

NYS Department of Health - Wadsworth Center  
Environmental Laboratory Approval Program  
Assessment Report

Lab: 11642 USGS NATIONAL WATER QUALITY LABORATORY  
Address: MS 407-BLDG 95-DENVER FED CTR  
DENVER, CO 80225-0046

Assessment ID: 1805  
Assessment Date: 08/02/07  
Assessment Type: General Assessment  
Primary Assessor: Dersham, Randy

INTRODUCTION

**Deficiency:** 504 The laboratory does not make accurate statements concerning their NELAP accreditation fields of testing and NELAP accreditation status. (Chapter 4 Sec. 4.6.1; Chapter 6 Sec. 6.8.a.2, NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Database of reported data needs to identify what analytes are covered by environmental certifications.

**Corrective Action:**

ORGANIZATION AND MANAGEMENT

**Deficiency:** 5432 The laboratory does not nominate deputies in the case of absence of the technical director or QA officer. (Sec 5.4.1.5.j NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Needs to be in writing in quality manual.

**Corrective Action:**

NYS Department of Health - Wadsworth Center  
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DOCUMENT CONTROL

Deficiency: 54321 All documents are not issued to personnel in the laboratory as part of the quality system reviewed and approved for use by authorized personnel prior to issue. (Sec. 5.4.3.2.1 NELAC 2003)

Method: USGS I-3561-85

Assessor: Denicola, Kathie

Comments: This refers to the need to control "bench notes" used by the analyst.

Corrective Action:

REVIEW of REQUESTS, TENDERS and CONTRACTS

Deficiency: 5541B1 The laboratory does not inform the client of the results of the review if it indicates any potential conflict, deficiency, lack of appropriate accreditation status, or inability on the laboratory's part to complete the clients work. (Sec 5.4.4.1.b NELAC 2003)

Assessor: Dersham, Randy

Comments: Review of requests, tenders and contracts does not include evaluation of state certification requirements.

Corrective Action:

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**SUBCONTRACTING**

**Deficiency:** 5142 Where a laboratory subcontracts any part of the testing covered under its NELAP accreditation, records do not indicate that this work is placed with a laboratory accredited under NELAP for the tests performed. (Sec. 5.4.5.1,4 NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Radiochemistry subcontracted lab does not have certification in NY.

**Corrective Action:**

**RECORDS**

**Deficiency:** 5124 The record keeping system does not allow historical reconstruction of all laboratory activities that produced the resultant sample analytical data. (Sec. 5.4.12.1.5 NELAC 2003)

**Method:** USGS I-1750-85

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to record the times and temperatures of evaporating and drying cycles (ROE from FU & RU bottles). Evaporate below boiling (98 degrees C). Temperature validation cannot be performed.

**Corrective Action:**

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**RECORDS:** Strip charts, Tabular printouts, computer data files, analytical notebooks, and/or run logs do not include:

**Deficiency:** 51223G sample preparation including clean-up & separation protocols, ID codes, volumes, weights, instrument printouts, meter readings, calculations & reagents used. (Sec. 5.4.12.3.3.g NELAC 2003)

**Method:** USGS O-3116-87

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to include the Batch QC in the prep. records (there was no prep sheet for BNA LCS or Blank)

**Corrective Action:**

**Deficiency:** 51223I standard & reagent origin, receipt, preparation, and use. (Sec. 5.4.12.3.3.i NELAC 2003)

**Method:** USGS O-3116-87

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to track calibration standard origin on raw data (run logs).

**Corrective Action:**

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Assessment ID: 1805  
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**RECORDS:** Strip charts, Tabular printouts, computer data files, analytical notebooks, and/or run logs do not include:

**Deficiency:** 512231 standard & reagent origin, receipt, preparation, and use. (Sec. 5.4.12.3.3.i NELAC 2003)

**Method:** USGS O-3100-83

**Assessor:** Denicola, Kathie

**Comments:** This refers to record the source of the "third party check".

**Corrective Action:**

**DATA INTEGRITY**

**Deficiency:** 54158 Senior managers acknowledge their support of these procedures by: Upholding the spirit and intent of the organizations data integrity procedures, and; Effectively implementing the specific requirements of the procedures. (Sec. 5.4.2.7 NELAC 2003)

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to effectively perform the "in-depth data monitoring" requirement of Data Integrity. Many of the deficiencies relate to data integrity (data validation) problems.

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**PERSONNEL**

**Deficiency:** 5522A The training program is not relevant to the present and anticipated tasks of the laboratory. (Sec 5.5.2.2 NELAC 2003)

**Method:** USGS I-4610-91

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to train the analyst (using the Alpkem analyser) to select calibration method according to the TKN and Total Phosphate SOP (linear, non forced, should be the preferred selection).

**Corrective Action:**

**PERSONNEL: The training records available for all technical staff do not include:**

**Deficiency:** 566C annual training courses in ethical and legal responsibilities including the potential punishments & penalties for violations. (Sec 5.5.2.7 NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Not completed in 2005.

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**PERSONNEL: The training records available for all technical staff do not include:**

**Deficiency: 566D** annual signature evidence for each employee demonstrating that the employee has read; acknowledges and understands their personal & legal responsibilities including potential punishments & penalties for violations. (Sec 5.5.2.7 NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Not completed in 2005.

**Corrective Action:**

**Deficiency: 566E** documentation certifying that the employee has read, understands and agrees to use the latest version of a test method used. (Sec 5.5.2.6.c.3 NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** A few files missing training record when minor updates to SOPs are done.

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### TEST METHODS AND SOPs

**Deficiency:** 5109 The laboratory does not use appropriate test methods and procedures for all tests and related activities within its responsibility (including sample collection, handling, transport, storage, preparation and analysis. (Sec. 5.5.4.2 NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Using unapproved method for NW metals digestion. Testing for some analytes in NY samples that the lab is not certified for such as TPH,color,Br, FI, some metals, and Ur by ICP/MS.

**Corrective Action:**

### EQUIPMENT AND REFERENCE MATERIALS

**Deficiency:** 5911 All support equipment is not calibrated annually, using NIST traceable references when available, over the entire range in which the equipment is used. (Sec 5.5.5.2.1.b NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Thermometer calibrations not completed in 2006.

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**EQUIPMENT AND REFERENCE MATERIALS**

**Deficiency:** 5912    The results of support equipment calibration within the specifications are not requires of the application for which it is used. (Sec 5.5.5.2.1.b NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Sample receipt IR guns did not have correction factors of calibration applied.

**Corrective Action:**

**Deficiency:** 5916    Balances, ovens, refrigerators, freezers, incubators and water baths are not checked on each working day with NIST traceable references (where available) before use in the expected use range. (Sec 5.5.5.2.1.d NELAC 2003)

**Method:** EPA 1664A

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to check the balance in the range of the sample measurements ( about 1500g).

**Corrective Action:**

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**EQUIPMENT AND REFERENCE MATERIALS**

**Deficiency:** 5918 The acceptability for use or continued use is not in accord with the needs of the analysis or application for which it is used? (Sec 5.5.5.2.1.d NELAC 2003)

**Method:** USGS I-1750-85

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to include and use the correct temperature range for the Residue Analyses (ROE from FU & RU bottles). The oven temperature records were out of method range (180 +/- 2 & 103-105)

**Corrective Action:**

**Deficiency:** 5919 Mechanical volumetric devices, including burettes, are not checked for accuracy on a quarterly basis. (Sec 5.5.5.2.1.e NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Not performed quarterly in 2006 for pipettes.

**Corrective Action:**

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### MEASUREMENTS TRACEABILITY AND CALIBRATION

**Deficiency:** 51028 The records of reagent and standard preparation do not indicate traceability to purchased stocks or neat compounds and include the date of preparation and preparer's initials. (Sec. 5.5.6.4.c NELAC 2003)

**Method:** USGS O-3100-83

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need for "third party check standard" traceability to a certified standard that is not expired.

**Corrective Action:**

### SAMPLE HANDLING

**Deficiency:** 51118 The results of all checks are not recorded. (Sec. 5.5.8.3.1.b NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Sample login needs a permanent record for preservation checks.

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**Assessment Date:** 08/02/07  
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**SAMPLE HANDLING**

**Deficiency:** 51118 The results of all checks are not recorded. (Sec. 5.5.8.3.1.b NELAC 2003)

**Method:** USGS I-3561-85

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to record the preservation checks (COD).

**Corrective Action:**

**SAMPLE HANDLING: The sample acceptance policy criteria does not include the following:**

**Deficiency:** 51110a Proper, full and complete documentation, which includes sample ID, location, date, time of collection, collector's name, preservation type, sample type and any special remarks concerning the sample. (Sec. 5.5.8.3.2.a NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** Not using EPA acceptance criteria when more stringent than lab criteria.

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**ASSURING the QUALITY of TEST RESULTS**

**Deficiency:** 5535 All quality control measures are not assessed or evaluated on an ongoing basis nor quality control acceptance limits used to determine the usability of the data. (Sec. 5.5.9.2.b NELAC 2003)

**Method:** USGS O-4127-96

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to put control limits that were in use at the time of the analysis on the control charts (VOC & COD LCS charting were some of the examples found).

**Corrective Action:**

**REPORTS: The report does not contain:**

**Deficiency:** 5133I date of receipt of sample, date and time of sample collection, dates of performance of tests, and time of sample preparation and/or analysis if the required holding time for either activity is less than or equal to 72 hours. (Sec. 5.5.10.2.g NELAC 2003)

**Assessor:** Dersham, Randy

**Comments:** need time of analysis

**Corrective Action:**

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**Appendix D - Essential Quality Control Requirements**

**Deficiency:** 000D11 The laboratory does not demonstrate that it meets all requirements contained in a mandated test method or by regulation, even if the requirement is more stringent than the corresponding NELAC Standard. (Sec. 5.1.1.b NELAC 2003)

**Method:** EPA 1664A

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to rinse, with n-hexane, the glass rod used for pH check into the separatory funnel used to extract the sample (EPA 1664 section 8.2).

**Corrective Action:**

**Deficiency:** 000D11 The laboratory does not demonstrate that it meets all requirements contained in a mandated test method or by regulation, even if the requirement is more stringent than the corresponding NELAC Standard. (Sec. 5.1.1.b NELAC 2003)

**Method:** AOAC 973.55

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to pre-rinse filters with three 20-ml portions of water (SUSO). The lab is not presently certified for this analyte.

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**Appendix D - Essential Quality Control Requirements**

**Deficiency:** 000D11 The laboratory does not demonstrate that it meets all requirements contained in a mandated test method or by regulation, even if the requirement is more stringent than the corresponding NELAC Standard. (Sec. 5.1.1.b NELAC 2003)

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to follow EPA 1664 section 8.1.1 for collecting samples to establish volume of preservative needed if samples are to be stored (so pH checking can then be done at time of analysis).

**Corrective Action:**

**Deficiency:** 000D12 The quality control protocols specified by the laboratory's method manual are not followed by all analysts. (Chapter 5 Appendix D NELAC 2003)

**Method:** USGS I-4464-01

**Assessor:** Dersham, Randy

**Comments:** Not using linear curve as per SOP. Dropping ICAL points not allowed in SOP.

**Corrective Action:**

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### Appendix D - Essential Quality Control Requirements

**Deficiency:** 000D13 All essential quality control measures are not incorporated into the laboratory method manual. (Chapter 5 Appendix D NELAC 2003)

**Method:** EPA 1664A

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need for collecting extra sample bottles every ten samples to be used for spike and duplicate analyses (EPA 1664 section 8.2 & 9.3).

**Corrective Action:**

### APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW

**Deficiency:** 00D112A The LCS is not used to evaluate the performance of the total analytical system including all preparation and analysis steps. (D.1.1.2.1.a NELAC 2003)

**Method:** EPA 1664A

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to include the pH check step in the IDL sample analysis.

**Corrective Action:**

NYS Department of Health - Wadsworth Center  
Environmental Laboratory Approval Program  
Assessment Report

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**APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW**

**Deficiency:** 00D130 The continuing instrument calibration verification is not used to confirm the continued validity if the initial calibration. (Sec. 5.5.5.2.2 NELAC 2003)

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to verify non-linear curves at more than one mid-point (as determined by the policy for determining the number of standards necessary to define each curve type).

**Corrective Action:**

**Deficiency:** 00D131 The SOPs or the test method SOPs do not reference the details of the initial calibration procedures, including calculations, integrations, acceptance criteria and associated statistics. (Sec. 5.5.5.2.2.1.a NELAC 2003)

**Method:** USGS O-2060-01

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to include the curve type and number of calibration standards used for HPLC Herbicides.

**Corrective Action:**

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**APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW**

**Deficiency:** 00D131 The SOPs or the test method SOPs do not reference the details of the initial calibration procedures, including calculations, integrations, acceptance criteria and associated statistics. (Sec. 5.5.5.2.2.1.a NELAC 2003)

**Method:** USGS O-4127-96

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need for the acceptance correlation coefficient in the SOP.

**Corrective Action:**

**\*\*REPEAT DEFICIENCY\*\***

**Deficiency:** 00D131 The SOPs or the test method SOPs do not reference the details of the initial calibration procedures, including calculations, integrations, acceptance criteria and associated statistics. (Sec. 5.5.5.2.2.1.a NELAC 2003)

**Method:** USGS I-2057-85

**Assessor:** Denicola, Kathie

**Comments:** This refers to IC. Point-to-point calibration is not an approved option for initial calibration calculation. The calibration method used for validation should also be used to calculate sample results.

**Corrective Action:**

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**APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW**

**\*\*REPEAT DEFICIENCY\*\***

**Deficiency:** 00D131 The SOPs or the test method SOPs do not reference the details of the initial calibration procedures, including calculations, integrations, acceptance criteria and associated statistics. (Sec. 5.5.5.2.2.1.a NELAC 2003)

**Method:** USGS O-3100-83

**Assessor:** Denicola, Kathie

**Comments:** This refers to TOC. Point-to-point calibration is not an approved option for initial calibration calculation. The calibration method used for validation should also be used to calculate sample results.

**Corrective Action:**

**Deficiency:** 00D133 All initial calibrations are not verified with a standard obtained from a second source manufacturer or lot if the lot can be demonstrated from the manufacturer as prepared independently from other lots. (Sec. 5.5.5.2.2.1.d NELAC 2003)

**Method:** ASTM D5072-92

**Assessor:** Dersham, Randy

**Corrective Action:**

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#### APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW

**Deficiency:** 00D134 The criteria for the acceptance of an initial calibration is not established or appropriate to the calibration technique employed. (Sec. 5.5.5.2.2.1.e NELAC 2003)

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to establish appropriate acceptance criteria that does not allow discretionary dropping of standards.

**Corrective Action:**

**Deficiency:** 555221F The lowest calibration standard is not the lowest concentration for which quantitative data are to be reported (see Appendix C.) Any data reported below the lower limit of quantitation should be considered to have an increased quantitative uncertainty and shall be reported using defined qualifiers or flags or explained in the case narrative. (NELAC Chapter 5, section 5.5.5.2.2.1.f, July 2003.)

**Assessor:** Dersham, Randy

**Comments:** ICP and ICP/MS are not flagging data reported below first ICAL point.

**Corrective Action:**

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APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW

Deficiency: 00D136 The lowest calibration standard of the initial calibration is not above the detection limit. (Sec. 5.5.5.2.2.1.h NELAC 2003)

Assessor: Denicola, Kathie

Comments: This refers to the need for a lab-wide policy that applies to the certified testing that is reflected in the SOPs.

Corrective Action:

Deficiency: 00D136 The lowest calibration standard of the initial calibration is not above the detection limit. (Sec. 5.5.5.2.2.1.h NELAC 2003)

Assessor: Denicola, Kathie

Comments: This refers to need to not include or forse calibration through zero.

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**APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW**

**Deficiency:** 00D140 The laboratory does not have an SOP for determining the number of points for establishing the initial calibration. (Sec. 5.5.5.2.2.1.2 NELAC 2003)

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to establish a policy for the number of standards necessary to define each curve type that does not allow for discretionary dropping of standards.

**Corrective Action:**

**Deficiency:** 00D156 When the protocol for determining detection limits is not specified, the selection made by the laboratory does not reflect instrument limitations and the intended application of the test method. (Chapter 5 App. D.1.2.1 NELAC 2003)

**Method:** USGS I-1750-85

**Assessor:** Denicola, Kathie

**Comments:** This refers to the need to use detection limits for analysis and reporting based on minimum measurable residue (ROE from FU & RU bottles)

**Corrective Action:**

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**APPENDIX D.1 CHEMICAL TESTING AND AIR TESTING DETAILED METHOD REVIEW**

**Deficiency:** 00D12D The LOD is not verified annually for each quality system matrix, method and analyte according to the procedure specified in C.3. (NELAC Chapter 5, Appendix D.1.2.d, July 2003.)

**Assessor:** Dersham, Randy

**Comments:** Some metals were not evaluated because they were not included in LTMDL spike program.

**Corrective Action:**

**APPENDIX D.4 Radiochemistry Testing Detailed Method Review**

**Deficiency:** 000D42 The quality control protocols are not specified by the laboratory's method manual followed by all analysts.

**Method:** ASTM D5072-92

**Assessor:** Dersham, Randy

**Comments:** Low level ccv 509 had failures without a corrective action as per SOP.

**Corrective Action:**

**Lab Director:** \_\_\_\_\_ **Date:** \_\_\_\_\_