TNI PT Program Executive Committee
Meeting Summary

August 11, 2021

1. Roll call, approval of minutes and overview:

   Chair, Shawn Kassner, called the TNI PT Program Executive Committee (PTPEC) meeting to order at 9am Eastern by webinar on August 11, 2021 during the TNI Accreditation Forum. Attendance is recorded in Attachment A – there were 6 voting members present. Associate Members present: Tim Miller, Jennifer Best and Nicole Cairns. Guests: Kelly Black and Anna Springsteen.

2. Update

   - There was no meeting in July.
   - The Charter still needs to be voted on. Shawn pulled up the Charter (Attachment C) and he asked for Committee member questions. A motion was made by Patrick Selig to approve the Charter as presented on Webex. The motion was seconded by Sennett. Seven Committee members were needed to vote on business, so this motion could not be voted on. It will be voted on at the next meeting.

3. Radiochemical PT Limits

   Shawn shared a PPT regarding the development of the new Radiochemistry limits (Attachment D).

   He would now like to send it to the NELAP AC for comment and for the entire committee to review it for additional discussion during the September meeting.

4. PTPA Reports

   Every summer meeting the PTPA's provide an annual report to the PTPEC.

   A2LA

   Sennett, Anna Springsteen, and Kelly Black provided a presentation (Attachment B).

   Anna summarized the data. 12 analytes have failure rates larger than 10% and this accounts for less than 1% of the data.

In conclusion - No big changes between 2020 and 2021. No analytes with average failure rates over 20%.

The 4 analytes to look at are Aroclor 1221, Benzo(a)anthracene, Dinoseb and Mercury.

ANAB
Patrick provided the presentation for ANAB (Attachment B).

There was one complaint received – a mislabeled PT test item.

Residual Free Chlorine - 5 of 12 studies less than 90% pass rate. They are looking into this further. One provider.

Failure rates consistent.

Someone asked about preparation methods on FoPT tables. Shawn noted that it is on the Committee's list of things to look at. Getting data from the labs could be difficult. Not all PT Providers are requesting it.

Carl noted another issue is different technologies for the same analytes. ICP vs ICP MS. Shawn commented that these types of issues are brought to the committee by PT Providers.

BREAK - 15 minutes.

5. PT Program Metrics and Charter

Some of this was looked at during the last meeting while working on the Charter.

What is the purpose of the PT Programs?
Brainstorm:
- To provide PTs for labs to demonstrate they can analyze them to a known value.
- Equivalency between labs.
- Demonstrating competency.
- Method evaluation
- Method validation
- Some labs use PTs for Demonstration of Capability for personnel.
- Uncertainty
- Method equivalency
- Independent spot check - does not need to include every analyte
- Comment: They do not accurately assess lab performance in regard to reporting. Reporting PTs is very different than reporting regular samples.
- PTs can be used as part of Corrective Action
- Comment: Successful results are not as important as failures.

What are the goals of the Program?
Brainstorm:
Shawn brought up the current Charter and reviewed it to add potential measures and goals for the PT program. The new goals will be evaluated by the committee to ensure that data can be collected toward achieving the specified goals. (Attachment C).

- Objective 1 - Other ways to measure than what is already listed? OK.
- Objective 2 - Add: PTPEC membership on recognition committee and evaluation teams as appropriate.
- Objective 3 - Add something about educating regulators on the value of PTs and what they are and are not.
    - This is a task. What would be the success measure? More AB involvement? More ABs signed up on the FoPT notifications? PTPEC includes AB members. NELAP AC notified of changes? Committee seeks input.
    - Jerry noted some old TNI documents that could be helpful. He will share these with Shawn and Ilona.
- Add an Objective 5: Outreach to non-TNI ABs to improve their understanding and promote their involvement
    - More involvement of non-TNI ABs and regulatory programs (RCRA, Haz Waste, etc) through education and involvement recruitment
    - Yes, there are non-NELAP ABs on the committee - Patrick. Susan Jackson was on the Committee – now an associate member.
    - Not just ABs, should be the regulatory programs as well. Examples: Water and hazardous waste programs.
- Objective 4:
    - Annual report data evaluation - participants by analyte could be looked at.
    - Need to understand what we can gather with our database of information. Shawn will talk to William about this.
    - Develop criteria for analytes reported in the PTPA annual reports that may trigger a FoPT Subcommittee review.
- Objective 6 added (Actually part of #1 - so moved): Participation Level of Labs
    - Summary of labs participating by program/state/overall. Need to get these from the PTPAs.
    - Keep in mind sensitivity of the information. erhaps present combined PTPA of the level of participation.
    - 1231 labs accredited. How many run PTs?

Comments:
Have you reconsidered the evaluation of need for 2 PTs per year vs 1 PT year? The Non-TNI ABs require one PT program per year. Shawn noted that the PT Expert Committee looked at this a few years ago. There wasn't support to make this change.

How many labs are using PTs as part of their regular operations? Is this something for the advocacy committee to look at? Need a simple poll. Pull from LAMS database. Jerry will bring this up with Advocacy. Shawn will try to attend on Thursday.

Need to do a little more work on the Charter. Shawn will send the DRAFT changes to the Charter to Ilona.

How do we measure that we are being successful in meeting the goals?

- Need to talk to PTPA's about what data is available and what is confidential.
- Work with Advocacy.

- Become more involved in evaluation teams.
- Review material from Jerry and how we can use this to involving non-TNI ABs.

6. New Business.

The Committee still needs to confirm that it will make the current voting SOP obsolete. It will use the new TNI voting SOP.

CA Microplastics session Tuesday - Listen to Christine Sotelo's presentation. She is interested in possibly developing PTs and limits. She is asking how to do this and wants TNI's help.
Jerry commented: Also, SARS-CoV-2 in WW and PFAS. Shawn reminded people that we will be looking at Air too.

Evaluations: Need to finish up checklists and application. Shawn and Ilona are working on this.

Attendee and Membership Open Forum:
What else should we be looking at? No comments.

Nilda noted:
Microcystins - PT in DW- CA has new FOAs, pseudomonas in PT in DW. Jennifer noted these are being discussed with the next updates to the drinking water regulations. . Shawn will ask Christine about this.

7. Subcommittee Updates:

<u>Chemistry FoPT</u>
PFAS - reviewed the data, but there was not as much data as preferred. The Committee is working on a survey to get information from the labs to help with PFAS discussion.

Looking at dissolved solids too.

Next meeting - no date set yet. May be dependent on reporting survey results.

Microbiology FoPT

Jennifer Best. The Committee has not been meeting because there is nothing on their action list. The Drinking water MUR is on their radar.

Shawn and Jennifer talked about Legionella and adding that to the FoPT table.

No report: PT Program SOP Subcommittee and WET FoPT Subcommittee.

8. Next Meeting

The next meeting will be on September 16, 2021 at 1pm Eastern. A Webex invitation will be sent the morning of the meeting date. *(Addition: The September meeting was canceled. The next meeting was October 21, 2021.)*

Shawn adjourned the meeting at 11:34am Eastern

Attachment A
Participants
TNI
Proficiency Testing Program Executive Committee

Members	Rep	Affiliation	Contact Information
Shawn Kassner (2023*) (Chair) **Present**	Lab	Pace	shawn.kassner@pacelabs.com
Ilona Taunton, Program Administrator **Present**		TNI	tauntoni@msn.com
Carl Kircher (2024) **Present**	AB	Florida Department of Health	Carl.Kircher@flhealth.gov
Andy Valkenburg (2024) **Absent**	Other	QASE Inc.	cvalkenbur@aol.com
Jennifer Duhon (2022) **Absent**	Other	Millipore Sigma	jennifer.duhon@sial.com
Patrick Garrity (2022) **Absent**	AB	Kentucky DEP	patrick.garrity@ky.gov
Michella Karapondo (2022) **Present**	Other	USEPA	karapondo.michella@epa.gov
Fred Anderson (2023) **Absent**	Other	Advanced Analytical Solutions, LLC	Fred@advancedqc.com
Jennifer Bordwell (2023) **Absent**	Lab	Upper Occoquan Service Authority	jennifer.bordwell@uosa.org
Scott Haas (2023) **Absent**	FSMO/ LAB	Environmental Testing, Inc.	shaas@etilab.com
Rachel Ellis (2022*) **Absent**	AB	New Jersey DEP	rachel.ellis@dep.nj.gov
Patrick Selig (2024*) **Present**	AB	ANAB	pselig@anab.org
Sennett Kim (2024*) **Present**	AB	A2LA	skim@a2la.org
Prasanth (2024*) **Present**	AB	ISA	pramakrishnan@iasonline.org

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PT Provider Status

- ERA –
  - Renewed on 12/2020
  - Accreditation expires on 9/30/2022 and will be due for renewal ~ 03/2022
  - PTP scope updated to TNI-EL-V3 2016
  - Scope revision: expanded
- Phenova –
  - Renewed 12/2020
  - Accreditation expires on 9/30/2022 and will be due for renewal ~ 03/2022
  - PTP scope updated to TNI-EL-V3 2016
  - Scope revision: expanded

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PT Provider Status (cont)

- New York State Department of Health Wadsworth Center –
  - Renewed 01/2021
  - Accreditation expires 11/30/2022 and will be due for renewal ~ 5/2022
  - PTP scope updated to TNI-EL-V3 2016
  - Scope revision: reduced
- Advanced Analytical Solutions–
  - Renewed 02/2021
  - Accreditation expires 7/31/2022 and will be due for renewal ~ 01/2022
  - PTP scope updated to TNI-EL-V3 2016
  - Scope revision: none
- No complaints for any provider between January 2020 – June 2021 ☺.

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> 10% Fail Analytes

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Criteria to Determine

- Data was reviewed for the following criteria
  - Studies with close date July 2020 - June 2021
  - Filtered to studies with n ≥ 30
  - Multiple providers with the same analyte > 10% fail rate
  - Range 0% - 18%

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Summary

- 653 analytes total across the all of PTP studies.
  - 119 of the 653 analytes did not meet the criteria of n ≥ 30 and/or having multiple providers
- 12 analytes found to have failure rates > 10%.
  - Represents ~1% of the PTP study data.

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SOLIDS

Analyte Name	Avg Failure Rate	Studies n≥30
Aroclor 1221 (PCBs)	16%	2

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SOLIDS

n < 30; analyte has studies from multiple providers

74 analytes had studies with n < 30
19 without any studies n ≥ 30

Herbicides
- 2,4-D: 96% pass (9/9 studies; n<30)
- 2,4-DB: 93% pass (9/9 studies; n<30)
- 2,4,5-T: 95% pass (9/9 studies; n<30)
- 2,4,5-TP (Silvex) : 99% pass (9/9 studies; n<30)
- Dicamba: 97% pass (9/9 studies; n<30)
- Dinoseb: 88% pass (7/9 studies; n<30)
- Pentachlorophenol: 99% pass (9/9 studies; n<30)

Medium Level Volatile Aromatics
- 1,2,4-Trichlorobenzene: 97% pass (5/6 studies; n<30)

Medium Level Volatile Ketone/Ethers
- 2-Hexanone: 100% pass (4/5 studies; n<30)

Volatile Aromatics
- Benzene: 93% pass (8/10 studies; n<30)

Medium Level Volatile Halocarbons
- 1,1,1-Trichloroethane: 94% pass (2/3 studies; n<30)
- 1,2-Dibromo-3-chloropropane (DBCP): 98% pass (5/7 studies; n<30)
- cis-1,3-Dichloropropene: 100% pass (4/5 studies; n<30)
- Dibromochloromethane: 94% pass (4/6 studies; n<30)
- Ethylene Dibromide (EDB): 99% pass (5/7 studies; n<30)

PCBs in Oil
- Aroclor 1232: 100% pass (2/2 studies; n<30)
- Aroclor 1248: 100% pass (3/3 studies; n<30)
- Aroclor 1254: 100% pass (2/2 studies; n<30)

Petroleum Hydrocarbons
- n-Hexane Extractable Material (O and G): 99% pass (14/16 studies; n<30)

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WPCHEM

Analyte Name	Avg Failure Rate	Studies n≥30
Benzo(a)anthracene (Low Level PAHs)	18%	5
Volatile solids (Misc. Analytes)	11%	13

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WPCHEM

n < 30; analyte has studies from multiple providers

227 analytes had studies with n < 30
10 without any studies n ≥ 30

Base/Neutrals
- 1,2,4-Trichlorobenzene: 100% pass (3/6 studies; n<30)
- Anthracene: 97% pass (9/14 studies; n<30)

Low Level Analytes
- Mercury: 86% pass (9/13 studies; n<30)
- Total Residual Chlorine: 97% pass (15/22 studies; n<30)

Microbiology, MF
- Enterococci: 94% pass (18/19 studies; n<30)

Low Level Halocarbons
- 1,2,3-Trichloropropane: 100% pass (9/9 studies; n<30)
- 1,2-Dibromo-3-chloropropane (DBCP): 95% pass (7/9 studies; n<30)
- Ethylene Dibromide (EDB): 95% pass (7/9 studies; n<30)

Petroleum Hydrocarbons
- Non-Polar Extractable Material (TPH): 94% pass (19/23 studies; n<30)

Misc. Analytes
- Acidity, as CaCO3: 95% pass (11/11 studies; n<30)

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WSCHEM

Analyte Name	Avg Failure Rate	Studies n≥30
Bromide	10.9%	6
Fluoride	10.2%	16
Cyanide	11.2%	6
Heterotrophic plate count	11.6%	11
MTBE	11.5%	5

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WSCHEM

n < 30; analyte has studies from multiple providers

134 analytes had studies with n < 30
63 without any studies n ≥ 30

- Most of these 63 analytes had ~14-17/17 studies n < 30
- Only 4 analytes with failure rates > 10 %

Pesticides
- Aldrin: 86% pass (16/17 studies; n<30)
- Endrin: 87% pass (14/17 studies; n<30)

Other Herbicides
- Glyphosate: 89% pass (17/17 studies; n<30)

Misc. Analytes
- Surfactants-MBAS: 89% pass (7/10 studies; n<30)

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WSRAD

- There were no studies with n ≥ 30 across multiple providers

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WSRAD

n < 30; analyte has studies from multiple providers

12 analytes had studies with n < 30
12 without any studies n ≥ 30

Gamma Emitters

- Barium-133: 88% pass (5/5 studies; n<30)
- Cesium-1347: 97% pass (5/5 studies; n<30)
- Cesium-1377: 95% pass (5/5 studies; n<30)
- Cobalt-60: 87% pass (5/5 studies; n<30)
- Zinc-65: 96% pass (5/5 studies; n<30)

Radiochemistry

- Gross Beta: 92% pass (2/5 studies; n<30)
- Iodine-131: 97% pass (5/5 studies; n<30)
- Radium-228: 89% pass (3/5 studies; n<30)
- Strontium-89: 91% pass (5/5 studies; n<30)
- Strontium-90: 95% pass (5/5 studies; n<30)
- Tritium: 94% pass (5/5 studies; n<30)
- Uranium: 85% pass (5/5 studies; n<30)

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Comparison with 2020

Jan-June 2021 vs. 2020 analysis

7 analytes increased to > 10% avg. failure rate

Analyte Name	2020 Avg Failure Rate	2020 % Studies n ≥ 30	2021 Avg Failure Rate	2021 Studies n ≥ 30
SOLIDS - Dichloromethane	5%	8/8	12%	3/3
WPCHEM – Benzo(a)anthracene	8%	6/12	17%	3/6
WPCHEM – TDS	7%	21/51	10%	11/24
WPCHEM – Total Solids	8%	16/50	11%	9/24
WPCHEM – Cyanide	7%	5/16	13%	3/9
WPCHEM – Bromoform	9%	10/16	10%	5/9
WPCHEM – MTBE	8%	5/20	14%	3/11

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Comparison with 2020

Jan-June 2021 vs. 2020 analysis

6 analytes decreased to < 10% avg. failure rate

Analyte Name	2020 Avg Failure Rate	2020 % Studies n ≥ 30	2021 Avg Failure Rate	2021 Studies n ≥ 30
WPCHEM – Volatile Solids	15%	7/23	9%	3/11
WPCHEM – n-Hexane Extractable Material (O and G)	10%	19/65	9%	8/31
WPCHEM – Bromide	17%	5/16	10%	3/9
WPCHEM – Fluoride	12%	15/16	10%	8/9
WPCHEM – Nitrate as N	11%	15/16	8%	8/9
WPCHEM – Dichloromethane	10%	7/16	4%	3/9

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Overall Comparison 2020 - 2021

July 2020-June 2021 vs. July 2019-June 2020

3 analytes maintained a >10% avg. failure rate

Analyte Name	2020 Avg Failure Rate	2020 % Studies n ≥ 30	2021 Avg Failure Rate	2021 Studies n ≥ 30
WPCHEM – Volatile Solids	15%	7/23	11%	7/11
WSCHEM – Bromide	17%	5/16	11%	6/17
WSCHEM – Fluoride	12%	15/16	11%	16/17

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Observations

- No huge changes between 2020 and 2021 to the FoPT tables, and there are also no large changes in the PTP data between 2020 and 2021
- No analytes with average failure rates over 20%
- Aroclor 1221, benzo(a)anthracene
- Dinoseb, mercury
- Challenges

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Thank You!

- Our customers, the A2LA accredited proficiency testing providers.
- Our staff, assessors, and the PTPEC and PTEC that support us in the continuous improvement of our accreditation program.

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Questions?

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Thanks!

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ANAB TNI PTP Review

August 2021

ANAB
ANSI National Accreditation Board

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Non-governmental organization providing accreditation and training services

Largest multi-disciplinary accreditation body in North America

Ensuring safety and quality of goods and services

Subsidiary of American National Standards Institute (ANSI)

ANAB
ANSI National Accreditation Board

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PT Provider Assessment Update

Absolute Standards, Inc	NSI Lab Solutions, Inc	Sigma Aldrich RTC
Reassessment Activity • Conducted • February 2021	Surveillance Activity • Conducted • April 2021	Surveillance Activity • Scheduled • August 2021

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Report of PTP Complaints to PTPA

- Mislabeled PT test item
  - Investigation is closed
  - PTP opened CAR and resolved complaint

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Review of Analytes with Failure Rates of >10%

Reviewed all analytes

- DW
- NPW
- SCM

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FoPT Tables

Effective tables found on TNI website

DW FoPT (2019_07_01) & DW FoPT (2020_10_01_Rev0.2)
NPW FoPT (2017_07_24) & NPW FoPT (2020_10_01_Rev0.3)
SCM FoPT (2017_07_24) & SCM FoPT (2020_10_01_Rev0.3)

No additional considerations due to FoPT changes

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Data Selection Criteria for Presentation

Analytes with more than average failure in a 12-month period

- ☑ January 2020 through December 2020
- ☑ Multiple Studies Impacted
- ☑ One or multiple PTPs
- ☑ Fail rates >10%
- ☑ Number of data points, N at least 30

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Data Analysis

Reviewed

- Study type/analyte combination
- Analytes of concern
- Historical study data (12 months)

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Data Considerations

12 months of data analyzed

- January 2020 - December 2020

Frequency of studies

- Quarterly studies for 2 out of 3 ANAB-accredited PTPs

Reporting issue

- No insight when one lab reports multiple methods

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Data Analysis

Study type/ Analyte combos → Fail rate >10% → N>30

>10,620 data points → 136 → 33

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Further Review 2020

- WSChem Residual Free Chlorine

WS

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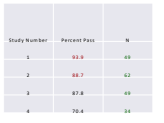
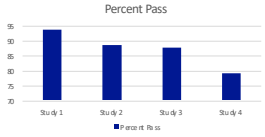
WSChem – Residual free chlorine

Average % Pass	Min % Pass	Max % Pass	N/N studies; N≥30	Number of Providers
87.45	79.4	93.9	3/4 Studies, N≥30	1





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WSChem – Residual free chlorine

- 5 of 12 studies <90% pass rate
- Potential trend from starting 2019-2020
- Historical Data Reviewed
- Is this seen across all TNI Accredited PTPs?

Percent Pass	Total	Accep	Not_Accep	No Ev
100.00	9	9	0	0
100.00	10	10	0	0
100.00	3	3	0	0
88.7	62	55	7	0
87.8	49	43	6	0
93.9	49	46	3	0
71.43	7	5	0	2
87.5	8	7	0	1
33.33	6	2	2	2
100.00	2	2	0	0
79.4	34	27	7	0
100	7	7	0	0

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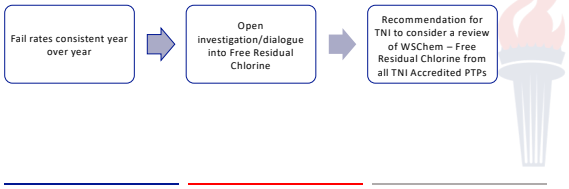
Summary



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Attachment C - Charter

DRAFT - Proficiency Testing Program Executive Committee Charter

Mission

The purpose of the Proficiency Testing Program Executive Committee (PTPEC) is to establish and maintain certain elements of a national PT Program to support TNI's Accreditation Programs and other TNI activities. Those elements include:

1. Fields of Proficiency Testing (FoPT), consisting of analytes, concentrations, matrices, and acceptance limits, that are appropriate for the scope of environmental monitoring performed in the United States.
2. A listing of PT Provider Accreditors (PTPAs) that are TNI recognized.
3. A listing of organizations that are accredited by TNI recognized PTPAs as competent to provide PT samples to laboratories.

Composition of the Committee

1. There are at least 5 and not more than 15 voting committee members.
2. The voting membership of the committee must represent a balance of stakeholder groups.
3. For purposes of balance, stakeholders are arranged into three groups:
   - Laboratory or Field Sampling Measurement Organization (FSMO)
   - Accrediting Body(ies) (AB)
   - Other
4. There are no at-large members.
5. Unlimited associate members are allowed.

Objectives

1. Implement all policies and procedures necessary for the operation and continual improvement of a national PT Program, including FoPTs for various matrices and accreditation programs.

   Success Measures:
   - FoPT tables are implemented by applicable programs.
   - Three (3) or less deficiencies are observed during TNI's internal audit process.
   - PTPA reports are presented annually.

2. Participate in the PTPA recognition process per SOP 7-101 TNI Accreditation Body Evaluation and Recognition Procedure used by the PT Program Executive Committee and NEFAP Executive Committee.

   Success Measures:
   - Development of evaluation checklists for TNI Volume 4 General Requirements for an Accreditor of Environmental Proficiency Test Providers for use in the evaluation process of PTPAs.

3. Ensure that FoPTs are created, maintained, and updated to support TNI environmental laboratory accreditation and are appropriate for their intended use.

   Success Measures:
   - Analyte Request Applications are processed per the current FoPT table management SOP.

- FoPTs are reviewed and updated per the current SOPs on FoPT table management and development of FoPT criteria for various matrices and programs.
- PTPA reports are evaluated to review the performance of analytes based on a statistical analysis of PTP summary data.

4. Ensure the effectiveness of the PT Provider accreditation and oversight program.

Success Measures:

- No issues in PTPA annual reports with respect to
  - PTP complaints; complaints are resolved, or no complaints reported.
  - PTP accreditations; assessments are completed. New and continued accreditations offered to PTPs.

Available Resources

- TNI staff support is provided for the committee.
- Committee and Associate member volunteers, including volunteers for PTPA evaluations.
- ABs pay for the travel costs incurred during PTPA evaluations.
- Freeconference.com service is used for conference calls.
- Website support is provided by the TNI Webmaster.
- TNI conferences and scheduling.
- WebEx service and support for training and other purposes.

Anticipated Meeting Schedule

- Teleconferences: Minimum of one per month; regular schedule of calls to be published on the TNI website.
- Face-to-face meetings occur during semi-annual TNI conferences where audience participation is encouraged.
- Special meetings are scheduled as needed to handle urgent business.

Program Administrator: Ilona Taunton

Approved by the TNI Board of Directors on Month Date, 2021

Historical Limits May Institutionalize Bias

- Using historical data to establish acceptance criteria reinforce the status quo for better and for worse
  - Good performance fosters good performance but
  - Biased performance begets biased measurements; and
  - Biased performance removes incentives for labs to address measurement bias.
- Using historical data also raises concerns about the control and representativeness of results used to determine PT acceptance criteria

Current Limits Tend to Be Problematic at Low Levels

- Current limits often unrealistically challenge labs at the low end of the testing range.
  - The primary MQO labs must meet is *the **SDWA Required Detection Limit*** (RDL) defined as the ***activity at which the relative uncertainty (k=1.96) is 100%.***
  - The *minimum* uncertainty (k=1.96) we can expect at the low end of the test range (i.e., RDL) is 100%
  - Current limits, however. are often more restrictive than this *(see comparative data plots)*

Looking in a New Direction for Radchem PT Acceptance Criteria

Linking acceptance criteria to MQOs helps ensure that we qualify those radchem labs that are capable of meeting SDWA quality requirements

It also encourages all radchem labs to improve performance where necessary to meet EPA's MQOs

- Key Drinking Water MQOs:
  - Required Detection Limit (in 40 CFR)
  - Requirement for relative bias in EPA's Drinking Water Laboratory Certification Manual (Chapter 6 - LFBs)

Proposed Parameters Link to MQOs

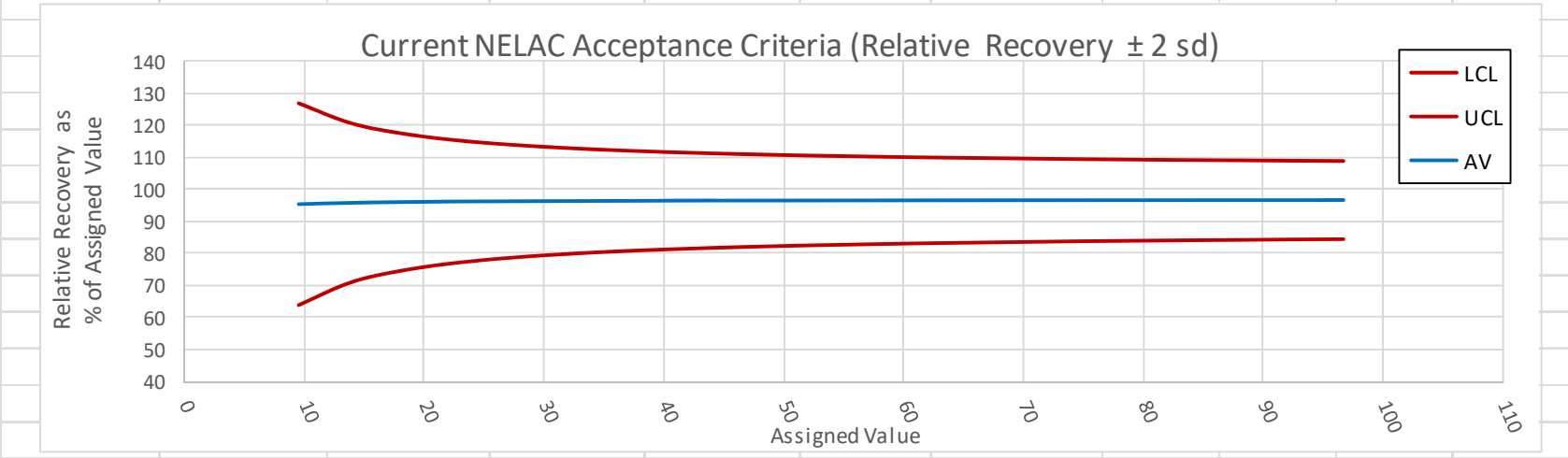
Table 1: Parameters for Several SDWA Test Parameters

Parameter	L	σ_L	φ_H
Gross Alpha	3.0 pCi/L	1.5 pCi/L	10%
Gross Beta	4.0 pCi/L	2.0 pCi/L	10%
Ra-226	1.0 pCi/L	0.51 pCi/L	5%
Ra-228	1.0 pCi/L	0.51 pCi/L	10%
U (mass or activity)	1.0 µg/L	0.51 µg/L	5%
H-3	1,000 pCi/L	510 pCi/L	5%
Sr-90	2.0 pCi/L	1.0 pCi/L	5%
Sr-89	10 pCi/L	5.1 pCi/L	5%
I-131	1.0 pCi/L	0.51 pCi/L	5%
Cs-134	10 pCi/L	5.1 pCi/L	5%
All others	See Attachment 1		5%

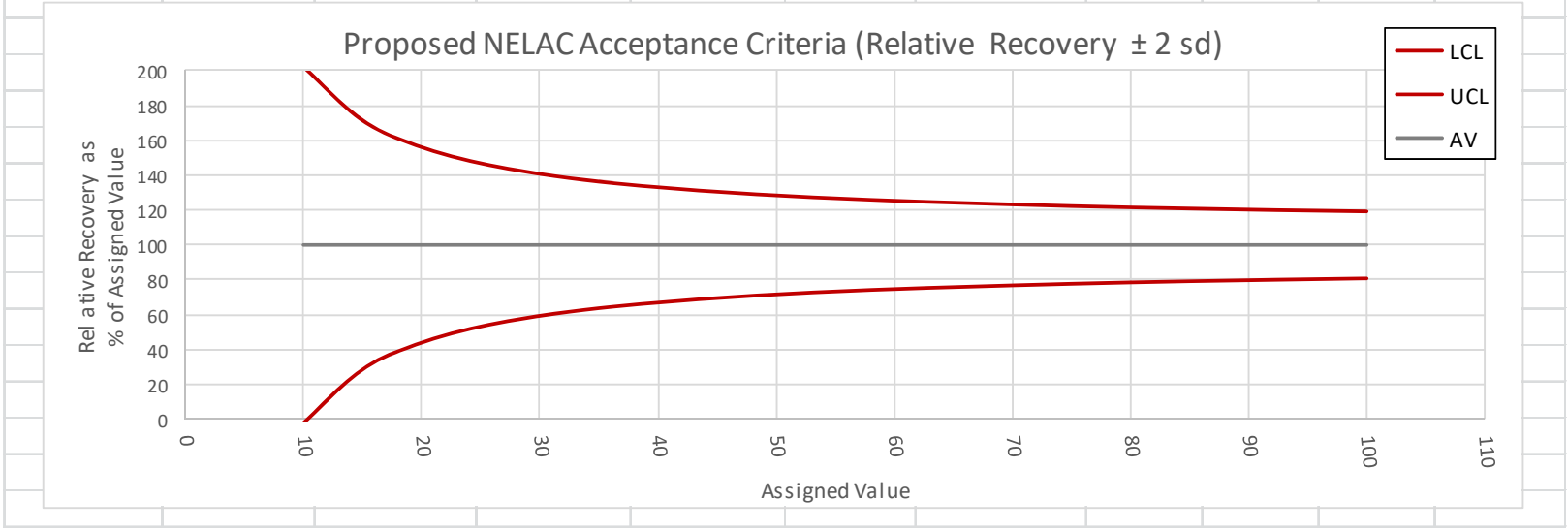
Please see copy of draft SOP text for details

Barium-133

Parameter	a	b	c	d	Min	Max	Units
Ba-133	0.9684	-0.1424	0.0503	1.0737	10	100	pCi/L

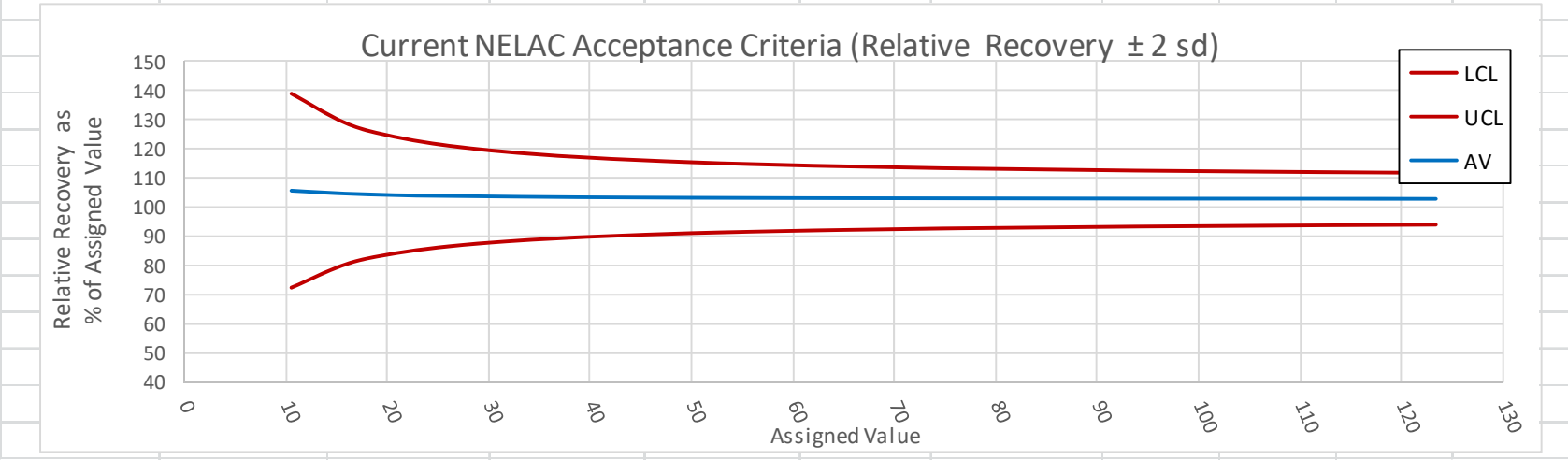


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Ba-133	1	0	0.05	4.6020408	10	10	100	pCi/L

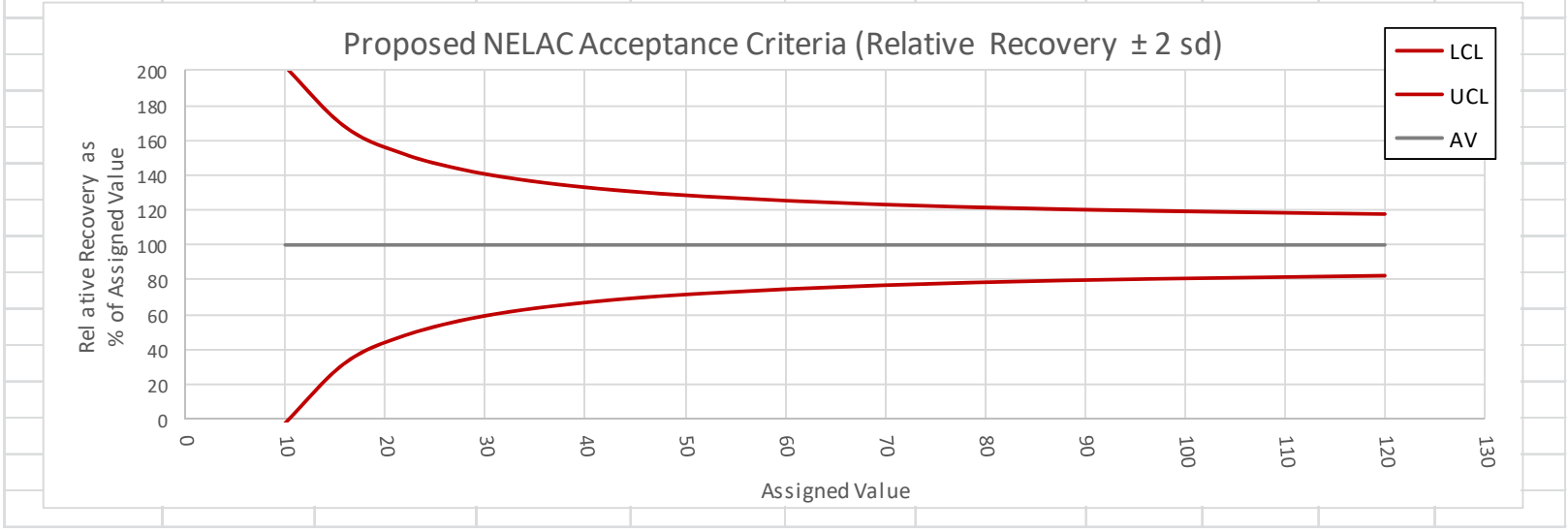


Co-60

Parameter	a	b	c	d	Min	Max	Units
Co-60	1.0257	0.3051	0.0335	1.3315	10	120	pCi/L

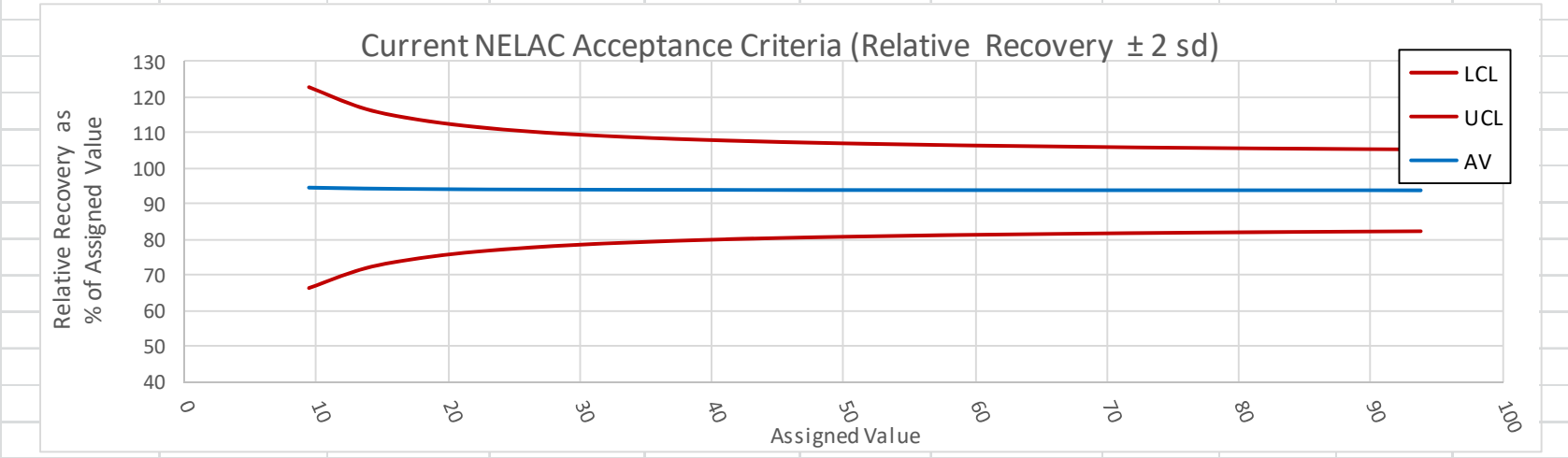


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Co-60	1	0	0.05	4.6020408	10	10	120	pCi/L

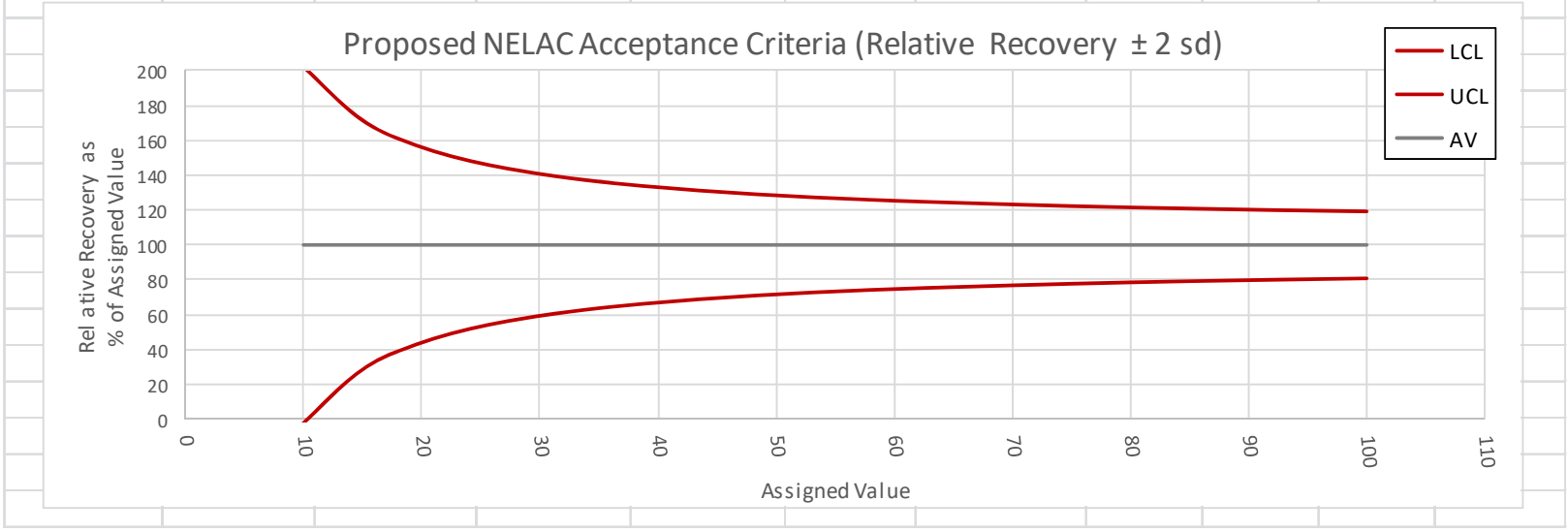


Cs-134

Parameter	a	b	c	d	Min	Max	Units
Cs-134	0.9369	0.0845	0.0482	0.9306	10	100	pCi/L

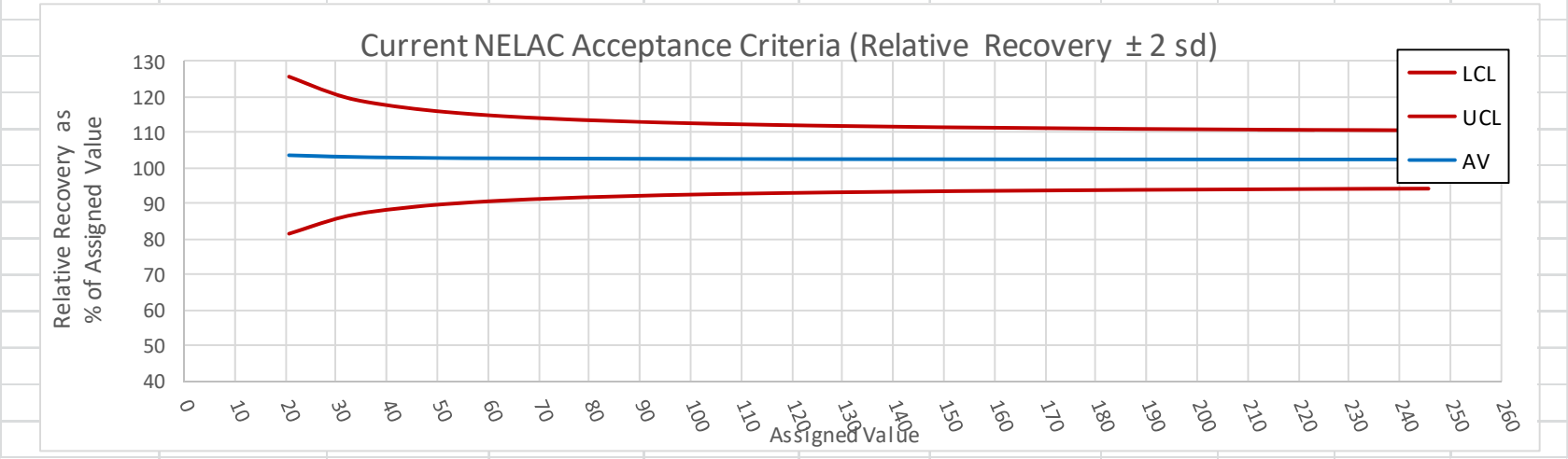


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Cs-134	1	0	0.05	4.6020408	10	10	100	pCi/L

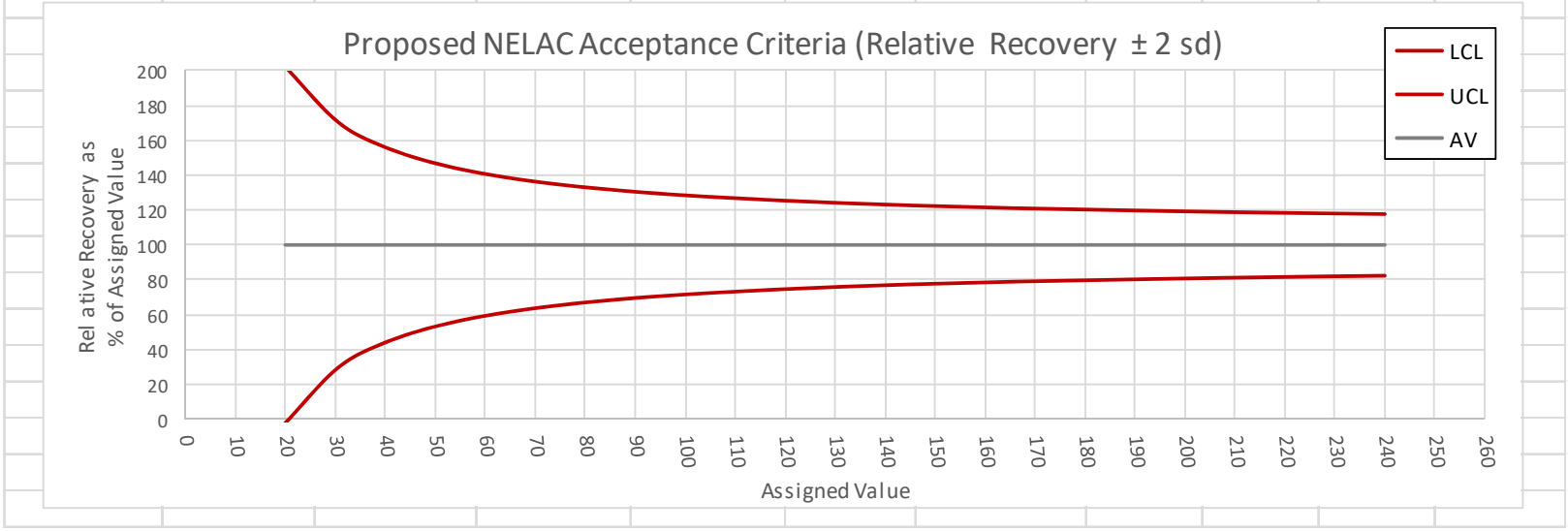


Cs-137

Parameter	a	b	c	d	Min	Max	Units
Cs-137	1.0225	0.2624	0.0347	1.5185	20	240	pCi/L

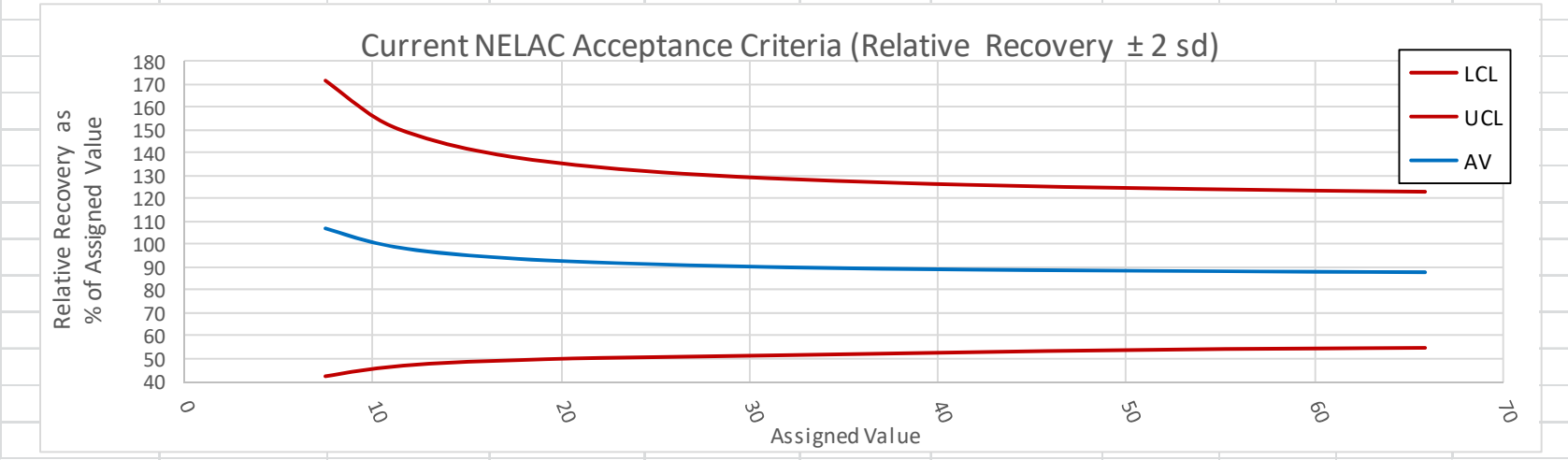


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Cs-137	1	0	0.05	9.2040816	20	20	240	pCi/L

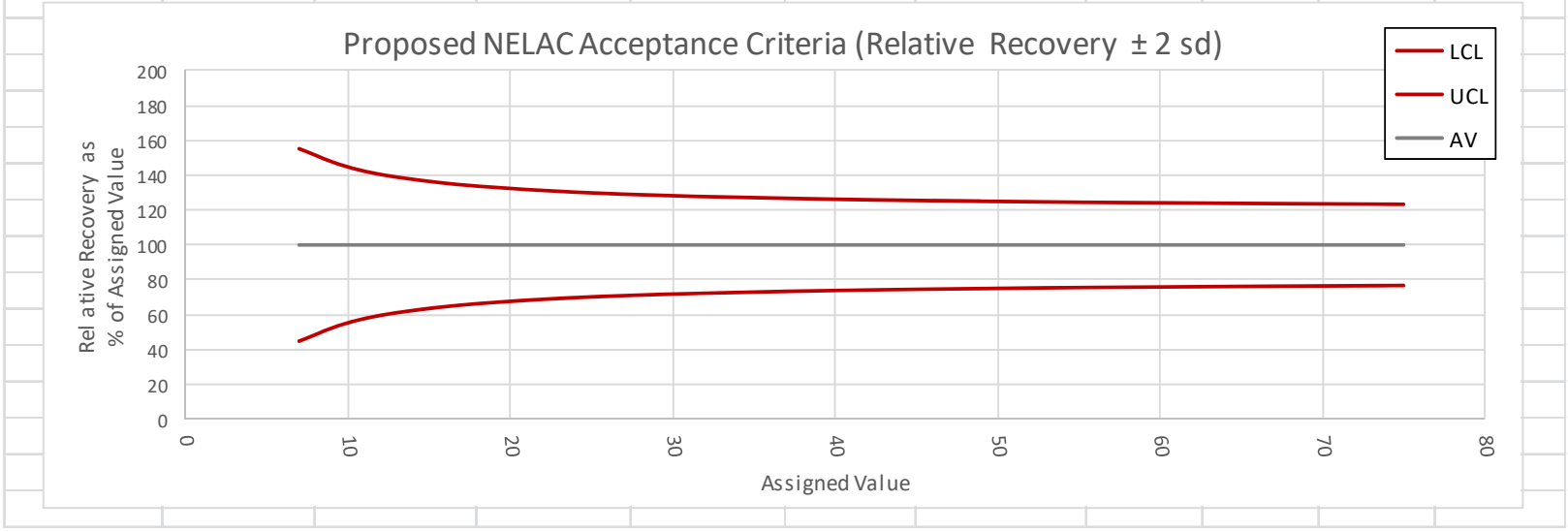


Gross Alpha

Parameter	a	b	c	d	Min	Max	Units
Gross Alpha	0.8586	1.4802	0.161	1.1366	7	75	pCi/L

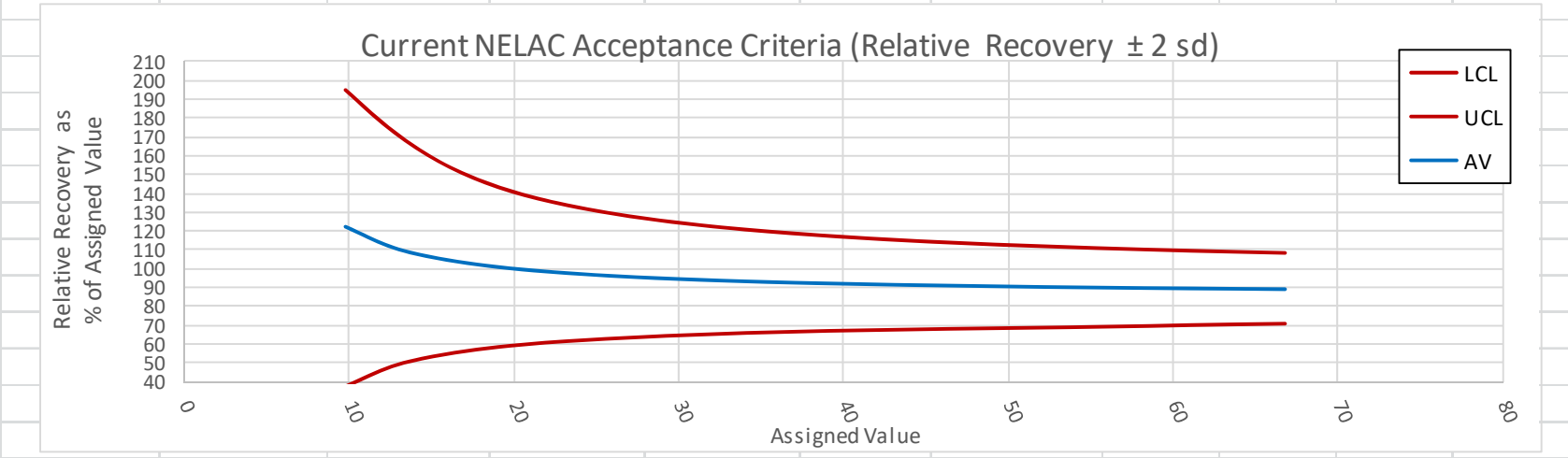


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Gross Alpha	1	0	0.1	1.2306122	3	7	75	pCi/L

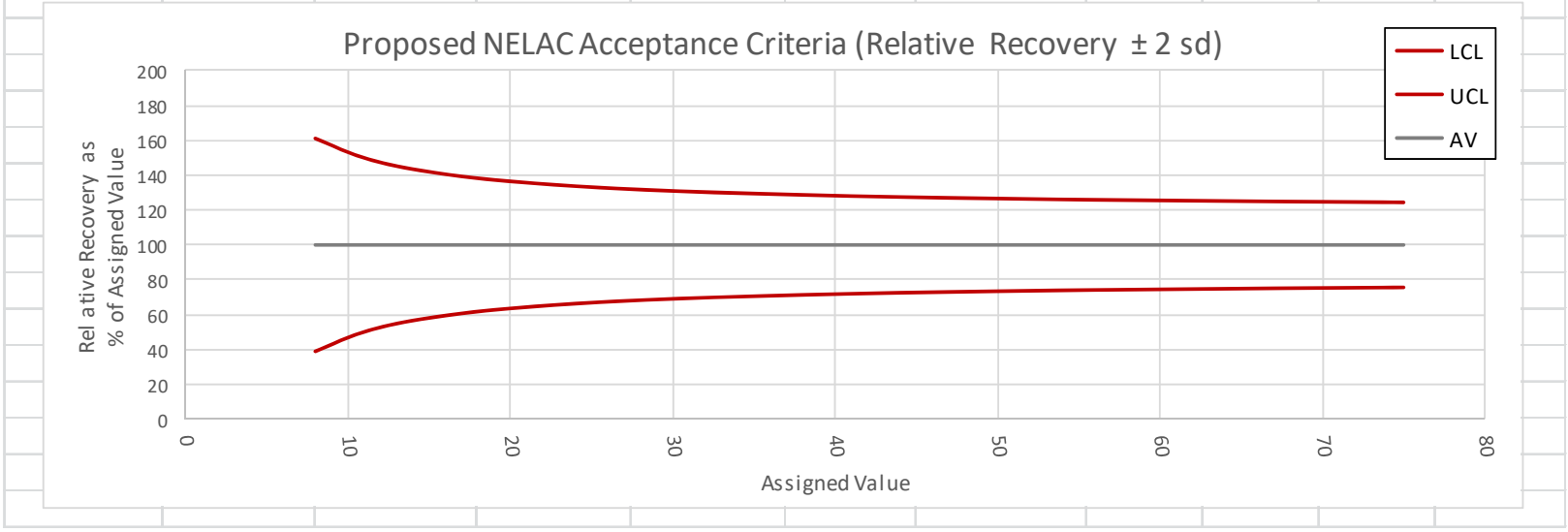


Gross Beta

Parameter	a	b	c	d	Min	Max	Units
Gross Beta	0.8508	2.9725	0.0571	2.9372	8	75	pCi/L

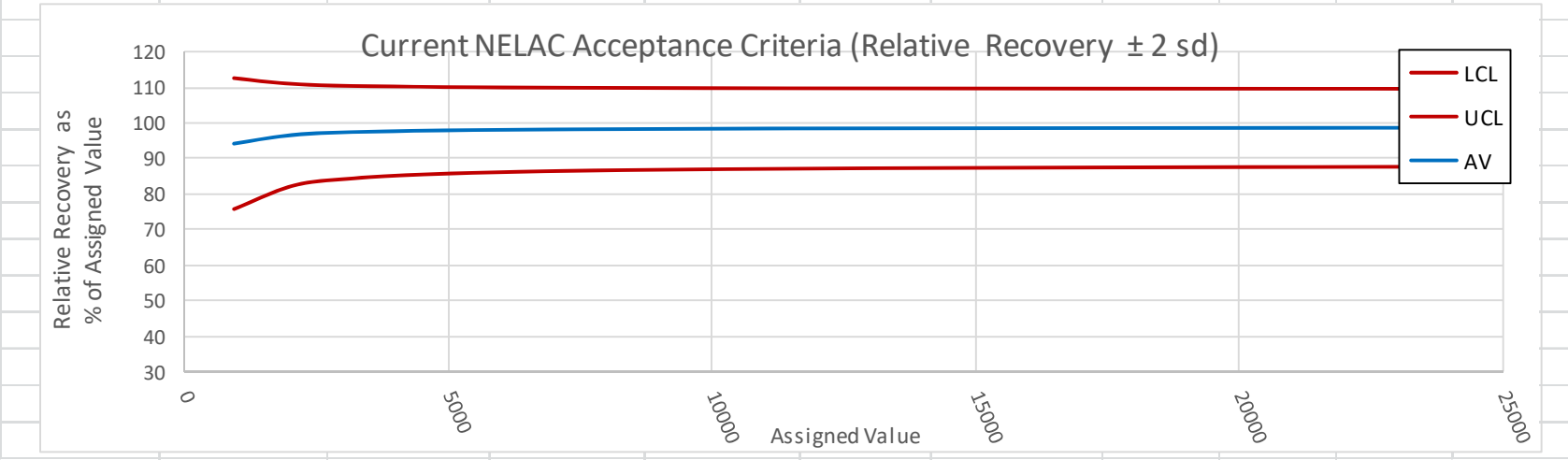


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Gross Beta	1	0	0.1	1.6408163	4	8	75	pCi/L

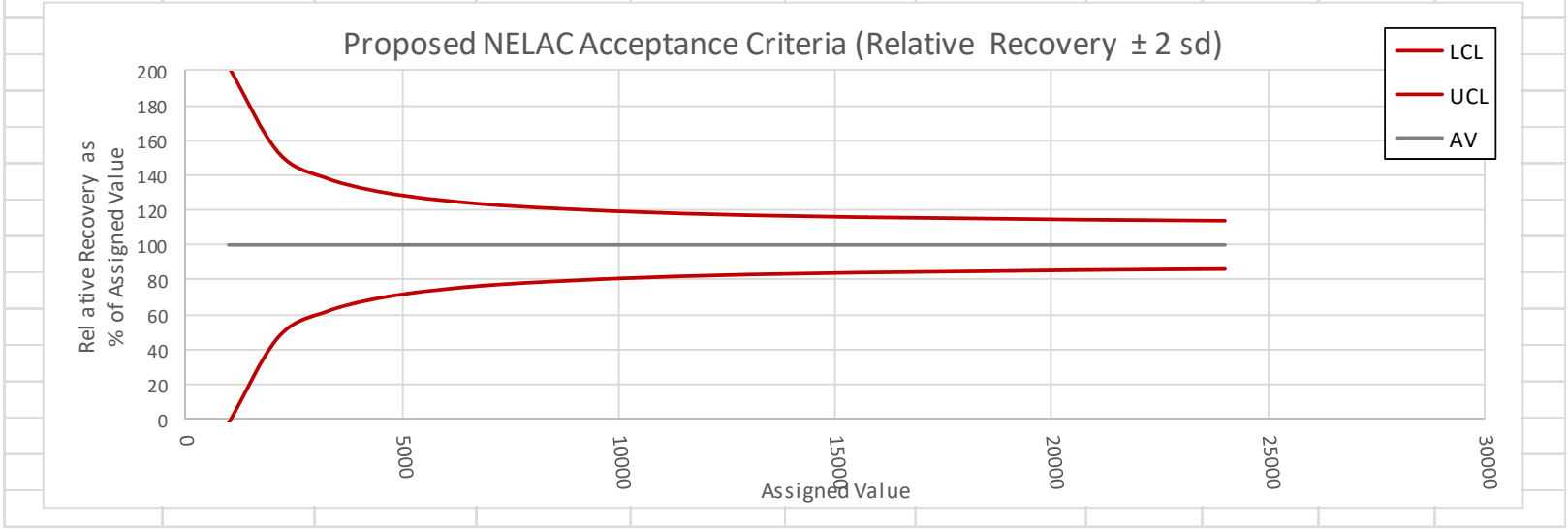


Tritium

Parameter	a	b	c	d	Min	Max	Units
H-3	0.9883	-46.4776	0.0532	38.8382	1000	24000	pCi/L

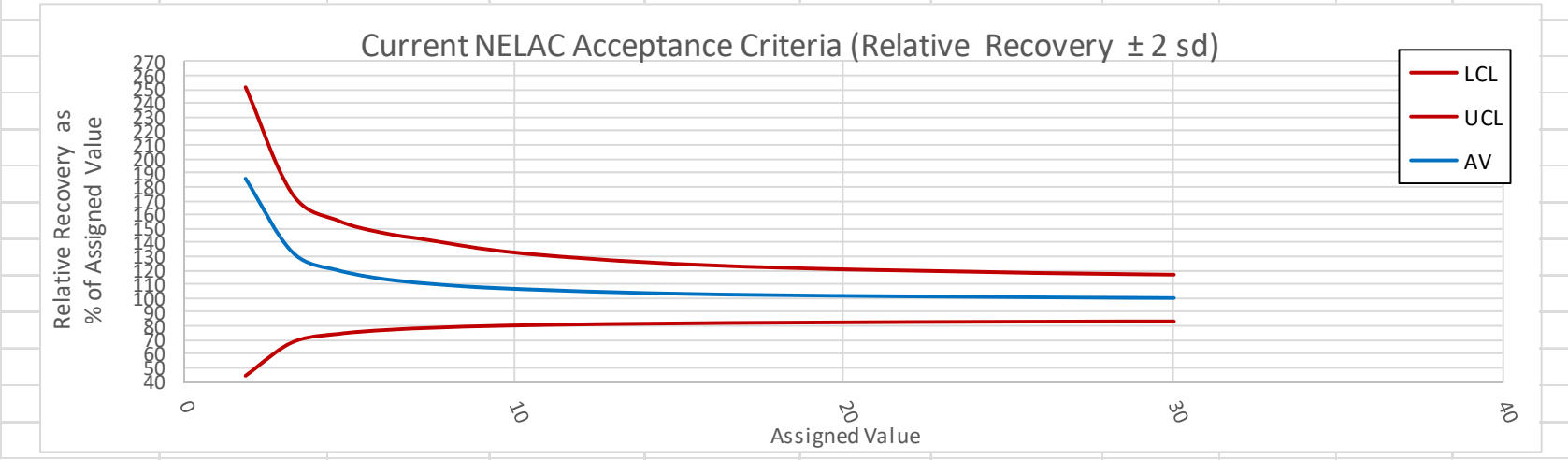


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
H-3	1	0	0.05	460.20408	1000	1000	24000	pCi/L

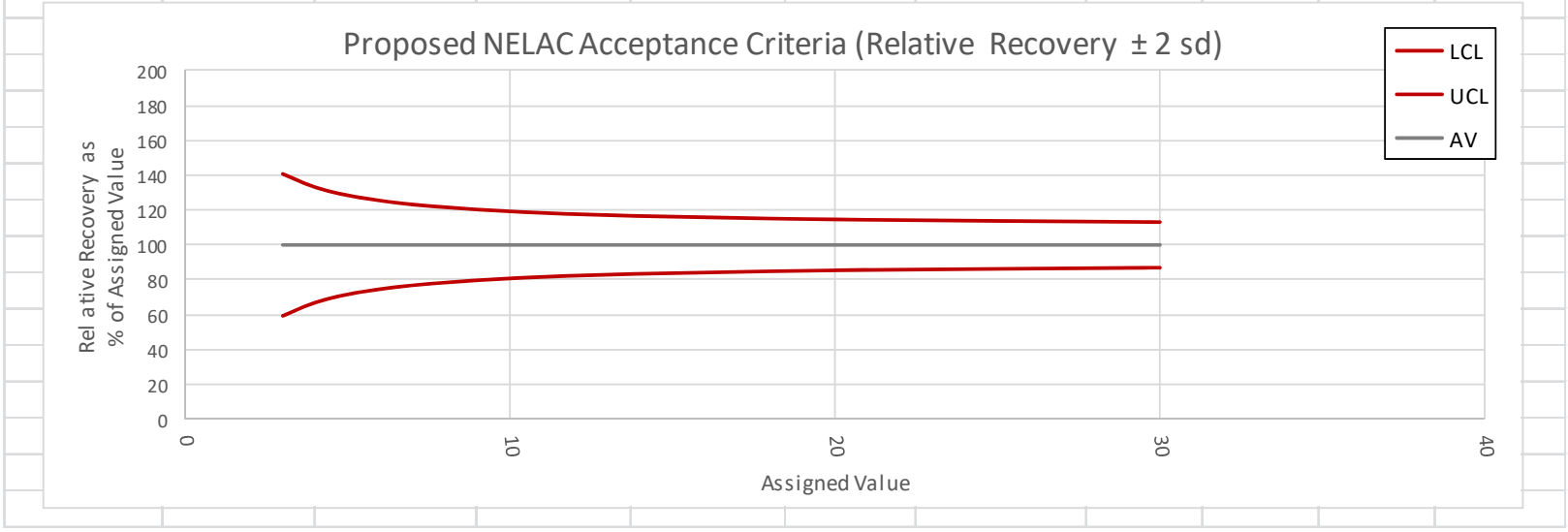


I-131

Parameter	a	b	c	d	Min	Max	Units
I-131	0.9711	0.8870	0.0624	0.6455	1	30	pCi/L

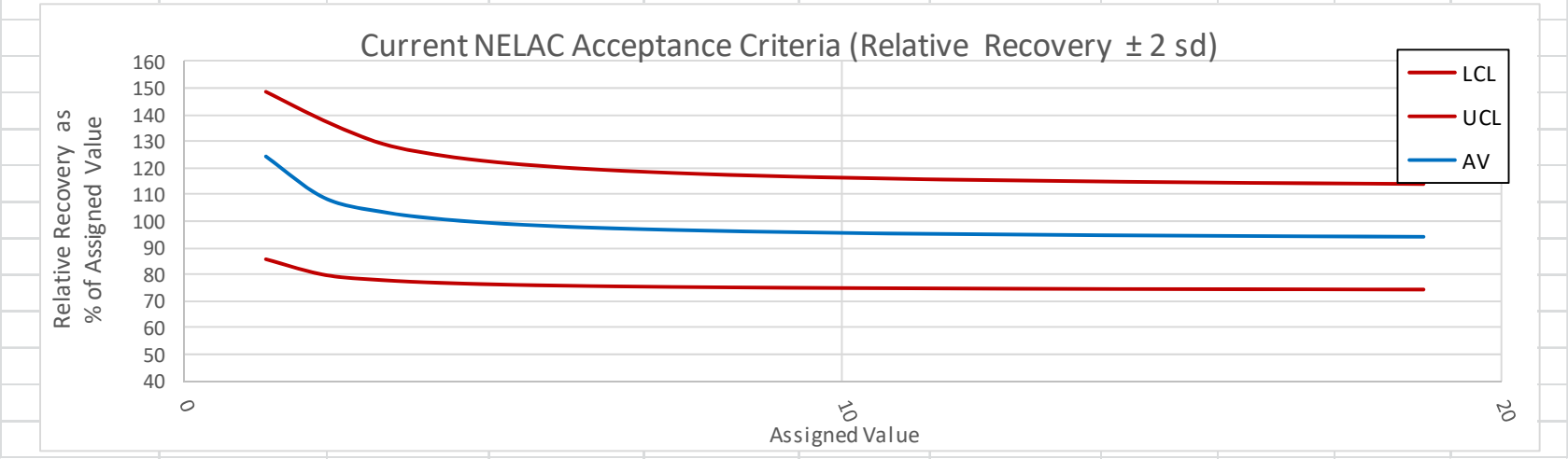


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
I-131	1	0	0.05	0.4602041	1	3	30	pCi/L

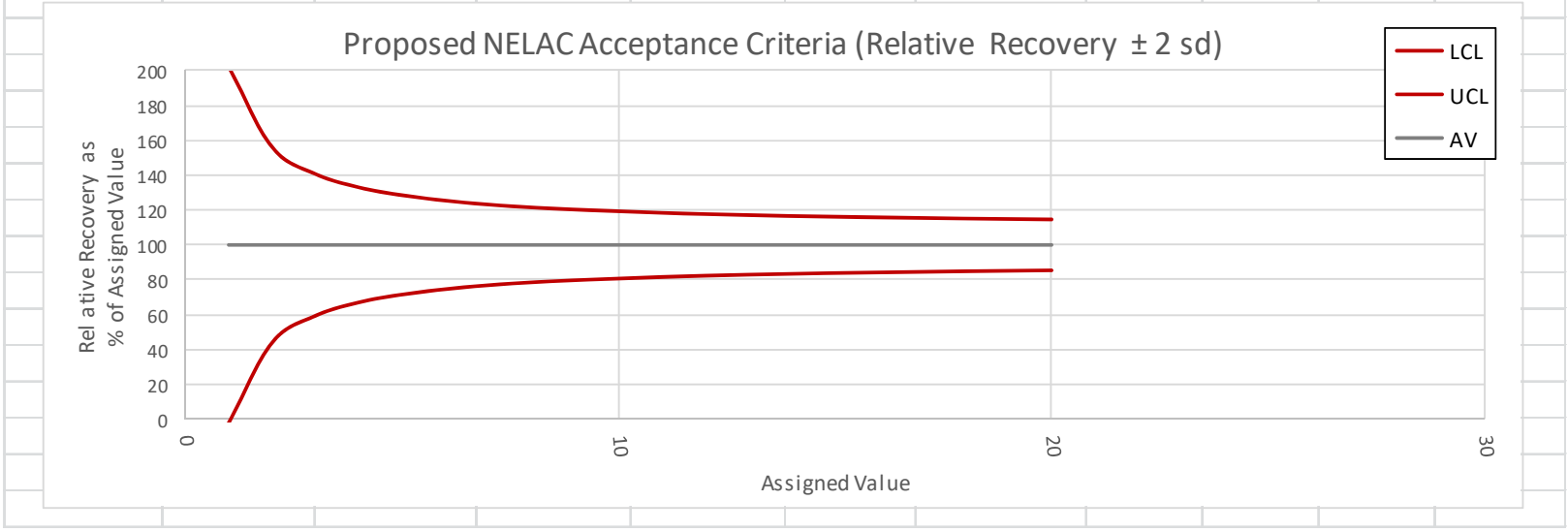


Ra-226

Parameter	a	b	c	d	Min	Max	Units
Ra-226	0.9253	0.3175	0.0942	0.0988	1	20	pCi/L

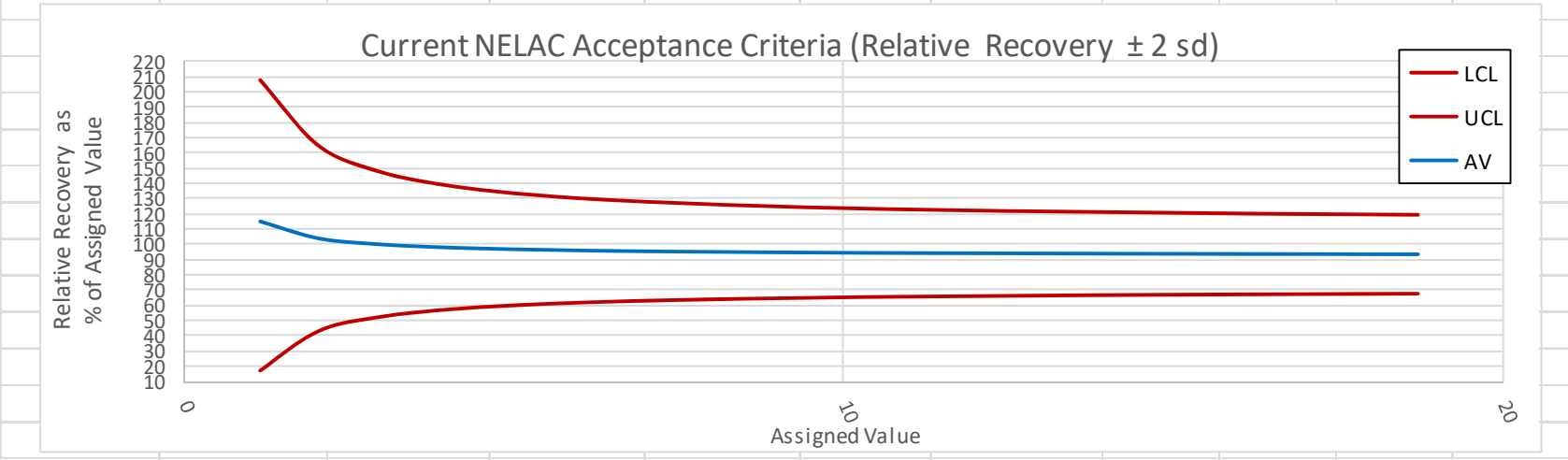


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Ra-226	1	0	0.05	0.4602041	1	1	20	pCi/L

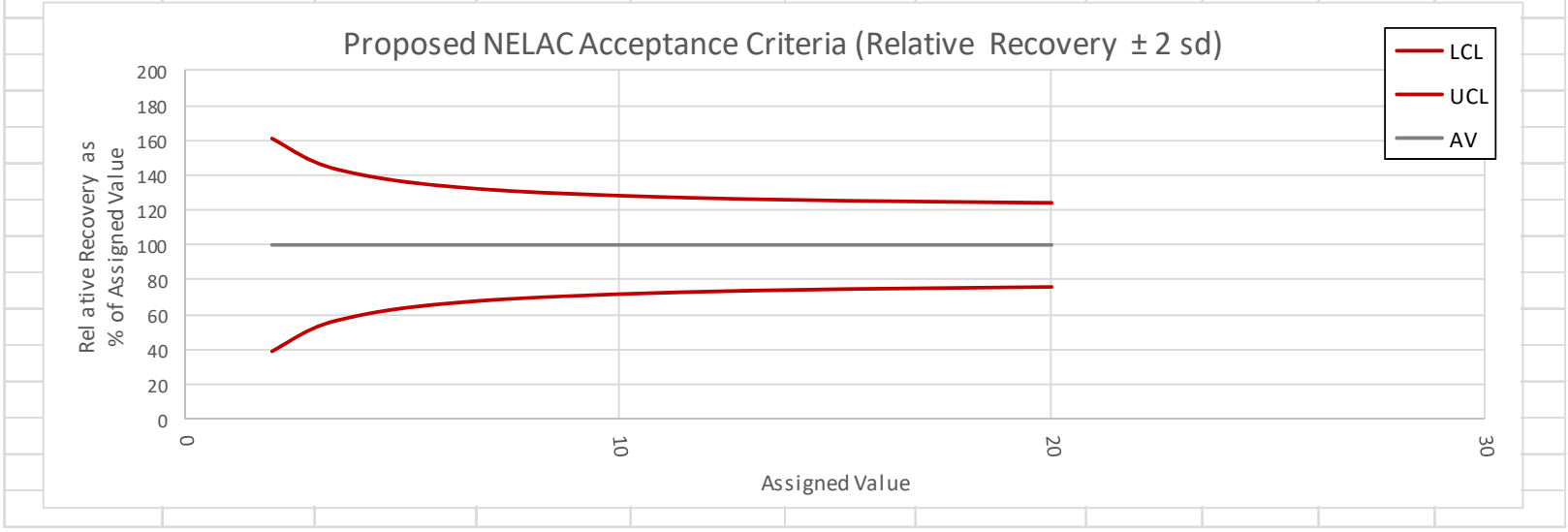


Ra-228

Parameter	a	b	c	d	Min	Max	Units
Ra-228	0.9243	0.2265	0.1105	0.37875	1	20	pCi/L

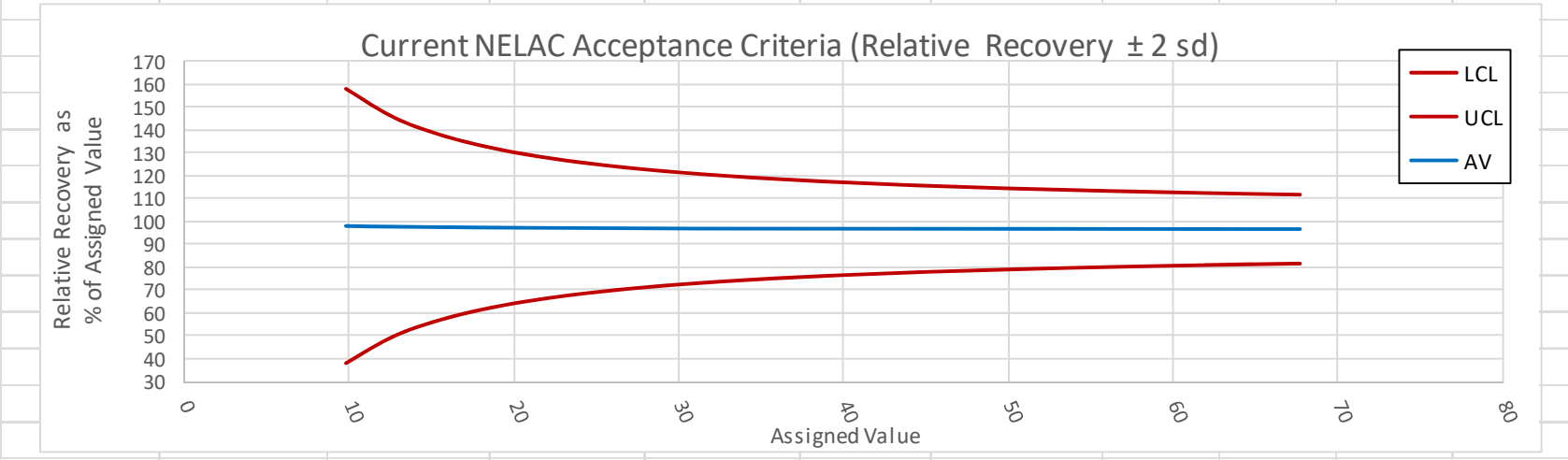


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Ra-228	1	0	0.1	0.4102041	1	2	20	pCi/L

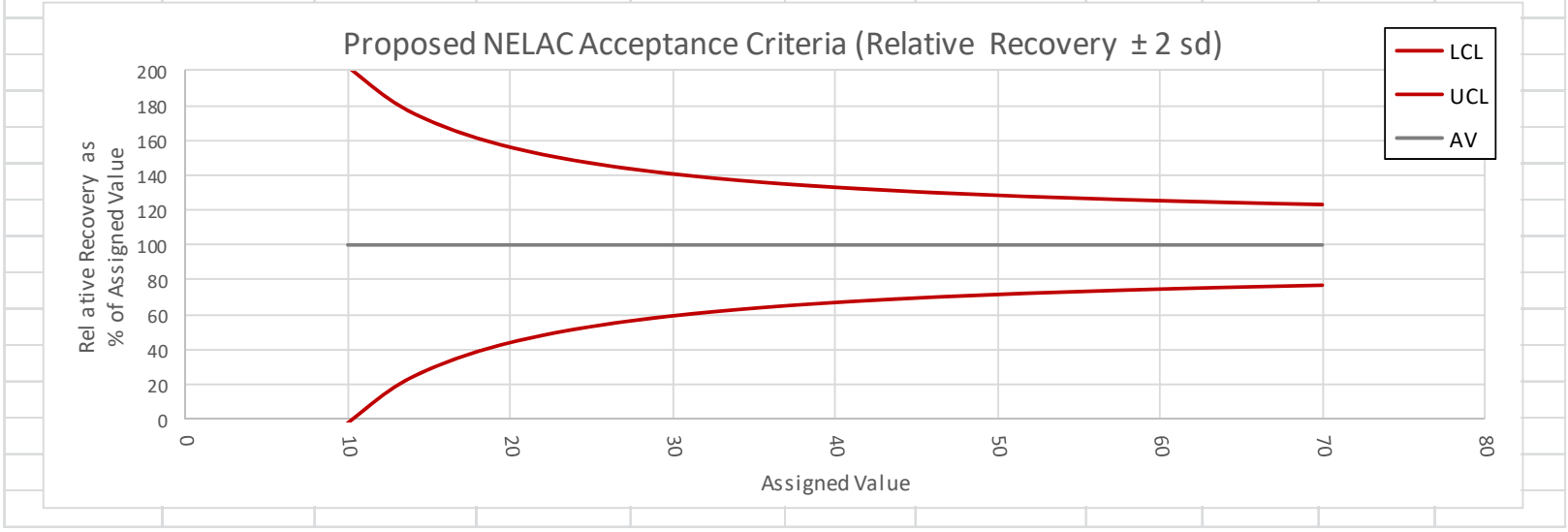


Sr-89

Parameter	a	b	c	d	Min	Max	Units
Sr-89	0.9648	0.1591	0.0379	2.6203	10	70	pCi/L

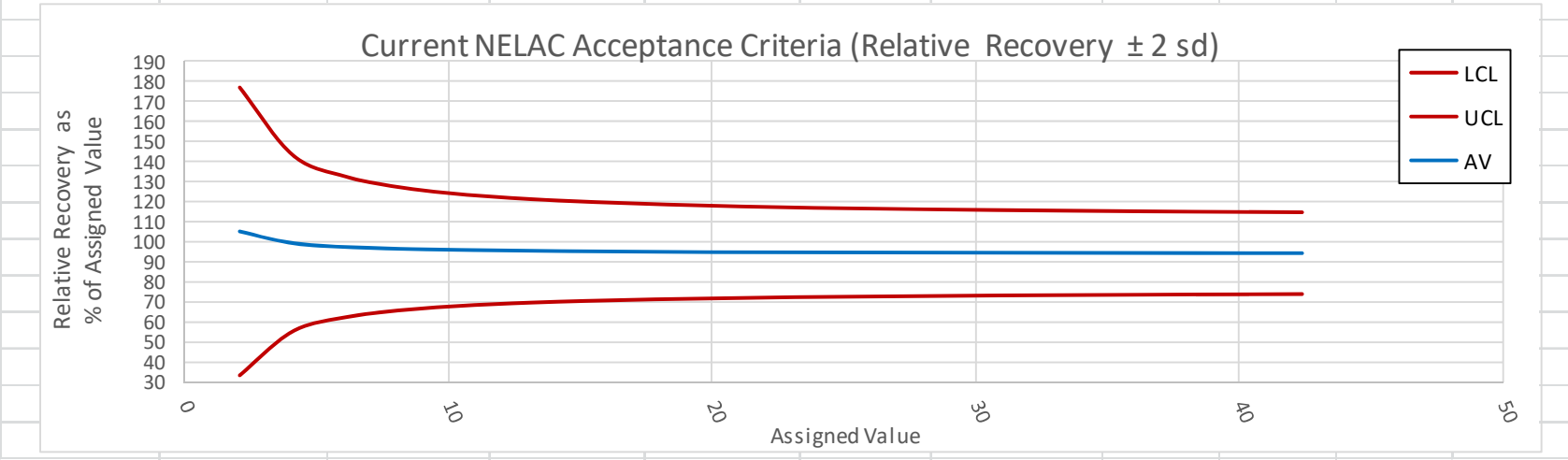


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Sr-89	1	0	0.05	4.6020408	10	10	70	pCi/L

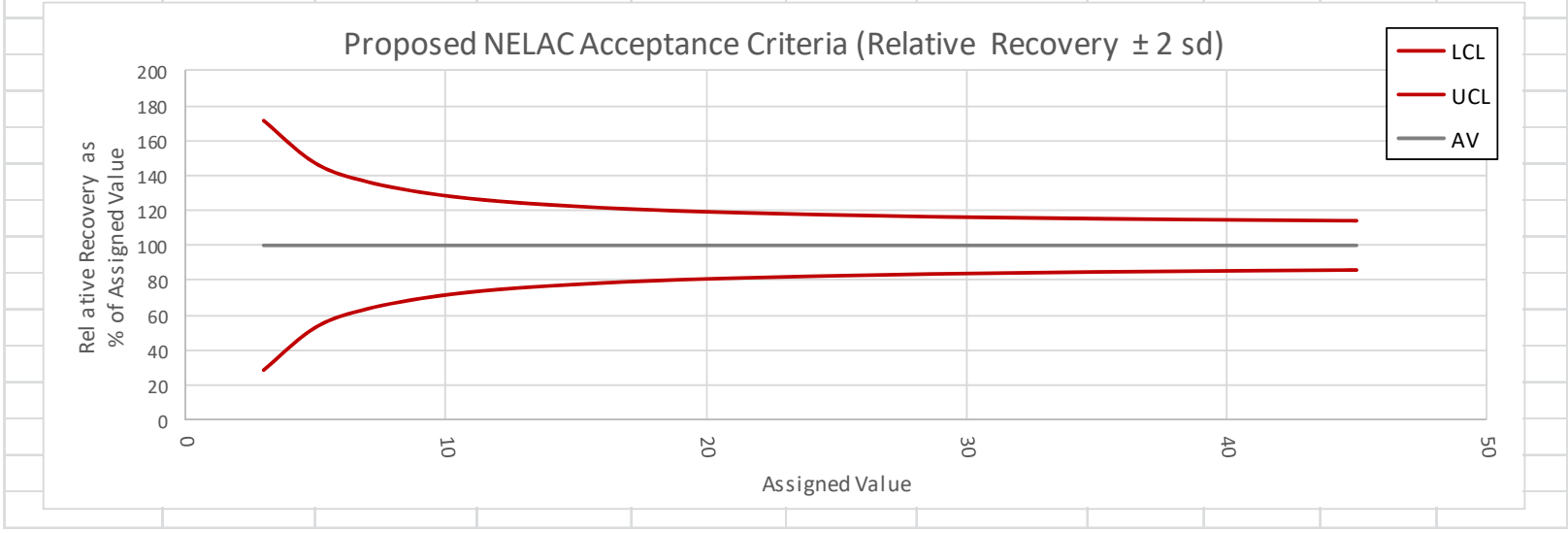


Sr-90

Parameter	a	b	c	d	Min	Max	Units
Sr-90	0.9369	0.2279	0.0902	0.539	2	45	pCi/L

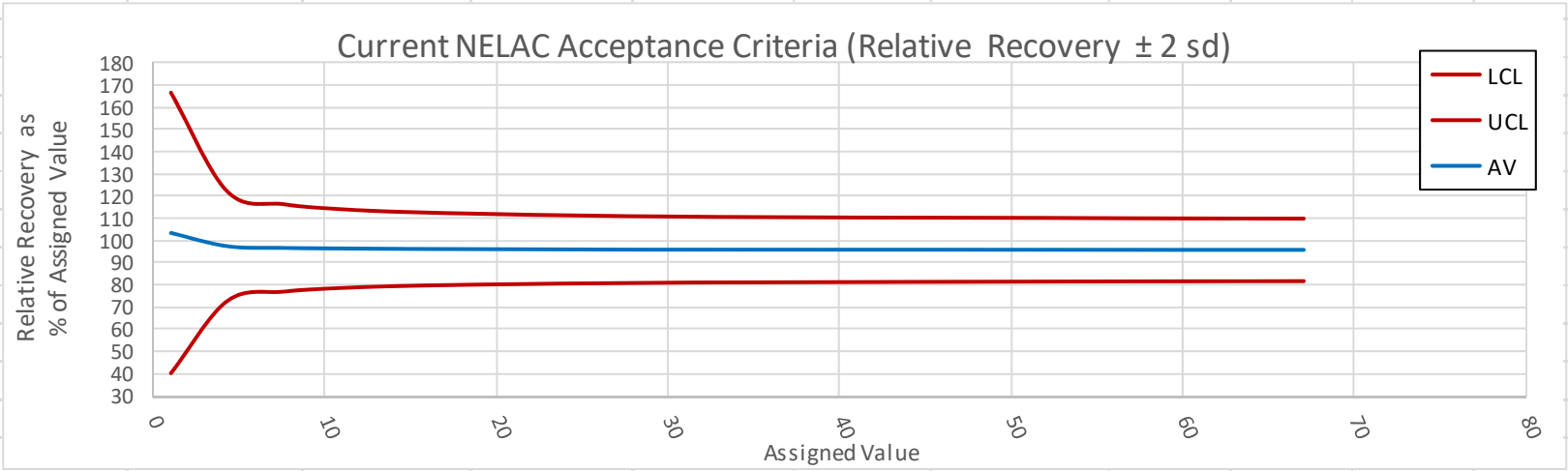


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Sr-90	1	0	0.05	0.9204082	2	3	45	pCi/L

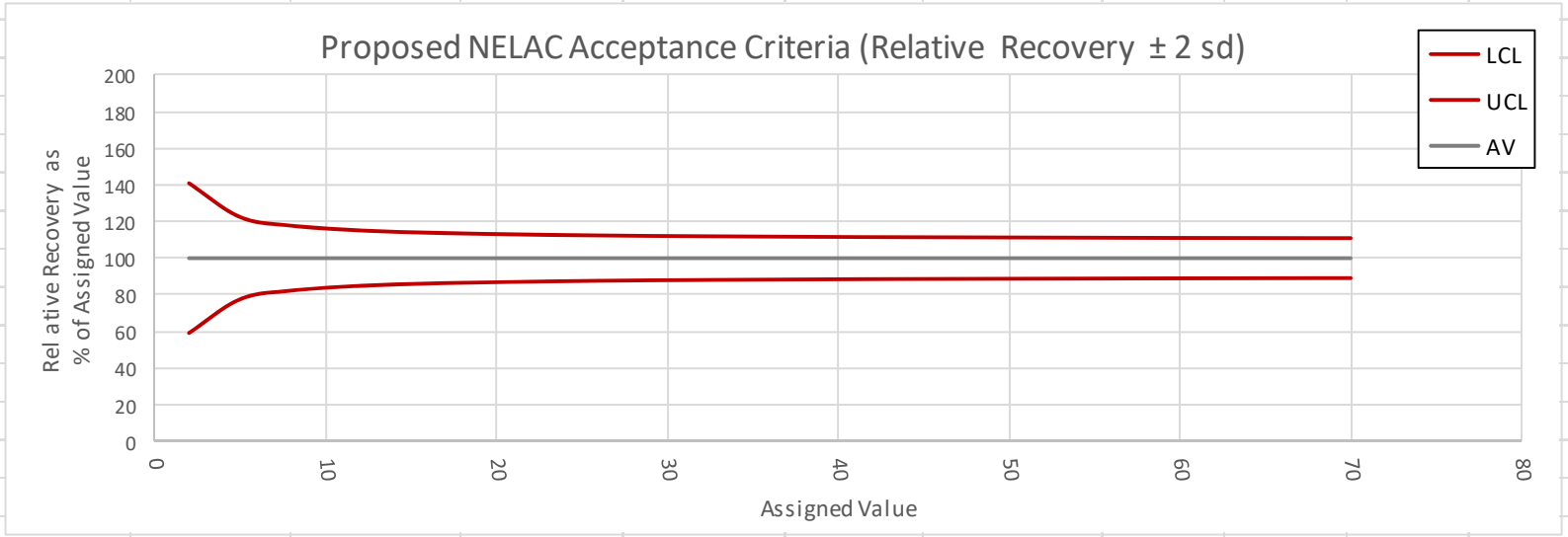


U (rec)

Parameter	a	b	c	d	Min	Max	Units
Natural Uranium	0.9568	0.0773	0.0668	0.2490	1	70	pCi/L

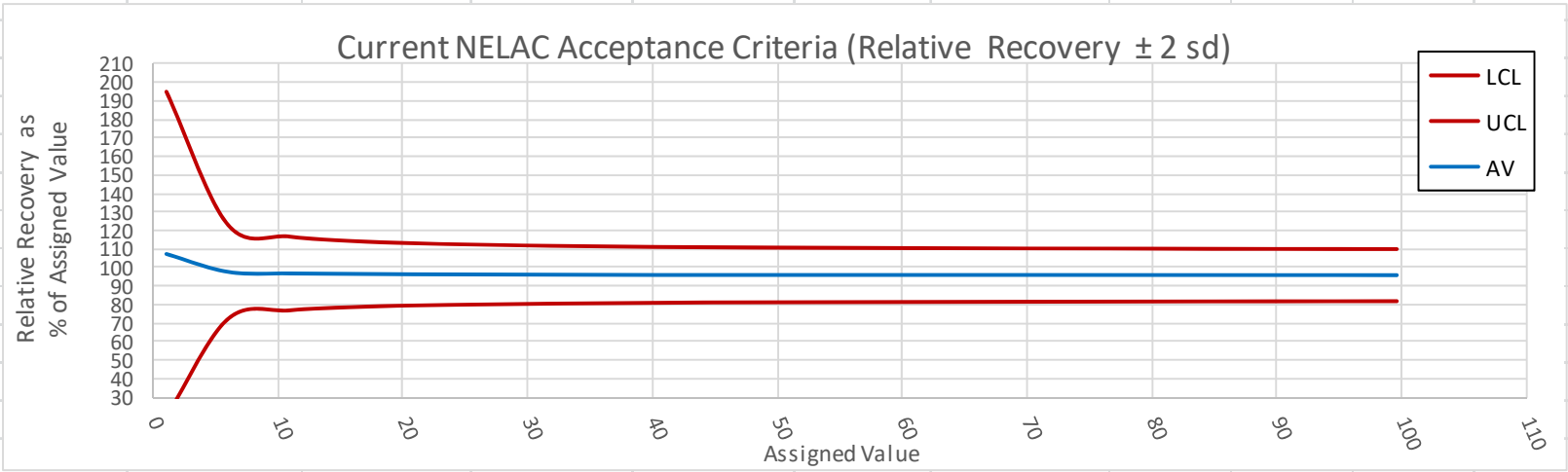


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
U (rec)	1	0	0.05	0.3083367	0.67	2	70	pCi/L

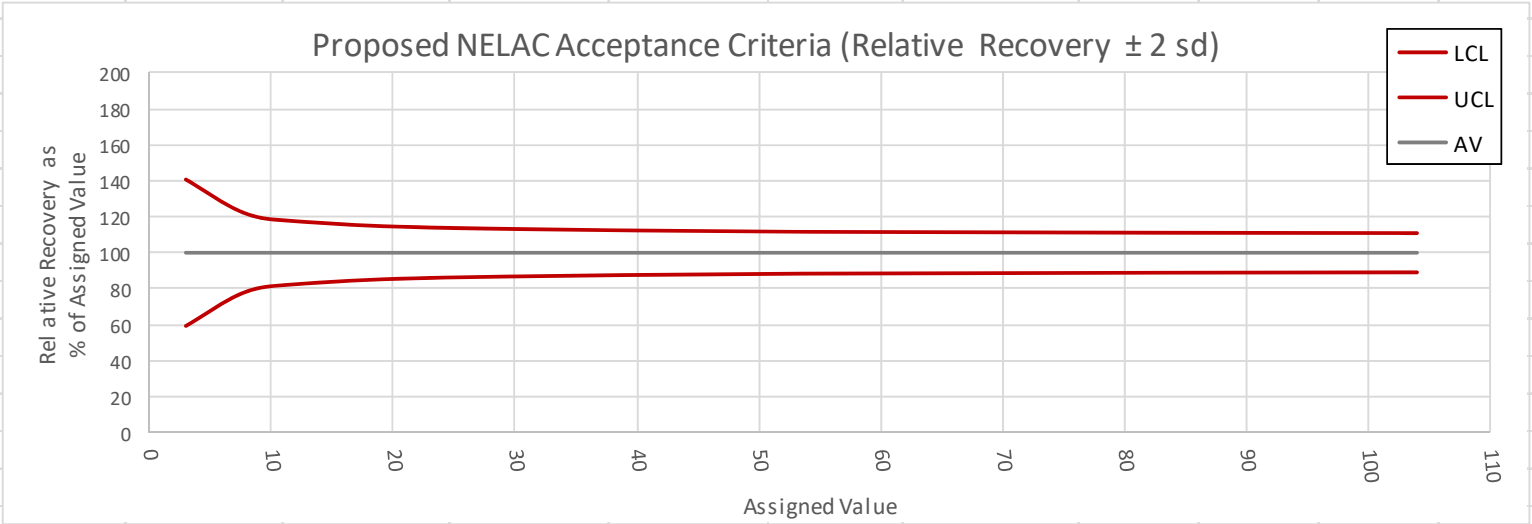


U (mass)

Parameter	a	b	c	d	Min	Max	Units
U (mass)	0.9568	0.1153	0.0668	0.3716	1	104	ug/L

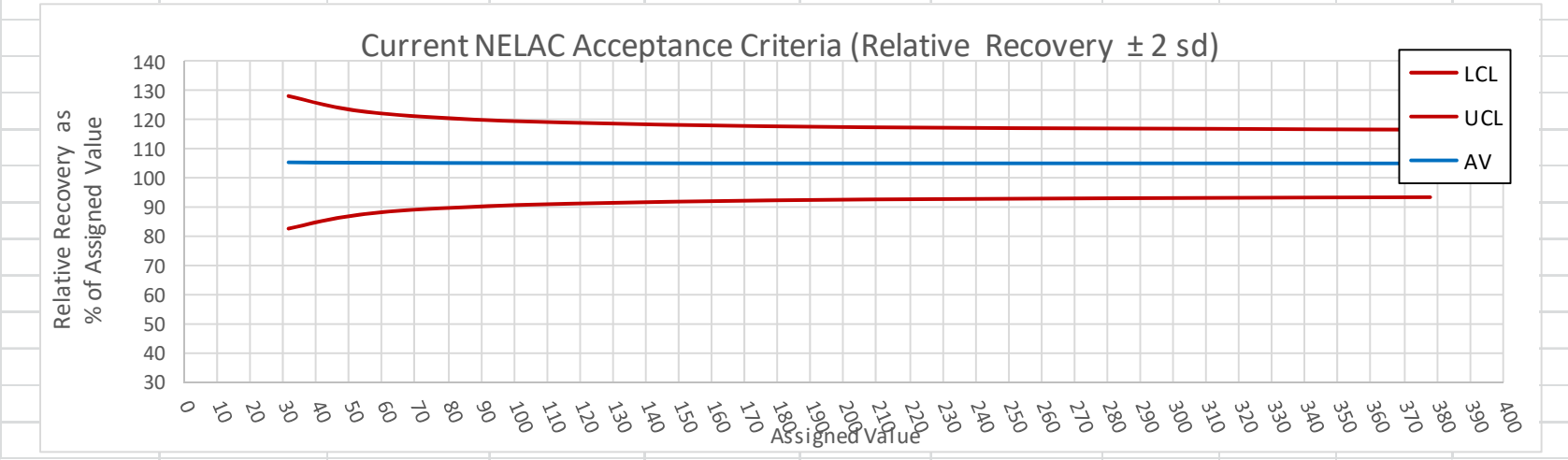


Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
U (mass)	1	0	0.05	0.4602041	1	3	104	ug/L

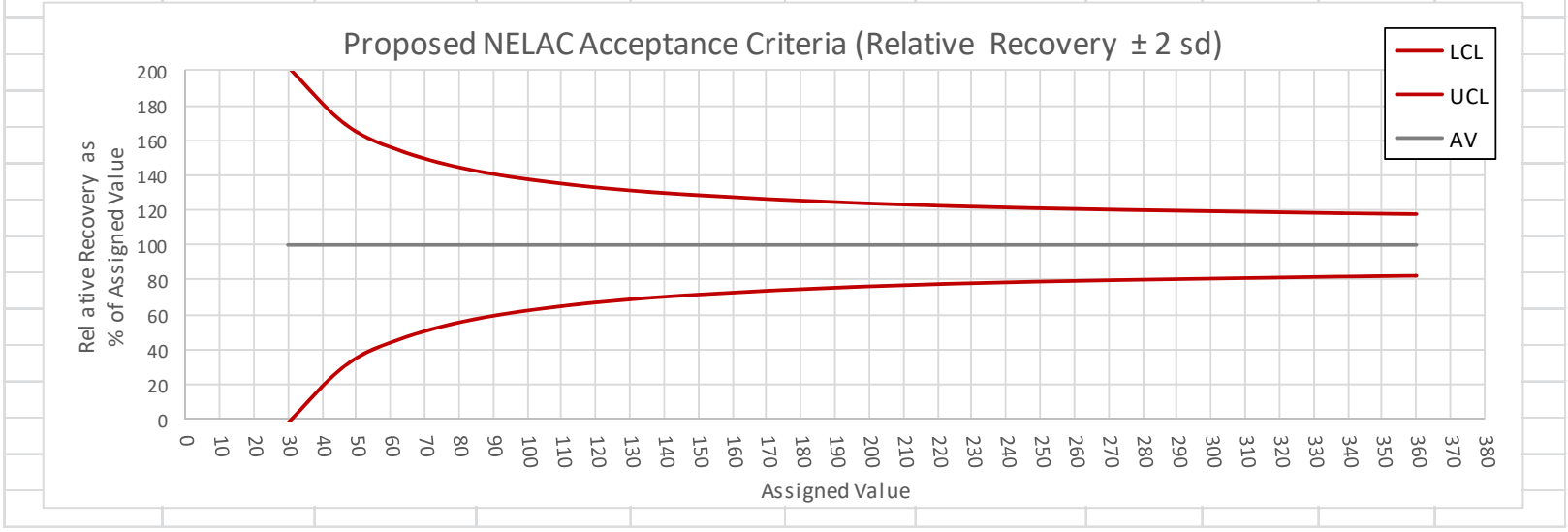


Zn-65

Parameter	a	b	c	d	Min	Max	Units
Zn-65	1.0495	0.1245	0.053	1.8271	30	360	pCi/L



Parameter	a	b	c	d	L (RDL)	Test min.	Max	Units
Zn-65	1	0	0.05	13.806122	30	30	360	pCi/L



Some Conclusions

- Currently, NELAC PT acceptance limits for radiochemistry are based on historical results.
  - There are a number of troubling trends in current limits
  - For better and for worse , historical limits reinforce the *status quo ante*
  - Doesn't ensure SDWA program quality needs will be met
- We propose that limits be linked to MQOs:
  - This will help ensure laboratory data quality is adequate to support EPA's SDWA program quality needs, and
  - Encourage labs to minimize / eliminate measurement bias.

Some Assumptions and Sources

- DLs are defined in:
  - 40 CFR 141.25 (c)(1) Table B (Gross alpha, Ra-226, Ra-228, U)
  - 40 CFR 141.25 (c)(2)
    - Table C (Gross beta, H-3, Sr-89, Sr-90, I-131, Cs-134)
    - All others – 1/10th MCL listed in *"Derived Concentrations (pCi/l) of Beta and Photon Emitters in Drinking Water Yielding a Dose of 4 mrem/y to the Total Body or to any Critical Organ"* of NBS Handbook 69, as amended August 1963, U.S. Department of Commerce.
    - No RDL defined for Ba-133; it is not present in a fission event
      - Used MCL for Cs-134
- Uranium
  - No RDL is defined for U (activity) as the MCL is mass concentration. An RDL of 0.67 pCi/L would be calculated using the specific activity conversion factor for natural uranium promulgated for corrected gross alpha (assuming the PT provider uses natural uranium)
- We should invite guidance from EPA OW on MQOs for different tests. Three that may deserve attention are Gross Alpha, Gross Beta, and Ra-226 where LFB acceptance criteria may be optimistically over-restrictive.