

ASSESSING EPA MDL REQUIREMENTS & TNI 2016 MDL REQUIREMENTS.

A DISCUSSION ON HOW TO TACKLE ISSUES AND REMAIN
COMPLIANT

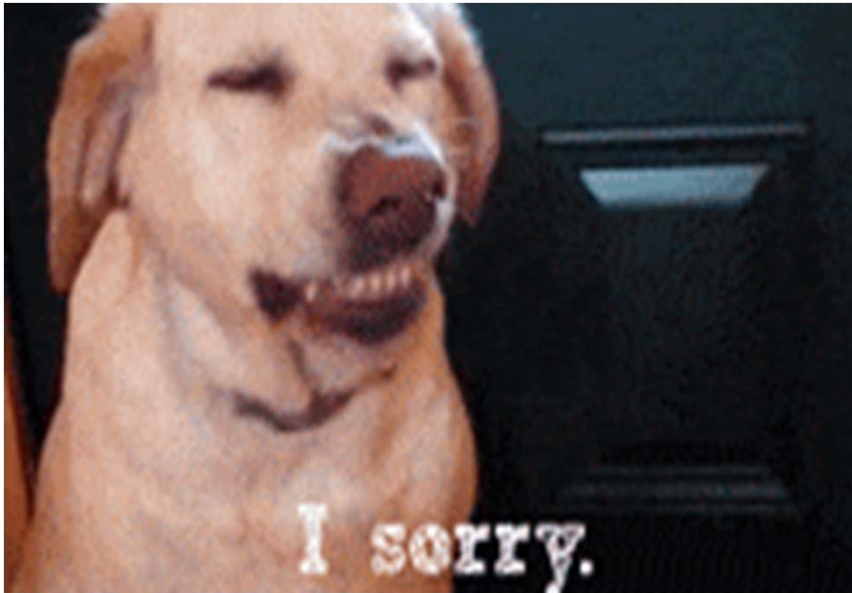
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PURPOSE:

To provide insight on assessing laboratory MDLs to the EPA MDL rev 2 (2017 MUR) and TNI 2016 requirements.

YOUR ASSESSMENT IS COMING:

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Common Assessment Approach:

1. Request Procedure compare to TNI & EPA (TNI 2016 V1M4 1.5.2 | 40 CFR 136 Appendix B)
2. Request MDL Summaries
 - Compare process to procedure
 - Audit MDLs received to labs scope
3. Arrive onsite, look at ongoing data (verify if mdl updated, raw data etc.)

Top 9 MDL Questions in 2019

QUESTION 1:

How to prepare for an assessment?

(The MDLb and MDLs is an ongoing process so how will Assessors assess the documentation? Will Assessors be verifying how often MDLs are updated?)

Definition and Procedure for the Determination of the Method Detection Limit EPA Revision 2 December 2016			
Analytical Method:	EPA 200.7-NPW Trace Metals by ICP		
Sample Matrix:	Non Potable Water		
Reporting Units:	mg/L		
Instrument	JAX19		
Date Ranges Of Data:	2/16/2019 to 8/8/2019		
Element	Reported MDL	MDLs	MDLb
Aluminum	0.02	0.0054	0.0186
Antimony	0.01	0.0078	0.0069
Arsenic	0.01	0.0085	0.0103
Barium	0.001	0.0004	0.0004
Sodium	0.100	0.0531	0.0378
Thallium	0.015	0.0091	0.0067
Vanadium	0.002	0.0003	0.0004
Zinc	0.005	0.0016	0.0030
completed 8/8/2019 hdh			
Note: per section 4.f of procedure: If the verified MDL is within 0.5 to 2.0 times the existing MDL and fewer than 3% of the method blank results have numerical results above the existing MDL, then the existing MDL may optionally be left unchanged.			
<div> <div>Doc. Info</div> <div>Current MDL's</div> <div>MDL calculations</div> <div>Notes</div> <div>Aluminum</div> <div>Antimony</div> <div>Arsen</div> </div>			

A	B	C	D	E
1	Reported MDL (8/8/2019)			
2				
3	Method	200.7 DW	Current MDL	200.7 ENV
4		(mg/L)		(mg/L)
5		LOD		MDL
6				
7	Aluminum	0.015	Aluminum	0.020
8	Antimony	n/a	Antimony	0.010
9	Arsenic	0.010	Arsenic	0.010
10	Barium	0.001	Barium	0.001
11	Beryllium	0.001	Beryllium	0.001
12	Sodium	0.050	Sodium	0.100
13	Thallium	n/a	Thallium	0.015
14	Vanadium	n/a	Vanadium	0.002
15	Zinc	0.005	Zinc	0.005
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
<div> <div>Doc. Info</div> <div>Current MDL's</div> <div>MDL calculations</div> </div>				

- prep date, analysis date, instrument
- Method and matrix
- Units

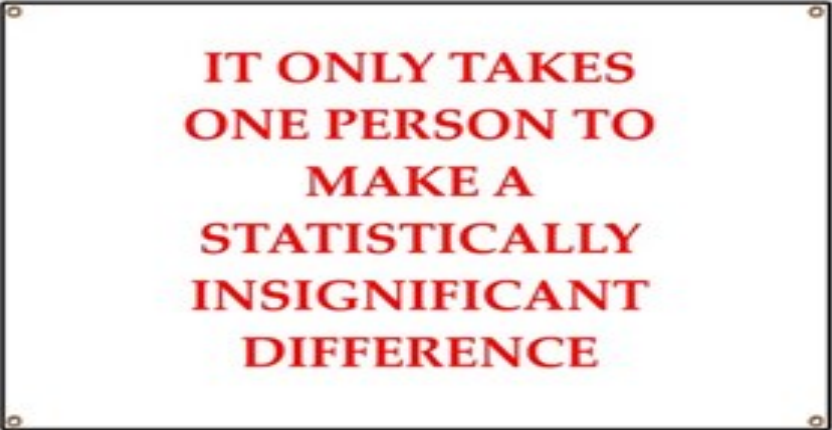
Data Records

- Units
- Data and calcs used to establish the mdl upon request
- Mean spike & recovery
- Documentation of rationale for removal of outliers if there are any

		Aluminim		Antimony		
		MDLs	MDLb	MDLs	MDLb	
		'= s*t	= X + (s*t)	'= s*t	= X + (s*t)	
<div>★<div>Calc</div></div> <div>Mean (X):</div> <div>Standard Deviation (s):</div> <div># samples used:</div> <div>t = Student t value:</div>		n/a	0.00	n/a	0.00	
		0.0022	0.01	0.0030	0.00	
		31	31	18	19	
		2.457	2.457	2.567	2.552	
		0.0054	0.019	0.0078	0.007	
	1	0.0563	-0.0002	1	0.0436	0.00233
	2	0.0548	-0.00332	2	0.0407	-0.0015
	3	0.0550	0.00375	3	0.0450	-0.00001
	4	0.0549	0.00036	4	0.0521	-0.00043
	5	0.0558	0.00075	5	0.0456	0.00617

Question #2:

Could one high blank result drastically elevate the MDL? What about truncated numbers that may be negative due to the slope of the curve?



**IT ONLY TAKES
ONE PERSON TO
MAKE A
STATISTICALLY
INSIGNIFICANT
DIFFERENCE**

QUESTION #3:

The Lab's New MDL effects their permitting so they want to take another approach... What's acceptable.

*The “sufficiently sensitive method rule” explains what to do 40 CFR 122.21(e)(3)

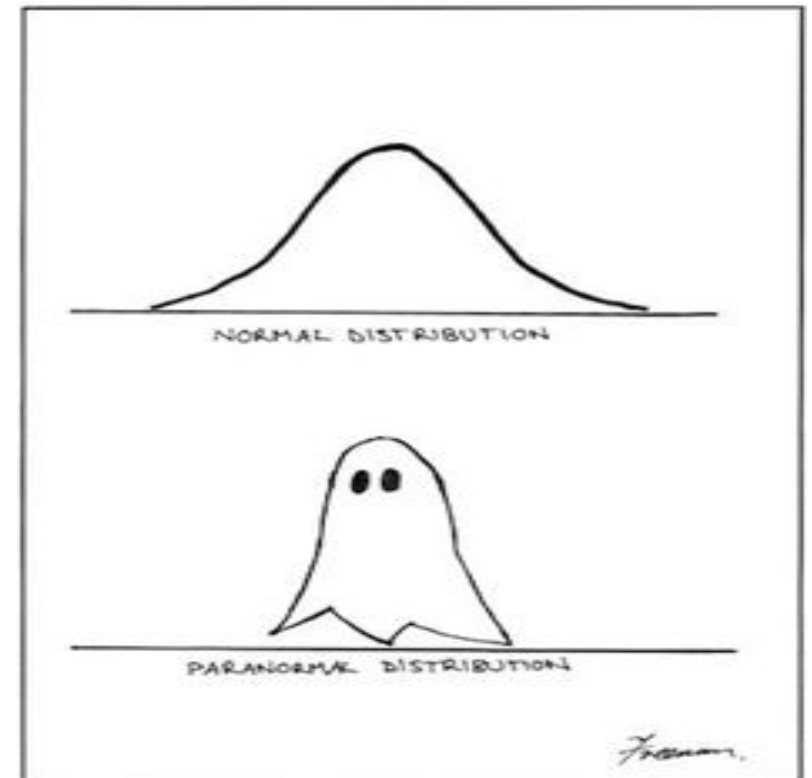


QUESTION #4:

How often does the lab need to recalculate the MDL? Every quarter? Every 13 months?

Question #5:

If a lab does not use a method during a quarter, will the lab still need to analyze low-level spiked samples?

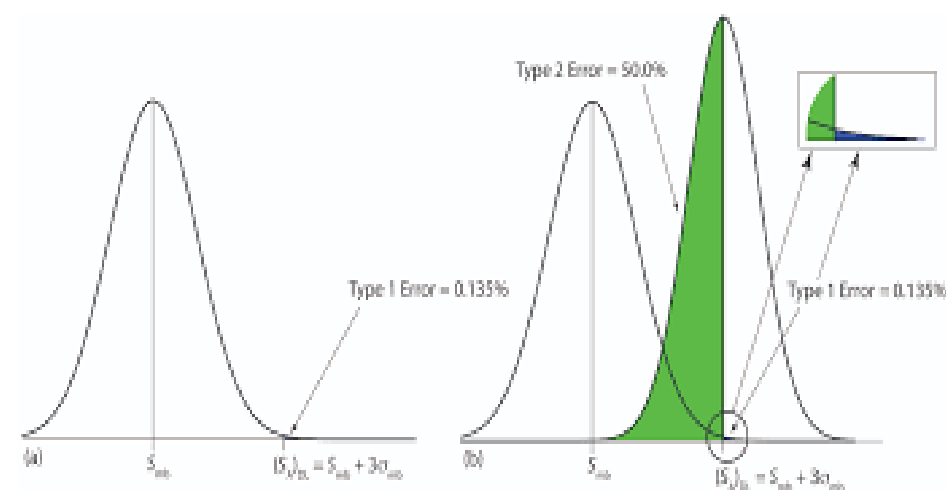


QUESTION #5:

Notifying clients can sometimes take a while. Trying to notify first and then change MDLs can sometimes cause the limits to change weeks after they are calculated. Can the lab start changing first, then notifying clients?

Question #7:

What will happen if the lab has less than 7 spikes and calculate an MDL



Believe me...! P value greater than
0.05 indicates chance of your
drowning is not significant.



Question #8:

If a lab is drowning in hundreds or thousands of method blanks to review for a two year period how do they do annual verifications while doing the rest of their work!?

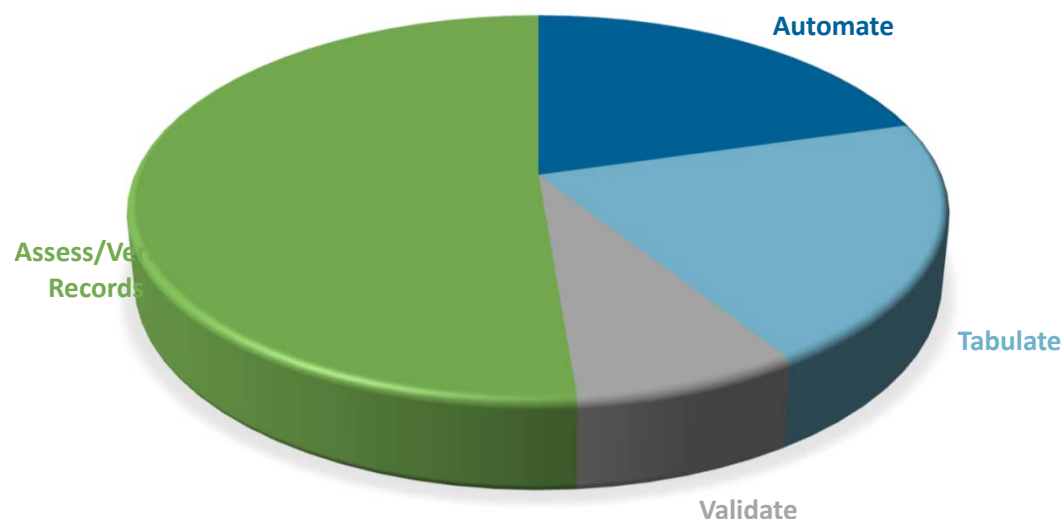
QUESTION #9:

Many of MDLs go up higher than the MDL spike concentration and LOQ, so performing initial MDLs while continuing to analyze samples and report data can be confusing. Should a lab stop reporting data until we can verify an LOQ? If it's a high volume test, can a lab take advantage of the 30 days to perform an initial verification study?

TAKE AWAY

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REDUCE FINDINGS



- Automate your schedule
- Tabulate your data
- Validate & Protect
- Audit your system and records
 - Have another set of eyes review your process

QUESTIONS?

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REFERENCES

- [EPA MDL rev 2 Procedure](#)
- [MDL Frequent Questions](#)
- 2016 EL Standard Volume 1, Rev 2.1 with modules
- 40 CFR Part136 Appendix B (2017 MUR)

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