Work Smarter Not Harder: Utilizing an Environmental Management Information System to Meet Regulatory Compliance and Reporting Requirements for a Major Source Title V Facility.

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19a. NAME OF RESPONSIBLE PERSON
Fort Benning, Georgia

• Mission
  – Training
    ➢ Infantry, Ranger, Airborne, Armor, and Officer Candidate Schools
  – Support to training and families

• Infrastructure and support facilities
  – Hospital, Hotel, Instructional space, Barracks, Dining Facilities, Administration Buildings, Warehouses.

• Population
  – 100,000+
  – 40,000+ vehicles daily
  – Soldiers, their Families, DA Civilians, Contractors, and Trainees.

• Base Realignment and Maneuver Center of Excellence
  – 113 construction or renovation projects
Environmental Concerns

• Impacts from site operations
  – Training
  – Construction

• Policy implications
  – DoD
  – Federal and State

• Compliance concerns
  – Increasing and changing regulation

• Resource limitations
  – Personnel and funding

• Sustainability drivers
Air Quality Compliance at Fort Benning

- Major Source under Prevention of Significant Deterioration (PSD)
  - New Source Performance Standards (NSPS)
- Major Source of Hazardous Air Pollutants (HAP)
  - National Emission Standard of Hazardous Air Pollutants (NESHAP)
- Part 70 Operating Permit (Title V)
- Title VI – Stratospheric Ozone Protection
- Greenhouse Gas (GHG) Mandatory Reporting Rule
- Executive Order 13514
Fort Benning Air Program Objectives

• Compliance
  – Data collection
  – Record keeping
  – Reporting

• Planning
  – Construction projects
  – New equipment/ emissions sources

• EMS Metrics
  – Emissions reduction (VOC, GHG)
  – Fossil fuel use reductions
  – Alternative energy use
Compliance Data Collection

• Multiple data sources
  – User
  – Operator
  – Energy or other program managers
  – Service contractors

• Various data reporting and collection methods
  – Spreadsheets
  – Monthly emails
  – Hand written notes or log sheets
  – Faxes
Compliance Record Keeping and Reporting

• Multiple spreadsheets for record keeping
  – Minimum of three days per month for verification and entry
    ➢ Requires manual data entry
    ➢ Separated by source
    ➢ Complied according to permit condition
    ➢ Emissions calculations completed with formulas or macros
    ➢ Verify and certify for compliance

• Reporting
  – Deviations or Excursions
  – Two, Semi-Annual Compliance Reports
  – Annual Compliance Certification
    ➢ Multiple weeks to compile each compliance report
Environmental Management Information System (EMIS)

- Ongoing Dem Val of EMIS (Enviance, in this case)
- Cloud Software as a Service (SaaS) computing
  - No software to purchase
  - No additional hardware required
- Increased data availability and transparency
- Uniform methods and techniques
- Flexibility to handle numerous programs
  - Air (Fort Benning)
  - Water/DMR (Fort Benning)
  - Hazardous Waste (Fort Carson)
  - EMS (Hawaii Garrison, West Virginia National Guard)
Project Purpose

- Build a single, unified management and reporting system for compliance and planning
- Configure it specifically for Fort Benning
- Streamline Title V data collection, compliance management, and reporting
- Harmonize the emissions inventory estimating methodologies for Title V, PSD, GHG, and state emissions inventory reporting
- Develop a “What if” tool for project and new source analysis
- Improve compliance and reporting efficiency so resources could be allocated to EMS and Strategic Sustainability Performance Plan goals
Challenges

• Fort Benning Title V Permit
  – Originally contained 128 conditions
    ➢ 13 additional conditions added during the project
  – 9 source categories
  – Emissions and operating limits
    ➢ Requires a number to demonstrate compliance
      o Fuel usage
      o Hours of operation
  – Required actions
    ➢ Requires a task record to demonstrate compliance
      o Inspection report for opacity
      o Fuel delivery ticket review
Challenges

• Emissions Harmonization
  – Heating and combustion units were particularly challenging
  – Inconsistent basis for calculating
    ➢ State Air Emissions Inventory reported in lb/mmcf
    ➢ Greenhouse Gas reported in kg/MMbtu
    ➢ Prevention of Significant deterioration calculated in lb/hour
  – Need to make all calculations run off a single data point

Example: Monthly natural gas meter reading for Boiler #H008
Reported by service contractor to Air Program as ccf.
Must be converted to a different reporting unit depending on
the requirements.
Challenges

• Reporting
  – State does not have a set format for Semi-annual Title V compliance reporting but does for the Annual Report
    ➢ Develop a format for the semi-annual that was similar to annual reporting, but enhanced to comply with state requests for supporting documentation and usage
  – GHG tool is as yet not released
  – Georgia is developing a new Air Emissions Inventory tool that is not fully released
    ➢ Questions remain regarding what will actually be reported and how it will be formatted for each of the agencies
Path of Progress

• Georgia EPD approval
  – Suggested report formatting
  – Basis for emissions limit calculations
• Link a single data point to numerous solutions and outputs
• Configure each source, permit condition and calculation methodology
• Format reports and outputs
Title V Compliance Solution

- Each permit condition is incorporated
  - Fully described and structured
  - Pertinent source data is stored and available
- Task driven such that task completion satisfies recordkeeping requirements
- EMIS performs emissions calculations and compares results to conditions or limits
  - Emissions caps (e.g., 12-month rolling NOx sums)
  - Operating limits (e.g., 12 month rolling fuel use sums)
- Deviation reports are generated automatically
- Report output is formatted to meet State requirements
Emissions Harmonization Solution

- Modified methodology to use the same physical basis for calculating emissions of PSD, TV, GHG, and EI reporting
- Aggregated insignificant sources, not specifically limited under TV, but reportable for PSD, GHG, and EI
- Built emissions calculations for each source category
  - Adding a new boiler or engine test cells is simplified
  - Setting up a source for PSD, structures it for GHG and EI at the same time
- Complete final reporting format once EPA and GA EPD release their final emissions reporting tools
Final Outcomes

- A single, unified management and reporting system for compliance and planning
- Configured specifically for Fort Benning
- Streamlined Title V data collection, compliance management, and reporting
- Harmonized the emissions inventory estimating methodologies.
- Developed “What if” tool for project and new source analysis
- A single data entry supplies information to satisfy TV compliance, PSD, GHG, and State EI calculations.
Cost Savings and Program Improvements

• Realized
  - Streamlined Title V compliance system creates efficiencies
    ➢ Monthly data entry reduced from 3 days to a few hours
    ➢ Report preparation reduced from several weeks to a few hours
  - Emissions Harmonization
    ➢ FY11 funding released by Air Program ($50K), not requested for FY12.
    ➢ FY11 funding planned for PSD analysis being reallocated.

• Expected
  - Increased TV, PSD, GHG, and EI efficiencies result in better resource allocation for planning and EMS and SSPP improvements.
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