

# City of Oak Ridge, Tennessee

## Pump Station Maintenance Programs



December  
2011



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

JAN 17 2012

CERTIFIED MAIL 70101060000217059063  
RETURNED RECEIPT REQUESTED

Mr. Mark S. Watson  
City Manager, City of Oak Ridge  
P.O. Box 1  
Oak Ridge, Tennessee 37831-0001



Re: EPA Approval of the City of Oak Ridge's Pump Station Maintenance Programs Submitted Pursuant to Administrative Order, CWA-04-2010-4772

Dear Mr. Watson:

The U.S. Environmental Protection Agency, Region 4 has received and reviewed the Pump Station Maintenance Programs document, received on December 29, 2011. This document includes the following Pump Station Preventive Maintenance Programs; Electrical Maintenance Program, Mechanical Maintenance Program, and Physical Maintenance Program. The EPA hereby approves the above listed document with the understanding, and the City of Oak Ridge's (the City's) agreement to perform the following:

1. Upon full implementation of the Management, Operations, and Maintenance programs the City will update the documents to reflect:
  - a. Changes in Pump Station status (replacement, additions, deletions or modifications).
  - b. Any procedural changes made in the course of implementing these programs.
  - c. Changes in record keeping procedures as a result of implementation.

Pursuant to Section IV, Paragraph D of the Administrative Order, within 12 months of receipt of this letter the City shall certify to the EPA that the these programs have been fully implemented as outlined in the approved documents. The City may certify full implementation and document updates of the these programs, in part or in whole, through documenting completion in the Quarterly Report in the quarter in which implementation and document updates are complete.

If there are any questions, you may contact Mr. Dennis Sayre of the EPA at (404) 562-9756.

Sincerely,

Maurice L. Horsey IV, Acting Chief  
Clean Water Enforcement Branch  
Water Protection Division

cc: Mr. Gary Cinder  
Director of Public Works

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## Section I

### Introduction

The United States Environmental Protection Agency (EPA) issued an Administrative Order (A.O.) (No. CWA-04-2010-4772) on the City of Oak Ridge, Tennessee on September 28, 2010. The A.O. includes multiple sections and requirements, each with a schedule for compliance. Section D of the A.O. is titled "Management, Operations, and Maintenance Programs (MOM)". Subsection iv(b) requires the City to develop, within fifteen (15) months of the A.O., maintenance programs for manned and unmanned pump stations, and requires routine inspections, standard forms, and recording procedures.

Section IV, Item D, subsection i of the A.O. requires an Information Management System (IMS), which the City has begun to implement. The City is also developing a Geographic Information System (GIS), which includes the pumping stations. The approach to the revised method of operations is generally known as Asset Management. With GIS, an asset (pump station, force main, gravity sewer, etc.), is given a unique name. Section II identifies all the pump stations involved relative to the A.O. The pump station field inspection forms in the Appendix show location (latitude/longitude) and other information. Both in the GIS and in the IMS, pump stations are identified with the characters "PS:" followed by the mini-basin which drains to it, and the sewer map grid location. An example, PS:E5A-J12, would indicate a pump station in mini-basin E5A and particularly at map grid location J12.

Section IV, Item D, subsection iv(c) requires Electrical Maintenance, Mechanical Maintenance, and Physical Maintenance Programs. Each of these will be discussed in separate sections if this document.

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## Section II

### Name and Type of Pump Station

Table II-1 shows the City of Oak Ridge wastewater pumping stations by name and type.

Table II-1

Pump Station Name and Type City of Oak Ridge		
Submersible	W-well/D-well	Suction Lift
Centennial Bluff	East Plant	Castlewood
Emory Heights	Emory Valley	Gregory's
Fairbanks	Scarboro	Oak Hills
Graceland		Pallisades#1
Gum Hollow		Pallisades#2
Home Depot		Pallisades#3
Marina		Pallisades#4
Peach Orchard		Park Meade
Pump House Road		Westview
Radisson Cove		
Rivers Run		
Rivers Way		
Rockbridge Greens		
Rolling Links		
Southwood		
Summit Ridge		
Warehouse Road		
WATO		
West Outer		
Whippoorwill		
Williams		
Wolf Creek		

Figure II-1 is a screen shot from the Information management System showing each station by name, GIS identified, and physical address. A field inspection has been conducted of each station. Information from that inspection is shown in Appendix "A". The latitude and longitude is shown for each station. All the data has been incorporated into the GIS and IMS.

Figure II-1

Structure Screen for Pump Stations

**Equipment Lookup**  
 Select a record and then click OK.

Search **Structure**

Display as Focal Point | Show Details

**Structure Details**

Parents  
 S-SEWER-SYSTEM

**S-PUMP-STATIONS-PW Pump Stations**

- + S-PS:E12-E24-WATO, 113 EASTBURN LN
- + S-PS:E28-F23-Castlewood, OAK RIDGE TURNPIKE
- + S-PS:E13A-G20-2-PS:E13A-G20-2, Animal Shelter
- + S-PS:E13A-F20-Warehouse Road, 504 WAREHOUSE RD
- + S-PS:E13A-G20-1-Emory Heights, CULVER RD
- + S-PS:E13A-G19-Fairbanks, 545 OAK RIDGE TURNPIKE
- + S-PS:E13B-G22-East Plant, 151 CAIRO RD
- + S-PS:E20-L24-Marina, 695 MELTON LAKE DR
- + S-PS:E29-Q26-Rolling Links, 51 ROLLING LINKS BOULEVARD
- + S-PS:E29-P26-Radisson Cove, 21 RADISSON COVE
- + S-PS:E29-O25-Rivers Run, 100 RIVERS RUN BOULEVARD
- + S-PS:E29A-R24-Rockbridge Greens, 117 ROCK BRIDGE GREENS
- + S-PS:E30-F24-Rivers Way, 120B MARYWATER LN
- + S-PS:E30-G24-Greggory's, MELTON LAKE PENINSULA
- + S-PS:E5B-L22-Emory Valley, 301 EMORY VALLEY RD
- + S-PS:E7-G17-Home Depot, 175D LABORATORY RD
- + S-PS:W17-D2-Turtle Park, WWT Plant, MONTEREY RD
- + S-PS:W17-E2W-Oak Hills, 2892 OAK RIDGE TURNPIKE 2
- + S-PS:W20-H4W-Graceland, 113 GRACELAND ROAD
- + S-PS:W20-H2W-Gum Hollow, 197 GUM HOLLOW RD
- + S-PS:W22-AN3W-West Outer, 1129 WEST OUTER DR
- + S-PS:W23A-N14-Summit Ridge, 720 SOUTH ILLINOIS AVE, Summit Ridge
- + S-PS:W26-U14-Pumphouse Rd, 700 SCARBORO ROAD, Pumphouse RD
- + S-PS:W26-S14-Scarboro, SCARBORO RD
- + S-PS:W26A-U21-Park Meade, 1402 EDGEMOOR RD
- + S-PS:W27A-F5W-Southwood, EAST SOUTHWOOD LN
- + S-PS:W29-AN4W-Williams, 131 WILLIAM LN
- + S-PS:W29-A8W-Westview, 129 WESTVIEW LN
- + S-PS:W29-A3W-Whippoorwill, WHIPPOORWILL DRWHIPPOORWILL DR
- + S-PS:E31-G23-1-Palisades #1, 10 PALISADES PARKWAY
- + S-PS:E31-G23-2-Palisades #2, 18 PALISADES PARKWAY
- + S-PS:E31-G23-3-Palisades #3, 28 PALISADES PARKWAY
- + S-PS:E31-G23-4-Palisades #4, 40 PALISADES PARKWAY
- + S-PS:E37-L17-Wolf Creek, 108 PAVILLION DR
- + S-PS:W26B-R26-Centennial Bluff, 300A CENTENNIAL BLUFF BLVD
- + S-PS:W8-B13-Peach Orchard, 105 WEDGEWOOD RD

OK Cancel

## Section III

### Staff and Equipment

With the implementation of the MOM programs, additional staff is required. The IMS has added staff in the Administrative group and the Maintenance staff is being expanded, as well.

All pump station maintenance is performed under the direction of the Treatment Plant Maintenance Supervisor. His office is in the wastewater treatment plant facility, and his staff works out of that complex.

The current organizational structure and job titles, for personnel responsible for pump station maintenance is as listed below:

- Treatment Plant Maintenance Supervisor
- Treatment Plant Maintenance Crew Chief (1)
- Senior Treatment Plant Maintenance Specialist (1)
- Treatment Plant Maintenance Specialist (1)
- Maintenance Mechanic (1)
- Maintenance Worker (1)

With the implementation of the MOM program, personnel and equipment will need to be increased. Listed below is the additional personnel and equipment for the pump station maintenance activity. The additional staffing would be implemented along with the purchase and installation of a Supervisory Control and Data Acquisition (SCADA) system for the pump stations.

- Treatment Plant Maintenance Specialist (2)
- Maintenance Mechanic (1)
- Boom Truck
- Van Style Truck
- Utility Truck

## Section IV

### Pump Station Physical Maintenance Program

Physical maintenance at a pump station includes those areas not covered in the electrical and mechanical maintenance programs. Physical maintenance is important to the station, and is easily overlooked if not scheduled for the maintenance personnel to examine on a regular schedule. The City of Oak Ridge will ensure that the physical structures of the lift stations are kept in good condition.

This area would include the inspection of the conditions of the building, pipes, covers, doors, vaults, windows, walls, roofs, locks, lights, etc. The outside appearance of the structure should be examined including paint, fencing, yard maintenance, safety and warning signs, etc.

Listed below are areas within the physical maintenance program that are to be inspected. Corrections and repairs will be made as needed:

#### **Pipe Maintenance**

A scheduled examination of all the pipes in the station shall include visual inspection of pipes for cracks, gasket damage, or other concerns.

#### **Covers**

Covers on vaults are to be examined for their integrity and locking devices shall be in working order.

#### **Vaults**

Vaults allowing for the access to valves, pipes, gauges, sump pumps, etc. are to be inspected. Cracks in the walls or settling of the foundation shall be noted and scheduled for repairs.

#### **Windows**

Windows shall be inspected and kept in working order. Windows must be locked at all times unless they are opened by staff during maintenance activities. Any damage to windows shall be repaired.

#### **Doors**

All doors are to be examined and kept in working order. Doors should be painted as needed and hinges lubricated.

**Walls**

Walls of lift stations should be thoroughly examined for cracks and signs of settling. Any cracks should be addressed and the cause for the settling determined. Corrective action should be performed to seal the cracks and stop the settling process. Painting of the walls should be performed as needed.

**Roofs**

Roofs should be inspected on a yearly basis with repairs being made as required. A schedule for roof replacement on lift stations should be a part of the budget process.

**Locks**

Locks shall be inspected and maintenance performed as needed. Proper locking of doors and gates is imperative for the safety of the public and will help deter vandalism. Locks should also be placed on outside vault doors and electrical boxes.

**Lighting**

All lights should be kept in proper working order. Inside lighting is needed to properly see how to perform maintenance. Outside lighting is needed for security reasons and for maintenance during evening hours.

**Painting**

Both the interior and exterior of lift station should be inspected on an annual basis for painting concerns. Painting of stations should be performed on an as need basis.

**Fencing**

Fencing should be inspected on an annual basis to determine the condition of the fence, including gates and locks. Repairs should be performed as needed.

**Yard care**

Mowing and weed control should be performed as needed to give the appearance on a well kept lift station.

**Safety and warning signs**

Signs should be posted to allow the public information on who owns the station and who to call if an alarm has been activated. Warning signs should be posted with notice of danger that exists within the confines of the lift station property.

All inspections and work performed will be recorded and entered into the IMS for the Maintenance Supervisor's review.

## Section V

### Pump Station Electrical Maintenance Program

A good preventative maintenance program will minimize unscheduled or "breakdown" maintenance. When failure occurs, both financial expense and environmental damage will be greater than would have been the case, with a good scheduled preventive program.

A scheduled electrical preventative maintenance program would include the following, as applicable:

- Building maintenance
  - Lights
  - Panel Locks
  - Panel Doors
  - Electrical enclosures
- Wiring
  - General inspection
  - Conduit seals
  - Conduit breaks or misalignment
- Electrical motors
  - Condition check
  - Unusual conditions
  - Electrical connections
  - Current and voltage readings under load - by phase
  - Operate pumps alternately
- Meters
  - Flow meters working properly, when existing
  - Electric power meters - physical only! DO NOT OPEN!
  - Electrical connections
  - Inspect conduit integrity and seals, where required
- Control Panels
  - All closure clamps secured
  - Enclosure cleanliness and corrosion
  - Conduit penetration and seals

The City is revising and upgrading its pump station maintenance program by utilizing the IMS. Figures V-1 through V-4 show screen shots of a typical pump station. Figures V-1a, V-1b, and V-1c are actual shots of a work order initiated by an alarm at the East Plant pumping station. Figure V-2 shows the various components of the station. Figures V-3 and V-4 deal with the weekly electrical maintenance.

As the data is collected and entered into the IMS, the City's management will be able to monitor all the activities, including meter calibration and other parts such as flows resulting from rainfall events, power consumption, etc.

Figure V-1a

Infor EAM

Print Work Order

**INFOR**

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<b>Work Order</b>	11539	scada alarm, east plant, high level	<b>Scheduled Start</b>	12/21/2011
<b>Created By</b>	TTEDDER		<b>Scheduled End Date</b>	12/21/2011
<b>Created</b>	12/22/2011		<b>Status</b>	Referred to Manager

  

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Parent WO</b></td> <td></td> </tr> <tr> <td><b>Department</b></td> <td>PW-WWTP-MAINT Public Works - Wastewater Treatment Plant - Maintenance</td> </tr> <tr> <td><b>PM Schedule</b></td> <td></td> </tr> <tr> <td><b>Cost Code</b></td> <td>22650 Maintenance - Sewer Mains</td> </tr> <tr> <td><b>Problem Code</b></td> <td></td> </tr> <tr> <td><b>Project</b></td> <td></td> </tr> <tr> <td><b>Standard WO</b></td> <td></td> </tr> <tr> <td><b>Campaign</b></td> <td></td> </tr> <tr> <td><b>Campaign Event</b></td> <td></td> </tr> </table>	<b>Parent WO</b>		<b>Department</b>	PW-WWTP-MAINT Public Works - Wastewater Treatment Plant - Maintenance	<b>PM Schedule</b>		<b>Cost Code</b>	22650 Maintenance - Sewer Mains	<b>Problem Code</b>		<b>Project</b>		<b>Standard WO</b>		<b>Campaign</b>		<b>Campaign Event</b>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>WO Type</b></td> <td>REP</td> </tr> <tr> <td><b>Class</b></td> <td></td> </tr> <tr> <td><b>Priority</b></td> <td></td> </tr> <tr> <td><b>Warranty</b></td> <td></td> </tr> <tr> <td><b>Safety</b></td> <td></td> </tr> <tr> <td><b>Equipment Criticality</b></td> <td></td> </tr> <tr> <td><b>Assigned To</b></td> <td>4276</td> </tr> <tr> <td><b>Reported By</b></td> <td>4276</td> </tr> <tr> <td><b>Assigned By</b></td> <td></td> </tr> <tr> <td><b>Multiple Equipment</b></td> <td>No</td> </tr> <tr> <td><b>Date Started</b></td> <td>12/21/2011 00:00</td> </tr> <tr> <td><b>Date Completed</b></td> <td></td> </tr> <tr> <td><b>Time Completed</b></td> <td></td> </tr> </table>	<b>WO Type</b>	REP	<b>Class</b>		<b>Priority</b>		<b>Warranty</b>		<b>Safety</b>		<b>Equipment Criticality</b>		<b>Assigned To</b>	4276	<b>Reported By</b>	4276	<b>Assigned By</b>		<b>Multiple Equipment</b>	No	<b>Date Started</b>	12/21/2011 00:00	<b>Date Completed</b>		<b>Time Completed</b>	
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<b>Time Completed</b>																																													

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<b>Equipment</b>	PS:E13B-G22 (*) T-PS:E13B-G22 (*) PUMP-STATIONS (*) SEWER-SYSTEM (*) PUBLIC-WORKS (*) COR (*)	East Plant, 151 CAIRO RD East Plant Pump Station (End of Cairo Rd ) PW Pump Stations PW Sewer System Public Works City of Oak Ridge
<b>Manufacturer</b>		
<b>Model</b>		
<b>Serial Number</b>		
<b>Location</b>	T-PS:E13B-G22 (*)	East Plant Pump Station (End of Cairo Rd )

  

**WO/PM Comments**

*TTEDDER [12/22/2011 07:54]:*  
 pulled transducer and cleaned  
 work complete

12/22/2011 10:38
City of Oak Ridge
Page 1

Figure V-1b

**Infor EAM** Print Work Order **INFOR**

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Work Order Activity 11539  
10

Trade 47208 Pump Stations - Routine Maintenance Activity Start Date 12/21/2011  
Estimated Hours 1 Activity End Date 12/21/2011  
People Required 1

Employee/Crew	Date	Time On	Booked Hours		Total Time	Type of Hours
			Time Off			

Instruction List

12/22/2011 10:38 City of Oak Ridge Page 2

**Figure V-1c**

The information below is the labor hours from the Infor IMS for work order 11539. The labor for all work orders input into IMS can be easily converted by the Infor software to an Excel

<b>Activity-Trade</b>	<b>Date Worked</b>	<b>Employee</b>	<b>Name</b>	<b>Type of Hours</b>	<b>Hours Worked</b>
10 - Pump Stations - Routine Maintenance	12/21/2011	4193	Timothy L Ward	REG	2
10 - Pump Stations - Routine Maintenance	12/21/2011	4276	Terrell L Tedder	REG	3
10 - Pump Stations - Routine Maintenance	12/21/2011	4542	Daniel A West	REG	3

Figure V-2

Structure Screen for East Plant with full expansion

**Equipment Lookup**  
 Select a record and then click OK.

Search **Structure**

Display as Focal Point | Show Details

**Structure Details**

Parents	
<input checked="" type="radio"/>	L-T-PS:E13B-G22
<input type="radio"/>	S-PUMP-STATIONS

- **S-PS:E13B-G22-East Plant, 151 CAIRO RD**
  - P-PS:E13B-G22-P1-Position, Pump-1, Centrifugal
    - A-10738-Centrifugal, Fairbanks Morse, 2800 GPM,195 Head (ft)
  - P-PS:E13B-G22-P2-Position, Pump-2, Centrifugal
    - A-10739-Centrifugal, Fairbanks Morse, 2800 GPM,195 Head (ft)
  - P-PS:E13B-G22-M1-Position, Motor-1, Vertical Mounted Pump
    - A-10808-Reliance, Vertical Mounted, 200 HP, 1785 RPM
  - P-PS:E13B-G22-M2-Position, Motor-2, Vertical Mounted Pump
    - A-10809-Reliance, Vertical Mounted, 200 HP, 1785 RPM
  - A-10001-Generator, Electric, Stationary, Cummins, KW 260, Diesel, East Plant
  - A-10037-Bar Screen, Channel Bypass, East Plant, PS:E13B-G22
  - A-10036-Mufin Monster, Channel, East Plant, PS:E13B-G22
  - A-10832-MCC, US-FILTER

Figure V-3

Print of PM Work Order for Emory Valley – Weekly Electric

<b>Infor EAM</b>		<b>Print Work Order</b>		<b>INFOR™</b>	
<b>Work Order</b>	11419	EMORY VALLEY PUMP STATION PM-ELEC-WEEKLY	<b>Scheduled Start</b>	01/02/2012	
<b>Created By</b>	R5		<b>Scheduled End Date</b>	01/08/2012	
<b>Created</b>	11/29/2011		<b>Status</b>	Open	
<b>Parent WO</b>			<b>WO Type</b>	PM	
<b>Department</b>	PW-WWTP-MAINT	Public Works - Wastewater Treatment Plant - Maintenance	<b>Class</b>		
<b>PM Schedule</b>	EY-ELEC-WEEKLY	EMORY VALLEY PUMP STATION PM-ELEC-WEEKLY	<b>Priority</b>	3	
<b>Cost Code</b>			<b>Warranty</b>		
<b>Problem Code</b>			<b>Safety</b>		
<b>Project</b>			<b>Equipment Criticality</b>		
<b>Standard WO</b>			<b>Assigned To</b>	4019	
<b>Campaign</b>			<b>Reported By</b>		
<b>Campaign Event</b>			<b>Assigned By</b>		
<b>Equipment</b>	PS:ESB-L22 (*)	Emory Valley, 301 EMORY VALLEY RD	<b>Multiple Equipment</b>	No	
	T-PS:ESB-L22 (*)	Emory Valley Pump Station	<b>Data Started</b>		
	PUMP-STATIONS (*)	PW Pump Stations	<b>Data Completed</b>		
	SEWER-SYSTEM (*)	PW Sewer System	<b>Time Completed</b>		
	PUBLIC-WORKS (*)	Public Works			
	COR (*)	City of Oak Ridge			
<b>Manufacturer</b>					
<b>Model</b>					
<b>Serial Number</b>					
<b>Location</b>					

Figure V-4

**Emory Valley Pump Station Maintenance Activities**  
**WEEKLY - ELECTRICAL**

PM Performed By: \_\_\_\_\_ Date: \_\_\_\_\_

SYSTEM OR EQUIPMENT	LEVEL	INSTRUCTIONS / READINGS / COMMENTS	COMPLETED
<b>ELECTRICAL</b>			
Circuit Breaker	1	Check that all breakers are not tripped unless tagged out	
Auto Transfer Switch	1	Check for trouble lights	
Motor Control Center	1	Check for signs of high heat or smoke traces	
Motor Starters	1	Check for faults and that cooling fans are working	
Relays	1	Check for discoloration	
Indicating Lights	1	Check indicator lights for proper operation	
Pump Voltage Read - Pump 1	1	Read display for voltage READING: _____	
Pump Voltage Read - Pump 2	1	Read display for voltage READING: _____	
Pump Amperage Read - Pump 1	1	Read display for amps READING: _____	
Pump Amperage Read - Pump 2	1	Read display for amps READING: _____	
Pump Sequencing	1	Check that all pumps are working in auto	
Transducers	1	Clean transducer of grease and build up	
Lighting Systems	1	Check that all lights are working	

**One (1) - Level one maintenance**

## Section VI

### Pump Station Mechanical Maintenance Program

Mechanical maintenance may be either scheduled preventative maintenance or unscheduled. If a good scheduled preventative program is not activated, unscheduled maintenance will be required on a more frequent basis.

The mechanical maintenance program consists of two major parts:

A. Scheduling the work.

Necessary work must be scheduled in advance and must include items that must be performed during a given time.

B. Performing the work.

Maintenance work must be performed in a specific manner. Tasks must be performed the same way by all maintenance personnel.

#### Scheduling maintenance

Preparation of a lift station maintenance program requires consideration of three important factors:

1. Recommendations by manufacturers of the equipment.
2. Requirements of the individual lift stations.
3. Knowledge and expertise of the maintenance personnel.

#### Recommendations of Equipment Manufacturers

Equipment manufacturers provide maintenance and overhaul recommendations for each piece of equipment they provide. This information is usually provided in a maintenance manual. Information would include frequency of oil changes and lubrication of bearings, types of lubricants, operating temperature range, pressures, flow rates, and disassembly procedures for specific equipment maintenance or parts replacement. The equipment maintenance schedule is developed by listing all of the manufacturer's recommendations in sequence according to time periods, such as daily, weekly, monthly, quarterly, semiannually and annually. When all of the equipment in the station and the frequency of each maintenance task have been tabulated, then the procedure for performing is to be entered into the maintenance portion of the IMS.

**Pump Station Requirements**

Each individual pump station has different requirements. These differences result from the design type and location of the station. These requirements are to be developed primarily from station operating experience and should be evaluated annually. Reevaluation includes changes in frequency of tasks, operational methods, or pump station revisions or redesign in order to increase station reliability, prevent station failure alarms, and reduce crew workloads.

**Staff Knowledge Gained from Experience**

A very important factor in maintenance scheduling is the knowledge of the maintenance personnel. How to deal with local conditions, ability of operators to perform tasks, and the reliability of equipment will be important in a good pump station maintenance program. The experience of well trained maintenance technicians or electricians will be critical in a well run preventive maintenance program. The preventive maintenance program is established with a work order system to notify the crew to perform the required maintenance at the station. The system has a method of recording the work to be performed. This information in the IMS is available to be checked and filed. If maintenance work is missed or not performed, it must and can be rescheduled and completed.

**Information Management System**

All pump stations identified in the A.O. will have preventative maintenance (PM) work orders electronically and automatically generated by the IMS beginning January 2, 2012.

Each pump station will have a unique work order number for each required weekly, monthly, quarterly, semi-annual, and annual inspection. Printed with each work order will be a task list pertinent to the PM schedule and pump station.

Upon completion of each PM, employees will book their labor and tool usage (trucks) required to complete each PM inspection. The accompanying task list will be uploaded to the appropriate work order, with the data stored by the IMS.

**Cost Records**

Records maintained on each pump station will show the costs of operating and maintaining the facility. The costs include the following:

- Electrical power cost.
- Fuel costs such as gasoline and diesel.
- Operational and maintenance costs on basis of labor, vehicles, equipment, and supplies including water and chlorine use.

- Scheduled preventive maintenance and repair costs on basis of labor, parts, shop expenses, vehicles, tool and equipment rentals, paint, lubricants and other supplies.
- Unscheduled repair costs, including responding to the station telemetry alarms, power failures and other problems that require a visit to the station that was not regularly scheduled.
- Repair costs to station caused by vandalism or accidents.

By keeping accurate cost records, these costs for operating and maintaining the station provide the information needed to prepare yearly annual budgets. Cost data for pump stations shall be kept in the Information Management System. This data can be accessed at any time by City of Oak Ridge personnel for good management practices.

### **Other Records**

Records other than the cost data that are important include the following items:

- **Preventive Maintenance Schedule for Pump Stations**  
The equipment and preventive maintenance schedule for tasks to be performed on a monthly, quarterly, semiannual and annual basis must be properly identified. When the work has been completed and forms filled out, the data shall be entered into the Information Management System.
- **Unscheduled Work Order Requests**  
A report form for unscheduled work shows the type of unscheduled work, why it was performed, and the costs, including labor, equipment and materials. All forms should be turned into the Information Management System manager for entry.
- **Modifications Made to the Station or Force Main**  
All drawings and plans must be kept up to date to facilitate future work and to evaluate station performance.
- **Written Reports**  
Important are written reports providing details of unusual conditions or repairs made to the lift station. These reports should indicate how repairs were made, time required, unusual conditions encountered, special equipment or material needs, or additional maintenance scheduling required if the job needs special attention or must be repeated in the future. All reports shall be turned into the Information Management System manager for entry.
- **Operational Data**  
Operational data includes flow records, equipment lapsed time meter readings, and other operating data should be recorded and transferred to the Information Management System.

**Scheduled Preventive Maintenance**

Preventative maintenance on a wastewater pump station should include the following (where applicable):

- Air Compressor
  - Condition check
  - Oil change
  - Lubrication
  - Drain condensation
  - Air filter
  - Safety valve
  - Gauge check
- Belt
  - V belt check/adjust
- Blower ventilation
  - Remove from service
  - Inspect
- Building maintenance
  - Lights
  - Locks
  - Doors
  - Electrical prev.-maintenance
- Couplings
  - General
    - Check flexible coupling
    - Coupling disassembly
    - Alignment procedure
- Dehumidifier
  - Operational check
  - Lube and inspection
- Electrical motors
  - Condition check
  - Unusual conditions
  - Lube-flush bearings
  - Scope bearings
- Meters
  - Gallon counters
  - Electric power meters
- Pits or wells
  - Inspection

- Pumps-centrifugal
  - General
  - Packing glands
  - Condition check
  - Operate pumps alternately
  - Lubrication
  - Pumping range
- Submersible pumps
  - Schedule pull and inspect
- Sump pumps
  - Operation check
  - Inspection
- Strainers
  - Inspection and clean
- Valves- air relief
  - Inspection and clean
- Valves- gate
  - Operation
  - Packing adjustment
  - Packing lube

All safety rules and regulations should be followed while performing maintenance at our pump stations. Following lock out tag out procedures is required during electrical maintenance. Confined space entry guidelines shall always be followed. A review of the safety procedures shall be performed by the maintenance supervisor with all employees on a scheduled time frame.

All maintenance procedure shall be recorded on the pump station maintenance report form and turned into the maintenance supervisor for review. The supervisor will have the maintenance information entered into the Information Management System.

# Appendix A

## Pump Station Inspections



City of Oak Ridge

Pump Station Inspection

Date: <input type="text" value="11/03/10"/>	Location: <input type="text" value="End of Cairo Road-151&lt;br/&gt;Cairo Road"/>	Date of Construction: <input type="text"/>	ID: <input type="text" value="1"/>
Inspector: <input type="text" value="sb/sh/gh"/>		Latitude: <input type="text" value="EW: 36-02-23"/>	
Name of Station: <input type="text" value="East Plant"/>		Longitude: <input type="text" value="NS: 84-12-36"/>	

  

Mechanical Station Condition: <input type="text" value="Good"/>	Electrical Station Condition: <input type="text" value="Good"/>
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Type: <input type="text" value="W-well/D-well"/> Number of Pumps: <input type="text" value="2"/> Pump Brand: <input type="text" value="Fairbanks Morse"/> Serial Number: <input type="text" value="No Nameplate"/> Pump Curve: <input type="text" value="yes"/> Wet Well Diameter: <input type="text"/> ft Wet Well Storage Depth: <input type="text"/> ft Invert Elevation: <input type="text"/> Pressure Gauge Dischrg: <input type="text" value="No"/> FM Material: <input type="text" value="DI"/> FM Size: <input type="text" value="16/18"/> in FM Length: <input type="text" value="10564/3703"/> ft Discharge Elevation: <input type="text" value="915.82"/> Evidence of Overflow: <input type="text" value="No"/> Fence: <input type="text" value="Yes"/>	Power Source: <input type="text" value="Pad Mt Transfor"/> Service: <input type="text" value="OH"/> Transformer Number: <input type="text" value="8504"/> Transformer Type: <input type="text" value="Pad"/> Transformer Size: <input type="text" value="unknown"/> Voltage: <input type="text" value="460"/> Phase: <input type="text" value="3"/> Disconnect Type: <input type="text" value="Circuit Breaker"/> Main Amps: <input type="text" value="800A frame"/> Motor Control Location: <input type="text" value="MCC"/> Motor Controller: <input type="text" value="Soft Start"/> HP: <input type="text" value="200-1785 rpm"/> Motor Brand: <input type="text" value="Reliance"/> Motor Serial Number: <input type="text" value="IMA-497830-G2"/> Aux Power: <input type="text" value="Diesel"/> Generator Brand: <input type="text" value="Cummins"/> Generator kW: <input type="text" value="260"/>	Level Control: <input type="text" value="Pressure"/> Control Manufacturer: <input type="text" value="US Filter/Sigma"/> Redundant Level Control: <input type="text" value="No"/> Number / Type: <input type="text"/> Flowmeter Type: <input type="text"/> Lapse Time Meter: <input type="text" value="No"/> Telemetry Mfg: <input type="text"/> Telemetry Type: <input type="text"/> Alarm Type: <input type="text" value="Telemetry"/> Control Sequence: <input type="text" value="Lead on at 10 ft/ off at 6&lt;br/&gt;ft&lt;br/&gt;Lag on at 10.5 ft / off t&lt;br/&gt;6.5 ft"/> Other Station Equipment: <input type="text" value="Mufin monster hyd grinder&lt;br/&gt;w/bypass screen; power UG&lt;br/&gt;from drop pole to bldg;water&lt;br/&gt;seal sys (2-Aurora I4TBF;ser # 80-"/>
--	--	---

Remarks: Pumps are 10"X6"; Motors are: Frame-445HP, Type P, 1785 RPM, 60 Hz, Ins Cl B, 40 deg C, 223 FLA, Cont Duty, Des B, SF 1.0; Some corrosion on metals (pump bases, etc); some issues with ext shafts to pumps; hatch in floor for pump removal (no crane or trolley for pump removal); corrosion on metals at influent structure (severe in spots); name plate on Channel monster difficult to access (info kept at maint. Dept.); stub with valve for future pump



City of Oak Ridge  
Pump Station Inspection

Date: 11/03/10      Location: Emory Valley Road at Baylor Drive      Date of Construction:      ID: 2  
 Inspector: sb/sh/gh      Latitude: EW: 36-01-37  
 Name of Station: Emory Valley      Longitude: NS: 84-12-13

Mechanical Station Condition:	Excellent	Electrical Station Condition:	Excellent
Type:	W-well/D-well	Power Source:	480V fm pole
Number of Pumps:	2	Service:	UG
Pump Brand:	Flygt	Transformer Number:	
Serial Number:	3202.180-102008	Transformer Type:	Pole
Pump Curve:	yes	Transformer Size:	
Wet Well Diameter:	ft	Voltage:	460
Wet Well Storage Depth:	ft	Phase:	
Invert Elevation:		Disconnect Type:	Circuit Breaker
Pressure Gauge Dischrg:	No	Main Amps:	400
FM Material:	DI	Motor Control Location:	MCC
FM Size:	2@10" in	Motor Controller:	Soft Start
FM Length:	7570 Parallel/ ft	HP:	70-1775 rpm
Discharge Elevation:	915.82	Motor Brand:	subm pumps
Evidence of Overflow:	No	Motor Serial Number:	N/A
Fence:	Yes	Aux Power:	Diesel
		Generator Brand:	Kohler
		Generator kW:	125
		Level Control:	Pressure
		Control Manufacturer:	US Filter
		Redundant Level Control:	No
		Number / Type:	
		Flowmeter Type:	
		Lapse Time Meter:	No
		Telemetry Mfg:	
		Telemetry Type:	
		Alarm Type:	Telemetry
		Control Sequence:	Lead on at 6.5 ft/ off at 4 ft Lag on at 7.5 ft / off at 4 ft
		Other Station Equipment:	Muffin monster hyd grinder w/bypass screen; ASCO ATS; GA OL&W ck valves w/ mercoird position switch; 2 sump pumps

Remarks: Power is UG from pole w/transformers approx 190 ft west of site; pumps are dry pit submersible; 10"X8" red el on pump suction/ 5" discharge; SST flex spool on disch of each pump; Roots blower keeps solids suspended in wet well; Manual slide gates for grinder bypass very difficult to move; Muffin Monster teeth and bearings replaced October 2010; Water mark 6' high on lower floor wall due to high flows; 2-10" f mains tie to 18" fmain which also drains 16" f main from East Plant



City of Oak Ridge  
Pump Station Inspection

Date: 11/03/10 Location: Melton Lake Drive at Marina-695 Melton Lake Drive Date of Construction: ID: 3  
 Inspector: sb/sh/gh Latitude: EW: 36-01-57  
 Name of Station: Marina Longitude: NS: 84-11-39

Mechanical Station Condition: Good Electrical Station Condition: Excellent

Type: Submersible	Power Source: UG crossing M La	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer: ITT Flygt/US
Pump Brand: Flygt	Transformer Number:	Redundant Level Control:
Serial Number: 9860808,986080	Transformer Type: Pole	Number / Type:
Pump Curve: yes	Transformer Size:	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth: 3 ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 100	Alarm Type: Horn/Light
FM Material: Other	Motor Control Location: Panel	Control Sequence: Lead on at 5.5 ft/ off at 2.5 ft Lag on at 6 ft/ off at 3.5 ft
FM Size: 4 (CI) in	Motor Controller: Across the Line	Other Station Equipment: red valve press sensor (gauge inoperable)
FM Length: 2125 ft	HP: 10-1735 rpm	
Discharge Elevation:	Motor Brand: subm pumps	
Evidence of Overflow: No	Motor Serial Number: N/A	
Fence: No	Aux Power: None	
	Generator Brand: N/A	
	Generator kW: N/A	

Remarks: Disch press gauge inoperable; debris in wet well; clear infl flow from north; pwr to site UG (approx 100 ft) from pole across Melton Lake Dr; meter and disconnect on pole; Drawdown test-pump 1 ~ 110 gpm, pump 2 ~ 117 gpm (assumes 20 gpm inflow); valve vault is 6'X6' at 4'-10" inside depth; pump nameplate info: Y-service, 7.5 kw-10 hp, 460/230,13/25A,3 ph, 60 Hz, 1735 rpm, M21-12-4AL; static press-14 psi/ run press- 35 psi



# City of Oak Ridge Pump Station Inspection

Date: 11/03/10 Location: Melton Lake Drive on Parcel 94D-E-24; ~310 ft from Melton Lake Drive- Melton Lake Peninsula Date of Construction: ID: 4  
 Inspector: sb/sh/gh Latitude: EW: 36-04-44  
 Name of Station: Gregory's Longitude: NS: 84-20-27

Mechanical Station Condition: Replace Electrical Station Condition: Replace

Type: Suction Lift	Power Source: UG fm residential	Level Control: Floats
Number of Pumps: 2	Service: UG	Control Manufacturer:
Pump Brand: Hydromatic	Transformer Number: Unavailable	Redundant Level Control: No
Serial Number: 24019,24020	Transformer Type: Pad	Number / Type:
Pump Curve: No	Transformer Size: Unavailable	Flowmeter Type: None
Wet Well Diameter: 5 ft	Voltage: 240/120	Lapse Time Meter: No
Wet Well Storage Depth: 17 tot depth ft	Phase: 3	Telemetry Mfg:
Invert Elevation: 781.5	Disconnect Type:	Telemetry Type:
Pressure Gauge Dischrg: No	Main Amps: N/A	Alarm Type:
FM Material: PVC	Motor Control Location: Other	Control Sequence: Unknown float levels
FM Size: 6"/8" in	Motor Controller: Across the Line	
FM Length: 860'/800' ft	HP: 15 -1735 rpm	
Discharge Elevation: 830	Motor Brand: GE	Other Station Equipment:
Evidence of Overflow: No	Motor Serial Number: Unavailable	
Fence: No	Aux Power: None	
	Generator Brand: N/A	
	Generator kW: N/A	

Remarks Station very old, needs to be replaced; grease in wet well from restaurant; new plug valve/check valve combos installed recently; pump model \$ 40MMPC 15003-4, 9-1/8" impeller; fiberglass hood over station; RR tie retaining wall on south and west sides; in back yard of condo; access by gravel drive off Melton lake Drive; 4 control floats; no electrical disconnect; drawdown test pump 1 ~ 210 gpm, pump 2 ~ 245 gpm (inflow unknown- could not see pipe)



City of Oak Ridge  
Pump Station Inspection

Date: 11/10/10      Location: Turnpike behind Castlewood Apts east of ball field-Arcadia Lane      Date of Construction:      ID: 5  
 Inspector: sb/sh      Latitude: EW: 36-02-43  
 Name of Station: Castlewood      Longitude: NS: 84-12-39

Mechanical Station Condition: Fair      Electrical Station Condition: Fair

Type: Suction Lift	Power Source: UG fm pad mt res	Level Control: Floats
Number of Pumps: 2	Service: UG	Control Manufacturer:
Pump Brand: Hydromatic	Transformer Number:	Redundant Level Control: No
Serial Number: 19640,19639	Transformer Type: Pad	Number / Type:
Pump Curve:	Transformer Size:	Flowmeter Type: None
Wet Well Diameter: 5 ft	Voltage: 240/120	Lapse Time Meter: No
Wet Well Storage Depth: 5.25 to infl ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type:	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps:	Alarm Type: Light
FM Material: Other	Motor Control Location: Panel	Control Sequence: Lead/Lag w/ floats (4)
FM Size: 6 (CI) in	Motor Controller: Across the Line	
FM Length: 850 ft	HP: 5-1155 rpm	
Discharge Elevation: 831.2	Motor Brand: GE	Other Station Equipment: Heater (portable)
Evidence of Overflow: No	Motor Serial Number: 5K215DL356A	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Drawdown 6-1/2 inches in 30 sec= 160 gpm (each pump); pump model # 40MMPC500-3-6, 9-1/8" impeller;ea pump has 20A 3P breaker;



City of Oak Ridge  
Pump Station Inspection

Date: 11/10/10 Location: 113 Eastburn Lane- behind old radio station Date of Construction: ID: 6  
 Inspector: sb/sh Latitude: EW: 36-02-57  
 Name of Station: WATO Longitude: NS: 84-12-34

Mechanical Station Condition: Electrical Station Condition:

Type: Submersible	Power Source: OH from street	Level Control: Pressure
Number of Pumps: 2	Service: OH	Control Manufacturer: US Filter DI52
Pump Brand: Flygt	Transformer Number:	Redundant Level Control: Yes
Serial Number: 9881057,988105	Transformer Type: Pole	Number / Type: 4 floats
Pump Curve:	Transformer Size:	Flowmeter Type: None
Wet Well Diameter: 4'X4' ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth: ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type:
Pressure Gauge Dischrg: Yes	Main Amps: 100	Alarm Type: Horn/Light
FM Material: Other	Motor Control Location: Panel	Control Sequence: Lead on 3' / off 1-1/2' Lag on 3-1/2' / off 2'
FM Size: 4 (CI) in	Motor Controller: Across the Line	Other Station Equipment:
FM Length: 574 ft	HP: 3-1700 rpm	
Discharge Elevation: 853.54	Motor Brand:	
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: drawdown 3-1/2" in 30nsec= 70 GPM (ea Pump), stat 131/2 psi, run 17 psi???, 6'X8' valve vault w/ double door alum hatch, 4" piping; wet well tot depth 170", 138" to inv of lowest inf;



City of Oak Ridge  
Pump Station Inspection

Date: 11/10/10      Location: behind homes on Westview Lane-129 Westview Lane      Date of Construction:      ID: 7  
 Inspector: sb/sh      Latitude: EW: 36-58-41  
 Name of Station: Westview      Longitude: NS: 84-21-56

Mechanical Station Condition: Replace      Electrical Station Condition: Replace

Type: Suction Lift	Power Source: Transform at site	Level Control: Floats
Number of Pumps: 4-2 ea in series	Service: UG	Control Manufacturer:
Pump Brand: Hydromatic	Transformer Number: 942 or b947	Redundant Level Control: No
Serial Number: P65127,28,29 &3	Transformer Type: Pad	Number / Type:
Pump Curve:	Transformer Size: 50kVa	Flowmeter Type: None
Wet Well Diameter 7 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type:	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps: 150A per motor	Alarm Type: Light
FM Material: PVC	Motor Control Location: Panel	Control Sequence: 2 floats only; alternator
FM Size: 6 in	Motor Controller: Across the Line	
FM Length 750 ft	HP: 40	
Discharge Elevation:	Motor Brand: US	
Evidence of Overflow: No	Motor Serial Number: V050059R027R-4	Other Station Equipment: portable heater
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator KW:	

Remarks lat is 35-58-41 N;problem with rats;all 4 pumps repl in 2009;debris on top of wet well;corrosion on metals; pumps all identical model #40MPH 9-5/32" impellers;could not access infl pipes to meas down; drawdown 1 pump 9" in 30 sec=432 GPM, 1 pump 8-1/2" in 30 sec=408 GPM; wet well tot depth 152";site access along gravel road behind houses;disconnect is meter;4" piping



City of Oak Ridge  
Pump Station Inspection

Date: 11/10/10      Location: behind homes on Westview Lane-129 Westview Lane      Date of Construction:      ID: 7  
 Inspector: sb/sh      Latitude: EW: 36-58-41  
 Name of Station: Westview      Longitude: NS: 84-21-56

Mechanical Station Condition: Replace      Electrical Station Condition: Replace

Type: Suction Lift	Power Source: Transform at site	Level Control: Floats
Number of Pumps: 4-2 ea in series	Service: UG	Control Manufacturer:
Pump Brand: Hydromatic	Transformer Number: 942 or b947	Redundant Level Control: No
Serial Number: P65127,28,29 &3	Transformer Type: Pad	Number / Type:
Pump Curve:	Transformer Size: 50kVa	Flowmeter Type: None
Wet Well Diameter 7 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type:	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps: 150A per motor	Alarm Type: Light
FM Material: PVC	Motor Control Location: Panel	Control Sequence: 2 floats only; alternator
FM Size: 6 in	Motor Controller: Across the Line	
FM Length 750 ft	HP: 40	
Discharge Elevation:	Motor Brand: US	
Evidence of Overflow: No	Motor Serial Number: V050059R027R-4	Other Station Equipment: portable heater
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator KW:	

Remarks lat is 35-58-41 N;problem with rats;all 4 pumps repl in 2009;debris on top of wet well;corrosion on metals; pumps all identical model #40MPH 9-5/32" impellers;could not access infl pipes to meas down; drawdown 1 pump 9" in 30 sec=432 GPM, 1 pump 8-1/2" in 30 sec=408 GPM; wet well tot depth 152";site access along gravel road behind houses;disconnect is meter;4" piping



City of Oak Ridge  
Pump Station Inspection

Date: 11/10/10      Location: Williams Lane      Date of Construction:      ID: 8  
 Inspector: sb/sh      Latitude: EW: 36-59-25  
 Name of Station: Williams      Longitude: NS: 84-20-56

Mechanical Station Condition: Good      Electrical Station Condition: Excellent

Type: Submersible	Power Source: PMnt Trans	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer: US Filter D152
Pump Brand: KSB	Transformer Number: 1860	Redundant Level Control: Yes
Serial Number: 5-M07-782 282/1	Transformer Type: Pad	Number / Type: 2 floats
Pump Curve:	Transformer Size: 75kVA	Flowmeter Type: None
Wet Well Diameter: 7 ft	Voltage: 460	Lapse Time Meter: Yes
Wet Well Storage Depth: ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps: 200	Alarm Type: Light
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on at 3'/ off at 1.75' Lag on at 3.5'/ off at 2.25'
FM Size: 4 in	Motor Controller: Across the Line	
FM Length: 1454 ft	HP: 49	
Discharge Elevation: 1028.92	Motor Brand: KSB	Other Station Equipment: Yard hydrant
Evidence of Overflow: No	Motor Serial Number: 029442&3 AA	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks Consolidated Electric control panel NEMA 4X SS, ser #58120A; Red Valve on discharge (press gauge inoperable); valve vault 6'X7'X4'-7" deep;pump has guide cables, not rails; 4" piping; pt where guide cables conn to concrete struct heavily corroded;drawdown ea pump pumps 4" in 30 sec=192 GPM; pump model #KRTF 100-400/414XG; 120 gpm @ 210 ft TDH; lat is actually 35 59 25





City of Oak Ridge  
Pump Station Inspection

Date: 11/17/10 Location: 40 Pallsades Pkwy- behind houses Date of Construction: ID: 10  
 Inspector: sb/sh Latitude: EW: 36-02-19  
 Name of Station: Pallsades #4 Longitude: NS: 84-12-34

Mechanical Station Condition: Fair		Electrical Station Condition: Poor	
Type: Suction Lift	Power Source: UG from street	Level Control: Floats	
Number of Pumps: 2	Service: UG	Control Manufacturer:	
Pump Brand: Hydromatic	Transformer Number: N/A	Redundant Level Control: No	
Serial Number: P1595/P1596	Transformer Type: Other	Number / Type:	
Pump Curve:	Transformer Size:	Flowmeter Type: None	
Wet Well Diameter: 5 ft	Voltage: 240/120	Lapse Time Meter: Yes	
Wet Well Storage Depth: 2.5/103" total ft	Phase: 1	Telemetry Mfg:	
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None	
Pressure Gauge Dischrg: No	Main Amps: 30	Alarm Type: Light	
FM Material: PVC	Motor Control Location: Panel	Control Sequence: 4 floats w/ alternator	
FM Size: 4 in	Motor Controller: Across the Line		
FM Length: 962 ft	HP: 3		
Discharge Elevation: 811.7	Motor Brand: U.S.	Other Station Equipment: yard hydrant	
Evidence of Overflow: No	Motor Serial Number: F077A/U04F		
Fence: No	Aux Power: None		
	Generator Brand:		
	Generator kW:		

Remarks: Meter is disconnect;w-well has alum hatch;mice in sta cover;pump 1-4.5" in 30 sec=110 GPM; pump 2- 4" in 30 sec=98 GPM;pump model # 30 MP,imp dia 8.13",motor 1735 rpm,19 FLA; paved access to site



# City of Oak Ridge Pump Station Inspection

Date: 11/17/10 Location: 28 Palisades Pkwy- behind house Date of Construction:            ID: 11  
 Inspector: sb/sh Latitude: EW: 36-02-25  
 Name of Station: Palisades #3 Longitude: NS: 84-12-27

Mechanical Station Condition: Fair Electrical Station Condition: Good

Type: <u>Suction Lift</u>	Power Source: <u>UG fm street</u>	Level Control: <u>Floats</u>
Number of Pumps: <u>2</u>	Service: <u>UG</u>	Control Manufacturer: <u>          </u>
Pump Brand: <u>Hydromatic</u>	Transformer Number: <u>617/618</u>	Redundant Level Control: <u>No</u>
Serial Number: <u>P424/P427</u>	Transformer Type: <u>Pad</u>	Number / Type: <u>4 floats</u>
Pump Curve: <u>          </u>	Transformer Size: <u>2@15 kVA</u>	Flowmeter Type: <u>None</u>
Wet Well Diameter: <u>6</u> ft	Voltage: <u>240/120</u>	Lapse Time Meter: <u>Yes</u>
Wet Well Storage Depth: <u>6.5/tot 123"</u> ft	Phase: <u>3</u>	Telemetry Mfg: <u>          </u>
Invert Elevation: <u>          </u>	Disconnect Type: <u>Fused</u>	Telemetry Type: <u>None</u>
Pressure Gauge Dischrg: <u>No</u>	Main Amps: <u>70</u>	Alarm Type: <u>Light</u>
FM Material: <u>PVC</u>	Motor Control Location: <u>Panel</u>	Control Sequence: <u>4 floats w/alternator</u>
FM Size: <u>4</u> in	Motor Controller: <u>Across the Line</u>	
FM Length: <u>780</u> ft	HP: <u>7.5 1740 rpm</u>	
Discharge Elevation: <u>801.38</u>	Motor Brand: <u>U.S</u>	
Evidence of Overflow: <u>No</u>	Motor Serial Number: <u>U05U028R021M</u>	Other Station Equipment: <u>yard hydrant, heater, exhaust fan</u>
Fence: <u>No</u>	Aux Power: <u>None</u>	
	Generator Brand: <u>          </u>	
	Generator kW: <u>          </u>	

Remarks: mice under sta cover; suct pipe repl on 1 pump recently; pump 1- 6" in 30 sec=211 GPM; pump 2- 6.5" in 30 sec=229 GPM; motor 208-230/460, SF 1.15; pump imp dia 9-5/32". Pump model 40MP; gravel access to site along side and rear lot lines



City of Oak Ridge  
Pump Station Inspection

Date: 11/17/10 Location: 18 Pallasades Pkwy-behind house Date of Construction: ID: 12  
 Inspector: sb/sh Latitude: EW: 36-02-28  
 Name of Station: Pallasades #2 Longitude: NS: 84-12-20

Mechanical Station Condition: Fair Electrical Station Condition: Good

Type: Suction Lift	Power Source: UG fm street	Level Control: Floats
Number of Pumps: 2	Service: UG	Control Manufacturer:
Pump Brand: Hydromatic	Transformer Number: N/A	Redundant Level Control: No
Serial Number: P1695/P169?	Transformer Type: Other	Number / Type:
Pump Curve:	Transformer Size:	Flowmeter Type: None
Wet Well Diameter: 5 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth: 52"/107" total ft	Phase: 1	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps: 50	Alarm Type: Light
FM Material: PVC	Motor Control Location: Panel	Control Sequence: 4 floats
FM Size: 4 in	Motor Controller: Across the Line	
FM Length: 528 ft	HP: 3	
Discharge Elevation: 813.53	Motor Brand: US	Other Station Equipment: yard hydrant, heater, exhaust fan
Evidence of Overflow: No	Motor Serial Number: F077A/V01F;	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator KW:	

Remarks: nameplate inaccessible on 1 pump;pump 1- 4" in 30 sec=98 GPM+, pump 2- 3" in 30 sec=74 GPM+ (10-15 gpm inflow);al hatch on wet well (needs replaced); stone ret wall on 1 side of station (hood can not be slid all the way off)



# City of Oak Ridge Pump Station Inspection

Date: 11/17/10 Location: 10 Pallisades Pkwy- behind/between houses Date of Construction: ID: 13  
Inspector: sb/sh Latitude: EW: 36-02-30  
Name of Station: Pallisades #1 Longitude: NS: 84-12-16

Mechanical Station Condition:	Fair	Electrical Station Condition:	Good		
Type:	Suction Lift	Power Source:	UG fm street	Level Control:	Floats
Number of Pumps:	2	Service:	UG	Control Manufacturer:	
Pump Brand:	Hydromatic	Transformer Number:	N/A	Redundant Level Control:	No
Serial Number:	P1693,P1695	Transformer Type:		Number / Type:	4 floats
Pump Curve:		Transformer Size:		Flowmeter Type:	None
Wet Well Diameter:	5 ft	Voltage:	240/120	Lapse Time Meter:	Yes
Wet Well Storage Depth:	52"/92" total ft	Phase:	1	Telemetry Mfg:	
Invert Elevation:		Disconnect Type:	Fused	Telemetry Type:	None
Pressure Gauge Dischrg:	No	Main Amps:	50	Alarm Type:	Light
FM Material:	PVC	Motor Control Location:	Panel	Control Sequence:	4 floats w/alternator
FM Size:	4 in	Motor Controller:	Across the Line	Other Station Equipment:	yard hydrant, heater, exhaust fan
FM Length:	488 ft	HP:	3		
Discharge Elevation:	797.59	Motor Brand:	U.S.		
Evidence of Overflow:	No	Motor Serial Number:	F077A/U04F		
Fence:	Yes	Aux Power:	None		
		Generator Brand:			
		Generator kW:			

Remarks: void under slab on 3 sides;pump imp dia 8-13/32";pump model 30MP;motor 19.1 FLA;1 pump inoperable;exposed conduit/wire entering station (unknown use); pump 1 6-1/2" in 30 sec=159 GPM; float hanger needs work (hanging from wire)



City of Oak Ridge  
Pump Station Inspection

Date: 11/17/10 Location: 120 Marywater Lane behind houses Date of Construction: ID: 14  
 Inspector: sb/sh Latitude: EW: 36-02-48  
 Name of Station: Riversway Longitude: NS: 84-12-17

Mechanical Station Condition:	Excellent	Electrical Station Condition:	Good
Type:	Submersible	Power Source:	UG frm pad mt tr
Number of Pumps:	2	Service:	UG
Pump Brand:	Flygt 3127.180-4	Transformer Number:	931 & 935
Serial Number:	9420632;942063	Transformer Type:	Pad
Pump Curve:		Transformer Size:	2-25 kVA
Wet Well Diameter:	6 ft	Voltage:	240/120
Wet Well Storage Depth:	88"/148" total ft	Phase:	3
Invert Elevation:	797	Disconnect Type:	Fused
Pressure Gauge Dischrg:	No	Main Amps:	80
FM Material:	PVC	Motor Control Location:	Panel
FM Size:	6/8 in	Motor Controller:	Across the Line
FM Length:	1400'/800' ft	HP:	10
Discharge Elevation:	830	Motor Brand:	
Evidence of Overflow:	No	Motor Serial Number:	
Fence:	Yes	Aux Power:	None
		Generator Brand:	
		Generator kW:	
		Level Control:	Pressure
		Control Manufacturer:	CSI
		Redundant Level Control:	No
		Number / Type:	
		Flowmeter Type:	None
		Lapse Time Meter:	No
		Telemetry Mfg:	
		Telemetry Type:	None
		Alarm Type:	Light
		Control Sequence:	Lead on 3.8'/lag on 4.1' Pump off-2.0'/hi level 4.5'/low level 0.7'
		Other Station Equipment:	yard hydrant (inoperable);valve on influent pipe to sta;seal leak & bearing temp sensors (flygt mini-control),lightning arrestor

Remarks: conc access drive; valve vault 4'X 8' X44-1/2" deep w/ double door al access hatch; wet well has 8' sq top; pump 1- 8" in 30 sec=281 GPM, pump 2- 7" in 30 sec=246 GPM; motors 25 FLA, 1735 rpm;wet well total depth 148"/ 88" to influent



City of Oak Ridge  
Pump Station Inspection

Date: 11/17/10 Location: Scarborough Date of Construction: ID: 15  
 Inspector: sb/sh Latitude: EW: 36-59-13  
 Name of Station: Scarborough Longitude: NS: 84-13-31  
 Mechanical Station Condition: Replace Electrical Station Condition: Poor

Type: W-well/D-well	Power Source: OH to pole	Level Control: Pressure
Number of Pumps: 2	Service: OH	Control Manufacturer: Cons Elec D152
Pump Brand: Yeomans(Clou ca	Transformer Number:	Redundant Level Control: Yes
Serial Number: N4315/Unit 1&2	Transformer Type: Pole	Number / Type: 1 hi level float
Pump Curve:	Transformer Size: 2 @ ???kVA	Flowmeter Type: None
Wet Well Diameter ~8' ft	Voltage: 460	Lapse Time Meter: No
Wet Well Storage Depth: 6.5' oper/12'to ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: Phone
Pressure Gauge Dischrg: No	Main Amps: 175	Alarm Type: Telemetr
FM Material: Other	Motor Control Location: Panel	Control Sequence: Lead on 6.5'/off
FM Size: 8 (CI) in	Motor Controller: Across the Line	3.5' lag on 8'/off
FM Length: 4299 ft	HP: 50	4' low levels
Discharge Elevation: 912.86	Motor Brand: Marathon	3'/2.5' high
Evidence of Overflow: No	Motor Serial Number: 95714	Other Station Equipment: sump pump;dehumidifier;ex fan;
Fence: Yes	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: fence damage (tree);steel can sta (10' dia x 9' hi inside w/3' dia tube 6'1" long) 15'2" total depth;pumps 650 gpm@185 ft TDH,9/86 date stamp, 263441 on plate also;wet well has F&C, foam in wet well; check valves&plug valves corroded;pump 1 8" in 27 sec=557 GPM, pump 2 9" in 30 sec=562 GPM;gravel access rd to site;seals leaking on both pumps;REPLACE



# City of Oak Ridge Pump Station Inspection

Date:	12/02/10	Location:	1402 Edgemoor Road across from Melton Hill Lake	Date of Construction:		ID:	16
Inspector:	sb/sh			Latitude:	EW: 36-59-53		
Name of Station:	Park Meade			Longitude:	NS: 84-11-07		

Mechanical Station Condition: Good      Electrical Station Condition: Good

Type:	Suction Lift	Power Source:	Pmount Trans	Level Control:	Pressure
Number of Pumps:	2	Service:	UG	Control Manufacturer:	GR
Pump Brand:	Gorman Rupp	Transformer Number:	1888	Redundant Level Control:	No
Serial Number:	1083675N/10836	Transformer Type:	Pad	Number / Type:	
Pump Curve:		Transformer Size:	112.5kVA	Flowmeter Type:	None
Wet Well Diameter:	6 ft	Voltage:	460	Lapse Time Meter:	Yes
Wet Well Storage Depth:	?? ft	Phase:	3	Telemetry Mfg:	
Invert Elevation:		Disconnect Type:	Circuit Breaker	Telemetry Type:	None
Pressure Gauge Dischrg:	Yes	Main Amps:	250	Alarm Type:	Light
FM Material:		Motor Control Location:	Panel	Control Sequence:	Lead on 4.1'/off 2.1' Lag on 6.1'/off 4.1'      Low Alarm 0.4'/off 1.3'      High Alarm
FM Size:	10 in	Motor Controller:	Soft Start	Other Station Equipment:	ATS;yard hyd;yard light'port heater;exhaust fan;
FM Length:	10278 ft	HP:	50 1765 RPM		
Discharge Elevation:	811.88	Motor Brand:	G		
Evidence of Overflow:	No	Motor Serial Number:	Model B0504VLF		
Fence:	Yes	Aux Power:	Diesel		
		Generator Brand:	Kohler		
		Generator kW:	50?		

Remarks: stat press 84/running 140+ (gauge pegged);suct and disch gauges on both pumps (disch gauge on P2 missing); GR ARV's (P2 valve disch cont during pump run test);ValMatic PL valves(model 58069);6" disch to 10" exiting sta. LAT ACTUALLY 35-59-53;sliding cover over sta good shape;motor amps 63A;total w well depth 131" (could not access infl pipe (approx 4' below gnd level));Drawdown P1 2.5" in 1 min(redo 35" in 2 min)=307 GPM;P2 7.5" in 1 min=132 GPM



City of Oak Ridge  
Pump Station Inspection

Date: 12/02/10 Location: 117 Rock Bridge at front common prop line Date of Construction: ID: 17  
 Inspector: sb/sh Latitude: EW: 36-00-57  
 Name of Station: Rockbridge Gree Longitude: NS: 84-10-46

Mechanical Station Condition: Good		Electrical Station Condition: Good	
Type: Submersible	Power Source: UG fm trans	Level Control: Pressure	
Number of Pumps: 2	Service: UG	Control Manufacturer: CSI	
Pump Brand: Flygt	Transformer Number: 1870	Redundant Level Control: No	
Serial Number: 9670191/967019	Transformer Type: Pad	Number / Type:	
Pump Curve:	Transformer Size: 300 kVA	Flowmeter Type: None	
Wet Well Diameter: 5 ft	Voltage: 240/120	Lapse Time Meter: Yes	
Wet Well Storage Depth: 19' tot depth ft	Phase: 3	Telemetry Mfg:	
Invert Elevation:	Disconnect Type: Circuit Breaker	Telemetry Type:	
Pressure Gauge Dischrg: No	Main Amps: 100	Alarm Type: Light	
FM Material: PVC	Motor Control Location: Panel	Control Sequence: Lead on 5.7'/off 3.7' Lag on 8.2'/off 3.7' High alarm 9.2'	
FM Size: 6 in	Motor Controller: Soft Start		
FM Length: 1887 ft	HP: 23	Other Station Equipment: Yard hydrant	
Discharge Elevation: 975.0	Motor Brand: Flygt		
Evidence of Overflow: No	Motor Serial Number:		
Fence: No	Aux Power: None		
	Generator Brand:		
	Generator kW:		

Remarks: 8' and 9' to inv of infl pipes; total w wellpth 19'; 4'x9'x53" deep cast-in-place valve vault (pipes too close to wall to access check valves easily, drain pipe clogged with mulch); 3-1/2' x 3-1/2' al hatch; station in landscape area, mulch over access lids (dangerous to be around openings due to mulch sloping toward openings); guide brackets on pumps snag on disch pipe flanges; Pump model 3152.181-6273; 51 FLA; 4-wire Y service; Drawdown 17" in 1 min=208 GPM for both pumps



City of Oak Ridge  
Pump Station Inspection

Date: 12/02/10 Location: 51 Rolling Links-behind house adjacent to large pond Date of Construction: ID: 18  
 Inspector: sb/sh Latitude: EW: 36-01-18  
 Name of Station: Rolling Links Longitude: NS: 84-10-19

Mechanical Station Condition: Good Electrical Station Condition: Fair

Type: Submersible	Power Source: Pad mnt trans	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer: Consolidated D-1
Pump Brand: Flygt	Transformer Number: 2284/2276	Redundant Level Control: No
Serial Number: 9670310/967030	Transformer Type: Pad	Number / Type:
Pump Curve:	Transformer Size: 25 kVA	Flowmeter Type: None
Wet Well Diameter: 5 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Circuit Breaker	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps: 100	Alarm Type: Light
FM Material: PVC	Motor Control Location: Panel	Control Sequence: Lead on 3.5'/off 2.0' Lag on 5'/off 3.5' Low al 1.25'/2.5' High
FM Size: 6 in	Motor Controller: Across the Line	Other Station Equipment: Yard hydrant
FM Length: 770 ft	HP: 10	
Discharge Elevation: 903.6	Motor Brand: Flygt	
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Flygt motors have MINI CAS II; Valve vault 4'x8'x56" deep cast-in-place, 3-1/2' x 4' AL hatch' drain is 3" above floor; vault top 1' below surrounding ground (water stands over lid); pumps barely clear hatch on wet well; pump model 3127.180-6184; Gravel access drive to site; Drawdown 8" in 30 nsec=196 GPM for both pumps



# City of Oak Ridge Pump Station Inspection

Date: 12/02/10      Location: Radisson Cove adjacent to Edgemoor Road      Date of Construction:      ID: 19  
 Inspector: sb/sh      Latitude: EW: 36-01-37  
 Name of Station: Radisson Cove      Longitude: NS: 84-10-25

Mechanical Station Condition: Good      Electrical Station Condition: Good

Type: Submersible	Power Source: Pad mnt trans	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer: Digital Control Co
Pump Brand: KSB	Transformer Number: N/A	Redundant Level Control: Yes
Serial Number: 5-M07-765659/4;	Transformer Type: Pad	Number / Type: 4 floats
Pump Curve:	Transformer Size: ???	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 240/120	Lapse Time Meter: No
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 300	Alarm Type:
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on 48%/off at 32% Lag on 54%/off 32% High alarm 66%/Low alarm 22%
FM Size: 8 in	Motor Controller: Across the Line	
FM Length: 1159 ft	HP: 20	Other Station Equipment: APC batt backup for controls; PumpPak FloatPak controller for floats
Discharge Elevation: 891.45	Motor Brand: KSB	
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Pump model KRTE80-251/164XG-270;;150-7--gpm,118-85 ft head;1765 rpm,59 FLA;wet well is new to 86", tot dpth 207.5",142" to influent pipe;ret wall (locking block) on lower side of site;paved access with gate;valve vault 7'x7'x5' deep,4'x4' alum hatch,no pipe supports;APCO 400 AVV;no yard hydrant;drawdown P1-10.5 in 35 sec=317 GPM;P2 8" in 35 sec=241 GPM



City of Oak Ridge  
Pump Station Inspection

Date: 12/10/10 Location: 100 Rivers Run Blvd behind landscaping and ent sign Date of Construction: ID: 20  
 Inspector: sb/sh Latitude: EW: 36-01-28  
 Name of Station: Rivers Run Longitude: NS: 84-10-50

Mechanical Station Condition:	Good	Electrical Station Condition:	Good
Type:	Submersible	Power Source:	UG fm pad mt tra
Number of Pumps:	2	Service:	UG
Pump Brand:	KSB	Transformer Number:	2213 277/480
Serial Number:	5-MO7-703 480/	Transformer Type:	Pad
Pump Curve:		Transformer Size:	45 kVA
Wet Well Diameter:	6 ft	Voltage:	460
Wet Well Storage Depth:	ft	Phase:	3
Invert Elevation:		Disconnect Type:	Fused
Pressure Gauge Dischrg:	Yes	Main Amps:	200
FM Material:		Motor Control Location:	Panel
FM Size:	6 in	Motor Controller:	Soft Start
FM Length:	7978 ft	HP:	36
Discharge Elevation:	793.59	Motor Brand:	KSB
Evidence of Overflow:	No	Motor Serial Number:	
Fence:	No	Aux Power:	None
		Generator Brand:	
		Generator kW:	
		Level Control:	Pressure
		Control Manufacturer:	Dig Cont P/N 119
		Redundant Level Control:	Yes
		Number / Type:	5 floats
		Flowmeter Type:	None
		Lapse Time Meter:	Yes
		Telemetry Mfg:	
		Telemetry Type:	None
		Alarm Type:	Light
		Control Sequence:	Lead on 30%/off 18% Lag on 35%/off 18% High level 40%/ Low level 8%
		Other Station Equipment:	Yard hydrant; Pur-A-Fil scrubber- Ser no. I06-8020, Model DS-1005

Remarks Pump 2 could not be pulled due to floats being tangled around it; Pumps are KRTE 100-316/294XG, 300 gpm at 130 ft, DKN 181.4-29 AC3, M No. 075203, 1770 rpm, FLA 48; Valve vault 6'x6'x63" deep precast w/ 21"x45" dbl hatch, ARV's disch to wet well, 4" piping w/ OL&W ck valves; wet well hatch is 51"x28" dbl; drawdown P1 4" in 30 sec=141 GPM, P2 7" in 30 sec=246 GPM(inflow higher due to infl pipe being submerged); total wet well dpth 189"/ infl pipe at 149"



City of Oak Ridge  
Pump Station Inspection

Date:	12/10/10	Location:	Warehouse Road east of Dresden	Date of Construction:		ID:	21
Inspector:	sb/sh			Latitude:	EW: 36-02-06		
Name of Station:	Warehouse Roa			Longitude:	NS: 84-13-19		
Mechanical Station Condition:	Good	Electrical Station Condition:	Good				
Type:	Submersible	Power Source:	Overhead fm Wa	Level Control:	Probe		
Number of Pumps:	2	Service:	OH	Control Manufacturer:	Multiprobe MT2P		
Pump Brand:	Flygt	Transformer Number:	11526/11630/??	Redundant Level Control:	Yes		
Serial Number:	9451282/945128	Transformer Type:	Pole	Number / Type:	2 floats		
Pump Curve:		Transformer Size:	25kVA/?/?	Flowmeter Type:	None		
Wet Well Diameter:	4' X 4' ft	Voltage:	240/120	Lapse Time Meter:	Yes		
Wet Well Storage Depth:	ft	Phase:	3	Telemetry Mfg:			
Invert Elevation:		Disconnect Type:	Fused	Telemetry Type:	None		
Pressure Gauge Dischrg:	No	Main Amps:	60	Alarm Type:	Light		
FM Material:	Other	Motor Control Location:	Panel	Control Sequence:	Lead on 50%/off 10% Lag on 60% /off 20% High level		
FM Size:	4 (CI) in	Motor Controller:	Across the Line	Other Station Equipment:	Yard hydrant		
FM Length:	90 ft	HP:	2.2				
Discharge Elevation:	828.86	Motor Brand:	Flygt				
Evidence of Overflow:	No	Motor Serial Number:					
Fence:	Yes	Aux Power:	None				
		Generator Brand:					
		Generator kW:					
Remarks:	Valve Vault 4'x4' X 54" deep w/3'x3' Al Hatch,4" piping,no ARV; Pumps 3085.181-6167, FLS M15-07-4AA,6.7 FLA, 1670 rpm; wet well 4'x4' inside, steps up to top, tot depth 149", 118 to influent; P1 4" in 30 sec=80 GPM, P2 4-1/2" in 30 sec =90 GPM;gravel drive; fence overgrown, tree inside fence interferes w/ access, guy wire interferes w/ boom truck operation;could not access disconnect (lock wouldn't open)						



# City of Oak Ridge Pump Station Inspection

Date: 12/10/10 Location: 545 Oak Ridge Turnpike in commercial development Date of Construction: ID: 22  
 Inspector: sb/sh Latitude: EW: 36-02-30  
 Name of Station: Fairbanks Longitude: NS: 84-14-06

Mechanical Station Condition:	Fair	Electrical Station Condition:	Good
Type:	Submersible	Power Source:	UG from ???
Number of Pumps:	2	Service:	UG
Pump Brand:	Flygt	Transformer Number:	??
Serial Number:	9451251/945125	Transformer Type:	Other
Pump Curve:		Transformer Size:	??
Wet Well Diameter:	4'x4' ft	Voltage:	208
Wet Well Storage Depth:	ft	Phase:	3
Invert Elevation:		Disconnect Type:	Fused
Pressure Gauge Dischrg:	No	Main Amps:	60
FM Material:	DI	Motor Control Location:	Panel
FM Size:	6 in	Motor Controller:	Across the Line
FM Length:	86 ft	HP:	2.2
Discharge Elevation:	836.63	Motor Brand:	
Evidence of Overflow:	No	Motor Serial Number:	
Fence:	No	Aux Power:	None
		Generator Brand:	
		Generator kW:	
		Level Control:	Pressure
		Control Manufacturer:	Consol D152 w/
		Redundant Level Control:	Yes
		Number / Type:	2 floats
		Flowmeter Type:	None
		Lapse Time Meter:	Yes
		Telemetry Mfg:	
		Telemetry Type:	None
		Alarm Type:	Light
		Control Sequence:	Lead on 3'/off 1.75' Lag on 4'/off 2' High Alarm 6' Low
		Other Station Equipment:	Yard Hydrant

Remarks: Wet well 4'x4' (CIP) w/3-1/2'x3-1/2' Al hatch, total depth 194" ,140" to influent; P1 5" in 30 sec=100 GPM, P2 5-1/2" in 30 sec=110 GPM; Pumps 3085.181-6244,FLS M15-07-4AA, 7.4 FLA, 1670 rpm, .85 PF



# City of Oak Ridge Pump Station Inspection

Date: 12/10/10 Location: Coe Road in Emory Hts Date of Construction:            ID: 23  
 Inspector: sb/sh Subdv behind house, adj to RR tracks Latitude: EW: 36-01-54  
 Name of Station: Emory Heights Longitude: NS: 84-13-25

Mechanical Station Condition:		Electrical Station Condition:	
Type: <u>Submersible</u>	Power Source: <u>UG fm pole</u>	Level Control: <u>Pressure</u>	
Number of Pumps: <u>2</u>	Service: <u>UG</u>	Control Manufacturer: <u>Dig Cont Corp P/</u>	
Pump Brand: <u>KSB</u>	Transformer Number: <u>2722/2723/2724</u>	Redundant Level Control: <u>Yes</u>	
Serial Number: <u>869018/869019</u>	Transformer Type: <u>Pole</u>	Number / Type: <u>4 FLOATS</u>	
Pump Curve: <u>          </u>	Transformer Size: <u>15kVA ea</u>	Flowmeter Type: <u>None</u>	
Wet Well Diameter: <u>6</u> ft	Voltage: <u>208</u>	Lapse Time Meter: <u>Yes</u>	
Wet Well Storage Depth: <u>          </u> ft	Phase: <u>3</u>	Telemetry Mfg: <u>          </u>	
Invert Elevation: <u>          </u>	Disconnect Type: <u>Fused</u>	Telemetry Type: <u>None</u>	
Pressure Gauge Dischrg: <u>No</u>	Main Amps: <u>100</u>	Alarm Type: <u>Light</u>	
FM Material: <u>AC</u>	Motor Control Location: <u>Panel</u>	Control Sequence: <u>Lead on 50%/off 28%</u>	
FM Size: <u>6</u> in	Motor Controller: <u>Across the Line</u>	<u>Lag on 58%/off 30%</u>	
FM Length: <u>583</u> ft	HP: <u>4.5</u>	<u>High alarm</u>	
Discharge Elevation: <u>830 +/- (tee in gr</u>	Motor Brand: <u>          </u>	<u>78%</u> <u>Low</u>	
Evidence of Overflow: <u>No</u>	Motor Serial Number: <u>          </u>	Other Station Equipment: <u>          </u>	
Fence: <u>No</u>	Aux Power: <u>None</u>		
	Generator Brand: <u>          </u>		
	Generator kW: <u>          </u>		

Remarks Gravel drive; PumpPak Control panel; valve vault 6' x 6' x 62" deep, 4" piping; wet well tot depth 170", 100" to influent pipe; P1 10-1/2" in 60 sec=185+ GPM, P2 8-1/2" in 60 sec=150 GPM (infl flow into station clear and at 20-30 gpm); evidence of surcharge to top of wet well, no evidence of overflow NEED A YARD HYDRANT HERE



City of Oak Ridge  
Pump Station Inspection

Date: 12/10/10      Location: Laboratory Drive at Home Depot entrance      Date of Construction:      ID: 24  
 Inspector: sb/sh      Latitude: EW: 36-01-34  
 Name of Station: Home Depot      Longitude: NS: 84-14-02

Mechanical Station Condition: Good      Electrical Station Condition: Good

Type: Submersible	Power Source: UG fm pole	Level Control: Probe
Number of Pumps: 2	Service: UG	Control Manufacturer: Flygt
Pump Brand: Flygt	Transformer Number: 562/1257/13068	Redundant Level Control: Yes
Serial Number: 3085.182-001-63	Transformer Type: Pole	Number / Type: 5 floats
Pump Curve:	Transformer Size: 15kVA	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 35	Alarm Type: Horn/Light
FM Material: PVC	Motor Control Location: Panel	Control Sequence: ????? Could not determine
FM Size: 4 in	Motor Controller: Across the Line	
FM Length: 478 ft	HP: 3	
Discharge Elevation: 858.0	Motor Brand:	Other Station Equipment: Yard hydrant, bypass pump connectoin
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Valve vault 6'x8'x6-1/2' deep, 4'x6' al hatch, 1 ARV, 6" water standing in vault, press gauge inoperable, 4" piping, yard hydrant needs repairs; Pumps 3085.182-6005 414, 1700 rpm, 8.7 FLA, .83 PF; wet well total depth 120", 74" to influent; P1 10-1/2" in 30 sec=370 GPM, P2 8-1/2" in 30 sec=299 GPM; gravel drive; wet well has a substance in it that hardens and adheres to pumps, cables, floats, etc.; floats were inoperable due to substance



# City of Oak Ridge Pump Station Inspection

Date: 12/15/10      Location: OR Turnpike/SR 58      Date of Construction:      ID: 25  
 Inspector: sb/sh      Latitude: EW: 36-58-56  
 Name of Station: Oak Hills      Longitude: NS: 84-20-02  
 Mechanical Station Condition: Good      Electrical Station Condition: Fair

Type: Suction Lift	Power Source: Pole mnt trans	Level Control: Pressure
Number of Pumps: 2	Service: OH	Control Manufacturer: Gorman Rupp
Pump Brand: Gorman Rupp	Transformer Number: 4433/4403	Redundant Level Control: Yes
Serial Number: 1045838/138300	Transformer Type:	Number / Type: 3 floats
Pump Curve:	Transformer Size: 37.5kVA/25kVA	Flowmeter Type: None
Wet Well Diameter: 9 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 200	Alarm Type: Horn/Light
FM Material: Other	Motor Control Location: Panel	Control Sequence: Lead on 4.6/ off 2.5 Lag on 5.4/ off 3.1 High Al on 10.0/ off 9.5 Low Al on 1.1/ off 1.5
FM Size: 6 (CI) in	Motor Controller: Across the Line	Other Station Equipment: Yard hydrant, port heater, exhaust fan
FM Length: 3933 ft	HP: 25	
Discharge Elevation: 816.9	Motor Brand: Gorman Rupp	
Evidence of Overflow: No	Motor Serial Number: 94410044/94410	
Fence: Yes	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Lat is actually 35 58 56; Self priming pumps, GR ARV, Valmatic PI valves, M&H OL&Spring Ck valves; Wet well has surcharged almost to top-no sign of overflow; disch ga on one pump doesn't work; wet well tot depth 207", 123" to top of infl pipe (16" DIP); P1 6" in 1 min P2 9" in 1 min; inflow 4-1/2" in 2 min; gravel lot with asph drive, fence approx 25' off EOP



City of Oak Ridge  
Pump Station Inspection

Date: 12/15/10 Location: 197 Gum Hollow Road Date of Construction: ID: 26  
 Inspector: sb/sh Latitude: EW: 36-58-31  
 Name of Station: Gum Hollow Longitude: NS: 84-19-13

Mechanical Station Condition: Excellent Electrical Station Condition: Excellent

Type: Submersible	Power Source:	Level Control: Pressure
Number of Pumps: 2	Service:	Control Manufacturer: Dig Cont P/N 119
Pump Brand: KSB	Transformer Number:	Redundant Level Control: Yes
Serial Number: 874908/874909	Transformer Type:	Number / Type: 5 floats
Pump Curve:	Transformer Size:	Flowmeter Type: None
Wet Well Diameter: 8 ft	Voltage:	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase:	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 200	Alarm Type: Light
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on 65/off 28 % Lag on 70/ off 40% High/Low Al 80/20%
FM Size: 6 in	Motor Controller: Soft Start	
FM Length: 4323 ft	HP: 36	
Discharge Elevation: 797.2	Motor Brand: KSB	Other Station Equipment: Pur-A-Fil scrubber ser #106-8019, model DS1005
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Pumps KRT F100-316/294XG-279 mm,DKN 814,29kW,1750 rpm,FLA 36/48,SF 1.1; wet well tot depth 177.5", 90" to infl (10"?), P1 14" in 1 min, P2 12" in 1 min, inflow 1.5" in 2 min; disch press 10-39 psi; valve vault 6'x6'x70" precast, 42"x42" hatch, 2 ARV (APCO) piped to wet well, OL&W ck valves, 4" piping; no yard hydrant; evidence of surcharge, no overflow;steaday stream of clear water in (2" deep in 10"? Pipe)



# City of Oak Ridge Pump Station Inspection

Date: 12/15/10      Location: 105 Wedgewood Road/behind houses      Date of Construction:      ID: 27  
 Inspector: sb/sh      Latitude: EW: 36-01-37  
 Name of Station: Peach Orchard      Longitude: NS: 84-16-03

Mechanical Station Condition: **Excellent**      Electrical Station Condition: **Fair**

Type: Submersible	Power Source: Overhead from	Level Control: Pressure
Number of Pumps: 2	Service: OH	Control Manufacturer: Us Filter D152
Pump Brand: Flygt	Transformer Number: N/A	Redundant Level Control: Yes
Serial Number: 9880657/988065	Transformer Type: Pole	Number / Type: 5 floats
Pump Curve:	Transformer Size: 30kVA	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth:	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 100	Alarm Type: Light
FM Material: AC	Motor Control Location: Panel	Control Sequence: Lead on 3-1/4' / off 2-1/2' Lag on 4' off 2-3/4' High Al on 5' / off 4-3/4' Low Al on 1-3/4' / off 1-1/2'
FM Size: 4 in	Motor Controller: Across the Line	Other Station Equipment: N/A
FM Length: 485 ft	HP: 10	
Discharge Elevation: 1078.4	Motor Brand:	
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: Valve vault 6'x6'x67" deep, 42" sq al hatch, 2 ARV piped to wet well, OL&W ck valves; pumps 3127.180-3030 15mm, M21-12-4AL, 1735 rpm, 25 FLA; wet well tot depth = 174", 126" to infl pipe, 38"x48" al hatch, P1 3-1/2" in 30 sec, P2 3" in 30 sec; pressures 36psi stat, 45 psi running; disconnect switch latch is broken; access from Wedgewood along gravel drive (steel tube lift gate)



City of Oak Ridge  
Pump Station Inspection

Date: 12/15/10 Location: 1129 West Outer Drive, behind house, access off of Sugar Road Date of Construction: ID: 28  
 Inspector: sb/sh Latitude: EW: 36-59-27  
 Name of Station: West Outer Longitude: NS: 84-20-42

Mechanical Station Condition:	Fair	Electrical Station Condition:	Poor
Type:	Submersible	Power Source:	Oh from West Ou
Number of Pumps:	2	Service:	OH
Pump Brand:	KSB	Transformer Number:	??
Serial Number:	881244/888553	Transformer Type:	Pole
Pump Curve:		Transformer Size:	
Wet Well Diameter:	5 ft	Voltage:	240/120
Wet Well Storage Depth:	ft	Phase:	3
Invert Elevation:		Disconnect Type:	Fused
Pressure Gauge Dischrg:	Yes	Main Amps:	200
FM Material:		Motor Control Location:	Panel
FM Size:	3 in	Motor Controller:	Across the Line
FM Length:	1093 ft	HP:	23
Discharge Elevation:	992.89?	Motor Brand:	KSB
Evidence of Overflow:	No	Motor Serial Number:	
Fence:	No	Aux Power:	None
		Generator Brand:	
		Generator kW:	
		Level Control:	Pressure
		Control Manufacturer:	Consol Electric D
		Redundant Level Control:	No
		Number / Type:	
		Flowmeter Type:	None
		Lapse Time Meter:	Yes
		Telemetry Mfg:	
		Telemetry Type:	None
		Alarm Type:	Light
		Control Sequence:	lead on 3-1/2' / off 1-1/2' Lag on 5-1/2' / off 1-3/4' High Al on 8-1/4' / off 8' Low Al on 8-1/4' / off 8'
		Other Station Equipment:	Yard hydrant

Remarks: Valve vault 6'x6'x54" deep, 4" piping, 2 ARV (disch not piped), OL&W ck valves, vault located ~25' from wet well; new 2" SST disch pipes in wet well; grease reported to be a problem at station; pumps KRTS 40-250/172XG 205mm, DKN160 2-11, 3500 rpm, FLA 58, .80 PF; wet well tot depth 126", 60" to infl, P1 2" in 30 sec, P2 1.5" in 30 sec; Lat actually 35 59 27; electric meter read via telephone line



# City of Oak Ridge Pump Station Inspection

Date: 12/22/10 Location: 720 S. Illinois Ave. in Date of Construction: ID: 29  
 Inspector: sb/sh Summit Ridge Development Latitude: EW: 36-00-02  
 Name of Station: Summit Ridge Longitude: NS: 84-14-22

Mechanical Station Condition: Excellent		Electrical Station Condition: Excellent	
Type: Submersible	Power Source: UG from pad mo	Level Control: Pressure	
Number of Pumps: 2	Service: UG	Control Manufacturer: Dig Cont Corp P/	
Pump Brand: KSB	Transformer Number: 1903	Redundant Level Control: Yes	
Serial Number: 871987M/87216	Transformer Type: Pad	Number / Type: 5 floats	
Pump Curve:	Transformer Size: 75 kVA	Flowmeter Type: None	
Wet Well Diameter: 6 ft	Voltage: 460	Lapse Time Meter: Yes	
Wet Well Storage Depth: 6 (max) ft	Phase: 3	Telemetry Mfg:	
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None	
Pressure Gauge Dischrg: Yes	Main Amps: 40	Alarm Type: Horn/Light	
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on 38/ off 12% Lag on 44/ off 12% High/Low Al 62/ 2 %	
FM Size: ?? in	Motor Controller: Across the Line		
FM Length: ?? ft	HP: 10		
Discharge Elevation: ??	Motor Brand: KSB	Other Station Equipment: Yard hydrant;bypass pump connection	
Evidence of Overflow: No	Motor Serial Number:		
Fence: Yes	Aux Power: None		
	Generator Brand:		
	Generator kW:		

Remarks: Valve vault 6'x8'x4' deep w/4'x5' Al double door hatch, 4" piping, 1 APCO ARV (disch not piped),OL&W ck valves, bypass pump conn, press ga on red valve (gauge not readable);pumps KSB KRTE 100-25-/74 XG (215), DKN 1324-5.5, 10 hp, 460V, SF 1.1, 1745, FLA 14.5, LRA 82, PF 76%; Disch pipe flange interferences with pump removal/replacement;appears to be mud? On pumps;Wet well tot depth 204", 130" & 123" to infl pipes; P1 4" in 30 sec (140 GPM), P2 4" in 30 sec (140 GPM); XYPEX additive in wetwell and valve vault;conduit seals are failing in wet well-need to be replaced ASAP;street lighting electrical panel (service,disconn,meter) directly adjacent to station



# City of Oak Ridge Pump Station Inspection

Date: 12/22/10 Location: 720 S. Illinois Ave. in Date of Construction: ID: 29  
 Inspector: sb/sh Summit Ridge Development Latitude: EW: 36-00-02  
 Name of Station: Summit Ridge Longitude: NS: 84-14-22

Mechanical Station Condition: Excellent		Electrical Station Condition: Excellent	
Type: Submersible	Power Source: UG from pad mo	Level Control: Pressure	
Number of Pumps: 2	Service: UG	Control Manufacturer: Dig Cont Corp P/	
Pump Brand: KSB	Transformer Number: 1903	Redundant Level Control: Yes	
Serial Number: 871987M/87216	Transformer Type: Pad	Number / Type: 5 floats	
Pump Curve:	Transformer Size: 75 kVA	Flowmeter Type: None	
Wet Well Diameter: 6 ft	Voltage: 460	Lapse Time Meter: Yes	
Wet Well Storage Depth: 6 (max) ft	Phase: 3	Telemetry Mfg:	
Invert Elevation:	Disconnect Type: Fused	Telemetry Type: None	
Pressure Gauge Dischrg: Yes	Main Amps: 40	Alarm Type: Horn/Light	
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on 38/ off 12% Lag on 44/ off 12% High/Low Al 62/ 2 %	
FM Size: ?? in	Motor Controller: Across the Line		
FM Length: ?? ft	HP: 10		
Discharge Elevation: ??	Motor Brand: KSB	Other Station Equipment: Yard hydrant;bypass pump connection	
Evidence of Overflow: No	Motor Serial Number:		
Fence: Yes	Aux Power: None		
	Generator Brand:		
	Generator kW:		

Remarks: Valve vault 6'x8'x4' deep w/4'x5' Al double door hatch, 4" piping, 1 APCO ARV (disch not piped),OL&W ck valves, bypass pump conn, press ga on red valve (gauge not readable);pumps KSB KRTE 100-25-/74 XG (215), DKN 1324-5.5, 10 hp, 460V, SF 1.1, 1745, FLA 14.5, LRA 82, PF 76%; Disch pipe flange interferences with pump removal/replacement;appears to be mud? On pumps;Wet well tot depth 204", 130" & 123" to infl pipes; P1 4" in 30 sec (140 GPM), P2 4" in 30 sec (140 GPM); XYPEX additive in wetwell and valve vault;conduit seals are failing in wet well-need to be replaced ASAP;street lighting electrical panel (service,disconn,meter) directly adjacent to station



# City of Oak Ridge Pump Station Inspection

Date: 12/22/10      Location: East Southwood at Shagbark Ln      Date of Construction:      ID: 30  
 Inspector: sb/sh      Latitude: EW: 36-58-19  
 Name of Station: Southwood      Longitude: NS: 84-20-21

Mechanical Station Condition: Fair      Electrical Station Condition: Poor

Type: Submersible	Power Source: UG fm 2 pad mou	Level Control: Probe
Number of Pumps: 2	Service: UG	Control Manufacturer: Flygt Multitrode
Pump Brand: Flygt	Transformer Number: 240/480V-#'s 623	Redundant Level Control: Yes
Serial Number: 9450351/945035	Transformer Type: Pad	Number / Type: 1 transducer
Pump Curve:	Transformer Size: 2@25 kVA	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 460	Lapse Time Meter: No
Wet Well Storage Depth: 5.2 (max) ft	Phase: 3	Telemetry Mfg:
Invert Elevation: 768.67	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: No	Main Amps: 60	Alarm Type: Light
FM Material: PVC	Motor Control Location: Panel	Control Sequence: Lead on 70/ off 20% Lag on 90/ off 20%
FM Size: 4 in	Motor Controller: Across the Line	
FM Length: 2638 ft	HP: 10	
Discharge Elevation: 791.99	Motor Brand: Flygt	Other Station Equipment: Yard hydrant
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: valve vault 56"x70"x52" deep CMU, 4'x4' al dbl door hatch, no ARV, 4" piping; Pumps 3127, 180-6322, FLS M21-12-4AL, 10 hp, 460/230, 13/25 FLA, 1735 RPM; grease buildup in wet well, galv guide rails need to be replaced, P2 very difficult to remove due to corrosion on rails, LAT ACTUALLY 35 58 19; lifting rings on wet well need to be removed (tripping hazard); ground wire disconnected from ground rod; fused disconn enclosure very corroded; wet well total depth 172"; 109" & 2 @ 86" to influent pipes; P1 4" in 30 sec (140 GPM), P2 2" in 30 sec (70 GPM)



# City of Oak Ridge Pump Station Inspection

Date: 12/22/10      Location: 113 Graceland Rd      Date of Construction: 2008      ID: 31  
 Inspector: sb/sh      Latitude: EW: 36-57-52  
 Name of Station: Graceland      Longitude: NS: 84-19-38

Mechanical Station Condition: Excellent      Electrical Station Condition: Excellent

Type: Submersible	Power Source: UG fm pole	Level Control: Probe
Number of Pumps: 2	Service: UG	Control Manufacturer:
Pump Brand: Flygt	Transformer Number: 11131/11132/11	Redundant Level Control: Yes
Serial Number:	Transformer Type: Pole	Number / Type:
Pump Curve:	Transformer Size: 3@ 25 kVA	Flowmeter Type: None
Wet Well Diameter: 10 ft	Voltage: 460	Lapse Time Meter: Yes
Wet Well Storage Depth: 5.9 (max) ft	Phase: 3	Telemetry Mfg:
Invert Elevation: 803.0	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 200/150 A brkr	Alarm Type: Light
FM Material:	Motor Control Location: Panel	Control Sequence: lead on 50/off 20%
FM Size: 6 in	Motor Controller: Soft Start	Lag on 60/off 20% High/Low AL
FM Length: 2059 ft	HP: 20	90/10%
Discharge Elevation: 894.7	Motor Brand: Flygt	Other Station Equipment: yard hydrant;Purafil DS500
Evidence of Overflow: No	Motor Serial Number:	
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: 35 psi stat/40 psi running; Purafil unit ser # L08-0199; ground very soft around station, needs access drive to pull pumps



City of Oak Ridge  
Pump Station Inspection

Date: 01/05/11      Location: Pump House Road adjacent to Melton Hill Lake backwater      Date of Construction: 2008      ID: 32  
 Inspector: sh      Latitude: EW: 36-58-30  
 Name of Station: Pump House Roa      Longitude: NS: 84-13-33

Mechanical Station Condition: Excellent      Electrical Station Condition: Excellent

Type: Submersible	Power Source: OH fm pole	Level Control: Pressure
Number of Pumps: 2	Service: OH	Control Manufacturer: Multi-Trode MS
Pump Brand: Flygt	Transformer Number: 2189,2190,2060	Redundant Level Control: Yes
Serial Number:	Transformer Type: Pole	Number / Type: Probe
Pump Curve:	Transformer Size: 3@100 kVA	Flowmeter Type: None
Wet Well Diameter: 10 ft	Voltage: 460	Lapse Time Meter: Yes
Wet Well Storage Depth: 11 (max) ft	Phase: 3	Telemetry Mfg:
Invert Elevation: 776.0	Disconnect Type: Fused	Telemetry Type: None
Pressure Gauge Dischrg: Yes	Main Amps: 400	Alarm Type: Horn/Light
FM Material: Other	Motor Control Location: Panel	Control Sequence:
FM Size: 8 (CI) in	Motor Controller: VFD	
FM Length: 3038 ft	HP: 105	
Discharge Elevation: To Scarboro wet	Motor Brand: Flygt	Other Station Equipment: yard light
Evidence of Overflow: No	Motor Serial Number:	
Fence: Yes	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: LAT ACTUALLY 35-58-30; Pumps 3301.090-0940005, 1775 RPM, 125 FLA; 2 ARV piped to wet well; station designed for additional pump (160 hp) to pump past Scarboro through new force main to abandon Scarboro station in future.



# City of Oak Ridge Pump Station Inspection

Date: 01/05/11 Location: 108 Pavillion Drive Date of Construction: under construction ID: 33  
Inspector: sh Latitude: EW: 36-00-47  
Name of Station: Wolf Creek Longitude: NS: 84-13-29

Mechanical Station Condition: Poor Electrical Station Condition: Good

Type: Submersible	Power Source: UG fm pad mnt tr	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer: Dig Control 1192
Pump Brand:	Transformer Number: 4441	Redundant Level Control: Yes
Serial Number:	Transformer Type: Pad	Number / Type: 4 floats (PumpPa)
Pump Curve:	Transformer Size: 45kVA	Flowmeter Type: None
Wet Well Diameter: 8 ft	Voltage: 460	Lapse Time Meter: Yes
Wet Well Storage Depth: ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Circuit Breaker	Telemetry Type:
Pressure Gauge Dischrg: Yes	Main Amps: 100	Alarm Type: Horn/Light
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on/off @ 4'/2' Lag on/off @ 5'/2'
FM Size: in	Motor Controller: Across the Line	
FM Length: ft	HP:	
Discharge Elevation:	Motor Brand:	
Evidence of Overflow: No	Motor Serial Number:	Other Station Equipment: Pur-A-Fil scrubber; yard hydrant
Fence: No	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: No lock on wet well hatch; P2 check valve is inoperable, allows flow back into wet well; Single ARV piped back to wet well, pipe broken at valve due to no support for pipe; 4" piping in vault; debris in valve vault; COR HAS NOT ACCEPTED STATION AS OF DATE OF INSPECTION



# City of Oak Ridge Pump Station Inspection

Date: 01/05/11 Location: 300A Centennial Bluff Date of Construction: under construction ID: 34  
Inspector: sh Latitude: EW: 36-01-15  
Name of Station: Centennial Bluff Longitude: NS: 84-10-05

Mechanical Station Condition: Fair Electrical Station Condition: Good

Type: Submersible	Power Source: Underground fm	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer:
Pump Brand:	Transformer Number: 2557	Redundant Level Control: Yes
Serial Number:	Transformer Type: Pad	Number / Type: Probe
Pump Curve:	Transformer Size: 75 kVA	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth: ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Circuit Breaker	Telemetry Type: None
Pressure Gauge Dischrg:	Main Amps: 200	Alarm Type: Horn/Light
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on/off 50/10% Lag on/off 60/20%
FM Size: in	Motor Controller: VFD	
FM Length: ft	HP:	
Discharge Elevation:	Motor Brand:	Other Station Equipment: Yard hydrant;Pur-A-Fil scrubber;yard light
Evidence of Overflow:	Motor Serial Number:	
Fence: Yes	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: VFD is Altivar 48; Valve vault is flloided; 1 pump running continuously (very hot) with no flow into wet well; 1 pump faulted; STATION NOT ACCEPTED BY COR AS OF INSPECTION DATE



# City of Oak Ridge Pump Station Inspection

Date: 01/05/11      Location: 300A Centennial Bluff      Date of Construction: under construction      ID: 34  
 Inspector: sh      Latitude: EW: 36-01-15  
 Name of Station: Centennial Bluff      Longitude: NS: 84-10-05

Mechanical Station Condition: Fair      Electrical Station Condition: Good

Type: Submersible	Power Source: Underground fm	Level Control: Pressure
Number of Pumps: 2	Service: UG	Control Manufacturer:
Pump Brand:	Transformer Number: 2557	Redundant Level Control: Yes
Serial Number:	Transformer Type: Pad	Number / Type: Probe
Pump Curve:	Transformer Size: 75 kVA	Flowmeter Type: None
Wet Well Diameter: 6 ft	Voltage: 240/120	Lapse Time Meter: Yes
Wet Well Storage Depth: ft	Phase: 3	Telemetry Mfg:
Invert Elevation:	Disconnect Type: Circuit Breaker	Telemetry Type: None
Pressure Gauge Dischrg:	Main Amps: 200	Alarm Type: Horn/Light
FM Material:	Motor Control Location: Panel	Control Sequence: Lead on/off 50/10% Lag on/off 60/20%
FM Size: in	Motor Controller: VFD	
FM Length: ft	HP:	
Discharge Elevation:	Motor Brand:	Other Station Equipment: Yard hydrant;Pur-A-Fil scrubber;yard light
Evidence of Overflow:	Motor Serial Number:	
Fence: Yes	Aux Power: None	
	Generator Brand:	
	Generator kW:	

Remarks: VFD is Altivar 48; Valve vault is flloided; 1 pump running continuously (very hot) with no flow into wet well; 1 pump faulted; STATION NOT ACCEPTED BY COR AS OF INSPECTION DATE