Sample Private Sewer System Due Diligence Report

Technical Issues

WEFTEC 2009 - W209
Private Sewer Systems:
Who Owns Them?
Who Builds Them?
Who Maintains Them?

Orlando, Florida
October 11, 2009

Due Diligence Report
for
_____
Collection System Project

System Name: _____

Location: _____

Audit Date: _____

Audit Team: _____

_____

_____

_____

_____

System Employees: _____

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Section 1 – System Description

System Information	
System name	
System address and point of contact	**Owner** Address: Phone: Email: **Operator (if applicable)** Address: Phone: Email:
Date of site visit	

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Document Collection / Availability (specify paper or electronic format)	
Design standards, details, specifications?	Yes ____ No ____ Format _____
System maps, drawings and calculations?	Yes ____ No ____ Format _____
Geodatabase and geographic information system?	Yes ____ No ____ Format _____
Copies of easements and right-of-ways?	Yes ____ No ____ Format _____
Written policies and procedures?	Yes ____ No ____ Format _____
Operations and maintenance manuals?	Yes ____ No ____ Format _____
Maintenance and inspection logs?	Yes ____ No ____ Format _____
Records of yearly operating costs/ revenues?	Yes ____ No ____ Format _____
Sewer service requests and associated work orders?	Yes ____ No ____ Format _____

Flow Information			
Combined system (storm & sanitary)?	Yes ____ No____ If yes, % Combined _____		
Are there any flow meters in the system?	Yes ____ No____		
	If yes, how many and when were they last calibrated?		
System flow characteristics:	**A** **Ave Dry Weather Flow (MGD)**	**B** **Maximum Day Wet Weather Flow (MGD)**	**Potential I/I (MGD) (B-A)**
Is peak wet flow/ peak dry flow ratio > 2.0?			
What is average dry weather flow in gpd-idm?			
Is measured maximum flow> 275 gpcd?			

Collection System Info				
Population served				
Service area				
Length of gravity sewers (lf)				
Length of high pressure force main (lf)				
Length of low pressure force main (lf)				
Average annual precipitation (inches)				
Size distribution of collection system	**Diameter**	**Gravity Sewer (feet)**	**Force Mains (feet)**	
	≤ 8 inches			
	9 - 18 inches			
	19 - 36 inches			
	> 36 inches			
	Other			
Age distribution of collection system	**Age**	**Gravity Sewer (miles or %)**	**Force Mains (miles or %)**	**No. of Pump Stations**
	0 - 25 years			
	26 - 50 years			
	51 - 75 years			
	> 75 years			
Number of service connections	Residential _____ Commercial _____ Industrial _____ Total _____			
Number of manholes	Sanitary _____ Combined _____			
Drops into manholes meet City/State standards?	Yes ____ No____			
Distance between manholes <400'?	Yes ____ No____			
All-weather vehicle access to all manholes?	Yes ____ No____			

Collection System Info (Cont.)	
Primary pipe materials	
Avg. repairs per year	
# of sanitary or combined sewer pump stations	
# of grinder pumps	
#of STEP Systems	
# of air, vacuum, or air/vacuum relief valves	
List all accidental overflows per year, last three years. Include date, amount, and location (use attachment if necessary).	

Staffing Data	
Key staff	
Does staffing meet state operator license requirements?	Verify scheduling
Contractors (include pipeline, electrical, mechanical, TV/jetting)	

Grease Traps	
Number of grease traps	
Frequency of cleaning	
Is list of grease trap locations available?	Yes ____ No____
Industrial Pretreatment	
Industrial pretreatment program?	Yes ____ No____
Number of sites covered	
Is list of IPP sites available?	Yes ____ No____
Easements	
Obtain all property ownership and easement information	
Is all infrastructure in ROW, easement or on our property?	Yes ____ No____

Section 2 – Operations

Cleaning and Inspections	
Number of annual stoppages	
Number of annual stoppages resulting in overflows and/or backups	
Average time to clear stoppage (hours)	
Pipeline inspected per year (lf)	
Are internal or external resources used for inspection?	Yes ____ No____
Defects coded per industry standard?	
Inspection video and logs archived?	
Evidence of root intrusion?	Yes ____ No____ Explain.
Sags noted on video logs?	Yes ____ No____ Explain.
Evidence of grease build-up?	Yes ____ No____ Explain.
Equipment currently owned and available. List quantity, make/model, age, and mileage.	
How are line blockages cleared?	Yes ____ No____
Repair methods (open cut, lining, pipebursting, etc.)	
Accidental overflow methodology correct? Obtain copy of policy	Yes ____ No____
Are there capacity issues in the system that need to be addressed?	Yes ____ No____

Maintenance and Housekeeping	
Annual Repairs/Replacement	a. Spot Repairs: b. Manholes: c. Main Line: d. Service Line:
Corrosion evident on manholes or sewer lines?	Yes ____ No____
Reported odor complaints/problem?	Yes ____ No____
Documented essential preventive maintenance program?	Yes ____ No____ If not, how is maintenance scheduled?
Is there a computerized maintenance management system used?	Yes ____ No____
What maintenance records are kept?	
What preventive maintenance is done?	
What predictive maintenance is done (e.g., infrared, vibration analyses, oil analyses,etc.)?	
Is grass and landscaping attractive?	Yes ____ No____
External housekeeping: trash, spare parts, wall exteriors.	
Internal housekeeping: workshops, parts storage, lab area.	
Is Accidental Overflow reporting procedure known by operators?	Yes ____ No____

Maintenance and Housekeeping (Cont.)	
What lab procedures are run on site?	
Can operator calibrate and run these tests?	Yes ____ No____
Are composite samplers used? Is temperature controlled?	Yes ____ No____ Yes ____ No____
Is sampling done in compliance with the permit?	Yes ____ No____
What are the state requirements for keeping records?	
Is Accidental Overflow reporting procedure known by operators?	Yes ____ No____
Are requests for repairs/ investments given in writing? Are these kept on file?	Yes ____ No____ Yes ____ No____

Subcontractors (List all subcontractors and the kind of work they perform)

Section 3 – Lift Stations

Lift Station Name	LS 1	LS2	LS3	LS4	LS5
Capacity (gpm)					
Number of pumps					
Manufacturer					
Alarm notification (scada, pager, etc.)					
Backup power or quick connects					
Frequency of Inspection					
Confined Space?					
Issues					

Use additional sheets as necessary

Lift Station Document Collection / Availability (specify paper or electronic format)	
Site plans, drawings and calculations?	Yes ____ No ____
Operation and Maintenance Manuals including: a. Manufacturer contact data, operating instructions? b. Preventive and corrective maintenance requirements? c. Warranty information, parts lists, etc.?	 Yes ____ No ____ Yes ____ No ____ Yes ____ No ____
Copies of easements and right-of-ways?	Yes ____ No ____
Maintenance and inspection logs?	Yes ____ No ____
Records of yearly operating costs?	Yes ____ No ____

Lift Station Pump Info (fill out one table per station)	
Pump reliability (Able to serve maximum flow with largest pump out of service?)	Yes ____ No ____
Pumps capable of handling maximum peak hourly flow?	Yes ____ No ____
Cooling system for each pump (if required)?	Yes ____ No ____
Visible corrosion and/or leaks?	Yes ____ No ____

Force Main Info (fill out one table per station)	
Frequency of force main inspections	
Force main installed at a positive grade?	Yes ____ No ____
Air valve installed at each high point?	Yes ____ No ____
Visible corrosion?	Yes ____ No ____
Odor control provided in residential areas?	Yes ____ No ____ If yes, type of odor control:

Wet Well and Valve Vault Info (fill out one table per station)	
Sufficient wet well storage capacity that provides for at least 2 hours of response time during projected peak hourly flows?	Yes____ No ____
Access hatches adequate to remove pumps?	Yes____ No ____
Wet well interior surfaces lined with a non-corrodible lining system?	Yes____ No ____
Valve vault drains back into the wet well?	Yes____ No ____
Wet well and valve vault watertight and accommodate proper traffic loads?	Yes____ No ____
Visible corrosion?	Yes____ No ____
Other observations	

Air Relief / Vacuum Valve Info (fill out one table per station)	
Frequency of valve inspections	
Types of Valves	
Ease of access?	
Means of draining vault?	Yes____ No ____
Visible corrosion and / or leaks?	Yes____ No ____
Other Observations	

Lift Station Maintenance Issues (fill out one table per station)	
Pump Station Failures a. Annual number of failures resulting in overflows/bypass or backups: b. Annual total quantity of overflow/bypass (in gallons or mgd): c. Average time to restore operational capability (hours): d. Equipment owned and available for emergency response? e. Comments:	
Pump Failures a. Annual number of pump failures: b. Causes of pump failure: c. Comments:	
Force Main Failures a. Annual number of force main failures: b. Causes of force main failure: c. Comments :	
Valves a. Annual number of valve failures: b. Causes of valve failure: c. Comments:	

Section 4 - Recommendations

Findings and Recommendations