Title V CAM Compliance Checklist

Meeting 40 CFR Part 64 Requirements for Thermal Oxidizers

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1. CAM Applicability Determination

- ☐ Confirm source is a Title V major source
- ☐ Identify each emissions unit subject to an emission limit or standard
- ☐ Determine if control device (thermal oxidizer) is used to achieve compliance
- ☐ Verify pollutant-specific applicability - each regulated pollutant controlled by the TO/RTO
- ☐ Confirm whether the unit has a potential to emit (PTE) at or above the major source threshold for any single pollutant
- ☐ Document pre-control and post-control emissions calculations
- ☐ If CAM applies, identify the specific emission units and pollutants requiring monitoring

2. Monitoring Approach Selection (per 40 CFR 64.3)

- ☐ Select indicator(s) to monitor - combustion temperature is most common for TOs/RTOs
- ☐ Define indicator range(s) consistent with compliance demonstration
- ☐ Establish monitoring frequency - continuous (CEMS or parameter logging) is typical
- ☐ Determine data representativeness and averaging period
- ☐ Document rationale for selected monitoring approach
- ☐ Ensure selected approach meets EPA criteria: predictive capability, data quality, and timeliness

3. QA/QC Requirements (per 40 CFR 64.7)

- ☐ Establish calibration procedures for all monitoring equipment
- ☐ Define calibration frequency - at least annually, more frequent for critical instruments
- ☐ Document accuracy specifications for temperature sensors (e.g., thermocouples +/-2 deg F or per OEM)
- ☐ Establish data validation procedures - how to handle missing data, outliers, and instrument failures
- ☐ Define corrective action procedures when QA/QC criteria are not met
- ☐ Maintain calibration records and certificates

4. Parametric Monitoring Requirements

- ☐ Install continuous temperature monitoring at combustion chamber exit or as specified in permit
- ☐ Ensure temperature measurement location is representative of actual destruction conditions
- ☐ Establish minimum operating temperature based on stack test data
- ☐ Define averaging period for temperature monitoring (e.g., 1-hour block average, 3-hour rolling)
- ☐ Set up automatic data logging with minimum 15-minute resolution (or as required by permit)
- ☐ For RTOs: monitor switching valve operation and cycle timing
- ☐ For catalytic oxidizers: also monitor catalyst bed inlet temperature and pressure drop

5. Recordkeeping Requirements (per 40 CFR 64.9)

- ☐ Maintain continuous monitoring data for a minimum of 5 years
- ☐ Record all exceedances of established indicator ranges with date, time, and duration

- ☐ Document all monitor downtime and the reason for each occurrence
- ☐ Record all QA/QC activities including calibrations, audits, and corrective actions
- ☐ Maintain summary of all corrective actions taken in response to exceedances
- ☐ Keep all CAM-related correspondence with permitting authority
- ☐ Ensure records are readily accessible for inspection

6. Reporting Requirements (per 40 CFR 64.9)

- ☐ Include CAM monitoring results in semi-annual monitoring reports
- ☐ Report all deviations from established indicator ranges
- ☐ Document duration and magnitude of each deviation
- ☐ Report all monitor downtime and resulting data gaps
- ☐ Include corrective action summaries for each reported deviation
- ☐ Submit annual compliance certification addressing CAM requirements
- ☐ Notify permitting authority of any changes to monitoring approach

7. Controls System Requirements for CAM

- ☐ PLC/controls must support continuous parameter data logging
- ☐ HMI must display real-time monitored parameters with alarm annunciation
- ☐ System must generate automatic alarms when parameters deviate from established ranges
- ☐ Data export capability required - permit-ready format (CSV, PDF, or historian report)
- ☐ System must track and log operating time vs. downtime
- ☐ Backup data storage recommended - protect against data loss from PLC memory failure
- ☐ Consider remote access for real-time compliance verification

VIR Automation - Thermal Oxidizer & RTO Controls Specialists

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