



Technical Memo

Detailed Review of Qualifier Usage

Updated: March 6, 2017

Qualifiers are notes attached to data that provide detailed information. These notes are added when the appropriate conditions are met. Qualifiers or flags should not be consider a “bad” thing; they allow for the end-user to determine data usability as it pertains to their project.

Sample Data Qualifiers/Flags

QUALIFIER/FLAG	DEFINITION & EXPLANATION
B	<p>Indicates the analyte was found in the associated method blank as well as in the sample. It indicates probable laboratory contamination.</p> <p><i>Explanation: This flag warns the data user that contamination is suspected. This flag shall be used for a TIC as well as for a positively identified target compound.</i></p>
C	<p>Indicates analyte is a common laboratory contaminant</p> <p><i>Explanation: This flag, like the "B" flag, warns the data user that contamination is suspected, but was not necessarily found in the blank. This flag shall be used for a TIC as well as for a positively identified target compound.</i></p>
D	<p>Indicates analyte was reported from diluted analysis</p> <p><i>Explanation: If a sample or extract is analyzed at a dilution >1 due to any compound(s) exceeding the upper-level calibration standard, the DL suffix is appended to the Sample Number on Form 1 for the more diluted sample, and all reported concentrations on that Form 1 are flagged with the "D" qualifier. This alerts the user that any discrepancies between the reported concentrations may be due to dilution of the sample or extract.</i></p>
E	<p>Identifies a compound concentration that exceeds the upper level of the calibration range of the instrument</p> <p><i>Explanation: This flag identifies compounds whose response exceed the upper level of the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than the response of the highest standard in the initial calibration, the sample or extract shall be diluted and reanalyzed. All such compounds with responses greater than the response of the highest standard in the initial calibration shall have the result flagged with an "E" on Form 1 for the original analysis. The results of both analyses shall be reported on separate copies of Form 1. The Form 1 for the diluted sample shall have "DL" suffix appended to the Sample Number.</i></p> <p>NOTE: In some circumstances, the lab may not be able to report without an "E" flag. In these cases, the results should be considered estimated.</p>

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J	<p>Indicates an estimated value. This flag is used when the concentration in the sample is below the RL but above the MDL.</p> <p><i>Explanation: This flag indicates an estimated value due to concentrations detected between the RL and MDL, OR Estimating a concentration for Tentatively Identified Compounds (TICs) where a 1:1 response is assumed. TIC concentrations will always be J qualified, even if the compound is unknown.</i></p>
N	<p>Presumptive evidence of a compound from the use of GC/MS library search.</p> <p><i>Explanation: This flag indicates presumptive evidence of a compound. This flag is only used for TICs, where the identification is based on a mass spectral library search and must be used in combination with the J flag. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, or for an "unknown" (no matches $\geq 85\%$), the "N" flag is not used.</i></p>
U Air Only	<p>This flag indicates the compound was analyzed for but not detected at the reporting limit (RL).</p> <p><i>Explanation: This flag is used in lieu of the ND designation. For example, if a result is reported as 0.20 U, it designates that the analyte is ND at the RL 0.20.</i></p>
*	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8270D SIM
^	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8011 or EPA 504.1

Quality Control Flags

FLAG	DEFINITION & EXPLANATION
*	<p>Values outside QC limits</p> <p><i>Explanation: QC sample results did not meet method required limits. These limits are either set by the method or require the laboratory to perform statistical analysis biannually to derive them. QC limits will be listed on all QC forms.</i></p>
\$	<p>Value outside of New Jersey DKQP Limits</p> <p><i>Explanation: QC sample results did not meet Data of Known Quality Limits, as set by NJDEP's Data of Known Quality Protocols (DKQP) Technical Guidance. These limits are static and do not take any statistical variables into consideration.</i></p>

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IAL Specific Data Qualifiers/Flags

Qualifiers X,Y,Z are reserved for laboratory use and may be uniquely defined by individual laboratories. IAL defines these as follows:

QUALIFIER/FLAG	DEFINITION & EXPLANATION
X Metals Only	<p>Indicates samples analyzed for total and dissolved metals differ at <20% RPD</p> <p><i>Explanation: Samples analyzed for total and dissolved metals may have slightly different concentrations due to normal variations in the analytical process. Slightly higher concentrations present in dissolved versus total analyses can occur even when all QC are acceptable. A 20% RPD between total and dissolved results is used to evaluate if the concentrations are statistically indistinguishable</i></p>
Y Air: NJDEP LLTO-15 only	<p>Indicates flagged analyte failed in the Reporting Limit Laboratory Control Sample (RLLCS) on either/both the clean canister certification analysis day or sample run day</p> <p><i>Explanation: The RLLCS is a QC sample run each day with each batch. As set forth by NJDEP Low Level TO-15, 90% of compounds in the RLLCS must be recovered within 60-140%. Of the 62 compounds analyzed for using LLTO-15, up to 6 are allowed to be outside of this range.</i></p> <p><i>When a compound is outside of the 60-140% range, the laboratory must qualify the data. RLLCS failures can occur the day(s) canisters are certified and/or the day(s) samples are analyzed. IAL uses a "Y" qualifier to represent these failures. Information about these failures, including bias type, will be found in the case narrative of each report</i></p>
Y BOD only	<p>Indicates DO depletion in the BOD blank is >0.20ppm</p> <p><i>Explanation: Dissolved oxygen (DO) depletion must not be >0.20ppm in the BOD blank. Any data qualified with a Y for BOD may not be usable. Resampling is recommended.</i></p>
Z GC/MS Only	<p>Indicates internal standard failure. Sample results are either biased high or biased low.</p> <p><i>Explanation: The internal standard failed in specified sample, likely due to matrix interference. When a failure is found, the sample must be reanalyzed to confirm the failure was a matrix effect, not an instrumentation issue. When internal standards fail high, sample results are biased low; when internal standards fail low, sample results are biased high. This bias information will be explained in the case narrative, as applicable.</i></p>

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