

# **Final Quality Assurance Report**

**Naval Air Station  
Moffett Field, California**

**K/J/C 866078.05  
December 1989**

**Kennedy/Jenks/Chilton**

# Kennedy/Jenks/Chilton

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29 December 1989

Ms. Kathy Nakazawa  
Western Division Naval Facilities  
Engineering Command (Code 1142)  
P.O. Box 727  
San Bruno, CA 94066

Subject: Final Quality Assurance Report  
Potential Conduits Study, NAS Moffett Field  
(K/J/C 866078.05-G-96)

Dear Ms. Nakazawa:

Attached is the Final Quality Assurance Report for the Potential Conduits Study conducted at NAS Moffett Field. This report is being submitted in accordance with Delivery Order 0005 dated 3 June 1987. Based on comments from Martin Marietta Energy Systems (in a letter to WESTDIV NAVFACENCOM dated 14 November 1989) and a telephone conversation with you on 12 December 1989, we understand that the draft Final Quality Assurance Report submitted on 7 June 1989 is acceptable without significant revision.

If you have any questions regarding this report, please call us.

Very truly yours,

KENNEDY/JENKS/CHILTON, INC.



Peter M. Mesard  
Project Manager



Michael T. Poulsen  
Project Quality Assurance Coordinator

PMM/MTP:scd91R

Attachment

cc: Nile Luedtke, Martin Marietta Energy Systems  
Steve Eikenberry, NEESA  
Ted Zagrobelny, COMNAVFACENCOM

FINAL QUALITY ASSURANCE REPORT  
FOR  
NAVAL AIR STATION MOFFETT FIELD  
POTENTIAL CONDUITS STUDY

(K/J/C 866078.05-G-96)

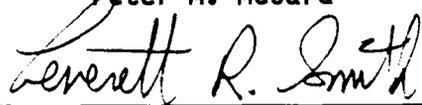
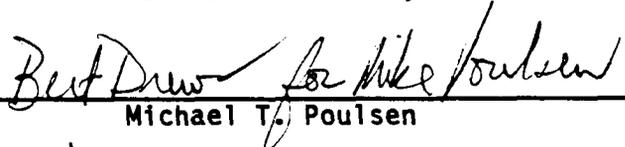
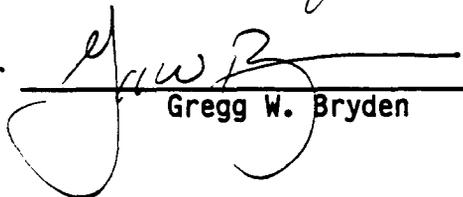
Project Manager	 Peter M. Mesard	<u>12/27/89</u> Date
Manager, Laboratory Division	 Leverett R. Smith, Ph.D.	<u>12/27/89</u> Date
Project Quality Assurance Coordinator	 Michael T. Poulsen	<u>Dec. 12, 1989</u> Date
Laboratory Quality Assurance Coordinator	 Gregg W. Bryden	<u>12/27/89</u> Date

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EXECUTIVE SUMMARY

This report presents an evaluation of the quality assurance (QA) results for quarterly sampling by Kennedy/Jenks/Chilton (K/J/C) of four active wells at NAS Moffett Field, California. Sampling occurred from August 1987 to May 1988. Minor QA problems that were noted in QA Progress Reports are discussed in an evaluation of the QA performance on this project. It was decided that none of the problems affected interpretation of the analytical results. Changes in the scope and schedule of activities on this project are discussed as they relate to submittal of QA reports.

INTRODUCTION

As part of the Potential Conduits Study (Delivery Order 0003 dated 7 May 1988), four active wells on or near NAS Moffett Field were sampled on a quarterly basis for one year beginning in August 1987 and ending in May 1988. This study was originally planned as a minor addition to a much larger work-plan for the Characterization Step of the Confirmation Study (Sampling Plan and Appendices dated 30 June 1987 and Addenda 1 through 3 dated 3 September 1987) under the former Navy Assessment and Control of Installation Pollutants (NACIP) program. Due to a change in contracting mechanisms, K/J/C's involvement in the project was significantly reduced in October 1987.

A quality assurance (QA) program was implemented to document the quality of data generated during the investigation. QA progress reports were submitted to the Navy for each sampling round as shown in Table 1. Copies of QA progress reports were also provided to Martin Marietta, the contract representative for the Navy Energy and Environmental Support Activity (NEESA). Because it was anticipated that additional sampling at the site was possible after the last sampling of the active wells, submittal of this final QA report was postponed. However, it was agreed in a telephone conversation with the Navy on 25 April 1989 that additional sampling by K/J/C would not be required at the site.

Included in this report are a description of the QA plan and associated changes, a summary of the QA performance and trends, and an inventory of where the QA data are archived.

QUALITY ASSURANCE PLAN

The QA plan for work at NAS Moffett Field was provided in the Quality Assurance Project Plan (QAPP) dated June 1987.

The major issues addressed in the QAPP are the following:

- o QA Objectives - specific objectives for precision, accuracy and completeness were provided for the various analytical methods.
- o Sampling Procedures - procedures for purging of wells and collection of samples were provided.
- o Sample Custody - labeling and chain-of-custody requirements were specified.
- o Analytical Procedures - the EPA analytical methods were referenced.
- o Quality Control Checks - the following QC checks were performed:
  - field duplicates
  - field blanks
  - travel blanks for VOCs
  - split samples for analysis by another laboratory
- o QA charts - analytical results are routinely compared with statistical limits established on QC charts that are updated monthly.
- o Reporting - the submittal of QA Progress Reports was specified.

The original plan for the Characterization Step called for extensive soil and groundwater sampling that would have resulted in large monthly QA Progress Reports. Because of the reduction in K/J/C's involvement in the project due to changes in contracting mechanisms, the only sampling performed was for the Potential Conduits Study, which was included as an appendix to the June 1987 Sampling Plan.

Because of the need for a timely implementation of the Potential Conduits Study, the initial chemical analyses were performed by the K/J/C Laboratory Division prior to the Navy's certification of the laboratory in October 1987. It was originally not intended to submit QA Progress Reports for this part of the study. However, the Navy requested on 11 February 1988 that QA documentation be provided for the study. QA Progress Reports were, therefore, submitted in February 1988 for the August 1987 and November 1987 sampling rounds. Thereafter, QA Progress Reports were submitted the month following the sampling.

QA PERFORMANCE AND TRENDS

The dates of the sampling rounds are given in Table 1. For the first two sampling rounds, analysis for volatile organic compounds (VOCs) was by EPA Method 8240. The GC/MS method was used initially to provide confidence in identification of the chemicals detected. In the following two sampling rounds, analysis was by EPA Methods 8010 and 8020. The GC methods allowed for lower detection limits.

In each sampling round, all four wells were sampled, resulting in 100 percent completeness of work planned. The field QA samples collected during each round included one duplicate, one field blank, and one travel blank. The number of field QA samples collected met the requirements of the QAPP.

In the laboratory, additional blanks and duplicates were analyzed, one each for each sampling round. For GC/MS analyses, surrogate spikes were used. For GC analyses, laboratory spikes were used. One sample was split with another Navy certified laboratory during the February 1988 sampling round. Analysis of laboratory QA samples met the requirements of the QAPP.

QA issues raised in the QA Progress Report are summarized in Table 1. Samples were not delivered blind to the laboratory during the February 1988 sampling round. This was not considered a significant departure from QA procedures, and the practice was corrected for the next round. Two other issues required move evaluation: The presence of methylene chloride in blanks, and the detection of toluene in the laboratory split sample.

The presence of methylene chloride in the field blank during the November 1987 sampling round was attributed to laboratory contamination. Methylene chloride was not detected in well samples, and was not detected in any samples during the next round. However, in the last sampling round, methylene chloride was found in the field blank and two well samples at approximately the same low concentration below the usual detection limit of 1 ug/L. Because of the presence of methylene chloride in the blank sample, and its absence in the field duplicate sample, it appears that methylene chloride was a low level contaminant in the laboratory. Although awareness of this result led to greater scrutiny of solvent operations in the laboratory, no major changes in the QA program were deemed necessary.

A sample from the February 1988 sampling round was split with Radian Corporation's laboratory to provide an outside confirmation of results. Results from Radian's analysis confirmed that none of the chemicals analyzed for were present above 1 ug/L in groundwater samples. However, toluene was found at 0.36 ug/L, slightly above Radian's detection limit of 0.3 ug/L. It was not clear whether toluene was actually present in the sample from the well, or was the result of laboratory contamination.

Because of these ambiguous results, a greater volume of each sample was collected during the following sampling round (May 1988) to obtain lower detection limits. Toluene was not detected in the sample from the well where it was previously detected. However, benzene was detected in another sample at a low concentration (0.39 ug/L). Even if benzene had been present in the

past at this low level, it would not have been detected at routine detection limits. It was not resolved if toluene and/or benzene were present in samples from the wells, but because of the low levels reported, this issue was not pursued.

Routine examination of the QC charts for the analyses performed did not reveal any obvious shifts, trends, or biases.

ARCHIVE INVENTORY

Laboratory reports, including raw data, work sheets, and chain-of-custody forms are filed in the laboratory. QC-charts and corrective action logs are maintained in separate files. After approximately one to two years, the reports are transferred to long-term storage where they are retained in storage facilities for a five-year period.

CONCLUSIONS

In general, the results of the QA evaluation showed that the analytical data are of good quality and can be used in an evaluation of the active wells as potential conduits. In one case, data on low levels of methylene chloride in samples collected during the last sampling round were questioned. On the basis of results from QA samples, it was decided that the detection of methylene chloride was an artifact, and that it was not actually present in groundwater.

TABLE 1

SUMMARY OF ACTIVE WELL SAMPLING DATES AND QA PROGRESS REPORTS  
POTENTIAL CONDUITS STUDY, NAS MOFFETT FIELD  
(K/J/C 866078.05-G-96)

<u>SAMPLING DATE</u>	<u>QA PROGRESS REPORT DATE</u>	<u>MAJOR QA/QC FINDINGS</u>
6 August 1987	27 February 1988	None.
23 November 1987	29 February 1988	Methylene chloride found in field blank. Laboratory contaminant suspected.
24 February 1988	15 March 1988	Samples not delivered blind to laboratory. Toluene found at low level in laboratory split sample.
25 May 1988	15 June 1988	Routine detection limits lowered to investigate prior toluene detection. Methylene chloride found in two field samples and blank. Presence may be due to laboratory contamination.