Appendix C
Reclaimed Water System Facility Data Sheets
Cary Reclaimed Water System Facility Data Sheet List

**North Cary WRF**
- North Cary Reclaimed Water Pump Station
- North Cary Reclaimed Water Storage Tank
- North Cary Turbidity Monitor
- North Cary Chlorine Analyzer
- North Cary Effluent Flow Meter
- North Cary WRF Bulk Reclaimed Water Fill Station
- North Cary Hypochlorite Tank
- North Cary Chemical metering pumps
- North Cary Hydropneumatic Tank
- North Cary Generator
- North Cary Flow Diversion Structure

**South Cary WRF**
- South Cary Reclaimed Water Pump Station
- South Cary Reclaimed Water Storage Tank
- South Cary Turbidity Monitor
- South Cary Chlorine Analyzer
- South Cary Effluent Flow Meter
- South Cary WRF Bulk Reclaimed Water Fill Station
- South Cary Hypochlorite Tank
- South Cary Chemical Metering Pumps
- South Cary Hydropneumatic Tank
- South Cary Generator

**Distribution System**
- Typical Distribution System Blow-off
- Typical Distribution System Customer Meter
Facility: North Cary Reclaimed Water Pump Station  
Date: 02/28/13  
Inspected By: JSG

Pump Station Schematic:

Year Built: 2002  
Drawing Provided: Yes

Pump Configuration: Vertical Turbine Can  
Pump Curves Available?: Yes

Suction Supply: RCW Ground Storage  
Flow Meter Location: Vault

Pump Control: Distribution System Pressure  
Meter Type / Model: Danfoss/16” Mag/3100W-08328612

Pump Centerline Elevation: 310.0 (finished floor elev)  
Date Last Calibrated: 9/9/2012

Source: Drawings/Verbal

Overall condition: Excellent

Detailed Pump Information

<table>
<thead>
<tr>
<th>Pump No.</th>
<th>Serial No.</th>
<th>Manuf.</th>
<th>Model</th>
<th>HP</th>
<th>Design Flow</th>
<th>Design Head (ft)</th>
<th>RPM / Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>gpd</td>
<td>mgd</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>187867-0</td>
<td>Fairbanks Morse</td>
<td>15H(7000AW)</td>
<td>300</td>
<td>2972</td>
<td>4.3</td>
<td>292</td>
</tr>
<tr>
<td>2</td>
<td>187867-1</td>
<td>Fairbanks Morse</td>
<td>15H(7000AW)</td>
<td>300</td>
<td>2972</td>
<td>4.3</td>
<td>292</td>
</tr>
<tr>
<td>3</td>
<td>188068-1</td>
<td>Fairbanks Morse</td>
<td>13E(7000AW)</td>
<td>150</td>
<td>1500</td>
<td>2.2</td>
<td>260</td>
</tr>
<tr>
<td>4</td>
<td>188068-0</td>
<td>Fairbanks Morse</td>
<td>13E(7000AW)</td>
<td>150</td>
<td>1500</td>
<td>2.2</td>
<td>260</td>
</tr>
</tbody>
</table>

Capacity of Pump Station:  
Firm Capacity: 7.5 mgd

Control Set-points: Automatic (automatic / manual)

<table>
<thead>
<tr>
<th>CPZ</th>
<th>Pump No.</th>
<th>On Set-point</th>
<th>Off Set-point</th>
<th>Always On</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>1</td>
<td>125 PSI</td>
<td>140 PSI</td>
<td></td>
</tr>
<tr>
<td>Lag 1</td>
<td>2</td>
<td>100 PSI</td>
<td>135 PSI</td>
<td></td>
</tr>
<tr>
<td>Lag 2</td>
<td>3</td>
<td>80 PSI</td>
<td>130 PSI</td>
<td></td>
</tr>
</tbody>
</table>
Photographs:
Town of Cary Reclaimed Water System
Facility Worksheet
PUMP STATIONS

Plans/Drawings:
### Equipment Data Sheet

**Name:** Vertical Turbine Pumps

<table>
<thead>
<tr>
<th>Location:</th>
<th>Cary, NC</th>
</tr>
</thead>
</table>

**Manufacturer's Local**

- **Representative:** Hughes Supply, Inc.
- **Address:** P. O. Box 2504; Hickory, NC 28603
- **Phone:** (828) 324-9705

### Equipment Data

<table>
<thead>
<tr>
<th>Serial Number:</th>
<th>188068</th>
<th>Model No: 7000AW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size:</td>
<td>13E</td>
<td>Lubricant: Product Lubricated</td>
</tr>
</tbody>
</table>

RPM: 1785  GPM: 1500  TDH (FT): 260.0  Impeller Diameter: 10.04

### Motor Data

- **Manufacturer:** General Electric
- **Serial Number:** 464028 & 464029
- **Frame:** L449VP20
- **Model No. 5KS444DT6458P:** Type: KS
- **Volts:** 460  Hertz: 60
- **Phase:** 3  Amps: 167.0
- **Motor rpm:** 1785  Rating: Continuous  Horsepower: 150
- **Insulation Class:** F  Max Ambient: 40 Deg C
- **Service Factor:** 1.15  Max Temp Rise: 90 Deg C
- **Code Letter:** G  Nema Design: B
- **Shaft End Bearing No.: 6219ZC3**  Front Bearing No. 235A2534AA01

---

063007 Equipment Data Sheet.doc
Section 2  Introduction

Congratulations! You are the owner of the finest pump commercially available. If you give it the proper care as outlined and recommended by this manual, it will provide you with reliable service and long life.

IMPORTANT Read this complete manual and manuals for all component equipment before assembly or installation is started. It contains information which is the result of engineering and research efforts. It is designed to supply adequate instructions for the installation, operation and maintenance of your pump. Failure or neglect to properly install, operate or maintain your pump may result in personal injury, property damage or unnecessary damage to the pump.

This manual applies to the pump installation, operation and maintenance. If your operating conditions ever change, always refer to the factory for reapplication. Always refer to the manuals provided by manufacturers of the accessory equipment for their separate instructions.

Variations exist in both the equipment used with these pumps and in the particular installation of the pump and driver. Therefore, specific operating instructions are not within the scope of this manual. The manual contains general rules for installation, operation and maintenance of the pump. If there are questions regarding the pump or its application which are not covered in this manual, please contact the factory as follows:

Fairbanks Morse Pump  
3601 Fairbanks Ave.  
Kansas City, KS 66203  
(913) 371-5000  
Fax: (913) 371-2272

To obtain additional data on hydraulics and pump selection and operation, we suggest you purchase both of the following reference books:

1. "Hydraulic Handbook" available from the Kansas City factory.
   Fairbanks Morse Pump  
   3601 Fairbanks Avenue  
   P.O. Box 6999  
   Kansas City, KS 66106-0999  
   (913) 371-5000  
   Fax: (913) 371-2272

2. Hydraulic Institute Standards  
   Hydraulic Institute  
   9 Sylvan Way  
   Parsippany, NJ 07054-3802

Pump Identification

Important identification is given in the following tables. Some of the information may not be available at the time this manual is prepared. Fill in the missing information from nameplate(s) supplied with the equipment. In addition to the nameplate, the serial number is stamped on the discharge flange.

<table>
<thead>
<tr>
<th>Pump</th>
<th>188068</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>13E</td>
</tr>
<tr>
<td>Model</td>
<td>7100AW</td>
</tr>
<tr>
<td>Number of Stages</td>
<td>5</td>
</tr>
<tr>
<td>Capacity (GPM)</td>
<td>1500/400/800</td>
</tr>
<tr>
<td>Head (ft.)</td>
<td>260.0/429.0/375.0</td>
</tr>
<tr>
<td>Full Load Speed (RPM)</td>
<td>1785</td>
</tr>
</tbody>
</table>

Motor

| Manufacturer | General Electric |
| Serial Number | 464028 & 29 |
| Horsepower | 150 |
| Frame | L444VP20 |
| Full Load Amps | 167.0 |
| Phase/Hz/Volts | 3/60/460V |

- Serial number is not yet available. Copy from motor nameplate.

General Description

A vertical line shaft turbine pump consists of five basic components. These components are the pump bowl assembly, column pipe, line shafting, discharge head, and driver. Refer to the section 7 for general arrangement drawings.

Bowl Assembly

The 7100 series single stage bowl assembly is made up of a suction bell (or suction case), a top intermediate bowl and impeller, and a discharge case. Units of two or more stages include a suction bell (or suction case), multiple intermediate bowls and impellers. Multiple stage open line shaft construction does not require a discharge case.

Refer to the assembly drawing found in section 7 of this manual for your specific configuration.
PUMP CURVES AND ADDITIONAL INFORMATION:

**Efficiency Chart**

<table>
<thead>
<tr>
<th>Efficiency (%)</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
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<td>100</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NPSHr (Feet)**

- 20
- 10
- 0

**Brake Horsepower**

- 135
- 120
- 105
- 90

**PUMP PERFORMANCE CURVE**

- **GPM**: 1800
- **HEAD**: 360.0
- BHP = 150

**PROJECT NO.**: C-063007

**TOTAL PUMP**: (xxx x 100)

**HEAD IN FEET**: (xxx x 100)**

---

**FACILITY WORKSHEET**

**PUMP STATIONS**
Pump Curves and Additional Information:
### Pump Curves and Additional Information:

**Equipment Data Sheet**

Name: **Vertical Turbine Pumps**

<table>
<thead>
<tr>
<th>Nomenclature:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>Cary, NC</td>
</tr>
</tbody>
</table>

**Manufacturer's Local**

- **Representative:** Hughes Supply, Inc.
- **Address:** P. O. Box 2504; Hickory, NC 28603
- **Phone:** (828) 324-9705

**Equipment Data**

- **Serial Number:** 187867
- **Model No:** 7000AW
- **Size:** 15H
- **Lubricant:** Product Lubricated

If pump, complete the following:

<table>
<thead>
<tr>
<th>RPM</th>
<th>GPM</th>
<th>TDH (FT)</th>
<th>Impeller Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1785</td>
<td>2972</td>
<td>292.0</td>
<td>9.2</td>
</tr>
</tbody>
</table>

**Material:**

- Packing Gland
- Seal

**Motor Data**

- **Manufacturer:** General Electric
- **Serial Number:** 473033 & 472033
- **Frame:** L449VP20
- **Model No.:** 5KS449DT66429P
- **Type:** KS
- **Volts:** 460
- **Hertz:** 60
- **Phase:** 3
- **Amps:** 322.0
- **Horsepower:** 300
- **Motor rpm:** 1785
- **Rating:** Continuous
- **Insulation Class:** F
- **Max Ambient:** 40 Deg C
- **Service Factor:** 1.15
- **Max Temp Rise:** 90 Deg C
- **Code Letter:** G
- **Nema Design:** B
- **Shaft End Bearing No.:** 6219ZC3
- **Front Bearing No.:** 235A2534AA01
Town of Cary Reclaimed Water System  
Facility Worksheet  
PUMP STATIONS

Pump Curves and Additional Information:

Section 2  Introduction

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IMPORTANT  Read this complete manual and manuals for all component equipment before assembly or installation is started. It contains information which is the result of engineering and research efforts. It is designed to supply adequate instructions for the installation, operation and maintenance of your pump. Failure or neglect to properly install, operate or maintain your pump may result in personal injury, property damage or unnecessary damage to the pump.

This manual applies to the pump installation, operation and maintenance. If your operating conditions ever change, always refer to the factory for reappraisal. Always refer to the manuals provided by manufacturers of the accessory equipment for their separate instructions.

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Kansas City, KS 66203  
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Fax: (913) 371-2272

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(913) 371-5000  
Fax: (913) 371-2272

2. Hydraulic Institute Standards  
Hydraulic Institute  
9 Sylvan Way  
 Parsippany, NJ 07054-3802

Pump Identification

Important identification is given in the following tables. Some of the information may not be available at the time this manual is prepared. Fill in the missing information from nameplate(s) supplied with the equipment. In addition to the nameplate, the serial number is stamped on the discharge flange.

<table>
<thead>
<tr>
<th>Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Number</td>
</tr>
<tr>
<td>Size</td>
</tr>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Number of Stages</td>
</tr>
<tr>
<td>Capacity (GPM)</td>
</tr>
<tr>
<td>Head (FL)</td>
</tr>
<tr>
<td>Full Load Speed (RPM)</td>
</tr>
</tbody>
</table>

Motor

<table>
<thead>
<tr>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
</tr>
<tr>
<td>Serial Number</td>
</tr>
<tr>
<td>Horsepower</td>
</tr>
<tr>
<td>Frame</td>
</tr>
<tr>
<td>Full Load Amps</td>
</tr>
<tr>
<td>Phase/Volts</td>
</tr>
</tbody>
</table>

- Serial number is not yet available. Copy from motor nameplate.

General Description

A vertical line shaft turbine pump consists of five basic components. These components are the pump bowl assembly, column pipe, line shafting, discharge head, and driver. Refer to Section 7 for general arrangement drawings.

Bowl Assembly

The 7000 series single stage bowl assembly is made up of a suction bell (or suction case), a top intermediate bowl and impeller, and a discharge case. Units of two or more stages include a suction bell (or suction case), multiple intermediate bowls and impellers. Multiple stage open line shaft construction does not require a discharge case.

Refer to the assembly drawing found in section 7 of this manual for your specific configuration.
Pump Curves and Additional Information:
Town of Cary Reclaimed Water System
Facility Worksheet
PUMP STATIONS

Pump Curves and Additional Information:

---

WARNING

DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARD
IN PLACE. ANY OPERATION OF THIS MACHINE WITHOUT
PROTECTIVE GUARD CAN RESULT IN SEVERE BODY INJURY.

---

DISCHARGE HEAD DIMENSIONS

<table>
<thead>
<tr>
<th>DISCH COL</th>
<th>COL SIZE</th>
</tr>
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<tbody>
<tr>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>18 ½</td>
<td>20</td>
</tr>
<tr>
<td>24 ½</td>
<td>30 ½</td>
</tr>
<tr>
<td>30 ½</td>
<td>22 ½</td>
</tr>
<tr>
<td>14</td>
<td>18 ¼</td>
</tr>
</tbody>
</table>

---

PLAN VIEW OF DISCHARGE HEAD

1. THIS DRAWING NOT FOR CONSTRUCTION OR INSTALLATION UNLESS CERTIFIED. DIMENSIONS SHOWN ARE TYPICAL AND MAY VARY DUE TO VARIOUS TOLERANCES.
2. MAXIMUM SUBMERGENCE REQUIRED AT MINIMUM FLOW.
3. CUSTOMER TO VERIFY OR ADVISE OVERALL LENGTH PRIOR TO OR AT RELEASE.
4. POT DESIGNED TO MEET HYDRAULIC INSTITUTE STANDARDS. FM WILL ADVISE ON DESIGN, SUPPLIED BY OTHERS.
5. ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.

---

Fairbanks Morse
PENTAIR PUMP GROUP

SETTING PLAN
MODEL 15H 7000
TYPE L" SURFACE HEAD
NO SOLEPLATE

---

CERTIFIED FOR
FM PROJECT NO. 063006
CERTIFIED BY
S.M. 5/00
DWG. NO. S-063006-1 REV 0
Facility: North Cary Reclaimed Water Storage Tank

Date: 2/28/13  
Inspected By: JSG

Tank Information:

- **Type of Tank:** Ground Tank  
  - HWL Alarm: 15 ft
- **Set Points and on/off control:**  
  - System Pressure: 125 PSI/130 PSI
  - LWL Alarm: 4 ft
- **Chlorine Set Points H/L:** 5.0 ppm/0.0 ppm

Tank Schematic:

- Surge Relief  
- Reclaimed Water Pump Station  
- Reclaimed Water Electrical  
- Hypochlorite Building  
- Reclaimed Water Tank  
  1,000,000 Gallons  
- Diversion Structure

North Cary Reclaimed Water Storage Tank

Year Constructed: 2002

Manufacturer: Crom

Overall condition: Excellent

Source of Information:  
- as built/Verbal  
  (model, as-built, visual inspection, verbal)

- Drawing Provided: Yes
- Needs Repair
- Needs Replacement

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Year Constructed:</td>
<td>2002</td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Crom</td>
</tr>
<tr>
<td>Overall condition:</td>
<td>Excellent</td>
</tr>
<tr>
<td>Ground Elevation:</td>
<td>291.5 feet m.s.l.</td>
</tr>
<tr>
<td>Ground to Overflow:</td>
<td>310 feet</td>
</tr>
<tr>
<td>Total Volume:</td>
<td>1000000 MG</td>
</tr>
<tr>
<td>Tank Diameter:</td>
<td>110 feet</td>
</tr>
<tr>
<td>Tank Height:</td>
<td>18.5 feet</td>
</tr>
<tr>
<td>Head Range:</td>
<td>18.5 feet</td>
</tr>
</tbody>
</table>
Town of Cary Reclaimed Water System
Facility Worksheet
STORAGE TANKS

Photographs:
Plans/Drawings:
## Additional Information:

### North Cary WWTP Reclaim Tank Level Meter Calibration

**Calibration Date:** September 09, 2012 (Calibration of Reclaim Tank Level Meter)

**Calibrated By:** Todd Casey / Krüger

**Milltronics Hydronanger Ultrasonic Transmitter / STH Transducer**

**Configured for Material Level**

### Reclaim Tank Level Settings

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<td>Two digits after decimal</td>
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### Additional Information:

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<td>Manufacturer</td>
<td>Miltronics</td>
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<td>Model No.</td>
<td>HydroRanger</td>
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</tr>
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<td>By</td>
<td>ETC</td>
<td>Checked</td>
<td>Approved</td>
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<tr>
<td>Date</td>
<td>7/21/00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revision</td>
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<td>ETC</td>
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<td>Reuse Pump Station</td>
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#### Ultrasonic Level Transmitter

**GENERAL INFORMATION**

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<th>Application</th>
<th>Level</th>
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</thead>
</table>

**GENERAL OPERATIONS**

<table>
<thead>
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<th>Level</th>
<th>Blanking</th>
<th>From 0.3m (1 ft)</th>
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</thead>
<tbody>
<tr>
<td>Range</td>
<td>50 Feet</td>
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</tr>
<tr>
<td>Range Extension</td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error messages</td>
<td>Loss of Echo</td>
<td>Shorn or open cable</td>
<td>Support</td>
</tr>
</tbody>
</table>

**DISPLAY**

<table>
<thead>
<tr>
<th>Units of Measurement</th>
<th>m, cm, ft, in, and % of span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming</td>
<td>Keypad programmer</td>
</tr>
<tr>
<td>Rate Limit</td>
<td>0 to 9999 units/min</td>
</tr>
</tbody>
</table>

**TRANSDUCER**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>STH</th>
<th>Range</th>
<th>min. (1 ft.) to max. (50 ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Teitel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OUTPUTS**

<table>
<thead>
<tr>
<th>Relays</th>
<th>5 Form C (5A) contacts</th>
<th>Analog</th>
<th>Programmable 4-20mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA current loop into</td>
<td></td>
<td>350 ohms or 750 ohms</td>
<td></td>
</tr>
<tr>
<td>Alarms</td>
<td>Programmable as pump control, sampler, or totalizer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSTALLATION**

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>100/115/200/230 VAC</th>
<th>Process</th>
<th>range -40 °F to 203°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure Type</td>
<td>NEMA 4X</td>
<td>Cable to</td>
<td>included</td>
</tr>
<tr>
<td>Enclosure Size</td>
<td>6.3&quot;x4.5&quot;Wx3.2&quot;D</td>
<td>Transmitter</td>
<td></td>
</tr>
<tr>
<td>Operating Temp</td>
<td>range -3°F to 122°F</td>
<td>Temp.</td>
<td>built-in compensation</td>
</tr>
</tbody>
</table>

**Notes:**

Sunshield
Surge Arrestor Joslyn 1669-05
### Facility Worksheet
#### MONITORING EQUIPMENT

<table>
<thead>
<tr>
<th>Facility:</th>
<th>North Cary Turbidity Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>2/28/13</td>
</tr>
<tr>
<td>Inspected By:</td>
<td>JSG</td>
</tr>
</tbody>
</table>

### Information:

**2- Hach Turbidity Monitors**
- SC 100 Controller
  - Solitax Probe SN 1121057
  - SC 100 Controller
  - Solitax Probe SN 1121055

Sample from UV Structure
High Alarm for Turbidity - 5.0 NTU
Turbidity of 8.0 NTU signals Diversion Vault RCW Slide Gate to close.
RCW Permit Limit is 10.0 NTU

### Schematic:

**Signal to SCADA**
- Flow Diversion Vault
- SC 100
- Solitax Probes
- UV Structure

**North Cary Turbidity Monitor**

### Year Constructed:
- 2005

### Manufacturer:
- HACH

### Overall condition:
- Excellent
- Good
- Fair
- Poor
- Needs Repair
- Needs Replacement

**Drawing Provided**
- Yes
- No
Photographs:
HACH sc 100 Controller

Alarm: Low alarm point, low alarm point deadband, high alarm point, high alarm point deadband, off delay, and on delay
Certifications: ETL to UL 61010A-1 and CSA C22.2 No. 1010.1
Communication: RS-232 (MODBUS): Configure and retrieve measured data for one analyzer using IBM-compatible PC RS-485 (MODBUS): Advanced communications/networking with PLC or SCADA system directly from analyzer. Profibus DPV1: Advanced communications/networking with PLC or SCADA system directly from analyzer.
Display: Graphic LCD, 128 x 64 pixels with LED backlighting
Enclosure Rating: NEMA 4X/IP65
Mounting: Surface, panel, and pipe (horizontal and vertical)
Operating Humidity: 0 to 95% relative humidity, non-condensing
Operating Temperature Range: -20 to 60 °C
Outputs: Two analog 4-20 mA, maximum impedance 500 Ohms, optional digital network connection
Power Requirements (Hz): 50/60 Hz
Power Requirements (Voltage): 100 - 230 V AC
Relays: Three SPDT, user-configurable contacts rated 100 to 230 Vac, 5 Amp resistive maximum
Town of Cary Reclaimed Water System
Facility Worksheet
MONITORING EQUIPMENT

Additional Information:

Solitax Probe

Accuracy: Turbidity: Defined according to ISO/WD 13530. Suspended Solids Less than of reading or ±0.001 NTU, whichever is greater
Accuracy 2: Defined according to ISO/WD 13530. Turbidity Suspended Solids Less than 5% of reading (depends on homogeneity of municipal activated sludge)
Cable Length: 10 m (33 ft.) standard. Optional extension cables available in 7.6 m (25 ft.), 15.2 m (50 ft.), 30.5 m (100 ft.). Maximum total length: (328 ft.).
Calibration: Turbidity Suspended Solids: Formazin or StabiCal® Standard Based on gravimetric TSS analysis with a correction factor procedure
Calibration Method: Turbidity Suspended Solids: Formazin or StabiCal® Standard Based on gravimetric TSS analysis with a correction factor procedure
Certifications: CE certified to EN 61326-1, EN 61326/A1, EN 61326/A2, EN 61010-1
Construction - Sensor Body (RD 240/260): Wiper Sensor body: Silicon Stainless steel or PVC
Detection Limit: Turbidity Suspended Solids 0.001 mg/L
Diameter Sensor: (diameter x immersion sensor: x (2.4 x)
Dimensions (D x L): 2.36 in x 7.87 in (60 mm x 200 mm)
Flow: Flow Velocity 3 m/s (9.8 ft./s) maximum
Max. cable length Sensor to Controller: 100
Measuring Principle: Dual beam infrared/scattered light photometer to measure turbidity. A backscatter photoreceptor to measure suspended solids
Measuring Range: Turbidity Suspended Solids to
Measuring Range Turbidity: Suspended Solids 0.001 to 4000 NTU
Mounting: Through sidewall of a pipeline using a ball valve; minimum pipe size (4 in.) in carbon or stainless steel
Operating Temperature Range: 0 to 40 °C
Response Time: Initial response in 1 second
Sample Temperature: > 0 to 40 °C
Unit: Units of Measure Turbidity Suspended Solids: User selectable — g/L, mg/L, ppm, or % solids
Facility: North Cary Chlorine Analyzer  
Date: 2/28/13  
Inspected By: JSG

Information:
HACH Chlorine Analyzer Cl-17  
Chlorine Sample point in flow meter vault  
Plant has a Spare Cl-17  
Set Points - Information SCADA -Low Alarm Chlorine - 0.0 ppm  
High Alarm Chlorine - 5.0 ppm

Schematic:

Year Constructed: 2002
Manufacturer: HACH Cl-17

Overall condition: Excellent  
Needs Repair  
Needs Replacement

Drawing Provided  Yes  No
Photographs:
Facility: North Cary Effluent Flow Meter
Date: 02/28/13
Inspected By: JSG

Information:
Danfoss MAG3100W 16” Mag Meter
Q Max - 1388 (US GPM) 2.00 MGD (US Gallons)

Schematic:

![Schematic Diagram of North Cary Effluent Flow Meter]

North Cary Effluent Flow Meter

Year Constructed: 2002
Manufacturer: Danfoss MAF3100W 16” Mag Meter Mag500 Converter

Overall condition: Excellent Good Fair Poor Needs Repair Needs Replacement

Drawing Provided: Yes No
Photographs:
Town of Cary Reclaimed Water System
Facility Worksheet
MONITORING EQUIPMENT

Plans/Drawings:
### MONITORING EQUIPMENT

#### Magnetic Flowmeter

<table>
<thead>
<tr>
<th>Tag No.</th>
<th>FE/FIT 1050</th>
<th>Associated Tag No.</th>
<th>Spec. No.</th>
<th>13300</th>
<th>PO No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Krüger Products</td>
<td>Danfoss MAG3100W-083Z8612</td>
<td></td>
<td></td>
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<tr>
<td>Model No.</td>
<td>MAG3100W-083Z8612</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

**By** ETC | Checked: ETC | Approved: ETC | Issued for Approval: Submittal Comments |
<table>
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<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>No. Date:</td>
<td>7/21/00</td>
<td>10/5/00</td>
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</tbody>
</table>

**Additional Information:**

<table>
<thead>
<tr>
<th>Tag No.</th>
<th>FE/FIT 1050</th>
<th>Location</th>
<th>Reclaimed Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>Recalimed Water Flow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Line Size:** 16" line

**Line Material:** Neoprene

**Connection Type:** Flanged Tube

**Connection Fitting:** Carbon Steel

**Tube Material:** Type 304 Stainless Steel

**Electrode Type:** AISI 316 Ti

**Electrode Material:** Stainless Steel 316

**Meter Casing:** NEMA 6

**Fluid Material:** Neoprene

**Max. Flow Units:** 8000 gpm

**Max. Velocity Units:** 30 ft/s

**Norm. Flow:**

**Max. Temp.:** 185°F

**Instr. Tag Number:** FE/FIT 1050

**Function:** Measure flow

**Mounting:** Integral / Remote

**Enclosure Type:** Fiber glass-reinforced polyamide or optional stainless steel (NEMA 4/4X)

**Part number:** MAG5000-083F5001 w/085U1001 Wall Mount Unit w/40° Cable

**Accuracy:** +/- 0.5%

**Power Supply:** 115 VAC

**Transmitter:** 4-20 mA

**Display Size:** 2-line by 16 char. LCD

**Keypad:** 8 keys

**Chart Drive:** Not available

**Integrator:** Not available

**Modes:** Bi-directional flow, empty

**Action:** Empty pipe cutoff

**Contact Number:** 1

**Rating:** 46

**Manufacturer:** Danfoss

**Meter Model Number:** MAG3100W-083Z8612

**Intr. Model Number:** MAG5000-083F5001 w/085U1001 Wall Mount Unit w/40° Cable

**Notes:**

Sunshield Surge Arrestor Joslyn 1668-06
### Additional Information:

**Reclaim Effluent Flowmeter Settings**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Direction</td>
<td>Negative</td>
</tr>
<tr>
<td>Q Max</td>
<td>1388.00 (US GPM) 2.00 MGD (US Gallons)</td>
</tr>
<tr>
<td>Totalizer</td>
<td>Gallons</td>
</tr>
<tr>
<td>Low Flow Cut-Off</td>
<td>2.0%</td>
</tr>
<tr>
<td>Empty Pipe Detection</td>
<td>On</td>
</tr>
<tr>
<td>Current Output</td>
<td>Unidirectional</td>
</tr>
<tr>
<td>Current Output</td>
<td>4-20mA</td>
</tr>
<tr>
<td>Current Output Time Constant</td>
<td>05.0 S</td>
</tr>
<tr>
<td>Language Mode</td>
<td>English</td>
</tr>
<tr>
<td>Units</td>
<td>English</td>
</tr>
<tr>
<td>Totalizer 1</td>
<td>US Gallons</td>
</tr>
<tr>
<td>Totalizer 2</td>
<td>US Gallons</td>
</tr>
<tr>
<td>Password</td>
<td>1000</td>
</tr>
</tbody>
</table>
Facility: North Cary WRF Bulk Reclaimed Water Fill Station
Date: 2/28/13  Inspected By: JSG

Information:
Small loading arm scheduled for replacement in the 2013-2014 Budget - Due to internal corrosion.
Most all bulk RCW offload reuse water with the smaller arm as opposed to the overhead fill station.
The system is automated. Attached is a copy of the offloading procedure.

Schematic:

North Cary Bulk Reclaimed Water Fill Station

Year Constructed: 2002/2005 (Small offloading arm added 2005)

Overall condition: Excellent Good Fair Poor Needs Repair Needs Replacement

Drawing Provided  x Yes  No
Photographs:
MATERIALS OF CONSTRUCTION: CARBON STEEL
SWIVEL JOINT SEALS: VITON (-15FT TO +400FT)

PRODUCT: NON-POTABLE WATER

ESTIMATED WIGHT OF LOADING ARM: 196 LBS

ESTIMATED MOMENT LOAD AT SPRING: 3,570 IN-LBS

ESTIMATED MOMENT LOAD AT AXLE: N/A

PLATE: GASKETS:

TEST PRESSURE: N/A

LOADING ARM NOT DESIGNED FOR PRODUCT RETENTION OR ADDITIONAL WEIGHT BY OTHERS

Dimensions:

96" B-1/8" B-5/8"

Materials:

- 3" CS SWIVEL JOINT
- 3" CS TUBE ADAPTER
- 108" 40" SCH 40 CS PIPE
- 2" SCH 40 CS PIPE
- 2" TUBE ADAPTER
- 2" SCH 40 CS PIPE
Additional Information:

**Bulk Fill Station Operation**

**North Cary Water Reclamation Facility**

* The customer parks their vehicle inside the containment area nearest the device they will use to load.
* The individual will exit their vehicle, taking their permit card with them.
* The customer will place the hose/fill nozzle appropriately to fill their vehicles and restrain the piping/hose accordingly.
* The customer will proceed to the large stainless steel enclosure. They will open the door located under the sunshield.
* The customer will be prompted for several items. These will be addressed as follows:
  1. English or Spanish (select the appropriate language)
  2. Enter the operators permit number (the program requires a 4 digit number-if your permit is a 3 digit number, the number should be preceded by a 0)
  3. The screen provides a drop down selection of names (for security purposes). Select the correct name associated with the permit—for instance, John Doe. [Each customer must have a unique permit-permits cannot be shared or borrowed]
  4. Touch the intended use. Select the most appropriate item that reflects your application.
  5. Touch the “Does the vehicle have appropriate signage” and enter yes or no (a no answer will prohibit the use of the station) The vehicle operator must verify that the three manual fill valves are closed prior to activating the automatic valve. Failure to do so will result in the release of water in an unpredictable and potentially unsafe manner.
  6. Press the “enable fill” button and the automatic valve should actuate
  7. The computer controls an automatic valve. It tracks the use and user of the water. The valve directly before the discharge into the vehicle is manually operated by the vehicle operator. This individual will begin the filling process and end it just prior to the tank becoming full. Once the automatic valve begins to actuate, the operator has 2 minutes to begin filling their vehicle. If the individual waits too long, the valve will close and the process will need to be started all over again. 13. Two minutes after the conclusion of the filling process the automatic valve will close.
  8. The operator will move the filling device (hose or nozzle) away from their vehicle and store it properly.
  9. The vehicle operator will secure their load so that leakage does not occur.
  10. The customer will move their vehicle out of the containment area.

Any problems noted or arising during the filling process should be brought to the attention of the plant staff immediately. The intercom located next to the loading boom can be utilized or the plant employees can be contacted via phone at 919-677-0850.
North Cary WWTP Reclalm Bulk Flowmeter Calibration  
Calibration Date: September 09, 2012 (Calibration of Reclalm Bulk Flowmeter) 
Calibrated By: Todd Casey / Kruger 
Endress & Hauser ProMag50 w/Transmitter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Direction</td>
<td>Positive</td>
</tr>
<tr>
<td>Q Max</td>
<td>450 GPM</td>
</tr>
<tr>
<td>Totalizer</td>
<td>Gallons</td>
</tr>
<tr>
<td>Low Flow Cut-Off</td>
<td>1.5%</td>
</tr>
<tr>
<td>Empty Pipe Detection</td>
<td>On</td>
</tr>
<tr>
<td>Current Output</td>
<td>On</td>
</tr>
<tr>
<td>Current Output</td>
<td>4-20mA</td>
</tr>
<tr>
<td>Language Mode</td>
<td>English</td>
</tr>
<tr>
<td>Units</td>
<td>English</td>
</tr>
<tr>
<td>Relay Output</td>
<td>Off</td>
</tr>
</tbody>
</table>
Facility: North Cary WRF Hypochlorite Tank
Date: 2/28/13  Inspected By: JSG

Information:
Tank Dimensions: 10' 5" x 10' 2" (12'1" to top of dome)
Tank Installed 2011
6150 Gallon Upright Tank
1.9 SpG/XLPE/NAT W/1
STOCK NO. 71006150440
Tank overflow - 9'11"
Computer File - HWDHS3247B
PolyProcessing Company

Hypochlorite Recirculation Pump
IWAKI WALCHEM
Model Series- MDH-F400
Impellar Code Size "G"
Flow Capacity 66 GPM

Schematic:

North Cary Hypochlorite Tank

Year Constructed: 2011
Overall condition: Excellent
Drawing Provided: Yes

### Specifications

<table>
<thead>
<tr>
<th>Model Series</th>
<th>Impeller Code (Size)</th>
<th>Specific Gravity Capacity</th>
<th>Maximum Flow Capacity (GPM)</th>
<th>Maximum Head/TDH (FT)</th>
<th>Motor Output (HP)</th>
<th>Connections Suction &amp; Discharge (NPTM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDH-400</td>
<td>6</td>
<td>1.10</td>
<td>72</td>
<td>37</td>
<td>½</td>
<td>1⅛ x 1⅛</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td>68</td>
<td>42</td>
<td>¾</td>
<td></td>
</tr>
<tr>
<td>MDH-401</td>
<td>6</td>
<td></td>
<td>85</td>
<td>66</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td>92</td>
<td>70</td>
<td>1⅛ ⁰</td>
<td></td>
</tr>
<tr>
<td>MDH-422</td>
<td>6</td>
<td></td>
<td>95</td>
<td>79</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>MDH-423</td>
<td>6</td>
<td></td>
<td>120</td>
<td>78</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>MDH-425</td>
<td>6</td>
<td>1.20</td>
<td>158</td>
<td>100</td>
<td>5.0</td>
<td>2 x ⅛</td>
</tr>
<tr>
<td>MDH-F400</td>
<td>G</td>
<td>1.10</td>
<td>66</td>
<td>42</td>
<td>⅔</td>
<td>1⅛ x 1⅛</td>
</tr>
<tr>
<td>MDH-F401</td>
<td>G</td>
<td></td>
<td>92</td>
<td>70</td>
<td>1⅛</td>
<td></td>
</tr>
<tr>
<td>MDH-F422</td>
<td>X</td>
<td>1.20</td>
<td>95</td>
<td>80</td>
<td>2.0</td>
<td>2 x ⅛</td>
</tr>
<tr>
<td>MDH-F423</td>
<td>X</td>
<td></td>
<td>120</td>
<td>77</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>MDH-F425</td>
<td>G</td>
<td></td>
<td>158</td>
<td>100</td>
<td>5.0</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Rated performance (head/capacity) represents the maximum discharge head/capacity measured with water at 70°F (21°C).

2. Liquid temperature range: 32 - 176°F (0 - 80°C)
   - Ambient temperature range: 32 - 104°F (0 - 40°C)

3. Slurry: Standard pumps are not suitable for slurry applications. Only MDH-F(AV) models are capable of handling applications with a slurry hardness 80°F. Consult Iwaki Walchem or your distributor for details.

4. Specific gravity capability at maximum flow with maximum impeller when fluid viscosity is 1 cp. Specific gravity fluids up to 2.0 can be handled with appropriate trimming of impeller. Consult Iwaki Walchem or your distributor for recommended model and impeller trim.

5. The MDH-401-7, when coupled to a 1⅛ HP motor should use a flywheel drive magnet assembly, part number MFL1361.

Note that the MDH-(F)401 with a 1 HP motor does NOT require the flywheel drive magnet.
Additional Information:

IWAKI WALCHEM Corporation

MDH-F400

Curve No: IP20162_B  Max. Impeller Dia.: (G) 3.43"  Suction: 1½" NPT
RPM: 3440  min. impeller Dia.: (G) 2.75"  Discharge: 1½" NPT
Date: 7-12-95  No. of Vanes: 6
Approved: P.J.C

Performance based on water at 70°F (21°C). Fluids with specific gravities other than 1.0 should be reviewed by the factory.

6 BOYNTON ROAD ASPEN BROOK PARK HOLLISTON, MA 01746-1446 USA
TEL: 508-429-1440  FAX: 508-429-1300
North Cary WWTP Reclaim Sodium Hypochlorite Tank Level Meter Calibration

Calibration Date: September 09, 2012

Calibrated By: Todd Casey / Kruger

Milltronics Hydoranger Ultrasonic Transmitter / STH Transducer

Configured for Material Level

<table>
<thead>
<tr>
<th>Sodium Hypochlorite Tank Level Settings</th>
<th>Parameter Value</th>
<th>Parameter Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1 Units of calibration and display</td>
<td>3</td>
<td>Feet</td>
</tr>
<tr>
<td>P-2 Mode of measurement</td>
<td>1</td>
<td>Material Level</td>
</tr>
<tr>
<td>P-3 Empty distance to transducer</td>
<td>11.45</td>
<td>Feet</td>
</tr>
<tr>
<td>P-4 Span</td>
<td>9.60</td>
<td>Feet</td>
</tr>
<tr>
<td>P-5 Near Blanking</td>
<td>2.00</td>
<td>Feet</td>
</tr>
<tr>
<td>P-6 Milliamp Output</td>
<td>2</td>
<td>4-20mA</td>
</tr>
<tr>
<td>P-7 Decimal Point Location</td>
<td>2</td>
<td>Two digits after decimal</td>
</tr>
</tbody>
</table>
### Additional Information:

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>LELIT-2010</td>
<td>Level</td>
<td>Level</td>
<td>50 Feet</td>
<td>0.01% of range or 2 mm</td>
<td>Loss of Echo</td>
<td>high contrast 4 digit LCD</td>
<td>mm, cm, ft, in, % of span</td>
<td>Tefzel</td>
<td>5 Form C (5A) contacts</td>
<td>Programmable as pump control, sampler, or totalizer</td>
<td>100/115/200/230 VAC</td>
<td>NEMA 4X</td>
<td>6.3&quot;Hx9.5&quot;Wx3.2&quot;D</td>
<td></td>
</tr>
<tr>
<td>13300</td>
<td>Level</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>range -40°F to 203°F</td>
</tr>
<tr>
<td>PO No.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temp.</td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Miltronics</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model No.</td>
<td><strong>HydroRanger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Notes:**
Sunshield
Surge Arrestor Josyl 1669-06
Facility: North Cary WRF Chemical Metering Pumps
Date: 2/28/13  Inspected By: JSG

Information:
Milton Roy 2002
Sodium Hypochlorite Feed Pumps
Equipment ID: #1, #2, #3
Service: Sodium Hypochlorite (5-16%)
Pump Model Number: MGH402 20CBM2SE11NN22
Serial Number: 0230790-01/02/03
Rated Capacity: 45.0 GPH
Rated Pressure: 100 PSIG
Plunger Diameter: 2-1/2 INCH
Stroking Speed: 86 SPM
Stroke Adjustment: Manual

Materials of Construction
Diaphragm Head: PVC
Diaphragm: PTFE/NITRILE
Check Valve Body: PVC
Ball Checks (Double): Ceramic
Ball Seats: PVC
O-Ring Seals: Viton

Feed Points:
Pre-Storage RCW Hypo Feed
Effluent RCW Hypo Feed

Schematic:

North Cary Chemical Metering Pumps

Year Constructed: 2002

Overall condition: Excellent  Good  Fair  Poor  Needs Repair  Needs Replacement

Drawing Provided: Yes  No
Photographs:
## Facility Worksheet

**HYDROPNEUMATIC TANKS**

<table>
<thead>
<tr>
<th>Facility</th>
<th>North Cary WRF Hydropneumatic Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>2/28/13</td>
</tr>
<tr>
<td>Inspected By</td>
<td>JSG</td>
</tr>
</tbody>
</table>

### Information:

- **Hydropneumatic Tank**
  - Adamson Global Tech. Corp. Hydro Tank Model No. 60824 S/N 4341
  - 6' Diameter x 10' H Steel (2000 Gallons)
  - 8" Gate Valve
  - 8" DIP RCW EL 307.5

- **Duplex Air Compressor with Control Panel**
  - Quincy Compressor Tank Model No. QT5DT5HP00079 Serial No. 5141814
  - Quincy Compressor #1 Model No. QT5-202 Serial No. 6197401
  - Quincy Compressor #2 Model No. QT5-202 Serial No. 6197402

Located in the Hypochlorite Building

### Schematic:

![Schematic Diagram]

**North Cary Hydropneumatic Tank**

### Year Constructed:

- 2002

### Overall condition:

- Excellent
- Good
- Fair
- Poor
- Needs Repair
- Needs Replacement

**Drawing Provided**

- Yes
- No
Photographs:
Facility: North Cary WRF Reclaimed Water System Generator

Date: 2/28/13  Inspected By: JSG

Information:
Cummins Generator
Emergency Power Reclaimed Water System
500 KW Emergency Generator dedicated to the RCW system.
Annual Maintenance Contract
Generator tested weekly/monthly operation under load conditions.

Plans/Drawings:

Year Constructed: __________________

Overall condition:  Excellent  Good  Fair  Poor  Needs Repair  Needs Replacement

Drawing Provided  Yes  x No
Town of Cary Reclaimed Water System  
Facility Worksheet  
FLOW DIVERSION STRUCTURE

<table>
<thead>
<tr>
<th>Facility:</th>
<th>North Cary WRF Reclaimed Water Flow Diversion Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>2/28/13</td>
</tr>
<tr>
<td>Inspected By:</td>
<td></td>
</tr>
</tbody>
</table>

**Information:**
Flow Diversion Structure  
Diversion Gate - Auma installed in 2002  
Plant Effluent passes through Diversion Structure. When RCW Storage Tank Level drops .5 feet below the set point the gate valve begins to open.  
Structure has a fixed weir elevation of 312.35 flow measured via Ultrasonic level meter with a flow range of 0-15 mgd  
Chemical feed systems will not run w/o flow or gate operating. Prevents overfeed of hypochlorite. Chlorine is fed downstream of the Diversion structure in a manhole.

Flow Measurement: Milltronics Hydroranger Ultrasonic Transmitter/STH Transducer  
Tag No. FE/FIT 1020

**Schematic:**

```
North Cary Reclaimed Water Flow Diversion Structure
```

**Year Constructed:**

**Overall condition:**

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Needs Repair</th>
<th>Needs Replacement</th>
</tr>
</thead>
</table>

**Drawing Provided:**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
Photographs:
Town of Cary Reclaimed Water System
Facility Worksheet
FLOW DIVERSION STRUCTURE

Plans/Drawings:
## Flow Diversion Structure

**North Cary WWTP Reclaim Diverter Flow Meter Calibration**

*Calibration Date: September 09, 2012 (Calibration of Reclaim Diverter Flow Meter)*

*Calibrated By: Todd Casey / Kruger*

*Milltronics Hydoranger Ultrasonic Transmitter / STH Transducer*

*Configured for Open Channel Measurement / Flume*

### Reclaim Diverter Flow Meter Settings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1 Units of calibration and display</td>
<td>4</td>
<td>Inches</td>
</tr>
<tr>
<td>P-2 Mode of measurement</td>
<td>5</td>
<td>OCM</td>
</tr>
<tr>
<td>P-3 Empty distance to transducer</td>
<td>90.00</td>
<td>Inches</td>
</tr>
<tr>
<td>P-4 Span</td>
<td>17.40</td>
<td>Inches</td>
</tr>
<tr>
<td>P-5 Near Blanking</td>
<td>11.81</td>
<td>Inches</td>
</tr>
<tr>
<td>P-6 Milliamp Output</td>
<td>2</td>
<td>4-20mA</td>
</tr>
<tr>
<td>P-39 Display Reading Options</td>
<td>4</td>
<td>Flow rate</td>
</tr>
<tr>
<td>P-40 Primary measuring device</td>
<td>1</td>
<td>Exponential</td>
</tr>
<tr>
<td>P-41 Flow rate time units</td>
<td>4</td>
<td>Per Day</td>
</tr>
<tr>
<td>P-42 OCM exponent</td>
<td>1.500</td>
<td>Parshall flume exponent</td>
</tr>
<tr>
<td>P-46 Maximum flow rate</td>
<td>15.00</td>
<td>MGD</td>
</tr>
<tr>
<td>P-49 OCM decimal point</td>
<td>2</td>
<td>Two digits after decimal</td>
</tr>
<tr>
<td>P-52 Totalizer display factor</td>
<td>0</td>
<td>Divide by 1</td>
</tr>
<tr>
<td>P-53 Totalizer decimal point location</td>
<td>2</td>
<td>Two digits after decimal</td>
</tr>
<tr>
<td>P-68 Fill damping</td>
<td>32.81</td>
<td>Rate of change flow increase</td>
</tr>
<tr>
<td>P-69 Empty damping</td>
<td>32.81</td>
<td>Rate of change flow decrease</td>
</tr>
<tr>
<td>P-97 4mA Trim</td>
<td>231</td>
<td>4mA trim</td>
</tr>
<tr>
<td>P-98 20mA Trim</td>
<td>3503</td>
<td>20mA Trim</td>
</tr>
</tbody>
</table>
## Additional Information:

### Table: Flow Diversion Structure

<table>
<thead>
<tr>
<th>Tag No.</th>
<th>FE/FIT 1020</th>
<th>Associated Tag No.</th>
<th>3 Application</th>
<th>Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spec. No.</td>
<td>13300</td>
<td>Ground Rods</td>
<td>Reclaimed Water Flow</td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Miltronics</td>
<td>HydroRanger</td>
<td>Flow</td>
<td></td>
</tr>
<tr>
<td>Model No.</td>
<td>HydroRanger</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By.</td>
<td>ETC</td>
<td>Checked.</td>
<td>Approved.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Date</td>
<td>By</td>
<td>Revision</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>7/21/00</td>
<td>ETC</td>
<td>Issued for Approval</td>
<td></td>
</tr>
</tbody>
</table>

### Ultrasonic Level Transmitter

<table>
<thead>
<tr>
<th>Tag No.</th>
<th>FE/FIT 1020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>Reclaimed Water Flow</td>
</tr>
<tr>
<td>4 Function</td>
<td>Flow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modes of Operation</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>50 Feet</td>
</tr>
<tr>
<td>Range Extension</td>
<td>none</td>
</tr>
<tr>
<td>Error messages</td>
<td>Loss of Echo</td>
</tr>
<tr>
<td>Shorted or open cable</td>
<td>Support</td>
</tr>
<tr>
<td>Blanking</td>
<td>From 0.3m (1 ft.)</td>
</tr>
<tr>
<td>Resolution</td>
<td>the greater of 0.1% of range or 2mm</td>
</tr>
</tbody>
</table>

### Display

<table>
<thead>
<tr>
<th>Units of Measurement</th>
<th>gpm, m³/h, ft. head, % of span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming</td>
<td>keypad programmer</td>
</tr>
<tr>
<td>Rate Limit</td>
<td>0 to 9999 units/min</td>
</tr>
</tbody>
</table>

### Transducer

<table>
<thead>
<tr>
<th>Model Number</th>
<th>STH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Tefzel</td>
</tr>
<tr>
<td>Relays</td>
<td>5 Form C (4) contacts</td>
</tr>
<tr>
<td>Analog programmable 4-20mA</td>
<td></td>
</tr>
<tr>
<td>available</td>
<td>mA current loop into</td>
</tr>
<tr>
<td>350 ohms or 750 ohms</td>
<td></td>
</tr>
<tr>
<td>Alarms</td>
<td>Assignable as alarms, pump control, sampler, or totalizer</td>
</tr>
<tr>
<td>23 Power Supply</td>
<td>100/115/200/230 VAC</td>
</tr>
<tr>
<td>Process range: -40 °F to 203°F Temp.</td>
<td></td>
</tr>
<tr>
<td>Enclosure Type</td>
<td>NEMA 4X</td>
</tr>
<tr>
<td>25 Enclosure Size</td>
<td>6.3&quot; H x 9.5&quot; W x 3.2&quot; D</td>
</tr>
<tr>
<td>26 Operating Temp. for electronics</td>
<td>range: -5 °F to 122°F</td>
</tr>
</tbody>
</table>

### Installation

- Sunshield
- Surge Arrestor Joypin 1666-06
- L. Krüger Inc.