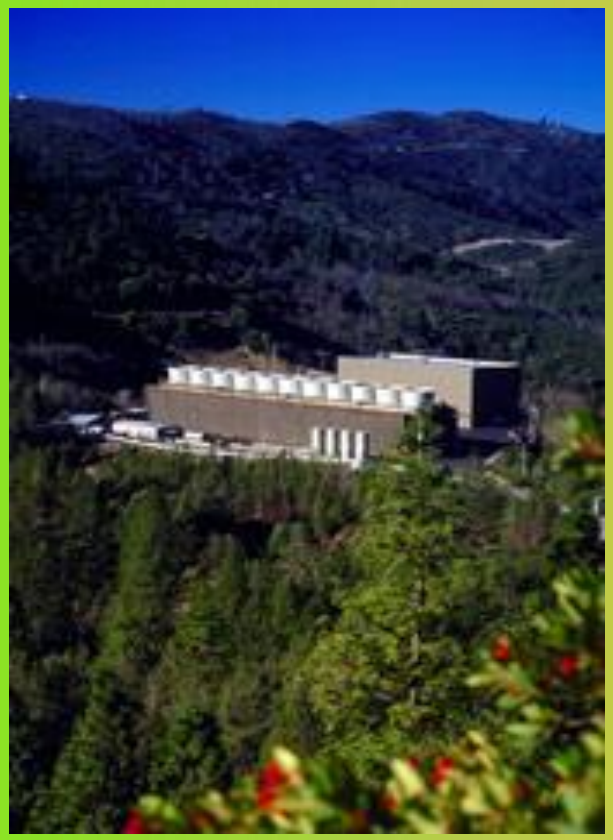


Top Ten Environmental Compliance Audit Findings:

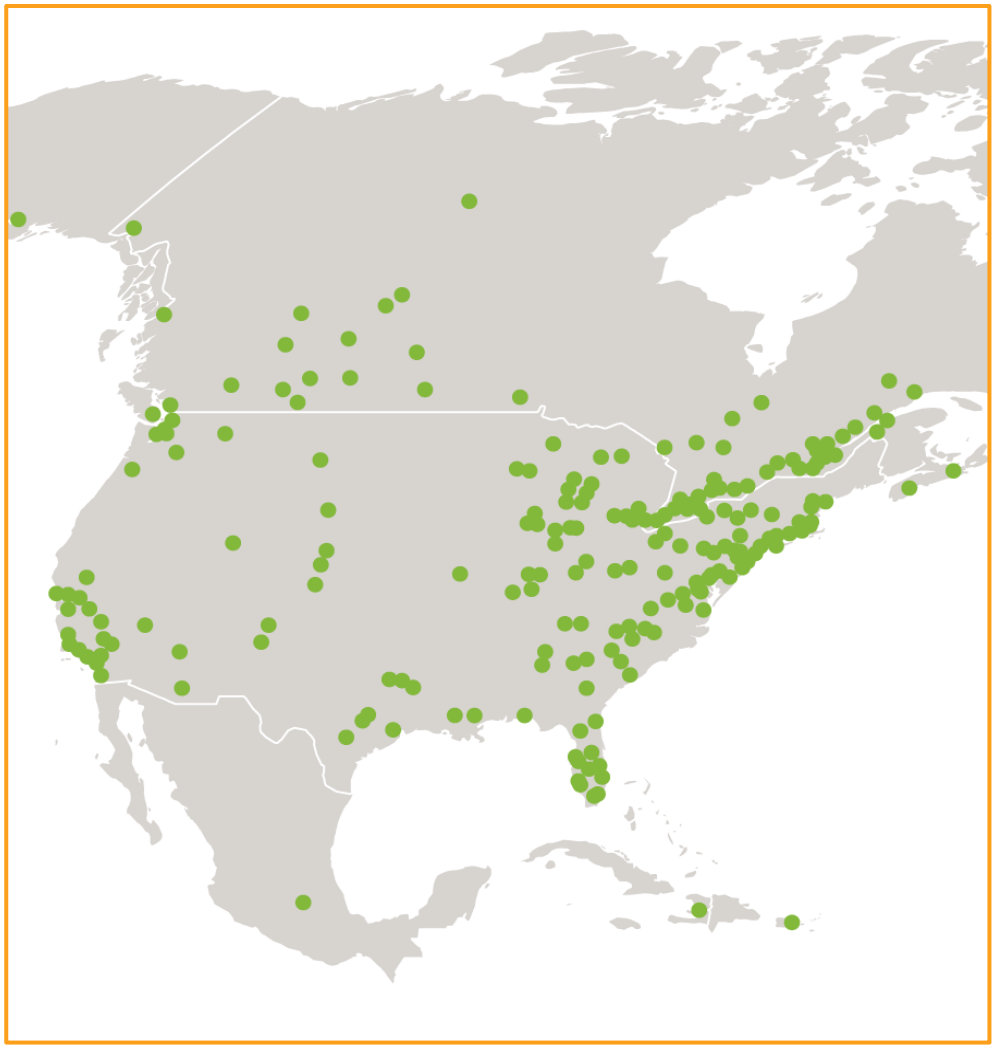
AECOM

Agenda

- A Brief Introduction to AECOM
- AECOM's Auditing Practice
- Utility and Power Generation Auditing
- Top Ten Environmental Audit Findings

AECOM Environment Business Line

- One of the largest and most global environmental consultancies
- 5,000 staff in 25 countries – 2,600 US staff in 47 states
  - Serving industry and government Clients
  - 60 technical and management disciplines
  - Deep knowledge of industrial processes and operations
  - Full range of environmental services
  - Streamlined contracts and business support



Role in the U.S. Power Sector

- Oldest, most diverse, most commended client base
- 42 years of practice
- 400 clients served
- Industry advocacy
- ~1,000 experienced staff

- Full service
  - EH&S Compliance Management
  - Planning, Licensing, and Permitting
  - Environmental Impact Assessment
  - Health & Ecological Risk Assessment
  - Carbon Management
  - Carbon Capture & Sequestration
  - Coal Combustion Product Management
  - Due Diligence
  - Remediation
  - Decommissioning

AECOM's Environmental Audit Practice

AP / Jeff Klein

AECOM

EHS Compliance Auditing and Management

- Leading global EHS audit practice
- 30 years of experience
- More than 300 dedicated EHS auditors
- EHS management system design, development, and implementation
- Records and information management systems
- Global network of compliance and regulatory experts
- Extensive industry and process experience

Power Plant EHS Auditing

AECOM

Multi-Site Audit Programs for the Power Generation Industry

- Multi-year support to a corporate audit program
- More than 40 fossil-fuel, solar, facilities
- Eleven states
- Value added:
  - Audit protocols
  - Audit Program Plan
  - **On-line audit reporting system**
  - Management system assessment

Multi-Site Audit Programs for the Power Generation Industry

- Multi-year support to a corporate audit program
- More than 30 fossil-fuel facilities
- Public utility operations
- Ten states, Puerto Rico and Mexico
- Value added:
  - Audit protocols
  - **Auditor training**
  - **Leading and coaching in-house teams**
  - On-line audit reporting system
  - Comparative evaluation of worldwide audit programs

Multi-Site Audit Programs for the Power Generation Industry

- 60 audits of fossil, wind and hydroelectric power plants in 15 states, three Canadian provinces and Mexico
- Commended for high quality and thorough compliance auditing
- Value Added:
  - 10 years of environmental services support, including compliance auditing
  - **Provided auditor training to Suez EHS managers and in-house auditors**
  - Corporate EHS Management experience

Multi-Site Audit Program for the Power Generation Industry

- Evaluation and prioritization of environmental and compliance risks
- 21 fossil and hydroelectric power plants
- Value Added:
  - Forward looking to evaluate the impact of future known and potential regulatory programs
  - Evaluation of costs of compliance or corrective action
  - **Priority ranking of issues**

Constellation Energy Environmental Audit Program

- Multi-year support of the individual BGE and CPG/CNG corporate CEG Environmental Compliance Audit Programs
- More than 100 audits conducted in the US and Canada:
  - Fossil and biomass plants
  - Three nuclear power plants
  - Utility power distribution facilities
  - Local heating cooling, consumer services
- Value Added
  - **Risk model development**
  - Audit Protocols
  - **Trend Analysis for Program Reports**

Top Ten Environmental Audit Findings

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1. SPCC Plan Deficiencies

- Sources Missing
- Annual Review
  - Not Conducted/Missing
- PE Certification
  - Not Conducted within 6 Months of Technical Amendment
- Consistency in Inspection Procedures
  - Plan States ABC, Plant Does XYZ
- Spill Response Spill Kit
  - Description and Inspections

AECOM

SPCC Plan Deficiencies: Options

- Do it Right the First Time!
  - Start with Current Procedures
  - Know the Regulations
  - Stay Engaged
  - Keep it Simple
- Keep Plans Separate
  - Hazardous Waste
  - SWPP Plan
- Management of Change
  - 6 months for amendments
- Training & Inspection
  - Integrate and Live the Plan

AECOM

2. CFC Management Deficiencies

- Lack of Inventory
  - 50 lbs or greater
- Repair Records
  - Timing of leak identification
  - Timing of repair verification
- Leakage Rate Calculation: The Big Myth
  - Not Required if Leak Verified Repaired in Less Than 30 days
  - Importance of Second Bullet

CFC Management Deficiencies: Options

- Reduce Number of Units
  - Product Substitution
  - Replace with Non-Regulated Unit
  - Eliminate/Consolidate Units
- Inventory a Must
  - Misleading Name Plates
  - All Units
- Require Accurate Contractor Records
  - Timing of leak identification
  - Timing of repair verification

3. Universal Waste Labeling

- Missing Label
- Wrong Language
  - Lamps, Batteries. Mercury Containing Equipment
  - Three Choices
- No Accumulation Start Date

Universal Waste Labeling: Options

- Convert to “Green” Fluorescent Bulbs
- Reduce Number of Storage Locations
- Locate Storage Areas in “Controlled” Location
- Develop Pre-Printed Labels with the Exact Language
- Include Storage Locations on Routine Inspection Program
- Re-Training and Monitoring Conformance to Procedures

4. Instrumentation Calibration

- Non-CEMS Control Instrumentation
  - AST Level Indicator/Alarm
  - UST Leak Detection Systems
  - Ammonia Systems (level, pressure)
  - Cooling Tower TDS
- Can be Driven by RMP, AST Regulations, UST Regulations, Air Permit
- Basic Risk Management

Instrumentation Calibration: Options

- Inventory All Environmental "Compliance/Risk" Related Instrumentation
  - Engineering & Compliance Joint Effort
- Determine If Loaded into PM System (i.e. Maximo)
- Load into System if Not Already So
- Include in MOC Procedure to Prevent Future Cases

5. Parts Degreaser Management

- Air Regulations/Air Permit
- Procedures Not Posted
- Covers Left Open
- Title V Significance

Parts Degreaser Management: Options

- Consolidate/Eliminate Units
- Covert to Aqueous Based Solvent
- Posting of Signage at Units
- Periodic Retraining of Operators
- Supervisor Policing and Enforcement

6. Used Oil Management

- No Labels
- Certain States: Waste Oil Labels
- Certain States: Containers Left Open

Used Oil Management: Options

- No Easy Solutions
  - Plant-Wide Generation
  - Distributed Responsibilities
- Consolidate Storage Locations
- Availability of Labels
- Focus Responsibilities
- Signage and Training
- Supervisor Policing and Enforcement

7. Insignificant, Permit By Rule, Registration Status Air Sources

- Sources Identified However Supporting Records Not Maintained
  - Emergency Engines
  - Media Blasting Activities
  - NGL Tanks
- Title V Impact
  - Certification of Continuous Compliance

Insignificant, Permit By Rule, Registration Status Air Sources

- Conduct Comprehensive Source Review
  - Title V/Title V Renewal Application
- Eliminate Sources if Possible
- Develop Program to Gather Operating Records or Supporting Data to Maintain Source Status
  - One Time Plus Ongoing

8. CEMS QA/QC Manual Implementation

Monitored Parameter	Calibration Error Requirement
SO_2 or NO_x	≤ 5.0% of span value or ≤ 5 ppm absolute value of the difference between the monitor response and the reference value if the span value of the monitor is < 50 ppm, or ≤ 10 ppm absolute value of the difference between the monitor response and the reference value if the span value (SV) of the monitor is 50 ppm < SV < 200 ppm.
CO_2 or O_2	≤ 1.0% CO_2 or O_2
H_2O	≤ 6.0% of the Span Value. Moisture monitor systems composed of wet and dry O_2 monitors must meet the O_2 calibration error requirement of ≤ 1.0%
Flow	≤ 6.0% of the Span Value, or ≤ 0.02 inches of water absolute value of the difference between the monitor response and the reference value if the monitor is a differential pressure type.

- Manual References Missing Appendices/Attachments
- Manual Identifies Procedures for Data Checks Not Being Conducted/Conducted Differently
- Checklists/Inspection Forms in Manual Not Those being Used

CEMS QA/QC Manual Implementation: Options

Monitored Parameter	Calibration Error Requirement
SO_2 or NO_x	≤ 5.0% of span value or ≤ 5 ppm absolute value of the difference between the monitor response and the reference value if the span value of the monitor is < 50 ppm, or ≤ 10 ppm absolute value of the difference between the monitor response and the reference value if the span value (SV) of the monitor is 50 ppm < SV < 200 ppm.
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- Institute Periodic Review and Inspection of Manual
  - Load into Maximo/Intellex type systems
- Conduct Review with CEMS Technicians
- Retrain Technicians to Manual

9. Used Aerosol Can Management

- No Program/No Collection
- Program with No Inspection/Enforcement

Used Aerosol Can Management: Options

- Develop Collection Program
  - Establish Collection Locations
  - Trade-In Program
- Assess Cost-Effectiveness
  - Manage All as Hazardous Waste
  - Install Can Puncturing Device
- Implement Inspection/Enforcement Program

10. Hazardous Waste Generator Status Demonstration

- Typically CESQG Level
  - Less Than 220 lbs per Month
- Insufficient Records
  - Not All Wastes Counted (see aerosol can problem)
  - Still Belief Manifests Alone Can be Used as Documentation
- Miss/Overlook Satellite Accumulation Areas

Hazardous Waste Generator Status Demonstration Options

- More Comprehensive and Realistic Generation Inventory
  - Types
  - Amounts
- Eliminate/Reduce Hazardous Waste Generation
- Consolidate Satellite Accumulation Areas
- Establish Inventory System for All Waste Types and Generation Locations

And in conclusion….

- Top 10 Audit Findings Are Generally in Lower Tier Compliance Programs (i.e. non-air programs)
- Within Those Lower Tier Programs, Labeling Requirements Are Consistently an Issue
- Maintaining SPCC Plan Compliance Presents the Greatest Challenge for Power Plants
- Plant Modifications/Changes Affect Environmental Compliance and How That Change is Managed Affects the Ability of the Plant to Minimize Audit Findings

Questions and Answers

Thank you for your time and attention

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