

DATA VALIDATION & EPA AQS SUBMISSION SOP

Multi-Tier Level 0/1 Data Screening, Flagging, and Quarterly AQS Reporting

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Target Network:	CASTNet / EPA AQS Ambient Monitoring	Review Cycle:	Annual / QAPP Compliant

1. PURPOSE & METHOD SUMMARY

This SOP specifies the multi-tier data validation workflow required for ambient air quality and meteorological parameters monitored within the IMC database. Processed datasets are validated to ensure compliance with U.S. EPA guidelines prior to final submission to the EPA Air Quality System (AQS) database.

2. VALIDATION TIER WORKFLOW

- **Level 0 Validation:** Daily visual screening of raw hourly data, stackplots, and datalogger flags. Resolves acquisition errors and ensures complete database loading.
- **Preliminary Validation:** Automated max/min range screening, zero-adjustment checks (VZ), and identifying values exceeding project Quality Assurance Project Plan (QAPP) limits.
- **Level 1 / Final Validation:** Comprehensive review by data analysts, field specialists, and site operators. Incorporates station logs, audit results, and calibration forms to resolve questionable records.
- **Data Flagging:** Datalogger flags ('M' Maintenance, 'C' Calibration, '1V' Valid/Reviewed, '1F' Invalid QC, 'EC' Exceedance Invalid) are permanently archived in the database.

3. EPA AQS TRANSACTION GENERATION & SUBMISSION

Validated hourly average criteria pollutant and meteorological data are formatted into AQS Type RD transaction files using the Air Quality Database Management System (AQDBMS). Files are submitted quarterly via the Exchange Network Services Center (ENSC).

4. CRITICAL VALIDATION CRITERIA & FLAGS

Validation Flag	Description & Trigger Condition	AQS Action & Impact
M / C Flags	Maintenance or Calibration active on logger	Excluded from routine averages; nulled in AQS
VZ Code	Valid data adjusted for baseline zero drift	Reported as valid value adjusted in database
1V Code	Routine data reviewed & validated with evidence	Fully validated dataset uploaded to AQS
1F / EC Code	Critical QC check failure / invalid measurement	Data invalidated back to last passing QC check
Type RD File	AQS standard hourly transaction file format	Submitted quarterly via ENSC internet portal

DOCUMENT AUTHORIZATION & SIGN-OFF

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