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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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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
 - Fuel usage
 - Hours of operation
 - Required actions
 - Requires a task record to demonstrate compliance
 - Inspection report for opacity
 - 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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