

LDC Report# 1866C4

## **Laboratory Data Consultants, Inc. Data Validation Report**

Project/Site Name: Salton Sea Test Base, CTO 097

Collection Date: May 13 through May 14, 1996  
LDC Report Date: July 10, 1996

Matrix: Water

Parameters: Metals

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602884

Sample Identification

097G13361 097G13461 097G13061 097G13261 097DO2061 097G13561 097R11161 097G13161 097G13661  
097G11361 097G11261 097G11061 097G11861 097R11061 097G11561 097G11361S 097G11361D

## Introduction

This data review covers 17 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) for Inorganic Analysis, Multi-media, Multiconcentration, D.N. ILM04.0 for Title 22 Metals, including EPA Method 200.8 for Antimony. Data validation review was based on EPA Contract Laboratory Program Statement of Work (SOW), D.N. ILM03.0.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) and incorporates updates per EPA SOW (D.N. ILM03.0); the following subsections correlate to the guidelines.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section 111.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or element was analyzed for but not detected at or above the stated limit.

Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

## 1. Technical Holding Times

All technical holding time requirements were met.

### III. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

| Sample                                     | Analyte | Finding   | Criteria   | Flag | AorP |
|--|---------|---|--|------|------|
| 097G13361<br>097G13461<br>097G13061<br>PBW | Mercury | More than ten samples were run in between CCVs. | No more than ten samples to be run between CCVs. | None | P    |

This is a protocol violation. However, the results are not expected to be significantly affected.

CRDL standards for ICP and AA were analyzed and reported as required with the following exceptions:

| Sample                         | Analyte    | Finding                        | Criteria   | Flag | AorP |
|--------------------------------|------------|--------------------------------|--|------|------|
| All samples in SDG<br>K9602864 | Molybdenum | CRI standard was not analyzed. | All CROL standards for ICP and AA must be analyzed and reported. | None | P    |

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency.

### III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation. blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each element. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

| Method Blank ID | Analyte    | Concentration | Associated Samples          |
|-----------------|------------|---------------|-----------------------------|
| ICB             | Beryllium  | 0.8 ug/L      | All samples in SOG K9602884 |
|                 | Chromium   | 3.0 ug/L      |                             |
|                 | Mercury    | 0.1 ug/L      |                             |
|                 | Zinc       | 1.5 ug/L      |                             |
|                 | Molybdenum | 8.3 ug/L      |                             |
| CCB1            | Beryllium  | 0.7 ug/L      | All samples in SOG K9602884 |
|                 | Chromium   | 4.0 ug/L      |                             |
|                 | Copper     | -1.6 ug/L     |                             |
|                 | Mercury    | 0.1 ug/L      |                             |
|                 | Zinc       | 2-0 ug/L      |                             |
| CCB2            | Molybdenum | 3.7 ug/L      | All samples in SOG K9602884 |
|                 | Beryllium  | 0.7 ug/L      |                             |
|                 | Mercury    | 0.1 ug/L      |                             |
| CCB3            | Zinc       | 1.5 ug/L      | All samples in SDG K9602884 |
|                 | Beryllium  | 0.7 ug/L      |                             |
|                 | Chromium   | 3.6 ug/L      |                             |
| PB (prep blank) | Mercury    | 0.1 ug/L      | All samples in SOG K96028s4 |
|                 | Beryllium  | 0.5 10 ug/L   |                             |
| CCBI            | Copper     | -1.600 ug/L   | All samples in SOG K9602884 |
|                 | Beryllium  | 0.8 ug/L      |                             |
| CCB2            | Chromium   | 3.5 ug/L      | All samples in SOG K9602884 |
|                 | Beryllium  | 0.5 ug/L      |                             |
|                 | Chromium   | 3.0 ug/L      |                             |
|                 | Silver     | 1.5 ug/L      |                             |
|                 | Vanadium   | 1.8 ug/L      |                             |
| CCE2            | Selenium   | 1.3 ug/L      | All samples in SOG K96C2854 |
| CCB3            | Selenium   | 1.7 ug/L      | All samples in SOG K9602884 |
| CCB2            | Selenium   | 1.1 ug/L      | All samples in SDG K9602884 |

No contaminant concentrations were found above the CRDL in the initial, continuing and preparation blanks.

Sample concentrations were compared to concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

| Sample      | Analyte    | Reported Concentration | Modified Final Concentration |
|-------------|------------|------------------------|------------------------------|
| 097(3133611 | Beryllium  | 0.5 ug/L               | 0.5U ug/L                    |
|             | Selenium   | 1.0 ug/L               | 1.0U ug/L                    |
|             | Vanadium   | 3.2 ug/L               | 3.2U ug/L                    |
|             | Zinc       | 6.2 ug/L               | 6.2U ug/L                    |
| 097G13461   | Beryllium  | 0.83 ug/L              | 0.831-1 ug/L                 |
|             | Vanadium   | 6.3 ug/L               | 6.3U ug/L                    |
| 097GI3061   | Beryllium  | 0.85 ug/L              | 0.85U ug/L                   |
|             | Vanadium   | 1.7 ug/L               | 1.7U ug/L                    |
|             | Molybdenum | 13.4 ug/L              | 13AU ug/L                    |
| 097G13261   | Beryllium  | 0.49 ug/L              | 0.49U ug/L                   |
|             | Vanadium   | 4.5 ug/L               | 4.5U ug/L                    |
|             | Molybdenum | 26.4 ug/L              | 26AU ug/L                    |
| 097DO2061   | Beryllium  | 0.49 ug/L              | 0.49U ug/L                   |
|             | Vanadium   | 4.5 ug/L               | 4.5U ug/L                    |
|             | Zinc       | 9.3 ug/L               | 9.3U ug/L                    |
|             | Molybdenum | 25.5 ug/L              | 25.5U ug/L                   |
| 097G13561   | Beryllium  | 0.68 ug/L              | 0.68U ug/L                   |
|             | Vanadium   | 2.1 ug/L               | 2.1 U ug/L                   |
|             | Zinc       | 2.7 ug/L               | 2.7U ug/L                    |
|             | Molybdenum | 24.8 ug/L              | 24.8U ug/L                   |
| 097R11161   | Chromium   | 2.8 ug/L               | 2.8U ug/L                    |
|             | Zinc       | 1.5 ug/L               | 1.5U ug/L                    |
| 097G13161   | Beryllium  | 0.66 ug/L              | 0.661-1 ug/L                 |
|             | Vanadium   | 5.0 ug/L               | 5.01-1 ug/L                  |
|             | Molybdenum | 15.8 ug/L              | 15.8U ug/L                   |
| 097G13661   | Beryllium  | 0.67 ug/L              | 0.671-1 ug/L                 |
|             | Vanadium   | 4.0 ug/L               | 4.0U ug/L                    |
|             | Zinc       | 3.4 ug/L               | 3.4U ug/L                    |
| 0971311361  | Beryllium  | 0.67 ug/L              | 0.67U ug/L                   |
|             | Vanadium   | 2.5 ug/L               | 2.5U ug/L                    |
|             | Zinc       | 7.4 ug/L               | 7AU ug/L                     |
|             | Molybdenum | 37.5 ug/L              | 37.5U ug/L                   |
| 097GI1261   | Beryllium  | 0.69 ug/L              | 0.69U ug/L                   |
|             | Zinc       | 4.9 ug/L               | 4.9U ug/L                    |
|             | Molybdenum | 38.4 ug/L              | 38.41-1 ug/L                 |
| 097G11061   | Vanadium   | 3.4 ug/L               | 3AU ug/L                     |
|             | Zinc       | 6.8 ug/L               | 6.81-1 ug/L                  |
|             |            |                        |                              |
| 1866C4.BC3  |            |                        |                              |

| Sample     | Analyte    | Reported Concentration | Modified Final Concentration |
|------------|------------|------------------------|------------------------------|
| 097G1 1861 | Beryllium  | 0.84 ug/L              | 0.84U ug/L                   |
|            | Selenium   | 2.3 ug/L               | 2.3U ug/L                    |
|            | Vanadium   | 3.4 ug/L               | 3.4U ug/L                    |
| 097R1 1061 | Beryllium  | 0.85 ug/L              | 0.85U ug/L                   |
|            | Chromium   | 5.4 ug/L               | 5.41.1 ug/L                  |
|            | Zinc       | 2.4 ug/L               | 2AU ug/L                     |
| 09 11 61   | Beryllium  | 0.62 ug/L              | 0.62U ug/L                   |
|            | Zinc       | 9.0 ug/L               | 9.01. ug/L                   |
|            | Molybdenum | 39.0 ug/L              | 39.0U ug/L                   |

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met with the following exceptions:

| Sample  | Analyte    | Finding   | Criteria  | Flag | Aorp] |
|---|------------|---|---|------|-------|
| 097G13461<br>097G13161<br>097G13661<br>097G1 1561 | Molybdenum | This metal was not spiked in ICSAB. The concentrations of the common interferences in these samples approximated the spike values or were not reported. | This metal is potentially affected by common interferences and should be spiked in ICSAB. | i    | A     |

The criteria for analysis were met.

#### V. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Matrix Spike Analysis

Matrix spike analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits of 75-125% with the following exceptions:

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| Sample<br>(Associated<br>Samples) | Analyte  | %R   | Flag | A or P<br>A |
|-----------------------------------|----------|------|------|-------------|
| 0971311361S                       | Arsenic  | 70.2 |      |             |
| (All samples in<br>SOG K9602884)  | Selenium | 70.0 |      |             |
|                                   | Thallium | 55.2 |      |             |

### VIII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits,

### IX Furnace Atomic Absorption QC

All reported MSAs were reviewed and found acceptable.

Raw data were not reviewed for this SDG.

### X. ICP Serial Dilution

The frequency of analysis was met.

The criteria for analysis were met.

### XI. Sample Result Verification

Raw data were not reviewed for this SDG.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

Samples 097G13261 and 097DO2061 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

| Analyte       | <u>Concentration (ug/L)</u> |           |  | RPD |
|---------------|-----------------------------|-----------|--|-----|
|               | 097G13261                   | 097DO2061 |  |     |
| Arsenic       | 2.2                         | 2.6       |  | 17  |
| <b>Barium</b> | 22.9                        | 22.9      |  | 0   |
| Beryllium     | 0.49                        | 0.49      |  | 0   |
| Copper        | 4.2                         | 3.8       |  | 10  |

| Analyte    | Concentration (ug/L) |           | RPD |
|------------|----------------------|-----------|-----|
|            | 097G13261            | 097DO2061 |     |
| Vanadium   | 4.5                  | 4.5       | 0   |
| Zinc       | 11.3                 | 9.3       | 19  |
| Molybdenum | 26.4                 | 25.5      | 3   |

#### XIV. Field Blanks

Samples 097R1 1161 and 097R1 1061 were identified as rinsates. No metal contaminants were found in these blanks with the following exceptions:

| Rinsate ID | Analyte   | Concentration (ug/ |
|------------|-----------|--------------------|
| 097R1 1161 | Chromium  | 2-8                |
|            | Zinc      | 1.5                |
| 097R1 1061 | Beryllium | 0.85               |
|            | Chromium  | 5.4                |
|            | Zinc      | 2-4                |

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 Metals - Data Qualification Summary - SDG K9602884

| SIOG     | Sample  | Analyte                         | Flag | AorP | Reason                                    |
|----------|---|---------------------------------|------|------|---|
| K9502884 | 097G13361<br>097G13461<br>097G13061   | Mercury                         | None | P    | Calibration                               |
| K9602884 | 097GI3361<br>097GI3461<br>097G13061<br>097GI3261<br>097DO2061<br>097G13561<br>097RI1161<br>097GI3161<br>097G13661<br>097G11361<br>097G11261<br>097GI1061<br>097G11861<br>097R11051<br>097G11561               | Molybdenum                      | None | P    | Calibration                               |
| K9602884 | 097GI3461<br>097G13161<br>097G13661   | Molybdenum                      | i    | A    | ICP interference check<br>sample analysis |
| K9602884 | 097G1 1561<br>097GI3361<br>097GI3461<br>097G13061<br>097G13261<br>097002061<br>097G13561<br>097RI1151<br>097G13161<br>097G13661<br>097GI1361<br>097G11281<br>097G11061<br>097GI1861<br>097R11061<br>097G11561 | Arsenic<br>Selenium<br>Thallium | i    | A    | Matrix sPike analysis (%R)                |

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 Metals - Laboratory Blank Data Qualification Summary - SDG K9602884

A or P  
 — A

| SDG      | Sample    | Analyte    | Modified Final Concentradon | A or P |
|----------|-----------|------------|-----------------------------|--------|
| K9602884 | 097G13461 | Beryllium  | 0.83U ug/L                  | A      |
|          |           | Vanadium   | 6.3U ug/L                   |        |
| K9602884 | 097G13061 | Beryllium  | 0.85U ug/L                  | A      |
|          |           | Vanadium   | 1.7U ug/L                   |        |
|          |           | Molybdenum | 13AU ug/L                   |        |
| K9602884 | 097GI3261 | Beryllium  | 0.49U ug/L                  | A      |
|          |           | Vanadium   | 4.5U ug/L                   |        |
|          |           | Molybdenum | 26AU ug/L                   |        |
| K9602884 | 097DO2061 | Beryllium  | 0.49U ug/L                  | A      |
|          |           | Vanadium   | 4.5U ug/L                   |        |
|          |           | Zinc       | 9.3U ug/L                   |        |
|          |           | Molybdenum | 25.5U ug/L                  |        |
| K9602884 | 097G13561 | Beryllium  | 0.68U ug/L                  | A      |
|          |           | Vanadium   | 2.1 U ug/L                  |        |
|          |           | Znc        | 2.7U ug/L                   |        |
|          |           | Molybdenum | 24.8U ug/L                  |        |
| K9602884 | 097R11161 | Chromium   | 2.81.) ug/L                 | A      |
|          |           | Zinc       | 1.51.1 ug/L                 |        |
| K9602854 | 097G13161 | Beryllium  | 0.66U ug/L                  | A      |
|          |           | Vanadium   | 5.01.) ug/L                 |        |
|          |           | Molybdenum | 15.81.1 ug/L                |        |
| K9602884 | 097G13661 | Beryllium  | 0.67U ug/L                  | A      |
|          |           | Vanadium   | 4.0U ug/L                   |        |
|          |           | Zinc       | 3.41.) ug/L                 |        |
| K9602554 | 097GI1361 | Beryllium  | 0.67U ug/L                  | A      |
|          |           | Vanadium   | 2.51.1 ug/L                 |        |
|          |           | Zinc       | 7AU ug/L                    |        |
|          |           | Molybdenum | 37.51.1 ug/L                |        |
| K9602884 | 097GI1261 | Beryllium  | 0.69U ug/L                  | A      |
|          |           | 25nc       | 4.9U ug/L                   |        |
|          |           | Molybdenum | 38AU ug/L                   |        |
| K9602884 | 097G11061 | Vanadium   | 3.41.) ug/L                 | A      |
|          |           | Zinc       | 6.8U ug/L                   |        |
| K9602884 | 097GI1861 | Beryllium  | 0.84U ug/L                  | A      |
|          |           | Selenium   | 2.31.) ug/L                 |        |
|          |           | Vanadium   | 3.41-1 ug/L                 |        |

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| SDG        | Sample    | Analyte    | Modified Final Concentration |   |
|------------|-----------|------------|------------------------------|---|
| K9602884   | 097R11061 | Beryllium  | 0.85U ug/L                   |   |
|            |           | Chromium   | SAU ug/L                     |   |
|            |           | Zinc       | 2AU ug/L                     |   |
| K9602884   | 097G11561 | Beryllium  | 0.621.1 ug/L                 | A |
|            |           | Zinc       | 9.01.1 ugtL                  |   |
|            |           | Molybdenum | 39.OU ug/L                   |   |
| 1866C4.BC3 |           |            |                              |   |

**Laboratory Data Consultants, Inc.  
Data Validatron Report**

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 15, 1996  
LDC Report Date: July 10, 1996  
Matrix: Water  
Parameters: Metals  
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602917\*\*

Sample Identification

097G16461 097DO2161 097G16561 097G13961 097G13861 097R12061 097G13761 097R1 1261 097G15461  
097BO1061 097BO1161 097R11261S 097R11261D

\*\* Indicates SDG underwent NFESC Level D review.

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) for Inorganic Analysis, Multi-media, Multiconcentration, D.N. ILIV104.0 for Title 22 Metals, including EPA Method 200.8 for Antimony, Cadmium, Lead, Nickel, and Uranium. The data validation review was based on EPA Contract Laboratory Program Statement of Work ILM03.0 .

This review follows USEPA Contract Laboratory Program National Functional 'Guidelines for Inorganic Data Review (February 1994) and incorporates updates per EPA SOW (D.N. ILM03.0); the following subsections correlate to the guidelines.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or element was analyzed for but not detected at or above the stated limit.
- i Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

## 1. Technical Holding Times

All technical holding time requirements were met.

## 11. Calibration

All criteria for the initial calibration were met.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

CRDL standards for ICIP and AA were analyzed and reported as required with the following exceptions:

| Sample  | Analyte    | Finding                        | Criteria   | Flag | A or P |
|---|------------|--------------------------------|--|------|--------|
| 097G13961<br>097G13861<br>097G13761<br>097RI 1261<br>01061<br>097BOI 161<br>PBW | Molybdenum | CRI standard was not analyzed. | All CROL standards for 1CP and AA must be analyzed and reported. | None | P      |

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency.

## 111. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each element. No contaminant concentrations were found above the IDL in the initial, continuing and preparation blanks with the following exceptions:

| Method Blank ID | Analyte                         | Concentration                    | Associated Samples  |
|-----------------|---------------------------------|----------------------------------|---|
| ICB             | Cobalt<br>Mercury<br>Molybdenum | 2.5 ug/L<br>0.1 ug/L<br>4.9 ug/L | 097G13961<br>097G13861<br>097GI3751<br>097R1 1261<br>097801061<br>097601161 |

| Method Blank ID | Analyte  | Concentration | Associated Samples  |
|-----------------|----------|---------------|---|
| CCB1            | Mercury  | 0A ug/L       | 097G13961   |
|                 | Zinc     | 1.8 ug/L      | 097GI3861<br>097GI3761<br>097RI 1261<br>097BO1061<br>097BOI 161 |
| CCB2            | Mercury  | 0.1 ug/L      | 097G13961   |
|                 | Zinc     | 1.3 ug/L      | 097G13861<br>097G13761<br>097RI 1261<br>097BO1061<br>097BOI 161 |
| CCB3            | Zinc     | 1.8 ug/L      | 097GI3a61<br>097GI3761<br>097GI3961                             |
|                 |          |               | 097RI 1261 097SO1061 097BOI 161                                 |
| PB (prep blank) | Copper   | 1.630 ug/L    | 097GI3961   |
|                 | Zinc     | 1.810 ug/L    | 097G13a61<br>097G13761<br>097811261<br>097BO1061<br>097BOI 161  |
| CC81            | Vanadium | 2.0 ug/L      | 097GI3961   |
|                 | Zinc     | 1.8 ug/L      | 097G13861<br>097GI3761<br>097811261<br>097801061<br>097BOI 161  |

No contaminant concentrations were found above the CRDL in the initial, continuing and **preparation** blanks.

Sample concentrations were compared to concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>SX blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

| Sample    | Analyte    | Reported Concentration | Modified Final Concentration |
|-----------|------------|------------------------|------------------------------|
| 097G13961 | Copper     | 3.3 ug/L               | 3.3U ug/L                    |
|           | Vanadium   | 5.2 ug/L               | 5.2U ug/L                    |
|           | Molybdenum | 16.5 ug/L              | 16.5U ug/L                   |

| Sample     | Analyte    | Reported Concentration | Modified Final Concentration |
|------------|------------|------------------------|------------------------------|
| 097G13861  | Zinc       | 5.0 ug/L               | 5.01-1 ug/L                  |
|            | Molybdenum | 12.9 ug/L              | 12.9U ug/L                   |
| 097GI3761  | Cobalt     | 4.0 ug/L               | 4.01-1 ug/L                  |
|            | Vanadium   | 9.7 ug/L               | 9.71-1 ug/L                  |
|            | Molybdenum | 6.4 ug/L               | SAU ug/L                     |
| 097R1 1261 | Copper     | 1.8 ug/L               | 1.8U ug/L                    |
|            | Vanadium   | 2.0 ug/L               | 2.0U ug/L                    |
|            | Zinc       | 2.7 ug/L               | 2.71-1 ugtL                  |
|            | Molybdenum | 2.7 ug/L               | 2.7U ug/L                    |
| 097601061  | Copper     | 2.0 ug/L               | 2.0U ug/L                    |
|            | Zinc       | 2.7 ug/L               | 2.7U ug/L                    |
| 097BO1 161 | Copper     | 2.0 ug/L               | 2.0U ug/L                    |
|            | Zinc       | 6.8 ug/L               | 6.8U ug/L                    |
|            | Molybdenum | 3.6 ug/L               | 3.61-1 ug/L                  |

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met with the following exceptions:

The criteria for analysis were met.

#### V. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within CC limits.

#### VI. Duplicate Sample Analysis

Duplicate sample analyses were reviewed for each matrix as applicable. Results were within CC limits.



**VII. Matrix Spike Analysis**

Matrix spike analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits of 75-125%.

**VIII. Internal Standards (ICP-MS) .**

All internal standard percent recoveries (%R) were within QC limits.

**IX Furnace Atomic Absorption QC**

All graphite furnace atomic absorption QC were within validation criteria.

**X. ICP Serial Dilution**

The frequency of analysis was met.

The criteria for analysis were met with the following exceptions:

| Diluted Sample | <b>A--7</b> %D (Limits) | Associated Samples       | Flag   | A., P                |
|----------------|-------------------------|--------------------------|--|----------------------|
| 097G139611-    | 11.5 (± 10)<br>Zinc     | 097GI3961<br>12.8 (f.10) | J (all detects)<br>097G13861<br>097G1376I<br>097RI 1251<br>097SO1061<br>097BOI 161 | A<br>J (all detects) |

**XI. Sample Result Verification**

All sample result verifications met validation criteria.

**XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

**XIII. Field Duplicates**

Samples 097G16461 and 097DO2161 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

| Analyte | Concentration (uq/L) | RPD | Not calculable |
|---------|----------------------|-----|----------------|
| Cadmium | 097G16461 097DO21 61 | ND  | 33             |
| Lead    |                      | 7   |                |

| Analyte | Concentration (ug/L)     | RPD |
|---------|--------------------------|-----|
| Uranium | 097GI6461 097DO2161<br>3 | 3   |
|         |                          | 0   |

#### XIV. Field Blanks

Samples 097R1 2061 and 097R1 1261 were identified as rinsates. No metal contaminants were found in these blanks with the following exceptions:

| Rinsate ID | Analyte    | Concentration (ug/L) |
|------------|------------|----------------------|
| 097R1 1261 | Barium     | 1.6                  |
|            | Copper     | 1.8                  |
|            | Vanadium   | 2.0                  |
|            | Zinc       | 2.7                  |
|            | Molybdenum | 2.7                  |

Samples 097BO1061 and 097BO1161 were identified as source blanks. No metal contaminants were found in these blanks with the following exceptions:

| Source Blank ID | Analyte    | Concentration (ug) |
|-----------------|------------|--------------------|
| 097BO1061       | Arsenic    | 1.0                |
|                 | Copper     | 2.0                |
|                 | Zinc       | 2.7                |
| 097BO1161       | Arsenic    | 1.6                |
|                 | Barium     | 52.5               |
|                 | Copper     | 2.0                |
|                 | Lead       | 1.3                |
|                 | Selenium   | 1.2                |
|                 | Vanadium   | 12.6               |
|                 | Zinc       | 6.8                |
|                 | Molybdenum | 3.6                |

186604,BC4

7.

Salton Sea Test Base, CTO 097

Metals - Data Qualification Summary - SDG K9602917\*\*

| SOG      | Sample ID   | Analyte  | Flag                                 | AorP | Reason                                    |
|----------|-------------|--|--------------------------------------|------|---|
| K9602917 | 097G113961  | Molybdenum                                       | None                                 | p    | Calibration                               |
|          | 097G13861   |  |                                      |      |   |
|          | 097G13761   |  |                                      |      |   |
|          | 097R1 1261  |  |                                      |      |   |
|          | 097BO1061   |  |                                      |      |   |
| K9602917 | 097801161   | Antimony<br>Cadmium<br>Lead<br>Nickel<br>Uranium | None<br>None<br>None<br>None<br>None | p    | ICP interference check<br>sample analysis |
|          | 097G16461   |  |                                      |      |   |
|          | 097DO2161   |  |                                      |      |   |
|          | 097G1 6561  |  |                                      |      |   |
|          | 097G13961   |  |                                      |      |   |
|          | 097G13861   |  |                                      |      |   |
|          | 097R120611  |  |                                      |      |   |
|          | 097G13761   |  |                                      |      |   |
|          | 097FII 1261 |  |                                      |      |   |
|          | 097BO1061   |  |                                      |      |   |
| K9602917 | 097BO1161   | Barium<br>Zinc                                   | J (all detects)<br>J (all detects)   | A    | ICP serial dilution (%D)                  |
|          | 097G13961   |  |                                      |      |   |
|          | 097G13861   |  |                                      |      |   |
|          | 097G13761   |  |                                      |      |   |
|          | 097R1 1251  |  |                                      |      |   |
|          | 097801061   |  |                                      |      |   |
|          | 097BOI 161  |  |                                      |      |   |

Salton Sea Test Base, CTO 097

Metals - Laboratory Blank Data Qualification Summary - SDG K9602917\*\*

| SDG      | Sample     | Analyte    | Concentration | Modified Final | A or P7 |
|----------|------------|------------|---------------|----------------|---------|
| K9602917 | 097G13961  | Copper     | 3.3U ug/L     |                | A       |
|          |            | Vanadium   | 5.2U ug/L     |                |         |
|          |            | Molybdenum | 16.5U ug/L    |                |         |
| K9602917 | 097G13861  | Zinc       | 5.01-1 ug/L   |                | A       |
|          |            | Molybdenum | 12.9U ug/L    |                |         |
| K9602917 | 097G13761  | Cobalt     | 4.0U ug/L     |                | A       |
|          |            | Vanadium   | 9.7U ug/L     |                |         |
|          |            | Molybdenum | 6AU ug/L      |                |         |
| K9602917 | 097R1 1261 | Copper     | 1.8U ug/L     |                | A       |
|          |            | Vanadium   | 2.0U ug/L     |                |         |
|          |            | Zinc       | 2.7U ug/L     |                |         |
|          |            | Molybdenum | 2.7U ug/L     |                |         |

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| SDG      | Sample    | Analyte        | Modified Final Concentration |   |
|----------|-----------|----------------|------------------------------|---|
| K9502917 | 097SO1061 | Copper<br>Zinc | 2.0U ug/L<br>2.71.1 ug/L     | A |

EA 7.,P

|          |            |                               |   |   |
|----------|------------|-------------------------------|---|---|
| K9602917 | 097BOI 161 | Copper<br>Zinc<br>Motytadenum | 2.0U ug/L<br>6.81.1 ug/L<br>3.61.1 ug/L | A |
|----------|------------|-------------------------------|---|---|

186604.BC4

LDC Report# 1866E4

**Laboratory Data Consultants, Inc.  
Data Validatibn Report**

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 14, 1996  
LDC Report Date: July 10, 1996  
Matrix: Water

Parameters: Metals

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602936

Sample Identification

097R11960  
097R1 1961  
097G15261  
097G16761  
097G16661  
097R1 1961 S  
097R1 1961 D  
097G15261S  
097G15261D

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (DW) for Inorganic Analysis, Multi-media, Multiconcentration, D.N. ILM04.0 for Title 22 Metals, including EPA Method 200.8 for Antimony. The data validation review was based on EPA Contract Laboratory Program Statement of Work ILM03.0 .

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) and incorporates updates per EPA SOW (D.N. ILM03.0); the following subsections correlate to the guidelines.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or element was analyzed for but not detected at or above the stated limit.

Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

## 1. Technical Holding Times

All technical holding time requirements were met.

## 11. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

CRDL standards for ICP and AA were analyzed and reported as required with the following exceptions:

| Sample                                 | Analyte    | Finding                        | Criteria   | lag  | A or-P |
|--|------------|--------------------------------|--|------|--------|
| 097RI 1961<br>097G 16761<br>097G1 6661 | Molybdenum | CRI standard was not analyzed. | All CROL standards for ICP and AA must be analyzed and reported. | None | P      |

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each element. No contaminant concentrations were found above the IDL in the initial, continuing and preparation blanks with the following exceptions:

| Method Blank ID | Analyte    | Concentration | Associated Samples                     |
|-----------------|------------|---------------|--|
| ICB             | Mercury    | 0.1 ug/L      | 097R 11961                             |
|                 | Molybdenum | 7.2 ug/L      | 097G16761<br>097G16661                 |
| Ccall           | Mercury    | 0.1 ug/L      | 097RI 1961                             |
|                 | Vanadium   | -2.1 ug/L     | 097G16761                              |
|                 | Molybdenum | 2.7 ug/L      | 097G 16661                             |
| CC32            | Mercury    | 0.1 ug/L      | 097R1 1961<br>097G 16761<br>097G1 6661 |

| Method Blank ID | Analyte    | Concentration | Associated Samples                   |
|-----------------|------------|---------------|--------------------------------------|
| CCB3            | Thallium   | -1.2 ug/L     | 097G16751                            |
|                 | Chromium   | 2.5 ug/L      | 097R I 1961                          |
|                 | Molybdenum | 4.0 ug/L      | 097G16661                            |
| PB (prep blank) | Antimony   | 0.6 ug/L      | 0971111960                           |
|                 |            |               | 097GI 5761                           |
|                 |            |               | 097G1 6661                           |
| CCB1            | Chromium   | 3.1 ug/L      | 097R1 1961<br>097G16761<br>097G16661 |

No contaminant concentrations were found above the CRDL in the initial, continuing and preparation blanks.

Sample concentrations were compared to concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met with the following exceptions:

| Sample   | Analyte  | Finding                             | Criteria | Flag |
|--|----------|-------------------------------------|----------|------|
| 097R11960<br>097GI6761<br>097G 16661<br>097R1 1961 S<br>097R1 1961 D | Antimony | This metal was not spiked in ICSAB. | None     | P    |

The criteria for analysis were met.

#### V. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate sample analyses were reviewed for each matrix as applicable. Results were within QC limits.



## VII. Matrix Spike Analysis

Matrix spike analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits of 75-125%.

## VIII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

## IX Furnace Atomic Absorption QC

All reported MSAs were reviewed and found acceptable.

Raw data were not reviewed for this SDG.

## X. ICP Serial Dilution

The frequency of analysis was met.

The criteria for analysis were met.

## X1. Sample Result Verification

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

## XIV. Field Blanks

Samples 097R1 1960 and 097R1 1961 were identified as rinsates. No metal contaminants were found in these blanks with the following exceptions:

| Rinsate ID   | Analyte | Concentration |
|--------------|---------|---------------|
| 097R 11961   | Barium  | 2.1           |
| 1 a66E4. BC3 | 5       |               |

Salton Sea Test Base, CTO 097  
Metals - Data Qualification Summary - SDG K9602936

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| SDG      | Sample                              | Analyte    | Flag | AcrP | Reason                                    |
|----------|-------------------------------------|------------|------|------|---|
| K9602936 | 097GI6761<br>097R11961              | Molybdenum | None | p    | Calibration                               |
|          | 097GI6661                           |            |      |      |   |
| K9602936 | 097R11960<br>097GI6761<br>097GI6661 | Antimony   | None | p    | ICP Interference check<br>sample analysis |

Salton Sea Test Base, CTO 097  
Metals - Laboratory Blank Data Qualification Summary - SDG K9602936

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.  
Data Validation Report

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 8, 1996  
LDC Report Date: July 8, 1996  
Matrix: Water

Parameters: Wet Chemistry  
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602755

Sample Identification

097G11665  
097G11765  
097G1 1665DUP

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 150.1 for pH and EPA Method 160.1 for Total Dissolved Solids.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section 111.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or element was analyzed for but not detected at or above the stated limit.
- i Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

## **1. Technical Holding Times**

All technical holding time requirements were met.

## **11. Calibration**

### **a. Initial Calibration**

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than 20.0% .

### **b. Calibration Verification**

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% CC limits.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

## **IV. Accuracy and Precision Data**

### **a. Surrogate Recovery**

Although surrogates were not required by the method, surrogate analysis was performed by the laboratory. Surrogate recoveries (%R) were within CC limits.

### **b. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within CC limits.

### **c. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within CC limits.

## **V. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **VI. Compound Quantitation and CROLS**

Raw data were not reviewed for this SDG.

## VII. System Performance

Raw data were not reviewed for this SDG.

## VIII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## IX Field Duplicates

No field duplicates were identified in this SDG.

## X. Field Blanks

Sample 097TO4743 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank with the following exceptions:

| Rinsate ID | Compound        | Concentration (u |
|------------|-----------------|------------------|
| 097TD4743  | TPH as gasoline | 31               |

1 s6sC7.BC3

Salton Sea Test Base, CTO 097

Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG K9602884

No Sample Data Qualified in this SDG

Salton Sea Test Base, CTO 097

Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG K9602884

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 9 through May 10, 1996  
LDC Report Date: July 8, 1996  
Matrix: Water

Parameters: Wet Chemistry

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602784

Sample Identification

097G11465  
097G12265  
097R11365  
097G12965  
097G12865  
097G12065  
097G12165  
097G12365  
097G12465  
097G12565  
097G12765  
097G12665  
097G1 1465DUP



## Introduction

This data **review covers 13 water samples 11sted** on the cover sheet. The analyses were per EPA Method 150.1 for pH and EPA Method 160.1 for Total Dissolved Solids.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or element was analyzed for but not detected at or above the stated limit.

Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

## **1. Technical Holding Times**

All technical holding time requirements were met.

### **[I. Calibration**

#### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

#### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

### **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Accuracy and Precision Data**

### **a. Surrogate Recovery**

Not applicable to these methods.

### **b. Matrix Spike/(Matrix Spike) Duplicates**

Duplicate sample analyses were reviewed for each matrix as applicable. The relative percent differences (RPD) were within QC limits. Matrix spike analyses are not applicable to these methods.

### **c. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Sample Result Verification**

Raw data were not reviewed for this SDG

### **V1. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **VII. Field Duplicates**

No field duplicates were identified in this SDG.

## VIII. Field Blanks

No field blanks were identified in this SIDG.

1866A5.SC3

Salton Sea Test Base, CTO 097  
Wet Chemistry - Data Qualification Summary - SDG K9602755

No Sample Data Qual-ified in this SDG

Salton Sea Test Base, CTO 097  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG K9602755

No Sample Data Qualified in this SDG

LDC Report# 1866C6

Laboratory Data Consultants, Inc.  
Data Validation Report

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 13 through May 14, 1996  
LDC Report Date: July 8, 1996  
Matrix: Water  
Parameters: Wet Chemistry  
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602884

Sample Identification

097G13365  
097G13465  
097G13065  
097G13265  
097DO2065  
097G13565  
097R11165  
097G13165  
097G13665  
097G11365  
097G11265  
097G11065  
097G11165  
097G11965  
097G11865  
097R11065  
097G11565  
097G13365DUP

## Introduction

**This data review covers 18 water samples listed** on the cover sheet. The analyses were per EPA Method 150.1 for pH and EPA Method 160.1 for Total Dissolved Solids.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section 111.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or element was analyzed for but not detected at or above the stated limit.

i Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

## **1. Technical Holding Times**

All technical holding time requirements were met.

### **11. Calibration**

#### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

#### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

#### **111. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Accuracy and Precision Data**

### **a. Surrogate Recovery**

Not applicable to these methods.

### **b. Matrix Spike/(Matrix Spike) Duplicates**

Duplicate sample analyses were reviewed for each matrix as applicable. The relative percent differences (RPD) were within OC limits. Matrix spike analyses are not applicable to these methods.

### **c. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Sample Result Verification**

Raw data were not reviewed for this SDG

## **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **VII. Field Duplicates**

No field duplicates were identified in this SDG.

## VIII. Field Blanks

Sample 097R11365 was identified as a rinsate. No contaminant concentrations were found in this blank with the following exceptions:

| Rinsate ID | Analyte                | Concentration (mg/L) |
|------------|------------------------|----------------------|
| 097R11365  | Total dissolved solids | 25                   |
| 186686.BC3 | 4                      |                      |



Salton Sea Test Base, CTO 097  
Wet Chemistry - Data Qualification Summary - SDG K9602784

No Sample Data Qualified in this SDG

Salton Sea Test Base, CTO 097  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG K9602784

No Sample Data Qualified in this SDG

LDC Report# 1866D6

**Laboratory Data Consultants, Inc.  
Data Validation Report**

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 15, 1996  
LDC Report Date: July 16, 1996  
Matrix: Water  
Parameters: Wet Chemistry  
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602917\*\*

Sample Identification

097G16465 097DO2165 097G16565 097G13965 097G13865 097G13765 097R11265 097BO1065 097BO1165  
097G 16465DUP

\*\* Indicates SDG underwent NFESC Level D review.

## Introduction

This data review covers 10 water samples listed on the cover sheet. The analyses were per EPA Method 160.1 for Total Dissolved Solids and EPA Method 150.1 for pH.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or element was analyzed for but not detected at or above the stated limit.
- i Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

## 1. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

| Sample     | Analyte | Total Days From Sample Collection Until Analysis | Required Holding Time (in Days) From Sample Collection Until Analysis | Flag | A or P |
|------------|---------|--|---|------|--------|
| 097G11355  | pH      | 3  | Immediately   | i    | P      |
| 097G11265  | pH      | 3  | Immediately   | i    | P      |
| 097G11065  | pH      | 3  | Immediately   | i    | P      |
| 097G1 1165 | pH      | 3  | Immediately   | i    | P      |
| 097G11965  | pH      | 3  | Immediately   | i    | P      |
| 097G11865  | pH      | 3  | Immediately   | i    | P      |
| 097R11065  | pH      | 3  | Immediately   | i    | P      |
| 097G11565  | pH      | 3  | Immediately   | i    | P      |

## 11. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## IV. Accuracy and Precision Data

### a. Surrogate Recovery

Not applicable to these methods.

## b. Matrix Spike/(Matrix Spike) Duplicates

Duplicate sample analyses were reviewed for each matrix as applicable. The relative percent differences (RPD) were within CC limits, Matrix spike analyses are not applicable to these methods.

## c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within CC limits.

## V. Sample Result Verification

Raw data were not reviewed for this SDG

## VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

## Vii. Field Duplicates

Samples 097G13265 and 097DO2065 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

|                        |         | <u>Concentration</u>    |                         |            |
|------------------------|---------|-------------------------|-------------------------|------------|
| pH                     | Analyte | 097GI3265<br>6.83 units | 097DO2065<br>6.55 units | RPD<br>0.3 |
| Total dissolved solids |         | 9170 mg/L               | 9880 mg/L               | 7          |

## Viii. Field Blanks

Samples 0971311165 and 097R11065 were identified as rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

|            | Rinsate ID | Analyte                | Concentration (mg/L) |
|------------|------------|------------------------|----------------------|
| 097R1 1165 |            | Total dissolved solids | 18                   |
| 097R11065  |            | Total dissolved solids | 16                   |
| 1866C5.BC3 |            |                        | 4                    |

Salton Sea Test Base, CTO 097

Wet Chemistry - Data Qualification Summary - SDG K9602884

|          | Sample    |    | Analyte | Flag | A or P | Re so                   |
|----------|-----------|----|---------|------|--------|-------------------------|
| K9602884 | 097G11365 | PH |         |      | P      | Technical holding times |
|          | 097G11265 |    |         |      |        |                         |
|          | 097G11065 |    |         |      |        |                         |
|          | 097G11165 |    |         |      |        |                         |
|          | 097G11965 |    |         |      |        |                         |
|          | 097G11865 |    |         |      |        |                         |
|          | 097R11065 |    |         |      |        |                         |
|          | 097G11565 |    |         |      |        |                         |

Salton Sea Test Base, CTO 097

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG K9602884

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validatidn Report**

Project/Site Name: Salton Sea Test Base, CTO 097  
Collection Date: May 7 through May 8, 1996  
LDC Report Date: July 8, 1996  
Matrix: Water  
Parameters: Total Petroleum Hydrocarbons as Gasoline  
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K9602755

Sample Identification

097G15741  
097TO4342  
097R12242  
097G14446  
097G15143  
097G14242  
097G15043  
097G15543  
097G14341  
097G15641  
097R12342  
097TO4442  
097G14943  
097G14743  
097DO2442  
097G14445MS  
097G14445MSD

## Introduction

This data review covers 17 water samples listed on the cover sheet including dilutions and reanalysis as applicable. **The analyses were** per EPA SW 846 Method 8015 modified for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (February 1994) as there are no current guidelines for EPA SW 846 Method 8015 modified for Total Petroleum Hydrocarbons (TPH) as Gasoline. The modifications were based on EPA SW 846 Method 8015 modified.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or element was analyzed for but not detected at or above the stated limit.

Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

Indicates the compound or element was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the findina is related to a protocol/contractual deviation.



## **1. Technical Holding Times**

All technical holding time requirements were met.

### **11. Calibration**

#### **a. Initial Calibration**

Initial calibration of compounds was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r<sup>2</sup>) was greater than or equal to 0.990 .

#### **b. Calibration Verification**

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

### **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

## **IV. Accuracy and Precision Data**

#### **a. Surrogate Recovery**

Although surrogates were not required by the method, surrogate analysis was performed by the laboratory. Surrogate recoveries (%R) were within CC limits.

#### **b. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **c. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix -as applicable. Percent recoveries (%R) were within QC limits.

## **V. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **V1. Compound Quantitation and CROLS**

Raw data were not reviewed for this SDG.

## **VII. System Performance**

Raw data were not reviewed for this SDG.

## **VIII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **IX. Field Duplicates**

Samples 097G14743 and 097DO2442 were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

## **X. Field Blanks**

Samples 097TO4342 and 097TO4442 were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

Samples 097R12242 and 097R12342 were identified as rinsates, No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.