



Programmatic Management for the Verification and Certification of Stormwater Control Measures

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Introduction

- Billions of dollars of SCMs are being installed
- Heavily regulated and fragmented market place
- Poor understanding of SCM performance and O&M
- Some programs work to verify and certify SCMs for use
- What is commonly overlooked is how these programs are managed which leads to confusion or failures



Verification and Certification

- Verification

- A process to allow for an objective and science based report which is recognized to be valid and can be used to evaluate a technology relative to jurisdictional requirements



- Certification

- A process by which a regulatory body uses a verification report to allow the use of a technology to meet permit requirements and local requirements for sizing and design.



Protocols

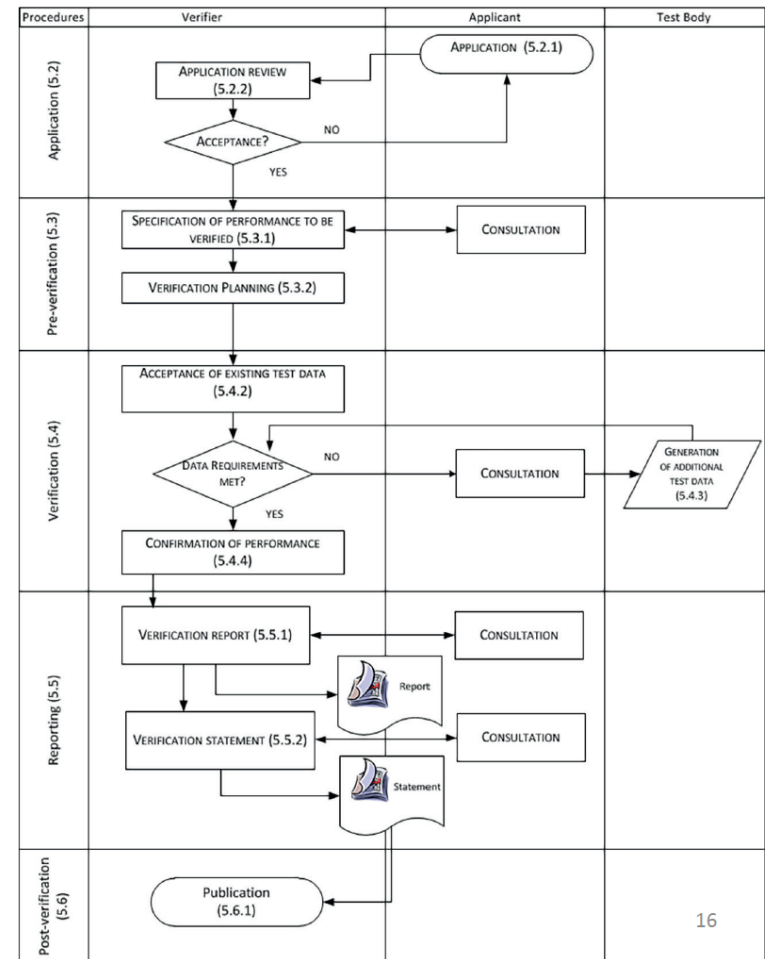
- Protocols are only one piece of the puzzle
- Focus on Parameters
- Data Quality Objectives
- Method Quality Objectives
- Technically focused and relatively standardized
 - ASTM C27.70
 - ISO Standards



Developing a Structure

■ Central Program Management Institution

- i.e. who is going to manage it?
- Formalized Process for the development and revision of protocols
- Training component
- Technical resources for QAPP and Report Reviews
- Data Management and communications component
 - Website



Funding

- Funding is the biggest hurdle to program success
- Sources of funding:
 - Pay to play by the manufacturers. Both NJCAT and the TAPE programs charge for evaluations.
 - Grants from government institutions. The State of Washington partially funds the TAPE program. The EPA funded reports by WEF
 - Grants from NGO organizations
 - Revenues from training workshops or webinars
 - Fees from programmatic subscribers such as permittees
 - Fees from stormwater utilities. Many utilities are being created and getting a portion of these to verify SCM, O&M, etc. makes economic sense
 - Fees paid by a manufacturers association such as SWEMA, the Stormwater Equipment Manufacturers Association



Governance for Fair and Equitable Technology Review

- Oversight of fiscal operation
- Insure fair and impartial process
- Provide for open peer review
- Manage any grievance processes
- Work to promote and grow the process to gain more recognition and expanded capabilities



Maintaining the Bar and Leveling the Playing Field

- Hold the bar for reviewing and approving a technology
 - Programs tend to be entropic
- Have a formal communication process in place and a grievance process
- Have a degree of follow up to insure design and installations are in compliance with the certification
- Insure reviewers maintain a high level of independence and are compensated for their work

entropic



Managing Change

- Systems tested with large “loop holes” in the protocols
- Significant changes in system design or geometry. Including:
 - Different filtration media or filter characteristics
 - Different criteria for pollutant parameters such a particle size distribution
 - Changes in design hydraulics including head loss and flow rates/flux
- New and emerging pollutants
- New manufacturer of an out of patent device
 - E.g. Generic drugs



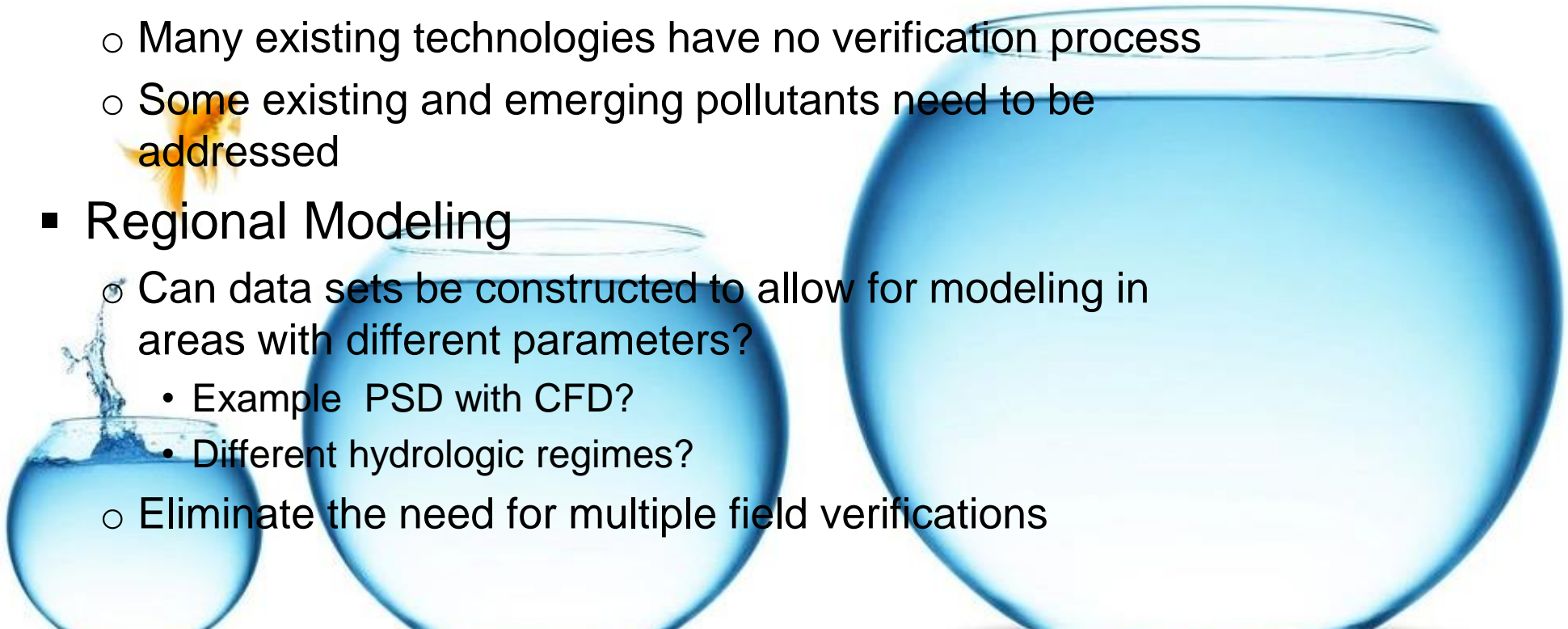
Recognition and Training

- Seek to gain recognition of the program
 - Need “buy-in” from regulatory agencies
 - Engage regulatory agencies in setting up test standards and specifications
- Provide training to regulatory agencies
 - Training on the program
 - Technical training on reviewing verification reports
 - Training on setting up certification process



Moving Ahead

- Stormwater Testing and Evaluation for Products and Practices (STEPP)
- Operations and Maintenance
 - Longevity
 - Whole life cycle cost
- New technology and pollutants
 - Many existing technologies have no verification process
 - Some existing and emerging pollutants need to be addressed
- Regional Modeling
 - Can data sets be constructed to allow for modeling in areas with different parameters?
 - Example PSD with CFD?
 - Different hydrologic regimes?
 - Eliminate the need for multiple field verifications



Conclusions

- The stormwater market sector needs strong well funded verification processes to
 - Satisfy the need for jurisdictions to meet their permit requirements
 - Meet environmental goals
 - Help grow and emerging technologies
- There are a number of successes and failures and we need to learn why the key elements of success are
 - Good science
 - Open process and accountability
 - Funding
- For MTDs market maturity and consolidation has resulted in higher costs to participate in the market