

# **REVIEW OF THE NTWQM NONTIDAL NETWORK: SAMPLING AND DATA MANAGEMENT ISSUES**

## **NTWG ACTION TEAM CONFERENCE CALL**

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# ROLE OF THE ACTION TEAM

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- ✘ Determine which issues are more likely resolvable at least in terms of:
  - + Meeting DUET Technical data requirements
  - + Revision to NTN Guidance
- ✘ Determine which issues are not likely resolvable in time for the WY2012 data upload, because they require further discussions at the NTWG level to best resolve how to revise future NTN guidance to address these issues.
- ✘ Prioritize these issues as doable for WY2013 data collection and upload with some further discussion.

# ISSUES TO BE DISCUSSED/RESOLVED

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- ✗ Event Types
  - + Expected event types and frequency
  - + Additional interim sampling (i.e. during droughts)
- ✗ Event Remarks
  - + Stream sampling equipment
  - + Exact monitoring station locations (i.e. routine vs. alternate)
- ✗ Consistency Checks
  - + To be performed at Data Collector level
- ✗ Reproducibility of Measurement – Precision
  - + Field Split duplicate sample frequencies and procedures
- ✗ Contamination – BIAS
  - + Field Blank sample frequencies and procedures
  - + Coding of possible biased data
- ✗ Historical NTN Data
  - + DUET will be used for WY2012 data and beyond
- ✗ Out of Network Data – Automated and Continuous Sampling
  - + Auto sampling and continuous monitoring procedures



# ISSUES 1 & 2: EVENT TYPES

EVENT_TYPE_ID	EVENT_TYPE	DESCRIPTION
1	R	Routine Sample
2	S	Storm Sample
3	RSI	Routine Storm Impacted Sample
4	B	Targeted Base Flow Sample
5	AS	Additional Storm Sample
6	IR	Interim Additional Routine Sample; taken in addition to monthly Routine sample
7	IRSI	Interim Additional Routine Storm Impacted Sample; taken in addition to monthly Routine Storm Impacted sample
8	IS	Interim Additional Storm Sample

# ISSUES 2 & 3: EVENT REMARKS

EVENT_REMARK_ID	EVENT_REMARK	DESCRIPTION
1	LF	Low flow sampling location used given conditions at normal sampling site
2	HF	High flow sampling location used given conditions at normal sampling site
3	AL	Alternate sampling location used given inaccessibility to normal sampling site
4	ET1	Planned and conducted sampling for Routine Event_Type; actual flow conditions indicated Routine Storm Impacted or Storm event
5	ET2	Planned and conducted sampling for Routine Storm Impacted or Storm Event_Type; actual flow conditions indicated Routine event
6	LFET1	Combination of LF and ET1
7	HFET1	Combination of HF and ET1
8	ALET1	Combination of AL and ET1
9	LFET2	Combination of LF and ET2
10	HFET2	Combination of HF and ET2
11	ALET2	Combination of AL and ET2

# NORMALIZING DATA QUALITY

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Currently:

- ✗ CBP evaluates quality of **laboratory** data via inter-lab studies.
- ✗ NTN has general guidelines for collection & reporting field QC.
- ✗ Field QC data are used by individual collectors & agencies to assess sample-by-sample data quality.

DUET will expand upon the above to evaluate **overall** data quality for aggregate data sets – for the nontidal watershed, by station type, event type, etc.

- ✗ Aggregate and by sample QC statistics will be available for use in data interpretations, reports, publications and comparisons across agencies.

# ISSUE 4: CONSISTENCY CHECKS

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- ✘ Labs/Data Collectors to Perform Consistency Checks [e.g., Nitrate < TDN]
- ✘ Report WQ data if difference  $\leq$  PQL (Code "QQ")
- ✘ Review WQ data if difference  $\geq$  PQL (Code "NQ")
  - + Report acceptable data
  - + Reject (null ?) unacceptable data
- ✘ Report WQ data if unable to determine agreement (mix of < MDL or < PQL values) with qualifier code "IQ"
- ✘ Special Requirements for Duplicates (FS1/FS2):
  - + Report all values even if NQ
  - + Withhold (null) FS1/FS2 only if Code "V"



# ISSUE 5: PRECISION ESTIMATES

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- ✗ Based on field duplicates - FS1/FS2 or S1/S2
  - ✗ Need raw data to 2 or more insignificant figures (BMDL table)
  - ✗ DUET will perform Automated Calculations:
    - + Relative % Difference (RPD)
    - + Duplicate pair counts: Per event type, station group & WQ samples (representativeness)
    - + Precision Statistics - Mean & std. dev. per collector, state, etc.
    - + High RPDs (>PQL) to be automatically coded "HI"
    - + Graphics of RPDs vs. time
- (NOTE: Use of RPD as precision statistic can be re-designed by NTWG once we have sufficient duplicate sample data from all data collectors to evaluate alternatives)



# ISSUE 6: BIAS ESTIMATES

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- ✗ Based on Field Blank (FB) Results
- ✗ Report all numerical values  $\geq$  MDL
- ✗ If Field Blank is  $\leq$  MDL - No problem code.
- ✗ If Field Blank is  $\geq$  MDL:
  - + Report all numbers, even if between MDL & PQL
  - + Investigate source of contamination (interim  $\frac{1}{4}$  ly problem code)  
Final problem code for source
  - + If WQ data affected, problem code WQ data.

# NTN DUPLICATES AND BLANKS (PROPOSED OCTOBER 2012 FOR FY2013)

Number of Stations per Collection Group	Number of Duplicates per WY	Distribution	Number of Blanks per WY	Distribution
< 5	4	1 per quarter	4	1 per quarter
5-9	4	1 per quarter	6	1 every other month
10-15	6	1 every other month	8	2 per quarter
> 15	8	2 per quarter	12	3 per quarter





