Book Updated 2/10/95

ST. JOSEPH LIGHT & POWER COMPANY

ALLOCATION PROCEDURES

CASE NO. EO-94-36

August 1994
Revised October 1994
Revised December 1994

January 1, 1995

ST. JOSEPH LIGHT & POWER COMPANY

ALLOCATION PROCEDURES

CASE NO. EO-94-36

I. CAPITAL PLANT ALLOCATION - Lake Road

A. Portions of LR Capital Plant Allocated 100% to Electric

B. Portions of LR Capital Plant 100% Assigned to Industrial Steam

C. Portions of LR Capital Plant Common to Electric and Industrial Steam

D. Reserve for Depreciation Allocation - Lake Road

II. CAPITAL PLANT ALLOCATION - General Plant

A. Capital Plant Allocation - General Plant

B. Reserve for Depreciation Allocation - General Plant

III. INVENTORY - FUEL Lake Road

IV. INVENTORY - Materials and Supplies

A. Materials and Supplies Inventory Allocation - Lake Road

B. Other Materials and Supplies

V. OTHER RATE BASE ITEMS

A. PREPAYMENTS

B. DEFERRED TAXES

C. SPECIAL DEPOSITS

VI. EXPENSES - FUEL

A. Fuel and Daily Ash Expense Allocations

B. Auxiliary Electric Power Allocation

VII. EXPENSES - O & M EXPENSE ALLOCATION

VIII. Expenses- General & Administrative Expenses

IX. EXPENSES - PROPERTY TAXES

X. EXPENSES - INTEREST FOR TAXES

ST. JOSEPH LIGHT & POWER COMPANY
ALLOCATION PROCEDURES
CASE NO. EO-94-36

I. CAPITAL PLANT ALLOCATION - Lake Road

A. Portions of LR Capital Plant Allocated 100% to Electric

The following LR capital plant is to be allocated 100% to Electric, with the noted exceptions:

1. All "900 lb." steam turbine generators and associated equipment (Acc 314) including the following:

- main steam piping, with supports, leading to turbines (Acc 314);
- turbine generator controls and instrumentation (Acc 314);
- main steam condensers, condensate pumps, piping and auxiliaries (Acc 314);
- cooling towers and auxiliaries (Acc 314);
- circulating water pumps and circulating water lines (Acc 314);

BUT EXCLUDING Turbine #1 (Acc 314).

2. All combustion turbine generators, Boiler #7 (HRSG) and associated equipment (Acc 340's).

3. Unit 4/6 (the "1800 lb. system") including Boiler #6 (Acc 312), Turbine Generator #4 (Acc 314), Boiler #6 condensate & feedwater system (including demineralizers) (Acc 312), Boiler #6 coal handling (including crusher house and coal crushing equipment) (Acc 312), Precipitator #6 (Acc 312), and Boiler #6 ash removal system (Acc 312).

4. Turbine building and other buildings and structures housing and/or associated with the 100% electric generation facilities (Acc 311 & 341).

B. Portions of LR Capital Plant 100% Assigned to Industrial Steam

The following LR capital plant is to be allocated 100% to Industrial Steam:

1. All steam piping, supports, desuperheating water piping, pressure reducing stations, attemperating stations, controls and metering equipment from the 200

psi plant output meters (12" and 16" meters), inclusive to the low pressure industrial steam customers (Acc 312).

2. All steam piping, supports, attemperating station, and associated controls and metering equipment from the 900 psi header to the high pressure (850 psi) industrial steam customer (Acc 312).

3. The high pressure (850 psi) industrial steam customer desuperheating pumps, piping, and controls (Acc 312).

4. All industrial steam customer meter houses, buildings and structures which house or are associated with 100% industrial steam facilities (Acc 311).

C. <u>Portions of LR Capital Plant Common to Electric and Industrial Steam</u>

The following LR capital plant is to be allocated between Electric and Industrial Steam, using the allocation methods specified.

1. Automatic Extraction Turbine #1 (Acc 314);

<u>Allocation</u> - Allocate a fraction, E, to the electric users, where E is the ratio between 1) the cost of a new standard turbine, i.e., non-automatic extraction turbine, and 2) the cost of a new automatic extraction turbine. The remaining fraction (R = 1 - E) is to be allocated further between electric and steam users since the extraction goes to both electric and steam customers. This fraction (R) shall be allocated between steam and electric users by applying the 900 lb Steam Demand Allocation Factor. A 1994 study of standard and automatic extraction turbine costs established that E=94.6% and R=5.4% (R=0.054). (See Attached Memorandum dated January 28, 1994 and marked Schedule 1).

2. Boilers 1 through 5, including the following (Acc 312):

- air and fuel supply systems, including coal handling facilities dedicated solely to Boiler #5 (312);
- feedwater pumps, valves and piping (Acc 312);
- deaerator and feedwater storage tanks (Acc 312);
- steam piping to the 900 lb. steam header (Acc 312);
- precipitators, stacks and emission control equipment (Acc 312);
- Ash handling facilities dedicated solely to Boiler #5 (Acc 312);

<u>Allocation</u> - Allocate by applying the 900 lb Steam Demand Allocation Factor.

3. Common coal handling facilities including the following (common to Boilers #5 & #6) (Acc 312):

- rotary car dumper (Acc 312);
- locomotive (Acc 312);
- common coal conveyors (Acc 312);
- dozers (Acc 312).

<u>Allocation</u> - Allocate first between Boiler #5 (allocated plant) and Boiler #6 (100% electric) based on the rate at which each boiler burns coal at its rated maximum output ("rated coal burn rate"). The Boiler 5 rated coal burn rate is 15 tons/hr and the Boiler #6 rated coal burn rate is 43 tons/hr. Thus, allocate a fraction R to Boiler #5, where R is 15/58, or 25.86%, and then allocate this portion further between electric and industrial steam by applying the 900 lb Steam Demand Allocation Factor. Allocate the fraction E = 1-R, or 74.14%, to Boiler #6 and charge 100% to electric.

4. Common ash handling facilities including the following (common to Boilers #5 & #6) (Acc 312):

- low side ash tank (Acc 312);
- associated exhausting vacuum system (Acc 312);
- rotary unloader (Acc 312).

<u>Allocation</u> - Allocate first between Boiler #5 (allocated plant) and Boiler #6 (100% electric) based on the rate of ash production from each boiler at its rated maximum output, after adjusting these values for the fraction of ash from each boiler which actually is directed to the common ash tank. To accomplish this, obtain the maximum ash production rate for each boiler by multiplying the rated coal burn rate (15 tons/hr for Boiler #5 and 43 tons/hr for Boiler #6) by the ash content of the coal (A_5 and A_6, respectively). Then recognize that 100% of Boiler #5 ash goes to the ash tank, but only a portion (estimated to be 17.7%) of the fly ash and none of the cyclone slag/bottom ash from Boiler #6 goes to the ash tank. Thus, allocate the fraction R to Boiler #5, where R is equal to ($15 \times A_5$) divided by the quantity ($15 \times A_5 + (43 \times \underline{a} \times \underline{b}) \times A_6$), with <u>a</u> equal to the fraction of Boiler #6 fly ash going to the tank (currently 17.7%) and with <u>b</u> equal to the fraction of fly ash in total ash (30%) coming from Boiler #6. Then allocate this portion (R) further between electric and industrial steam by applying the 900 lb Steam Demand Allocation Factor. Allocate the remainder (E = 1-R) to Boiler #6 and charge 100% to electric. (If the two boilers are burning coal with the same ash content, the A_5 and A_6 terms can be dropped.)

5. Water Treatment Facilities (Acc 312);

<u>Allocation</u> - Allocate a fraction E to electric, where E is the ratio between 1) the cost of new water treatment facilities capable of treating only that amount of water needed for electric plant and 2) the cost of new water

treatment facilities capable of treating water for both the electric users and the steam users. Allocate the remaining fraction (S = 1 - E) to industrial steam. A 1994 study of Lake Road Feedwater Treatment Facilities established that E = 17.1% and S = 82.9%. (See Attached Memorandum dated March 8, 1994 and marked Schedule 2).

6. Other plant facilities, buildings, structures and equipment (Accounts 310, 311, 312, 315 and 316, unless covered above).

Allocation

Account 310 - Land and Land Rights:
Allocate based on the ratio derived from the total plant allocated to industrial steam and electric in accounts 311, 312, 314, 315, 316, 341, 342, 344, 345 and 346.

Account 311 - Structures and Improvements:

- Turbine Building will be assigned 100% to Electric.
- Steam Meter Houses will be assigned 100% to Industrial Steam.
- Allocate the Water Softener Building and the Water Treatment Building using the same allocation factor used to allocate the water treatment facilities.
- The remainder of account 311 will be allocated based on the ratio between the total plant allocated to industrial steam and electric in Accounts 312 and 314 only.

Account 315 - Accessory Electric Equipment:
A review was made of the details of Account 315 (L1315) assigned to electric. This review identified that a portion of account 315 should be allocated between electric and industrial steam and that a portion is 100% electric. The review of the industrial steam account 315 (L6315) identified that all of this account should be assigned to industrial steam. The allocable portion of account L1315 should be allocated based on the total plant ratio determined in allocation accounts 311, 312, and 316. (See Attached Memorandum dated March 14, 1994 and marked Schedule 3).

Account 316 - Miscellaneous Power Plant Equipment :
Items under Account 316 should be allocated by applying the 900/1800 lb Steam Demand Factor.

D. Reserve for Depreciation Allocation - Lake Road

A portion of the electric reserve balance for each plant account is allocated to Industrial Steam based on the percentage of the electric plant in service allocated to Industrial Steam.

20-Dec-94

ST. JOSEPH LIGHT & POWER COMPANY
LAKE ROAD PLANT ALLOCATION – SETTLEMENT SCENERIO
DECEMBER 31, 1993

F:\ACCT\LR\SETTLEMT

ACCOUNT #, TITLE	ELECTRIC P.I.S. @12/31/93	STEAM P.I.S. @12/31/93	TOTAL P.I.S. @12/31/93	100% ELECTRIC	100% STEAM	REMAINING ALLOCABLE	900# STEAM DEMAND ELECTRIC 76.9%	900# STEAM DEMAND STEAM 23.1%			TOTAL PLANT ELECTRIC	TOTAL PLANT STEAM
312 BOILERS	15,788,699	414,810	16,203,509	6,399,056 (A,B)	718,643 (B)	9,085,808	6,986,986	2,098,822			13,386,044	2,817,465
312A COAL HANDLING	8,573,722		8,573,722	6,353,128 (D)		2,220,594	1,707,637	512,957			8,060,765	512,957
312B ASH HANDLING	55,663		55,663	7,348 (E)		48,315	37,154	11,161			44,502	11,161
314 TURBO GENERATORS	7,976,637		7,976,637	7,927,593 (C)		49,044	37,715	11,329			7,965,308	11,329
341 STRUCTURES & IMPROV	1,086,796		1,086,796	1,086,796		0	0	0			1,086,796	0
342 FUEL HOLDERS, PROD	587,259		587,259	587,259		0	0	0			587,259	0
344 PRIME MOVERS/GENRTR	12,667,276		12,667,276	12,667,276		0	0	0			12,667,276	0
345 ACCESSORY ELECTRIC	528,112		528,112	528,112		0	0	0			528,112	0
346 MISC POWER PLANT EQ	41,556		41,556	41,556		0	0	0			41,556	0
	47,305,720	414,810	47,720,530								44,367,616	3,352,912
										RATIO	0.930	0.070
						REMAINING ALLOCABLE	900/1800# STEAM DEMAND ELECTRIC 89.3%	900/1800# STEAM DEMAND STEAM 10.7%	BASED ON TOTAL PLANT RATIO CALCULATED ABOVE ELECTRIC 93.0%	BASED ON TOTAL PLANT RATIO CALCULATED ABOVE STEAM 7.0%		
310 LAND & LAND RIGHTS	319,438	11,450	330,888			330,888			307,726	23,162	307,726	23,162
311 STRUCTURES & IMPROV	5,839,246	78,600	5,917,846	19,186 (F)	93,012 (F)	5,805,648			5,399,253	406,395	5,418,439	499,407
315 ACCESSORY ELECTRIC	1,861,673	357,844	2,219,517	1,333,908 (G)	357,844 (G)	527,765			490,821	36,944	1,824,729	394,788
316 MISC POWER PLANT	1,337,264	64,573	1,401,837			1,401,837	1,251,840	149,997			1,251,840	149,997
	9,357,621	512,467	9,870,088								8,802,734	1,067,354
	56,663,341	927,277	57,590,618								53,170,353	4,420,265

(A) BOILER #6, PRECIPITATOR #6, CRUSHERS, & CRUSHER HOUSE – 1800 lb
(B) STEAM PIPING AND WATER PURIFICATION EQUIPMENT AND AGP DESUPERHEAT PUMP
(C) TURBINE #1 IS ALLOCATED 94.6% ELECTRIC & 5.4% ALLOCABLE PER LAKE ROAD'S 1994 STUDY
(D) COAL HANDLING ALLOCATED 74.1% ELECTRIC AND 25.9% ALLOCABLE PER LAKE ROAD'S 1994 STUDY → coal burn rate
(E) BOILER #5 & #6 COMMON ASH HANDLING EQUIPMENT ALLOCATED 13.2% ELECTRIC AND 86.8% ALLOCABLE BASED ON DEMAND
(F) WATER SOFTENER BUILDING, WATER TREATMENT BUILDING & POWER PLANT BUILDING, 82.9% STEAM & 17.1% ELECTRIC PER LAKE ROAD'S 1994 STUDY
(G) $527,765 ALLOCABLE PER LAKE ROAD'S 1994 STUDY AND THE REMAINING IS SPECIFICALLY IDENTIFIABLE

20-Dec-94

LAKE ROAD ALLOCATION
DECEMBER 31, 1993 – RESERVE ALLOCATION

ACCOUNT #, TITLE	ELECTRIC P.I.S. @12/31/93	STEAM P.I.S. @12/31/93	TOTAL ALLOCATED STEAM PLANT	ALLOCATION ADJUSTMENT	RATIO OF ADJUSTMENT TO ELECTRIC P.I.S.	ELECTRIC RESERVE BALANCE (2) @12/31/93	ELECTRIC RESERVE ALLOCATED TO STEAM
312 BOILERS	15,788,699	414,810	2,817,465	2,402,655	11.97% (1)	17,680,609	2,116,369
312A COAL HANDLING	8,573,722	0	512,957	512,957			0
312B ASH HANDLING	55,663	0	11,161	11,161			
314 TURBO GENERATORS	7,976,637	0	11,329	11,329	0.14%	5,872,266	8,221
341 STRUCTURES & IMPRO	1,086,796	0	0	0	0.00%	1,016,795	0
342 FUEL HOLDERS, PROD	587,259	0	0	0	0.00%	557,092	0
344 PRIME MOVERS/GENRT	12,667,276	0	0	0	0.00%	7,218,320	0
345 ACCESSORY ELECTRIC	528,112	0	0	0	0.00%	523,744	0
346 MISC POWER PLANT E	41,556	0	0	0	0.00%	18,915	0
	47,305,720	414,810					
310 LAND & LAND RIGHTS	319,438	11,450	23,162	11,712	3.67%		0
311 STRUCTURES & IMPROV	5,839,246	78,600	499,407	420,807	7.21%	2,246,069	161,942
315 ACCESSORY ELECTRIC	1,861,673	357,844	394,788	36,944	1.98%	1,596,729	31,615
316 MISC POWER PLANT	1,337,264	64,573	149,997	85,424	6.39%	752,484	48,084
	9,357,621	512,467					
	56,663,341	927,277	4,420,265	3,492,988		37,483,023	2,366,231

(1) RATIO IS BASED ON A/C'S 312 AND 312A
(2) Source for reserve is Accumulated Provision for Depreciation.

20-Dec-94

ST. JOSEPH LIGHT & POWER COMPANY
LAKE ROAD PLANT ALLOCATION -- SETTLEMENT SCENERIO
DECEMBER 31, 1993 DATA - PLANT ACCOUNT 312

	ELECTRIC P.I.S. @12-31-93	STEAM P.I.S. @12-31-93	TOTAL P.I.S. @12-31-93	100% ELECTRIC	100% STEAM	ELECTRIC & STEAM ALLOCABLE	900# STEAM DEMAND ELECTRIC 76.9%	900# STEAM DEMAND STEAM 23.1%	TOTAL PLANT ELECTRIC	TOTAL PLANT STEAM
REMAINDER OF 312 INCLUDING BOILERS #1-3										
TOTAL 1,2 & 3 @12-31-93	4,483,572		4,483,572			4,483,572	3,447,867	1,035,705	3,447,867	1,035,705
BOILERS #4 & #5										
TOTAL 4 & 5 @12-31-93	4,548,149		4,548,149			4,548,149	3,497,527	1,050,622	3,497,527	1,050,622
BOILER #6										
BOILER, PRECIPITATOR, CRUSHER, & CRUSHER HOUSE	6,325,229		6,325,229	6,325,229		0	0	0	6,325,229	0
STEAM PIPING & WATER PUR.										
in a/c 1312	431,749		431,749	73,829	357,920	0	0	0	73,829	357,920
in a/c 6312		414,810	414,810		360,723	54,087	41,593	12,494	41,593	373,217
	15,788,699	414,810	16,203,509	6,399,058	718,643	9,085,808	6,986,987	2,098,821	13,386,045	2,817,464

	ELECTRIC	STEAM
FUEL CONSUMPTION	0.0%	0.0%
DEMAND FACTOR	76.9%	23.1%

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF
STEAM AND ELECTRIC PLANT
A/C 312

NOTE "A"

PRECIPITATOR #6, BOILER #6, CRUSHER, & CRUSHER HOUSE

MO/YR	DESCRIPTION	J.O. #	AMOUNT
09/30/91	BEGINNING BALANCE FROM PREVIOUS WORKSHEETS		$5,983,318
12/31/92	NO ACTIVITY FOR THE YEAR		0
09/30/93	NO ACTIVITY FOR THE YEAR		0
	BALANCE @ 09/30/93		$5,983,318
12/31/93	Vent Line from Slag Tank to East Shothopper – Boiler #6	8144–002	13,613
12/31/93	Dissolved Oxygen Analyzer System – Boiler #6	8146–001	$3,638
	Dissolved Oxygen Analyzer System Probe – Boiler #6	"	1,686
			$18,937
	BALANCE @ 12/31/93		$6,002,255
	#1 CRUSHER & CRUSHER HOUSE		200,626
	#2 CRUSHER		122,348
	TOTAL		$6,325,229

F:\ZGAPA1\ALLOC.WK3

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF
STEAM AND ELECTRIC PLANT
A/C 312

NOTE "B"

STEAM PIPING & WATER PURIFICATION EQUIPMENT

	DIRECTLY ASSIGNABLE STEAM	DIRECTLY ASSIGNABLE ELECTRIC	ALLOCABLE
Steam piping & Water Purification equipment in plant account 1312 that is considered	$357,920	$73,829	
Plant account 6312 – 54,087 is considered allocable and the remainder of the plant A/C is considered 100% steam	360,723		54,087
	$718,643	$73,829	

Balance @ 12/93	$414,810
Less Allocable	54,087
100% Steam	$360,723

F:\ZGAPA1\ALLOC.WK3

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION
OF STEAM AND ELCETRIC PLANT
A/C 312

NOTE "B"
(BACKUP)

STEAM PIPING & WATER PURIFICATION EQUIPMENT

MO/YR	DESCRIPTION	J.O. #	AMOUNT	
	Pipe Steam to Softner		$13,948	
	Phosphate Pump Discharge		6,607	
	Phosphate Pump Suction		2,086	
	Water Purification Equipment		29,751	
	Softner Equipment		138,658	
	Supply & Purification Equipment		67,344	
	Purification Equipment		408	
	Feedwater System		10,665	
	Feedwater Pumps		2,709	
	Unchanged Since 4/11/88			$272,176
12/93	Vent Condenser – Softner #4	8126–010	$7,401	
12/93	Loop Seal Piping – Softner #4	"	21,187	
12/93	Effluent Piping – Softner #4	"	10,284	
12/93	Gate Valves – Softners #1,2,3, & 4	"	18,957	
12/93	Vacuum Breakers – Softners #2 & #3	"	1,048	
12/93	5" Gate Valve for Backwash – Softner #4	"	1,560	
12/93	8" Gate Valve – Primary bypass between pump suction header and pressure filter inlet headers.	"	966	
12/93	Insulation – Top shell Softner #4	"	2,416	
12/93	3" Stainless Steel Valve – 316 with EPR Seat for Softners #2 & #3	"	2,310	
12/93	Well Water Piping & Valves Softner #2, 3, & 4.	8126–012	47,686	
12/93	Booster Pump #1	8126–013	9,006	
12/93	Booster Pump #2	"	9,006	
12/93	Booster Pump #3	"	11,411	
12/93	Piping Insulation and Valves – Booster Pumps 1,2,3.	"	15,001	
12/93	Skid Drains – 3 booster pumps to sewer	"	1,334	
	Total for 1993 Activity			$159,573
	New Balance @ 12/31/93			$431,749
				X .829
	Balance @ 12/31/93 Directly Assignable to Steam			$357,920
	Balance @ 12/31/93 Directly Assignable to Electric			$73,829

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION
OF STEAM AND ELCETRIC PLANT
A/C 6312

NOTE "B"
(BACKUP)

STEAM PIPING & WATER PURIFICATION EQUIPMENT

MO/YR	DESCRIPTION	J.O. #	AMOUNT	
	Items Considered Allocable Plant			
	Boiler #1 Foundation		$16,910	
	Boiler #2 Foundation		16,910	
	Fuel Oil Tank #1		3,813	
	Fuel Oil Tank #3		7,622	
	House Service Tanks		362	
	Boiler #3 Panels		244	
	Steam Pressure Equipment		4,892	
	High Level Storage Tanks		849	
	Fuel Oil Pipes		2,485	
	Total Allocable Plant			$54,087

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF
STEAM AND ELECTRIC PLANT
A/C 314

NOTE "C"

TURBINE #1

MO/YR	DESCRIPTION	J.O. #	AMOUNT
12/50	Exciter	134100	$810,185
12/50	Reinforced concrete	134100	19,694
12/50	Hydrogen cooling system	134100	5,135
12/56	#1 Turbine #328D965	Sum 56-344	3,836
12/56	1 1/4" return oil piping	Sum 56-344	67
12/56	2 1/2" return oil piping	Sum 56-344	107
12/56	3" return oil piping	Sum 56-344	51
12/56	Pneumatic control pilot	Sum 56-344	123
02/92	Bailey transmitter 0-12	8132-004	3,126
02/92	Bailey transmitter 0-400	8132-004	1,563
02/92	Bailey transmitter 0-120	8132-004	1,749
02/92	Bailey temp transmitter	8132-004	9,783
02/92	Vortex flow meter	8132-004	3,194
02/92	Flow totalizer computer	8132-004	4,103
02/92	Circular chart recorder	8132-004	24,006
02/92	Enhanced control module	8132-004	21,497
	BALANCED @ 12/31/93		$908,219
	Allocated to Electric - 94.6%		$859,175
	Allocable - 5.4%		49,044
			$908,219

Attachment A 1 of 3
(BACKUP)

[illegible] UNIT OF PROPERTY DATE [illegible] PAGE [illegible]

ITEM NUMBER	TAX CD	UP KEY	GRP CD	DESCRIPT	PROJECT NUMBER	N-B CD	ACQ. DATE	QUANT.	TOTAL ASSET COST
[illegible]	323	13140	01T	EXCITER DIRECT CONN MOD LIST	134100	N	195,012	1	810,[illegible]
[illegible]	323	13140	01T	REINFORCED CONCRETE	134100	N	195,012	1	1[illegible]
.13140001400	323	13140	01T	HYDROGEN COOLING SYSTEM	134100	N	195,012	1	[illegible]
[illegible]	323	13140	01T	#1 TURBINE #[illegible] PT. 1	SUM 56-344	N	195,612	1	[illegible]
13140017500	323	13140	01T	PIPING,OIL RETURN 1 1/4"BLK.	SUM 56-344	N	195,612	23	[illegible]
.13140017501	323	13140	01T	PIPING,OIL RETURN 2 1/2"BLK.	SUM 56-344	N	195,612	37	[illegible]
.13140017502	323	13140	01T	PIPING.OIL RETURN 3" BLK.W.S	SUM 56-344	N	195,612	21	[illegible]
.13140017600	323	13140	01T	PNEUMATIC LEV. CONTROL PILOT	SUM 56-344	N	195,612	1	[illegible]
[illegible]	323	13140	01T	BAILEY TRANSMITTER-CAL. 0-12	8132004	N	199,202	2	3,[illegible]
[illegible]	323	13140	01T	BAILEY TRANSMITTER-CAL 0-400	8132004	N	199,202	1	1,[illegible]
.13140234000	323	13140	01T	BAILEY TRANSMITTER-CAL 0-120	8132004	N	199,202	1	1,748.60
.13140235000	323	13140	01T	BAILEY TEMP. TRANSMITTER	8132004	N	199,202	2	2,002.16
.13140237000	323	13140	01T	BAILEY TEMP. TRANSMITTER	8132004	N	199,202	1	1,001.07
.13140238000	323	13140	01T	BAILEY TEMP. TRANSMITTER	8132004	N	199,202	1	1,001.0[illegible]
.13140239000	323	13140	01T	BAILEY TEMP. TRANSMITTER	8132004	N	199,202	4	4,004.33
.13140240000	323	13140	01T	BAILEY DIFF. TRANSMITTER	8132004	N	199,202	1	1,776.45
.13140241000	323	13140	01T	VORTEX FLOW METER	8132004	N	199,202	1	3,174.05
.13140242000	323	13140	01T	FLOW TOTALIZER COMPUTER	8132004	N	199,202	1	4,[illegible]
.13140243000	323	13140	01T	CIRCULAR CHART RECORDER	8132004	N	199,202	1	8,001.64
[illegible]	323	13140	01T	CIRCULAR CHART RECORDER	8132004	N	199,202	1	8,001.63
.13140245000	323	13140	01T	CIRCULAR CHART RECORDER	8132004	N	199,202	1	8,001.63
.13140246000	323	13140	01T	ENHANCED CONTROL MODULE	8132004	N	199,202	3	21,[illegible]
.13140247000	323	13140	01T	BAILEY TEMP. TRANSMITTER	8132004	N	199,202	1	1,001.07
								108	909,219.41

COUNT- 23

108	909,219.41

COUNT- 23

X 5.4% Steam

49,097.85

***** END OF REPORT *****

Turbine #1

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF
STEAM AND ELECTRIC PLANT
A/C 312

NOTE "D"

COAL HANDLING EQUIPMENT

MO/YR	DESCRIPTION	J.O. #	AMOUNT
09/30/91	BEGINNING BALANCE FROM PREVIOUS WORKSHEETS		$8,846,252
11/91	ADDITIONAL CLOSING	8122–029	1,494
11/91	ADDITIONAL CLOSING	8122–033	855
12/91	TWO COAL BATCH RETROFITS	8128–005	34,809
05/92	ASH WETTING SYSTEM	8124–002	7,193
10/92	CS137 CESIUM – FEEDERS FOR 6–1/6–2	8122–035	13,596
09/30/93	NO ACTIVITY FOR THE YEAR		0
	BALANCE @ 09/30/93		$8,904,199
12/93	1992 Shuttle Wagon Rail Car Mover (SN 5M3508)	8124–005	$154,608
12/93	RETIREMENT – Shuttle Wagon Rail Car Mover	9124–001	(112,660)
12/93	RETIREMENT – Trackmobile M #8 TM White 8015	9124–001	(49,451)
	BALANCE @ 12/31/93		$8,896,696
	LESS #1 CRUSHER & CRUSHER HOUSE		(200,626)
	LESS #2 CRUSHER		(122,348)
	TOTAL		$8,573,722

F:\ZGAPA1\ALLOC.WK3

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF
STEAM AND ELECTRIC PLANT
A/C 312

NOTE "E"

BOILER #5 & #6 – COMMON ASH HANDLING EQUIPMENT

MO/YR	DESCRIPTION	J.O. #	AMOUNT
12/50	ASH 20' DIA. X 24'	1341000	$18,055
12/50	ASH PIT HOPPER	1341000	3,457
12/50	ASH PIT REINFORCED CONCRETE	1341000	734
12/50	ASH CONVEYOR SYSTEM	1341000	33,417
	BALANCE @ 12/31/93		$55,663

Allocated to Electric – 13.2%	$7,348
Allocable based on Demand – 86.8%	48,315
	$55,663

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF
STEAM AND ELECTRIC PLANT
A/C 311 & 6311

NOTE "F"

WATER SOFTNER BLDG, WATER TREATMENT, & POWER PLANT BLDG

MO/YR	DESCRIPTION	J.O. #	AMOUNT
09/30/91	BEGINNING BALANCE FROM PREVIOUS WORKSHEETS		$112,198
12/31/92	NO ACTIVITY FOR THE YEAR		0
09/30/93	NO ACTIVITY FOR THE YEAR		0
12/31/93	NO ACTIVITY FOR THE YEAR		0
	BALANCE @ 12/31/93		$112,198

17.1% to Electric	$19,186
82.9% to Steam	93,012
	$112,198

ST. JOSEPH LIGHT & POWER
PROPERTY WORKSHEET FOR ALLOCATION OF STEAM AND ELECTRIC PLANT
A/C 315

NOTE "G"

ACCESSORY ELECTRIC

MO/YR	DESCRIPTION	J.O. #	AMOUNT
12/50	Main control panel	134100	$14,868
9/93	Motor control center	8132007	12,249
9/67	Battery 60 cell 125V 498 AH	112571	8,734
4/86	EV-7 Lead calcuim batteries	8146065	8,118
9/91	30 KV inverter w/static switch	8136001	30,086
9/91	Installation charges inverter	8136001	18,759
9/91	300 amp battery charger	8136001	16,268
9/91	Installation charges battery	8136001	8,767
9/91	60 amp auto transfer switch	8136001	5,213
9/91	100 amp disconnect switch	8136001	10,480
9/91	Power distribution panel	8136001	38,770
12/58	Load circuit unit 480V	196000	17,639
4/85	Load circuit unit 1000V	8136002	24,127
4/85	#1 Load ctr. unit	8136002	26,849
12/50	Motor control center #1	134100	8,677
12/50	Motor control center #2	134100	5,723
12/62	Motor control center	8146000	6,199
4/85	#2 house service trans	8136002	48,865
12/85	#1 station lighting trans	8136002	22,172
12/85	#1 house service trans	8136002	40,402
12/50	1 1/2" conduit	134100	7,512
12/50	2" conduit	134100	5,207
12/50	3/4" conduit	134100	11,213
12/63	2400 V #2 swchg	136911	7,005
12/58	1" steel conduit	196000	8,742
12/58	3" steel conduit	196000	6,466
12/58	24" cope mesh type	196000	6,358
12/62	Conduit station 3/4" steel 3"	8146000	19,415
9/76	#1/0 AL 35KV Urd cable	8122008	5,200
12/58	Control cubicle assembly	198000	15,162
12/50	Swtichgear metal clad whse	134100	33,869
12/50	480 V switchgear metal clad molon	134100	15,241
12/64	#500 MCM	184800	6,011
12/58	30S grounding syt.	196000	7,399
	ALLOCABLE BALANCE @ 12/31/93		$527,765

December 16, 1994

ST. JOSEPH LIGHT & POWER COMPANY
ALLOCATION FACTORS
Exergy-Basis
CASE NO. EO-94-36

Plant Capacity Factor (PCTOD)	12.9%
Equivalent Employment Factor (PCTEQR)	31.3%
900 lb Steam Demand Allocation Factor (PCTMD)	23.1%
900 lb Steam Fuel Consumption Factor (PCTMF)	75.5%
Coal Burned Allocation Factor (PCTCB)	31.2%
Plant Structure Allocation (PCTPLT)	13.6%
900 LB Coal Use Factor (PCTCU)	77.0%
Ash Allocation Factor for Steam (daily) (AAFS)	74.0%
Combustion Turbine/Plant Capacity Factor	38.4%
900/1800 LB Steam Plant Demand Factor	10.7%

MEMORANDUM

From the Desk of
John Modlin
Lake Road Results

January 28, 1994

TO: Dwight Svuba, Charles Cline, Mike Smith, Tim Rush

RE: PSC Case EO-94-36: Turbine 1 Capital Cost Allocation Study

I have obtained budgetary cost figures for two 24 MW steam turbine-generator units from a turbine-generator vendor to determine an "allocable fraction" of the Turbine 1 capital cost. The cost of the standard unit is 5.4% less than the auto-extraction unit. The prices include the turbine, generator, exciter, control valves, certain auxiliary systems, factory tests, and technical direction of installation.

I asked the vendor to break out the turbine and turbine-related items, but they replied that they supply a "package price" only. The two quoted units have identical generators, exciters, as well as other common equipment. The vendor did confirm that the cost difference is due to the auto-extraction capability alone.

I reviewed the equipment list provided by General Electric for Turbine 1 (SJLP P.O. 660461, c. 1950). The scope of equipment provided under the Turbine 1 P.O. is essentially the same as that included in the above "packages." It is not appropriate to allocate a portion of the generator and exciter to the industrial steam system. However, it is appropriate to estimate the original cost of the auto-extraction capability by applying a factor based on the current "package" quotes to the actual Turbine 1 "package" price.

Using the vendor's price estimates and the PSC Staff's proposed approach, the fraction of the Turbine 1 capital cost to be attributed to the auto-extraction capability would be 5.4%. If used, this factor should be applied to the complete Turbine 1 "package" only, as noted above.

As we discussed with the PSC Staff, it is possible for an auto-extraction unit to provide the same generating capacity as a standard unit while using a smaller condenser, cooling tower, and related equipment. Therefore, there was a possibility that these components were "under-sized" during design, which would yield capital cost savings to offset the additional cost of the Turbine 1 auto-extraction capability. I researched the design specifications of the Turbine 1 condenser, cooling tower, and related equipment. This equipment was adequately sized to allow the flexibility of operating Turbine 1 near full load as a standard steam turbine. That is, it does not appear that this equipment was "under-sized" due to Turbine 1's auto-extraction capability.

If you have any questions, please call me at extension 266.

John T Modlin

cc: file

- PLANT ALLOCATION PROCEDURE -
LAKE ROAD FEEDWATER TREATMENT FACILITIES

INTRODUCTION

This procedure describes the methodology for allocating feedwater treatment equipment plant investment at Lake Road Plant between the electric and steam jurisdictions. It applies only to the water treatment equipment located in the 900 psi plant; it does not apply to the 1800 psi system demineralizer equipment which is only used for electric purposes serving Boiler 6.

The procedure for determining the allocation factor starts by estimating the peak treated water makeup requirement, in pounds per hour, for the electric jurisdiction (only), assuming the steam jurisdiction is not present. Next, an estimate of the total plant peak makeup requirement is determined, assuming simultaneous maximum makeup demands for each jurisdiction. These two quantities identify the treated water plant sizing criteria needed for the allocation. A conceptual equipment arrangement is prepared for each case, optimizing the design where possible to fit the sizing application. Factors such as redundancy for maintenance, filter backwash and zeolite regeneration requirements, hot versus cold lime treating, and equipment sizing margins are considered in the conceptual analysis. Cost estimates are prepared to implement each conceptual system. The allocation factor for the electric jurisdiction is then calculated by the ratio of the two cost estimates (electric water treatment plant cost divided by total water treatment plant cost). The allocation factor for the steam jurisdiction is one minus the electric jurisdiction factor.

In preparing the cost estimates, budgetary vendor prices were solicited for major system components only (lime softeners, pressure filters, zeolite softeners, and mixed bed demineralizers). It was assumed that all interconnecting pipe, ancillary equipment, and engineering costs associated with constructing the two systems would be proportional to the main component costs and thus would have no effect on the calculated ratio.

Two scenarios were established to identify the maximum-hour treated water makeup loads, a summertime electric (only) peak scenario and a wintertime (electric + steam) total peak scenario. Detailed explanations of each scenario are presented later in the discussion. In developing the scenarios, it was necessary to identify all significant consumptions of treated water and to estimate their approximate magnitudes during peak-use conditions. A discussion of the rationale used in developing each conceptual water treatment system plan is also included.

As an aid to the reader, a brief description of Lake Road Plant is provided first to explain the overall water treatment process and show the location of treated water uses.

DESCRIPTION OF WATER TREATMENT SYSTEM & RELATED WATER USES

Refer to Figure 1 for a simplified schematic diagram of the Lake Road water treatment system and related flow paths of treated water uses identified in this discussion.

Raw well water for treated water makeup is brought into the plant and treated before being used in the 900 psi system boilers. "Treated water makeup" is treated water brought into the system to replenish mass flows of water and steam that leave the plant cycle. Water treatment is necessary because raw well water has too much hardness and other impurities for direct use in the Lake Road boilers.

The water treatment system is comprised of three major equipment components, hot lime softeners, pressure filters and zeolite softeners. The hot lime softeners remove most of the hardness and other contaminates through a chemical reaction that causes the unwanted material to precipitate out of solution where it can be removed as sludge. Lime and other chemicals are added to cause the chemical reaction. Steam is also added to accelerate the reaction by raising the temperature. The system has four hot lime softeners connected in parallel.

After leaving the hot lime softeners, water is sent through the pressure filters for removal of suspended solids. There are eleven pressure filters connected in parallel. Each filter is taken out of service and backwashed once a day to remove accumulated material.

Final treatment is done in the zeolite softeners where essentially all of the remaining hardness is removed. This type of softener contains a resin material that functions as a cation exchanger to collect unwanted calcium and magnesium hardness ions in exchange for sodium ions implanted in the resin. Zeolite softeners must be regenerated periodically to remove collected hardness ions and replace spent sodium ions. It typically takes 8-12 hours to regenerate each softener. The system has four zeolite softeners connected in parallel. A brine system is used to replace spent sodium ions. Backwash, rinse and recycle provisions are also required.

After leaving the water treatment system, makeup water is sent to the deaerator where it is mixed with returned condensate from the plant's 900 psi system turbine cycle. From there it goes to the boiler feedpumps which pump it into the 900 psi system boilers.

Each 900 psi system boiler has two flow outputs, superheated steam and continuous (water) blowdown. Output steam flows into a header distribution system that supplies steam for the industrial steam customers, the 900 psi system turbines and various internal plant uses. Many of these steam functions, including industrial steam, do not allow for returning condensate to the plant cycle. These uses require makeup of new treated water to replenish all lost flows. Figure 1 provides a list of steam flow functions which do not return condensate.

Continuous blowdown is required to prevent solids from accumulating in the boilers. The water treatment system removes essentially all hardness, but does not remove all solids. Due to the evaporation which takes place in boilers, a continuous water blowdown flow is required to bleed off accumulated solids. The amount of blowdown required is equal to approximately 20 percent of the treated water makeup flow. The blowdown flow is first routed through flash tanks which allow part of the blowdown to flash into steam which is saved and sent to steam supply headers. The remaining blowdown water then flows through heat exchangers, which preheat the incoming well water, and is subsequently discharged to the sewer at approximately 80^{0}F. Approximately 35 percent of the total blowdown flow leaving the boilers is recovered in the flashing process, and over 97% of the heat added to the well water is extracted before the water is sent to the sewer. This continuous blowdown sewer flow must be replenished with treated water makeup.

Steam turbines normally return essentially all of their condensate to the plant cycle via the deaerator path mentioned earlier. At Lake Road, the capability exists for routing part of the turbine condensate to an outside storage tank or to various systems and equipment that require condensate input. One of the important uses of this condensate is to supply influent water to the Boiler 6 demineralizer. Boiler 6 is a higher pressure (1800 psi) boiler which requires higher quality water than the 900 psi system boilers. A storage tank is also available for demineralized water. Other uses of condensate are identified on Figure 1. Like steam and continuous blowdown, any condensate removed from the 900 psi plant cycle must be replenished with new treated water makeup. Condensate storage serves the important function of providing a means for short-term water treatment equipment outages, and short duration treated water uses above the capacity of the water treatment equipment. Certain functions, such as filling boilers after annual outages or tube leak repair outages require a large, immediate supply of condensate-quality water.

ELECTRIC (ONLY) WATER TREATMENT PLANT PEAK LOAD SCENARIO

The peak electric (only) water treatment plant load is most likely to occur in the summertime when Lake Road generation requirements are higher and hot weather combustion turbine operation is probable. Wintertime peaks and various other situations can also dictate high electric water treatment demands. For purposes of defining a specific peak electric water treatment load scenario, a summertime situation is used.

The operating scenario used to establish the peak electric water treatment demand is as follows:

- Hot summer weather causing heavy Lake Road generating requirements.
- Unit 4/6 on line with one demineralizer operating at full load.
- All three 900# system steam turbines on line operating at current accreditation capacity (60 MW net).
- Boiler 5 on line burning coal at 250,000 lb/hr steam load.
- Boilers 1, 2, 3, and 4 on line burning oil as required to meet turbine load.
- Combustion Turbine 5 on line at full load burning gas with the evaporative cooler in operation.
- Units 6 & 7 (Jets) not on line.

The treated water makeup requirements corresponding to this operating scenario are as follows:

Makeup Load Description	Make up Load (1000 lbs/hr)
Blr. 6 Demineralizer Makeup	10.0
Blr. 6 Sootblowing Steam	3.6
C.T. #5 Evaporative Cooler Makeup	5.4
900# Blr. Continuous Blowdown (Closed System)	1.0
Blrs. #4 & #5 Sootblowing Steam	0.6
Ash Tank Vacuum System Steam	3.0
No. 6 Fuel Oil Heating Steam	2.3
No. 6 Fuel Oil Atomizing Steam	3.2
Allowance for Unidentified Uses	1.0
Allowance for Losses	1.0
900# Blr. Continuous Blowdown (100% Makeup)	5.6
Total Electric (only) Treated Water Load	36.7

TOTAL (ELECTRIC + STEAM) WATER TREATMENT PLANT PEAK LOAD SCENARIO

The peak total (electric + steam) water treatment plant load has historically happened during the winter months when industrial steam loads are highest. Lake Road electric generation requirements may also be high in this situation.

The operating scenario used to establish the peak total water treatment plant demand is as follows:

- Cold winter weather causing peak industrial steam loads and moderately heavy Lake Road generating requirements.
- Unit 4/6 on line with one demineralizer operating at full load.
- All three 900# system steam turbines on line operating at a total load of 34 megawatts.
- Boiler 5 on line burning coal at 250,000 lb/hr steam load.
- Boilers 1, 2, 3 and 4 on line burning oil as required to meet total boiler load.
- No combustion turbines on line.

3/8/95 [illegible]

The treated water makeup requirements corresponding to this operating scenario are as follows:

1/13/93 @1328

Makeup Load Description	Make up Load (1000 lbs/hr)	Monfort & Swift+Adh. Removed
Industrial Steam (12"+16"+AGP 850)	290.0	205.0
Industrial Steam (Desup. Water)	11.0	11.0
Blrs. #4 & #5 Sootblowing Steam	0.6	0.6
Ash Tank Vacuum System Steam	3.0	3.0
No. 6 Fuel Oil Heating Steam	3.1	2.3
No. 6 Fuel Oil Atomizing Steam	3.1	2.4
Blr. 6 Demineralizer Makeup	10.0	10.0
Blr. 6 Sootblowing Steam	3.6	3.6
Allowance for Unidentified Uses	2.0	2.0
Allowance for Losses	3.0	3.0
900# Blr. Continuous Blowdown (100% makeup)	58.9	43.6
Total (Electric + Steam) Treated Water Load	388.3	286.5

CONCEPTUAL DESIGN - ELECTRIC (ONLY) SYSTEM

The following comments explain the design considerations used to develop the conceptual plan for the electric (only) water treatment system. A schematic diagram of the conceptual plan is provided with Figure 2.

TOTAL (ELECTRIC + STEAM) WATER TREATMENT PLANT PEAK LOAD SCENARIO

The peak total (electric + steam) water treatment plant load has historically happened during the winter months when industrial steam loads are highest. Lake Road electric generation requirements may also be high in this situation.

The operating scenario used to establish the peak total water treatment plant demand is as follows:

- Cold winter weather causing peak industrial steam loads and moderately heavy Lake Road generating requirements.
- Unit 4/6 on line with one demineralizer operating at full load.
- All three 900# system steam turbines on line operating at a total load of 34 megawatts.
- Boiler 5 on line burning coal at 250,000 lb/hr steam load.
- Boilers 1, 2, 3 and 4 on line burning oil as required to meet total boiler load.
- No combustion turbines on line.

The treated water makeup requirements corresponding to this operating scenario are as follows:

Makeup Load Description	Make up Load (1000 lbs/hr)
Industrial Steam (12"+16"+AGP 850)	290.0
Industrial Steam (Desup. Water)	11.0
Blrs. #4 & #5 Sootblowing Steam	0.6
Ash Tank Vacuum System Steam	3.0
No. 6 Fuel Oil Heating Steam	3.1
No. 6 Fuel Oil Atomizing Steam	3.1
Blr. 6 Demineralizer Makeup	10.0
Blr. 6 Sootblowing Steam	3.6
Allowance for Unidentified Uses	2.0
Allowance for Losses	3.0
900# Blr. Continuous Blowdown (100% makeup)	58.9
Total (Electric + Steam) Treated Water Load	388.3

1/13/93 @1328

CONCEPTUAL DESIGN - ELECTRIC (ONLY) SYSTEM

The following comments explain the design considerations used to develop the conceptual plan for the electric (only) water treatment system. A schematic diagram of the conceptual plan is provided with Figure 2.

- The conceptual electric (only) water treatment system is sized for a continuous output capacity of 40,000 lbs/hr. This is determined by rounding up the calculated peak electric (only) treated water load (36,700 lb/hr).

- The same general arrangement of major equipment components is used for the conceptual electric (only) water treatment system as that used in the actual existing system, with the exception that the zeolite softeners are replaced with mixed bed demineralizers (lime softener - pressure filter - zeolite softener/demineralizer).

- Cold lime softeners are used in the electric (only) system instead of hot lime softeners. Cold lime softeners are less costly to install, but are not practical for the larger sizes required for the full-sized system. They could be used in the smaller electric (only) system.

- A 25 percent capacity design margin is used to size the lime softeners. This is based on SJLP experience. Increased size is needed to accommodate backwashing of pressure filters and zeolite softeners, sludge blowdown and stable sludge bed operation under varying load conditions.

- Two half-capacity lime softeners are used instead of one full-sized one to allow a means of taking units out of service for maintenance during reduced load periods.

- Three half-capacity pressure filters are used to allow for daily backwashing of each filter while still maintaining full throughput capacity. It is assumed units could be taken out of service for maintenance on a planned basis during low load periods. Pressure filters are slightly oversized to provide additional flow capacity needed for zeolite rinsing and recycling.

- Zeolite softeners do not adequately treat water from cold lime softeners for use in 900 psi boilers. Therefore, mixed bed demineralizers must be used for the final stage of feedwater treatment. Three half-capacity mixed bed demineralizers are used to allow for regeneration of each demineralizer. It is assumed units could be taken out of service for maintenance on a planned basis during low load periods. No capacity margin is used to size the demineralizers.

<u>CONCEPTUAL DESIGN - TOTAL (ELECTRIC + STEAM) SYSTEM</u>

The following comments explain the design considerations used to develop the conceptual plan for the total (electric + steam) water treatment system. A schematic diagram of the conceptual plan is provided with Figure 3.

- The conceptual total (electric + steam) water treatment system is sized for a continuous (gross) output capacity of 450,000 lbs/hr. This value is determined by increasing the calculated peak makeup load (388,300 lbs/hr) by 13.2 percent to account for 3 psi steam flow and then rounding up to 450,000 lbs/hr. The (net) treated water output capacity of the system is 397,500 lbs/hr. Use of hot lime softeners increases the size requirements of downsteam pressure filters and zeolite softeners due to the additional flow of 3 psi steam through these components.

- The same general arrangement of major equipment components is used for the conceptual total (electric + steam) water treatment system as that used in the actual existing system (lime softener - pressure filter - zeolite softener).

- Hot lime softeners are used in the total (electric + steam) system due to the prohibitively large physical size of equivalent capacity cold lime softeners.

- Three pound steam (equal to approximately 13.2 percent of the influent well water flow) is used to provide heat for the hot lime softeners.

- A 25 percent capacity design margin is used to size the lime softeners. This is based on SJLP experience. Increased size is needed to accommodate backwashing of pressure filters and zeolite softeners, sludge blowdown and stable sludge bed operation under varying load conditions.

- Four one-fourth capacity lime softeners are used instead of one full sized one to allow a means of taking units out of service for maintenance during reduced load periods. This is the same number of lime softeners in the existing system.

- Eleven one-tenth capacity pressure filters are used to allow for daily backwashing of each filter while still maintaining full throughput capacity. It is assumed units could be taken out of service for maintenance on a planned basis during low load periods. Pressure filters are slightly oversized to provide additional flow capacity for zeolite rinsing and recycling. This is the same number of pressure filters as in the existing system.

- Four one-third capacity zeolite softeners are used to allow for regeneration of each zeolite softener. It is assumed units could be taken out of service for maintenance on a planned basis during low load periods. No capacity margin is used to size the zeolite softeners. There are four zeolite softeners in the existing system.

EQUIPMENT PRICES
The following budgetary vendor prices were obtained for the major water treatment system components.

Electric (only) System:

Cold Lime Softener (28,000 lbs/hr capacity)	Price: $ 34,000 ea
Pressure Filters (23,000 lbs/hr capacity)	Price: $ 10,000 ea
Mixed Bed Demineralizers (23,000 lbs/hr capacity)	Price: $ 25,000 ea

Total (Electric + Steam) System:

Hot Lime Softeners (140,000 lbs/hr capacity)	Price: $ 161,250 ea
Pressure Filters (50,000 lbs/hr capacity)	Price: $ 20,455 ea
Zeolite Softeners (150,000 lbs/hr capacity)	Price: $ 35,000 ea

CALCULATION OF ALLOCATION FACTOR
The electric jurisdiction water treatment equipment plant allocation factor is calculated as follows:

$$EF = \frac{\text{Total Electric (only) Water Treatment Plant Cost}}{\text{Total (Electric + Steam) Water Treatment Plant Cost}}$$

$$= \frac{2(LS) + 3(PF) + 3(DM)}{4(LS) + 11(PF) + 4(ZS)}$$

$$= \frac{2(34,000) + 3(10,000) + 3(25,000)}{4(161,250) + 11(20,455) + 4(35,000)} = \frac{173,000}{1,010,005}$$

$$= \underline{0.1713}$$

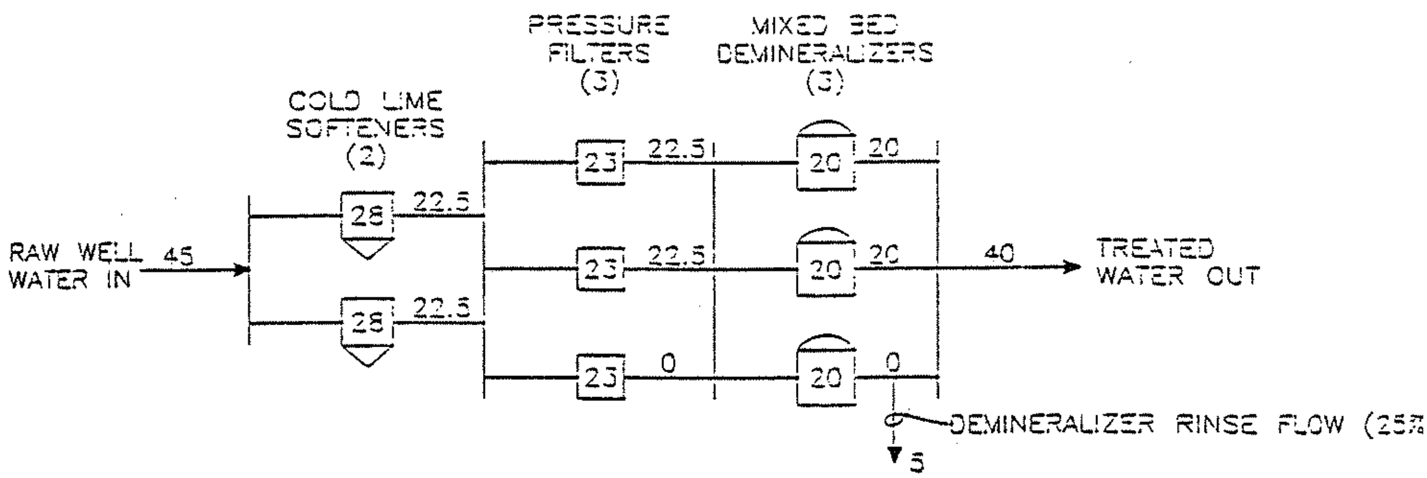
The steam jurisdiction water treatment equipment plant allocation factor is calculated as follows:

$$SF = 1.0 - EF$$
$$= 1.0 - 0.1713$$
$$= \underline{0.8287}$$

SCHEMATIC FLOW DIAGRAM

ELECTRIC (ONLY) CONCEPTUAL WATER TREATMENT SYSTEM

(FIGURE 2)



NOTES

1. NUMBERS SHOWN ON SCHEMATIC ARE FLOW RATES IN 1000 LBS./HR.

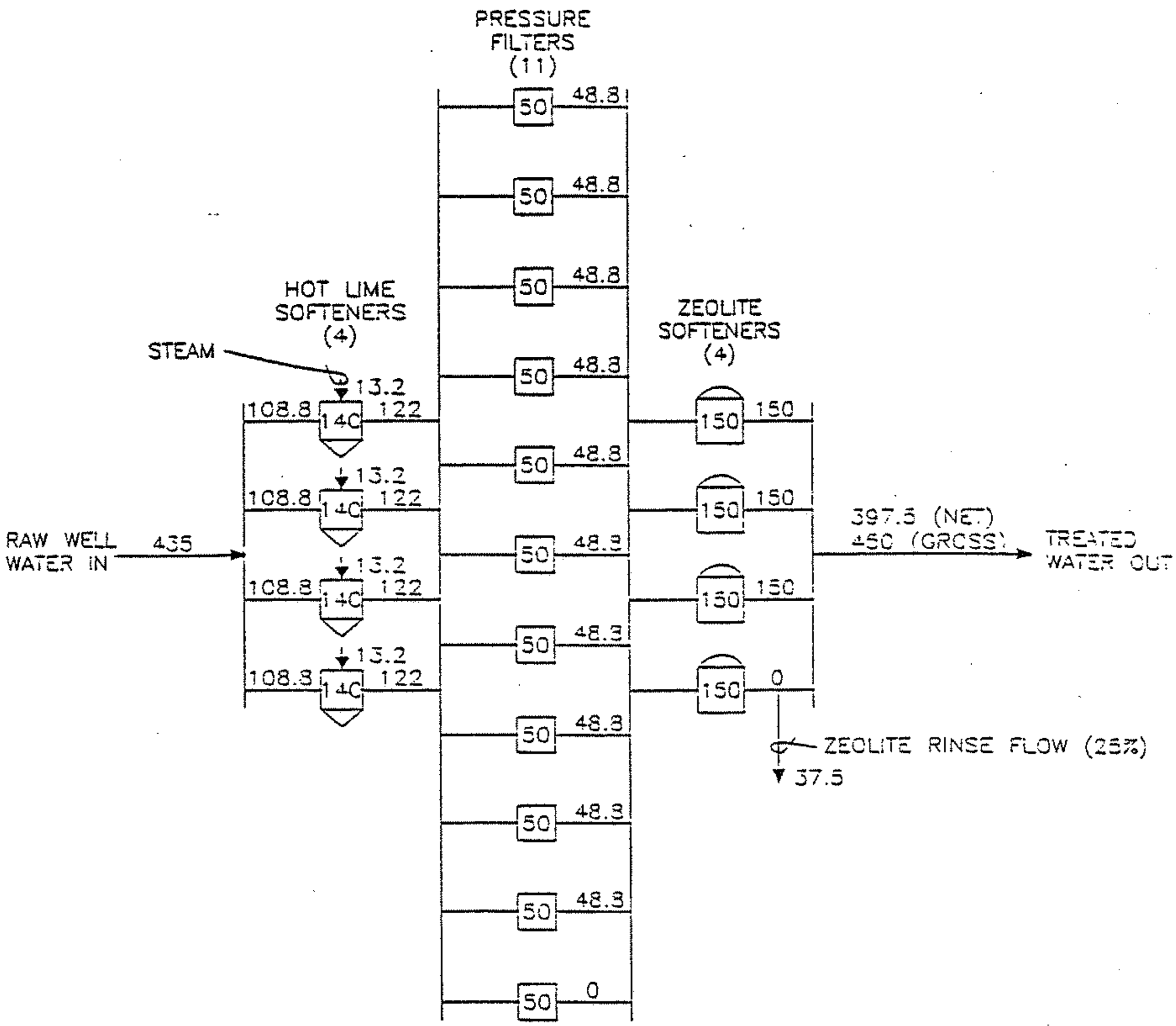
2. NUMBERS SHOWN INSIDE DEVICES ARE EQUIPMENT CAPACITY RATINGS USED FOR PRICING.

3. NUMBERS SHOWN OUTSIDE DEVICES ARE FLOW RATES THAT WOULD OCCUR AT RATED SYSTEM CAPACITY. IT IS ASSUMED THAT ONE PRESSURE FILTER IS OUT OF SERVICE FOR BACKWASH AND ONE DEMINERALIZER IS OUT OF SERVICE FOR REGENERATION (IN ITS RINSE CYCLE).

SCHEMATIC FLOW DIAGRAM

TOTAL (ELECTRIC & STEAM) CONCEPTUAL WATER TREATMENT SYSTEM

(FIGURE 3)



NOTES

1. NUMBERS SHOWN ON SCHEMATIC ARE FLOW RATES IN 1000 LBS./HR.

2. NUMBERS SHOWN INSIDE DEVICES ARE EQUIPMENT CAPACITY RATINGS USED FOR PRICING.

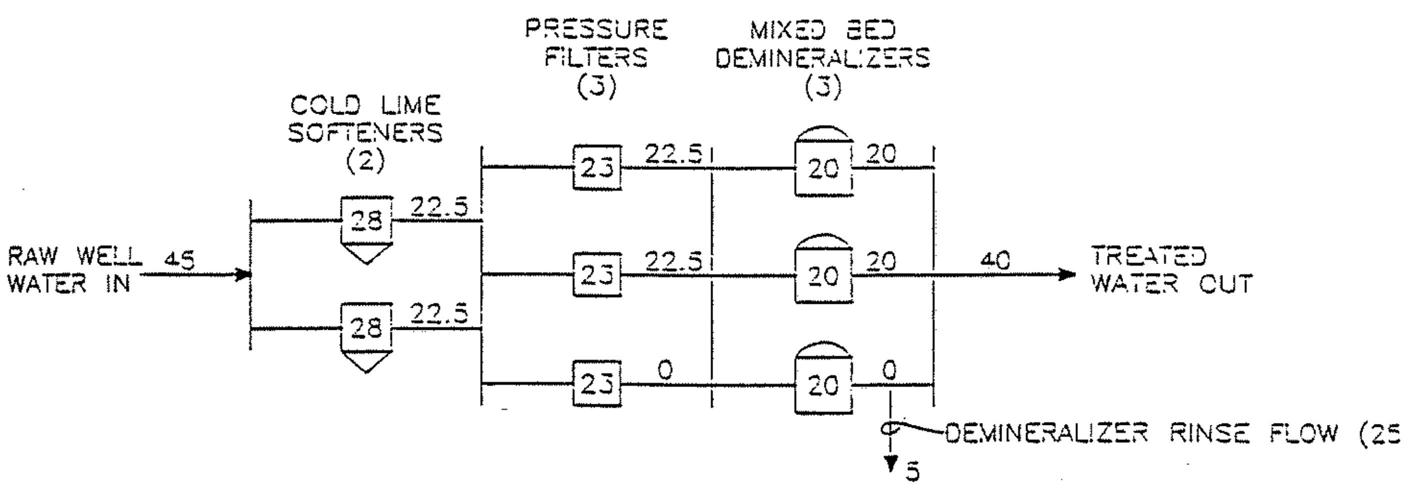
3. NUMBERS SHOWN OUTSIDE DEVICES ARE FLOW RATES THAT WOULD OCCUR AT RATED SYSTEM CAPACITY. IT IS ASSUMED THAT ONE PRESSURE FILTER IS OUT OF SERVICE FOR BACKWASH AND ONE ZEOLITE SOFTENER IS OUT OF SERVICE FOR REGENERATION (IN ITS RINSE CYCLE).

4. DIFFERENCE IN GROSS VERSUS NET TREATED WATER OUTPUT IS DUE TO 3 PSI STEAM.

SCHEMATIC FLOW DIAGRAM

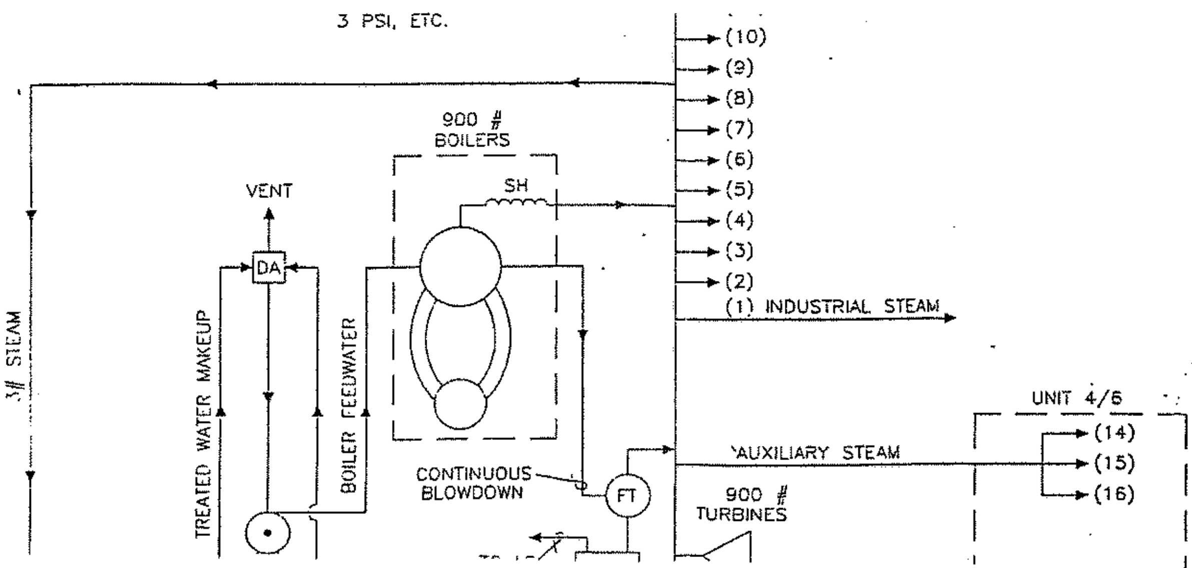
ELECTRIC (ONLY) CONCEPTUAL WATER TREATMENT SYSTEM

(FIGURE 2)



NOTES

1. NUMBERS SHOWN ON SCHEMATIC ARE FLOW RATES IN 1000 LBS./HR.
2. NUMBERS SHOWN INSIDE DEVICES ARE EQUIPMENT CAPACITY RATINGS USED FOR PRICING.
3. NUMBERS SHOWN OUTSIDE DEVICES ARE FLOW RATES THAT WOULD OCCUR AT RATED SYSTEM CAPACITY. IT IS ASSUMED THAT ONE PRESSURE FILTER IS OUT OF SERVICE FOR BACKWASH AND ONE DEMINERALIZER IS OUT OF SERVICE FOR REGENERATION (IN ITS RINSE CYCLE).



(5) NO. 4 BOILER A.H. SOOT BLOWING
(6) NO. 5 BOILER SOOT BLOWING
(7) ASH TANK VACUUM SYSTEM STEAM
(8) TURBINE HEADER WARMUPS
(9) TURBINE CONDENSER HOGGER STEAM
(10) BOILER HEADER WARMUPS
(11) BOILER VENTING ON STARTUP & SHUTDOWNS
(12) COAL MILL INERTING STEAM
(13) MISC. VENTS & LOSSES
(14) NO. 6 BOILER SOOT BLOWING
(15) NO. 6 BOILER D.A. INERTING & FREEZE PROTECTION
(16) TURBINE 4 AUXILLIARY STEAM SEAL

CONDENSATE:

(17) BOILER NO. 6 DEMINERALIZER (DI) MAKEUP
(18) BEARING COOLING WATER SYSTEM MAKEUP
(19) BOILER FILLING & HYDRO TESTING
(20) CONDENSER FLOODING FOR LEAK TESTING
(21) C.T. EVAPORATIVE COOLER MAKEUP
(22) USE OF CONDENSATE FOR CITY WATER BACKUP

Rates & Market Research
March 14, 1994

OFFICE MEMORANDUM

TO: File

FROM: Tim Rush TR

SUBJECT: Allocation Case - Account L1315, Electric Accessory Equipment

---

A review of our plant account L1315 was made by Mike Ceglenski. Maintenance/Construction Superintendent, over the last several weeks. This review was precipitated by an earlier review from John Modlin which determined that some of the items in account L1315 would be more appropriately allocated between electric and steam. Currently, this account is directly assigned to electric plant.

The attached is a summary of each item considered allocable. This amounts to $527,765.27 which would be allocable between steam and electric. The remaining amount should be directly assigned to electric. To be consistent with our current allocation method, I would recommend that the allocable portion of the account L1315 be allocated based on the total plant ratio determined in allocating accounts 311, 312, 312A and 316.

Attachment

ST. JOSEPH LIGHT & POWER COMPANY
Account #315

Asset #	Description	Total Asset Cost
13150026400	Main Control Panel	$14,868.04
13150115000	Motor Control Center	12,248.88
13150027100	Battery 60 Cell 125V 498 AH	8,733.75
13150027301	EV-7 Lead Calcium Batteries	8,117.65
13150107000	30 KVA Inverter W/Static Swt.	30,086.46
13150108000	Installation Charges Inverter	18,759.06
13150109000	300 Amp Battery Charger	16,267.61
13150110000	Installation Charges - Battery	8,767.14
13150111000	60 Amp Auto Transfer Switch	5,212.60
13150112000	100 Amp Disconnect Switch	10,479.95
13150113000	Power Distribution Panel	38,769.79
13150005400	Load Ctr. Unit Substn. 480V	17,639.01
13150005500	Load Ctr. Unit Substn. 1000KVA	24,126.79
13150004500	#1 Load Ctr. Unit Substation	26,849.28
13150024200	Motor Control Center #1	8,677.15
13150024300	Motor Control Center #2	5,722.53
13150025200	Motor Control Center	6,199.36
13150004600	#2 House Service Trans.	48,864.60
13150004400	#1 Station Lighting Trans.	22,172.15
13150004408	#1 House Service Trans.	40,401.25
13150021502	Conduit Rigid 1 1/2" C. Stat	7,511.93
13150021503	Conduit Rigid 2" C. Station	5,206.59
13150021500	Conduit Rigid 3/4" Conductor	11,212.99
13150010700	Lake Road Sub-2400V #2 Swchg.	7,004.94
13150020401	1" Steel	8,742.09
13150020405	3" Steel	6,466.33
13150020803	24" Cope Mesh Type 2/Blt-in C	6,358.34
13150021000	C. Station 3/4" Steel 3"	19,415.18
13150019502	#1/0 Al 35KV Urd Cable	5,200.49
13150000600	Control Cubicle Assem	15,162.46
13150001600	Switchgear Metal Clad Whse.	33,868.93
13150000400	480V Swchgr. Metal Clad Molon	15,241.30
13150003101	#500 MCM 13KV Kerite Cable	6,011.49
13150022400	30S Grounding Syt.-500M, 37 Str. Cp.	7399.16
	TOTAL 04	$527,765.27
	TOTAL 01	$1,333,908.07
	GRAND TOTAL	$1,861,673.34

ST. JOSEPH LIGHT & POWER COMPANY

Lake Road Feedwater Treatment Expense Allocation Study

Prepared by
John T. Modlin & Michael S. Smith
February 24, 1994

BACKGROUND

As part of the MPSC Docket EO-94-36, SJLP agreed to review the allocation of expense account 2502-010, "Boiler Feedwater Expenses," and determine if a different allocation approach is appropriate. The current SJLP allocation procedure allocates 90% of the expenses in account 2502-010 to the industrial steam jurisdiction and 10% to the electric jurisdiction. This report summarizes the findings of that study.

STUDY PROCEDURE

The study was composed of three parts. The first part was to review the expenses charged to the account. The second part of the study was to investigate feedwater consumption of plant processes so that the allocation factor could be assessed and modified, if necessary. Note that non-feedwater uses (cooling tower water, house service water, etc.) were not included in the study. The quantity of feedwater used for plant uses was found by various means, including direct measurement, equipment design information, flow calculations, and specifically-designed tests. Finally, the above information was used to develop specific recommendations regarding the allocation of this account and other related expenses.

RESULTS

The total 1993 expenses charged to account 2502-010 was $234,490. This account currently contains three distinct groups of expenses, listed below:

1. 900# Plant feedwater expenses. These expenses are composed primarily of payroll and chemical costs associated with operating lime softeners, pressure filters, and zeolite softeners in the 900# Plant. For 1993, these expenses were calculated to be $200,500 by subtracting out the following expenses from the actual account total.

2. Unit 4/6 feedwater treatment expenses. These expenses are composed primarily of payroll and chemical expenses associated with additional treatment of the feedwater used in Boiler 6. These expenses are unique and separate from those of the 900# plant, above. For 1993, these expenses were calculated to be $24,900, based on actual expenses and Boiler 6 operation during the year.

3. Nitrogen expense. Nitrogen is an inert gas used to fill out-of-service boilers, heat exchangers, and piping to protect them from corrosion. Although it can be used in all of the boilers, it is primarily used in Boilers 1, 2, 3, 6, and 7 and the Unit 4/6 feedwater heaters. The 1993 bulk nitrogen expense was $9,126.

The results of the feedwater use study are shown on the attached sheet, entitled "SJLP Lake Road Plant - Annual 900# Feedwater Use." Based on 1993 data, approximately 96% of the total plant feedwater consumption can be attributed to the industrial steam jurisdiction.

DISCUSSION

The Unit 4/6 feedwater treatment expenses are 100% electric in nature and should be charged directly to a Unit 4/6 operating expense account. Account 2502-016, "Boiler 6 Cleaning," is an "available" account for this purpose that is now used solely for Boiler 6 chemical-cleaning expenses. The SJLP account numbering practice has been to use 2502-01 and -02 account numbers for feedwater-related and boiler-related expenses, respectively. Following this practice, it is appropriate to place the Unit 4/6 feedwater treatment expenses in account 2502-016.

Boiler chemical-cleaning is a boiler-related expense that is more appropriately charged to the 2502-02 group of accounts. Chemical-cleaning of the 900# boilers (Boilers 1-5) has historically been charged to 2502-020, "Steam Expenses Other." The proper allocation of boiler expenses dictates that this type of expense be charged consistently for all of the boilers. Thus, it initially seems appropriate to charge Boiler 6 chemical-cleaning to 2502-020. However, this would result in moving a significant and measurable 100% electric expense to an allocated account, which reduces the accuracy of the allocation process.

Boiler 6 chemical cleaning is similar to other direct Boiler 6 expenses that are now charged to the allocated 2502-020 account. These expenses include the costs of cleaning the gas-side of the boiler, air heater, and gas ducts. These are normally contracted or other well-defined activities that could be charged to different expense accounts relatively easily. To improve the accuracy of the allocation process, it is desirable to place these expenses in a 100% electric boiler expense account. These same activities also occur on the 900# boilers and are now charged to 2502-020. It would be inappropriate to allocate these 900# boiler expenses on a total steam plant allocation factor when the corresponding Boiler 6 expenses are excluded from this account. Therefore, if direct Boiler 6 expenses are placed in a dedicated Boiler 6 expense account, a similar allocated account must be used for the 900# boilers. This latter account would be allocated on a 900# steam plant factor, rather than a total steam plant factor.

Because the amount of chemical treatment depends directly on the amount of water processed, 900# feedwater chemical expenses should be allocated based upon water consumption. On the other hand, feedwater labor expense is an essentially fixed cost, which is appropriate to allocate on a demand basis. An appropriate demand factor can be calculated from the water treatment capital cost study being prepared by SJLP. The 900# feedwater treatment expenses (account 2502-010) are roughly 50% chemicals and 50% labor. Therefore, a 50% consumption, 50% demand factor is appropriate for allocating this account.

RECOMMENDATIONS

The Unit 4/6 feedwater treatment expenses are 100% electric in nature and should not be allocated. Account 2502-016, "Boiler 6 Cleaning," should be renamed "Boiler 6 Feedwater Expenses" and be used for these expenses. Boiler 6 chemical-cleaning expenses, which are now charged to 2502-016, should be charged to a new account 2502-022, described below.

A new, 100% electric, operating expense account 2502-022, entitled "Boiler 6 Direct Operating Expenses," should be established. This account would receive all direct Boiler 6 non-maintenance cleaning expenses, such as expenditures for chemical-cleaning and cleaning of the gas-side of the boiler, air heater, and gas ducts.

A new, allocated, operating expense account 2502-021, entitled "Boiler 1-5 Direct Operating Expenses," should also be established. All direct 900# boiler (excluding Boiler 7) non-maintenance cleaning expenses would be charged to this account. This account would be allocated using a 900# steam plant demand approach, similar to that proposed for the whole steam plant account 2502-020.

The nitrogen expense, although related to feedwater treatment in that it is a chemical that protects boilers and other components from corrosion, is more appropriately charged against the boilers directly via account 2502-020. This expense should be transferred to that account.

The remaining expenses in account 2502-010 should be allocated 50% on water consumption and 50% on demand. Using a consumption factor of 0.962 and a demand factor of 0.905[1] yields a 50/50 factor of 0.934.

The feedwater use study, which provides the 0.962 water consumption factor, was based both on specific 1993 data and generic annual water consumption calculations. The feedwater use study and the consumption factor should be updated if plant operation changes significantly or if Unit 4/6 auxiliary steam metering is installed.

SUMMARY OF RECOMMENDATIONS

1. Rename account 2502-016 to "Boiler 6 Feedwater Expenses."
2. Charge Boiler 6 feedwater treatment expenses directly to account 2502-016 (100% electric).
3. Charge bulk nitrogen expenses to account 2502-020.
4. Establish a new account 2502-021, entitled "Boiler 1-5 Direct Operating Expenses." Allocate this account on a 900# plant demand factor.
5. Establish a new account 2502-022, "Boiler 6 Direct Operating Expenses." This account will be 100% electric.
6. Charge direct boiler cleaning expenses to the appropriate account, either 2502-021 or -022.
7. Allocate 93.4% of the account 2502-010 expenses to industrial steam and 6.6% to electric.
8. Review the feedwater consumption factor if Unit 4/6 metering is installed or if plant operation changes significantly. Update factors in recommendation 7, above, as necessary.

---

[1] Based on SJLP 1994 Water Treatment Capital Cost Study design flows of 36,700 pph for electric and ~~388,300~~ pph for a combined system.

286,5?? 2 w/ Monfort & Swift

MSS

SJLP LAKE ROAD PLANT – ANNUAL 900# FEEDWATER USE
MPSC Allocation Case EO–94–36

TOTAL MLBS FROM 1993 DATA[1]

Description	Total Annual Flow	Percent of Water In	Ind Stm Factor[2]	Industrial Steam Total	Comment
Industrial Steam, 200# Headers	1,372,141	61.82	1.000	1,372,141	Lake Road Results Summary
Ind Steam, Customer Desup	78,209	3.52	1.000	78,209	Lake Road Results Summary
850# Steam Customer	186,084	8.38	1.000	186,084	Lake Road Results Summary
No. 2 Fuel oil heating – credit	(2,229)	–0.10	1.000	(2,229)	Supplied from industrial steam system
No. 2 Fuel oil heating	2,229	0.10	0.000	0	Testing performed 2/1/94
Boiler 6 Sootblowing	5,429	0.24	0.000	0	Testing performed 2/1/94
Unit 4/6 Condensate Make–up	20,260	0.91	0.000	0	Demineralizer meter readings
Unit 4/6 hot storage	2,443	0.11	0.000	0	Calculated, DA tank level changes
Units 5,6,7 Evap Coolers	444	0.02	0.000	0	Calculated, evap cooler heat balance
Unit 4/6 seals on start–up	416	0.02	0.000	0	Seal flows from B&V heat balance diagram
Blrs 6 & 7 filling & hydro–testing	984	0.04	0.000	0	Lake Road Lab estimates
Turbine 1,2,3 hoggers, warm–up	533	0.02	0.000	0	Calculated warm–up flow, hogger design flow
Condenser flooding for leaks	500	0.02	0.000	0	Lake Road Lab estimates
Turb 1,2,3 Condensate sampling	804	0.04	0.000	0	Lake Road Lab measurements
Turbine 1,2,3 Cooling Twr Trtmnt	707	0.03	0.000	0	Lake Road Lab estimates
No. 6 Fuel oil heating (firing)	1,751	0.08	0.809	1,417	Heat balance, firing tank to oil guns
No. 6 Fuel oil atomization	3,704	0.17	0.809	2,996	B&W Steam book estimate
No. 6 Fuel oil tank heating	5,620	0.25	0.809	4,547	Testing 2/5/94; tank heat loss calculations
Blrs 1–5 filling & hydro–testing	672	0.03	0.796	535	Lake Road Lab estimates
Blr 1–5 vents, start/stop, hot–bank	?	0.00	0.796	0	Included in unaccounted–for, allocated on fuel
900# Blr plant sampling	4,096	0.18	0.796	3,260	Lake Road Lab measurements
Boiler 4, 5 Sootblowing	1,753	0.08	0.796	1,395	Boiler 5 sootblowing tests, supplier data
Ash tank vacuum system	16,050	0.72	0.721	11,572	Design steam use, estimated hours, MSS factor
900# Deaerator vents	1,752	0.08	0.796	1,395	Calculated vent flows
Continuous Blowdown to sewer	310,666	14.00	0.962	298,861	Measured flows in monthly results files
Softener sludge & rinse	65,935	2.97	0.962	63,429	Measured flows in monthly results files
Water treatment sampling	3,679	0.17	0.962	3,539	Lake Road Lab measurements
Softener vents	131	0.01	0.962	126	Calculated vent flows
Unaccounted for	134,873	6.08	0.796	107,359	Unaccounted for, allocate on 900# fuel
Totals	2,219,635[3]	100.00	0.962	2,134,636	
				96.2%	

[1] Some quantities are "annual," not specifically for 1993.

[2] Factors calculated from 1993 data.

ST. JOSEPH LIGHT & POWER COMPANY
ALLOCATION PROCEDURES
CASE NO. EO-94-36

II. CAPITAL PLANT ALLOCATION - General Plant

A. Capital Plant Allocation - General Plant

General plant refers to land, structures, furniture and equipment common to SJLP's three utility operations, electric, natural gas and industrial steam. General plant is classified in FERC accounts 389 through 398.

SJLP utilizes several different allocation procedures for the General Plant accounts to reflect the unique circumstances of each account.

Allocation Procedures

Accounts 389-390 - Land and Structures

Land and structure accounts consists of eight main locations. Because each location has different service territories and functions, a different allocation method is necessary for each area. Unless noted, land and structures for each location will use the same allocation method.

1. Location—St. Joseph T&D
Function—Electric

Allocation Factor—100% Electric except for garage

The engineering, estimating, line and electrical departments are located at T&D, as well as a storeroom, garage, pole and transformer yards, relay shop, etc. The work performed at the line and electrical departments, storeroom, pole and transformer yards and relay shop is 100% electric. Periodically, the engineering department may perform gas and steam related tasks. Because the primary purpose of the T&D service center is to provide electric service and any gas or steam work is very immaterial, the T&D land and building with the exception of the garage will be considered 100% electric with no allocation necessary.

The garage is used to service vehicles for the entire company so it is necessary to allocate the garage to the three departments. Because the basic function of the garage is to maintain the transportation equipment in account 392, the garage will be allocated on the same basis as account 392.

2. Location—General Office
Function—Electric, Gas and Steam

Allocation Factors—Adjusted Plant, Gross Margin and Direct Expenses (excluding fuel and purchased power)

The purpose of the general office building is to provide general and administrative services to the entire company with the exception of the SOC area which is used primarily for electric operations. For structure allocation, the SOC area will be classified as 100% electric as determined by square footage calculations. For all other areas, a composite factor based on the weighted average of adjusted plant, gross margin and direct expenses (as determined by the G&A calculation) will be used because the primary purpose of the general office staff is to control these rate base and cost of service items.

3. Locations—Maryville, Mound City and Tarkio Offices and Warehouses
Function—Electric and Gas

Allocation Factor—Payroll

The Maryville, Mound City and Tarkio offices provide electric and gas service to customers. Payroll charges for each location provide a reasonable basis for determining the type of work performed. Because there is a direct relationship between the task employees perform and the purpose of providing property to assist in the accomplishment of those tasks, labor charges for each location will be used as the allocation factor for each area.

4. Location—Microwave System (Account 389)
Function—Electric

Allocation Factor—100% Electric

The land account 389 relates entirely to the Iatan microwave system which is 100% electric. The equipment related to the microwave system is classified under communications equipment (Account 397). Currently, there are two systems: 1) SOC to Iatan and 2) SOC to Lake Road.

5. Location—Building Services Shop
Function—Electric, Gas and Steam

Allocation Factors—Square Footage and Number of Employees

Building services provide services to each of the main structures in the company. Each location is weighted according to square footage and number of employees and then allocated based on corresponding adjusted structure percentages after allocations. These factors provide the most direct relationship between services provided and associated costs.

6. Location—Savannah Office
Function—Electric

Allocation Factor—100% Electric

The Savannah office provides only electric services to the customers in that location.

Accounts 391-398—Equipment

General equipment consists of a variety of office, shop and miscellaneous machines which are used at the main locations described above. Whenever appropriate, each equipment account will be broken down by location and allocated according to the method prescribed for the corresponding structure at that location.

Account 391—Office Furniture
Function—Electric, Gas and Steam

Allocation Factor—Same as structures for corresponding locations.

Due to the direct relationship between office furniture and the structures where housed, the same allocation factors are utilized.

Account 391.1—Computer Equipment
Function—Electric, Gas and Steam

Allocation Factor—Number of Customers, Adjusted Plant, Gross Margin and Direct Expense (excluding fuel and purchased power)

The majority of computer equipment is housed at the St. Joseph office to provide general and administrative services to the entire company. Therefore, the allocation factors used to allocate the general office are used with the additional factor of number of customers. This factor was added because the billing and meter reading systems relate directly to the number of customers. The SCADA system is considered 100% electric.

Account 391.2—Office Machines
Function—Electric, Gas and Steam

Allocation Factor — Same as structures for corresponding locations.

Account 392—Transportation Equipment
Function—Electric, Gas and Steam

Allocation Factors—Specific Identification and Adjusted Plant, Gross Margin and Direct Expense for St. Joseph division and Payroll for North division

All gas department, meter reader, line department, T&D and relay vehicles which are specifically identifiable are assigned to their respective departments. The remaining vehicles are allocated based on assigned locations with North Division vehicles allocated on payroll and St. Joseph division based on adjusted plant, gross margin and direct expenses.

Account 393—Stores Equipment
Function—Electric, Gas and Steam

Allocation Factors—Materials and Supplies less Iatan

Because stores equipment is used primarily in the handling and maintenance of inventory, there is a direct correlation between the allocation basis for inventory and the equipment used to store and process the inventory. Therefore, stores equipment will be allocated on a like percentage.

Account 394—Tools, Shop and Garage
Function—Electric and Steam

Allocation Factors—Transportation Equipment Allocation Factor

Because tools, shop and garage equipment are used to maintain transportation equipment, the allocation of this account shall correspond to the transportation account.

Account 395—Lab Equipment
Function—Electric and Steam

Allocation Factors—Lake Road Allocation Ratio

Lab equipment is located at all major locations, with the majority in St. Joseph. Equipment at T&D, Maryville and Tarkio is considered 100% electric, with the remaining Lake Road equipment allocated based on the Lake Road Allocation ratio. Maryville and Tarkio equipment consists of voltmeters and test panels which are used entirely in electric operations.

Account 396—Power Operated Equipment
Function—Electric, Gas and Steam

Allocation Factor—Same as structures for corresponding locations.

Power operated equipment is located at St. Joseph, Maryville and Mound City. The majority of equipment at St. Joseph is located at T&D and will be classified as electric with Maryville and Mound City allocated consistent with the structures at those locations.

Account 397—Communication Equipment
Function—Electric, Gas and Steam

Allocation Factor—Same as structures for corresponding locations (except Microwave - 100% electric).

Communication equipment is located at St. Joseph, Maryville and Mound City. SOC equipment and microwave equipment are considered 100% electric. The remaining equipment allocations will be based on corresponding structure factors.

Account 398—Miscellaneous General Equipment
Function—Electric, Gas and Steam

Allocation Factor—Same as structures for corresponding structure factors.

Miscellaneous equipment is located at St. Joseph, Maryville and Mound City. Allocations are based on corresponding structure factors.

B. Reserve for Depreciation Allocation - General Plant

Depreciation reserve balances for accounts 390-398 are allocated based on the allocation percentages for each plant account. This method proves the most reasonable allocation basis between departments and it also preserves the consistency between plant and reserve balances.

14-Dec-94

ST. JOSEPH LIGHT & POWER COMPANY
GENERAL ALLOCATION
12-31-93

ACCT	DESCRIPTION	PLANT BALANCE	LESS 100% ELECTRIC	COMMON PLANT	ELECTRIC	GAS	SETTLEMENT INDUSTRIAL STEAM
389	Land						
	T&D, St. Joseph	$545,188	$490,388	54,800	49,156	3,896	1,748
	General Office/Savannah	100,602		100,602	91,659	3,581	5,362
	Maryville Office & Whse	41,502		41,502	29,612	11,890	
	Mound City Service Center	23,456		23,456	21,406	2,050	
	Tarkio Office	2,396		2,396	1,723	673	
	Microware System	4,584	4,584				
	Building Services Shop	15,793		15,793	14,529	474	790
	Total Acct. 389	$733,521	$494,972	$238,549	$208,085	$22,564	$7,900
390	Structures						
	T&D, St. Joseph	$4,388,951	$3,947,790	441,161	395,721	31,367	14,073
	General Office	4,525,410	248,804	4,276,606	3,896,416	152,247	227,943
	Maryville Office & Whse	1,012,652		1,012,652	722,527	290,125	
	Mound City Service Center	136,480		136,480	124,552	11,928	
	Tarkio Office	76,722		76,722	55,186	21,536	
	Building Services Shop	238,637		238,637	219,546	7,159	11,932
	Savannah Office & Grant City	41,557	41,557	0			
	Total Acct. 390 *	$10,420,409	$4,238,151	$6,182,258	$5,413,948	$514,362	$253,948

ACCT	DESCRIPTION	PLANT BALANCE	LESS 100% ELECTRIC	COMMON PLANT	ELECTRIC	GAS	INDUSTRIAL STEAM
391	Office Furniture	1,034,634		$1,034,634	957,363	34,923	42,348
391.1	Computer Equipment	7,149,990	1,005,563	$6,144,427	5,587,128	311,522	245,777
391.2	Office Machines	233,388		$233,388	213,160	10,804	9,424
392	Transportation Equipment	4,456,315		$4,456,315	3,997,491	316,827	141,997
393	Stores Equipment	271,729		$271,729	260,180	4,022	7,527
394	Tools, Shop, & Garage	678,115		$678,115	608,296	48,211	21,608
395	Laboratory Equipment	259,881	110,366	$149,515	138,039	0	11,476
396	Power Operated Equipment	480,050	388,470	$91,580	67,280	24,300	0
397	Communication Equipment	1,803,220	1,395,866	$407,354	343,858	47,615	15,881
398	Misc. General Equipment	110,873		$110,873	101,016	3,947	5,910
	Total	$27,632,125	$7,633,388	$19,998,737	$17,895,844	$1,339,097	$763,796
					92.39%	4.85%	2.76%

* Total Structures is per RS-10. RS-84 reports $10,427,481.

PRINT: PLTALLOC

Settlement

Allocation of General Reserve
Based on 12-31-93 Plant

Allocation of General Plant Reserve
Accumulated Reserve Acct. 390-398

Total Reserve per Accumulated Provision @ December, 1993	$13,343,135			
	Electric	Gas	Steam	
Allocation Percentages per general plant allocation	92.39%	4.85%	2.76%	
ALLOCATION OF G. P. RESERVE @ December, 1993	$12,327,722	$647,142	$368,271	

SETTLEMENT

ST. JOSEPH LIGHT & POWER COMPOSITE ALLOCATION FACTORS BASED ON PLANT, GROSS MARGIN & DIRECT EXPENSES

PLANT BASE	PLANT 12-31-93	LESS COMMON	LAKE ROAD ALLOCATION	ADJUSTED PLANT BALANCE	%
Electric	$258,937,608	($19,998,737)	($3,492,988)	$235,445,883	94.81%
Gas	5,807,562			$5,807,562	2.34%
Steam	3,584,835		3,492,988	$7,077,823	2.85%
	$268,330,005	($19,998,737)	$0	$248,331,268	100.00%

BOOKED GROSS MARGIN	12-Months Ended 12-31-93	%	
Electric	$51,497,609	91.22%	(Sales revenue less fuel & interchange)
Gas	2,248,863	3.98%	(Sales revenue, including gas transportation, less gas purchased)
Steam	2,704,744	4.80%	(Sales revenue less steam fuel)
	$56,451,216	100.00%	

DIRECT EXPENSE	12-31-93	%
Electric	$21,592,237	87.29%
Gas	1,078,162	4.36%
Steam	2,064,450	8.35%
	$24,734,849	100.00%

COMPOSITE BASE	ADJUSTED PLANT BASE	GROSS MARGIN BASE	DIRECT EXPENSES	COMPOSITE ALLOCATION
Electric	94.81%	91.22%	87.29%	91.11%
Gas	2.34%	3.98%	4.36%	3.56%
Steam	2.85%	4.80%	8.35%	5.33%
	100.00%	100.00%	100.00%	100.00%

Adjusted Lake Road Plant Balances (Per L.R. Study) 12-31-93		
Electric	53,170,353	92.32%
Steam	4,420,265	7.68%
Total	57,590,618	100.00%

T&D Garage Allocation

Garage Square Footage	8,800	10.05%
Total T&D Square Footage	87,548	
Total T&D Land	$545,188	
	10.05%	
Total land allocable to garage	$54,800	
Total T&D Structures	$4,388,951	
	10.05%	
Total structures allocable to garage	$441,161	

T & D allocation of garage

Electric	89.70%
Steam	7.11%
Gas	3.19%

BUILDING SERVICES ALLOCATION

Location	Square Footage	Weighted	Electric	Gas	Steam
General Office	51,144	10%	9%	0%	1%
T & D	87,548	16%	15%	1%	0%
Maryville	27,600	5%	4%	1%	
Mound City	4,187	1%	1%	0%	
Tarkio	3,150	1%	1%	0%	
Lake Road Plant	345,366	65%	60%		5%
Edmond Street	15,810	2%	2%	0%	0%
	534,805	100%	92%	2%	6%

Location	# of Employees 12–31–93*	Weighted	Electric	Gas	Steam
General Office	132	37%	34%	1%	2%
T & D/Savannah	99	27%	27%		
Maryville	32	9%	6%	3%	
Mound City	11	3%	3%	0%	
Tarkio	4	1%	1%	0%	
Lake Road Plant	75	21%	19%		2%
Edmond Street	9	2%	2%	0%	0%
	362	100%	92%	4%	4%

*Per MKT

COMPOSITE BASE	SQUARE FOOTAGE BASE	EMPLOYEE BASE	COMPOSITE ALLOCATION
Electric	92%	92%	92%
Gas	2%	4%	3%
Steam	6%	4%	5%
	100%	100%	100%

Maryville, Mound City, and Tarkio
Payroll Charges

Source: GACCREQ1 at 12–31–93

	$	%
Maryville–Location 6		
Electric	$787,283.00	71.35%
Gas	$316,134.00	28.65%
Total	$1,103,417.00	100.00%
Mound City–Location 8		
Electric	$386,541.00	91.26%
Gas	$37,030.00	8.74%
Total	$423,571.00	100.00%
Tarkio–Location 7		
Electric	$83,468.00	71.93%
Gas	$32,570.00	28.07%
Total	$116,038.00	100.00%

OFFICE FURNITURE & EQUIPMENT
ACCOUNT 391

Sources–RS10

Location	12-31-93	Electric	Gas	Steam
St. Joseph	570,150			
General Office	145,729			
Total St. Joseph	715,879	652,238	25,485	38,156
Savannah	18,279	18,279		
T & D	207,923	207,923		
Building Services	1,536	1,413	46	77
Lake Road Main Structure	33,702			
Lake Road Office\Control	8,793			
Lake Road Store Room	2,375			
Lake Road Lab	8,747			
Total Lake Road	53,617	49,502		4,115
Maryville	21,989			
Grant City	546			
Butler Metal Office	3,267			
Total Maryville	25,802	18,410	7,392	
Mound City	5,920			
Oregon	578			
Total Mound City	6,498	5,930	568	
Tarkio	5,100	3,668	1,432	
	$1,034,634	$957,363	$34,923	$42,348

COMPUTER EQUIPMENT
ACCOUNT 391.1

Sources—OR Pages 6,10 & 11

CUSTOMERS 12-31-93	#	%
Electric	60,098	90.41%
Gas	6,370	9.58%
Industrial Steam	8	0.01%
	66,476	100.00%

COMPOSITE BASE	CUSTOMER BASE	ADJUSTED PLANT BASE	GROSS MARGIN BASE	DIRECT EXPENSES BASE	COMPOSITE ALLOCATION
Electric	90.41%	94.81%	91.22%	87.29%	90.93%
Gas	9.58%	2.34%	3.98%	4.36%	5.07%
Steam	0.01%	2.85%	4.80%	8.35%	4.00%
	100.00%	100.00%	100.00%	100.00%	100.00%

OFFICE MACHINES
ACCOUNT 391.2 & 391.9

Sources–RS10

Location	12–31–93	Electric	Gas	Steam
St. Joseph	71,354			
General Office	48,687			
MVNG	15,113			
Total St. Joseph	135,154	123,139	4,811	7,204
Savannah	4,156	4,156		
T & D & Building Services	36,686	36,686		
Lake Road Main Structure & Lab	28,931	26,710		2,221
Maryville	14,590	10,410	4,180	
Mound City	10,768	9,827	941	
Tarkio	3,103	2,232	871	
	$233,388	$213,160	$10,804	$9,424

TRANSPORTATION EQUIPMENT
ACCOUNT 392

	Electric	Gas	Steam	Total
Specific Identification	$1,317,580	$135,199	$0	$1,452,779
Allocable				
St. Joseph	2,427,268	94,842	141,997	2,664,107
Maryville	188,228	75,581	0	263,809
Mound City	47,314	4,531	0	51,845
Tarkio	17,101	6,674	0	23,775
	$3,997,491	$316,827	$141,997	$4,456,315
	89.70%	7.11%	3.19%	

STORES EQUIPMENT
ACCOUNT 393

Sources–Other Allocations

Materials & Supplies	$	%
Electric less Iatan	$3,911,596	95.94%
Gas	60,455	1.48%
Industrial Steam	105,348	2.58%
	$4,077,399	100.00%

POWER EQUIPMENT
ACCOUNT 396

Sources–RS10

Location	12–31–93	Electric	Gas	Steam
St. Joseph	$388,470	$388,470		
Maryville	81,850	58,400	23,450	
Mound City	9,730	8,880	850	
	$480,050	$455,750	$24,300	$0

Plant account 396 consists of trencher, backfill blade, sickle, snowblower, backhoe/loader, tractor, mobile oil processor, chipper, ditchwitch trailer, etc.

St. Joseph equipment is primarily at T & D which is considered 100% electric.

COMMUNICATION EQUIPMENT
ACCOUNT 397

Sources—RS10

Location	Allocable 12–31–93	Electric	Gas	Steam
St. Joseph	125,061	$113,944	$4,452	$6,666
Microwave at L.R.	120,058	110,844		9,215
Maryville	118,196	84,333	33,863	
Mound City	15,836	14,452	1,384	
Tarkio	28,202	20,285	7,916	
	$407,354	$343,858	$47,615	$15,881

Total Acct 1397	$1,803,220
Total electric	1,395,866
Allocable	$407,354

Conception (Microwave)	$67,817.13	(100% Electric)
Iatan	2,355.89	(100% Electric)
Maryville	118,196.36	
M.C.	15,836.46	
Savannah (Microwave)	147,542.08	(100% Electric)
St Joe	967,114.57	(100% Electric)
Tarkio	28,201.64	
Electric–100	1,176.51	(100% Electric)
Electric–101	659.76	(100% Electric)
Electric–Microwave	15,724.25	(100% Electric)
St Joe–Gen Office	115,008.82	
T&D	26,608.21	(100% Electric)
Building Service	1,192.95	
Radio & Relay	8,859.42	
LR–Main	120,058.41	
LR–Substation	166,867.75	(100% Electric)
	$1,803,220.21	