Lessons Learned from CP's Wastewater and Storm Water Treatment Standard Implementation Study

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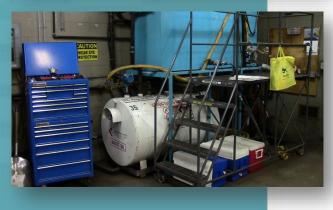
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Background







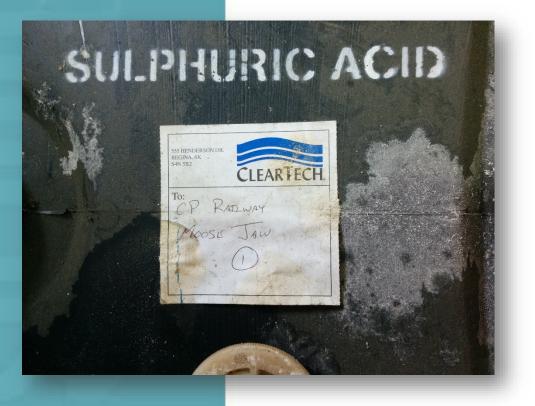
- CP owns 100+ WW and SW systems
- All different ages, sizes, designs



Historical Challenges

- Defined
 - Roles, responsibilities and requirements
 - System design/equipment standardization
- System information, documentation and records
- Corporate knowledge of issues/needs directing resources
- Consistent operations (dynamic workforce)
- Training

Historical Challenges



- Results of challenges = higher risks & costs
 - -Non-compliance;
 - -Safety;
 - Disruption of core business activities; and
 - -Resource usage.

Goal - reduce risks and costs through "Standardization" & "Optimization"

- Step 1 Gap analysis (2012)
- Step 2 Ops, Maint and Mngt Standard (2013)
- Step 3 Pilot study (2014)
- Step 4 Full scale implementation (2015/16)
- Step 5 Improve Standard & Develop Design standard
- Step 6 Optimization support, monitor and improve

Implementation of Standard



CP

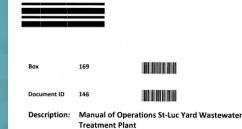
INDUSTRIAL WASTEWATER & IMPACTED STORM WATER

CORPORATE STANDARD

Effective Date of Standard: April 23rd, 2014 Last Revision Date: April 23rd, 2014

WW and SW Corporate Standard

- 1. Assignment of ownership
- 2. Roles and responsibilities
- 3. Operational control
- 4. Competency and training
- 5. Incident, alarm and emergency response
- 6. Design and safety
- 7. Documentation, record keeping
- 8. Corrective and preventative action process
- 9. Reporting
- 10. Management Review



Implementation of Standard

- Pre-visits
 - Organize key players (operator, "owner", consultants)
 - Buy-in
 - Collect available documentation
 - O&M manuals
 - Studies
 - Existing procedures
 - Etc.



Implementation of Standard

- Site Visits
 - Established baseline O&M activities (as currently performed)
 - O&M activities
 - Troubleshooting
 - Collected system documents/records
 - Identified OFIs

Implementation of Standard

- Outputs
 - Documented and video SOPs
 - Completed System Overview Report
 - Archive on corporate database
 - System information
 - Procedures/videos
 - Forms, historical data
 - List of OFIs to help guide future decision making (locally, corporately)





Microsoft Excel Worksheet

Lessons Learned

- Owners/operators wanted the Standard
 - Want procedures for stability in dynamic workforce environment
 - Want to know how/why (Supervisors)
 - Want training self taught
 - Re-assurance/support/feedback
 - Tips from how other systems operate



Lessons Learned

- Many good practices
 - What is a good practice?



Lessons Learned

- Beware of the work-around
- Everyone has a story
- Choose your target audience wisely



SEMI-MONTHLY CHECKLIST - CPR Port Coquitlam WWTP			
SUMMARY: OK? Y/ N Connet:			
1. GENERAL OBSERVA			
Date & Time:	/,hrs.	Operator:	
Weather:	Day/Month/Year		
Precipitation	None / Light / Moderale / Heavy		
Temperature			
Te mp.	° C/ ° F		
2. TREATMENT PLANT	OBSERVATIONS:		
Checkliste			
Review	Yes / No		
Plant room clean?			
Note any Pumps off:			
Commentic			
3. Control Room Readings			
Plant On 7	Yes / No Turn on Manually if	required.	
Control Panel:			
	ank (Control) pH		
Flash 1 Influent pH		4 pH	
Influent pH Alarms 7		£ рН	
Influent pH Alarms 7 Tank Levels:	Yes / No Alarm		
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Value of Standardization

- Corporate buy-in and awareness
- Foundation for continual improvement
 - Procedures, records, reporting, auditing, review
- Managed risk of dynamic workforce
- Due diligence defense
- OFI list for future resource management
- Transferable skills to other corporate assets
- Framework for corporate training program

Next Steps

- Monitor and measure improvements in risk and costs
- Implement corporate training program
- Integrate deliverables in auditing program
- Address OFIs
- Develop design standards

Thank You

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