Level C Data Package Deliverables

# Wet Chemistry

Applied P & Ch Laboratory

Applied P & Ch Laboratory

# Wet Analysis Results for Method 7196

| | | | | | |
|---|---|---|---|---|---|
| Client Name: | GEOFON, Inc. | Project No: | 04.4428.10 | Anal. Method | 7196 |
| Project ID: | JPL | Service ID: | 35852 | Collected by: | Jr |

**Component Name: Chromium (VI)**
**CAS No: 1333-82-0**

| Lab ID | Sample ID | Matrix | Coll. Date | Rcv Date | Anal. Date | Batch | Unit | RL | Result | Q |
|---|---|---|---|---|---|---|---|---|---|---|
| 03-5852-1 | DUPE-1-4Q03 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03-5852-2 | EB-5-10-28-03 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03-5852-3 | MW-24-1 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03-5852-4 | MW-24-2 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03-5852-5 | MW-24-3 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03-5852-6 | MW-24-4 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03-5852-7 | MW-24-5 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |
| 03W4979-MB-01 | 03W4979-MB-01 | Water | 10/28/03 | 10/28/03 | 10/28/03 | 03W4979 | mg/L | 0.01 | <0.01 | U |

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Note: Q - Qualifier.
Qualifier: U - Not Detected or less than MDL
B - Less than RL (PQL, EQL or CRDL), but greater than MDL.

Applied P & Ch Laboratory

# Wet Analysis Results for Method 314.0

| | | | | | |
|---|---|---|---|---|---|
| Client Name: | GEOFON, Inc. | Project No: | 04.4428.10 | Anal. Method | 314.0 |
| Project ID: | JPL | Service ID: | 35852 | Collected by: | Jr |

**Component Name: Perchlorate**
**CAS No:**

| Lab ID | Sample ID | Matrix | Coll. Date | Rcv Date | Anal. Date | Batch | Unit | RL | Result | Q |
|---|---|---|---|---|---|---|---|---|---|---|
| 03-5852-1 | DUPE-1-4Q03 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 4 | <4 | U |
| 03-5852-2 | EB-5-10-28-03 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 4 | <4 | U |
| 03-5852-3 | MW-24-1 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 200 | 2760 | |
| 03-5852-4 | MW-24-2 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 20 | 155 | |
| 03-5852-5 | MW-24-3 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 4 | <4 | U |
| 03-5852-6 | MW-24-4 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 4 | <4 | U |
| 03-5852-7 | MW-24-5 | Water | 10/28/03 | 10/28/03 | 10/29/03 | 03W4987 | µg/L | 4 | <4 | U |
| 03W4987-MB-01 | 03W4987-MB-01 | Water | 10/29/03 | 10/29/03 | 10/29/03 | 03W4987 | µg/L | 4 | <4 | U |

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Note: Q - Qualifier.

Qualifier: U - Not Detected or less than MDL

B - Less than RL (PQL, EQL or CRDL), but greater than MDL.

FORM-3

Applied P & Ch Laboratory

# Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 314.0

| | | | | | |
|---|---|---|---|---|---|
| Client Name: | GEOFON, Inc. | Contract No: | | Lab Code: | APCL |
| Case No: | | SAS No: | | Service ID: | 35852 |
| Project ID: | JPL | Project No: | 04.4428.10 | Sample Matrix: | Water |
| | | Batch No: | 03W4987 | | |
| LCS Filename: | - | Date Analyzed: | 102903 | Time Analyzed: | |
| LCSD Filename: | - | Date Analyzed: | 102903 | Time Analyzed: | |

| Spiked Components | Unit | Spike Added | Concentration Unspiked | Concentration LCS | LCS Rec% # | QC Limit, % REC |
|---|---|---|---|---|---|---|
| PERCHLORATE | µg/L | 25 | 0 | 28.6 | 114 | 80-120 |
| # of Out-of-control | | | | | 0 | |

| Spiked Components | Unit | Spike Added | LCSD Concentration | LCSD Rec% # | RPD% # | QC Limit, % RPD | QC Limit, % REC |
|---|---|---|---|---|---|---|---|
| PERCHLORATE | µg/L | 25 | 27.8 | 111 | 3 | 20 | 80-120 |
| # of Out-of-control | | | | 0 | 0 | | |

# Column to be used to flag recovery and RPD values:

* - Values outside of contract required QC Limits  D - Spiked components diluted out

Comments: _____

_____

FORM-3

Applied P & Ch Laboratory

# Matrix Spike/Matrix Spike Duplicate Recovery for Method 314.0

| | | | | | |
|---|---|---|---|---|---|
| Client Name: | GEOFON, Inc. | Contract No: | | Lab Code: | APCL |
| Case No: | | SAS No: | | Service ID: | 35852 |
| Project ID: | JPL | Project No: | 04.4428.10 | Sample Matrix: | Water |
| | | Batch No: | 03W4987 | | |
| MS Filename: | - | Date Analyzed: | 102903 | Time Analyzed: | |
| MSD Filename: | - | Date Analyzed: | 102903 | Time Analyzed: | |
| MS Sample No: | **MW-19-3** | Sample Lab ID: | 03-5874-9 | | |

| Spiked Components | Unit | Spike Added | Concentration Unspiked | Concentration MS | MS Rec% # | QC Limit, % REC |
|---|---|---|---|---|---|---|
| PERCHLORATE | µg/L | 25 | 5.1 | 33.4 | 113 | 75-125 |
| # of Out-of-control | | | | | 0 | |

| Spiked Components | Unit | Spike Added | MSD Concentration | MSD Rec% # | RPD% # | QC Limit, % RPD | QC Limit, % REC |
|---|---|---|---|---|---|---|---|
| PERCHLORATE | µg/L | 25 | 36.3 | 125 | 10 | 20 | 75-125 |
| # of Out-of-control | | | | 0 | 0 | | |

# Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits  D – Spiked components diluted out

Comments: _____

FORM-3

Applied P & Ch Laboratory

# Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 7196

| | | | | | |
|---|---|---|---|---|---|
| Client Name: | GEOFON, Inc. | Contract No: | | Lab Code: | APCL |
| Case No: | | SAS No: | | Service ID: | 35852 |
| Project ID: | JPL | Project No: | 04.4428.10 | Sample Matrix: | Water |
| | | Batch No: | 03W4979 | | |
| LCS Filename: | - | Date Analyzed: | 102803 | Time Analyzed: | 13:20 |
| LCSD Filename: | - | Date Analyzed: | 102803 | Time Analyzed: | 13:20 |

| Spiked Components | Unit | Spike Added | Concentration Unspiked | Concentration LCS | LCS Rec% # | QC Limit, % REC |
|---|---|---|---|---|---|---|
| CHROMIUM (VI) | mg/L | 0.25 | 0 | 0.227 | 91 | 80-115 |
| # of Out-of-control | | | | | 0 | |

| Spiked Components | Unit | Spike Added | LCSD Concentration | LCSD Rec% # | RPD% # | QC Limit, % RPD | QC Limit, % REC |
|---|---|---|---|---|---|---|---|
| CHROMIUM (VI) | mg/L | 0.25 | 0.235 | 94 | 3 | 19 | 80-115 |
| # of Out-of-control | | | | 0 | 0 | | |

# Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits  D – Spiked components diluted out

Comments: _____

_____

FORM-3

Applied P & Ch Laboratory

# Matrix Spike/Matrix Spike Duplicate Recovery for Method 7196

| | | | | | |
|---|---|---|---|---|---|
| Client Name: | GEOFON, Inc. | Contract No: | | Lab Code: | APCL |
| Case No: | | SAS No: | | Service ID: | 35852 |
| Project ID: | JPL | Project No: | 04.4428.10 | Sample Matrix: | Water |
| | | Batch No: | 03W4979 | | |
| MS Filename: | - | Date Analyzed: | 102803 | Time Analyzed: | 13:20 |
| MSD Filename: | - | Date Analyzed: | 102803 | Time Analyzed: | 13:20 |
| MS Sample No: | **DUPE-1-4Q03** | Sample Lab ID: | 03-5852-1 | | |

| Spiked Components | Unit | Spike Added | Concentration Unspiked | Concentration MS | MS Rec% # | QC Limit, % REC |
|---|---|---|---|---|---|---|
| CHROMIUM (VI) | mg/L | 0.25 | 0 | 0.222 | 89 | 78-115 |
| # of Out-of-control | | | | | 0 | |

| Spiked Components | Unit | Spike Added | MSD Concentration | MSD Rec% # | RPD% # | QC Limit, % RPD | QC Limit, % REC |
|---|---|---|---|---|---|---|---|
| CHROMIUM (VI) | mg/L | 0.25 | 0.220 | 88 | 1 | 19 | 78-115 |
| # of Out-of-control | | | | 0 | 0 | | |

# Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits  D – Spiked components diluted out

Comments: _____

_____

6A

INITIAL CALIBRATION DATA

Lab Name: Applied P & Ch Lab Contract: 35852

Analysis: Chromium (VI) Calibration Date: 7/28/03

| Concentration (mg/L) | 0.000 | 0.0125 | 0.050 | 0.125 | 0.250 | 0.50 |
|---|---|---|---|---|---|---|
| Absorbance | 0.000 | 0.007 | 0.017 | 0.107 | 0.212 | 0.420 |

**A=-0.001+ 0.846C**

**A=Absorbance**

**C=Concentration (mg/L)**

**r= 0.9999**

FORM-7

Applied P & Ch Laboratory

# CCV Recovery for Wet Analysis

Client Name: GEOFON, Inc. Contract No.: Lab Code: APCL

Case No: SAS No.: Service ID: 35852

Project ID: JPL Project No.: 04.4428.10

| # | Component Name | Method | Batch No. | Unit | Expected | Test Result | Rec. % | Dev. % | Flag | Control Limit, % | Test Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Perchlorate | 314.0 | 03W4987 | µg/L | 50 | 57.3 | 115 | 15 | √ | 85-115 | 10/29/2003 |
| | Perchlorate | 314.0 | 03W4987 | µg/L | 50 | 56.2 | 112 | 12 | √ | 85-115 | 10/29/2003 |
| | Perchlorate | 314.0 | 03W4987 | µg/L | 50 | 55.9 | 112 | 12 | √ | 85-115 | 10/29/2003 |
| | Perchlorate | 314.0 | 03W4987 | µg/L | 50 | 57.5 | 115 | 15 | √ | 85-115 | 10/29/2003 |
| 2 | Chromium (VI) | 7196 | 03W4979 | mg/L | 0.25 | 0.235 | 94 | -6 | √ | 90-110 | 10/28/2003 |
| | Chromium (VI) | 7196 | 03W4979 | mg/L | 0.25 | 0.249 | 100 | 0 | √ | 90-110 | 10/28/2003 |

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# Chromium (VI) ( 7196 ) Worksheet

10

ch #CBW4979 Matrix: W

[ Holding Time: 24 hours!! ]

Test Date: 10/28/03 Analyst: [illegible]

Test Time: 13:20 SOP: G-2

Lot #: Reagent Water _____ Diphenylcazide solution _____

| Calibration | STD Lot # | $C_{std} \times V_{std} / V_f = C_i$ | $A_i$ | $RF_i = A_i / C_i$ | Calibration results | Note |
|---|---|---|---|---|---|---|
| STD-1 | W- | × / = mg/L | | | Least Square [RF]= | Cal. Code: |
| STD-2 | W- | × / = mg/L | | | Average $\overline{RF}$= | |
| STD-3 | W- | × / = mg/L | | | C.C.=0.9999 (≥ 0.995) | |
| STD-4 | W- | × / = mg/L | | | RSD= % (≤ 15%) | |
| STD-5 | W- | × / = mg/L | | | Ref. page | |
| STD-6 | W- | × / = mg/L | | | A=-0.001+0.8446C | |

| Analysis Type | Sample ID or Lot # | Samp. Amnt $X_0$ (g or mL) | Dilu./Ext $X/X_0 = f_1$ | Treat. Ratio $V/X = f_2$ | 540 nm A | Concentration $C' = A/\overline{RF}$ | C (Sample) $C = f_1 f_2 C'$ | Anomaly Note |
|---|---|---|---|---|---|---|---|---|
| CCV | Lot: W-7757 | Expected Conc.: × / = 0.1 mg/L | | | 0.198 | 0.235 mg/L | REC. 94 % | 90-110 % |
| Method Blank | Bl. Lot: T118 | | /$X_0$ = 1 | 95.0/ = | 0.000 | mg/L | 0.00 ppm | |
| LCS1 | Bl. Lot: | | /$X_0$ = 1 | 95.0/ = | 0.191 | mg/L | 0.227 ppm | |
| Sample-1 | 9852-1 | | /$X_0$ = 1 | 95.0/ = | 0.003 | mg/L | 0.005 ppm | |
| MS on S-1 | 1 | | /$X_0$ = 1 | 95.0/ = | 0.187 | mg/L | 0.222 ppm | |
| MSD on S-1 | 1 | | /$X_0$ = 1 | 95.0/ = | 0.185 | mg/L | 0.220 ppm | |
| Sample 2 | 2 | | /$X_0$ = 1 | 95.0/ = | 0.002 | mg/L | 0.003 ppm | |
| Sample 3 | 3 | | /$X_0$ = 1 | 95.0/ = | 0.002 | mg/L | 0.003 ppm | |
| Sample 4 | 4 | | /$X_0$ = 1 | 95.0/ = | 0.002 | mg/L | 0.003 ppm | |
| Sample 5 | 5 | | /$X_0$ = 1 | 95.0/ = | 0.001 | mg/L | 0.002 ppm | |
| Sample 6 | 6 | | /$X_0$ = 1 | 95.0/ = | 0.002 | mg/L | 0.003 ppm | |
| Sample 7 | 7 | | /$X_0$ = 1 | 95.0/ = | 0.003 | mg/L | 0.005 ppm | |
| Sample 8 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 9 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 10 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Blank | Lot: | | /$X_0$ = 1 | 95.0/ 10/28/03 | | mg/L | ppm | |
| LCS2 | Bl. Lot: T118 | | /$X_0$ = 1 | 95.0/ = | 0.198 | mg/L | 0.235 ppm | |
| Sample 11 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 12 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 13 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 14 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 15 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 16 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 17 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 18 | | | /$X_0$ = 1 | 95.0/ 10/28/03 = | | mg/L | ppm | |
| Sample 19 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| Sample 20 | | | /$X_0$ = 1 | 95.0/ = | | mg/L | ppm | |
| MTX Dup. | [illegible] 0.2[illegible] | | /$X_0$ = 1 | 95.0/ = | 0.210 | 0.249 mg/L | ppm | |

| Type | STD Lot # | $C_{STD(\mu g/mL)} \times V_{STD(mL)} / X_{(g \text{ or } mL)} = T$ | Spike Rec. | Ctl Limit (W/S) |
|---|---|---|---|---|
| MS | W-7757 | × / = 0.25 ppm | % | 80-120 %/80-120 % |
| MSD | W- " | × / = ppm | % | .. .. |
| LCS | W-7852 | × / = ppm | % | 80-120 %/80-120 % |
| LCSD | W- " | × / = ppm | % | .. .. |

| PQL/MDL (in ppm) | |
|---|---|
| PQL(w) | 0.01 |
| PQL(s) | 0.05 |
| MDL(w) | 0.005 |
| MDL(s) | 0.025 |

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# Chromium (VI) ( 7196 ) Worksheet

Batch # PZ Matrix: W & GS [ Holding Time: 24 hours!! ] Test Date: 7/28/03 Analyst: [illegible]

Lot #: Reagent Water _____ Diphenylcazide solution _____ Test Time: _____ SOP: G

| Calibration | STD Lot # | $C_{std} \times V_{std}/V_f = C_i$ | $A_i$ | $RF_i = A_i/C_i$ | Calibration results | Note |
|---|---|---|---|---|---|---|
| STD-1 | W-7257 | × / = 0.00 mg/L | 0.000 | | Least Square [RF]= | Cal. Code: |
| STD-2 | W- | × / = 0.025 mg/L | 0.007 | | Average $\bar{RF}$= | |
| STD-3 | W- | × / 0.025 0.050 mg/L | 0.017 | | C.C. 0.9999 (≥ 0.995) | |
| STD-4 | W- | × / = 0.125 mg/L | 0.107 | | RSD= % (≤ 15%) | |
| STD-5 | W- | × / = 0.250 mg/L | 0.212 | | Ref. page | |
| STD-6 | W- | × / = 0.50 mg/L | 0.420 | | A = -0.001 + 0.846C | |

| Analysis Type | Sample ID or Lot # | Samp. Amnt $X_0$ (g or mL) | Dilu./Ext $X/X_0 = f_1$ | Treat. Ratio $V/X = f_2$ | 540 nm A | Concentration $C' = A/\bar{RF}$ | C (Sample) $C = f_1 f_2 C'$ | Anom: Note |
|---|---|---|---|---|---|---|---|---|
| CCV | Lot: W-7853 | Expected Conc.: | × / | = 0.25 mg/L | 0.218 | 0.259 mg/L | REC. % | 90-110 |
| Method Blank | Bl. Lot: | | $/X_0$ = | 95.0/ = | 0.000 | 0.000 mg/L | ppm | |
| LCS1 | Bl. Lot: | | $/X_0$ = | 95.0/ = | 0.210 | 0.250 mg/L | ppm | |
| Sample-1 | 4177-37 | 1ml → 100ml | $/X_0$ = 1 | 95.0/ = 2 | 0.290 | 0.689 mg/L | ppm | |
| MS on S-1 | 37 | 0.5ml → 100ml | $/X_0$ = | 95.0/ = 2 | 0.287 | 0.682 mg/L | report | |
| MSD on S-1 | 4175-15 | 10.0g | 50.0ml $/X_0$ = 5 | 95.0/ = 10 | 0.050 | 3.04 mg/L | ppm | |
| Sample 2 | 15 | Y | $/X_0$ = | 95.0/ = 2 | 0.247 | 2.94 mg/L | report | |
| Sample 3 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 4 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 5 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 6 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 7 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 8 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 9 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 10 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Blank | Lot: | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| LCS2 | Bl. Lot: | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 11 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 12 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 13 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 14 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 15 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 16 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 17 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 18 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 19 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| Sample 20 | | | $/X_0$ = | 95.0/ = | | mg/L | ppm | |
| MTX Dup. | closing 0.25 mg/L | | $/X_0$ = | 95.0/ = | 0.218 | 0.259 mg/L | ppm | |

| Type | STD Lot # | $C_{STD}(\mu g/mL) \times V_{STD}(mL)/X(g \text{ or } mL) = T$ | Spike Rec. | Ctl Limit (W/S) |
|---|---|---|---|---|
| MS | W- | × / = ppm | % | 80-120 %/80-120 % |
| MSD | W- | × / = ppm | % | .. .. |
| LCS | W- | × / = ppm | % | 80-120 %/80-120 % |
| LCSD | W- | × / = ppm | % | .. .. |

| PQL/MDL (in ppm) | |
|---|---|
| PQL(w) | 0.01 |
| PQL(s) | 0.05 |
| MDL(w) | 0.005 |
| MDL(s) | 0.025 |

APCL form 5-155 May 08, 1996. Ver. 3.1 No pencil. Use blue pen for record. Use red pen for correction.
File:[CUST.DOC.WET]CR6.TEX Root-file: CR6_ROOT.TEX 1-Page-File: CR61.TEX
Control limits are subjected to change. The updated values are given in the latest version of APCL Technical Handbook Vol. 2

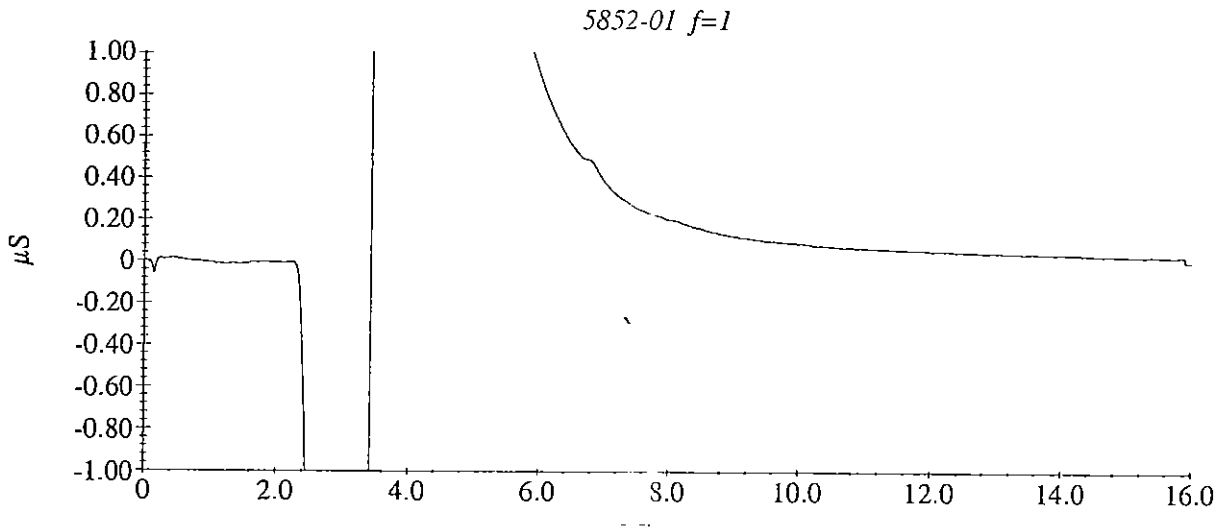
# APCL Perchlorate Analysis Report

**Sample Name : 5852-01 f=1**
**Data File Name : C:\DATA\03W4987K\5852-01_008.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 12:05:28 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



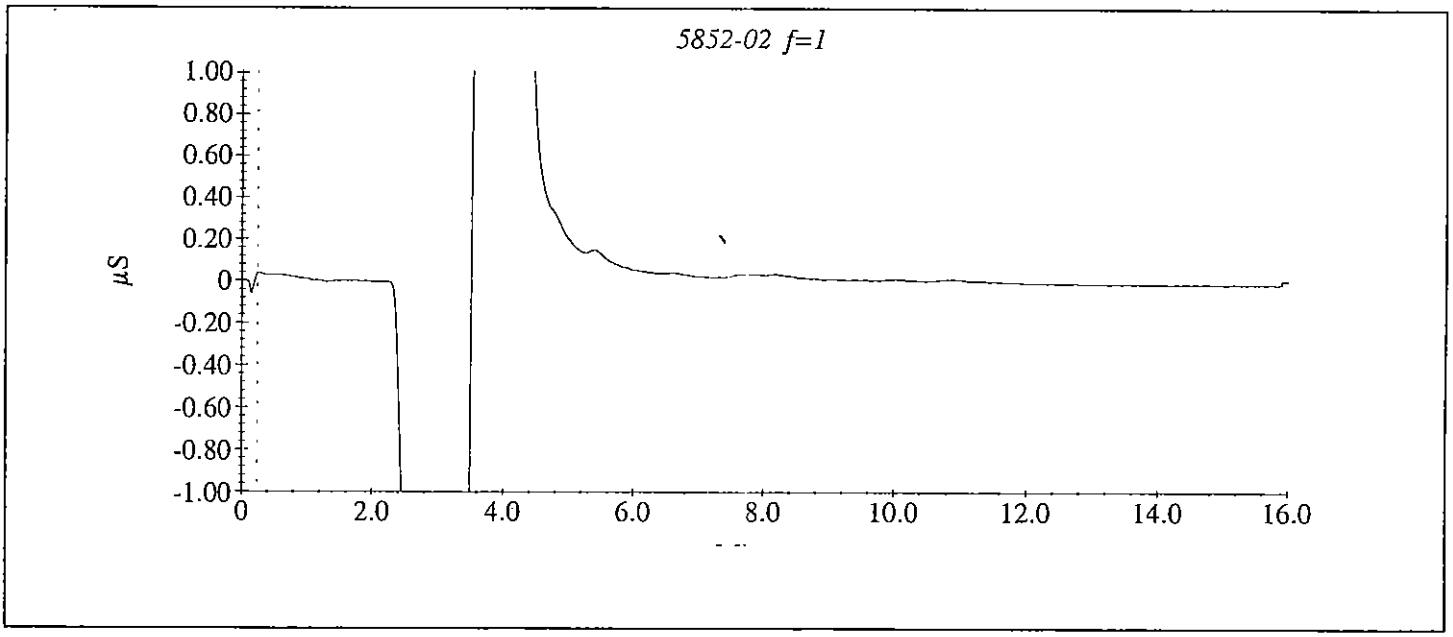
# APCL Perchlorate Analysis Report

**Sample Name : 5852-02 f=1**
**Data File Name : C:\DATA\03W4987K\5852-02_009.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 12:23:52 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



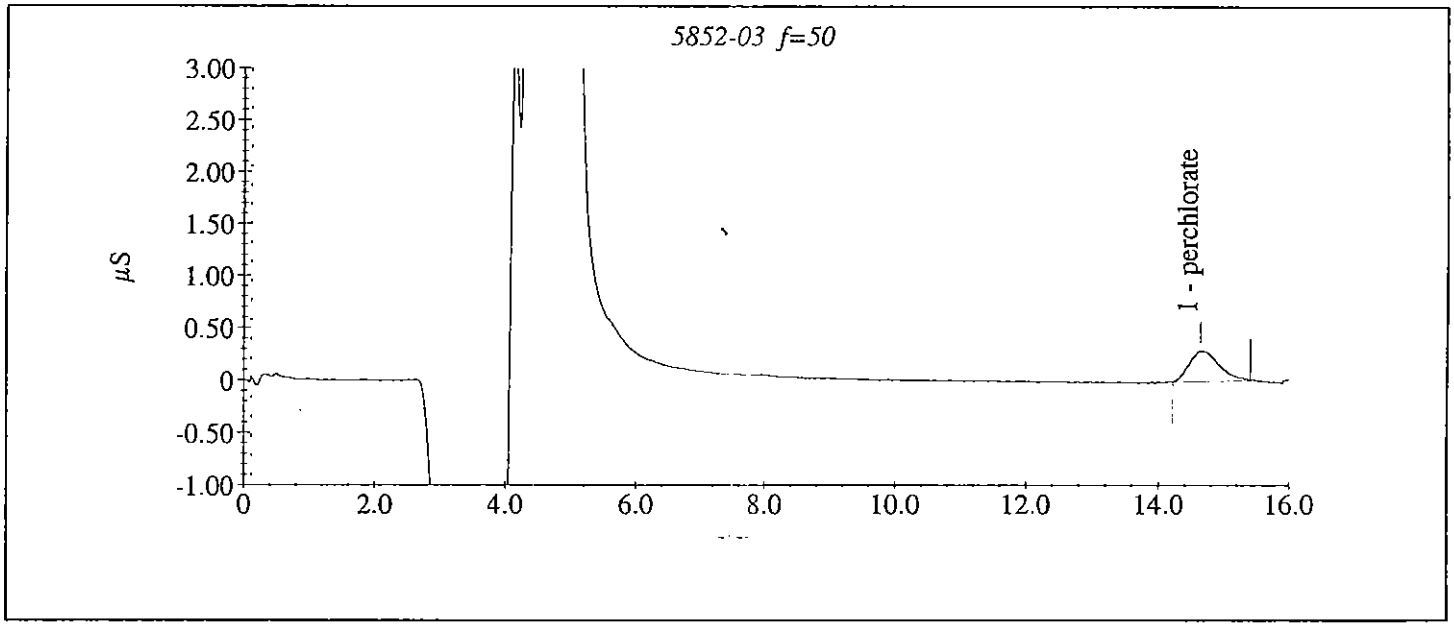
# APCL Perchlorate Analysis Report

**Sample Name : 5852-03 f=50**
**Data File Name : C:\DATA\03W4987K\5852-03A_017.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 2:51:16 PM
System Operator : C.W and W.W
Dilution Factor : 50.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.63 | 2764.85 | 93842.10 | 2906.41 |



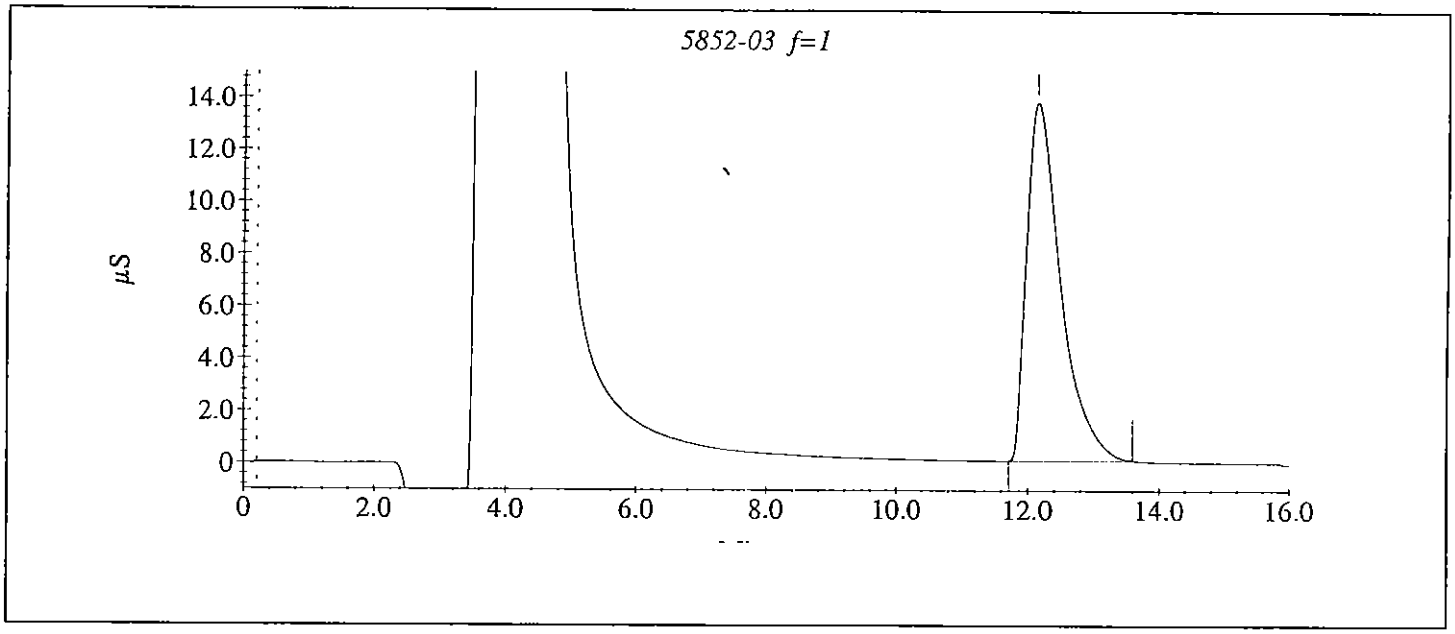
# APCL Perchlorate Analysis Report

**Sample Name : 5852-03 f=1**
**Data File Name : C:\DATA\03W4987K\5852-03_010.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 12:42:17 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 12.13 | 2884.63 | 4895386.20 | 137393.02 |




for reference

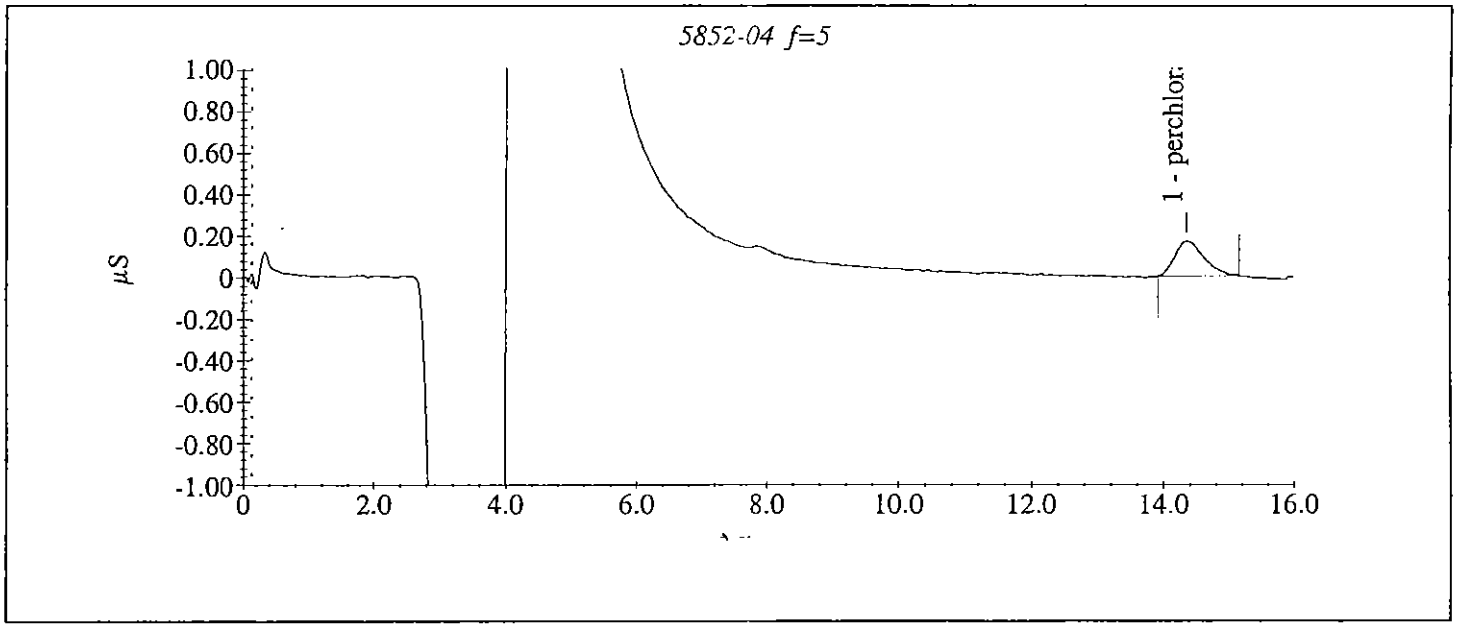
# APCL Perchlorate Analysis Report

**Sample Name : 5852-04 f=5**
**Data File Name : C:\DATA\03W4987K\5852-04A_019.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 3:33:07 PM
System Operator : C.W and W.W
Dilution Factor : 5.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.35 | 154.58 | 52465.80 | 1672.60 |



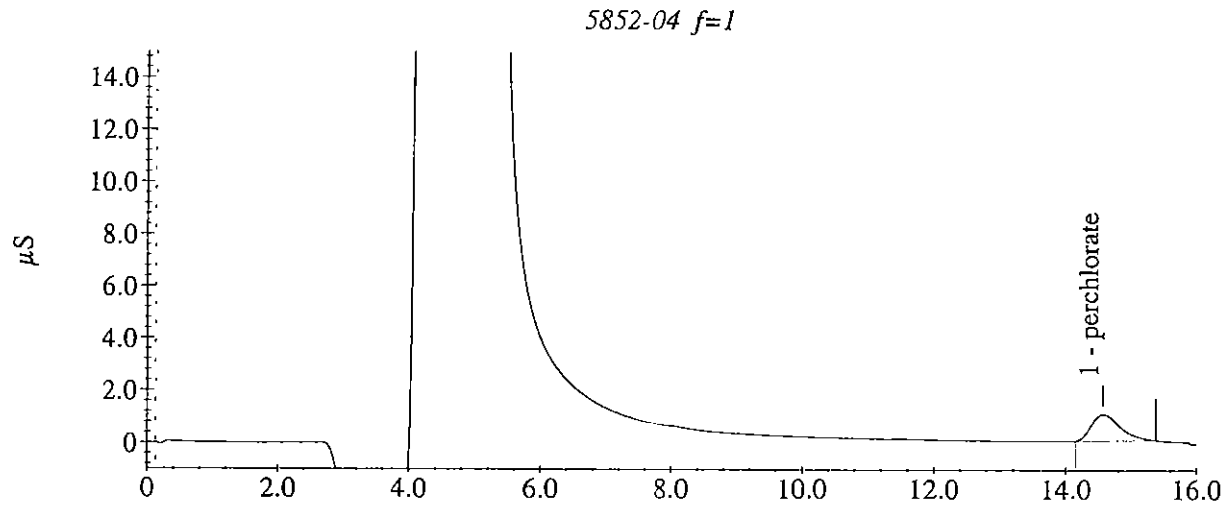
# APCL Perchlorate Analysis Report

**Sample Name : 5852-04 f=1**
**Data File Name : C:\DATA\03W4987K\5852-04_018.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 3:09:43 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.57 | 184.54 | 313177.90 | 10032.69 |




for reference

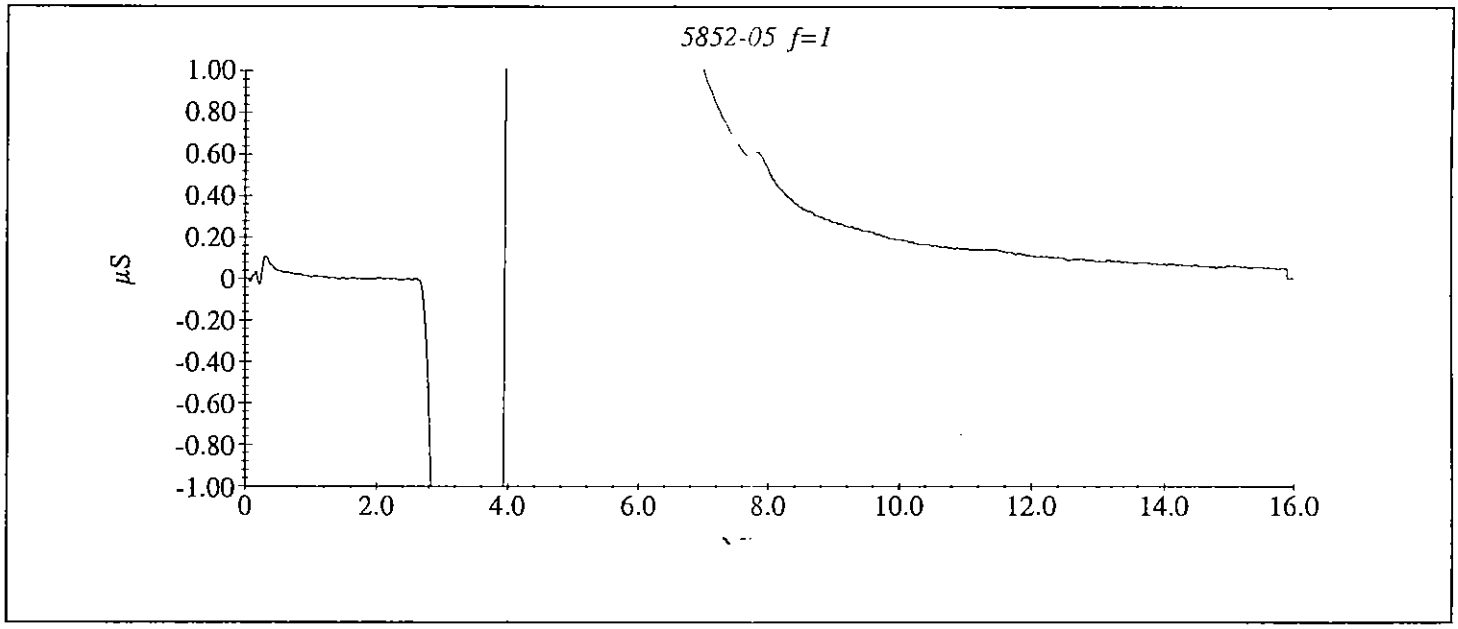
# APCL Perchlorate Analysis Report

**Sample Name : 5852-05 f=1**
**Data File Name : C:\DATA\03W4987K\5852-05_012.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 1:19:03 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



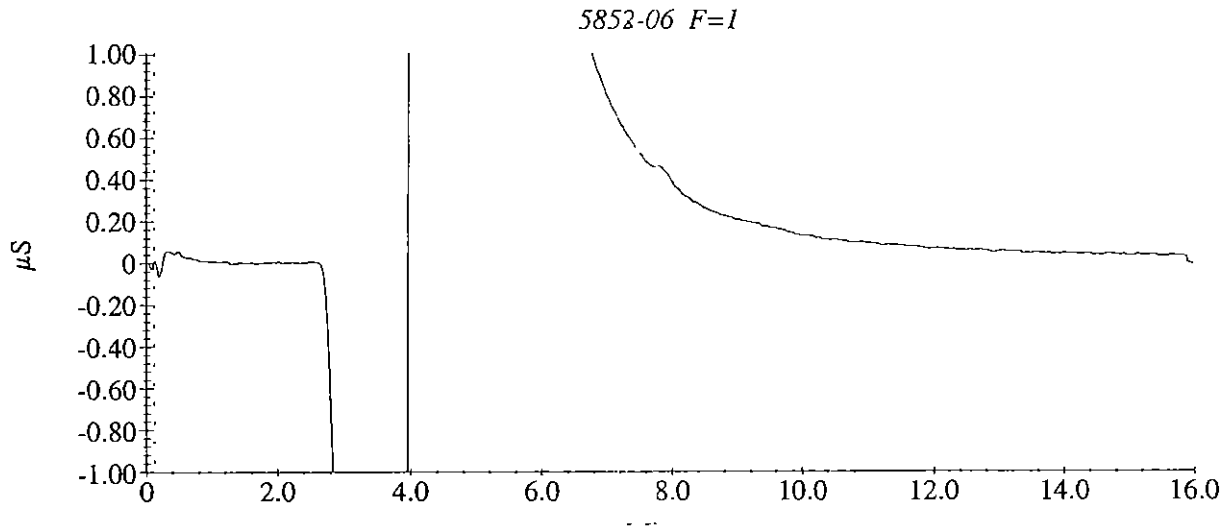
# APCL Perchlorate Analysis Report

**Sample Name : 5852-06 F=1**
**Data File Name : C:\DATA\03W4987K\5852-06_015.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 2:14:25 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



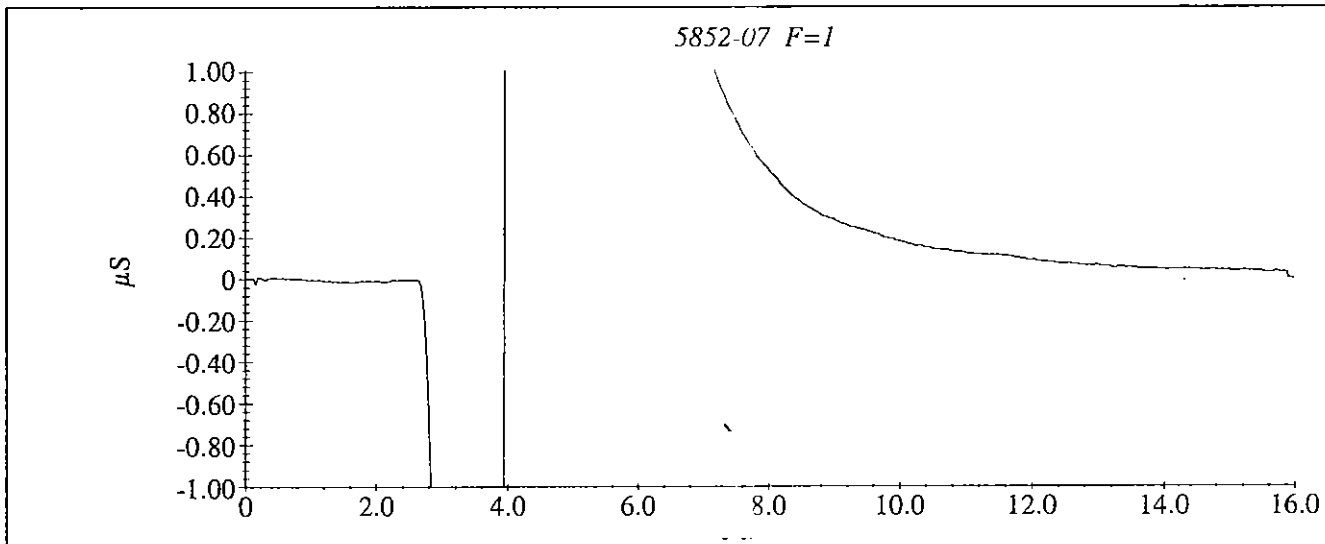
# APCL Perchlorate Analysis Report

**Sample Name : 5852-07 F=1**
**Data File Name : C:\DATA\03W4987K\5852-07_016.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 2:32:51 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



Schedule File: C:\PeakNet\schedule\03w4987k.sch

| Line | Sample | Sample Type | Level | Method | Data File | Volume | Dilution | Weight |
|---|---|---|---|---|---|---|---|---|
| 1 | ##03w4987k ipc 25ppb w8032 | Sample | | e314-011.met | c:\data\03w4987k\w4987k ipc25ppb | 1 | 1 | 1 |
| 2 | ccv 50ppb w8082 | Sample | | e314-011.met | c:\data\03w4987k\w4987k q01 | 1 | 1 | 1 |
| 3 | lcs 25ppb w8087 | Sample | | e314-011.met | c:\data\03w4987k\w4987k l01 | 1 | 1 | 1 |
| 4 | Lcsd 25PPB W8033a | Sample | | e314-011.met | c:\data\03w4987k\w4987k j01 | 1 | 1 | 1 |
| 5 | ICCS 4ppb w8088 | Sample | | e314-011.met | c:\data\03w4987k\w4987k iccs 4ppb | 1 | 1 | 1 |
| 6 | mb | Sample | | e314-011.met | c:\data\03w4987k\w4987k k01 | 1 | 1 | 1 |
| 7 | 5826-02 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5826-02 | 1 | 1 | 1 |
| 8 | 5852-01 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-01 | 1 | 1 | 1 |
| 9 | 5852-02 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-02 | 1 | 1 | 1 |
| 10 | 5852-03 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-03 | 1 | 1 | 1 |
| 11 | 5852-04 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-04 | 1 | 1 | 1 |
| 12 | 5852-05 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-05 | 1 | 1 | 1 |
| 13 | ccv 50ppb w8082 | Sample | | e314-011.met | c:\data\03w4987k\w4987k q02 | 1 | 1 | 1 |
| 14 | ccb | Sample | | e314-011.met | c:\data\03w4987k\w4987k ccb | 1 | 1 | 1 |
| 15 | 5852-06 F=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-06 | 1 | 1 | 1 |
| 16 | 5852-07 F=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-07 | 1 | 1 | 1 |
| 17 | 5852-03 f=50 | Sample | | e314-011.met | c:\data\03w4987k\5852-03a | 1 | 50 | 1 |
| 18 | 5852-04 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5852-04 | 1 | 1 | 1 |
| 19 | 5852-04 f=5 | Sample | | e314-011.met | c:\data\03w4987k\5852-04a | 1 | 5 | 1 |
| 20 | 5874-03 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-03 | 1 | 1 | 1 |
| 21 | 5874-09 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-09 | 1 | 1 | 1 |
| 22 | 5874-03 ms 25ppb f=1w8033b | Sample | | e314-011.met | c:\data\03w4987k\w4987k m01 | 1 | 1 | 1 |
| 23 | 5874-03 msd 25ppb f=1w8033b | Sample | | e314-011.met | c:\data\03w4987k\w4987k n01 | 1 | 1 | 1 |
| 24 | ccv 50ppb w8082 | Sample | | e314-011.met | c:\data\03w4987k\w4987k q03 | 1 | 1 | 1 |
| 25 | ccb | Sample | | e314-011.met | c:\data\03w4987k\w4987k ccb | 1 | 1 | 1 |
| 26 | 5874-01 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-01 | 1 | 1 | 1 |
| 27 | 5874-02 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-02 | 1 | 1 | 1 |
| 28 | 5874-04 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-04 | 1 | 1 | 1 |
| 29 | 5874-05 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-05 | 1 | 1 | 1 |
| 30 | 5874-06 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-06 | 1 | 1 | 1 |
| 31 | 5874-07 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-07 | 1 | 1 | 1 |
| 32 | 5874-08 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-08 | 1 | 1 | 1 |
| 33 | 5874-10 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-10 | 1 | 1 | 1 |
| 34 | 5874-11 f=1 | Sample | | e314-011.met | c:\data\03w4987k\5874-11 | 1 | 1 | 1 |
| 35 | ccv 50ppb w8082 | Sample | | e314-011.met | c:\data\03w4987k\w4987k q04 | 1 | 1 | 1 |
| 36 | ccb | Sample | | e314-011.met | c:\data\03w4987k\w4987k ccb | 1 | 1 | 1 |
| 37 | 5874-09 ms 25ppb f=1w8033b | Sample | | e314-011.met | c:\data\03w4987k\w4987k m02 | 1 | 1 | 1 |
| 38 | 5874-09 msd 25ppb f=1 w8033b | Sample | | e314-011.met | c:\data\03w4987k\w4987k n02 | 1 | 1 | 1 |
| 39 | ccv 50ppb w8082 | Sample | | e314-011.met | c:\data\03w4987k\w4987k q05 | 1 | 1 | 1 |
| 40 | | Sample | | aastopcl.met | | 1 | 1 | 1 |

Analyst W. W

Date 10/29/03

Instrument IC-K

Schedule File: C:\PeakNet\schedule\03w4987k.sch

| Line | Int. Std. | Comment |
|---|---|---|
| 1 | 1 | |
| 2 | 1 | |
| 3 | 1 | |
| 4 | 1 | |
| 5 | 1 | |
| 6 | 1 | |
| 7 | 1 | |
| 8 | 1 | |
| 9 | 1 | |
| 0 | 1 | |
| 1 | 1 | |
| 2 | 1 | |
| 3 | 1 | |
| 4 | 1 | |
| 5 | 1 | |
| 6 | 1 | |
| 7 | 1 | |
| 8 | 1 | |
| 9 | 1 | |
| 0 | 1 | |
| 1 | 1 | |
| 2 | 1 | |
| 3 | 1 | |
| 4 | 1 | |
| 5 | 1 | |
| 6 | 1 | |
| 7 | 1 | |
| 8 | 1 | |
| 9 | 1 | |
| 0 | 1 | |
| 1 | 1 | |
| 2 | 1 | |
| 3 | 1 | |
| 4 | 1 | |
| 5 | 1 | |
| 6 | 1 | |
| 7 | 1 | |
| 8 | 1 | |
| 9 | 1 | |
| 0 | 1 | |

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: C:\DATA\03W4560K
Comment:

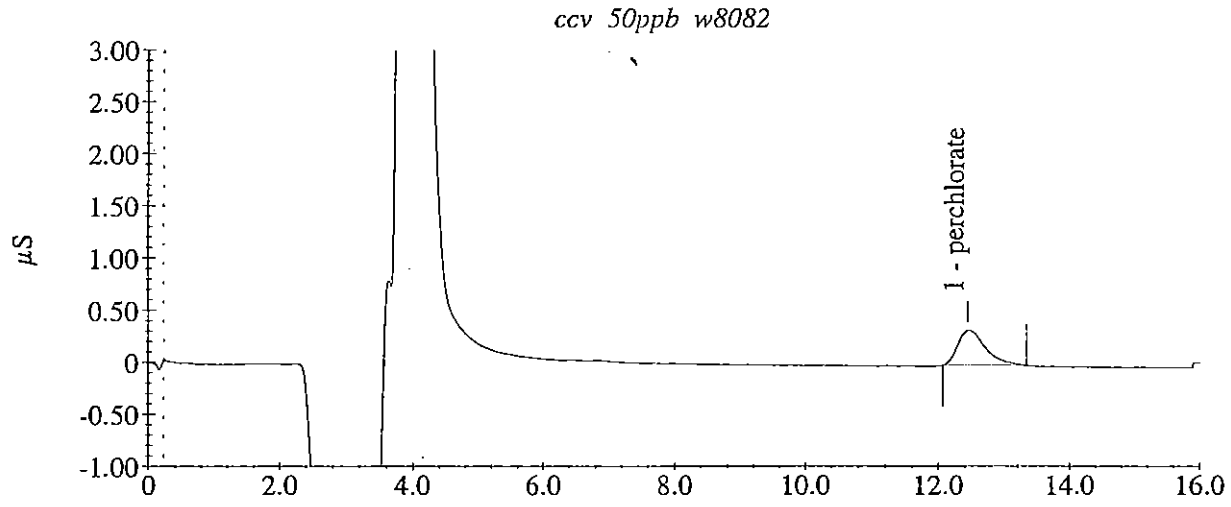
# APCL Perchlorate Analysis Report

**Sample Name : ccv 50ppb w8082**
**Data File Name : C:\DATA\03W4987K\W4987K Q01_002.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 10:14:47 AM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 12.45 | 57.33 | 97284.10 | 3339.41 |



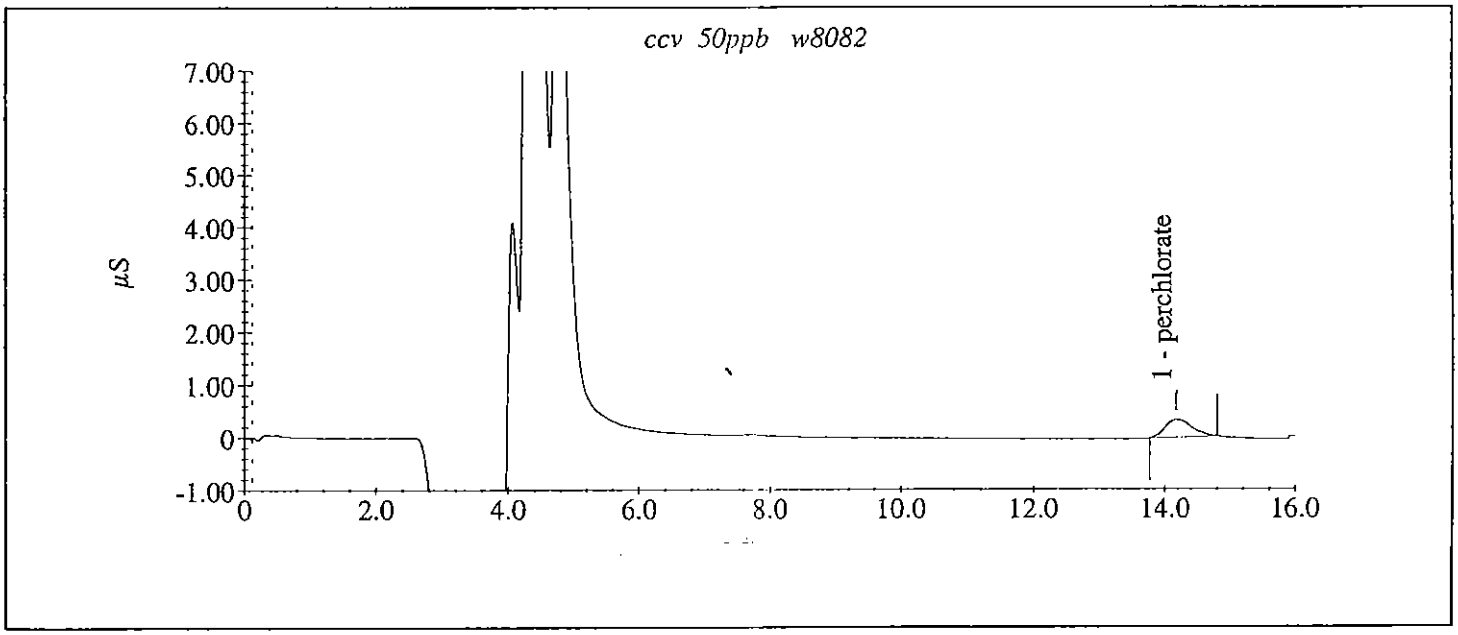
# APCL Perchlorate Analysis Report

**Sample Name : ccv 50ppb w8082**
**Data File Name : C:\DATA\03W4987K\W4987K Q02_013.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 1:37:31 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.17 | 57.31 | 97250.10 | 3387.86 |



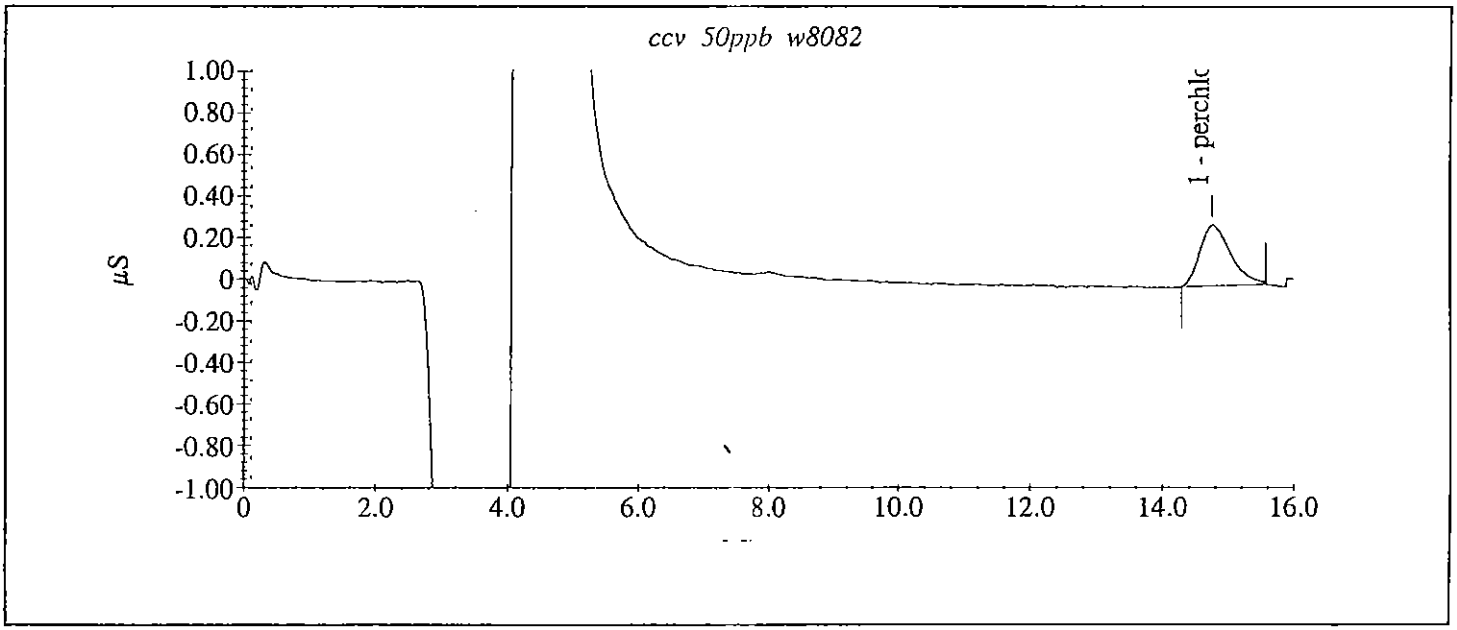
# APCL Perchlorate Analysis Report

**Sample Name : ccv 50ppb w8082**
**Data File Name : C:\DATA\03W4987K\W4987K Q03_024.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 5:07:06 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.77 | 56.19 | 95364.10 | 2931.54 |



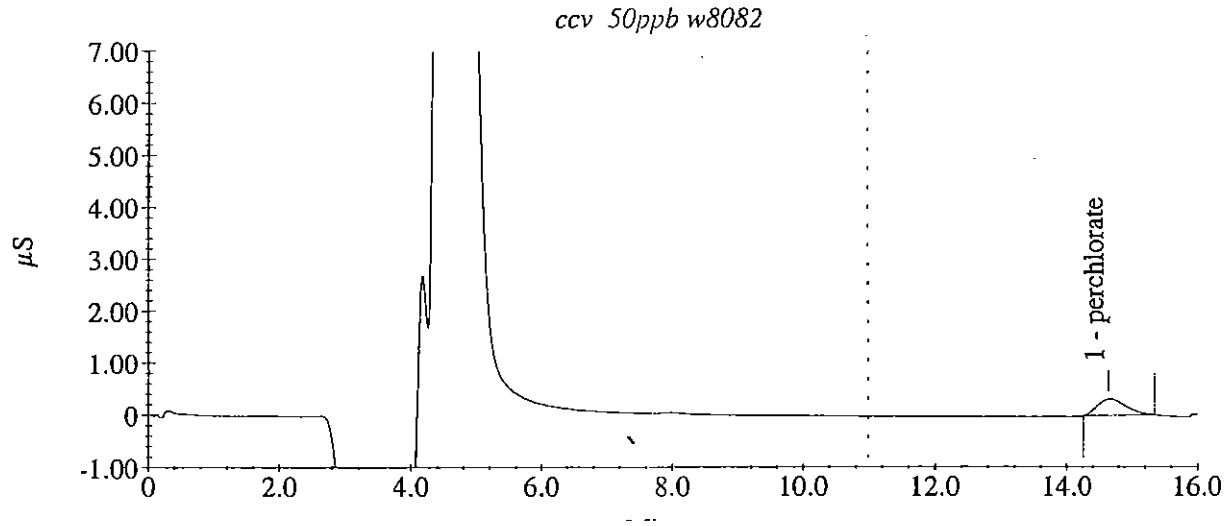
# APCL Perchlorate Analysis Report

**Sample Name : ccv 50ppb w8082**
**Data File Name : C:\DATA\03W4987K\W4987K Q04_035.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 8:29:39 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.63 | 55.94 | 94928.75 | 3120.75 |



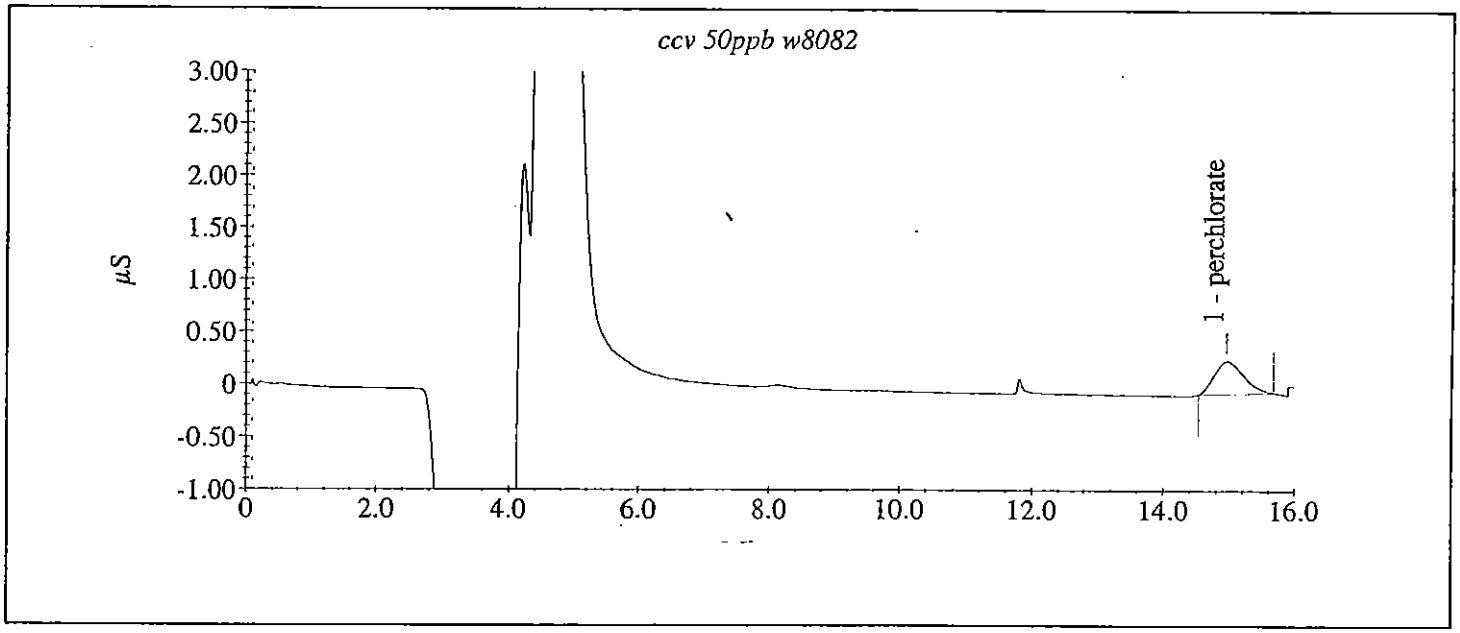
# APCL Perchlorate Analysis Report

**Sample Name : ccv 50ppb w8082**
**Data File Name : C:\DATA\03W4987K\W4987K Q05_039.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 9:43:17 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.95 | 57.49 | 97569.15 | 3112.40 |



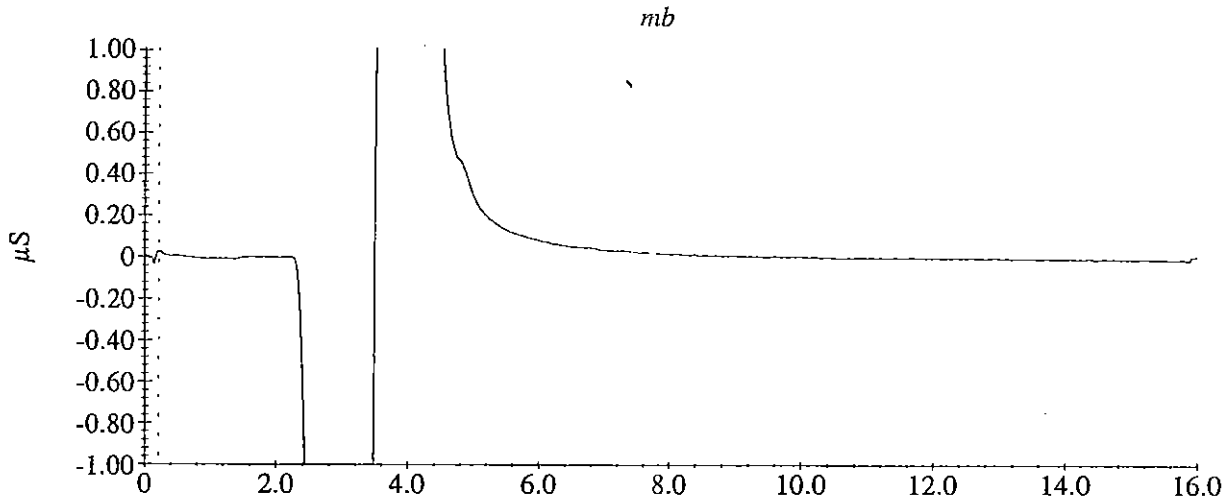
# APCL Perchlorate Analysis Report

**Sample Name : mb**
**Data File Name : C:\DATA\03W4987K\W4987K K01_006.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 11:28:24 AM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



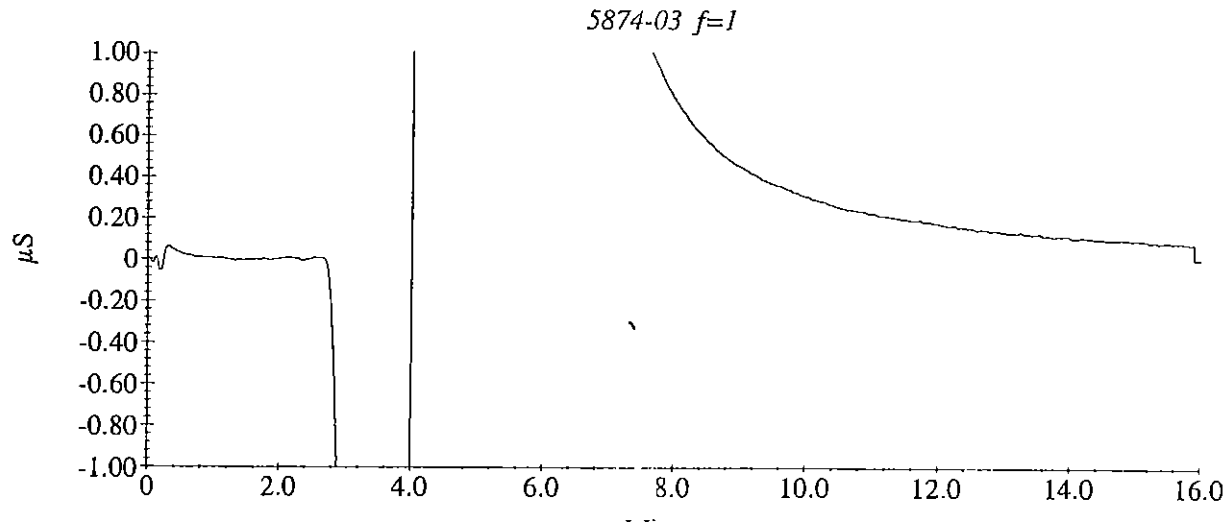
# APCL Perchlorate Analysis Report

**Sample Name : 5874-03 f=1**
**Data File Name : C:\DATA\03W4987K\5874-03_020.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 3:53:09 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



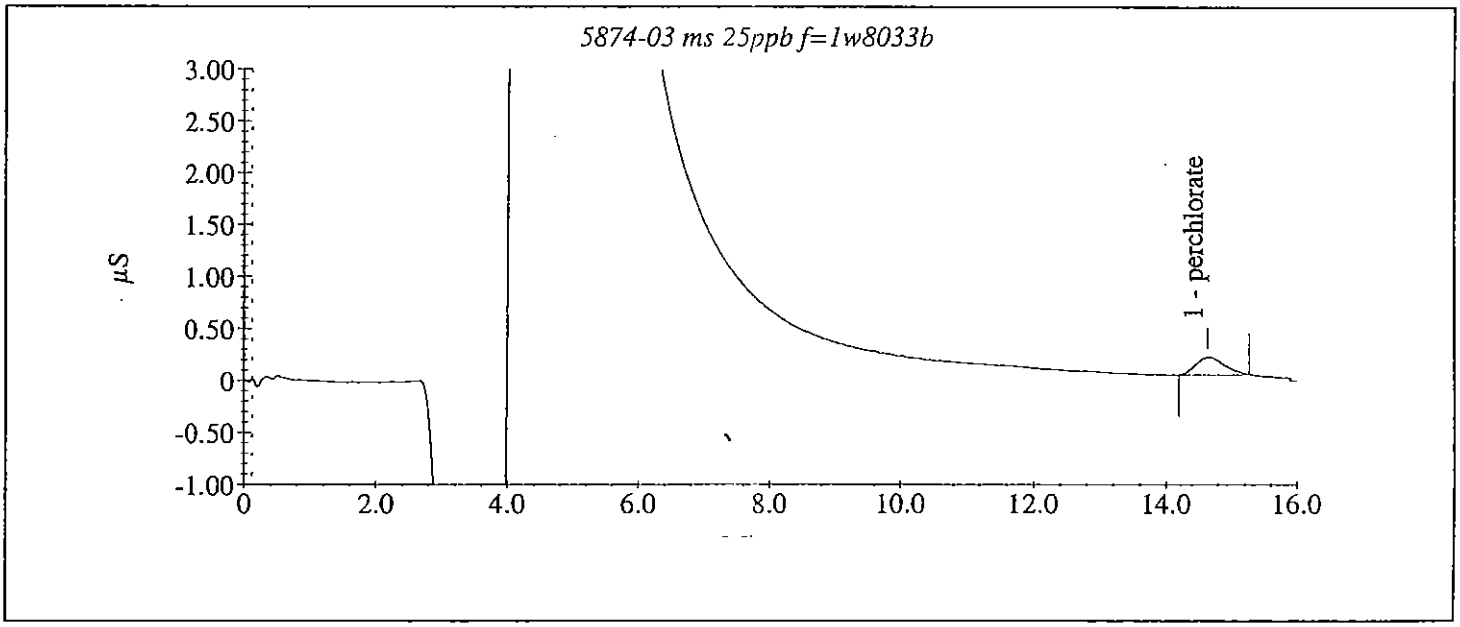
# APCL Perchlorate Analysis Report

**Sample Name : 5874-03 ms 25ppb f=1w8033b**
**Data File Name : C:\DATA\03W4987K\W4987K M01_022.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 4:30:17 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.63 | 30.56 | 51858.20 | 1706.95 |




Rec 122.2%

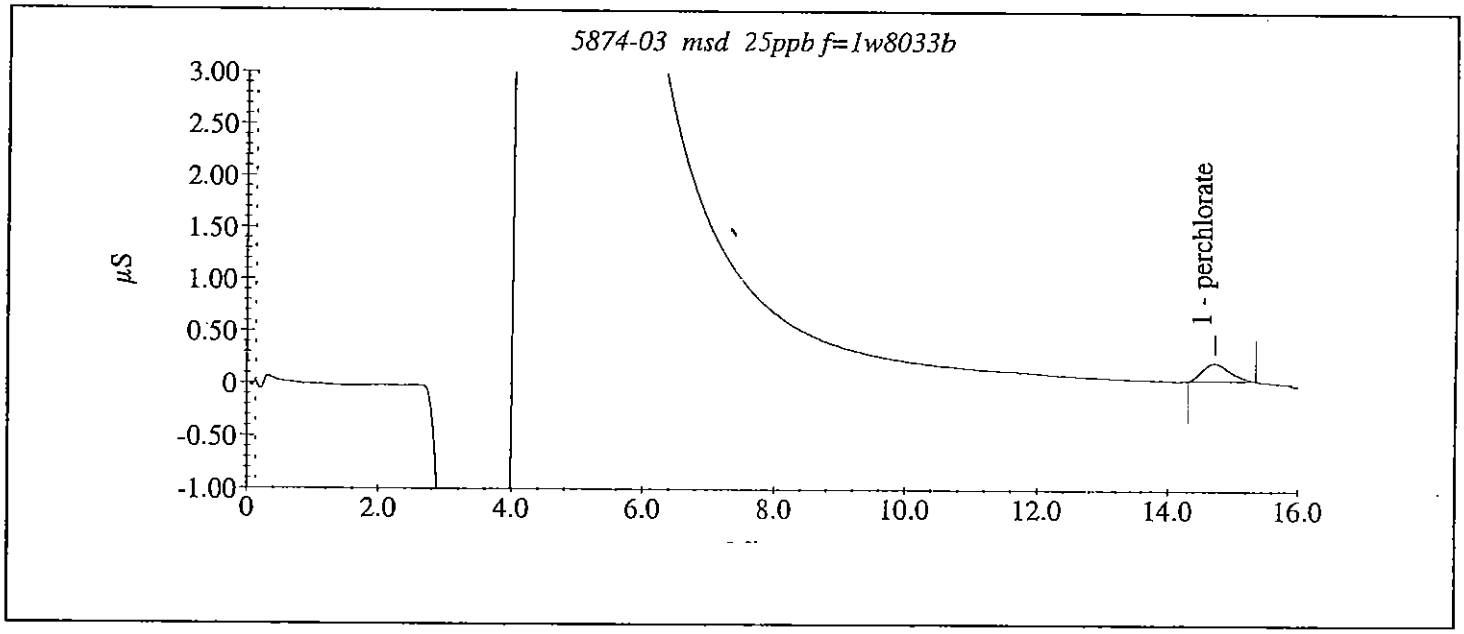
# APCL Perchlorate Analysis Report

**Sample Name : 5874-03 msd 25ppb f=1w8033b**
**Data File Name : C:\DATA\03W4987K\W4987K N01_023.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 4:48:42 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.72 | 29.98 | 50886.00 | 1708.65 |




Rec 119.92%

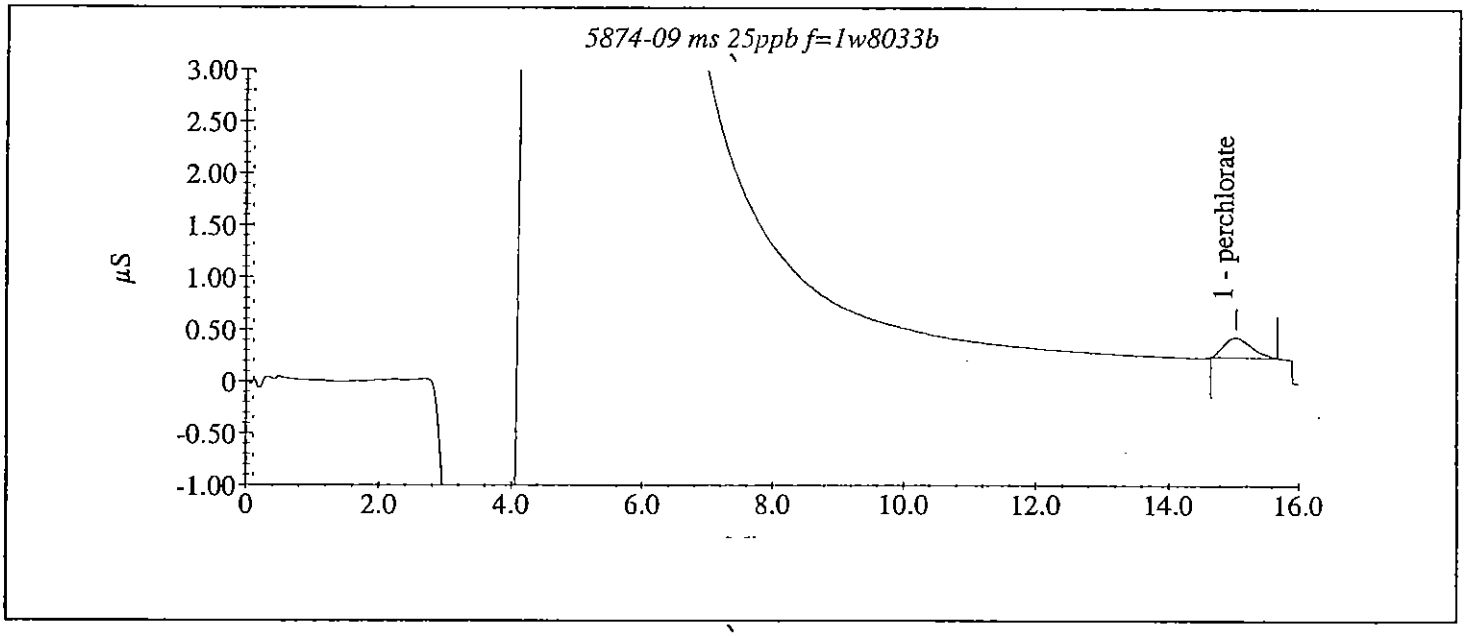
# APCL Perchlorate Analysis Report

**Sample Name : 5874-09 ms 25ppb f=1w8033b**
**Data File Name : C:\DATA\03W4987K\W4987K M02_037.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 9:06:30 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 15.05 | 33.44 | 56752.00 | 1895.76 |




Rec 113.44%

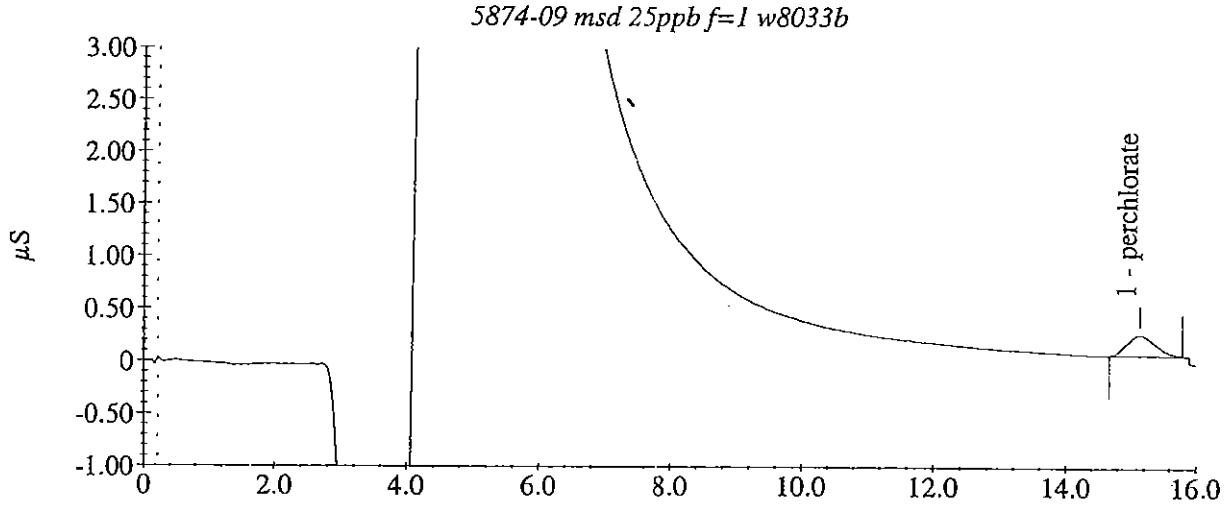
# APCL Perchlorate Analysis Report

**Sample Name : 5874-09 msd 25ppb f=1 w8033b**
**Data File Name : C:\DATA\03W4987K\W4987K N02_038.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 9:24:54 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 15.13 | 36.29 | 61583.50 | 1984.77 |




Rec 124.84 %

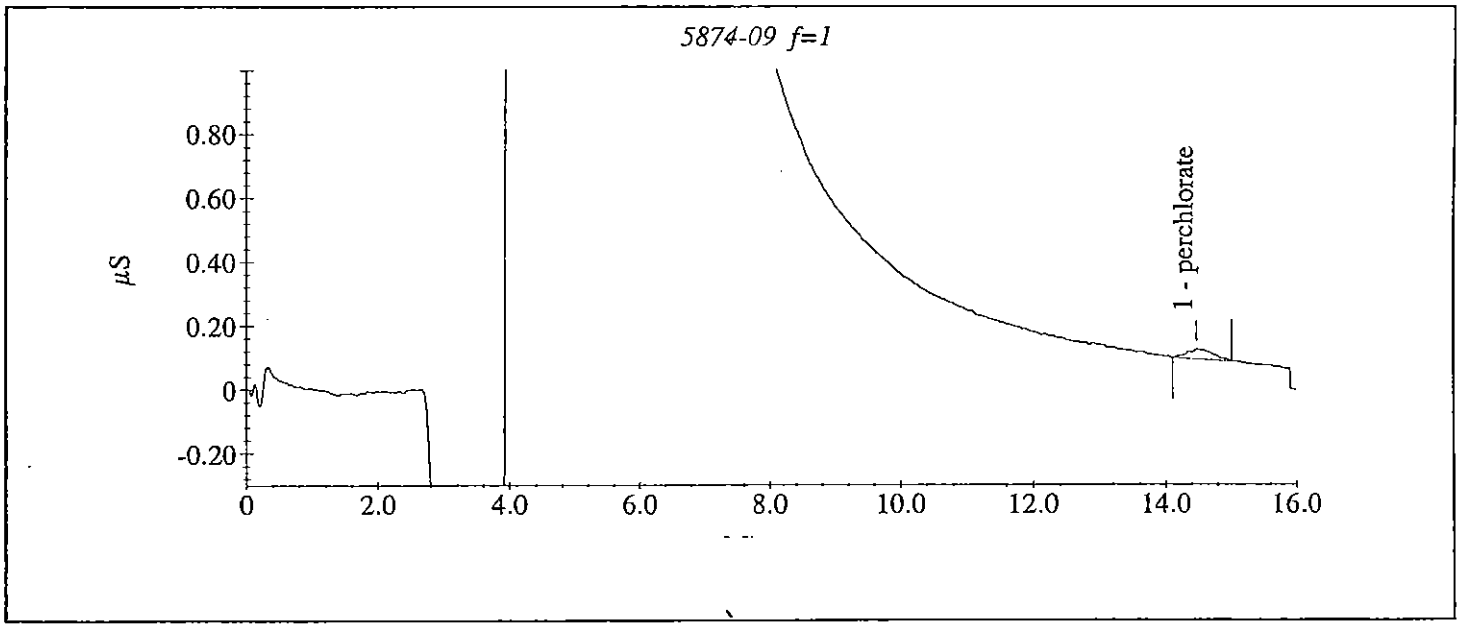
# APCL Perchlorate Analysis Report

**Sample Name : 5874-09 f=1**
**Data File Name : C:\DATA\03W4987K\5874-09_021.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 4:11:32 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 14.48 | 5.08 | 8621.10 | 303.00 |



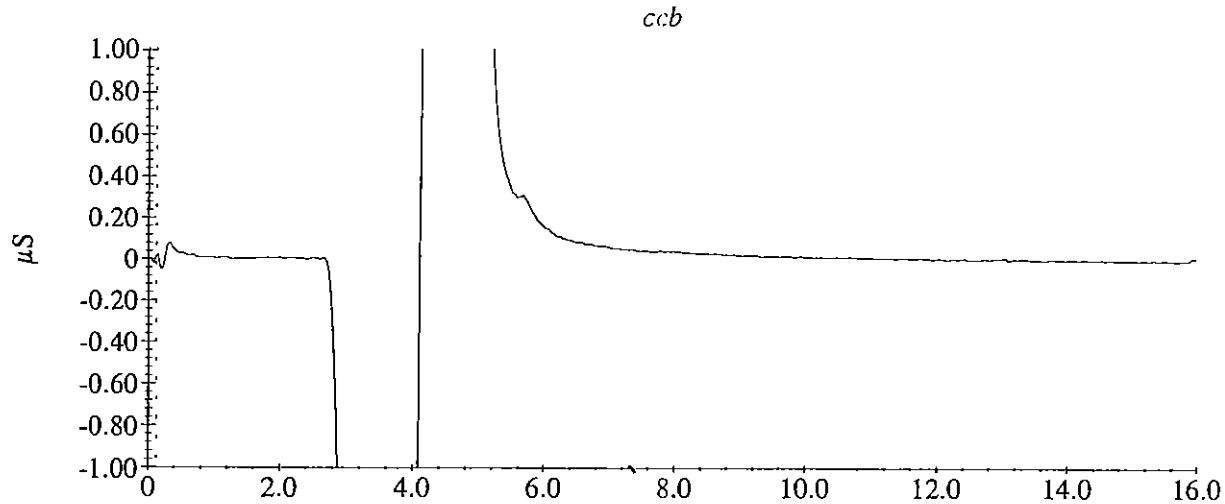
# APCL Perchlorate Analysis Report

**Sample Name : ccb**
**Data File Name : C:\DATA\03W4987K\W4987K CCB_025.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 5:25:31 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



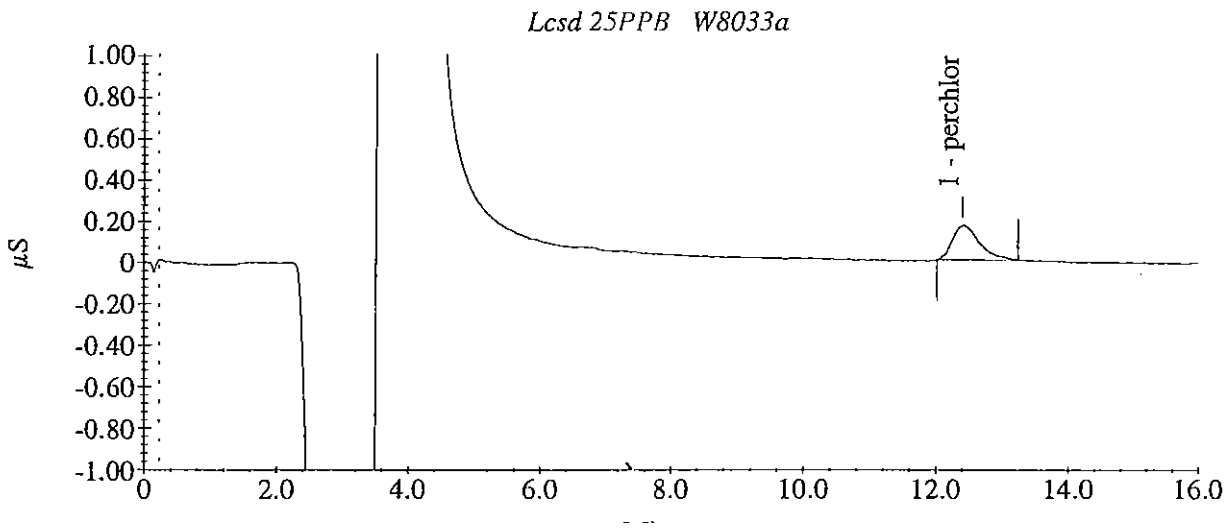
# APCL Perchlorate Analysis Report

**Sample Name : Lcsd 25PPB W8033a**
**Data File Name : C:\DATA\03W4987K\W4987K J01_004.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 10:51:35 AM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 12.42 | 27.82 | 47207.30 | 1660.82 |



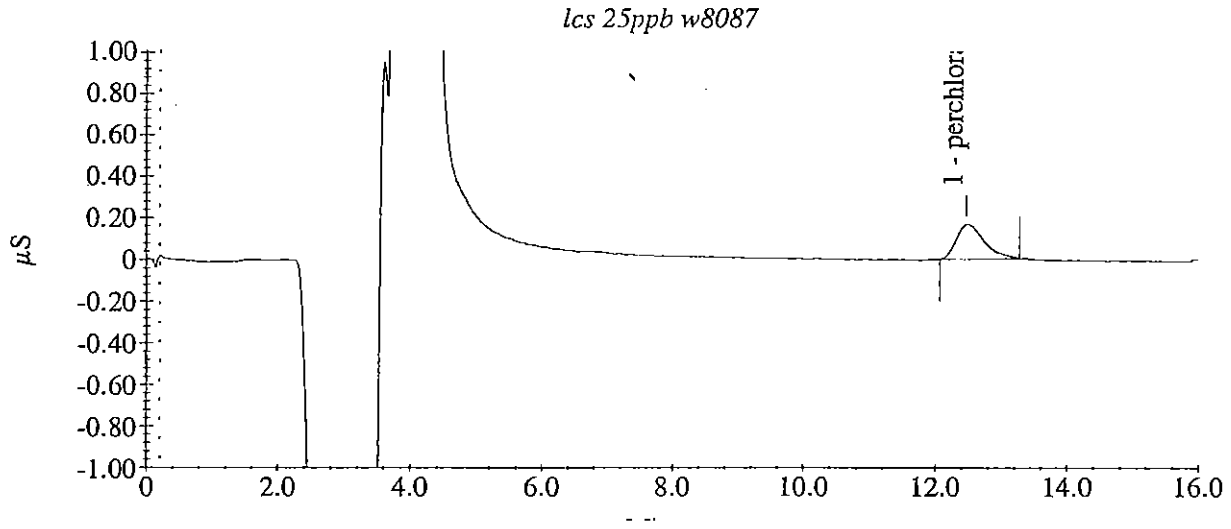
# APCL Perchlorate Analysis Report

**Sample Name : lcs 25ppb w8087**
**Data File Name : C:\DATA\03W4987K\W4987K L01_003.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 10:33:09 AM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 12.47 | 28.60 | 48536.60 | 1649.26 |



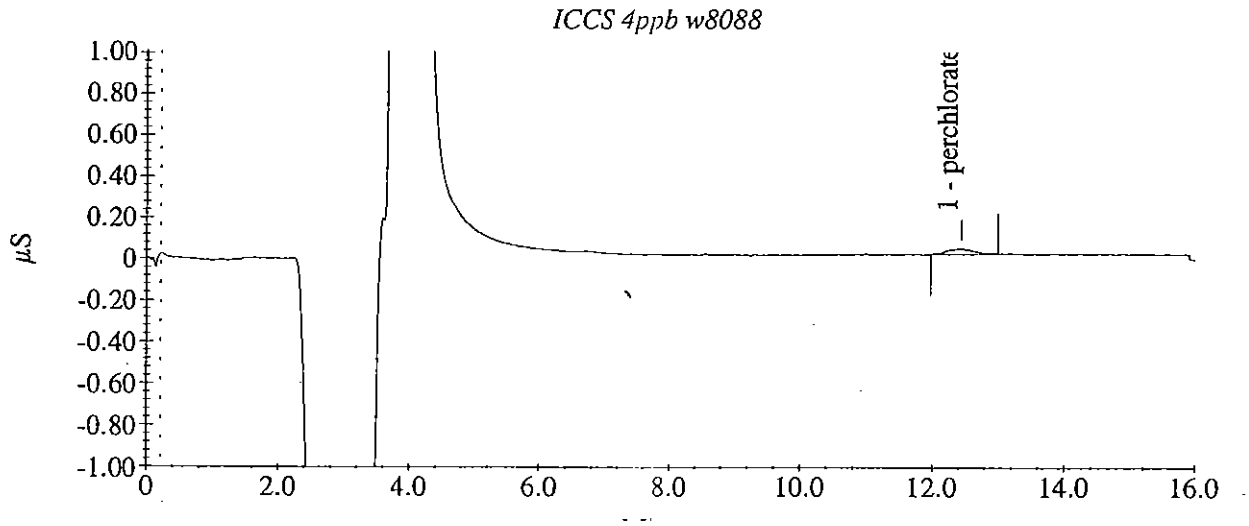
# APCL Perchlorate Analysis Report

**Sample Name : ICCS 4ppb w8088**
**Data File Name : C:\DATA\03W4987K\W4987K ICCS 4PPB_005.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 11:10:00 AM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 12.43 | 4.75 | 8062.90 | 276.62 |



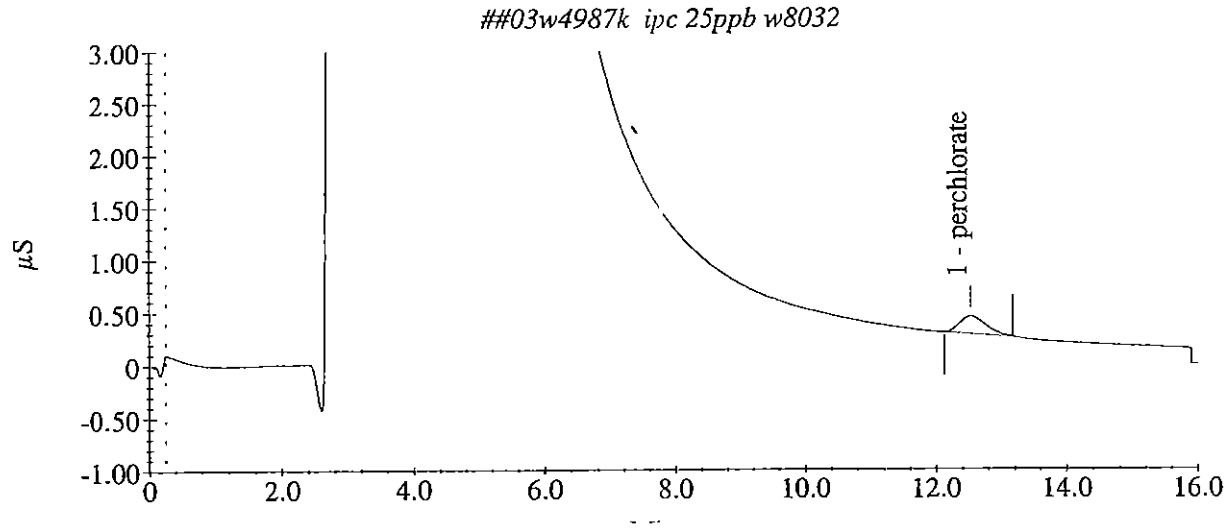
# APCL Perchlorate Analysis Report

**Sample Name : ##03w4987k ipc 25ppb w8032**
**Data File Name : C:\DATA\03W4987K\W4987K IPC25PPB_001.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 9:55:30 AM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 1 | perchlorate | 12.53 | 27.10 | 45988.30 | 1680.92 |



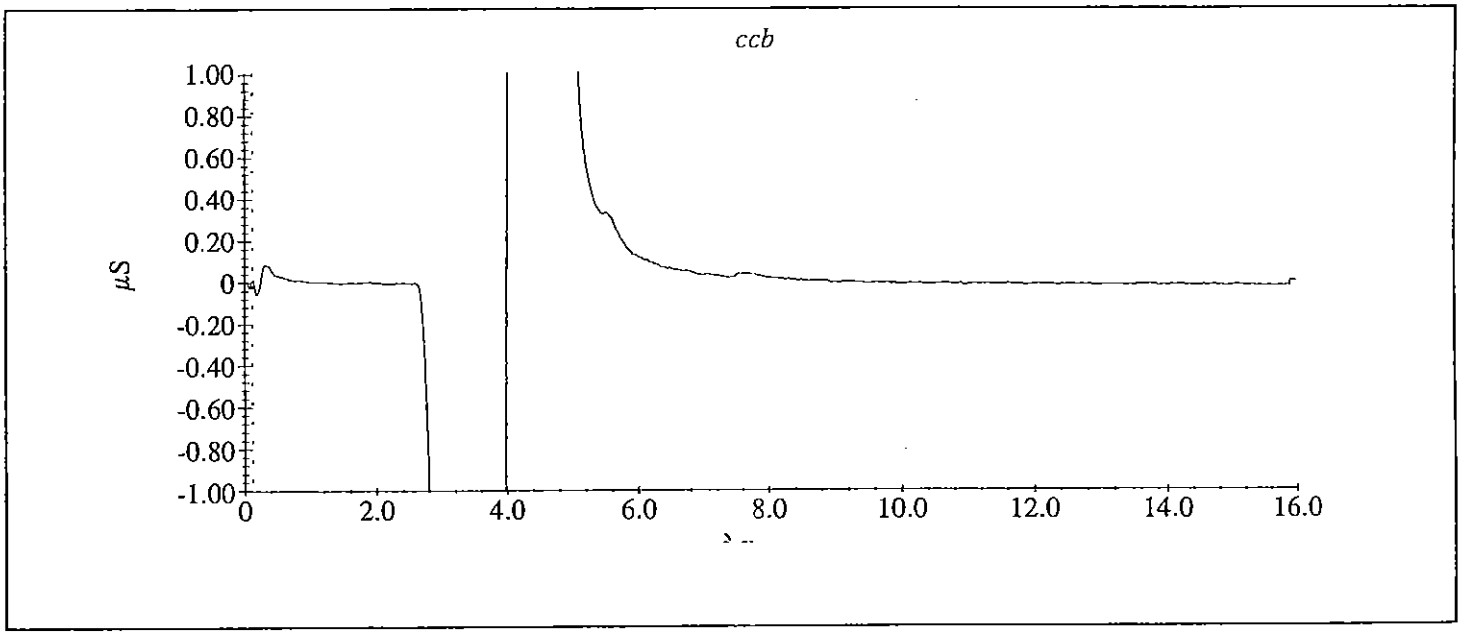
# APCL Perchlorate Analysis Report

**Sample Name : ccb**
**Data File Name : C:\DATA\03W4987K\W4987K CCB_014.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 1:55:58 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



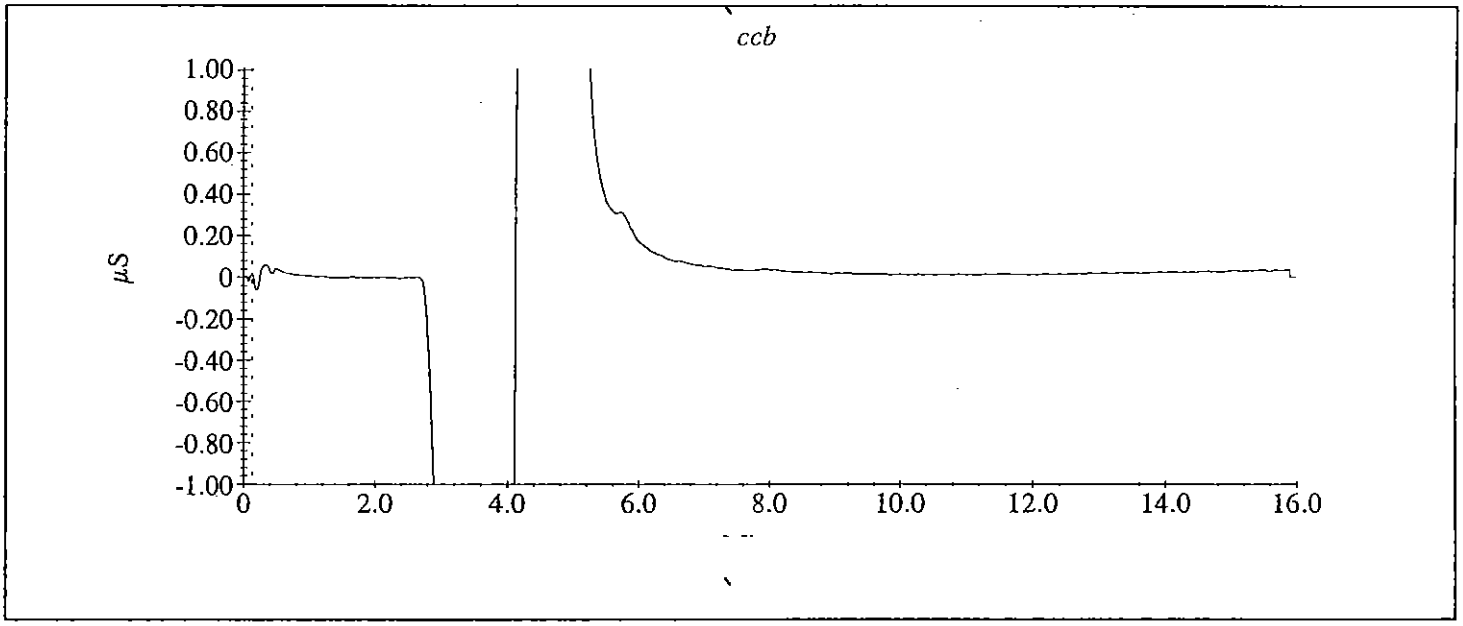
# APCL Perchlorate Analysis Report

**Sample Name : ccb**
**Data File Name : C:\DATA\03W4987K\W4987K CCB_036.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 10/29/2003 8:48:04 PM
System Operator : C.W and W.W
Dilution Factor : 1.00

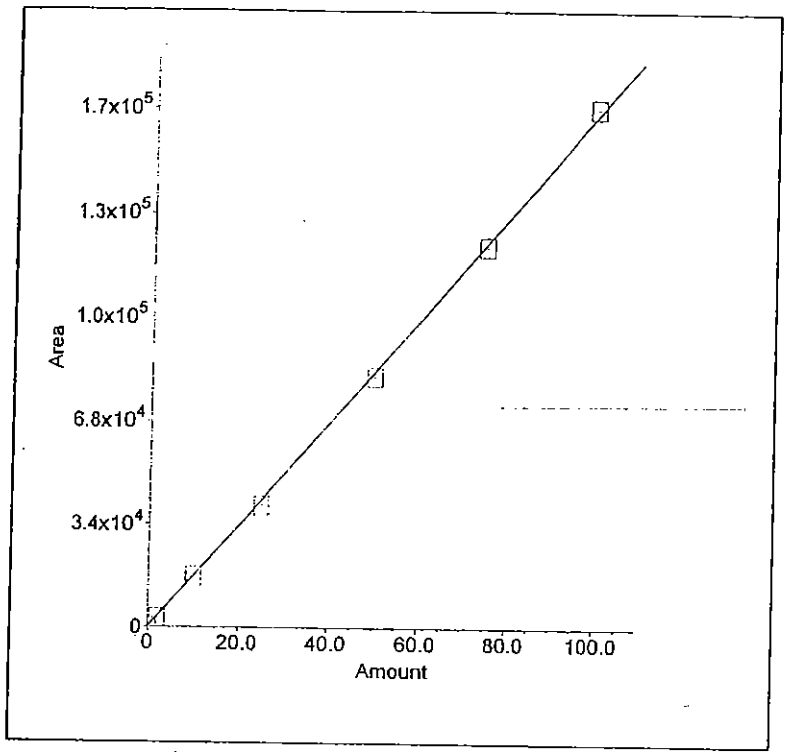
Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



Method:C:\PEAKNET\METHOD\E314-011.MET Updated:03/13/2003 10:39:48 AM Total:1

1, Component:perchlorate
Standard:External Fit Type:Linear
Origin:Force Calibration:Area
$r^2$=0.999492
Amt=0.0005893*Resp+0




Calibration : 7 points , 0, 2, 10, 25, 50, 75, 100 ppb

Analyst C. W
Date 03/12/03
Instrument Ic-1c

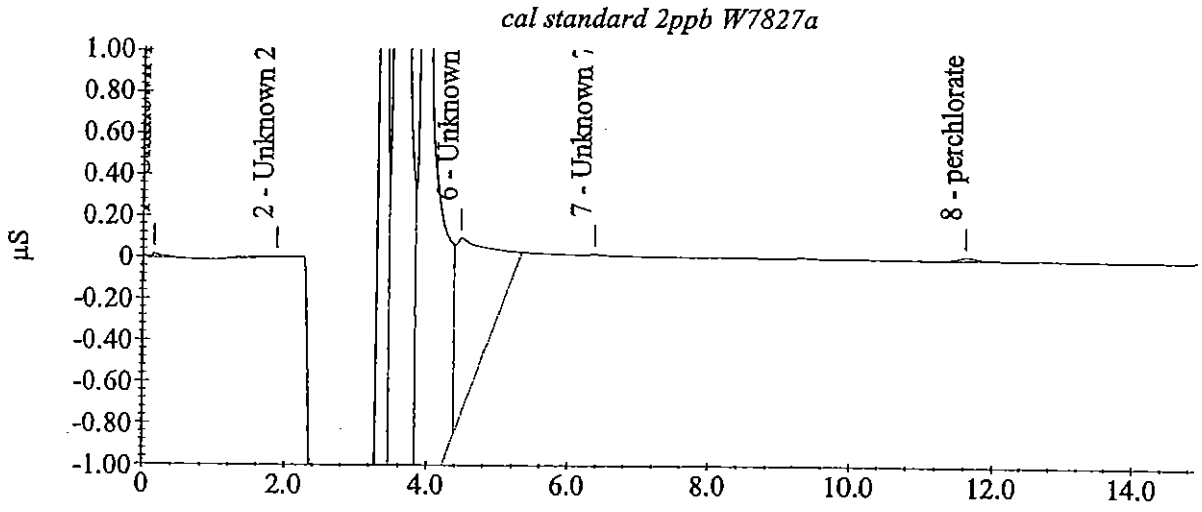
# APCL Perchlorate Analysis Report

**Sample Name : cal standard 2ppb W7827a**
**Data File Name : C:\DATA\E314-011\std-2pb_002.DXD**

Method File Name : C:\PEAKNET\METHOD\e314-011.met
Date Time Collected : 03/12/2003 6:13:12 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 8 | perchlorate | 11.62 | 1.92 | 2910 | 164 |



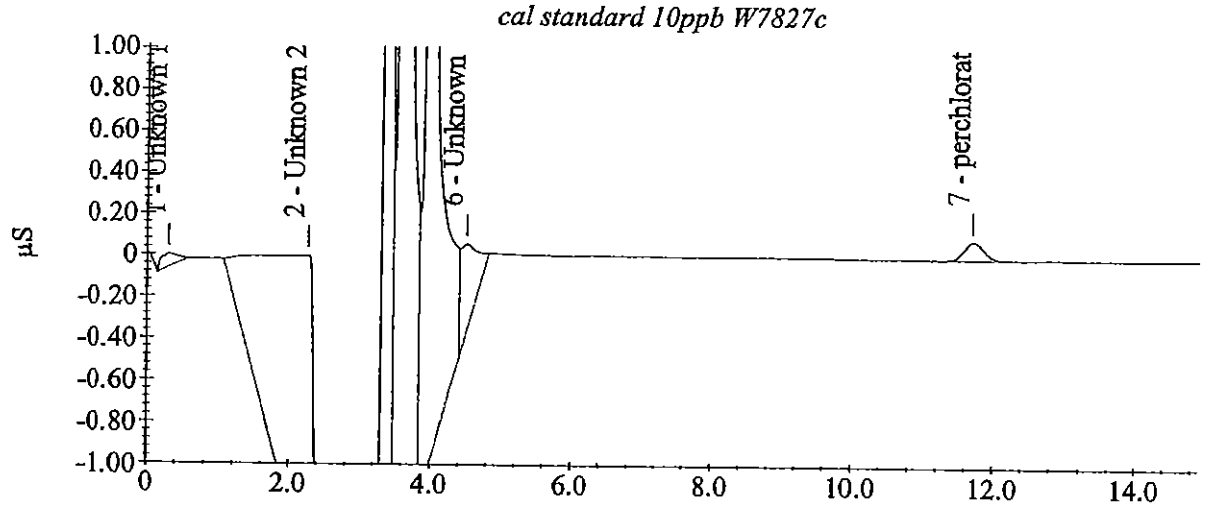
# APCL Perchlorate Analysis Report

**Sample Name : cal standard 10ppb W7827c**
**Data File Name : C:\DATA\E314-011\std-10pb_004.DXD**

Method File Name : C:\PEAKNET\METHOD\e314-011.met
Date Time Collected : 03/12/2003 6:48:21 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 7 | perchlorate | 11.70 | 11.16 | 16917 | 879 |



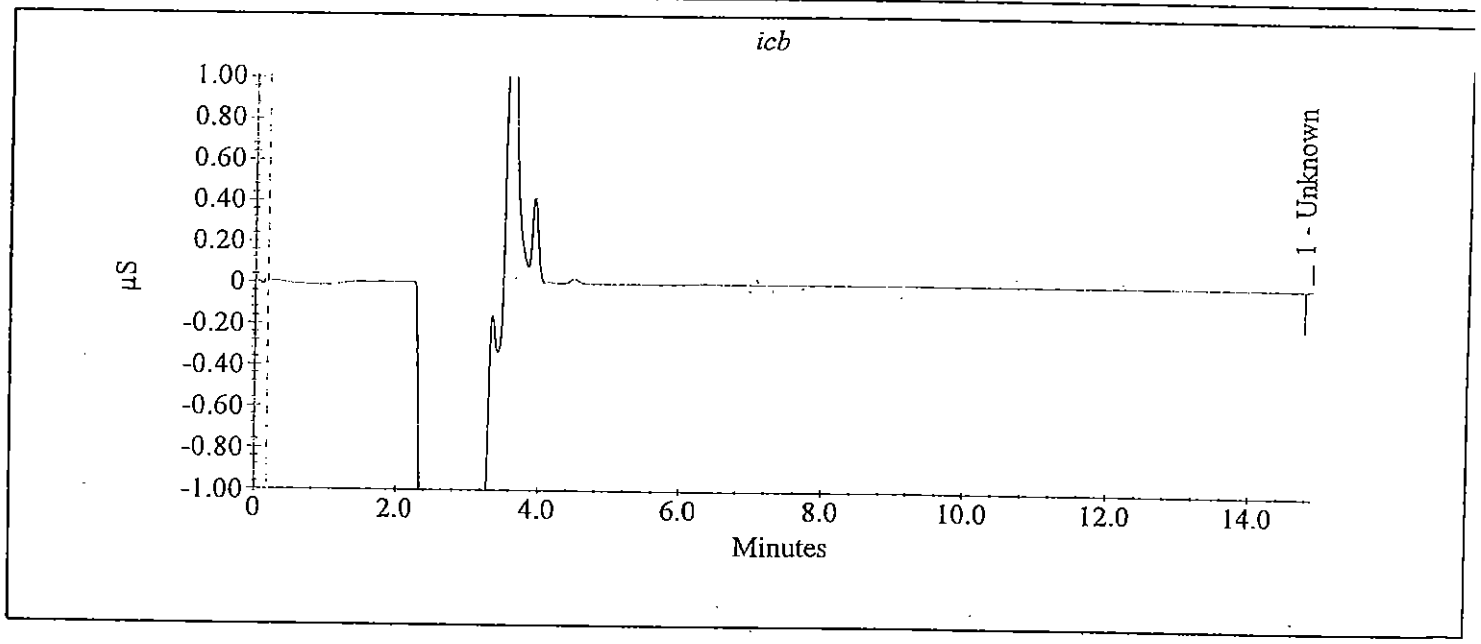
# APCL Perchlorate Analysis Report

**Sample Name : icb**
**Data File Name : C:\DATA\E314-011\ICB_010.DXD**

Method File Name : c:\PeakNet\method\E314-011.met
Date Time Collected : 03/12/2003 8:33:51 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|



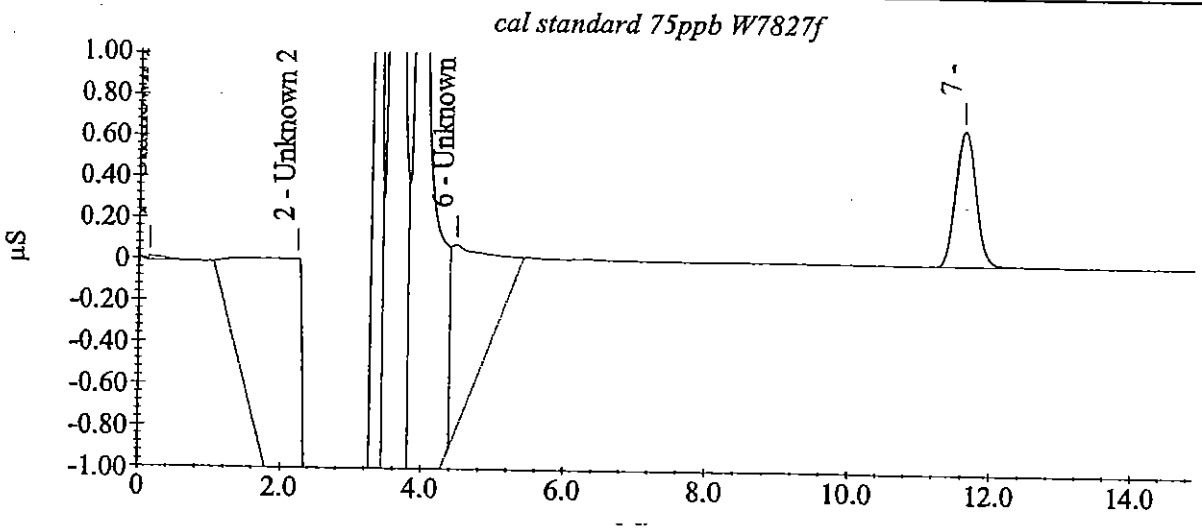
# APCL Perchlorate Analysis Report

**Sample Name : cal standard 75ppb W7827f**
**Data File Name : C:\DATA\E314-011\std-75pb_007.DXD**

Method File Name : C:\PEAKNET\METHOD\e314-011.met
Date Time Collected : 03/12/2003 7:41:05 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 7 | perchlorate | 11.62 | 83.23 | 126224 | 6553 |



# APCL Perchlorate Analysis Report

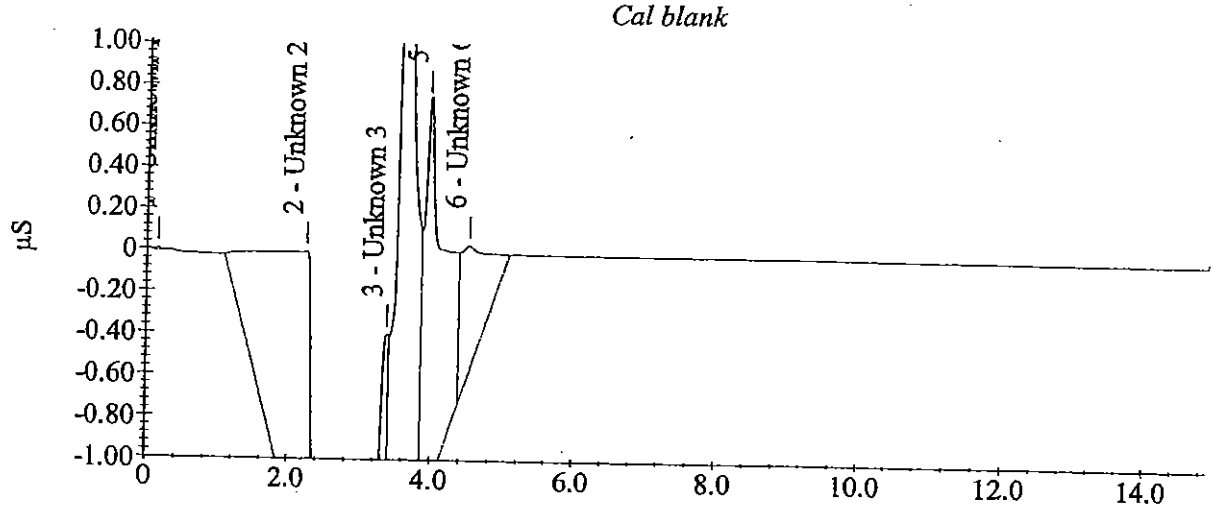
**Sample Name : Cal blank**
**Data File Name : C:\data\E314-011\Mb_001.DXD**

Method File Name : c:\peaknet\method\e314-011.met
Date Time Collected : 03/12/2003 5:55:39 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|

*Cal blank*



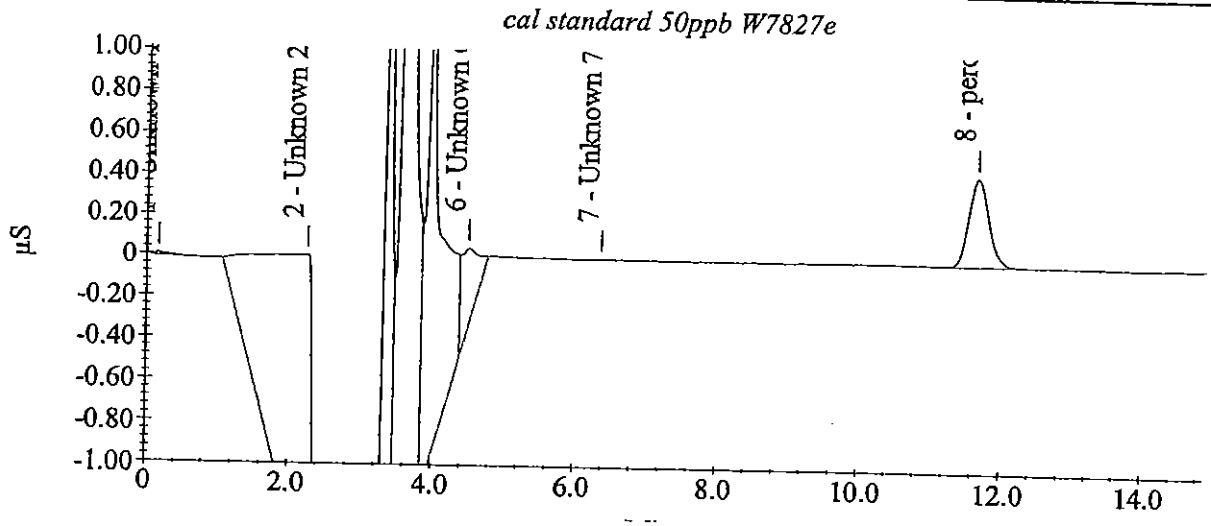
# APCL Perchlorate Analysis Report

**Sample Name : cal standard 50ppb W7827e**
**Data File Name : C:\DATA\E314-011\std-50pb_006.DXD**

Method File Name : C:\PEAKNET\METHOD\e314-011.met
Date Time Collected : 03/12/2003 7:23:30 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 8 | perchlorate | 11.67 | 54.89 | 83240 | 4320 |



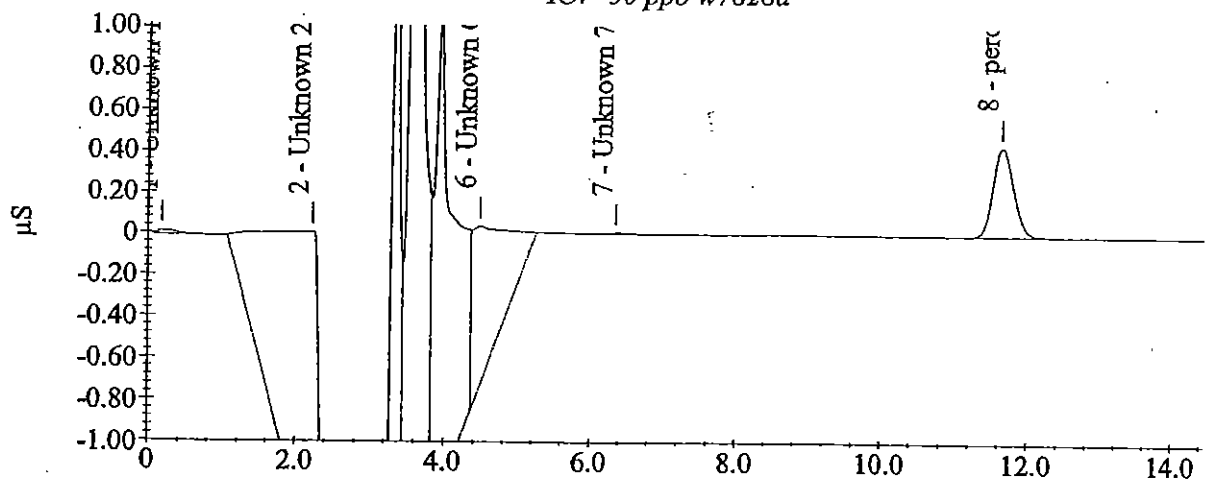
# APCL Perchlorate Analysis Report

**Sample Name : ICV 50 ppb w7828a**
**Data File Name : C:\DATA\E314-011\icv-50pb_009.DXD**

Method File Name : C:\PEAKNET\METHOD\E314-011.met
Date Time Collected : 03/12/2003 8:16:15 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 8 | perchlorate | 11.65 | 49.49 | 83990 | 4321 |



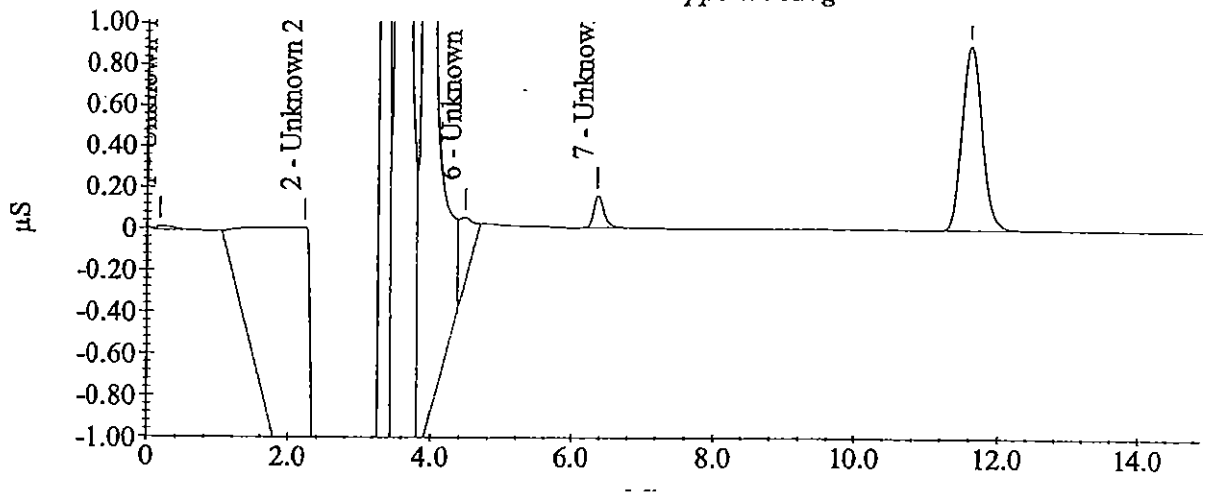
# APCL Perchlorate Analysis Report

**Sample Name : cal standard 100ppb W7827g**
**Data File Name : C:\DATA\E314-011\std-100pb_008.DXD**

Method File Name : C:\PEAKNET\METHOD\e314-011.met
Date Time Collected : 03/12/2003 7:58:39 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 8 | perchlorate | 11.62 | 113.21 | 171686 | 89271 |



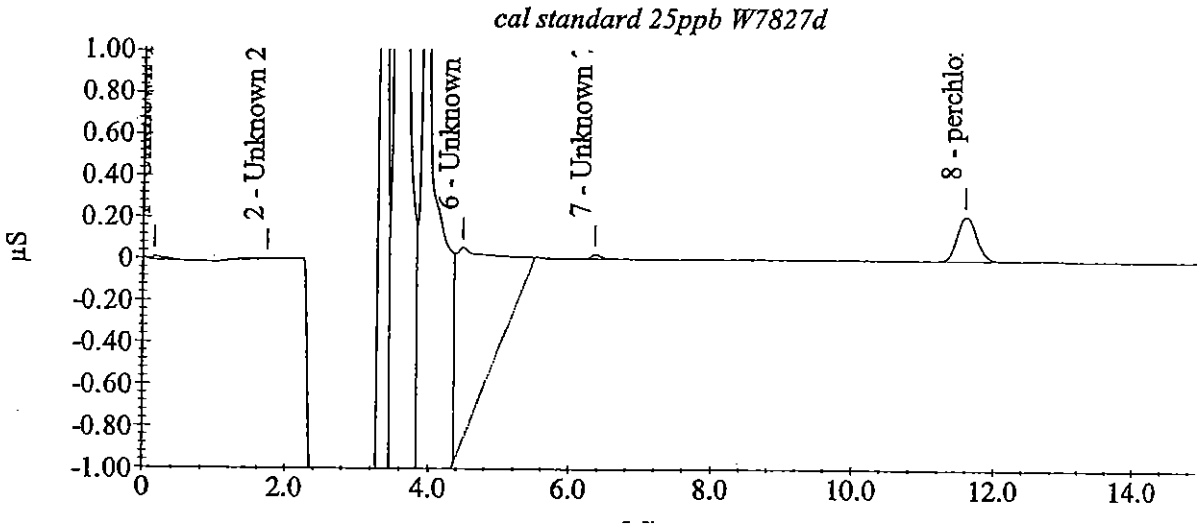
# APCL Perchlorate Analysis Report

**Sample Name : cal standard 25ppb W7827d**
**Data File Name : C:\DATA\E314-011\std-25pb_005.DXD**

Method File Name : C:\PEAKNET\METHOD\e314-011.met
Date Time Collected : 03/12/2003 7:05:54 PM
System Operator : wei wang
Dilution Factor : 1.00

Peak Information : All Components

| Peak # | Component Name | Retention Time | Amount (ppb) | Peak Area | Peak Height |
|---|---|---|---|---|---|
| 8 | perchlorate | 11.60 | 26.84 | 40702 | 2125 |



| Line | Sample | Sample Type | Level | Method | Data File | Volume | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | Cal blank | Sample | | e314-011.met | c:\data\e314-011\mb_001.dxd | 1 | 1 |
| 2 | cal standard 2ppb W7827a | Sample | | e314-011.met | c:\data\e314-011\std-2pb_002.dxd | 1 | 1 |
| 3 | cal standard 4ppb W7827b | Sample | | e314-011.met | c:\data\e314-011\std-4pb_003.dxd | 1 | 1 |
| 4 | cal standard 10ppb W7827c | Sample | | e314-011.met | c:\data\e314-011\std-10pb_004.dxd | 1 | 1 |
| 5 | cal standard 25ppb W7827d | Sample | | e314-011.met | c:\data\e314-011\std-25pb_005.dxd | 1 | 1 |
| 6 | cal standard 50ppb W7827e | Sample | | e314-011.met | c:\data\e314-011\std-50pb_006.dxd | 1 | 1 |
| 7 | cal standard 75ppb W7827f | Sample | | e314-011.met | c:\data\e314-011\std-75pb_007.dxd | 1 | 1 |
| 8 | cal standard 100ppb W7827g | Sample | | e314-011.met | c:\data\e314-011\std-100pb_008.dxd | 1 | 1 |
| 9 | ICV 50 ppb w7828a | Sample | | e314-011.met | c:\data\e314-011\icv-50pb_009.dxd | 1 | 1 |
| 10 | icb | Sample | | e314-011.met | c:\data\e314-011\icb_010.dxd | 1 | 1 |
| 11 | anion 100pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-100_011.dxd | 1 | 1 |
| 12 | anion 200pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-200_012.dxd | 1 | 1 |
| 13 | anion 300pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-300_013.dxd | 1 | 1 |
| 14 | anion 400pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-400_014.dxd | 1 | 1 |
| 15 | anion 500pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-500_015.dxd | 1 | 1 |
| 16 | anion 600pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-600_016.dxd | 1 | 1 |
| 17 | anion 800pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-800_017.dxd | 1 | 1 |
| 18 | anion 1000pm each ,25pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\mct-1000_018.dxd | 1 | 1 |
| 19 | anion 400pm each 2pb | Sample | | e314-011.met | c:\data\e314-011\ipc-2pb_019.dxd | 1 | 1 |
| 20 | anion 400pm each 4pb | Sample | | e314-011.met | c:\data\e314-011\ipc-4pb_020.dxd | 1 | 1 |
| 21 | anion 400pm each 25pb | Sample | | e314-011.met | c:\data\e314-011\ipc-25pb_021.dxd | 1 | 1 |
| 22 | ICV 50 ppb | Sample | | e314-011.met | c:\data\e314-011\ccv-50pb | 1 | 1 |
| 23 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-02_023.dxd | 1 | 1 |
| 24 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-03_024.dxd | 1 | 1 |
| 25 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-04 | 1 | 1 |
| 26 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-05 | 1 | 1 |
| 27 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-06 | 1 | 1 |
| 28 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-07 | 1 | 1 |
| 29 | MDL 4pb | Sample | | e314-011.met | c:\data\e314-011\mdl-08 | 1 | 1 |
| 30 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 31 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 32 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 33 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 34 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 35 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 36 | IDP and IDA 25pb | Sample | | e314-011.met | c:\data\e314-011\idap-25pb | 1 | 1 |
| 37 | MCT anion 800pm each, 25pbCLO4 | Sample | | e314-011.met | c:\data\e314-011\ipc-25pb | 1 | 1 |
| 38 | MCT anion 800pm each, 25pbCLO4 | Sample | | e314-011.met | c:\data\e314-011\ipc-25pb | 1 | 1 |
| 39 | MCT anion 800pm each, 4pbCLO4 | Sample | | e314-011.met | c:\data\e314-011\ipc-4pb | 1 | 1 |
| 40 | MCT anion 800pm each, 4pbCLO4 | Sample | | e314-011.met | c:\data\e314-011\ipc-4pb | 1 | 1 |
| 41 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s01 | 1 | 5 |
| 42 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s02 | 1 | 5 |
| 43 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s03 | 1 | 5 |
| 44 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s04 | 1 | 5 |
| 45 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s05 | 1 | 5 |
| 46 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s06 | 1 | 5 |
| 47 | MDL 20pb soil | Sample | | e314-011.met | c:\data\e314-011\mdl-s07 | 1 | 5 |
| 48 | standard 25ppb W7827d | Sample | | e314-011.met | c:\data\e314-011\std-25pb | 1 | 1 |
| 49 | anion 100pm each,4pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\am-100-4pb | 1 | 1 |
| 50 | anion 200pm each ,4pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\am-200-4pb | 1 | 1 |
| 51 | anion 300pm each ,4pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\am-300-4pb | 1 | 1 |
| 52 | anion 100pm each,2pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\am-100-2pb | 1 | 1 |
| 53 | anion 200pm each,2pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\am-200-2pb | 1 | 1 |
| 54 | anion 300pm each,2pb CLO4 | Sample | | e314-011.met | c:\data\e314-011\am-300-2pb | 1 | 1 |
| 55 | 1982-01 B S.C 4450us/cm | Sample | | e314-011.met | c:\data\e314-011\1982-01 | 1 | 1 |
| 56 | 1982-01 B S.C 4450us/cm | Sample | | e314-011.met | c:\data\e314-011\1982-01 | 1 | 2 |
| 57 | 1982-02 f=10 | Sample | | e314-011.met | c:\data\e314-011\1982-02_057.dxd | 1 | 10 |
| 58 | | Sample | | aastopcl.met | | 1 | 1 |

| Line | Weight | Int. Std. | Comment |
|---|---|---|---|
| 1 | 1 | 1 | |
| 2 | 1 | 1 | |
| 3 | 1 | 1 | |
| 4 | 1 | 1 | |
| 5 | 1 | 1 | |
| 6 | 1 | 1 | |
| 7 | 1 | 1 | |
| 8 | 1 | 1 | |
| 9 | 1 | 1 | |
| 10 | 1 | 1 | |
| 11 | 1 | 1 | |
| 12 | 1 | 1 | |
| 13 | 1 | 1 | |
| 14 | 1 | 1 | |
| 15 | 1 | 1 | |
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| 48 | 1 | 1 | |
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| 51 | 1 | 1 | |
| 52 | 1 | 1 | |
| 53 | 1 | 1 | |
| 54 | 1 | 1 | |
| 55 | 1 | 1 | |
| 56 | 1 | 1 | |
| 57 | 1 | 1 | |
| 58 | 1 | 1 | |

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: C:\DATA\03W1286K
Comment:
Remark:

Condition information:

1. Column

Separator column: AS16 4mm

Guard column: AS16 4mm

2. Eluent : NaOH 38mM

3. Flow rate: 1.2mL/min

4. Suppressor: ASRS-ULTRA 4mm

5.Detector: CD20

6.Analyst: Charles Wu and Wei Wang

7.Date: 03 / 12 / 2003

8.Instrument: IC-K DX-500 Dionex

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

# APCL Analytical Report

Submitted to:
GEOFON, Inc.
Attention: Brad Shojaee
22632 Golden Spring Dr Ste 270
Diamond Bar 91765
Tel: (909)396-7662 Fax: (909)396-1455

Service ID #: 801-035802
Collected by: JR
Collected on: 10/23/03

Received: 10/23/03
Extracted: N/A
Tested: N/A
Reported: 11/13/03

Sample Description: Water
Project Description: 04.4428.10 JPL

## Analysis of Water Samples

| Component Analyzed | Method | Unit | PQL | Analysis Result Dupe-4-4-Q03 03-05802-1 | EB-2-10-23-03 03-05802-2 | MW-12-1 03-05802-3 | MW-12-2 03-05802-4 |
|---|---|---|---|---|---|---|---|
| CHROMIUM [a] | | | | | | | |

| Component Analyzed | Method | Unit | PQL | Analysis Result MW-12-3 03-05802-5 | MW-12-4 03-05802-6 | MW-12-5 03-05802-7 | MW-23-1 03-05802-8 |
|---|---|---|---|---|---|---|---|
| CHROMIUM [a] | | | | | | | |

| Component Analyzed | Method | Unit | PQL | Analysis Result MW-23-2 03-05802-9 | MW-23-3 03-05802-10 | MW-23-4 03-05802-11 | MW-23-5 03-05802-12 |
|---|---|---|---|---|---|---|---|
| CHROMIUM [a] | | | | | | | |

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit
N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.
J: Reported between PQL and MDL.
Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0
[a] Subcontracted to Advanced Technology Laboratories Inc. See attached.

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

0061

**GEOFON** INCORPORATED
22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

# CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

MW-12

| | | | | | |
|---|---|---|---|---|---|
| GEOFON's LAB COORDINATOR: Scott Buhmer | LAB COORDINATOR'S PHONE: 909 396 7662 | LAB COORDINATOR'S FAX: 909 396 1455 | LABORATORY SERVICE ID: | LABORATORY CONTACT: Kenny Chan | MAIL REPORT (COMPANY NAME): Geofon |
| PROJECT NAME: JPL GW Mon-4Q03 | PROJECT LOCATION: MW-12 | PROJECT NUMBER: 04.4428.10 | LABORATORY PHONE: 909 590 1828 | LABORATORY FAX: 909 590 1498 | RECIPIENT NAME: Tony Ford |
| PROJECT CONTACT: Brad Shojaee | PROJECT PHONE NUMBER: 909-396 7662 | PROJECT FAX: 909 396 1455 | LABORATORY ADDRESS: 13760 Magnolia Ave. | | ADDRESS: 22632 Golden Springs Dr. Ste 270 |
| PROJECT ADDRESS: 4800 Oak Grove Dr. | CITY, STATE AND ZIPCODE: Pasadena, CA ~~909 396 7662~~ | CLIENT: US Navy SWDIV | CITY, STATE AND ZIPCODE: Chino, CA 91710 | | CITY, STATE AND ZIPCODE: Diamond Bar, CA 91765 |
| PROJECT MANAGER: Tony Ford | PROJECT MANAGER'S PHONE: 909 396 7662 | PROJECT MANAGER'S FAX: 909 396 1455 | | | |

**5802**

| Item | Sample Identifier | Matrix | Date | Time | Preserved | # of Cont. | QC Level | T.A.T. | Analyses: 200.8 (Cr) | 7196 (Cr (VI)) | 524.0 (VOC) | 314.0 (ClO4) | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-12-5 | W | 10/23/03 | 1049 | HNO3 HCl NONE | 5 | III | Normal | X | X | X | X | | | | | |
| 2 | MW-12-4 | ↓ | ↓ | 1113 | ↓ | 5 | III | ↓ | X | X | X | X | | | | | |
| 3 | MW-12-3 | ↓ | ↓ | 1132 | ↓ | ↓ | ↓ | ↓ | X | X | X | X | | | | | |
| 4 | MW-12-2 | ↓ | ↓ | 1150 | ↓ | ↓ | ↓ | ↓ | X | X | X | X | | | | | |
| 5 | MW-12-1 | ↓ | ↓ | 1216 | ↓ | ↓ | ↓ | ↓ | X | X | X | X | | | | | |
| 6 | Dupe-4-4-Q03 | ↓ | ↓ | 1241 | ↓ | ↓ | IV | ↓ | X | X | X | X | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

9 — 10.23.03

SAMPLES COLLECTED BY: JR

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT

| RELINQUISHED BY | RECEIVED BY | DATE | TIME | SAMPLE'S CONDITION UPON RECEIPT |
|---|---|---|---|---|
| [signature] | [signature] | 10-23-03 | 13:15 | |
| [signature] | [signature] | 10-23-03 | 14:25 | |

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

0067

**GEOFON** INCORPORATED
22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

# CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

MW-23

| | | | | | |
|---|---|---|---|---|---|
| GEOFON's LAB COORDINATOR: Scott Buhmer | LAB COORDINATOR'S PHONE: 909 396 7662 | LAB COORDINATOR'S FAX: 909 396 1455 | LABORATORY SERVICE ID: | LABORATORY CONTACT: Kenny Chan | MAIL REPORT (COMPANY NAME): Geofon |
| PROJECT NAME: JPL GW Mon-4Q03 | PROJECT LOCATION: MW-23 | PROJECT NUMBER: 04-4428.10 | LABORATORY PHONE: 909 590 1828 | LABORATORY FAX: 909 590 1498 | RECIPIENT NAME: Tony Ford |
| PROJECT CONTACT: Brad Shojaee | PROJECT PHONE NUMBER: 909 396 7662 | PROJECT FAX: 909 396 1455 | LABORATORY ADDRESS: 13760 Magnolia Ave. | | ADDRESS: 22632 Golden Springs Dr. Ste 270 |
| PROJECT ADDRESS: 4800 Oak Grove Dr. | CITY, STATE AND ZIPCODE: Pasadena, CA | CLIENT: US NAVY, SWDIV | CITY, STATE AND ZIPCODE: Chino, CA 91710 | | CITY, STATE AND ZIPCODE: Diamond Bar, CA 91765 |
| PROJECT MANAGER: Tony Ford | PROJECT MANAGER'S PHONE: 909 396 7662 | PROJECT MANAGER'S FAX: 909 396 1455 | | | |

**5802**

| Item | Sample Identifier | Matrix | Date | Time | # of Cont. Preserved 10-23-03 | Preserved # of Cont. 10-23-03 | QC Level | T.A.T. | Analyses: 524.2 (VOCs) | $ClO_4$ (314.0) | 200.8 (Cu) | 7196A (Cr(VI)) | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-23-5 | W | 10/23/03 | 0712 | 4 5 | HCl HNO3 NONE | III | Normal | X | X | X | X | | | | |
| 2 | MW-23-4 H — 10.23.03 | | | 0734 | 5 | | | | X | X | ~~X~~ X | ~~X~~ X | 10.23.03 | | | ~~MS/MSD~~ — 10.23.03 |
| 3 | MW-23-3 | | | 0754 | | | | | X | X | X | X | | | | |
| 4 | MW-23-2 | | | 0824 | | | | | X | X | X | X | | | | MS/MSD |
| 5 | MW-23-1 | | | 0901 | | | | | X | X | X | X | | | | |
| 6 | TB-2-10-23-03 | | | — | 2 | HCl | | | X | | | | | | | |
| 7 | EB-2-10-23-03 | | | 0855 | 5 | HCl HNO3 NONE | | | X | X | X | X | | | | |
| 8 | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |

10.23.03

SAMPLES COLLECTED BY: JL

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT

| RELINQUISHED BY | RECEIVED BY | DATE | TIME | SAMPLE'S CONDITION UPON RECEIPT |
|---|---|---|---|---|
| [signature] | [signature] | 10-23-03 | 13:15 | |
| [signature] | [signature] | 10-23-03 | 14:25 | |

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

# Sample Login: Check List

## 03-05802 (0470_ 177) (2202777_ 177)

**10/24/03**

### Part 1: General Information

| | | |
|---|---|---|
| ☐ Company Information | Name: | *GEOFON, Inc.* |
| | Address: | *22632 Golden Spring Dr Ste 270 ,Diamond Bar ,CA 91765* |
| ☐ Project Information | Project Description: | *JPL* |
| | Project #: | *04.4428.10* |
| ☐ Billing Information | P.O. #: | |
| | Bill Address: | *22632 Golden Spring Dr Ste 270 ,Diamond Bar ,CA 91765* |
| | Lab Project ID: | |
| | Client Database #: | *3* |
| ☐ Receiving Information | Who Received Sample? | *Kenny Chan* |
| | Receiving Date/Time: | *10/23/03 1425* |
| | COC No. | *0061 0067* |
| ☐ Shipping Information | Shipping Company | *APCL pick up* |
| | Packing Information: | *Cooler/Ice Chester* |
| | Cooler Temperature: | *3.6 °C* |
| ☐ Container Information | Container Provider: | *Client* |
| ☐ Sampling Information | Sampling Person: | *JR* |
| | Sampling Company: | *Client* |
| ☐ Turn-Around-Time Option: | | *Normal* |
| ☐ QC Option: | | *NEESA C* |
| ☐ Disposal Option: | | *Not specify* |

## Part 2: Sample Information

| Seq. # | Sample ID (on COC) | Sample Sub-ID | APCL Sample ID | Matrix | Cont-tainer | Preser-vative | Vol, ml Am. g | # of Replica | Condition G, L, B | Collected mmddyy | Hold ? | Composite Group | TAT Days | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-12-5 | Cr | 03-05802-7 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 2 | MW-12-4 | Cr | 03-05802-6 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 3 | MW-12-3 | Cr | 03-05802-5 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 4 | MW-12-2 | Cr | 03-05802-4 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 5 | MW-12-1 | Cr | 03-05802-3 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 6 | Dupe-4-4-Q03 | Cr | 03-05802-1 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 7 | MW-23-5 | Cr | 03-05802-12 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 8 | MW-23-4 | Cr | 03-05802-11 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 9 | MW-23-3 | Cr | 03-05802-10 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 10 | MW-23-2 | Cr | 03-05802-9 | W | P | N | 500 | 2 | G | 102303 | N | 0 | 9 | ☐ |
| 11 | MW-23-1 | Cr | 03-05802-8 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |
| 12 | EB-2-10-23-03 | Cr | 03-05802-2 | W | P | N | 500 | 1 | G | 102303 | N | 0 | 9 | ☐ |

## Part 3: Analysis Information

Test Items: ☐ *200.7/6010B* Chromium, Cr, by ICP

| Seq. # | Client"s Sample ID (as given on COC) | Sample Sub-ID | APCL Sample ID | Matrix | CR | |
|---|---|---|---|---|---|---|
| 1 | MW-12-5 | Cr | 03-05802-7 | W | X | ☐ |
| 2 | MW-12-4 | Cr | 03-05802-6 | W | X | ☐ |
| 3 | MW-12-3 | Cr | 03-05802-5 | W | X | ☐ |
| 4 | MW-12-2 | Cr | 03-05802-4 | W | X | ☐ |
| 5 | MW-12-1 | Cr | 03-05802-3 | W | X | ☐ |
| 6 | Dupe-4-4-Q03 | Cr | 03-05802-1 | W | X | ☐ |
| 7 | MW-23-5 | Cr | 03-05802-12 | W | X | ☐ |
| 8 | MW-23-4 | Cr | 03-05802-11 | W | X | ☐ |
| 9 | MW-23-3 | Cr | 03-05802-10 | W | X | ☐ |
| 10 | MW-23-2 | Cr | 03-05802-9 | W | X | ☐ |
| 11 | MW-23-1 | Cr | 03-05802-8 | W | X | ☐ |
| 12 | EB-2-10-23-03 | Cr | 03-05802-2 | W | X | ☐ |

☐ Client"s Requirement: **PERFORM MS/MSD ON SAMPLE #** 9

Login By JASON M. NARIO

Check By MK

Applied P & Ch Laboratory
13760 Magnolia Ave., Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

# Sample Receiving Checklist

**APCL ServiceID** 5802 **Client Name/Project:** Geocon JPL

**1. Sample Arrival**

Date/Time Received 10/23/03 1425 Date/Time Opened 10/23/03 1425 By (name): Khem Sham

Custody Transfer: ☐ Client ☐ Golden State ☐ UPS ☐ US Mail ☐ FedEx ☑ APCL Empl: Scott B.

**2. Chain-of-Custody (CoC)**

☑ With Samples? ☐ Faxed? ☑ Client has Copy? ☐ Signed, dated? By:
☑ Project ID? ☑ Analyses Clear? ☐ Hold Samples? #on Hold ____ # Received 13
☐ CoC/Docs Zip-Locked under lid? ☐ Compos.#: ___ ☑ #Samples OK?
☐ Discrepancies? ☐ Client notified? ☐ Response (attach docs): ____

**3. Shipping Container/Cooler**

☑ Cooler Used? # of 1 Cooled by: ☑ Ice ☐ Blue Ice ☐ Dry Ice ☐ None
**Temp °C** 3.6
(Cooler temperature measured from temp blank if present, otherwise measured from the cooler).
Cooler Custody Seal? ☐ Absent ☐ Intact ☐ Tampered?

**4. Sample Preservation**

☐ **pH <2** ☐ pH >12
**If Not, pH =** ____ Preserved by: ☐ Client ☐ APCL ☐ Third Party ____

**5. Holding-time Requirements**

☐ pH 24hr ☐ BACT 6/24hr ☑ $Cr^{VI}$ 24hr ☐ $NO_3^-$ 48hr ☐ BOD 48hr
☐ $Cl_2$ ASAP ☐ Turbidity 48hr ☐ DO ASAP ☐ Fe(II) ASAP
☐ HT Expired? ☐ Client notified?

**6. Sample Container Condition**

☑ Intact? ☐ Broken? ☐ Documented? Number: ____
Type: ☑ plastic ☑ glass ☐ Tube: brass/SS ☐ Tedlar Bag
☑ Quantity OK? ☐ Leaking? ☐ Anomaly?
☑ Caps tight? ☐ Air Bubbles? ☐ Anomaly?
Labels: ☐ Unique ID? ☑ Date/Time ☐ Preserved?

**7. Turn Around Time**

☐ RUSH TAT: ____ ☑ Std (7-10 days) ☐ Not Marked

**8. Sample Matrix**

☐ Drinking $H_2O$ ☐ Other Liq ☐ Soil ☐ Wipe ☐ Polymer ☐ Air ☐ Other: ____
☑ Ground $H_2O$ ☐ Sludge ☐ Filter ☐ Oil/Petro ☐ Paint ☐ W. Water ☐ Extract ☐ Unknown

**9. Pre-Login Check List Completed & OK?**

☑ ALL OK? (if not, attach docs) ☐ Client Contact? (Name:____ )Date/Time:____

Received/Checked by: [signature] Printed: 23 Oct 2003 7:22 a.m.

*HT: Samples must be analyzed for results to reflect total concentrations. Results generated outside required of holding times are considered minimal values and may be used to define waste as hazardous but not as non-hazardous.

DocumentFile: [neal.texfiles]smprcl.tex.

# Applied P & Ch Laboratories
## Project: JPL GW Mon-4Q03, 04.4428.10

## ATL Work Order: 065631



Advanced Technology Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

# Table of Contents

**ATL Work Order: 065631**


| Item | Pages |
|---|---|
| Cover Letter | 0001-0004 |
| Sample Receiving Items | 0005-0006 |
| Analytical Result Reports | 0007-0018 |
| Quality Control Reports | 0019-0020 |
| Raw Data: | |
| Method 200.8 | 0021-0080 |
| | |
| | |
| | |
| | |
| | |




*Advanced Technology Laboratories* 3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

## Advanced Technology Laboratories

**Date:** *19-Nov-03*

**CLIENT:** Applied P & Ch Laboratories
**Project:** JPL GW Mon-4Q03, 04.4428.10
**Lab Order:** 065631

# CASE NARRATIVE

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

QC Batch R32297 (EPA 200.8)

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are outside recovery criteria; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



*Advanced Technology Laboratories* *3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040*

# Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

# Subcontract Chain of Custody

Please Print in pen Page 1 of 1

Subcontract Lab: ATL Contact: Puri Tel #: (562) 989-4045 Fax #: (562) 989-4040
Address: 3275 Walnut Avenue City: Signal Hill State: CA Zip code: 90807
APCL Client: #5802 APCL Contact: Kenny Chan
Project Name/Code JPL GW Mon - 4Q03 Job # 04.4428.10
BILL TO APCL Sub Quotation # —
Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: JR

| Field Sample ID No. | Sample Description ID | Date Collected | Time Collected | Sample Matrix | Preservation | # of Containers | Cr by 200.0 | Analysis Items | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | MW-12-5 | 102303 | 1049 | W | $HNO_3$ | 1 | X | | Level 4 pkg and EDD. |
| | MW-12-4 | 102303 | 1113 | W | $HNO_3$ | 1 | X | | |
| | MW-12-3 | 102303 | 1132 | W | $HNO_3$ | 1 | X | | |
| | MW-12-2 | 102303 | 1150 | W | $HNO_3$ | 1 | X | | |
| | MW-12-1 | 102303 | 1216 | W | $HNO_3$ | 1 | X | | |
| | Dupe-4-4-Q03 | 102303 | 1241 | W | $HNO_3$ | 1 | X | | |
| | MW-23-5 | 102303 | 0712 | W | $HNO_3$ | 1 | X | | |
| | MW-23-4 | 102303 | 0734 | W | $HNO_3$ | 1 | X | | |
| | MW-23-3 | 102303 | 0751 | W | $HNO_3$ | 1 | X | | |
| | MW-23-2 | 102303 | 0824 | W | $HNO_3$ | 2 | X | | ← MS/MSD |
| | MW-23-1 | 102303 | 0901 | W | $HNO_3$ | 1 | X | | |
| | EB-2-10-23-03 | 102303 | 0855 | W | $HNO_3$ | 1 | X | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

White – With report
Yellow – Lab copy
Pink – Originator

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☒ NEESA D (E, C or D); ☒ Other EDD (Please specify)
Sample Disposal: ☐ Return ☐ Disposal by APCL ☐ Hold for _____ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.
Sample Conditions: ☒ Intact; ☐ Broken. Cooler Seal: ☒ Intact; ☐ Broken; ☐ None. Tag # _____ Temperature: ☐ Room ☒ Cold (2.8 °C).
Relinquished by _____ Date/Time 10/24/3 1080 Received by _____ Date/Time 10/31/03 / 1440
Relinquished by _____ Date/Time / Received by _____ Date/Time /

APCL USE ONLY Service # Note:

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been breached.

## Advanced Technology Laboratories

**Date:** *10-Nov-03*

**CLIENT:** Applied P & Ch Laboratories
**Project:** JPL GW Mon-4Q03, 04.4428.10
**Lab Order:** 065631
**Contract No:**

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| 065631-001A | MW-12-5 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-002A | MW-12-4 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-003A | MW-12-3 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-004A | MW-12-2 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-005A | MW-12-1 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-006A | Dupe-4-4-Q03 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-007A | MW-23-5 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-008A | MW-23-4 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-009A | MW-23-3 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-010A | MW-23-2 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-011A | MW-23-1 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |
| 065631-012A | EB-2-10-23-03 | Water | 10/23/2003 | 10/31/2003 | 11/10/2003 |



*Advanced Technology Laboratories* *3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040*

# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-12-5 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 10:49:00 AM |
| **Lab ID:** | 065631-001A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 4.7 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:33:35 P |

**Qualifiers:**

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



*Advanced Technology Laboratories* 3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-12-4 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 11:13:00 AM |
| **Lab ID:** | 065631-002A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 2.8 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:36:04 P |

**Qualifiers:**

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- H-Samples exceed holding time



Results are wet unless otherwise specified



*Advanced Technology Laboratories* 3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-12-3 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 11:32:00 AM |
| **Lab ID:** | 065631-003A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 1.6 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:38:34 P |

**Qualifiers:**

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



*Advanced Technology Laboratories* 3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

**Date:** *10-Nov-03*

**CLIENT:** Applied P & Ch Laboratories
**Client Sample ID:** MW-12-2
**Lab Order:** 065631
**Project:** JPL GW Mon-4Q03, 04.4428.10
**Collection Date:** 10/23/2003 11:50:00 AM
**Lab ID:** 065631-004A
**Matrix:** WATER

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 2.9 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:41:03 P |

**Qualifiers:**

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

**CLIENT:** Applied P & Ch Laboratories
**Client Sample ID:** MW-12-1
**Lab Order:** 065631
**Project:** JPL GW Mon-4Q03, 04.4428.10
**Collection Date:** 10/23/2003 12:16:00 PM
**Lab ID:** 065631-005A
**Matrix:** WATER

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A QC Bach: R32297 | | | PrepDate: | | | | |
| Chromium | 8.1 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:43:34 P |

**Qualifiers:**

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
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R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | Dupe-4-4-Q03 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 12:41:00 PM |
| **Lab ID:** | 065631-006A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A QC Bach: R32297 | | | | PrepDate: | | | |
| Chromium | 8.4 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:46:05 P |

**Qualifiers:**

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R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



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| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-23-5 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 7:12:00 AM |
| **Lab ID:** | 065631-007A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A QC Bach: R32297 | | | PrepDate: | | | | |
| Chromium | 1.8 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:48:36 P |

**Qualifiers:**

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-23-4 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 7:34:00 AM |
| **Lab ID:** | 065631-008A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 2.6 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:51:08 P |

**Qualifiers:**

- ND - Not Detected at the Reporting Limit
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- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- H-Samples exceed holding time



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-23-3 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 7:54:00 AM |
| **Lab ID:** | 065631-009A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 4.2 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 12:58:49 P |

**Qualifiers:**

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- B - Analyte detected in the associated Method Blank
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- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- H-Samples exceed holding time



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-23-2 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 8:24:00 AM |
| **Lab ID:** | 065631-010A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | 3.5 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 1:01:22 PM |

**Qualifiers:**

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- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- H-Samples exceed holding time



Results are wet unless otherwise specified



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | MW-23-1 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 9:01:00 AM |
| **Lab ID:** | 065631-011A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A QC Bach: R32297 | | | PrepDate: | | | | |
| Chromium | 4.6 | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 1:06:25 PM |

**Qualifiers:**

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R - RPD outside accepted recovery limits
E - Value above quantitation range
H-Samples exceed holding time



Results are wet unless otherwise specified



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# Advanced Technology Laboratories

**Date:** *10-Nov-03*

| | | | |
|---|---|---|---|
| **CLIENT:** | Applied P & Ch Laboratories | **Client Sample ID:** | EB-2-10-23-03 |
| **Lab Order:** | 065631 | | |
| **Project:** | JPL GW Mon-4Q03, 04.4428.10 | **Collection Date:** | 10/23/2003 8:55:00 AM |
| **Lab ID:** | 065631-012A | **Matrix:** | WATER |

| Analyte | Result | Qual | MDL | PQL | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ICP-MS METALS** | | | **EPA 200.8** | | | | Analyst: **NS** |
| RunID: ICP4_031105A | QC Bach: R32297 | | | PrepDate: | | | |
| Chromium | ND | | 0.11 | 1.0 | µg/L | 1 | 11/5/2003 1:08:52 PM |

**Qualifiers:**

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- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- H-Samples exceed holding time



Results are wet unless otherwise specified



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Advanced Technology Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

**Date:** *10-Nov-03*

**CLIENT:** Applied P & Ch Laboratories
**Work Order:** 065631
**Project:** JPL GW Mon-4Q03, 04.4428.10

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W**

| Sample ID: MB-R32297 | SampType: MBLK | TestCode: 200.8_W | Units: µg/L | Prep Date: | Run ID: ICP4_031105A |
|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: R32297 | TestNo: EPA 200.8 | | Analysis Date: 11/5/2003 | SeqNo: 480785 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | | | | | | | | | |

| Sample ID: LCS-R32297 | SampType: LCS | TestCode: 200.8_W | Units: µg/L | Prep Date: | Run ID: ICP4_031105A |
|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: R32297 | TestNo: EPA 200.8 | | Analysis Date: 11/5/2003 | SeqNo: 480784 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.4 | 1.0 | 10 | 0 | 104 | 85 | 115 | 0 | 0 | | |

| Sample ID: 065631-010AMS | SampType: MS | TestCode: 200.8_W | Units: µg/L | Prep Date: | Run ID: ICP4_031105A |
|---|---|---|---|---|---|
| Client ID: MW-23-2 | Batch ID: R32297 | TestNo: EPA 200.8 | | Analysis Date: 11/5/2003 | SeqNo: 480780 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 11.3 | 1.0 | 10 | 3.494 | 78 | 80 | 120 | 0 | 0 | | S |

| Sample ID: 065631-010AMSD | SampType: MSD | TestCode: 200.8_W | Units: µg/L | Prep Date: | Run ID: ICP4_031105A |
|---|---|---|---|---|---|
| Client ID: MW-23-2 | Batch ID: R32297 | TestNo: EPA 200.8 | | Analysis Date: 11/5/2003 | SeqNo: 480781 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 11.26 | 1.0 | 10 | 3.494 | 77.7 | 80 | 120 | 11.3 | 0.301 | 20 | S |

| Sample ID: 065631-010ADUP | SampType: DUP | TestCode: 200.8_W | Units: µg/L | Prep Date: | Run ID: ICP4_031105A |
|---|---|---|---|---|---|
| Client ID: MW-23-2 | Batch ID: R32297 | TestNo: EPA 200.8 | | Analysis Date: 11/5/2003 | SeqNo: 480786 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 3.313 | 1.0 | 0 | 0 | 0 | 0 | 0 | 3.494 | 5.32 | 30 | |

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S - Spike Recovery outside accepted recovery limits
B - Analyte detected in the associated Method Blank
**Calculations are based on raw values**
DO- Surrogate dilute out
H - Sample exceeded holding time

0019

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

**CLIENT:** Applied P & Ch Laboratories
**Work Order:** 065631
**Project:** JPL GW Mon-4Q03, 04.4428.10

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W**

| Sample ID: 065631-012ADUP | SampType: DUP | TestCode: 200.8_W | Units: µg/L | Prep Date: | Run ID: ICP4_031105A |
|---|---|---|---|---|---|
| Client ID: EB-2-10-23-03 | Batch ID: R32297 | TestNo: EPA 200.8 | | Analysis Date: 11/5/2003 | SeqNo: 480787 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | ND | 1.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | |

**Qualifiers:**
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S - Spike Recovery outside accepted recovery limits
B - Analyte detected in the associated Method Blank
**Calculations are based on raw values**
DO- Surrogate dilute out
H - Sample exceeded holding time

0020