CE Operations Regulatory Compliance Within an Asset Management Framework

Larry Isaacs, PhD, PE
AFCEE/TDNQ

Scott Hartung and Perry Gayle, PhD, PE
URS Group, Inc.
# CE Operations Regulatory Compliance Within an Asset Management Framework

**Author(s):**
Air Force Civil Engineer Center, AFCEE/TDNQ, 2261 Hughes Ave., Suite 155, JBSA Lackland, TX, 78236

**Performing Organization Report Number:**

**Sponsoring/Monitoring Agency Name(s) and Address(es):**

**Approved for Public Release; Distribution Unlimited**

**Presented at the NDIA Environment, Energy Security & Sustainability (E2S2) Symposium & Exhibition held 4-7 May 2009 in Denver, CO.**
Overview

- Air Force is lagging in efforts to sustain critical infrastructure
- Air Force transformations have created challenges
  - Staff reductions
  - Shifts in funding guidance
  - Reorganization of CE squadrons
  - Transition to Asset Management organization
  - Changes in roles and responsibilities
  - Loss of institutional knowledge
- How can Asset Management staff help CE Ops maintain compliance under Asset Management?
Policy Changes

2001 – Change in ECP and SRM funding guidelines
- Projects needed to sustain environmental compliance of critical infrastructure funds under SRM
- CE Ops staff are not broadly knowledgeable of specific compliance requirements, regulatory deadlines, funding policies, and historical activities, and future requirements
- Large learning curve for CE Ops

2005 – Program Budget Decision (PBD) 720
- 40,000 military cut; CES reorganized from 8 to 6 flights

2006 – Air Force Smart Operations for the 21st Century (AFSO 21)
- Reduce budget for installation support by 20% by 2020
- Reduce size of physical plant by 20% by 2020
Policy Changes

The magnitude of the learning curve for CE Operations staff is large:

- NPDES permit compliance
- Pretreatment systems (OWS, GT)
- Septic Tanks and Leach Fields
- Sanitary Sewer Overflow (SSO) prevention
- Capacity, Management, Operation, and Maintenance (cMOM) compliance
- Sewage lift station alarms and inspections
- Reclaimed wastewater reuse compliance
- Stormwater Pollution Prevention
- Construction Stormwater Permitting and Erosion and Sedimentation Control
- Post-Construction Best Management Practices (BMP)
- Stormwater BMP monitoring, inspections, repairs, and operations and maintenance
- Drinking water maximum contaminant levels (MCL)
- Backflow prevention
- Stage 2 Disinfection Byproduct Rule compliance
- Coliform Rule
- Lead and Copper Rule
- Source Water Protection and Wellhead Protection
- Arsenic Rule
- Water Rights
- Spill Prevention, Control, and Countermeasure (SPCC) compliance
- Facility Response Plan (FRP) compliance
- Aboveground Storage Tank (AST) compliance
- Underground storage tank regulations
# Trends in Enforcement Actions

<table>
<thead>
<tr>
<th>Year</th>
<th>CWA Enforcement Actions</th>
<th>SDWA Enforcement Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2004</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>2005</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>2006</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>2007</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>2008</td>
<td>11</td>
<td>7</td>
</tr>
</tbody>
</table>
The transition to asset management is driven by Executive Order (EO) 13327, *Federal Real Property Asset Management*, published in February 2004:

- Develop and implement an asset management planning process to promote the efficient and economical use of federal real property assets.
- Establish appropriate performance measures to evaluate the costs and benefits involved with acquiring, repairing, maintaining, operating, managing, and disposing federal real property assets.
- Determine life cycle cost estimates associated with prioritized actions to improve the operation and management of federal real property assets.
Asset Management Paradigm Shift

Old paradigm for sustaining critical infrastructure:
- Suffer budget cuts, staff reductions, deployments
- Accomplish minimum compliance requirements
- Operate in a “run-to-failure” mode

New paradigm:
- Manage assets to achieve desired Levels of Service
- Reduce deferred maintenance
- Practice sustainable O&M
- Balance performance, risk, expenditures over lifecycle
- Make risk-based decisions according to mission dependency
Proposed Conceptual Model

- Embrace Change
- Eliminate Stovepipes
- Seize Opportunities
- Enable Fact-Based Decisions
Embrace Change

Your cheese is about to be moved

- **Change Happens**
  *They keep moving the cheese*

- **Anticipate Change**
  *Get ready for the cheese to move*

- **Monitor Change**
  *Smell the cheese often so you know when it’s getting old*

- **Adapt To Change Quickly**
  *The quicker you let go of old cheese, the sooner you can enjoy new cheese*

From: *Who Moved My Cheese*, Spencer Johnson, MD
Embrace Change

- Asset Management, and specifically Activity Management Plans, will provide a framework for achieving compliance and managing change
  - Facilitates collaboration between organizations
  - Improves documentation of critical information
  - Warehouses compliance milestones
  - Eliminates the need to do things twice (ready access)
  - Creates an Executive Summary of current conditions and forecasted needs
Eliminate Stovepipes

- Become a recognizable resource
- Develop a local resource tool
- Establish a reference library
- Track new and recurring requirements
- Facilitate regulatory agency coordination
- Support compliance issue resolution
- Review new projects
- Support GeoBase as an Asset Management tool
- Brief Leadership
Eliminate Stovepipes

Become a recognizable resource

- Get out of your office
- Make sure CE Ops and shop-level staff know you
- Make regular shop visits
  - Not to critique or inspect
  - To develop good lines of communication and good working relationships
- Establish yourself as a recognizable resource
Eliminate Stovepipes

**Develop a local resource tool**
- Help staff know who to contact for support
- Ideally hosted on the installation web site
- Provide printable lists
  - Points of contact
  - Areas of responsibility
  - Key initiatives
- Advertise the location and benefits of this resource tool
Eliminate Stovepipes

Establish a reference library

- DW Master Plans
- Wellhead Protection Plans
- Source Water Protection Plans
- Sanitary Surveys
- Backflow Surveys
- Water Distribution Models
- Water Rights Documentation
- Reference your classified Water Vulnerability Assessment on the SIPRNET
- WW Master Plans
- Infiltration/Inflow Studies
- OWS Studies
- SW Pollution Prevention Plans
- Spill Prevention, Control, and Countermeasure Plans
- Contingency Response Plans
Eliminate Stovepipes

Track new and recurring requirements

- Asset Management staff are most familiar with compliance requirements
- CE Ops staff will have to program SRM projects to accomplish recurring compliance requirements
- There is a need to anticipate these requirements
- Prepare checklists of requirements and deadlines
- Brief CE Ops regarding required projects
- Projects should be programmed several years in advance
- Don’t let recurring requirements fall through the cracks
**Eliminate Stovepipes**

**Facilitate regulatory agency coordination**

- Asset Management staff are the most familiar with regulatory agency representatives
- Invite CE Ops staff to participate when agency staff make site visits and conduct inspections
- Facilitate open lines of communication
- Raise awareness of issues that the agency considers important
Eliminate Stovepipes

Review demolition, renovation, and new projects

- Construction SW permitting
- SW runoff controls
- Post-construction BMP
- BMP inspection and maintenance
- Awareness of OWS, GT, septic tanks
- Proper abandonment of underground utilities, UST, OWS, etc.

- Spill Prevention Control and Countermeasure requirements
- Asbestos abatement
- Adequacy of existing utilities to support new construction
Eliminate Stovepipes

Support GeoBase as an Asset Management tool

- Become familiar with the GeoBase information for your critical infrastructure
- Review for accuracy and identify data gaps
- Ensure contractor scopes of work include the collection and submittal of geospatial information
- Require a minimum number of utility attribute fields be populated
- Support the development of GPS data quality standards
- Ensure preservation and filing of “as-built” drawings
Eliminate Stovepipes

**Brief Leadership**

- Use the momentum generated by asset management to gain attention
- Summarize issues in bullet papers
- Forecast the resources and timeframes required for compliance
- Warn of impending train wrecks and offer solutions
- Define the regulatory and mission penalty for non-compliance
- Ask Leadership to encourage collaboration between sister organizations
Seize Opportunity

- Seek first to understand and then to be understood\(^1\)
- Cross train
- Program for sustainability
- Synergize\(^1\)

\(^1\) *The 7 Habits of Highly Successful People*, Stephen Covey
Seize Opportunity

Seek first to understand and then to be understood

- Learn the concepts, methods, and vocabulary of asset management
- Express your needs in asset management terms
- The Utilities Activity Management Plan (AMP) is the Executive Summary of your activity
- Ensure your compliance and sustainability needs are represented in the AMP or they will be invisible
- Seize opportunities created by this new way of doing business
Seize Opportunity

Cross train

- “The cost of training is high but the cost of ignorance is higher”¹
- Seek opportunities for no-cost or low-cost training
- Short-term training goals and methods
  - Fundamental compliance issues
  - Sustainable O&M practices
  - Co-participate in regulatory agency visits
  - Participate as an observer during an ESOHCAMP
  - Tackle a joint initiative with a sister organization

¹ Mark Hall, P2 Manager, Shaw AFB
Cross train (cont.)

- Long-term training goals and methods
  - Curb the loss of institutional knowledge
  - Mitigate the effects of staff reductions and the retirement of the aging workforce
- Develop a mentor/protégé program
- Support succession planning
Seize Opportunity

Program for Sustainability

- Old Objectives
  - Suffer budget cuts, staff reductions, deployments
  - Accomplish minimum compliance requirements
  - Operate in a “run-to-failure” mode

- New Objectives
  - Manage assets to achieve desired Levels of Service
  - Reduce Deferred Maintenance
  - Practice Sustainable O&M
Program for sustainability

- Develop comprehensive asset inventories and condition assessments
- Improve maps and GeoBase data
- Conduct phased projects to repair and modernize degraded infrastructure and reduce deferred maintenance
- Develop O&M manuals and continuity books
- Request adequate annual O&M budgets and resources to achieve Levels of Service indefinitely
- Help CE Ops define, program and justify necessary projects
Synergize

- Synergy – when two people cooperate to produce far better results than either could alone \( (1+1=3) \)
- Synergy is not compromise, but “Win-Win”
- Working together to achieve a common goal can have improved results:
  - Improved efficiency
  - Reduced costs
  - Improved results
  - Greater visibility
  - Greater support from Leadership
Enable Fact-Based Decisions

- Seek input from all relevant stakeholders
- Accurately characterize the quality of your data
- Track all of your responsibilities even if you cannot do them all
Enable Fact-Based Decisions

Seek input from all relevant stakeholders

- CE Ops will own the Utilities AMP, but will not have all the data and answers
- Other stakeholders include:
  - Asset Managers
  - Compliance Staff
  - Utility Shop
  - Bioenvironmental Engineering
  - Fire Department
  - Readiness
  - Antiterrorism Office
- The AMP is the Executive Summary for your activity
Enable Fact-Based Decisions

Accurately characterize the quality of your data

- You must assign a level of confidence to your data
- Be honest or you will not receive high priority funding
- Example:
  - Accurate utility maps and GeoBase information are very important
  - Many bases do not have accurate, complete, field-verified geospatial data
  - It is important to characterize your needs accurately
Enable Fact-Based Decisions

Track all of your responsibilities...

...even if you cannot do them all!

- Many bases cannot complete 100% of their RWP
- Some have edited the RWP to manageable levels
- Do not report 100% completion of the RWP when you have deleted important requirements – you will short change your installation
- Capture the real cost of compliance and sustainability
- Justify the needs for future projects and additional resources
- Provide Leadership with the information they need to make fact-based decisions
The Air Force is lagging in efforts to sustain critical infrastructure

Air Force transformations have created challenges

The implementation of Asset Management represents a paradigm shift and requires new approaches, new thinking, and a change in culture

Asset Management staff should use the conceptual model presented in this course to help CE Ops maintain compliance under the new Asset Management framework.
Contact Information:

- Scott Hartung, URS Group, Inc., 919-461-1362
- Dr. Larry Isaacs, AFCEE/TDNQ, 210-536-5645
- Dr. Perry Gayle, URS Group Inc., 919-461-1295