

# SSO RISK REDUCTION PRACTICES



**James Fischer, P.E.**  
State Water Board/Office of Enforcement  
Special Investigations Unit

October 2015

# Example Practices

1. Permit Compliance and Expectations
2. What have we observed?



# Permit Compliance and Expectations

- Sewer System Management Plans (SSMPs), redundancy, and “best practices” employed must:
  - 1) ensure compliance with SSS WDRs, and
  - 2) effectively eliminate or reduce SSOs.

## PERMIT PROHIBITS DISHCARGES

Decrease human/environmental risk

Proactive” approach/management

**Risk management/cost effectiveness**

Alternatives to Discharge

**Use of adequate backup equipment**

## Prohibition C.1 (p7)

Finding 3 (p1)

Finding 3 (p1)

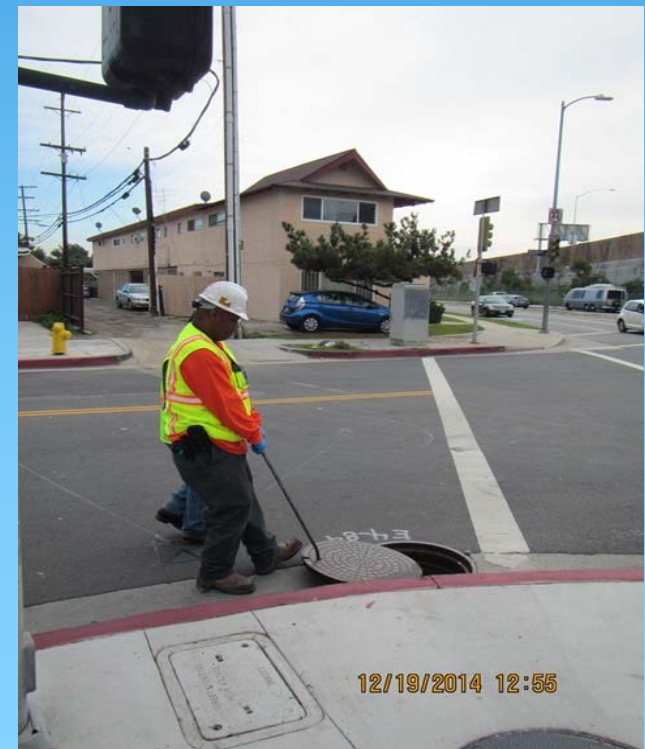
Finding 5 (p2)

Provision D.6(iii)

Provision D.6(iii)

# Example Practices

- Portable backup pump and “Smart Cover” installed to supplement SCADA alarms and reduce SSO risks/threats
- Station located on major street and adjacent to freeway



# Example Practices

- “Smart Cover” installed in mainline used to monitor levels in residential area posing high SSO risk/threat
- Assists staff with determining appropriate cleaning frequency



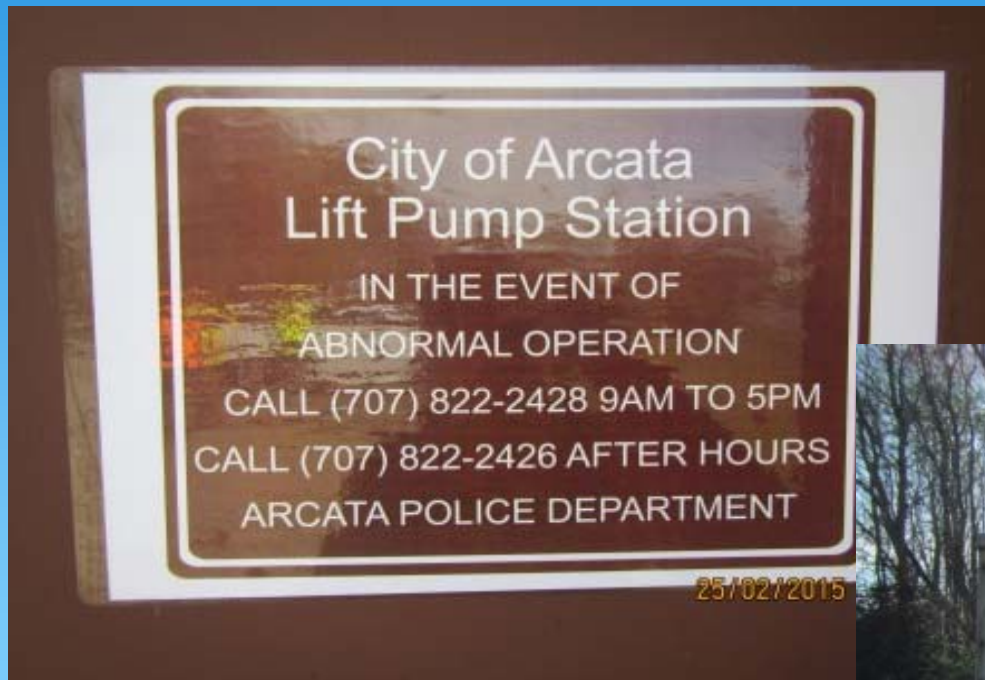
# Example Practices

- Critical equipment/spare parts [SSS WDRs, Provision D.13(iv)(e)]



# Example Practices

- Emergency signage to alert public + help reduce response time



# Example Practices

- Rainfall inflow mitigation (manhole inserts)





# Example Practices

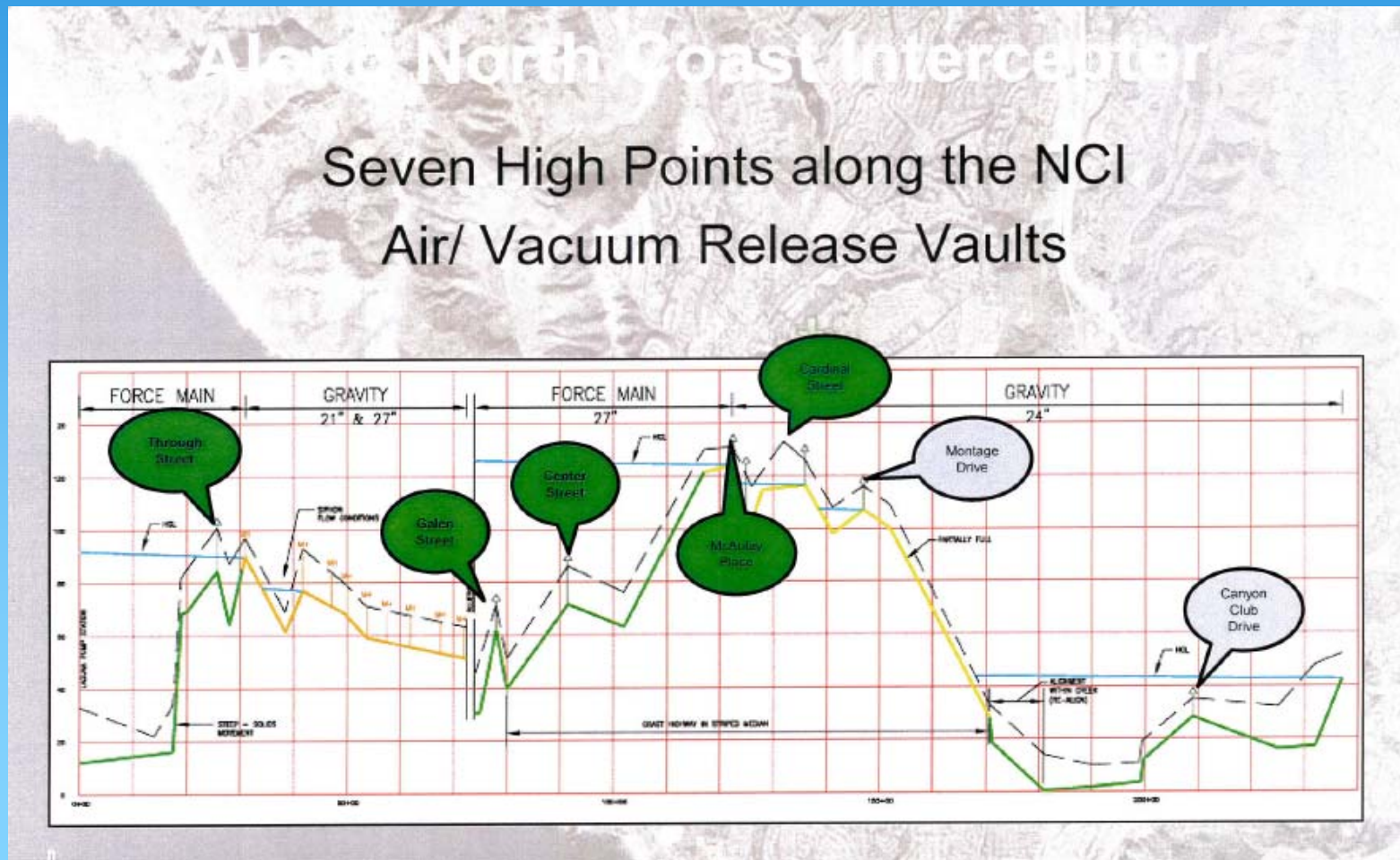
- Pump station “impoundments”



Photos 11-12: North Market lift station engineered impoundment gate valve and overflow drain (L), and impoundment levy (R)

# Example Practices

- Critical system mapping, study, and engineering evaluation



# Example Practices

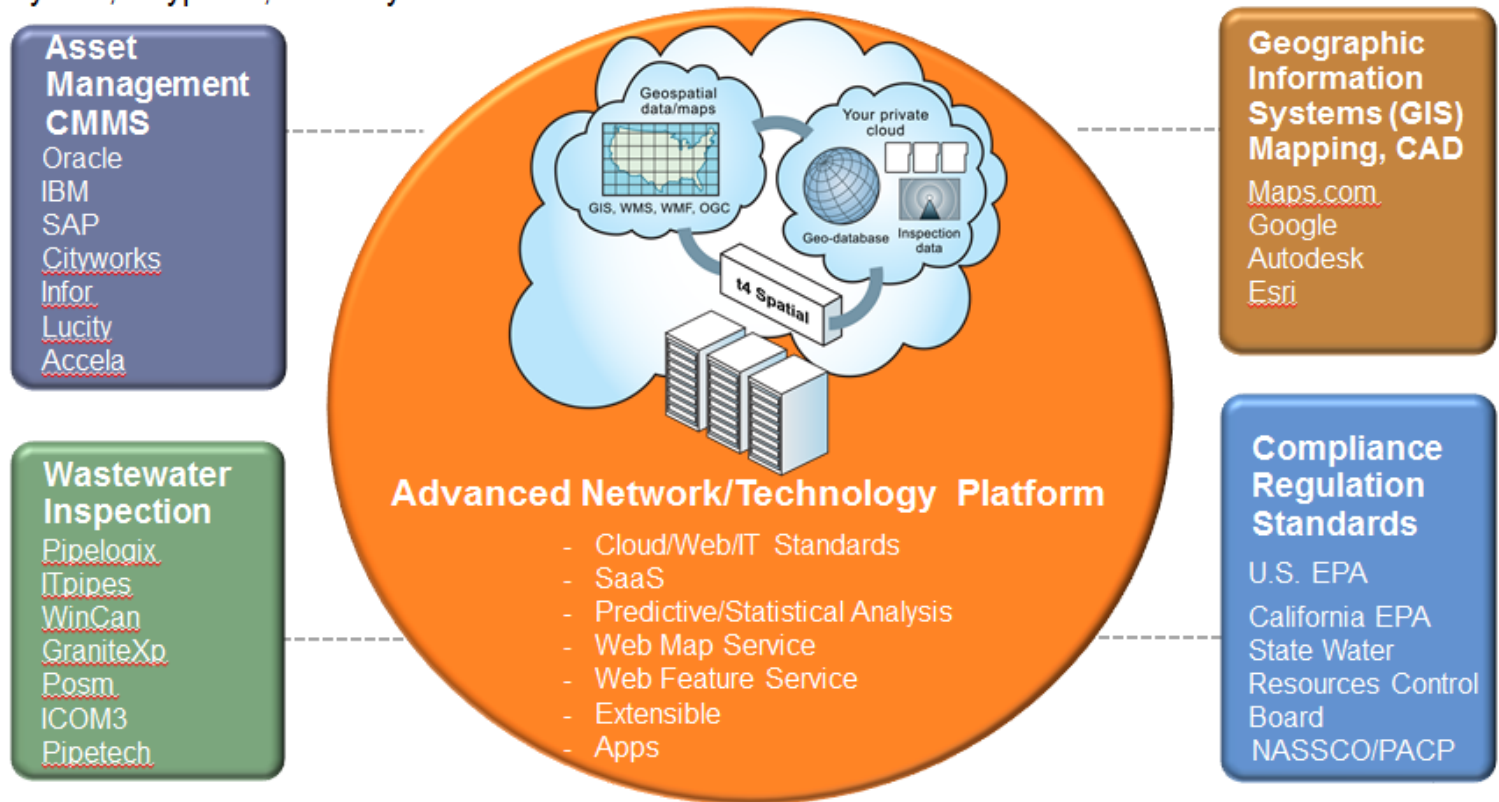
- Creek crossing strategic improvement programs



# Example Practices

- Advanced data management

- A new platform that integrates data from multiple silos and provides universal accessibility
- Secure, universal access to Data
- Anytime, Anyplace, with Any Device



# Example Practices

- Standard Operating Procedures (SOPs)

Station Shutdown Checklist	
	Bypass pumps in place and ready to prime:
	Open B4, B3, B2 and B1 to pressurize the bypass piping.
	Close the 30" valve in Glenneyre 48 turns, then, as the 30" valve reaches 55 turns, Manhole 3 will start surcharging. Manhole 3 should fill to within eight feet of the rim before the pumps attempt to prime.
	If bypass pumps fail to prime, simply open the 30" valve 5 – 10 turns to transition back to normal pump station operation.
	Close the 30" valve on Glenneyre,
	Close the STV (surge tank valve),
	Manually pump down the wetwell until rumble :
	Close valves D7 and D6. Lock out/tag out controls
	Turn off O2 panel.
	The station is now isolated and all valves inside the wetwell are serviced.

Station Restart Checklist	
	Bypass complete, transition back to lift station operation:
	Slowly open D6 and D7 to pressurize the system. Verify all suction and discharge valves are open and controls are set to "auto."
	The station may now be put back online by slowly opening the 30" valve 5 – 10 turns filling the wet well, then priming and starting station pumps as normal.
	Open the STV and verify the air level in the surge tank sight tube. <i>For problems, the station may be transitioned back onto the bypass by closing the 30" valve.</i>
	Close valve B4 once bypass pumps are shut down. Restart the O2 system.

# SSO Risk Reduction References

## 2013 CSRMA Best Recommended Sewer Collection System Risk Management Practices

### Asset Mapping

1. Has your agency identified and mapped all the gravity sewer line segments, pipeline access points (manholes, lamp holes, rod holes, etc.), pumping facilities, pressure pipes and valves, and stormwater-related facilities?
2. Does your agency currently have sewer system assets mapped in a system that can be quickly updated with field locations that is accessible to administrative and field staff levels?
3. Has your agency mapped stormwater-related facilities and overlaid them on your sanitary system mapping?
4. Does your agency have a formal review process in place to ensure that any mapping issues noted by field staff or others are addressed in the official agency maps?
5. Has your agency put in place a systematic confirmation of assets to ensure existing mapping accurately reflects assets in the field?
6. Does your agency periodically check in with cooperating agencies to update mapping they provide, i.e. stormwater system mapping from the area stormwater agency?

# Example SSO Risk Reduction References

## Core Attributes of Effectively Managed Wastewater Collection Systems

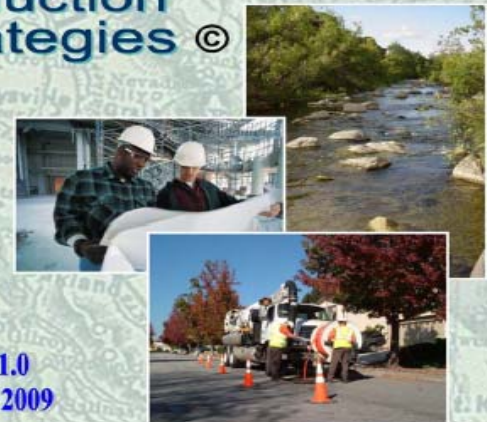
July 2010

A Guide for Developing and Updating of Sewer System Management Plans (SSMPs)



Best Management Practices  
for  
Sanitary Sewer Overflow (SSO)  
Reduction  
Strategies ©

Version 1.0  
December 2009



# Example SSO Risk Reduction References

- Permit requires “best practices” to be effective
- SSO risk reduction practices are NECESSARY to comply!

**James Fischer, P.E.**

State Water Board/Office of Enforcement  
Special Investigations Unit

October 2015