


MEMORANDUM

TO: Bash Nola

FROM: Danny Johnson 

DATE: February 2, 1996

SUBJECT: Kilowatt Hour Reporting Procedures

With the implementation of the Streamlined Reporting System in 1996 (see memorandum dated July 26, 1995). Results reporting for 1996 will be handled differently. The Streamlined System only focuses on the current year, where prior procedures encompassed many years of historical pump test data.

Results for 1996 will be reported as follows:

Streamlined Reporting Procedures utilized for all tests completed in 1996.

Existing audit system for pumps tested prior to January 1, 1996.

The combination of the two systems will be reported to Carol Nelson for input onto the monthly Energy Efficiency Report. Elia DeAnda will continue to input the handwritten results into the Paradox System. The combination of the two systems will be used over the next few years, eventually phasing out the "old system". At which time only the Streamlined Reporting System will be used.

Attached for your review is copy of the "new" kilowatt hour report generated from the Pump Test System. The report is a summary of current information as well as historical data.

elm
Attachments

August 2, 1995

Bash Nola

SUBJECT: Streamlined Reporting

A copy of this proposal was forwarded to you as an FYI. I have not yet received an approval on the proposal from Judy or Mike. I recently asked Judy for some direction about the proposal, at which time she told me she would review and share her thoughts with Mike before getting back to the field.

I have decided to send Mike a follow up copy of the proposal for his comments or questions. My thought in doing this is to get a decision before going forward with the first phase of the new reporting/tracking system.


Please review the proposal and forward your comments or approval to me at your earliest convenience.

Thanks,


Danny

MEMORANDUM

TO: Mike Gadd
Judy Burns

FROM: Danny Johnson 

DATE: June 26, 1995

SUBJECT: Streamlining Reporting Procedures

A meeting was held to discuss a proposal to Streamline the Reporting Procedures for the Pump Test Program. In attendance were Marian Brown, Philip Koebel, Susan Heard, Paul Williams, Victor Pimentel, and Danny Johnson.

The proposal is to establish a means to estimate the potential energy savings from the pump test recommendations. Currently the test representatives verifies the results, completes required paperwork, and the savings are entered into the Paradox System. The proposal would establish a gross realization rate, and a net-to-gross ratio to obtain the kilowatt hour savings. This approach will eliminate the uncertainty and the need to follow up on every pump test to confirm that recommendations were implemented. Productivity, customer interface, and flexibility will be increased with this modification.

The meeting established a level playing field for all parties. An explanation of the proposal was given, allowing each department representative to communicate and express the impacts or concerns from their perspective. The documentation attached to this memo supported the proposal and allowed the attendees to reach a consensus that the proposal should be implemented on January 1, 1996.

The key concerns expressed were:

- Implementation Rate
- Gross Realization Rate
- Overall Net Realization Rate

San Diego Gas & Electric is utilizing the same type of procedures. Their research estimates that 33% of the recommendations are implemented, realizing 87% of the potential, equaling a gross of 29%. A recap of follow up tests indicates an average rate of 95.6% for test recommendations made by SCE Test Representatives. The other key factor established is a net-to-gross ratio, and the product of the three produces an Overall Net Realization Rate. At this point in time, it was agreed to use a combination of our own and SDG&E's estimates, and Measurement & Evaluation would perform a customer survey to substantiate our own set of standards with the feeling that they could be even higher.

To finalize and implement the proposal your approval is requested. If you have any questions, please do not hesitate to call me at Pax 73281.

dcr
Attachments

cc: Bash Nola
Marian Brown
Paul Williams

Philip Koebel
Tom Olson

APPROVAL:

_____ MG- _____ JB

1995 Pump Test Program

Introduction

Program Overview

The purpose of the Hydraulic Test Program is energy conservation and energy management. A hydraulic test representative is responsible for assisting Edison's pumping customers in fulfilling their water requirements with the most efficient energy demand (kW), and energy consumption (kWhs) thereby, contributing to Edison's energy management and energy conservation goals. In addition, the test representative must assure continuing profitable pumping load for the Edison Company. To meet this responsibility, the test representative performs various overall efficiency tests on customer and company owned pumping facilities. The test results are the basis from which the test representative makes energy efficiency recommendations and provides assistance to the customer in the implementation of hardware and operating changes necessary to assure energy efficiency.

The detailed report includes the current operating conditions of the pump, consumption of kilowatt hours, and potential energy savings the customer could realize by making improvements that would increase the overall plant.

In 1995, approximately 4,000 pump tests will be completed by seventeen pump test men. The measures most commonly

associated with pumping system modifications are pump adjustments and pump replacements. In 1995, the pump test program accounts for 6% of the total C/I/A Services program goal.

Objectives of Report

The main objective of the report is to establish a methodology which will substantiate an average kWh energy savings and kW demand reduction utilizing recorded historical program information. The average kWh energy savings and kW reduction is based on the current methodology used by San Diego Gas & Electric Company, (SDG&E) Pump Test Program (Attachment I). SDG&E reports kWh energy savings by using a percentage of the total kWh potential from the pump test analysis.

Summary of Results

The results of the analysis indicate a program potential of 23,141,695 kWh savings and an average demand reduction of 8,897 kW. Using this methodology, an additional 345 pump tests will have to be completed to reach the 24,000,000 kWh goal which was filed with the California Public Utilities (CPUC).

kWh Forecast

1994 kWh potential	79,798,948 kWh
Gross Realization Rate	29%
Calculation	$79,798,948 \times .29 =$
kWh Savings	23,141,695 kWh
1994 Pump Tests	4,190
Calculation	$23,141,695 / 4,190 =$
Average energy savings	5,523 kWh
1995 goal	24,000,000 kWh
Calculation	$24,000,000 / 5,523 =$
Projected 1995 pump tests	4,345 required

kW Forecast

1994 kW potential	30,687
Gross Realization Rate	29%
Calculation	$30,687 \times .29 =$
Savings	8,897 kW
1994 Pump Tests	4,190
Calculation	$8,897 / 4,190 =$
Average demand reduction	2.12 kW

Conclusions

Based on the historical performance of Edisons pump test program, and the established procedures of SDG&E, it is recommended that Edison adopt the reporting procedures utilizing the proposed averages per pump test. It is estimated that the reduction in paperwork will result in 2,000 annual man-hour savings which will enable the pump

test representative to complete approximately 345 additional pump test required to meet the energy saving goal.

Introduction

Program Overview

The Agricultural Energy Management Services Program is a program that offers SDG&E customer's & water pumping cost analysis at no charge to the customer. The test includes a detailed analysis of the current operating conditions of the pump, including overall plant efficiency. For those pump where the test yield an overall plant efficiency below industry standard, an estimated of the pump's operating conditions at the industry standard is provided to the customer. The Industry standard is a plant efficiency minimum that has been agreed to by the California Public Utilities Commission (CPUC). The customer receives a report from the pump test contractor that includes the current pump operating conditions and an estimate of the current energy use of the pump. If the pump is operating below industry standards, the report contains recommendations of action that could be taken to improve efficiency as well an estimate of the potential annual bill savings if these adjustments/repairs are made.

The program contractor who performs the testing work, tests roughly 400 pumps per years. Of those 400 pumps, generally half (200) pump fall below industry standard and recommendations for improvements are made in the report that is given to the customer. In 1993, the Agricultural Energy Management Services Program accounts for proximally 3% of SDG&E total annual energy conservation effort.

Objective of Report

The main objective of the study is to estimate four load impact parameters for the 1992-1993 program years. The first is the implementation rate. This is the percentage of the program potential kWh savings that may occur due to the participants implementing changes to the pumps to make the overall pump efficiency increase. This is obtained by determining, of the pumps that were operating below industry standards and recommendations were made for improvement, how often action was actually undertaken to improve the pump's plant efficiency.

The second parameter of interest is the realization rate. This is estimated based on the comparison of the pump retest data and the original pump test data. A sample of participants who have implemented some (or all) of the recommendations made to them had their pumps retested to determine the improved efficiency of the pump. The realization rate can be interpreted as follows: of those customers who took action to implement repairs to their pumps, the realization rate is the percentage of measured saving to potential savings. The measured savings were arrived by comparing the pump's usage at the "improved" efficiency level after repairs were made (date from the pump retest) to the pump's usage at the efficiency at the time of the original pump test. The potential savings which were extracted from the original pump tests were calculated by comparing the actual pump's usage to the pump's estimated usage if the pump's efficiencies were at the industrial standard.

The Third parameter, the net-to-gross ratio, is a projection of the kWh savings that can be credited to the program after taking into account the kWh savings that would have occurred in the absence of the program.

The fourth parameter is the customer cost associated with implementing the recommendation from the pump test. Participants were asked how much they spent on repairs t their pump.

Summary Results

The results of a phone survey conducted on 1992-1993 program participants indicate an implementation rate of 33% and a net-to-gross factor of 64%. Of these customers who did have work performed on their pumps, they realized 87% of the potential savings that were indicated by the pump test contractor (industry standard level). Multiplying the implementation rate and the realization rate results in an overall gross realization rate of 29%. The over net realization rate is 18%. The program participants typically spend between \$1,000 and \$4,000 for repairs/enhancements. Among the respondents to the telephone survey, pump usage was distributed evenly between irrigation (agriculture, golf courses) and water supply.

Data Analysis and Results

Implementation Rate

One objective of the study was to estimate the percentage of pumps that had repairs/enhancements performed to bring pumps that were operating below industry standard at the time of the test, up to or above the industry efficiency standard. A telephone survey was administered to customers who has pumps tested in the between 1992-1993. There were 83 customers with 389 pumps where recommendations were made to improve pump efficiency. Although a census of customers was attempted, some customers could not be contacted and others did not respond to the phone survey.

Survey Composition		
	Number of Customers	Number of Pumps
Total Attempted	83	389
Actual Reponses used	66	166

In addition, for customer with a large number of pumps (ten or more) that were tested in 1992 or 1993, the highest consumption pumps representing 50% of the customer's total potential savings or ten pumps, whichever was greater, were included in the survey. The result was 66 customers representing 166 pumps who responded to the questions in the survey used to calculate the implementation rate.

Of the 166 pumps in the survey, 55 pumps had work performed on them to improve the pump efficiency. This yields an implementation rate of 33%.

The third parameter, the net-to-gross ratio, is a proportion of the kWh savings that can be credited to the program after taking into account the kWh savings that would have occurred in the absence of the program.

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KILOWATT HOUR REPORTING

Total kWh's recommended x 33% = Implementation rate

Implementation rate (33%) x realization rate (87%) = Gross Realization rate

Gross realization rate (29%) x net to gross factor (64%) = Net realization rate (18%)

BOTTOM LINE:

- **29% of kWh recommendations are realized.**
- **64% of that 29% is attributed to the pump test program. The rest is considered to be free readership.**
- **18% of all kWh recommendations are credited toward the kWh reduction goal.**

Introduction

Program Overview

The Agricultural Energy Management Services Program is a program that offers SDG&E customers a water pumping cost analysis at no charge to the customer. The test includes a detailed analysis of the current operating conditions of the pump, including overall plant efficiency. For those pumps where the test yields an overall plant efficiency below industry standard, an estimate of the pump's operating conditions at the industry standard is provided to the customer. The industry standard is a plant efficiency minimum that has been agreed to by the California Public Utilities Commission (CPUC). The customer receives a report from the pump test contractor that includes the current pump operating conditions and an estimate of the current energy use of the pump. If the pump is operating below industry standards, the report contains recommendations of actions that could be taken to improve efficiency as well as an estimate of the potential annual bill savings if these adjustments/repairs are made.

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Objectives of Report

The main objective of the study is to estimate four load impact parameters for the 1992-1993 program years. The first is the implementation rate. This is the percentage of the total program potential kWh savings that may occur due to the participants implementing changes to their pumps to make the overall pump efficiency increase. This is obtained by determining, of the pumps that were operating below industry standard and recommendations were made for improvement, how often action was actually undertaken to improve the pump's plant efficiency.

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The third parameter, the net-to-gross ratio, is a proportion of the kWh savings that can be credited to the program after taking into account the kWh savings that would have occurred in the absence of the program.

The fourth parameter is the customer cost associated with implementing the recommendations from the pump test. Participants were asked how much they spent on repairs to their pumps.

Summary of Results

The results of a phone survey conducted on 1992-1993 program participants indicate an implementation rate of 53% and a net-to-gross factor of 64%. Of those customers who did have work performed on their pumps they realized 87% of the potential savings that was articulated by the pump test contractor (industry standard level). Multiplying the implementation rate and the realization rate results in an overall gross realization rate of 25%. The overall net realization rate is 13%. The program participants typically spent between \$1,000 and \$4,000 for repairs/enhancements. Among the respondents to the telephone survey, pump usage was distributed evenly between irrigation (agriculture, golf courses) and water supply.

Data Analysis and Results

Implementation Rate

One objective of the study was to estimate the percentage of pumps that had repairs/enhancements performed to bring pumps that were operating below industry standard at the time of the test up to or above the industry efficiency standard. A telephone survey was administered to customers who had pumps tested in the between 1992-1993.¹ There were 83 customers with 339 pumps where recommendations were made to improve pump efficiency. Although a census of customers was attempted, some customers could not be contacted and others

Survey Composition		
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representing 50% of the customer's total potential savings or ten pumps, whichever was greater, were included in the survey. The result was 66 customers representing 166 pumps who responded to the questions in the survey used to calculate the Implementation rate.

Of the 166 pumps in the survey, 55 pumps had work performed on them to improve the pump efficiency. This yields an Implementation rate of 33%.

¹ A copy of the survey instrument is included as an attachment.

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KILOWATT HOUR REPORTING

Total KWh's recommended x 33% = Implementation rate

Implementation rate (33%) x realization rate (87%) = Gross realization rate

Gross realization rate (29%) x net to gross factor (64%) = net realization rate (18%)

BOTTOM LINE:

- 29% of KWh recommendations are realized.
- 64% of that 29% is attributed to the pump test program. The rest is considered to be free ridership.
- 18% of all KWh recommendations are credited toward the KWh reduction goal.

SOUTHERN CALIFORNIA EDISON COMPANY
PUMPTEST System - Master File & C09 Extract
1994 Pump Tests

13:30 Tuesday, March 21, 1995

Statistics on Numeric Variables, All Regions

Variable Label	N	Miss	Minimum	Maximum	Sum	Mean
OVERALL1 Overall Plant Efficiency %	4034	157	0	151	227114	56
IMPREF1 Improved Pump Efficiency	2698	1495	0	76	178401	66
KVINPUT1 KW Input #1	4164	9	1	1545	291927	70
KWH_YR Annual kWh Usage	3917	274	0	34849996	1910187752	487404
PUMP_KWH Annual Pump kWh	3907	234	0	3331548	765070054	195720
DIF_KWH Savings in Total kWh	2611	1582	0	939577	77798948	30543
DIF_KW Savings in kW Input	2641	1547	0	140	39687	12
DIF_COST Savings in Total Annual Cost	2631	1532	0	219293	8175711	3109

S.D.G. & E. Gross Realization Rate of 29% X Kilowatt
Savings Total of 79,798,948 = 23,141,695 kWh.

SOUTHERN CALIFORNIA EDISON COMPANY
 PUMPTEST System - Master File & COB Extract
 1994 Pump Tests
 Count of Tests by District, All Regions

13:30 Tuesday, March 21, 1995

District Number.

DISTNO	Frequency	Percent	Cumulative	
			Frequency	Percent
22	93	2.2	93	2.2
24	173	4.6	266	6.8
27	173	4.1	439	11.0
29	53	1.3	492	12.2
30	165	3.7	657	15.9
31	321	7.7	978	23.6
32	18	0.4	1006	24.0
33	19	0.5	1025	24.5
34	349	7.3	1374	32.8
35	113	2.7	1487	35.5
36	94	2.3	1580	37.8
37	259	6.2	1839	44.4
40	21	0.5	1860	44.8
43	23	0.5	1884	45.0
44	15	0.4	1901	45.4
46	32	0.8	1934	46.2
47	42	1.0	1976	47.2
48	44	1.1	2020	48.2
49	8	0.2	2028	48.4
51	1286	30.7	3314	79.1
53	9	0.1	3317	79.2
57	93	2.2	3410	81.4
73	203	4.8	3613	86.2
77	262	6.3	3875	92.5
79	241	6.2	4116	98.7
84	8	0.2	4124	98.9
85	14	0.3	4138	99.2
86	12	0.3	4150	99.5
87	8	0.2	4158	99.7
99	12	0.3	4170	100.0

Frequency Missing = 3

pump Test Program

	1992	1991	1990	1989	1988	1987	1986	Total	Averages
# Pumps Tested	2,560	2,282	2,185	2,200	2,260	1,920	1,927	15,430	2,204
Annual kW Usage	140,032	103,812	104,218	109,806	103,421	98,207	82,478	740,092	105,723
Reported kW/Reduced	4,636	4,337	3,608	2,910	3,163	3,230	2,708	24,582	3,513
% of total kW	0.033	0.042	0.035	0.026	0.031	0.034	0.033	0.033	0.033
Average kW per test	1.81	1.90	1.65	1.28	1.39	1.68	1.41	1.59	1.59
Average kW input per pump	54.70	45.49	47.70	48.20	45.60	49.90	42.00	47.90	47.86

HYDRAULIC TEST AND INDUSTRIAL TEST ACTIVITIES FOR THE NORTHERN DIVISION DURING 1991 PLUS VARIOUS YEAR-END TOTALS AND COMPARISONS WITH THE PREVIOUS FIVE YEARS

(0.1% Tests are Excluded)

	ACTUAL 1992	ACTUAL 1991	ACTUAL 1990	ACTUAL 1989	ACTUAL 1988	ACTUAL 1987	ACTUAL 1986
Total Pumps Tested	2538	2782	2185	2280	2268	1928	1927
Total Annual KWHs Tested by Pumps Tested	230,004,728	221,724,976	249,404,537	219,372,174	201,764,224	151,648,000	
Total Annual KW Input Used by Pumps Tested	140,032	103,812	104,210	109,896	101,421	96,207	82,476
Total KWHs Reduced	12,200,640	10,971,372	9,964,476	9,404,028	9,456,264	10,865,416	9,533,364
Total KW Reduced/Shared	4636	4337	3608	2910	3161	3230	2708
KWHs Reduced as a % of Total KWHs	5.17%	4.8%	4.5%	3.8%	4.3%	5.4%	6.3%
KW Reduced as a % of Total KW Input	3.37%	4.2%	3.5%	2.6%	3.1%	3.4%	3.3%
Average KWHs Reduced Per Test	4766	4808	4560	4125	4169	5635	4947
Average KW Reduced Per Test	1.8	1.9	1.7	1.3	1.4	1.7	1.4
Average Annual KWH Consumption Per Pump Test	100,804	101,476	109,390	96,737	104,690	78,692	
Average KW Input Per Pump Tested	54.7	48.7	47.7	48.2	45.6	49.9	42.8
Number of Testmen in Field Testing Pumps	53	54	54	54	54	5	5
H.T.E. Number of Testmen Acting as ESR	6	7	6	6	6	1	1

Test Recap

Recommended					
Pre-O.P.E.	O.P.E.	Post O.P.E.	% Achieved	Pre-G.P.M.	Post G.P.M.
53.5	63	67.9	107.8	456	723
25.1	51	40.3	79	109	236
53.8	70	60.5	86.4	651	1199
36.8	63	49.1	77.9	505	697
31.8	60	50.2	83.7	195	517
65	70	72	103	1818	1840
55.1	66	57.4	87	716	695
49.2	68	60.6	89.1	876	1037
55.3	68	62.2	91.5	695	841
42.5	64	64.4	100.6	644	1426
53.9	63	67.1	106.5	501	789
42.9	63	63.7	101.1	476	887
25.8	66	59.7	90.5	668	1327
53.9	68	70.5	103.7	817	1395
35.9	60	53	88.3	366	444
35.7	58	53.4	92.1	280	491
55.3	70	70	100	958	1940
64.1	70	68.7	98.1	1104	1157
5.7	70	62.4	88.6	79	719
27.4	55	41	74.5	141	215
31.7	70	53.3	76.1	518	834
50	70	62.7	89.6	518	834
67.1	70	81.9	117	826	1028
48.7	70	63.8	91.1	1032	1170

Totals = 24 Pumps

Average Obtained: 92.6% of Recommended

[illegible]

Theoretically Running Hours Could Be Reduced -- Thus Saving Additional Kwh's

Test Recap

Recommended			
Pre-O.P.E.	O.P.E.	Post O.P.E.	% Achieved
53.5	63	67.9	107.8
25.1	51	40.3	79
53.8	70	60.5	86.4
36.8	63	49.1	77.9
31.8	60	50.2	83.7
65	70	72	103
55.1	66	57.4	87
49.2	68	60.6	89.1
55.3	68	62.2	91.5
42.5	64	64.4	100.6
53.9	63	67.1	106.5
42.9	63	63.7	101.1
25.8	66	59.7	90.5
53.9	68	70.5	103.7
35.9	60	53	88.3
35.7	58	53.4	92.1
55.3	70	70	100
64.1	70	68.7	98.1
5.7	70	62.4	88.6
27.4	55	41	74.5
31.7	70	53.3	76.1
50	70	62.7	89.6
67.1	70	81.9	117
48.7	70	63.8	91.1

Totals = 24 Pumps

Average Obtained: 92.6% of Recommended

TEST RE-CAP

Pre-O.P.E.	Recommended O.P.E.	Post O.P.E.	% Achieved	Pre-G.P.M.	Post G.P.M.
65.8	72.0	72.3	100.4	2071.0	2422.0
55.7	72.0	72.1	100.1	3025.0	2813.0
62.6	72.0	72.0	100.0	1225.0	2897.0
52.4	65.0	61.1	93.8	355.0	1011.0
49.0	72.0	72.8	101.1	1817.0	1890.0
49.8	60.0	61.7	102.8	407.0	481.0
59.7	72.0	75.8	105.3	3438.0	3544.0
64.8	72.0	71.5	99.3	3842.0	4852.0
64.2	72.0	73.0	101.4	4180.0	4208.0
65.5	72.0	73.5	102.1	3346.0	3063.0
66.4	72.0	74.4	103.3	3146.0	3048.0
63.3	72.0	69.7	96.8	3032.0	2081.0
64.7	70.0	70.8	101.1	1089.0	1180.0
63.6	70.0	65.3	93.3	1001.0	1054.0
55.6	67.0	64.6	96.4	483.0	504.0
58.7	67.0	64.7	96.6	533.0	537.0
54.0	72.0	65.6	91.1	1395.0	1564.0
54.2	72.0	64.0	88.9	1777.0	1798.0

Total pumps: 18
 Average obtained: 98.5% of Recommended
 Increase in G.P.M.: 2805
 % Increase: 7.8

Theoretical running hours could be reduced -- thus saving additional KWH's

TEST RE-CAP

Pre-O.P.E.	Recommended O.P.E.	Post O.P.E.	% Achieved
65.8	72.0	72.3	100.4
55.7	72.0	72.1	100.1
62.6	72.0	72.0	100.0
52.4	65.0	61.1	93.8
49.0	72.0	72.8	101.1
49.8	60.0	61.7	102.8
59.7	72.0	75.8	105.3
64.8	72.0	71.5	99.3
64.2	72.0	73.0	101.4
65.5	72.0	73.5	102.1
66.4	72.0	74.4	103.3
63.3	72.0	69.7	96.8
64.7	70.0	70.8	101.1
63.6	70.0	65.3	93.3
55.6	67.0	64.6	96.4
58.7	67.0	64.7	96.6
54.0	72.0	65.6	91.1
54.2	72.0	64.0	88.9

Total pumps: 18

Average obtained: 98.5% of Recommended

To: Dan L. Johnson, Tom J. Olson
From: Paul M. Williams
Date: January 18, 1996 *Pruned*
Subject: Pump Tests by Year Report -- It's Operational -- Update #5

Attached is the completed new management report "Summary of Letters by Region, Year, & Letter Type" from the Pumptest computer program (computer report name = SUMYEAR).

This report list by year the number of letters sent to pump test customers and is an indication of the number of pumps tested by Edison. Letters are counted by type: Cost Analysis Letter, Congratulations Letter, and the total of those two letters represent the number of pump test result letters. Letters counts are printed by pump testers group; one page with region "N" is for Danny Johnson's testers and another page with region "E" has Tom Olson's testers. The total of the two groups are printed on another page. The last page list the pump testers name and number of test letters since 1990.

Requesting "SUMYEAR" report now can be done by all users of the Pumptest computer program by following these step;

1. From the Pumptest User Menu, select the option "RFM" for Go To Report Menu,
2. From the Report Menu -- select the option "SYR" for Summary of Tests by Year,
3. From the Submit Job for Annual History Report screen -- enter the number of copies wanted, enter your name, and pony work location (should be something like W023 -- if unsure look up in ESM section 19.40.5 or profs Paul Williams a note). Then read note at screen bottom to press PF-3 key to continue and submit the job to run. Report will print in Rosemead and you should receive report by PONY mail the next day.

Please throw out all "SUMYEAR" reports dated before January 16, 1996 because the counts will be in error, they do not include new program enhancements, and Bill Hammond tests will be missing. Attached is descriptions of report column headings and how there values were calculated.

If there are changes wanted, please contact me.

My Pony Address is: Pax is 47686
Paul Williams
Energy Efficiency
Lone Hill/ San Dimas
PMW: pump5050.doc
CC: B. Nola
M. D. Wadler

L 1

Analysis of Pump Tests Archived Since 1990

Summary of Letters by Region, Year, & Letter Type

Region	Results for Year	Letter Type	Number of Tests	Number of Pumps	Tested Motor Name Plate Horsepower	Tested Annual Sales \$	Tested Annual Usage kWh	Estimated kWh Saved at 100%	Estimated kWh Saved at 29%
	1990	Cost Analysis	127	119	12,939	\$2,968,071	33,677,820	7,475,357	2,167,854
		Congratulations	153	139	17,965	\$3,071,021	34,993,260	0	0
	1990		280	258	30,904	\$6,039,092	68,671,080	7,475,357	2,167,854
	1991	Cost Analysis	768	687	66,403	\$15,994,624	182,432,508	34,600,436	10,034,126
		Congratulations	930	843	100,772	\$18,591,860	211,236,180	0	0
	1991		1,698	1,530	167,175	\$34,586,484	393,668,688	34,600,436	10,034,126
	1992	Cost Analysis	1,150	1,080	100,510	\$22,716,168	239,341,452	43,448,943	12,600,193
		Congratulations	1,102	1,041	130,786	\$24,510,466	264,457,500	0	0
	1992		2,252	2,121	231,295	\$47,226,634	503,798,952	43,448,943	12,600,193
	1993	Cost Analysis	1,139	1,093	108,444	\$24,168,639	261,942,617	52,891,409	15,338,509
		Congratulations	881	836	113,379	\$24,058,997	266,665,920	0	0
	1993		2,020	1,929	221,823	\$48,227,637	528,608,537	52,891,409	15,338,509
	1994	Cost Analysis	1,313	1,232	126,287	\$27,153,993	294,031,632	50,866,191	14,751,195
		Congratulations	868	823	100,408	\$20,179,390	227,969,808	0	0
	1994		2,181	2,055	226,694	\$47,333,383	522,001,440	50,866,191	14,751,195
	1995	Cost Analysis	1,165	1,106	134,217	\$27,034,819	299,691,162	48,852,307	14,167,169
		Congratulations	1,014	979	116,820	\$24,119,818	265,811,784	0	0
	1995		2,179	2,085	251,037	\$51,154,637	565,502,946	48,852,307	14,167,169
	1996	Cost Analysis	7	7	535	\$65,136	745,368	196,504	56,986
		Congratulations	9	9	1,445	\$472,056	5,229,924	0	0
	1996		16	16	1,980	\$537,192	5,975,292	196,504	56,986
			10,626	9,994	1,130,907	\$235,105,060	2,588,226,935	238,331,147	69,116,033

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SOUTHERN CALIFORNIA EDISON COMPANY

PUMPTEST Reporting System

20,11 Tuesday, January 16, 199

Analysis of Pump Tests Archived Since 1990

Summary of Letters by Region, Year, & Letter Type

Region	Results for Year	Letter Type	Number of Tests	Number of Pumps	Tested Motor Name Plate Horsepower	Tested Annual Sales \$	Tested Annual Usage kWh	Estimated kWh Saved at 100%	Estimated kWh Saved at 29%
	1990	Cost Analysis	91	91	4,622	\$1,017,329	10,966,080	2,815,623	816,531
		Congratulations	37	37	1,588	\$150,385	1,579,956	0	0
	1990		128	128	6,209	\$1,167,713	12,546,036	2,815,623	816,531
	1991	Cost Analysis	1,628	1,599	78,605	\$13,543,481	145,681,488	28,574,767	8,286,682
		Congratulations	691	672	41,456	\$5,564,793	61,904,388	0	0
	1991		2,319	2,271	120,061	\$19,108,274	207,585,876	28,574,767	8,286,682
	1992	Cost Analysis	1,744	1,686	86,620	\$13,624,897	142,656,360	28,466,555	8,255,301
		Congratulations	745	719	46,466	\$5,680,692	60,323,484	0	0
	1992		2,489	2,405	133,086	\$19,305,589	202,979,844	28,466,555	8,255,301
	1993	Cost Analysis	1,381	1,351	74,989	\$12,099,811	122,079,444	22,254,260	6,453,735
		Congratulations	596	576	36,805	\$4,830,991	49,611,948	0	0
	1993		1,977	1,927	111,794	\$16,930,802	171,691,392	22,254,260	6,453,735
	1994	Cost Analysis	1,169	1,143	62,205	\$9,374,814	93,473,376	17,377,990	5,039,617
		Congratulations	539	521	31,799	\$3,482,458	38,461,980	0	0
	1994		1,708	1,664	94,004	\$12,857,271	131,935,356	17,377,990	5,039,617
	1995	Cost Analysis	1,439	1,376	83,726	\$13,571,818	138,170,239	24,745,160	7,176,096
		Congratulations	628	595	38,631	\$6,552,437	68,421,172	0	0
	1995		2,067	1,971	122,357	\$20,124,255	206,591,411	24,745,160	7,176,096
	1996	Cost Analysis	15	15	970	\$175,448	1,694,460	324,782	94,187
		Congratulations	16	16	1,225	\$153,735	1,564,512	0	0
	1996		31	31	2,195	\$329,183	3,258,972	324,782	94,187
			10,719	10,397	589,705	\$89,823,087	936,588,887	124,559,136	36,122,150
			21,345	20,391	1,720,612	\$324,928,147	3,524,815,821	362,890,283	105,238,182

PUMPTEST Reporting System

20:11 Tuesday, January 16, 199

Analysis of Pump Tests Archived Since 1990

Summary of Letters by Year & Letter Type

Year	Letter Type	Number of Tests	Number of Pumps	Tested Motor Name Plate Horsepower	Tested Annual Sales \$	Tested Annual Usage kWh	Estimated kWh Saved at 100%	Estimated kWh Saved at 29%
1990	Cost Analysis	218	210	17,560	\$3,985,399	44,643,900	10,290,980	2,984,384
	Congratulations	190	176	19,553	\$3,221,406	36,573,216	0	0
1990		408	386	37,113	\$7,206,805	81,217,116	10,290,980	2,984,384
1991	Cost Analysis	2,396	2,286	145,008	\$29,538,105	328,113,996	63,175,203	18,320,809
	Congratulations	1,621	1,515	142,228	\$24,156,654	273,140,568	0	0
1991		4,017	3,801	287,236	\$53,694,759	601,254,564	63,175,203	18,320,809
1992	Cost Analysis	2,894	2,766	187,130	\$36,341,065	381,997,812	71,915,498	20,855,494
	Congratulations	1,847	1,760	177,251	\$30,191,158	324,780,984	0	0
1992		4,741	4,526	364,381	\$66,532,223	706,778,796	71,915,498	20,855,494
1993	Cost Analysis	2,520	2,444	183,433	\$36,268,450	384,022,061	75,145,669	21,792,244
	Congratulations	1,477	1,412	150,183	\$28,889,989	316,277,868	0	0
1993		3,997	3,856	333,616	\$65,158,439	700,299,929	75,145,669	21,792,244
1994	Cost Analysis	2,482	2,375	188,492	\$36,528,807	387,505,008	68,244,180	19,790,812
	Congratulations	1,407	1,344	132,207	\$23,661,848	266,431,788	0	0
1994		3,889	3,719	320,698	\$60,190,654	653,936,796	68,244,180	19,790,812
1995	Cost Analysis	2,604	2,482	217,943	\$40,606,637	437,861,401	73,597,467	21,343,265
	Congratulations	1,642	1,574	155,451	\$30,672,255	334,232,956	0	0
1995		4,246	4,056	373,394	\$71,278,892	772,094,357	73,597,467	21,343,265
1996	Cost Analysis	22	22	1,505	\$240,584	2,439,828	521,286	151,173
	Congratulations	25	25	2,670	\$625,791	6,794,436	0	0
1996		47	47	4,175	\$866,375	9,234,264	521,286	151,173
		21,345	20,391	1,720,612	\$324,928,147	3,524,815,821	362,890,283	105,238,182

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SOUTHERN CALIFORNIA EDISON COMPANY
PUMPTEST Reporting System
Analysis of Pump Tests Archived Since 1990
Count of Users, Batches, & Tests

20:11 Tuesday, January 16, 19

TSO User ID	User Name	Number of Batches	Number of Tests
CSN9109	BILL HAMMOND	18	234
CS319A9	VICTOR J. PIMENT	117	1,034
CS31905	BOB KNISS	33	600
CS31921	LEO ATENCIO	59	558
CS31924	TOM LAMAGHAN	55	943
CS31925	LO HAIRGROVE	78	584
CS31926	RAY HICKS	55	664
CS31927	BRAD BAUGHMAN	94	859
CS31928	BILL GARLATZ	108	907
CS3199M	LISA DE KORNE	85	4,226
CS4A1	AMOS MUSGROVE	213	2,178
CS4A2	MIKE MC CULLEY	214	1,828
CS4A3	HAROLD NIELSEN	103	1,836
CS4A4	CECIL ELLISON	152	1,940
CS595LD	ROGER DAVENPORT	106	1,082
CS595L2	JOHN NASALROAD	144	1,110
CS595M9	GARY PARQUE	156	762
		=====	=====
		1,790	21,345

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Descriptions of information listed on the "Summary of Letters by Year & Letter Type" report are below (labeled = "SUMYEAR"). Report list information about pump tests by year and type of letters sent to pump test customers and were entered into the Pumptest computer program.

The following is a list of definitions used for the column headings.

"Region" -- N is for Dan Johnson's pump testers and E is for Tom Olson's pump testers.

"Results of Year" -- Letter counts are group by year the pump was tested.

"Letter Types" -- List the different letter types names;

- Cost analysis letter are requested by pump tester when there is a potential of improved overall pumping plant efficiencies;
- Congratulations letter is produced when there is no Improved Overall Pumping Plant Efficiency value entered into the Pumptest computer program;
- The combined total count of the above two letter types is equal to the number of pump test results letters.

"Number of Tests" -- This column is counting pump tests done on different days in a year, even if they were on the same pump. Example, if the same pump was tested on three different days in the year, it was counted as three tests. If the same pump was tested more then once on the same day, only one test was counted for that day.

"Number of Pumps" -- This column is counting the different pumps Edison tested in a year. Example, if the same pump was tested on three different days in a year, it was counted as one pump. All the other columns numbers to the right were based on these column numbers and not the "Number of Tests" column numbers.

"Tested Motor Name Plate Horsepower" -- Total of name plate motor horsepower for the different pumps tested in a year.

"Tested Annual Sales \$" -- total of annual energy sales for the different pumps tested in a year. The customer average energy cost, entered by the pump tester, is multiplied times the pump annual energy usage to produce the annual energy sales for the tested pump.

If the customer average kWh cost value, as enter by the pump tester, is either below 4 cents per kWh or above 35 cents, the cost value was changed to 10 cents per kWh. Only 2% of the test (about 400 tests out of 2000 tests) had to be

changed. The changes were made because some values there just too large, one high entry had \$1,240,000 per kWh, and some entered 1 cent per kWh.

"Tested Annual Usage kWh" -- total of kWh usage for the different pumps tested in a year. kWh values used is the monthly pump kWh valued entered by pump tester multiplied by 12 months. If monthly pump kwh value was blank, then the monthly meter kWh value entered by the pump tester was used. If monthly meter and pump kWh are blank, a zero kWh is assumed -- the program does not attempt to recover meter kWh values from the Customer Data Base system.

"Estimated kWh Saved at 100%" -- total of estimated potential energy savings if all customers who were sent a cost analysis letter in a year did have the changes made to their pumping plants.

"Estimated kWh Saved at 29%" -- This assumes that only 29% of customers sent a cost analysis letter did take action to complete changes to their pumping plants. This value is calculated by taking "Estimated kWh Saved at 100%" value times 0.29. The percentage value can be changed in the future.

Date Printed on Report -- This date, besides being the date the report was printed, it is also the date when the Pumptest computer program went out to retrieve from all pump tester's computer files, their completed batches of pump tests results.

Revised Jan. 18, 96 by Paul M. Williams. (dsn: pump5050.doc)

Descriptions of information listed on the "Count of Users, Batches, & Tests" report is below (labeled = "SUMYEAR"). Report list information about who has entered pump test information to the Pumptest computer program and their batches of pump test data.

The following is a list of definitions used for the column headings.

"TSO User ID" -- List all the TSO user ID of people entering pump test results information to the Pumptest computer program since 1990.

"User Name" -- List all names of people entering pump test results information to the Pumptest computer program.

Note -- If a pump tester name is not listed here, they have never completed the Pumptest computer program steps to move pump test results information into either the historical master files or the testers achieve files. This is a problem because their pump tests are not being counted in this report.

"Number of Batches" -- When a pump tester is completed with a group of pump test result information, the tester will move that information into long term computer storage area cost master file and archive files. (I will have to expand this description in the next update -- PMW)

"Number of Tests" -- Number of tests conducted by pump tester since 1990. (I will have to expand this description in the next update -- PMW)

Date Printed on Report -- This date, besides being the date the report was printed, it is also the date when the Pumptest computer program went out to retrieve from all pump test's computer files, their completed batches of pump tests results.

Revised Jan. 18, 96 by Paul M. Williams. (dsn: pump5050.doc)