

What if...a critical asset fails?

Pump Station Manual Development:
A plan to optimize maintenance and operations

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OWEA Specialty Workshop

“Pump Stations, Force Mains, and Alternate Collection Systems”

May 13, 2010

Brown AND Caldwell



Background



- 1.5 Million residents
- 6277 miles of sewer
- 10 Sanitary Pump Stations
- 15 Storm Pump Stations
- Two Pump Station Crews

History



- 2002 SSO Consent Order
- CMOM Program
 - Timely use of information
 - Preventive O&M
 - Training
 - Equipment
- 1986 Manual

Presentation Overview

- Why your utility needs a pump station manual
 - What if...disaster strikes your pump station?
 - An essential tool for maintenance
- How to put together a manual
- Lessons learned

Critical Assets

- Pump Stations are **Critical** Assets
 - Flooding
 - Back-ups
 - Overflows



What if...? The benefits of a pump station manual

**Can your crews
fix a pump
station if its
components are
underwater?**



An overflow can be avoided if the pump station can be fixed quickly

Critical assets need a contingency plan



- Clear, actionable plans
- Normal crews tied up
- Make sure accessible to everyone

Plans are worthless.
Planning is essential.

- Dwight D. Eisenhower

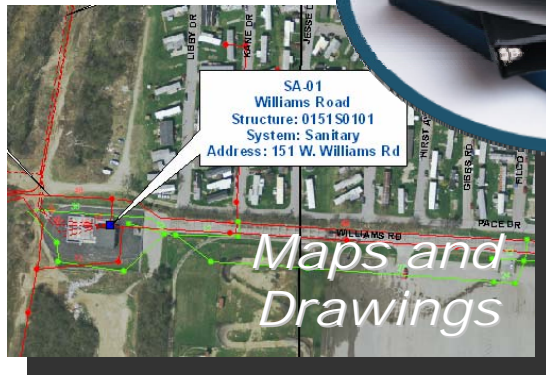
Benefits Beyond Emergencies

Organized Data Repository

Evaluation of current work processes and data

Supports Sustainability

Organized Data Repository



Work Process Evaluation

SA-01 PUMP STATION WET WELL CLEANING Standard Operation Procedure

Approved by: <u>Brian LeVass</u>	Date: <u>12/29/2009</u>
Field Tested by:	Date:
Revised by:	Date:

PURPOSE

SMOC maintenance crews maintain many pump stations throughout the sanitary, combined, and storm sewer collection system. Periodic cleaning of the wet wells at these stations supports effective operation and mitigates failures that could result in system overflows, street flooding, or damage to property. SMOC personnel and private contractor schedule and perform this cleaning as needed based on the findings of schedule inspections.

Pump and gate designations referenced in this SOP correspond to the supplemental station operational and cleaning schematics referenced in Table 1.

Number	Title	Description
SA-01-01	Normal Operation Configuration - Plan	Shows the basic plan layout of the station and describes the positions of flow control equipment (gates and valves) for the typical operating condition.
SA-01-02	Section A	Shows the basic section layout of the station.
SA-01-03 SA-01-04	Cleaning Configuration 1 Cleaning Configuration 2	Shows the basic plan layout of the station and describes the position of flow control equipment (gates and valves) for the first and second wet well cleaning configuration.

STATION DESCRIPTION

1. Primary flow source: 144-inch gravity sewer from blind connection 0151S0100
2. Number of pumps: 4
 - a. Location: Pumps 1 and 2 are located in Wet Well 1; Pumps 3 and 4 are located in Wet Well 2.
3. Pump Controls: Bubblers, based on Wet Well elevation set points, remotely monitored using pressure transducers through the SMOC SCADA
4. Stand-by Generator: Yes, 875 KVA
5. Tributary area: See attached Tributary Area Map
 - a. Geography-The tributary area for the station is the entire Sewershed 4 and is located on the south side of the City.

Pump Station: Cleaning

SMOC
12/29/2009

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Identify Needed Procedures

Correct and update Information

Supports Sustainability

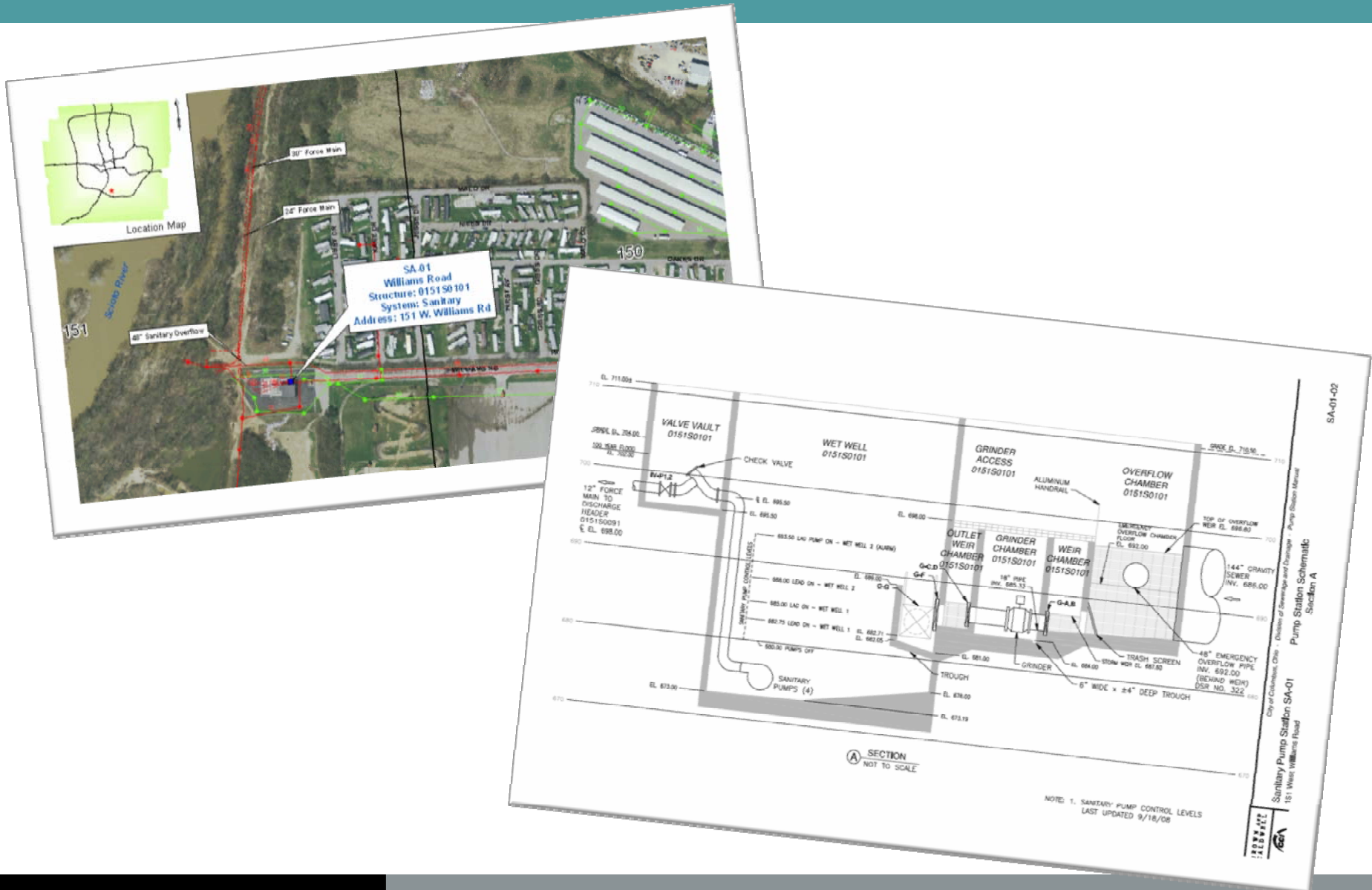


*Training
Tool*

*Asset
Management*

*Improved
Planning*

Lessons Learned – Use Graphics



Lessons Learned – Use your Staff



- Field Knowledge is Key
 - Observations
 - Historical and Anecdotal
 - Encourage Employee ownership through Feedback and Reviews

Lessons Learned – Make the Manual a Living Document

- Build in processes to update the binder
- Identify ownership
- Involve multiple parties



In Summary

- You're not as good as you think you are
- Use your people
- Don't let this manual die

Questions?

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