

**ORO LOMA SANITARY DISTRICT
INTEROFFICE MEMORANDUM**

Date: July 21, 2017

To: Board of Directors

From: Operations Committee
Directors Walters and Becker

Subject: **MINUTES, MEETING WEDNESDAY, JULY 19, 2017**

The Operations Committee met on Wednesday, July 19, 2017, at 9:30 AM. In attendance were Director Tim Becker, General Manager Jason Warner, Collection System Manager Lenny Rather, Maintenance Manager Scott von der Lieth, Operations Manager Manuel Talledo-Garcia, District Engineer Bill Halsted, and Administrative Support Specialist Lacey Aldridge. Director Dan Walters attended via telephone. There were no members of the public present.

COMMENTS FROM THE PUBLIC

No public comments.

SPOT REPAIR/PAVEMENT COORDINATION PRACTICES

Halsted provided an overview of typical pavement coordination efforts with our ongoing Line Replacement and Spot Repair Projects. Halsted stated that Engineering staff meets with Alameda County, City of Hayward, and City of San Leandro several times a year to discuss projects. When Engineering receives notification of a planned paving or reconstruction project, staff reviews the sewer lines within the area and determines what repairs will need to be completed (looking 5 to 10 years ahead). Our common goal is to not dig up a newly paved or reconstructed street.

For example, Meekland Avenue is currently under reconstruction. Alameda County notified us of this work about five years ago, at which time we inspected all of the impacted sewer lines and performed many spot repairs. Then Alameda County shelved the Meekland Avenue reconstruction project due to lack of funding. The project has recently been taken off the shelf and is now under construction. Upon reviewing the impacted lines, Engineering and Collections determined that additional work was required; we have coordinated with the contractor performing the reconstruction to allow our contractor to complete the work before paving begins.

Caltrans is currently planning the reconstruction of East 14th Street between 162nd and 172nd Avenues. We inspected those lines and were able to have Caltrans include work for Oro Loma within their project. This reconstruction is planned for the summer of 2018.

BENCHMARKING STUDY REPORT

Warner provided an overview of the approach used and significant findings from the District's recent benchmarking comparison. Staff sought to validate historic assertions of high performance using available benchmarking data. American Water Works Association (AWWA) primarily serves water agencies but also facilitates the data collection and publishing of wastewater performance benchmarks. Staff purchased the most recent report, which includes wastewater performance data from FY 2013. The District compared its FY 2015/16 data to the 2013 performance indicators. This benchmarking analysis supports the view that the District is a high performing organization. The analysis highlighted a known deficiency in our Asset Management Program (Plan in place for full implementation in 2023). Although the study showed a variance between

District practices and those of AWWA related to public involvement in projects under consideration, staff recommends implementing the practices only when a specific project warrants public review. As nearly all of our projects serve to extend the life and function of existing infrastructure, our program does not warrant a high level of public input. Staff recommends another benchmarking study in three years to re-assess our position within the industry. Memo is attached.

24/7 BELT PRESS OPERATION

Warner gave an overview of historic and current Operations practices of the belt press. The overview was provided after several questions were raised at the previous Board meeting related to nighttime operation of the belt press. Talledo-Garcia stated that running the belt press 24/7 has improved staff scheduling and freed an operator to address other concerns in the plant. He emphasized that we have been transferring sludge via truck during nighttime hours for at least 30 years. He noted that we would be adding reflective markers to the bridge and tipping zones. Talledo-Garcia is working with Safety & Special Programs Administrator Larry Olivan to retrofit the dump trucks with brighter lights as well.

The Committee accepted the report.

NATURAL GAS USAGE

Staff presented a spreadsheet and graph for the current and historical data for purchased natural gas for June 2017, which posted an increase compared with the previous month's value of 5,320 therms. Gas production for June was 320,367 cu. ft./day. The graph is attached.

- Therms purchased – 7,325
- Cost for natural gas – \$5,290
- Grease accepted – 173,750 gallons
- Digester gas consumption – 320,367 cu. ft./day

The Committee accepted the report.

OVERVIEW OF POWER PRODUCTION AND PLANT DEMAND

Staff provided the Co-Gen, Solar, and Utility Power Balance spreadsheet, with updates for the month of June 2017. The graph is attached.

Total Plant Power Demand	544,121 kWh
Solar Generation	52,517 kWh
Co-Gen	516,480 kWh
Purchased	25,154 kWh
Returned to Grid	56,030 kWh

The Committee accepted the report.

MONTHLY POWER/CHEMICAL COSTS

Staff provided a spreadsheet for power and chemical costs. The total costs for June 2017 were \$37,826, a decrease from the previous month. Graph is attached.

The Committee accepted the report.

MONTHLY ACTIVITY REPORT

Staff reviewed the June Monthly Collections, Maintenance, and Operations Activity Reports.

The Committee accepted the reports.

DISTRICT OPERATIONS OVERVIEW

Rather reported on the Collections Department activities for June 2017. The monthly goal for feet of sewer line cleaned/inspected was exceeded by 5%, and the Department's numbers (exceeding 2,000,000 feet of production) at the end of the fiscal year were excellent. A total of 40 requests for engineering services were submitted for the month, and 16 service calls were received. Rather also reported that staff participated in Advance Training Confined Space Rescue Training Scenario with Larry Olivan.

Talledo-Garcia reported that drying work started in the ponds, stacking a portion of biosolids in ponds 2A and 2B, and running a tractor in 2A, 2B, 3, 4, and 5. Staff will meet later this month to discuss the possibility of starting biosolids hauling in mid-August, before school begins. Staff isolated, drained, and secured secondary clarifiers #1 and #3 for the coating project and put them back in service when the work was completed. Lastly, Operations was using the E-Logger system (electronic operations logging) and Horizontal Levee Flows were added to the Monthly Activity Report.

von der Lieth gave a pictorial presentation of the right angle gear drive repairs at the influent pump station. The right angle gear drive was previously installed incorrectly. Repairs were made in house and the gear was reinstalled. He also reported that staff assisted Engineering with investigation of the twin 30" outfall pipes. Staff installed a generator and VFD's at Monika Lift Station, and changed the voltage from single phase to three phases, which increased the horsepower of the motor from 3.9 to 5. Lastly, all the mechanics are back to full duty.

The Committee accepted the report.

COMMITTEE MEMBER COMMENTS

Director Becker asked about the wet well pumps at EBDA; the discharge gates not properly closing. von der Lieth stated that the limit switches were set incorrectly after the recent actuator replacement. The position switches were indicating that the valves were fully closed when they were partially open. Under these conditions, flow from the other pumps would be pushed back into the wet well instead of the pipe. This resulted in reduced pump output this past winter. After identifying the problem, EBDA coordinated the adjustment through an electrical subcontractor.

ADJOURNMENT

There being no further business to come before the Committee, the meeting adjourned at 10:51 a.m. The next meeting of the Operations Committee will be held on August 16, 2017.

**Oro Loma Sanitary District
MEMORANDUM**

TO: Personnel Committee

FROM: Jason Warner, General Manager
Andreea Simion, Administrative Services Manager
Arlene Wong, Finance Manager

DATE: May 15, 2017

SUBJECT: BENCHMARKING STUDY RESULTS

Oro Loma is a leader within California as an effective utility. The District has long asserted that its service rates, safety record, and regulatory compliance are evidence of a high level of performance.

In 2017, staff sought to validate the assertions using available benchmarking data. Although the American Water Works Association (AWWA) primarily serves water agencies, AWWA also facilitates the data collection and publishing of wastewater performance benchmarks. Staff purchased the most recent report, which includes wastewater performance data from FY 2013. The District compared its FY 15/16 data to the 2013 performance indicators. Staff considered comparing 2013 benchmark data to 2013 District results. However, where business practices are evaluated, current practices are the superior measure. For cost measures, comparing to older data provides a more robust comparison, as the benchmark data would be expected to increase over time.

The AWWA benchmarking study includes both quantitative measures (i.e. O&M Costs per Million Gallons Treated) and qualitative measures (i.e. assessments of best management practices). For each performance indicator, specific measurement parameters are described within the AWWA report to ensure proper comparisons are made.

A summary of results is provided in the attached Table 1: Summary of Benchmarking Results - FY 15/16. Table 2 includes an audit of Organizational Best Practices. Table 3 includes the results for the staffing allocation by department for OLSD and the comparator agencies. For those measures within the 25-75 percentile, no discussion is provided.

The following discussion includes a review of those items above or below the 25-75th percentile band. A review of the 'Organizational Best Practices' audit and 'Staffing Allocation' is also provided in the discussion.

Summary of Benchmarking Results

Measures of Efficiency

Several efficiency measures validated our longstanding assessment of being an efficient District. The District serves 1,094 customers/employee vs. a 75th percentile value of 764. The 1,094 value is approximately twice the industry median of 550 customers/employee. The District's

Sewer Service rate (\$17.17/month) is 36% below the top performing quartile rate of \$26.65/month, and 60% below the bottom quartile rate of \$42.50. The District's affordability index, which measures the service rate as a percentage of average income stands at 0.29%. This is nearly half of the best performing agencies, with a 75th percentile value of 0.56%. The benchmarking data validates our longstanding assertions of industry leading efficiency, despite living in an area with a high cost of living.

Cash Reserves

The District maintains reserves of \$21,735,898 (June 30, 2016), equal to 525 days of operating expenses. This is above the 75th percentile value of 408 days. The District's reserves and lack of debt reflect its position of financial strength. As the District considers the use of its reserves for nutrients or to reduce pension liabilities, it might consider the 408 or 259 day reserve level (75th and 50th percentile) when balancing its reserves and issuing debt.

Operating Ratio

Operating ratio reflects the fraction of operating expense divided by operating revenue. This ratio puts the District below the bottom quartile with a ratio of 0.98. For every dollar collected in rates, \$0.98 is allocated to operating expenses. Median agencies operate with an operating ratio of 0.51. This allows funding for Capital Asset Projects and debt payment. Because we have no debt, the primary issue is to build Capital Asset Project funding into the rates.

The Board established a goal to incorporate Capital Asset Project expenses into the rate structure in its recent 10-Year Strategic Plan Update. Building Capital Asset funding into the rate would bring the operating ratio in line with the 25th to 75th percentile range of 0.42-0.82.

Percent of Pipes Inspected

The District's reported value of 74% of system inspected each year is over four times the 75th percentile benchmark of 17%. The District has cited this performance measure to explain its history of excellent collection system performance. Within the past two years, the District has changed its standard practice to include a second TV Van. The second van performs pre-cleaning inspections, which serve to identify specific locations for cleaning. This practice both limits unnecessary high pressure cleaning (which decreases pipe life) and increases operator feedback on the integrity of the collection system. While the reported value is an outlier among reporting agencies, no management actions are recommended. This practice produces extraordinary results without proportional expense.

R&R % of Pump Stations

In FY 15/16, the District spent \$210,786 renewing its pump stations on an estimated asset value of \$50M. This ratio (0.42%) is below the bottom quartile of 0.5% and a median of 3.1%. The value indicates that the District may not be spending adequately to maintain its lift stations.

The District's ten-year Capital Plan (CIP and R&R) includes an average of \$371,000 per year for lift station R&R. The planned spending level raises the District's ratio to 0.74%, which brings the District's spending within the 25th to 75th percentile. It is likely that a higher ratio will be required in the decades ahead. Using a simple remaining life of 50 years, the ratio should likely increase to near 2.0% (1/50th) over the long term.

A significant fraction of the asset management plan will be devoted to lift stations (as other areas are partially developed). The asset management plan will identify all assets, assess their condition, assess their remaining life, and calculate the projected costs for their repair and/or replacement. Once this is complete, staff will work with the Board to align future R&R budgets to the precise long-term funding needs. It is possible that the estimated asset value of \$50M is too high (approximately \$4M/Pump Station). If that value is lowered after more comprehensive cost estimations, the ratios will correct in proportion. Given the historic high performance of the lift stations and availability of funds to correct issues if they are identified, the long-term plan to develop an asset management program and identify precise funding needs by 2023 sufficiently addresses this potential issue.

Customer Complaints

The District has developed a culture of responsiveness and customer service. The culture is reflected in its customer service complaints ratio of 0.2 complaints per 1000 customers/year. This ratio is less than a tenth of the highest performing agencies (75th percentile value of 2.5 complaints per 1000 customer/year). The District has invested significant resources in developing brochures, training administrative staff to use the Geographical Information System (GIS) to provide quick and thorough information; we audit our website, and audit calls to the District to identify lapses in training. Based upon these results, the District should continue to train personnel who work directly with the public (Administration, Collections, and Engineering) on frequently asked questions and best phone practices. Staff should continue to log complaints, identify patterns, and continually seek to identify systems and practices to improve customer service.

Sewer Overflows

The performance benchmark for sewer overflows is the number of overflows per 100 miles of pipe/year. For the FY 15/16 reporting year, the District had zero overflows, which ranked well above the 75th percentile value of 0.5 overflows per 100. The District's 10 and 5 year annual averages are 1.3 and 1.0 overflows per 100 miles. These two values are closer to the median of reported agencies, which is 1.4 overflows per year. The national benchmarking data appears to be significantly lower than reported values in Northern California. This may be due to varying reporting practices throughout the United States or a reflection of the age, seismic activity, soil conditions, and construction practices in the Bay Area.

In FY 16/17, the District had five spills (1.9 spills per 100 miles) including its first capacity related overflow in at least 12 years. The Board has responded by significantly increasing funding for pipe replacements, and has established aggressive goals to improve the health of the collection system over the next ten years.

The District's 5-year average is better than its 10-year average. This reflects the focused attention on eliminating overflows and the results of our ongoing renewal practices. The benchmarking study shows that other agencies are reporting overflows at a lower rate than we typically assume (Best agencies < 2 per 100 miles). In this case, the benchmark data should provide motivation to continue to improve the health of the collection system and maintain our proactive collection system management practices.

Planned Maintenance to Production

The District's rate of planned maintenance to production (0.9 hrs per million gallons treated) is at the bottom 25th percentile of reporting agencies. Planned maintenance reflects proactive measures taken to prevent failures. One might expect a low value in planned maintenance to translate to a high value in corrective maintenance. That expected condition does not exist at OLSD. The District scores near the top 75th percentile for corrective maintenance per unit of production - 0.94 hrs/MG (OLSD) vs 0.9 for the 75th percentile. In contrast, the lowest performing agencies spend 2.0 hours per million gallons treated.

The District regularly measures the ratio of planned vs. corrective maintenance over time. This ratio has slowly been improving (i.e. we are doing more planned maintenance) over the past seven years. The April 2017 ratio is 71.5%. In April 2010 the ratio was 59.2%. Based upon this positive long-term trend and the high reliability of District pumps, piping and equipment, no changes to our planned maintenance practices are recommended.

Organizational Best Practices

The Organizational Best Practices include Strategic Planning, Long Term Financial Planning, Risk Management, Performance Measurement, Optimized Asset Management, Customer Involvement, Transparency and Accountability, and Succession Planning. The District scored in the top quartile of agencies in Organizational Best Practices – reflecting the strength of the management team and staff as a whole. That said, the best practices audit showed that the District has not implemented several of the sub-elements of the customer involvement and asset management programs.

Customer Involvement

Under the best practice of Customer Involvement, the scoresheet includes:

1. Offering consumer education programs and materials and assessing their effectiveness. (District Score = 0.75 of 1)
2. Conducting customer satisfaction surveys and responding to the results. (District score = 1 of 1)
3. Soliciting input on projects and programs under consideration, in planning, or under construction. (District score = 0 of 1)
4. Efficiently resolving customer issues and complaints. (District score = 1 of 1)

As indicated, the District scored a zero on bullet #3. The District does not typically solicit input from the public on projects and programs. Our practice has been to involve the Board in the planning and major project decisions. The Board represents the public's interests and weighs the benefits and drawbacks of various alternatives. The philosophy has been that most of our projects typically replace or extend existing functionality, are technical in nature, and most suited for analysis by technical experts and the Board of Directors. Despite the variance with AWWA Organization Best Practices, public input on project planning could be done on a case by case basis, as recommended by staff or the Board. An example is the planned (FY 17/18) sewer main and lateral replacement project on Edgemoor Street.

Optimized Asset Management

The Optimized Asset Management scoresheet includes:

1. A complete inventory of infrastructure assets and their locations in the system. (District Score = 1 of 1)
2. Condition assessment of all assets. (District score = 0.6 of 1)
3. Replacement cycle estimates for each asset class. (District score = 0 of 1)
4. Estimates of asset maintenance and replacement costs. (District score = 0.5 of 1)
5. Risk rankings based on the impacts of specific asset failure. (District score = 0 of 1)

As indicated, the District scored 50% or less on bullets 3-5. The District has established a strategic plan goal to implement all five elements of the scoresheet by 2023. A step by step plan to achieve compliance is written, and staff is on a pace to implement the program by 2023. Staff considered a faster implementation scheduled, but recommended a 10-year implementation instead, because best practices for Asset Management are still developing. The District can also manage to implement the 10-year goal using existing staff. In short, the District is on a path to achieve a 5 of 5 score by 2023.

Staffing per Department

Based upon the efficiency measures, District staff perform more work than the top quartile agencies. A secondary measure is how our allocation of personnel to various District functions compares with other agencies.

In most cases, the District distribution falls within the 25th to 75th percentile. These include pretreatment, collections, operations, customer service, and finance.

The District scored above the top quartile for Management (including HR, IT, legal, and purchasing), Lab services, and public relations. Part of the efficiency related to these areas is that we contract for legal, information technology, and public relations. Our employees purchase items directly, with approval from their managers. Our Human Resources needs are primarily filled by one manager, with backup from staff in other functions. Our Chemist provides support for NPDES permit compliance, process control, and ongoing special projects with backup from pretreatment.

The District scored below the bottom quartile in Engineering and Maintenance. While a large portion of District staff is allocated to these functions, our business practices support a higher allocation. For example, Maintenance performs vehicle maintenance, maintains the cogeneration system, regularly rebuilds equipment in-house, performs maintenance duties for EBDA, and takes primary responsibility for 14 lift stations. Engineering performs development review, customer service, lateral repair inspections, GIS development/maintenance, and typical engineering functions of preparing contract documents, and construction management.

Conclusions

This benchmarking analysis supports the view that the District is a high performing organization. The analysis highlighted a known deficiency in our Asset Management Program. Although the study highlighted a variance between District practices and AWWA's related to public involvement in projects under consideration, staff recommends implementing these practices only when a specific project warrants public review. Nearly all of our projects serve to extend the life and

function of the existing infrastructure. These types of projects do not warrant input from the public.

Staff recommends another benchmarking study in three years to re-assess our position within the industry.

Table 1: Summary of Benchmarking Results - FY 15/16

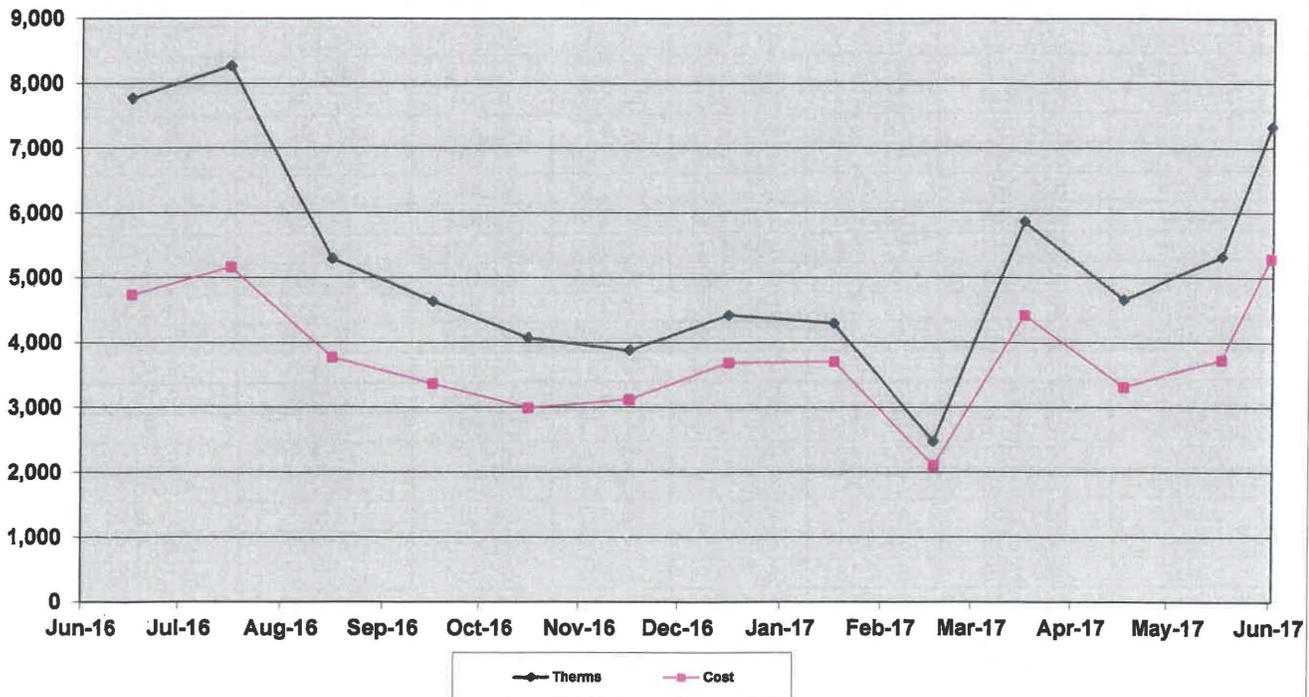
Table # (AWWA Report)	Indicator	AWWA Quartiles			
		OLSD Value	Bottom	Median	Top
1-1	Organizational best practices	88%	63%	76%	84%
1-2D	Staffing per department	See Table 2		See Table 2	
1-5B	Customers/employee	1094	376	550	764
1-6B	Employee Turnover	9.3%	11.3%	5.0%	3.3%
1-7B	Retirement Eligibility	32.6%	35.1%	21.7%	8.0%
2-3B	Cash Reserves (days)	526	116	259	408
2-5B	Operating Ratio	0.98	0.82	0.51	0.42
2-7B	% of Pipes Inspected	74%	8%	12%	17%
2-8 E	R&R % of Collections	1.20%	0.4%	1.0%	2.3%
2-8F	R&R % of Pump Stations	0.42%	0.5%	3.1%	10.8%
2-8G	R&R % of Treatment Plant	1.6%	0.8%	2.0%	14.9%
3-1B	Customer Service Complaints per 1000	0.2	9.3	5.4	2.5
3-2E	Average Wait Time	0	5	1.3	1
3-5E	Residential Sewer Service Cost/Month	\$ 17.17	\$ 42.50	\$ 31.52	\$ 26.65
3-5F	Residential - Average Sewer Use (gal/month)	6065	7200	5478	4488
3-9B	Service Affordability Indicators (% of median income)	0.29%	0.86%	0.77%	0.56%
3-10	Stakeholder Outreach Index	75%	58%	75%	75%
5-1	Regulatory Compliance - % days in compliance	100.0%	99.8%	100.0%	100.0%
5-2E	Total Treatment O&M Cost per MG	\$ 1,161	\$ 1,618	\$ 1,482	\$ 973
5-2D	Total Collections O&M Cost per 100 miles of pipe	\$ 513,174	\$ 1,015,613	\$ 860,779	\$ 497,578
5-3	MGD processed per employee	0.29	0.16	0.3	0.38
5-4	Overflow Events/100 miles of pipe	0.0	4.0	1.4	0.5
5-6B	Corrective maintenance to production (hr/MG)	0.9	2	1.3	0.9
5-6C	Planned maintenance to production (hr/MG)	0.9	0.9	2.4	4.3
5-7	Energy Consumption (kBTU/year/MG)	7153	18893	12265	9410

Table 2: Organizational Best Practices Audit

Strategic Planning	4.8
Long Term Financial Planning	5.0
Risk Management Planning	5.0
Performance Measurement System	5.0
Optimized Asset Management Program	2.5
Customer Involvement Program	2.8
Succession Planning	4.0
OLSD Total	29.1
Total Possible	35
OLSD Percent of Total	83%

DGS Natural Gas Purchasing

Month	Therms	Cost	Cost/Therm	% Difference from Previous Month	Digester Gas Consumption cuft/Month	Digester Gas Consumption cuft/Day	Grease Accepted gal/Month
Jan-15	9,628	\$7,072	\$0.735	1.90%	9,598,995	309,645	203,400
Feb-15	9,514	\$6,687	\$0.703	-4.31%	9,550,201	308,071	260,140
Mar-15	5,562	\$4,022	\$0.723	2.90%	10,032,003	323,613	261,800
Apr-15	5,491	\$3,437	\$0.626	-13.46%	9,999,577	322,567	295,300
May-15	4,221	\$2,671	\$0.633	1.08%	10,461,012	337,452	336,500
Jun-15	4,699	\$3,115	\$0.663	4.79%	9,900,377	319,367	314,000
Jul-15	4,077	\$2,757	\$0.676	2.01%	9,722,995	313,645	349,460
Aug-15	4,717	\$3,144	\$0.667	-1.45%	9,827,000	317,000	354,050
Sep-15	3,927	\$2,587	\$0.659	-1.16%	9,614,123	310,133	330,250
Oct-15	2,431	\$1,665	\$0.685	3.99%	6,757,008	217,968	304,000
Nov-15	6,259	\$4,225	\$0.675	-1.46%	10,143,000	338,100	245,500
Dec-15	5,097	\$3,494	\$0.686	1.55%	10,719,690	357,323	371,800
Jan-16	4,217	\$3,068	\$0.728	6.13%	10,777,740	359,258	336,060
Feb-16	4,813	\$3,297	\$0.685	-5.83%	10,080,000	336,000	257,500
Mar-16	6,142	\$3,967	\$0.646	-5.71%	9,944,520	331,484	287,250
Apr-16	8,296	\$4,827	\$0.582	-9.91%	8,787,000	292,900	200,800
May-16	12,336	\$7,305	\$0.592	1.77%	9,223,560	307,452	111,775
Jun-16	7,764	\$4,726	\$0.609	2.78%	9,087,000	302,900	94,500
Jul-16	8,267	\$5,160	\$0.624	2.55%	8,950,650	298,355	94,758
Aug-16	5,293	\$3,773	\$0.713	14.19%	9,277,740	309,258	160,678
Sep-16	4,634	\$3,368	\$0.727	1.98%	9,582,000	319,400	261,248
Oct-16	4,071	\$2,995	\$0.736	1.21%	9,379,350	312,645	322,950
Nov-16	3,879	\$3,121	\$0.804	9.36%	9,791,010	326,367	387,850
Dec-16	4,419	\$3,686	\$0.834	3.69%	10,628,700	354,290	233,653
Jan-17	4,295	\$3,709	\$0.863	3.51%	8,352,570	278,419	240,632
Feb-17	2,477	\$2,102	\$0.848	-1.74%	6,796,080	226,536	240,640
Mar-17	5,864	\$4,423	\$0.754	-11.11%	10,020,000	334,000	274,103
Apr-17	4,656	\$3,319	\$0.713	-5.49%	9,942,000	331,400	167,200
May-17	5,320	\$3,730	\$0.701	-1.64%	10,040,310	334,677	183,250
Jun-17	7,325	\$5,290	\$0.722	3.01%	9,611,010	320,367	173,750
Average	5,656	\$3,891	\$0.700		9,553,241	315,020	255,160
Max	12,336	\$7,305	\$0.863		10,777,740	359,258	387,850
Min	2,431	\$1,665	\$0.582		6,757,008	217,968	94,500



OVERVIEW OF POWER PRODUCTION AND PLANT DEMAND

Year	Month	Total Plant Power Demand (kWh)	Solar Generation (kWh)	Co-Gen Generation (kWh)	PG&E Provided (kWh)	Returned to Grid (kWh)	NET Purchased/ (Returned) (kWh)	Bank + PGE favor - OLSD favor (kWh)
2013	January	594,746	48,073	506,880	59,161	19,368	39,793	39,793
2013	February	536,386	59,759	477,120	33,151	33,644	-493	39,300
2013	March	588,470	73,570	526,080	32,742	43,922	-11,180	28,120
2013	April	570,643	101,880	476,160	48,107	55,504	-7,397	20,723
2013	May	590,574	108,282	499,740	51,076	68,524	-17,448	3,275
2013	June	562,146	108,811	465,120	52,010	63,795	-11,785	-8,510
2013	July	591,097	73,569	479,040	73,482	34,994	38,488	29,978
2013	August	595,467	53,198	485,280	77,722	20,733	56,989	86,967
2013	September	584,328	46,727	480,480	74,633	17,512	57,121	144,088
2013	October	584,033	32,662	463,200	97,954	9,783	88,171	232,259
2013	November	563,014	37,553	467,527	71,937	14,003	57,934	290,193
2013	December	595,594	44,614	389,280	169,810	8,110	161,700	0
2014	January	599,351	41,131	514,560	61,172	17,512	43,660	43,660
2014	February	543,705	38,900	455,520	65,755	16,470	49,285	92,945
2014	March	594,543	70,147	494,880	62,960	33,444	29,516	122,461
2014	April	566,407	93,212	358,080	139,922	24,807	115,115	237,576
2014	May	584,749	106,272	519,840	32,050	73,413	-41,363	196,213
2014	June	561,361	94,216	486,080	40,115	59,050	-18,935	177,278
2014	July	583,702	101,057	519,260	31,613	68,335	-36,722	140,556
2014	August	626,712	84,989	527,520	38,042	52,283	-14,241	126,315
2014	September	598,791	56,357	510,240	57,025	24,766	32,259	158,574
2014	October	632,412	48,355	519,800	77,056	12,799	64,257	222,831
2014	November	626,822	35,295	511,620	86,073	6,166	79,907	302,738
2014	December	688,304	27,360	534,720	129,120	2,896	126,224	0
2015	January	643,433	42,482	519,840	93,023	11,849	81,174	81,174
2015	February	545,847	50,154	470,964	51,442	26,791	24,651	105,825
2015	March	598,577	78,209	521,280	47,405	48,272	-867	104,958
2015	April	566,993	95,860	505,920	30,662	65,507	-34,845	70,113
2015	May	549,125	78,577	527,524	17,662	74,576	-56,914	13,199
2015	June	557,267	101,169	515,520	19,324	78,782	-59,458	-46,259
2015	July	580,876	93,461	528,000	28,614	69,225	-40,611	-86,870
2015	August	580,881	79,589	533,280	24,160	55,977	-31,817	-118,687
2015	September	576,958	69,505	510,240	38,420	41,188	-2,768	-121,455
2015	October	546,918	57,444	304,920	210,224	25,526	184,698	63,243
2015	November	526,725	47,011	511,680	18,539	50,505	-31,966	31,277
2015	December	603,178	32,406	526,480	57,700	13,279	44,421	0
2016	January	618,849	28,832	524,640	74,560	9,166	65,394	65,394
2016	February	556,249	54,589	474,640	53,477	26,335	27,142	92,536
2016	March	630,291	61,151	531,880	65,499	28,239	37,260	129,796
2016	April	585,326	71,607	488,160	59,032	33,334	25,698	155,494
2016	May	580,294	68,540	533,760	24,725	46,582	-21,857	133,637
2016	June	516,271	27,024	493,448	23,909	28,110	-4,201	129,436
2016	July	509,511	9,315	533,760	10,845	44,409	-33,564	95,872
2016	August	511,508	14,762	533,280	18,207	54,741	-36,534	59,338
2016	September	534,691	56,517	516,520	24,219	62,565	-38,346	20,992
2016	October	564,726	46,397	529,920	36,717	48,308	-11,591	9,401
2016	November	553,811	39,489	516,480	33,668	35,826	-2,158	7,243
2016	December	571,872	29,595	534,240	37,938	29,901	8,037	0
2017	January	569,931	24,743	391,200	162,844	8,727	154,117	154,117
2017	February	523,270	17,180	250,740	256,540	1,078	255,462	409,579
2017	March	554,951	40,678	499,040	39,627	24,262	15,365	424,944
2017	April	546,375	38,791	492,480	41,503	26,270	15,233	440,177
2017	May	567,693	59,718	535,680	20,662	48,367	-27,705	412,472
2017	June	544,121	52,640	516,480	25,154	56,030	-30,876	381,596
Total	(12 months)	6,552,460	429,825	5,849,820	707,924	440,484		
Max		688,304	108,811	535,680	256,540	78,782		
Min		509,511	9,315	250,740	10,845	1,078		
Average		575,553	58,397	491,482	61,278	36,214		

Monthly Operating Costs (Chemicals, Electricity, Gas)

