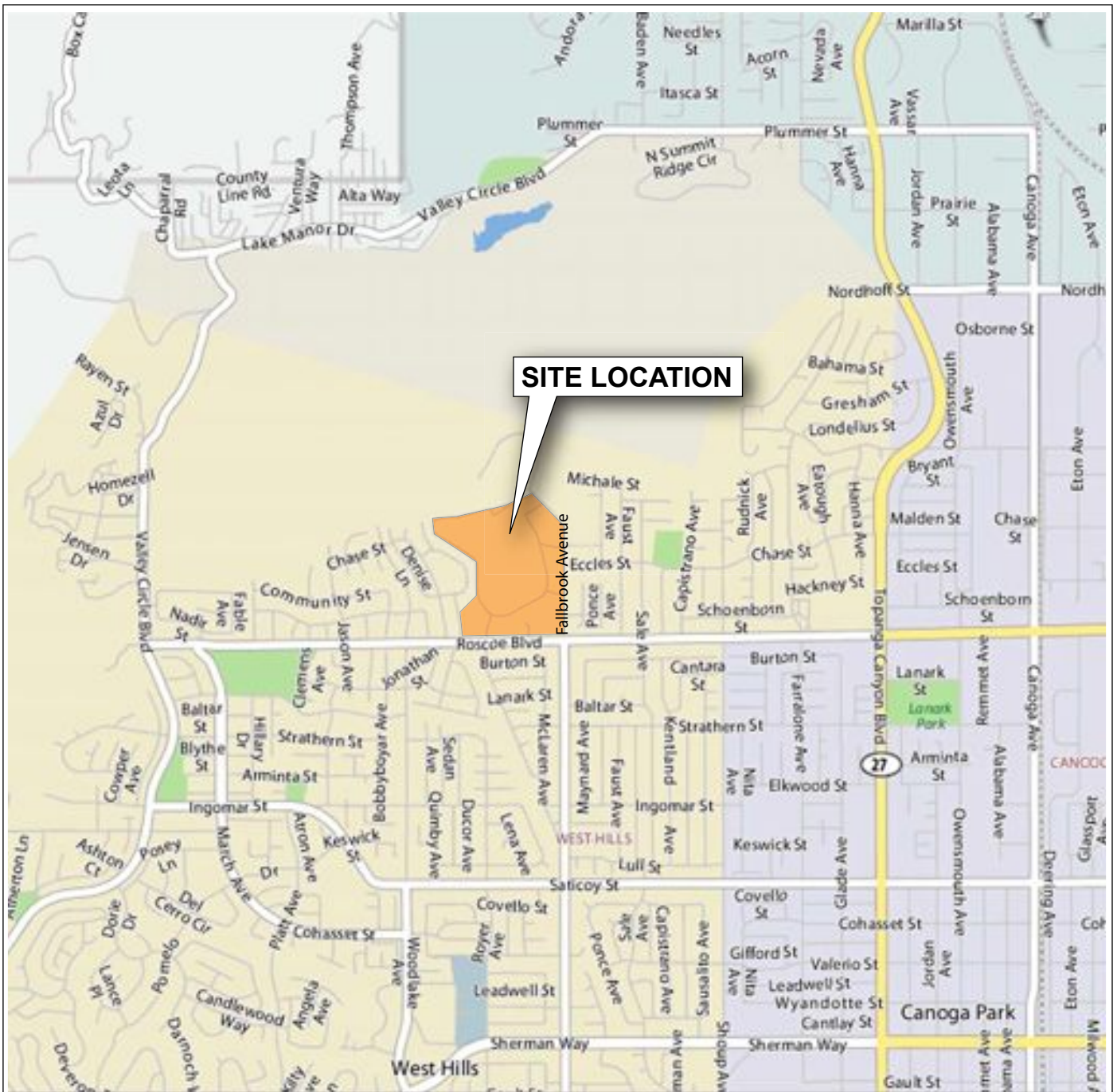
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Figures



Source: Map data from Yahoo, Inc./NAVTEO 2009



Approx. Scale in Miles

FIGURE 1
Site Vicinity Map

Former Canoga Park Facility, 8433 Fallbrook Avenue,
Canoga Park, CA



- ▲ VW-#
- MW-#
- ◆ SW/MW-#
- SF
- MW-#

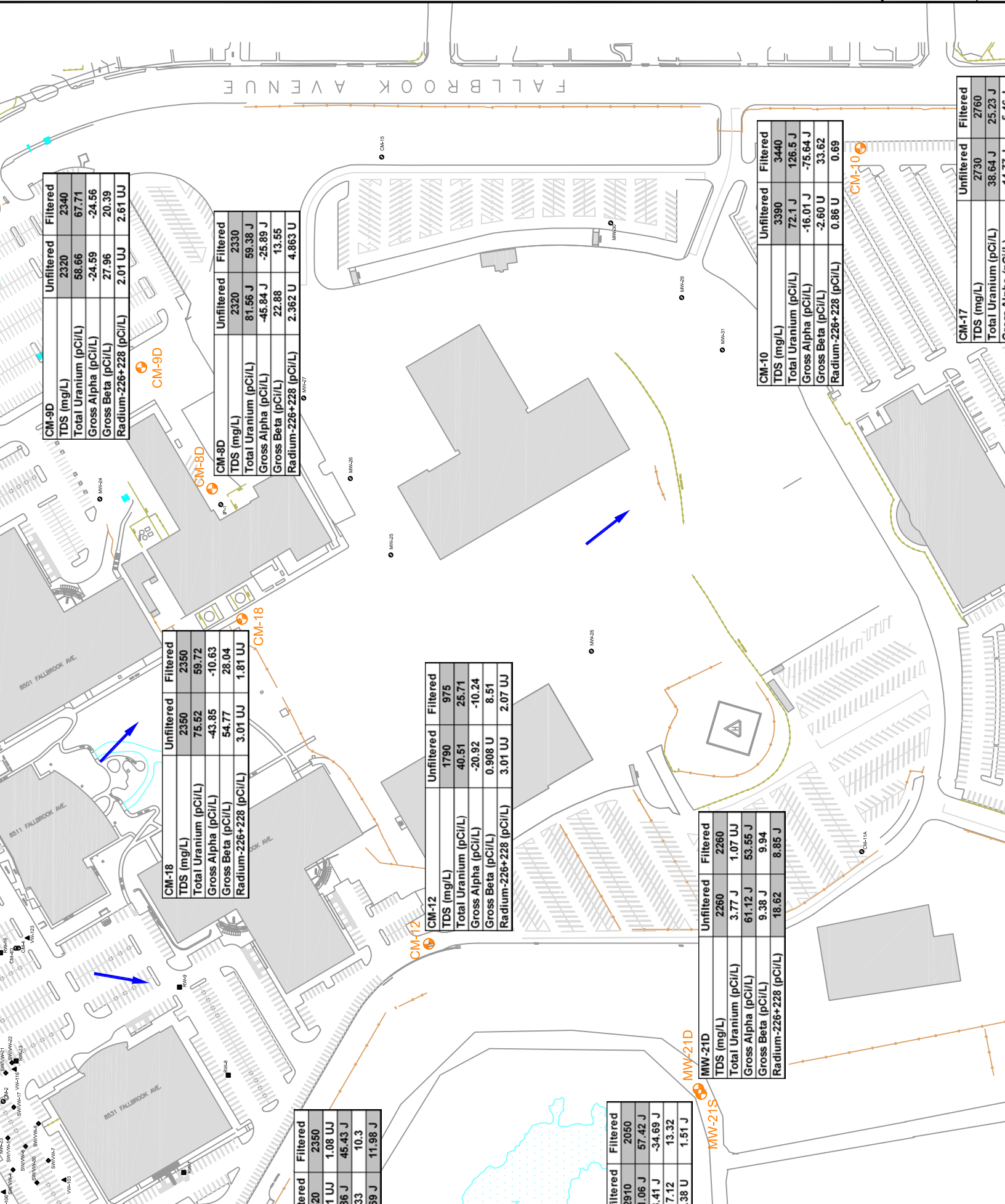


Notes

- 1.) Groundwater
- 2.) Filtered
- 3.) TDS = Total Dissolved Solids
- 4.) pCi/L = picocuries per liter
- 5.) mg/L = milligrams per liter
- 6.) MCL = Maximum Contaminant Level
- 7.) * = Gross
- 8.) U = Undetectable
- 9.) Shaded
- 10.) All radiological concentrations are in units of pCi/L unless otherwise noted.



Radiolog



CM-9D	Unfiltered	Filtered
TDS (mg/L)	2320	2340
Total Uranium (pCi/L)	58.66	67.71
Gross Alpha (pCi/L)	-24.59	-24.56
Gross Beta (pCi/L)	27.96	20.39
Radium-226+228 (pCi/L)	2.01 UJ	2.61 UJ

CM-8D	Unfiltered	Filtered
TDS (mg/L)	2320	2330
Total Uranium (pCi/L)	81.56 J	59.38 J
Gross Alpha (pCi/L)	-45.84 J	-25.89 J
Gross Beta (pCi/L)	22.88	13.55
Radium-226+228 (pCi/L)	2.362 U	4.863 U

CM-10	Unfiltered	Filtered
TDS (mg/L)	3390	3440
Total Uranium (pCi/L)	72.1 J	126.5 J
Gross Alpha (pCi/L)	-16.01 J	-75.64 J
Gross Beta (pCi/L)	-2.60 U	33.62
Radium-226+228 (pCi/L)	0.86 U	0.69

CM-17	Unfiltered	Filtered
TDS (mg/L)	2730	2760
Total Uranium (pCi/L)	38.64 J	25.23 J

CM-18	Unfiltered	Filtered
TDS (mg/L)	2350	2350
Total Uranium (pCi/L)	75.52	59.72
Gross Alpha (pCi/L)	-43.85	-10.63
Gross Beta (pCi/L)	54.77	28.04
Radium-226+228 (pCi/L)	3.01 UJ	1.81 UJ

CM-12	Unfiltered	Filtered
TDS (mg/L)	1790	975
Total Uranium (pCi/L)	40.51	25.71
Gross Alpha (pCi/L)	-20.92	-10.24
Gross Beta (pCi/L)	0.908 U	8.51
Radium-226+228 (pCi/L)	3.01 UJ	2.07 UJ

MW-21D	Unfiltered	Filtered
TDS (mg/L)	2260	2260
Total Uranium (pCi/L)	3.77 J	1.07 UJ
Gross Alpha (pCi/L)	61.12 J	53.55 J
Gross Beta (pCi/L)	9.38 J	9.94
Radium-226+228 (pCi/L)	18.62	8.85 J

Unfiltered	Filtered
20	2350
1 UJ	1.08 UJ
36 J	45.43 J
33	10.3
39 J	11.98 J

Unfiltered	Filtered
2910	2050
0.06 J	57.42 J
-4.41 J	-34.69 J
7.12	13.32
38 U	1.51 J

Tables

Former Canoga Park Facility, Canoga Park, California

Sample ID	Sample Date	Sample Prep	TDS SM2540C		Gross Alpha ² EPA 900.0 or SM 7110C				Gross Beta EPA 900.0				Radium-226 EPA 903.1			Radium-228 EPA 904.0		
			Results (mg/L)	MCL (pCi/L)	Results (pCi/L)	Adjusted Results ¹ (pCi/L)	Results Adjusted for Uranium ⁴ (pCi/L)	MCL ³ (mrem/yr)	MCL (pCi/L)	Results (pCi/L)	Adjusted Results ¹ (pCi/L)	MCL (pCi/L)	Results (pCi/L)	Adjusted Results ¹ (pCi/L)	MCL (pCi/L)	Results (pCi/L)	Adjusted Results ¹ (pCi/L)	MCL (pCi/L)
	05/27/09	Unfiltered	1300	15	35.0	38.65	38.22 J	4.0	20,000	6.33	7.09	5.321 U	n/a	4.88 U	5.321 U	n/a	2.2 UJ	2.66
	05/27/09	Filtered	1300	15	34.9	38.55	37.99 J	4.0	20,000	6.52	7.24	5.972 U	n/a	5.51 U	5.972 U	n/a	4.46 UJ	5.08
	05/27/09	Unfiltered	1330	15	26.3	29.69	29.22 J	4.0	20,000	5.93 U	6.66 U	6.012 U	n/a	5.55 U	6.012 U	n/a	4.86 UJ	5.52
	05/27/09	Filtered	1290	15	32.7	36.50	36.15	4.0	20,000	5.03 U	5.69 U	6.787 U	n/a	6.29 U	6.787 U	n/a	4.07 UJ	4.68
	05/26/09	Unfiltered	1640	15	2.48 J	3.87 J	0.70 J	4.0	20,000	3.3 J	4.77 J	0.558 U	n/a	0.296 U	0.558 U	n/a	2.31	2.8
	05/26/09	Filtered	1690	15	6.04	7.67	3.69 J	4.0	20,000	5.73	7.62	0.463 U	n/a	0.222 U	0.463 U	n/a	0.369 U	0.71
	05/27/09	Unfiltered	2320	15	32.1	35.72	-45.84 J	4.0	20,000	21.60	22.88	2.362 U	n/a	2.04 U	2.362 U	n/a	0.547 UJ	0.86
	05/27/09	Filtered	2330	15	30.1	33.49	-25.89 J	4.0	20,000	12.20	13.55	4.863 U	n/a	4.44 U	4.863 U	n/a	0.293 UJ	0.58
	05/26/09	Unfiltered	2420	15	49.6	54.35	53.86 J	4.0	20,000	7.22	9.33	10.23	n/a	9.61	10.23	n/a	1.04 J	1.46
	05/26/09	Filtered	2350	15	42.0	45.97	45.43 J	4.0	20,000	7.99	10.30	10.61	n/a	9.98	10.61	n/a	0.978 J	1.36
	05/26/09	Unfiltered	2910	15	19.7	22.65	-8.41 J	4.0	20,000	14.10	17.12	0.355 U	n/a	0.148 U	0.355 U	n/a	0.116 U	0.38
	05/26/09	Filtered	2050	15	20.0	22.73	-34.69 J	4.0	20,000	11.40	13.32	0.392 U	n/a	0.182 U	0.392 U	n/a	0.931 J	1.3
	05/26/09	Unfiltered	2260	15	59.8	64.89	61.12 J	4.0	20,000	6.86 J	9.38 J	16.12	n/a	15.40	16.12	n/a	2.03	2.5
	05/26/09	Filtered	2260	15	49.4	54.09	53.55 J	4.0	20,000	7.28	9.94	7.79	n/a	7.31	7.79	n/a	0.71 J	1.06
	05/27/09	Unfiltered	2320	15	30.1	34.07	-24.59	4.0	20,000	26.50	27.96	1.597 U	n/a	1.3 U	1.597 U	n/a	1.6 UJ	2.01
	05/27/09	Filtered	2340	15	39.3	43.15	-24.56	4.0	20,000	19.20	20.39	1.030 U	n/a	0.775 U	1.030 U	n/a	2.14 UJ	2.61
	05/26/09	Unfiltered	3390	15	51.6	56.09	-16.01 J	4.0	20,000	-4.16 U	-2.60 U	0.322 U	n/a	0.083 U	0.322 U	n/a	0.517 U	0.86
	05/26/09	Filtered	3440	15	46.3	50.86	-75.64 J	4.0	20,000	30.50	33.62	0.443 U	n/a	0.209 U	0.443 U	n/a	0.17	0.4
	05/27/09	Unfiltered	1790	15	16.9	19.59	-20.92	4.0	20,000	0.375 U	0.908 U	2.441 U	n/a	2.14 U	2.441 U	n/a	2.51 UJ	3.01
	05/27/09	Filtered	975	15	13.2	15.47	-10.24	4.0	20,000	7.83	8.51	0.695 U	n/a	0.44 U	0.695 U	n/a	1.64 UJ	2.07
	05/26/09	Unfiltered	2730	15	20.9	23.87	-14.77 J	4.0	20,000	18.50	20.18	1.60	n/a	1.27	1.60	n/a	0.633 U	1.01
	05/26/09	Filtered	2760	15	17.2	19.77	-5.46 J	4.0	20,000	11.00	12.93	0.660 U	n/a	0.414 U	0.660 U	n/a	0.567 U	0.91
	05/26/09	Unfiltered	2680	15	26.9	30.31	9.71 J	4.0	20,000	22.90	25.97	0.885 J	n/a	0.615 J	0.885 J	n/a	1.08	1.4
	05/26/09	Filtered	2720	15	20.1	22.88	0.48 J	4.0	20,000	8.32	10.55	0.539 U	n/a	0.328 U	0.539 U	n/a	-0.09 U	0.19
	05/27/09	Unfiltered	2350	15	28.3	31.67	-43.85	4.0	20,000	52.80	54.77	1.277 U	n/a	1 U	1.277 U	n/a	2.51 UJ	3.01
	05/27/09	Filtered	2350	15	45.0	49.10	-10.63	4.0	20,000	26.70	28.04	0.892 U	n/a	0.662 U	0.892 U	n/a	1.37 UJ	1.81
	05/26/09	Unfiltered	14	15	0.046 U	0.672 U	--	4.0	20,000	0.59 U	1.161 U	0.278 U	n/a	0.063 U	0.278 U	n/a	0.092 U	0.38
	05/27/09	Unfiltered	14	15	-0.469 U	0.343 U	--	4.0	20,000	1.25 J	1.892 J	2.14	n/a	1.83	2.14	n/a	1.09 J	1.52

0.84 * reported counting error

8 were analyzed for Gross Alpha by EPA 900.0. All other samples by SM7110C.

g = (results in pCi/L /20,000 pCi/yr for total body emission)* 4 mrem/yr

subtracting the total uranium value prior to comparison to the MCL value, per CDPH

Water/Pages/Chemicalcontaminants.aspx.

and for these analytes

date; EB - Equipment blank

result exceeded MCL

Former Canoga Park Facility, Canoga Park, California

Well ID	Sample ID	Sample Type	Sample Date	Sample Prep	Total Uranium EPA 908.0			Isotopic Uranium NTIS 7500-UC-00							
					MCL (pCi/L)	Results (pCi/L)	Adjusted Results ¹ (pCi/L)	Uranium-234 (pCi/L)	Adjusted Results ¹ (pCi/L)	Uranium-235 (pCi/L)	Adjusted Results ¹ (pCi/L)	Uranium-238 (pCi/L)	Adjusted Results ¹ (pCi/L)		
MW-16	CP-0905001	N	05/27/09	Unfiltered	20	0.648 UJ	0.86 UJ	--	--	--	--	--	--	--	--
	CP-0905002	N	05/27/09	Filtered	20	0.789 UJ	1.107 UJ	--	--	--	--	--	--	--	--
	CP-0905023	FD	05/27/09	Unfiltered	20	0.657 UJ	0.952 UJ	--	--	--	--	--	--	--	--
	CP-0905024	FD	05/27/09	Filtered	20	0.476 U	0.687 U	--	--	--	--	--	--	--	--
MW-19S	CP-0905003	N	05/26/09	Unfiltered	20	2.44 J	3.17 J	--	--	--	--	--	--	--	--
	CP-0905004	N	05/26/09	Filtered	20	3.12 J	3.98 J	--	--	--	--	--	--	--	--
CM-8D	CP-0905005	N	05/27/09	Unfiltered	20	70.3 J	81.56 J	29.2	31.53	1.23	1.53	28.00	30.25		
	CP-0905006	N	05/27/09	Filtered	20	51.1 J	59.38 J	30.1	32.66	1.24	1.57	28.90	31.37		
MW-20D	CP-0905007	N	05/26/09	Unfiltered	20	0.766 UJ	0.971 UJ	--	--	--	--	--	--	--	--
	CP-0905008	N	05/26/09	Filtered	20	0.776 UJ	1.08 UJ	--	--	--	--	--	--	--	--
MW-21S	CP-0905009	N	05/26/09	Unfiltered	20	26.5 J	31.06 J	24.6	26.75	1.34	1.67	25.40	27.61		
	CP-0905010	N	05/26/09	Filtered	20	49.3 J	57.42 J	19.0	20.63	0.75	0.98	19.10	20.73		
MW-21D	CP-0905011	N	05/26/09	Unfiltered	20	3.11 J	3.77 J	--	--	--	--	--	--	--	--
	CP-0905012	N	05/26/09	Filtered	20	0.791 UJ	1.07 UJ	--	--	--	--	--	--	--	--
CM-9D	CP-0905013	N	05/27/09	Unfiltered	20	50.5	58.66	28.8	31.18	1.14	1.44	25.50	27.64		
	CP-0905014	N	05/27/09	Filtered	20	58.3	67.71	29.9	32.24	1.22	1.52	27.10	29.25		
CM-10	CP-0905015	N	05/26/09	Unfiltered	20	62.1 J	72.1 J	35.4	38.86	1.59	2.03	37.60	41.24		
	CP-0905016	N	05/26/09	Filtered	20	109 J	126.5 J	36.0	39.49	1.93	2.42	36.40	39.93		
CM-12	CP-0905017	N	05/27/09	Unfiltered	20	34.8	40.51	20.5	22.36	0.85	1.12	17.80	19.46		
	CP-0905018	N	05/27/09	Filtered	20	22.0	25.71	12.7	13.94	0.40	0.57	11.70	12.87		
CM-17	CP-0905019	N	05/26/09	Unfiltered	20	33.1 J	38.64 J	12.2	13.80	0.48	0.74	11.70	13.25		
	CP-0905020	N	05/26/09	Filtered	20	21.5 J	25.23 J	12.0	13.18	0.58	0.80	12.40	13.60		
	CP-0905025	FD	05/26/09	Unfiltered	20	17.5 J	20.6 J	23.5	25.56	1.00	1.28	24.10	26.21		
	CP-0905026	FD	05/26/09	Filtered	20	19.1 J	22.4 J	18.2	19.83	0.66	0.88	18.70	20.36		
CM-18	CP-0905021	N	05/27/09	Unfiltered	20	65.1	75.52	12.0	13.28	0.66	0.90	11.80	13.06		
	CP-0905022	N	05/27/09	Filtered	20	51.4	59.72	12.3	13.70	0.36	0.56	11.50	12.83		
n/a	CP-0905027	EB	05/26/09	Unfiltered	20	0.66 UJ	0.89 UJ	--	--	--	--	--	--	--	--
n/a	CP-0905028	EB	05/27/09	Unfiltered	20	0.608 U	0.86 U	--	--	--	--	--	--	--	--

Notes:
 Adjusted Results = Uranium result + (0.84 * reported counting error)
 Samples CP-0905027 and CP-0905028 were analyzed for Gross Alpha by EPA 900.0. All other samples by SM7110C.
 (mrem/yr) results were calculated using = (results in pCi/L /20,000 pCi/yr for total body emission)* 4 mrem/yr
 Gross Alpha results were adjusted by subtracting the total uranium value prior to comparison to the MCL value, per CDPH
<http://www.cdph.ca.gov/certific/drinkingwater/Pages/Chemicalcontaminants.aspx>.
 MCL - Maximum Contaminant Level
 pCi/L - picocuries per liter
 mrem/yr - millirem per year
 mg/L - milligrams per liter
 TDS - Total Dissolved Solids
 n/a - MCL values were not established for these analytes
 N - Normal sample; FD - Field duplicate; EB - Equipment blank
 -- indicates that the reported result exceeded MCL

Micro Filter	U-234 Activity from Laboratory Analysis (pCi/L)	Convert pCi/L to µg/L*	U-234 Mass Concentration (µg/L)	U-235 Activity from Laboratory Analysis (pCi/L)	Convert pCi/L to µg/L*	U-235 Mass Concentration (µg/L)	U-238 Activity from Laboratory Analysis (pCi/L)	Convert pCi/L to µg/L*	U-238 Mass Concentration (µg/L)	U-238 Mass Concentration (µg/L)	Total Combined Mass Concentration (µg/L)	Relative % U-234 (U-238 mass conc. / total mass conc.)	Relative % U-235 (U-235 mass conc. / total mass conc.)
Unfiltered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Filtered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Unfiltered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Filtered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Unfiltered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Filtered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Unfiltered	29.2	6216.22	0.00470	1.23	2.16	0.57	28	0.335	83.58	84.16	84.16	0.0056%	0.6767%
Filtered	30.1	6216.22	0.00484	1.24	2.16	0.57	28.9	0.335	86.27	86.85	86.85	0.0056%	0.6610%
Unfiltered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Filtered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Unfiltered	24.6	6216.22	0.00396	1.34	2.16	0.62	25.4	0.335	75.82	76.45	76.45	0.0052%	0.8115%
Filtered	19	6216.22	0.00306	0.745	2.16	0.34	19.1	0.335	57.01	57.36	57.36	0.0053%	0.6013%
Unfiltered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Filtered	n/a	6216.22	--	n/a	2.16	--	n/a	0.335	--	--	--	--	--
Unfiltered	28.8	6216.22	0.00463	1.14	2.16	0.53	25.5	0.335	76.12	76.65	76.65	0.0060%	0.6885%
Filtered	29.9	6216.22	0.00481	1.22	2.16	0.56	27.1	0.335	80.90	81.47	81.47	0.0059%	0.6933%
Unfiltered	35.4	6216.22	0.00569	1.59	2.16	0.74	37.6	0.335	112.24	112.98	112.98	0.0050%	0.6515%
Filtered	36	6216.22	0.00579	1.93	2.16	0.89	36.4	0.335	108.66	109.56	109.56	0.0053%	0.8156%
Unfiltered	20.5	6216.22	0.00330	0.852	2.16	0.39	17.8	0.335	53.13	53.53	53.53	0.0062%	0.7368%
Filtered	12.7	6216.22	0.00204	0.398	2.16	0.18	11.7	0.335	34.93	35.11	35.11	0.0058%	0.5248%
Unfiltered	12.2	6216.22	0.00196	0.481	2.16	0.22	11.7	0.335	34.93	35.15	35.15	0.0056%	0.6335%
Filtered	12	6216.22	0.00193	0.584	2.16	0.27	12.4	0.335	37.01	37.29	37.29	0.0052%	0.7251%
Unfiltered	23.5	6216.22	0.00378	0.996	2.16	0.46	24.1	0.335	71.94	72.41	72.41	0.0052%	0.6368%
Filtered	18.2	6216.22	0.00293	0.656	2.16	0.30	18.7	0.335	55.82	56.13	56.13	0.0052%	0.5411%
Unfiltered	12	6216.22	0.00193	0.657	2.16	0.30	11.8	0.335	35.22	35.53	35.53	0.0054%	0.8561%
Filtered	12.3	6216.22	0.00198	0.362	2.16	0.17	11.5	0.335	34.33	34.50	34.50	0.0057%	0.4858%
Average Site Ratios													
Typical Natural Isotopic Mass Ratios*													
Typical Commercial Grade Enriched Uranium Isotopic Mass Ratios*													
Typical Depleted Uranium Isotopic Mass Ratios*													

Results did not exceed Maximum Contaminant Level Values, no Isotopic Uranium analysis was conducted on these samples.

Samples with non-detectable Uranium U-234 or U-235 Activity Concentrations

Factors (Specific Activity Values Converted from Ci/g to pCi/L) and Typical Isotopic Abundances of Uranium Isotopes from Table 2-1 of DOE-STD-1136-2004, Page 2-2. Conversion calculation provided below:

X	1	pCi	=	6.20E+09	pCi	=	1.00E-06	g	=	6200	pCi
	1.00E-12	Ci			g		1	µg			µg
X	1	pCi	=	2.10E+06	pCi	=	1.00E-06	g	=	2.10	pCi
	1.00E-12	Ci			g		1	µg			µg

Conversion Factors Used in Table

Former Canoga Park Facility, Canoga Park, California

Well ID:	CM-8D										CM-9D										CM-10			
	Sep90	Dec90	Mar91	Jun91	Oct91	Dec91	May09	Sep90	Dec90	Mar91	Jun91	Oct91	May09	Mar90	Mar90 ^a	Jun90	Sep90	Dec90	Mar9					
Units																								
Ci/L	17 (±22)	36 (±24)	56 (±25)	52 (±21)	37.8	50.1	35.7	28 (±17)	23 (±17)	42 (±19)	50 (±20)	28.3	34.07	236 (±62.1)	73.7 (±27.3)	52.5 (±22.7)	54 (±42)	21 (±22)	46 (±25)					
Ci/L	15 (±16)	25 (±15)	14 (±13)	6 (±13)	27.4	12.9	22.9	14 (±10)	13 (±11)	19 (±11)	5 (±12)	15.8	27.96	59.6 (±17.0)	14.3 (±3.59)	11.4 (±5.82)	36 (±16)	9 (±13)	25 (±15)					
Ci/L	1.3 (±0.5)	1.1 (±0.4)	1.6 (±0.8)	1.2 (±0.5)	< 1.0	0.9	2.36 U	0.3 (±0.4)	0.4 (±0.2)	0.7 (±0.7)	0.8 (±0.5)	<1.0	1.60 U	1.03 (±0.239)	--	0.203 (±0.103)	0.3 (±0.4)	0.2 (±0.4)	0.5 (±0.7)					
Ci/L	--	--	--	--	< 1.0	<1.0	0.86 UJ	--	--	--	--	<1.0	2.01 UJ	--	--	--	--	--	--					
Ci/L	36.6 (±3.7)	44.7 (±4.5)	40.6 (±4.1)	32.5 (±3.3)	54.2	49.8	81.5 J	19.6 (±2.0)	34.5 (±3.5)	52.8 (±5.3)	39.3 (±3.9)	39.7	58.66	176.44 (±49.69)	41.91 (±12.17)	40.4 (±11.56)	60.2 (±6.0)	49.4 (±4.9)	48.7 (±4.9)					
Ci/L	--	--	--	--	27.3	25.1	31.53	--	--	--	--	20.2	31.18	--	--	--	--	--	--					
Ci/L	--	--	--	--	1.03	0.99	1.53	--	--	--	--	0.69	1.44	--	--	--	--	--	--					
Ci/L	--	--	--	--	25.9	23.7	30.25	--	--	--	--	18.8	27.6	--	--	--	--	--	--					

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May09

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Former Canoga Park Facility, Canoga Park, California

Well ID:	CM-12												CM-17			CM-18			MW-16		
	Sample Date:		Mar90	Jun90	Sep90	Dec90	Mar91	Jun91	Oct91	Dec91	May09	Dec91	May09	Dec91	May09	Sep90	Dec90	Mar91	Jun91		
	in May09	Units																			
900.0	pCi/L	29.7 (±13.2)	24.0 (±12.5)	27 (±21)	35 (±18)	37 (±19)	11 (±16)	15.6	25.7	19.6	13	23.9	59.2	31.67	5 (±30)	5 (±15)	15 (±13)	3 (±15)			
900.0	pCi/L	14.6 (±5.13)	4.65 (±3.91)	9 (±12)	22 (±12)	15 (±10)	3 (±10)	12.3	11.2	0.908 U	13.1	20.2	33.7	54.77	15 (±15)	7 (±10)	14 (±9)	2 (±10)			
903.1	pCi/L	0.946 (±0.228)	0.691 (±0.181)	0.4 (±0.5)	0.7 (±0.3)	0.5 (±0.7)	1.1 (±0.4)	<1.0	<0.5	2.441 U	<0.5	1.6	1.0	1.277 U	2.2 (±0.4)	3.1 (±0.5)	3.0 (±0.8)	4.2 (±0.9)			
904.0	pCi/L	--	--	--	--	--	--	<1.0	<1.0	3.01 UJ	<1.0	1.01 U	<1.0	3.01 U	--	--	1.3 (±0.5)	2.9 (±0.6)			
908.0	pCi/L	25.08 (±7.23)	19.5 (±5.54)	23.0 (±2.3)	29.1 (±2.9)	24.4 (±2.4)	28.4 (±2.8)	8.3	26.98	40.5	26.43	38.6 J	92.43	75.5	3.4 (±0.34)	0.7 (±0.1)	<0.7	<0.7			
900-JC-00	pCi/L	--	--	--	--	--	--	3.57**	13.6	22.4	13.4	13.8	46.5	13.3	--	--	--	--			
900-JC-00	pCi/L	--	--	--	--	--	--	<0.6**	0.68	1.12	0.43	0.74	2.03	0.9	--	--	--	--			
900-JC-00	pCi/L	--	--	--	--	--	--	4.77**	12.7	19.5	12.6	13.3	43.9	13.1	--	--	--	--			

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amples .

Former Canoga Park Facility, Canoga Park, California

Well ID:	MW-19S										MW-20D							
	Oct90	Nov90	Dec90	Jan91	Feb91	Mar91	Jun91	Oct91	Dec91	May09	Sep90	Oct90	Nov90	Dec90	Jan91	Feb91	Mar91	Jun91
Sample Date:	Oct90	Nov90	Dec90	Jan91	Feb91	Mar91	Jun91	Oct91	Dec91	May09	Sep90	Oct90	Nov90	Dec90	Jan91	Feb91	Mar91	Jun91
Units																		
pCi/L	31 (±28)	23 (±40)	12 (±22)	13 (±19)	12 (±25)	31 (±21)	0 (±21)	12.5	16	3.87 J	0 (±24)	2 (±23)	-10 (±35)	4 (±20)	9 (±19)	28 (±20)	28 (±21)	-6 (±15)
pCi/L	2 (±17)	-7 (±17)	13 (±16)	3 (±14)	-3 (±21)	22 (±13)	5 (±14)	10.9	10.9	4.77 J	25 (±18)	22 (±17)	0 (±18)	16 (±15)	26 (±16)	14 (±14)	19 (±14)	5 (±11)
pCi/L	-0.1 (±0.5)	0.5 (±0.4)	2.4 (±0.4)	0.2 (±0.4)	0.0 (±0.4)	-0.1 (±0.7)	0.2 (±0.5)	<1.0	<0.5	< 0.41	0.4 (±0.6)	2.1 (±0.7)	3.7 (±0.5)	2.1 (±0.5)	8.5 (±0.8)	8.4 (±0.8)	3.9 (±0.8)	6.5 (±0.7)
pCi/L	--	--	--	--	--	--	--	<1.0	<1.0	2.81	--	--	**	--	2.2 (±0.8)	1.1 (±1.9)	0.5 (±0.4)	3.5 (±0.8)
pCi/L	23.0 (±2.3)	21.7 (±2.2)	19.0 (±1.9)	12.8 (±1.3)	19 (±1.9)	17.6 (±1.8)	21.6 (±2.2)	27.3	19.23	3.17 J	<0.7	4.1 (±0.4)	<0.7	<0.7	<0.7	4.7 (±0.5)	<0.7	0.7 (±0.1)
pCi/L	--	--	--	--	--	--	--	15.2	10.3	--	--	--	--	--	--	--	--	--
pCi/L	--	--	--	--	--	--	--	0.66	0.3	--	--	--	--	--	--	--	--	--
pCi/L	--	--	--	--	--	--	--	12.1	8.63	--	--	--	--	--	--	--	--	--

concentration
 at the May09
 from a
 to

Former Canoga Park Facility, Canoga Park, California

Well ID:	MW-21S										MW-21D							
	Sep90	Oct90	Nov90	Dec90	Jan91	Feb91	Mar91	Jun91	Oct91	Dec91	May09	Sep90	Oct90	Nov90	Dec90	Jan91	Feb91	Mar91
Sample Date:																		
Units																		
pCi/L	41 (±24)	28 (±22)	22 (±31)	4 (±16)	18 (±16)	25 (±16)	10 (±13)	30 (±22)	16.2	7.3	22.65	2 (±20)	2 (±24)	12 (±36)	6 (±19)	10 (±15)	-2 (±21)	14 (±16)
pCi/L	18 (±13)	25 (±13)	7 (±13)	7 (±12)	3 (±11)	0 (±11)	13 (±10)	5 (±10)	7.7	5.35	17.12	13 (±14)	21 (±17)	2 (±16)	11 (±14)	11 (±11)	-2 (±20)	17 (±12)
pCi/L	0.2 (±0.4)	-0.4 (±0.6)	0.0 (±0.4)	-0.2 (±0.3)	0.1 (±0.4)	0.4 (±0.5)	-0.3 (±0.7)	0.3 (±0.5)	<1.0	<0.5	<0.28	0.6 (±0.6)	2.5 (±0.7)	0.0 (±0.3)	1.5 (±0.4)	3.4 (±0.6)	1.1 (±0.6)	4.3 (±0.8)
pCi/L	--	--	--	--	--	--	--	--	<1.0	<1.0	<0.32	--	--	--	--	1.4 (±0.7)	--	0.6 (±0.5)
pCi/L	30.5 (±3.0)	36.5 (±3.6)	29.1 (±2.9)	21.6 (±2.2)	24.4 (±2.4)	23.0 (±2.3)	13.5 (±1.4)	25.0 (±2.5)	22.6	14.56	31.1 J	<0.7	<0.7	<0.7	<0.7	0.7	<0.7	<0.7
pCi/L	--	--	--	--	--	--	--	--	11.8	7.34	26.75	--	--	--	--	--	--	--
pCi/L	--	--	--	--	--	--	--	--	<0.6	0.24	1.67	--	--	--	--	--	--	--
pCi/L	--	--	--	--	--	--	--	--	10.8	6.98	27.61	--	--	--	--	--	--	--

concentration
 at the May09
 from a
 to

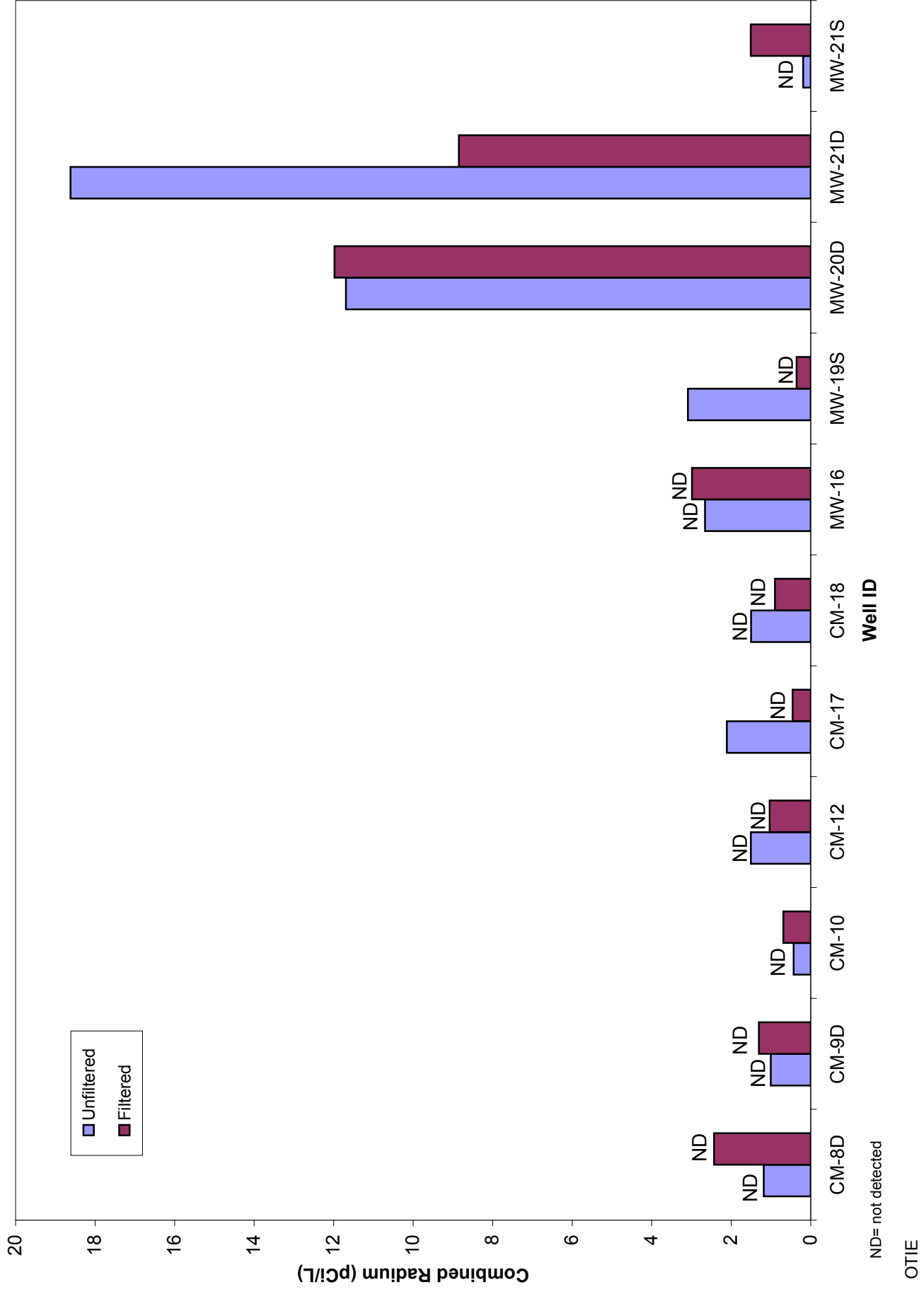
Table 4
Measured Field Parameters in Groundwater, May 2009
Former Canoga Park Facility, Canoga Park, California

Well ID	ORP (mV)	pH	Turbidity (NTU)
CM-8D	-102	8.06	12.6
CM-9D	-10	7.9	55.4
CM-10	189	7.72	15.9
CM-12	-224	8.16	34
CM-17	31	7.93	22.7
CM-18	26	7.94	59.6
MW-16	-366	7.97	8.2
MW-19S	-164	7.81	55.4
MW-20D	-371	8.09	25.9
MW-21D	-372	7.87	45.9
MW-21S	-29	7.75	39.6

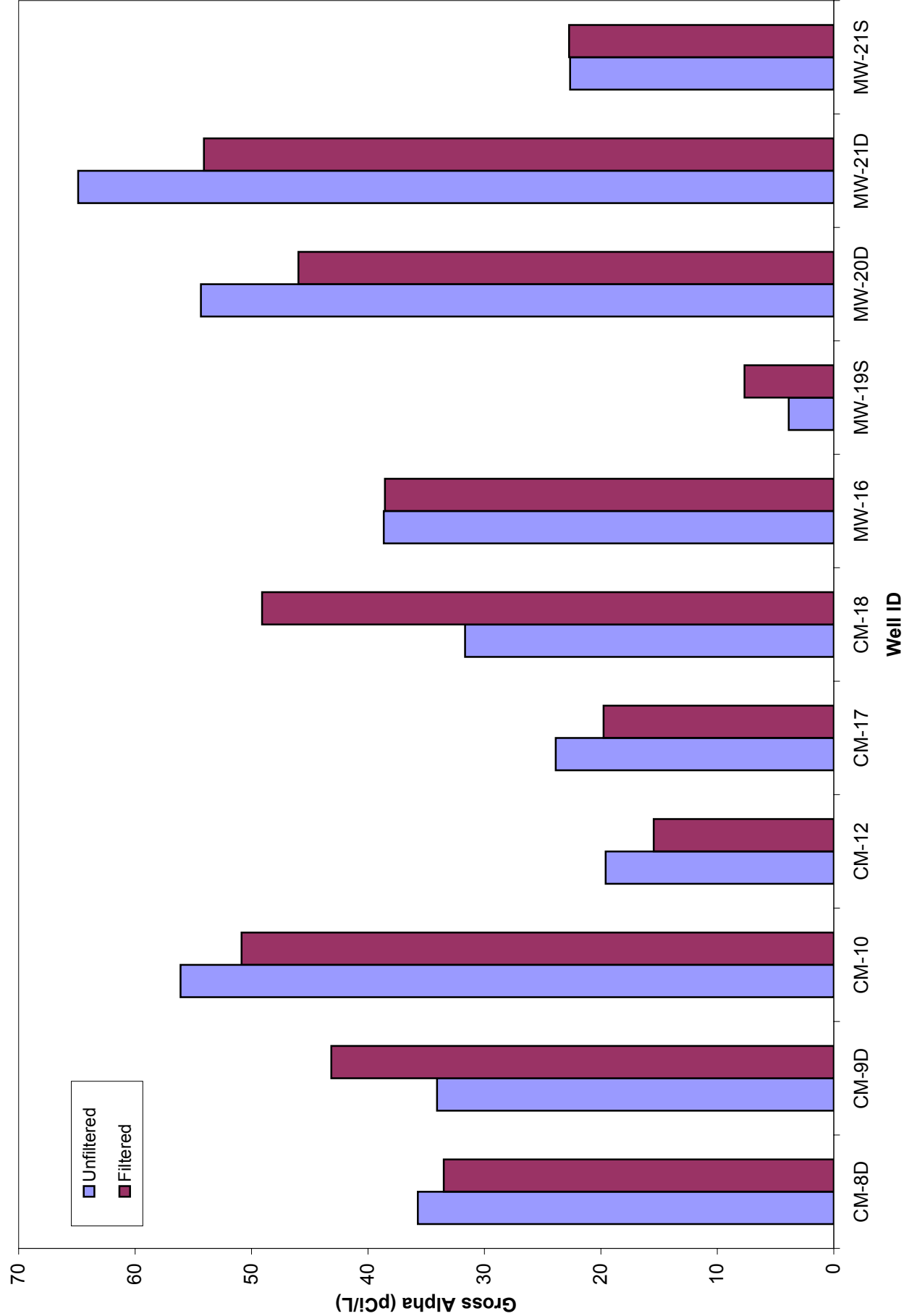
Field Parameters collected using a Horiba U22 Flow-Through Water Quality Meter

Graphs

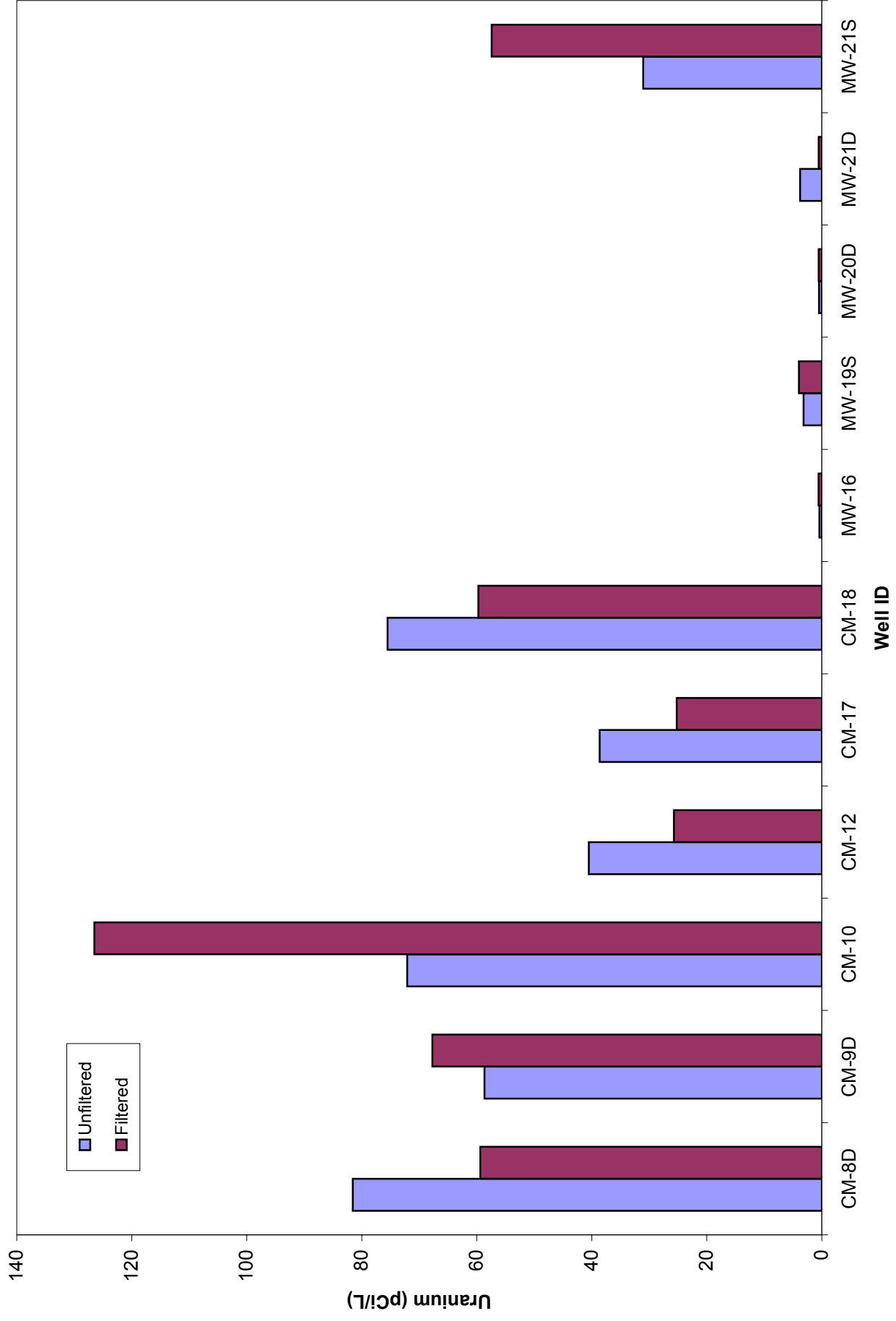
Graph 1
Filtered vs Unfiltered Results, Combined Radium
Former Canoga Park Facility, Canoga Park, California



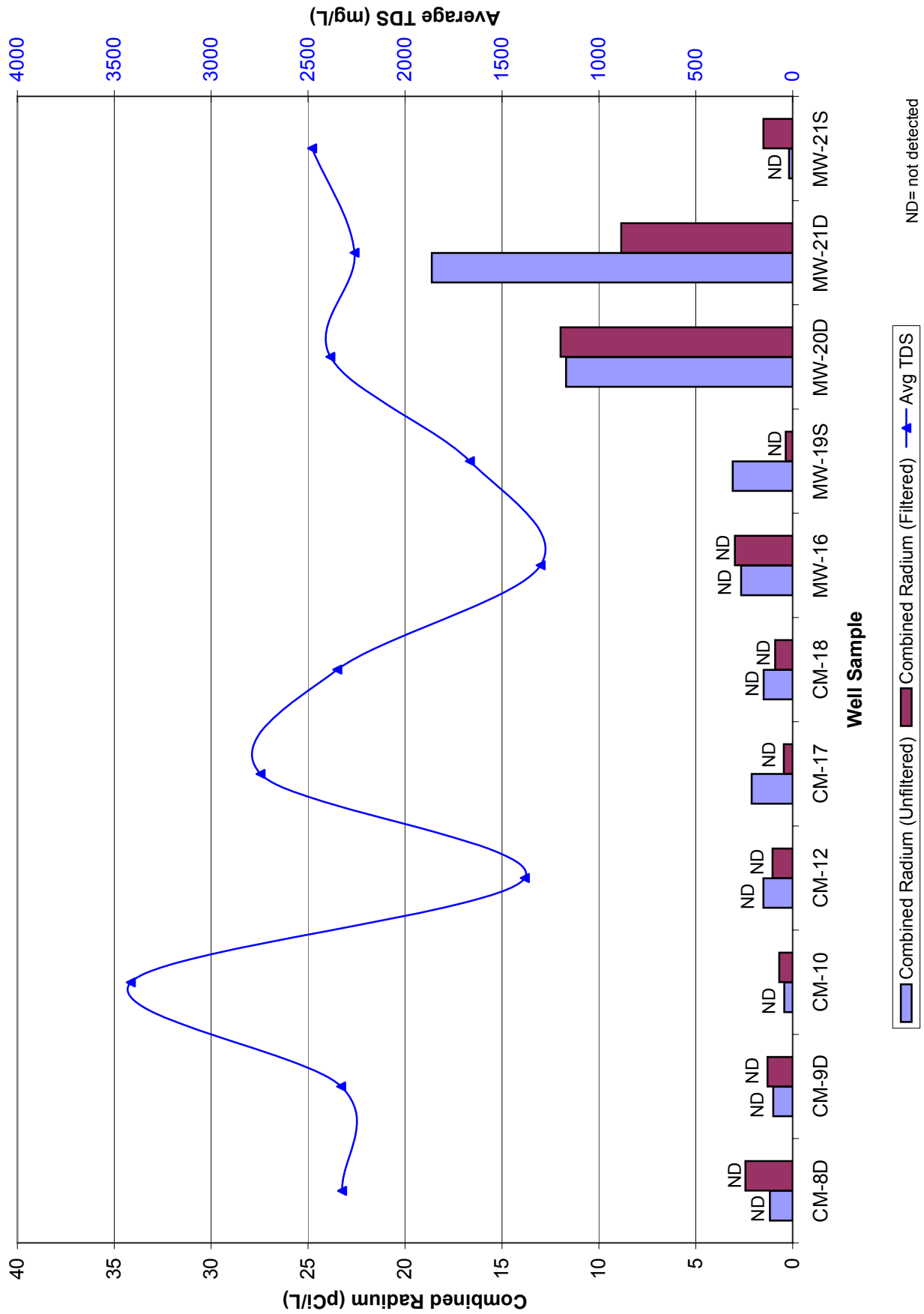
Graph 2
Filtered vs Unfiltered Results, Gross Alpha
Former Canoga Park Facility, Canoga Park, California



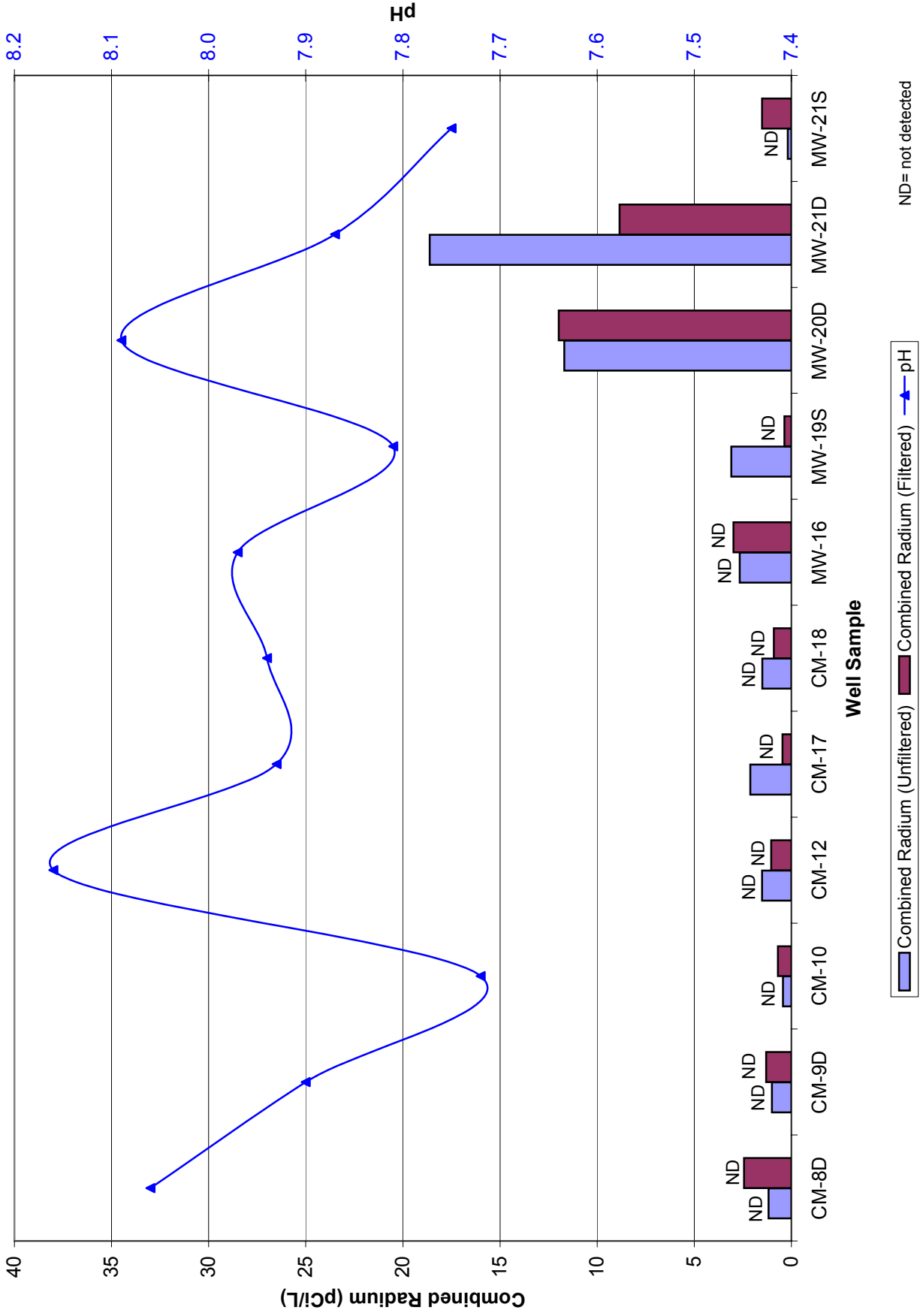
Graph 3
Filtered vs Unfiltered Results, Total Uranium
Former Canoga Park Facility, Canoga Park, California



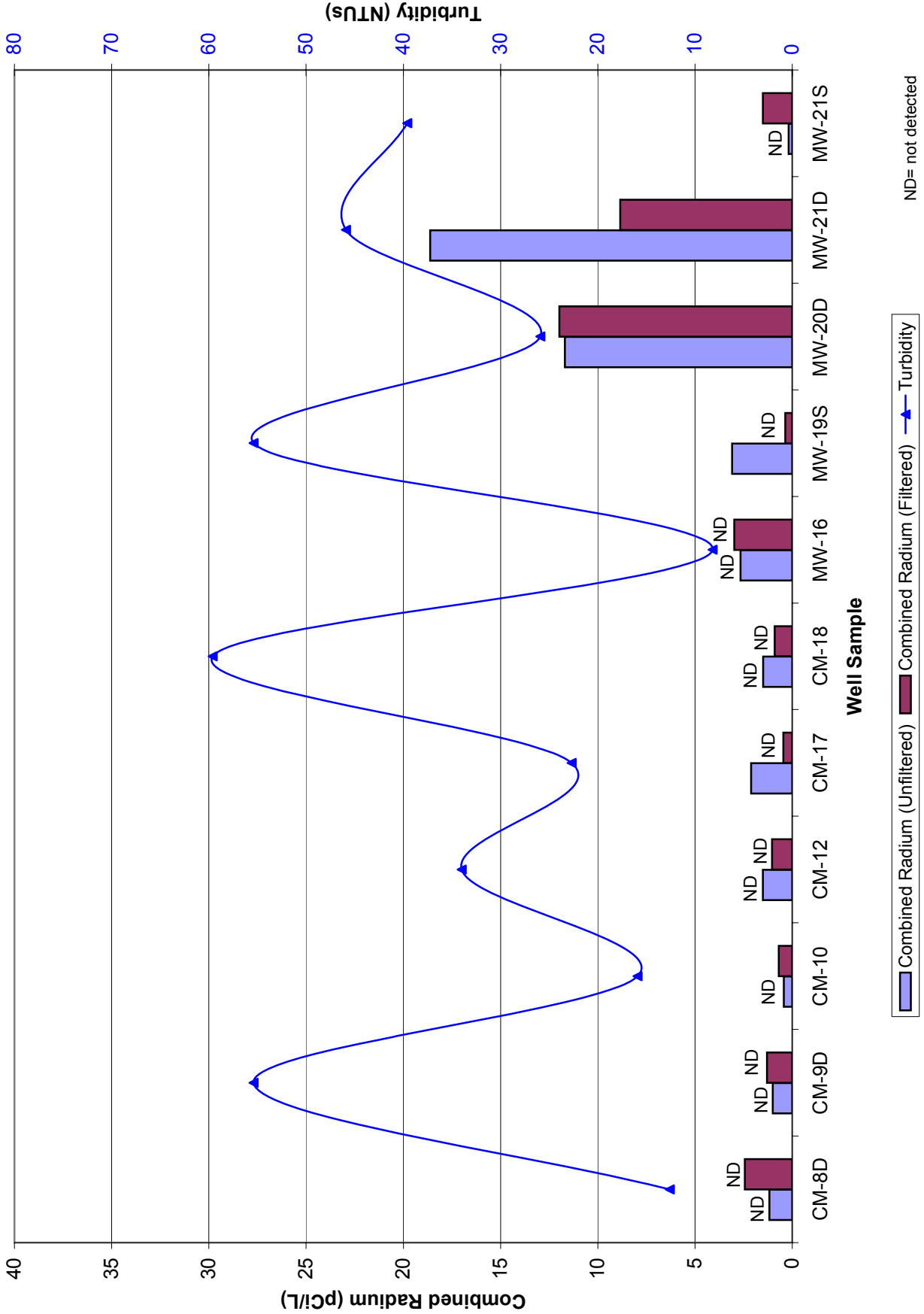
Graph 4a
Combined Radium and Average TDS
Former Canoga Park Facility, Canoga Park, California



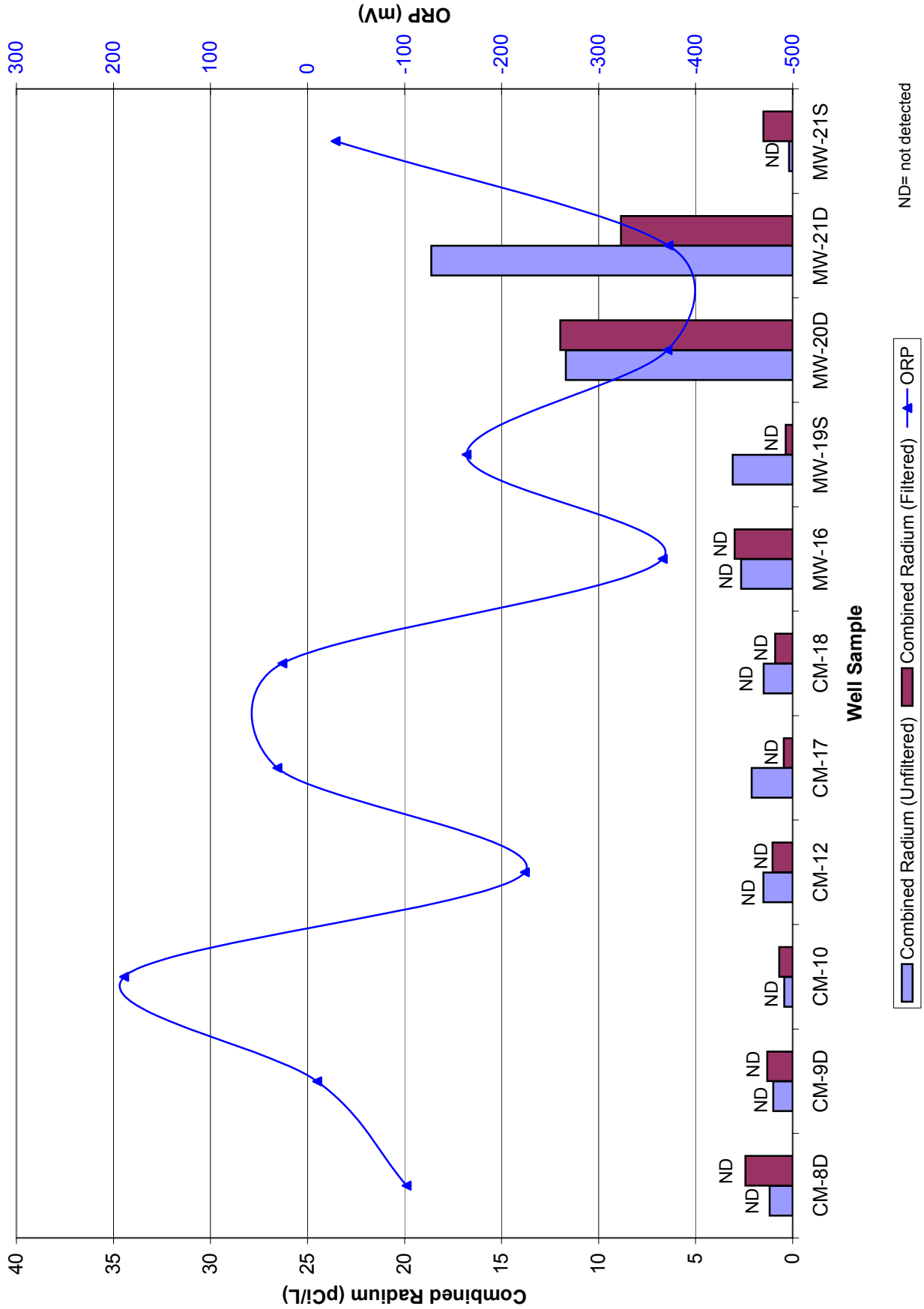
Graph 4b
Combined Radium and pH
Former Canoga Park Facility, Canoga Park, California



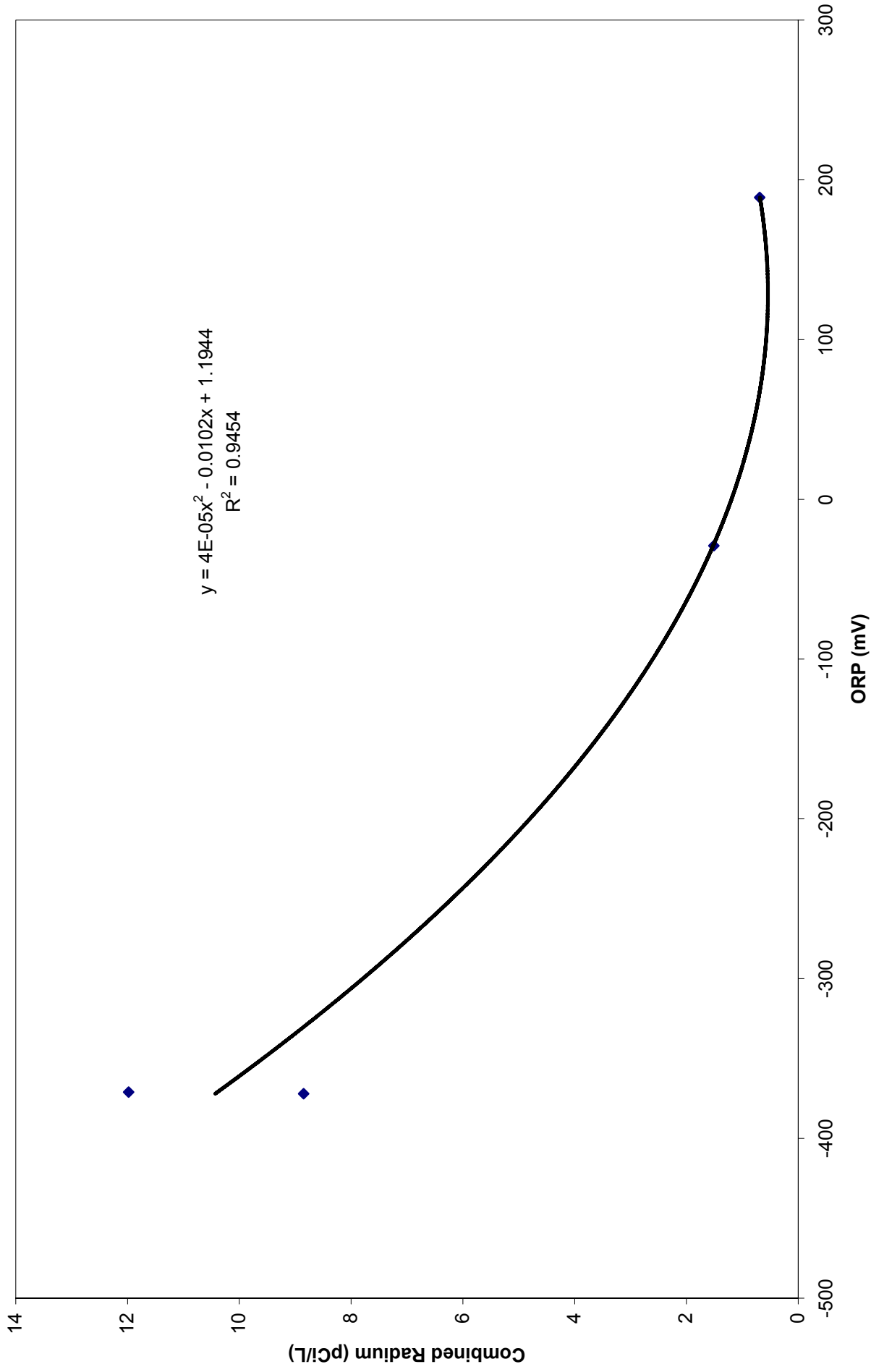
Graph 4c
Combined Radium and Turbidity
Former Canoga Park Facility, Canoga Park, California



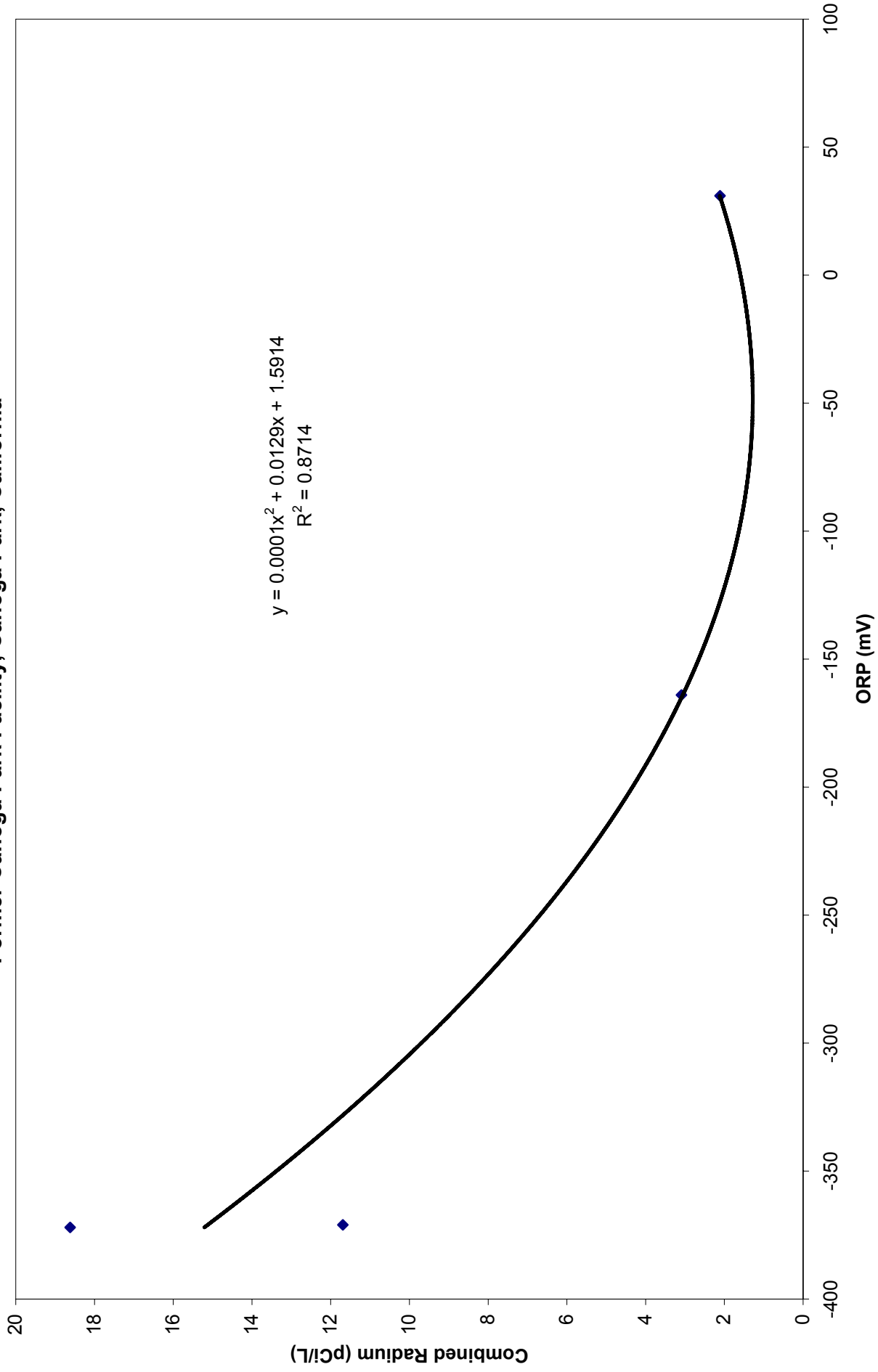
Graph 4d
Combined Radium and Oxidation Reduction Potential (ORP)
Former Canoga Park Facility, Canoga Park, California



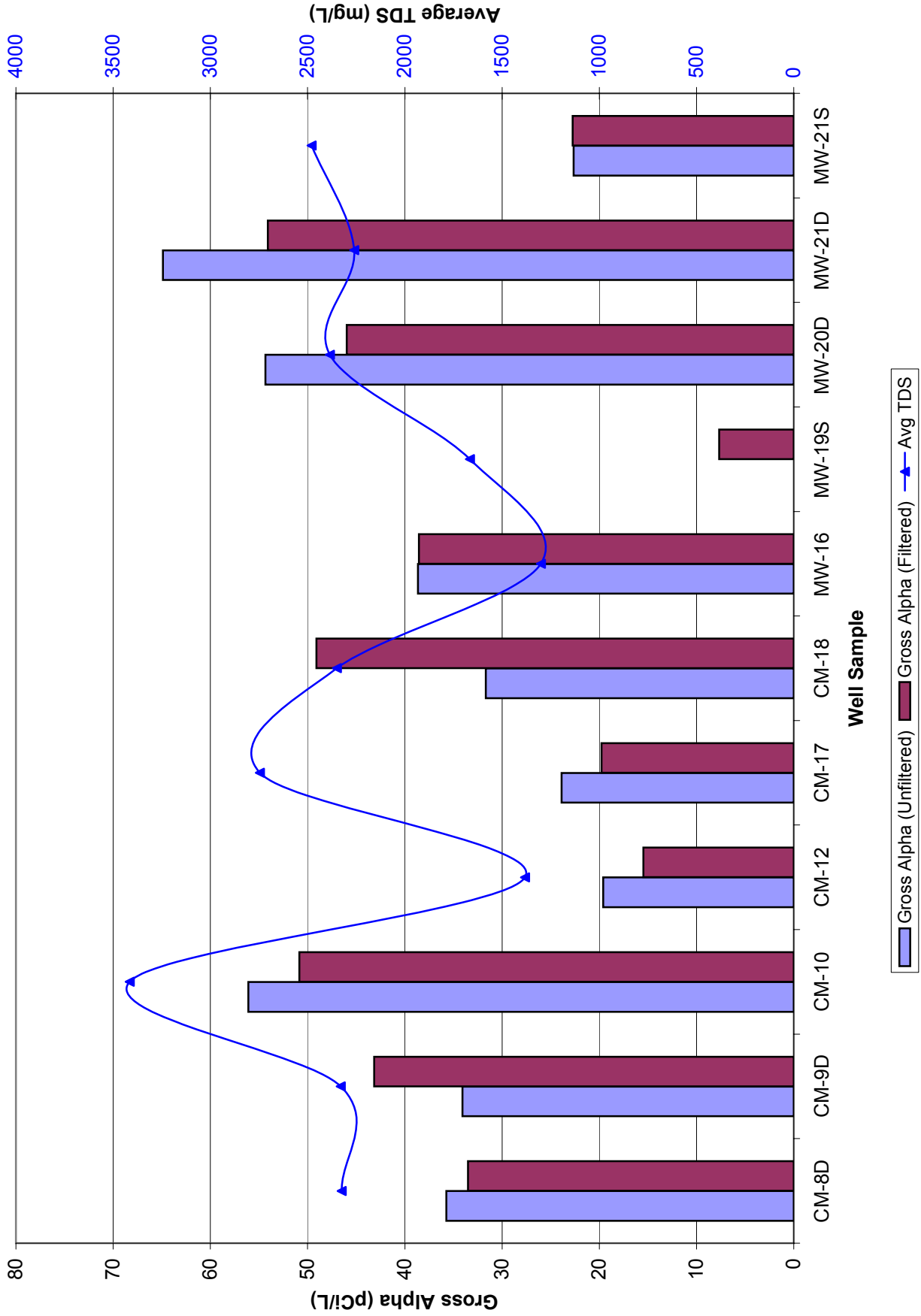
Graph 4e
Oxidation Reduction Potential (ORP) vs Detected Combined Radium, Filtered Samples
Former Canoga Park Facility, Canoga Park, California



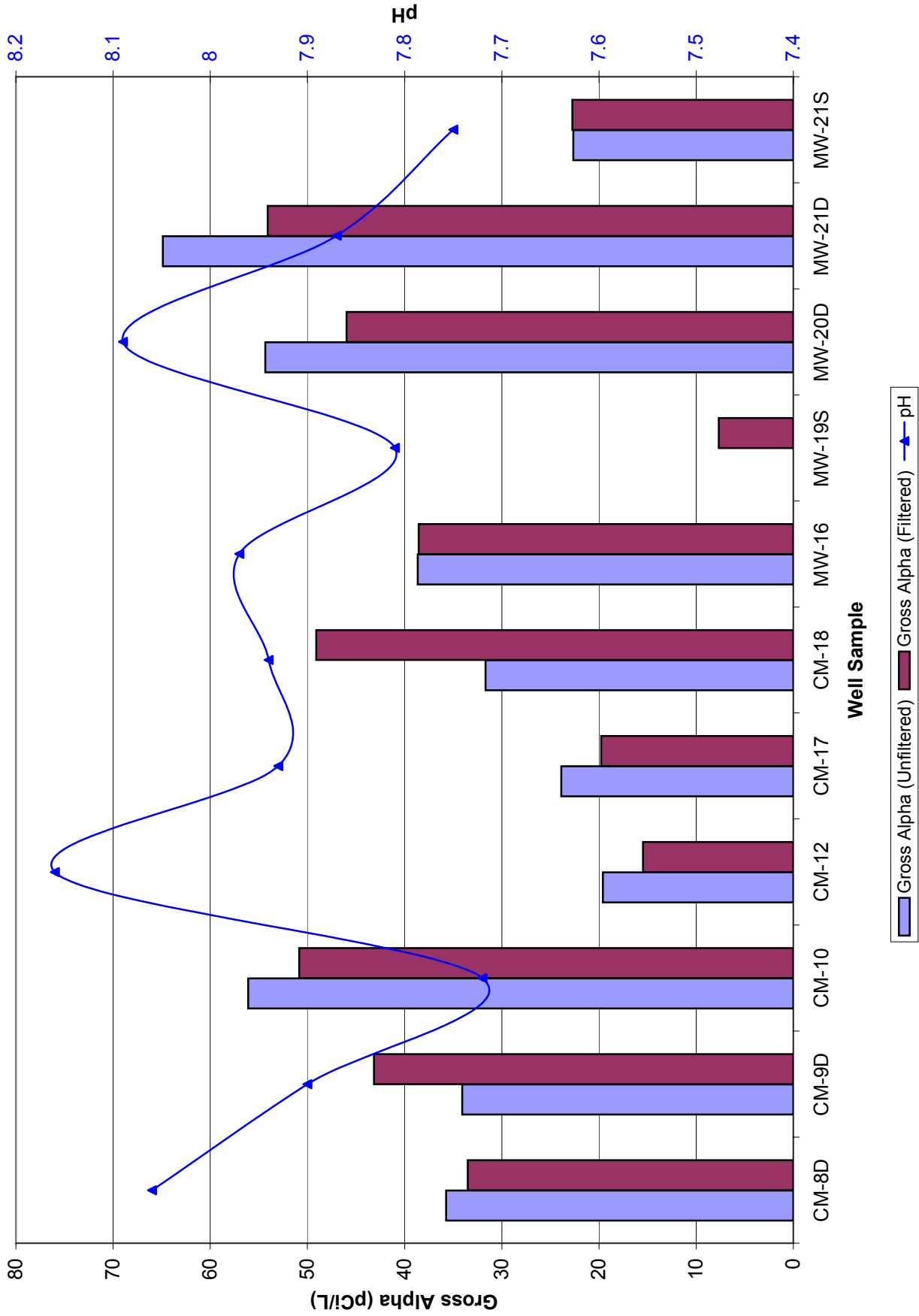
Graph 4f
Oxidation Reduction Potential (ORP) vs Detected Combined Radium, Unfiltered Samples,
Former Canoga Park Facility, Canoga Park, California



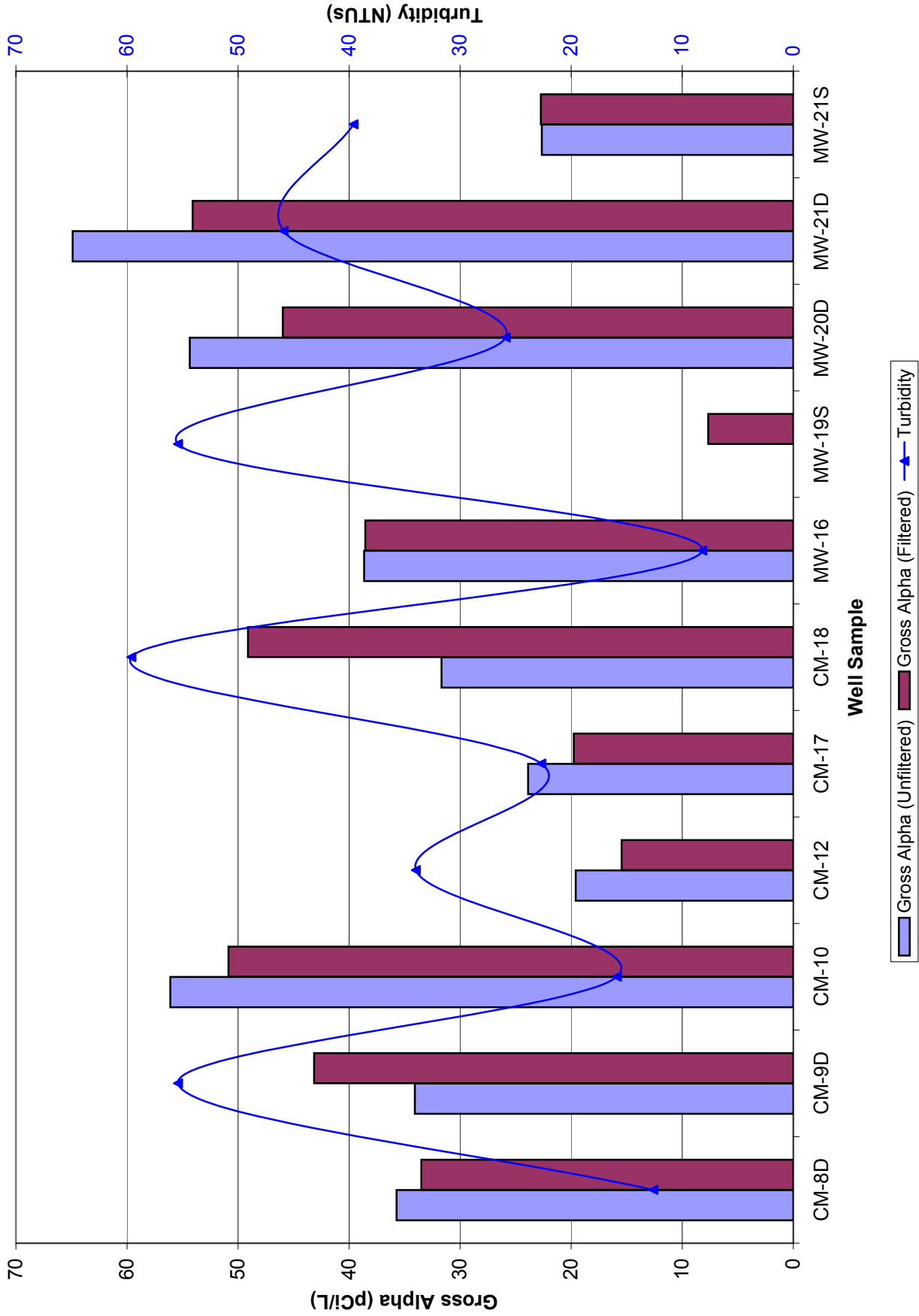
Graph 5a
Gross Alpha and Average TDS
Former Canoga Park Facility, Canoga Park, California



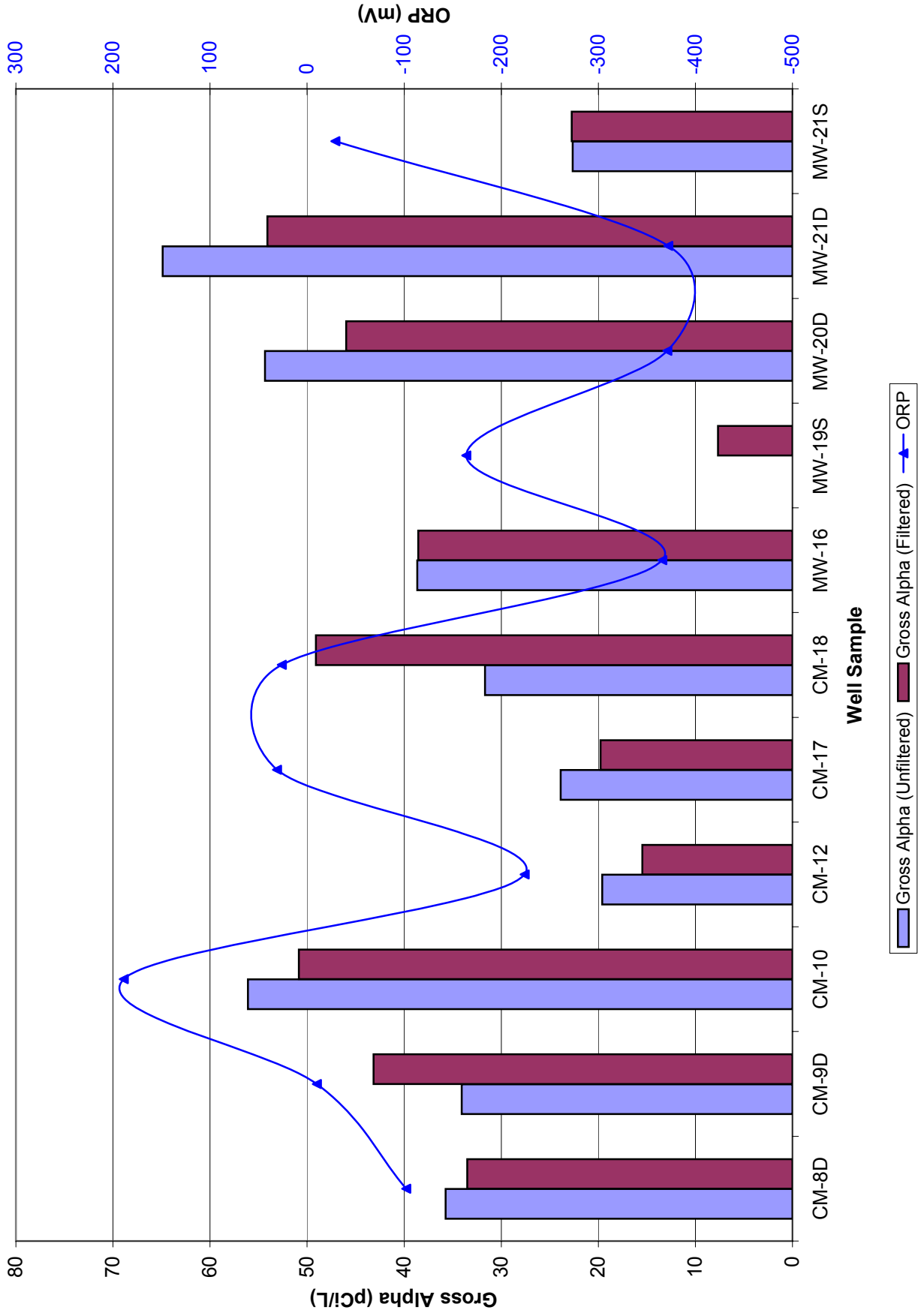
Graph 5b
Gross Alpha and pH
Former Canoga Park Facility, Canoga Park, California



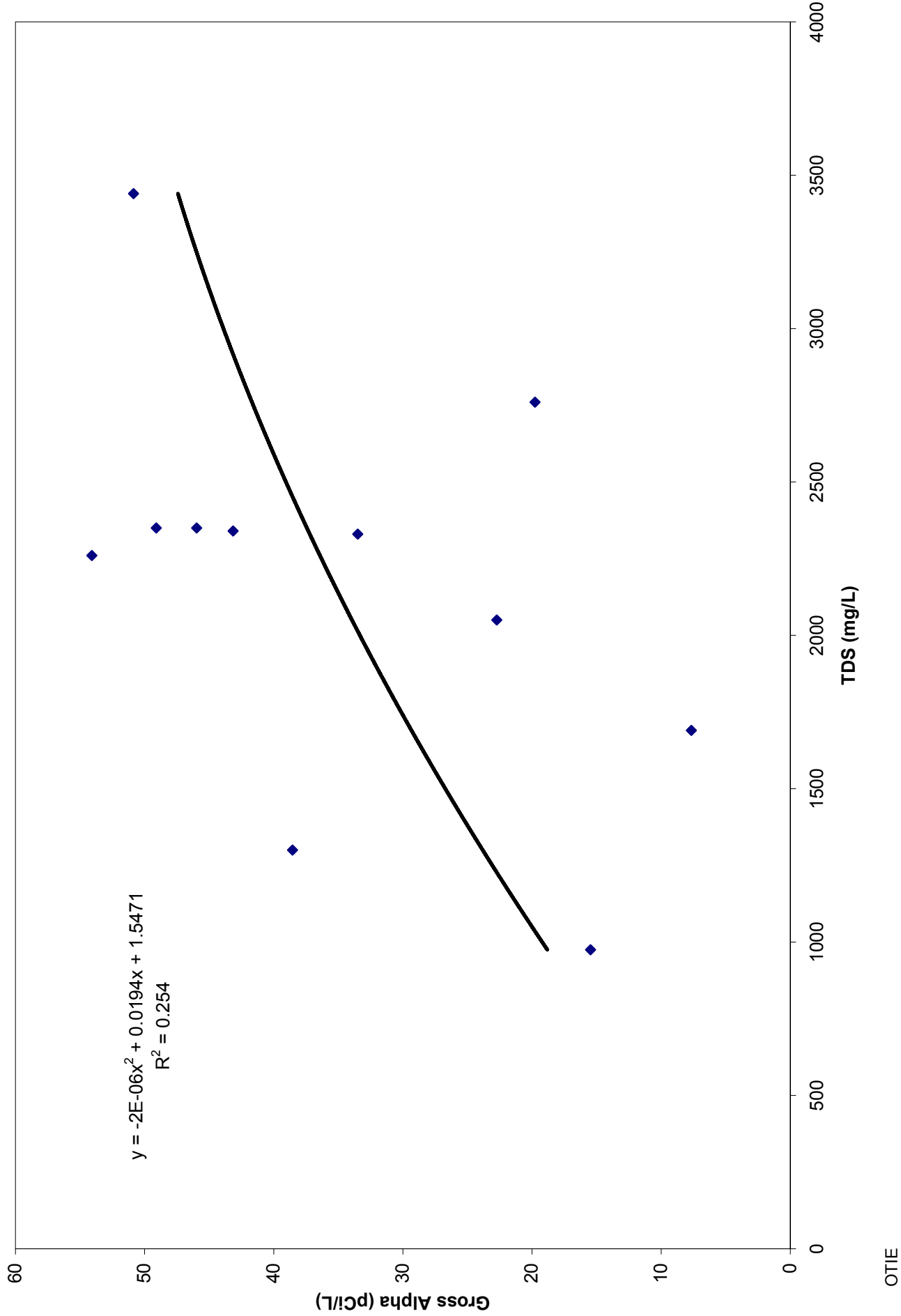
Graph 5c
Gross Alpha and Turbidity
Former Canoga Park Facility, Canoga Park, California



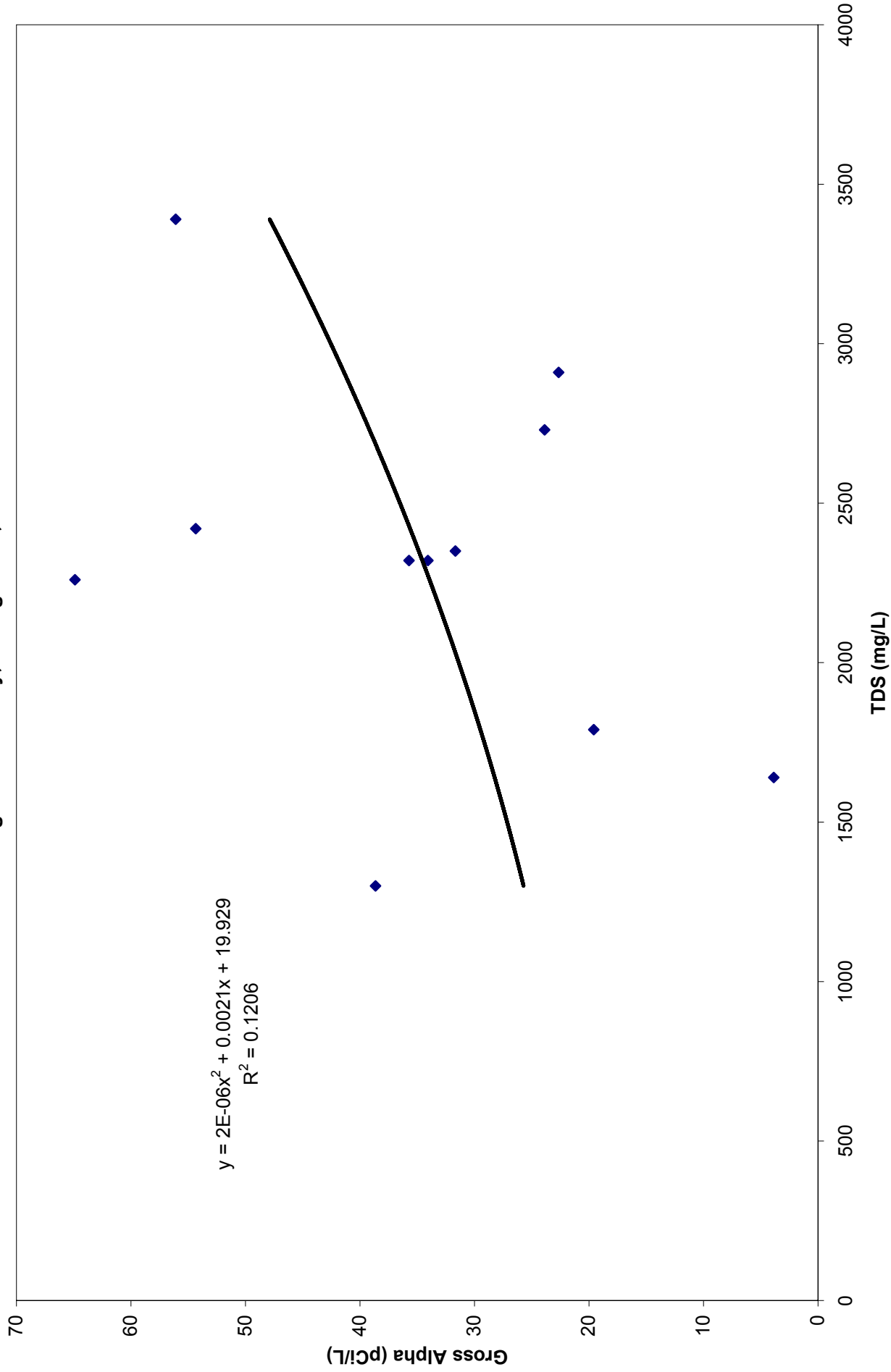
Graph 5d
Gross Alpha and Oxidation Reduction Potential (ORP)
Former Canoga Park Facility, Canoga Park, California



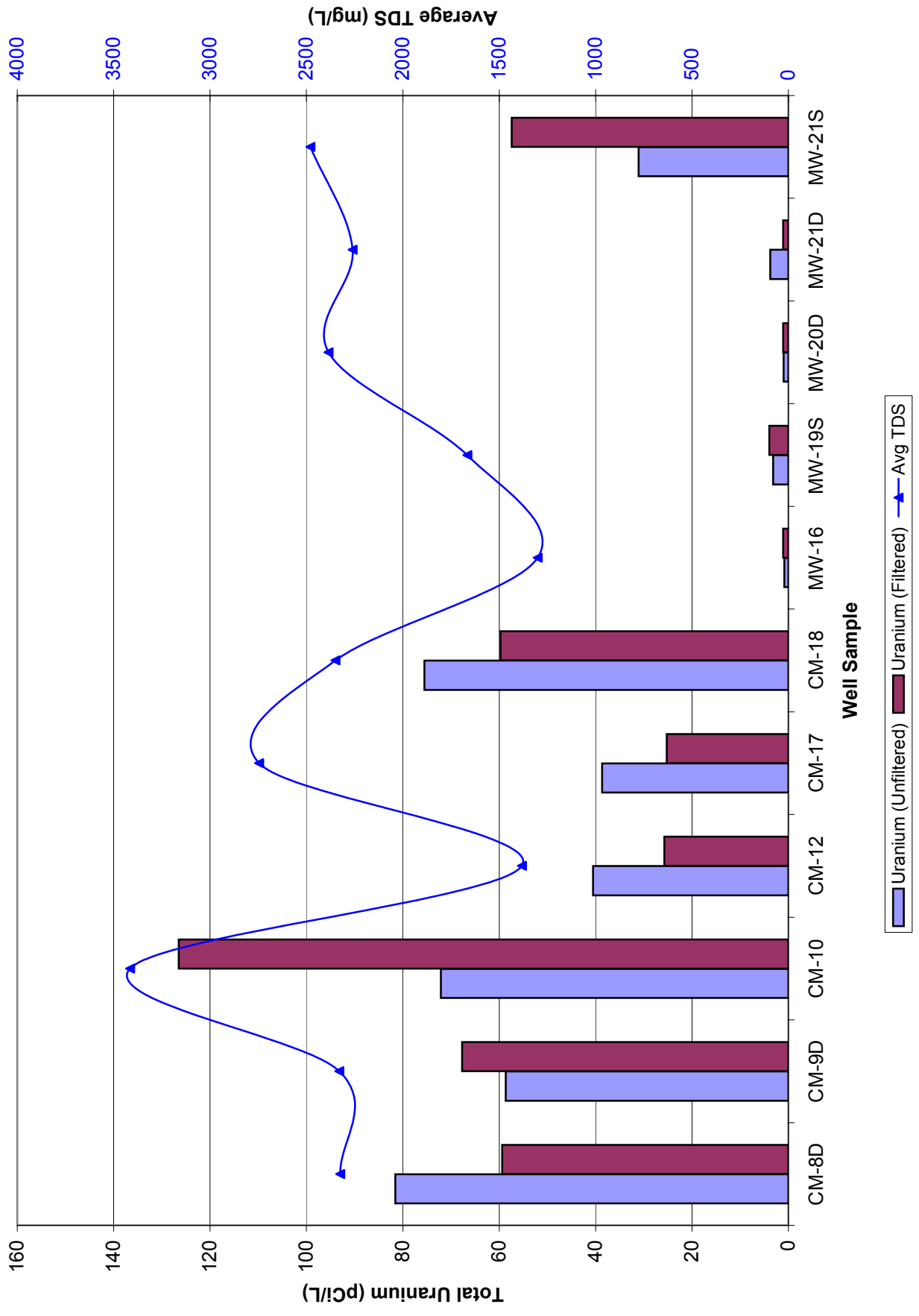
Graph 5e
TDS vs Gross Alpha, Filtered Samples
Former Canoga Park Facility, Canoga Park, California



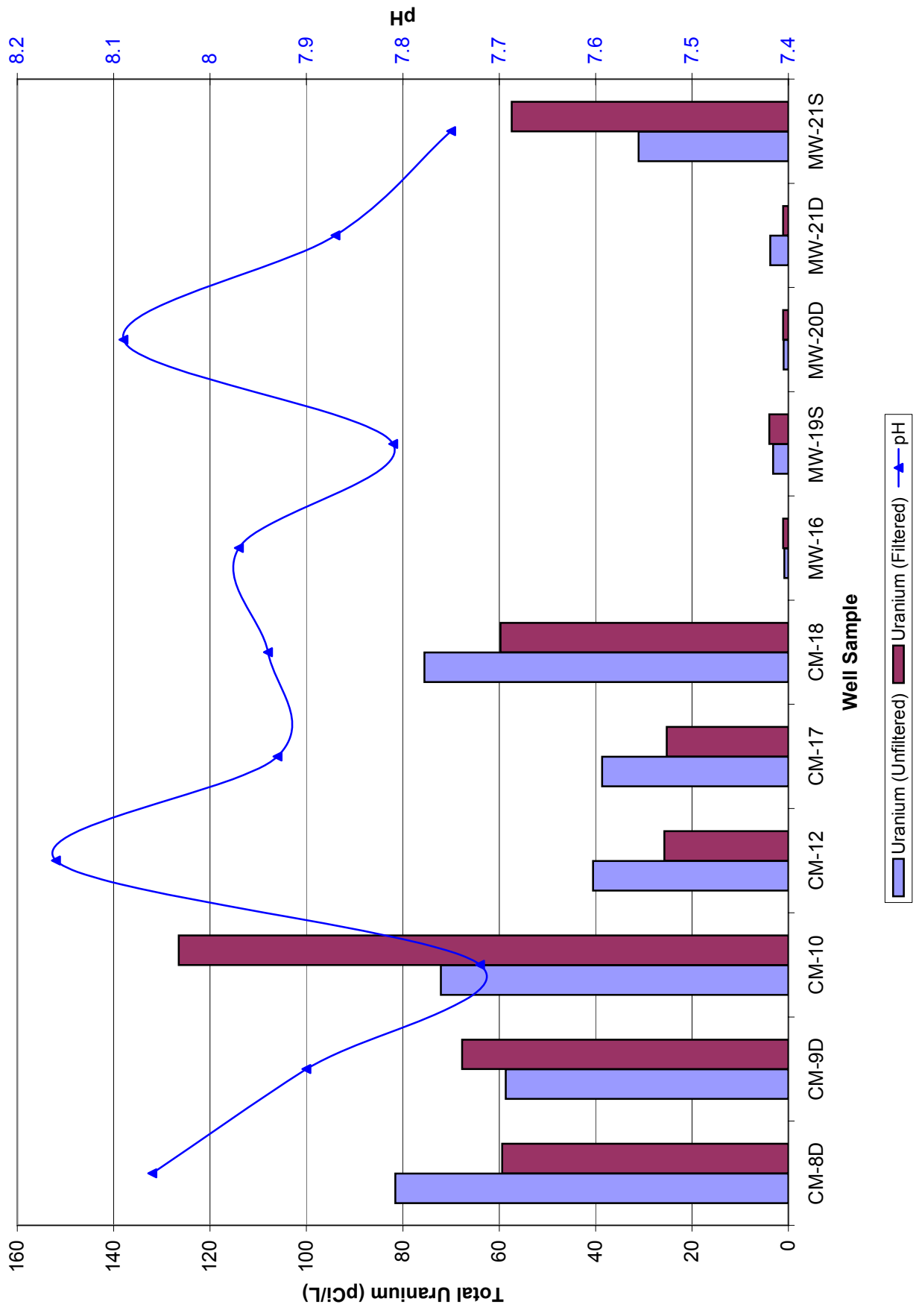
Graph 5f
TDS vs Gross Alpha, Unfiltered Samples
Former Canoga Park Facility, Canoga Park, California



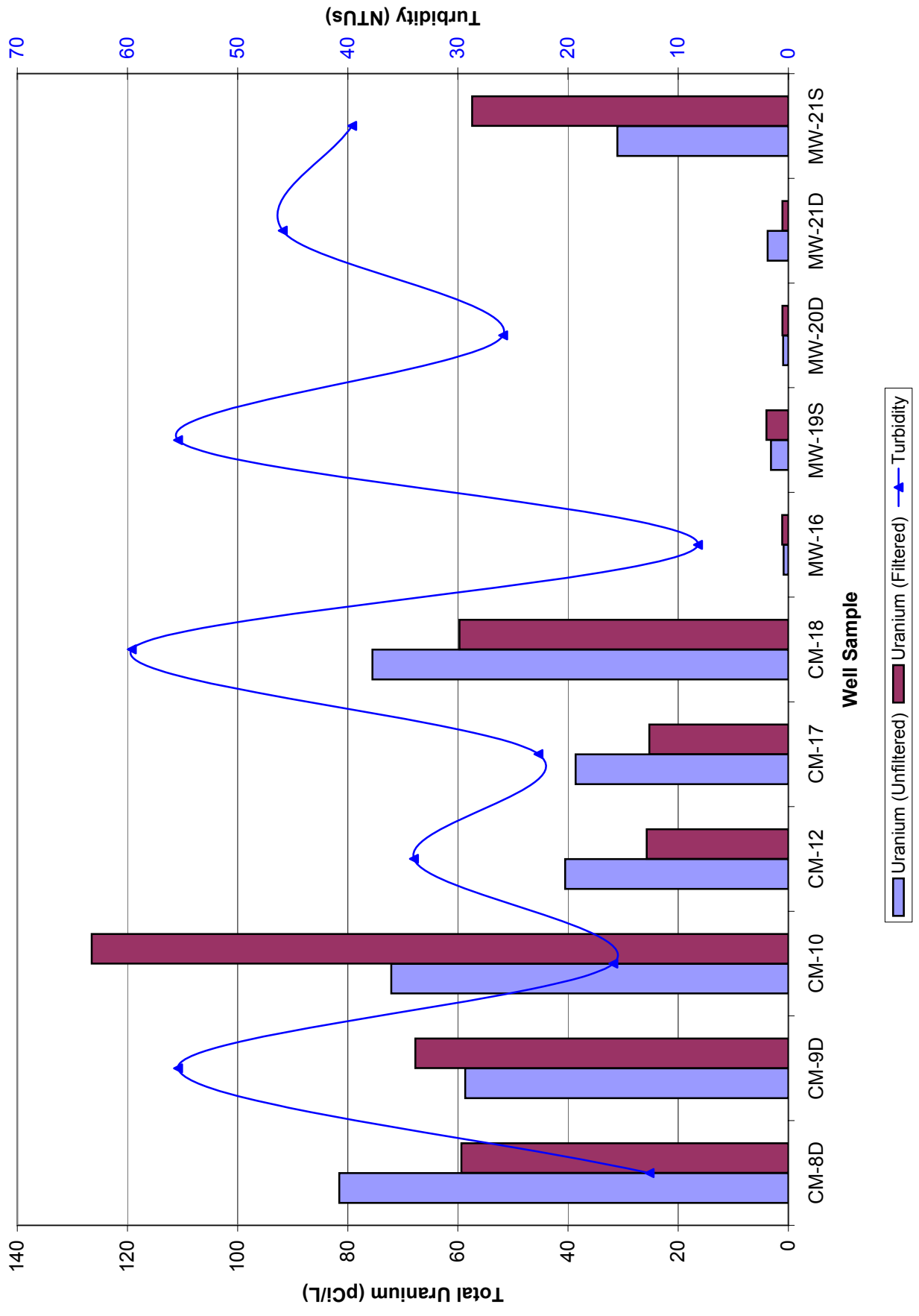
Graph 6a
Total Uranium and Average TDS
Former Canoga Park Facility, Canoga Park, California



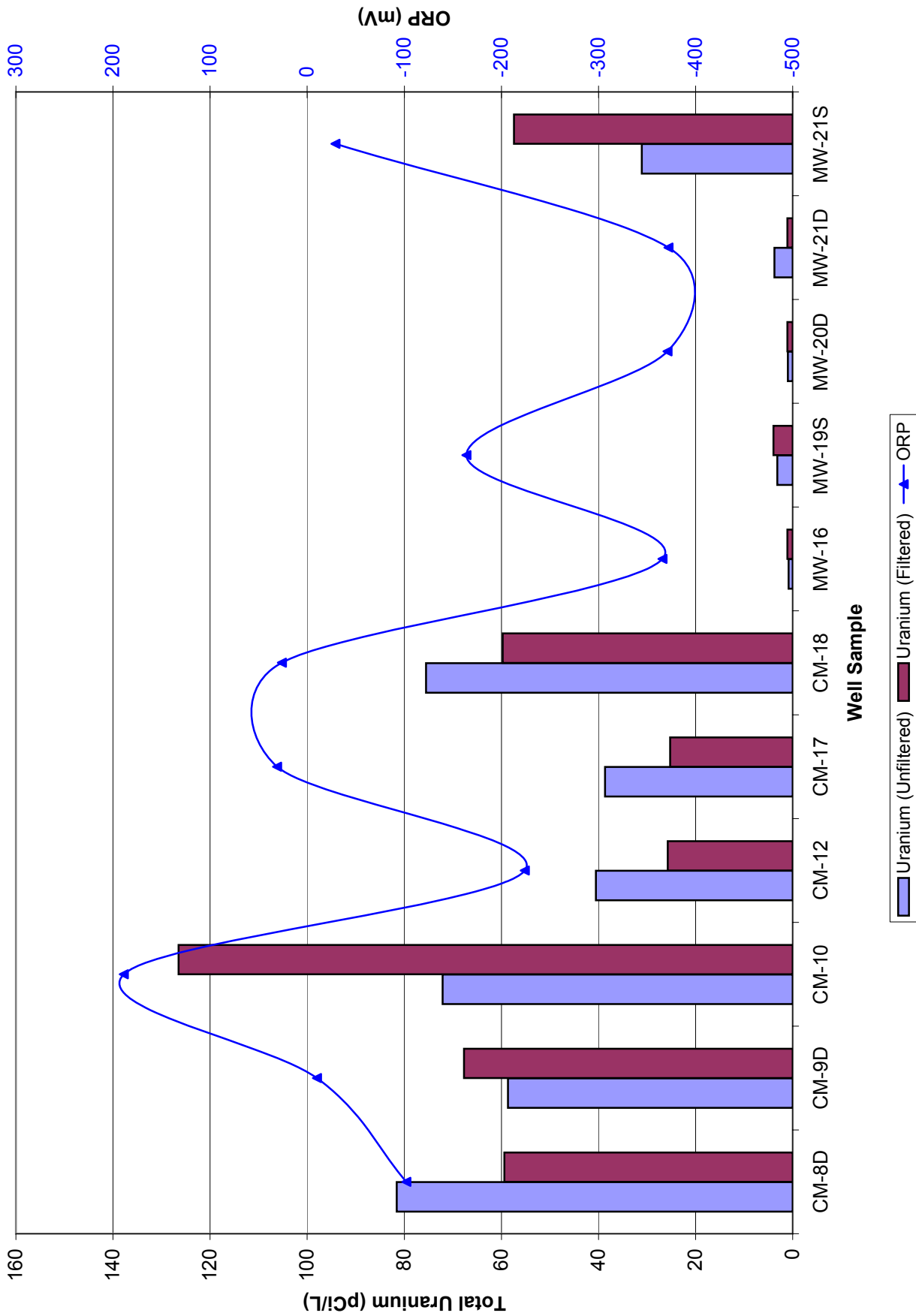
Graph 6b
Total Uranium and pH
Former Canoga Park Facility, Canoga Park, California



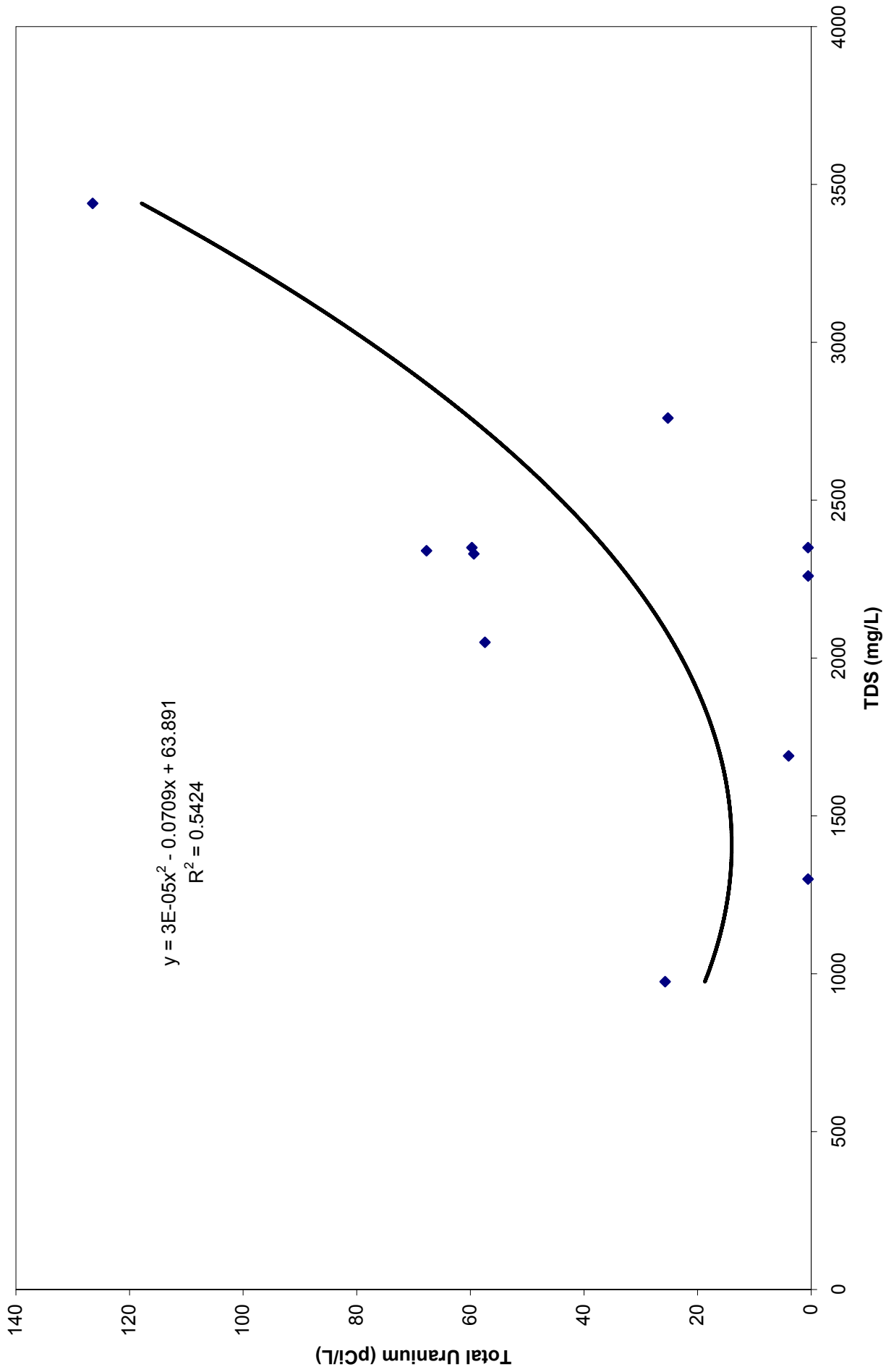
Graph 6c
Total Uranium and Turbidity
Former Canoga Park Facility, Canoga Park, California



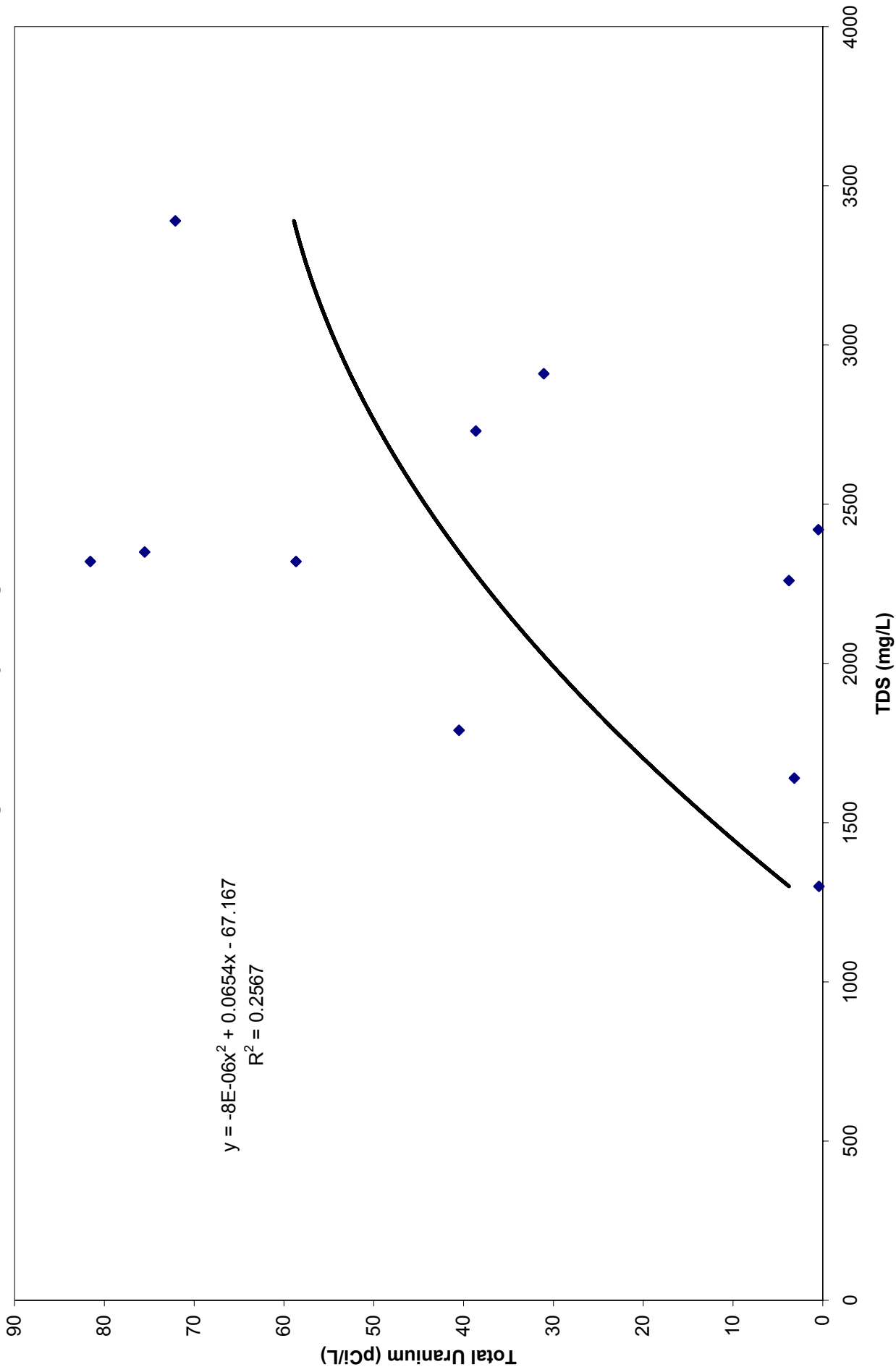
Graph 6d
Total Uranium and Oxidation Reduction Potential (ORP)
Former Canoga Park Facility, Canoga Park, California



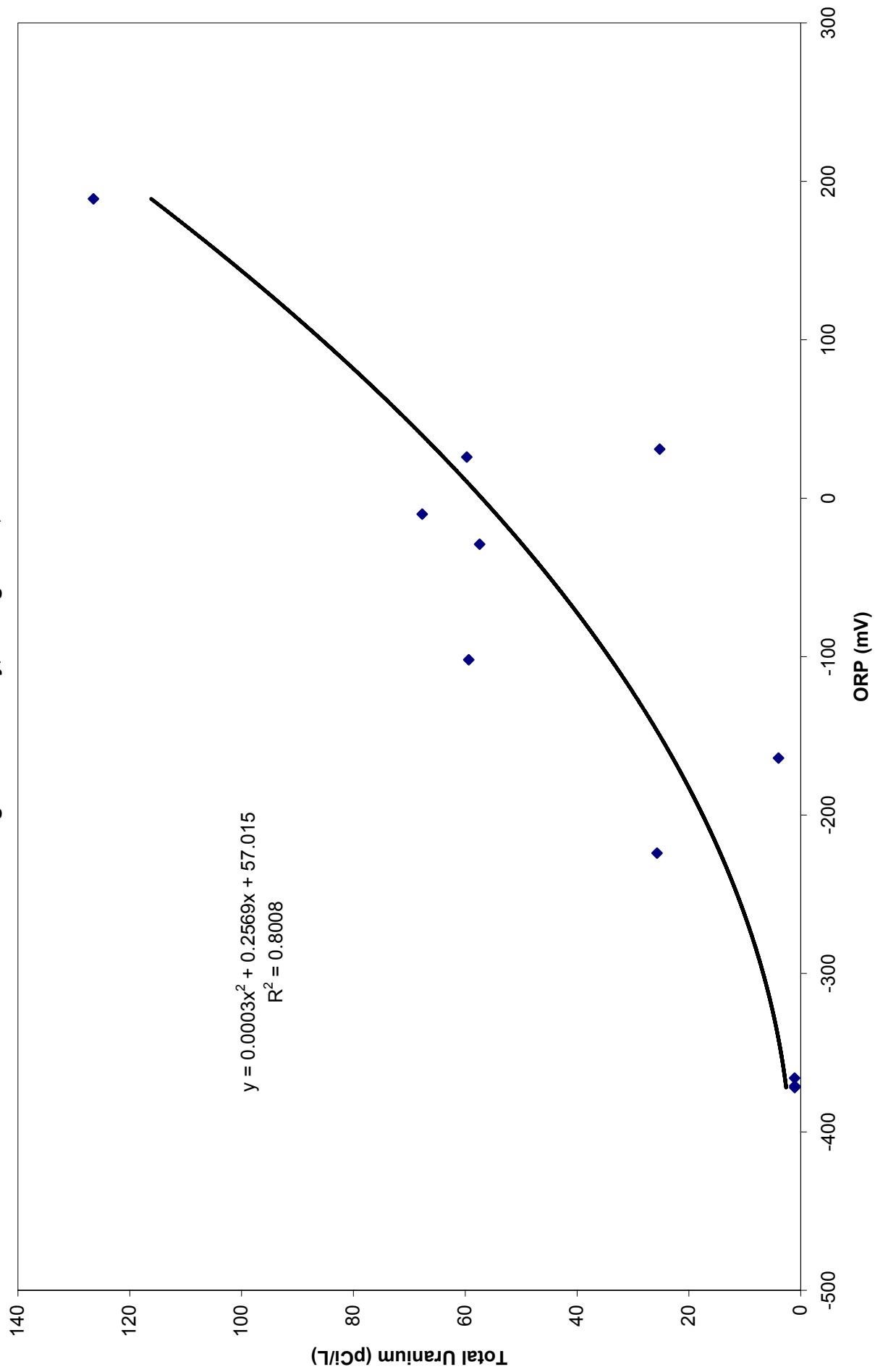
Graph 6e
TDS vs Total Uranium, Filtered Samples
Former Canoga Park Facility, Canoga Park, California



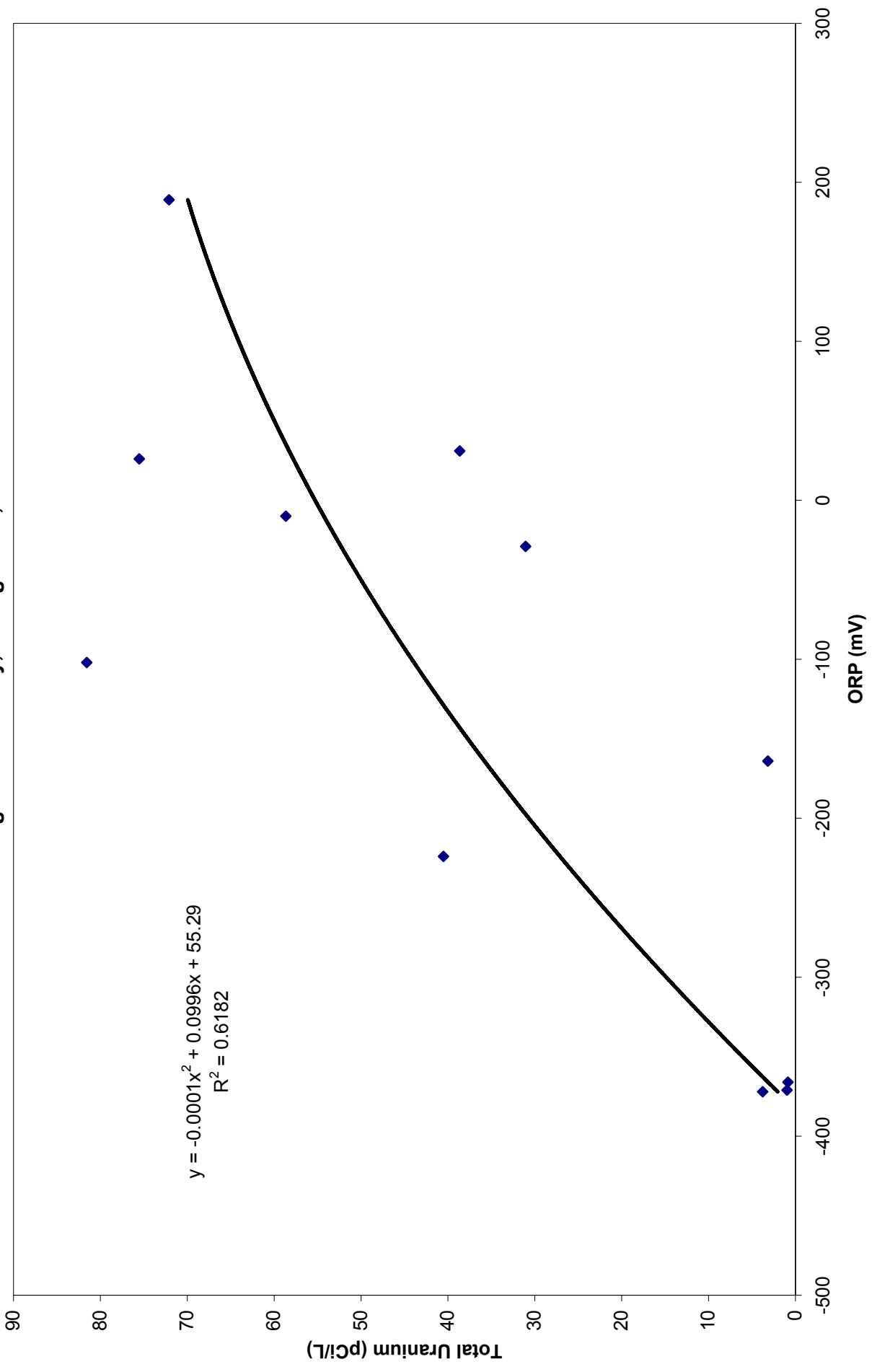
Graph 6f
TDS vs Total Uranium, Unfiltered Samples
Former Canoga Park Facility, Canoga Park, California



Graph 6g
Oxidation Reduction Potential (ORP) vs Total Uranium, Filtered Samples
Former Canoga Park Facility, Canoga Park, California



Graph 6h
Oxidation Reduction Potential (ORP) vs Total Uranium, Unfiltered Samples
Former Canoga Park Facility, Canoga Park, California



Appendix A

Regulatory Correspondence



California Regional Water Quality Control Board Los Angeles Region



Recipient of the 2001 Environmental Leadership Award from Keep California Beautiful

Linda S. Adams
CalEPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

March 5, 2008

Ms. Jean Roberts, Manager
Safety, Health, Environmental Affairs
Raytheon Company
P.O. Box 11337
Tucson, AZ 85834-1337

CALIFORNIA WATER CODE (CWC) SECTION 13267 - ORDER REQUIRING A GROUNDWATER INVESTIGATION WORK PLAN TO VERIFY CURRENT RADIOACTIVITY CONDITIONS - RAYTHEON SYSTEMS COMPANY (FORMER HUGHES MISSILE SYSTEM COMPANY), 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (WDR NO. 95-012, SLIC NO. 0693, SITE ID NO. 2043T00)

Dear Ms. Roberts:

In response to public concerns regarding radioactivity sampling results from the on-site groundwater monitoring wells, the Los Angeles Regional Water Quality Control Board (Regional Board) staff have reviewed the following reports, prepared by Groundwater Resources Consultants, Inc., for the referenced site:

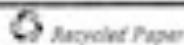
- *Investigation of Radioactivity in Groundwater, October 1991*, dated January 23, 1992, and
- *Results of Radiological Sampling of Monitoring Wells, December 1991*, dated March 27, 1992

The referenced site was 86 acres and operated as an aerospace research and development facility from approximately 1959 to 1996. Hughes Missile System Company operated/owned the entire facility since the mid 1970's through 1996. Raytheon merged with Hughes in 1997 and since then the site has been known as the "Former Raytheon Facility, Canoga Park". Numerous site investigations and remedial activities have been conducted since the early 1990's. Volatile organic compounds (VOCs), mainly 1,1-dichloroethene (1,1-DCE), have been detected in groundwater across the site. A groundwater remediation program has been implemented at the site since 1995 to progress towards achieving cleanup criteria established in the Corrective Action Plan (1992) for the site. Remediation techniques used at the site include groundwater recovery and treatment, soil vapor extraction, and air sparging.

To assess the radioactivity conditions at the site, the groundwater monitoring wells were sampled for radioactivity. Based on review of the two reports submitted, the Regional Board staff have the following comments:

1. For both reports, please correct the remarks for adjusted gross alpha emitters and revise the California Maximum Contaminant Levels (MCLs) for uranium (with correct unit) and combined radium - 226+228 in tables titled EPA Proposed Maximum Contaminant Levels. See attachment titled Maximum Contaminant Levels and Regulatory Dates for Drinking Water.
2. For both reports, please revise tables titled Summary of Alpha Emitters and Adjusted Gross Alpha Levels corresponding with Comment 1.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

3. The reports summarized that total dissolved solids (TDS) concentrations ranging from three to five times the drinking water secondary MCL of 500 mg/L at the facility. Please provide TDS groundwater concentrations throughout the site.
4. The reports summarized that an analysis of the isotopic mass percentages of the samples with elevated uranium levels indicates that the percentages conform to the U.S. EPA definition of naturally occurring uranium. Please provide a copy of the U.S. EPA documentation, a copy of the cited source, and detailed calculations of the activity/mass equivalents.
5. Upon review of the summary tables, Regional Board staff conclude that the following wells have radioactive contaminant levels in excess of the California MCLs.

	California MCL	October 1991, 22 wells sampled	December 1991, 28 wells sampled
Gross Alpha particle activity (excluding radon & uranium)	15 pCi/L	MW-20D	none
Uranium	20 pCi/L	MW-19S, MW-21S, CM-8D, CM-9D, CM-10	CM-8D, CM-10, CM-12, CM-17, CM-18
Combined Radium - 226+228	5 pCi/L	MW-16, MW-20D, MW-21D	MW-16, MW-21D

Pursuant to Section 13267 of the CWC, you are required to submit a work plan for groundwater investigation to verify current radioactivity conditions. The groundwater monitoring wells shall be sampled for radioactivity analyses including gross alpha particle activity, uranium, combined radium - 226+228, and gross beta particle activity. At a minimum, the work plan shall contain those groundwater monitoring wells with radioactive contaminant levels in excess of the MCLs (see attachment of Excel Spread Sheets) and be submitted to the Regional Board by **May 1, 2008**.

Pursuant to Section 13268 of the CWC, failure to submit the required work plan by the due dates may result in civil liability administratively imposed by the Regional Board in an amount up to one thousand dollars (\$1,000) for each day the work plan is not received.


Ms. Jean Roberts, Manager
Raytheon Company

- 3 -

March 5, 2008

Should you have any questions, please contact Dr. Ann Chang at (213) 620-6070, or Ms. Sa Han at (213) 576-6735.

Sincerely,



Tracy J. Eggocue
Executive Officer

Attachment: Maximum Contaminant Levels and Regulatory Dates for Drinking Water
Excel Spread Sheets - summary of October 1991 and December 1991
radioactivity sampling results

cc: Ms. Heather Collins - California Department of Health Services
Mr. Chris Nagler, WaterMaster, California Department of Water Resources
Mr. Bernard Franklin, Los Angeles County, Department of Public Health
Mr. Hoover Ng, Water Replenishment District- Southern California
Mr. James Pappas, Department of Toxic Substances Control
Mr. Martin Herrmann, Department of Toxic Substances Control
Mr. Timothy Garvey, TN & Associates, Inc.
Mr. Jacques Marcillac, TN & Associates, Inc.

**MAXIMUM CONTAMINANT LEVELS AND REGULATORY DATES
FOR DRINKING WATER
U.S. EPA VS CALIFORNIA
SEPTEMBER 2007**

Contaminant	U.S. EPA		California	
	MCL (mg/L)	Date ^a	MCL (mg/L)	Effective Date
Inorganics				
Aluminum	0.05 to 2 ^b	1/91	1 0.2 ^b	2/25/89 9/8/94
Antimony	0.008	7/92	0.008	9/8/94
Arsenic	0.05 0.010	eff: 6/24/77 eff: 1/23/06	0.05	77
Asbestos	7 MFL ^c	1/91	7 MFL ^c	9/8/94
Barium	1 2	eff: 6/24/77 1/91	1	77
Beryllium	0.004	7/92	0.004	9/8/94
Cadmium	0.010 0.005	eff: 6/24/77 1/91	0.010 0.005	77 9/8/94
Chromium	0.05 0.1	eff: 6/24/77 1/91	0.05	77
Copper	1.3 ^d	6/91	1 ^e 1.3 ^e	77 12/11/95
Cyanide	0.2	7/92	0.2 0.15	9/8/94 6/12/03
Fluoride	4 2 ^g	4/86 4/86	2	4/86
Lead	0.05 ^h 0.015 ^h	eff: 6/24/77 6/91	0.05 ^h 0.015 ^h	77 12/11/95
Mercury	0.002	eff: 6/24/77	0.002	77
Nickel	Remanded		0.1	9/8/94
Nitrate	(as N) 10	eff: 6/24/77	(as NO ₃) 45	77
Nitrite (as N)	1	1/91	1	9/8/94
Total Nitrate/Nitrite (as N)	10	1/91	10	9/8/94
Perchlorate	-	-	0.006	10/18/07
Selenium	0.01 0.05	eff: 6/24/77 1/91	0.01 0.05	77 9/8/94
Thallium	0.002	7/92	0.002	9/8/94
Radionuclides				
Uranium	30 ug/L	12/7/00	20 pCi/L 20 pCi/L	1/1/89 6/11/06
Combined Radium - 226+228	5 pCi/L	eff: 6/24/77	5 pCi/L 5 pCi/L	77 6/11/06
Gross Alpha particle activity (excluding radon & uranium)	15 pCi/L	eff: 6/24/77	15 pCi/L 15 pCi/L	77 6/11/06
Gross Beta particle activity	4 millirem/yr	eff: 6/24/77	50 pCi/L 4 millirem/yr	77 6/11/06
Strontium-90	8 pCi/L	eff: 6/24/77 now covered by Gross Beta	8 pCi/L 8 pCi/L	77 6/11/06
Tritium	20,000 pCi/L	eff: 6/24/77 now covered by Gross Beta	20,000 pCi/L 20,000 pCi/L	77 6/11/06

October 1991, Radioactivity Sampling Results in the Groundwater

	Gross Alpha pCi/L	U-234 pCi/L	U-235 pCi/L	U-238 pCi/L	R-226 pCi/L	R-228 pCi/L	Uranium pCi/L	Adjust Gross Alpha pCi/L	Radium pCi/L
MW-16	5.3	<0.6	<0.6	<0.6	5.2	1.7		5.3	6.9
MW-17	14.2	9.1	<0.6	9.5	<1.0	<1.0	18.6	-4.4	
MW-19S	12.5	15.2	0.7	12.1	<1.0	<1.0	28.0	-15.5	
MW-19D	2.8	<0.6	<0.6	<0.6	<1.0	<1.0		2.8	3.8
MW-20S	1.7	<0.6	<0.6	<0.6	1.4	2.4		1.7	
MW-20D	15.7	<0.6	<0.6	<0.6	5.3	1.6		15.7	6.9
MW-20D	7.2	<0.6	<0.6	<0.6	5.3			7.2	5.3
MW-21S	16.2	11.8	<0.6	10.8	<1.0	<1.0	22.6	-6.4	
MW-21D	7.6	<0.6	<0.6	<0.6	8.2	1.8		7.6	10.0
MW-22S	1.9	1.7	<0.6	1.6	<1.0	<1.0	3.3	-1.4	
MW-22D	7.8	3.0	<0.6	2.7	<1.0	<1.0	5.7	2.1	
M-1	7.4	6.4	<0.6	6.9	1.3	<1.0	13.3	-5.9	1.3
CM-4D	1.4	4.9	<0.6	4.3	<1.0	<1.0	9.2	-7.8	
CM-6D	<1.0	0.6	<0.6	<0.6	<1.0	<1.0	0.6	-0.6	
CM-7	7.4	<0.6	<0.6	<0.6	<1.0	1.3		7.4	1.3
CM-8D	37.8	27.3	1.0	25.9	<1.0	<1.0	54.2	-16.4	
CM-9D	28.3	20.2	0.7	18.8	<1.0	<1.0	39.7	-11.4	
CM-10	60.2	26.0	1.1	26.3	<1.0	<1.0	53.4	6.8	
CM-11	1.0	2.2	<0.6	2.1	<1.0	<1.0	4.3	-3.3	
CM-12	15.6	3.6	<0.6	4.8	<1.0	<1.0	8.4	7.2	
CM-13	6.3	4.4	<0.6	4.1	1.1	<1.0	8.5	-2.2	1.1
CM-14	3.2	2.7	<0.6	2.2	<1.0	<1.0	4.9	-1.7	
MW-15	2.3	<0.6	<0.6	<0.6	2.6	<1.0		2.3	2.6
MCL							20 pCi/L	15 pCi/L	5 pCi/L
22 wells							5 exceed	1 exceed	3 exceed

December 1991, Radioactivity Sampling Results in the Groundwater

	Gross Alpha pCi/L	U-234 pCi/L	U-235 pCi/L	U-238 pCi/L	R-226 pCi/L	Uranium pCi/L	Adjusted Gross Alpha pCi/L	Radium pCi/L
M-1	7.7	5.1	0.2	5.4	1.2	10.7	-3.0	1.2
MW-15	<4.0	<0.1	<0.1	<0.1	<1.0			
MW-16	9.0	1.5	<0.1	1.1	4.8	2.6	6.4	6.6
MW-17	12.4	9.5	0.4	9.6	<0.5	19.5	-7.1	
MW-19S	16.0	10.3	0.3	8.6	<0.5	19.2	-3.2	
MW-19D	<4.0	0.4	<0.1	0.2		0.6	-0.6	
MW-20S	<4.0	<0.1	<0.1	0.1				
MW-20D	<4.0	0.2	<0.1	0.2		0.4	-0.4	
MW-21S	7.3	7.3	0.2	7.0	<1.0	14.5	-7.2	
MW-21D	7.4	0.3	<0.1	0.3	1.6	0.6	6.8	12.9
MW-22S	2.3	1.7	<0.1	1.6		3.3	-1.0	
MW-22D	4.5	3.0	0.1	2.8		5.9	-1.4	
MW-23	5.3	5.7	0.2	5.3	<1.0	11.2	-5.9	
CM-4D	<4.0	5.1	0.2	4.8		10.1	-10.1	
CM-6D	4.5	0.4	<0.1	0.3		0.7	3.8	
CM-7	<4.0	0.5	<0.1	0.4		0.9	-0.9	
CM-8D	50.1	25.1	1.0	23.7	0.9	49.8	0.3	0.9
CM-9D	NA	NA	NA	NA	NA			
CM-10	45.9	25.8	1.0	26.5	<1.0	53.3	-4.4	
CM-11	<4.0	3.5	0.1	3.3		6.9	-6.9	
CM-12	25.7	13.6	0.7	12.7	<1.0	27.0	-1.3	
CM-13	11.5	4.4	0.2	4.0	<1.0	8.6	2.9	1.5
CM-14	6.3	2.4	<0.1	2.0	<1.0	4.4	1.9	
CM-15	3.7	2.5	<0.1	1.4		3.0	-0.2	
CM-16	1.7	3.9	<0.1	2.3		6.2	-4.5	
CM-17	13.0	13.4	0.4	12.6	<1.0	26.4	-13.4	
CM-18	59.2	46.5	2.0	43.9	<1.0	92.4	-33.2	1.0
CM-19	5.2	5.8	0.1	4.3	<1.0	10.2	-5.0	
MCL						20 pCi/L	15 pCi/L	5 pCi/L
26 wells						5 exceed	0 exceed	2 exceed

In reply refer to:
11105/dss/9733

April 30, 2008

Certified Mail - 7005 2570 0000 6418 2058

Tracy J. Egoscue
Executive Office
California Regional Water Control Board
Los Angeles Region
320 W 4th Street, Suite 200
Los Angeles, CA 90013

Subject: Response to Request for Investigation Work Plan to Verify Current
Radioactivity Conditions at the Former Canoga Park Facility
8433 Fallbrook Avenue
Canoga Park, California

Dear Ms. Egoscue:

Raytheon is in receipt of the letter dated March 19, 2008 requesting a work plan pursuant to Section 13267 of the California Water Code to investigate the current radioactive conditions of groundwater at the Former Canoga Park Facility. On January 15, 1992, Raytheon submitted a work plan to Hank H. Yacoub of the California Regional Water Quality Control Board (RWQCB) to investigate the radioactivity of groundwater at the Former Canoga Park Facility. The results of the investigation were summarized to the RWQCB in *Investigation of Radioactivity in Groundwater at the Hughes Aircraft Company Canoga Park Facility, Canoga Park, California* (GRC Inc., January 23, 1992). Eight sampling events were performed and the analytical results submitted to E.G. Solomon of the RWQCB on June 18, 1992. The investigation and follow-on sampling events consistently determined that the levels of radionuclides were attributable to naturally occurring sources in the underlying native soils and bedrock.

The data set produced by the eight sampling events and the evaluation of these data submitted to the RWQCB were conclusive to indicate that radioactivity in groundwater at the site is naturally occurring. For your convenience, data previously transmitted to the RWQCB are enclosed. In addition, a copy of the USEPA reference documentation (Federal Register, Vol. 56, No. 138, pp. 33050 - 33127, July 18, 1991) used to prepare the reports is enclosed.

The letter also requests Raytheon provide data on Total Dissolved Solids (TDS) and correct the tables in the two referenced reports for adjusted gross alpha and uranium units. The corrected tables and reference documents are enclosed

We trust the enclosed historical data, revised tables, and revised recalculations allow the RWQCB to evaluate the radioactivity condition of groundwater and concur with the results of the investigation. Should the RWQCB have any questions, Raytheon would be pleased to respond, either in writing or at a meeting. Please feel to contact Mr. Daniel Samorano of my staff at (520) 794-9026 with any questions.

Sincerely,



Joseph H. Johnson
Director
Environmental, Health, and Safety

Enclosure:

Compact Disc

- Work Plan for Investigation of Radioactivity in Groundwater at the Hughes Aircraft Company Canoga Park Facility, Canoga Park California, Groundwater Resource, Inc., December 19, 1991.
- Investigation of Radioactivity in Groundwater At the Hughes Aircraft Company Canoga Park Facility, Canoga Park California, Groundwater Resource, Inc., January 23, 1992.
- Radioisotope Review and Comparison for Hughes Missile Systems Group Facility, Canoga Park, California, McLaren/Hart Environmental Engineering Corporation, October 28, 1991.
- Former Canoga Park Facility Total Dissolved Solids (TDS) Data
- Data Transmittal: Hughes Aircraft Company- Missile Systems Group to E.G. Solomon Regional Water Quality Control Board Los Angeles Region, June 18, 1992, Summary of Groundwater Radiological Investigation,
- References:
 - Federal Register, Vol. 56, No. 138, pp. 33050 - 33127, July 18, 1991
 - Guide of Good Practices for Occupational Radiological Protection in Uranium Facilities, Department of Energy, DOE-STD-1136-2004, December 2004.
 - Energy Citations Database – Bibliographic Citation Document # 5854591, Nuclear and Radiochemistry, Friedlander, G., Kennedy, T.W., Macias, E.S., Miller, T.M., www.osti.gov/energycitations/product.biblio.jsp?osti_id=5854591, (4/29/2008)

- Revised Tables
 - Revised Table 3 Maximum Contaminant Levels (January 23 and March 27, 1992 GRC Report)
 - Revised Table 4 Summary of Alpha Emitters and Adjusted Gross Alpha Levels (January 23, 1992 GRC Report)
 - Revised Table 5 Relative Mass Ratios of Uranium Isotopes, Uranium in Groundwater Data (January 23, 1992 GRC Report)
 - Revised Table 3 Summary of Alpha Emitters and Adjusted Gross Alpha Levels (March 27, 1992 GRC Report)
 - Revised Table 5 Relative Mass Ratios of Uranium Isotopes, Uranium in Groundwater Data (March 27, 1992 GRC Report)

Copy: Dr. Ann Chang, LARWQCB (w/ attachments)
Carmen Marriott, Raytheon
Daniel Samorano, Raytheon
Jacques Marcillac, TN&A

In reply refer to:
11105/dss/9743

June 3, 2008

Certified Mail - 7005 1820 0001 2635 6958

Dr. Ann Chang
Project Manager
California Regional Water Control Board (RWQCB)
Los Angeles Region
320 W 4th Street, Suite 200
Los Angeles, CA 90013

Subject: Additional Information Regarding Request for Investigation Work Plan to
Verify Current Radioactivity Conditions
Former Canoga Park Facility
8433 Fallbrook Avenue
Canoga Park, California

Dear Dr. Chang:

On April 30, 2008, Raytheon responded to the California Regional Water Quality Control Board's request for a groundwater investigation work plan to verify current radioactivity conditions at the Former Canoga Park Facility. Per our telephone on May 21, 2008, Raytheon is providing hard copy of the response enclosures. A table of contents has been provided with the three ring binder as well as the comment/response section below to guide the RWQCB to the appropriate enclosures.

Comment No. 1 – For both reports, please correct the remarks for adjusted gross alpha emitters and revise the California Maximum Contaminant Levels (MCLs) for uranium (with correct unit) and combined radium – 226+228 in tables titled EPA Proposed Maximum Contaminant Levels. See attached titled Maximum Contaminant Levels and Regulatory Dates for Drinking Water.

Response No.1: The tables titled "EPA Proposed Maximum Contaminant Levels" for both the January 23 and March 27, 1992 reports have been revised to include MCLs for both EPA and California. The revised Tables 2 and 3 are provided in the tab labeled "Revised Tables GRC Reports."

Comment No. 2 – For both reports, please revise tables titled Summary of Alpha Emitters and Adjusted Gross Alpha Levels corresponding with Comment 1.

Response No.2 – The tables titled, "Summary of Alpha Emitters and Adjusted Gross Alpha Levels" for both the January 23 and March 27, 1992 reports have been revised to meet current regulations. The revised tables are provided in the tab labeled "Revised Tables GRC Reports."

Comment No. 3 – The reports summarized that total dissolved solids (TDS) concentrations ranging from three to five times the drinking water secondary MCL of 500 mg/L at the facility. Please provide TDS groundwater concentrations throughout the site.

Response No. 3 – TDS data has been collected at several wells throughout the site in the last few years. The average site-wide TDS value is approximately 1,500 mg/L. As requested, per our telephone conversation, TDS data (Table 3) from the Third Quarter 1991 Groundwater Monitoring Report (GRC, November 1991) is provided. These data are summarized in the tab labeled "Canoga Park TDS."

Comment No. 4 – The reports summarized that an analysis of the isotopic mass percentages of the samples with elevated uranium levels indicates that the percentages conform to the U.S. EPA definition of naturally occurring uranium. Please provide a copy of the U.S. EPA documentation, a copy of the cited source, and detailed calculations of the activity/mass equivalents.

Response No. 4 – Both reports reference the "Federal Register, Notice of Proposed Rule Making, National Primary Drinking Water Regulations: Radionuclides (Vol. 56, No. 138, pp. 33050 – 33127, July 18, 1991. This document states that uranium as a combination of uranium-234 plus uranium-235 plus uranium-238 has a varying isotopic composition, but typically is 0.006% uranium-234, 0.7% uranium-235, and 99.27% uranium-238. This ratio is further referenced on the EPA's website: <http://www.epa.gov/radiation/radionuclides/uranium.html>. The attached DOE Standard 1136-2004 dated December 2004 and titled "Guide of Good Practices for Occupational Radiological Protection in Uranium Facilities further support this information. Copies of the referenced documents and calculations are provided in the tabs labeled "56 Federal Register 138_33050-33127," "DOE-STD-1136-2004," and "Friedlander Reference."

The updated calculations for the activity/mass equivalents are provided in the tab labeled "Relative Mass U Isotopes."

Comment No. 5 – Upon review of the summary tables, Regional Board staff concludes that the following wells have radioactive contaminants levels in excess of the California MCL.

Response No. 5 – As stated in the Raytheon response dated April 30, 2008, investigation and follow-on sampling events at the former Canoga Park Facility consistently determined that the levels of radioisotopes were attributable to naturally occurring sources in the underlying native soils and bedrock. The data set produced by the eight sampling events and the evaluation of these data submitted to the RWQCB were conclusive to indicate that radioactivity in groundwater at the site is naturally occurring. These reports and data sets are provided in the tabs labeled "Radioisotope Work Plan", "Radioisotope Work Plan Results", and "McLaren Hart Isotope Report 10-28/-91."

Should the RWQCB have any questions please do not hesitate to contact me at (520) 794-9026.

Sincerely,



Daniel S. Samorano, P.E.
Project Manager
Environmental, Health, and Safety

Enclosure:

- Raytheon Response (April 30, 2008) Enclosures
- Three Binder of Requested Hard Copies

Copy: Tracy J. Egoscue, LARWQCB (w/o attachments)
Carmen Marriott, Raytheon (w/o attachments)
Joseph H. Johnson, Raytheon (w/o attachments)
Jacques Marcillac, TN&A (w/o attachments)
Project File: Former Canoga Park RWQCB Correspondence



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
Cal/EPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 376-6600 FAX (213) 376-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

July 15, 2008

Mr. Daniel S. Samorano, P.E.
Project Manager
Raytheon Company
1151 East Hermans Road
TU, Bldg 826
Tucson, AZ 85706

Certified Mail
Return Receipt Requested
Claim No. 7006 3450 0002 4641 8206

CALIFORNIA WATER CODE SECTION 13267 ORDER: REQUIRING A GROUNDWATER INVESTIGATION WORK PLAN TO VERIFY CURRENT RADIOACTIVITY CONDITIONS – RAYTHEON SYSTEMS COMPANY (FORMER HUGHES MISSILE SYSTEM COMPANY), 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (WDR NO. 95-012, SLIC NO. 0693, SITE ID NO. 2043T00)

Dear Mr. Samorano:

The California Regional Water Quality Control Board (Regional Board) staff have reviewed Raytheon's response to the Regional Board's Order dated March 19, 2008 requiring a groundwater investigation work plan to verify current radioactivity conditions at the Former Canoga Park Facility. The response presents additional information including historical data, revised tables, and recalculations for the Regional Board to evaluate the radioactivity condition of groundwater at the site. Based on review of the additional information submitted, the Regional Board staff have the following comments:

1. The Work Plan dated December 19, 1991 indicated that concentration of radioisotopes in groundwater may not be directly related to concentrations in the host rock or soil, but rather to water attributes such as pH, total dissolved solids, concentration of dissolved carbonate, oxidation/reduction potential, etc. On the contrary, the Raytheon response dated June 3, 2008, stated that investigation and follow-on sampling events at the former Canoga Facility consistently determined that the levels of radioisotopes were attributable to naturally occurring sources in the underlying native soils and bedrock. There is inconsistency between these two statements. In addition, the measurements of uranium did not indicate the elevated uranium levels in excess of the Maximum Contaminant Levels (MCLs) across the entire Facility.
2. Groundwater monitoring was conducted at the site by McLaren/Hart between March 1990 and June 1991. A total of 22 wells were sampled for gross alpha, gross beta, total uranium, and radium-226. Additionally, radium-228 was analyzed for samples with radium-226 exceeding 3 picocuries per liter (pCi/L). As indicated in the McLaren/Hart report dated October 28, 1991, gross alpha and gross beta radioisotope levels in groundwater beneath the Facility were generally consistent with those levels identified at other sites located in the San Fernando Valley area. However, uranium and radium-226 levels were broader in range and were elevated in comparison.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

- Two groundwater sampling events with isotopic analyses of uranium and radium were performed by GRC during October and December 1991. GRC recommended that no additional radionuclide sampling is warranted based on the USEPA 1991 proposed MCLs, which were different from the current USEPA MCLs and California MCLs. In addition, the documentation only indicated that the associated isotopic mass percentages fell within the range expected for naturally occurring uranium.
- The uranium activity data presented in the two referenced GRC groundwater reports have been recalculated using conversion factors based on the specific activities referenced in the U.S. Department of Energy document. The site data are compared to the published values of typical isotopic abundances. The data indicates the isotopic mass percentages of the samples with elevated uranium levels support the USEPA definition of naturally occurring uranium.

Relative Abundance of Uranium Isotopes

Isotope	U-238	U-235	U-234
Natural Abundance (%)	99.27	0.72	0.0055

- The Raytheon response dated June 3, 2008, stated that radioactivity in groundwater at the site was concluded to be naturally occurring based on the results of eight sampling events. However, there were only two sampling events (October 1991 and December 1991) with isotopic analysis of uranium to demonstrate the percentage of natural abundance of each natural uranium isotope for confirming its natural origin. In addition, there were only two sampling events with isotopic analysis of radium for measurements of radium-226 and radium-228 separately, to meet monitoring requirements for radium-228.
- Upon review of the revised summary tables, Regional Board staff conclude that the following wells have radioactive contaminant levels in excess of the California MCLs.

	California MCL	October 1991, 22 wells sampled	December 1991, 28 wells sampled
Gross alpha particle activity (excluding radon & uranium)	15 pCi/L	MW-20D	none
Uranium	20 pCi/L	MW-19S, MW-21S, CM-8D, CM-9D, CM-10	CM-8D, CM-10, CM-12, CM-17, CM-18
Combined radium - 226+228	5 pCi/L	MW-16, MW-20D, MW-21D	MW-16, MW-21D

Pursuant to Section 13267 of the CWC, you are required to submit a work plan for a site-wide groundwater investigation to verify current radioactivity conditions. The groundwater monitoring wells shall be sampled for radioactivity including gross alpha particle activity, uranium, combined radium - 226+228, and gross beta particle activity. At a minimum, the work plan shall address those groundwater monitoring wells with radioactive contaminant levels in excess of the MCLs. The work plan must be submitted to the Regional Board by **September 15, 2008**.

Pursuant to Section 13268 of the CWC, failure to submit the required work plan by the due dates may result in civil liability administratively imposed by the Regional Board in an amount up to one thousand dollars (\$1,000) for each day the work plan is not received.

Should you have any questions, please contact Dr. Ann Chang at (213) 620-6070, or Ms. Su Han at (213) 576-6735.

Sincerely,


Tracy J. Egoscue
Executive Officer

cc: Ms. Heather Collins, California Department of Health Services
Mr. Chris Nagler, Watermaster, California Department of Water Resources
Mr. Bernard Franklin, Los Angeles County, Department of Public Health
Mr. Hoover Ng, Water Replenishment District- Southern California
Mr. James Pappas, Department of Toxic Substances Control
Mr. Martin Herrmann, Department of Toxic Substances Control
Mr. Timothy Garvey, TN & Associates, Inc.
Mr. Jacques Marcillac, TN & Associates, Inc.



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
CalSWP Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

October 21, 2008

Mr. Daniel S. Samorano, P.E.
Project Manager
Raytheon Company
1151 East Hermans Road
TU, Bldg 826
Tucson, AZ 85706

Certified Mail
Return Receipt Requested
Claim No. 7005 1820 0001 2683 6986

COMMENTS ON DEFICIENT TECHNICAL REPORT – WORK PLAN FOR GROUNDWATER INVESTIGATION TO VERIFY CURRENT RADIOACTIVITY CONDITIONS PURSUANT TO CALIFORNIA WATER CODE SECTION 13267 ORDER – FORMER RAYTHEON FACILITY (HUGHES MISSILE SYSTEMS COMPANY), 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (WDR NO. 95-012, SLIC NO. 0693, SITE ID NO. 2043T00)

Dear Mr. Samorano:

Los Angeles Regional Water Quality Control Board (Regional Board) staff received and reviewed the *Work Plan for Groundwater Investigation to Verify Current Radioactivity Conditions* (Work Plan), dated September 12, 2008, prepared by TN & Associates, Inc. for the referenced site. This Work Plan was required by the Regional Board in the July 15, 2008 California Water Code (CWC) Section 13267 order.

Based on review of the information submitted, Regional Board staff have the following comments which shall be addressed in a revised work plan:

1. The groundwater samples shall be submitted to a state certified laboratory with Field of Testing in Radiochemistry of Drinking Water. Provide proof of Environmental Laboratory Certification when the investigation report is submitted to the Regional Board.
2. The groundwater samples shall be analyzed for:
 - Total dissolved solids (TDS) by EPA Method 160.1
 - Gross alpha by EPA Method 900.0 or 900.1
 - Radium-226 by EPA Method 903.0 or 903.1
 - Radium-228 by EPA Method 904.0
 - Uranium by EPA Method 908.0
 - Gross beta by EPA Method 900.0
3. In EPA Method 900.0 for gross alpha and gross beta measurement, the solids concentration is very much a limiting factor in the sensitivity of the method for any given groundwater sample because the radioactivity of the sample is not separated from the solids of the sample. For groundwater samples with solids content greater than 500 milligrams per liter (mg/L), EPA Method 900.1 is recommended.

California Environmental Protection Agency



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4. EPA Method 903.0 covers the measurement of the total soluble alpha emitting radioisotopes of radium, namely radium-223, radium-224, and radium-226. When the total radium alpha activity of a groundwater sample is greater than 5 picocuries per liter (pCi/L), then the radium-226 analysis by EPA Method 903.1 is required.
5. Include a table containing information on container types, sample volumes, preservatives, special handling, and analytical holding times for each analysis.
6. Because adjusted gross alpha activity is calculated by subtraction of the uranium measurement from the gross alpha measurement, specify which standard will be used for gross alpha measurement.
7. EPA Method 908.0 only covers the measurements of total uranium alpha particle activity. Specify the EPA approved method for isotopic analysis of uranium.
8. Collect both filtered and unfiltered groundwater samples for the purpose of comparison in order to determine whether the suspended sediments could affect analytical results.
9. Specify field QA/QC program for radioactivity analyses of groundwater samples and provide supporting documentation. However, equipment (rinse) blanks should be collected as field QA/QC samples and field duplicates should be at least 10% of total samples per event for QA/QC purposes.
10. Specify laboratory QA/QC program for radioactivity analyses of groundwater samples and provide supporting documentation.
11. Specify data validation procedures for radioactivity analyses of groundwater samples and provide supporting documentation.
12. Explain why all liquid Investigation-Derived Wastes will be transferred from the storage tank to the on-site groundwater remediation system. It is our understanding that the groundwater recovery and treatment system was shut down in April 2006.
13. Provide documentation of all analytical methods.
14. Provide a Statement of Qualifications for professionals who will be responsible for preparing a revised work plan, indicating project experience related to chemical and radiochemical analyses of environmental samples.

Please adequately address the aforementioned comments and submit a revised work plan to the Regional Board by **November 17, 2008**. In addition, the Regional Board staff will meet with the representatives of the Raytheon Company and TN & Associates to further discuss the content of the revised work plan on November 4, 2008.

Pursuant to CWC Section 13268, failure to submit the required technical reports/documents by the due date specified may result in civil liability penalties administratively imposed by the Regional Board in an amount up to one thousand dollars (\$1,000) for each day the technical reports/documents are not received.

Should you have any questions, please contact Dr. Ann Chang at (213) 620-6070, or Ms. Su Han at (213) 576-6735.

Sincerely,


Tracy J. Egoscue
Executive Officer

cc: Mr. Stefan Cajina – California Department of Public Health
Mr. Chris Nagler, Watermaster, California Department of Water Resources
Mr. Bernard Franklin, Los Angeles County, Department of Public Health
Mr. Hoover Ng, Water Replenishment District- Southern California
Mr. James Pappas, Department of Toxic Substances Control
Mr. Rod Collins, Department of Toxic Substances Control
Mr. Jacques Marcillac, TN & Associates, Inc.



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
CalEPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 376-6600 FAX (213) 376-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

January 29, 2009

Mr. Daniel S. Samorano, P.E.
Project Manager
Raytheon Company
1151 East Herrmans Road
TU, Bldg 826
Tucson, AZ 85706

CONDITIONAL APPROVAL OF WORK PLAN REVISION FOR GROUNDWATER INVESTIGATION TO VERIFY CURRENT RADIOACTIVITY CONDITIONS PURSUANT TO CALIFORNIA WATER CODE SECTION 13267 ORDER – FORMER RAYTHEON FACILITY (HUGHES MISSILE SYSTEMS COMPANY), 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (SCP NO. 0693, SITE ID NO. 2043T00)

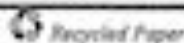
Dear Mr. Samorano:

Los Angeles Regional Water Quality Control Board (Regional Board) staff received and reviewed the *Work Plan Revision for Groundwater Investigation to Verify Current Radioactivity Conditions* (Work Plan), dated December 2008, prepared by TN & Associates, Inc. on behalf of Raytheon Company for the referenced site. The Work Plan proposes groundwater sampling and analysis for 11 site wells that had detected concentrations exceeding the current California Maximum Contaminant Levels (MCLs) for either gross alpha particle activity, uranium, and/or combined radium. The Work Plan was submitted in response to the Regional Board Order dated July 15, 2008 pursuant to California Water Code (CWC) Section 13267.

The Work Plan is approved with the following conditions:

- A site-specific Health and Safety Plan shall be available at the site and implemented during all field activities.
- All contaminated groundwater generated during well purging shall be managed in accordance with appropriate regulations.
- Pending the results of the proposed groundwater sampling and analysis, all wastes generated during field activities shall be properly manifested and disposed of in conformance with the State and Federal regulations.
- Please notify Regional Board staff at least 1 week before you start the proposed fieldwork.
- Following the completion of the groundwater sampling and analysis, a report summarizing the results of this investigation shall be submitted to the Regional Board by **May 30, 2009**. The report shall include the conclusions from this investigation and recommendations for additional assessments, as needed.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

Pursuant to CWC section 13268, failure to submit the required technical report by the due date specified may result in civil liability penalties administratively imposed by the Regional Board in an amount up to one thousand dollars (\$1,000) for each day the technical report is not received.

Should you have any questions, please contact Dr. Ann Chang at (213) 620-6070.

Sincerely,


Tracy J. Eggen
Executive Officer

cc: Mr. Stefan Cajina, California Department of Public Health
Mr. Chris Nagler, Watermaster, California Department of Water Resources
Mr. Bernard Franklin, Los Angeles County, Department of Public Health
Mr. Hoover Ng, Water Replenishment District- Southern California
Mr. James Pappas, Department of Toxic Substances Control
Mr. Rod Collins, Department of Toxic Substances Control
Mr. Jacques Marcillac, TN & Associates, Inc.
Mr. William Preston Bowling, Aerospace Cancer Museum and Education
Ms. Christina Walsh, Cleanuprocketdyne.org
Ms. Bonnie Klea
Ms. Chris Rowe

TECHNICAL MEMORANDUM

Date: June 27th, 2006

Prepared For: Thizar-Tintut Williams
Los Angeles Regional Water Quality Control Board

Prepared By: T N & Associates, Inc.
Jacques Marcillac, R.G.
Project Geologist

**Re: Request for Interim Shutdown of the Groundwater Recovery and Treatment System (GRTS), Modification to M&RP No. 7483 and Request for No Further Action for Southern Parcels Former Raytheon Facility
8433 Fallbrook Avenue, Canoga Park, California
Compliance File No. CI-8567**

Dear Ms. Williams,

This memorandum has been prepared on behalf of Raytheon Company (Raytheon) as a follow up to our April 20th, 2006 e-mail correspondence regarding operation of the groundwater recovery and treatment system (GRTS). In addition, this memorandum serves as a formal request to modify Monitoring and Reporting Program (MRP) No. 7483, which was originally implemented in December 1994 (associated with WDR Permit No. 95-012) and to request no further action status for areas of the former Raytheon facility where no groundwater impacts above MCLs have been well established. The following sections give an overview of the remedial activities at the site, summarize the requests and gives the rationale for each.

Remedial Activities Summary

Since the early 1990s, Raytheon has performed numerous remedial excavations at each of the areas where releases to soil were identified. Each excavation was completed to regulatory satisfaction thus removing a significant portion of the source material resultant from historical site operations. The most substantial remedial effort has been the installation of a site-wide soil and groundwater clean-up system that has been in operation since 1995 and continued to operate through 2006. The system consisted of an air sparge (AS) component, a soil vapor extraction (SVE) component and the GRTS. In 2005, the AS and SVE were shut down due to asymptotic and non-detect levels in the influent stream and to accommodate the implementation of an enhanced in-situ bioremediation program (EISB) where anaerobic conditions are necessary (AS/SVE is counter-productive for EISB activities). The GRTS system continued operation through 2005, but was scaled down to 2 of the original 17 extraction wells as approved in a March 21st, 2005 LARWQCB letter. Wells RW-01 and RW-02 continuously operated until April 2006 until the effluent sampling indicated that the naturally occurring sulfate levels exceeded the

waste discharge limit of 300 mg/L (effluent was 360 mg/L). A re-sampling event confirmed the elevated sulfate levels from these two wells at a concentration of 570 mg/L. The GRTS has remained shut down since April 2006 due to the sulfate issue.

The full scale EISB program for the northwest plume area at the site was implemented in two phases in October 2005 and May 2006 (see [Figure 1](#)). The second phase included treatment of the area directly upgradient to RW-01 and RW-02. RW-01 also serves as one of the 15 EISB monitoring points that is sampled quarterly to track remedial progress.

Request for Interim Shutdown of GRTS

Raytheon requests approval for interim shut down of the GRTS system be granted for the following reasons:

- 1) Recent EISB injection activities in the downgradient portion of the main plume. These activities will treat the leading edge of the groundwater plume
- 2) High sulfate levels. The sulfate levels for RW-01 and RW-02 exceed the WDR limits and cannot be feasibly treated to below the WDR limits.
- 3) Continued pumping in this area may adversely effect the EISB activities. This is due to the cyclic nature of the pumping were cascading well screens can aerate the groundwater causing localized aerobic conditions. Also, continued pumping will eventually extract the electron donating substrate in this area greatly reducing the effectiveness and longevity of the dechlorinating process.
- 4) Data from offsite wells CM-14, MW-19S, MW-19D, MW-20S and MW-20D have quantified that no significant offsite migration has ever occurred prior to the GRTS operation, during the GRTS operation and during sampling when the GRTS was shut down for approximately 1 year. This is likely due to plume stabilization from natural attenuation as well as the native state groundwater gradient in this area, which is very flat and often has a southward component, even when no pumping is occurring. This is consistent with the transition in geologic material from Modelo formation to alluvial sediments for this portion of the site.
- 5) The GRTS system has reached asymptotic influent levels since 2002 as illustrated in [Graph 1](#).

The GRTS system will remain in operational condition to be used as a contingency measure if it is found that the EISB program in not effective.

Request for Modification to MRP No. 7483 and No Further Action for Southern Parcels

MRP No. 7483 was initiated in 1994 and included quarterly sampling of all site monitoring and extraction wells. This MRP was amended in an August 26th, 1997 LARWQCB letter reducing the sampling frequency to semi-annual for 10 selected wells (CM-7D, CM-8D, CM-10, CM-12, CM-16, MW-15, MW-16, MW-19S, MW-19D and MW-20S) and annual monitoring of wells M-1, CM-2D, CM-4D, CM-9D, CM-11A, CM-13, CM-14, CM-15, CM-17, CM-18, CM-19, MW-17, and

MW-23 through MW-31 and all recovery wells (RW-01 through RW-17) for VOCs by EPA Method 8260B. This program has been maintained consistently since September 1997 through the present. Monitoring data has indicated that several wells have been consistently below Maximum Contaminant Levels (MCLs) or non-detect for several years per the following:

Well ID	Most Recent Date of Sample Above MCLs
CM-7D	Always below MCLs
CM-9D	1998
CM-10	1995
CM-11A	Always Non Detect
CM-12	2002
CM-15	Always below MCLs
CM-16	Always below MCLs
CM-17	2001
CM-18	Always below MCLs
MW-15	Always below MCLs
MW-16	2002
MW-19S	Always below MCLs
MW-19D	Always Non Detect
MW-20S	Always Non Detect
MW-24	1998
MW-25	Always below MCLs
MW-26	1996
MW-27	Always below MCLs
MW-28	1998
MW-29	1998
MW-30	Always below MCLs
MW-31	1999

Thirteen of these wells (CM-7D, CM-9D, CM-16, CM-18, MW-15, MW-16, MW-19S, MW-19D, MW-20S, MW-24, MW-25, MW-26, MW-27) retain monitoring value as they are located in upgradient or downgradient positions from areas with on-going remediation, such as the northwest portion of the site and the "D Treatment Area" in the central-east portion of the site (Figure 1). However, nine of these wells (CM-10, CM-11A, CM-12, CM-15, CM-17, MW-28, MW-29, MW-30, MW-31) have served their purpose as to quantify that natural attenuation mechanisms have successfully addressed the residual contaminant concentrations. These wells are all located in the southern parcels of the site. Wells CM-12 and CM-15 were originally installed as distal down gradient sentry wells. According to the monitoring data, these wells are not downgradient from any of the identified groundwater plumes and have always been non-detect for all constituents of concern (COCs), except for one anomalous detection from a CM-12 sample in 2002 (see Appendix A). This was likely laboratory cross contamination as other anomalous detections in wells MW-16 and CM-18 were detected during the same event. The other wells (CM-10, CM-11A, CM-17, MW-28, MW-29, MW-30, MW-31) were originally installed to delineate/monitor concentrations of trichlorofluoromethane (TCFM or "Freon 11") in groundwater resultant from maintenance activities of cooling units that was performed in the parking lot adjacent to MW-31. TCFM concentrations in wells CM-10 and MW-31 were slightly above the MCL of 150 µg/L in 1995 and 1999, respectively, but since this time have shown a

consistent decrease over the last 6 years (see Graphs 14 and 39, Appendix A). Samples from all the other wells surrounding the MW-31 area (CM-11A, CM-17, MW-28, MW-29, MW-30) have consistently been non-detect.

Figure 2 illustrates the well locations referenced above and Figure 3 illustrates the parcel locations (APN's 2005-002-011 and 2005-002-901). In light of this data, it is requested that these wells be removed from the monitoring program and these parcels receive no further action status as no groundwater impacts above MCLs exist in these areas.

It is also requested that the quarterly site-wide gauging program be reduced to semi-annual. All other provisions of MRP No. 7483 will remain as well as the remedial monitoring progress program as specified by MRP CI 8947.

Request for Well Abandonment

If the above modifications to the MRP are approved, the wells listed above will be abandoned in accordance with state and local regulations as funding becomes available. In addition to these wells, there are several other wells that are not in the current MRP because they either were installed too shallow and are always dry, were installed offsite at distal locations not downgradient from any existing plumes or were pilot test wells. These are as follows:

Well ID	Abandonment Rationale
CM-2	Always Dry (screened above 20' bg)
CM-3	Always Dry (screened above 20' bg)
CM-4	Always Dry (screened above 20' bg)
CM-7	Always Dry (screened above 20' bg)
CM-8	Always Dry (screened above 20' bg)
CM-9	Always Dry (screened above 20' bg)
MW-21S	Offsite Downgradient from Southern Parcels
MW-21D	Offsite Downgradient from Southern Parcels
MW-22S	Offsite Downgradient from Southern Parcels
MW-22D	Offsite Downgradient from Southern Parcels
VE-2	Pilot Test Well Not Used
VE-3	Pilot Test Well Not Used

Figure 2 illustrates the well locations.

Due to the rationale listed above, Raytheon requests approval for these wells to be abandoned in accordance with state and local regulations upon available funding.

For your convenience, all historical data for each monitoring well is provided in tabular and graphical format in Appendix A. For any other groundwater related data, please refer to the Annual 2005 groundwater monitoring report for the site, which was submitted in March 2006.

Please contact me with any questions at (805) 585-6382.

Sincerely,

Jacques Marcillac, P.G.
Project Manager

Attachments:

Figure 1 – Site Plan Showing Conceptual Design for EISB Implementation

Figure 2 – Site Plan Showing Wells and Remediation System Components

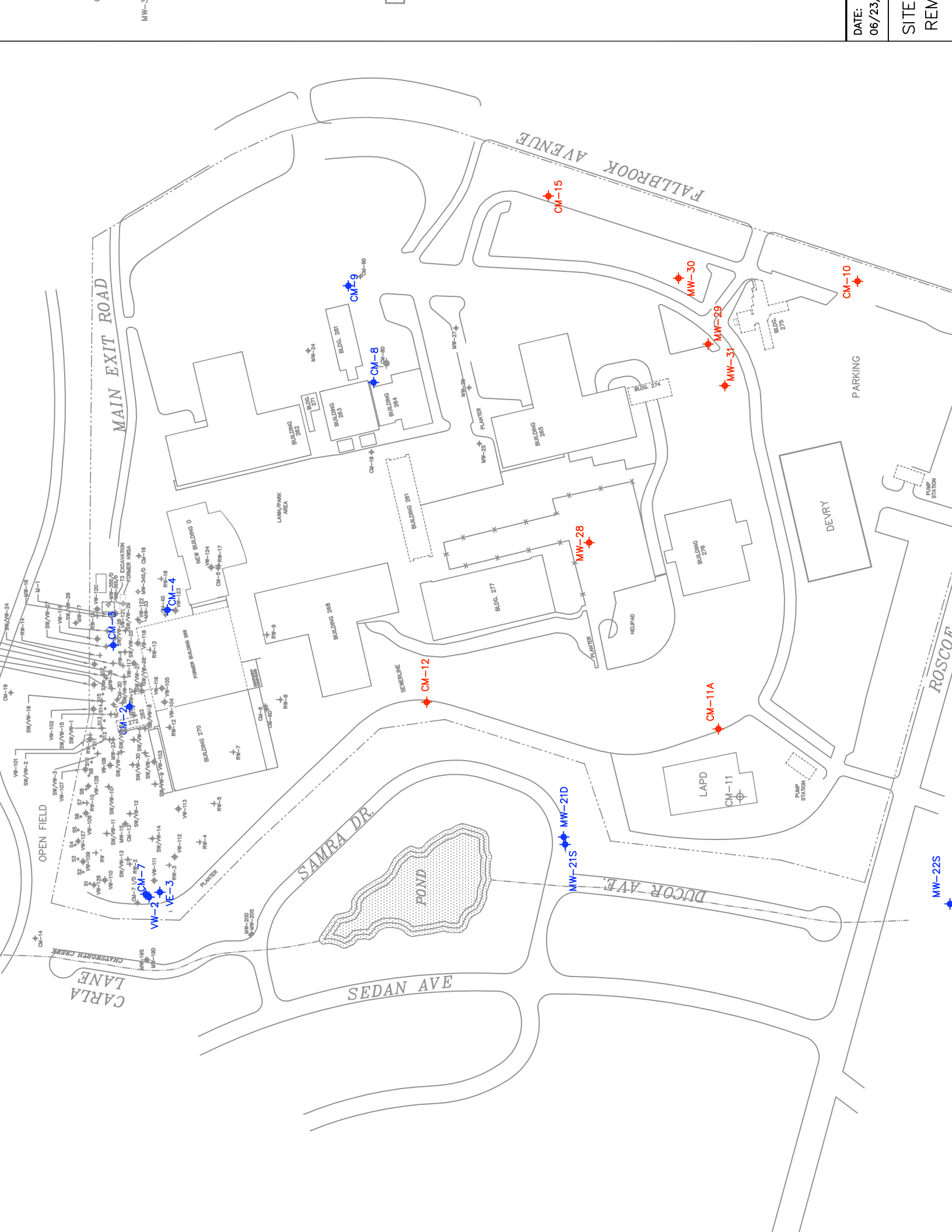
Figure 3 – Map Showing Southern Parcels

Graph 1 – Cumulative Graph of Treated Groundwater

Appendix A – Historical Groundwater Monitoring Data.

FIGURES



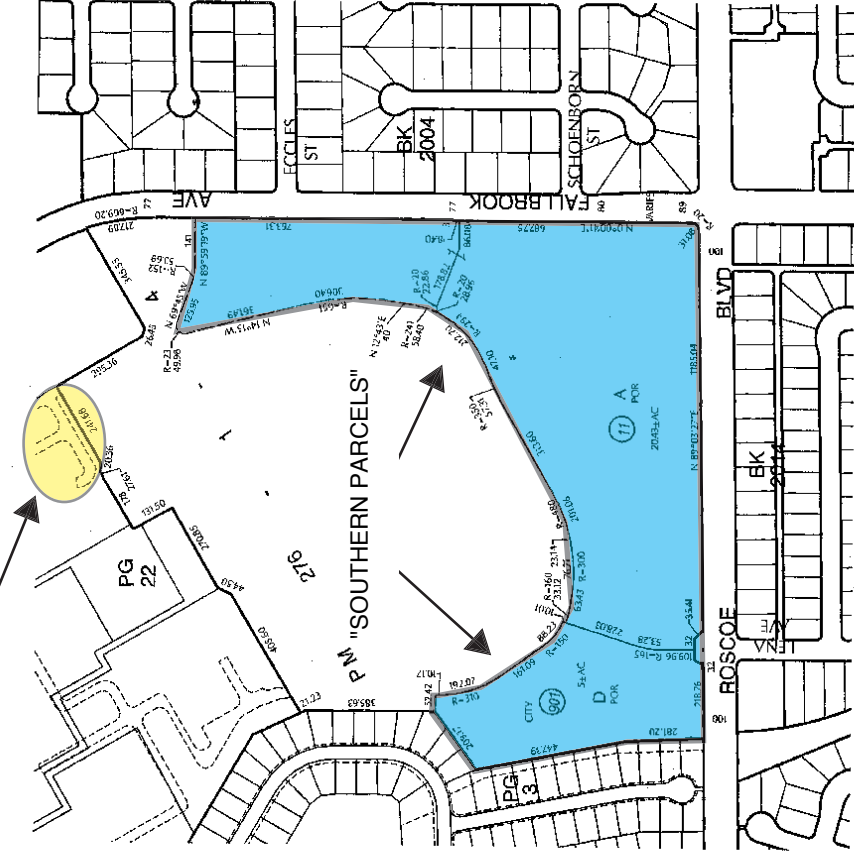


View Enlarged Map View Printing Instructions

County of Los Angeles: Rick Auerbach, Assessor

2005	2	PA: 2011-27	TRM 18	REVISED 8712104058 871061105001001-29	871061105011005-29 870271104003001-29 871061003005001-29	6004	SEARCH NO	MAP EXTENTS 4191855-4194375	OFFICE OF THE ASSESSOR LOS ANGELES COUNTY COURT HOUSE COURT YARD COURT WING © 1998
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TREATMENT "AREA D"



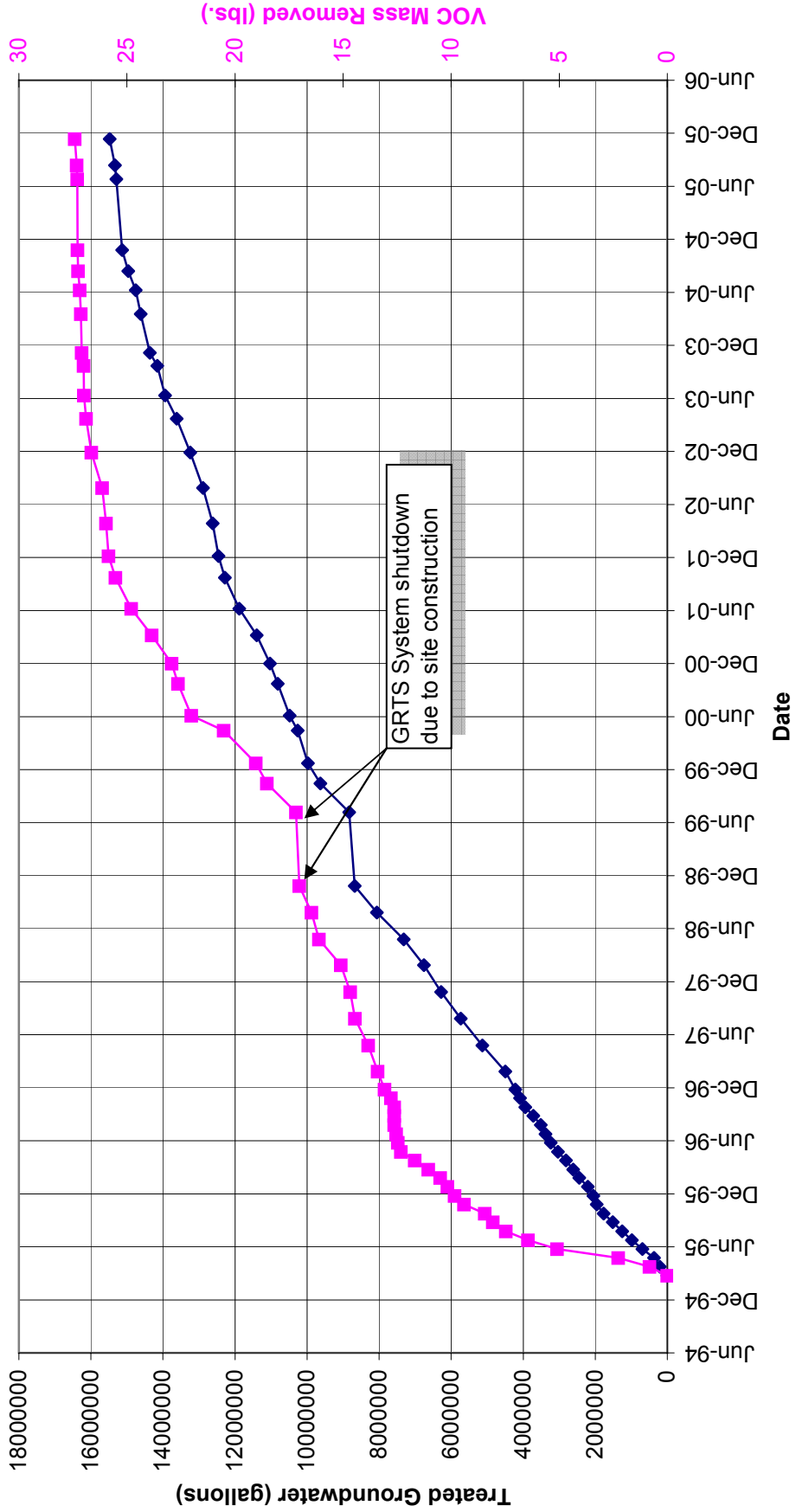
Reference:
Parcel map from Los Angeles County
Office of the Assessor:
<http://assessormap.co.la.ca.us/mapping/viewer.asp>

FIGURE 3
MAP SHOWING SOUTHERN PARCELS
FORMER RAYTHEON FACILITY
8433 FALLBROOK AVENUE, CANOGA
PARK

GRAPHS

Graph 1 - Cumulative Graph of Treated Groundwater

Former Raytheon Facility
8433 Fallbrook Avenue
Canoga Park, California



—◆— Cumulative Gallons Treated —■— Cumulative VOC Mass Removed

APPENDIX A

HISTORICAL GROUNDWATER DATA

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
M-1	03/08/95	<10	<10	<40	<10	30	<10	2,000	<10	<10	<10	<10	26	30	<10	<20
	05/12/98	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	180 ^B	<5.0	<5.0	<5.0	<5.0	<5.0	5.9	<5.0	<15
	11/12/98	<2.0	<2.0	--	<2.0	5.9	2.3	710	<2.0	<2.0	2.0	<2.0	3.8	18	<5.0	<4.0
	06/25/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	19	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	08/04/99	<5.0	<5.0	<5.0	<5.0	7.1	<5.0	780	<5.0	<5.0	7.6	<5.0	<5.0	29	<5.0	<15
	12/29/99	<5.0	<5.0	<5.0	<5.0	7.0	<5.0	970	<5.0	<5.0	8.0	<5.0	<5.0	36	<5.0	<15
	12/05/00	<0.5	<0.5	<0.5	0.69	4.7	0.87	1,000	<0.5	<0.5	5.0	<0.5	1.4	21	1.3	<1.5
	11/6/01 ^D	<5.0	<5.0	<5.0	<5.0	5.0	<5.0	680	<5.0	<5.0	<5.0	<5.0	<5.0	20	<5.0	<15
	11/10/02	<0.5	<0.5	<0.5	1.4	3.9	<0.5	810	<0.5	<0.5	9.4	<0.5	1.1	39	2.9	<1.5
	11/09/03	<0.5	<0.5	<0.5	<0.5	4.0	<0.5	620	<0.5	<0.5	6.9	<0.5	0.90	26	<0.5	<1.5
	10/25/04	<1.0	<1.0	<1.0	<1.0	2.9	<1.0	460	<1.0	<1.0	9.4	<1.0	<1.0	2.3	<1.0	<3.0
	11/14/05	<2.5	<2.5	<2.5	<2.5	3.4	<2.5	470	<2.5	<2.5	<2.5	<2.5	5.0	22	<2.5	<7.5
	CM-2D	03/08/95	290	<10	<40	<10	<10	<10	22	<10	<10	<10	630	<10	<10	<10
05/12/98		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	69	<5.0	<5.0	<5.0	<5.0	<5.0	5.5	<5.0	<15
12/29/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	47	<5.0	<5.0	<5.0	<5.0	<5.0	17	<5.0	<15
12/05/00		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	42	<0.5	<0.5	2.6	<0.5	<0.5	13	<0.5	<1.5
11/06/01		<0.5	<0.5	<0.5	0.53	0.55	<0.5	110	<0.5	<0.5	5.7	<0.5	<0.5	23	<0.5	<1.5
11/10/02		<0.5	<0.5	<0.5	0.6	<0.5	<0.5	30	0.66	<0.5	4.0	<0.5	<0.5	15	<0.5	<1.5
11/10/03		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	64	<0.5	<0.5	6.2	<0.5	<0.5	23	<0.5	<1.5
10/24/04		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	19	<0.5	<0.5	4.1	<0.5	<0.5	9.5	<0.5	<1.5
11/13/05		<0.5	<0.5	<0.5	<0.5	0.61	<0.5	89	<0.5	<0.5	3.3	<0.5	<0.5	12	<0.5	<1.5
03/08/95		<5.0	<5.0	<20	<5.0	<5.0	<5.0	1,400	<5.0	<5.0	51	<5.0	<5.0	130	<5.0	<15
11/12/98		<2.0	<2.0	--	<2.0	<2.0	<2.0	220	<2.0	<2.0	21	<2.0	<2.0	120	<5.0	<4.0
12/05/00		<0.5	<0.5	<0.5	5.0	8.1	5.1	1,300	<0.5	<0.5	5.8	<0.5	<0.5	30	<0.5	<1.5
11/6/01 ^D		<5.0	<5.0	<5.0	5.1	6.7	<5.0	970	<5.0	<5.0	8	<5.0	<5.0	45	<5.0	<15
11/10/02	<0.5	<0.5	<0.5	8.0	12	8.8	1,400	<0.5	<0.5	6.4	<0.5	<0.5	75	<0.5	<1.5	
11/09/03	<0.5	<0.5	<0.5	1.9	1.6	2.5	51	<0.5	<0.5	1.9	<0.5	<0.5	12	<0.5	<1.5	
10/25/04	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	41	<0.5	<0.5	3.5	<0.5	<0.5	8.4	<0.5	<1.5	
11/13/05	<0.5	<0.5	<0.5	3.7	5.1	4.0	250	<0.5	<0.5	9.5	<0.5	<0.5	70	<0.5	<1.5	
CM-7	03/07/95	<3.0	<3.0	<10	<3.0	9.4	<3.0	400	<3.0	<3.0	<3.0	<3.0	<3.0	9.0	<3.0	<6.0
	11/17/05	<0.5	<0.5	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
CM-7D	03/07/95	<0.5	<0.5	3.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	06/06/95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	82	<0.5	<0.5	<0.5	<1.0
	09/18/95	<0.5	<0.5	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.8	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.82	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/13/97	<2.0	<2.0	--	--	--	--	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/17/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes	
CM-7D (cont'd)	05/12/98	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
	11/12/98	<2.0	--	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	
	06/25/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
	12/28/99 ^c	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<500	
	05/11/00	0.73	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	1.5	<0.5	<0.5	<0.5	5.9	
	12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	06/26/01	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/07/01	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	05/22/02	<0.5	<0.5	0.89	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/10/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	06/15/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/10/03	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	06/12/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	10/23/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	6/29/05	<0.5	<0.5	0.91	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	CM-8D	03/08/95	<3.0	<3.0	<10	<3.0	1.4	<3.0	2.70	<3.0	<3.0	<3.0	<3.0	5.4	4.5	5.4	<6.0
06/05/95		<1.0	<1.0	<4.0	4.0	6.9	<1.0	1.90	<1.0	<1.0	<1.0	4.4	2.3	4.3	1.2	<2.0	
09/19/95		<0.5	<0.5	<2.0	3.4	4.7	<0.5	9.3	<0.5	<0.5	0.86	<0.5	1.7	4.1	8.4	<1.0	
12/04/95		<0.5	<0.5	<2.0	4.6	5.6	<0.5	1.10	<0.5	<0.5	0.69	<0.5	1.6	4.7	1.1	<1.0	
2/13/96 ^a		<1.0	<1.0	--	<1.0	2.0	<1.0	4.40	<1.0	<1.0	<1.0	<1.0	<1.0	6.4	1.1	<2.0	
5/14/96 ^a		<1.0	<1.0	--	<1.0	2.0	<1.0	4.60	<1.0	<1.0	<1.0	<1.0	<1.0	6.3	4.9	<2.0	
8/13/96		<2.0	<2.0	--	3.2	4.8	<2.0	1.10	<2.0	<2.0	<2.0	<2.0	<2.0	3.2	1.8	<4.0	
11/11/96		<2.0	<2.0	--	3.6	5.3	<2.0	1.00	<2.0	<2.0	<2.0	<2.0	<2.0	3.1	1.7	<4.0	
05/12/97		<2.0	<2.0	--	3.0	3.8	<2.0	5.8	<2.0	<2.0	<2.0	<2.0	<2.0	2.9	2.4	<4.0	
12/16/97		<2.0	<2.0	--	2.5	2.7	<2.0	4.6	<2.0	<2.0	<2.0	<2.0	<2.0	2.3	3.0	<4.0	
05/12/98		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.5	<5.0	<5.0	<5.0	<5.0	<5.0	1.8	1.9	<15	
11/11/98		<2.0	<2.0	--	2.6	3.9	<2.0	6.3	<2.0	<2.0	<2.0	<2.0	<2.0	2.4	1.8	<4.0	
06/25/99		<5.0	<5.0	<5.0	8.0	10	<5.0	2.00	<5.0	<5.0	<5.0	<5.0	<5.0	8.7	6.9	<15	
10/19/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.0	<5.0	<5.0	<5.0	<5.0	<5.0	2.4	1.7	<15	
12/28/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	4.6	<5.0	<5.0	<5.0	<5.0	<5.0	2.3	1.4	<15	
05/11/00		<0.5	<0.5	<0.5	4.1	5.7	<0.5	1.10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.4	2.2	<1.5
12/07/00		<0.5	<0.5	<0.5	3.8	8.1	<0.5	0.79	<0.5	<0.5	<0.5	0.85	<0.5	0.9	3.6	5.3	<1.5
06/26/01	<0.5	<0.5	--	4.9	15	<0.5	1.3	2.30	<0.5	<0.5	2.6	<0.5	0.5	5.5	3.5	<1.5	
11/08/01	<0.5	<0.5	<0.5	5.2	18	<0.5	1.9	3.40	<0.5	<0.5	2.2	<0.5	<0.5	6.2	5.8	<1.5	
05/22/02	<0.5	<0.5	<0.5	4.2	10	<0.5	1.6	2.30	<0.5	<0.5	<0.5	<0.5	<0.5	2.7	1.1	<1.5	
11/12/02	<2.5	<2.5	<2.5	5.4	18	<2.5	<2.5	5.10	<2.5	<2.5	<2.5	<2.5	<2.5	6.2	5.6	<7.5	
06/16/03	<0.5	<0.5	<0.5	4.6	10	<0.5	<0.5	2.00	<0.5	<0.5	<0.5	<0.5	<0.5	3.1	1.4	<1.5	

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
CM-8D (cont'd)	11/10/03	<1.0	<1.0	<1.0	4.8	11	<1.0	220	<1.0	<1.0	<1.0	<1.0	<1.0	34	6.3	<3.0
	06/12/04	<1.0	<1.0	<1.0	3.8	6.7	<1.0	140	0.54	<1.0	<1.0	<1.0	<1.0	27	6.5	<3.0
	10/21/04	<0.5	<0.5	<0.5	3.1	9.4	0.95	200	1.1	<0.5	2.7	<0.5	<0.5	24	9.3	<1.5
	06/29/05	<0.5	<0.5	<0.5	4.7	11	1.5	170	1.2	<0.5	<0.5	<0.5	<0.5	42	10	<1.5
	11/14/05	<0.5	<0.5	<0.5	4.3	9.9	1.3	130	0.98	<0.5	0.91	<0.5	<0.5	34	7.6	<1.5
CM-9D	03/07/95	<0.5	<0.5	<2.0	<0.5	2.8	<0.5	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/15/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	12	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.5
	12/07/00	<0.5	<0.5	<0.5	0.65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.82	<1.5
	11/08/01	<0.5	<0.5	<0.5	0.74	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<1.5
	11/12/02	<0.5	<0.5	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/10/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	10/21/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<1.5
	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<1.5
	CM-10	03/08/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	190
06/07/95		<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<0.5	93	<4.0
09/18/95		<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	100	<4.0
12/04/95		<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	120	<4.0
2/13/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	39	<4.0
5/14/96 ^A		<1.0	<1.0	--	<1.0	<1.0	<1.0	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	110	<2.0
8/12/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	88	<4.0
11/11/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	120	<4.0
5/13/97		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	93	<4.0
12/15/97		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	100	<4.0
05/12/98		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	120	<1.5
12/04/98		<5.0	<5.0	--	<5.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<5.0	<5.0	<2.0	110	<1.5
06/25/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.5
08/04/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	93	<1.5
10/19/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	74	<1.5
12/27/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	82	<1.5	
05/11/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	80	<1.5	
12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	55	<1.5	
06/26/01	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	56	<1.5	
11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	55	<1.5	
05/22/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	29	<1.5	
11/13/02	<0.5	<0.5	<0.5	2.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
06/16/03	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	

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Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes		
CM-10 (cont'd)	06/12/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	56	<1.5		
	10/22/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	47	<1.5		
	6/29/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	40	<1.5		
	11/17/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	40	<1.5		
CM-11 Well abandoned	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	3.0	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<1.0		
	12/17/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0		
	CM-11A	08/11/98	<1.0	<1.0	--	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	
		11/12/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.5	<4.0	
		12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
		12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
		01/07/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
		11/11/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
		11/10/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
		10/21/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
		11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
		CM-12	03/07/95	<0.5	<0.5	<2.0	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
			06/06/95	<0.5	<0.5	<2.0	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	9.3	<0.5	<0.5	<5.0	<4.0
09/19/95	<0.5		<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<4.0		
12/04/95	<0.5		<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<4.0		
12/16/97	<2.0		<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0		
12/28/99	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15		
05/11/00	<0.5		<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
12/06/00	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
06/26/01	<0.5		<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<1.5		
11/07/01	<0.5		<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
05/22/02	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/10/02	<0.5		<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	4.0	<0.5	<0.5	27	<0.5	<1.5		
06/15/03	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/10/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5			
06/12/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5			
10/22/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5			
6/29/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5			
11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5			
CM-13	03/08/95	6.0	<0.5	<1.0	<0.5	7.6	<3.0	230	<3.0	<0.5	<0.5	<0.5	<0.5	31	<0.5	<1.0		
	12/17/97	<2.0	<2.0	--	<2.0	3.2	<2.0	94	<2.0	<2.0	<2.0	<2.0	<2.0	9.4	<5.0	<4.0		
	12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15		
	12/06/00	<0.5	<0.5	<0.5	<0.5	2	<0.5	75	1.9	<0.5	<0.5	<0.5	<0.5	4.8	<0.5	<1.5		
	11/07/01	0.69	<0.5	<0.5	<0.5	6.4	1.0	310	1.2	<0.5	<0.5	<0.5	<0.5	14	<0.5	<1.5		
	11/12/02	<1.0	<1.0	<1.0	<1.0	4.4	<1.0	310	<1.0	<1.0	<1.0	<1.0	<1.0	8.1	<1.0	<1.5		
	11/10/03	<0.5	<0.5	<0.5	<0.5	4.9	<0.5	240	<0.5	<0.5	0.56	<0.5	<0.5	7.5	<0.5	<1.5		
	10/23/04	<0.5	<0.5	<0.5	<0.5	5.0	<0.5	250	0.77	<0.5	2.4	<0.5	<0.5	9.3	<0.5	<1.5		
11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5			

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
CM-14	06/06/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
	09/19/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/16/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/12/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/29/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/05/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
10/24/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
CM-15	03/08/95	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/06/95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	34	<0.5	<0.5	<0.5	<1.0
	09/18/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/15/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/27/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
11/13/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
10/22/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/17/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
CM-16	03/08/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	05/13/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/17/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/12/98	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<15
	11/12/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	06/25/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/29/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	05/11/00	<0.5	0.65	0.62	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes	
CM-16 cont'd	12/05/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	06/26/01	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/06/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	05/22/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/10/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	06/15/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/09/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	06/13/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	10/25/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	6/29/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
CM-17	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/07/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	10/22/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/17/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	03/08/95	<0.5	<0.5	<2.0	2.0	<0.5	<0.5	2.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
CM-18	12/16/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	59	<4.0	
	11/12/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	12	<4.0	
	12/07/00	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11	<1.5	
	11/07/01	<0.5	<0.5	<0.5	2.7	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<1.5	
	11/10/02	<0.5	<0.5	<0.5	1.9	<0.5	<0.5	4.4	<0.5	<0.5	0.91	<0.5	<0.5	<0.5	5.2	<1.5	
	11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10	<1.5	
	10/21/04	<0.5	<0.5	<0.5	0.76	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<1.5	
	11/16/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.1	<1.5	
	CM-19	03/07/95	<0.5	<0.5	<0.5	-	-	<0.5	6.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
		06/06/95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.6	<0.5	<0.5	<0.5	5.5	<0.5	<0.5	<0.5	<1.0
09/19/95		<0.5	<0.5	<2.0	-	-	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
12/04/95		<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
02/13/96		<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
05/14/96		<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
08/13/96		<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
11/11/96		<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
12/16/97		<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
11/12/98		<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
12/29/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
12/05/00		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/08/01		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/09/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
10/24/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
MW-15	03/08/95	<0.5	<0.5	8.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/06/95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.79	<0.5	<0.5	<0.5	<1.0
	09/19/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	2/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	5/14/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	14	<2.0	<2.0	<5.0	<4.0
	8/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	5/13/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/17/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	05/11/00	0.73	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.9	<0.5	<0.5	<0.5	5.8
	12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	06/26/01	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.95	<0.5	<0.5	<0.5	<1.5
	11/07/01	<0.5	<0.5	0.56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	05/22/02	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
06/15/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/10/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<0.5	<1.5	
06/13/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
10/23/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
6/29/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<1.5	
11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<1.5	
MW-16	03/08/95	<0.5	<0.5	2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/06/95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	09/19/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/13/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/17/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/12/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/06/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	05/22/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/10/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.9	6.9	<0.5	8.3	<0.5	<0.5	<0.5	<1.5
	06/15/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/09/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes	
MW-16 (cont'd)	06/13/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	10/25/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	6/29/05	<0.5	<0.5	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/13/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	48	<0.5	<0.5	2.4	<0.5	13	4.4	0.7	<1.0	
MW-17	12/16/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
	11/12/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
	06/25/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
	12/29/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
	12/05/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.7	<0.5	<0.5	0.7	<0.5	<0.5	1.1	<0.5	<1.5	
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	05/22/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	11/09/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	10/25/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	<0.5	<0.5	2.4	<0.5	<0.5	<0.5	0.59	<1.5	
	11/13/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
	MW-19S	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
		06/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.4	<0.5	<0.5	<0.5	<1.0
		09/18/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
		12/03/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
02/13/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
05/14/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
08/13/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
11/11/96		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
12/16/97		<2.0	<2.0	--	2.9	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
05/12/98		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
11/10/98		<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
06/25/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
12/27/99		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
05/11/00		<0.5	<0.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
12/07/00		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
06/26/01	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/08/01	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.5		
05/22/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
06/16/03	<0.5	<0.5	<0.5	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/13/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
06/13/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
10/23/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
6/29/05	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		
11/16/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5		

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
MW-19D	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	84	<0.5	<0.5	<0.5	<1.0
	09/18/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/03/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/16/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/10/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	06/25/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/27/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	05/11/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	12/07/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	05/22/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	06/16/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
06/13/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
10/23/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
6/29/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/16/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
MW-20S	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	09/18/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/03/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/13/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/16/97	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/12/98	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<15
11/10/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
06/25/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
MW-20S cont'd	12/27/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.00	<5.0	<5.0	<5.0	<15
	05/11/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	12/07/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	06/26/01	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	0.56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	05/22/02	<0.5	<0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	06/16/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	06/13/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
MW-21S	10/23/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	6/29/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/16/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<1.0
	09/18/95	<0.5	<0.5	23	<0.5	<0.5	<0.5	0.87	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<1.0
	12/04/95	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
MW-22S	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<1.0
	03/08/95	<5.0	<5.0	<2.0	<5.0	61	<5.0	2,000	<5.0	<5.0	14	5.4	99	68	<5.0	<1.0
	05/12/98	<5.0	<5.0	<5	<5.0	<5.0	<5.0	7.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/29/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	85	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/06/00	<0.5	<0.5	<0.5	<0.5	1.8	0.64	63	<0.5	<0.5	<0.5	0.63	<0.5	3.9	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	73	<0.5	<0.5	0.97	<0.5	<0.5	3.8	<0.5	<1.5
	11/10/02	0.74	<0.5	<0.5	<0.5	0.97	<0.5	82	1.9	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<1.5
	11/10/03	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	60	<0.5	<0.5	0.53	<0.5	<0.5	3.1	<0.5	<1.5
	10/23/04	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	33	<0.5	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<1.5
	11/13/05	0.51	<0.5	<0.5	<0.5	1.4	0.7	120	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<1.5
MW-24	11/11/98	<2.0	<2.0	-	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<5.0	<4.0
	12/07/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	10/21/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/16/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5

TABLE 5
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Former Raytheon Facility
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Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
MW-25	03/08/95	<0.5	<0.5	5.3	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/15/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<5.0	<4.0
	12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/07/00	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/07/01	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/02	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/03	<0.5	<0.5	<0.5	0.95	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	10/21/04	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/16/05	<0.5	<0.5	<0.5	0.71	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	03/07/95	<0.5	<0.5	<2.0	1.4	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<1.0
	06/07/95	<0.5	<0.5	<2.0	0.87	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	24	<0.5	<0.5	<0.5	<1.0
	09/18/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
2/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
5/13/96	<2.0	<2.0	--	2.3	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
8/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
11/11/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
12/16/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0	
12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	
12/07/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/07/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
10/22/04	<0.5	<0.5	<0.5	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
11/16/05	<0.5	<0.5	<0.5	0.76	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	
MW-27	03/07/95	<0.5	<0.5	<2.0	0.7	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/06/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	2.8	<0.5	<0.5	<0.5	<1.0
	09/19/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	0.81	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	0.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	02/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/16/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	

TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
 Former Raytheon Facility
 8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
MW-27 (cont'd)	12/07/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	10/22/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/17/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
MW-28	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/07/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/07/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/11/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	10/25/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/17/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
MW-29	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/07/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/10/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
MW-30	10/21/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.66	<1.5
	03/07/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	06/05/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	21	<0.5	<0.5	<0.5	<1.0
	09/19/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	3.8	<0.5	<0.5	<0.5	<1.0
	12/04/95	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
MW-31	02/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	05/14/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	08/13/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/96	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/15/97	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/27/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	11/13/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
	10/22/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5
11/17/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	

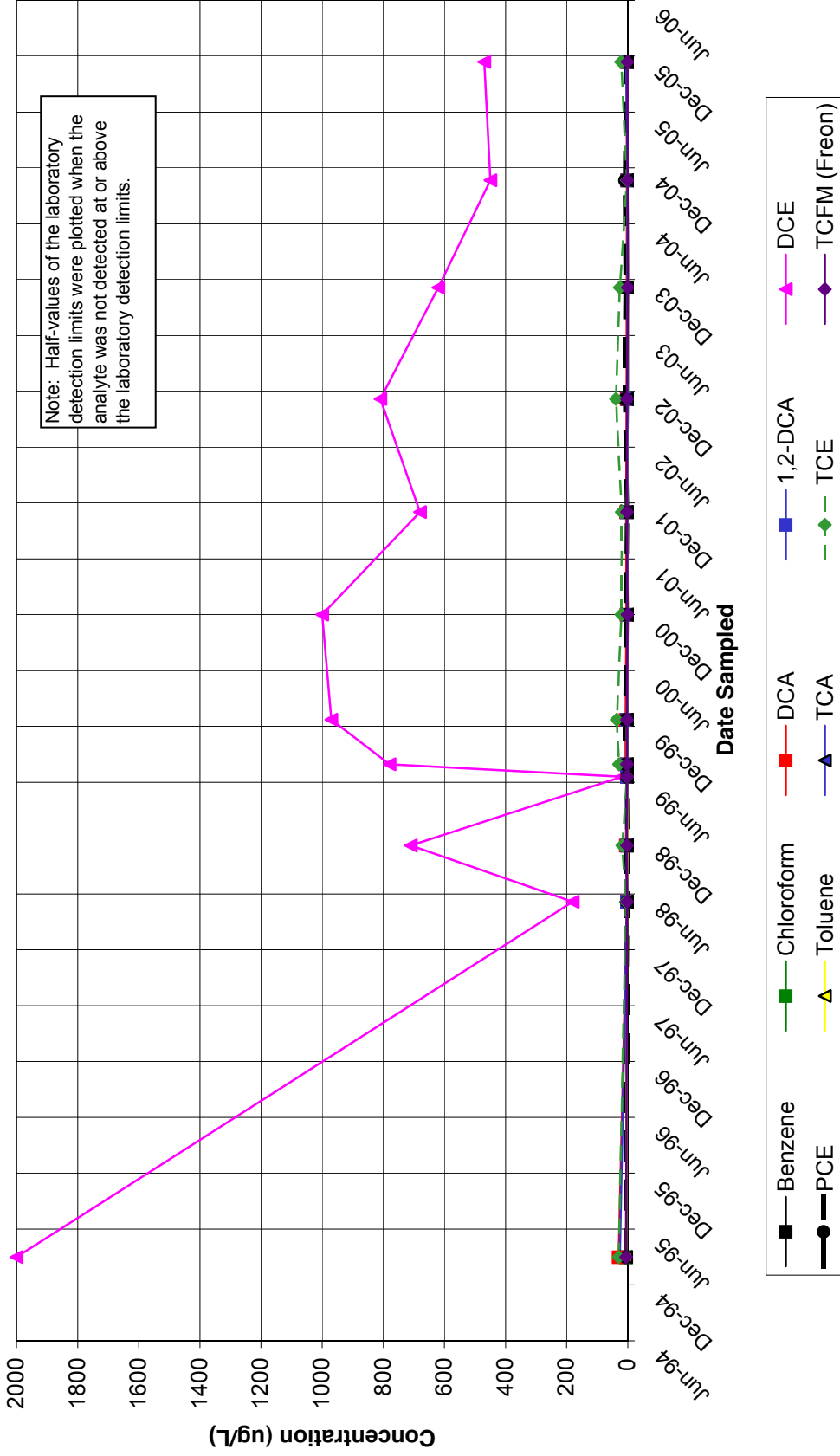
TABLE 5
DETECTABLE CONCENTRATIONS IN GROUNDWATER MONITORING WELLS - 1995-Present
Former Raytheon Facility
8433 Fallbrook Avenue, Canoga Park, CA

Well ID	Date Sampled	Benzene	BDM	Carbon Disulfide	Chloroform	DCA	1,2-DCA	DCE	1,2-DCE	Ethylbenzene	PCE	Toluene	TCA	TCE	TCFM	Total Xylenes
MW-31	08/11/98	<1.0	<1.0	--	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	160	<2.0
	11/11/98	<2.0	<2.0	--	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<4.0
	12/04/98	<5.0	<5.0	--	<5.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	190	<4.0
	08/04/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15
	10/19/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	160	<15
	12/28/99	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	130	<15
	12/06/00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.53	<0.5	<0.5	<0.5	130	<1.5
	11/08/01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	110	<1.5
	11/12/02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	120	<1.5
	11/10/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	120	<1.5
	10/21/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	92	<1.5
	11/14/05	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	81	<1.5
	09/30/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.1	<0.5	<0.5	<0.5	<0.5	<0.5	2.7	<0.5	<0.5
	11/14/05	<0.5	<0.5	0.79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

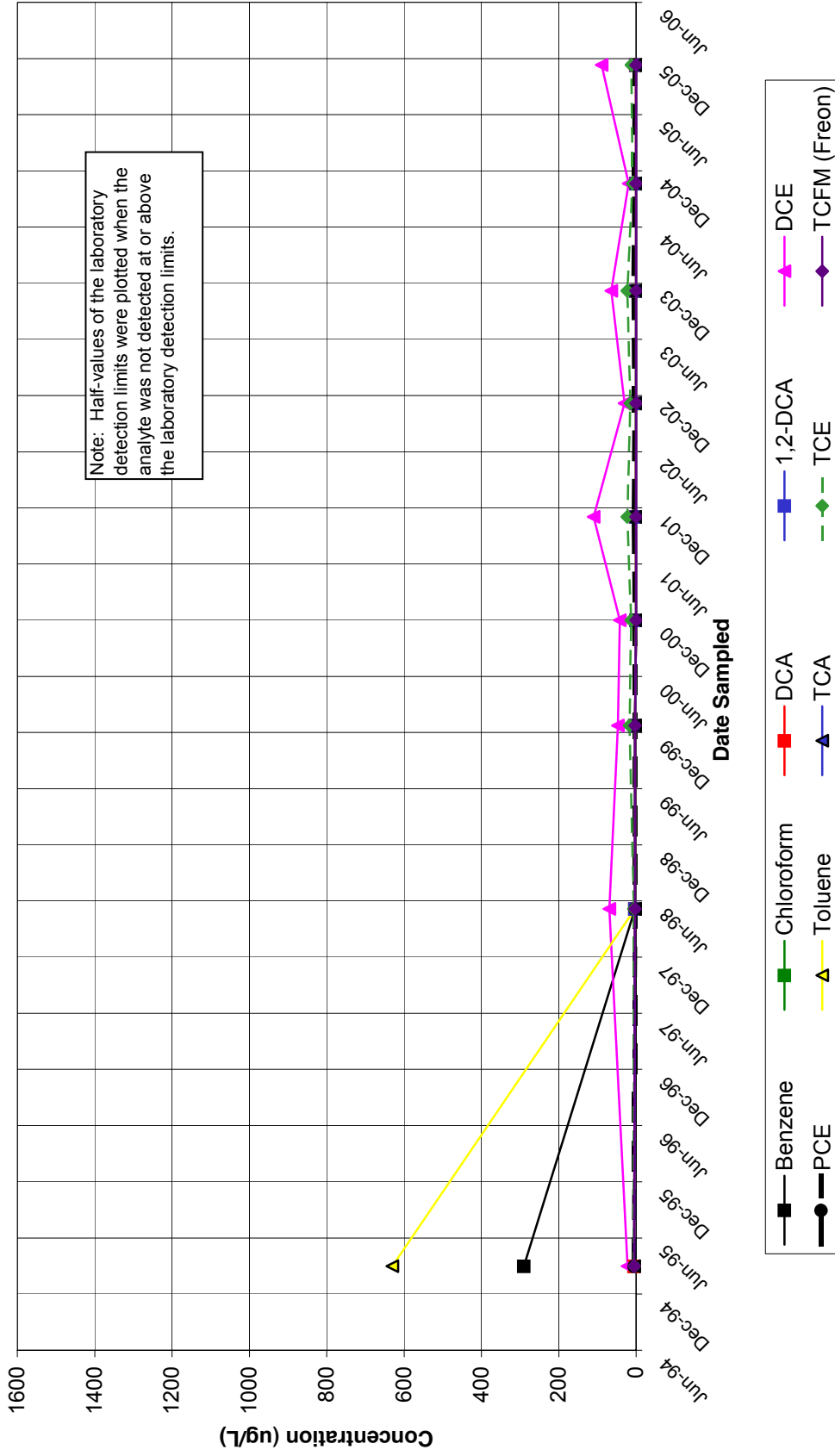
- 1.) All concentrations in µg/L.
- 2.) All analyses done by EPA Method 8260, 8260B or 8021B.
- 3.) -- = not analyzed for parameter
- 4.) Only wells with detectable concentrations of constituents of concern since March 1995 are shown.
- 5.) **BDM** = Bromodichloromethane; **1,2-DCA** = 1,2-Dichloroethane; **DCA** = 1,1-Dichloroethane; **DCE** = 1,1-Dichloroethene; **DCE** = 1,2-Dichloroethene-(cis); **PCE** = Tetrachloroethene; **TCA** = 1,1,1-Trichloroethane; **TCE** = Trichloroethene; **TCFM** = Trichlorofluoromethane.
- 6.) Due to matrix effects and/or other factors, detection limits for these samples have been raised by a factor of ^A=5, ^B=4, ^C=50, ^D=10.

Graph 7: Volatile Organic Compounds vs. Time
Monitoring Well M-1
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



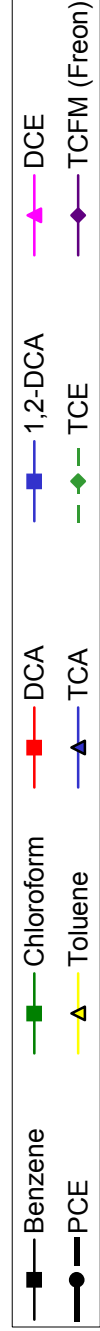
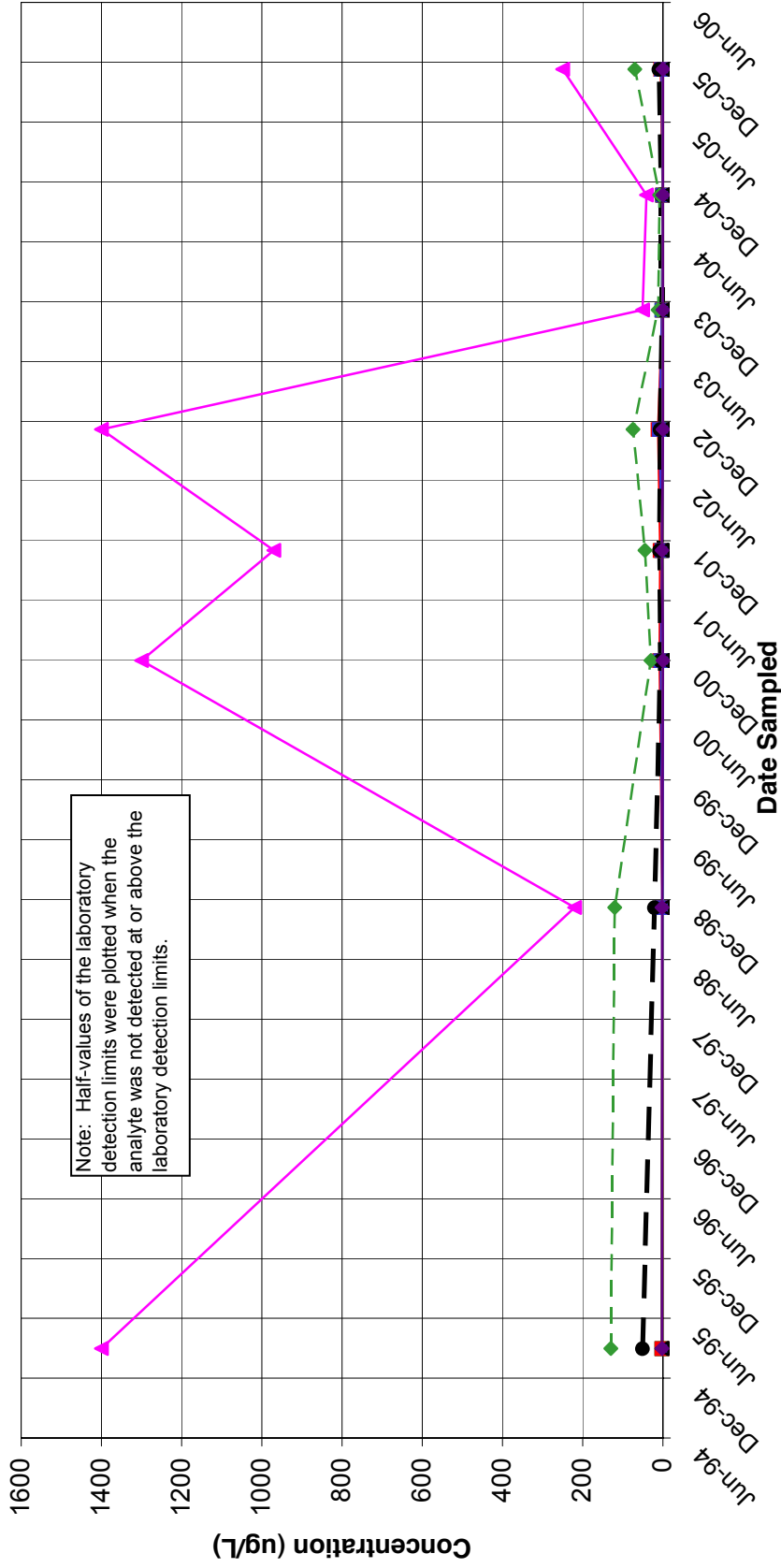
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 8: Volatile Organic Compounds vs. Time
Monitoring Well CM-2D
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFCM = Trichlorofluoromethane.

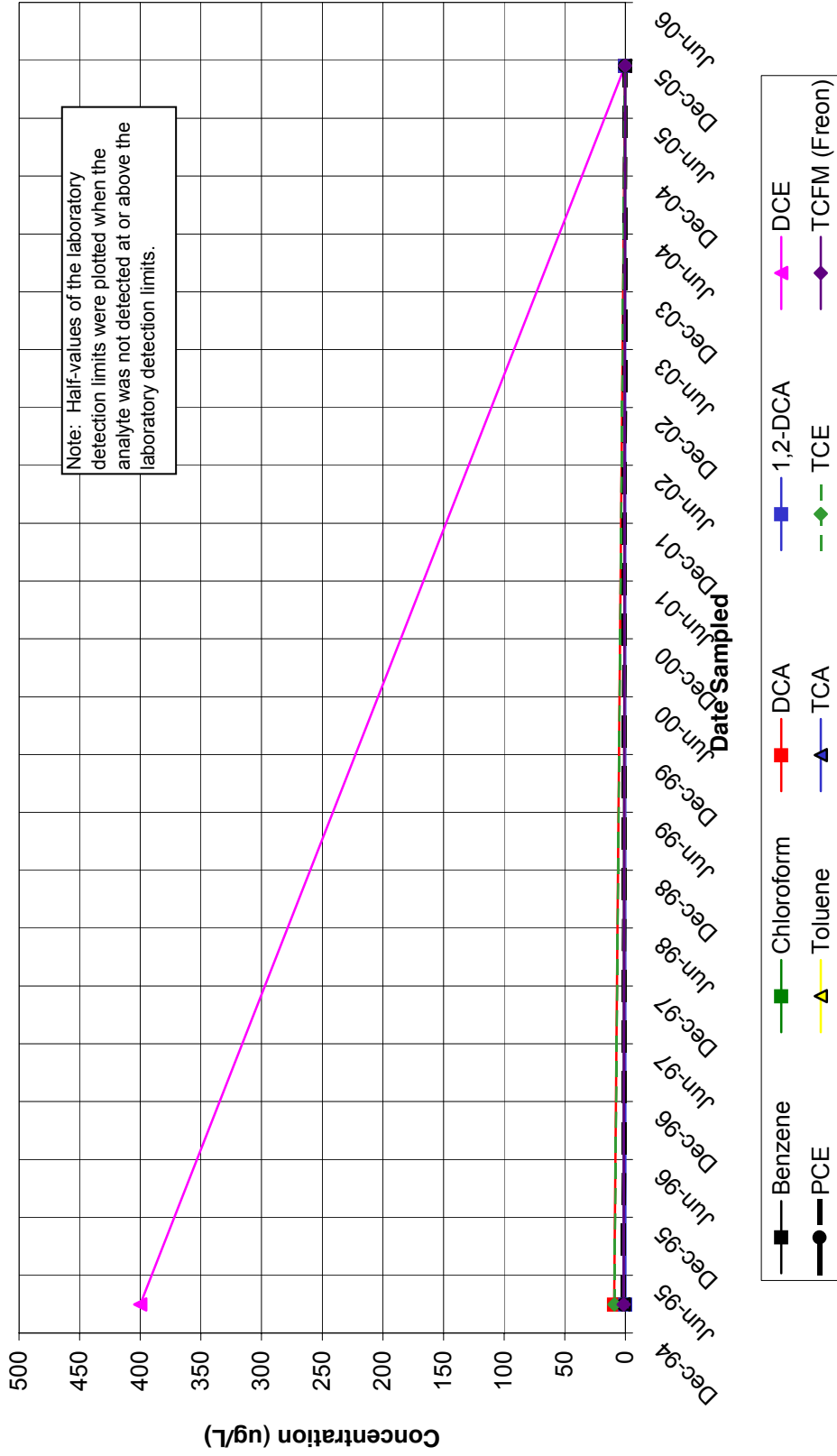
Graph 9: Volatile Organic Compounds vs. Time
Monitoring Well CM-4D
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethane; TCA = 1,1,1,1-Trichloroethane;
TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

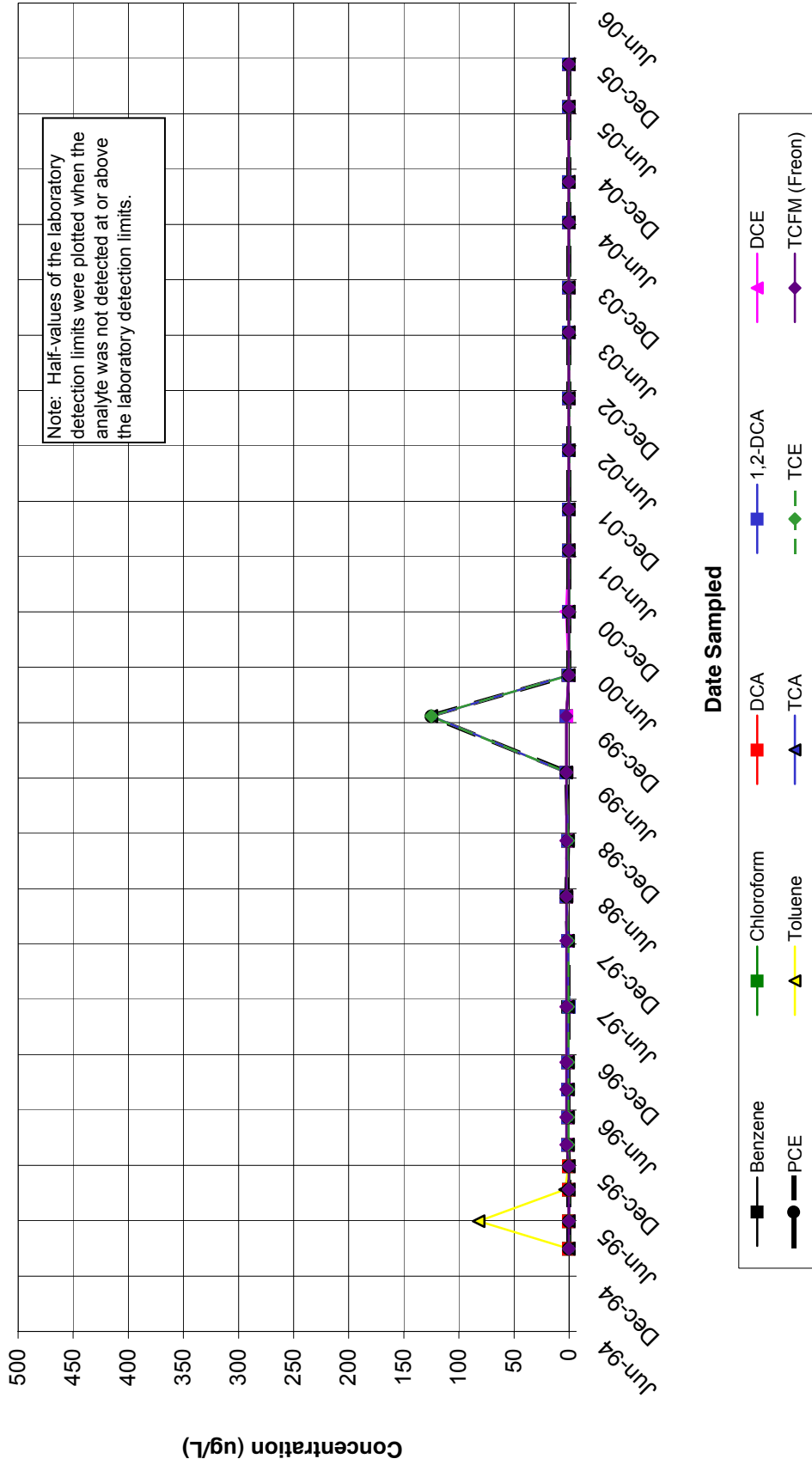
Graph 10: Volatile Organic Compounds vs. Time
Monitoring Well CM-7

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, CA



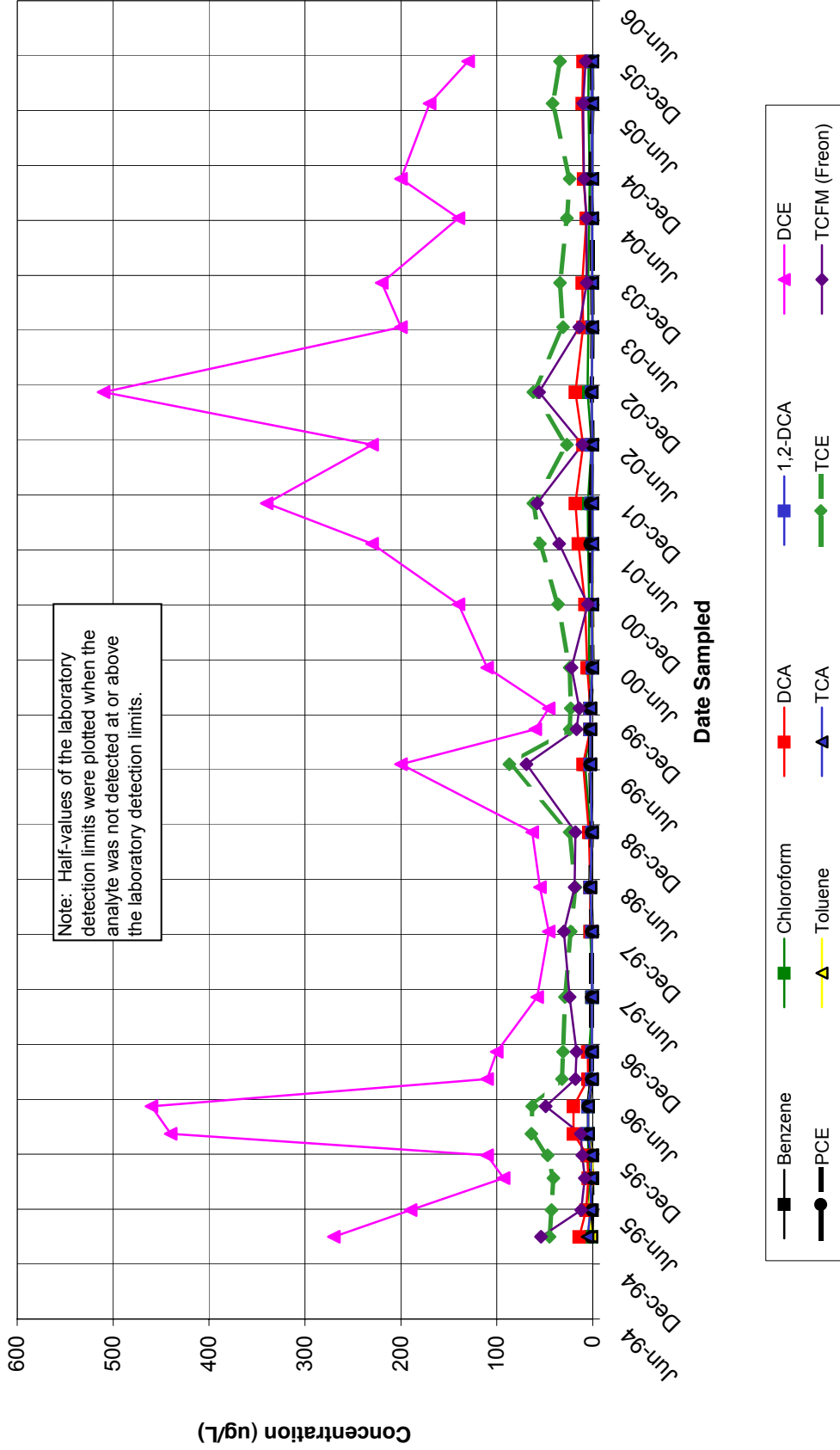
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 11: Volatile Organic Compounds vs. Time
Monitoring Well CM-7D
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



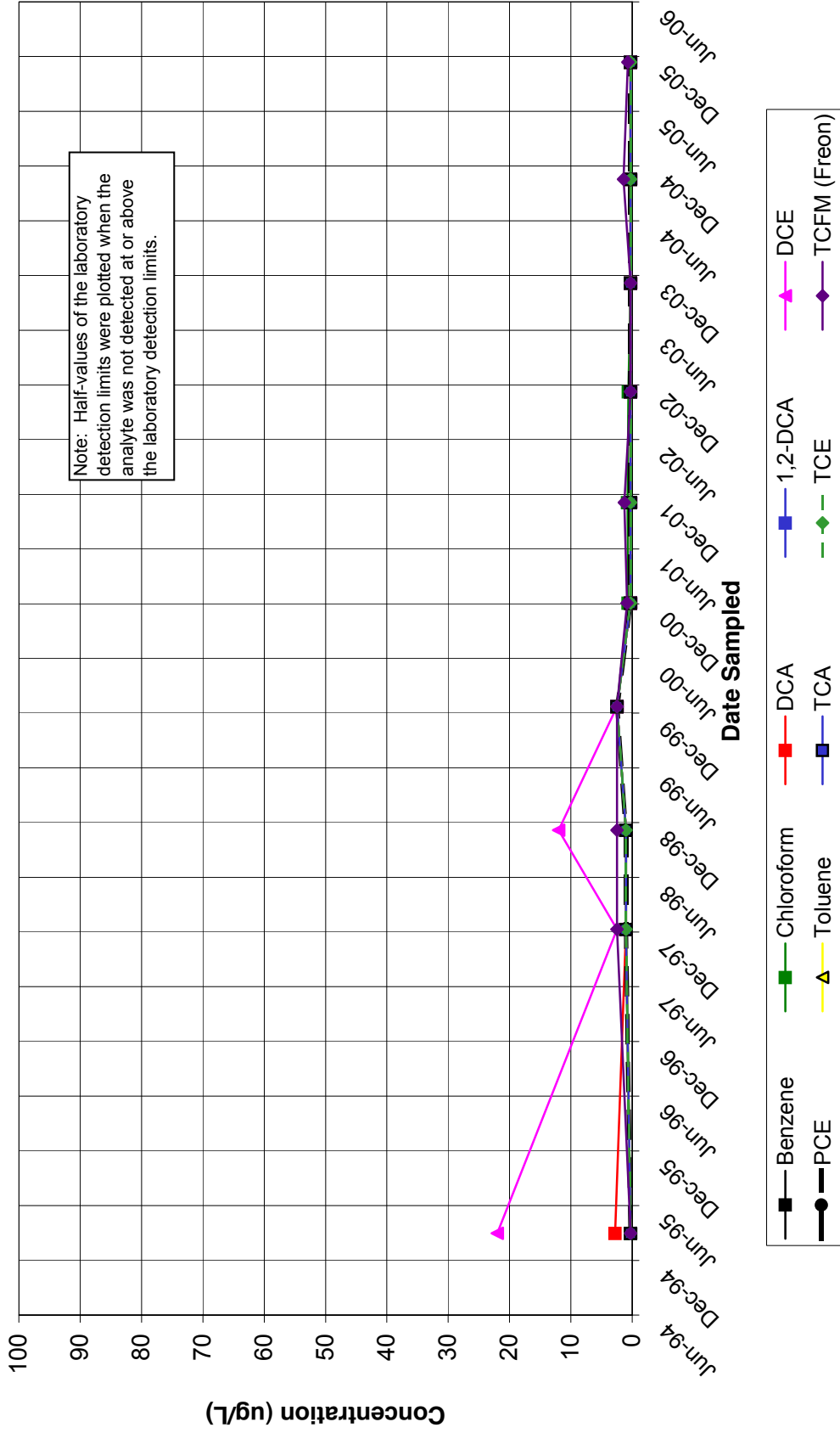
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 12: Volatile Organic Compounds vs. Time
Monitoring Well CM-8D
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

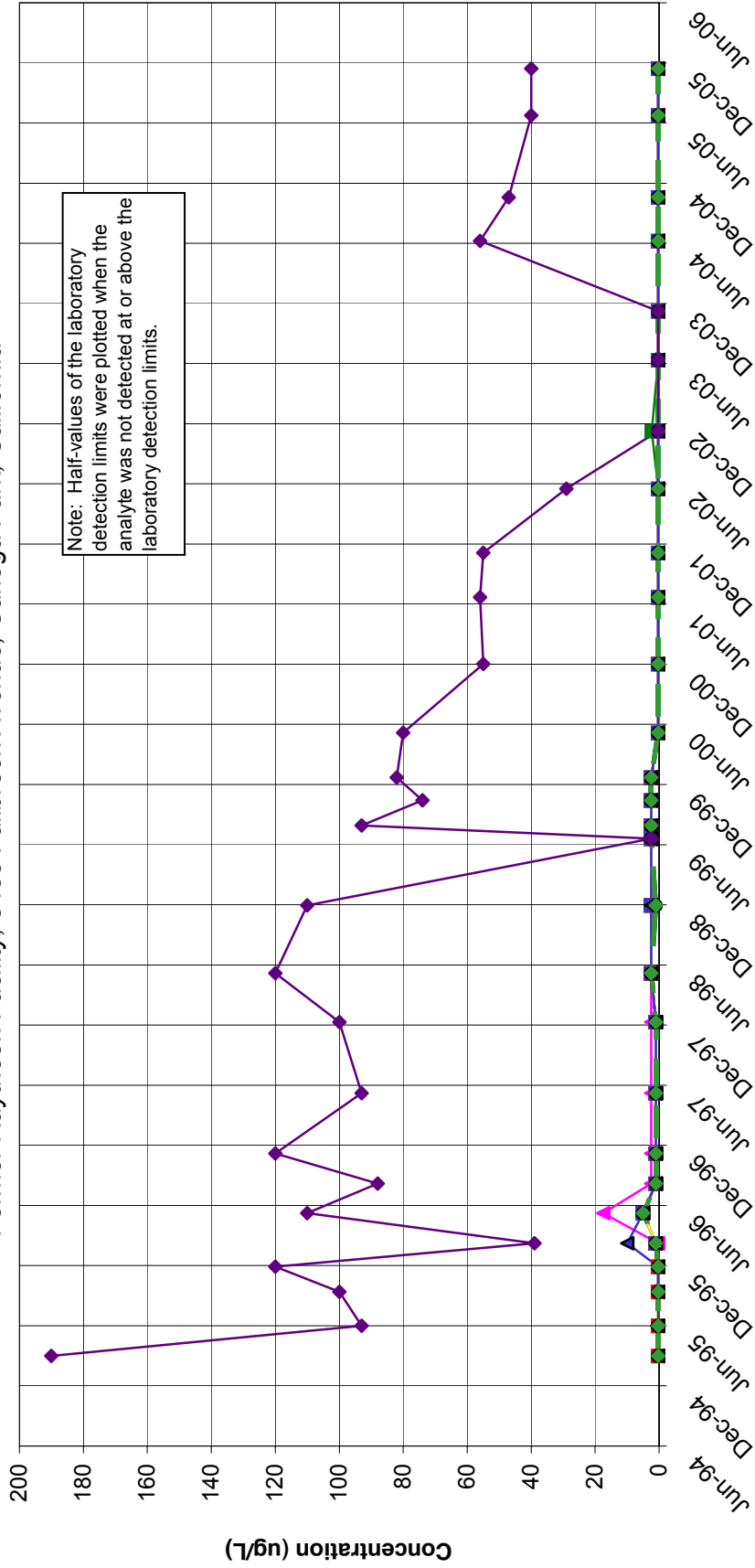
Graph 13: Volatile Organic Compounds vs. Time
Monitoring Well CM-9D
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



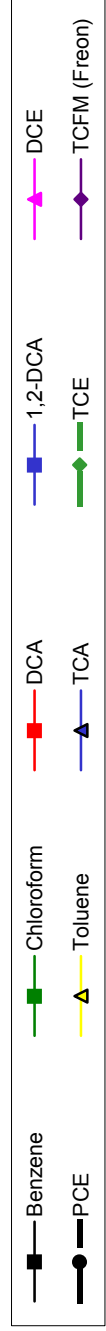
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 14: Volatile Organic Compounds vs. Time
Monitoring Well CM-10

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California

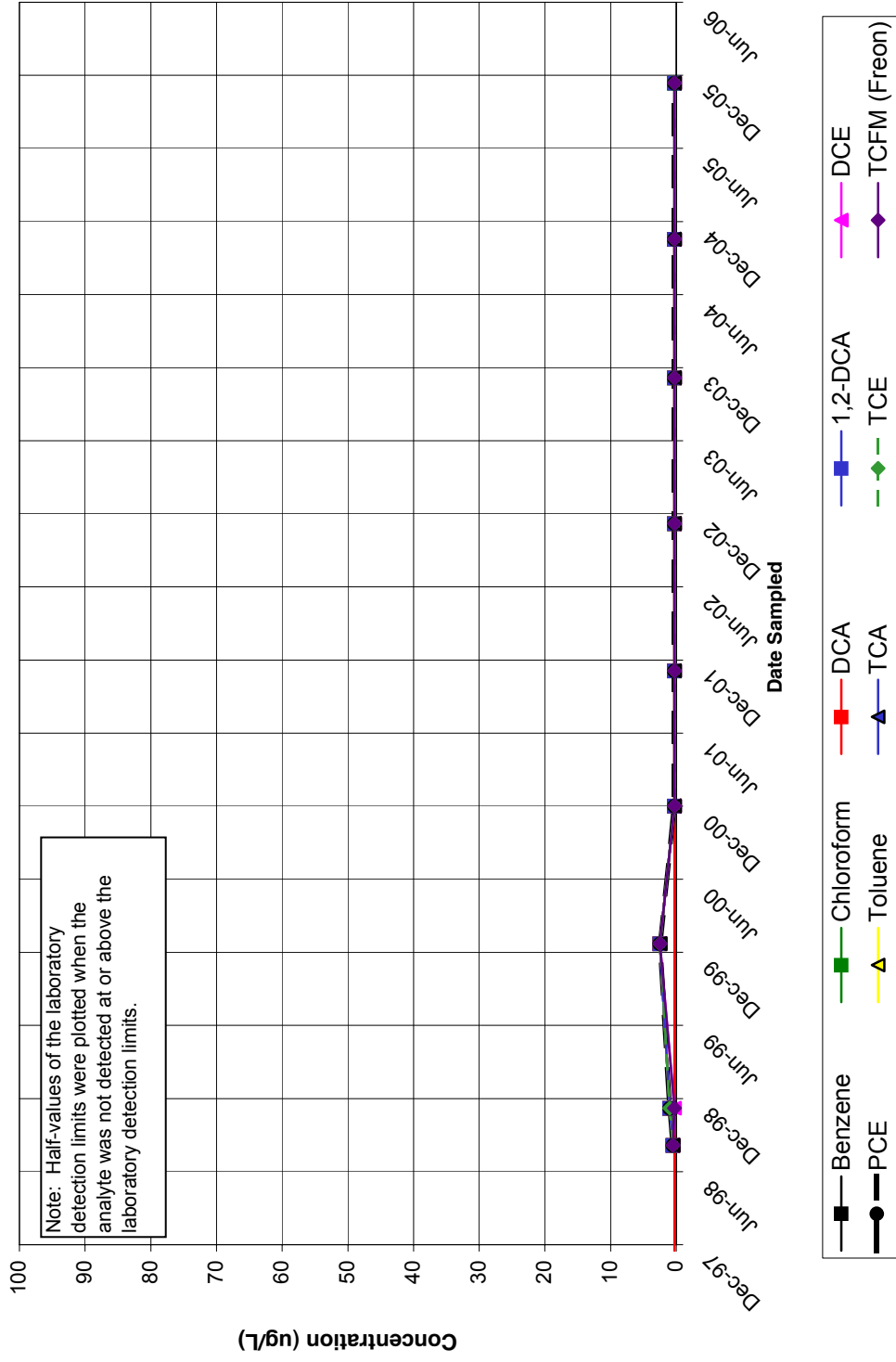


Date Sampled



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

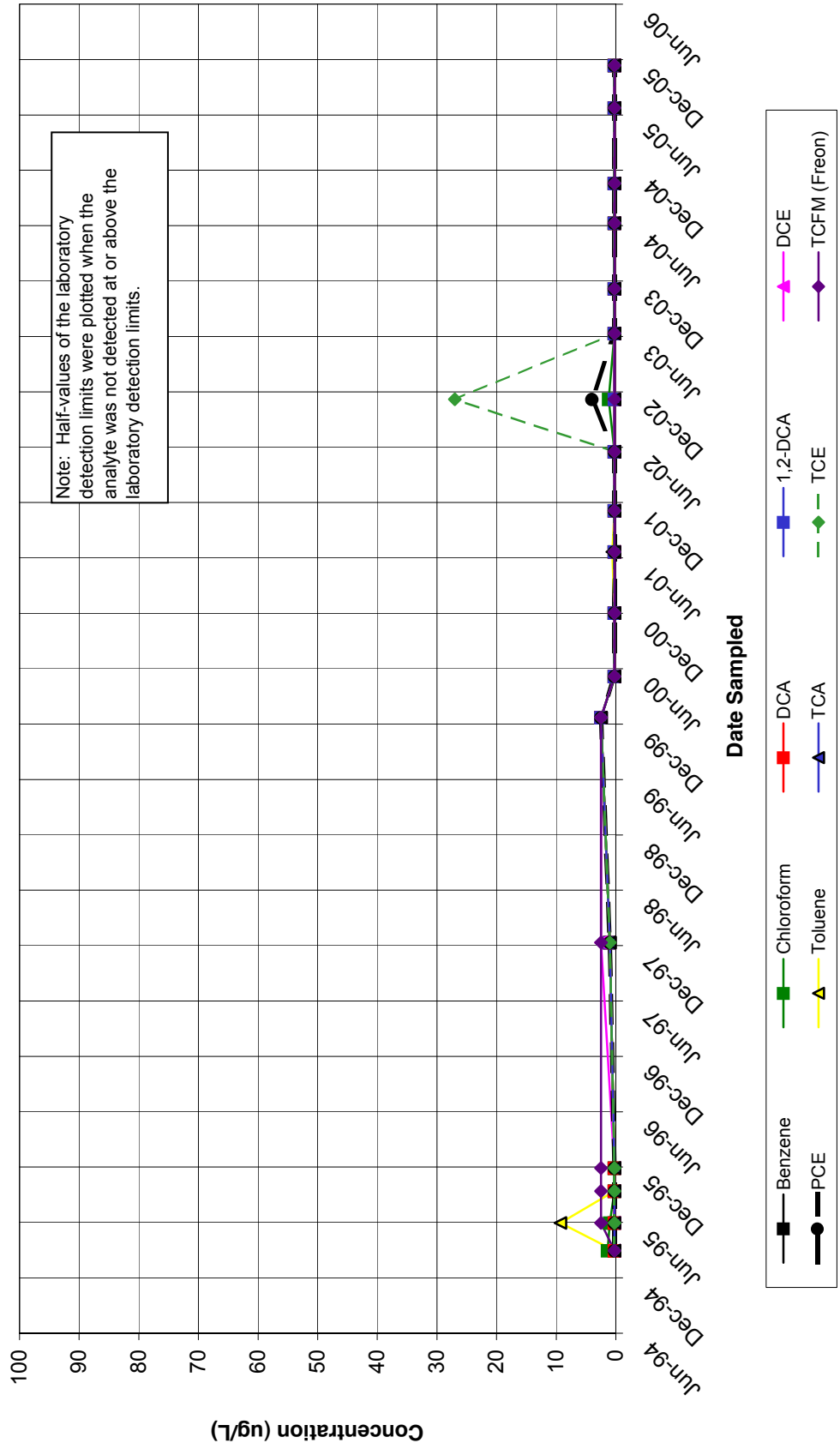
Graph 15: Volatile Organic Compounds vs. Time
Monitoring Well CM-11A
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 16: Volatile Organic Compounds vs. Time
Monitoring Well CM-12

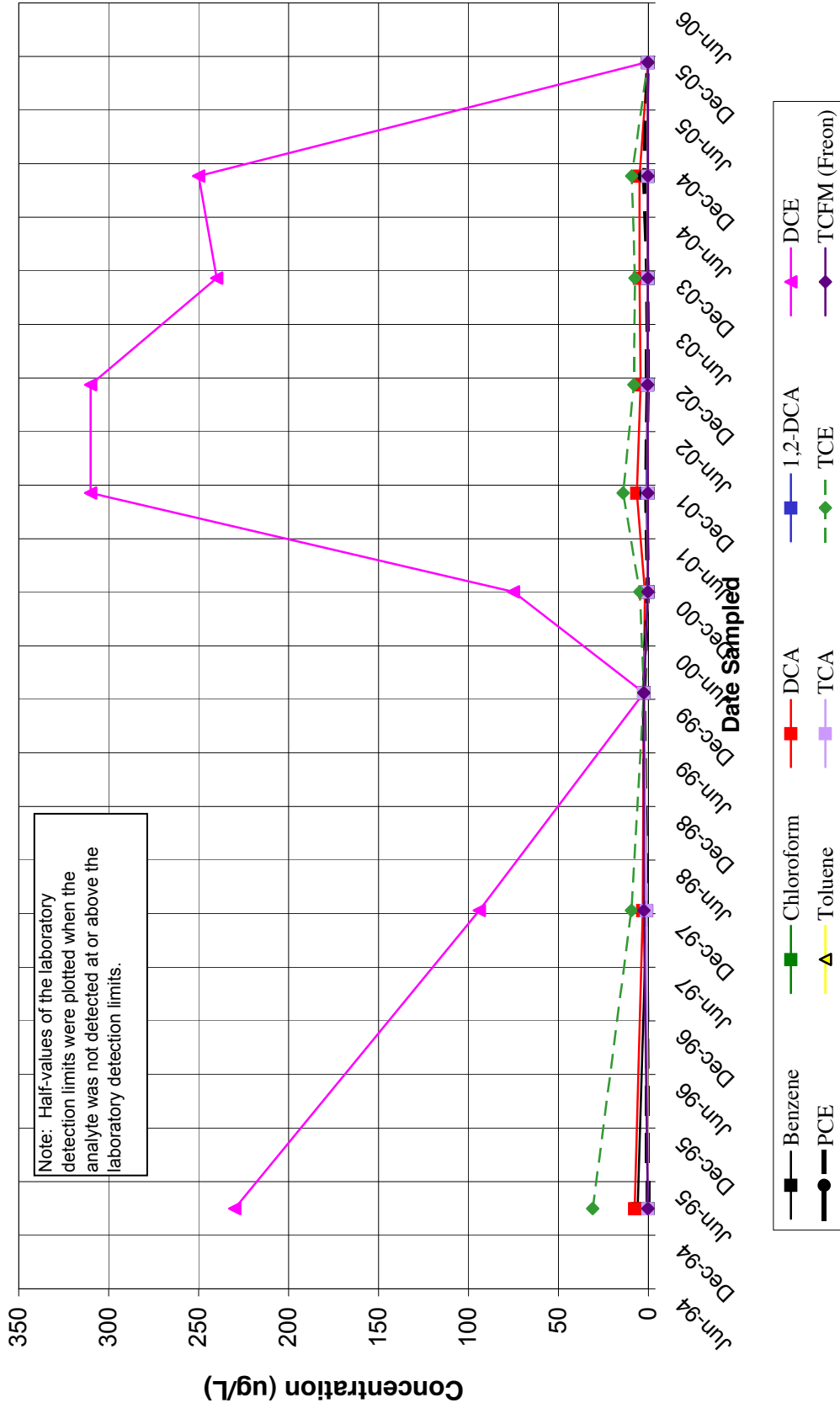
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

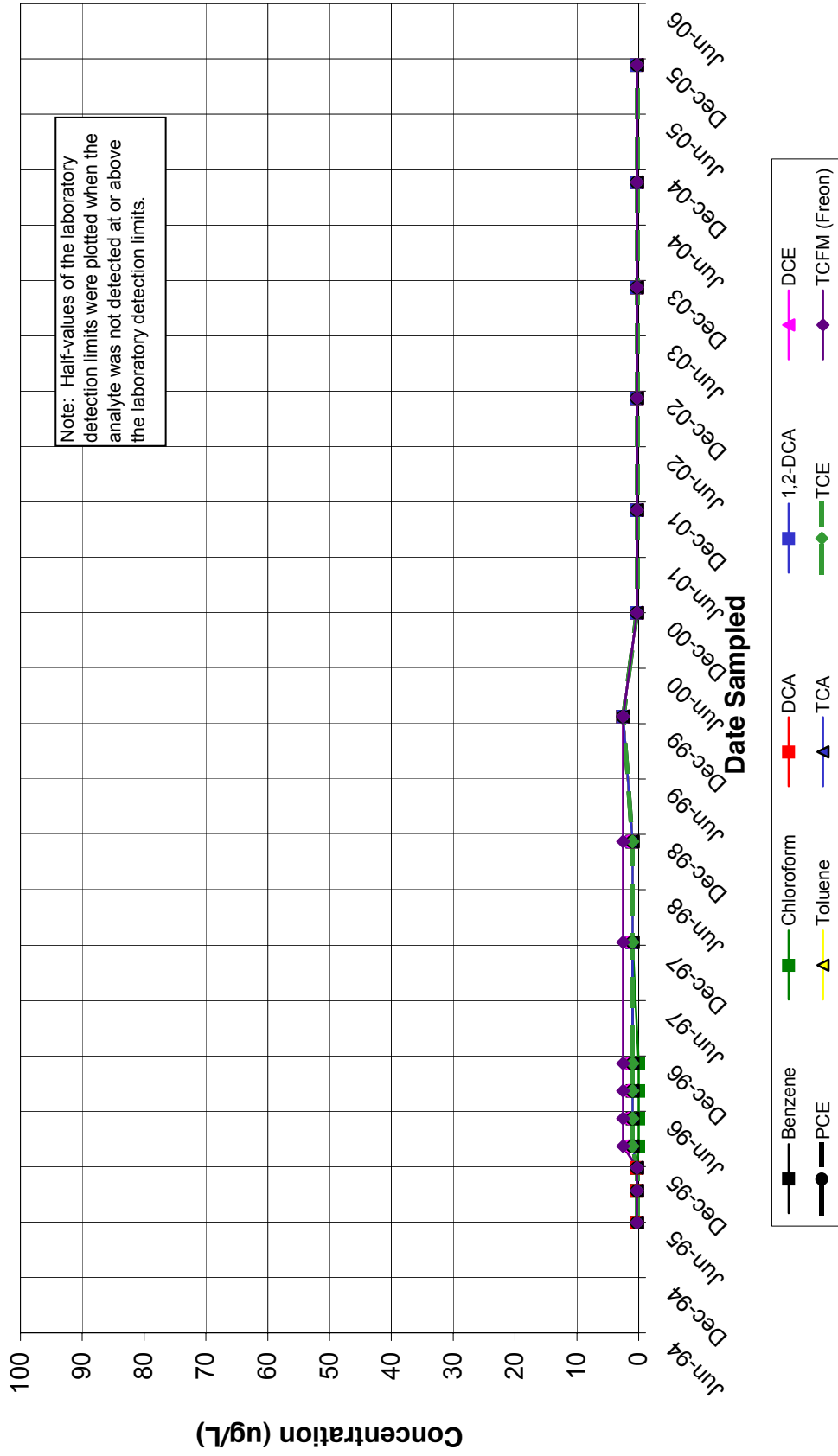
Graph 17: Volatile Organic Compounds vs. Time
Monitoring Well CM-13

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



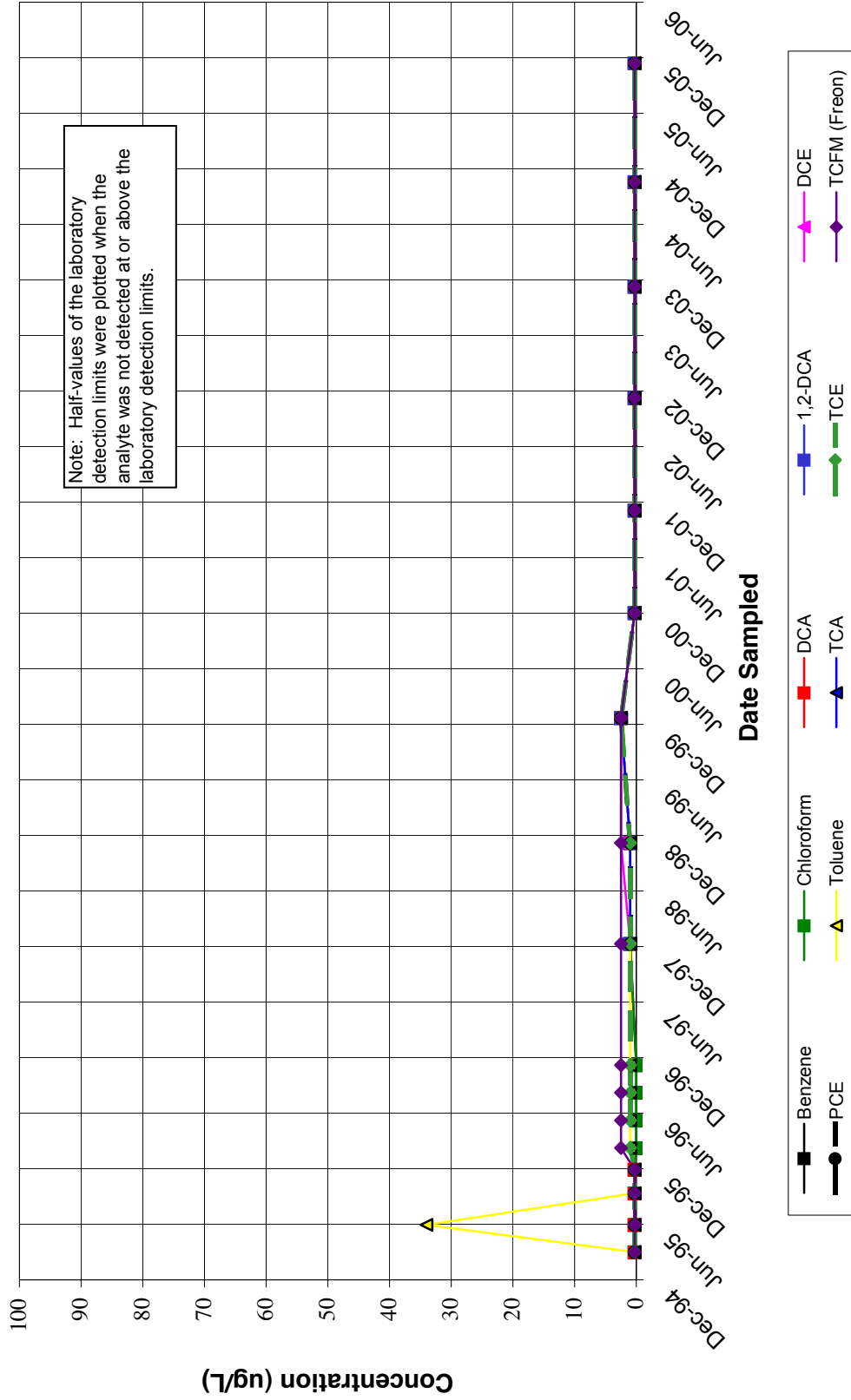
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 18: Volatile Organic Compounds vs. Time
Monitoring Well CM-14
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



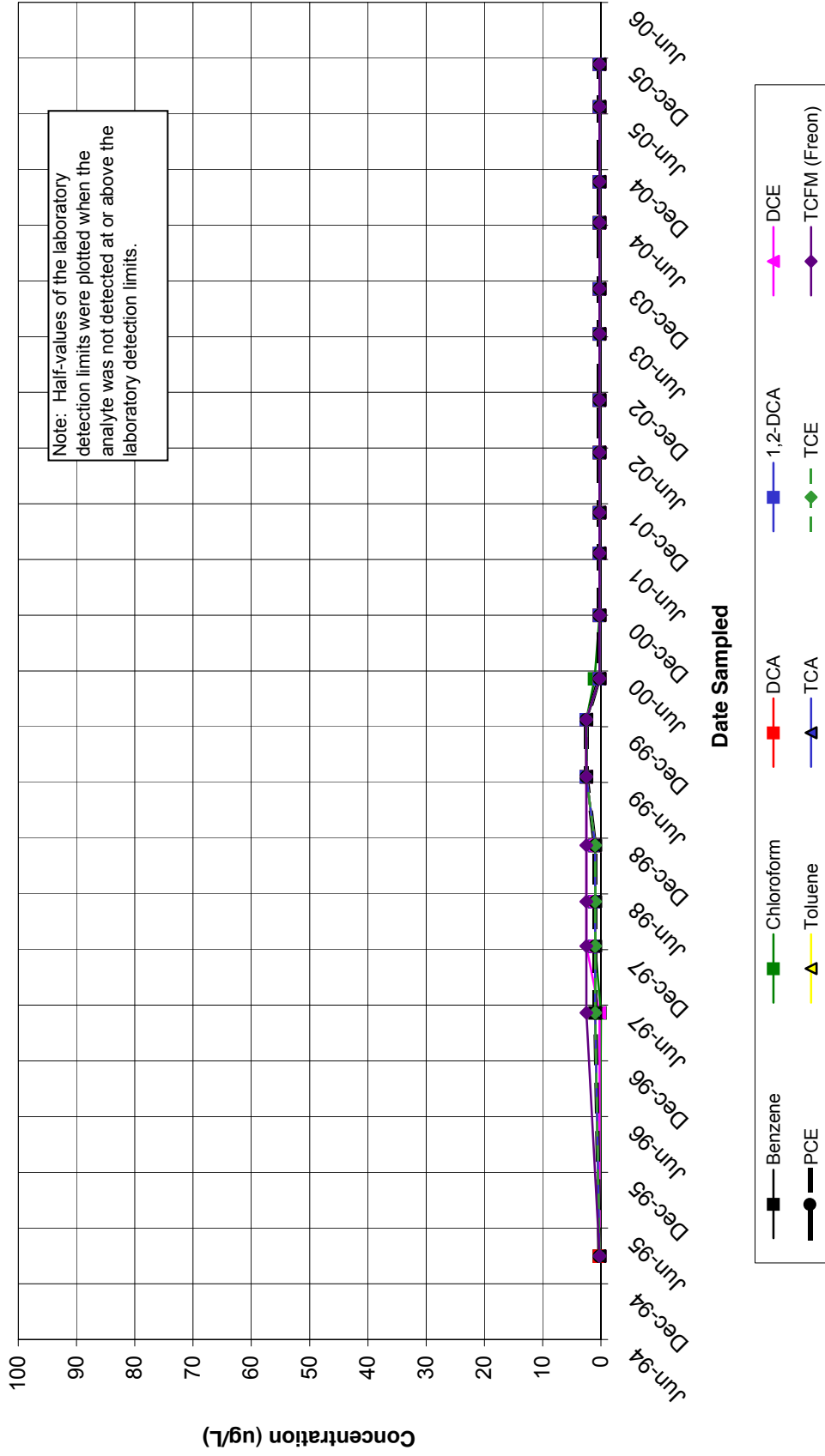
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 19: Volatile Organic Compounds vs. Time
Monitoring Well CM-15
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



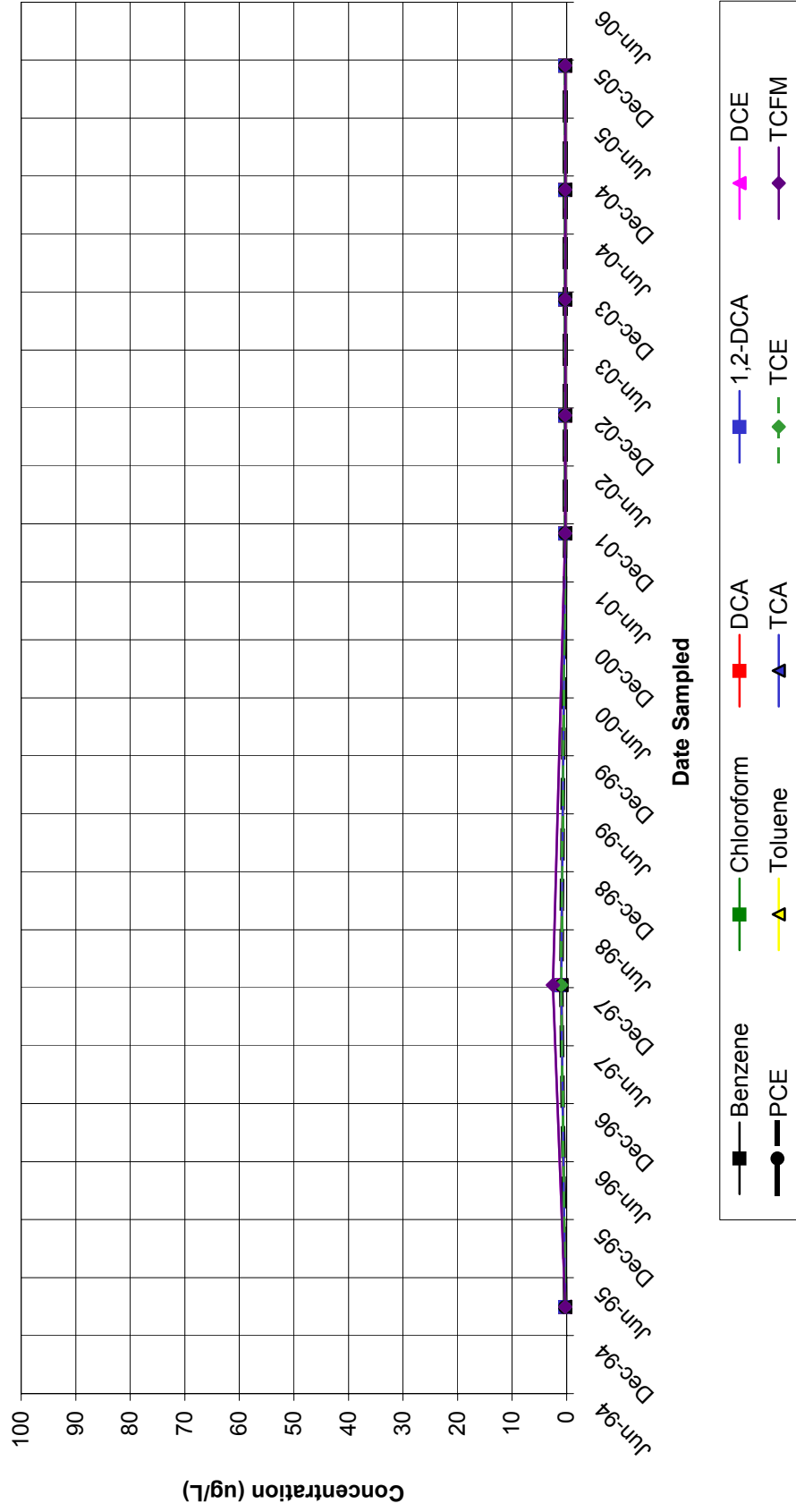
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 20: Detectable Compounds vs. Time
Monitoring Well CM-16
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



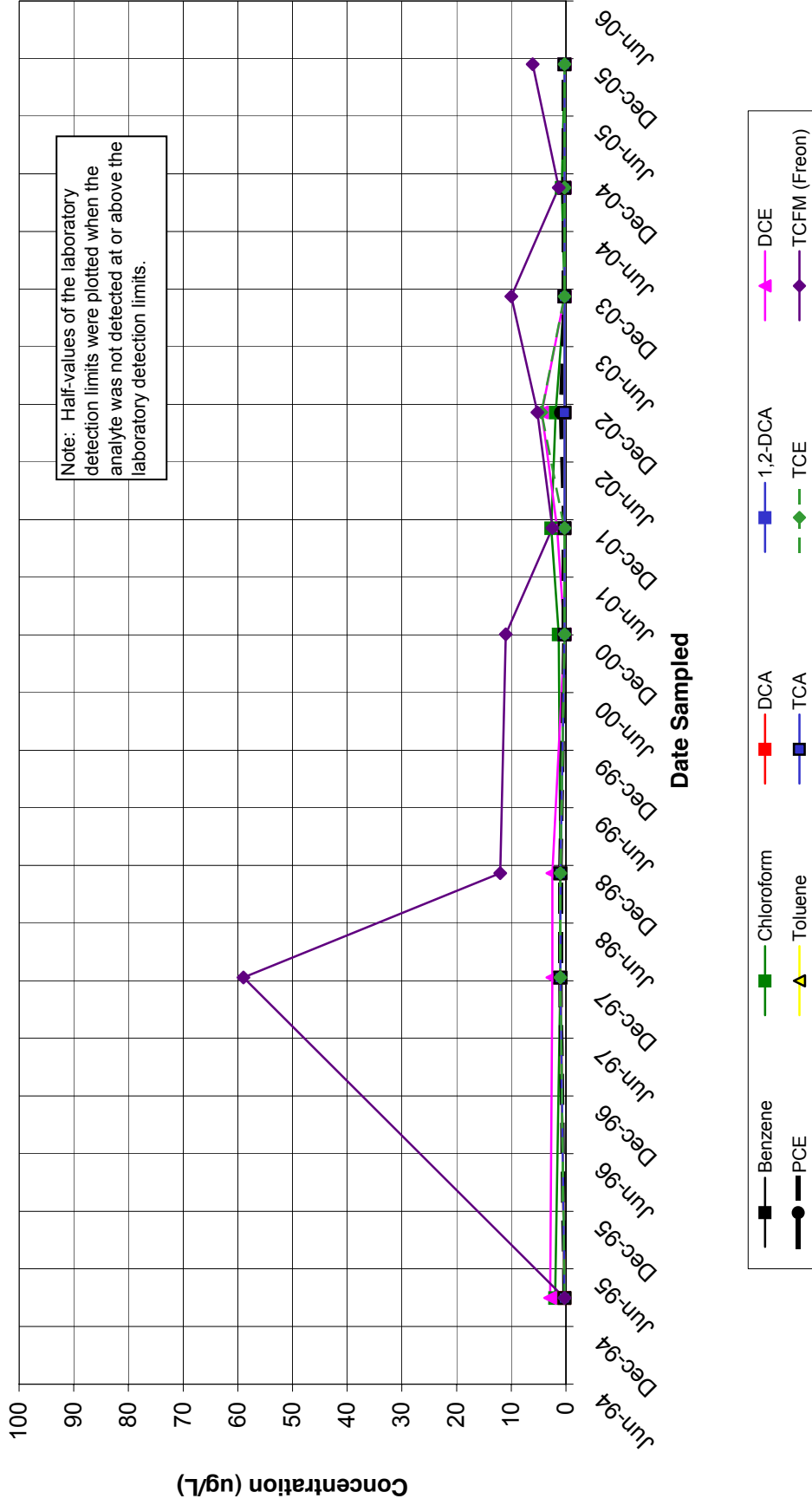
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 20A: Volatile Organic Compounds vs. Time
Monitoring Well CM-17
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



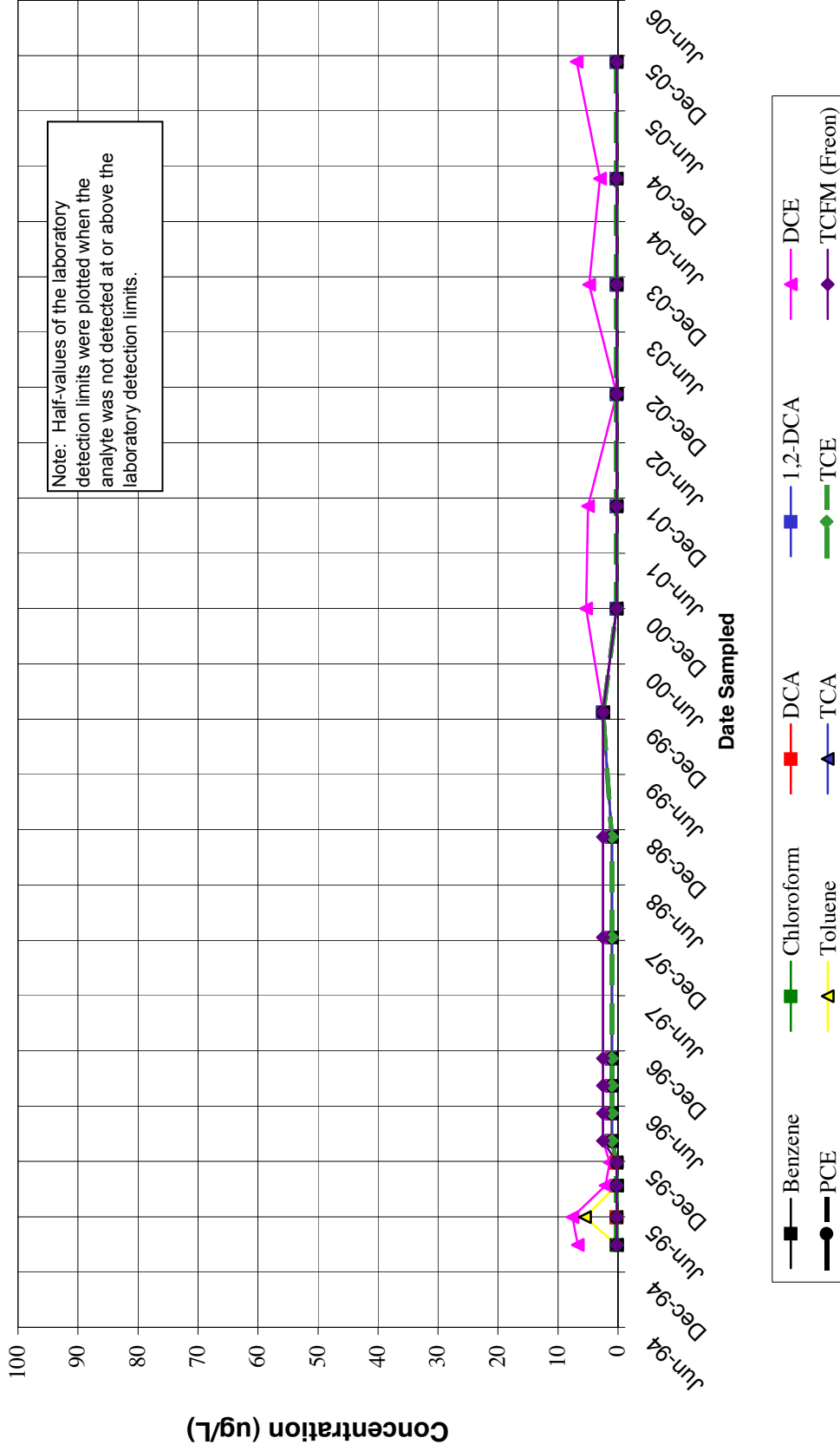
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 21: Volatile Organic Compounds vs. Time
Monitoring Well CM-18
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



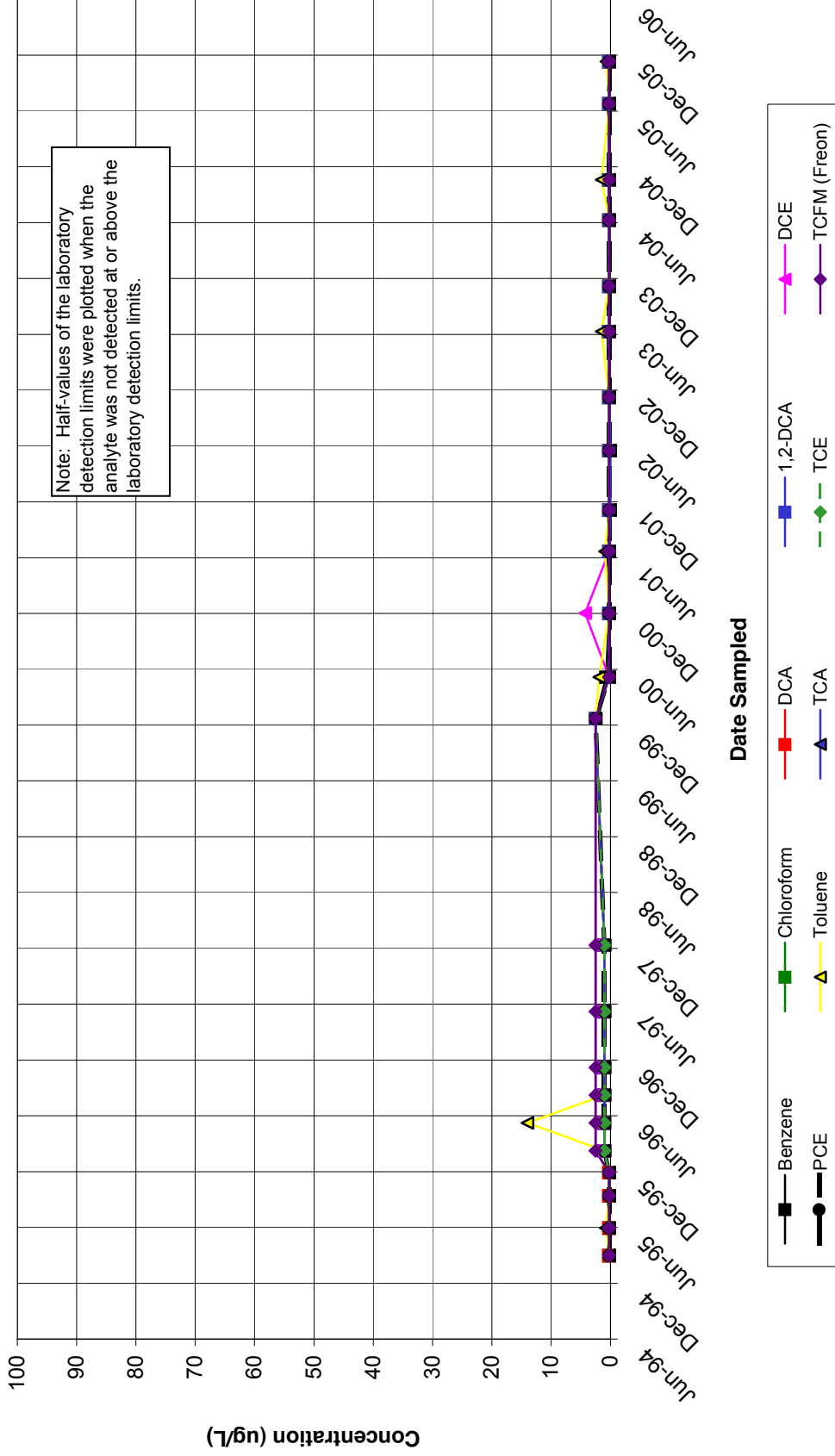
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethane; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 22: Volatile Organic Compounds vs. Time
Monitoring Well CM-19
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

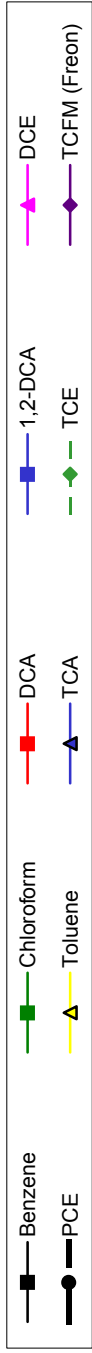
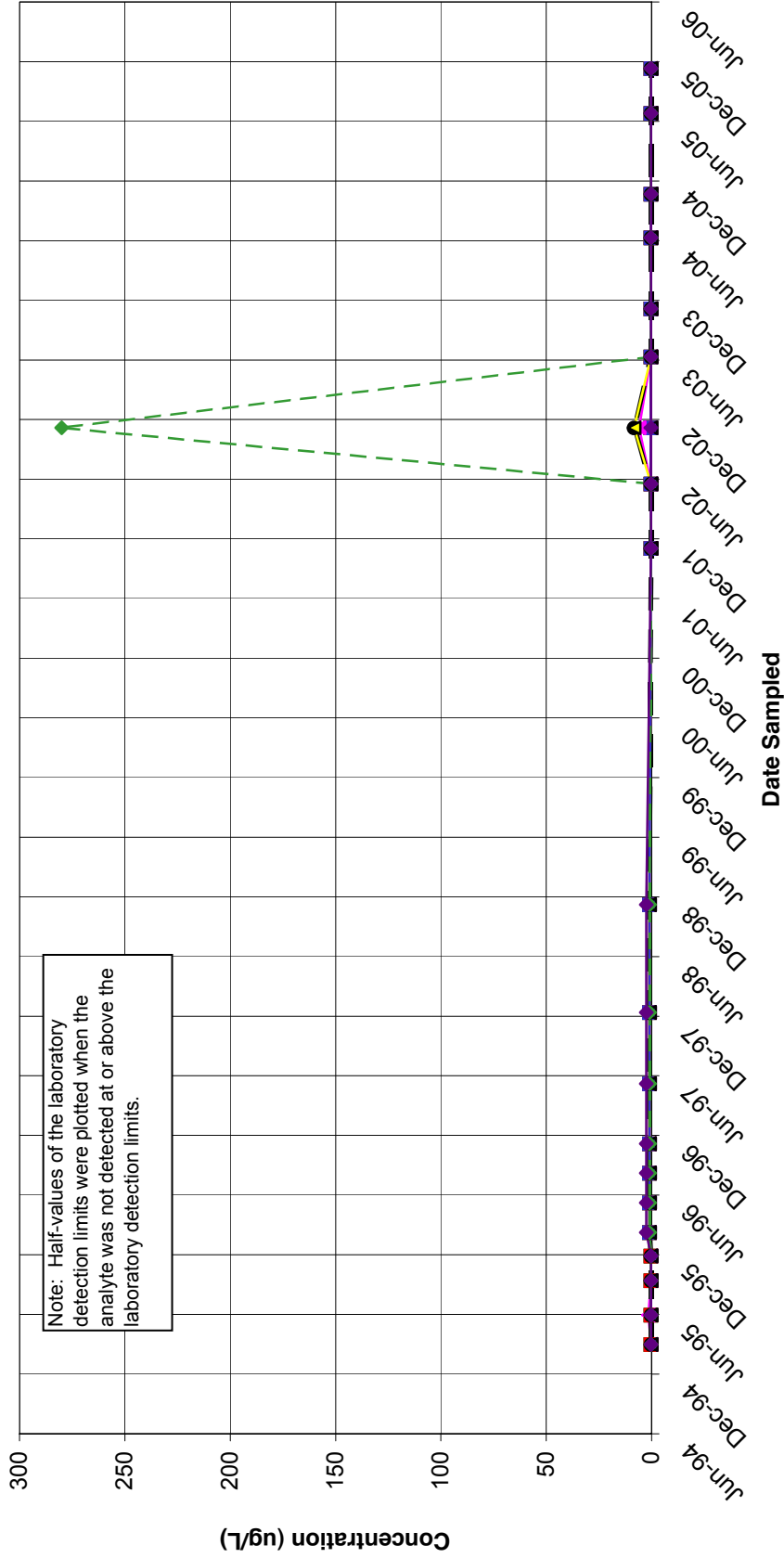
Graph 23: Volatile Organic Compounds vs. Time
Monitoring Well MW-15
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

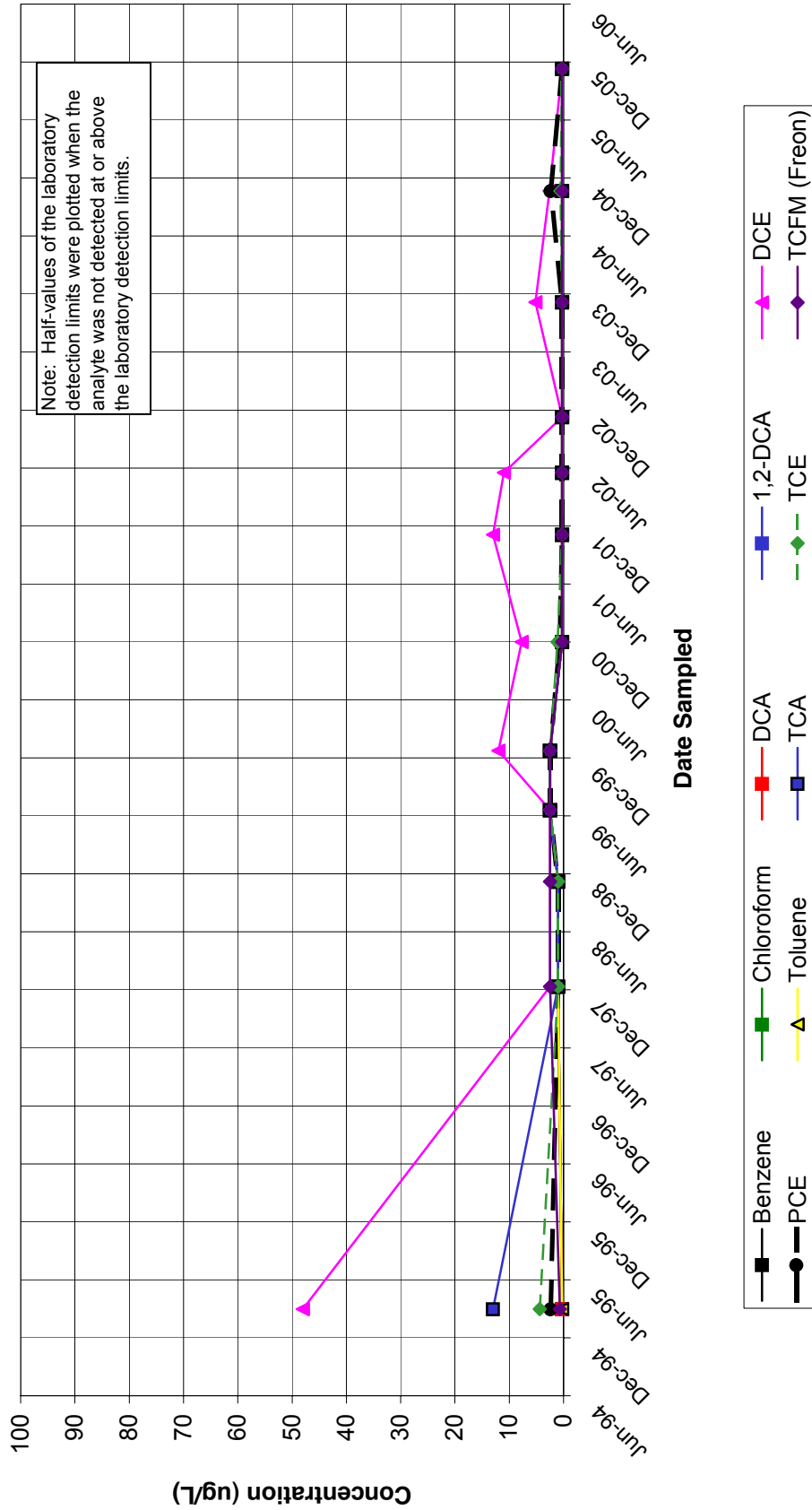
Graph 24: Volatile Organic Compounds vs. Time
Monitoring Well MW-16

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



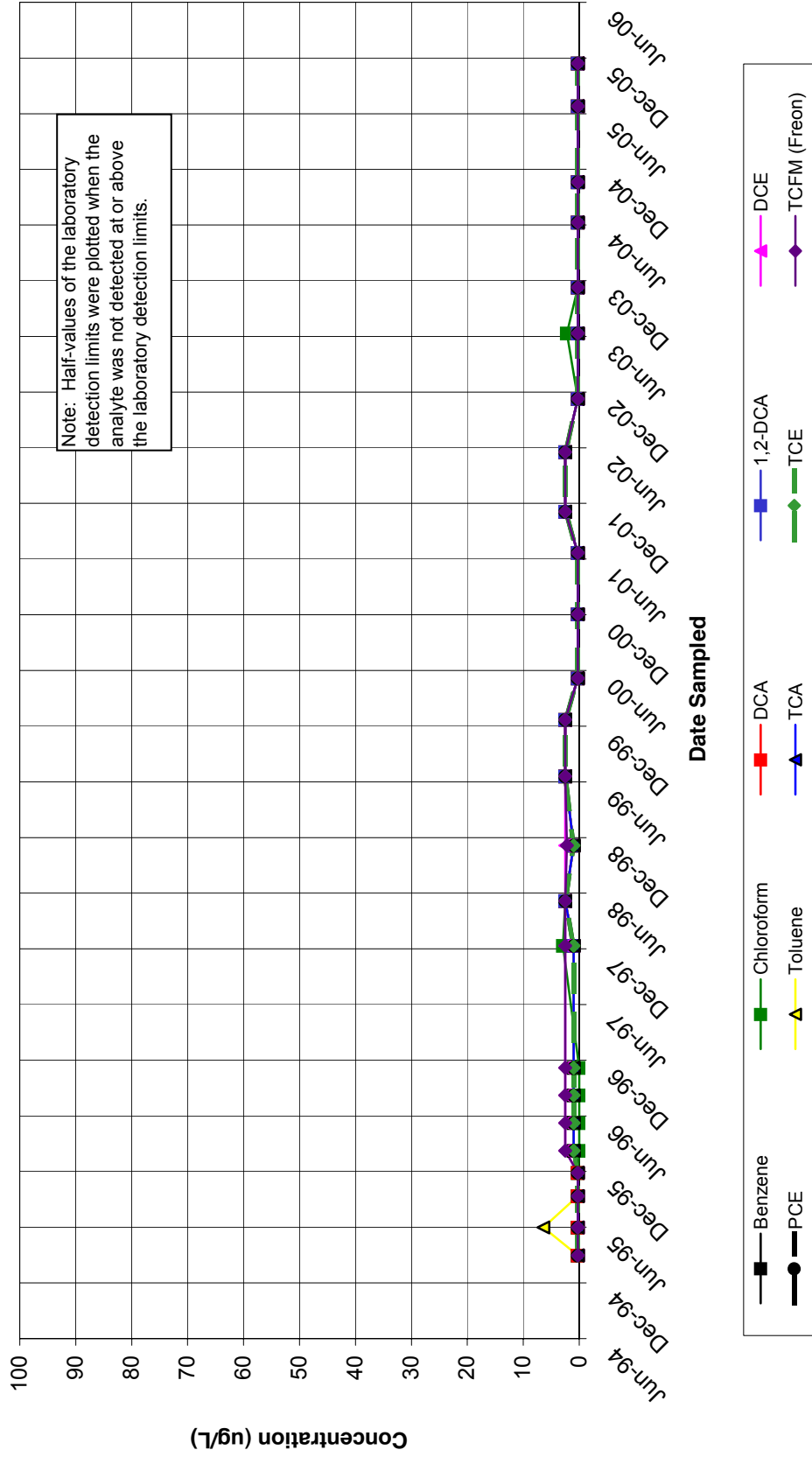
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 25: Volatile Organic Compounds vs. Time
Monitoring Well MW-17
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



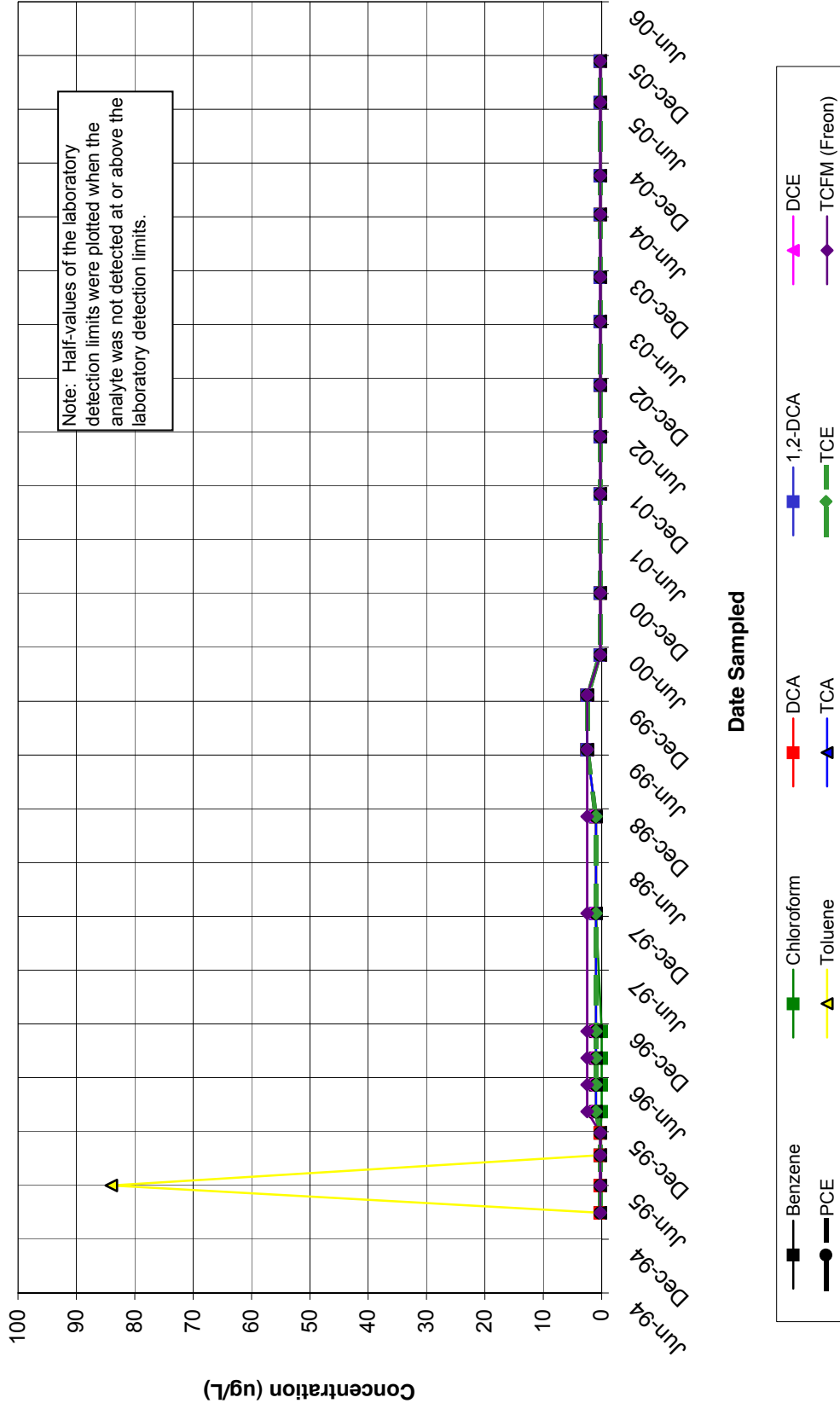
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethane; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethane; TCFM = Trichlorofluoromethane.

Graph 26: Volatile Organic Compounds vs. Time
Monitoring Well MW-19S
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

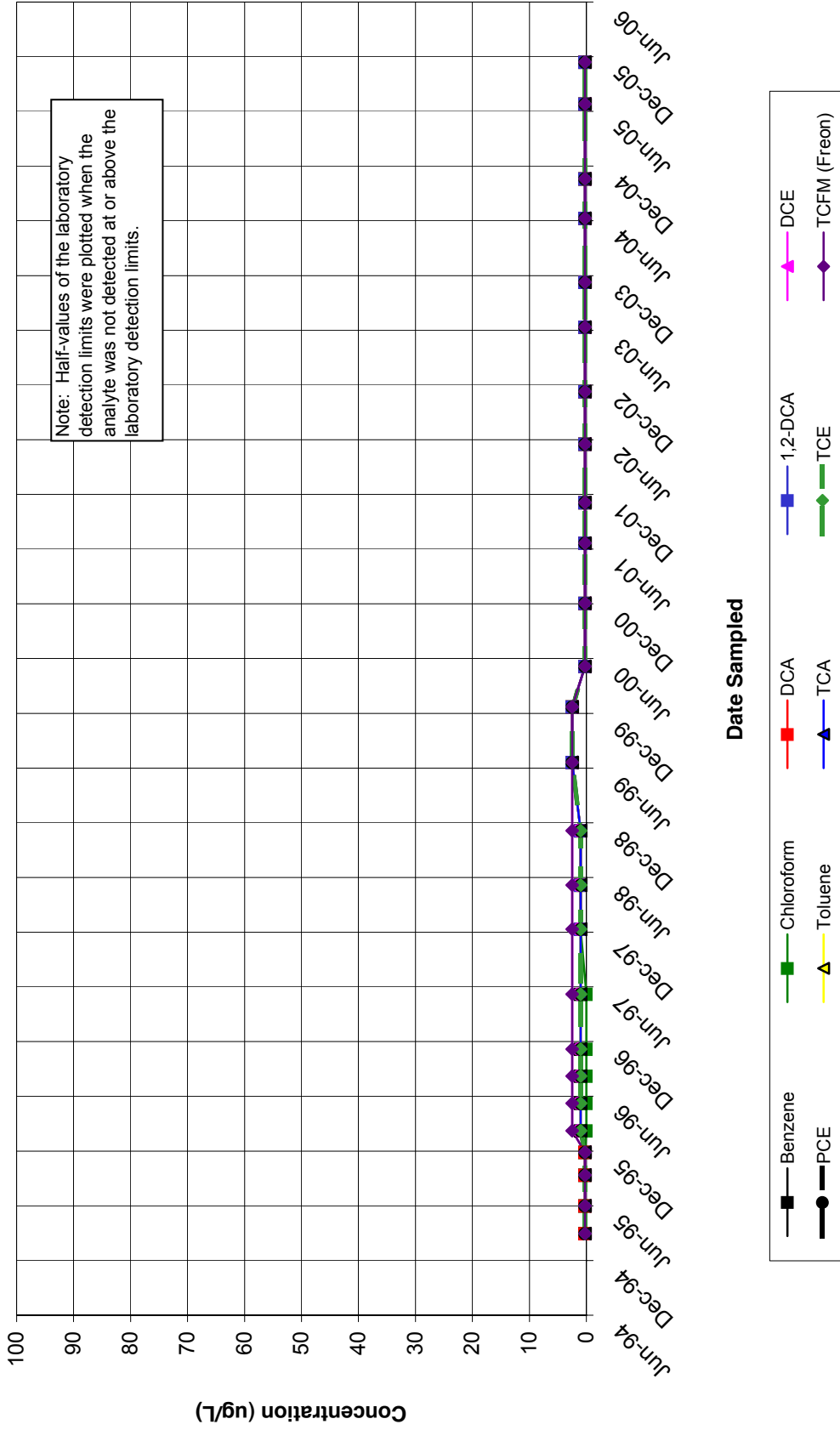
Graph 27: Volatile Organic Compounds vs. Time
Monitoring Well MW-19D
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

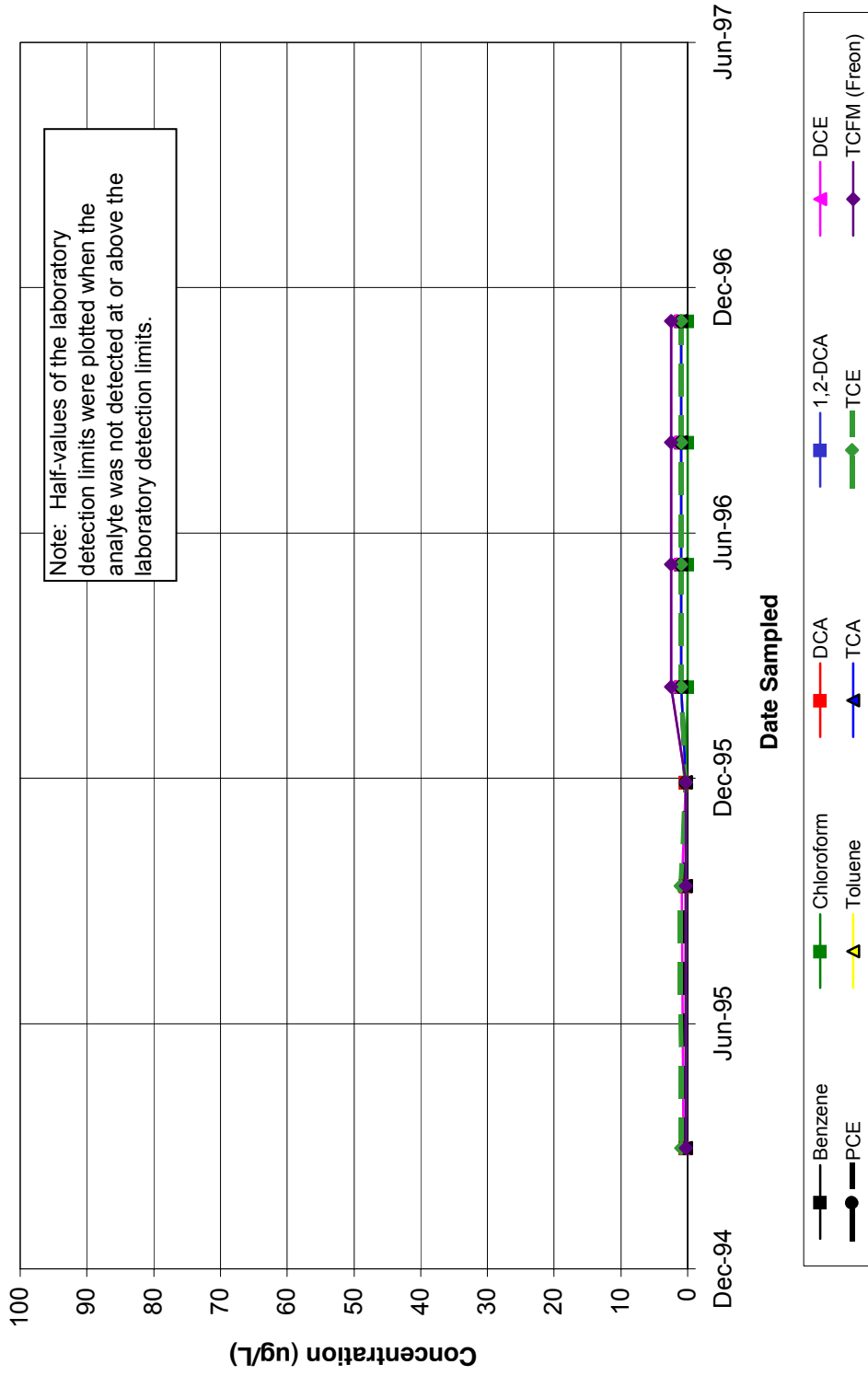
Graph 28: Volatile Organic Compounds vs. Time
Monitoring Well MW-20S

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



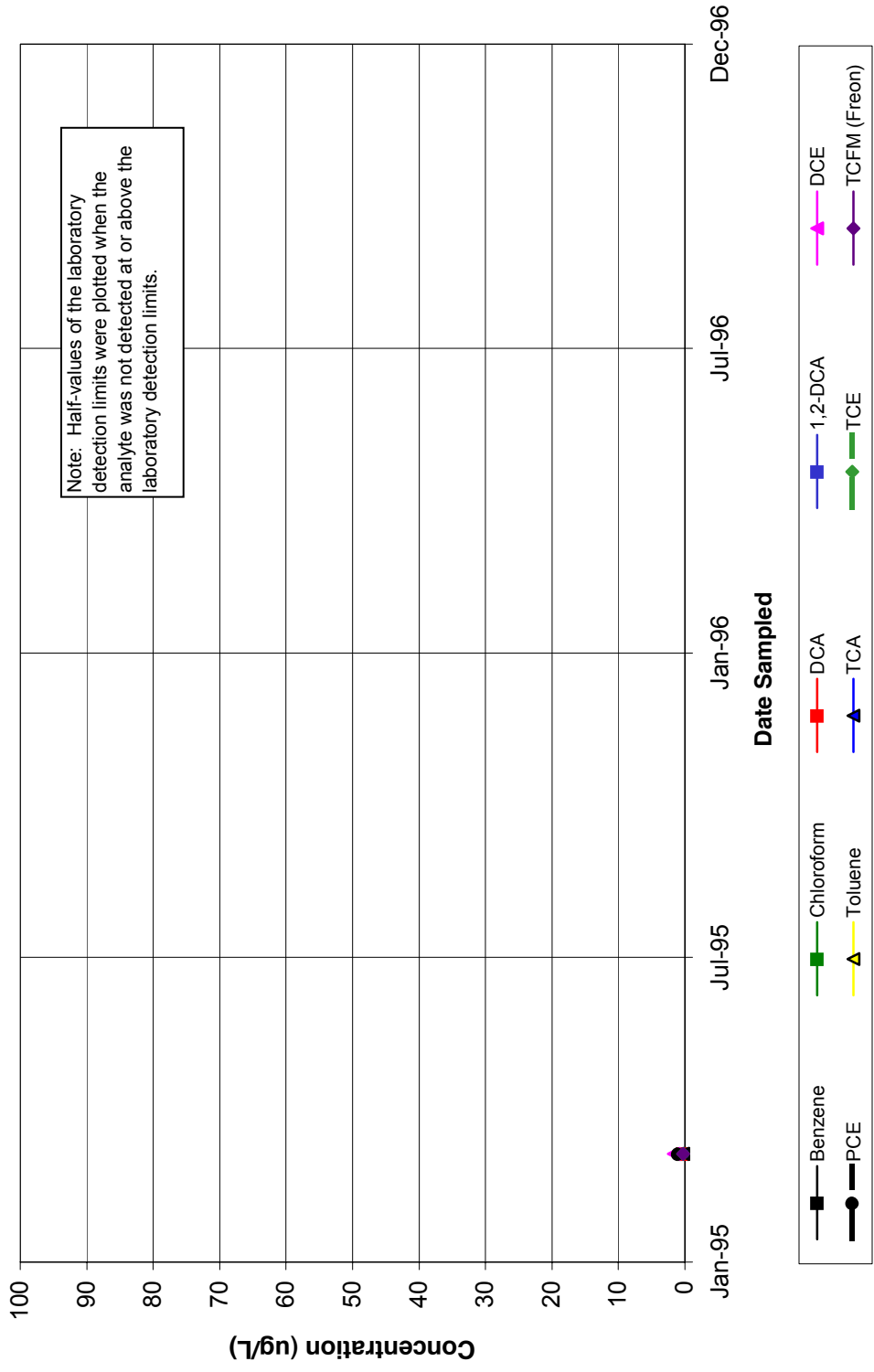
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane;
 TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 29: Volatile Organic Compounds vs. Time
Monitoring Well MW-21S
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



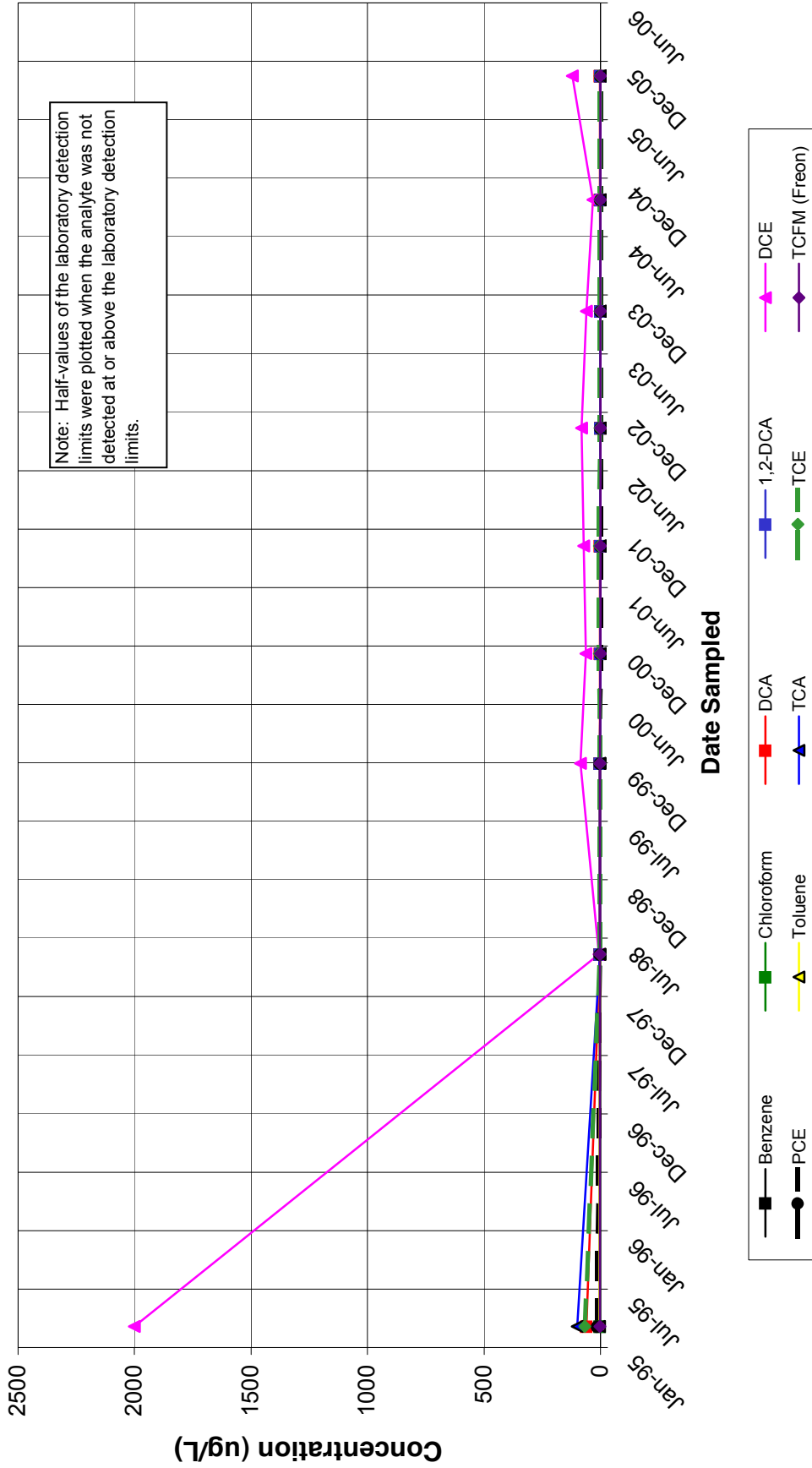
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 30: Volatile Organic Compounds vs. Time
Monitoring Well MW-22S
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



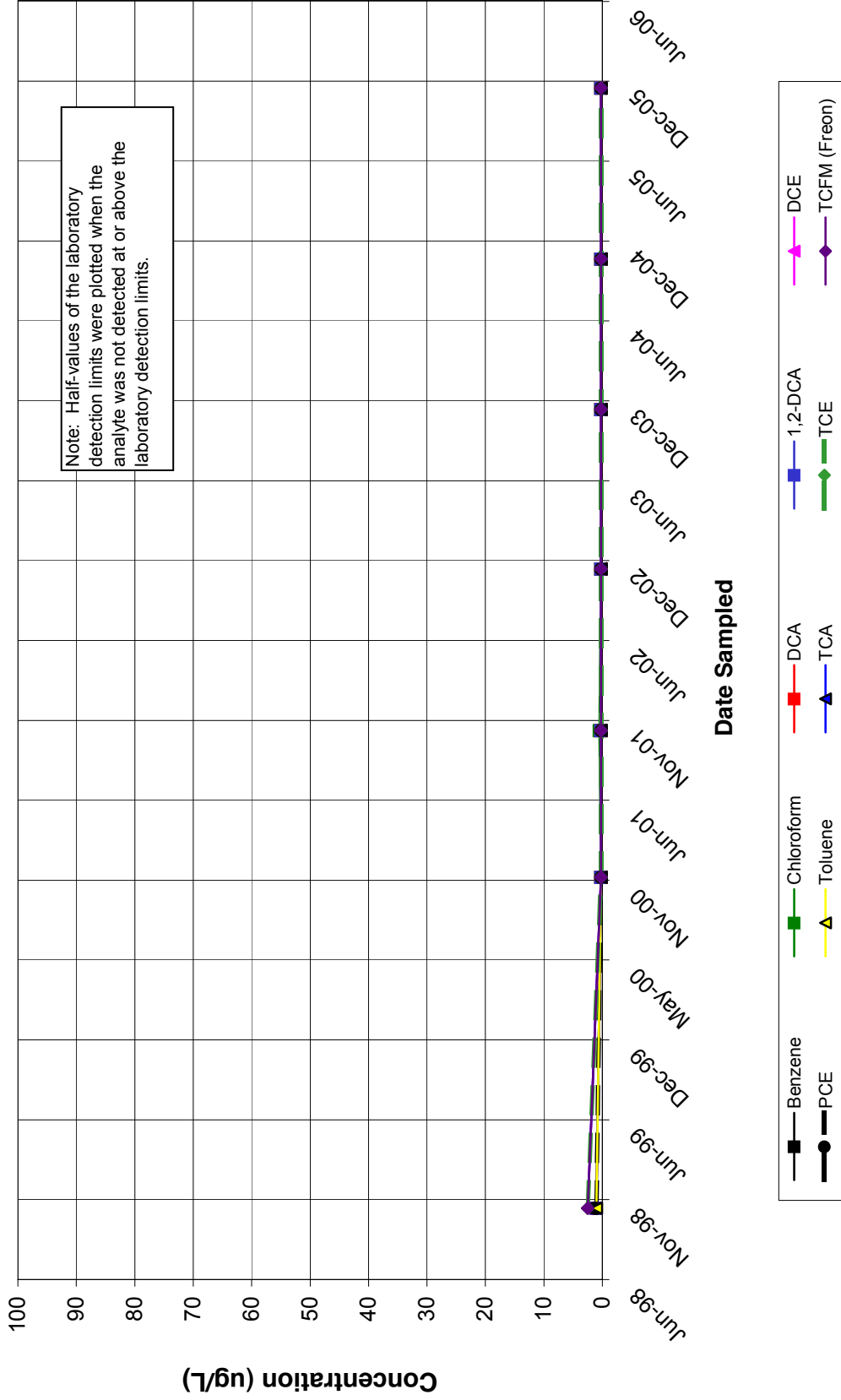
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 31: Volatile Organic Compounds vs. Time
Monitoring Well MW-23
 Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



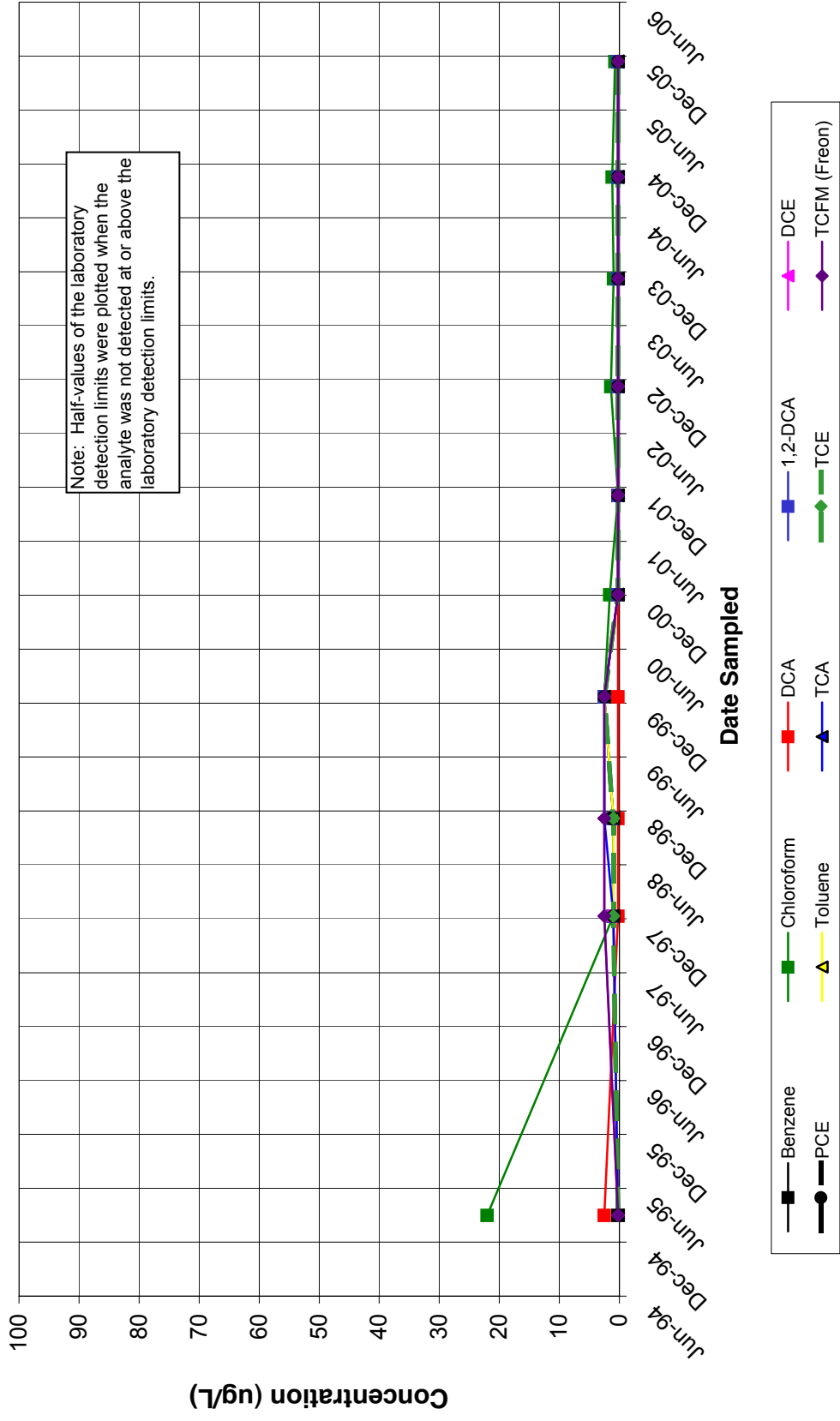
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 32: Volatile Organic Compounds vs. Time
Monitoring Well MW-24
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



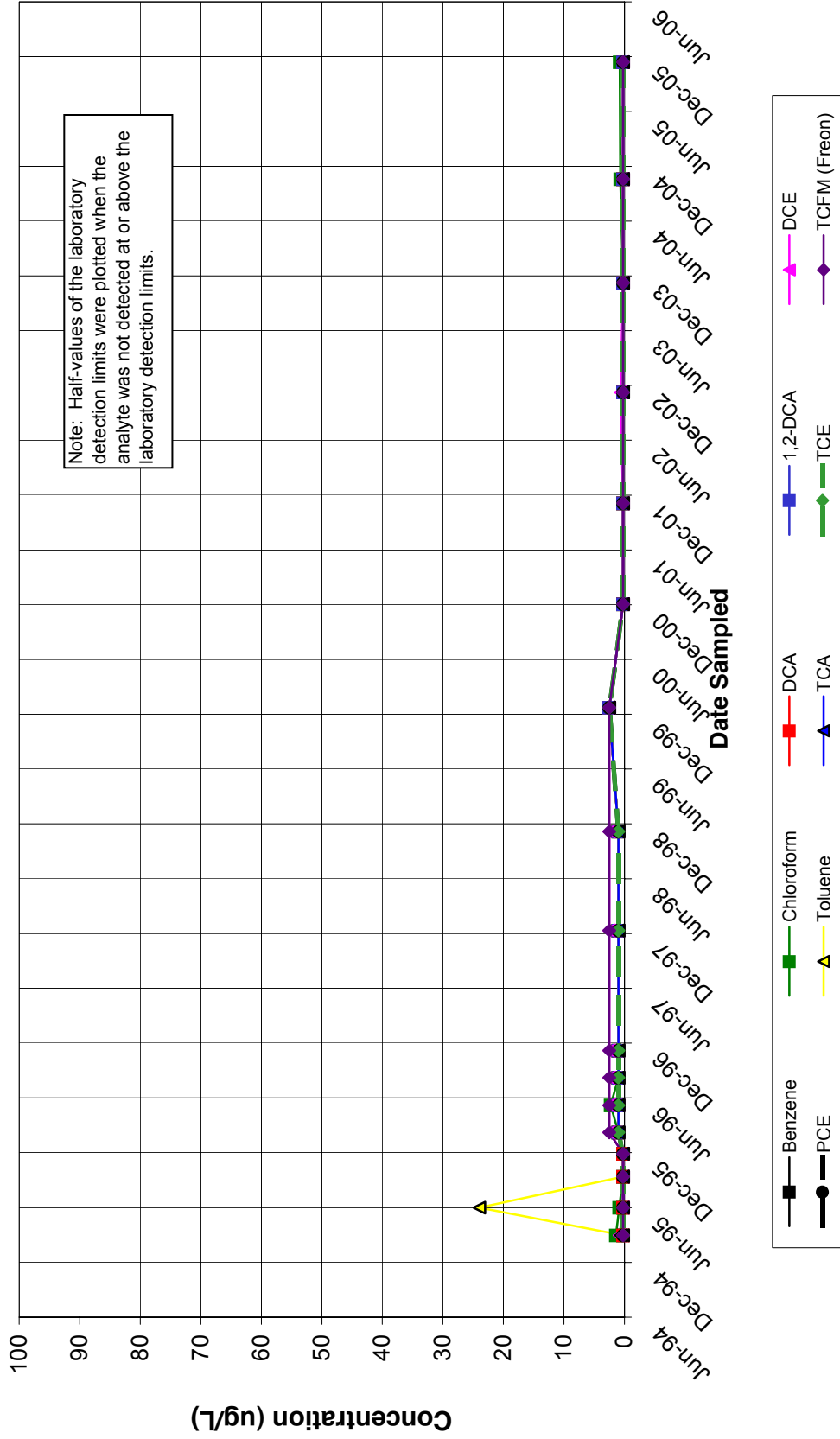
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 33: Volatile Organic Compounds vs. Time
Monitoring Well MW-25
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethane; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethane; TCFM = Trichlorofluoromethane.

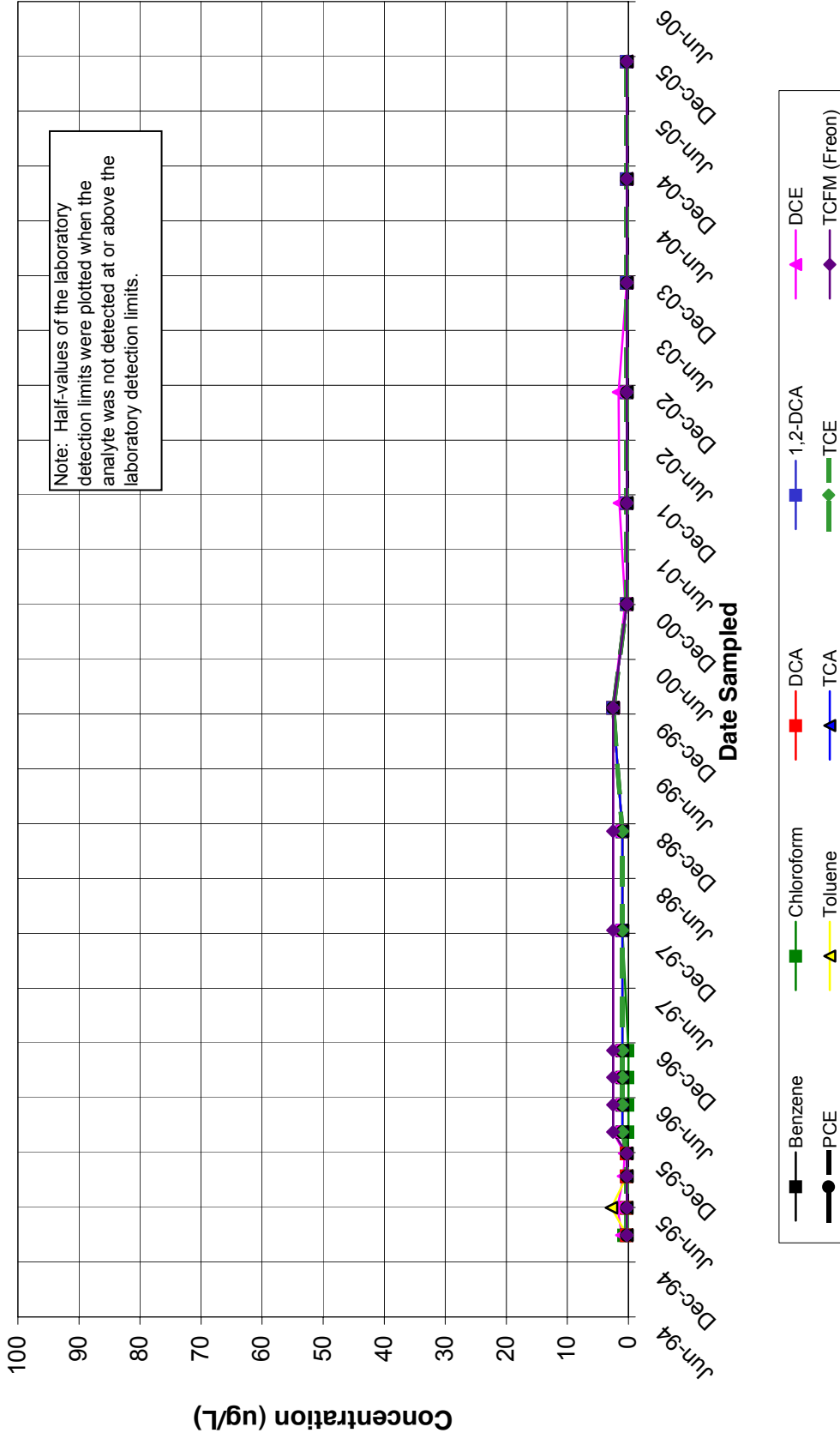
Graph 34: Volatile Organic Compounds vs. Time
Monitoring Well MW-26
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

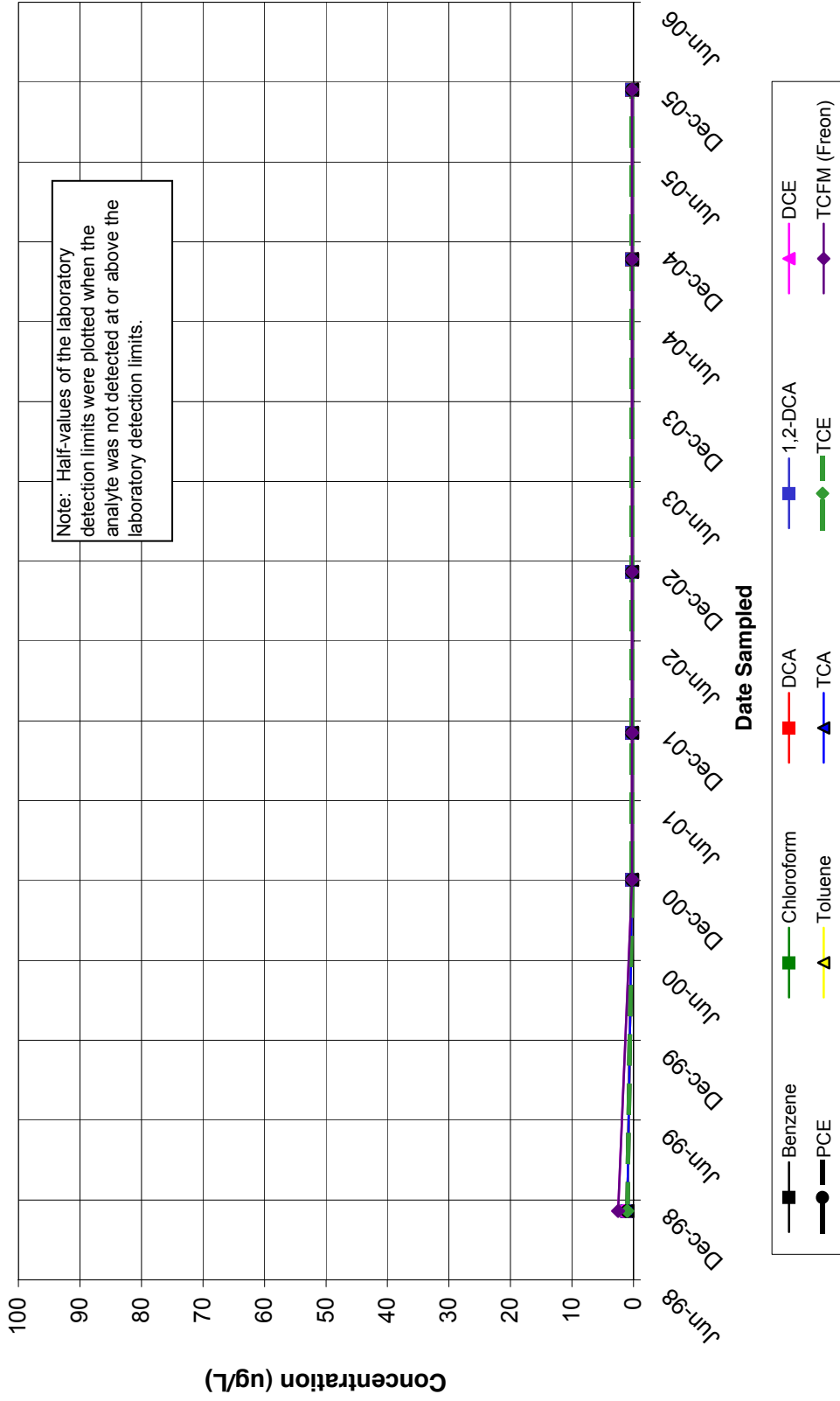
Graph 35: Volatile Organic Compounds vs. Time
Monitoring Well MW-27

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, CA



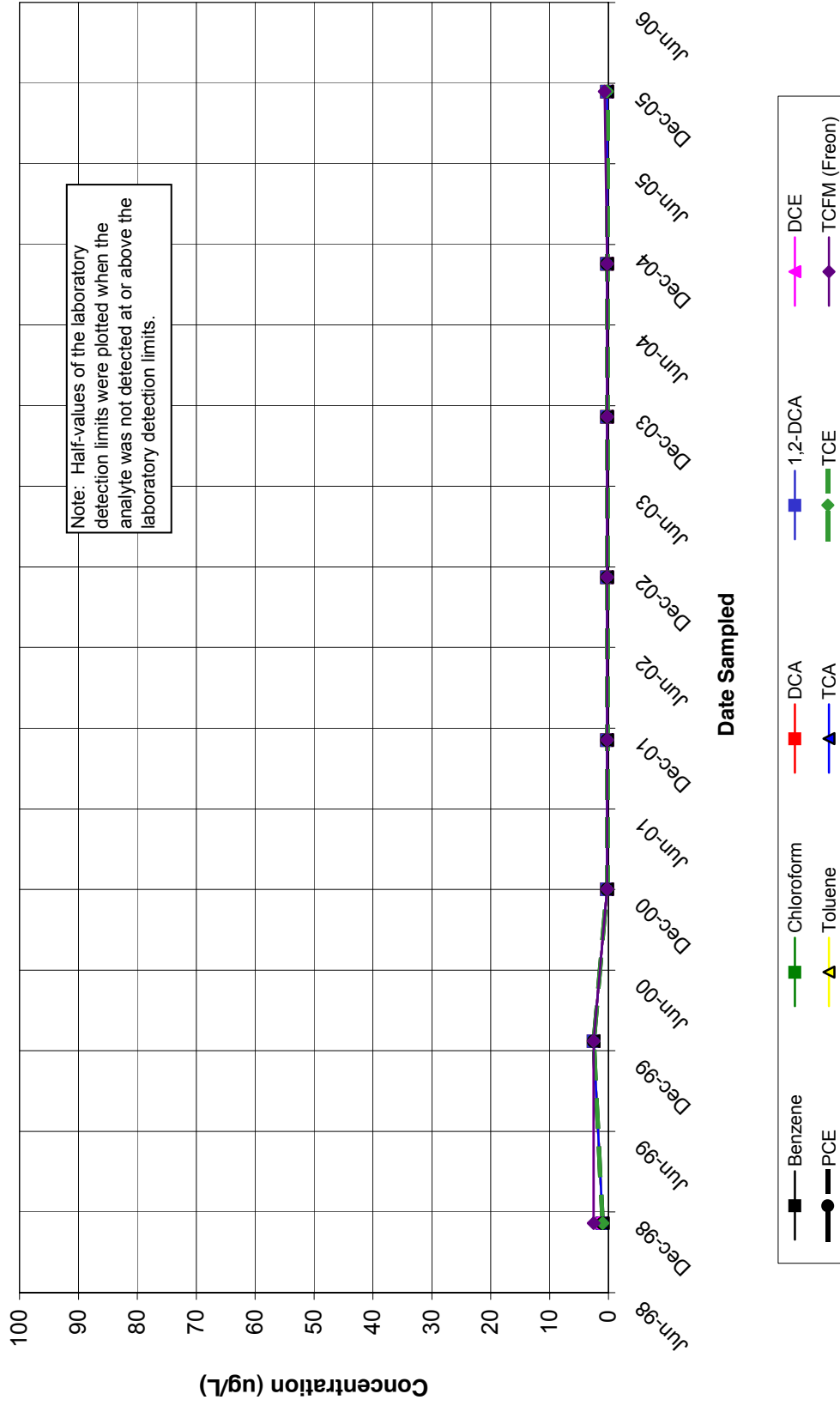
DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 36: Volatile Organic Compounds vs. Time
Monitoring Well MW-28
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, CA



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1,1-Dichloroethane; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethane; TCFM = Trichlorofluoromethane.

Graph 37: Volatile Organic Compounds vs. Time
Monitoring Well MW-29
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, CA

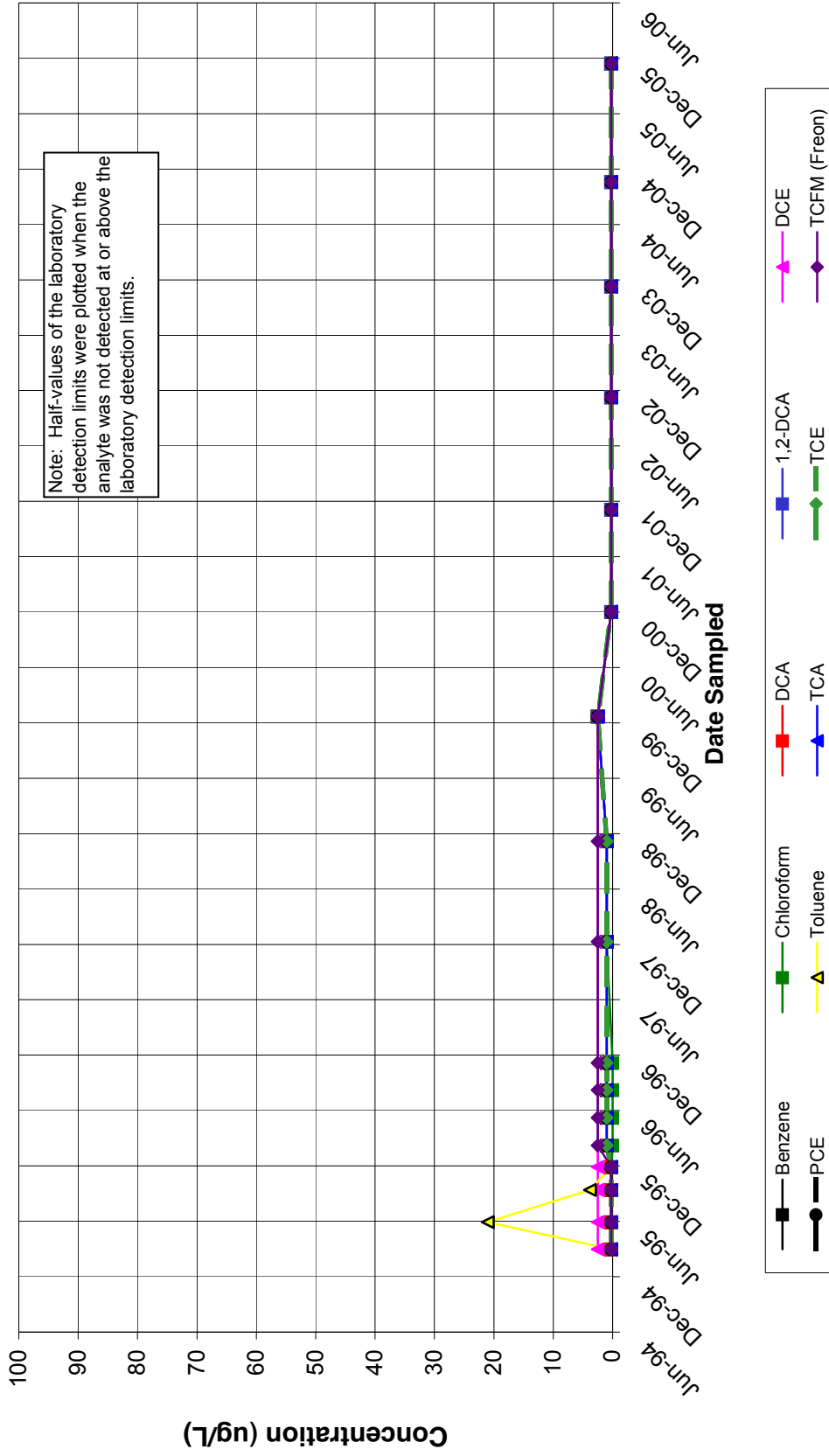


DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 38: Volatile Organic Compounds vs. Time

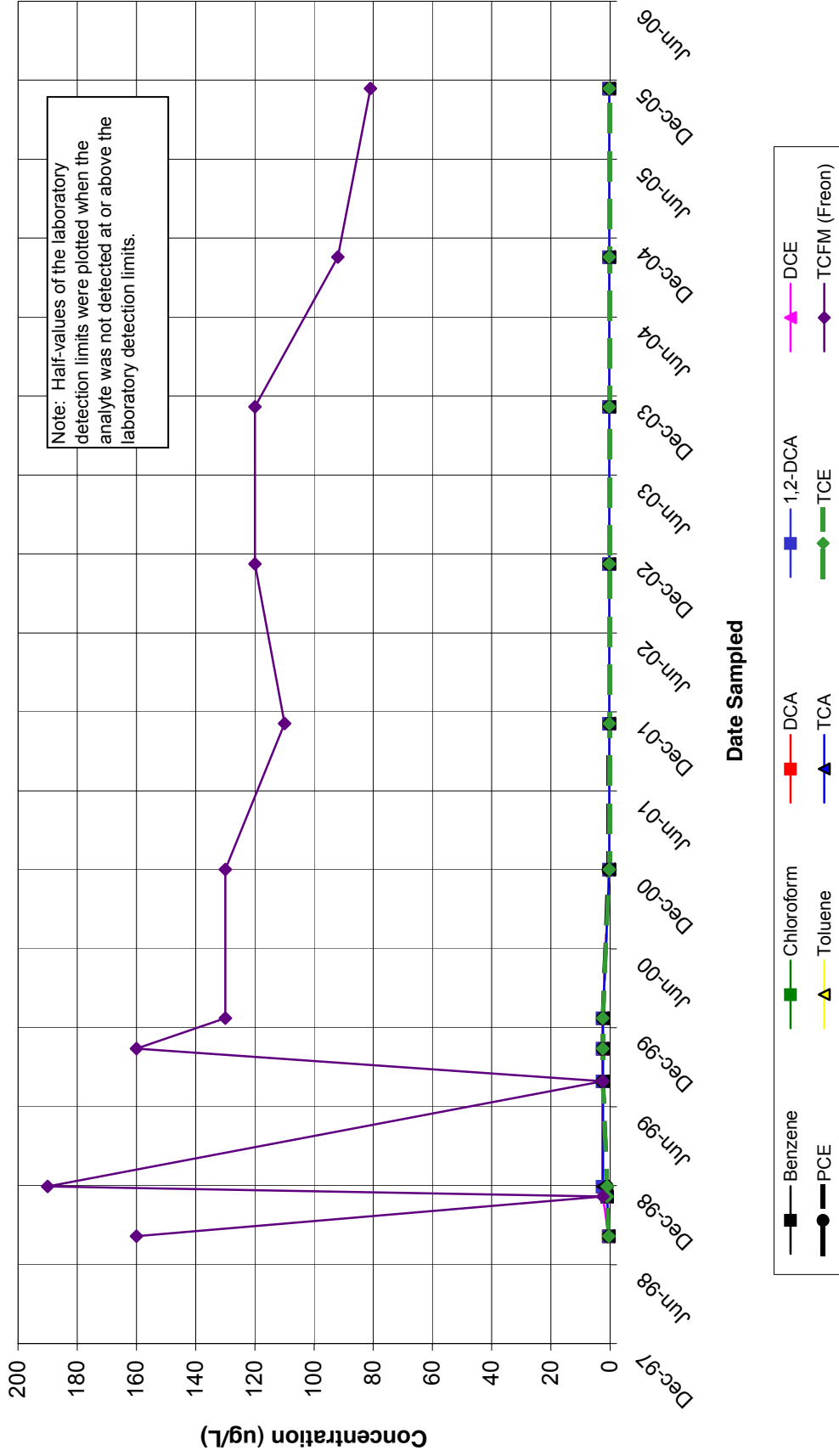
Monitoring Well MW-30

Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, CA



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethane; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Graph 39: Volatile Organic Compounds vs. Time
Monitoring Well MW-31
Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, CA



DCA = 1,1-Dichloroethane; 1,2-DCA = 1,2-Dichloroethane; DCE = 1,1-Dichloroethene; PCE = Tetrachloroethene; TCA = 1,1,1-Trichloroethane; TCE = Trichloroethene; TCFM = Trichlorofluoromethane.

Appendix B

Groundwater Sampling Field Sheets

DEPTH TO WATER DATA (15A 2009 EVENT)

Former Raytheon Facility

8433 Fallbrook Avenue, Canoga Park, CA

Date: 5-26-09

Time: 0700

Technician: BJ

Well ID	Depth to Water (ft)	Depth to Bottom (ft)	Gauging Frequency	Comments
M-1	38.55	? not soil	SA	oil in well, not accurate?
CM-2D	28.91		SA	
CM-4D	37.93		SA	
CM-7D	15.58		SA	
CM-8D	49.88		SA	Tramnel modified well, correct to original TOC
CM-9D	31.36		SA	
CM-10	42.65		SA	
CM-11A	34.77		SA	
CM-12	25.09		SA	
CM-13	26.34		SA	
CM-14	15.62	—	SA	
CM-15	29.33		SA	
CM-16	38.45	42.21	SA	
CM-17	38.45		SA	
CM-18	47.62		SA	
CM-19	61.67	—	SA	
MW-15	25.58		SA	
MW-16	38.18		SA	
MW-17	34.16	—	SA	
MW-19S	18.41		SA	
MW-19D	8.39		SA	
MW-20S	15.47		SA	
MW-23	28.41		SA	
MW-24	37.84		SA	
MW-25	51.05		SA	
MW-26	46.39		SA	
MW-27	30.80		SA	
MW-36	31.03		SA	
MW-37	50.47		SA	Tramnel modified well, correct to original TOC

Note: SA=semiannual; A=annual; NS=not sampled

$$Rw-1 = 19.80$$

$$Rw-11 = 24.51$$

$$Rw-10 = 21.79$$

MONITORING WELL SURGE/SAMPLE LOG

Well Inspection Checklist:

Well Identification	<input checked="" type="checkbox"/>	Good	<input type="checkbox"/>	Bad
Vault Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vault Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bolts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vault Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concrete Completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well Lock/Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Well Number: CM-10 Date: 5-26-09 Project No: 2009025
 Location: Rapahannock Cenoga
 A. Depth to water: 42.65 feet
 B. Total depth of well: _____ feet
 C. Standing water in casing: _____ feet
 D. PID: _____ ppm
 Screened Interval: _____ to _____ ft bgs
 Sampler: JC Other: _____

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, Sum or µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L)	ORP (+/- mV)	Inlet Timer	Discharge Timer	Pressure:
											sec	sec	psi
'			7.73	368	17.3	2.33	22.4	.2	2.4	+190			
'			7.73	369	16.7	2.26		.2	2.5	+189			
'			7.73	370	16.1	2.25		.2	2.5	+189			
'			7.72	369	15.9	2.25		.2	2.5	+189			
4' gals	WFC: filtered @ 30	8:30											
'	WFC: filtered @ 45	8:45											
'													
'													
'													
'													
Stabilization Readings													

Water Meter Used:

U-22-TN-01	<input type="checkbox"/>
U-22-TN-02	<input checked="" type="checkbox"/>
U-10	<input type="checkbox"/>
Other:	_____

Purging Device: Dedicated Bladder Pump (GED P1150) Other 2x 1/2" x 1/2" N Pump inlet depth: 48 ft
 Sampling Device: Dedicated Bladder Pump (GED P1150) Other S.O.M.C. Sample depth: 48 ft
 QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample
 QA/QC Sample ID: _____
 Date/Time of QC Sample: _____ Sample ID: _____
 Additional Comments: _____

MONITORING WELL SURGE/SAMPLE LOG

Well Inspection Checklist:

Well Identification	Good <input checked="" type="checkbox"/>	Bad <input type="checkbox"/>
Vault Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bolts	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Concrete Completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Well Lock/Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Well Number: CM-17 Date: 5-26-09 Project No: 2009025
 Location: Raytheon Canoga
 A. Depth to water: 38.45 feet
 B. Total depth of well: _____ feet
 C. Standing water in casing: _____ feet
 D. PID: _____ ppm
 Screened interval: _____ to _____ ft bgs
 Sampler: (BJ) JC Other: Dupe ←

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, 5 for µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L or µg/L)	ORP (+/- mV)	Inlet Timer	Discharge Timer	Pressure:
											sec	sec	psi
'			7.94	332	24.3	1.87	21.6	1.3	2.1	+3.5			
'			7.94	332	23.5	1.86		1.3	2.1	+3.3			
'			7.94	332	23.0	1.84		1.2	2.1	+3.1			
4' gals	unfiltered filtered 0.945	0930 0945	7.93	332	22.7	1.85		1.2	2.1	+3.1			
'													
'													
'													
'													
Stabilization Readings													

Purging Device: Dedicated Bladder Pump (QED P1150) Other: 12V motor Pump inlet depth: 67 ft
 Sampling Device: Seal Sample depth: 67 ft
 QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample
 QA/QC Sample ID: 10:00 unfiltered CP-0905025
10:15 filtered CP-0905026
 Date/Time of QC Sample: 5-26-09

Water Meter Used:
 U-22-TN-01
 U-22-TN-02
 U-10
 Other: _____

Additional Comments: _____

MONITORING WELL PURGE/SAMPLE LOG

Well Inspection Checklist	
Good	Bad
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Well Number: CM-18 Date: 5-27-09 Project No: 2009025
 A. Depth to water 47.62 feet Location: Ryftson Canyon
 B. Total depth of well _____ feet
 C. Standing water in casing _____ feet
 D. PID _____ ppm Sampler: BJ JC Other: _____
 Screened Interval _____ to _____ ft bgs

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, 5m or µS/cm)	Inlet Timer sec	Discharge Timer sec	Temp (°C)	Salinity (%)	TDS (mg/L or g/L)	ORP (+/- mV)	psi	Stabilization Readings
1			8.01	1251			21.4	.1	1.6	+23		
1			7.99	1250			3.03	.1	1.6	+25		
3.5 gals	in filter	12:30	7.95	1250			3.01	.1	1.6	+26		
1	filter	12:45	7.94	1250			3.00	.1	1.6	+26		
1												
1												
1												
1												

Purging Device: Dedicated Bladder Pump (QED P1150) Other: 2V Monsoon Pump inlet depth: 66 ft
 Sampling Device: Dedicated Bladder Pump (QED P1150) Other: _____ Sample depth: 66 ft
 QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample
 QA/QC Sample ID: _____
 Date/Time of QC Sample: _____ Sample ID: _____
 Additional Comments: _____

Water Meter Used:	
U-22-TN-01	<input type="checkbox"/>
U-22-TN-02	<input checked="" type="checkbox"/>
U-10	<input type="checkbox"/>
Other:	_____

MONITORING WELLS PURGE/SAMPLE LOG

Well Inspection Checklist

Well Identification Good Bad

Vault Cover

Vault Seal

Bolts

Vault Lock

Concrete Completion

Well Lock/Seal

Well Number: MK-16 Date: 5-27-09 Project No: 2609025

A. Depth to water 26.18 feet Location: RAYBORN CREEK

B. Total depth of well _____ feet Event: _____

C. Standing water in casing _____ feet Sampler: BJ JC Other: _____

D. PID _____ ppm

Screened Interval _____ to _____ ft bgs Dupe

Gallons/ total purged volume (gal)	OTW (ft below casing)	Time	pH	Conduct. (mS/cm, S/cm or µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L or g/L)	ORP (+/- mV)	Inlet Timer	Discharge Timer	Pressure:
											sec	sec	psi
'			7.96	.196	10.1	1.23	21.9	.1	1.3	-365			
'			7.97	.198	8.7	1.22		.1	1.3	-365			
'			7.97	.198	8.6	1.21		.1	1.3	-366			
4	unfiltered	0800	7.97	.198	8.2	1.21		.1	1.3	-366			
'	Filter	0815											
'													
'													
'													
Stabilization Readings													

Dedicated Bladder Pump (GED P1150)

Pump inlet depth: 108 ft

Sample depth: 108 ft

Purging Device: 12V motor Other: _____

Sampling Device: 50 ml Other: _____

QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample

QA/QC Sample ID: 0830 unfiltered CP-0905023

Date/Time of QC Sample: 5-27-09 0845 Sample filtered CP-0905024

Additional Comments: _____

Water Meter Used:

U-22-TN-01

U-22-TN-02

U-10

Other: _____

MONITORING WELL SURGE/SAMPLE LOG

Well Inspection Checklist:

Well Identification	Good	Bad
Vault Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bolts	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Concrete Completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Well Lock/Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Well Number: ML19S Date: 5-26-09 Project No: 2009025
 Location: RAYFIELD CANOGA
 A. Depth to water: 18.4 feet
 B. Total depth of well: _____ feet
 C. Standing water in casing: _____ feet
 D. PID: _____ ppm
 Screened Interval: _____ to _____ ft bgs
 Sampler: BJ JC Other: _____

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, 500 or µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L) or (µM)	ORP (+/- mV)	Inlet Timer		Discharge Timer		Pressure: psi	
											sec	sec	sec	sec		
'		7:54	7.84	203	62.6	2.87	18.4	.1	1.3	-163						
'		7:52	7.82	199	56.9	2.41		.1	1.3	-163						
2.25 gals	unsifted	11:45	7.81	199	55.7	2.39		.1	1.3	-164						
'	filtered	12:00	7.81	199	55.4	2.38		.1	1.3	-164						
'																
'																
'																
'																
Stabilization Readings																

Purging Device: Dedicated Bladder Pump (GED P1150)
 Other: 12V Mop Scoop
 Pump inlet depth: 26 ft

Sampling Device: Dedicated Bladder Pump (GED P1150)
 Other: Sq. jar
 Sample depth: 26 ft

QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample
 QA/QC Sample ID: _____

Date/Time of QC Sample: _____ Sample ID: _____

Additional Comments: _____

MONITORING WELL SURGE/SAMPLE LOG

Well Inspection Checklist:

Well Identification	Good	Bad
Vault Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bolts	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Concrete Completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Well Lock/Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Well Number: MM-200A Date: 5-26-09 Project No: 2009025
 A. Depth to water 14.66 feet Location: Rutherford Canyon
 B. Total depth of well _____ feet Event: _____
 C. Standing water in casing _____ feet Sampler: (BJ) JC Other: _____
 D. PID _____ ppm
 Screened Interval _____ to _____ ft bgs

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, 5 min @ 25°C)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L)	ORP (+/- mV)	Inlet Timer		Discharge Timer		Pressure: psi	
											sec	sec	sec	sec		
'			8.08	1,347	27.4	2.16	20.3	.2	2.2	-369						
'			8.09	1,347	27.2	2.14	↓	.2	2.2	-370						
3' gals	unfiltered	11:00	8.09	1,347	26.8	2.13	↓	.2	2.2	-371						
'	Filtered	11:15		1,347	25.9	2.12	↓	.2	2.2	-371						
'																
'																
'																
'																
Stabilization Readings																

Dedicated Bladder Pump (GED P1150)

Purging Device: Other 12V, VLO, P500A Pump inlet depth: 70 ft

Dedicated Bladder Pump (GED P1150)

Sampling Device: Other Salmon Sample depth: 70 ft

QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample

QA/QC Sample ID: _____

Date/Time of QC Sample: _____

Sample ID: _____

Additional Comments: _____

Water Meter Used:
 U-22-TN-01
 U-22-TN-02
 U-10
 Other: _____

MONITORING WELL PURGE/SAMPLE LOG

Well Inspection Checklist:	
Good	Bad
Well Identification	<input checked="" type="checkbox"/>
Vault Cover	<input checked="" type="checkbox"/>
Vault Seal	<input checked="" type="checkbox"/>
Bolts	<input checked="" type="checkbox"/>
Vault Lock	<input checked="" type="checkbox"/>
Concrete Completion	<input checked="" type="checkbox"/>
Well Lock/Seal	<input checked="" type="checkbox"/>

Well Number: MW-2/S Date: 5-26-09 Project No: 2009025
 Location: Roughon Canyon
 A. Depth to water 11.36 feet
 B. Total depth of well _____ feet
 C. Standing water in casing _____ feet
 D. PID _____ ppm
 Screened Interval _____ to _____ ft bgs
 Sampler: BJ JC Other: _____

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, 5mbar cell)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L or g/L)	ORP (+/- mV)	Inlet Timer	Discharge Timer	Pressure:	
											sec	sec	psi	
'			7.68	1374	54.6	2.68	20.5	.3	2.4	-25				
'	APR Filter		7.72	375	43.5	2.64	↓	.3	2.4	-28				
'	1345		7.75	374	40.1	2.64		.3	2.4	-29				
2.75 gal	Filtered 1400		7.75	374	39.6	2.63		.3	2.4	-29				
'														
'														
'														
'														
Stabilization Readings														

Dedicated Bladder Pump (GED P1150)

Purging Device: Other 2V, MW, 1500 ft Pump inlet depth: 36 ft

Dedicated Bladder Pump (GED P1150)

Sampling Device: Other 2V, 36 ft Sample depth

QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample

QA/QC Sample ID: _____

Date/Time of QC Sample: _____ Sample ID: _____

Additional Comments: _____

Water Meter Used:
 U-22-TN-01
 U-22-TN-02
 U-10
 Other: _____

MONITORING WELL PURGE/SAMPLE LOG

Well Inspection Checklist:

Well Identification	Good	Bad
Vault Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bolts	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vault Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Concrete Completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Well Lock/Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Well Number: MW-21D Date: 5-26-09 Project No: 2009025
 Location: Rythson Canada
 A. Depth to water: 9.37 feet
 B. Total depth of well: _____ feet
 C. Standing water in casing: _____ feet
 D. PID: _____ ppm
 Screened interval: _____ to _____ ft bgs
 Sampler: (BJ) JC Other: _____

Gallons/ total purged volume (gal)	DTW (ft below casing)	Time	pH	Conduct. (mS/cm, 5m or μ S/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	Salinity (%)	TDS (mg/L or μ L)	ORP (+/- mV)	Inlet Timer		Discharge Timer		Pressure: psi	
											sec	sec	sec	sec		
'		7:87	7.87	349	47.9	2.41	21.6	.2	2.1	-370						
'		7:87	7.87	351	46.6	2.32	↓	.2	2.2	-371						
'		7:87	7.87	350	46.3	2.29	↓	.2	2.2	-372						
320' gals	non-filtered	7:44	7.87	350	45.9	2.27	↓	.2	2.2	-372						
'	filtered 1500															
'																
'																
'																
'																
Stabilization Readings																

Dedicated Bladder Pump (CED P1150)

Purging Device: 12V motor driven Pump inlet depth: 75 ft

Sampling Device: Submersible Sample depth: 75 ft

QA/QC Sample Collected Here? Duplicate Matrix Spike Equip. Blank No QA/QC Sample

QA/QC Sample ID: _____

Date/Time of QC Sample: _____ Sample ID: _____

Additional Comments: water black/silty. Did not clean up.

Water Meter Used:

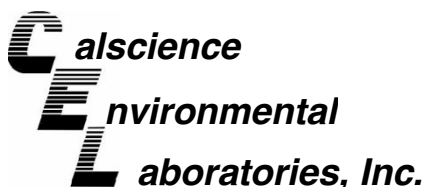
U-22-TN-01

U-22-TN-02

U-10

Other: _____

Appendix C
Laboratory Reports



June 02, 2009

Ewelina Mutkowska
OTIE
317 East Main Street
Ventura, CA 93001-2624

Subject: **CalScience Work Order No.: 09-05-2222**
Client Reference: Former Raytheon Site, Canaga Park / 2009025

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/26/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard CalScience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, reading 'Virendra R. Patel', enclosed in a hand-drawn oval.

CalScience Environmental
Laboratories, Inc.
Virendra Patel
Project Manager