Environmental Audits Help Drive Environmental Excellence

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ABSTRACT

- Self directed audits can help improve environmental compliance

- A software tool has been developed for water/wastewater systems

- Sharing the learnings from audits can benefit everyone

- Opportunities exist to leverage Sanitary Survey and RTCR Level 1/2 reports to improve performance

American Water's Operations

We own or operate:

- Over 325 drinking water systems

- Over 200 wastewater systems

Drinking Water Compliance in the US

- In 2014, there were over 80,000 health-based or monitoring / reporting drinking water NOVs issued to US community drinking water systems

  – Over 9,900 health-based (MCL) violations

  – Over 71,000 monitoring and reporting violations

- Almost 16,000 of the 52,000 community drinking water systems received at least one NOV

  – Over **30%** of the systems

- If the same percentage of American Water's systems received a drinking water NOV, we would receive NOVs in **104** systems

AW's Approach to Compliance

- Environmental COE and dedicated local Environmental Compliance / Water Quality staff

- Use of Environmental Management Plans

- Internal Environmental Audit Program

- Central Laboratory with LIMS

- Perform root cause analysis of NOVs and issues identified during sanitary surveys

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AW's Environmental Audit Program

- Evaluates the effectiveness of the system's Environmental Management Plan

- Focuses on ensuring that the correct policies and procedures are implemented and that personnel are knowledgeable of these practices

- Uses a Company-developed set of questions to provide a thorough and consistent program

- Collaborative effort between the auditor and system staff

- A fresh set of eyes to help identify something that the system might be overlooking

Environmental Management Plans

- Summarizes the environmental regulations that might apply to a particular facility

- Outlines and defines roles and responsibilities of individuals

- Applies to all systems - drinking water, wastewater; owned, O&M

Environmental Management Plans

ENVIRONMENTAL MANAGEMENT PLAN 2014: New Jersey-American - Western System

1st Qtr 2014 - Western System PWS ID # NJ0327001-   Regulatory Aspects

| | | | | Last inspection 03/19/13 | | |

Environmental Activity	Regulatory Reference	Environmental Aspect / Impacts	Long-Term Objectives	Target for 2014: KPI	Person(s) Responsible	Progress Against Targets in 2014
Safe Drinking Water Act **Arsenic Rule**	Arsenic Rule: 40 CFR 141 & 142 NJAC 7:10	To reduce the public health risks from arsenic in drinking water. (mcl < 5 mg/l)	To reduce the public health risks from arsenic in drinking water.	No source to exceed : NJ SDWA mcl - 5 ug/L	Licensed Operator/Production Manager - Ian Miller WQ Supervisor - Laura Vancho is responsible for monitoring and reporting.	In compliance, all groundwater sources are in compliance with the mcl of 5 ug/L.
Safe Drinking Water Act **Lead and Copper**	Lead and Copper Rule: 40 CFR 141 NJAC 7:10-5.12	To reduce public health risk due to exposure to lead and copper in drinking water.	To maintain the system in compliance with lead and copper rule; > 90% of customer tap samples below action levels.	Set up sample schedule for collection June through September Pb action level = 0.15 mg/L Cu action level = 1.30 mg/L Consumer notice of lead tap water monitoring results form must be submitted by December 1 of the monitoring year.	Water Quality Manager - Scott Baxter-Green Water Quality Supervisor -Laura Vancho Production Manager - Ian Miller to maintain corrosion control treatment.	Last sampling period was 06/01/13 - 09/30/13. Fifty samples were collected as required all results are in compliance..
Safe Drinking Water Act **Operator Licenses**	(Water Supply and Wastewater Operators' and Licensing Act) 40 CFR 141.70 NJSA 58:11 - 64 to 73 NJAC 7:10A	Certify all operators making process control decisions.	To improve training for operators to understand and operate In accord with public health standards.	Maintain training program and certification for all operators.	Production Manager - Ian Miller T&D Manager - Bill Thurman	In compliance, this system requires a T4 and W4 licensed operator. The operators are: Ian Miller T4; Bill Thurman W4
Safe Drinking Water Act **TCR (Total Coliform Rule)**	Total Coliform Rule (TCR): 40 CFR 141.21 NJAC 7:10	Protect public against microbial pathogens.	To reduce public health risk to microbial pathogens.	Meet MCL of no more than 5% samples with total Coliform positive per month. For those systems collecting fewer than 40 samples per month, the mcl is one positive sample per month. Every positive sample analyzed for fecal Coliform. No fecal Coliform present. Monthly compliance reports must be submitted to NJDEP on or before the 10th of the month following the end of the monitoring period	Water Quality Supervisor - Laura Vancho	All sampling is done according to schedule, 150 monthly samples required, system is in compliance.

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Environmental Audit Staff

- 2 full-time dedicated auditors

and 4 staff in NJ who perform audits as part of their responsibilities

Tom Willard

John Eppensteiner

Greer Thacker
Tim Martin

Stacey Spangler
Matt Bellifemine

Audit Software

- Utilizing an auditing software, InspectAll, allows for:
  - *The use of mobile devices for conducting audits*
    - Replaces use of pen and paper
  - *The capturing of photos for inclusion in reports*
    - Previously photos were kept in separate files
  - *Expedited generation of final reports*
    - Reduces the amount of back-office administrative work
- Same tool is being used for Health and Safety audits

Using InspectAll

- ## Two platforms: Mobile, web-based

Environmental Audit Questions

- Developed specifically for water and wastewater systems

- Based on the likelihood of occurrence (based on previous audits) and the potential risks associated with non-compliance

- Just over 100 questions

- Includes what constitutes an acceptable answer and confirming information (e.g., visual observation, verbal response, records review, etc.)

11: SCREENING: All vents and overflows at wells and tanks are properly screened to prevent intrusion by animals and insects in order to protect water quality.

1. 24-mesh screen on overflows and vents that can be easily accessed 2. Inspection of screens is on routine inspection checklist Process: Observe during inspection at facilities visited (without climbing tanks)

Questions (cont.)

- Determined applicability of each question to each site
  - Office Visit
  - Drinking water treatment plant
  - Pump station
  - Tank
  - Wastewater treatment plant
  - Collection system

27: STORAGE OF CHEMICALS AND OTHER LIQUIDS: Treatment chemicals, used oil, and other liquids properly stored (e.g. secondary containment, flammable cabinets, etc.).

1. No containers over 25 gallons without secondary containment (but not checking volume of containment) 2. Flammable chemicals (e.g., paints, solvents, gasoline, etc.) stored in flammable cabinet Process: Observe during inspection at facilities visited

Environmental Audit Responses

Issue Identified: Issue related to compliance with a regulation, an American Water requirement, or an industry standard, as well as potential health / safety or security concerns

Issue in Progress: Issue for which the system already has a corrective action plan in place; stays open until action has been taken and the issue has been addressed

Enhancement Opportunity: Areas where current operations could potentially be voluntary improved

Sharing Opportunity: Highlights something that other systems could potentially benefit from

Issue Addressed: Issues that are corrected prior to finalization of the audit report

Pre-Audit Activities

- Review paperwork

  - EMP, permits, Comprehensive Planning Study, inspection reports, prior audits, Envirofacts, etc.

- Review lab results

- Determine what facilities will be visited and prepare forms (audit question lists)

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Opening Meeting and Office Visit

- Explain purpose and scope of the audit
    - Attorney Work Product
- Administrative questions
    - EMP, permits, etc.
- Between 30 and 50 questions depending on the type of audit
    - Drinking water
    - Drinking water purchased
    - Wastewater treatment
    - Wastewater collection system

Site Visits

- Visit all treatment facilities
- Visit major storage facilities and pump stations as time permits
- Targeted questions for each type of facility
  - Drinking water treatment – 50 questions
  - Drinking water with retreatment – 37 questions
  - Facility without treatment – 22 questions
  - Drinking water tank – 21 questions
  - Wastewater treatment plant – 41 questions
  - Wastewater lift station – 20 questions

The Exit Interview

- Issues and Issues in Progress are discussed
  - Review the Issue and recommended corrective action
  - Discuss the appropriate priority (High / Medium / Low)
  - Identify who will be the Responsible Party
  - Agree on deadlines
    - Incorporating into the Capital Business Plan is an acceptable option, where appropriate
  - Acute concerns are immediately elevated for appropriate action
- Review Enhancement Opportunities and Sharing Opportunities

Environmental Audit Reports

- Two separate reports are developed
  - *Executive Summary* – contains a summary of the Issues Identified, Issues In Progress, Enhancement Opportunities, and Sharing Opportunities
  - *All Questions List* – documents all questions answered during the audit
- Final reports are distributed by Legal to maintain Attorney Work Product

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What Happens Next?

- All issues are tracked using the Environmental COE SharePoint site (access-restricted site)

- Provide technical support, as needed

- As issues are addressed by the system, they are closed by the auditor in SharePoint

- The Audit Team performs an annual review of all audit results to identify common themes and root causes

  – Common audit findings and best practices are shared company-wide in an effort to promote continuous improvement

Secondary Containment

Lacking Containment

Inadequate Containment

Chlorine Room Safety

Air Leaks to Other Rooms; Not Checking Sensors

Unsecured Cylinders

"Mystery" Floor Drain in Chlorine Room

Chemical Delivery Concerns

Unlabeled and Unsecured Fill Points

No Spill Containment During Delivery

Incomplete Chemical Delivery Paperwork

Insufficient Labeling

No Identification on Chemical Tank

No Hazard Signage on Chemical Room

No Labels on Confined Spaces

Unsecured Facilities

Access to Tanks

Potential Access to Finished Water
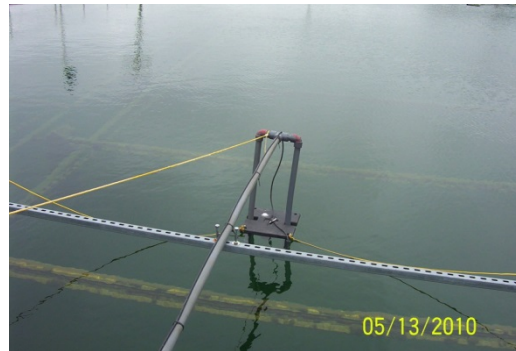
Graffiti on Stations

Sharing Opportunities

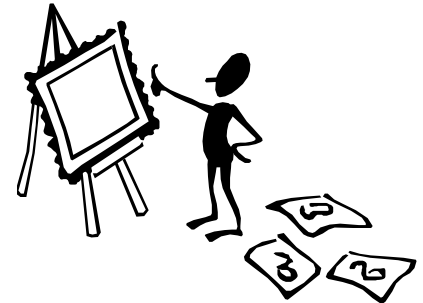*Solar Powered
Gate Operation*

*Ultrasonic Algae
Control*

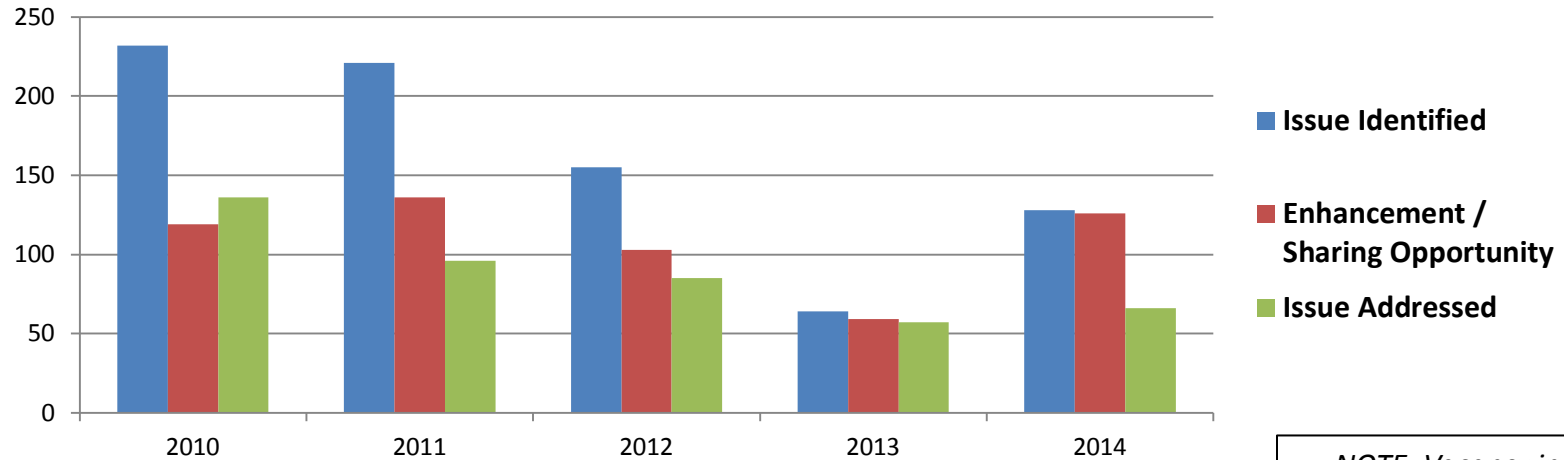*Portable Spill
Containment for
Deliveries*

Other Common Audit Findings

- Developing / updating EMPs
- Developing / certifying Spill Prevention Containment and Countermeasures (SPCC) Plans
- Providing / maintaining analyzers and alarms
- Fire / electrical shock concerns
- Testing of internal cross connections

The Results

- **Issue Identified**
- **Enhancement / Sharing Opportunity**
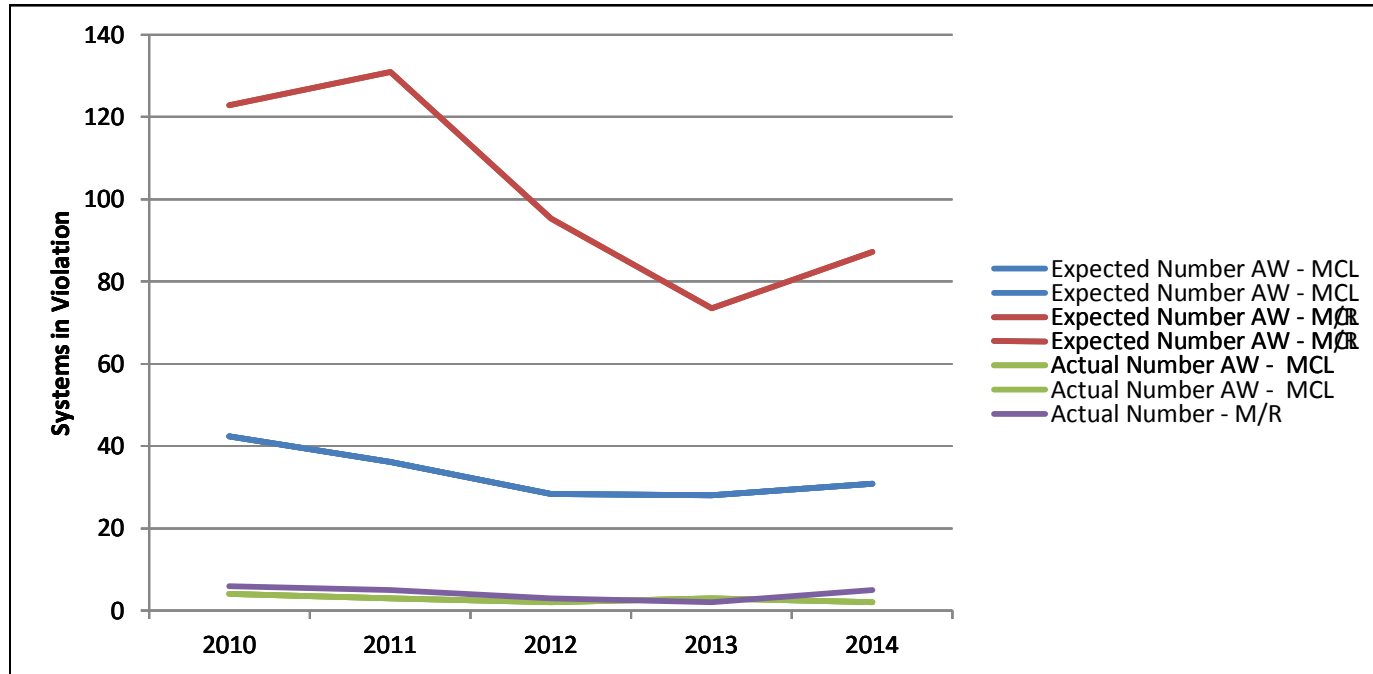- **Issue Addressed**

NOTE: Vacancy in audit program for majority of 2013

The audit program is also tracking **74 issues that are in the process of being completed** (Issues in Progress) that need capital or have other longer-term obstacles to overcome before the issue can be fully addressed

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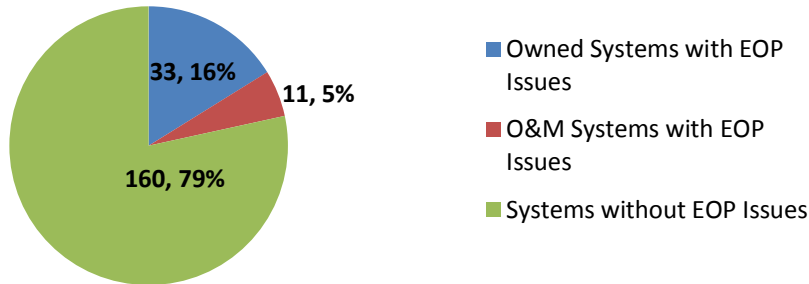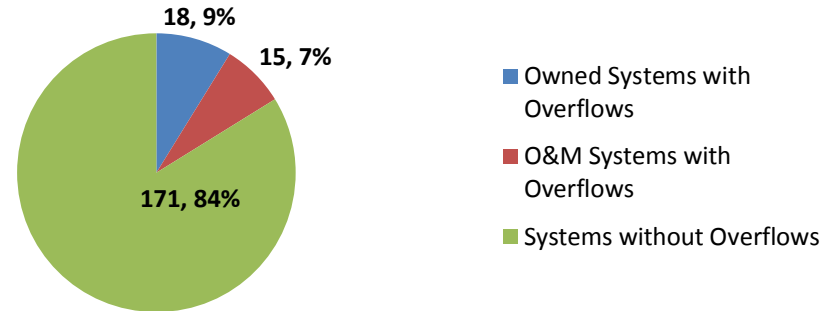# How Does American Water's Drinking Water Compliance Program Stack Up?

American Water's Wastewater Compliance Program

Meeting End of Pipe Limits

- Owned Systems with EOP Issues
- O&M Systems with EOP Issues
- Systems without EOP Issues

33, 16%
11, 5%
160, 79%

Collection System Issues

- Owned Systems with Overflows
- O&M Systems with Overflows
- Systems without Overflows

18, 9%
15, 7%
171, 84%

Nationally, more than 3,600 major facilities (57%) **exceeded** their Clean Water Act permit limits at least once between Jan. 1, 2005 and Dec. 31, 2005.

USEPA estimates that there are about 23,000 - 75,000 SSOs per year nation-wide

www.environmentcoloradocenter.org/sites/environment/files/reports/Troubled%20Waters.pdf

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Conclusions

- Self directed audits can help improve environmental compliance
- A software tool has been developed for water/wastewater systems
- Sharing the learnings from audits can benefit everyone
- Opportunities exist to leverage Sanitary Survey and RTCR Level 1/2 reports to improve performance

Questions?