PAGE 1

Procedure Update, Approval, and Distribution Form

New ☐ Review ☐ Revision ☒ Training ☐ Other ☐

PROCEDURE INFORMATION			
SEL Procedure Name	SELSD Quality Assurance Plan		
Reference Document(s):	MFCLADW, 5th ED, 2009 TNI Standard		
Owner:	A. Kyle	Support Documents:	Yes ☒ No ☐
Program Support:	X DW-PWS X SDWA Non-Compliance X PDES X CWA Non-Complianc X SW-846 X OWRB X Emergency Response ☐ Other		

QS DC INFORMATION			
QS DC No.:	9010-QSP01-R17-020819		
Issue Date:	02/08/19 (02/06/19)	Review Schedule:	Annual

NOTES

SOP Review Requirements			
✓	Assessment	Initials	Date
	Requested Tracking Number	AK	2/5/19
	Using Approved Template only 1 QAP template	AK	2/5/19
	Reference Method Verified and Referenced	AK	2/5/19
	Supporting Documents Reviewed and Included	N/A	
	All Applicable Staff Participated in Revision provided to managers to review + Quita + tamber	AK	11/1/18-
	References Used are Included in SOP added Apx X: Ref List	AK	2/5/19
	Appendices are Attached or Referenced	AK	2/5/19

AUTHORIZATION SIGNATURES[1] ☒ Refer to approval Sig page: APXA

A Kyle 2/6/2019
Primary Reviewer Date

[signature] 3/6/2019
~~Section Manager~~ DD Date

[signature] 3-7-19
~~Group Manager~~ ADD Date

A Kyle 2/6/2019
Quality Assurance Officer Date

[1] Signature indicates that each job title has performed the functions associated with the authorization and approval of the associated procedure ***9750-QSP2 SELSD Documents***

Procedure Update, Approval, and Distribution Form

QA Control No.	9010-QSP01-R17-020819

REVIEW AND RECIPIENT SIGNATURES[1,2]

Recipient-PRINT	Recipient-SIGN	Date	Reviewer
April Kyle		2/6/19	✓
Debra Zeller		2/6/19	✓
Terisa Bostic		2-6-19	
Sara Klemm		2/6/19	
Brad Rising		2-6-19	
Jayme Tostado-Crabaugh	Jayme Crabaugh	2/7/19	
Jeremy Ehrenrich		2.11.19	
Pamela Baldwin		2.20.19	
Tyler Field		2-20-19	
Amber Atherton	Amber Atherton	2-22-19	
Lindsey Purcell	Lindsey Purcell	2/22/19	
Jennifer Baughn-Fennell		2/23/19	
Nicholas Maddox		2-25-19	
DAVID CALDWELL		2-25-19	
JAY WRIGHT		2-25-19	
Jayme Jones		2-25-19	
Brian Magoth		2-25-19	
Karina Blanton	Karina Blanton	2/25/19	
DAMIANO PITCHER		2/25/19	
Patrick Harjo	Patrick Harjo	2/25/19	
Ashli Walley		2/25/19	
Shannon Tilley		2/25/19	

[2] Signature indicates that signatory has read, understands, and agrees to implement and follow the associated procedure as written, and that failure to do so could result in an ethics violation.

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Procedure Update, Approval, and Distribution Form

QAD

QA Control No.	9010-QSP01-R17-020819

REVIEW AND RECIPIENT SIGNATURES[1] [2]			
Recipient-PRINT	Recipient-SIGN	Date	Reviewer
HUNTER NELSON		2-25-19	
Bryan Niblett		2-25-19	
JENNIFER WHITEHEAD		2-25-19	
Greg Goode		02.25.19	
Jason Scott		2/26/19	
Phuong Nguyen		2/26/19	
BRYAN DISCH		2/26/19	
Susan Mensik		2/26/19	
MILTON L. CAMPBELL		2/26/19	
Skip Pierce		2/26/2019	
Jimmy Jones		2-26-19	
Becky Seville		2/26/19	
Kyle Kinser		2-26-19	
Leetta Sanders		2-26-19	
John L. Ashford		2-27-19	
Stan Johnson		2-27-19	
Kyle Kluding		2-28-19	
Jeremy Ehrenrich		2.28.19	
Ryan Lerch		3/1/19	
Christi L Johnson		3-1-19	
Amanda M Williams		3-4-19	
JAY WRIGHT		3-4-19	

[2] Signature indicates that signatory has read, understands, and agrees to implement and follow the associated procedure as written, and that failure to do so could result in an ethics violation.

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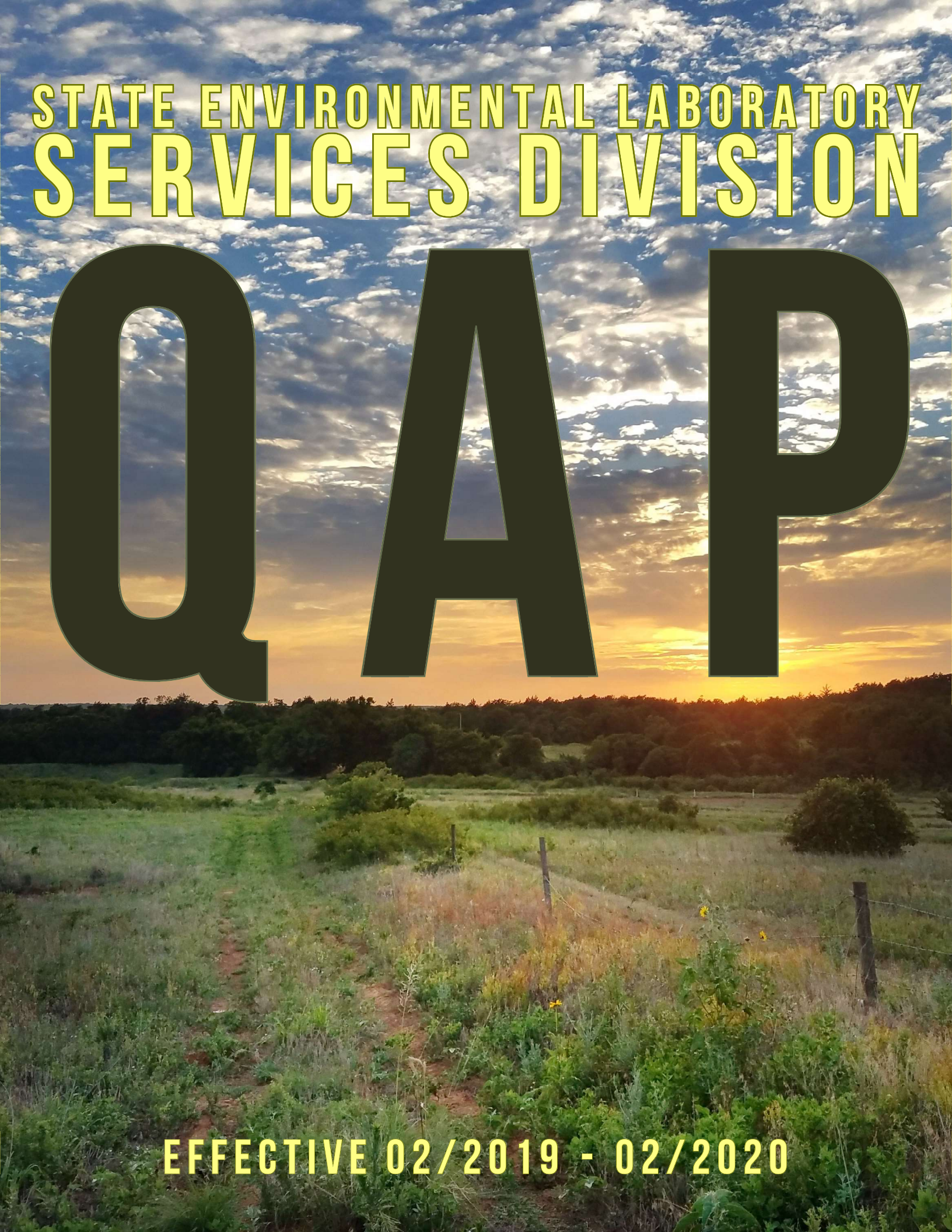
Procedure Update, Approval, and Distribution Form

QA Control No.	9010-QSP01-R17-020819

REVIEW AND RECIPIENT SIGNATURES[1,2]			
Recipient-PRINT	Recipient-SIGN	Date	Reviewer
MARY WYATT	Mary Wyatt	3/4/19	
Cody Danielson	Cody Danielson	3/4/19	
Candace Brooks	Candace N. Brooks	3/4/19	
Caleb Cain	Caleb Cain	3/4/19	
Heather Rhoads	Heather Rhoads	3/4/19	
ERIN VORDERLANDWEHR	Erin Vorderlandwehr	3/4/19	
Andrew Greenwood	Andrew Greenwood	3/4/19	
Anthony Degeare	Anthony Degeare	3/5/19	
Peter Griswold	Peter Griswold	3/5/19	
Patricia Jones	Patricia Jones	3/5/19	
Chris Armstrong	Chris Armstrong	3/6/19	
Hardeep Singh	Hardeep Singh	3/6/19	
JEFF FRANKLIN	Jeff Franklin	3-7-19	

[2] Signature indicates that signatory has read, understands, and agrees to implement and follow the associated procedure as written, and that failure to do so could result in an ethics violation.


STATE ENVIRONMENTAL LABORATORY
SERVICES DIVISION
QAP
EFFECTIVE 02/2019 - 02/2020

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QUALITY ASSURANCE PLAN

9010-QSP01- R17-020819
STATE ENVIRONMENTAL LABORATORY SERVICES DIVISION

Effective Date:
02/2019-01/2020

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707 N. ROBINSON
P.O. BOX 1677
OKLAHOMA CITY, OK 73101-1677
(405) 702-1000
1-866-412-3057 (toll free)

Image provided by Erin Vorderlandwehr

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TABLE OF CONTENTS

DOCUMENT DISTRIBUTION, AVAILABILITY, and MANAGEMENT

To facilitate distribution and reduce paper waste, this Plan is available to SELSD staff on the ODEQ State Environmental Laboratory Services Division drive at I:\SEL-QA\Quality_Manuals and for Agency and customer review at http://www.deq.state.ok.us/. The electronic QAP is formatted in Adobe Acrobat® portable document format (.pdf).[1] Contact the SELSD QA Officer if clarification is needed.

Upon Plan revision, the following individuals are notified:

Oklahoma Department of Environmental Quality

- State Environmental Laboratory Services Division
  - Division Director, Chris Armstrong
  - Assistant Division Director, Jeff Franklin
  - Quality Assurance Officer, April Kyle
  - State Environmental Laboratory
    - SEL Group Managers:
      - Susan Mensik, Inorganics Group
      - Jennifer Baughn-Fennell, Organics Group
      - Jay Wright, Customer Assistance Group
    - SEL Section and Program Managers:
      - Skip Pierce, GC Organics
      - Milton L. Campbell, GC\MS Organics
      - Candace Brooks, General Chemistry
      - Greg Goode, Radiochemistry and Metals
      - Cody Danielson, Environmental Microbiology
      - Jayme Jones, Customer Assistance and Field Activities
      - Erin Vorderlandwehr, Statewide Sample and Data Management
  - Laboratory Accreditation Program, David Caldwell

- Environmental Complaints and Local Services Division
  - Assistant Division Director, Loree Boyanton

- Land Protection Division
  - Assistant Division Director, Fenton Rood
  - DEQ Quality Assurance Officer, Karen Khalafian

- Water Quality Division
  - Assistant Division Director, Terry Lyhane
  - WQD QA Coordinator, Karen Miles

- Air Quality Division
  - Assistant Division Director, Beverly Botchlet-Smith

[1] Adobe Reader®, available as a free download at: http://get.adobe.com/reader/, is required to view this document. This .pdf may not support all true fonts and symbols.

Other Personnel/Organizations

- Oklahoma Water Resources Board
- Tribal Environmental Project Officers (upon request)
- United States Geological Survey, Oklahoma City Office (upon request)
- QAPP writers and Program Managers

Management of the SELSD Quality Assurance Plan

This document is maintained, revised, and distributed through the SELSD Quality System section. The QAO and the SELSD Director are the primary points of contact for this document.

The QAP is scheduled for annual review and distribution, however, if the release date of the plan exceeds one year from the previously published effective date, the plan coverage is extended to the newest date of release to prevent operation under an expired QAP. This document is valid until a newer revision is authorized.

The QS section will perform the primary revision with input from divisional management. The review will ensure the QAP reflects current practices and meets the requirements of applicable regulations and certification standards.

Approval of this document is indicated by signature of the participating parties. The signatures associated with this Plan indicate a commitment by those signatories to comply with, support, and fully implement the SELSD quality system, including any Quality System Standards supported.

Refer to **Appendix A** for signatories and authorization.

SELSD employees are required to familiarize themselves with the QAP and implement the quality policies and procedures into their work. It is mandatory that all SELSD staff read, understand, and implement all aspects of this QAP, including any associated procedures, SOPs, WIDS, forms, or other relevant supporting documents. Deviations from this Plan will be documented through the Process Improvement Plan, ***Process Improvement; 9300-QSP01.***

The approved QAP is presented to staff for implementation and customers for informational review.

This QAP is considered confidential within the SELSD and may not be altered in any way except by approval of the Division Director and the QAO. This document is made available to external users on the ODEQ website. It is intended that distribution is limited to the purpose of reviewing the SELSD's quality system and may not be used for any other purpose without written permission.

Refer to ***SELSD Procedure for Review and Revision of QAP; 9010-QSP04*** for the requirements relating to review, revision, distribution and storage of the SELSD QAP. Refer to ***SELSD Documents; 9750-QSP01*** for additional information relating to document generation, document control, and archival.


Image provided by Cody Danielson

1 INTRODUCTION

THE AGENCY MISSION STATEMENT

The mission of the Oklahoma Department of Environmental Quality is to protect the people through the air we breathe, the water we drink, and the land on which we thrive, helping to make Oklahoma as even better place to live.

THE SELSD MISSION STATEMENT

The mission of the State Environmental Laboratory Services Division is to ensure the generation of accurate, reliable, reproducible, and defensible environmental data of known and documented quality to support the decisions that enhance the quality of life in Oklahoma and to meet the analytical needs of our clients, communities, and the citizens of the State.

THE SELSD QUALITY POLICY

The State Environmental Laboratory Services Division's mission is supported through a commitment by employees to work together to produce analytical data and services of the highest possible quality and integrity. The SELSD is dedicated to providing data of known and documented quality through the use of professional accepted standards and practices. This policy is accomplished by establishing and implementing the following quality objectives:

- Establishing a Mission Statement, Quality Policy, and Quality Objectives, and ensuring they remain relevant by regular review and revision
- Understanding, implementing, maintaining, and documenting the SELSD's Quality Management System through the use of the Quality Assurance Plan
- Continually improving the Quality Management System
- Maintaining the commitment, support, and implementation of the quality system, quality policy, quality objectives, and ethical practices by all levels of management and staff
- Maintaining compliance and conformance to documented requirements, regulations, procedures, and policies by staff
- Demonstrating and maintaining competency to support the SELSD Mission Statement
- Administering a division-wide training and competency program to ensure the effective implementation of required program elements, including reference methods, as defined by the applicable authority or Standard
- Understanding and meeting the needs and requirements of our clients through open, honest, and timely communication
- Establishing and maintaining a Laboratory Accreditation Program to support, extend, and accredit the external laboratory network throughout the state.
- Maintaining fiscal responsibility to our clients and the State to ensure fair value for services.

- Maintaining impartiality between the activities and operations of the Division so that neither preferential nor discriminatory treatment is provided to any laboratories that make up the Oklahoma State Laboratory network.

1.1 *PURPOSE and SCOPE*

1.1.1 Purpose

The Division's State Environmental Laboratory exists to provide analytical and technical support to customers seeking services related to the protection of public health and environmental resources.

The Division's Laboratory Accreditation Program exists to ensure that laboratories reporting data under certain state and federal programs, seek certification through the state and that those laboratories maintain a management/quality system that is capable of fostering data of known and documented quality.

This Plan serves to document the SELSD Quality System and define the quality management policies and procedures, including technical and operational activities, within the State Environmental Laboratory Services Division (SELSD) of the Oklahoma Department of Environmental Quality (DEQ) and is applicable to both the SEL and the LAP.

The purpose of this QAP revision is to ensure that the SELSD quality policies and procedures are current and reflect changes or updates identified during the previous year.

1.1.2 Objective

The objective of the SELSD QAP is to document the quality system operations used within the Division to ensure consistent, traceable, defensible, high quality data and services.

The SELSD QAP establishes quality system guidance, requirements, and structure for all Laboratory Sections within the SELSD, to include Metals & Radiochemistry, Environmental Microbiology, General Chemistry, GC/MS Organics, GC Organics, and Statewide Sample and Data Management; as well as quality system policy applicable to the entire Laboratory Services Division, including Customer Assistance and the Laboratory Accreditation Program. This QAP also has a companion document, the ***SEL Data Quality Manual 9010-QSP03*** that addresses SEL specific data quality procedures and objectives.

This Plan and the protocols described within are not meant to be all-inclusive, but rather serve as a foundation for continually building a stronger quality program within the Division. While the development of a quality system program is essentially a management task, each individual shares responsibility for maintaining knowledge of the quality program and for implementing and following established quality procedures.

1.1.3 Scope

This document applies to accreditation, certification, and primacy activities and functions performed by employees of the SELSD, including both the laboratory and the Lab Accreditation Program.

SEL and LAP employees are required to familiarize themselves with the QAP and implement the quality management policies and procedures into their work. QAP training is provided to facilitate this requirement.

This Plan addresses the following matters:

- Requirements for the Laboratory Accreditation Program (LAP) as required by the TNI Environmental Laboratory 2009 Standard Volume 2
- Requirements for Cryptosporidium analysis as required by the TNI Environmental Laboratory 2009 Standard Volume 1
- Requirements for the Laboratory Accreditation Program (LAP) as required by the EPA Certification of Drinking Water Laboratories (Fifth Edition).
- Requirements relevant to compliance sample analysis as required by the EPA Certification of Drinking Water Laboratories (Fifth Edition).

The SELS maintains a list of current analytical methods and matrixes in **Appendix C *Method and Analyte Reference Section*** of the ***SEL Data Quality Manual 9010-QSP03***. Scopes of certification and accreditation are available upon request.

Staff participating under the authority of another division or agency, such as SELSD field staff assisting LPD staff with sample collection, are subject to that entity's technical, operational, and quality system procedures, as identified by that entity.

1.2 *THE DEQ QUALITY SYSTEM*

The DEQ quality system is described in the DEQ Quality Management Plan (QMP), which is written in compliance with EPA QA/R-2 guidance. Major DEQ quality system policies are addressed in the QMP along with general discussions outlining the processes used to identify various clients' Data Quality Objectives (DQOs). SELSD operations are more specifically covered by the SELSD Quality Assurance Plan (QAP), which serves as a companion document to the Agency QMP.

The Agency QMP is available on the DEQ Agency shared location at J:\DEQ-QMP. The reader is referred to the QMP for the Agency mission statement, general goals, and additional information on the following agency quality system elements:

Sec. 1.0	Agency Management and Organization
Sec. 2.0	Quality System and Description
Sec. 3.0	Personnel Qualifications and Training
Sec. 4.0	Procurement of Items and Services
Sec. 5.0	Documents and Records
Sec. 6.0	Computer Hardware and Software
Sec. 7.0	Planning
Sec. 8.0	Implementation of Work Processes
Sec. 9.0	Assessments and Response
Sec. 10.0	Quality Improvement
Appx. A	DEQ Organization
Appx. B	DEQ Pay and Advancement, Hiring, Orientation SOPs
Appx. C	General Employee Qualifications by Job Classification
Appx. D	DEQ Purchase Card Procedures
Appx. E	Internal Purchasing Procedures
Appx. F	Records Request, Security and Certifying
Appx. G	Records Management

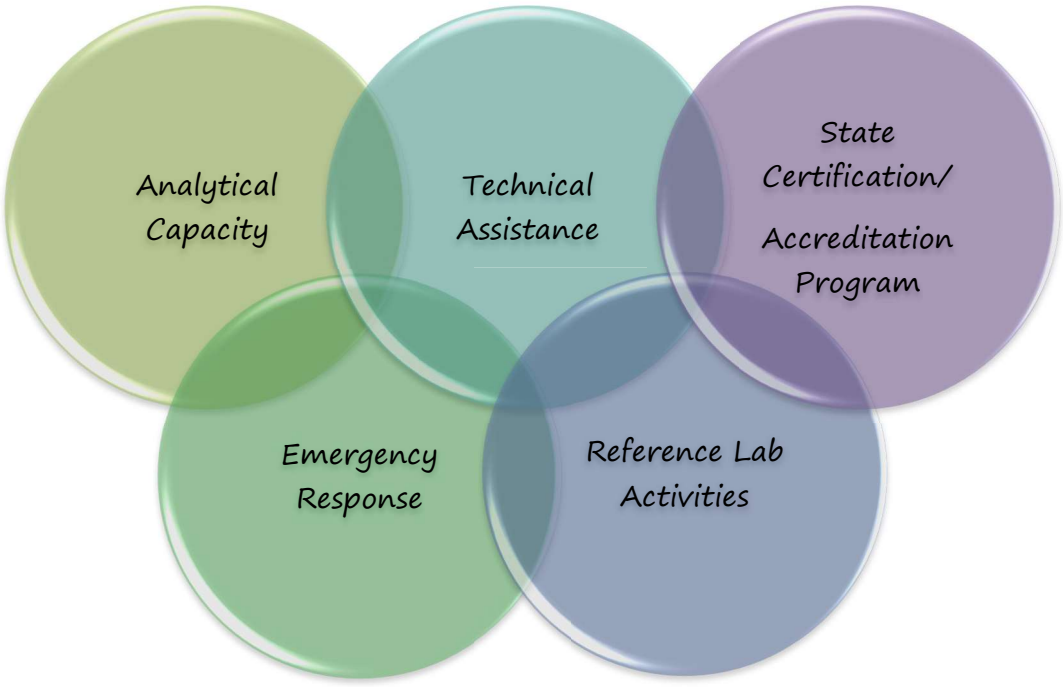
1.3 *CERTIFICATION, ACCREDITATION, AND PROFESSIONAL PARTICIPATION*

1.3.1 ODEQ State Primacy Functions

The ODEQ is given primary enforcement responsibility and authority to administer the EPA's drinking water regulations within its borders. To receive and maintain primacy status, the State must have available laboratory facilities capable of performing analytical measurements for all federally mandated contaminants specified in the State Primary Drinking Water Regulations. The SELSD is designated and accredited by EPA as the State of Oklahoma Principal Laboratory. The Laboratory Accreditation Program is authorized by EPA to accredit public and commercial laboratories for the State of Oklahoma. The SELSD, together with these accredited laboratories, are considered the Principal State Laboratory System. This network ensures the scope of analytical capacity for the state.

To support this goal, the SELSD, as a Principal State Laboratory, provides technical assistance to the accredited laboratories (not during the accreditation process) and public water utilities.

The below graphic represents the components of the Principal State Laboratory:



1.3.2 EPA Drinking Water Certification

The SELSD currently maintains certification by the US EPA by meeting SDWA requirements listed in 40 CFR 141 and in the *Manual for the Certification of Laboratories Analyzing Drinking Water* (EPA 815-R-05-004, January 2005). Recertification occurs every three years through the participation in an on-site audit conducted by EPA Region 6.

This certification covers analytical methods for the analysis of Drinking Water compliance samples for Chemistry, Microbiology, and Radiochemistry. Additions can be added in between recertification periods through the Interim Certification process.

This certification also includes the Laboratory Accreditation Program (LAP). LAP provides the DEQ with required environmental program support through the accreditation of commercial, industrial, and municipal laboratories.

1.3.3 The NELAC Institute

"The NELAC Institute (TNI) is a non-profit organization whose mission is to foster the generation of environmental data of known and documented quality through an open, inclusive, and transparent process that is responsive to the needs of the community." (http://www.nelac-institute.org/aboutus.php)

TNI was developed to support the National Environmental Laboratory Accreditation Program (NELAP). The TNI network is represented by federal, state, and private entities developing and implementing consensus standards for laboratory accreditation. Additional information regarding TNI can be found at the TNI website: http://www.nelac-institute.org

The SELSD is in the process of implementing the 2009 TNI Standard lab wide. As of the date of this revision, the SELSD has received accreditation for Cryptosporidium and Giardia analysis by method EPA 1623.1 and accreditation of the LAP program as a TNI Accreditation Body (AB).

1.3.4 Environmental Response Laboratory Network (ERLN)

"The Environmental Response Laboratory Network (ERLN) is EPA's national network of laboratories that can be accessed as needed to support large scale environmental responses. With the threat of a chemical, biological, and radiological attack to the United States becoming more complex, the need for accurate, timely environmental testing capabilities becomes even more crucial to manage a response effectively." (https://www.epa.gov/emergency-response/environmental-response-laboratory-network, 2016)

"Other laboratory networks, such as U.S. Department of Agriculture's (USDA) National Animal Health Network (NAHLN) and the Food and Drug Administration's/USDA's Food Emergency Response Network (FERN) have some environmental testing abilities, however, because the environment is not their mission, their capacity to test environmental samples can become overtaxed in a large scale response. EPA's ERLN is solely dedicated to the testing of environmental samples."

"Participation in the ERLN is based on a laboratory's ability to meet the ERLN's core quality requirements. These requirements streamline the network and allow for consistent analytical capabilities, capacities, and quality data that are managed in a systemic, coordinated manner. The integration of public sector labs with accredited private sector labs leads to networking possibilities for ERLN members, but more importantly, the ERLN is able to serve the nation by making it better prepared for a nationally significant event." (http://www.epa.gov/erln/)

The SELSD is a member of the ERLN and participates in exercises coordinated by the ERLN. Additional information regarding ERLN can be found at the ERLN website: https://www.epa.gov/emergency-response/environmental-response-laboratory-network The SELED is also a member of the Water Laboratory Alliance, a component of the ERLN. Additional information regarding WLA can be found at the WLA website: Additional information regarding ERLN can be found at the ERLN website:

1.4 *COVERAGE AND PROGRAM SUPPORT*

The SELSD provides support for DEQ environmental programs as well as programs for other State agencies and Oklahoma tribes. Program support includes:

1.4.1 Safe Drinking Water Act (SDWA)

"The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources."

"SDWA authorizes the United States Environmental Protection Agency (US EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. US EPA, states, and water systems then work together to make sure that these standards are met."

The SELSD implements operational, technical, and analytical procedures, including those relating to quality assurance and quality control, to meet the requirements of all SDWA support and rule implementation. The individual federal Rules are listed below. Specific procedural implementation to support compliance to the Rules is documented in the individual Unit or Section procedures.

- Laboratory Accreditation Program,

"Since 1978, the US Environmental Protection Agency's Office of Ground Water and Drinking Water has implemented a certification program for laboratories analyzing drinking water for compliance with regulations issued following the establishment of the Safe Water Drinking Act."

The SELSD supports the SDWA by maintaining Oklahoma State Primacy for the execution of the SDWA, including the maintenance and operation of the State Environmental Laboratory and the Laboratory Accreditation Program (LAP). The LAP inspects and accredits laboratories, industries, and municipalities performing compliance analyses within the State of Oklahoma with the goal of providing standards for accreditation of privately and publicly owned laboratories and facilities for performance of analyses of water, wastewater, and sludge. The Laboratory Accreditation Program is codified by Oklahoma Administrative Code (OAC) Title 252, Chapters 301, 302,, and 307[2].

- Public Water Supply (PWS)

"The Safe Drinking Water Act (SDWA) is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards." These standards are supported through the development of various rules, as indicated below.

"Along with the states and tribes, EPA implements the regulations that protect the Nation's drinking water from source to tap. A multi-barrier approach is in place to help prevent pollution of your drinking water source and provide through cooperative efforts with the states, tribes and water systems, measures to monitor, test and distribute drinking water. It is also a priority to provide public access to this information and to continuously provide information to consumers."

[2] Implementation date is January 1, 2016. Until January 1, 2016, refer to Chapter 301

The SELSD, in conjunction with the OK DEQ Water Quality Division, supports the Public Water Supply Program by maintaining analytical capacity and analyzing and reporting compliance data, as described in the Manual for the Certification of Laboratories Analyzing Drinking Water for the National Primary and Secondary Drinking Water Standards. The SELSD also supports the PWS Program by responding to emergencies that threaten public water supplies or threaten public health.

The SELSD provides technical support relating to the PWS Program, including setting sample schedules, distributing collection materials to PWS systems, providing sampling instructions and training, interpreting results, assisting in compliance and special investigatory issues, and other PWS related technical assistances.

- Chemical Contaminants Rule (CCR)

This rule covers over 65 contaminants in the following groups; Inorganic Contaminants; (IOCs) including nitrate and arsenic; Volatile Organic Contaminants (VOCs); and Synthetic Organic Contaminants (SOCs)..

Associated documents:

- Chemical Contaminant: Phase II/V Rule Regulatory History
- Phase II/V Rule Regulatory Corrections and Significant Rule Developments
- Phase II/V Rules in the Code of Federal Regulations
- Contaminants with established MCLs and MCLGs
- Arsenic Rule Technical Fact Sheet
- Drinking Water Standard for Arsenic Fact Sheet
- Chemical Contaminant Rule Compliance for Primacy Agencies
- Chemical Contaminant Rule Compliance for Community Water System Owners and Operators
- Arsenic Rule Compliance for Primacy Agencies
- Arsenic Rule Compliance for Community Water System Owners and Operators

- Lead and Copper Rule (LCR)

This rule addresses exposure to lead and copper, primarily from plumbing materials. If levels exceed the requirements stated in the rule, the system must take additional actions to control corrosion as well as notifications to the public.

Associated documents:

- 40 CFR Part 141 Subpart I
- Lead and Copper Rule: A Revised Quick Reference Guide
- Lead and Copper Rule Long-Term Revisions
- Federal Register Notice - Final Rule, October 10, 2007
- 2007 Fact Sheet: Revisions to Regulations Controlling Lead in Drinking Water
- Economic and Supporting Analyses: Short-Term Regulatory Changes to the Lead and Copper Rule
- June 29, 2004 - National Primary Drinking Water Regulations: Minor Corrections and Clarification to Drinking Water Regulations; National Primary Drinking Water Regulations for Lead and Copper

- Radionuclides Rule

This rule addresses exposure to radionuclides.

Associated documents:

- Radionuclides Rule: A Quick Reference Guide
- Federal Register Notices and Documents Pertaining to the Radionuclide Rule History
- Approved Methods for Radionuclides
- EPA's Radiation Protection Program
- Question and Answer Fact Sheet

- Aircraft Drinking Water Rule (ADWR)

This rule, which is regulated in conjunction with the FDA and the FAA, ensures safe drinking water in non-stationary public water systems.

Associated documents:

- Aircraft Drinking Water Rule: A Quick Reference Guide
- Final Aircraft Drinking Water Rule
- Aircraft Drinking Water Rule (ADWR) training Materials
- Guidance Manual for the Aircraft Drinking Water Rule (ADWR) - Interim Final

- Ground Water Rule (GWR)

This rule is aimed at improving drinking water quality for systems using ground water sources.

Associated documents:

- Ground Water Rule: A Quick Reference Guide
- Ground Water Rule Compliance Monitoring: A Quick Reference Guide
- Ground Water Rule Sample Collection and Transport: A Quick Reference Guide
- Ground Water Rule Triggered and Representative Monitoring: A Quick Reference Guide
- Federal Register Notice: Final Ground Water Rule 71 FR 65574
- Federal Register Notice: Ground Water Rule Correction 75 FR 15499

- Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules

This rule reduces disinfection byproducts in drinking water introduced during treatment techniques. (DBPR1; DBPR2)

Associated documents:

- Basic Information about Disinfectants in Drinking Water website
- Stage 1 Disinfection and Disinfection Byproducts Rule: Laboratory Quick Reference Guide EPA 816-F-02-021
- Stage 2 DBPR: A Quick Reference Guide For Schedule 1 Systems EPA816-F-06-001
- Stage 2 DBPR: A Quick Reference Guide For Schedule 2 Systems EPA 816-F-06-002
- Stage 2 DBPR: A Quick Reference Guide For Schedule 3 Systems EPA 816-F-06-003
- Stage 2 DBPR: A Quick Reference Guide For Schedule 4 Systems EPA 816-F-06-004
- Comprehensive Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2) Quick Reference Guide
- Stage 2 DBPR Proposal Federal Register Notice

- Surface Water Treatment Rules (SWTR)

These rules are aimed at reducing illness caused by pathogens in drinking water by requiring filtration and disinfection of surface water.

- Surface Water Treatment Rule (SWTR)
  - Applies to all public water systems (PWSs) using surface water sources or ground water sources under the direct influence of surface water (GWUDI)
  - Requires most water systems to filter and disinfect water from surface water sources or GWUDI
  - Establishes maximum contaminant level goals (MCLGs) for viruses, bacteria and Giardia lamblia
  - Includes treatment technique (TT) requirements for filtered and unfiltered systems to protect against adverse health effects of exposure to pathogens

- Interim Enhanced Surface Water Treatment Rule (IESWTR) – December 1998:
  - Applies to all public water systems using surface water, or GWUDI, that serve 10,000 or more persons
  - Sets a maximum contaminant level goal (MCLG) of zero for Cryptosporidium
  - Sets a 2-log Cryptosporidium removal requirements for systems that provide filtration
  - Requires that watershed protection programs address Cryptosporidium for system that are not required to provide filtration
  - Requires certain public water systems to meet strengthened filtration requirements
  - Establishes requirements for covers on new finished water reservoirs
  - Requires sanitary surveys, conducted by states, for all surface water systems regardless of size
  - Requires systems to calculate levels of microbial inactivation to address risk trade-offs with disinfection byproducts

- Filter Backwash Recycling Rule (FBRR) – June 2001:
  - Applies to all public water systems using conventional or direct filtration to treat surface water, or GWUDI, regardless of size
  - Requires public water systems (PWSs) to review their backwash water recycling practices to ensure that they do not compromise microbial control
  - Requires recycled filter backwash water to go through all processes of a system's conventional or direct filtration treatment.

- Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) – January 2002:
  - Applies to all public water systems using surface water, or GWUDI, serving fewer than 10,000 persons
  - Sets a maximum contaminant level goal (MCLG) of zero for Cryptosporidium
  - Sets a 2-log Cryptosporidium removal requirements for systems that filter
  - Requires that watershed protection programs address Cryptosporidium for system that are not required to provide filtration
  - Requires certain public water systems to meet strengthened filtration requirements
  - Requires systems to calculate levels of microbial inactivation to address risk trade-offs with disinfection byproducts

- Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) – January 2006:
  - Applies to all PWSs that use surface water or GWUDI
  - Targets additional Cryptosporidium treatment requirements to higher risk systems
  - Requires provisions to reduce risks from uncovered finished water storage facilities
  - Provides provisions to ensure that systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts

Associated documents:

- Comprehensive Surface Water Treatment Rules Quick Reference Guide: Systems Using Conventional or Direct Filtration EPA 816-F-04-003)
- Comprehensive Surface Water Treatment Rules Quick Reference Guide: Systems Using Slow Sand, Diatomaceous Earth, or Alternative Filtration EPA 816-F-04-002
- Comprehensive Surface Water Treatment Rules Quick Reference Guide: Unfiltered Systems EPA 816-F-04-001
- Interim Enhanced Surface Water Rule: A Quick Reference Guide EPA 816-F-01-001
- Long Term 1 Enhanced Surface Water Treatment Rule: A Quick Reference Guide EPA 816-F-02-001
- Long Term 2 Enhanced Surface Water Treatment Rule: A Quick Reference Guide For Schedule 1 Systems EPA 816-F-06-005
- Long Term 2 Enhanced Surface Water Treatment Rule: A Quick Reference Guide For Schedule 2 Systems EPA 816-F-06-006
- Long Term 2 Enhanced Surface Water Treatment Rule: A Quick Reference Guide For Schedule 3 Systems EPA 816-F-06-007
- Long Term 2 Enhanced Surface Water Treatment Rule: A Quick Reference Guide For Schedule 4 Systems
- Interim Enhanced Surface Water Treatment Rule; Final Rule (December 16, 1998)
- Interim Enhanced Surface Water Treatment Rule, Final Rule
- Revisions to the Interim Enhanced Surface Water Treatment Rule (IESWTR), the Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1DBPR), and Revisions to State Primacy Requirements to Implement the Safe Drinking Water Act (SDWA) Amendments Final Rule (January 16, 2001)
- Long Term 1 Enhanced Surface Water Treatment Rule Final Rule (67 FR 1812, January 14, 2002)
- Filter Backwash Recycling Rule Federal Register Notice (June 8, 2001)
- Long Term 2 Enhanced Surface Water Treatment Rule; Final Rule
- Correction to January 5, 2006 LT2 FR Notice
- Correction to January 5, 2006 LT2 FR Notice
- State Implementation Guidance
- Treatment Guidance Manuals for Surface Water Treatment Rules
- Long Term 2 Enhanced Surface Water Treatment Rule Documents
- Long Term 1 Enhanced Surface Water Treatment Rule Documents
- Filter Backwash Recycling Rule Documents
- Interim Enhanced Surface Water Treatment Rule Documents
- Surface Water Treatment Rule Documents

- Revised Total Coliform Rule And Total Coliform Rule (TCR/RTCR)

This rule is aimed at determining the adequacy of water treatment and integrity of the distribution systems through the identification of total coliforms as in indication of other harmful pathogens.

Associated documents:

- Revised Total Coliform Rule: A Quick Reference Guide EPA 815-B-13-001, September 2013
- Total Coliform Rule: A Quick Reference Guide
- The Federal Register Final RTCR
- The Federal Register notice of the minor corrections
- National Primary Drinking Water Regulations: Revisions to the Total Coliform Rule; Final Rule
- National Primary Drinking Water Regulations: Revisions to the Total Coliform Rule; Proposed Rule
- Fact Sheet: Announcement of Revisions to the Total Coliform Rule EPA 815-F-12-007, December 2012
- Economic Analysis for the Final Revised Total Coliform Rule, including Appendices
- TCR Federal Register Notice

- Unregulated Contaminant Monitoring Rule (UCMR)

This rule is aimed at collecting data for contaminants that are suspected to be in drinking water but do not currently have regulatory levels.

Associated documents:

- Why was the UCMR program developed?
- How does EPA select the contaminants for UCMR?
- What are the public health benefits of UCMR?
- UCMR 4 (2017-2021)
- UCMR 3 (2012-2016)
- UCMR 2 (2007-2011)
- UCMR 1 (2001-2005)
- UCM-State rounds 1&2 (1997-1998)

1.4.2 Clean Water Act

"The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters." The SELSD supports the CWA through analyses related to NPDES Program support and other water pollution analyses.

- National Pollution Discharge Elimination System (NPDES)

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

The SELSD, in conjunction with the OK DEQ Water Quality Division, supports the NPDES program by maintaining capacity for the methodologies required under the NPDES Program, as well as supporting DEQ complaints and special investigations through field assessments and collections, analysis, technical assistance, and other collaborations.

- 106 Water Pollution (106 WP) (WPC)

Section 106 of the Clean Water Act authorizes EPA to provide federal assistance to states in relation to water pollution control.

The SELSD, in conjunction with the OK DEQ Water Quality Division, supports the 106 WP Program through project planning, and analytical and technical assistance events relating to pollution control.

- 303d Impaired Waters and Total Maximum Daily Loads (303d) TMDLs

Section 303(d) of the Clean Water Act requires states, territories and authorized tribes to submit lists of impaired waters. These waters do not meet water quality standards and require establishment of priority rankings for waters on the lists and development of Total Maximum Daily Loads (TMDL) for these waters.

The SELSD, in conjunction with various customers, supports the 303(d) Program through project planning, and analytical and technical assistance events relating to ambient water testing and TMDL related analysis.

1.4.3 Resource Conservation and Recovery Act (RCRA) (solid wastes/hazardous wastes)

"The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances."

The SELSD, in conjunction with the OK DEQ Land Protection Division, supports the Solid and Hazardous Waste Programs by implementing and maintaining capacity for methods that support solid and hazardous waste identification. The SELSD also provides project planning, analytical and technical support, and customized reporting for these programs.

- In addition, the SELSD supports the OK State Landfill Program, OK State Title 252, Chapter 515 by providing analytical support. This program addresses non-hazardous solid wastes disposed of within the State of OK.

1.4.4 Comprehensive Environmental Response, Compensation And Liability Act (CERCLA)

"The Comprehensive Environmental Response, Compensation, and Liability Act -- otherwise known as CERCLA or Superfund -- provides a Federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, EPA was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup."

The SELSD, in conjunction with the OK DEQ Land Protection Division, supports the CERCLA Program by implementing and maintaining capacity for methods that support hazardous waste identification. The SELSD also provides project planning, analytical support, sampling support, technical assistance, and customized reporting.

1.4.5 Clean Air Act

"The Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants."

The SELSD supports the Clean Air Act through the OK State Statute Title 252 Chapter 100, implementation of Mercury in Fish Analysis. The SELSD performs bio-monitoring that includes scheduling, coordinating, collecting and analyzing fish, as well as performing risk assessments and issuing fish consumption advisories.

1.4.6 Blue Green Algae (cyanobacteria)

The SELSD supports OK State Title 74 Section 2301 (Senate Bill 259) through harmful algal bloom (HAB) response relating to human or animal illness, technical assistance, private sample analysis, and risk assessment. The SELSD monitors Blue Green Algal blooms that threaten Public Water Supplies and evaluates potential public risk.

1.4.7 Private water

SELS provides technical and analytical assistance to the unregulated private water supply customers (homeowners, realtors, water vendors, other environmental labs, etc.) of Oklahoma. The service and testing (bacteria, metals, nitrates, oil and gas related tests, etc.) is customized individually based on request, need, or SELS's knowledge of local conditions. Additionally, customers are provided the appropriate collection materials and collection instructions per their test selection through on-line tutorials, FAQ's and instructions. Direct follow up is done with customers after analysis to interpret data and provide risk assessment for potential health threats based on the condition of their drinking water source. As a courtesy, customers are provided with well disinfection procedures and/or various alternative treatment system options to install locally in their home.

SELS is partnering with APHL to educate and reduce the potential health risks associated with unregulated private water.

1.4.8 General public laboratory support

The SELSD supports the general public by providing both analytical and technical laboratory support services (non-drinking water) that relate to public and environmental health.

The SELSD provides and maintains capacity for general laboratory support through planning, analysis, technical support, and risk assessment to the general public.

1.4.9 Other

The SELSD supports grants or projects approved by EPA, OK DEQ outreach projects, State emergency response, environmental complaints, fish kills, and support of the OK Water Quality Standards, etc. by maintaining a variety of analytical technologies that cover a wide range of method and matrix combinations, providing technical support, and by accrediting other laboratories under the above listed programs.

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2 PERSONNEL, FACILITIES, AND SAFETY

SELSD Management is committed to the generation of high quality data. In support of this commitment, SELSD Management ensures that personnel, equipment, and facilities are competent in supporting the Quality System and the generation of high quality.

Details relating to SELSD facilities are not provided in this document due to safety concerns, however, this information is detailed in the EPA reviewed and approved Environmental Response Laboratory Network Compendium and is available upon request to authorized persons.

2.1 *AGENCY ORGANIZATION*

The Oklahoma Department of Environmental Quality (DEQ) is an Agency devoted to enhancing the environmental quality of life for the people of Oklahoma. The DEQ is divided into six divisions that support this mission:

- Administrative Services (ASD)
  Provides administrative support to the Agency
- Air Quality (AQD)
  The AQD implements State and Federal Clean Air Acts. AQD aims to improve air quality through monitoring activities, providing alerts to the public, working to maintain and improve air quality, informing and assisting the public and industry, and responding to public concerns and complaints.
- Land Protection (LPD)
  The LPD "inspects and permits hazardous and solid waste treatment, storage and disposal facilities, permits and inspects certain underground injection wells, manages radioactive materials, restores contaminated land to safe and useful conditions and maintains a list of recyclers."
- Environmental Complaints and Local Services (ECLS)

Image provided by Jayme Crabaugh

"ECLS is responsible for bringing the environmental programs of the DEQ to the local level. They provide regulatory inspections as well as technical assistance for all facilities having a DEQ permit. All aspects of the on-site sewage program are handled by ECLS. This includes soil tests, design of systems, inspection of system installations and regulatory oversight of certified installers and septage pumpers and haulers. Most importantly, the local environmental specialists respond to all citizen complaints regarding environmental pollution."

- Water Quality (WQD)

The WQD "maintains clean water for Oklahoma by regulating facilities that produce and distribute public drinking water and that treat, transport, store, and discharge wastewater. WQD assists in the maintenance of water quality standards of Oklahoma lakes, rivers, and streams.

- State Environmental Laboratory Services Division (SELSD)
  The SELSD provides analytical and customer services relating to the programs supported by the DEQ as well as private customers. In addition, the SELSD maintains the Laboratory Accreditation Program.

2.2 *SELSD ORGANIZATION*

Appendix B contains detailed Agency and Laboratory organizational charts that illustrate working relationships among management and QA staff.

The SELSD is fully contained within the DEQ building and occupies four main areas. Floor plans are not provided due to security reasons.

- The Customer Assistance Group consists of the Laboratory Customer Assistance Section located on the tenth floor and the Statewide Sample and Data Management Section located on the first floor.
- The Inorganics Group includes the General Chemistry, Metals and Radiochemistry, and Environmental Microbiology Sections. The methods for pH and conductivity are located on the first floor. Metals, microbiology, and general chemistry laboratoriess and the radiochemistry sample preparation labs are located on the ninth floor. Radiochemistry instrumentation is located in the basement to minimize background radiation interferences.
- The Organics Group, located on the tenth floor, includes GC Organics and GC/MS Organics Sections and the extraction labs.
- SELSD administration, Quality System staff, and the Laboratory Accreditation Program are located on the 10th floor.

2.3 *LINES OF COMMUNICATION*

Lines of communication are established to ensure that decisions impacting data quality are addressed by employees with the proper knowledge, experience, and authority to make those decisions.

Data quality decisions start with the employee (scientist/specialist/technician) performing the work. This employee uses this QAP, the DQM, Divisional policies, section procedures, and vendor/manufacturer documentation and contacts to aid in making decisions. Analytical SOPs include a section for dealing with non-conforming quality control samples or other unacceptable data. If these documents are insufficient to determine an appropriate course of action, the employee seeks assistance from a section lead or manager. The employee may also contact Quality Section staff to seek guidance with QA or QC issues or decisions.

The lead staff or section manager may guide the employee, troubleshoot the issue, temporarily halt or restart work, contact the project manager or otherwise notify the customer, request initiation of process improvement documentation (PIPs), or seek guidance from group management or QS staff. If unresolved, communication will be elevated to the group manager level.
Group management may further guide the employee or section manager, troubleshoot the issue, temporarily halt or restart work, notify the customer, project manager, or Laboratory Customer Assistance management, seek out and contact other appropriate resources, request PIPs, or seek guidance from QS, the Assistant Division Director (ADD), or the Division Director (DD).

For data quality issues discovered during audits, assessment activities, process improvements, and ethics investigations, QS will communicate directly with the ADD and DD.

Lines of communication within the Agency will proceed from scientist/specialist/technician to section manager/group manager to project manager/PM manager then from SELSD-ADD/DD to the ADD/DD of the related division within the agency.

The ADD and DD have ultimate authority on all contacts and decisions relating to data quality, including the final decision to stop or continue work within the SELSD.

Lines of communication related to EPA Drinking Water (DW) will go from SELSD-QS to the SELSD-ADD/DD to the EPA Region 6 QA Coordinator.

Lines of communication related to TNI accreditations will go from SELSD-QS/Section Manager to SELSD-ADD/DD to the appropriate TNI accreditation entity.

2.4 *PERSONNEL QUALIFICATIONS, HIRING, AND TRAINING*

The documents listed below describe the processes, policies, and procedures related to the hiring and training of SELSD staff.

- ***Qualifications and Hiring Process***; 9000-WID08
- ***Training Needs Assessment; 9000-WID09***
- ***Training Attendance; 9000-WID10***
- ***Qualifications, Roles, Responsibilities; 9000-WID04***
- Training Records; 9000-WID02

2.5 *REPRESENTATIVES FOR THE SELSD*

General Management staff, titles, and contact information for the SELSD are listed below:

State Environmental Laboratory Services Division Administration (Program Support, billing)

Division Director	Chris Armstrong	405 702-1000
Assistant Division Director, State Laboratory Manager	Jeff Franklin	405 702-9129
SELSD Quality Assurance Officer	April Kyle	405 702-1038
SELSD Procurement Officer	Amber Atherton	405 702-1087

Laboratory Management (Analytical questions and support)

Organics Group Manager	Jennifer Baughn-Fennell	405 702-1016
• GC/MS Organics Section	Milton L. Campbell	405 702-1032
• GC Organics Section	Skip Pierce	405 702-1040
Inorganics Group Manager	Susan Mensik	405 702-9145
• Metals and Radiochemistry Section	Greg Goode	405 702-9131
• Environmental Microbiology Section	Cody Danielson	405 702-9126
• General Chemistry Section	Candace Brooks	405 702-9130

Customer Assistance (Sampling assistance and scheduling)

Customer Assistance Manager	Jay Wright	405 702-1017
• Laboratory Customer Assistance Section Field Activities	Jayme Jones	405 702-1029
• Statewide Sample and Data Management Section	Erin Vorderlandwehr	405 702-1113

Laboratory Accreditation

Laboratory Accreditation Officer	David Caldwell	405 702-1039

2.6 *SAFETY*

In the interest of maintaining a safe and healthy workplace, employees are expected to adhere to good laboratory practices. Additional listings of procedures, building evacuation plans, and contact numbers are also found at I:\SEL-Safety. Refer to these documents for information regarding laboratory safety issues. Lab Safety Training is provided to all new personnel.

2.6.1 Laboratory Safety Manual

The DEQ *Laboratory Safety Manual* contains specific procedures and pamphlets relating to various safety components.

2.6.2 Safety Data Sheets (SDS)

Additional information regarding specific chemical hazards is readily accessible to all lab employees. Binders containing hard copy SDSsare located in the south cabinet area of the 9th floor cubicle space adjacent to office space and at east end of the south hallway on the 10th floor and in the Statewide Sample and Data Management Unit.

Electronic versions are also available on the SELSD server at I:\SEL-Safety\Safety_Data_Sheets_SDS

2.6.3 Method Safety Practices

Individual method safety practices are noted in each method SOP or reference method, if significant information exists.

2.6.4 Assessor Safety Practices

The assessors (including Subject Matter Experts / SMEs) follow the safety plan for the laboratory being visited. The assessor is aware of common safety requirements and if upon arrival or during the visit a safety issue arises, the assessor notifies the laboratory and the LAP supervisor or SELSD Director. If the assessor deems the site unsafe for his/her own protection, the assessor must notify the LAP supervisor or SELSD director to determine the next steps.

2.6.5 Agency Safety Procedures

The Agency general safety procedures are defined in the DEQ SOPs Safety and Employee Action Plan (10/2017) and Personal Protective Equipment (03/2015) located on the DEQ shared SOP folder available to all staff.

3 SUPPLIES AND SERVICES

The SELSD maintains the equipment, supplies, and services that are needed to generate high quality defensible data for the methods in which the SELSD is certified, accredited, and/or contractually obligated. The supplies and services meet or exceed relevant requirements. Purchases of this type are considered critical items.

The DEQ general purchasing procedures are defined in Procurement, Inventory Control Procedure and Internal Purchasing Procedures and Contracts for Professional Services located on the DEQ shared SOP folder available to all staff.

SELSD maintains internal purchasing procedures and current purchasing forms that are available in the SELSD shared folder for Purchasing and include the following procedures:

- SELSD Purchasing Procedures (07/2016),
- Encumbered Purchases (09/2015), IT Purchases (10/2015),
- SELSD Requisitions-Total Under $5000 (03/2016),
- Professional Service Agreements (09/2015),
- Sole Source Purchases (10/2015),
- Statewide Contract Purchases (10/2015).
- Requisitions Over $5000: 9955-WID07

Image provided by Erin Vorderlandwehr

3.1 *PROCUREMENT OF SUPPLIES AND SERVICES*

As a State Agency, all DEQ purchasing policies and procedures follow the codified State Rules of the Office of Management and Enterprise Services (OMES) Division of Capital Assets Management (DCAM). OMES-DCAM is responsible for verifying and approving vendors and contracts for State agencies and supports the state-wide contract list of approved vendors. Information regarding the OMES-DCAM State-wide contract list and the vendor registration and verification process, as well as other purchasing processes, procedures, and State Statutes regarding State Agency purchase can be found at DCAM - CP Processes, Rules & Statutes.

The purchasing of supplies and services for the laboratory is coordinated by the SELSD Laboratory Procurement Officer and processed through DEQ's Acquisition Management Section. The purchasing documents are reviewed for technical content prior to release. The SELSD is in the process of developing new and improved Divisional purchasing requirements, which is documented and available with the next revision of the SELSD QAP. The Purchasing procedure addresses the purchasing process as well as reception and storage of purchased materials and supplies.

Supplies and services must meet applicable regulatory requirements. Strict adherence to these requirements is mandatory for purchases relevant to the generation of data. Laboratory supplies and services are selected based initially on the availability of a statewide contract. If a statewide contract exists for a particular supply or service, the purchase must be made through the relevant contract. When a statewide contract does not exist, specifications for the item are developed and general product research is used to determine the selection and quality of purchase. Product research includes verification of product to any stated standard, requirement, or accreditation to ensure the product or service is of appropriate quality.

When supplies arrive at the DEQ Shipping and Receiving (S&R) Department, S&R Personnel verify the package against the packing slip, sign the verified packing slip, and contact the relevant SELSD contact person listed on the IFR/purchase order for the purchase. S&R transfers shipments requiring cold storage to the designated Statewide Sample and Data Management refrigerator. S&R supplies the contact person with a copy of the packing slip.

The SELSD contact person, upon receipt, inspects the shipping contents and verifies against the purchase order. Upon verification, the SELSD contact person delivers all shipments to the appropriate personnel or designated storage areas.

Materials and supplies are not used until section personnel have inspected or verified that the items meet the specifications and requirements. This verification is documented and the record maintained. Proof of quality may include Certificates of Traceability, Purity, or Quality for the item or service. Refer to the **Data Quality Manual** for specific verification and acceptance requirements for laboratory supplies.

All purchasing questions should be directed to the SELSD Laboratory Procurement Officer.

3.1.1 RECORDS

Several types of records are relevant to the purchasing of supplies and services.

- Packing slip
    - Packing slips are typically supplied by the distributor of the supplies or services as an itemized list of the package contents. If a packing slip is not provided by the distributor, the Purchasing Specialist should request S&R write up a packing slip for SELS' record keeping.
    - Packing slips are currently maintained by the SELSD Laboratory Procurement Officer.
- Certificates (traceability, calibration, purity, quality)
    - Documents that indicate the level of quality and/or traceability of purchased supplies or goods.
    - Certificates of Traceability or Quality are supplied by the vendor of the supplies or services
    - Certificates are maintained by the relevant Section Manager, either by hardcopy or electronically on the server (LIMS, Access database, or pdf scans to a designated network QA folder)

3.2 ***REVIEW OF REQUESTS, TENDERS, AND SERVICES***

3.2.1 RECORDS OF REVIEW

The SELSD is responsible for ensuring that methodology, required and approved reference methods, reporting limits, calibration ranges, pricing, and other details that affect customer services are documented and available for review and discussion. This information is available on the OK DEQ SELSD webpage under the QAP and the SELS Analytical Fee links. Potential customers are encouraged to seek clarification regarding analytical services. Laboratory representatives are identified in Section 2.5 of the QAP.

Laboratory capability and resources for services are verified in several ways:

1. Every three years, the SELSD is certified by EPA for Drinking Water compliance methods. The EPA assesses the SELSD's records and data.
2. Every two years, the SEL is accredited to the TNI Standards for the analysis of cryptosporidium and giardia. The assessment covers the related components of the microbiology lab and the SELSD quality system.
3. Annually, during the DQM revision, methods and instrumentation are reviewed by laboratory management. Corrections and updates are made when needed.
4. Annually, a Management System Review is performed that evaluates suitability of the quality management system. This report includes changes in methods, instruments, procedures, lab certification, and other capacity related components.
5. Through ongoing PT study participation, various capacity and capability verifications are performed. PT programs cover WP (water pollution), WPM (water pollution, microbiology), WS (water supply), WSM (water supply, microbiology), HAZ/HW (hazardous waste), UST (underground storage tank), Rad (radiochemistry), MRad (multi-media radiochemistry) and SM (soil matrices), as well as proficiency testing for HABs (anatoxin-a, microsystins) and cryptosporidium and giardia.
6. Periodic (approximately quarterly) workgroup meetings are held with internal division customers to address issues, including laboratory capacity and capability. This is in addition to as needed personal, phone, and email communications. For external customers, meetings are held as needed.
7. Periodic management meetings are held to discuss staff leave, instrument issues, method validation, resource and capacity matters, purchasing and vendor contracts, large, ongoing, or complex new customer work, and other issues that affect laboratory business. The Division Director (DD) and Assistant Division Director (ADD) meet weekly, the DD, ADD and group managers meet twice monthly, and all management meet at least monthly.
8. Lab managers review competency and capacity records for approved methods. This includes MDL (method detection limit) studies, IDC (initial demonstration of competency), DOC/ODOC (ongoing demonstration of competency)s, PTs (proficiency testing) where available, QC (quality control) samples, and method SOPs (standard operating procedure), in addition to related technical, operational, vendor, safety, and quality system training. Lab managers are responsible for the timely notification to the assistant division director regarding impacts to lab capacity.

Chain of Custody (COC) forms are considered a contract for service. COCs are available for customer use from the Sample Receiving area or from the OK DEQ SELSD webpage through the Chain of Custody link. Customers can review the QAP and use the COC to document testing needs and requirements. When the sample is delivered, the SSDM staff ensures that the lab has capacity for the requested testing. If capacity is questionable, SSDM staff contacts management for further guidance. Both the customer and an SSDM representative sign or initial the COC. This confirms the testing request and capacity for services is agreed upon through the acceptance of samples. It is implied that these samples are "routine" and are subject to routine sample procedures for turnaround time, data reporting, storage, and disposal, as documented in the QAP.

In some cases, such as non-routine, on-going, complex/advanced testing projects, QAPP supported samples, or non-routine internal customer projects, a more comprehensive record and review is performed. These Special Project criteria are documented on the Project Planning Tool (PPT). The PPT assists in the evaluation of client Data Quality Objectives. This process documents analytical components such as sampling start date and duration, number of samples, parameter, matrix, requested methods, reporting limits, special analytical requests, QC planning and reporting, deliverables, and turnaround time. A special project folder is created for each project. Associated records, including copies of the COC, contract modifications, and subcontract approvals are maintained in the folder.
Services are only provided for methods in which the lab has capacity. For some programs, specific methods may be required or approved for program support. The SELSD verifies with the customer if samples support these programs (PWS, NPDES, data comparability studies) and only those methods are used.

If the SELS lacks the ability to provide services or events arise that impact capacity or require a contract deviation, the customer is notified. The customer may cancel services, select an alternate method if allowed and available, or request subcontracted services. In the event the LAP must subcontract services due to unforeseen circumstances, the subcontracted work is maintained in compliance with TNI and EPA requirements.
If subcontracting is utilized, the SELSD provides written notification and the client must provide written approval. The SELSD verifies that the contracted entity meets the requirements of the original contract for services. The SELSD subcontracts to entities that are NELAP, State, or EPA accredited or approved, as directed by the original contract for services. The SELSD is responsible to the customer for the subcontractor's work, except in the case where the customer or a regulatory authority specifies which subcontractor is to be used. The entity performing the subcontracted work is indicated on the final report and the subcontractor's final report is made available to the customer upon request.

The SELSD maintains a register of all subcontractors that it uses, along with proof of accreditation to any stated Standard. Such services follow the requirements listed in the Agency procedure at J:\APM_SOP\SOP*Contracts for Professional Services* and work is clearly outlined under an ASD Professional Services Agreement, including specifications regarding analytical QA/QC requirements and granting authorization to DEQ, State, or Federal personnel to on-site access to audit all information relevant to the work performed. The transfer of any subcontracted or split samples to another laboratory facility or governmental agency is fully documented using a Chain of Custody document.

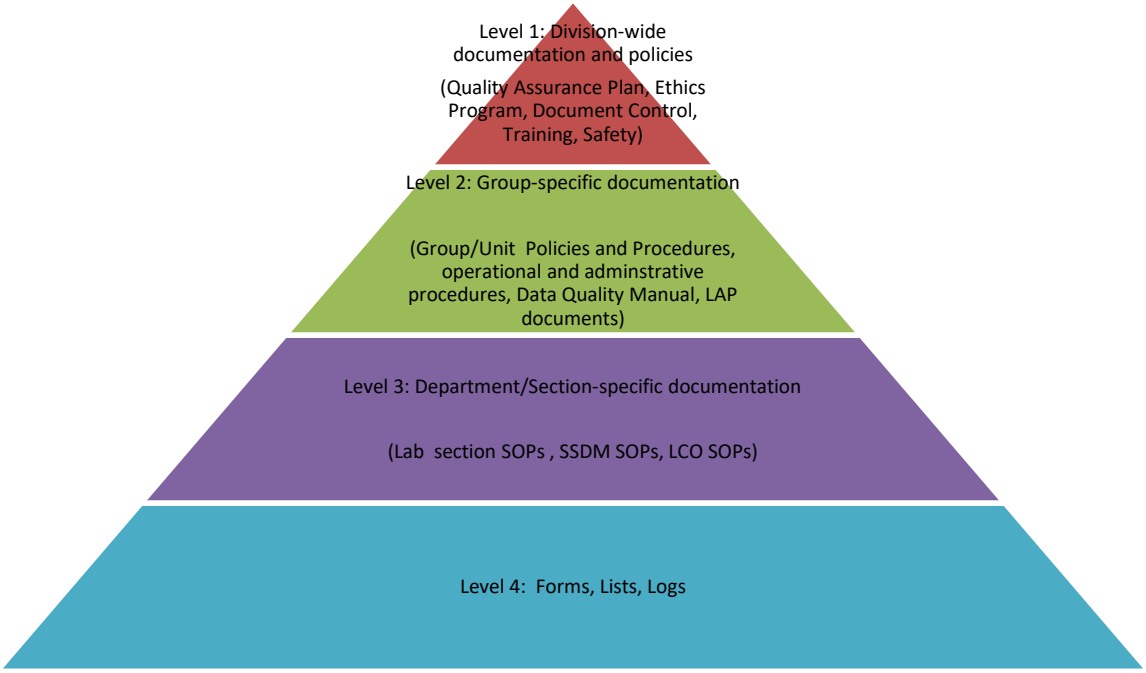
In some instances, a customer may request a customized or modified method, an alternate method, analysis from a method in development, or choose to revise or amend the services agreed upon during sample receipt. These instances undergo verification at the project/program level (manager/QAO) and are documented and maintained with the COC or in the special projects folder. Modified or customized methods are reported accordingly.

Modifications and revisions to an original contract are documented. Revisions may take place directly on the original document or as a written record maintained with the original document. Written approval of subcontracted services is maintained with the original document, in the special project folder, or in the LAP records. Modified services and amendments are reassessed for capacity and a written notification with original parties occurs. These records are maintained with the document or in the special projects folder.

4 DOCUMENTS, RECORDS, AND PROCEDURES

The proper creation, maintenance and control of documents, records, and procedures are essential to supporting a quality system and vital to data defensibility. Documents are used to communicate information and support or verify that actions are performed.

The SELSD maintains a series of procedures and templates (#9750-) for documents and document control, which includes information regarding the creation, use, management, control, storage, and archival of documents relating to the management system. The SELSD maintains a document hierarchy, as indicated in the diagram below:



As documentation goes up in hierarchy, so does enforceability. Level 1 documents supersede Level 2 documents, Level 2 documents supersede Level 3, and so on. Procedural information documented in a higher-level document IS NOT required to be repeated in lower level documents.

Individual SOPs detail additional specific information relating to documents, records, and storage that may go beyond the scope of this QAP and the associated #9750 Documents procedures. All SELSD procedures and forms are designed to support the activities of this Quality Manual.

The Agency general documents procedures are defined in the DEQ SOPs Records Management, Imaging and Retention (11/2016) located on the DEQ shared SOP folder available to all staff.

4.1 *DOCUMENTS AND DOCUMENT CONTROL*

The SELSD maintains a document control program as a component of the management system. This program includes the following procedures:

- ***Assessing Need for Documents; 9750-WID04***
- ***Creating New Documents; 9750-WID07***
- ***Assigning QS DC Numbers; 9750-WID05***
- ***QS Processing***-QS DC Review Folders***; 9750-WID02***
- QMS ***Reporting; 9750-WID14***
- ***Review and Revision;9750-WID08***
- ***Review Schedule; 9750-WID09***
- ***Release, Distribution, and Notification; 9750-WID13***
- ***Templates and Format; 9750-WID01***
- ***Use of Documents; 9750-WID11***
- ***Error Correction; 9750-WID03***
- ***Archival; 9750-WID12***
- ***QMS Path A Procedures; 9750-WID17***
- ***QMS Path B Procedures; 9750-WID16***

4.1.1 Methods and Procedures

The SELSD creates procedures and instructions for general SEL and LAP activities. A Standard Operating Procedure (SOP) is a written document that gives precise descriptions of routine procedures by detailing the systematic execution of an operation, analysis, or action. The procedure, which is commonly accepted as the method for performing certain routine or repetitive tasks, is tailored to represent the exact actions taken by personnel to perform the technical referenced method, assessment, or other activity. SOPs are essential in maintaining consistent performance and must be sufficiently detailed to permit duplication of results by staff.

Methods selected for use are guided by program requirements and by the data quality objectives of environmental projects or programs. Analytical procedures are adapted from EPA, regional, or national approved or accepted methodologies.

The SEL uses approved reference methods for analytical testing during the DEQ administration of the National Primary Drinking Water (DW) Regulations. These methods are documented in Chapter III of the Manual for the Certification of Laboratories Analyzing Drinking Water, 5th Edition, EPA 815-R-05-004 and 40CFR141.

The SEL uses approved reference methods for analytical testing during the DEQ administration of the Oklahoma Pollution Discharge Elimination System (OPDES). These methods are documented in 40CFR136.

References for the individual methods, including those used for the DW and OPDES programs, used by the SEL can be found in *Appendix C* Method and Analyte Reference Section of the **Data Quality Manual**. These procedures and the associated supporting documents are maintained in a document control tracking system.

5 PROCESS IMPROVEMENT PLAN (Corrective Actions)

A Corrective Action (CA) Plan is a requirement under the *TNI Standard* (EL-V1M2-2009; Section 4.11) for NELAP accreditation and as a requirement for Drinking Water Certification as defined in the *Manual for the Certification of Laboratories Analyzing Drinking Water* (EPA-815-R-05-004; 5th ED; Chapter III, Section 11.12). The SELSD has implemented the Process Improvement Plan to accomplish the goals of the CA requirement.

The Process Improvement Plan (PIP) is a process improvement tool that is essential to the Division's Quality System. This Plan increases the quality and defensibility of data and information coming from the SELSD. The plan establishes procedures to identify and document potential or detected unacceptable events, such as deviations from system and performance activities or deficiencies from state and federal program requirements or rules. The Plan is also designed for documenting preventive actions, identifying goals for eliminating or preventing recurrences, recording ideas for improving existing activities and for documenting approved and permissible deviations or departures from policies and procedures.

Image provided by April Kyle

The PIP process is initiated upon the identification of an "event", followed by determining the impact of the event to the quality of data. An investigation into the cause is performed and actions are proposed to resolve and/or prevent a repeat occurrence. The corrective action(s) are implemented and monitored for resolution. The process is completed with documentation and tracking.

The SELSD Process Improvement Plan is designed for use in conjunction with any activity that directly or indirectly impacts the quality of data generated by the SELSD. The Plan is applicable to all activities performed under the scope of the SELSD Quality System, including:

- technical and operational processes for which written policies or procedures exist or are implied
- where requirements for maintaining certification or accreditation must be followed
- where other regulation, program, or customer requirements must be met
- in any area or activity needing process improvement or on-going monitoring

All scientists, specialists, technicians, assessors, and members of Management utilize the procedures in Process Improvement; ***9300-QSP01*** which outlines the steps to be taken and the documentation required when an unacceptable event has been identified during general laboratory activities, and particularly during the generation of data.

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6 PERFORMANCE ASSESSMENTS AND SYSTEM AUDITS (Continual Improvements)

The SELSD strives continually to improve the Quality System and thus the quality of data and information generated by the Division.

The SELSD implements and monitors activities for ongoing improvement of the quality management system, including:

- Proficiency Testing studies, including both single and double blind studies (addressed in the SEL Data Quality Manual)
- External assessments, certifications, and accreditations
- Internal audits and reviews
- Feedback and public comment
- Complaints

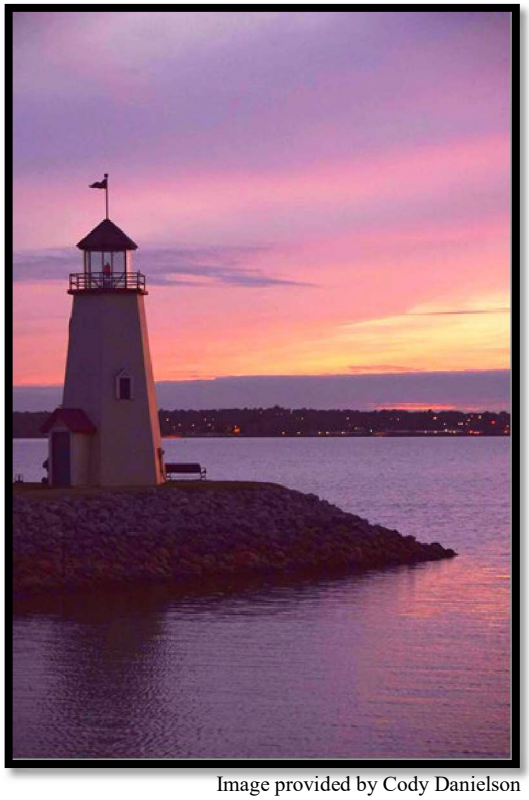

Image provided by Cody Danielson

6.1 *EXTERNAL AUDITS*

6.1.1 EPA Drinking Water Assessment

EPA Region 6 conducts an inspection every three years of the State Environmental Laboratory Services Division. The SELSD is assessed on the implementation of the *Manual for the Certification of Laboratories Analyzing Drinking Water* (EPA 815-R-05-004, January 2005) for drinking water compliance analysis and the Laboratory Accreditation Program is assessed regarding oversight of the laboratory accreditation program for drinking water laboratories.

6.1.2 National Accreditation Assessments, (TNI)

National accreditation provides an additional external audit activity for the evaluation of continuing quality.

The SEL maintains accreditation for the analysis of Cryptosporidium and Giardia. To maintain this accreditation, the SEL undergoes an evaluation by a TNI Assessment Body (TNI AB) every two years to determine adherence to the TNI Standards for Laboratories. The scope of this assessment covers the crypto/giardia relevant portions of the environmental microbiology lab and the SELSD quality system.

The SELSD also maintains approval as a TNI Accreditation Body. To maintain this accreditation, the SEL undergoes an evaluation by a TNI Assessment Body (TNI AB) every three years to determine adherence to the TNI Standards for Accreditation Bodies. The scope of this assessment covers the TNI relevant portions of the LAP section and the SELSD quality system.

6.1.3 Agency Management System Review

Implementation of the Agency Quality System and ODEQ Quality Management Plan is assessed through the annual Management System Review (MSR) and Technical Audit (TA), which is performed by the Agency QAO. One division is assessed annually on a rotational basis. A summary of findings is presented to the assessed Division's Director.

6.1.4 Other

Specific agency programs such as Ambient Monitoring, Water Pollution Control, Resource Conservation and Recovery Act (RCRA), and the Public Water Supply programs may be reviewed annually with limited laboratory participation in the area of data examination.

The SELSD participates in other external audits, evaluations, assessments, and reviews as needed or required.

6.2 *INTERNAL AUDITS AND ASSESSMENTS*

The SELSD Internal Audit (IA) Program is designed to enhance the quality of data generated by the SELSD by supporting, promoting, and improving the Quality System (QS) by verifying that operations and activities comply with the regulatory standards and conform to the written internal programs, policies, and procedures of the SELSD. An internal audit evaluates the effectiveness of the quality system by detecting and correcting procedural and regulatory deficiencies and by supporting continual improvements to the Quality System.

The SELSD IA Program is applicable to all aspects related to data generation and general laboratory operations as well as other selected Divisional functions, such as the Laboratory Accreditation Program and the Customer Assistance Group. The goal is to assess the quality management system and its related components and procedures for compliance to regulatory requirements and conformance to internal quality systems documentation as described in the SELSD QAP and SELSD written procedures and programs.

The Laboratory Accreditation Program staff and the SELSD QA Officer, in addition to selected subject matter experts (SMEs), function as internal assessors/auditors for the Division. Collaboration and cooperation of all personnel involved in the assessment process is key to a successful management/quality system. Assessment findings are documented and forwarded to the associated staff. Steps are taken to address each finding and a documented response is made. PIPs are initiated for major findings. Corrective actions or improvements resulting from the assessment are documented and reviewed for effectiveness within an adequate time frame.

This program includes the following procedures:

- ***Internal Audit Program; 9400-QSP01***
- ***Method Checklist Workbook; 9400-WB***
- ***Data Review Checklists; 9499-WB***
- ***Non-Routine Assessments; 9400-WID07***
- ***Assessment Discoveries; 9400-WID06***
- ***Numbering and Tracking Internal Audits; 9400-WID05***
- ***Creating Assessment Checklists; 9400-WID04***
- ***Using TNI Checklists; 9400-WID02***
- ***Bench Audit Tool; 9400-WID03***

6.2.1 State Environmental Laboratory (SEL)

The SELS QS employees perform the TNI checklist annually as the primary QS internal assessment for procedures under the scope of Accreditation.

The QS employees also perform additional assessments as requested. These include technical and method audits, operational reviews, program evaluations, and data verification and validation assessments.

6.2.2 Laboratory Accreditation Program assessment (LAP)

The LAP personnel must not audit their own work. The SELSD QS staff will perform the LAP assessment annually to verify that program operations comply with program, procedure, or the SELSD QA Plan. This assessment includes verification of the requirements relating to records and systems to ensure conformance to the EPA Drinking Water Certification Manual and the TNI Environmental Laboratory 2009 Standard Volume.

Additional LAP internal assessment procedures are located in LAP 04.

6.3 ***FEEDBACK AND PUBLIC COMMENT***

The LAP assesses the Program for improvements through public comment using assessment surveys provided by LAP, as documented in LAP 02.

6.4 ***COMPLAINTS***

The SELSD is in the process of developing a formalized procedure for addressing complaints. Currently an electronic database, EMS, has been developed and is implemented for tracking and resolving complaints for both LAP and SEL. In addition, PIP forms are used in some cases for tracking investigations relating to complaints. A customized issues form was developed by OWRB and utilized by both OWRB and the SELS for documenting and resolving issues, complaints, and other events specifically related to OWRB project support.

A LAP complaints process is defined in LAP 03 and is monitored by the quality team. The LAP also may utilize the EMS and PIP processes for tracking complaints.

The SELSD also maintains a ***Customer Satisfaction and Support Procedure; 9650-QSP01***. This procedure addresses both positive and negative feedback, complaints about services, requests for mediation, and informal appeals.

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7 QUALITY SYSTEM REPORTS TO MANAGEMENT

7.1 *SELSD PERFORMANCE MEASUREMENT AND QUALITY SYSTEM REPORING*

7.1.1 Quarterly Performance Measurement Reports (SEL and LAP):

Managers are responsible for ensuring that these reports contain divisional performance related information that directly links back to the Agency's FOCUS document. Categories of reporting include:

- laboratory operations
- laboratory certification
- meetings and training
- customer support
- special operations

Quarterly reports are prepared as documented in Performance Measurement Report Instructions; ***9755-WID02***

7.1.2 Quality Control Reports (SEL):

Scientists are responsible for entering quality control data, post analysis, into the designated database. At minimum, analysts enter LFB data for drinking water methods and LCS data for all other methods. QC charts and graphs are generated as needed or requested as part of routine quality assessments.

7.2 *INTERNAL ASSESSMENT & INSPECTION REPORTS (SEL and LAP)*

Reports of internal assessments and inspections conducted by the LAP follow LAP 04.

Reports of internal assessments and inspections conducted by the SELSD QS Section follow ***Internal Audit Program; 9400-QSP01***

Reports are forwarded to appropriate persons for signature, review, or response.

7.3 *MANAGEMENT SYSTEM REVIEW REPORT (SEL and LAP)*

Management system reporting is performed annually to ensure the effectiveness of the management system. Data from the periodic manager meetings, performance measurement records, and quality system meetings and records are summarized and consolidated for this report.

Critical elements of the reports described above are combined annually to create the SELSD Quality Assurance Annual Summary (SELSD MSR) that is distributed to the State Environmental Laboratory Services Division Director and Assistant Division Directors and the DEQ Quality Assurance Officer. The Annual Summary highlights Quality System improvements and accomplishments and addresses major deficiencies and areas needing improvements discovered during the preceding year, as well as addressing quality system improvements planned for the following year.

The data collected from these processes may also be used for TNI MSR reporting or other annual reports or summaries as needed.

Refer to the below documents for additional information relation to the Annual QA Report. This document will include components for the LAP AB and the SELSD MSR requirements.

- ***MSR Annual Report***; 9755-WID01
- ***MSR Reporting Template***; 9755-QSR01

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8 ETHICS AND DATA INTEGRITY

The SELSD requires that all staff (SEL and LAP) participate in Ethics and Data Integrity Orientation Training and annual refresher trainings.

8.1 *SELSD ETHICS AND DATA INTEGRITY*

The SELSD is committed to ensuring the highest possible standards for the quality and integrity of data produced by the Laboratory. The Ethics and Data Integrity Program was developed to define the expectations of personnel during the generation of data.

The SELS requires employees to sign a Laboratory Ethics Statements to perform unsupervised laboratory work.

The Laboratory Ethics and Data Integrity Program includes ***Laboratory Ethics and Data Integrity Program 9600-QSP01***; ***Laboratory Ethics and Data Integrity Statement 9600-QSF02***; and ***Ethics Violation Reporting 9600-QSF03*** and an Ethics Training Program that includes orientation training as well as refresher training. Refer to these documents for the related procedures.

8.2 *LAP, ASSESSORS, AUDITORS*

The assessors and LAP assigned personnel must apply appropriate ethics and integrity to the assessment process. Ethics training for state activities are part of the initial ODEQ employee training. Additional training for assessors and SMEs includes ethics related to the performance of an assessment and the need for non-discriminatory actions. Ethics training is part of the TNI Basic Assessor training that includes the requirements identified from the TNI Volume 2 standard. The accreditation body and personnel, including assessors and SMEs, must act impartially.

Image provided by Cody Danielson

The LAP personnel must declare any conflict of interest for review by the top management of the LAP or the Water Quality Management Advisory Council (WQMAC) to ensure risk to the activities of the accreditation body is minimized.

Although the SELSD provides technical assistance to customers, this technical assistance is limited to DEQ and other Oklahoma state program personnel and the public. At no time is an assessor, SME or LAP program manager to provide technical assistance or consultancy to a laboratory that is seeking accreditation. This would constitute a conflict of interest.

8.3 *CONFIDENTIALITY*

The WQMAC and the Environmental Quality Board (EQB) oversee the activities of the SELSD, including the LAP. The committee is formed based on the State of Oklahoma requirements of interested stakeholders and declarations of conflicts of interest presented. Confidentiality is defined by state requirements with all information possibly open due to freedom of information requirements.

Claims of confidentiality by any DEQ clients are addressed in Oklahoma Statute 252 Section 4-1-5(d). Typically, laboratory test results are released only to the customer identified on the sample submission documents unless otherwise required by law.

See Oklahoma Statute 27A Section 2-2-201(c) for the WQMAC as the advisory council to review impartiality and review program information for conformance to requirements. The meeting minutes of the committee are available on the website and this includes the process used for rulemaking for meeting requirements of input from interested parties.

8.4 *CONFLICTS OF INTEREST*

Conflict of interest procedures are covered in the Agency document, ***Employee Responsibilities***, located on the agency shared server location. This procedure requires that employees of the Agency avoid conduct that might cast suspicion on the objectivity of the employee. Requirements include:

- off duty employment must not interfere with the satisfactory performance of their DEQ duties
- employees shall not engage in activities outside of their official duties if that activity is subject to DEQ regulatory authority
- disclosure of employment and investments in situations where an employee is in a position related to the review, issuance, or enforcement of permits and has investment in an entity under the DEQ regulatory authority
- off duty environmental work shall be avoided if that work requires a DEQ permit or approval

At hiring and on an annual frequency, employees shall complete a Disclosure Statement if the above items are applicable.

The organizational structure indicated in this section minimizes the potential for conflicting or undue interests that might influence the professional judgment of employees in both the SEL and the LAP. In addition, procedures are in place as documented in the SELSD Laboratory Ethics Program to prevent outside pressures or involvement in activities that may affect competence, impartiality, judgment, operational integrity, or the quality of the work performed in the SELSD.

9 LABORATORY ACCREDITATION PROGRAM

This chapter provides additional details regarding the Laboratory Accreditation Program (LAP) that are in addition to the contents of the general chapters of this Quality Assurance Program. The LAP executes business under the scope of the SELSD Quality System; however, the LAP also operates under additional State and federal requirements and rules.

Laboratory accreditation is an integral part of the State Environmental Laboratory Services Division. The LAP ensures that certified laboratories reporting data have a management/quality system in place to foster data of known and documented quality.

The accreditation body establishes, implements, and maintains a management system, and continually improves its effectiveness in accordance with the requirements of the TNI EL Volume 2 requirements.

The Laboratory Accreditation program consists of three programs:

- general water laboratory
- field laboratory
- TNI laboratory accreditation

These programs are defined in the following Oklahoma Regulations:

- TITLE 252, DEPARTMENT OF ENVIRONMENTAL QUALITY, CHAPTER 301. LABORATORY ACCREDITATION*:*
  - *Drinking Water: metals, general water chemistry, microbiology, asbestos, organic chemicals, volatile organic compounds (VOC) and radionuclides*
  - *General Water Quality: metals, nutrients, demands, extractable organics, general chemistry I and or II, microbiology, pesticides-herbicides-PCBs, purgeable organics, radiological, bioassay, hazardous waste characterization, petroleum hydrocarbons, perchlorate and/or basic environmental laboratory.*
  - *Petroleum Hydrocarbon Laboratory, BTEX, TPH, Flash Point, MTBE*

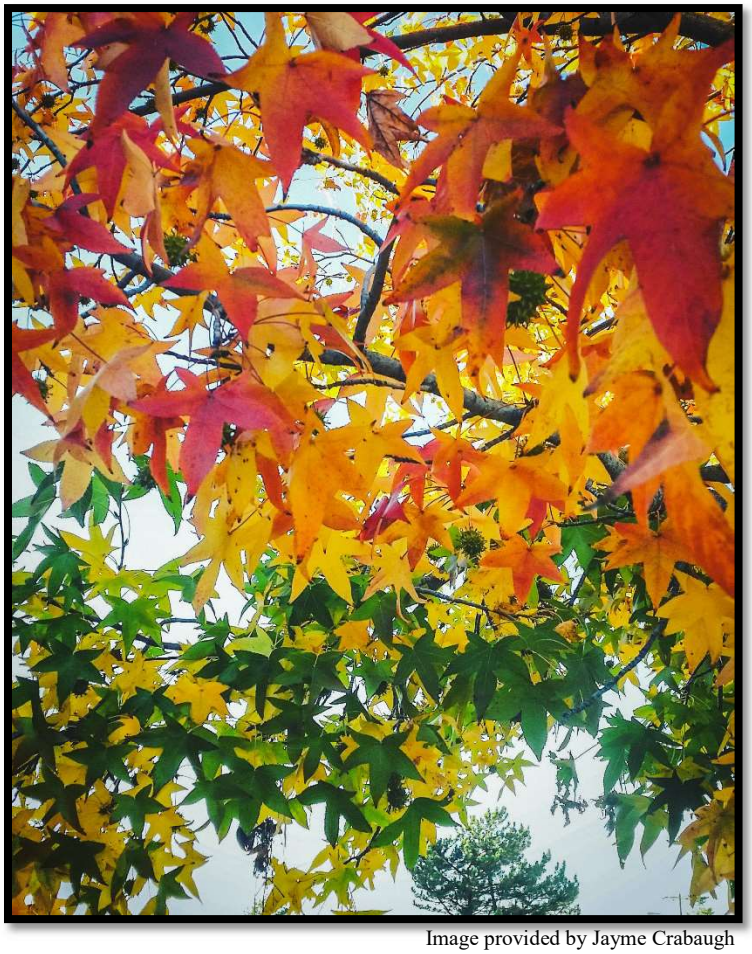

Image provided by Jayme Crabaugh

- TITLE 252, DEPARTMENT OF ENVIRONMENTAL QUALITY, CHAPTER 302. FIELD LABORATORY ACCREDITATION:
  - *Field laboratory: pH, residual chlorine, turbidity, conductivity, temperature and dissolved oxygen (DO)*

- TITLE 252, DEPARTMENT OF ENVIRONMENTAL QUALITY, CHAPTER 307. TNI LABORATORY ACCREDITATION
  - OAC 307 Class: Drinking water laboratory
    - Categories: metals, general chemistry, microbiology, asbestos, synthetic organic chemicals (SOCs), volatile organic compounds (VOCs) and/or radionuclides.
    - TNI Matrix: Drinking Water
    - Technology/Method: See LAMS (Laboratory Accreditation Management System) listing (Volume 2, Modules 3, 4, 5, 7)
    - Analyte: See LAMS listing

Drinking Water		Technology /Method	Analyte
Module 3	Asbestos	See LAMS	See LAMS
Module 4	Metals	See LAMS	See LAMS
Module 4	General chemistry	See LAMS	See LAMS
Module 4	Synthetic organic chemicals (SOCs),	See LAMS	See LAMS
Module 4	Volatile organic compounds (VOCs)	See LAMS	See LAMS
Module 5	Microbiology	See LAMS	See LAMS
Module 6	Radionuclides	See LAMS	See LAMS

  - OAC 307 Class: General environmental laboratory
    - Categories: metals, nutrients, oxygen demands, semi-volatile organic compounds (SVOCs), general chemistry I and/or II, microbiology, asbestos, synthetic organic chemicals (SOCs), volatile organic compounds (VOCs), radionuclides, whole effluent toxicity (WET) testing, hazardous waste characterization, petroleum hydrocarbons, perchlorate, and/or basic environmental laboratory.
    - TNI Matrix: Non-Potable Water, Solid & Chemical waste, biological tissue, Air
    - Technology/Method: See LAMS listing (Volume 2, Modules 3, 4, 5, 6, 7)
    - Analyte: See LAMS listing

Non-Potable Water		Technology/ Method	Analyte
Module 3	Asbestos	See LAMS	See LAMS
Module 4	Metals	See LAMS	See LAMS
Module 4	Nutrients	See LAMS	See LAMS
Module 4	Demands	See LAMS	See LAMS
Module 4	Basic Env.Lab [3]	See LAMS	See LAMS

[3] Basic Environmental Laboratory: five day biochemical oxygen demand (BOD), carbonaceous biochemical oxygen demand (CBOD), chemical oxygen demand (COD), total organic carbon (TOC), total Kjeldahl nitrogen (TKN), nitrate- nitrite nitrogen, organic nitrogen, ammonia nitrogen, total dissolved solids (filterable residue), total suspended solids (non-filterable residue), volatile residue, total phosphorous, orthophosphate phosphorus (reactive phosphorus), chloride, fluoride, oil and

Module 5			
Module 4	General chemistry I[4]	See LAMS	See LAMS
Module 4	General chemistry II[5]	See LAMS	See LAMS
Module 4	Semi-volatile organic chemicals (SVOCs)	See LAMS	See LAMS
Module 4	Synthetic organic chemicals (SOCs)	See LAMS	See LAMS
Module 4	Volatile organic compounds (VOCs)	See LAMS	See LAMS
Module 5	Microbiology	See LAMS	See LAMS
Module 6	Radionuclides	See LAMS	See LAMS
Module 7	Toxicity	See LAMS	See LAMS

Solid & Chemical Waste Biological Tissue[6]		**Technology/Method**	**Analyte**
Module 3	Asbestos	See LAMS	See LAMS
Module 4	Metals	See LAMS	See LAMS
Module 4	Nutrients	See LAMS	See LAMS
Module 4	Demands	See LAMS	See LAMS
Module 4 **Module 5**	Basic Env.Lab [7]	See LAMS	See LAMS
Module 4	General chemistry I[8]	See LAMS	See LAMS
Module 4	General chemistry II[9]	See LAMS	See LAMS
Module 4	Semi-volatile organic chemicals (SVOCs)	See LAMS	See LAMS
Module 4	Synthetic organic chemicals (SOCs)	See LAMS	See LAMS
Module 4	Volatile organic compounds (VOCs)	See LAMS	See LAMS
Module 5	Microbiology	See LAMS	See LAMS
Module 6	Whole Effluent toxicity (WET)	See LAMS	See LAMS
Module 7	Radionuclides	See LAMS	See LAMS

The Division Director or the LAP manager makes the certification decisions. The person making the decision is not involved in the assessment process. This program is a fee based program operated within the legislative requirements of the State of Oklahoma.

The LAP documentation and procedures define the appeals process including the reference to OAC 004. The legal group and LAP manager have a procedure for the appeals process along with handling revocation.

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grease, sulfate, pH, specific conductance, dissolved oxygen, turbidity, total residual chlorine, hardness, alkalinity, color, fecal coliform, total coliform, cyanide, phenolics, copper, zinc, iron, sulfide, chromium, and hexavalent chromium

[4] Chemistry I not defined in regulation as to analytes.

[5] Chemistry II not defined in regulation as to analytes.

[6] Biological tissue is not included in the TNI AB application. This matrix is allowed under the rule

[7] Basic Environmental Laboratory: five day biochemical oxygen demand (BOD), carbonaceous biochemical oxygen demand (CBOD), chemical oxygen demand (COD), total organic carbon (TOC), total Kjeldahl nitrogen (TKN), nitrate- nitrite nitrogen, organic nitrogen, ammonia nitrogen, total dissolved solids (filterable residue), total suspended solids (non-filterable residue), volatile residue, total phosphorous, orthophosphate phosphorus (reactive phosphorus), chloride, fluoride, oil and grease, sulfate, pH, specific conductance, dissolved oxygen, turbidity, total residual chlorine, hardness, alkalinity, color, fecal coliform, total coliform, cyanide, phenolics, copper, zinc, iron, sulfide, chromium, and hexavalent chromium.

[8] Chemistry I not defined in regulation as to analytes

[9] Chemistry II not defined in regulation as to analytes.

The process the assessor is to follow, if a data integrity issue is discovered during the assessment, is found in LAP 02. This includes the process for the securing of records for future legal activity, which is addressed in OAC 004.

The LAP provides information to the laboratories via its website and the TNI website for approved PT providers and available PT analytes. The LAP follows the requirements in Volume 2 except that the closing date of the study is used for calculation of the next PT and not the analysis. A guidance document is prepared to explain the process used by LAP for reporting and handling PTs. If a laboratory or the LAP has a complaint about a PT provider, this is to be directed to the provider. If the complaint is not handled to the satisfaction of the LAP or laboratory, then the accreditor of the provider is to be contacted for handling the complaint. If the accreditor does not take action, then TNI is to be notified.

The LAP program does not specify an expiration date, but indicates the renewal date, which is no more than one year from the date of certification. All certificates indicate the date of renewal.

The LAP guidance document defines the use of the Oklahoma mark and TNI mark (seal or symbol). If the seal is placed on documents inappropriately, the DEQ may take legal action to obtain a cease and desist order as well as revoking the accreditation of the laboratory.

Legal action may include a letter from the division or its legal team, followed by enforcement action or the initiation of a notice of enforcement. The ODEQ legal team handles all enforcement actions. A guidance document for the use of the TNI and Oklahoma accreditation status on reports and advertisements is available on the ODEQ website.

APPENDIX COLLECTION FOR SELSD QUALITY ASSURANCE PLAN

The Appendix Collection Section of the SELSD Quality Assurance Plan includes the following:

APPENDIX A- PLAN SIGNATORIES
APPENDIX B- ORGANIZATIONAL CHARTS
APPENDIX C- DATA QUALITY MANUAL
APPENDIX D- GLOSSARY AND ACRONYMS
APPENDIX E- SELSD QMS DOCUMENTS ASSOCIATED WITH THIS QAP

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APPENDIX A- QAP SIGNATORIES

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APPROVAL SIGNATURES

STATE ENVIRONMENTAL LABORATORY SERVICES DIVISION

Signature — Date: 2/8/2019

Division Director, Chris Armstrong

Signature — Date: 2-7-19

State Environmental Laboratory Manager, Jeff Franklin

Signature — Date: 2/5/2019

Laboratory Quality Assurance Officer, April Franklin

STATE ENVIRONMENTAL LABORATORY

Signature — Date: 2/6/19

Environmental Programs Manager, Inorganics Group, Susan Mensik

Signature — Date: 2/6/2019

Environmental Programs Manager, Organics Group, Jennifer Baughn-Fennell

Signature — Date: 02.06.19

Environmental Programs Manager, Metals/Radiochemistry Section, Greg Goode

Candace N. Brooks — Date: 3/4/19

Environmental Programs Manager, General Chemistry Section, Candace Brooks

Signature — Date: 2/4/19

Environmental Programs Manager, Environmental Microbiology Section, Cody Danielson

Signature — Date: 2-6-2019

Environmental Programs Manager, GC Organics Section, Skip Pierce

Signature — Date: 2-6-2019

Environmental Programs Manager, GC\MS Section, Milton L. Campbell

LABORATORY CUSTOMER ASSISTANCE

Signature — Date: 3-4-19

Environmental Programs Manager, Laboratory Customer Assistance, Jay Wright

Signature — Date: 3-4-19

Environmental Programs Manager, Laboratory Customer Assistance and Field Activities, Jayme Jones

Signature — 3.4.19

Environmental Programs Manager, Statewide Sample and Data Management Unit, Erin Vorderlandwehr

LABORATORY ACCREDITATION PROGRAM

Signature — Date: Feb 6, 2019

Laboratory Accreditation Program Manager, David Caldwell

APPENDIX B- ORGANIZATION CHARTS

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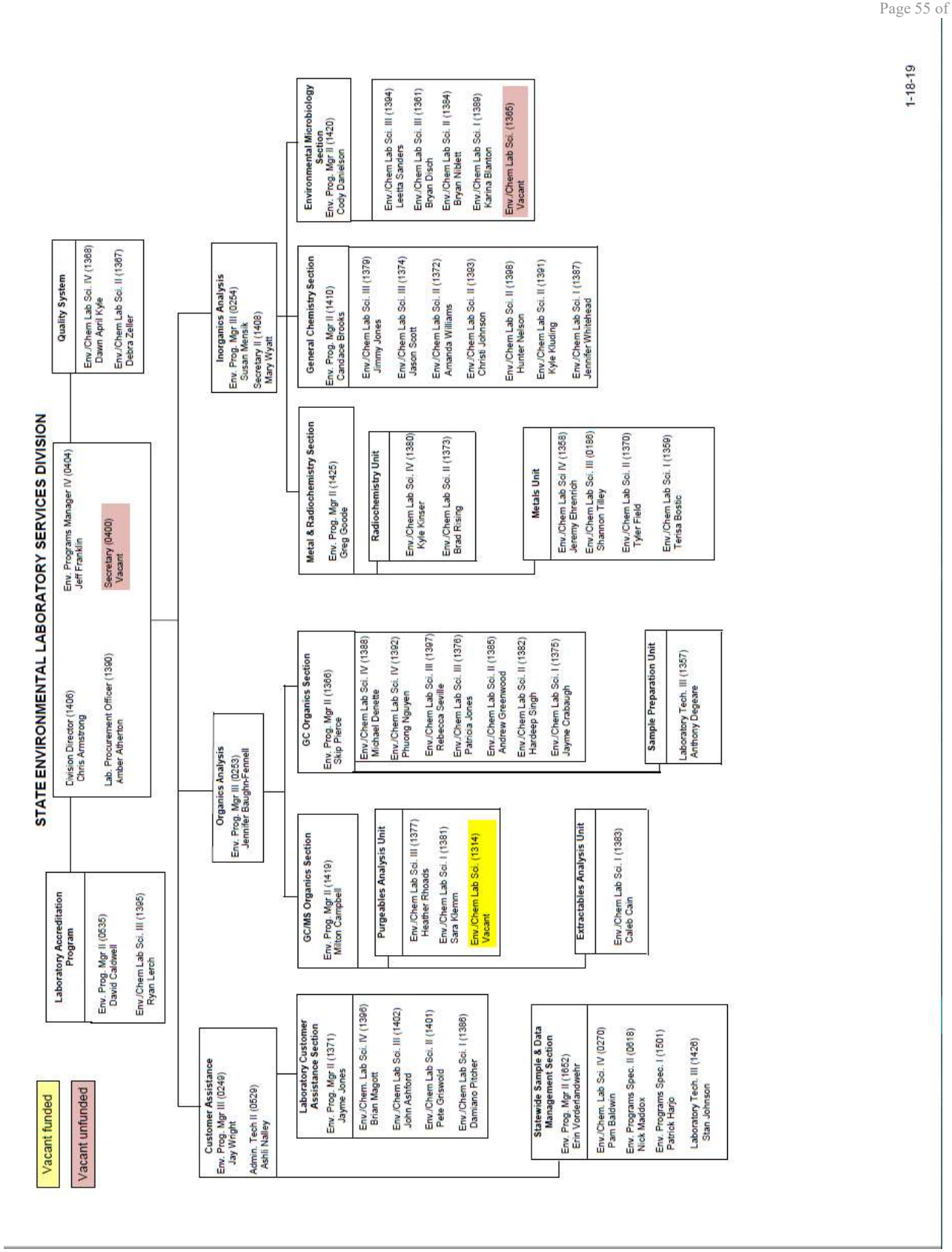

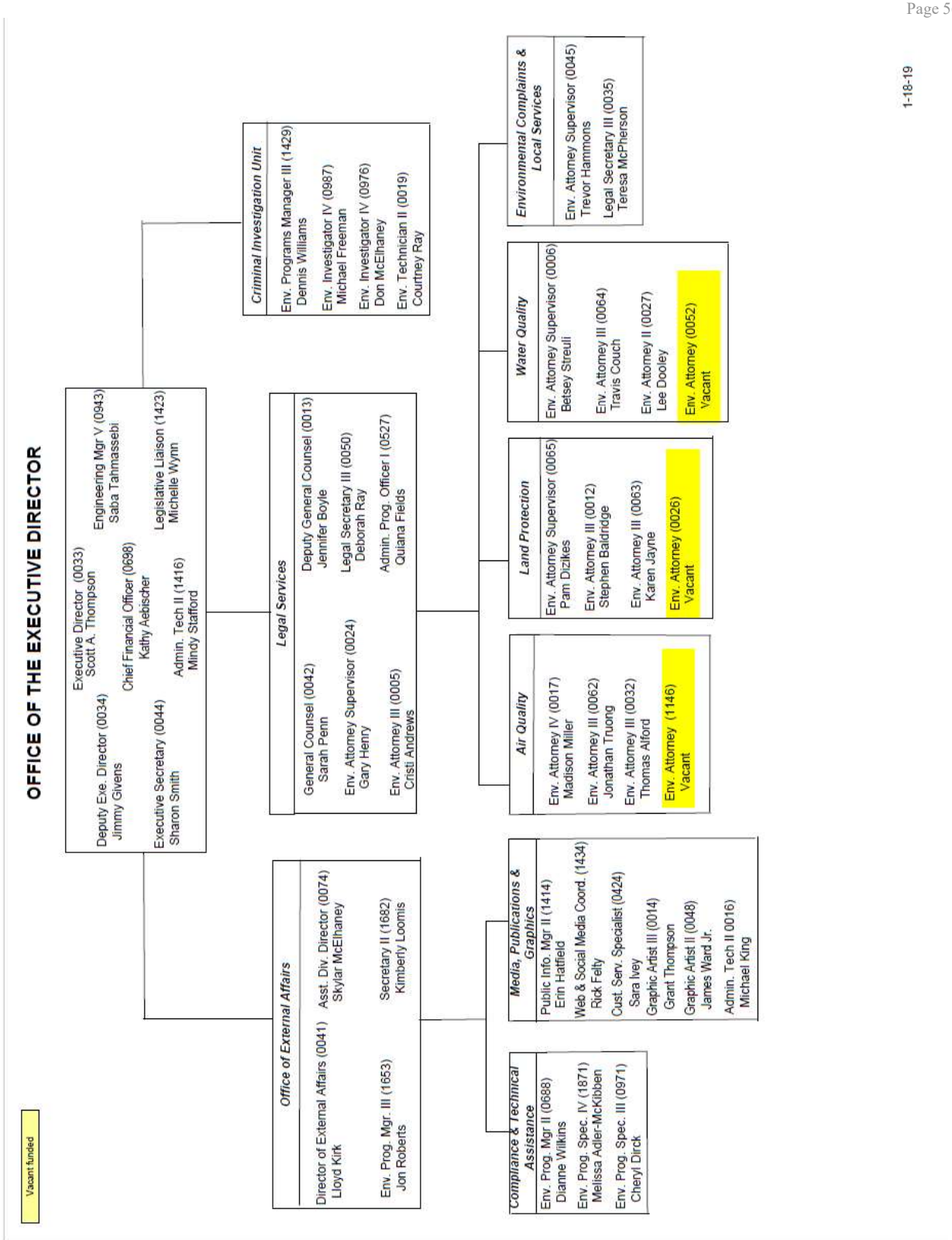

APPENDIX C- DATA QUALITY MANUAL

The SELSD Data Quality Manual is a separate document that can be found at I:\SEL-QA\Quality_Manuals

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APPENDIX D- GLOSSARY AND ACRONYMS

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Item	Reference	Acronym	Definition
Acceptance Criteria	EPA/240/R-02/008 TNI/NELAC	-	Specific limits placed on the characteristic of an item, process, or service defined in requirements documents.
Acceptance Limit(s)		AL	See control limits
Accreditation	TNI/NELAC	-	The process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards, thereby accrediting the laboratory. In the context of the National Environmental Laboratory Accreditation Program (NELAP), this process is a voluntary one.
Accreditation Body	TNI	AB	The territorial, state or federal agency having responsibility and accountability for environmental laboratory accreditation and which grants accreditation.
Accreditation Field of Proficiency Testing	TNI	FoPT	Fields of accreditation for which a laboratory is required to successfully analyze a PT sample in order to obtain or maintain accreditation.
Accrediting Authority		AA	The agency having responsibility and accountability for environmental laboratory accreditation and who grants accreditation, such as the EPA, other federal agencies, or an individual state.
Accuracy	QAMS	-	The degree of agreement between an observed value and an accepted reference value. Accuracy includes a combination of random error (precision) and systematic error (bias) components which are due to sampling and analytical operations; a data quality indicator.
Accuracy Limits		-	See control limits
Ad-Hoc	Lab Ware	-	The logging of a collected Sample in real time
Administrative Procedures Manual	DEQ	APM	
Air Quality Division		AQD	
Aliquot	CLP	-	A measured portion of a field sample, standard, or solution taken for sample preparation and/or analysis.
American Chemical Society		ACS	
American National Standards Institute		ANSI	
American Society for Testing and Materials		ASTM	
Analysis Date	Superfund SOW	-	The date of the introduction of the sample, standard, or blank into the analysis system.
Analyst	TNI	-	The designated individual who performs the “hands-on” analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent quality controls to meet the required level of quality.
Analyst Review		-	Self verification review performed by the analyst of record to verify that their sample and QC data have met all requirements of the method and the laboratory, as well as verification that the data is free from transcription and calculation errors prior to forwarding data for secondary/peer review.
Analyst Review	Lab Ware	-	a level of review that occurs when an analyst initially interprets raw data produced by an analysis before any results are entered into the LIMS system.

Analyte/Parameter/Compound	SEL Data QA Objectives	-	The substance or constituent being measured by the method. A variable, measurable property whose value is a determinant of the characteristics of a system; e.g. temperature, pressure, and density are parameters of the atmosphere.
Anions		-	Negatively charged ions. Anions commonly analyzed in drinking water samples include; nitrate, nitrite, fluoride, chloride, and ortho-phosphorus.
Aquarius		AQ	The laboratory information database that is being phased out by the SELSD and replaced with the LIMS application, Lab Ware.
Assessment	TNI	-	The evaluation process used to measure or establish the performance, effectiveness, and conformance of an organization and/or its systems to defined criteria (to the standards and requirements of laboratory accreditation).
Assigned Value		AV	The gravimetric true concentration of an analyte in a sample to be analyzed or an appropriate reference value when necessary. Located on the PT provider's performance evaluation report for a participating laboratory.
Atomic Absorption		AA	
Audit	EPA-QAD	-	A systematic evaluation to determine the conformance to quantitative *and qualitative* specifications of some operational function or activity.
Batch	Lab Ware	-	The analytical set up of like (analysis) samples into one testing group.
Batch (Samples/Analysis)-		-	Environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents.
Batch- A preparation batch		-	§ is composed of one to 20 environmental samples of the same quality systems matrix, meeting the above mentioned criteria and with a maximum time between the start of processing of the first and last sample in the batch to be 24 hours.
Batch- An analytical batch	TNI	-	is composed of prepared environmental samples (extracts, digestates or concentrates) which are analyzed together as a group. An analytical batch can include prepared samples originating from various environmental matrices and can exceed 20 samples.
Batch Review	Lab Ware	-	A review within the LIMS system when the results entered into the LIMS are compared to results observed and recorded on the paperwork (if applicable). This review checks for accuracy of results. Once complete, results are authorized at the test level allowing projects to be reviewed.
Bias	TNI	-	The system or persistent distortion of a measurement process, which causes errors in one direction (i.e., the expected sample measurement is different from the sample's true value).
Blank		-	A sample that has not been exposed to the analyzed sample stream in order to monitor contamination during sampling, transport, storage or analysis. The blank is subjected to the usual analytical and measurement process to establish a zero baseline or background value and is sometimes used to adjust or correct routine analytical results.
Blank - Field Blank	EPA OSWER	FB, FRB	A blank prepared in the field by filling a clean container with pure de-ionized water and appropriate preservative, if any, for the specific sampling activity being undertaken.

Blank - Field Blank	Superfund SOW	FB, FRB	Any sample that is submitted from the field and is identified as a blank. This includes trip blanks, rinsates, equipment blanks, etc
Blank- Equipment/Rinsate Blank-	TNI		A sample of analyte-free media which has been used to rinse common sampling equipment to check effectiveness of decontamination procedures.
Blind Sample	NELAC		A sub-sample for analysis with a composition known to the submitter. The analyst/laboratory may know the identity of the sample but not its composition. It is used to test analyst or laboratory proficiency in the execution of the measurement process.
Brownfields	EPA CLP		Abandoned, idle, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.
Calibration	Superfund SOW		The establishment of an analytical curve based on the absorbance, emission intensity, or other measured characteristic of known standards. The calibration standards must be prepared using the same type of reagents or concentration of acids as used in the sample preparation.
Calibration	TNI		A set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented be a material measure or a reference material, and the corresponding values realized by the standards.
Calibration	TNI		In calibration of support equipment the values realized by standards are established through the use of reference standards that are traceable to the International System un Units (SI).
Calibration	TNI		In calibration according to test methods, the values realized by the standards are typically established through the use of Reference Materials that are either purchased by the laboratory with a certificate of analysis or purity, or prepared by the laboratory using support equipment that has been calibrated or verified to meet specifications.
Calibration Blank		CCB	An aqueous solution as free of the measured analyte as possible. It is diluted with reagents in the same manner as the calibration standards and is used as the zero base line in instrumental analyses. It is typically analyzed at the beginning of an analysis and often at intervals during the course of prolonged analysis to monitor for instrument drift.
Calibration Check Standard		CC, ICV, CCV	A standard that is analyzed before continuing analysis and sometimes during the continuing course of the analysis to ensure that an existing calibration is in control.
Calibration Curve	TNI		The mathematical relationship between the known values, such as concentrations, of a series of calibration standards and their instrument response.
Calibration Standards		CAL	A series of known standard solutions used by the analyst for calibration of the instrument (i.e., preparation of the analytical curve). The solutions may or may not be subjected to the preparation method but contain the same matrix (i.e., the same amount of reagents and/or preservatives) as the sample preparations to be analyzed
Category	SEL Data QA Objectives		The classification of a drinking water contaminant under 40 CFR Part 141 Regulations for Public Water Systems.
Category - Non Regulated			Contaminants for which monitoring is not required.

Category - Regulated			An MCL contaminant for which monitoring is required.
Category - Unregulated			Contaminants for which monitoring is required but which currently have no MCL.
Cause	Process Improvement Plan		An occurrence that results in an outcome that negatively affects system quality
Certification	EPA/240/R-02/008		The process of testing and evaluation against specifications designed to document, verify, and recognize the competence of a person, organization, or other entity to perform a function or service, usually for a specified time.
Certification Officer		CO	
Chain of Custody Form	TNI	COC	Record that documents the possession of the samples from the time of collection to receipt in the laboratory. This record generally includes: the number and types of containers; the mode of collection; collector; time of collection; preservation; and requested analyses.
Clean Water Act	US EPA, Ground Water Center	CWA	The Clean Water Act is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the United States. This law gave EPA the authority to set effluent standards on an industry-by-industry basis (technology-based) and continued the requirements to set water quality standards for all contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a permit (NPDES) is obtained under the Act.
Code of Federal Regulations		CFR	
Cold Vapor Atomic Absorption		CVAA	
Colony Forming Units		CFU	
Complete	Data		Data is complete when all information and actions relevant to the generation of the data are documented and included. Modifications and deviations must be documented and approved. Any potential negative impact to the quality of the data must be communicated to the data user. Deficiencies must be identified, documented, and data must be qualified accordingly.
Complete	QAPP		The percentage of samples available for decision making from the entire sample set. Many projects require that a percentage of the total number of submitted samples be completed.
Complete Sample	Lab Ware		Samples that have been analyzed and all data has been entered into Lab Ware.
Comprehensive Environmental Response, Compensation and Liability Act	NELAC	CERCLA, Superfund	The enabling legislation in 42 U.S.C. 9601-9675 *et seq*., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. 9601*et seq.*, to eliminate the health and environmental threats posed by hazardous waste sites.
Conformance	EPA/240/R-02/008		An affirmative indication or judgment that a product or service has met the requirements of the relevant specification, contract, or regulation; also, the state of meeting the requirements.
Contaminant	US EPA, Ground Water Center		Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil.
Contamination	US EPA, Ground Water Center		Introduction into water, air, and soil of microorganisms, chemicals, toxic substances, wastes, or wastewater in a

			concentration that makes the medium unfit for its next intended use.
Contamination	Superfund SOW		A component of a sample or an extract that is not representative of the environmental source of the sample. Contamination may stem from other samples, sampling equipment, while in transit, from laboratory reagents laboratory environment, or analytical instruments.
Continuing Calibration Blank		CCB	See: Calibration Blank
Continuing Calibration Verification		CCV	See: Calibration Check Standard
Continuing Calibration Verification	Superfund SOW, modified	CCV	A single parameter or multi-parameter standard solution prepared by the analyst and used to verify the stability of the instrument calibration with time, and the instrument performance during the analysis of samples. The CCV can be one of the calibration standards.
Contract Laboratory Program		CLP	
Contract Required Quantitation Limit	Superfund SOW	CRQL	Minimum level of quantitation acceptable under a contract
Control Chart			A visual representation of a component of data (typically LFB, MS/MSD RPB, and LRB) that incorporate limits (upper and lower control and warning limits) to observe analytical performance and trends.
Control Limits			A range within which specified measurement results must fall, usually accuracy and precision, to be compliant. Control limits may be mandatory, requiring corrective action if exceeded, or advisory.
Correct	QAPP		The real-world construction of the actual activities performed during data generation and to accurately represent the environment from which the samples were taken.
Corrective Action	TNI	CA	Any measure taken to rectify conditions adverse to quality and, where possible, to preclude their recurrence.
Corrective Action Report		CAR	The format for documenting the action taken to eliminate the causes of an existing nonconformity, defect or other undesirable situation in order to correct a problem and prevent a future recurrence.
Data Flag			Standardized codes that relay information about the impacts or limitations affecting the quality of the data. Laboratory data qualification includes the application of information relative to rejections, non-conformances, deviations, or other discrepancies that impart a potential effect to the quality or usability of the data.
Data Quality Objectives	EPA/240/R-02/008	DQOs	Qualitative and quantitative statements derived from the outputs of the first six steps of the DQO process that clarify the study objective, define the most appropriate type of data to collect, determine the most appropriate conditions from which to collect the data, and specify tolerable limits on decision errors which will be used as the basis for establishing the quantity and quality of data needed to support the decision.
Data Quality Objectives (process)-	EPA/240/R-02/008	DQO	A seven-step systematic planning process developed by EPA which provides a procedure for defining the criteria that a data collection design should satisfy, including when to collect samples, where to collect samples, tolerable level of decision errors, and how many samples to collect.
Data Reduction	EPA-QAD		The process of transforming raw data by arithmetic or

			statistical calculations, standard curves, concentration factors, etc., and collation into a more useable form.
Defensible	EPA/240/R-02/008		The ability to withstand any reasonable challenge related to the veracity or integrity of project and laboratory documents and derived data.
Deficiency	EPA/240/R-02/008		An unauthorized deviation from acceptable procedures or practices, or a defect in an item.
Demonstration of Capability	TNI	DOC	A procedure to establish the ability of the analyst to generate acceptable accuracy and precision.
Department of Environmental Quality		DEQ	
Detection Limit			See Limit of Detection
Detection Limit	EPA	DL	The lowest concentration of an analyte that can be detected. A measure of the capability of an analytical method to distinguish samples that do not contain a specific analyte from samples that contain low concentrations of the analyte; the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability. DLs are analyte- and matrix-specific and may be laboratory-dependent.
Dilution Factor		DF	
Double Blind		DB	
Drinking Water		DW	A matrix designation used to indicate any aqueous sample that has been designated a potable or potential potable water source.
Dry Weight	Superfund SOW		The weight of a sample based on percent solids or percent moisture. The weight after drying in an oven.
Duplicate	Superfund SOW	Dup, D	A second aliquot of a sample that is treated the same as the original sample in order to determine the precision of the method, sometimes termed as replicate. Differs from field duplicate. See laboratory duplicate.
Environmental Complaints and Local Services	DEQ	ECLS	
Environmental Protection Agency		EPA	an agency of the federal government of the United States charged to regulate chemicals and protect human health by safeguarding the natural environment: air, water, and land.
Environmental Response Laboratory Network		ERLN	
Experimental Field of Proficiency Testing	TNI	Experimental FoPT	- Analytes for which a laboratory is required to analyze a PT sample if they seek or maintain accreditation for the field of accreditation but for which successful analysis is not required in order to obtain or maintain accreditation.
Federal Water Pollution Control Act	NELAC	CWA	The enabling legislation under 33 U.S.C. 1251 *et seq.*, Public Law 92-50086 Stat. 816, that empowers EPA to set discharge limitations, write discharge permits, monitor, and bring enforcement action for non-compliance.
Field Blank		FB	See Blank
Field Measurement			The determination of physical, biological, or radiological properties, or chemical constituents; that are measured on-site, close in time and space to the matrices being sampled/measured, following accepted test methods. This testing is performed in the field outside of a fixed-laboratory or outside of an enclosed structure that meets the requirements of a mobile laboratory.

Field of Accreditation	TNI		The matrix, method/technology, and the analyte combinations for which the accreditation body offers accreditation.
Field of Proficiency Testing	TNI	FOPT	Those matrix, technology/method, and analyte combinations for which the accreditation body offers accreditation.
Field of Proficiency Testing			Also, The specific analyte or analyte group, matrix, and technology/method evaluated by the analysis of the PT sample.
Field QC	Superfund SOW		Any quality control sample submitted from the field to the laboratory. Examples include, but are not limited to: field blanks, field duplicates, and field spikes.
Field Reagent Blank		FRB	See Blank
Field Sample	Superfund SOW		A portion of material received for analyses that is contained in single or multiple containers and identified by a unique SEL sample number.
Finding	EPA/240/R-02/009		An assessment conclusion that identifies a condition having a significant effect on an item or activity. An assessment finding may be positive or negative, and is normally accompanied by specific examples of the observed condition.
Finding	TNI		An assessment conclusion referenced to a laboratory accreditation standard and supported by objective evidence that identifies a deviation from a laboratory accreditation standard requirement.
Flag			See Qualifiers/Data Qualifiers
Flag			See data flag
Flow Injection Analysis		FIA	
Food Emergency Response Network		FERN	
Fortified Sample		LFM	See Matrix Spike
Fortified Sample Duplicate		LFM-D	See Matrix Spike Duplicate
Gas Chromatography		GC	
Gas Chromatography-Mass Spectrometery		GC-MS	
Graded Approach	EPA/240/R-02/008		The process of basing the level of application of managerial controls applied to an item or work according to the intended use of the results and the degree of confidence needed in the quality of the results.
Graphite Furnace, Atomic Absorption	Superfund SOW	GFAA	A technique for the determination of analytes in which a sample aliquot is injected into a hollow graphite tube, which is then heated to atomize the analyte. The vapor absorbs light at wavelengths characteristic of the element(s) atoms present.
Guidance	EPA/240/R-02/008		A suggested practice that is not mandatory, intended as an aid or example in complying with a standard or requirement
Guideline	EPA/240/R-02/008		A suggested practice that is not mandatory in programs intended to comply with a standard
Hazardous Waste		HW, HAZ	
Hold Time		HT	
Holding Time	EPA CLP SOW	HT	The maximum time that a sample may be held (following collection and) prior to analysis and still be considered valid or not compromised (40 CFR Part 136). Differs from the EPA Superfund SOW definition, “the elapsed time expressed in days from the date of receipt of the sample by the Contractor (laboratory) until the date of its analysis, i.e. holding time =

			(sample analysis date-sample receipt date)"
Hydrochloric Acid		HCl	
In Progress	Lab Ware		Samples that have some data entered, but have not yet been completed
Inductively Coupled Plasma		ICP	
Inductively Coupled Plasma Atomic Emission Spectroscopy	Superfund SOW	ICP-AES	A technique for the simultaneous or sequential multi-element determination of elements in solution. The basis of the method is the measurement of atomic emission by an optical spectroscopic technique. Characteristic atomic line emission spectra are produced by excitation of the sample in a radio frequency inductively coupled plasma.
Inductively Coupled Plasma Mass Spectrometry	Superfund SOW	ICP-MS	A technique for the multi-element determination of elements in solution. The basis of the technique is the detection of atomic ions produced by an ICP and sorted by mass/charge ratio.
Initial Calibration Blank		ICB	See Blanks
Initial Calibration Verification		ICV	See: Calibration Check Standard
Initial Demonstration of Capability		IDC	The demonstration of capability that is performed prior to using a method, when there is a change that affects data quality, or if the method has not been in use for 12 months.
Initial Precision and Recovery	LT2 Guidance Manual 2006	IPR	A QC process to establish initial control of the analytical system and demonstrate acceptable method performance (precision/recovery)
Instrument Blank	EPA-QAD	IB	A clean sample (e.g., distilled water) processed through the instrumental steps of the measurement process; used to determine instrument contamination
Instrument Detection Limit		IDL	The detection limit as associated specifically with an instrument. The lowest concentration that can be detected by an instrument. Determined as three times the standard deviation of the mean of the noise. In some programs, the LOD is equivalent to (or referred as) the MDL (Minimum Detection Limit).
Instrument Performance Check		IPC	A solution of method analytes used to verify the instrument performance periodically with respect to a defined set of method criteria. It is prepared from the same standard stock solutions used to prepare the calibrators and is matrix matched to the calibrators.
Inter-element Correction Check Sample		IEC	A solution of selected method analytes of higher concentrations used to determine or verify correction factors for known inter-element spectral interferences with respect to a defined set of ICP method criteria.
Interference Check Sample		ICS	A solution of selected method analytes of higher concentrations used to determine or verify correction factors for known inter-element spectral interferences with respect to a defined set of ICP method criteria.
Internal Audit		IA	
Internal Standard	TNI		A known amount of standard (usually a non-target element or compound) added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method.

			however named, such as laboratory fortified blank, spiked blank, or QC check sample- A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes and taken through all sample preparation and analytical steps of the procedure unless otherwise noted in a reference method. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
Laboratory Control Sample	TNI	LCS	
Laboratory Duplicate	NELAC		Aliquots of a sample taken from the same container under laboratory conditions and processed and analyzed independently.
Laboratory Fortified Blank		LFB	An aliquot of the same solution as the reagent blank to which a volume of known concentration of the method analyte is added. The analyte recovery is calculated to assess if the method is in control and if the laboratory is capable of making accurate measurements. May also be equivalent to the LCS.
Laboratory Fortified Matrix		LFM	See Matrix Spike
Laboratory Fortified Matrix Duplicate		LFM-D	See Matrix Spike Duplicate
Laboratory Information Management System		LIMS	a software system used in laboratories for the management of samples, laboratory users, instruments, standards and other laboratory functions
Laboratory Performance Check			A solution of method analytes, surrogate compounds, and/or internal standards used to evaluate the performance of the instrument system with respect to a defined set of method criteria.
Laboratory Reagent Blank		LRB	See Blanks
Laboratory Receipt Date			The date on which a sample is received at the SEL, as recorded on the shipper's Chain of Custody.
LabWare		LW	
Land Protection Division	DEQ	LPD	
Limit(s) of Detection	TNI	LOD	A laboratory's estimate of the minimum amount of an analyte in a given matrix that an analytical process can reliably detect in their facility.(
Limit(s) of Detection	EPA	LOD	The minimum concentration that can be measured and reported with 99% confidence that the value is larger than zero. The minimum concentration of a substance being analyzed that has a 99 % probability of being identified. The minimum concentration of an analyte that, in a given matrix and with a specific method, has a 99% probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero. In some programs, the LOD is equivalent to (or referred as) the MDL (Minimum Detection Limit).
Limit(s) of Quantitation	TNI	LOQ	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence.
Limit(s) of Quantitation	EPA	LOQ	The lowest concentration that can reliably be detected with a defined level of precision and accuracy during "normal" operating conditions. Derived as a multiple of the calculated MDL. The minimum concentration of an analyte or category of analytes in a specific matrix that can be identified and

			quantified above the method detection limit and within specified limits of precision and bias during routine analytical operating conditions Also called the Practical Quantitation Limit (PQL)
Linear Range Study		LRS	
Linearity			The measurement of a method's ability to obtain test results within a given range that are proportional to the concentration of analyte.
Lower Control Limit		LCL	
Lower Warning Limit		LWL	
Management Systems Review	EPA/240/R-02/008	MSR	The qualitative assessment of a data collection operation and/or organization(s) to establish whether the prevailing quality management structure, policies, practices, and procedures are adequate for ensuring that the type and quality of data needed are obtained.
Manual for the Certification of Laboratories Analyzing Drinking Water	EPA	MCLADW, 5th ED	
Matrix	Superfund SOW		The predominant material of which a sample to be analyzed is composed (the substrate of the test sample). For purposes of RCRA, a sample matrix is either water/ aqueous or soil/sediment
Matrix - Aqueous	SEL Data QA Objectives	Aq	An aqueous sample excluded from the definition of the drinking water matrix
Matrix -Air	NELAC		Whole gas or vapor samples including those contained in flexible or rigid wall containers.
Matrix -Drinking water		DW, WS	Any aqueous sample that has been designated a potable or potential potable water source.
Matrix Effect	Superfund SOW		In general, the effect of particular matrix constituents.
Matrix -Ground water		GW	A sub-surface fresh water that may be designated as a potential potable water source (project dependent).
Matrix -Hazardous waste		HW	By-product materials that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists.
Matrix -Liquid		Liq	An organic liquid with <15% settleable solids
Matrix -Solid			Includes soils, sediments, sludge, products and by-products of an industrial process with >15% settleable solids that results in a matrix not previously defined.
Matrix Spike	TNI	MS	A sample prepared, taken through all sample preparation and analytical steps of the procedure unless otherwise noted in a referenced method, by adding a known mass of target analyte to a specified amount of sample for which an independent test result of target analyte concentration is available. Matrix spikes are used, for example, to determine the effect of the matrix on a method's recovery efficiency.
Matrix Spike Duplicate	TNI	MSD	A replicate matrix spike prepared in the laboratory and analyzed to obtain a measure of the precision of the recovery for each analyte.
Matrix -Surface water		SW	Water present above the substrate or soil surface (usually referring to natural water bodies such as lakes or streams).
Matrix -Tissue			A sample of a biological origin; fish flesh

Matrix -Waste water		WW	Spent or used water from a home, community, farm, or industry that contains dissolved or suspended matter. Usually referring to effluent from an industrial or municipal sewage treatment plant.
Maximum Contaminant Level	EPA175-B97-001	MCL	The maximum permissible level of a contaminant in water delivered to any user of a public system. MCLs are enforceable standards.
Measurement Quality Objectives		MQOs	The desired sensitivity, range, precision, and bias of a measurement.
Measurement System	TNI		A test method, as implemented at a particular laboratory, and which includes the equipment used to perform the test and the operator(s).
Median			A value in an ordered set of values below and above which there is an equal number of values.
Membrane Filter		MF	
Method	TNI		A body of procedures and techniques for performing an activity (e.g., sampling, chemical analysis, quantification), systematically presented in the order in which they are to be executed.
Method Blank/Prep Blank	TNI	MB	A sample of a matrix similar to the batch of associated samples (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.
Method Detection Limit		MDL	The minimum concentration of a substance (an analyte) that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte (40 CFR Part 136, Appendix B). Defined in 40CFR Part 136 Appendix B as three times the standard deviation of replicated analyses of spiked samples. In some programs, the LOD is equivalent to (or referred as) the MDL (Minimum Detection Limit).
Micrograms per gram		µg/g, PPM	
Micrograms per kilograms		µg/kg, PPB	
Micrograms per Liter		µg/L, PPB	
Milligrams per kilograms		mg/kg, PPM	
Milligrams per Liter		mg/L, PPM	
milliliter		mL	
Minimum Detectable Activity		MDA	The minimum sample (radio)activity that can be detected with a given degree of certainty. This activity is dependent on many different variables, which include counter background, counter efficiency, and sample count time.
Minimum Quantitation Limit		MQL	
Most Probable Number		MPN	
Most Probable Value		MPV	The parameter specific inter laboratory median value used by the USGS to determine PT acceptance limits.
Narrative			The portion of the data package that includes laboratory, sample number identification, and descriptive documentation of any problems encountered in processing the samples

National Animal Health Laboratory Network		NAHLN	
National Environmental Laboratory Accreditation Conference		NELAC	
National Environmental Laboratory Accreditation Program		NELAP	The purpose of the National Environmental Laboratory Accreditation Program is to establish and implement a program for the accreditation of environmental laboratories.
National Institute of Standards and Technology	NIST	NIST	An agency of the US Department of Commerce's Technology Administration that is working with EPA, States, NELAC, and other public and commercial entities to establish a system under which private sector companies and interested States can be accredited by NIST to provide NIST-traceable proficiency testing (PT) to those laboratories testing drinking water and wastewater.
National Lakes Association		NLA	
National Pollutant Discharge Elimination System		NPDES	A federal permit program that controls water pollution by regulating point sources that discharge pollutants into waters of the United States.
National Primary Drinking Water Regulations		NPDWR	
National Secondary Drinking Water Regulations		NSDWR	
Negative Control	NELAC		Measures taken to ensure that a test, its components, or the environment do not cause undesired effects, or produce incorrect test results.
Negative Staining Control	LT2 Guidance Manual 2006	-	A QC element designed to demonstrate the absence of contamination through the staining process
Nitric Acid		HNO_3	
Non-Potable Water		NPW	
Ongoing Demonstration of Capability		DOC	The demonstration of capability that is performed on an ongoing basis to indicate that the method is in control.
Ongoing Precision and Recovery	LT2 Guidance Manual 2006	OPR	A QC process to establish ongoing control of the analytical system and demonstrate acceptable method performance (precision/recovery)
Parts per billion		PPB, µg/kg, µg/L	
Parts per million		PPM, mg/kg, mg/L, µg/g	
Peer Review			A secondary review of data performed by someone other than the analyst of record (a trained analyst, management QAO) that includes verification that the data is free from transcription and calculation errors, that QC are acceptable, and that appropriate qualifiers or flags were applied to data with impacted data quality.
Peer Review	Lab Ware		A level of review that occurs when an analyst looks over raw data after it has been interpreted by another analyst. This level of review looks for accuracy of data interpretation. After complete, results can be entered into the LIMS system.
Percent (%) Difference		%D	
Percent (%) Moisture	(Superfund SOW		The proportion of volatile liquids in a soil sample determined by drying an aliquot of the sample.
Percent (%) Recovery		%REC	

Percent (%) Relative Standard Deviation		%RSD	
Percent (%) Solids	Superfund SOW		The proportion of solid in a soil sample determined by drying an aliquot of the sample.
Polychlorinated Biphenyls		PCBs	
Positive Control	NELAC		Measures taken to ensure that a test and/or its components are working properly and producing correct or expected results from positive test subjects.
Positive Staining Control	LT2 Guidance Manual 2006	-	A QC element designed to demonstrate ongoing control of the staining process and performance of reagents and microscope
Potable	Merriam-Webster		Water suitable for drinking
Practical Quantitation Limit	SEL Data QA Objectives	PQL	PQLs represent the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The PQL is generally 3-5 times the MDL and is usually the data-reporting limit for the listed method. () See Limit of Quantitation
Precision	TNI		The degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed as standard deviation, variance or range, in either absolute or relative terms.
Precision Limits	SEL Data QA Objectives		See control limits. The SEL control limits for precision are calculated as the relative percent difference (RPD) or relative percent standard deviation (%RSD).
Pre-Log	Lab Ware		The logging of a sample prior to collection.
Presence/Absence		P/A	
Preservation	TNI		Any conditions (refrigeration and/or reagents added at the time of sample collection or later) under which a sample must be kept in order to maintain the chemical and/or biological integrity of the sample.
Procedure	ISO 9000: 2000		Specified way to carry out an activity or a process. Procedures can be documented or not.
Process Improvement Form		PIP	The form associated with the Process Improvement Plan in which potential negative events or deviations and the associated investigation and applied corrections are documented.
Process Improvement Plan		PIP	A procedural program utilized by the SELS to document and track events that may negatively impact data quality.
Proficiency Testing	TNI	PT	A means of evaluating a laboratory's performance under controlled conditions relative to a given set of criteria through analysis of unknown samples provided by an external source.
Proficiency Testing Oversight Body		PTOB	An organization that is approved to accredit and monitor the performance of proficiency testing providers
Proficiency Testing Program	TNI		The aggregate of providing rigorously controlled and standardized environmental samples to a laboratory for analysis, reporting of results, statistical evaluation of the results and the collective demographics and results summary of all participating laboratories.
Proficiency Testing Provider (	TNI	PT Provider	A person or organization accredited by the TNI-approved Proficiency Testing Provider Accreditor to operate a TNI-compliant PT program.
Proficiency Testing Provider Accreditor	TNI	PTPA	An organization that is approved by TNI to accredit and monitor the performance of proficiency testing providers

Proficiency Testing Sample		PT Sample	A sample provided to the laboratory by an independent contractor for the purpose of demonstrating that the laboratory can successfully analyze the sample within specified acceptance limits using approved methodologies. The qualitative and quantitative composition of the reference material is unknown to the laboratory at the time of the analysis.
Proficiency Testing Study	TNI	PT Study	A single complete sequence of circulation of proficiency testing samples to all participants in a proficiency testing program.
Project	EPA/240/R-02/008		An organized set of activities within a program.
Project	Lab Ware		A sampling event including one or more individual samples.
Project Review	Lab Ware		A comprehensive review within the LIMS system of all submitted sample information for a project. This level of review checks for completeness of information. Once complete, the sample level is authorized, projects are closed, and project reports are distributed to the customer.
PT provider			The organizations that have been accredited by NIST to prepare PT study samples and to conduct PT studies.
PT Study Closing Date	TNI		The calendar date for which analytical results for a PT sample shall be received by the PT provider from the laboratory.
PT Study Opening Date	TNI		The calendar date that a PT sample is first made available to any laboratory by a PT provider.
Public Water System	40CFR Part 141.2	PWS	A system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily a least 60 days out of the year
Quality Assurance	QAMS	QA	An integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence.
Quality Assurance Officer		QAO	
Quality Assurance Plan		QAP	
Quality Assurance Program Description/Plan	EPA/240/R-02/008	QMP, QAP	See Quality Management Plan
Quality Assurance Project Plan	EPA/240/R-02/008	QAPP	A formal document describing in comprehensive detail the necessary quality assurance, quality control, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria. The QA Project Plan components are divided into four classes: (1) Project Management, (2) Measurement/Data Acquisition, (3) Assessment/Oversight, and (4) Data Validation and Usability. Requirements for preparing QA Project Plans can be found in *EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)*.
Quality Control	EPA/240/R-02/008	QC	The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality. The system of activities and checks used to ensure that measurement systems are maintained within prescribed

			limits, providing protection against "out of control" conditions and ensuring the results are of acceptable quality.
Quality Control Sample	EPA/240/R-02/008	QCS	A uncontaminated sample matrix spiked with known amounts of analytes from a source independent of the calibration standards.
Quality Management Plan	EPA/240/R-02/008	QMP, QAP	A document that describes a quality system in terms of the organizational structure, policy and procedures, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, documenting, and assessing all activities conducted.
Quality System		QS	A structured and documented framework of an organization for its planning, implementing, documenting, and assessing work performed and for carrying out required procedures and activities for ensuring satisfaction in its work processes, products, and services.
Quarterly Testing Sample		QT	A sample provided to the laboratory by an independent contractor for the purpose of demonstrating that the laboratory can successfully analyze the sample within specified acceptance limits using approved methodologies. The qualitative and quantitative composition of the reference material is known to the laboratory [management] at the time of the analysis.
Quick Turn PT		QT PT	See Supplemental Proficiency Testing Study
Range			The interval between the upper and lower points of the linear line for which an unknown concentration of analyte can be predicted, or extrapolated, with suitable accuracy and precision from the equation associated with the line. For laboratory applications, the range is all of the values between the lowest calibration standard and the highest calibration standard.
Rapid Return PT		RR PT	See Supplemental Proficiency Testing Study
Raw Data	EPA-QAD		Any original factual information from a measurement activity or study recorded in a laboratory notebook, worksheets, records, memoranda, notes, or exact copies thereof that are necessary for the reconstruction and evaluation of the report of the activity or study. Raw data may include photography, microfilm or microfiche copies, computer printouts, magnetic media, including dictated observations, and recorded data from automated instruments. If exact copies of raw data have been prepared (e.g., tapes which have been transcribed verbatim, data and verified accurate by signature), the exact copy or exact transcript may be submitted.
Reagent Blank/Laboratory Reagent Blank	QAMS	LRB	A sample consisting of reagent(s), without the target analyte or sample matrix, introduced into the analytical procedure at the appropriate point and carried through all subsequent steps to determine the contribution of the reagents and of the involved analytical steps.
Reagent Water	Superfund SOW		The purity of this water must be equivalent to ASTM Type II reagent water of Specification D1193-77, "Standard Specification for Reagent Water".
Received Sample	Lab Ware		Samples that have been turned in to the lab. The data for

			these samples has not yet been entered.
Reciprocity			The recognition/acceptance of one State's NELAC laboratory accreditation by another State.
Reference Material	ISO Guide 30-2.2		A material or substance one or more properties of which are sufficiently well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials.
Relative Percent (%) Difference	Superfund SOW modified	RPD	Measurement used to compare two values, the relative percent difference is based on the mean of the two values, and is reported as either an absolute or relative value, i.e., expressed as a positive or negative number or zero.
Relative Standard Deviation		RSD	
Replicate Analyses	NELAC		The measurements of the variable of interest performed identically on two or more sub-samples of the same sample within a short time interval. (
Reporting Limit		RL	The lowest concentration verified by the laboratory with an acceptable degree of precision and accuracy and typically the lowest calibration standard used for developing a calibration curve. The lowest concentration or amount of the target analyte required to be reported from a data collection project. Reporting limits are greater than detection limits and are usually not associated with a probability level. Also called the Minimum Reporting Limit/MRL
Required Detection Limit	40CFR	RDL	
Required Reporting Limit		RRL	
Requirement	EPA/240/R-02/008		A formal statement of a need and the expected manner in which it is to be met.
Resistance		R	
Resource Conservation and Recovery Act	NELAC	RCRA	The enabling legislation under 42 USC 321 *et seq.* (1976), that gives EPA the authority to control hazardous waste from the "cradle-to-grave", including its generation, transportation, treatment, storage, and disposal.
Root Cause			The initiating cause that leads to an outcome identified as nonconformity.
Safe Drinking Water Act	NELAC	SDWA	The enabling legislation, 42 USC 300f *et seq.* (1974), (Public Law 93-523), that requires the EPA to protect the quality of drinking water in the U.S. by setting maximum allowable contaminant levels, monitoring, and enforcing violations.
Safety Data Sheets		SDS	
Sample			A portion of material to be analyzed that is contained in single or multiple containers and identified by a unique sample number.
Sample	Lab Ware)-		A unique identifying number within a project.
Sample Number		SEL ID	A unique identification number designated by the SEL for each sample. The sample number documents information on that sample.
SEL Sample Number		SEL ID	See Sample Number
SELSD			The Oklahoma Department of Environmental Quality State Environmental Laboratory Services Division as used herein.
Significant Figures		SigFigs	
Single Blind		SB	

Sodium Hydroxide		NaOH	
Soil Matrix		SM	
Solid			A matrix designation that includes soils, sediments, sludges, and other matrices with >15% settleable solids.
Spike	NELAC		A known mass of target analyte added to a blank sample or sub-sample; used to determine recovery efficiency or for other quality control purposes
Spiked Sample			See Matrix Spike
Spiked Sample Duplicate			See Matrix Spike Duplicate
Standard Deviation		s, SD	
Standard Methods		SM	
Standard Operating Procedures	QAMS	SOP	A written document which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed and which is accepted as the method for performing certain routine or repetitive tasks.
Standardized Reference Material	EPA-QAD	SRM	A certified reference material produced by the U.S. National Institute of Standards and Technology or other equivalent organization and characterized for absolute content, independent of analytical method
Sulfuric Acid		H_2SO_4	
Superfund	EPA CLP		The program operated under the legislative authority of the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) that fund and carryout USEPA removal and remedial activities at hazardous waste sites. These activities include establishing the National Priorities List (NPL), investigating sites for inclusion on the list, determining their priority, and conducting and/or supervising cleanup and other remedial activities.
Supplemental Proficiency Testing Study		Supplemental PT Study	A PT sample that may be from a lot previously released by a PT provider that meets the requirements for supplemental PT samples given in Volume 3 of the TNI Standard but that does not have a pre-determined opening date and closing date. (TNI) These are also known as Quick Turn PT or Rapid Return PT
Surrogate	QAMS		A substance with properties that mimic the analyte of interest. It is unlikely to be found in environment samples and is added to them for quality control purposes.
Target Analyte List		TAL	
Technical Review	EPA/240/R-02/008		A documented critical review of work that has been performed within the state of the art. The review is accomplished by one or more qualified reviewers who are independent of those who performed the work but are collectively equivalent in technical expertise to those who performed the original work. The review is an in-depth analysis and evaluation of documents, activities, material, data, or items that require technical verification or validation for applicability, correctness, adequacy, completeness, and assurance that established requirements have been satisfied
Technical Systems Audit	EPA/240/R-02/008		A thorough, systematic, on-site qualitative audit of facilities, equipment, personnel, training, procedures, record keeping, data validation, data management, and reporting aspects of a

			system.
Test Method			An adoption of a scientific technique for performing a specific measurement, as documented in a laboratory SOP or as published by a recognized authority.
Texas Natural Resources Conservation Commission		TNRCC	
The NELAC Institute		TNI	is a 501(c)(3) non-profit organization whose mission is to foster the generation of environmental data of known and documented quality through an open, inclusive, and transparent process that is responsive to the needs of the community.
Time of Sample Receipt			The date and time which a sample is received at the SEL.
Tolerance Chart	ANSI		A chart in which the plotted quality control data is assessed via a tolerance level (e.g. +/- 10% of a mean) based on the precision level judged acceptable to meet overall quality/data use requirements instead of a statistical acceptance criteria (e.g. +/- 3 sigma) (applies to radiobioassay laboratories).
Total Maximum Daily Load		TMDL	
Toxicity Characteristic Leachate Procedure		TCLP	
Traceability (Data)-			The ability for the data user to follow the data throughout the lifecycle of that data from collection to reporting. This includes the ability to track access and possession of samples and data as well as changes occurring to them. Traceability is essentially the "paper-trail" (hard copy or electronic) that supports the data.
Traceability (Standards)-			The documentation of consumables that require a stated degree of quality or purity, such as chemicals, reagents, standards, glassware, containers, media, etc., that were used during data generation. Includes documents such as NIST-traceability documentation, Certificate of Purity, Certificate of Quality.
Trip Blank/Field Reagent Blank	EPA NERL, 524.2	TB	An aliquot of reagent water or other blank matrix that is placed in a sample container in the laboratory and treated as a sample in all respects, including shipment to the sampling site, exposure to sampling site conditions, storage, preservation, and all analytical procedures to determine if method analytes or other interferences are present in the field environment.
Turn Around Time		TAT	
Underground Injection Control	US EPA, Ground Water Center)	UIC	Program under the SEWA that regulates the use of wells to pump fluids into the ground
Underground Storage Tank Program		UST	In 1985, EPA created the Office of Underground Storage Tanks to carry out a Congressional mandate to develop and implement a regulatory program for underground storage tank (UST) systems
United States Department of Agriculture		USDA	
United States Geological Survey		USGS	
Units	SEL Data QA Objectives		A unit of measurement expressing the concentration of a constituent in solution as the mass of solute per unit volume.
Un-received Sample	Lab Ware		Pre-logged samples that have not yet been returned to the

			laboratory
Upper Control Limit		UCL	
Upper Warning Limit		UWL	
Valid (Data			Data that has been derived from methods that have been properly validated.
Validation (Method)-	EPA		The process of demonstrating that an analytical method is suitable for its intended use and involves a variety of studies to evaluate method performance under defined conditions
Validation (QAPP)-	EPA QA/G-8		The confirmation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled. Most usually performed at the level of project management. In design and development, validation concerns the process of examining a product or result to determine conformance to user needs (EPA/240/R-02/008), i.e., an analyte and sample-specific process that extends the evaluation of data beyond method, procedural, or contractual compliance (i.e., data verification) to determine the analytical quality of a specific data set
Variability	EPA/240/R-02/008		Observed difference attributable to heterogeneity or diversity in a population. Sources of variability are the results of natural random processes and stem from environmental differences among the elements of the population. Variability is not usually reducible by further measurement but can be better estimated by increasing sampling.
Variance, (Statistical)-	EPA/240/R-02/008		A measure or dispersion of a sample or population distribution.
Verification	EPA QA/G-8		Confirmation by examination and provision of objective evidence that specified requirements have been fulfilled. In design and development, verification concerns the process of examining a result of a given activity to determine conformance to the stated requirements for that activity (EPA/240/R-02/008), i.e., the process of evaluating the completeness, correctness, and conformance/compliance of a specific data set against the method, procedural, and/or contractual requirements
Warning Limits			The inner limits set on a control chart. If the observed value falls between the warning and action limits , then it is taken as a signal that the analysis may require monitoring.
Water Pollution		WP	
Water Quality Criteria	US EPA, Ground Water Center		Specific levels of water quality, which, if reached, are expected to render a body of water suitable for its designated use. The criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes
Water Quality Division	DEQ	WQD	
Water Quality Standards	US EPA, Ground Water Center		State-adopted and EPA-approved ambient standards for water bodies. Standards cover the use of the water body and water quality criteria that must be met to protect the designated use or uses
Wet Weight	Superfund SOW		The weight of a sample aliquot including moisture (undried).
Workflow	Lab Ware		An interactive guide to help one navigate through the LIMS based on the user's account.

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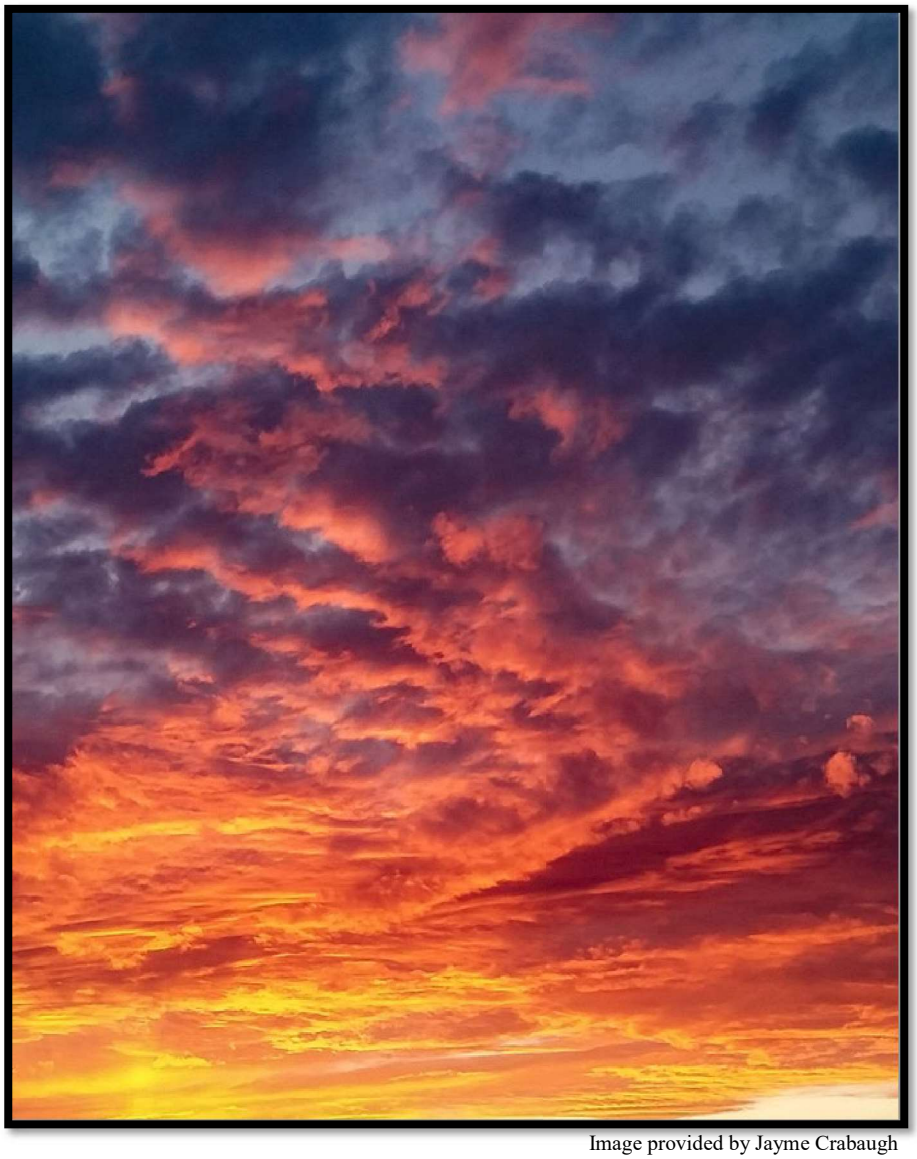
APPENDIX E- List of Associated Procedures and Documents

The following documents are part of the SELSD Quality Management System and are referenced within the text of this Quality Assurance Plan. These documents are available upon request.

Name	Number	Category
Training Records;	9000-WID02	Training and Competency
Qualifications, Roles, Responsibilities;	9000-WID04	Training and Competency
Qualifications and Hiring Process;	9000-WID08	Training and Competency
Training Needs Assessment;	9000-WID09	Training and Competency
Training Attendance;	9000-WID10	Training and Competency
SEL Data Quality Manual	9010-QSP03	Quality System Procedures
SELSD Procedure for Review and Revision of QAP;	9010-QSP04	Quality System Procedures
Process Improvement Plan;	9300-QSP01	Process Improvements
Internal Audit Program;	9400-QSP01	Internal Audits
Internal Audit Program;	9400-QSP01	Internal Audits
Method Checklist Workbook;	9400-WB	Internal Audits
Using TNI Checklists;	9400-WID02	Internal Audits
Bench Audit Tool;	9400-WID03	Internal Audits
Creating Assessment Checklists;	9400-WID04	Internal Audits
Numbering and Tracking Internal Audits;	9400-WID05	Internal Audits
Numbering and Tracking Internal Audits;	9400-WID05	Internal Audits
Assessment Discoveries;	9400-WID06	Internal Audits
Non-Routine Assessments;	9400-WID07	Internal Audits
Data Review Checklists;	9499-WB	Internal Audits
Laboratory Ethics and Data Integrity Statement	9600-QSF02	Ethics
Ethics Violation Reporting	9600-QSF03	Ethics
Laboratory Ethics and Data Integrity Program	9600-QSP01;	Ethics
Customer Satisfaction and Support Procedure;	9650-QSP01	Customer Support
SELSD Documents;	9750-QSP01	Quality Management System
Templates and Format;	9750-WID01	Quality Management System
QS Processing-QS DC Review Folders;	9750-WID02	Quality Management System
Error Correction;	9750-WID03	Quality Management System
Assessing Need for Documents;	9750-WID04	Quality Management System
Assigning QS DC Numbers;	9750-WID05	Quality Management System
Creating New Documents;	9750-WID07	Quality Management System
Review and Revision;	9750-WID08	Quality Management System
Review Schedule;	9750-WID09	Quality Management System
Use of Documents;	9750-WID11	Quality Management System
Archival;	9750-WID12	Quality Management System
Release, Distribution, and Notification;	9750-WID13	Quality Management System
QMS Reporting;	9750-WID14	Quality Management System
QMS Path B Procedures;	9750-WID16	Quality Management System

QMS Path A Procedures;	9750-WID17	Quality Management System
MSR Reporting Template;	9755-QSR01	Management Reporting
MSR Annual Report;	9755-WID01	Management Reporting
Performance Measurement Report Instructions;	9755-WID02	Management Reporting
SELSD Purchasing Procedures	9955-SOP01	Purchasing
Encumbered Purchases	9955-WID01	Purchasing
IT Purchases	9955-WID02	Purchasing
Professional Service Agreements	9955-WID03	Purchasing
Requisitions Total Under $5000	9955-WID04	Purchasing
Sole Source Purchases	9955-WID05	Purchasing
Statewide Contract Purchases	9955-WID06	Purchasing
Requisitions Over $5000:	9955-WID07	Purchasing



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