

Lab: 11642 USGS NATIONAL WATER QUALITY LABORATORY
Address: BLDG 95-DENVER FEDERAL CENTER
DENVER, CO 80225-0585

Assessment ID: 3712
Assessment Date: 09/17/15
Assessment Type: General Assessment
Primary Assessor: Zgrodnik, Tom

INTRODUCTION

REPEAT DEFICIENCY

Deficiency: 504

The laboratory does not make accurate statements concerning their NELAP / ELAP accreditation fields of testing and NELAP / ELAP accreditation status. (Sec. 4.6.1 & 6.8.a.2)[M2,5.10.11(a)]

Assessor: Zgrodnik, Tom

Comments: The USGS "catalog" and the NWIS reports list many analytes that are being reported, but are listed as "uncertified" by NYS. ELAP does offer certification for many of those analytes. If the NWQL intends to continue reporting results for those analytes, a request should be made to add your methods in association with those analytes on your certification list. Also, there were no prep methods listed (primarily digestion methods) on your list of accredited methods.

Corrective Action: The U.S. Geological Survey (USGS) gathers data for determining the location, amount, availability, and quality of groundwater and surface water throughout the United States and its territories. The National Water Quality laboratory (NWQL) determines organic and inorganic constituents in samples of groundwater and surface water, river and lake sediment, aquatic plant and animal material, and precipitation, and provides that data for use to all States through the National Water Information System (NWIS).

The USGS NWQL presently has approximately 480 analytical test codes for roughly 2600 compounds. As a science agency, samples are obtained by USGS satellite science centers and the subsequent data are reported back to them via NWIS for use in tracking and trending purposes. Because of the nature of work, our USGS methods are developed to get the lowest reporting level possible. These levels are much lower than the required drinking water levels associated with most of the methods listed in 40 CFR 136.

The NWQL does report results for analytes for which ELAP provides certification; however, the ELAP certification does not cover all methods that the NWQL utilizes. In August 2012, the NWQL submitted an application to ELAP identifying additional analytes that needed to be added to its accreditation, with supporting data; some of those analytes were rejected. The basis for the rejection seems to have been the fact that the method used by the NWQL differs from the methods listed in the Federal Register and NEMI. Once approved by the USGS Office of Water Quality, all USGS methods are listed in NEMI, but not 40 CFR 136. The NWQL continues to work with the EPA to have methods used added to 40 CFR 136 using the method update rule as appropriate.

Although this is a "repeat finding", the NWQL disagrees in principle that we have been negligent in the requirements. After the 2013 Assessment, Stephanie Ostrowski, of your office, planned on a conference call to discuss how the USGS NWQL could continue to create new methods and still maintain our ELAP certification. This discussion never came to fruition, so it was believed that what the NWQL was doing was considered acceptable to ELAP. If ELAP grants the NWQL approval to apply for analytes that are on the ELAP list, but not listed in the CFR or for which the NWQL method differs from that on the ELAP list, the NWQL would provide ELAP with copies of the published method used, method validation data, a current laboratory SOP, and current analyst demonstration of capability.

In addition, in response to this finding, the NWQL will submit a DOH-109 (5/18/2015) to add analytes that are reported by USGS NWQL and for which ELAP offers PT certification for approved 40 CFR 136 methods, utilizing NYSDOH Item No. 180.2, Approved methods for non-potable water. Please be aware that our USGS method O-3116-87 has been inadvertently removed from the NYSDOH Item No. 180.2.

In the customer catalog, the NWQL has updated, verified, and continues to identify to its customers which analytes are presently NELAP certified. These updates will continue based on the ELAP approval of the additional analytes requested.

Regarding the inclusion of our prep digestion method on your list of accredited methods, it was not submitted for inclusion in 40 CFR 136 as it is contained and referenced (Hoffman, G.L., Fishman, M.J., and Garbarino, J.R., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory — In-Bottle acid digestion of whole-water samples: U.S. Geological Survey Open-File Report 96-225) in the published analysis methods (I-4471-97 and I-4472-97) which are in 40 CFR 136.

Date due: December 13, 2015 (Form DOH-109 will be submitted to ELAP)

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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)[M2,4.5.1,4.5.5]

Assessor: Zgrodnik, Tom

Comments: Currently, the laboratory subcontracts tritium analyses to a laboratory at the University of Miami, but that lab is not accredited under the NELAP standard.

Corrective Action:

We annotated the USGS customer page to reflect the accreditation of our contract radiochemical labs and to show that the University of Miami is not accredited by NELAC.

EPA's standard for tritium in drinking water is 20,000 picocuries per liter (pCi/L) and a required detection limit (DL) of 1,000 pCi/L. All of the methods on the approved methods list can easily achieve this DL with scintillation counting (SCIN CNT). With a required DL of 1,000 pCi/L, PT samples are quite high.

Our present tritium contractor, The University of Miami Tritium Laboratory (UMTL) performs electrolytic enrichment followed by gas proportional counting. Our contractual required DL is 0.3 pCi/L. This ultra-low level is required because USGS uses tritium to characterize and date water in aquifers. To participate in ERA's PT program could cause instrument and laboratory contamination which would affect the quality of our ultra-low level analyses.

We recently tried to order low level tritium PT samples from ERA to compare the performance of UMTL with the Menlo Park tritium lab (our previous contractor). We could not provide ERA with "dead" water and therefore ERA could not prepare low level PT samples. ERA stated that their tap and DI water contained naturally occurring tritium levels higher than we required.

UMTL does participate in the low level IAEA inter-laboratory comparison study; however, these samples are only sent bi-annually.

Completed: Copy of USGS customer web page reflecting contractor accreditation.

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EQUIPMENT AND REFERENCE MATERIALS

Deficiency: 587 Each item of equipment including reference materials are not labeled, marked or otherwise identified to indicate its calibration including the date when last calibrated and the date or expiration criteria when recalibration is due. (Sec. 5.5.6.4.c-d & 5.5.5.8)[M2,5.5.8]

Method: USGS I-3561-85

Assessor: DeNicola, Kathie

Comments: The block digester was not labeled with the calibration status of the thermometer.

Corrective Action:

No additional corrective action needed. NWQL Rapi-Note 15-22 (attached) notes that the NWQL has discontinued operation of this method.

In addition to tracking thermometers in a database, all thermometers and equipment using thermometers will be labeled with the thermometer calibration and expiration dates. The NWQL SOP ANLX0376.2, Calibrating, maintaining, and adjusting thermometers will be revised to include the new labeling process.

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QUALITY CONTROL MEASURES

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) [M2,5.9.3(c)]

Method: USGS I-3561-85

Assessor: DeNicola, Kathie

Comments: The lab is not performing separatory liquid/liquid extraction procedure according to the Method. A continuous liquid extraction procedure is in use.

Corrective Action:

The wrong method is listed; it should be O-3116-87.

On Thursday, October 1, 2015, the lab provided the NWQL SOP and the method validation (prove-out) data to ELAP for their review and approval.

No corrective action required.

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LIMIT OF DETECTION (LOD) & LIMIT OF QUANTITATION (LOQ)

Deficiency: 00C118 The laboratory does not determine the LOQ for each analyte of concern according to a defined, documented procedure. (C.3.2.a)[M4,1.5.2]

Method: USGS I-4020-05

Assessor: Zgodnik, Tom

Comments: A lower reporting limit (LRL or LOQ) acceptance limit has not been determined for metals by ICP/MS methods.

Corrective Action:

The lab is evaluating the LOQ for all analyses to determine more appropriate acceptance criteria. The limits are not listed in the SOPs as they can change annually. As SOPs are revised and/or amended, we will include the statement "LOQs will be evaluated annually and updated as required." The acceptance criteria are annotated in LIMS and analysts are provided with the updated information.

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CHEMICAL TESTING DETAILED METHOD REVIEW (D.1)[M4]

Deficiency: 00D111A Procedures are not in place to determine if a method blank is contaminated. (D.1.1.1.a)
[M4,1.7.3.1(a)]

Method: USGS I-3561-85

Assessor: DeNicola, Kathie

Comments: The SOP does not accurately reflect the reference blank and method blank criteria.

Corrective Action:

No additional corrective action needed. NWQL Rapi-Note 15-22 (attached) notes that the NWQL has discontinued operation of this method.

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CHEMICAL TESTING DETAILED METHOD REVIEW (D.1)[M4]

Deficiency: 00D119 The laboratory does not have procedures in place for tracking, managing, and handling matrix specific QC criteria including spiking appropriate components at appropriate concentrations, calculating recoveries and relative percent difference, evaluating and reporting results based on performance of the QC samples. (D.1.1.3) [M4,1.7.3.3]

Assessor: Zgodnik, Tom

Comments: This specifically applies to the acceptance ranges of the lower reporting limit (LRL or LOQ) set for many chemistry analyses. The range of many LRL limits are too broad. Some of the LRL limits observed were set at a "-300% to +500%" range. These limits should be re-evaluated and formally established in the method SOPs.

Corrective Action:

The lab is evaluating the LOQ for all analyses to determine more appropriate acceptance criteria. The limits are not listed in the SOPs as they can change annually. As SOPs are revised and/or amended, we will include the statement "LOQs will be evaluated annually and updated as required." The acceptance criteria are annotated in LIMS and analysts are provided with the updated information.

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CHEMICAL TESTING DETAILED METHOD REVIEW (D.1)[M4]

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. (5.5.5.2.2.1.d)[M4,1.7.1.1(d)]

Method: USGS I-2057-85

Assessor: DeNicola, Kathie

Comments: The IC calibration standard mix and the "third-party-check" standard mix are from the same manufacturer with different lot numbers. There was not enough information available from the manufacturer to demonstrate complete independent preparation. Since the assessment, the lab has sent additional information from the manufacturer to support independent preparation (time and date). No additional corrective action response is needed.

Corrective Action:

Completed: Comment above states no additional corrective action response is needed.

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CHEMICAL TESTING DETAILED METHOD REVIEW (D.1)[M4]

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

Method: USGS O-3128-95

Assessor: DeNicola, Kathie

Comments: The MBAS initial calibration curve regression calculation is forced through zero.

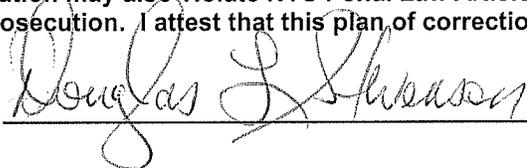
Corrective Action:

The lab will remove the zero standard and will add another non-zero standard to ensure a minimum of 5 valid calibration points. This is a deviation from the source method. The NWQL SOP ORGW0060.4, Determination of methylene blue active substances will be revised as necessary to identify the change.

Date due: December 13, 2015

I understand that under Section 55-2.6 of 10 NYCRR, a Certificate of Approval may be revoked, suspended or denied if any material fact pertinent to obtaining or retaining such certificate is misrepresented. Such misrepresentation may also violate NYS Penal Law Article 175 and subject parties who file a false instrument to criminal prosecution. I attest that this plan of correction has been/or will be implemented by the date(s) indicated.

Lab Director: _____



Date: _____

10 Nov '15