Top Ten Environmental Compliance Audit Findings:
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
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
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
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
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

October 12, 2011
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

- 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

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<th>Calibration Error Requirement</th>
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<td>SO₂ or NO₂</td>
<td>≤ 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 &lt; 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 &lt; SV &lt; 200 ppm.</td>
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<td>CO, or O₂</td>
<td>≤ 1.0% CO, or O₂.</td>
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<td>H₂O</td>
<td>≤ 6.0% of the Span Value. Moisture monitor systems composed of wet and dry O₂ monitors must meet the O₂ calibration error requirement of ≤ 1.0%.</td>
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<tr>
<td>Flow</td>
<td>≤ 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.</td>
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CEMS QA/QC Manual
Implementation: Options

• Institute Periodic Review and Inspection of Manual
  – Load into Maximo/Intellex type systems

• Conduct Review with CEMS Technicians

• Retrain Technicians to Manual

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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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