

APPENDIX A

Existing WWTP Information

Existing WWTP O&M Information

Table A.1: Existing WWTP Equipment Capacities

Equipment	No.	Capacity Each	Total Capacity	Equipment Details
Influent Climber Screen	1	--	2.0 mgd	Parkson Aqua-Guard Model AG-MN-A, 6 mm, 75 degree (Rebuild in 2012) 1 HP motor, 24" wide channel.
Influent Pumps	2	1,300 gpm	Est. 1,300 gpm	Gorman Rupp T-6 Series (T6A3-B), 30 HP each
EQ Pumps	2	1,100 gpm	Est. 1,500 gpm two running	Gorman Rupp V-series (V6A60-B), 20 HP each
EQ Basins	2	330,000 gal	660,000 gal	Each basin 47' x 60', 15.5 SWD One 7.5 HP Aqua Jet Surface Mechanical Aerators per Basin (1989)
Package Plants	2	0.375 mgd each	0.75 gpm	Walker Process (1977 and 1988). Each plant 68 ft inner diameter with 26 ft inner dia clarifier
Aeration Tanks (Outer Ring)	2	241,000 gal	482,000 gal	Each basin 21'W x 11 feet deep Parkson Wyss Flex A tube diffusers (installed 10 years ago)
Clarifier (inner circle in package plant)	2	300 gpm	600 gpm	Clarifier dia = 26 feet, depth 10.5 feet. Metal walls. Surface area = 530 sq ft each, volume = 41,600 gal each 1 HP motor, 1 rev every 15 minutes
Aeration Blowers	2	~ 800 SCFM	Est. 1600 SCFM	Sutorbilt Model 7MP, 40 HP each, 1575 rpm
WAS Pumps	2	~ 400 SCFM	Est. 800 SCFM	Sutorbilt Model 7 MP 20 HP each, 850 rpm
	2	150 gpm	150 gpm	Gorman Rupp, 3 HP each
Tertiary Filters	3	250 gpm (solids) 200 gpm (denitrification)	750 gpm (1.08mgd) 600 gpm (0.86 mgd)	Parkson Dynasand Upflow, 50 sq ft surface area per filter (1989). Reported as 1.12 mgd capacity in original design criteria.
Filter Compressor	2	--	--	7.5 HP unit each, one duty one standby
UV Disinfection	1	-	0.75 gpm avg 1.875 gpm peak 200 fecal/100 ml	Trojan 3000 Plus, 2 banks, 65% transmittance
Cascade Aeration Structure	1	--	~ 1.25 mgd @ 3.0 mg/L Infl. DO to structure	Seven (7), 5-foot wide, 12-inch high steps. Flow capacity based on 250,000 per width of step
Digester Tanks	2	75,000 gal	150,000 gal	Trapezoidal basins, 60'L x 35'W each, 9' SWD
Digester Blowers	2	500 SCFM	1,000 SCFM	Lamson 400 series Model 410-AS, 20 HP each. 4.5 psi discharge pressure.
Rotary Drum Thickener	1	--	75 pgm @ 0.5 to 1.0% sludge feed	Parkson Roto-Guard Model 200-X - 1.0 (1989)

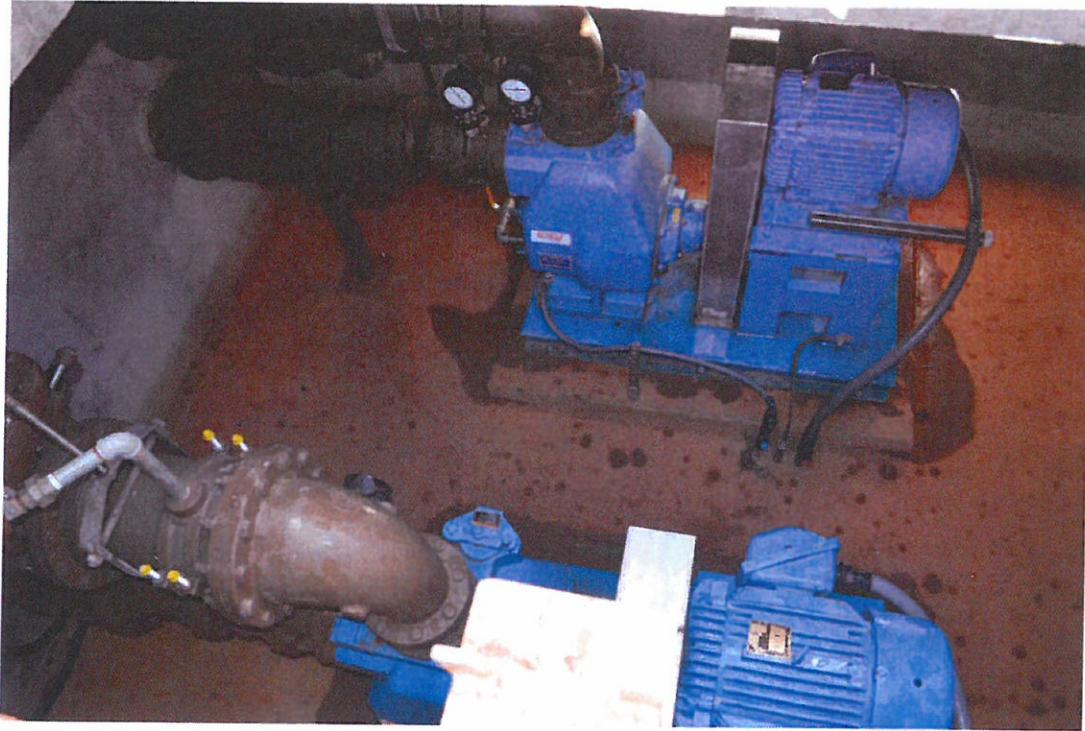
EXISTING PITTSBORO WWTP
PHOTOGRAPHS



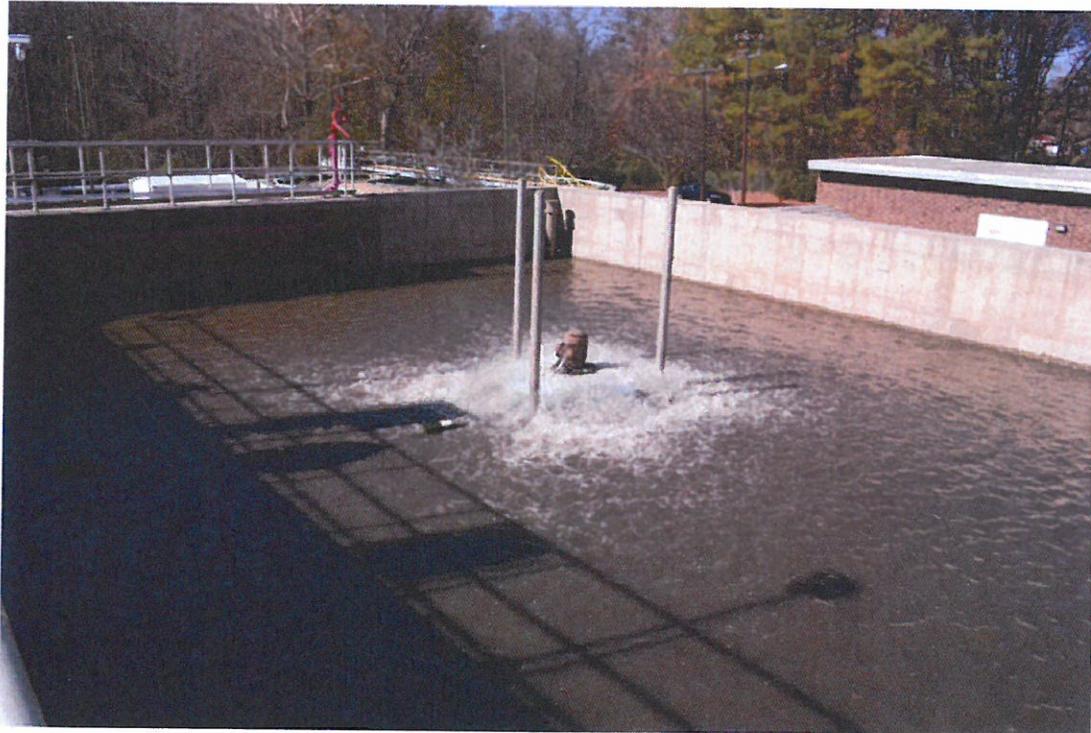
Influent Climber Screen



Influent Pump (one of two)



Equalization Tank Feed Pumps



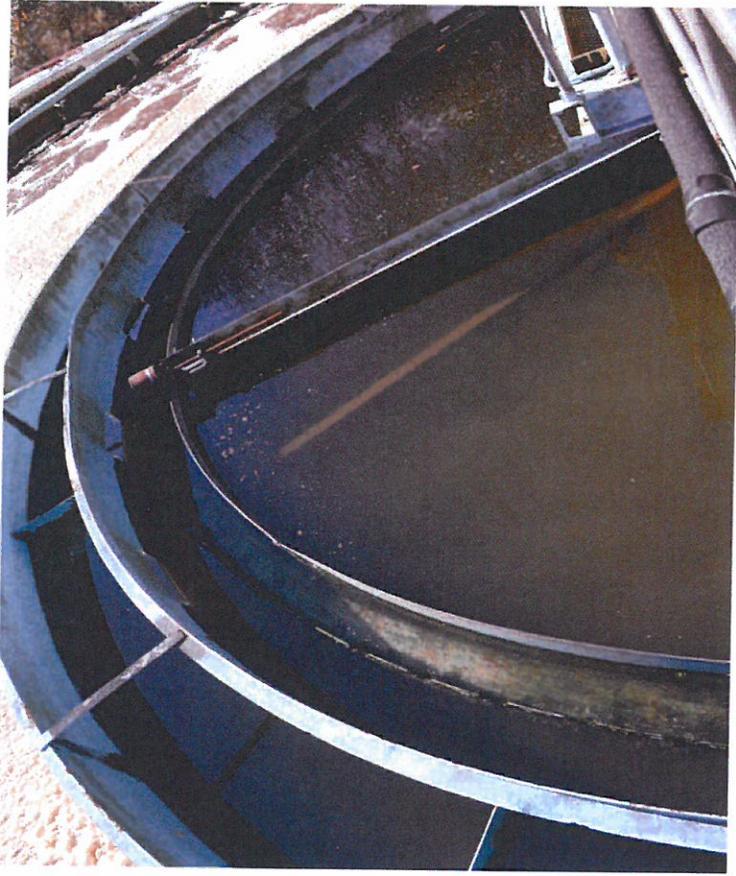
Equalization Tank (one of two)



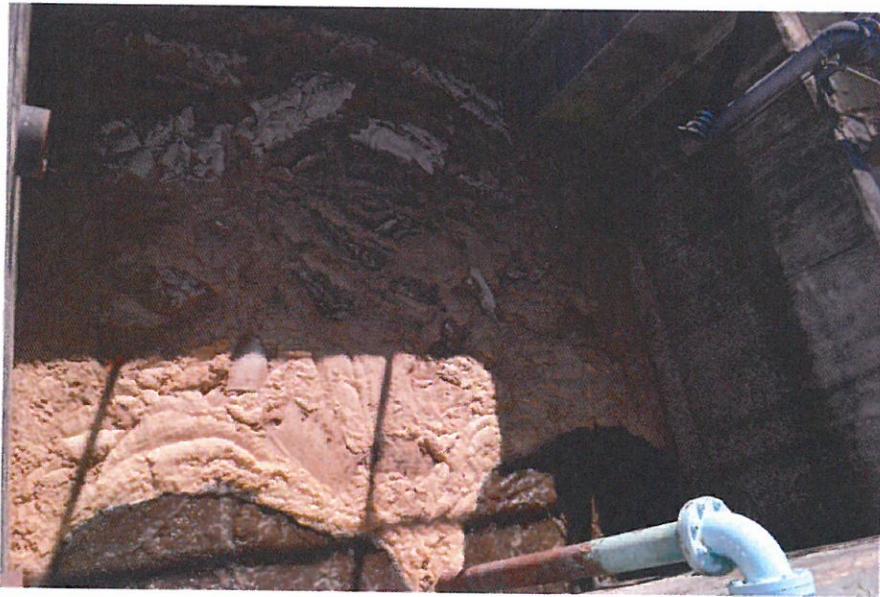
Influent Splitter Box and Sampler



Package Plant (one of two)



Clarifier (Center of Package Plant)



Package Plant Scum Digester Box (one of two)



Tertiary Filters (below grade Dynasand Filters)



UV Disinfection (only right-hand side is functional)



Reclaim Water System Building (effluent sampler on left)



Reclaim Water Pump and Control Valve



Waste Activated Sludge Pump (inside shelter)



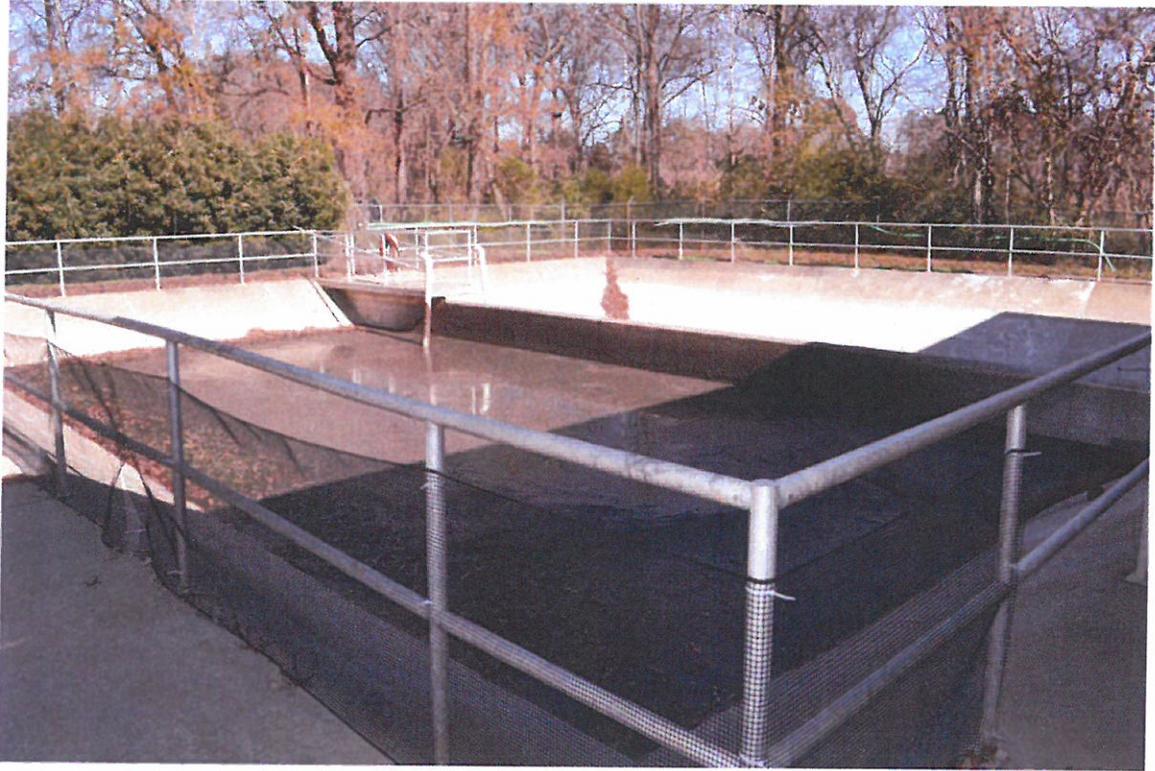
Rotary Drum Thickener



Chemical Storage Area (Sodium aluminate, Polyaluminum, and caustic tanks)



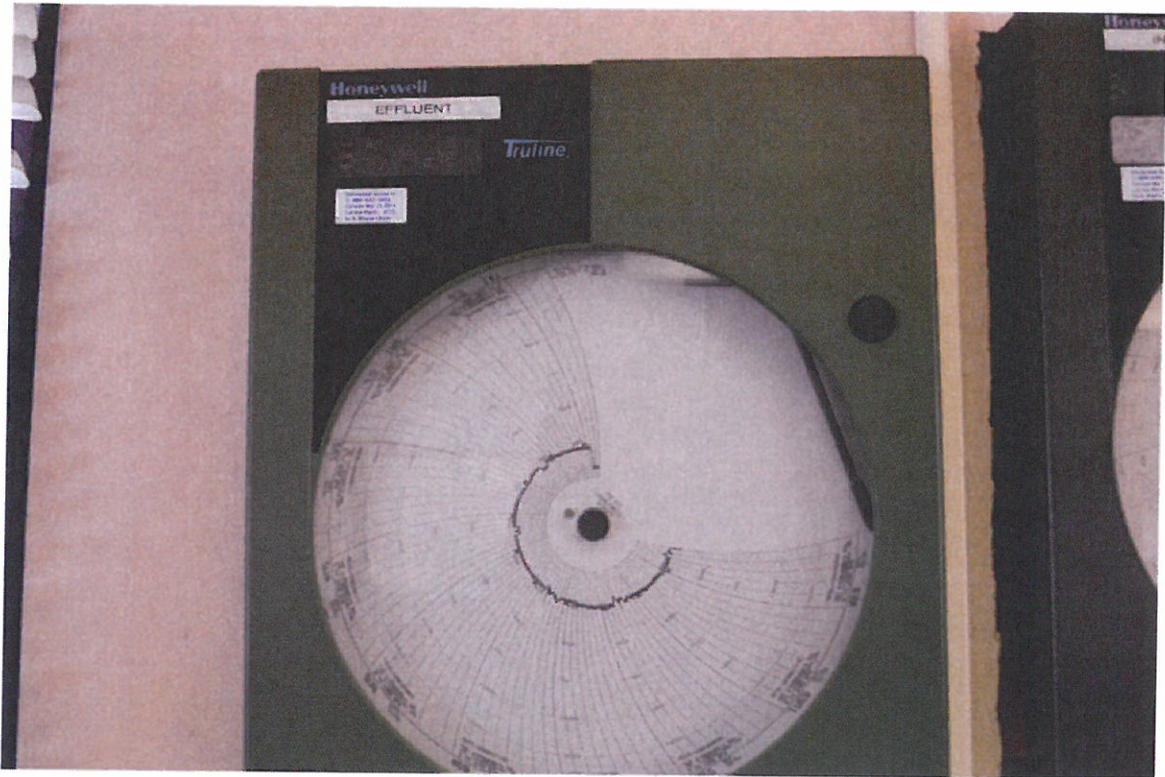
Polymer Addition System



Digester Basin (one of two)



Air Header Bottom of Digesters (sparger type)



Influent Chart Recorder



WWTP Generator

Parkson Bar Screen
 Aqua-Guard
 Model AG-MN-A 75 degree
 Machine width 22 1/2"
 Screen Elements 6mm
 Rebuilt 1st qt 2012

Installed 1989-1990 est.
 1 hp 240 volt
 3ph 3.8 Flamp
 56-C frame
 1750 RPMs
 Motor Rotation CW
 Flow Rate 1.0 MGD est.

Maintenance

Grease all fittings min of once per month
 Grease brush chain once per Quarter
 Check speed reducer oil level per Quarter
 Change oil yearly
 Grease motor once a year
 Wash down weekly also clean brush area

Screen will operate in hand or auto position

In hand position runs continues

In Auto screen runs in three different modes

Set time on set time off

Flow dependence calculates how often it needs to run and how long

Temperature control a Example 33 F it would start running and run until temperature hits 38 F

All setting can be set at HMI station

Electrical as of 9/2013

AMPS	A	B	C
	2.7	2.7	2.3
Volts	A-B	B-C	C-A
	243.7	244.4	244.6
Volts	A	B	C
Gr	119.6	124.3	2113

Winsmith speed reducer

Model 8MSFD
 Date 11-2011
 1800 RPM input
 750 RPM output
 Output torque 9805
 Lub AGMA-8
 Temp range 51-110 F

Gorman Rupp EQ Pump Station
Serviced by Tencarva

Model V6A60-B 20 hp 240 volt
1100 GPM 3ph
32ft TDH 48 amps

V-Belt driven 5VX170 requires 2 per/pump
Thermostat mounted on pump foot, to shut down
motor if pump reaches set temperature
Pumps can operate in Hand or Auto
Pumps operate at set levels and controlled by PLC
and transducer at influent station
Pumps can also operate by floats that are set in the
influent wet well
EQ pumps operate off Kohler 230 generator
during power outage
Maintenance
Check oil levels Quarterly
Check belts for proper tension Quarterly
Check auto air release valves operate Quarterly

Amps	A	B	C
	38	38	39
Volts	A-B	B-C	C-A
	244.2	244.3	244
	A-G	B-G	C-G
	120.1	124	211.6

Gorman Pupp Influent Pump Station

Model T6A3-B	30 HP 240 volt
1200 GPM	3ph
41 ft TDH	65 amps

V-Belt driven

Pumps operate in hand or auto

Pumps operate in drive or bypass mode

Pumps operate off transducer controled

by PLC, also can operate by floats

PLC bypass fuction is in place to check floats

Low float fail switch is in place if float goes bad

Pumps operate in a set flow mode or

level mode

Pumps can operate in hand, hz can be set on drive for correct GPM

Flow can be change at HMIs

Pump curve can be changed at HMIs

Maintenance Tune pump response by adjusting the Flow loop

Check oil levels Quarterly Gain .175 Rest 36.0

Check belts for proper tension Quarterly

Check auto air release valves operate Quarterly

Notes

If pump A or B will not run in auto or hand use low float bypass switch

If Hz and amps information is missing from display on drive recycle power

by shutting down main breaker for each pump located inside cabinet use caution

Quarterly run pumps on floats and check high level alarm float, this can be done by pulling green cable at influent station

It would also be good to pull down influent wet well to verified low level float (stop) once every quarter

Transducer should be pulled and cleaned once every quarter

Serviced by Tencarva

Haywood Gordan RAS Pump Station

Hayward Gordon Torus XR4(8)

Centrifugal Recessed Impeller Only one piped in now

100-300 gpm

3HP

2.5 ft TDH 22ft TDH

3ph

Min 5 ft NPSH

240 volts

Flamps 9

Pumps operate at consent flow, this flow is set by operator on touch screen at RAS station on the HMI control page

Pumps can operate in hand, hz can be set on drive for correct GPM

Pump 1 Operates basin 2

Pump 2 Works as spare for 1 or 2

Pump 3 Operates basin 1

Drive information

Pump 1 Hz range is 30--60 hz

Pump 2 hz range is 25--60hz

Pump 3 hz range is 25--60hz

Pump 1 rpms are ranged 572--600

Pump 3 rpms are ranged 521--531

(Note) Pump 1 variable speed pulley has be adjusted to a larger diameter to aid in priming you will see the Hz different between P-1 and P-2

All three pumps still use the same size belts

All three pumps have variable speed pulleys on motors check manual on adjustment

Alarms must be cleared for pumps to restart in auto, use touch sceen alarms

If Hz and amps information is missing from display on drive recycle power

this can be done by pulling down disconnect then back up

Maintenance

Check oil levels monthly

Check belts for proper tension monthly

Check auto air release valves operate monthly

Every 2 months flush discharge line with fresh water using 1/2" hose hookup shut suction valve and 1/2" bypass line, run until clear

Basin 1 Clarifier Drive

1 HP	Winsmith 7 CVD
1800 RPMs	Double Reduction
240 volts	Worm gear type
3ph	Rotation 1800--1
2.5 fl amps	Number 80# drive chain 86 links
Motor Pully 2ak30h 3" od	Gearbox pully 2ak84h 8.00" od
H Bushing 5/8" bore	H bushing 3/4" bore
Motor Rotation CW pulley	Torque tube bearing size 2 1/2"
	Top torque bearing is double

Belts A-40

Clarifier sweep makes one revaluation every 15mins
Gearbox uses 90wt gear oil, set screws located on side to check oil level, do not over fill
Grease fitting located on top of gearbox ,is to lubricate top gearbox bearing this bearing does not get lubricated by oil
Grease fitting on input stage are to lubricate end bearings.
This section also uses 90wt gear oil, set screw for checking oil level
Under normal condition you should stop look and listen to drive assy daily every three months you should check oil level and apply grease. No more than 2-4 pumps in bear box bearings, torque tube bearings will require several pumps 5-10, lower bearing may require more 10-15 pumps
Grease gun located in digester blower room behind door is for greasing sweep end roller bearings 4-5 pumps
Grease is good to apply to number 80 drive chain
Drive chain can be tighten by loosing 4 1/2 bolts with 3/4 wrench then using 15/16 wrench threaded rod located on one end of box

Basin 2 Clarifier Drive

1 HP	Winsmith 7 CVD
1800 RPMs	Double Reduction
240 volts	Worm gear type
3ph	Rototion 1800--1
2.5 fl amps	Number 80# drive chain 86 links
Motor Pully 2ak30h 3" od	Gearbox pully 2ak84h 8.00" od
H Bushing 5/8" bore	h bushing 3/4" bore
Motor Rotation CW pulley	Drive sprocket 13 tooth
	1 3/4" bore
	Torque tube bearing size 2 1/2"

Belts A-40

Clarifier sweep makes one revaluation every 15mins

Gearbox uses 90wt gear oil, set screws located on side to check oil level, do not over fill

Grease fitting located on top of gearbox ,is to lubricate top gearbox bearing this bearing does not get lubricated by oil

Grease fitting on input stage are to lubricate end bearings.

This section also uses 90wt gear oil, set screw for checking oil level

Under normal condition you should stop look and listen to drive assy daily every three months you should check oil level and apply grease. No more than 2-4 pumps in bear box bearings, torque tube bearings will require several pumps 5-10, lower bearing may require more 10-15 pumps

Grease gun located in digester blower room behind door is for greasing sweep end roller bearings 4-5 pumps

Grease is good to apply to number 80 drive chain

Drive chain can be tighten by loosing 4 1/2 bolts with 3/4 wrench then using 15/16 wrench threaded rod located on one end of box

Basin Blower 1

1800 RPMs

240 volts

256t frame

FI amps 50

Motor Rotation CW pulley

Blower is positive displacement never operate with all valves closed

Blower system is design to operate at 6.5 psi

Pressure reliefs are set for 7.0 psi

Oil should be checked weekly

Oil should run min 1/2 of sight glass

Never run if no oil is visible in sight glass

Blower bearings should be greased quarterly using 3-4 pumps

Blower oil should be changed once a year

Belts should be checked monthly or when you hear them slip

Belts should be changed when belts sets down in pulley so top of belt is flush

Install cleaned intake filters every quarterly

Clean dirty filters for next time (replace as needed with new filters)

Use Mobile 10W-30 full synthetic

Grease should be synthetic high temp.

Sutorbilt rotary positive blower

Model 7mb

Blower rpms 622 or 850

Minimum RPM 622

9/19/13 RPMs 872

Electrical as of 9/2013

AMPS	A	B	C
	49	46.6	47.7
Volts	A-B	B-C	C-A
	244.6	244.3	244.9

Pulley and Belts 9/2013

Motor 5 1/4" face X 1 5/8" H bushing
Blower-10 1/4"faceX1 9/16"H bushing
Belts 3VX950 takes (4)

Volts	A	B	C
Gr	124.6	120.4	212.3

Basin Blower 2

40 Hp	Sutorbilt rotary positive blower
1800 RPMs	Model 7mb
240 volts	Blower rpms 1120 or 1575
3ph Flamps 95	9/19/13 RPMs 1239

Motor Rotation CW pulley

Blower is positive displacement never operate with all valves closed

Blower system is design to operate at 6.5 psi

Pressure reliefs are set for 7.0 psi

Oil should be checked weekly

Oil should run min 1/2 of sight glass

Never run if no oil is visible in sight glass

Blower bearings should be greased quarterly using 3-4 pumps

Blower oil should be changed once a year

Belts should be checked monthly or when you hear them slip

Belts should be changed when belts sets down in pully so top of belt is flush

Install cleaned intake filters every quarterly

Clean dirty filters for next time (replace as needed with new filters)

Use Mobile 10W-30 full synthetic

Grease should be synthetic high temp.

Install cleaned intake filters every quarterly

Clean dirty filters for next time (replace as needed with new filters)

Basin Blower 4

40 Hp
1800 RPMs
240 volts
3ph
frame

Sutorbilt rotary positive blower
Model 7mb
Blower rpms 1500
9/2013 RPMs 1513

FI amps 96

Motor Rotation CW pulley

Blower is positive displacement never operate with all valves closed

Blower system is design to operate at 6.5 psi

Pressure reliefs are set for 7.0 psi

Oil should be checked weekly

Oil should run min 1/2 of sight glass

Never run if no oil is visible in sight glass

Blower bearings should be greased quarterly using 3-4 pumps

Blower oil should be changed once a year

Belts should be checked monthly or when you hear them slip

Belts should be changed when belts sets down in pully so top of belt is flush

Install cleaned intake filters every quarterly

Clean dirty filters for next time (replace as needed with new filters)

Use Mobile 10W-30 full synthetic

Grease should be synthetic high temp.

Electrical as of 9/2013

AMPS	A	B	C
	60	74.3	60
Volts	A-B	B-C	C-A
	243.3	243.6	243
Volts	A	B	C
Gr	119.1	123.7	211.3

Pulley and Belts 9/2013

Motor 8 1/4" face X 2 1/8" H bushing
Blower-9 3/4"faceX1 9/16"H bushing
Belts 5VX1000 takes (3)

AMPS	A	B	C
	67	68	67.3
Volts	A-B	B-C	C-A
	242.2	242.7	241.8
Volts	A	B	C
Gr	119.1	123.5	211

Motor 7 3/4" face X 2 1/8" H bushing
Blower-10 3/4"faceX1 9/16"H bushing
Belts 5VX1000 takes (3)
9/19/13 RPMs 1239

Trojan UV 3000 Plus Date Jan 2010

Peak Flow 1.875 MGD

Min Flow 0.1 MGD

TSS <30mg/l based on 30 day avg

Percent Transmittance 65% at 253.7 nm

Max mean Particle size 30 microns

Disinfection Standards-- <200 Fecal Coliforms/100ml 30 day geo means

< 400 Fecal Coliforms / 100ml 7 days geo means

480 volts

Voltage is stepped up

By transformers

System will operate in remote auto or hand

Hand mode gives you both banks 100%

System is checked daily for any function alarms

All information is recorded

Peak Flow set 521 gpm

Peak Channel flow 1,000 gpm

Service By Peidmount Techincal

Randy Bos --919-697-0288

Sherri Bos--919-697-0128

Parkson Rotor Drum Delivery date 1990
Model 2000-x-1.0
Piping Connection 4" inlet and 8" outlet
Drum Perforations 1.0mm
Drum RPM 5-25

Drive unit –Eurodrive
Model - R40D12BDT80K4Z
230-460 volt 3Ph 60Hz
HP--.75
Amp load 3.05
RPM-22-110

Currently at PITT WWTP drum operates with a flow of 25-35
GPM , polymer feed 15-18 MLs per min with 5-6 GPM pota le
chase water delivering to sludge
Unit operates 4-6 hours per day 7 days per week
Unit is cleaned and Lub once per week
Potable water at 50-60- PSI on spray bar

Last current test off thickener for solids percent was 10%

Digester Blower-2
Lamson 400 Series Direct Drive
Model 410-AD
20 hp
3450 rpms
240 volts
3ph
50 Full amp Load

Each unit has inline swing check valve that allows independent operation without shutting valves

1oz of grease should be applied every 2000 hrs/83 days or once a quarter to blower bearings: If running 24-7 a week Motor should have one to two pumps of grease twice per year

Intake filters should be cleaned quarterly

Daily inspection when operating is important look at temp, amps and listen for changes

\ **Digester Blower-1**
Lamson 400 Series Direct Drive
Model 410-AD
20 hp
3450 rpms
240 volts
3ph
50 Full amp Load

Each unit has inline swing check valve that allows independent operation without shutting valves

1oz of grease should be applied every 2000 hrs/83 days or once a quarter to blower bearings: If running 24-7 a week Motor should have one to two pumps of grease twice per year

Intake filters should be cleaned quarterly

Daily inspection when operating is important look at temp, amps and listen for changes

Ingerall Rand Air Compressor
Contionus Parkson Sand filter

Gorman-Rupp Waste pump station

Model T4A3-B	3 HP 240 volts
150 GPM	3ph
20ft TDH	8.4 Flamps
4ft NPSH	VFD drive

Pumps operate from control panel in sludge building

Pumps can operate from control panel at pump station

Pumps have a 3-way valve between them and should be exercised twice a year

Check valves have removable tops for cleaning and service
Maintenance

Check oil levels quarterly

Oil should run min 1/2 of sight glass (30wt) oil

Check belts for proper tension quarterly

Serviced by Tencarva