Subject: WWTP Condition Assessment

Auburn Plant

1. Grit Removal:

   Description of Unit: Aerated grit chamber
   No. of Units: Two
   Dimensions: 30’ x 20’ x 15’ SWD each

   Grit Volume:

   Normal: <1.5 cy/mo
   Removal: Clamshell bucket

   Comments: 2-120 cfm positive displacement blowers provide aeration
              Blowers are located in Screen Bldg.

   Condition Assessment: Generally in good condition, but will require
                          periodic diffuser replacement (every 5-7 years) and regular blower maintenance.
2. Screening:

**Mechanical Bar Screens:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Units:</td>
<td>Two</td>
</tr>
<tr>
<td>Name/ID:</td>
<td>Dorr Oliver</td>
</tr>
<tr>
<td>Bar Screen Width (in.):</td>
<td>72-in.</td>
</tr>
<tr>
<td>Within Building?:</td>
<td>Yes</td>
</tr>
<tr>
<td>Heated?:</td>
<td>Yes</td>
</tr>
<tr>
<td>Description of Operation/Control:</td>
<td>Timer and headloss</td>
</tr>
</tbody>
</table>

**Condition Assessment:** Units are nearing the end of useful life, but are currently functional. Consider replacing with units with ¼-in. openings for more efficient removal.

**Manually-Cleaned Bar Rack:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Units:</td>
<td>Two</td>
</tr>
<tr>
<td>Width (in.):</td>
<td>90-in.</td>
</tr>
<tr>
<td>Bar Spacing (in.):</td>
<td>1-in.</td>
</tr>
<tr>
<td>Within Building?:</td>
<td>Yes</td>
</tr>
<tr>
<td>Heated?:</td>
<td>Yes</td>
</tr>
<tr>
<td>Description of Operation:</td>
<td>Manually raked</td>
</tr>
</tbody>
</table>

**Condition Assessment:** Unit is nearing the end of useful life, but is currently functional.

**Screenings Volume:**

- Normal: 5 cy/wk.
- Disposal Method: Rolling carts
3. **Primary Clarifiers:**

Number: Four  
Name/ID: #1 & #2 (old), #3 & #4 (new)  
Surface Dimensions: 80-ft. dia.  
Water Depth (shallowest) (ft.): 10 (new), 8.5 (old)  
Water Depth (deepest) (ft.): 13.17 (new), (?) (old)  
Weir Location: Peripheral  
Weir Length (ft.): 251  
Total Surface Area (sf): 5,026.4  
Flow (Design) (mgd): 16.9/4 = 4.225  
Flow (Operating) (mgd): 6.02/4 = 1.5  
Weir Overflow Rate (Design) (gpd/ft): 16,800  
Weir Overflow Rate (Operating) (gpd/ft.): 5,996  
Surface Settling Rate (Design) (gpd/ft²): 840.5  
Surface Settling Rate (Operating) (gpd/ft²): 299.4

Collector Mechanism: 2-Dorr Oliver, 2 Westech  
HP: 1/2

Sludge Collection and Treatment: Sludge and scum pumped to anaerobic digester

Scum Treatment and Disposal: Pumped to anaerobic digester

Condition Assessment: 2 new (1972) primary clarifiers and two old primary clarifiers are old, but serviceable. No problems reported. Drives will need periodic maintenance and replacement.
4. Aeration Basins:

Number: Four, 1N/1S, 2N/2S, 3 & 4
Surface Dimensions: New (1972) – 54’ x 238’ (each for 3 & 4)
                   Old – 36.5’ x 209’ (each for 1N, 1S, 2N & 2S)
Water Depth (ft.): New – 14.25, Old 12
Total Volume (cf): 738,876
Flow (Design) (mgd): 16.9
Flow (Operating) (mgd): 6.02
Wastewater Detention Time: (Design) (hrs.): 7.8
Wastewater Detention Time (Operating) (hrs.): 22
BOD₃ Loading (Design) (lb/1000 cf): 8.05
BOD₃ Loading (Operating) (lb/1000 cf): 5.3

Covered? Old – no, New – have elevated deck

Comments: Old basins have diffused aeration system (coarse bubble).
           New basins have surface aerators (5 per basin)

Condition Assessment: Need concrete repairs. Consider economics of using
                       fine bubble diffused aeration with D.O. control. May need to increase
                       wall height/freeboard for tanks 1 & 2 due to splashing.
5. Oxygen Supply:

Surface Mechanical Aerators:

No. of Units: 10 (5 per Basin)  
Mfr.: Eimco  
HP: 40/17 (2-speed)

Condition Assessment: Old, but serviceable (no reported problems). Consider economics of using diffused aeration system with D.O. control.

Diffused Aeration:

Blowers:

No. of Blowers: 3 elec., 1 gas  
Mfr.: Roots  
Type: Positive displacement  
HP: 50, 100, 125  
Rated Capacity (cfm): 1,300, 2,600, 3,500 and 2,600 (gas)

Condition Assessment: Good condition. Gas-driven blower used continuously. Blowers used for basins 1 and 2 only. 125 HP blower is 2 yrs. Old, 100 HP blower is 5 yrs. Old.

Diffusers:

Type: Coarse bubble  
Manufacturer: Unknown

Condition Assessment: Diffusers – poor. Aerators in good condition, but provide lower oxygen transfer than diffused aeration or newer mechanical aeration technologies.
6. Secondary Clarifiers:

Number: Two old, Two new
Name/ID: 1 & 2 (old), 3 & 4 (new)
Surface Dimensions: 90-ft. dia.
Water Depth (shallowest) (ft.): 8’ (1&2), 13’ (3 & 4)
Water Depth (deepest) (ft.): 8.5’ (1 & 2), 14’ (3 & 4)
Weir/Launder Location: peripheral – double weir
Weir Length (ft.): 540’/tank, 2,160’ total
Total Surface Area (sf): 6,361.5/tank, 25,446 total
Total Volume (cf): 85,880/tank, 343,521 total
Flow (Design) (mgd): 16.9
Flow (Operating) (mgd): 6.02
Weir Overflow Rate (Design) (gpd/ft): 7,824
Weir Overflow Rate (Operating) (mgd/ft.): 2,787
Surface Settling Rate (Design) (gpd/ft²): 664
Surface Settling Rate (Operating) (gpd/ft²): 236.5
Hydraulic Detention Time (Design)(hrs.): 3.65
Hydraulic Detention Time (Operating)(hrs.) 10.2

Collector Mechanism: 2 – Dorr Oliver, 2 – Walker Process
HP: 1/2
Sludge Collection and Removal: Suction tubes attached to sweep. Sludge returned to aeration tanks or wasted to anaerobic digesters.
Condition Assessment: Wall effect carryover noted. Consider installing Stamford baffles in Clarifiers 3 & 4. Clarifiers 1 & 2 are 8’ deep and do not meet current 10-States standards. These should be replaced with deeper clarifiers. Replace mechanisms in remaining clarifiers.
7. **Tertiary Filtration**

- **Number:** Four
- **Surface Dimensions:** 16’ x 48’
- **Type:** Rapid Sand
- **Hydraulic Loading Rate (Design) (gpm/ft$^2$):** 5.76 gpm/ft$^2$
- **Hydraulic Loading Rate (Operating) (gpm/ft$^2$):** 2.22 gpm/ft$^2$

**Backwash Tank:** 85’ dia. x 11 ft. SWD

**Washwater Standpipe:** 46’ dia. x 48’ SWD

**Condition Assessment:** Appears to be in good operating condition. No reported problems
8. Disinfection (Sodium Hypochlorite):

Contact Basins(s):

- **Number:** Two cells
- **Surface Dimensions:** 200’ x 20’ x 8.5’ swd
- **Channel Length to Width Ratio:** 10:1
- **No. of Bends:** 1-180 deg.
- **Water Depth (ft.):** 8.5
- **Total Volume (cf):** 34,000 each cell, 68,000 total
- **Detention Time (Design) (min.)** 43
- **Detention Time (Operating) (min.)** 121
- **Drain Capability:** Pump or Drain
- **Scum Removal Capability:** No

**Comments:** 1-10 HP floating aerator in each tank for D.O. control (seldom used). Plant water and scrubber water pumped from effluent end of tank.

**Condition Assessment:** Changed from chlorine gas to sodium hypochlorite 7-8 years ago. Use sodium bisulfite for dechlorination. Generally in good condition, some concrete repairs needed.

Chlorination/Dechlorination Pumps:

- **Number:** Two sodium hypochlorite and two sodium bisulfite
- **Sodium Hypochlorite Capacity (gal./hr.):** 0 - 22.5
- **Sodium Bisulfite Capacity (gal./hr.):** 0 - 3.5
- **Type of Injection:** Metering pumps (Pulsafeeder)

**Comments:** Generally in good condition. Periodic maintenance required.

**Condition Assessment:** New system installed 7-8 years ago. Good condition.
9. Sludge Handling Facilities:

**Primary Sludge:**

- Description of Pumping Operation: 2,800 gals., approx. 8X/day
- Method of Sludge Volume Measurement: Meter on total discharge
- Sampling Location: Pump discharge
- Sampling Procedure: Multiple grabs for composite

Condition Assessment: Pumps nearing end of useful life (30-40 years old). Existing plunger pumps are not used. Co-thickened sludge is thin. Consider gravity thickener for primary sludge and separate thickening of WAS.

**Return Sludge:**

- Description of Sludge Movement: RAS flows by gravity to telescoping valves, then into pit, then to pumps.
- Controllable Capacity Ranges: 2-2.2 MGD with 2 pumps
- Method of Control: Constant speed
- Method of RAS Volume Msmt: Flow meter on sludge withdrawal line
- Comments: Long travel to pump suction. Difficult to automate due to telescoping valves.

Condition Assessment: Old, but serviceable. Pumps will need replacement in near future.

**Waste Sludge:**

- Description of Waste Procedure: On a timed basis (usually 2 hrs.)
- Method of WAS Volume Measurement: Flow meter
- Sampling Location: Discharge line
- Sampling Procedure: Composite
- Condition Assessment: Old, but serviceable. Pumps will need replacement in near future.
10. **Pumping Equipment**

**Flow Stream Pumped:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Wemco</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pumps</td>
<td>4</td>
</tr>
<tr>
<td>HP</td>
<td>15</td>
</tr>
<tr>
<td>Capacity</td>
<td>75 gpm</td>
</tr>
<tr>
<td>Head</td>
<td>50 ft.</td>
</tr>
</tbody>
</table>

**Condition Assessment:** Two plunger pumps (150 gpm) no longer used. Old, but serviceable. Pumps will need replacement in near future. Two pumps rebuilt in last 10 years. One pump is four years old.

**Primary Sludge Pumps**

**Flow Stream Pumped:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Allis Chalmer Centrifugal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pumps</td>
<td>10</td>
</tr>
<tr>
<td>HP</td>
<td>2.5</td>
</tr>
<tr>
<td>Capacity</td>
<td>1000 gpm</td>
</tr>
<tr>
<td>Head</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Condition Assessment:** Old, but serviceable. Pumps will need replacement in near future. Five of 10 pumps rebuilt in last six years.

**RAS Pumps**
Flow Stream Pumped: WAS

<table>
<thead>
<tr>
<th>Type</th>
<th>Allis Chalmer Centrifugal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pumps:</td>
<td>3</td>
</tr>
<tr>
<td>HP:</td>
<td>Unknown</td>
</tr>
<tr>
<td>Capacity:</td>
<td>220 gpm</td>
</tr>
<tr>
<td>Head:</td>
<td>25 ft.</td>
</tr>
</tbody>
</table>

Condition Assessment: Old, but serviceable. Pumps will need replacement in near future.

Flow Stream Pumped: Scum

<table>
<thead>
<tr>
<th>Type</th>
<th>Allis Chalmer Centrifugal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pumps:</td>
<td>2</td>
</tr>
<tr>
<td>HP:</td>
<td>3</td>
</tr>
<tr>
<td>Capacity:</td>
<td>200 gpm</td>
</tr>
<tr>
<td>Head:</td>
<td>1 @ 15 ft., 1 @ 25 ft.</td>
</tr>
</tbody>
</table>

Condition Assessment: Old, but serviceable. Pumps will need replacement in near future.
### Flow Stream Pumped: Secondary Effluent

<table>
<thead>
<tr>
<th>Type</th>
<th>Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pumps</td>
<td>3</td>
</tr>
<tr>
<td>Mfr</td>
<td>US Filter (Passavant)</td>
</tr>
<tr>
<td>HP</td>
<td>100</td>
</tr>
<tr>
<td>Capacity</td>
<td>13,000 gpm</td>
</tr>
<tr>
<td>Head</td>
<td>20 ft.</td>
</tr>
</tbody>
</table>

**Condition Assessment:** Old, but serviceable. All three motors rebuilt in last 10 years.

### Flow Stream Pumped: Backwash Supply

<table>
<thead>
<tr>
<th>Type</th>
<th>Allis Chalmer Centrifugal</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pumps</td>
<td>1</td>
</tr>
<tr>
<td>HP</td>
<td>100</td>
</tr>
<tr>
<td>Capacity</td>
<td>11,000 gpm</td>
</tr>
<tr>
<td>Head</td>
<td>23 ft.</td>
</tr>
</tbody>
</table>

**Condition Assessment:** Like new
11. Sludge Treatment (Anaerobic):

Digesters:

No. of Digesters: 2 (Primary and Secondary)  
Diameter (ft): 70  
Sidewall Depth(ft): Prim. @ 25 ft., Sec. @ 27 ft.  
Floating Cover? Secondary only

Heating:

Manufacturer: PFT  
Capacity (10^6 BTU/hr): 2 @ 750, 1 @ 125

Mixing:

Manufacturer: Dorr Oliver  
Type: Draft Tube  
No. of Units: 3 @ 7,500 gpm each  
HP: 7.5

Sampling Ports: 1  
Mode of Operation: Raw sludge to digester. Continuous heat, mixing and recirculation.

Comments: 2 – 150 gpm centrifugal recirculation pumps and 1 – 150 gpm plunger pump for digested sludge

Condition Assessment: In good condition for the age of the equipment.
12. Dewatering:

Type of Unit(s): Belt Filter Press
No. of Units: 2
Manufacturer: Ashbrook
Model: 2.2 meter
Loading Rate (Design)(lb/hr): 1,500 lbs./hr.
Cake Solids (Operating)(% solids): 17%
Hours of Operation (Design)(hrs/wk): Continuous
Hours of Operation (Operating)(hrs/wk): 1 unit - 24 hrs./day, 3 days/wk.

Condition Assessment: Look nearly new

13. Incineration:

No. of Units: 1
Manufacturer: Nichols
Diameter: 22
No. of Hearths: 7
Loading Rate (Design)(lb/hr): 16,000 wet lbs./hr or ~2 dry ton.hr.
Hours of Operation (Design)(hrs/wk): 24 hrs/day, 7 days/wk.
Hours of Operation (Operating)(hrs/wk): 24 hrs/day, 3 days/wk.

Condition Assessment: Serviceable
East Boulevard Plant

1. Grit Removal:

Description of Unit: Aerated grit chamber
No. of Units: Two
Dimensions: 30’ x 20’ x 13’ SWD each

Grit Volume:

Normal: <5 cy/mo
Removal: Clamshell bucket

Comments: 2-120 cfm positive displacement blowers provide aeration

Condition Assessment: Generally in good condition, but will require periodic diffuser replacement (every 5-7 years) and regular blower maintenance.
2. Screening:

**Mechanical Bar Screens:**

- No. of Units: One
- Bar Screen Width: 66-in.
- Within Building?: Yes
- Heated?: Yes
- Description of Operation/Control: Timer and headloss

**Condition Assessment:** Units are nearing the end of useful life and should be replaced, but are currently functional. Consider replacing with units with ¼-in. openings for more efficient removal. New rack installed in 2006.

**Manually-Cleaned Bar Rack:**

- No. of Units: One
- Width (in.): 66-in.
- Bar Spacing (in.): 3/4-in.
- Within Building?: Yes
- Heated?: Yes
- Description of Operation: Mechanically raked

**Condition Assessment:** Unit is in good condition.

**Screenings Volume:**

- Normal: 2.5 cy/wk.
- Disposal Method: Rolling carts
3. **Primary Clarifiers:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Two</td>
</tr>
<tr>
<td>Surface Dimensions</td>
<td>100-ft. dia.</td>
</tr>
<tr>
<td>Water Depth (shallowest) (ft.)</td>
<td>10 (new), 8.5 (old)</td>
</tr>
<tr>
<td>Water Depth (deepest) (ft.)</td>
<td>14 (new), (?) (old)</td>
</tr>
<tr>
<td>Weir Location</td>
<td>Peripheral</td>
</tr>
<tr>
<td>Weir Length (ft.)</td>
<td>314 ea.</td>
</tr>
<tr>
<td>Total Surface Area (sf)</td>
<td>7,853 ea.</td>
</tr>
<tr>
<td>Flow (Design) (mgd)</td>
<td>$\frac{8.6}{2} = 4.3$</td>
</tr>
<tr>
<td>Flow (Operating) (mgd)</td>
<td>$\frac{3.4}{2} = 1.7$</td>
</tr>
<tr>
<td>Weir Overflow Rate (Design) (gpd/ft)</td>
<td>13,700</td>
</tr>
<tr>
<td>Weir Overflow Rate (Operating) (gpd/ft)</td>
<td>5,415</td>
</tr>
<tr>
<td>Surface Settling Rate (Design) (gpd/ft$^2$)</td>
<td>550</td>
</tr>
<tr>
<td>Surface Settling Rate (Operating) (gpd/ft$^2$)</td>
<td>216</td>
</tr>
</tbody>
</table>

**Collector Mechanism HP:** 1/2

**Sludge Collection and Treatment:** Sludge and scum pumped to anaerobic digester

**Scum Treatment and Disposal:** Pumped to anaerobic digester

**Condition Assessment:** New (1972) primary clarifier and old (1952) primary clarifier are old, but are beyond expected useful life. Older unit does not meet Ten States Stds. for required depth. Odor and corrosion problems were observed. Consider taking one unit out of service under current flow rate. Drives will need periodic maintenance and replacement.
4. **Aeration Basins:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Four</td>
</tr>
<tr>
<td>Surface Dimensions</td>
<td>179’ x 40’ x 11’ SWD</td>
</tr>
<tr>
<td>Total Volume (cf)</td>
<td>315,040</td>
</tr>
<tr>
<td>Flow (Design) (mgd)</td>
<td>8.6</td>
</tr>
<tr>
<td>Flow (Operating) (mgd)</td>
<td>3.4</td>
</tr>
<tr>
<td>Wastewater Detention Time (Design) (hrs.)</td>
<td>6.6</td>
</tr>
<tr>
<td>Wastewater Detention Time (Operating) (hrs.)</td>
<td>16.6</td>
</tr>
<tr>
<td>BOD₅ Loading (Design) (lb/1000 cf)</td>
<td>9.5</td>
</tr>
<tr>
<td>BOD₅ Loading (Operating) (lb/1000 cf)</td>
<td>10.6</td>
</tr>
<tr>
<td>Covered?</td>
<td>No</td>
</tr>
<tr>
<td>Comments:</td>
<td>Two of the basins are currently operating as A/O process (anaerobic/oxic). Each A/O basin includes two anaerobic zones (mixers with no aeration, and intermediate baffles (curtains))</td>
</tr>
<tr>
<td>Condition Assessment:</td>
<td>Need concrete repairs and handrails. Consider economics of using fine bubble diffused aeration with D.O. control.</td>
</tr>
</tbody>
</table>

![Aeration Basins](image1.png)  ![Anaerobic Zones](image2.png)
5. Oxygen Supply:

Diffused Aeration:

Blowers:

No. of Blowers: 3 elec., 1 gas  
Mfr.: Roots  
Type: Positive displacement  
HP: 60, 100, 125  
Rated Capacity (cfm): 1,400, 2,100, 3,500 and 3,500 (gas)

Condition Assessment: Units have exceeded useful life and should be replaced, but are currently serviceable. Gas-driven blower used continuously.

Diffusers:

Type: Coarse bubble  
Manufacturer: Unknown  
Water Depth: 10.3 ft.

Condition Assessment: New diffusers in #2 & #3 tanks in last five years. Consider economics of changing to fine bubble diffused aeration system.
6. Secondary Clarifiers:

Number: Four  
Surface Dimensions: Rectangular - 101’ x 33’ x 9.5’ SWD  
Weir/Launer Location: End  
Total Surface Area (sf): 3,333/tank, 13,332 total  
Total Volume (cf): 31,663/tank, 126,654 total  
Flow (Design) (mgd): 8.6  
Flow (Operating) (mgd): 3.4  
Surface Settling Rate (Design) (gpd/ft^2): 645  
Surface Settling Rate (Operating) (gpd/ft^2): 285  
Hydraulic Detention Time (Design)(hrs.): 2.65  
Hydraulic Detention Time (Operating)(hrs.) 6.69  
Collector Mechanism: Chain and Flight  
HP: Unknown  
Sludge Collection and Removal: Sludge returned to aeration tanks or wasted to anaerobic digesters.

Condition Assessment: Clarifiers do not meet current 10-States standards for required depth. These should be replaced with deeper clarifiers.
7. **Sludge Handling Facilities:**

**Primary Sludge:**

- **Description of Pumping Operation:** Cycle timer
- **Method of Sludge Volume Measurement:** Meter on total discharge
- **Sampling Location:** Pump discharge
- **Sampling Procedure:** Multiple grabs for composite

**Condition Assessment:** Pumps are at end of useful life (30-40 years old) and should be replaced.

**Return Sludge:**

- **Description of Sludge Movement:** RAS flows by gravity to telescoping valves, then into pit, then to pumps.
- **Controllable Capacity Ranges:** Unknown
- **Method of Control:** Constant speed
- **Method of RAS Volume Msmt:** Flow meter on sludge withdrawal line
- **Comments:** Difficult to automate due to telescoping valves.

**Condition Assessment:** Pumps are at end of useful life (30-40 years old) and should be replaced.

**Waste Sludge:**

- **Description of Waste Procedure:** On a timed basis (usually 2 hrs.)
- **Method of WAS Volume Measurement:** Flow meter
- **Sampling Location:** Discharge line
- **Sampling Procedure:** Composite

**Condition Assessment:**

- Pumps are at end of useful life (30-40 years old) and should be replaced.
8. Pumping Equipment

<table>
<thead>
<tr>
<th>Flow Stream Pumped:</th>
<th>Primary Sludge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>Wemco</td>
</tr>
<tr>
<td>No. of Pumps:</td>
<td>2</td>
</tr>
<tr>
<td>HP:</td>
<td>15</td>
</tr>
<tr>
<td>Capacity:</td>
<td>150 gpm</td>
</tr>
<tr>
<td>Head:</td>
<td>50 ft.</td>
</tr>
<tr>
<td>Condition Assessment:</td>
<td>Pumps are at end of useful life (30-40 years old) and should be replaced. S. Primary pump rebuilt in last 5 years.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow Stream Pumped:</th>
<th>RAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>Centrifugal</td>
</tr>
<tr>
<td>No. of Pumps:</td>
<td>6</td>
</tr>
<tr>
<td>Capacity:</td>
<td>4 pumps @ 1000 gpm @ 60’ (7.5 HP)</td>
</tr>
<tr>
<td></td>
<td>2 pumps @ 600 gpm @ 10’ (5 HP)</td>
</tr>
<tr>
<td>Condition Assessment:</td>
<td>Pumps are at end of useful life (30-40 years old) and should be replaced. Three of six pumps rebuilt in last five years.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow Stream Pumped:</th>
<th>WAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>Centrifugal</td>
</tr>
<tr>
<td>No. of Pumps:</td>
<td>2</td>
</tr>
<tr>
<td>HP:</td>
<td>Unknown</td>
</tr>
<tr>
<td>Capacity:</td>
<td>1 pump @ 150 gpm @ 22’</td>
</tr>
<tr>
<td></td>
<td>1 pump @ 350 gpm @ 20’</td>
</tr>
<tr>
<td>Condition Assessment:</td>
<td>Pumps are at end of useful life (30-40 years old) and should be replaced. #1 pump rebuilt in last eight years.</td>
</tr>
</tbody>
</table>
9. **Sludge Treatment (Anaerobic):**

**Digesters:**

- No. of Digesters: 2 (Primary and Secondary)
- Diameter (ft): 75
- Sidewall Depth (ft): 27'
- Floating Cover?: No

**Heating:**

- Manufacturer: PFT
- Capacity (10^6 BTU/hr): 2 @ 750

**Mixing:**

- Manufacturer: Pearth
- Type: Multiple Lance gas recirculation
- No. of Units: 1 @ 150 gpm each

**Mode of Operation:** Raw sludge to digester. Continuous heat, mixing and recirculation.

**Comments:** 2 – 150 gpm centrifugal recirculation pumps and 1 – 150 gpm plunger pump for digested sludge

**Condition Assessment:** In good condition for the age of the equipment.
10. Flow Equalization:

Number of Tanks: One
Capacity: 3.5 MG
Dimensions: 235’ dia. x 14’ SWD

Operation: Flow is routed through the new primary clarifier to the EQ tank. Pumps return the flow to the clarifier as flows recede.

Condition Assessment: Appears to be in good condition. Ozone system for odor control has not been used.