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Peer Review for Environmental Projects

American Society for Quality

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Education Conference

Session M33

San Antonio, TX

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Objectives

- Differentiate the quality management needs of operations and projects
- Highlight standards that address project management
- Explore aspects of key project management standard that governs quality
- Discuss the design & implementation of peer review as a quality management component of project management



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Projects are Distinct from Operations

- Operations are ongoing
- Projects are temporary
 - “A project is a temporary endeavor undertaken to create a unique product, service, or result.”
Project Management Institute (PMI)
Project Management Body of Knowledge (PMBOK)
Fourth Edition, page 5

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Perspective May Determine if Activity is an Operation or a Project ^(1/2)

Activity:

Quarterly Wastewater Sampling

Scope:

Samples are collected at outfall once per quarter, shipped to a lab for analysis, results are compiled and reported to regulatory agency

Operation or Project?

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Perspective May Determine if Activity is an Operation or a Project ^(2/2)

- Likely considered an **operation** if handled in-house by the wastewater treatment facility staff
- Likely considered a **project** if sampling and analytical work contracted



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Project Management Seems to be Human Nature

- Ancient temples, pyramids, viaducts, and archeological sites show evidence of a project management approach.
- Modern project management has evolved over the past 50-60 years, tracing origins to growth of the industrial-military-government complex



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Key Project Management Tools Trace to Cold War

- PERT – Project Evaluation and Review Technique
 - US Navy, Booz Allen Hamilton 1950s
- WBS – Work Breakdown Structure
 - US Military, 1950s
- CPM – Critical Path Method
 - DuPont, 1950s



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Operations Management Evolved to Accommodate Project Management (1/2)

- Business Publications Begin to Address PM Field in the early 1960's
 - Harvard Business Review
 - “The Project Manager,” P. Gaddis, 1959
 - “Functional Teamwork,” G. Fish, 1961
 - Business Horizons
 - “Matrix Management,” J. Mee, 1964
 - “Why Project Management,” D. Cleland, 1964



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Operations Management Evolved to Accommodate Project Management ^(2/2)

- US Air Force Command Systems Manuals Laid Foundation for Consistent Management of Weapons Projects
 - AFSCM 375-1: Configuration Management
 - AFSCM 375-3: System Program Office Manual
 - AFSCM 375-4: System Program Management
 - AFSCM 375-5: System Engineering Management Procedures
 - AFSCM 375-6: Development Engineering
 - AFSCM 310-1: Management of Contractor Data and Reports

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Several Quality Management Standards Apply to Operations

We are familiar with management standards for operations:

- ISO 9001, 14001, OHSAS 18001

But what about management standards for projects?

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Evolving & Existing Standards Reflect the Unique Needs of Projects (1/3)

- ISO PM Documents
 - ISO 10006:2003 “Guidelines for Quality Management in Projects”
 - Not a PM Standard
 - Addresses Quality Management in Projects
 - Ensures organization’s quality policy is reflected in project execution and delivery
 - ISO 21500 “Guide to Project Management”
 - Draft exists
 - Publication due Summer 2012

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Evolving & Existing Standards Reflect the Unique Needs of Projects (2/3)

- International Project Management Association (IPMA) publishes a PM Standard
- IPMA Competence Baseline (ICB 3.0)
 - Available from IPMA
 - <http://www.ipma.ch/about/pages/default.aspx>
- IPMA issues project management credentials

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Evolving & Existing Standards Reflect the Unique Needs of Projects (3/3)

- Project Management Institute publishes Project Management Standard
 - A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Fourth Edition
 - ANSI/PMI 99-001-2008
 - Available from Project Management Institute
 - www.pmi.org

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PM Standard Divides PM Discipline into Processes and Knowledge Areas (1/2)

- Five PM Processes
 - Initiation
 - Planning
 - Execution
 - Monitoring/Controlling
 - Closing

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PMI Standard Divides PM Discipline into Processes and Knowledge Areas (2/2)

- Nine Knowledge Areas
 - Integration Management
 - Scope Management
 - Time Management
 - Cost Management
 - Quality Management
 - Human Resource Management
 - Communications Management
 - Risk Management
 - Procurement Management

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The PMBOK Project Management Matrix

	Initiation	Planning	Execution	Monitoring/ Controlling	Closing
Integration	Develop charter	Develop PM plan	Direct & manage execution	Monitor/Control project Integrated change control	Close project
Scope		Collect requirements Define scope Create WBS		Verify scope Control scope	
Time		Define activities Sequence activities Estimate resources Estimate durations Develop schedule		Control schedule	
Cost		Estimate costs Determine budget		Control costs	
Quality		Plan quality	Perform quality assurance	Perform quality control	
Human Resources		Develop human resources plan	Acquire team Develop team Manage team		
Communications	Identify stakeholders	Plan communications	Distribute information Manage stakeholder expectations	Report performance	
Risk		Plan risk management Identify risks Qualitative risk analysis Quantitative risk analysis Plan risk responses		Monitor & control risks	
Procurement		Plan procurements	Conduct procurements	Administer procurements	Close procurements

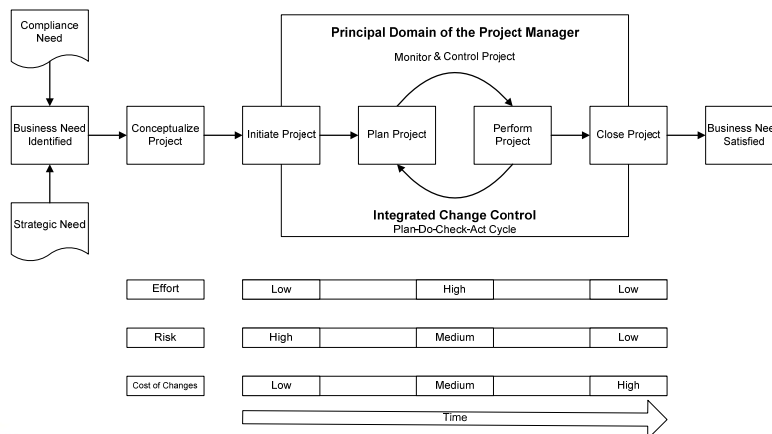
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Does Every Project Really Require 42 Distinct Elements?

- Most projects do require all 42 elements
- For many Environmental & Energy projects, they may be built into other systems:
 - Company Procedures
 - Example: Policies may dictate communication or recordkeeping requirements and practices
 - Regulatory Requirements
 - Example: Regulations may shape scope of project
 - Technical Requirements
 - Example: Test methods or standards may define quality control

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The Project Life Cycle



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Despite Advances, Many Projects Fail

- Projects may be completed but fail to achieve:
 - anticipated outcome/benefit
 - planned schedule
 - budgeted costs
- Dozens of individual reasons but grouped:
 - inadequate business case for project
 - **assumed competency of project team**
 - **poor planning**
 - **poor communications**

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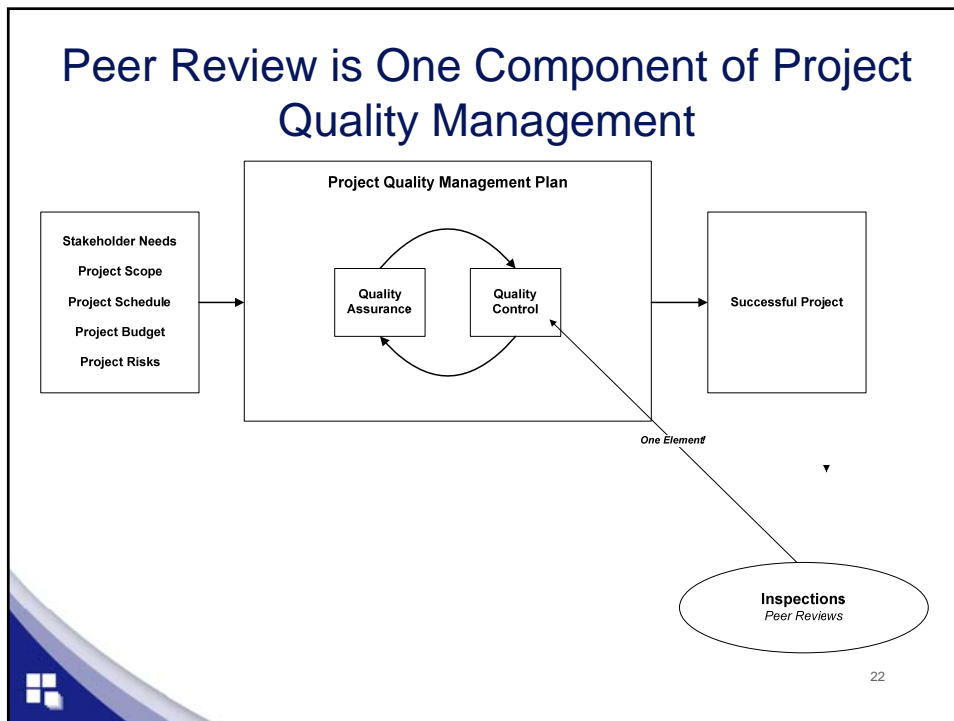
Two Keys to Project Success

1. Begin with the end in mind
 - *The 7 Habits of Highly Effective People, Steven Covey, 1989: Habit 2*
 - Know what project success looks like:
 - Completed project features and functions
 - Project budget
 - Project schedule
 - Stakeholder satisfaction
2. Manage with the end in mind
 - Establish quality management systems that evaluate progress against the goal

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Project Management Matrix – 10 Elements Drive Peer Review				
	Initiation	Planning	Execution	Monitoring/ Controlling
Scope		Define scope		
Time		Develop schedule		
Cost		Determine budget		
Quality		Plan quality	Perform quality assurance	Perform quality control
Communications	Identify stakeholders	Plan communications	Distribute information	
Risk		Plan risk management		

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Four Tools Support Project the Peer Review Process

1. Standard Operating Procedures
2. Document Control Practices
3. Checklists
4. Audits

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The Truth About SOPs

Conformance through standardization is liberating!

- Support SOP development and implementation for all routine work
- Evaluate “specialized or professional judgment work” and decide if it can be routinized
 - “If you can't explain it simply, you don't understand it well enough” ~ *Einstein*
- SOPs enable PMs to focus on the real project challenges!

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Checklists Improve Quality

- Proven success in healthcare and air transportation
- Checklists can be applied to many standard project tasks
 - Estimating
 - Data Collection
 - Data Generation
 - Document preparation
 - Reviews

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Document Control leads to Project Control

Configuration Management

1. Defined Document Generation, Review, Approval, and Transmittal Processes
2. Defined Document Identification and Security Practices
3. Defined Document Lifecycles

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Audits & Assessments Help Identify Gaps

- Audits & assessments can help evaluate conformance to stated practices
- Having practices, policies, procedures, and checklists is one thing
- Following them is another
- Few things are as embarrassing as explaining why a procedure was not followed



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Peer Reviews: Making Them More than End of Pipe Treatment ^(1/5)

1. Identify peer reviewers
 - Colleagues
 - Credentialed (PE, CIH, CSP)
 - Regulators
 - Community (Residents, Activists)
 - Legal
 - Owner



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Peer Reviews: Making Them More than End of Pipe Treatment (2/5)

2. Design the project around SOPs, checklists, and audits
3. Follow document control practice to ensure review of the right version



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Peer Reviews: Making Them More than End of Pipe Treatment (3/5)

4. Establish/understand the scope of the review.
 - Make sure internal reviewers know the scope of the project
 - Make sure you understand what external reviewers need
5. Explain what the review should accomplish
 - How the review data will be used
 - What approval should result



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Peer Reviews: Making Them More than End of Pipe Treatment (4/5)

6. Define the deadline/budget for review
7. Explain how you want to receive review comments/report
8. Set check-in and follow-up dates



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Peer Reviews: Making Them More than End of Pipe Treatment (5/5)

9. Act on review comments promptly.
10. Use review data to drive continual improvement



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Summary

- Organizational management systems and standards provide a framework for project quality management
- Project management standards address the specific needs of project quality management
- Peer reviews are a specialized form of inspections
- Peer review needs are project specific but can be accommodated with a standard model

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