



DQFAC Single Laboratory Procedure *(v2.4)*



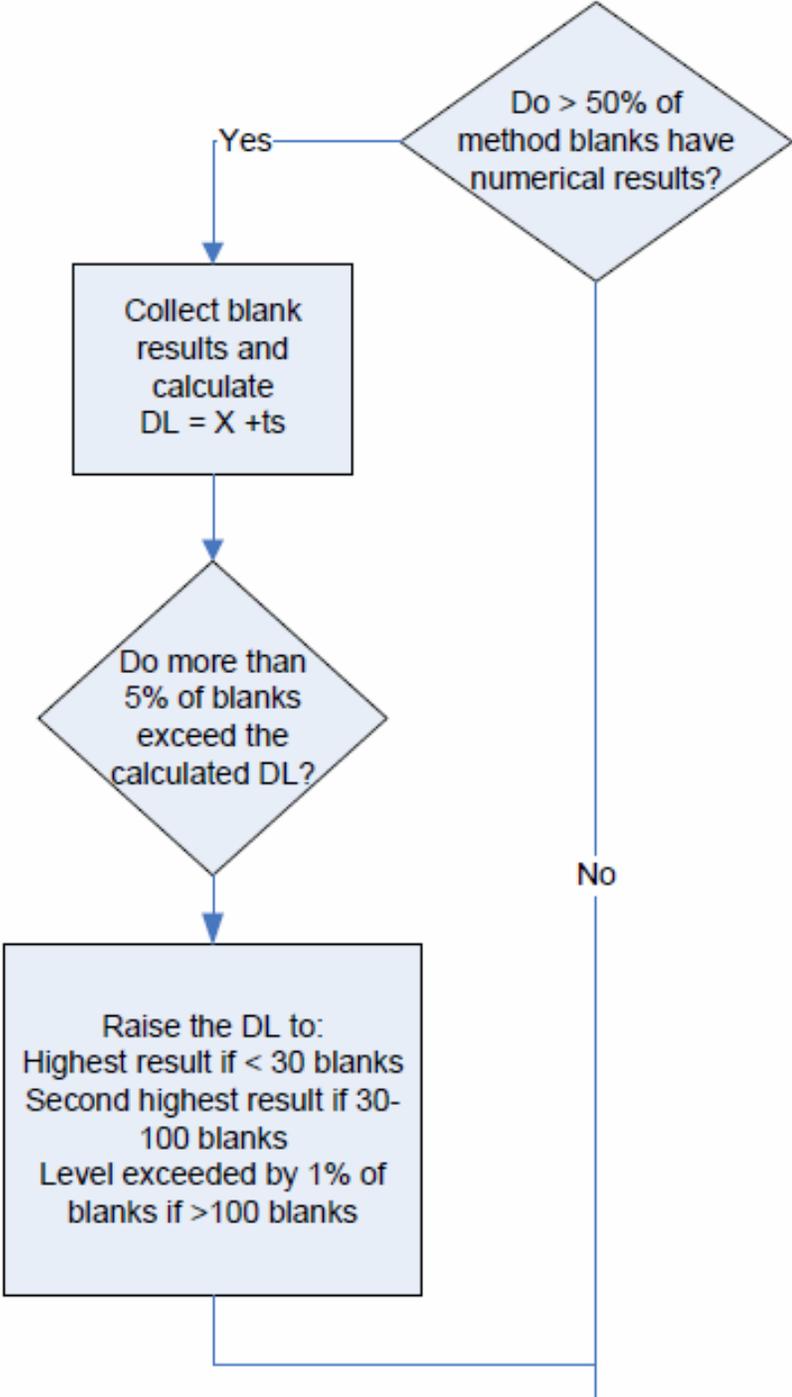
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DQFAC Procedure Brief Highlights

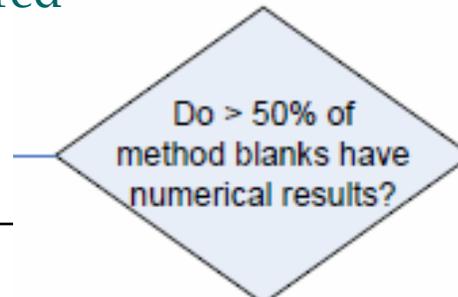
- Adopted from an ACIL draft procedure by the FACDQ
- Modified to incorporate desired elements of the FAC's 'What we want a procedure to do'
 - Establishes a DL and QL
 - Qualitative identification criteria established
 - Addresses bias, false positives and false negatives
 - Incorporates censored and uncensored methods
 - Uses routinely collected data to update limits;
- Pilot tested with other candidate procedures by EPA
- Version 2.4 tested independently in a study sponsored by EPA (however, data have not been published)



Uncensored Methods

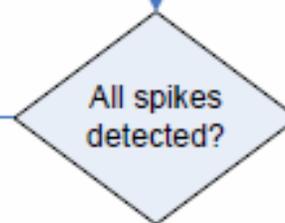
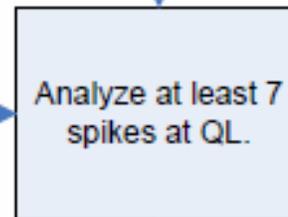
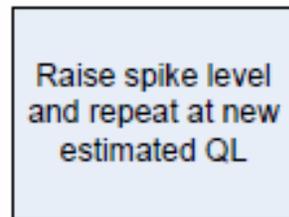
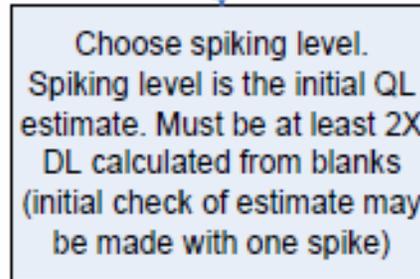


Uncensored and Censored Methods



No

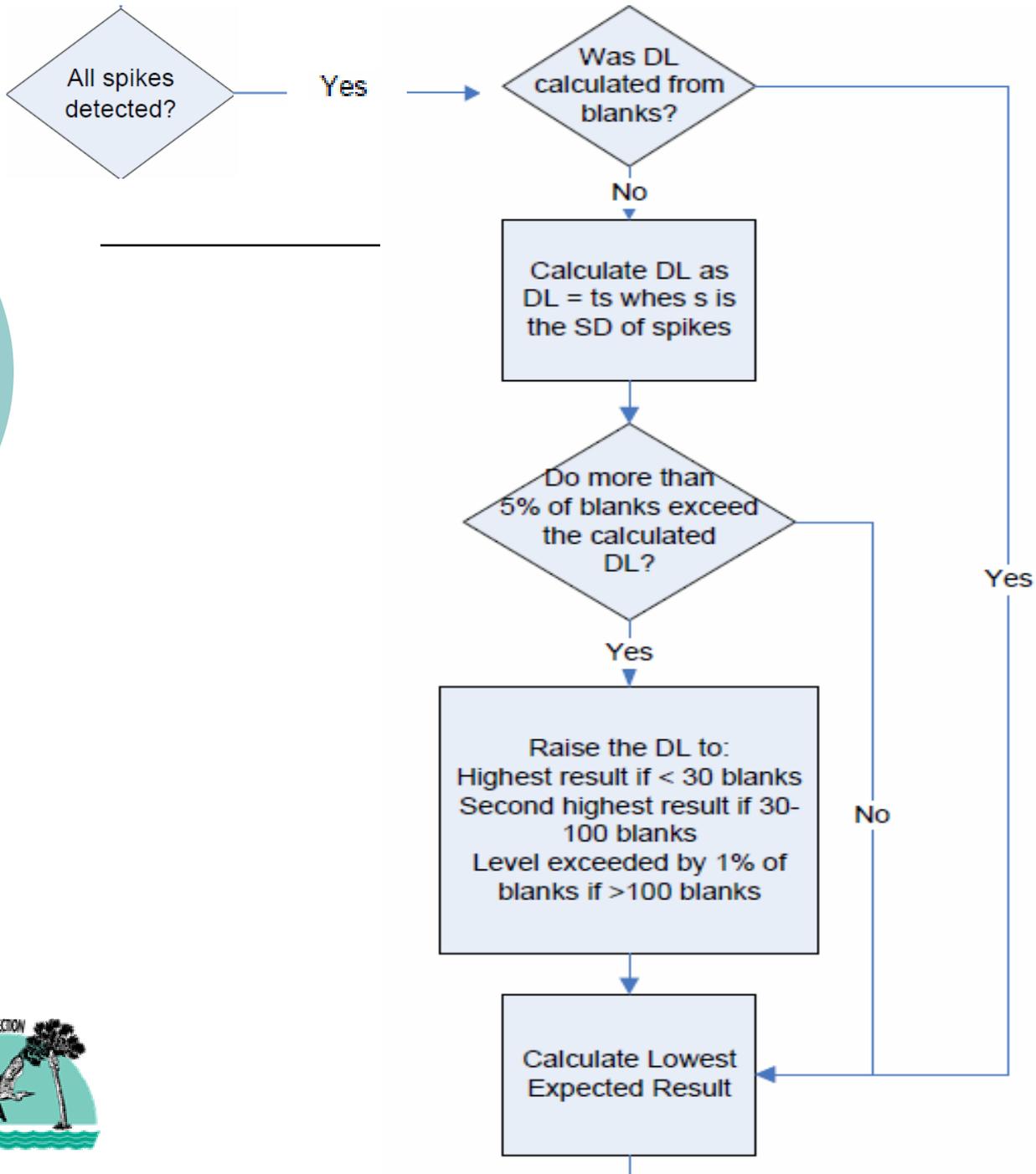
Determine QL for
Uncensored
Methods



No

Yes



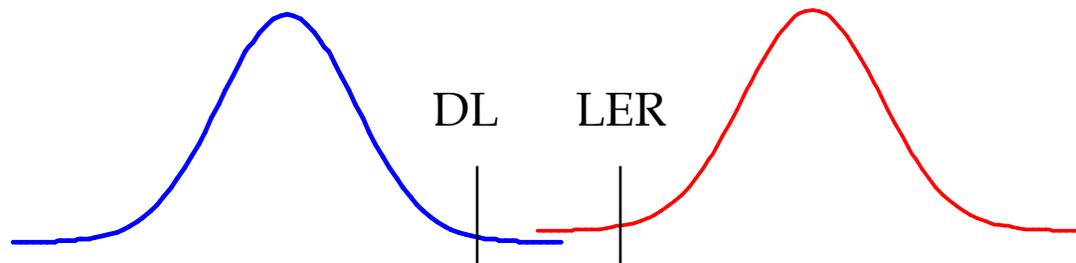


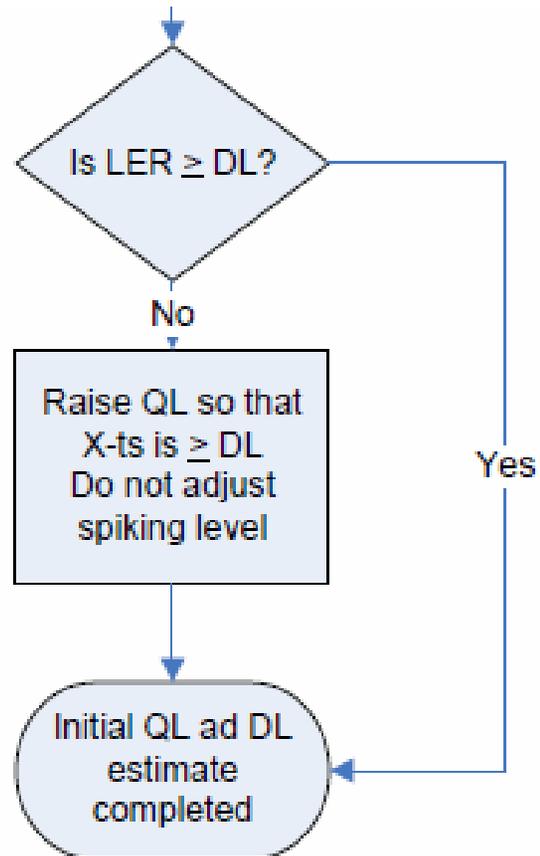
Lowest Expected Result (LER)

$$\text{LER} = \frac{\bar{X}_s * \underline{QL}}{SL} - \left(s \times t_{(n-1, 1-\alpha=0.95)} \right)$$

- Where \bar{X}_s is the mean concentration result from the QL spikes.
- $t_{(n-1, 1-\alpha=0.95)}$ is the 95th percentile of a t distribution with n-1
- SL is the spike level used for the QL spike sample.

Note that the equation simplifies when $QL = SL$





Ongoing Checks

Collect method blanks with each batch and QL spikes at a frequency of 4 per 12 month period. Collect at least 2 per instrument if multiple instruments are using the same DL and QL

At least once per year, re-evaluate the DLs and QLs

Optionally, recalculate DLs using the formulas presented for the initial determination



Ongoing Checks

Blank Check

If 5% or more blank results are higher than the DL, then adjust the DL as follows:
To the highest result if < 20 blanks
To the second highest result if 20-100 blanks
To the level exceeded by 1% of blanks if > 100 blanks

Qual ID Check

At least 95% of DL spikes must meet qualitative ID criteria. If not raise the QL and the spiking level to the level at which qualitative id criteria are reliably met.



Ongoing Checks

