

Committed to our communities. Protecting tomorrow's water resources by treating today's wastewater through innovation and superior level of service.

Headworks Improvements & Effluent Pump Station Project

Veronica Cazares, District Engineer
vcazares@skfcsd.org



Project Scope




- Replacement of equipment
- Rehabilitation of headwork's structure, coatings, concrete repair
- Replacement of wire from clarifier drives, effluent pump station, headwork's
- New grating and railing
- New automatic gates
- New grit tank air diffusers
- New MCC building
- New hydrogritter
- Automation of headwork's/effluent units

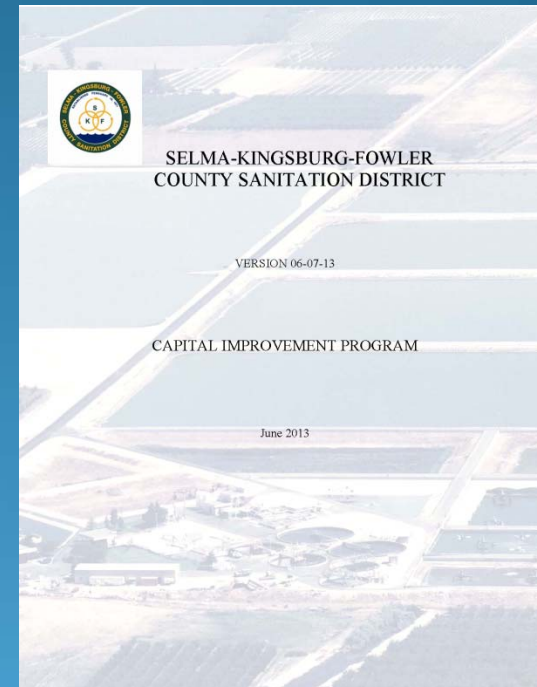
Capital Improvement Program

- Developed 10-year CIP in 2009
- Identified in the CIP


FORM B

**SELMA-KINGSBURG-FOWLER COUNTY SANITATION DISTRICT
CAPITAL IMPROVEMENT PROJECT REQUEST**

1. Project Title: Headworks Improvement Project											
2. Project Cost: \$ 4,566,631											
3. Purpose of Project: () Add a new item to the program () Delete an item in a year already a part of the program (x) Modify a project already in the adopted program		 									
4. Priority: 1											
5. Location: WWTP											
6. Description: This project consists of preparing the headwork's channels and grit tanks for the placement of a protective coating to increase the life of the structure. The work will also include replacing the grit system with a new grit system including pumps and piping. Replace screw lifts 1-5 and add a 6th screw. Replace MCC and add SCADA for headwork's & add building to house electrical components. Consideration should be given to using submersible pumps in lieu of screw lifts as part of the design process. Other items required for this project are: ventilation system, gas meter, gate replacement, skid lighting, R&R scum skimmer, new wire from HW's MCC to Main, bypass pumping, Generator power to Bldg											
7. Justification & Useful Life: The headwork's channels have not been resurfaced for 30+ years. The structure is in need of refurbishment due to being near the end of its useful life. This project includes the interior grit tanks as a preventive maintenance measure. The grit tank piping and pumps have not had a major overhaul since the modifications to the unit in 1980. The screw lifts were installed in 1971 and are rated at 6.0MGD each. The screw lifts were last refurbished in 1985 and have lost their efficiency.											
8. Costs:	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
Planning/Design	163,500	86,000	30,000	0	0	0	0	0	0	0	279,500
Land Acquisition	0	0	0	0	0	0	0	0	0	0	0
Construction	0	2,785,147	198,493	0	0	0	0	0	0	0	2,983,640
Equipment	73,000	1,230,491	0	0	0	0	0	0	0	0	1,303,491
Total	236,500	4,101,638	228,493	0	0	0	0	0	0	0	\$ 4,566,631
9. Funding:	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
O&M	0	0	0	0	0	0	0	0	0	0	0
R&R	118,250	2,871,147	150,945	0	0	0	0	0	0	0	3,140,342
Expansion	118,250	1,230,491	68,548	0	0	0	0	0	0	0	1,417,289
Selma R&R	0	0	0	0	0	0	0	0	0	0	0
Kingsburg R&R	0	0	0	0	0	0	0	0	0	0	0
Fowler R&R	0	0	0	0	0	0	0	0	0	0	0
Debt	0	0	0	0	0	0	0	0	0	0	0
Total	236,500	4,101,638	228,493	0	0	0	0	0	0	0	\$ 4,566,631
10. Comments: This modified project combines the following previous projects: Headworks-Refurbish Screw Lifts 1-5 & add Screw Lift 6, Resurface HW Channels, Interior Grit Tank		Submitted By: V Cazarez/S. Aguair Signature: Date: REV 3/12/13 Approved By:									



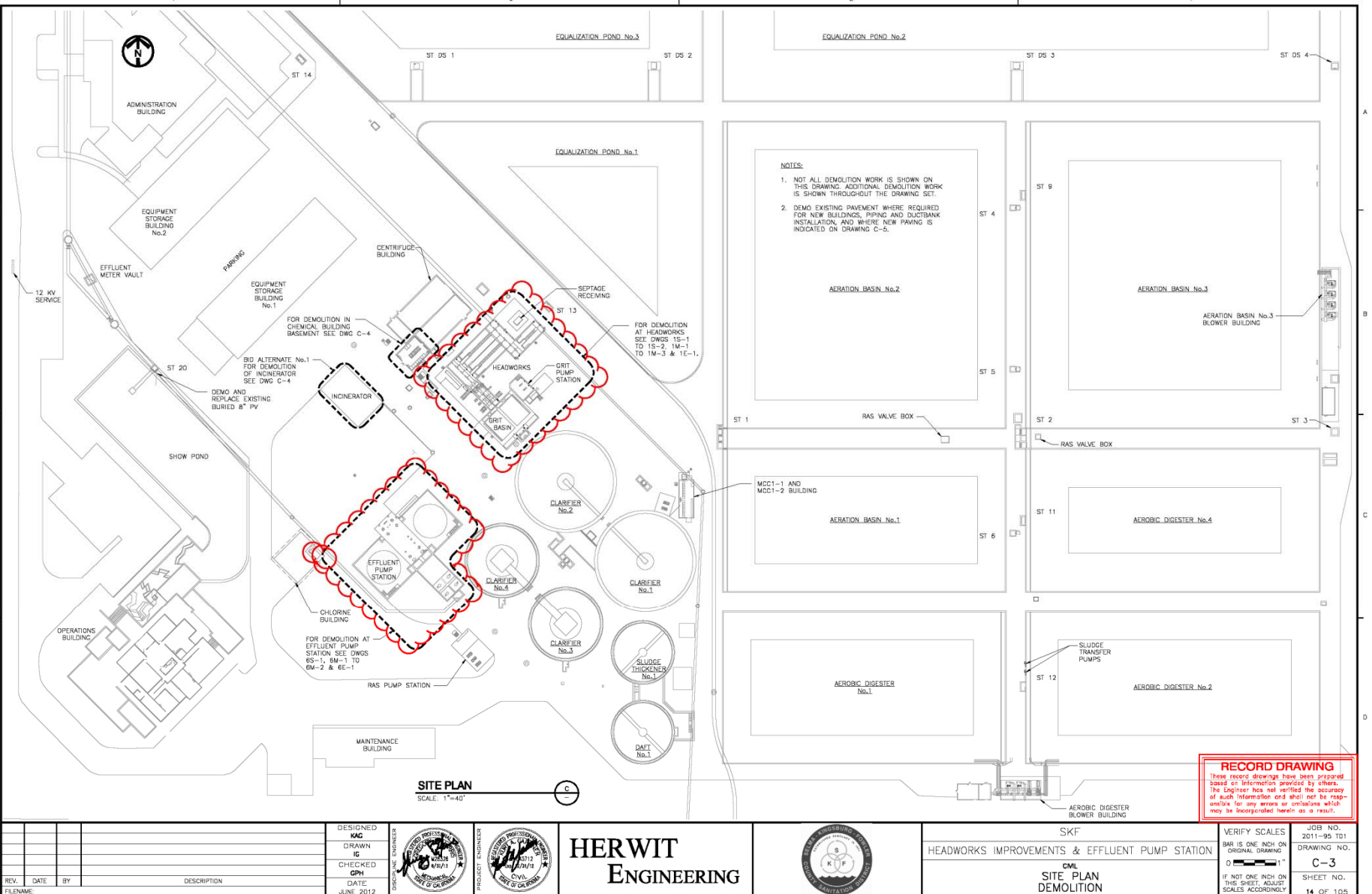
SELMA-KINGSBURG-FOWLER COUNTY SANITATION DISTRICT REPAIR AND MAINTENANCE PROJECT REQUEST

1. Project Title: Effluent Pump Station Project											
2. Project Cost: \$ 1,128,556											
3. Purpose of Project: <input type="checkbox"/> Add a new item to the program <input type="checkbox"/> Delete an item in a year already a part of the program <input checked="" type="checkbox"/> Modify a project already in the adopted program											
4. Priority: 2											
5. Location: WWTP											
6. Description: Replacement of effluent pumps with new pumps, controls, VFD, replace MCC, and provide SCADA system for the effluent pump station. Replace process water pumps and place controls in proposed headwork's bldg and replace wire from Effluent station, clarifiers from MCC and main											
											
7. Justification & Useful Life: The effluent pumps have come to the end of their useful life along with the MCC. The MCC is missing components and is in a state of disrepair. The effluent pump station does not have SCADA.											
Useful Life: 20 years											
8. Costs:	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
Planning/Design	63,000	34,000	40,000	0	0	0	0	0	0	0	137,000
Land Acquisition	0	0	0	0	0	0	0	0	0	0	0
Construction	0	578,202	113,354	0	0	0	0	0	0	0	691,556
Equipment	20,000	250,000	30,000	0	0	0	0	0	0	0	300,000
Total	83,000	862,202	183,354	0	0	0	0	0	0	0	\$ 1,128,556
9. Funding:	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
O&M	0	0	0	0	0	0	0	0	0	0	0
R&R	62,250	603,542	128,348	0	0	0	0	0	0	0	794,140
Expansion	20,750	258,660	55,006	0	0	0	0	0	0	0	334,416
Selma R&R	0	0	0	0	0	0	0	0	0	0	0
Kingsburg R&R	0	0	0	0	0	0	0	0	0	0	0
Fowler R&R	0	0	0	0	0	0	0	0	0	0	0
Debt	0	0	0	0	0	0	0	0	0	0	0
Total	83,000	862,202	183,354	0	0	0	0	0	0	0	\$ 1,128,556
10. Comments: This project was moved from the R&M list to the Capital List. MCC in Headwork's project.							Submitted By: V.Cazares				
							Signature: _____				
							Date: 2/15/2011 REV 12-12-11 By VC				
							Approved By: _____				

Project

- Start FY 11-12
- Integration
- Design, Dec.-2011
- Procure Equipment
 - Sole Source Process
- Construction, Aug.-2012
- Completion, Oct.-2013

R:\S\1\Work\Rev\Drawings\Record\Drawings\150517\Headworks-C-3.dwg
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NOTES:
 1. NOT ALL DEMOLITION WORK IS SHOWN ON THIS DRAWING. ADDITIONAL DEMOLITION WORK IS SHOWN THROUGHOUT THE DRAWING SET.
 2. DEMO EXISTING PAVEMENT WHERE REQUIRED FOR NEW BUILDINGS, PIPING AND DUCTBANK INSTALLATION, AND WHERE NEW PAVING IS INDICATED ON DRAWING C-5.

RECORD DRAWING
 These record drawings have been prepared based on information provided by others. The Engineer has not verified the accuracy of such information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

DESIGNED MAG	DRAWN IG	CHECKED GPH	DATE JUNE 2012
OPERATIONS BUILDING	MAINTENANCE BUILDING	CHLORINE BUILDING	EFFLUENT PUMP STATION
FOR DEMOLITION AT EFFLUENT PUMP STATION SEE DWGS 6S-1, 6M-1 TO 6M-2 & 6E-1	FOR DEMOLITION IN CHEMICAL BUILDING BASEMENT SEE DWG C-4	FOR DEMOLITION OF INCINERATOR SEE DWG C-4	BID ALTERNATE No.1 FOR DEMOLITION OF INCINERATOR SEE DWG C-4

SITE PLAN
 SCALE: 1"=40'

OWNER
 COUNTY OF GALVESTON

DESIGNED BY
 MAG

DRAWN BY
 IG

HERWIT ENGINEERING



SKF
 HEADWORKS IMPROVEMENTS & EFFLUENT PUMP STATION
 CIVIL
 SITE PLAN
 DEMOLITION

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 1" = 40'

JOB NO.
 2011-95-101
 DRAWING NO.
 C-3
 SHEET NO.
 14 OF 105

Bypass Pumping



42-inch bypass
Peak: 12MGD

21-inch bypass
Peak: 9MGD

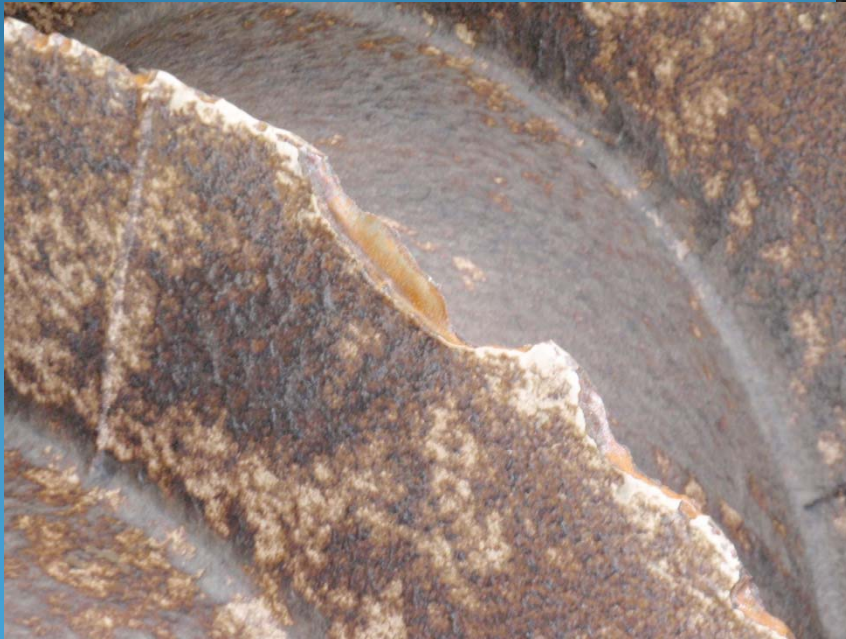


Pre-Purchase Equipment

- Influent Pumps
- Effluent Pumps
- Plant Water Pumps
- Generator
- Hydrogritter-sole source
- Intellicenter MCC's-sole source
- Waterman Gates-sole source

Screwlifts

- Existing screws original to plant
- Refurbished nearly 30 years ago



Screwlifts



Screwlifts



Screwlifts

- 1/4-inch tolerance
- Operate two most of the time
- Increased efficiency from 50% to 75%
- Upper level: 50hp to 40hp
- Lower level: 10hp



Screwlifts

- Removed and installed six screw lifts



Screwlifts

- Features
 - Fiberglass covers
 - Automatic greasers





Screwlift: Grouting



Hydrogritter

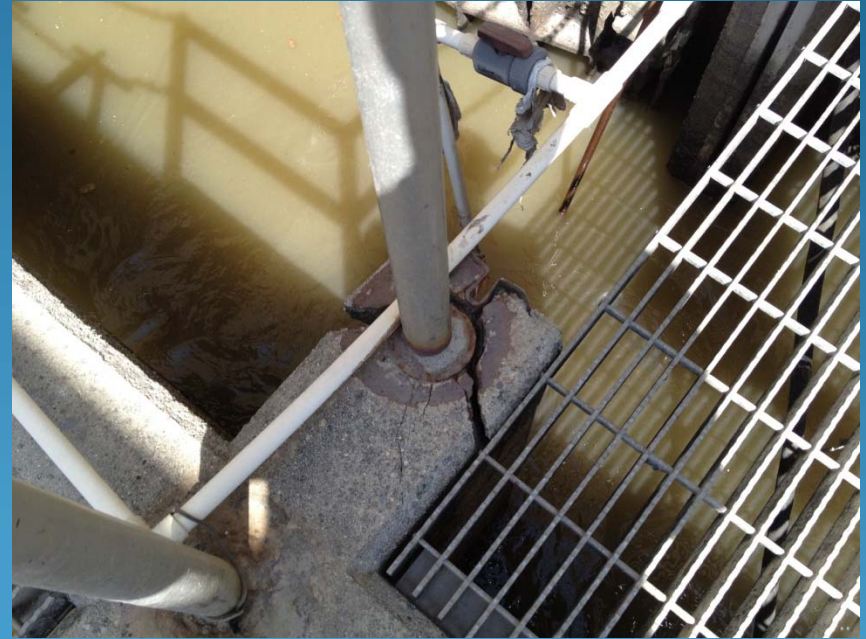
- Improved grit removal
- Increased removal from 1 yard to 2-yards per week
- Extends life of downstream equipment



Scum Troughs



Grating and Railing



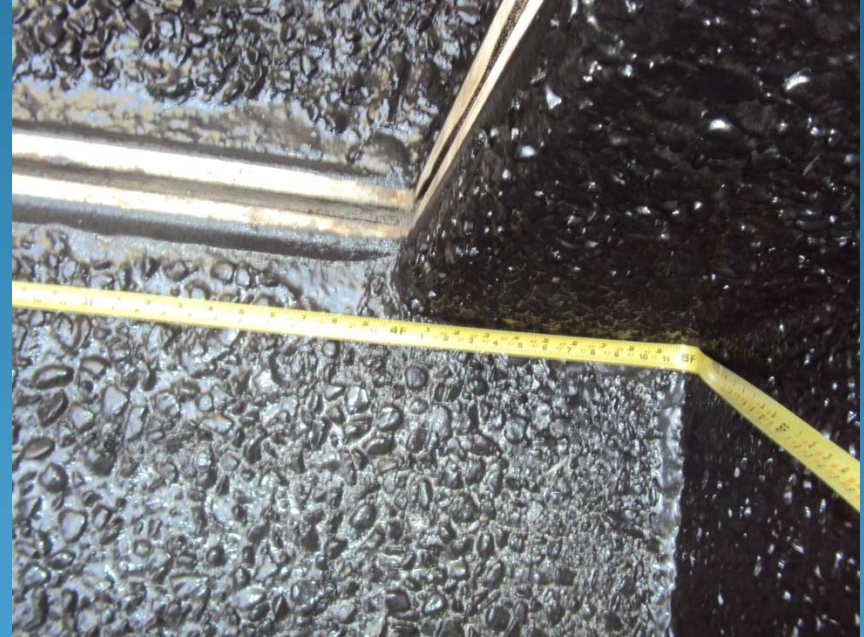
Grating and Railing



Grating and Railing



Coatings

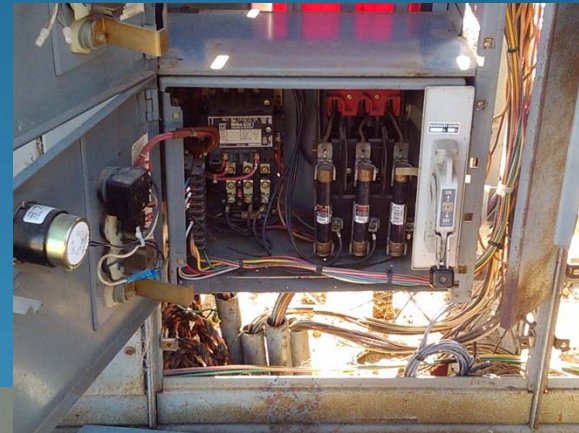


Motor Control Centers



Motor Control Centers

- Features
 - Safety
 - Protected from the elements



- Smart MCC
- Preventative maintenance
- Wiring diagrams

Motor Control Centers



Effluent Pumps

- Replaced effluent pumps: 60hp, 50hp, 40hp, 30hp
 - Four-40hp
- In-kind replacement of plant water pumps: 40hp
- Features: VFD's, self cleaning strainers for plant water

Effluent Pumps



Security Cameras

- Features
 - Video IQ
 - Email notifications
 - Video logs
 - Patrolling



Security Camera



SCADA

- Integrated headwork's and effluent to system
- Features
 - Reporting/Trending
 - Vantage Point
 - Web-based reporting package
 - Customized reports
 - Up to date data from Historian
 - Training: Upcoming

Vantage Point

SKF Monthly Flow Totals - Microsoft Internet Explorer

File Edit View Favorites Tools Help

SnagIt

Selma-Kingsburg-Fowler County Sanitation District Wastewater Treatment
11301 E. Conejo Ave. Kingsburg, CA 93631

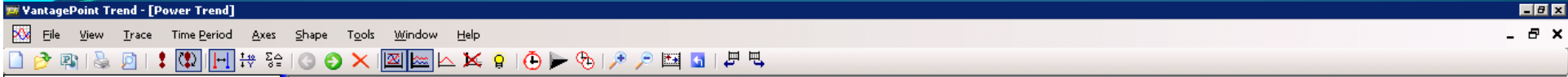
Monthly Report Print Date: 2/18/2014

Month: February
Year: 2014
Report: Monthly Report

Day	Influent Channel 1 Flow (MGD)			Influent Channel 2 Flow (MGD)			Total Influent Flow (MGD)			Plant Water Flow (GPM)			Effluent Flow (MGD)			Grit Air Flow (SCFM)		
	Max (MGD)	Min (MGD)	Total (MGal)	Max (MGD)	Min (MGD)	Total (MGal)	Max (MGD)	Min (MGD)	Total (MGal)	Max (GPM)	Min (GPM)	Total (Gal)	Max (MGD)	Min (MGD)	Total (MGal)	Max (SCFM)	Min (SCFM)	Total (SCF)
2/1/2014	4.733	1.406	2.769	4.177	0.907	2.622	8.167	2.796	5.391	246.242	26.097	83.411	5.717	1.958	4.330	256.011	217.510	345956.188
2/2/2014	3.907	1.345	2.547	3.531	1.098	2.430	7.329	2.845	4.977	207.376	26.097	87.209	8.069	0.002	3.847	256.237	216.015	337655.719
2/3/2014	3.964	1.258	2.447	3.432	1.195	2.329	7.255	2.641	4.775	195.174	0.000	84.969	5.168	2.089	3.808	259.261	204.882	330799.281
2/4/2014	3.882	0.978	2.305	3.580	0.925	2.201	7.011	2.080	4.506	296.755	26.556	96.699	5.220	1.538	3.582	245.894	206.285	324844.969
2/5/2014	4.203	1.167	2.566	4.090	1.151	2.441	7.841	2.452	5.008	216.115	26.026	86.248	5.501	1.654	3.992	259.215	207.350	332022.719
2/6/2014	4.563	1.153	2.700	4.075	1.088	2.578	8.353	2.412	5.278	253.497	0.000	87.348	7.870	0.002	4.123	262.072	209.699	333865.906
2/7/2014	5.205	0.915	2.881	4.603	0.524	2.775	9.422	1.616	5.656	491.943	0.000	86.662	8.022	0.002	4.465	258.131	209.757	335850.563
2/8/2014	5.520	1.502	3.086	4.912	1.092	3.001	9.838	3.154	6.087	220.790	0.000	85.035	7.671	0.002	4.630	241.088	211.211	329772.438
2/9/2014	4.669	1.407	2.739	4.144	1.102	2.635	8.483	2.882	5.374	232.568	0.000	85.090	6.244	2.034	4.423	256.389	226.733	342106.906
2/10/2014	4.348	1.267	2.434	3.898	0.994	2.321	7.968	2.601	4.755	189.686	0.000	83.904	5.294	1.703	3.715	264.316	228.529	349900.031
2/11/2014	4.034	1.196	2.361	3.865	1.017	2.222	7.781	2.447	4.583	159.029	0.000	83.751	5.058	1.607	3.502	275.651	229.774	358527.188
2/12/2014	4.296	1.293	2.577	4.155	1.212	2.425	8.123	2.647	5.001	205.444	0.000	85.854	5.552	1.749	3.880	270.394	231.168	356744.406
2/13/2014	4.184	1.394	2.634	4.072	1.364	2.490	7.960	2.915	5.124	234.276	17.323	88.175	8.180	0.002	4.034	275.500	229.771	356727.656
2/14/2014	3.908	1.304	2.606	3.646	1.201	2.494	7.408	2.635	5.100	407.817	0.000	83.253	5.528	2.025	4.093	282.956	224.234	359690.188
2/15/2014	4.114	1.429	2.626	3.792	1.265	2.501	7.783	3.048	5.127	621.837	0.000	85.698	5.559	1.881	4.058	281.973	209.204	362163.094
2/16/2014	4.432	1.328	2.571	4.056	1.106	2.434	8.360	2.830	5.005	253.320	0.000	86.162	7.910	0.002	3.855	279.314	170.645	360872.531
2/17/2014	3.822	1.126	2.311	3.291	1.058	2.180	6.822	2.424	4.491	133.790	0.000	70.932	5.142	1.547	3.466	274.577	225.140	358612.719
2/18/2014	4.054	1.031	2.182	3.406	0.998	2.055	6.727	2.198	4.238	131.623	6.959	68.928	4.945	1.508	3.270	281.536	229.957	363371.625
2/19/2014	3.782	1.075	2.229	4.168	0.896	2.109	7.164	2.213	4.338	154.389	4.155	68.010	5.149	1.486	3.376	279.930	226.136	357576.375
2/20/2014																		
2/21/2014																		
2/22/2014																		
2/23/2014																		

Monthly

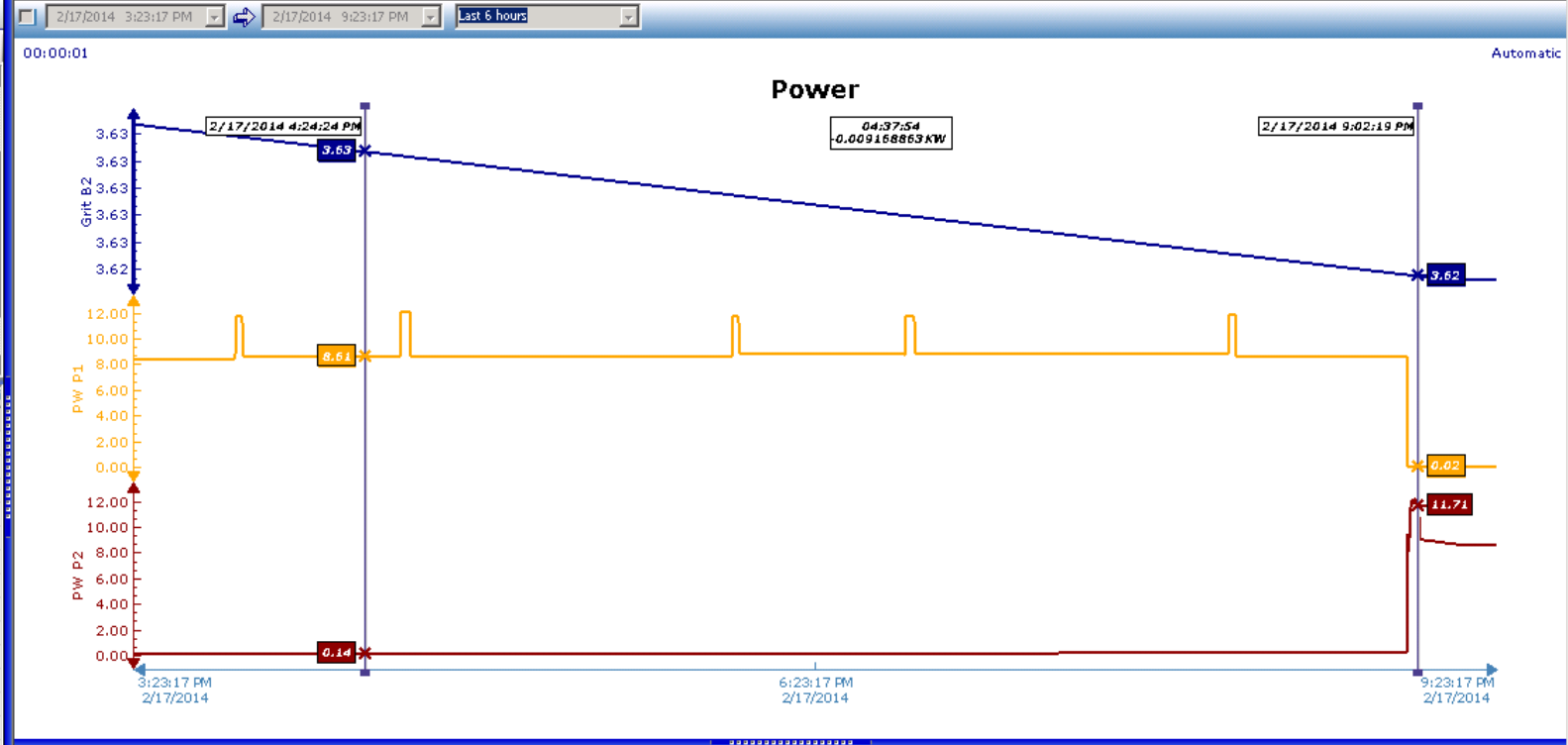
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Items - [Reports]

- Flows
 - Totalization
- Levels
- Power
 - Effluent Pump 1
 - Effluent Pump 2
 - Effluent Pump 3
 - Effluent Pump 4
 - Grit Blower 1
 - Grit Blower 2
 - Plant Water Pump 1
 - Plant Water Pump 2
- Reports
- Public

Item Name	Description
Power Trend	
RAS WWS Flows	
SKF Flows	
SKF Levels	



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	...ower.Plant Water Pump 1.Power	2	<input checked="" type="checkbox"/>	Plant Water Pump 1 Power		-1.19	13.37	KW	2	Decimal	WasteWater::[Headworks]P...	
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Bookmarks

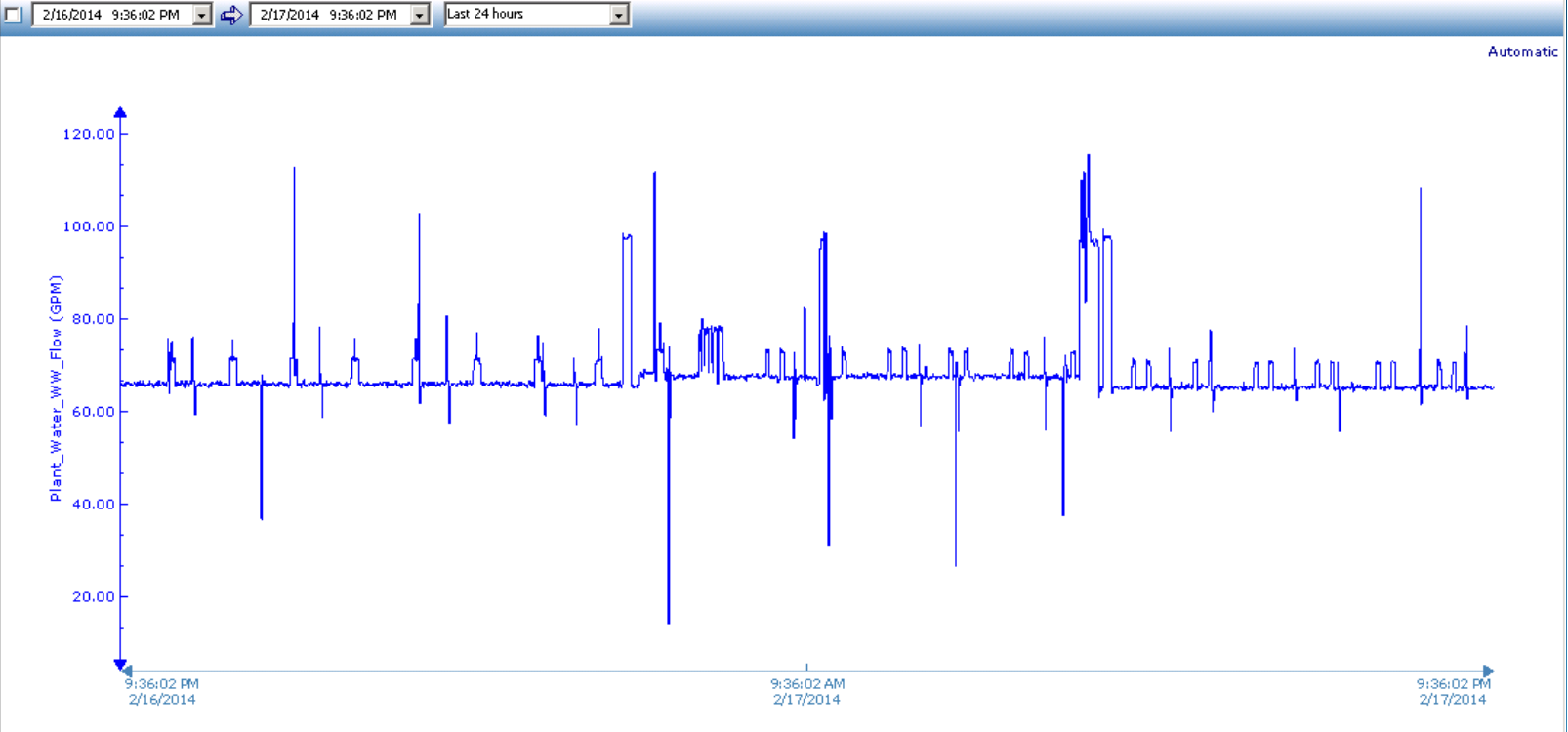
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Items - [Services]

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- Samples v4
- System
- Applications
- Portal
- Settings
- Common
- License
- Security
- Services**
- Solutions
- Sources

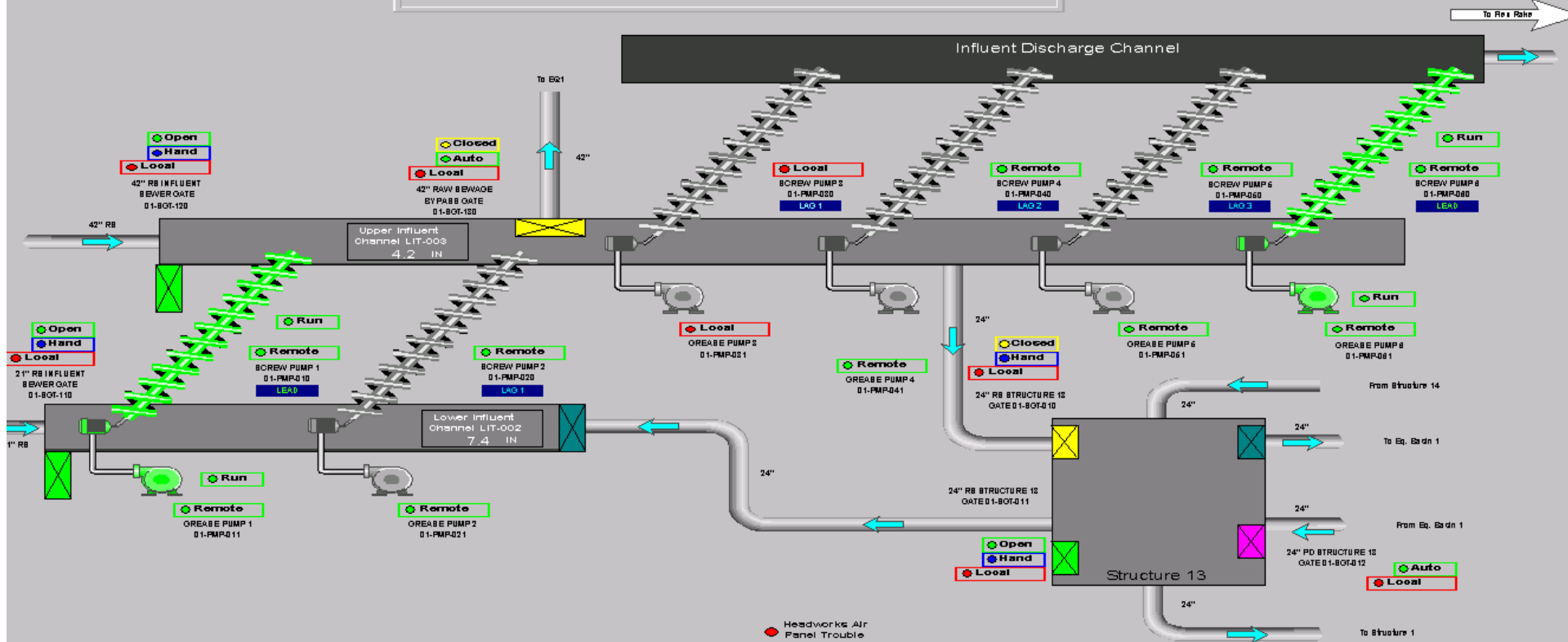
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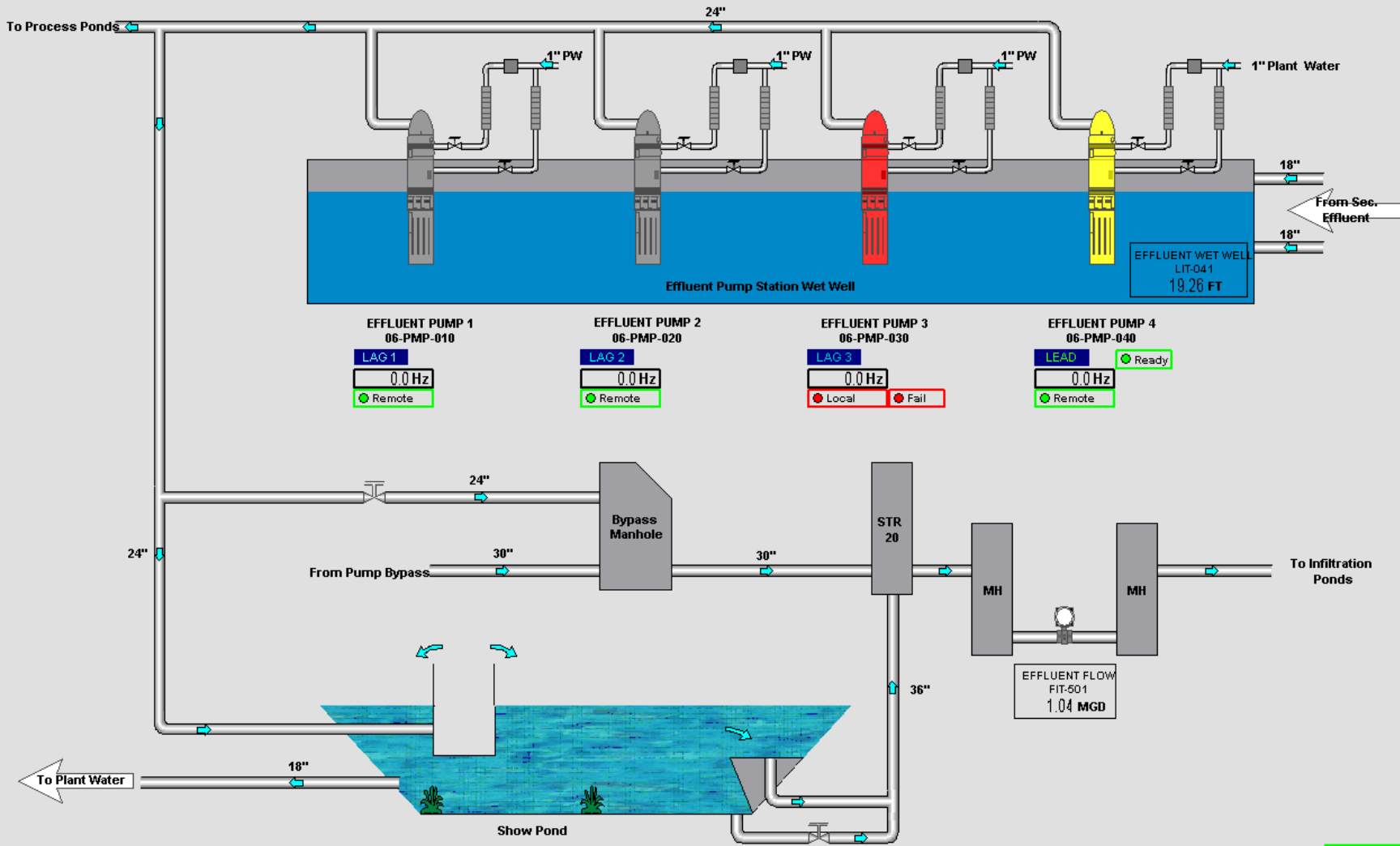
INFLUENT PUMP OVERVIEW



Overview	Plant Flow	Flex Rake	Aeration Basins	Plant Sludge Flow	Scum Pit	Storm Water	Effluent				Headworks Setup	Generator Delay Setup	Totals	Alarm History	User Log
Setpoints	Influent	Grit Removal	Aerobic Digesters	Clarifiers	Secondary Effluent	Plant Water	MCC	Generator			Effluent Setup	Runtimes		Historical Trend	EXIT

Cannot interpret area RNA: \\\$Global\SKF WasteWater Treatment Plant\WasteWater\NOT { (result=80070057). Clear Clear All

EFFLUENT OVERVIEW



Overview	Plant Flow	Flex Rake	Aeration Basins	Plant Sludge Flow	Scum Pit	Storm Water	Effluent				Headworks Setup	Generator Delay Setup	Totals	Alarm History	ser Logi
Setpoints	Influent	Grit Removal	Aerobic Digesters	Clarifiers	Secondary Effluent	Plant Water	MCC	Generator			Effluent Setup	Runtimes		Historical Trend	EXIT

Energy Efficiency

Project Description	Verified Annual Energy Savings (kWh)	Verified Annual Demand Savings (kW)	Actual Implementation Cost (\$)	Actual Incentive Amount (\$)	Final Project Cost (\$)	Simple Pay Back (Yr.)
Influent Pump Replacement	190,583	21.8	\$ 362,043	\$19,332	\$ 342,711	17.7
Effluent Pump Modifications	271,351	31.0	\$ 402,333	\$27,522	\$ 374,811	13.6
TOTAL SAVINGS	461,934	52.8	\$ 764,376	\$ 46,854	\$ 717,522	15.3

Project Costs

Design & CM Services	\$422,630
Epic Int'l Screw Lifts	\$393,151
Energy System Generator	\$288,192
Muniquip Hydrogritter	\$90,379
Weir Floway Effluent Pumps	\$256,972
MCC's (IntelliCenters: Allen Bradley)	\$254,849
Waterman Gates	\$148,731
Construction	\$3,779,086
Misc. Costs	\$87,289
CCO	\$95,941
Total Project Costs	\$5,817,220

Outcomes

- Improved safety
- Restore capacity lost to non-operational systems
- Operational reliability, efficiency, flexibility
- CalPOP incentive \$46,800
- Energy efficiency

CWEA

- Plant of the Year



CWEA

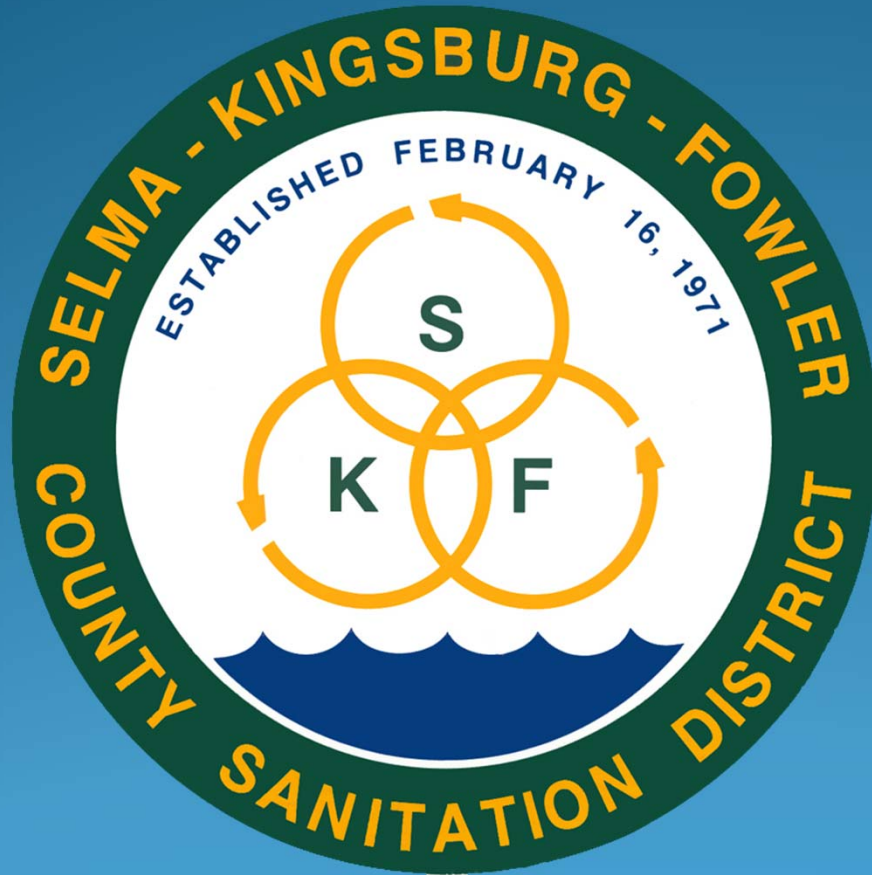
- Engineering Achievement Project
- Collection System of the Year
- Member Recognition: Jim Olinger, Operator II
- Supervisor of the Year: Veronica Cazares



Project Team Members

- Selma-Kingsburg-Fowler CSD
 - District Board Members, General Manager Muñoz
 - Veronica Cazares, Scott Aguiar, David Bacon, Jaime Ruiz, Staff
- HERWIT Engineering
 - Gregory Harris, Kurt Gardner, Steve Stoll
- QUEST Energy Services (CalPOP Program)
 - John Bidwell
- TNT Industrial Contractors, Inc. (Project Contractor)
 - Josh Twist, Rick Stent, Telstar Instruments

Committed to our communities. Protecting tomorrow's water resources by treating today's wastewater through innovation and superior level of service.



Veronica Cazares, SKF CSD
www.skfcsd.org