ACZ Laboratories, Inc.
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Extended Qualifier Reference

Microbiology

A1	Too numerous to count.
A2	Sample incubation period exceeded method requirement.
A3	Sample incubation period was shorter than method requirement.
A4	Target organism detected in associated method blank.
A5	Incubator/water bath temperature was outside method requirements.
A6	Target organism not detected in associated positive control.
A7	Micro sample received without adequate headspace.
A8	ACZ observes a 3 week holding time for BARTs if samples are thermally preserved at less than 6 degrees celsius and above freezing. The holding time for unpreserved samples is 4 hours. Hold time exceedances are indicated on laboratory reports where applicable. A result of ?0? means absent, a result of ?1? means present.

Method blank

B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
B2	Non-target analyte detected in prep / method blank and sample, producing interference.
B3	Target analyte detected in calibration blank [ICB or CCB] at or above acceptance limit.
B4	Target analyte detected in blank at or above the acceptance criteria.
B5	Target analyte detected in prep / method blank at or above the method reporting limit, but below trigger level or MCL.
B6	Target analyte detected in calibration blank at or above the method reporting limit, but below trigger level or MCL.
B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
BA	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 20X the concentration in the method blank.
BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
BE	Target analyte in continuing calibration blank (CCB) at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].

Confirmation

C1	Confirmatory analysis not performed as required by the method.
C3	Qualitative confirmation performed.
C4	Confirmatory analysis was past holding time.
C5	Confirmatory analysis was past holding time. Original result not confirmed.
C8	Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.
CA	Initial analysis within method holding time; however, reanalysis to confirm sample chemistry was past holding time.
CB	Analyte concentration verified by repeat analysis.

Dilution

D1	Sample required dilution due to matrix.
D2	Sample required dilution. Target analyte exceeded calibration range.
D4	Minimum Reporting Limit (MRL) adjusted to reflect sample amount received and analyzed.
D5	Sample required dilution. Sample matrix causing internal standards to recover outside method limits.
DA	Sample required dilution due to reactivity.
DB	Sample required dilution due to low bias result.
DC	Sample required dilution. Non-target analyte exceeded calibration range.
DD	Sample required dilution due to matrix color or odor.
DE	Sample required dilution. See Case Narrative.
DF	Sample required dilution due to high sediment.
DG	Sample required dilution due to poor resolution of Sulfate and Bromide caused by high Sulfate concentration.
DH	Sample required dilution due to high TDS and/or EC value.
DJ	Sample dilution required due to insufficient sample.
DK	Sample mass used for extraction decreased due to high moisture content.
DL	Sample required dilution due to high AL and/or FE value.

Estimated concentration

E1	Concentration estimated. Analyte exceeded calibration range. See Case Narrative.
E2	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to sample matrix.
E3	Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.
E5	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL), but not confirmed by alternate analysis.
E6	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
E7	Concentration estimated. Internal standard recoveries did not meet laboratory acceptance criteria.
E8	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
E9	Concentration estimated for F. Coli. Colonies were observed, but no sample volumes yeilded colony counts in the ideal range (20 to 60).
EA	Concentration estimated. Analytical result was less than the negative MDL due to matrix interferences.
EB	A pH value outside the range of the probe standardization is estimated.
EC	For Method 1010 there was insufficient sample volume to confirm the flash point. The result is considered approximate.
ED	Unable to obtain a temperature difference of 18-28 C between initial application of flame source and sample flashpoint. The result is considered approximate.
EE	CN value may be biased low because the sample tested positive for sulfide more than 24 hours after collection.
EF	Sample contains sulfur/organic compounds that may cause false high bias for Selenium results by ICPMS. The sulfur/organic compounds were detected due to matrix odor. Se concentration is estimated.
EG	The sample tested positive for chlorine and was subsequently treated with a reducing agent by the laboratory.

Hold time

H1	Sample prep or analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
HF	BOD analysis performed outside of 24-hour hold time stated in the method but within 48-hour hold time stated in 40 CFR.
HG	Sample received unpreserved. Method 1631 requires samples to be either preserved or analyzed within 48 hours of collection.

Internal Standard

IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
IB	Internal standard recovery exceeded the acceptance limits. Sample retest was not performed.

BOD

K1	The sample dilutions set-up for the BOD/CBOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Any reported result is an estimated value.
K2	The sample dilutions set up for the BOD/CBOD analysis did not meet the criteria of a residual dissolved oxygen of at least 1 mg/L. BOD concentration is greater than the reported result which was derived from the most diluted sample aliquot.
K5	The dilution water D.O. depletion was > 0.2 mg/L.
K6	Glucose/glutamic acid BOD/CBOD was below method acceptance criteria.
K7	A discrepancy between the BOD and COD results has been verified by reanalysis of the sample for COD.
K8	Glucose/glutamic acid BOD/CBOD was above method acceptance levels.
KA	The seed depletion was outside the method acceptance limits, the DO-axis intercept is > 0.2 mg/L. The reported result is an estimated value.

Laboratory control sample

LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].

Matrix spike

M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
M4	The spiked sample required a dilution such that the spike recovery calculation does not provide useful information. The recovery of the associated control sample (LCS or LFB) was acceptable.
M5	Analyte concentration was determined by the method of standard addition (MSA).
M6	Matrix spike recovery was high. Data reported per ADEQ policy 0154.000.
M7	Matrix spike recovery was low. Data reported per ADEQ policy 0154.000.
MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
MB	For method 7196A the recovery of the post-digestion spike was outside of the acceptance limits.
MC	Recovery for matrix spike and matrix spike duplicate are outside of acceptance limits; recovery for the method control sample was acceptable.
MD	The spike recovery (and spike duplicate RPD, if applicable) was not used for data validation because the concentration of the sample and/or the spike was less than the reporting limit.
MR	Hexavalent Chromium matrix spike recovery was low. Recovery of the associated LCS was acceptable. ORP & pH measurements of the sample selected for spiking indicate the low recovery may be attributed to a reducing sample matrix.

General

N1	See Case Narrative.
N1A	See Case Narrative.
N1B	See Case Narrative.
N1C	See Case Narrative.
N6	Data suspect due to quality control failure, reported per data user's request.
NA	Unable to perform analysis. See Case Narrative.
NB	Unable to perform analysis due to insufficient sample. See Case Narrative.

Sample quality

Q1	Sample integrity was not maintained. See Case Narrative.
Q10	Sample received in inappropriate sample container.
Q11	Sample is heterogeneous. Sample homogeneity could not be readily achieved using routine laboratory practices.
Q12	A filtered sample was used for analysis because an unfiltered sample was not available.
Q2	Sample received with head space.
Q3	Sample received with improper or inadequate chemical preservation.
Q4	Sample received and analyzed without chemical preservation.
Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
Q6	Sample was received above recommended temperature.
Q7	Sample inadequately dechlorinated.
Q8	Insufficient sample received to meet method QC requirements. Batch QC requirements satisfy ADEQ policies 0154.000 and 0155.000.
Q9	Insufficient sample received to meet method QC requirements.
QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
QB	Method-specified preservation criteria cannot be met due to sample matrix.
QD	Reported value is the background-corrected concentration, as described by the method.
QF	The aliquot for total dissolved solids was taken from a field-filtered sample.
QH	The sample vial used for the batch duplicate QC contained headspace with a diameter greater than 6mm. No vial without headspace was available as a substitute.
QM	The sample vial used for the batch spike QC contained headspace with a diameter greater than 6mm. No vial without headspace was available as a substitute.
QN	The sample vial used for the batch duplicate QC was received and analyzed with inadequate chemical preservation.
QO	The sample vial used for the batch spike QC was received and analyzed with inadequate chemical preservation.
QP	The sample was filtered at the laboratory more than 15 minutes after sample collection. For Orthophosphate, 40 CFR Part 136.3 requires filtration within 15 minutes of collection.
QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
QS	Acidification of the Drinking Water sample was not performed within 14 days after sample collection as required by the lead and copper rule (40 CFR Part 141.86).

ACZ

RS	RPD of matrix spikes for total or total recoverable silica is outside acceptance limits. Acceptable precision for other metals indicates silica RPD failure may be attributed to digestion-triggered silica polymerization and precipitation.
R1	RPD exceeded the method or laboratory acceptance limit. See Case Narrative.
R11	The RPD calculation for MS/MSD does not provide useful information due to the varying sample weights when Encore samplers / methanol field preserved samples are used.
R4	RPD for a spike and spike duplicate exceeded the method or laboratory acceptance limit. At a minimum, one spike recovery met acceptance criteria.
R5	RPD for a spike and spike duplicate exceeded the method or laboratory acceptance limit. See Case Narrative.
RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
RB	Precision assessment measurement (RER or RPD) exceeded the control limit, indicating the precision of the sample preparation batch is questionable. See Case Narrative.
RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
RF	Relative Percent Difference (RPD) for Ag in spiked samples exceeded limit. In the absence of HCl, precipitation of Ag may occur at different rates.
RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
RH	For Radiochemistry non-drinking water samples, Replicate Error Ratio (RER) is used as the sole evaluator of precision.
RJ	LCS/LCSD RPD or RSD exceeded the method or laboratory control limit. Sample(s) could not be re-prepped. See Case Narrative.
RK	LCSS/LCSSD recovery within acceptance criteria but RPD exceeded the laboratory control limit. Acceptable MS/MSD RPD demonstrates precision.
RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
RN	Sample concentration is greater than 5x LLD; RPD was used for data validation. Replicate Error Ratio (RER) is greater than 2. Precision judged to be in control.
RO	The duplicate originally assigned to this sample was not used for precision assessment because residue density exceeded the method limits. Another duplicate in the batch was used to assess precision. Method required duplicate frequency was not met.
RP	The duplicate originally assigned to this sample could not be used for precision assessment. The duplicate was not measured. The titrant normality was too weak or too strong for the sample alkalinity or instrument error. Another duplicate in the QC batch was used to assess precision. Method required duplicate frequency was met.

Surrogate

S10	Surrogate recovery was above laboratory and method acceptance limits. See Case Narrative.
S13	Surrogate recovery was below laboratory and method acceptance limits. See Case Narrative.
S14	Surrogate was above acceptance limits in QC sample, no target analytes were detected in associated samples.
S15	Surrogate was outside acceptance limits in QC sample but within acceptance limits in associated samples.
S4	Surrogate recovery was above laboratory and method acceptance limits. No target analytes were detected in the sample.
S5	Surrogate recovery was below laboratory acceptance limits, but within method acceptance limits.
S6	Surrogate recovery was below laboratory and method acceptance limits. Reextraction and/or reanalysis confirms low recovery caused by matrix effect.
S7	Surrogate recovery was below laboratory and method acceptance limits. Unable to confirm matrix effect.
S8	The sample required a dilution such that the surrogate recovery calculation does not provide useful information. The recovery for the associated control sample was acceptable.
SA	Surrogate recovery was outside acceptance limits due to matrix interference.

Method/analyte discrepancies

T1	Method approved by EPA, but not yet licensed by ADHS at this time.
T2	Cited ADHS licensed method does not contain this analyte as part of method compound list.
T3	Method not promulgated either by EPA or ADHS.
T4	Tentatively identified compound. Concentration is estimated and based on the closest internal standard.
T5	Alternate method used.
TA	Analyte is not covered by Arizona licensure program #AZ0102, or ACZ does not maintain ADHS certification for this analyte.
TB	Analyte is not covered by NELAC certificate #ACZ, or ACZ does not maintain NELAC certification for this analyte.
TC	VOA Landfill compounds only.
TD	VOA Appendix 2 compounds only.
TE	BNA Appendix 2 compounds only.
TO	Target analyte is not included in the scope and application of the referenced method.
TG	Recovery is outside of laboratory acceptance criteria; recovery within method 624 acceptance criteria

Calibration verification

V1	CCV recovery was above method acceptance limits. Target analyte was not detected in the sample.
V2	CCV recovery was above method acceptance limits. This target analyte was detected in the sample. The sample could not be reanalyzed due to insufficient sample.
V3	CCV recovery was above method acceptance limits. This target analyte was detected in the sample, but the sample was not reanalyzed. See case narrative.
V5	For Organic SW-846 methods: CCV recovery after a group of samples was above acceptance limits. This target analyte was not detected in the sample; acceptable per EPA Method 8000C.
V6	Data reported from one-point calibration criteria per ADEQ policy 0155.000.
VA	Sample matrix caused CCV to fail; sample was analyzed on dilution for confirmation.
VB	CCV recovery was outside of acceptance limits. See Case Narrative.
VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
VD	CCV recovery was outside of the acceptance limits. CCC and SPCC compounds met the method acceptance criteria.

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Extended Qualifier Reference

ACZ

Z1	The NPDWR required detection limit was not satisfied.
Z2	Sample reported on a wet weight basis.
Z3	Sample volume yielded a residue less than 2.5 mg
ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
ZC	Low boiling point hydrocarbons present.
ZD	Diesel range hydrocarbons present.
ZE	High boiling point hydrocarbons present.
ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
ZJ	Matrix Spike recovery was outside of laboratory acceptance limits, but within method acceptance limits.
ZK	Analyte concentration in the blank was less than the lower acceptance limit. Sample concentration is at least ten times greater than the absolute value of the blank concentration.
ZL	Sample exhibited non-coliform growth.
ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
ZN	Lowest calibration standard dropped from the calibration curve. The concentration of the lowest calibration standard used is the reporting limit for the analysis. See Case Narrative.
ZO	Concentration is based on a final residue greater than 200 mg.
ZP	For Hg-1631, target analyte detected in trip blank at or above method reporting limit of 0.5 ng/L. Associated sample value was > 5X the concentration in the trip blank.
ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
ZR	Fe 2+ data is estimated because samples should be analyzed within 1 hour from sampling. After 1 hour the ferrous-ferric ratio changes in acidic solutions or with exposure to air.
ZS	Digestion procedures have the potential to trigger silica polymerization and precipitation, leading to low biased results. Silica chemistry is complex and polymerization kinetics are unpredictable. Dissolved and/or acid soluble silica analyses may provide more accurate measurements.
ZT	Carbonate peak tail extends into Bromide retention time; however, no Bromide peak was observed in the carbonate tail.
ZU	Analysis date/time preceeds filter date/time. A portion of sample was filtered and analyzed prior to the creation of a Filter workgroup.
ZV	Sulfate and Bromide peaks not resolved in chromatogram due to high Sulfate concentration.
ZW	Method deviation. The sample was centrifuged prior to analysis due to high solid content.
ZX	Bis(2-Chloroisoproply)ether results are estimated due to a co-eluting impurity in the reference standard material.
ZZ	Laboratory measured pH and temperature were used in this calculation. Sampler did not report either field pH, field temperature, or both.