Assessment of the Electrical Power Requirements for Continued Safe Storage and Waste Feed Delivery

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Abstract: This study reviewed the ability of the existing 13.8 kVA transformers to support safe storage and WFD. Existing power demands were estimated from metered loads with a 125 percent factor [NEC 220-35 (2)]. This study incoporates changes to SVF-1805 Electrical Pwr needs for WFD & SST Retrieval_ SFV 1805 Rev. I.XLSM".Updates to SVF-1805 included increased horse power ratings for WFD Mixer and Transfer pumps . This study does not provide calculations for acceptability of secondary electrical systems.

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Revision 2

ASSESSMENT OF THE ELECTRICAL POWER REQUIREMENTS FOR CONTINUED SAFE STORAGE AND WASTE FEED DELIVERY

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LIST OF TERMS

Abbreviations and Acronyms

ANSI	American National Standards Institute
DST	Double-shell tank
ECN	Engineering Change Notice
EDS	Electrical Distribution System
HVAC	Heating, Ventilation, and Air Conditioning
ICD	Interface Control Document
ICE	Instrument Control Electrical
IEEE	Institute of Electrical and Electronics Engineering
MCC	Motor Control Center
MSA	Mission Support Alliance (contractor)
NEC	National Electric Code
ORP	Office of River Protection
RAM	Reliability, Availability & Maintainability
SST	Single-shell tank
TOC	Tank Operations Contractor
WFD	Waste Feed Delivery
WRF	Waste Retrieval Facilities
WTP	Waste Treatment Plant
WRPS	Washington River Protection Solutions

1.0 INTRODUCTION

The ability to assure adequate Waste Feed Delivery (WFD) to the Waste Treatment Plant (WTP) contractor's vitrification facility is a key element in the overall Hanford cleanup schedule. An important aspect of this WFD is the availability of sufficient and appropriate electrical power in the single- and double-shell tank farms.

The methodology for performing this review and the results are described below.

2.0 REVIEW METHODOLOGY

This study reviewed the ability of the existing 13.8 kV/480 Volt transformers to support safe storage and WFD. Existing power demands were estimated from metered loads with a 125 percent factor [NEC 220-87 (2)]. This study does not provide calculations for acceptability of secondary electrical systems.

The review methodology used for preparing this assessment was to first review the River Protection Project System Plan Revision 5 (ORP-11242), Hanford Tank Waste Operations Simulator Model Data Package For The River Protection Project System Plan Rev. 4 Case (RPP-RPT-40734), and the Single-Shell Tank (SST) Waste Retrieval Plan (RPP-PLAN-40145) to determine the overall mission of SST retrieval and WFD. In addition available drawings and system design descriptions for electrical distribution in the tank farms were reviewed to determine the current electrical configuration in place at each facility. Interface Control Documents (ICDs) for electricity between the Washington River Protection Solutions and the Fluor Hanford Electrical Distribution System (HNF-4492), and WRPS-TOC and the WTP, (24590-WTP-ICD-MG-01-011), were used to verify current agreements/interfaces with other contractors and their facilities. Interviews were then held with key people to determine the current planning regarding future modifications/operations and to incorporate the results of these interviews with the WFD documentation to summarize future requirements. Finally, the requirements were compared to the existing/planned installations and recommendations were developed. Details of the drawing reviews/interviews and resulting recommendations are shown below.

The results of the review are presented in terms of Assessment Items (Section 2.5). The five (5) Assessment Items address the major tank farm and waste feed delivery activities both current and future.

2.1 DRAWING REVIEW

Copies of the latest one-line drawings for each single-shell and double-shell tank farm, electrical utility switching diagrams and distribution maps were obtained from the Document Management & Control System. A listing of these drawings is provided in Section 5.0.

2.2 INTERVIEWS

Washington River Protection Solutions (WRPS) electrical engineers for the DST and SST farms were contacted to obtain information on requirements for safe storage, WFD (waste preparation

and transfer activities) and SST retrieval activities. The Mission Support Alliance (MSA) contractor's electrical engineer was contacted for utility metering information and 13.8 kV line loading information.

2.3 REVIEW BASIS

The power and capacity required for safe storage, WFD (waste preparation and transfer activities) and SST retrieval activities of waste stored in the DST and SST tank farms was estimated using the following basis:

- Identifying the maximum monthly electrical power demands by reviewing the data from utility metering performed over approximately a two year period (see Appendix B). Note this is not the most current information but because there has not been a major change to the electrical distribution system between calendar years 2007 and 2011 the information is thought to be representative.

- Estimating the potential number of simultaneous operations to support future Waste Feed Delivery and SST waste retrieval activities (Tables 2.1 and 2.2) based upon information provided in ORP-11242.

Assessment Item #3 (Section 2.5) was based upon several constraints, as identified in RPP-RPT-40734 (Table A-1 Assumption Verification Matrix). These constraints act as bounding criteria for the following five (5) Assessment Items.

  - Waste can be retrieved from a maximum of three SSTs in the East Area at one time.
  - Waste can be retrieved from a maximum of three SSTs in the West Area at one time.
  - Waste can be retrieved from a maximum of three SSTs in each tank farm at one time.
  - The waste from only one SST may be retrieved to one DST at one time.

  - The waste from only one SST may be retrieved into one WRF tank at a time

- Identifying the associated existing transformers and maximum capacities.

- Identifying the associated existing feeder lines and maximum capacities.

2.4 ASSUMPTIONS

The review results are based on the following assumptions:

- All hot water heaters for the 200 East Tank Farms will be electrical like the SY Tank Farm units. Additional transformers will be installed in the farms as needed to provide the required load capacity.
- The construction power for the WTP Contractor is fed from C8-L5 a 13.8 kV line. Additionally, C8-L5 provides power for some tank farm operations (i.e., 242-A Evaporator and the Grout Facility); and will continue to do so. See Appendix B.
- The power for the Cross-Site Transfer Line booster pump is fed from a transformer installed for the booster pump station and will not impact the loads for the tank farm transformers.
- Additional pumps will be installed to support future waste feed delivery operations. All new pump loads will be running at the maximum horsepower (100 percent load), and simultaneous operation of several pumps is anticipated (See Table 2.1).
- All electrical loads will operate with a 0.8[1] power factor (where appropriate).
- Reliability, availability and maintainability (RAM) of the electrical distribution system (EDS) will not decrease as a result of the increased loading as long as regular maintenance is performed. However, each upgrade project will, identify a reliability goal and implement appropriate design criteria to obtain this goal.
- Modifications associated with the 702 AZ ventilation upgrades and 2020 vision activities are not considered within this assessment.
- Power demand for the Mobile Articulated Retrieval System (MARS) is not part of this assessment. Therefore Assessment #3 will need to be updated once this information becomes available.
- Power demand for the planned upgrades for AP and SY ventilation systems is not part of this assessment. Therefore Assessment #2 will need to be updated once this information becomes available.

2.5 REVIEW RESULTS

The results of the Assessment Items are discussed below. Tables 2.1 and 2.2 identify simultaneous activities (WFD and SST retrievals) on a farm-by-farm basis in support of ORP-11242. Tables 2.3 through 2.6 and Appendix B provide a data summaries of the electrical load requirements associated with each Assessment Item.

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[1] Note that some load studies referenced in Table 2.2 assume a 0.9 power factor. These studies will be updated to reflect a 0.8 power factor.

- **<u>Assessment Item #1</u> - Assess the electrical power required for continued safe storage of waste in the DSTs.**

The existing transformers are sufficient to provide power to support safe storage of waste in the DSTs for the AN, AP, AW, AY, and AZ Tank Farms. The current power demand for safe storage within the DSTs is presented in Table 2.3 "Double-Shell Tank Farms Power Requirements", under the column entitled "Peak Demand from Utilities assumes 0.8 PF." The peak demand from utilities data is taken from Appendix B "Electricity Consumption and Cost Reports, And Monthly Demand Profiles." Appendix B information was obtained from MSA Electrical Utility engineers.

The previous transformer capacity for the SY Tank Farm did not have the load capacity for continuous operation of the two 500 kW water heaters. However two new 2000 kVA transformers have been installed to replace the original 500 kVA transformers. The two existing 500 kW heaters were originally used on an "as needed" basis, but with additional hot water required for intra-farm (within the same farm) and inter-farm (between farms) and cross-site transfers, the heaters are needed as a continuous load. Installation of the new transformers will provide sufficient capacity to run the heaters plus additional loads as identified below. For example Assessment Item #2 below addresses the need for one additional heater in the SY farm to support WFD as well as additional WFD loads. The two replacement transformers were sized based on safe storage and future WFD needs in the SY farm.

- **<u>Assessment Item #2</u> - Assess the electrical power required to retrieve waste from the DSTs for WFD, based on the assumption that there would be two-to-four 400-hp2 mixer pumps operating simultaneously and a concurrent transfer of waste by one-to-two transfer pumps (150 hp or 30 hp see note Table 2.1) per tank farm. The power loads will also include estimates of additional power required for support systems.**

Table 2.1 lists the various combinations of mixer pumps and transfer pumps that could be operating simultaneously in a given farm based on future tank farm mission needs as presented in the Integrated Waste Feed Delivery Plan (RPP-40149). Table 2.3 "Double-Shell Tank Farms Power Requirements" identifies the proposed additional electrical capacity required for simultaneous pump operation in addition to power requirements indentified under Assessment Item #1. Assessment Item #2 values are presented under the column in Table 2.3 entitled "Net Calculated Power capacity." The negative (-) values indicate a deficiency in the amount of available capacity required to operate the projected DST loads.

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[2] SVF-1805 Rev. 1. provides the current basis for HP rating for mixer and transfer pumps. Per SVF-1805 the electrical HP required to meet WFD mission needs is 358 HP and 122 HP respectively, however 400 HP and 150 HP were chosen based upon standard electrical equipment sizing availability.

Table 2.1. Proposed Future Combinations of DST Mixer and Transfer Pumps			
	Simultaneous Operation		
East Area DST Farms	**No. of Mixer Pumps (400 hp-electrical)**	**No of Transfer Pumps (150 hp-electrical)**	**Load requirement kVA[3] (1)**
AN	**4**	**1**	**2,079**
AP	**2**	**1**	**1,129**
AW	**4**	**2(*)**	**2,109**
AY/AZ	**4**	**1**	**2,079**
West Area DST Farm			
SY	**4**	**1**	**2,079**
(*) Only one of these pumps is a 150 hp pump. The other is the AW-102 evaporator feed pump (30 hp transfer pump).			

- **Electrical Power Requirement for AN Farm**

The existing 1000kVA transformer in AN farm does not have the load capability to handle the full load capacity to run four 400-hp mixer pumps one 150-hp transfer pump (2079 kVA), a proposed caustic and diluent and flush addition system (1,125 kVA[4]) and handle existing peak demand loads (164 kVA). Existing peak demands (Appendix B) recorded over a two-year period with a 125 percent factor [NEC 220-87 (2)], were used to estimate total capacity requirements for all 5 assessments. Based on these combined loads Table 2.3 estimates a power capacity deficit for AN Farm of approximately **(-) 2368kVA**.

- **Electrical Power Requirement for AP Farm**

The existing 1000 kVA transformer in the AP, farm does not have the capacity to handle the full load requirement to run two 400 hp mixer pumps,150-hp.transfer pump (1129 kVA), primary tank ventilation (248 kVA) and existing peak demand loads(280 kVA). Based on these combined loads Table 2.3 estimates a power capacity deficit of approximately **(-) 657kVA**.

- **Electrical Power Requirement for AW Farm**

The existing 500 kVA transformer in AW farm does not have the capability to handle full load capacity to run four 400-hp mixer pumps, one 150-hp transfer pump, one 30 hp transfer pump, existing peak demands, and one proposed 500 KW electric heater as recommended for the AW diluent and flush system. To meet future diluent and flush water demands, Project T3W13 recommends installation of one 500 kW heater with one backup heater available. This recommendation is based upon information provided in RPP-RPT-45267, Rev. 0 Preliminary *Design*

[3] Based on SVF-1805 Rev 1; conservative load requirements (kVA) for a 400 hp, 150 hp and 30 hp pump are 475, 179 and 30 kVA respectively.

[4] Based upon equivalent calculation performed for AZ156, RPP-CALC-24465 Rev.1

Package for AW Tank Farm Infrastructure Upgrades. This heater will be used to heat diluent and flush water for the 241-AW and 241-AP farms. Based on these combined loads Table 2.3 estimates a power capacity deficit for AW farm of approximately **(-) 2335kVA**. A current project to further assess and re-design the electrical distribution system for additional capacity is ongoing.

- **Electrical Power Requirement for AY/AZ Farm (except 702 AZ)**

The existing 1000 kVA transformer located at AZ-156, and the 225 kVA transformer bank (3-75 kVA transformers) servicing the AY/AZ farms do not have the capability to handle the full load capacity to run four 400 hp mixer pumps, a 150 hp transfer pump and existing peak demands. Based on these combined loads Table 2.3 estimates a power capacity deficit for AY/AZ farms of approximately **(-) 1,429 kVA.** A current project to further assess and re-design the electrical distribution system for additional capacity is ongoing.

- **Electrical Power Requirement for 702 AZ**

The existing 300 kVA transformer is sufficient to power the current 702 AZ ventilation system. However this system is planned for upgrades to address additional heat loading due to increased mixer/transfer pump horsepower required for WFD. Assume AY/AZ VTP is the same as AN-Farm VTP Load. This will be refined as AY/AZ VTP upgrade project matures[5].

- **Electrical Power Requirement for SY Farm**

Previously existing transformers in SY farm (two 500 KVA transformers and one bank of three transformers producing 500 kVA) were recently replaced by two new 2000 kVA transformers. These new transformers will provide sufficient capacity to feed four 400-hp mixer pumps, a 150-hp transfer pump and handle existing peak demands. Further it is recommended that an additional 325 KW electric heater be provided and used along with the two existing 500 KW heaters (RPP-7069). This combined heating capacity would allow utilization of a proposed diluent and flush system for the SY system. Based on these combined loads Table 2.3 estimates an overall power capacity surplus for SY farm of approximately **1,090kVA.**

- **<u>Assessment Item #3</u> - Assess the electrical power required to support the retrieval of waste from a single SST.**

Table 2.2 "Proposed Future Simultaneous Operations in SST Farms" identifies "worst case" retrieval loads associated with retrieval of one SST. The worst case or bounding criteria was based upon a "typical" C Farm retrieval using the modified sluicing approach. A "typical" C farm retrieval assumes operation of the equipment identified in Table 2.2 resulting in an approximate power demand of 771 kVA. Note that this value does not include power demand requirements associated with the

[5] See SVF-1805 Rev 1

recirculation pump. However recirculation pump requirements for retrievals have been accounted for within Assessment Item # 2 above.

Two new Waste Retrieval Facilities (WRF) will be constructed for SST retrievals in B, BX, BY Tank Farms, and T, TX, TY Tank Farms. The supernate recirculation pump, a transfer pump, and a mixer pump will be supplied with each new facility. The pumping of waste from the WRFs to the receiving tanks in SY and AN Farms are included in the WRF electrical power loads. See Assessment Items #4 and #5 for further detail on estimated load demands for WRF.

Table 2.2. Proposed Future Simultaneous Operations in SST Farms

	SST Farm	No. of Simultaneous Retrievals	Loads Associated with a single retrieval[6]
East Area	**A, AX**	2	• **100 hp hydraulic pumping unit (HPU) running SST sluicing pump** • **25 hp HPU motor running sluicer** • **Raw Water Skid** • **Portable Exhauster** • **Control Trailer** • **Change Trailer** • **Miscellaneous Loads** **Total demand for a single retrieval = 771 kVA**
	B,BX,BY	**3 (into Waste Receiver Facility)**	
	C	**N/A	
West Area	**S,SX**	**2 (limited by available DSTs)**	
	U	**1(limited by available DSTs)**	
	T,TX,TY	**3(into Waste Receiver Facility)**	

**N/A = C Farm loads are already designed

- **<u>Assessment Item #4</u> - Assess the capability of the 13.8 kV feeders to satisfy the electrical power requirements for continued safe storage of waste in both the DSTs and SSTs in the 200 East Area concurrent with DST waste feed delivery per Assessment Item #2 (above), DST waste feed preparation activities and simultaneous retrievals from SST Farms. Note that this Assessment Item is considered "worst case" for the East Area Tank Farms.**

The following activities performed simultaneously are considered "bounding" for any other proposed simultaneous activities occurring within the East Area Tank Farms. The proposed combinations of activities are based upon ORP-11242. Tables 2.1 through 2.4 were used to estimate the total power demand for Assessment Item #4.

1. Three tank waste retrievals out of B, BX, BY into the B-complex WRF will require approximately **1344 kVA; WRF transfer to AN-farm will require approximately 868 kVA (see table 2.4)**. Note in accordance with ORP-

[6] **See SVF-1805 Rev 1;** worst case retrieval method is assumed to be modified sluicing. Estimates based on C Farm retrievals.

11242 waste can be retrieved from a maximum of three SSTs in the East Area at one time. Based upon the new load demands provided in Table 2.4 retrieval from B farm tanks was chosen as a bounding case for A, AX and C farms.

2. WFD out of AN farm (only) will require approximately **3,204 kVA** (see table 2.3 New Demand Load).

3. Mixing for feed staging/sampling in AY/AZ will require approximately **2,637 kVA** (see table 2.3 New Demand Load). Note this value is conservative low because it does not include AZ-156 load requirements which are unknown at this time.

4. Mixing for Sludge Consolidation in AW-farm and a 242-A evaporator campaign will require approximately **2,668 kVA**. Table 2.1 includes a 30 hp (currently installed) transfer pump to transfer waste from AW-102 over to the 242-A Evaporator.

5. WFD out of AP farm (only) will require approximately **1,657 kVA** (see table 2.3 New Demand Load).

Note that items #2 and #5 cannot occur simultaneously because transfers into WTP are limited to only one DST Farm transfer at a time. Consequently Assessment Item #4 is broken into two separate Assessment Items (4a and 4b).

Assessment Item #4a; Total new (WFD) demand load for the above simultaneous activities (1, 2, 3, and 4): **[(868 + 1,344) + 3,204 + 2,637 + 2,668)]** = **10,722** kVA.

Assessment Item #4b; Total new (WFD) demand load for the above simultaneous activities (1, 3, 4, and 5): **[(868 + 1,344) + 2,637 + 2,668 + 1,657)]** = **8,894** kVA.

Table 2.5 compares the existing site load demands (metered loads) plus Assessment Item #4 results to the available feeder (C8-L6) capacity.

- **Assessment Item #5 - Assess the capability of the electrical system to satisfy the electrical power requirements for continued safe storage of waste in both the DSTs and SSTs in the 200 West Area concurrent with DST waste feed delivery per Assessment Item #2 and retrieval from SST Farms Note that this Assessment Item is considered "worst case" for the West Area Tank Farms. Tables 2.1, through 2.4 were used to estimate the total power demand for Assessment Item #5.**

The following types of activities performed simultaneously are considered "bounding" for any potential simultaneous activities occurring within the West Area

Tank Farms based upon ORP-11242 constraints. Tables 2.1 through 2.4 were used to estimate the total power demand for Assessment Item #5.

1. Three tank waste retrievals out of T, TX, TY into the T-complex WRF will require approximately 1344 kVA; WRF transfer to SY-farm will require approximately 868 kVA (see table 2.4). Note in accordance with ORP-11242 waste can be retrieved from a maximum of three SSTs in the West Area at one time. Based upon the new load demands provided in Table 2.4 retrieval from T farm tanks was chosen as a bounding case for S, SX and U farms.

2. WFD out of SY farm will require approximately 2,512 kVA (see Table 2.3 New (WFD) Demand Load).

Total new (WFD) demand load for the above simultaneous activities (1 and 2) is the following: (868 + 1344 + 2,512) = 4,724 kVA.

Table 2.6 compares the existing total capacity which includes site load demands (metered loads) plus Assessment Item #5. The Net Calculated Power Capacity of Feeder C8-L4 is (-) 44. kVA.

Table 2.3. Double-Shell Tank Farms Power Requirements (Assessment Items #1 and # 2)								
Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak measured Demand from Utilities (kVA) at 0.8 PF Assessment Item #1	New (WFD) demand on transformer[7]	Total Design Load[8,9]	Net calculated power capacity[10] Assessment Item #2	Load Study[11]
AN	H-14-030001	C8-L6	1000 kVA (C5712P)	131 kVA	3204[12] kVA	3,368 kVA	(-)[13]2368 kVA	RPP-CALC-24467 R0
AY /AZ	H-14-030006 H-14-030007	C8-L6	(3) 75 kVA Pole mtd. transformers (C6528P, C6529P, C6530P)	30 kVA	2,637 kVA	2,675 kVA	(-) 2450 kVA	RPP-CALC-24468 R0

[7] New load demand values are taken from calculation spread sheet SVF-1805 Rev 1

[8] Total Design load is calculated by summing the (Peak Measured Demand X 1.25) plus the New WFD Demand.

[9] Projects upgrading DST farm 480/277 VAC service to the farm are expected to size the 13.8 kV – 480/277/ VAC transformer to encompass the Total Design Load with the next commercially available transformer sizes to provide > 10% design margin over the Total Design Load.

[10] Net Calculated Power Capacity is calculated by subtracting the Total Design Load from the Transformer Size.

[11] Load studies are out of date with respect to electric utility meter data and may not reflect the values presented in tables 2.3 and 2.4

[12] This value includes AW-Farm-sized electrical heaters for the diluent/flush system serving AN AY/AZ Farms.

[13] (-) indicates that the amount of power required exceeds current capacity

Table 2.3. Double-Shell Tank Farms Power Requirements (Assessment Items #1 and # 2)								
Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak measured Demand from Utilities (kVA) at 0.8 PF Assessment Item #1	New (WFD) demand on transformer[7]	Total Design Load[8,9]	Net calculated power capacity[10] Assessment Item #2	Load Study[11]
AZ (AZ 15614 Bldg)	H-14-030007	C8-L6	1000 kVA (C6653P)	60kVA	TBD	TBD	TBD	RPP-CALC-24465 R1
702 AZ Primary Ventilation	TBD[15]	C8-L6	TBD	TBD	TBD	TBD	TBD	TBD
AP (W-211)	H-14-030003 H-14-102210	C8-L6	1000 kVA (C5859P)	224 kVA	1,657 kVA	1,409 kVA	(-) 657kVA	RPP-8182 R0
AW	H-14-030002	C8-L6	500 kVA (C5662P)[16]	134 kVA	2,668 kVA	2,835 kVA	(-) 2,335kVA	RPP-8183 R2

[14] Capable of feeding AN- Farm Mixer/Transfer Pump Loads

[15] The existing 300 kVA transformer located at 702 AZ is adequate to support 'safe storage' operations (Assessment Item #1). Design activities for upgrading 702 AZ primary ventilation to support Assessment Item #2 are scheduled for FY 2011 and 2012 and are To Be Determined (TBD).

[16] C5662P will be replaced with a 2000 kVA transformer (minimum) based upon Assessment Item #2

Table 2.3. Double-Shell Tank Farms Power Requirements (Assessment Items #1 and # 2)								
Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak measured Demand from Utilities (kVA) at 0.8 PF Assessment Item #1	New (WFD) demand on transformer[7]	Total Design Load[8,9]	Net calculated power capacity[10] Assessment Item #2	Load Study[11]
SY	H-2-46424 Sht. 1 Rev 20	C8-L4	(West) 2000[17] kVA (C7048P)	286 kVA[18]	2,512 kVA	2,869 kVA	1,131 kVA	RPP-8185 R0
		C8-L4	(East) 2000 kVA (C7049P)					

[17] Two new transformers are installed at SY Farm, however infrastructure is currently not in place to utilize them

[18] This measured demand does not include intermittent use of two 500 KW heaters (see Assessment Item #1).

Table 2.4. Single-Shell Tank Farm Power Requirements (Assessment Item #3) (5 Pages)

Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak Demand from Utilities assume 0.8 PF	Maximum new load demand on transformer[19]	Total Design Load[20]	Net Calculated[21] power capacity	Load Study
241-A	H-14-030008, Sht.1-5	C8-L6	75 kVA (C6522P)	106kVA	896 kVA	1,028 kVA	(-) 878 kVA	N/A
241-AX	H-14-030009, Sht.1 H-2-2126, Sht. 7, ZD3							
241A, 241-A-701-A	H-14-030008 H-2-2126, Sht.5, ZF2		75 kVA (C6523P)					
			75 kVA (C6524P)					
242-B	H-14-030010 Sht.1 H-2-2126, Sh2, ZF6	C8-L6	15 kVA C6040L[22]	49kVA	1,344 kVA	1,405 kVA	(-)1320 kVA	N/A
241-BX	H-14-030011, Sht.1	C8-L6	25kVA (C6043L[23])					

[19] New load demand values are taken from calculation spread sheet SVF-1805 Rev 1

[20] Total Design load is calculated by summing the (Peak Measured Demand X 1.25) plus the Maximum new load demand on transformer.

[21] Net Calculated Power Capacity for Assessment Item #3 is calculated by subtracting the total design load from the transformer capacity

[22] Not metered. Connected load is estimated

[23] Not metered. 17.6 kVA (based on connected load)

Table 2.4. Single-Shell Tank Farm Power Requirements (Assessment Item #3) (5 Pages)

Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak Demand from Utilities assume 0.8 PF	Maximum new load demand on transformer[19]	Total Design Load[20]	Net Calculated[21] power capacity	Load Study
	H-2-2126, Sh2, ZF6							
	H-2-2126, Sh2, ZF7		10 kVA (C6035L[24])					
	H-2-2126, Sht.2, ZF6		25 kVA (C6699P)					
			25 kVA (C6700P)					
			25 kVA (C6701P)					
241-BY	H-14-030012 Sht.1, H-2-2126, Sht.2,ZF4	C8-L6	10kVA (C5256L)					
	H-2-2126, Sh2, ZF5		1000 kVA (C5016P[25])					

[24] Not metered. 4.8 kVA (based on connected load)

[25] Transformer disconnected from farm loads

Table 2.4. Single-Shell Tank Farm Power Requirements (Assessment Item #3) (5 Pages)

Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak Demand from Utilities assume 0.8 PF	Maximum new load demand on transformer[19]	Total Design Load[20]	Net Calculated[21] power capacity	Load Study
B-complex WRF	N/A	None	None	N/A	868 kVA	868 kVA	(-) 868 kVA	N/A
241-C	Drawing H-2-818680, Sheet 1, Rev. 10, H-2-2126, Sh8, ZE7 H-2-2126, Sht.3, ZD7	C8-L6	225 kVA (C6646P)	185.88 kVA	771 kVA	1,003.3 kVA	(-) 28.3 kVA	RPP-CALC-28437 R0 C-108 RPP-CALC-23482 R0 C-103 RPP-16155 R1D C-200 (construction) RPP-CALC-41824,Rev.0 C- 111 Waste Retrieval Detailed Design C-104 RPP-CALC-32223 R.1 RPP-CALC-32224 (219-S)
	H-14-030024 H-2-2126, Sh3, ZC7	C8-L6	750 kVA (C6900P)					

Table 2.4. Single-Shell Tank Farm Power Requirements (Assessment Item #3) (5 Pages)

Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak Demand from Utilities assume 0.8 PF	Maximum new load demand on transformer[19]	Total Design Load[20]	Net Calculated[21] power capacity	Load Study
241-S 241-SX	H-14-030033, Sht.3 H-2-2126, Sht.10, ZD8	C8-L4	50 kVA C6161P	178kVA	896 kVA	1,119 kVA	(-) 94 kVA	RPP-CALC-32224 (219-S)
			50 kVA C6487P					
			50 kVA C6488P					
241-S	H-14-030033, Sht.1 H-2-2126, Sht.10, ZD7	C8-L4	100 kVA C5195P					
			100 kVA C5474P					
			100 kVA C5475P					
241-S-112	H-2-2126, Sht. 10, ZC7	C8-L4	500 kVA C5874P					
241-SX	H-14-030034, Sht.1 & 2 H-2-2126, Sht.10, ZB8	C8-L4	25 kVA C5919P					
			25 kVA C5959P					
			25 kVA C5961					
241-T	H-14-030037, Sht.1	C8-L4	50kVA C5969P	60 kVA	1,344 kVA	1,419 kVA	(-) 588kVA	N/A
			50kVA C5970P					
			50kVA					

Table 2.4. Single-Shell Tank Farm Power Requirements (Assessment Item #3) (5 Pages)

Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak Demand from Utilities assume 0.8 PF	Maximum new load demand on transformer[19]	Total Design Load[20]	Net Calculated[21] power capacity	Load Study
			C5971P					
241-TX	H-14-030036, Sht.1 H-2-2126, Sht.8, ZD8	C8-L4	167 kVA C5511P					
			167 kVA C5513P					
			167 kVA C5538P					
	H-2-2126, Sht.8, ZD7	C8-L4	10 kVA C5911P					
			10 kVA C5912P					
			10 kVA C5913P[26]					
241-TY	H-14-030036, Sht.1 H-2-2126, Sht.8, ZD7	C8-L4	50 kVA C5972P					
			50 kVA C5973P					
			50 kVA C5974P					
T-complex WRF	N/A	None	None	N/A	868 kVA	868 kVA	(-) 868 kVA	N/A
241-U	H-14-030038 H-2-2126,	C8-L4	100 kVA[27] C4781P	73kVA	559 kVA	650 kVA	(-) 330 kVA	N/A

[26] Not metered 10 kVA of connected load

[27] Per H-14-030038 sht 1. Rev. 20, transformers C4781P, C4782P and C4785P are located just north of the U-271 building and have been disconnected.

Table 2.4. Single-Shell Tank Farm Power Requirements (Assessment Item #3) (5 Pages)

Tank Farm	Drawing number	Feeder Number	Transformer Size & No.	Peak Demand from Utilities assume 0.8 PF	Maximum new load demand on transformer[19]	Total Design Load[20]	Net Calculated[21] power capacity	Load Study
	Sht.10, ZE8		100 kVA C4782P					
			100 kVA C4785P					
	H-2-2126, Sht.10, ZE7	C8-L4	100 kVA C6840P					
			100 kVA C6841P					
			100 kVA C6842P					
	H-2-2126, Sht.10, ZE8	C8-L4	10 kVA C6421L					
	H-2-2126, Sht.10, ZF7		10 kVA C5762L					

Table 2.5. Calculated Total Power Capacity for Assessment Item #4					
Feeder No.	**Feeder Capacity**[28]	**Metered Peak Demand @ 0.8 pf**	**Tank Farm**	**Max New Load Demand**	**Net Calculated Feeder Capacity**
C8-L6 [Assessment #4a]	7,000 kW (8,750 kVA assume 0.8 pf)	6,542 kVA	241-AN	10,722 kVA	8,750- (6,542 + 10,722) = (-) 8,513 kVA
			241-AW		
			241-AY		
			241-AZ		
			242-B		
			244-BX		
			241-BY		
			B-COMPLEX (WRF)		
C8-L6 [Assessment #4b]	7,000 kW (8,750 kVA assume 0.8 pf)	6,542 kVA	241-AP	8,894 kVA	8,750- (6,542+ 8894) = (-) 6686 kVA
			241-AW		
			241-AY		
			241-AZ		
			242-B		
			244-BX		
			241-BY		
			B-COMPLEX (WRF)		

[28] Feeder capacities obtained from MSA \\aputl01\fheuintranet\INTRANET\fheu.htm

Table 2.6. Net Calculated Power Capacity for Assessment Item #5

Feeder No.	Feeder Capacity	Metered Peak Demand @ 0.8 pf	Tank Farm	Max New Load Demand	Net Calculated Feeder Capacity
C8-L4	7,000 kW (8750 kVA assume 0.8 pf)	4070kVA	241-SY	4724 kVA	8,750- (4,070 + 4,724) = -44 kVA
			241-S/SX		
			241-SX		
			241-T		
			241-T		
			• 241-TX		
			• 241-TY, 242-T-701 • 241-T-701 Modular Compressor		
			• T-COMPLEX (WRF)		
			241-U		

2.6 LIFE EXPECTANCY FOR TRANSFORMERS, DISTRIBUTION CABLES AND SWITCH GEAR

In accordance with industry standards the following life expectancies for power cables and transformers are recommended.

- The expected life of distribution transformers is about 25 years (See Table 2.7). It should be noted that many of transformers have exceeded their expected design life. Those transformers that have exceeded their life expectancy should be considered for replacement based upon future needs.

- The expected life of underground insulated power cable is 20 to 40 years. The life of an underground cable is dependent on the soil conditions (wet/dry) and the loading of the cable. A cable which is continuously loaded 60% will outlast an unloaded cable, or an infrequently loaded cable, should both be installed in the same soil conditions. Load flow through an underground cable produces heat which minimizes moisture formation.

- The expected life of switchgear is dependent on several variables, especially bus conductor temperature.

Table 2.7. Estimated Useful remaining Life for Transformers (3 Pages)				
FARM	Equip No.	Date of Manufacture	Date Received - Date Installed	Years Useful life based upon a 25 year life span, beginning from the installation date.
AN	C5712P	1/78	Assumes date of manufacture is the date of installation	(-)8
AY[29]	C6528P	-	9/8/94 – 11/19/03	17
	C6529P	-	9/8/94 – 11/19/03	17
	C6530P	-	9/8/94 – 11/19/03	17
AZ	C6653P	1/95	Assumes date of manufacture is the date of installation	9
	C6650P	1/94	Assumes date of manufacture is the date of installation	8
AP	C5859P	1/83	Assumes date of manufacture is the date of installation	(-)3
AW	C5662P	1/78	Assumes date of manufacture is the date of installation	(-)8
SY	C6647P	1/2010	Assumes date of manufacture is the date of installation	24
SY	C6648P	1/2010	Assumes date of manufacture is the date of installation	24
A/AX	C384F	1/50	C6885P– Out of Service on 3/19/09	N/A
B	C6040L	1/83	Assumes date of manufacture is the date of installation	(-)3
BX	C6035L	1/83	Assumes date of manufacture is the date of installation	(-)3
	C6043L	1/83	Assumes date of manufacture is the date of installation	(-)3
	C6699P	1/96	Assumes date of manufacture is the date of installation	10
	C6700P	1/96	Assumes date of manufacture is the date of installation	10
	C6701P	1/96	Assumes date of manufacture is the date of installation	10
BY	C5256L	-	No dates given for manufacture, received or installed	Unknown
	C5016P	1/48	Out of Service – no date given	(-)38
C	C6646P	1/95	Assumes date of manufacture is the date of installation	9

[29] These three transformers are being removed in the near future in support of AY/AZ infrastructure upgrades per Project T3W12 (See RPP-PLAN-41793)

Table 2.7. Estimated Useful remaining Life for Transformers (3 Pages)

FARM	Equip No.	Date of Manufacture	Date Received - Date Installed	Years Useful life based upon a 25 year life span, beginning from the installation date.
	C6884P	1/03	Assumes date of manufacture is the date of installation	17
	C6900P	2/05	Assumes date of manufacture is the date of installation	19
S/SX	C6161P	1/84	Assumes date of manufacture is the date of installation	(-)2
	C6487P	1/94	Assumes date of manufacture is the date of installation	8
	C6488P	1/94	Assumes date of manufacture is the date of installation	8
	C5195P	-	4/27/60	(-)26
	C5474P	-	10/29/66	(-)20
	C5475P	-	10/29/66	(-)20
	C5874P	1/83	Assumes date of manufacture is the date of installation	(-)3
SX	C5919P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5959P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5961P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5998L	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5945P	1/83	Out of Service on 8/21/07	N/A
	C5946P	1/83	Out of Service on 8/21/07	N/A
	C5947P	1/83	Out of Service on 8/21/07	N/A
T	C5969P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5970P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5971P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5907L	1/83	Assumes date of manufacture is the date of installation	(-)3
TX	C5511P	-	2/15/72	(-)14
	C5513P	-	12/29/71	(-)14
	C5538P	-	5/4/73	(-)16
	C5911P	1/83	Assumes date of manufacture is the date	(-)3

Table 2.7. Estimated Useful remaining Life for Transformers (3 Pages)				
FARM	Equip No.	Date of Manufacture	Date Received - Date Installed	Years Useful life based upon a 25 year life span, beginning from the installation date.
			of installation	
	C5912P	1/83	Assumes date of manufacture is the date of installation	(-)3
	C5913P	1/83	Assumes date of manufacture is the date of installation	(-)3
TY/TX	C5972P	-	11/19/83	(-)3
	C5973P	-	11/19/83	(-)3
	C5974P	-	11/19/83	(-)3
U	C4781P*	1/58	Assumes date of manufacture is the date of installation	(-)28
	C4782P*	1/58	Assumes date of manufacture is the date of installation	(-)28
	C4785P*	-	7/27/72	(-)15
	C6840P	-	8/9/99 – 8/27/99	13
	C6841P	-	8/9/99 – 8/27/99	13
	C6842P	-	8/9/99 – 8/27/99	13
	C6421L	-	10/15/93 – 11/19/93	7
	C5762L	-	8/6/92	6
SY*	C6301P	-	11/18/89 – 7/16/99	N/A
	C6302P		11/18/89 – 7/16/99	N/A
	C6303P		11/18/89 – 7/16/99	N/A
* Note that these transformers have been replaced and are no longer in service				

3.0 CONCLUSIONS

Assessment Item #1 (See table 2.3) results indicate that the existing transformers are adequate to supply the loads in each DST farm for safe storage.

Assessment Item #2 (See table 2.3 and SVF-1805) results indicate that all DST farms (except SY) will require 480 /277 VAC service upgrades.

Assessment Item #3 (see table 2.4 and SVF-1805) results indicate that **all SST farms will require 480/277 VAC service upgrades.** This is based upon estimated required capacity to support proposed future simultaneous retrievals (see table 2.2).

Assessment Item #4 (see table 2.5) results indicate **with the exception of A and AX farms (C8-L5)** feeder capacity will need to increase significantly to meet future WFD mission needs (waste feed mixing and staging, sludge consolidation, etc.). **C8-L6 does not currently provide sufficient capacity for continued safe storage of waste in both the DSTs and SSTs in the 200 East Area concurrent with DST waste feed delivery**.

Assessment Item #5 (see table 2.6) results indicate that the current **feeder capacity (C8-L4) does not currently provide sufficient capacity** for simultaneous tank retrievals from T, TX, and TY farms into the T-complex WRF and transfer from the WRF to SY Farm. WFD out of SY Farm is also included in this assessment.

The existing switchgear capacity and feeder cable sizes from the transformers to the switchgear (within tank farms) will have to be assessed and possibly upgraded for the installation of the new mixer pump motor loads. This assessment/upgrade is the responsibility of projects installing new loads. Any major changes to the criteria will require additional study to assess the impact on the transformer loading.

3.1 RECOMMENDATIONS

Based on the above conclusions the following recommendations are offered:

- Tank Farms AW and AP transformer loads should be moved to the 13.8 kV line C8-L8 which was used to feed PUREX to reduce the load on the C8-L6 line.

- Install a new 13.8 kV line C8-L3 to one of the SY Tank Farm transformers to improve reliability and provide a means of alternate backup power.

- Install 13.8 kV sectionalizing switches to allow the 200 East Tank Farms to be readily switched to an alternate 13.8 kV source line C8-L5 for temporary limited backup power during loss of 13.8 kV power from either the C8-L6 or C8-L8 lines.

- Install a new transformer for the added loads and the existing loads on MCC-AY-1 (EDS-MCC-001) in the AY Tank Farm

- Double-shell tank farm power requirements for future WFD operations (Assessment #2) are summarized in Table 2.3. DST farms with a negative Net Calculated Power Capacity require 480/277 VAC service upgrades.

- Change the 13.8 kV feeder for the AW and AP Tank Farms transformers from the C8-L6 line to the C8-L8 line to improve on the voltage regulation due to the starting of the 400 hp mixer pumps and to reduce the load on the C8-L6 line. The load capacity of the C8-L6 line needs to be coordinated with the MSA Utility Group and some reconductoring may be required due to the added DST loads.

- Complete update to the RAM analysis to verify that the proposed electrical upgrades will be sufficient to support mission needs.

- Consider replacing transformers that have reached or exceeded their design life per Table 2.7.

4.0 UNCERTAINTIES

The following planning uncertainties are associated with the assumptions in Section 2.4.

- Use of the 13.8 kV line (C8-L5) to feed the 242A Evaporator and Grout facility is dependent WTP usage of this line. The need for an additional 13.8 kV feeder is likely.

- Estimates of simultaneous operation of WFD equipment (mixer/transfer pumps) is based on RPP System Plan, Rev. 5 results and the possibility that a DST containing sludge undergoing transfer is being mixed concurrently with another sludge containing DST in the same farm for the purposes of taking a representative waste sample. This operational scenario is possible in any given DST farm; further, it cannot be ruled-out to occur in AN, AY/AZ and AW farms simultaneously while salt cake is being mixed in both AP farm tanks outfitted with mixer pumps. Future revisions of the System Plan will incorporate WFD DST System constraints outlined in the Integrated Waste Feed Delivery Plan (IWFDP), RPP-40149, (Section 4.2.1) and may modify these estimates of simultaneous operation. Also, modifications to these estimates may occur as a result of the ongoing Operational Requirements (OR) modeling—note that operating WFD equipment simultaneously in all DST farms is likely limited by available tank farm operations personnel. It is assumed that the simultaneous operations estimates presented herein represent a bounding of the needed power during WFD operations.

- The Electrical Distribution System (EDS) is reliable based on the type of demand it has seen in the recent past. However, as waste feed delivery operations are initiated as described in Section 2.5, additional strain will be placed on some parts of the

EDS. This additional strain may cause disruption to power distribution (see bullet below for ongoing assessment).

- Reliability, availability and maintainability (RAM) assessment for specific sections of the tank farms electrical distribution system is in progress. Historical data is currently being collected to support a time and motion model (i.e., RAM aspects) for the 480V Electrical Distribution System (EDS) and the Hanford 13.8 kV electrical supply system. Because of time constraints a RAM model is not being developed at this time for the EDS but historical downtime will be used to compute both mean-time-before-failure and mean-time-to-repair values as input to the time and motion model. To date the greatest impact that an electrical outage (most of them are of short duration: hours instead of days) has is in the recovery of tank waste recirculation and/or transfer operations that could be in progress at the time. Even if the outage lasted only 15 sec (the time it takes for circuit breaker auto re-close due to a lightning strike on the 13.8 kV system), the recovery time for a transfer that was taking place when the outage occurred could be on the order of hours.

- Modifications associated with the 702 AZ ventilation upgrades and 2020 vision activities are not considered within this assessment, therefore power requirements associated with these activities are unknown.

- Modifications associated with the SST MARS, and the AP and SY ventilation systems upgrades are not considered within this assessment; therefore power requirements associated with these activities are unknown.

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APPENDIX A - EAST AND WEST AREA TRANSFORMER LOCATIONS

Location maps (Figure 1) are taken from drawings H-13-000079, (East Area Electrical Utilities Distribution Map), and (Figure 2) H-13-000074, (200 West Area Electrical Utilities Distribution Map). Note that drawing H-13-000074 sheet 7 (Figure 2 page 36) has not been updated to reflect recent changes to SY Farm Electrical Distribution System.

Figure 1. East Area Transformer Locations (continued)

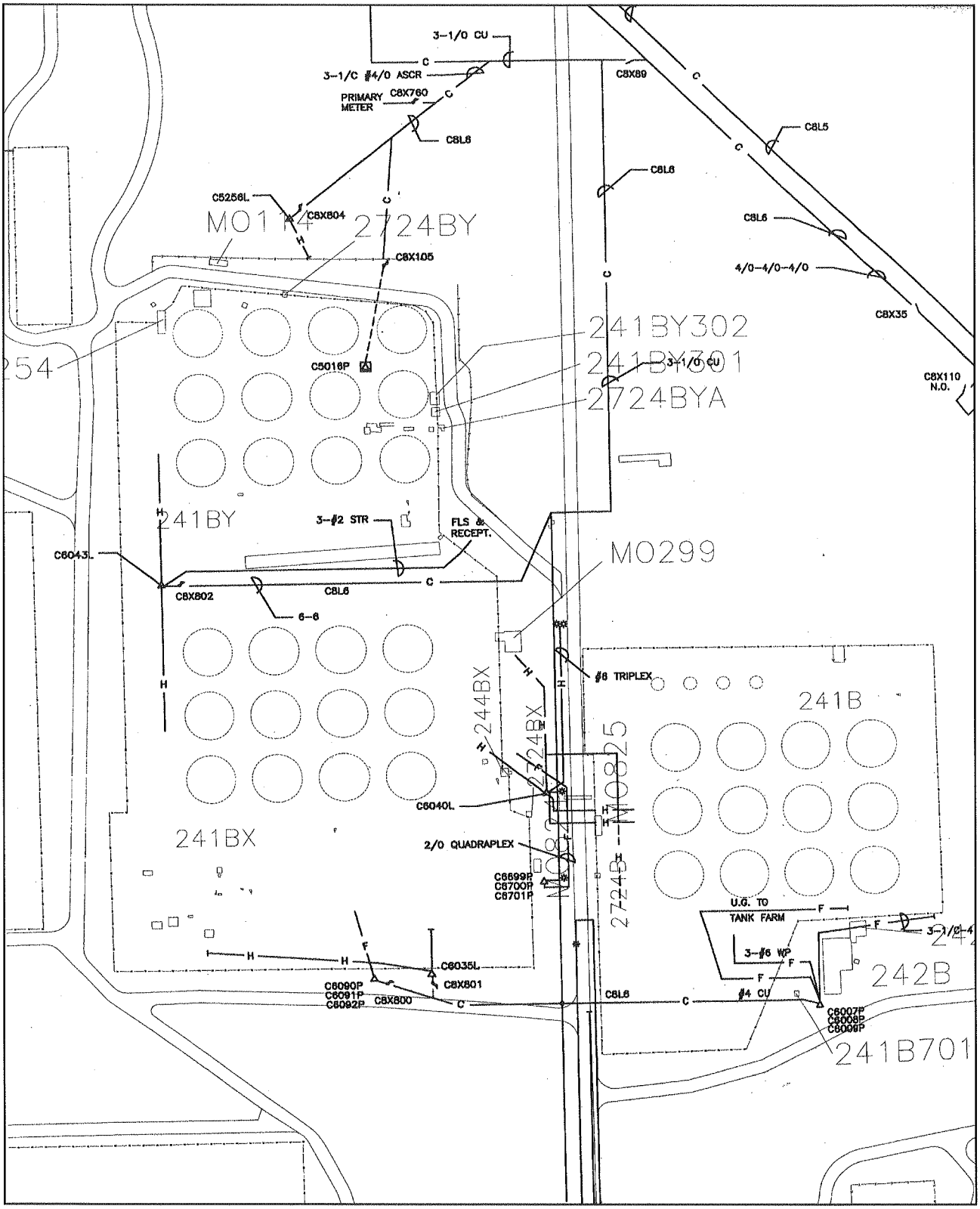


Figure 1. East Area Transformer Locations (continued)

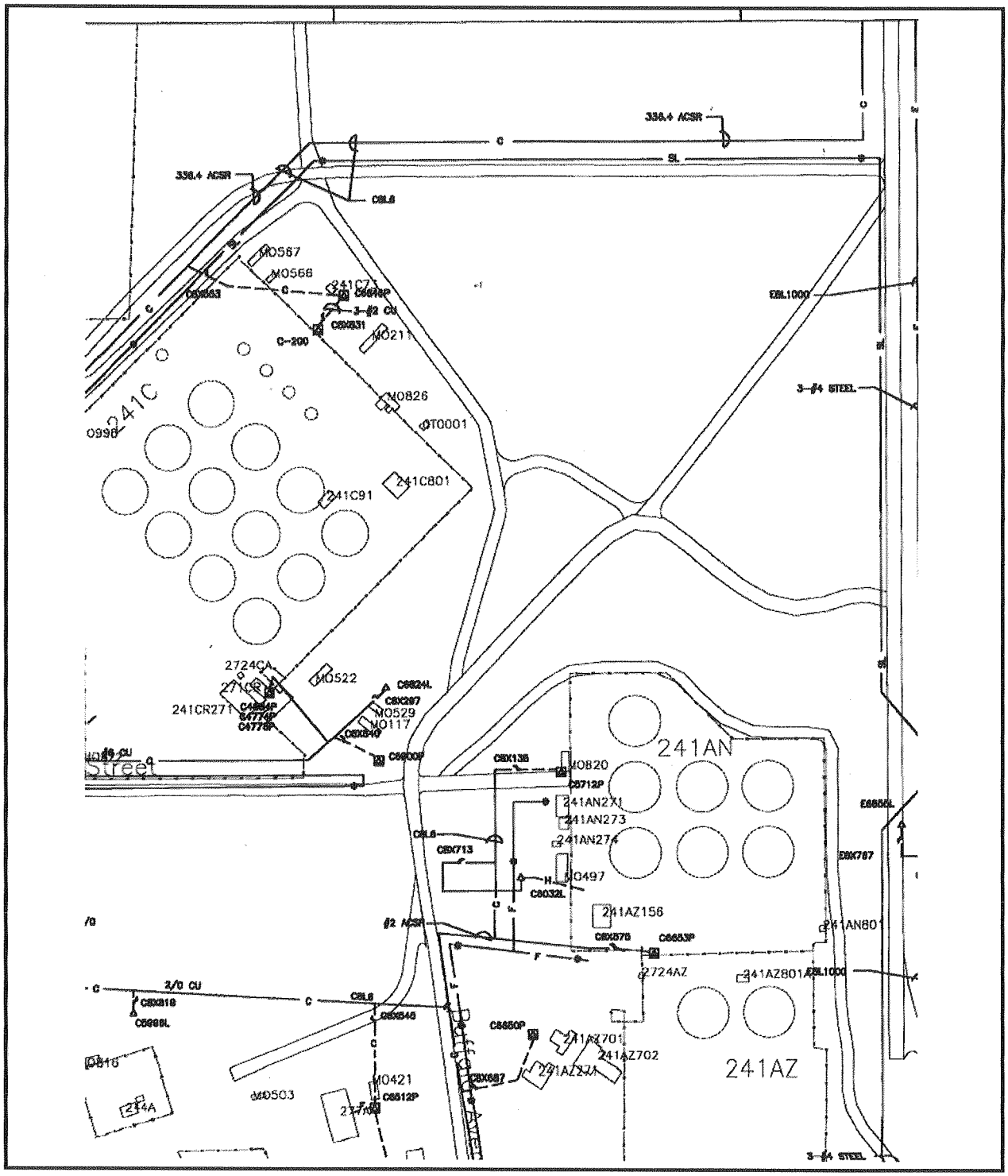


Figure 1. East Area Transformer Locations

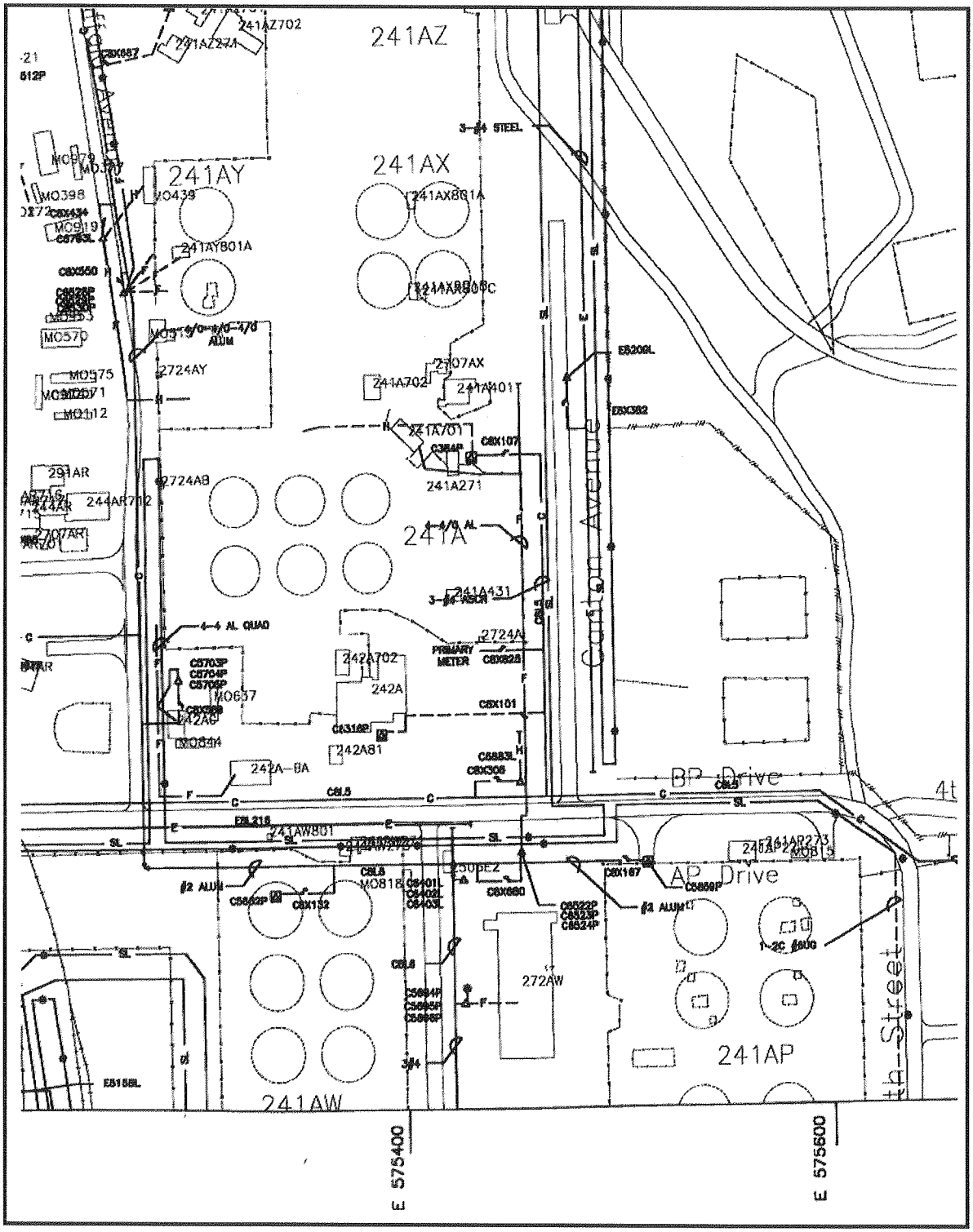


Figure 2. West Area Transformer Locations (continued)

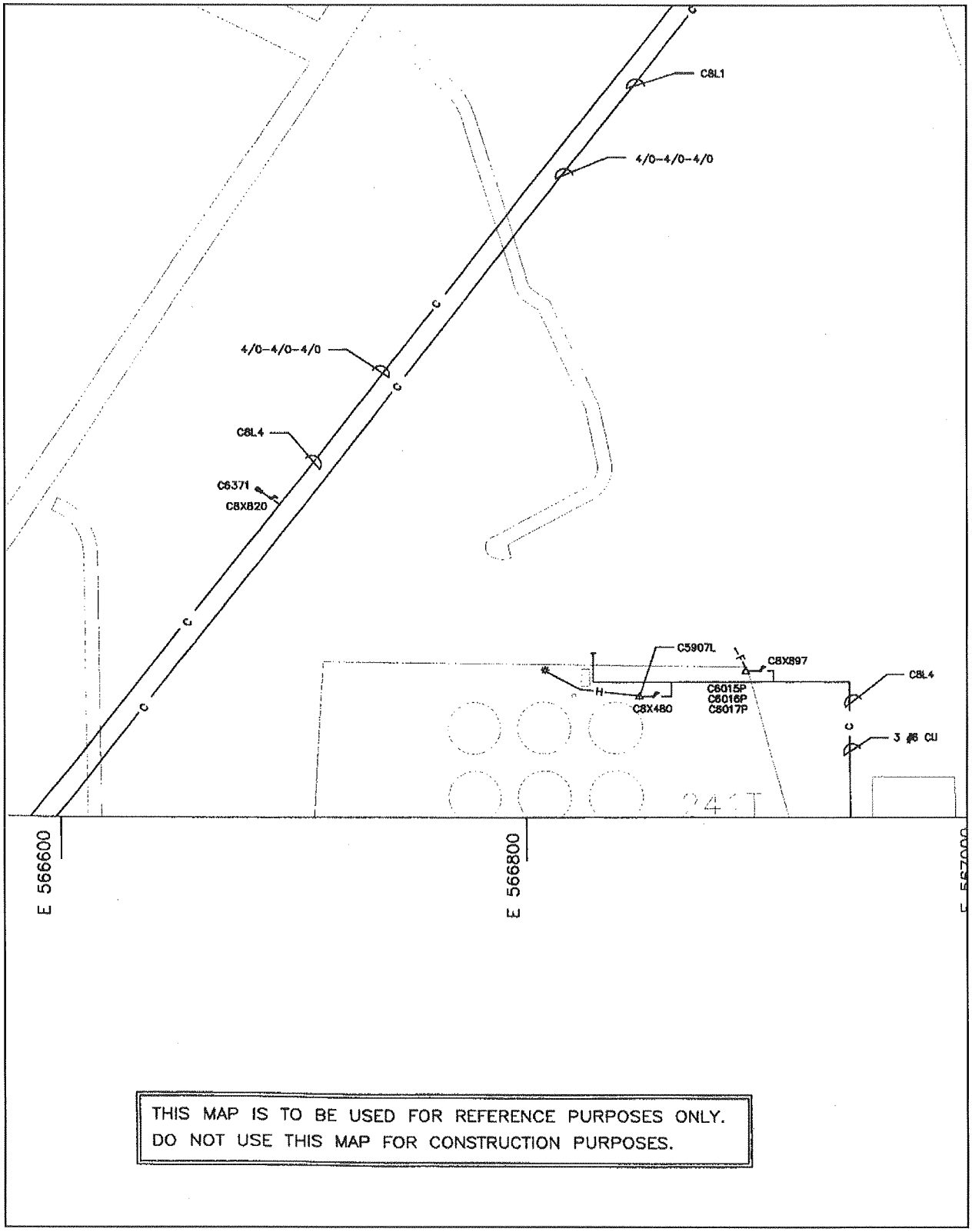


Figure 2. West Area Transformer Locations
(continued)

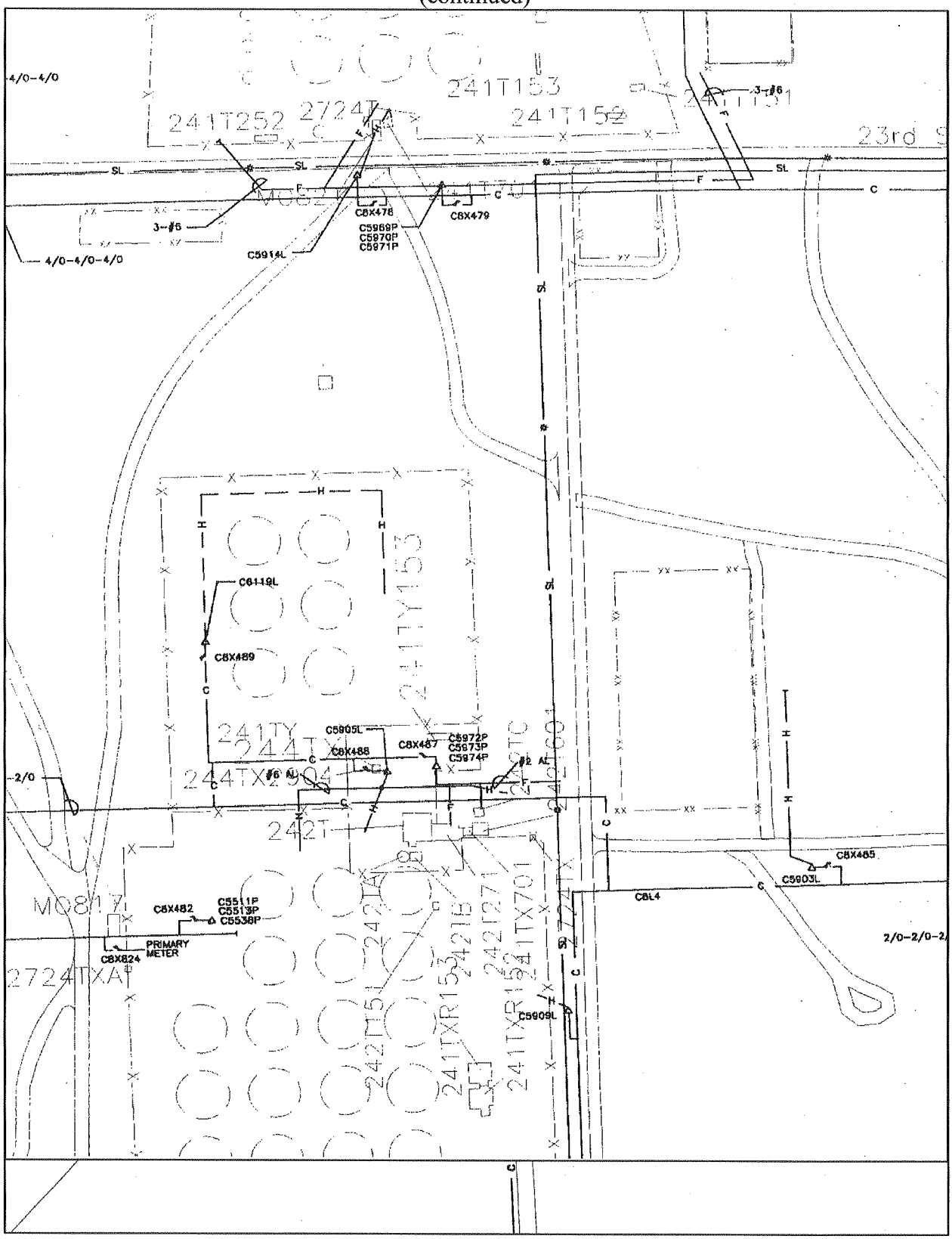
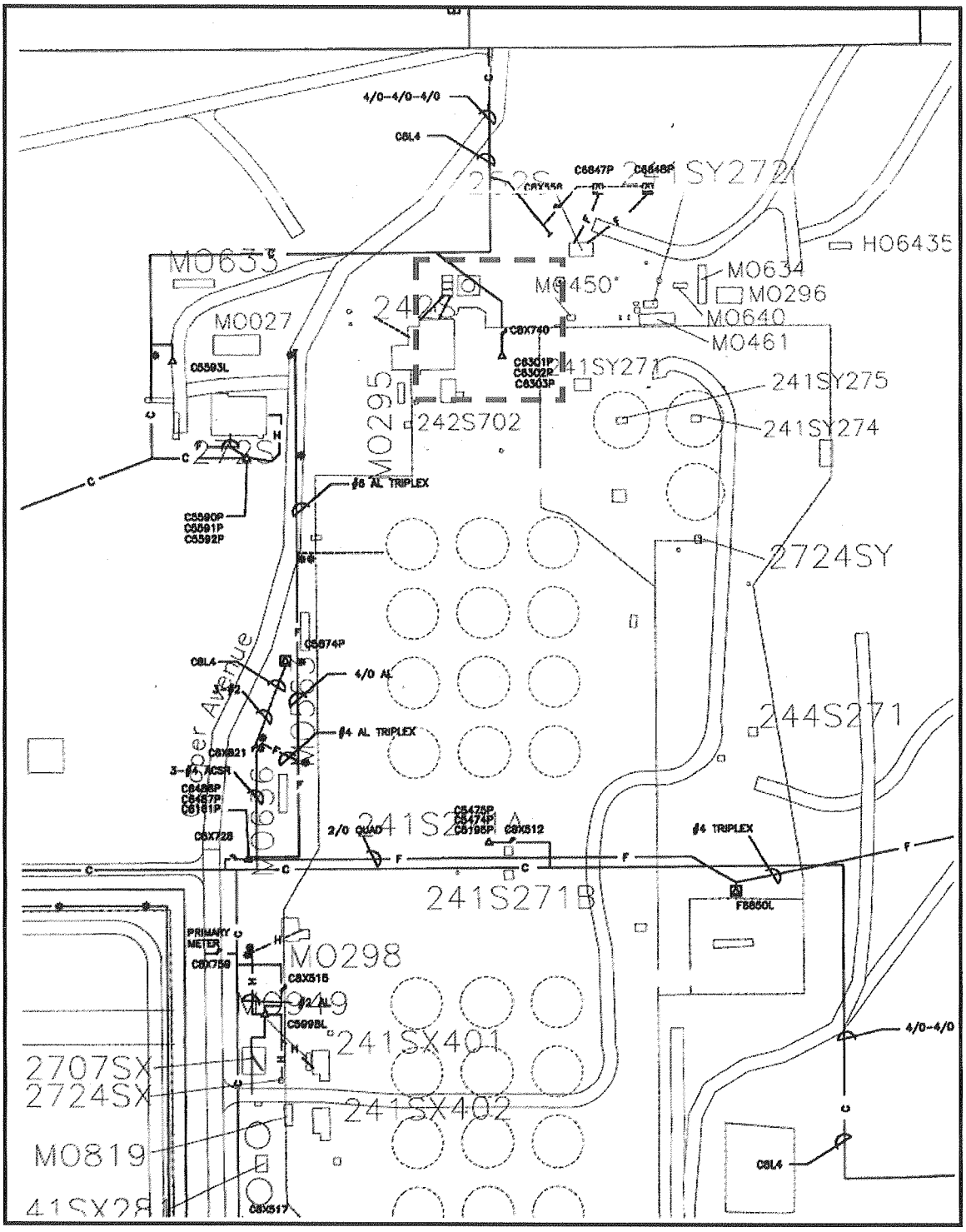


Figure 2. West Area Transformer Locations



Indicates equipment removed from service; Line # C8X740, Transformers C6301P, C6302P and C6303P see ECN-10-000869.

APPENDIX B ELECTRICITY CONSUMPTION AND COST REPORTS, AND MONTHLY DEMAND PROFILES

APPENDIX B - ELECTRICITY CONSUMPTION AND COST REPORTS, AND MONTHLY DEMAND PROFILES

The following reports and demand profiles are based upon information complied between the years of 2007 and 2009. Any recommendations and/or conclusions made in RPP-5228 Revision 2 should be compared as necessary against the most recent available data[30].

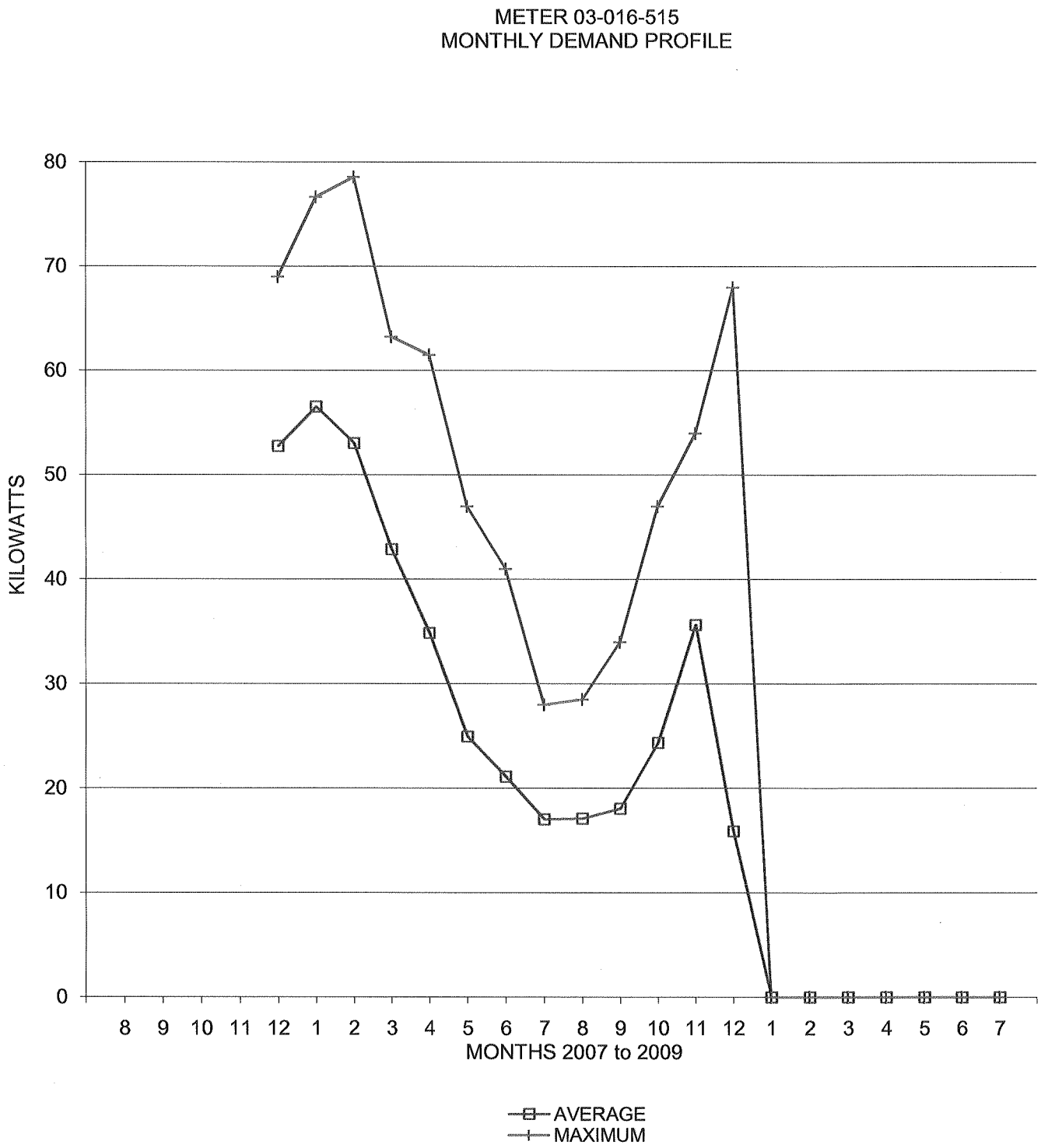
Building/Tank Farm/Component	Page
241-A, 241-AX (C8-L5, F8X183)[31]	41
241-A, 241-A-701-A (C8-L6, F8X179)	43
241-AY-051, 241-AY 801-A (C8-L6, F8X694)	45
241-AZ-156 (C8-L6, F8X723)	47
241-AZ-271, 241-AZ-701, 241-AZ-702, AZ/AY Tank Farm Ventilation System (C8-L6, F8X709)	49
241-AW Tank Farm (C8-L6)	51
241-AN Tank Farm, 271-AN (C8-L6)	53
241-AP Tank Farm (C8-L6)	55
241-SY Tank Farm, 242-S Evaporator (C8-L4, F8X702)	57
241-SY Tank Farm, 242-S Evaporator (C8-L4, F8X703)	59
251-W (C8-L3, C8X3)	61
251-W (C8-L4, C8X4)	63
251-W (C8-L6, C8X6)	65
251-W (C8-L8, C8X8)	67
241-C-106 Sluice Pumps (C8-L6, F8X700)	69
241-C-200 TRU Retrieval Skid Mounted Transformer (C8--L6)	71
241-C Skid-Mounted Substation (C8-L6)	73
Remainder of the SST Farms	75

[30] No significant changes have been made in East or West Area Tank Farm operations that would impact electrical loading requirements. Therefore the data presented in Appendix B is considered 'representative' of the loading on the associated transformers.

[31] Although C8-L5 and XFRM # C0384F have been disconnected for A/AX farms metered data is being retained for historical purposes.

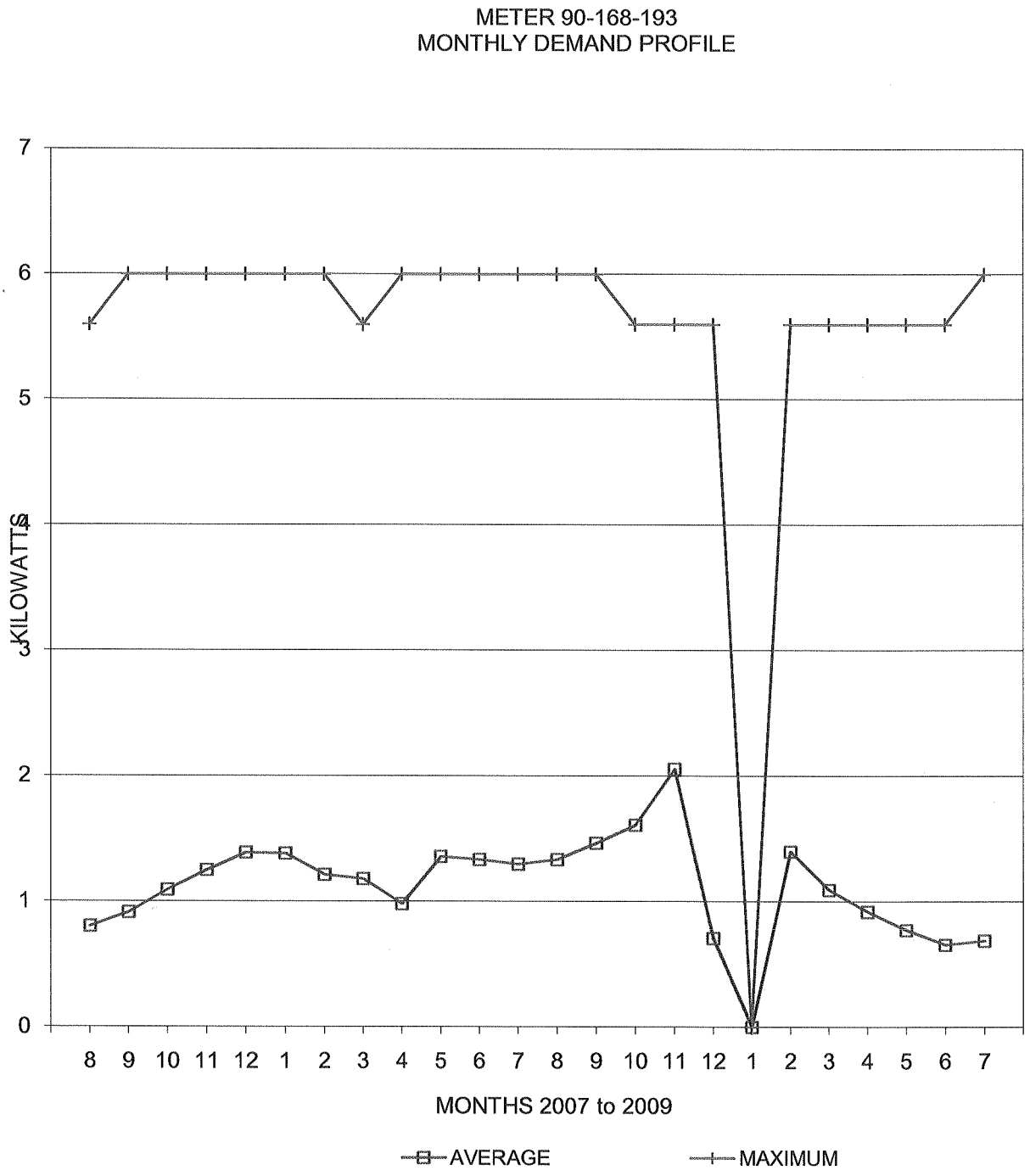
Building	241-A, 241-AX		
Service (Line, Breaker)	C8-L5, F8X183		
Transformer Number	C0384F (1,000 KVA)		
New Meter Number	03-016-515	Old Meter Number	03-016-515
New Multiplier	5	Old Multiplier	19
New Number of Dials	6	Old Number of Dials	5

Date	Energy Reading	Differ-ence	Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Cost ($)	Cost ($)	Cost ($)	Comments
-	-	-	-	-	-	-	-	-	-	-	-
08/01/2007											
09/01/2007											
10/01/2007											
11/01/2007											BPA Rate Decrease.
12/10/2007	1105				0.0						New Meter.
12/20/2007	1766	661	12,669	52.8	3.6	69.0	0.77	386.43	279.32	665.75	
01/23/2008	4174	2408	46,154	56.6	4.0	76.7	0.74	1,197.79	285.05	1,482.84	
02/26/2008	6433	2259	43,298	53.1	4.1	78.6	0.68	1,141.99	294.54	1,436.53	
03/18/2008	7561	1128	21,620	42.9	3.3	63.3	0.68	535.32	228.84	764.16	
04/23/2008	3738	6027	30,135	34.9	12.3	61.5	0.57	697.75	215.74	913.49	New Multiplier.
05/20/2008	6973	3235	16,175	25.0	9.4	47.0	0.53	312.13	151.72	463.84	
06/24/2008	10523	3550	17,750	21.1	8.2	41.0	0.52	289.15	127.84	416.99	
07/21/2008	12731	2208	11,040	17.0	5.6	28.0	0.61	240.47	95.14	335.62	
08/20/2008	15195	2464	12,320	17.1	5.7	28.5	0.60	313.05	104.25	417.30	
09/22/2008	18056	2861	14,305	18.1	6.8	34.0	0.53	385.15	126.41	511.56	
10/21/2008	21449	3393	16,965	24.4	9.4	47.0	0.52	458.31	177.57	635.88	BPA Rate Decrease.
11/20/2008	26585	5136	25,680	35.7	10.8	54.0	0.66	736.76	211.03	947.79	
12/23/2008	29104	2519	12,595	15.9	13.6	68.0	0.23	377.23	272.54	649.78	
01/20/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
02/20/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
03/24/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
04/22/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
05/20/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
06/22/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
07/21/2009	29104	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
Average			14,035	20.7		34.8	0.60	353.58	128.50	482.08	
Maximum			46,154	56.6		78.6	0.77	1,197.79	294.54	1,482.84	


METER 03-016-515
MONTHLY DEMAND PROFILE
KILOWATTS
80
70
60
50
40
30
20
10
0
8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7
MONTHS 2007 to 2009
AVERAGE
MAXIMUM

Building	241-A, 241-A-701-A		
Service (Line,Breaker)	C8-L6, F8X179		Manual Readings
Transformer Number	C6522P, C6523P, C6524P (225 KVA)		
New Meter Number	90-168-193	Old Meter Number	NA
New Multiplier	40	Old Multiplier	NA
New Number of Dials	4	Old Number of Dials	NA

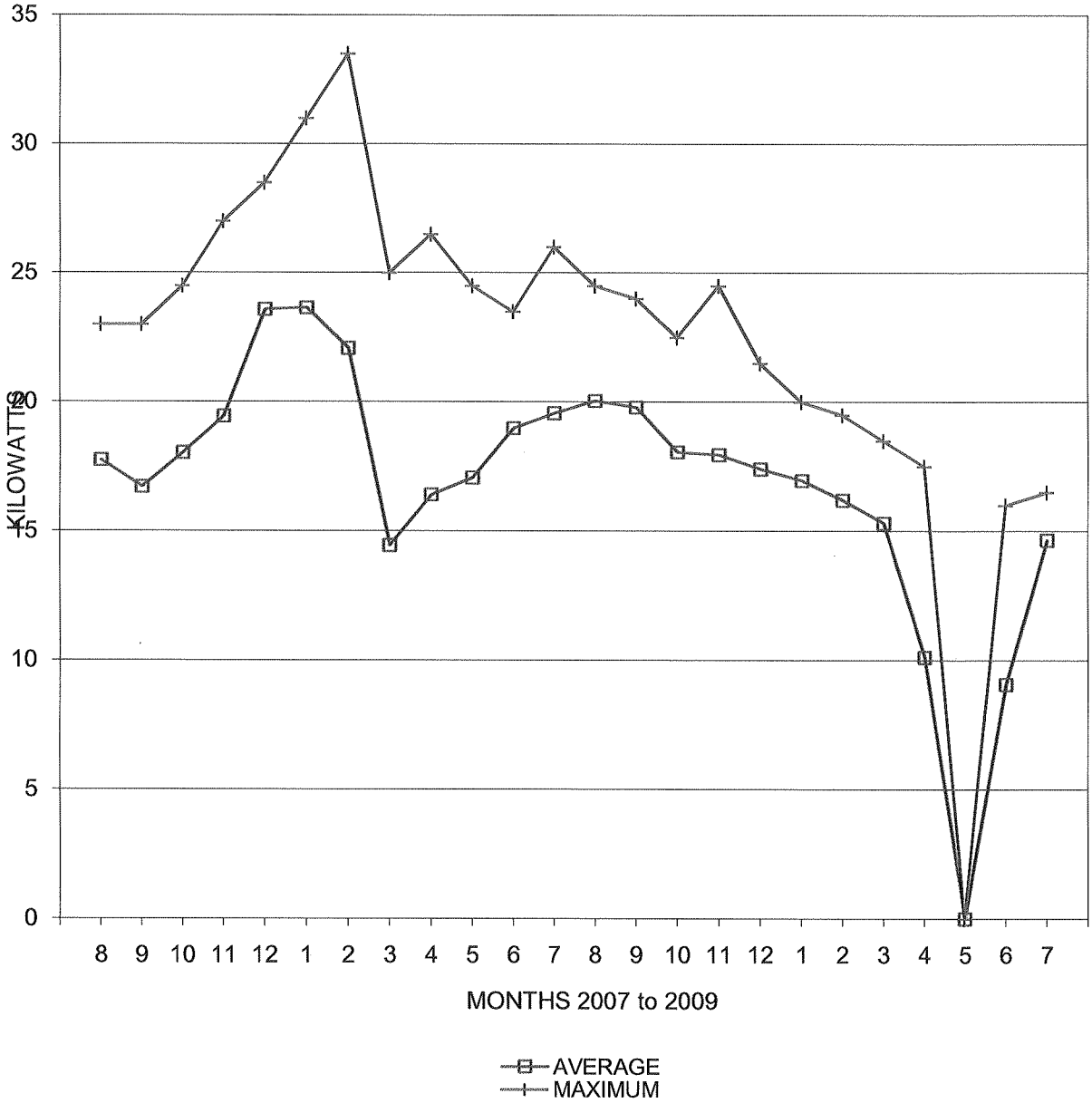
Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
07/24/2007	1247										
08/20/2007	1260	13	520	0.8	0.14	5.6	0.14	13.22	20.49	33.71	
09/20/2007	1277	17	680	0.9	0.15	6.0	0.15	18.32	22.31	40.64	
10/22/2007	1298	21	840	1.1	0.15	6.0	0.18	23.11	22.85	45.96	BPA Rate Decrease.
11/19/2007	1319	21	840	1.3	0.15	6.0	0.21	24.54	23.69	48.23	
12/19/2007	1344	25	1,000	1.4	0.15	6.0	0.23	30.50	24.29	54.79	
01/23/2008	1373	29	1,160	1.4	0.15	6.0	0.23	30.10	22.31	52.41	
02/25/2008	1397	24	960	1.2	0.15	6.0	0.20	25.32	22.49	47.81	
03/20/2008	1414	17	680	1.2	0.14	5.6	0.21	16.84	20.26	37.10	
04/23/2008	1434	20	800	1.0	0.15	6.0	0.16	18.52	21.05	39.57	
05/20/2008	1456	22	880	1.4	0.15	6.0	0.23	16.98	19.37	36.35	
06/24/2008	1484	28	1,120	1.3	0.15	6.0	0.22	18.24	18.71	36.95	
07/21/2008	1505	21	840	1.3	0.15	6.0	0.22	18.30	20.39	38.68	
08/20/2008	1529	24	960	1.3	0.15	6.0	0.22	24.39	21.95	46.34	
09/22/2008	1558	29	1,160	1.5	0.15	6.0	0.24	31.23	22.31	53.54	
10/21/2008	1586	28	1,120	1.6	0.14	5.6	0.29	30.26	21.16	51.41	BPA Rate Decrease.
11/20/2008	1623	37	1,480	2.1	0.14	5.6	0.37	42.46	21.88	64.35	
12/23/2008	1637	14	560	0.7	0.14	5.6	0.13	16.77	22.44	39.22	
01/20/2009	1637	0	0	0.0	0.00	0.0	0.00	0.00	0.00	0.00	Power Outage.
02/20/2009	1663	26	1,040	1.4	0.14	5.6	0.25	26.94	20.87	47.80	
03/24/2009	1684	21	840	1.1	0.14	5.6	0.20	20.42	20.14	40.56	
04/22/2009	1700	16	640	0.9	0.14	5.6	0.16	14.55	19.56	34.11	
05/20/2009	1713	13	520	0.8	0.14	5.6	0.14	9.85	17.99	27.84	
06/22/2009	1726	13	520	0.7	0.14	5.6	0.12	8.31	17.37	25.68	
07/21/2009	1738	12	480	0.7	0.15	6.0	0.11	10.26	20.14	30.40	
Average			818	1.1		5.6	0.20	20.39	20.17	40.56	
Maximum			1,480	2.1		6.0	0.37	42.46	24.29	64.35	


METER 90-168-193
MONTHLY DEMAND PROFILE
KILOWATTS
0
1
2
3
4
5
6
7
8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7
MONTHS 2007 to 2009
AVERAGE
MAXIMUM

Building	241-AY-051, 241-AY-801-A			
Service (Line,Breaker)	C8-L6, F8X694			Manual Readings
Transformer Number	C6528P, C6529P, C6530P (225 KVA)			
New Meter Number	95-875-449	Old Meter Number	NA	
New Multiplier	5	Old Multiplier	NA	
New Number of Dials	5	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
07/24/2007	41572										
08/20/2007	43872	2300	11,500	17.7	4.6	23.0	0.77	292.45	84.16	376.60	
09/24/2007	46680	2808	14,040	16.7	4.6	23.0	0.73	378.29	85.54	463.83	
10/22/2007	49104	2424	12,120	18.0	4.9	24.5	0.74	333.42	93.30	426.72	BPA Rate Decrease.
11/19/2007	51718	2614	13,070	19.4	5.4	27.0	0.72	381.84	106.60	488.44	
12/19/2007	55115	3397	16,985	23.6	5.7	28.5	0.83	518.06	115.37	633.43	
01/23/2008	59088	3973	19,865	23.6	6.2	31.0	0.76	515.54	115.26	630.79	
02/25/2008	62585	3497	17,485	22.1	6.7	33.5	0.66	461.17	125.56	586.72	
03/20/2008	64249	1664	8,320	14.4	5.0	25.0	0.58	206.00	90.45	296.45	
04/23/2008	66927	2678	13,390	16.4	5.3	26.5	0.62	310.03	92.96	402.99	
05/20/2008	69139	2212	11,060	17.1	4.9	24.5	0.70	213.42	79.09	292.51	
06/24/2008	72328	3189	15,945	19.0	4.7	23.5	0.81	259.74	73.27	333.02	
07/21/2008	74863	2535	12,675	19.6	5.2	26.0	0.75	276.09	88.35	364.43	
08/20/2008	77749	2886	14,430	20.0	4.9	24.5	0.82	366.67	89.62	456.29	
09/22/2008	80884	3135	15,675	19.8	4.8	24.0	0.82	422.03	89.23	511.27	
10/21/2008	83398	2514	12,570	18.1	4.5	22.5	0.80	339.58	85.01	424.58	BPA Rate Decrease.
11/20/2008	85984	2586	12,930	18.0	4.9	24.5	0.73	370.96	95.75	466.71	
12/22/2008	88657	2673	13,365	17.4	4.3	21.5	0.81	400.30	86.17	486.47	
01/20/2009	91018	2361	11,805	17.0	4.0	20.0	0.85	300.77	73.92	374.69	
02/20/2009	93429	2411	12,055	16.2	3.9	19.5	0.83	312.24	72.66	384.89	
03/24/2009	95781	2352	11,760	15.3	3.7	18.5	0.83	285.90	66.53	352.42	
04/20/2009	97093	1312	6,560	10.1	3.5	17.5	0.58	149.14	61.11	210.25	
05/20/2009	97093	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Power Outage.
06/22/2009	99836	2743	13,715	9.1	3.2	16.0	0.57	219.08	49.63	268.72	
07/21/2009	1877	2041	10,205	14.7	3.3	16.5	0.89	218.18	55.37	273.56	
Average			12,564	16.8		22.5	0.75	313.79	82.29	396.07	
Maximum			19,865	23.6		33.5	0.89	518.06	125.56	633.43	

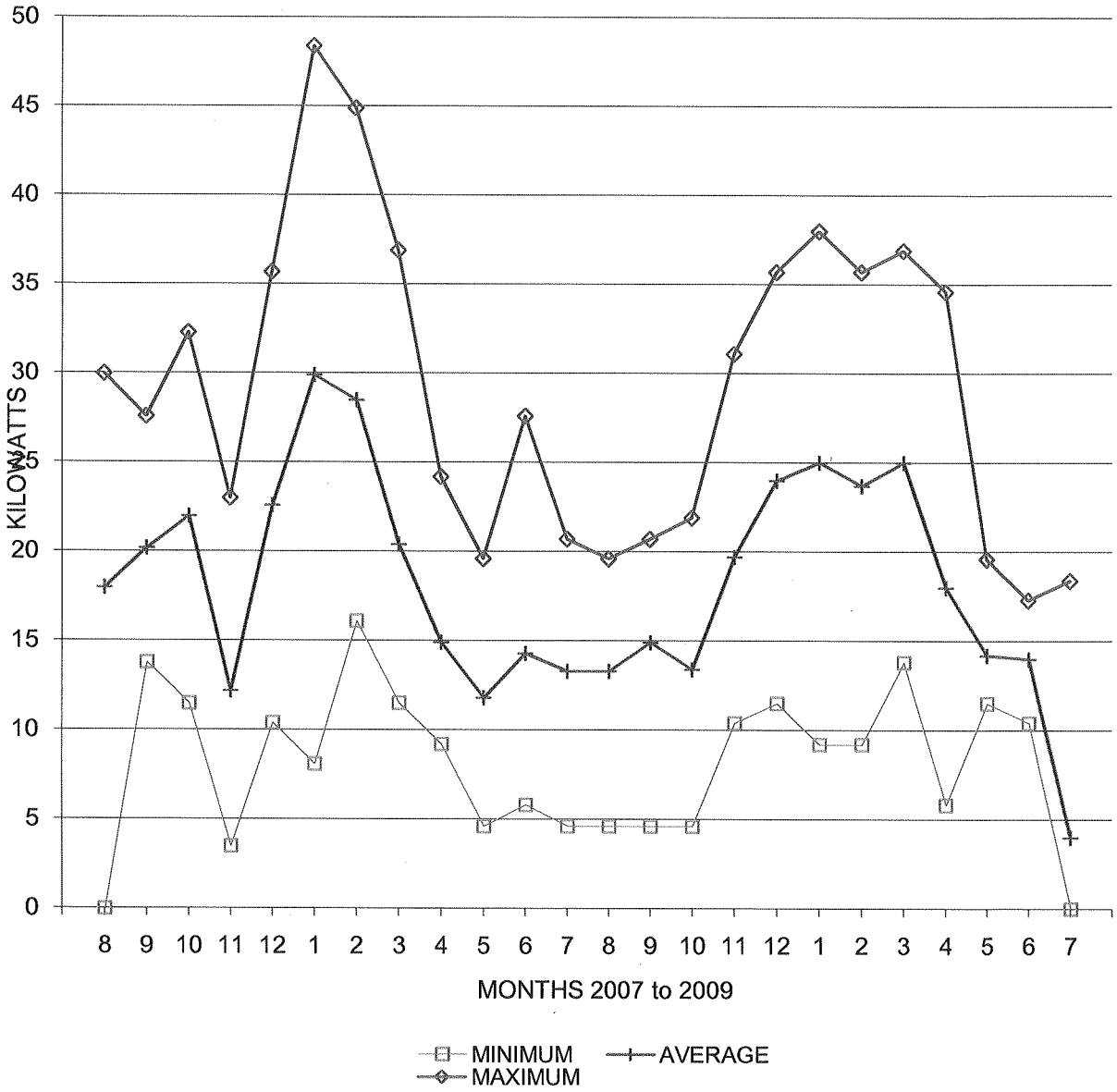
METER 95-875-449
MONTHLY DEMAND PROFILE



Building	241-AZ-156				
Service (Line,Breaker)	C8-L6, F8X723				Automatic Data
Transformer Number	C6653P (1,000 KVA)				
New Meter Number	95-071-095	Old Meter Number	NA		
Data Logger Number	110				

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
-	-	-	-	-	-	-	-	-	-	-
08/2007	78.6	18.0	13,392	30.0	0.0	0.60	340.56	109.77	450.33	
09/2007	63.6	20.2	14,544	27.6	13.8	0.73	391.87	102.64	494.52	Low % Capture.
10/2007	93.0	22.0	16,368	32.3	11.5	0.68	450.28	123.00	573.28	BPA Rate Decrease.
11/2007	98.8	12.2	8,784	23.0	3.5	0.53	256.62	90.80	347.43	
12/2007	75.5	22.6	16,814	35.7	10.4	0.63	512.86	144.51	657.37	
01/2008	100.0	29.9	22,246	48.4	8.1	0.62	577.32	179.95	757.27	
02/2008	99.4	28.5	19,836	44.9	16.1	0.63	523.17	168.29	691.46	
03/2008	92.9	20.4	15,178	36.9	11.5	0.55	375.80	133.50	509.30	
04/2008	99.9	14.9	10,728	24.2	9.2	0.62	248.40	84.89	333.29	
05/2008	98.9	11.8	8,779	19.6	4.6	0.60	169.41	63.27	232.68	
06/2008	99.2	14.3	10,296	27.6	5.8	0.52	167.72	86.06	253.78	
07/2008	100.0	13.3	9,895	20.7	4.6	0.64	215.54	70.34	285.88	
08/2008	99.9	13.3	9,895	19.6	4.6	0.68	251.44	71.70	323.13	
09/2008	99.7	14.9	10,728	20.7	4.6	0.72	288.84	76.96	365.80	
10/2008	99.1	13.4	9,970	21.9	4.6	0.61	269.33	82.74	352.07	BPA Rate Decrease.
11/2008	100.0	19.7	14,184	31.1	10.4	0.63	406.94	121.54	528.48	
12/2008	99.7	24.0	17,856	35.7	11.5	0.67	534.81	143.09	677.89	
01/2009	99.9	25.0	18,600	38.0	9.2	0.66	473.89	140.45	614.34	
02/2009	100.0	23.7	15,926	35.7	9.2	0.66	412.51	133.02	545.53	
03/2009	99.5	25.0	18,600	36.9	13.8	0.68	452.18	132.69	584.88	
04/2009	99.9	18.0	12,960	34.6	5.8	0.52	294.65	120.82	415.47	
05/2009	99.9	14.2	10,565	19.6	11.5	0.72	200.10	62.96	263.05	
06/2009	99.9	14.0	10,080	17.3	10.4	0.81	161.02	53.66	214.68	
07/2009	93.5	4.0	2,976	18.4	0.0	0.22	63.63	61.75	125.38	Power Outage.
Average	95.5	18.2	13,300	29.2	8.1	0.62	334.95	106.60	441.55	
Maximum	100.0	29.9	22,246	48.4	16.1	0.81	577.32	179.95	757.27	

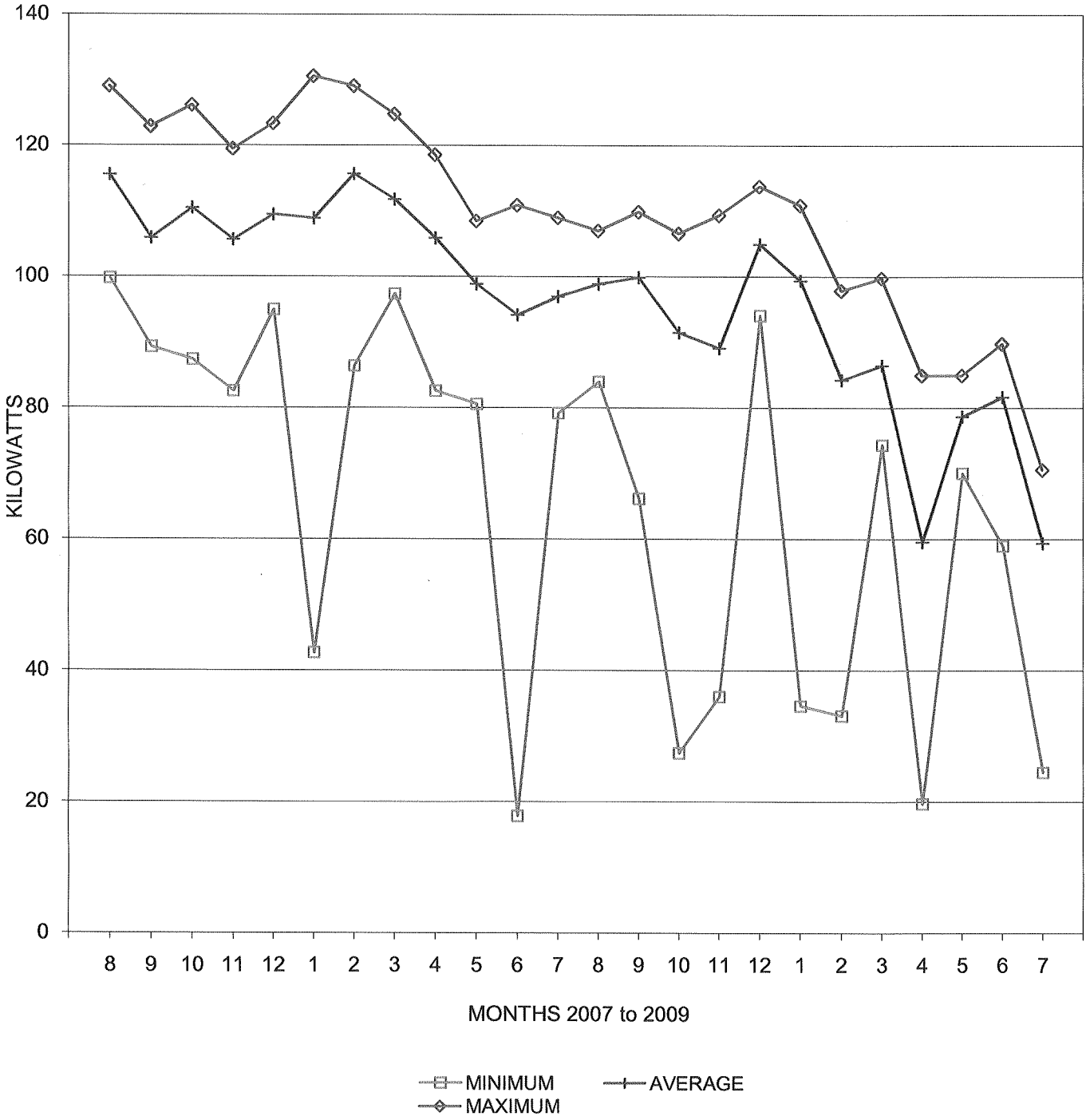
METER 95-071-095
MONTHLY DEMAND PROFILE



Building	241-AZ-271, 241-AZ-701, 241-AZ-702 AZ/AY Tank Farm Ventilation System		
Service (Line,Breaker)	C8-L6, F8X709		Automatic Data
Transformer Number	C6650P (300 KVA)		
New Meter Number	95-101-149	Old Meter Number NA	
Data Logger Number	116		

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.6	115.6	86,006	129.1	99.8	0.90	2,187.14	472.38	2,659.52	
09/2007	99.4	105.9	76,248	122.9	89.3	0.86	2,054.43	457.07	2,511.49	
10/2007	99.2	110.5	82,212	126.2	87.4	0.88	2,261.65	480.57	2,742.22	BPA Rate Decrease.
11/2007	99.9	105.7	76,104	119.5	82.6	0.88	2,223.38	471.79	2,695.16	
12/2007	99.7	109.5	81,468	123.4	95.0	0.89	2,484.86	499.52	2,984.38	
01/2008	99.9	108.9	81,022	130.6	42.7	0.83	2,102.67	485.57	2,588.24	
02/2008	100.0	115.7	80,527	129.1	86.4	0.90	2,123.90	483.87	2,607.77	
03/2008	98.1	111.8	83,179	124.8	97.4	0.90	2,059.52	451.53	2,511.04	
04/2008	99.9	105.9	76,248	118.6	82.6	0.89	1,765.45	416.05	2,181.49	
05/2008	99.9	98.9	73,582	108.5	80.6	0.91	1,419.90	350.24	1,770.14	
06/2008	98.6	94.2	67,824	110.9	17.8	0.85	1,104.85	345.79	1,450.64	
07/2008	100.0	97.0	72,168	109.0	79.2	0.89	1,571.96	370.38	1,942.35	
08/2008	99.2	98.9	73,582	107.0	84.0	0.92	1,869.71	391.41	2,261.11	
09/2008	99.6	99.9	71,928	109.9	66.2	0.91	1,936.59	408.61	2,345.20	
10/2008	100.0	91.5	68,076	106.6	27.4	0.86	1,839.07	402.73	2,241.81	BPA Rate Decrease.
11/2008	99.9	89.1	64,152	109.4	36.0	0.81	1,840.52	427.54	2,268.06	
12/2008	99.5	105.0	78,120	113.8	94.1	0.92	2,339.77	456.11	2,795.88	
01/2009	99.2	99.4	73,954	110.9	34.6	0.90	1,884.19	409.89	2,294.08	
02/2009	99.9	84.3	56,650	97.9	33.1	0.86	1,467.28	364.78	1,832.06	
03/2009	99.3	86.5	64,356	99.8	74.4	0.87	1,564.56	358.88	1,923.44	
04/2009	99.9	59.6	42,912	85.0	19.7	0.70	975.60	296.82	1,272.42	
05/2009	99.9	78.7	58,553	85.0	70.1	0.93	1,108.99	273.02	1,382.01	
06/2009	98.8	81.7	58,824	89.8	59.0	0.91	939.65	278.56	1,218.21	
07/2009	99.7	59.4	44,194	70.6	24.5	0.84	944.86	236.93	1,181.79	
Average	99.5	96.4	70,495	109.9	65.2	0.88	1,752.94	399.58	2,152.52	
Maximum	100.0	115.7	86,006	130.6	99.8	0.93	2,484.86	499.52	2,984.38	

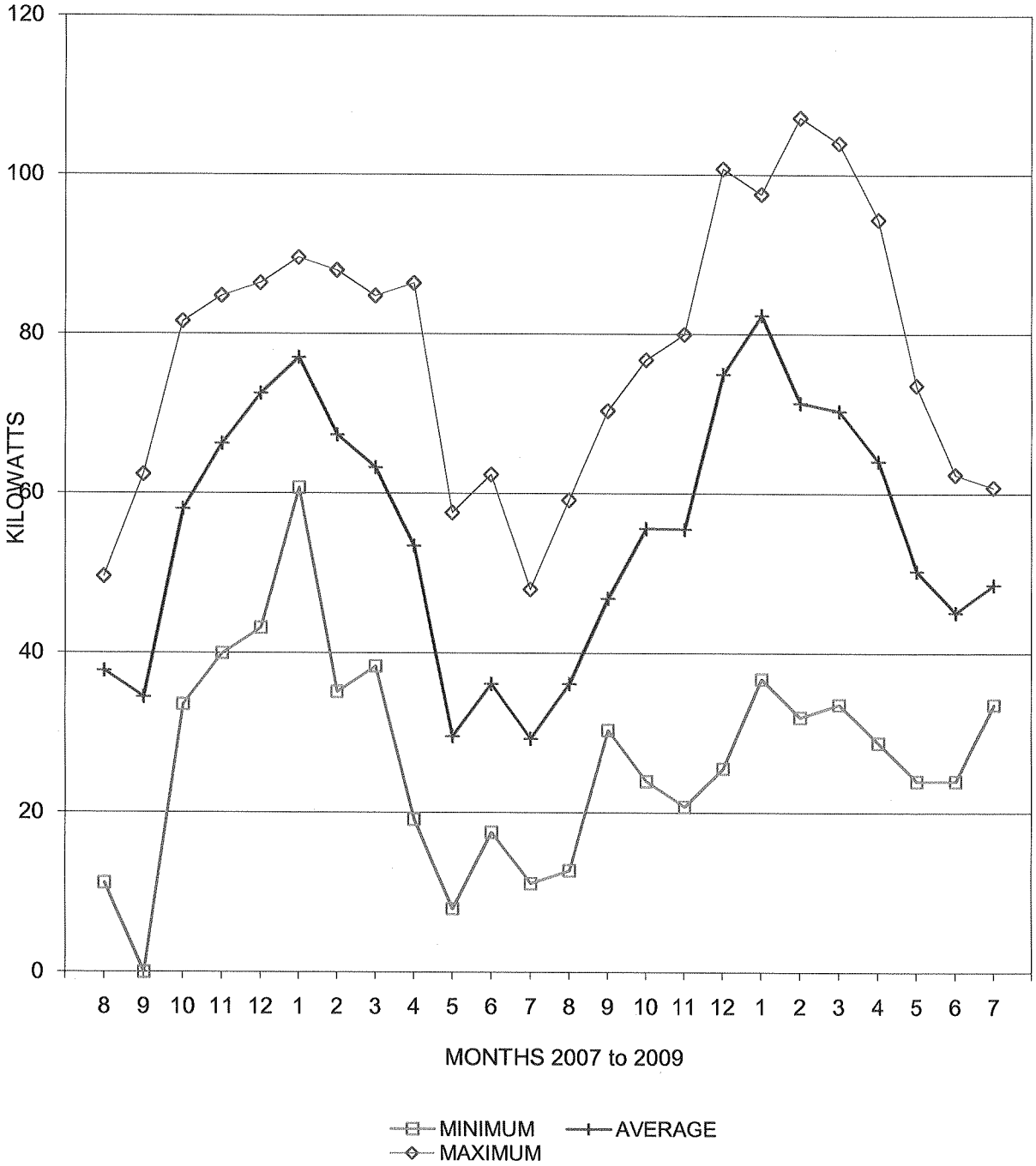
METER 95-101-149
MONTHLY DEMAND PROFILE



Building	241-AW Tank Farm			
Service (Line,Breaker)	C8-L6			Automatic Data
Transformer Number	C5662P (500 KVA)			
New Meter Number	30-928-723	Old Meter Number	NA	
Data Logger Number	059			

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.9	37.8	28,123	49.6	11.2	0.76	715.17	181.49	896.66	
09/2007	97.6	34.5	24,840	62.4	0.0	0.55	669.29	232.07	901.35	
10/2007	91.5	58.1	43,226	81.6	33.6	0.71	1,189.16	310.73	1,499.89	BPA Rate Decrease.
11/2007	99.4	66.3	47,736	84.8	40.0	0.78	1,394.61	334.79	1,729.40	
12/2007	99.2	72.6	54,014	86.4	43.2	0.84	1,647.49	349.75	1,997.24	
01/2008	99.6	77.1	57,362	89.6	60.8	0.86	1,488.67	333.13	1,821.80	
02/2008	99.9	67.4	46,910	88.0	35.2	0.77	1,237.26	329.82	1,567.09	
03/2008	91.3	63.3	47,095	84.8	38.4	0.75	1,166.08	306.81	1,472.88	
04/2008	98.1	53.5	38,520	86.4	19.2	0.62	891.89	303.09	1,194.98	
05/2008	99.9	29.6	22,022	57.6	8.0	0.51	424.97	185.93	610.90	
06/2008	99.6	36.2	26,064	62.4	17.6	0.58	424.58	194.56	619.15	
07/2008	99.6	29.3	21,799	48.0	11.2	0.61	474.83	163.10	637.93	
08/2008	93.1	36.2	26,933	59.2	12.8	0.61	684.36	216.55	900.92	
09/2008	86.9	46.9	33,768	70.4	30.4	0.67	909.17	261.75	1,170.92	
10/2008	99.5	55.7	41,441	76.8	24.0	0.73	1,119.52	290.15	1,409.67	BPA Rate Decrease.
11/2008	99.9	55.6	40,032	80.0	20.8	0.70	1,148.52	312.64	1,461.16	
12/2008	96.8	75.0	55,800	100.8	25.6	0.74	1,671.27	404.01	2,075.27	
01/2009	96.2	82.4	61,306	97.6	36.8	0.84	1,561.94	360.73	1,922.67	
02/2009	99.4	71.4	47,981	107.2	32.0	0.67	1,242.75	399.43	1,642.18	
03/2009	98.4	70.4	52,378	104.0	33.6	0.68	1,273.35	373.98	1,647.34	
04/2009	99.9	64.1	46,152	94.4	28.8	0.68	1,049.27	329.64	1,378.91	
05/2009	99.7	50.3	37,423	73.6	24.0	0.68	708.80	236.40	945.20	
06/2009	99.7	45.1	32,472	62.4	24.0	0.72	518.71	193.56	712.27	
07/2009	99.9	48.6	36,158	60.8	33.6	0.80	773.07	204.04	977.11	
Average	97.7	55.3	40,398	77.9	26.9	0.71	1,016.03	283.67	1,299.70	
Maximum	99.9	82.4	61,306	107.2	60.8	0.86	1,671.27	404.01	2,075.27	

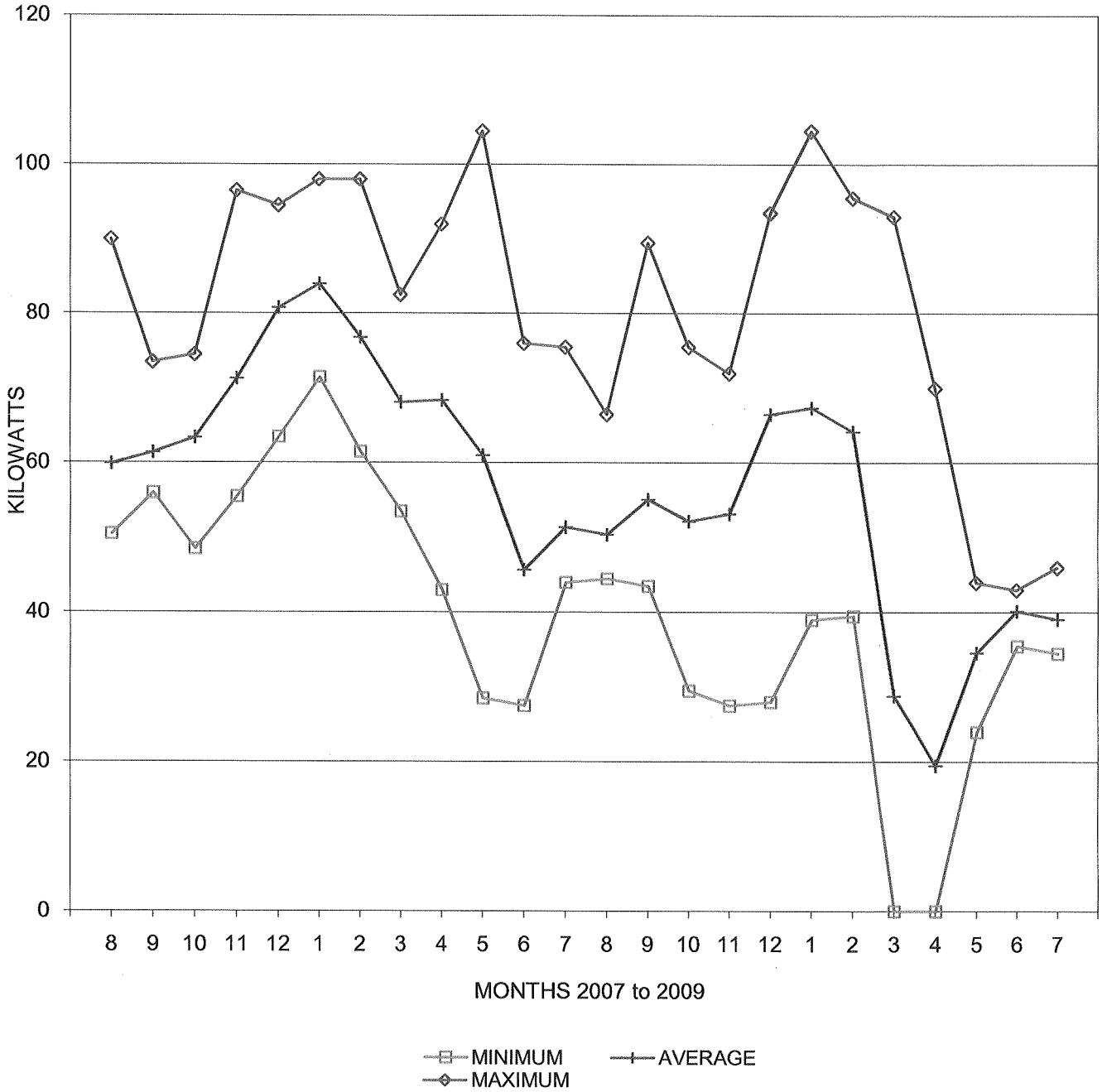
METER 30-928-723
MONTHLY DEMAND PROFILE



Bldg	241-AN Tank Farm, 271-AN		
Service (Line,Breaker)	C8-L6		Automatic Data
Transformer Number	C5712P (1,000 KVA)		
New Meter Number	30-935-235	Old Meter Number	NA
Data Logger Number	067		

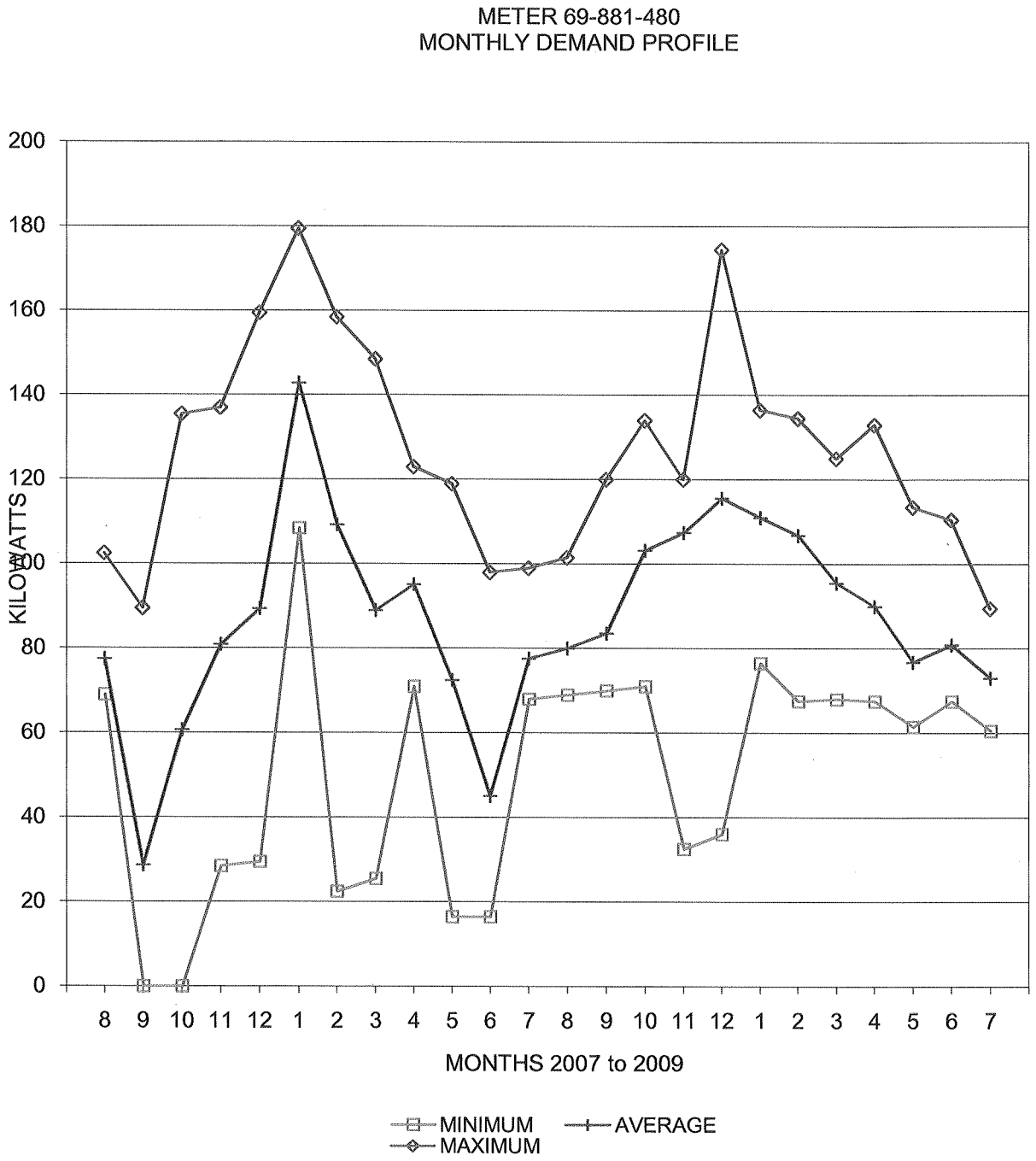
Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.5	59.9	44,566	90.0	50.5	0.67	1,133.30	329.31	1,462.61	
09/2007	99.3	61.4	44,208	73.5	56.0	0.84	1,191.14	273.35	1,464.49	
10/2007	99.9	63.4	47,170	74.5	48.5	0.85	1,297.64	283.70	1,581.33	BPA Rate Decrease.
11/2007	99.9	71.3	51,336	96.5	55.5	0.74	1,499.78	380.98	1,880.76	
12/2007	99.7	80.8	60,115	94.5	63.5	0.86	1,833.57	382.54	2,216.11	
01/2008	99.1	84.0	62,496	98.0	71.5	0.86	1,621.90	364.36	1,986.26	
02/2008	99.7	76.8	53,453	98.0	61.5	0.78	1,409.82	367.30	1,777.12	
03/2008	99.3	68.1	50,666	82.5	53.5	0.83	1,254.50	298.49	1,552.99	
04/2008	99.7	68.4	49,248	92.0	43.0	0.74	1,140.29	322.74	1,463.02	
05/2008	99.9	61.0	45,384	104.5	28.5	0.58	875.78	337.33	1,213.10	
06/2008	99.6	45.7	32,904	76.0	27.5	0.60	536.01	236.97	772.97	
07/2008	99.9	51.4	38,242	75.5	44.0	0.68	832.98	256.55	1,089.53	
08/2008	100.0	50.4	37,498	66.5	44.5	0.76	952.81	243.26	1,196.07	
09/2008	99.3	55.1	39,672	89.5	43.5	0.62	1,068.13	332.76	1,400.89	
10/2008	100.0	52.2	38,837	75.5	29.5	0.69	1,049.18	285.24	1,334.42	BPA Rate Decrease.
11/2008	99.2	53.2	38,304	72.0	27.5	0.74	1,098.94	281.38	1,380.32	
12/2008	99.5	66.5	49,476	93.5	28.0	0.71	1,481.86	374.75	1,856.60	
01/2009	99.7	67.4	50,146	104.5	39.0	0.64	1,277.61	386.23	1,663.84	
02/2009	99.9	64.2	43,142	95.5	39.5	0.67	1,117.43	355.83	1,473.26	
03/2009	48.5	28.8	21,427	93.0	0.0	0.31	520.92	334.43	855.34	Power Outage.
04/2009	49.6	19.5	14,040	70.0	0.0	0.28	319.20	244.44	563.64	Power Outage.
05/2009	98.9	34.6	25,742	44.0	24.0	0.79	487.56	141.33	628.89	
06/2009	99.2	40.2	28,944	43.0	35.5	0.93	462.35	133.39	595.74	
07/2009	99.9	39.1	29,090	46.0	34.5	0.85	621.95	154.38	776.33	
Average	95.4	56.8	41,504	81.2	39.5	0.70	1,045.19	295.88	1,341.07	
Maximum	100.0	84.0	62,496	104.5	71.5	0.93	1,833.57	386.23	2,216.11	

METER 30-935-235
MONTHLY DEMAND PROFILE



Building	241-AP Tank Farm			
Service (Line,Breaker)	C8-L6			Automatic Data
Transformer Number	**C5859P (1,000 KVA)**			
New Meter Number	69-881-480	Old Meter Number	NA	
Data Logger Number	061			

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.7	77.5	57,660	102.5	69.0	0.76	1,466.29	375.05	1,841.34	
09/2007	99.7	28.7	20,664	89.5	0.0	0.32	556.77	332.85	889.62	
10/2007	84.8	60.7	45,161	135.5	0.0	0.45	1,242.37	515.98	1,758.36	BPA Rate Decrease.
11/2007	58.5	80.9	58,248	137.0	28.5	0.59	1,701.72	540.88	2,242.59	Low % Capture.
12/2007	57.5	89.4	66,514	159.5	29.5	0.56	2,028.73	645.66	2,674.39	Low % Capture.
01/2008	73.4	142.9	106,318	179.5	108.5	0.80	2,759.15	667.38	3,426.54	Low % Capture.
02/2008	99.6	109.3	76,073	158.5	22.5	0.69	2,006.42	594.06	2,600.48	
03/2008	68.4	89.0	66,216	148.5	25.5	0.60	1,639.51	537.27	2,176.78	Low % Capture.
04/2008	31.7	95.2	68,544	123.0	71.0	0.77	1,587.07	431.48	2,018.55	Low % Capture.
05/2008	99.5	72.5	53,940	119.0	16.5	0.61	1,040.88	384.13	1,425.01	
06/2008	96.1	45.1	32,472	98.0	16.5	0.46	528.97	305.56	834.53	
07/2008	91.3	77.6	57,734	99.0	68.0	0.78	1,257.57	336.40	1,593.97	
08/2008	99.9	80.0	59,520	101.5	69.0	0.79	1,512.40	371.29	1,883.69	
09/2008	99.4	83.6	60,192	120.0	70.0	0.70	1,620.61	446.16	2,066.77	
10/2008	63.6	103.2	76,781	134.0	71.0	0.77	2,074.23	506.25	2,580.49	BPA Rate Decrease.
11/2008	48.3	107.4	77,328	120.0	32.5	0.90	2,218.54	468.96	2,687.50	Low % Capture.
12/2008	68.5	115.6	86,006	174.5	36.0	0.66	2,575.98	699.40	3,275.37	Low % Capture.
01/2009	99.5	111.0	82,584	136.5	76.5	0.81	2,104.08	504.50	2,608.58	
02/2009	99.1	106.8	71,770	134.5	67.5	0.79	1,858.90	501.15	2,360.05	
03/2009	99.3	95.5	71,052	125.0	68.0	0.76	1,727.35	449.50	2,176.85	
04/2009	99.9	90.0	64,800	133.0	67.5	0.68	1,473.23	464.44	1,937.66	
05/2009	100.0	76.8	57,139	113.5	61.5	0.68	1,082.22	364.56	1,446.78	
06/2009	99.7	80.9	58,248	110.5	67.5	0.73	930.45	342.77	1,273.22	
07/2009	100.0	73.0	54,312	89.5	60.5	0.82	1,161.19	300.36	1,461.55	
Average	84.9	87.2	63,720	126.8	50.1	0.69	1,589.78	461.92	2,051.69	
Maximum	100.0	142.9	106,318	179.5	108.5	0.90	2,759.15	699.40	3,426.54	


METER 69-881-480
MONTHLY DEMAND PROFILE
KILOWATTS
200
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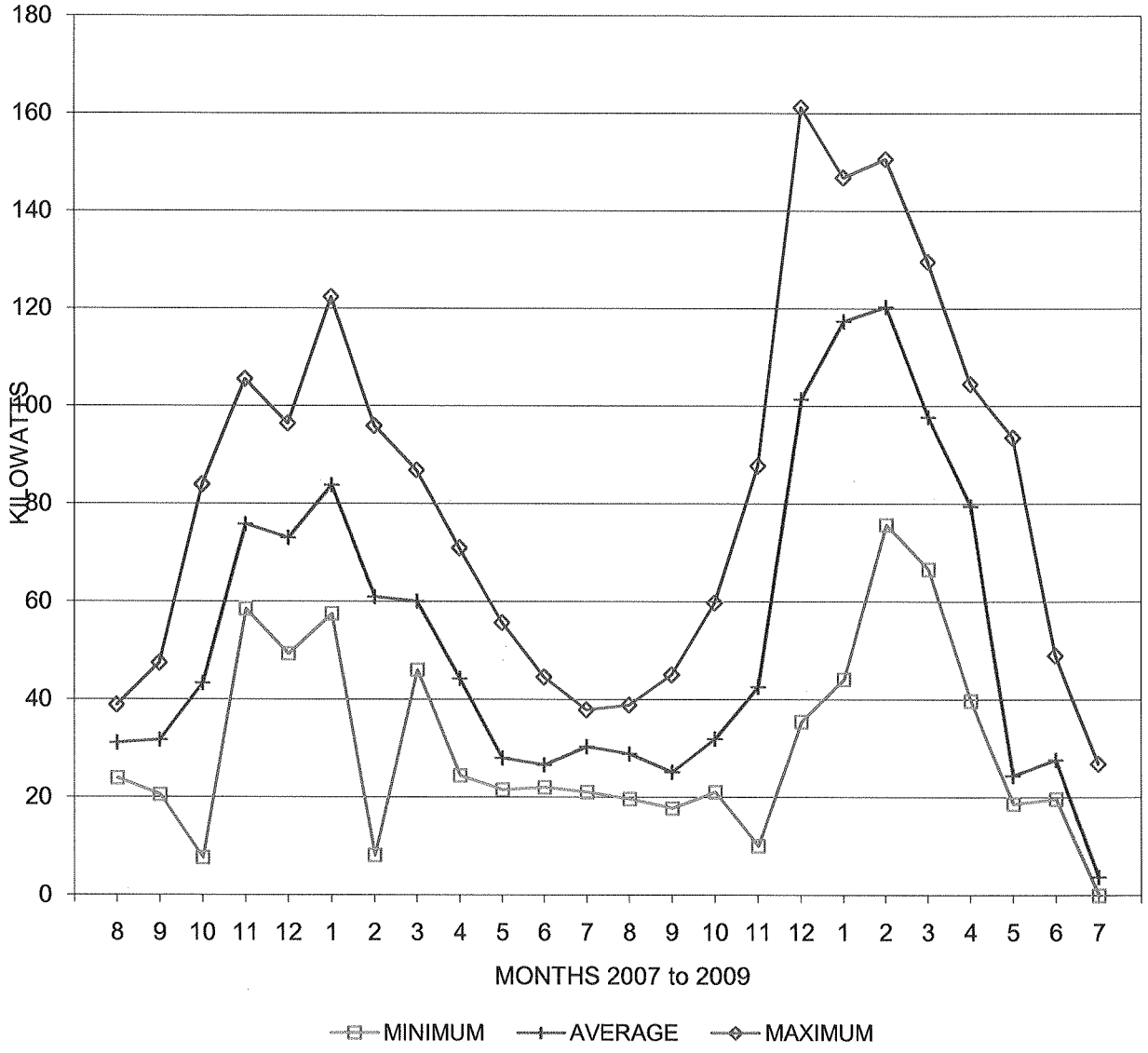
8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7
MONTHS 2007 to 2009
MINIMUM
AVERAGE
MAXIMUM

Building	241-SY Tank Farm, 242-S Evaporator			
Service (Line,Breaker)	C8-L4, F8X702			Automatic Data
Transformer Number	C6647P (500 KVA)			
New Meter Number	95-031-127	Old Meter Number	NA	
Data Logger Number	060			

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.9	31.2	23,213	38.9	24.0	0.80	590.30	142.34	732.64	
09/2007	99.6	31.8	22,896	47.5	20.6	0.67	616.91	176.65	793.56	
10/2007	99.9	43.4	32,290	84.0	7.7	0.52	888.29	319.87	1,208.16	BPA Rate Decrease.
11/2007	99.6	75.9	54,648	105.6	58.6	0.72	1,596.54	416.91	2,013.45	
12/2007	99.9	73.1	54,386	96.5	49.4	0.76	1,658.84	390.63	2,049.47	
01/2008	99.9	83.9	62,422	122.4	57.6	0.69	1,619.97	455.08	2,075.05	
02/2008	85.6	61.0	42,456	96.0	8.2	0.64	1,119.78	359.81	1,479.59	
03/2008	97.0	60.1	44,714	86.9	46.1	0.69	1,107.13	314.40	1,421.53	
04/2008	99.9	44.3	31,896	71.0	24.5	0.62	738.52	249.07	987.59	
05/2008	98.8	28.1	20,906	55.7	21.6	0.50	403.43	179.80	583.23	
06/2008	99.4	26.7	19,224	44.6	22.1	0.60	313.16	139.06	452.22	
07/2008	100.0	30.4	22,618	37.9	21.1	0.80	492.66	128.78	621.44	
08/2008	99.7	28.9	21,502	38.9	19.7	0.74	546.36	142.30	688.65	
09/2008	93.2	25.2	18,144	45.1	17.8	0.56	488.51	167.68	656.19	
10/2008	72.6	32.0	23,808	59.8	21.1	0.54	643.17	225.92	869.10	BPA Rate Decrease.
11/2008	99.3	42.6	30,672	87.8	10.1	0.49	879.98	343.12	1,223.10	
12/2008	99.9	101.5	75,516	161.3	35.5	0.63	2,261.78	646.49	2,908.27	
01/2009	99.7	117.5	87,420	146.9	44.2	0.80	2,227.29	542.94	2,770.23	
02/2009	100.0	120.4	80,909	150.7	75.8	0.80	2,095.62	561.51	2,657.13	
03/2009	99.6	97.8	72,763	129.6	66.7	0.75	1,768.95	466.04	2,234.99	
04/2009	99.9	79.6	57,312	104.6	39.8	0.76	1,302.99	365.26	1,668.25	
05/2009	99.9	24.5	18,228	93.6	18.7	0.26	345.24	300.64	645.88	
06/2009	99.7	27.7	19,944	49.0	19.7	0.57	318.59	152.00	470.58	
07/2009	99.1	3.8	2,827	26.9	0.0	0.14	60.45	90.28	150.72	Power Outage.
Average	97.6	53.8	39,196	82.6	30.4	0.65	1,003.52	303.19	1,306.71	
Maximum	100.0	120.4	87,420	161.3	75.8	0.80	2,261.78	646.49	2,908.27	

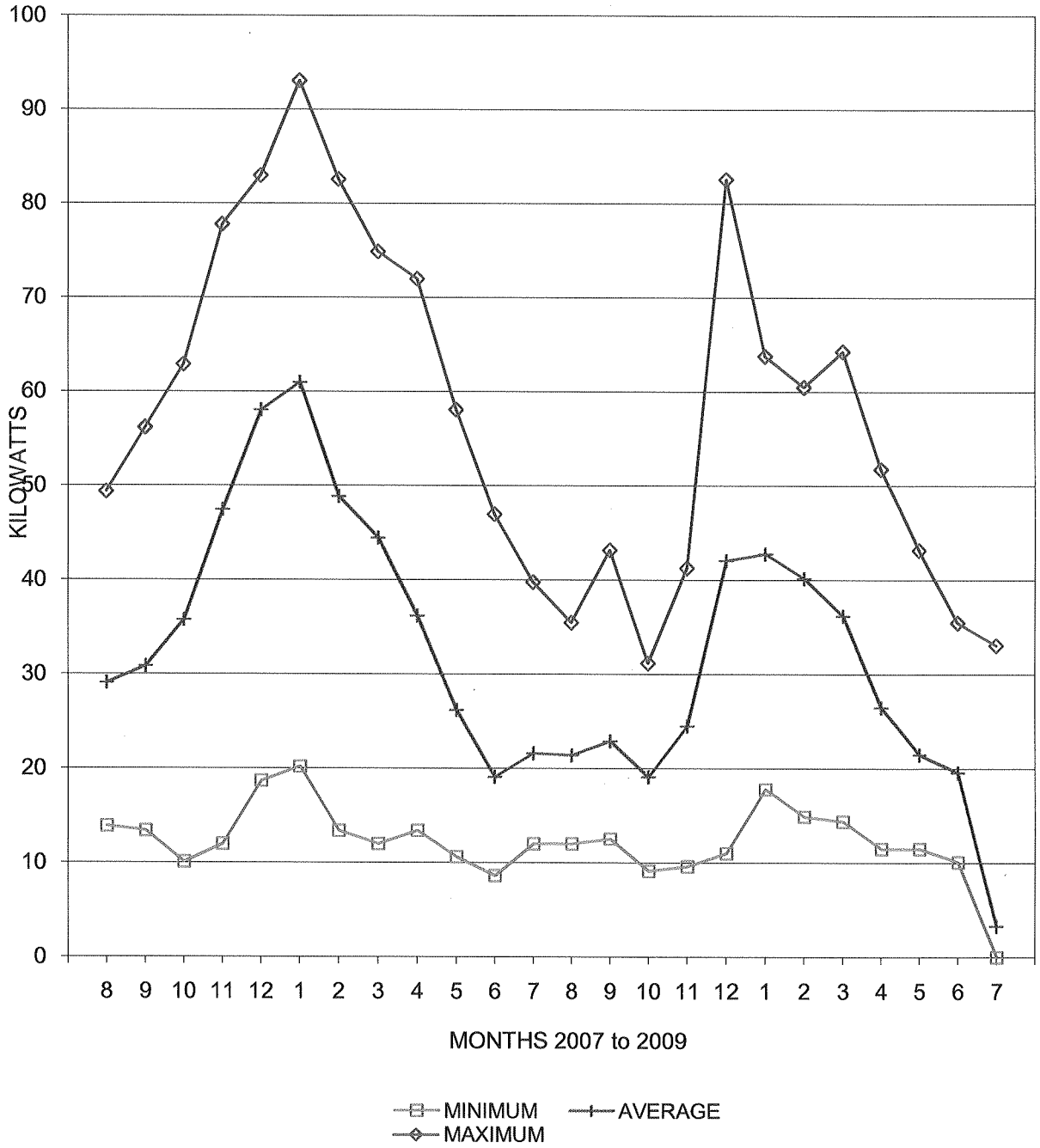
METER 95-031-127
MONTHLY DEMAND PROFILE



Building	241-SY Tank Farm, 242-S Evaporator			
Service (Line,Breaker)	C8-L4, F8X703			Automatic Data
Transformer Number	C6648P (500 KVA)			
New Meter Number	95-031-128	Old Meter Number	NA	
Data Logger Number	060			

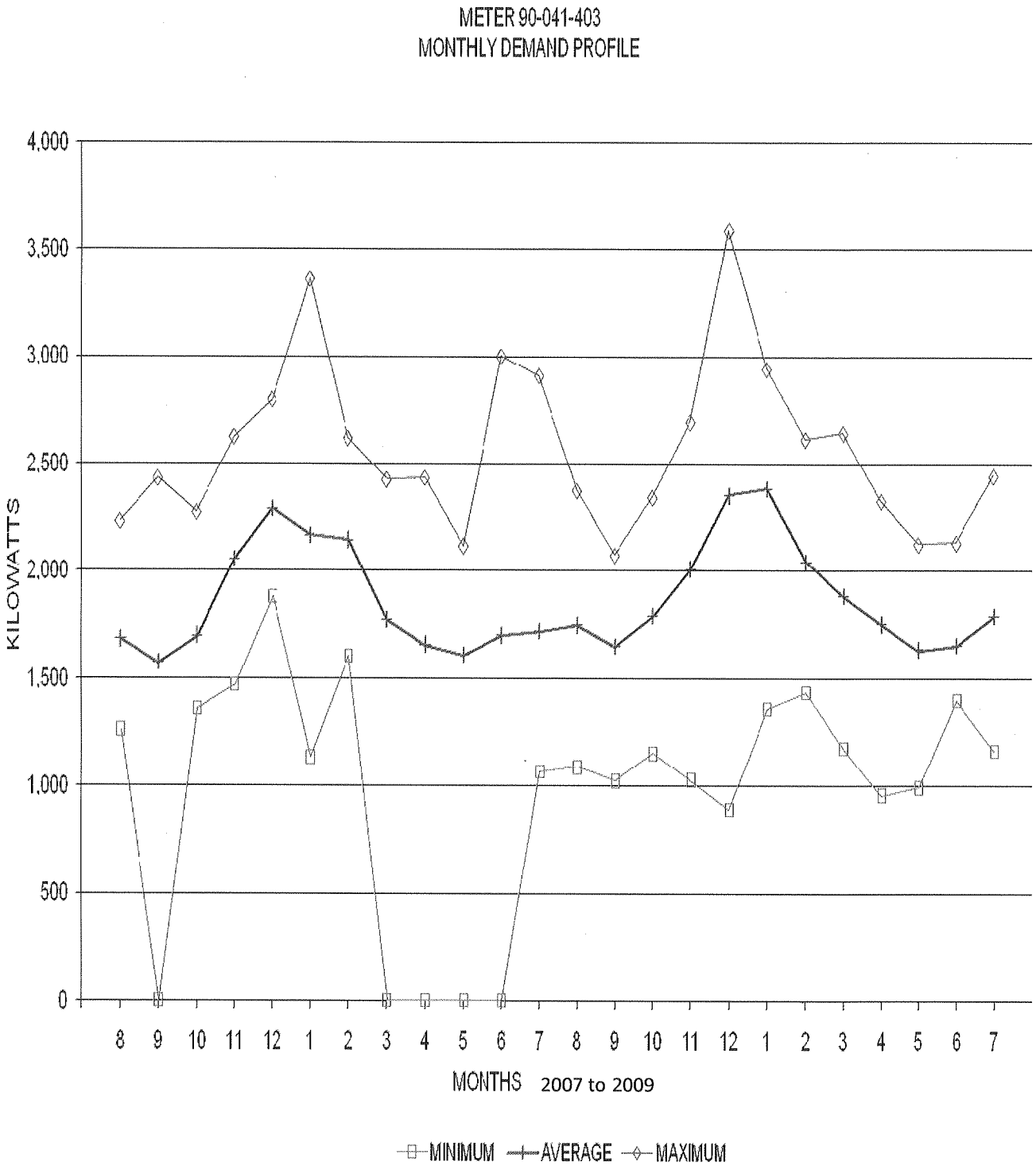
Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.9	29.1	21,650	49.4	13.9	0.59	550.57	180.75	731.32	
09/2007	99.6	30.9	22,248	56.2	13.4	0.55	599.45	209.01	808.46	
10/2007	99.9	35.8	26,635	62.9	10.1	0.57	732.73	239.52	972.26	BPA Rate Decrease.
11/2007	99.6	47.5	34,200	77.8	12.0	0.61	999.15	307.15	1,306.31	
12/2007	99.9	58.1	43,226	83.0	18.7	0.70	1,318.45	335.98	1,654.43	
01/2008	99.9	61.0	45,384	93.1	20.2	0.66	1,177.81	346.15	1,523.95	
02/2008	85.6	48.9	34,034	82.6	13.4	0.59	897.66	309.58	1,207.24	
03/2008	97.0	44.5	33,108	74.9	12.0	0.59	819.75	270.99	1,090.74	
04/2008	99.9	36.2	26,064	72.0	13.4	0.50	603.49	252.58	856.06	
05/2008	98.8	26.2	19,493	58.1	10.6	0.45	376.15	187.55	563.70	
06/2008	99.4	19.1	13,752	47.0	8.6	0.41	224.02	146.55	370.57	
07/2008	100.0	21.6	16,070	39.8	12.0	0.54	350.05	135.24	485.29	
08/2008	99.7	21.4	15,922	35.5	12.0	0.60	404.57	129.86	534.43	
09/2008	93.2	22.9	16,488	43.2	12.5	0.53	443.92	160.62	604.54	
10/2008	72.6	19.1	14,210	31.2	9.1	0.61	383.89	117.87	501.77	BPA Rate Decrease.
11/2008	99.3	24.5	17,640	41.3	9.6	0.59	506.09	161.40	667.49	
12/2008	99.9	42.1	31,322	82.6	11.0	0.51	938.14	331.06	1,269.20	
01/2009	99.7	42.8	31,843	63.8	17.8	0.67	811.30	235.80	1,047.11	
02/2009	100.0	40.2	27,014	60.5	14.9	0.66	699.70	225.42	925.12	
03/2009	99.6	36.2	26,933	64.3	14.4	0.56	654.76	231.22	885.99	
04/2009	99.9	26.5	19,080	51.8	11.5	0.51	433.78	180.89	614.67	
05/2009	99.9	21.5	15,996	43.2	11.5	0.50	302.96	138.76	441.72	
06/2009	99.7	19.6	14,112	35.5	10.1	0.55	225.43	110.12	335.55	
07/2009	99.1	3.3	2,455	33.1	0.0	0.10	52.49	111.08	163.58	Power Outage.
Average	97.6	32.5	23,703	57.6	12.2	0.56	604.43	210.63	815.06	
Maximum	100.0	61.0	45,384	93.1	20.2	0.70	1,318.45	346.15	1,654.43	

METER 95-031-128
MONTHLY DEMAND PROFILE



Building	251-W			
Service (Line,Breaker)	C8-L3, C8X3			Automatic Data
Transformer Number	Feeder			
New Meter Number	90-041-403	Old Meter Number	69-981-182	
Data Logger Number	084			

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
-	-	-	-	-	-	-	-	-	-	-
08/2007	99.9	1,681.6	1,251,110	2,232.0	1,260.0	0.75	31,815.74	8,166.89	39,982.63	
09/2007	99.9	1,573.3	1,132,776	2,431.8	0.0	0.65	30,521.52	9,043.86	39,565.38	
10/2007	99.7	1,698.6	1,263,758	2,273.4	1,359.0	0.75	34,765.99	8,657.11	43,423.10	BPA Rate Decrease.
11/2007	99.9	2,055.7	1,480,104	2,628.0	1,467.0	0.78	43,241.24	10,375.34	53,616.58	
12/2007	99.9	2,290.4	1,704,058	2,799.0	1,877.4	0.82	51,975.46	11,330.35	63,305.81	
01/2008	99.9	2,167.1	1,612,322	3,360.6	1,132.2	0.64	41,842.99	12,494.71	54,337.70	
02/2008	49.7	2,146.1	1,493,686	2,620.8	1,603.8	0.82	39,395.96	9,822.76	49,218.72	Low % Capture.
03/2008	99.3	1,773.4	1,319,410	2,426.4	0.0	0.73	32,668.58	8,778.72	41,447.30	
04/2008	99.7	1,656.4	1,192,608	2,435.4	0.0	0.68	27,613.65	8,543.38	36,157.03	
05/2008	96.4	1,606.4	1,195,162	2,118.6	0.0	0.76	23,063.03	6,838.84	29,901.87	
06/2008	99.7	1,699.4	1,223,568	3,002.4	0.0	0.57	19,931.92	9,361.48	29,293.41	
07/2008	98.1	1,719.3	1,279,159	2,910.6	1,063.8	0.59	27,862.65	9,890.22	37,752.86	
08/2008	76.1	1,746.0	1,299,024	2,374.2	1,085.4	0.74	33,008.20	8,684.82	41,693.02	
09/2008	99.6	1,647.1	1,185,912	2,075.4	1,020.6	0.79	31,929.49	7,716.34	39,645.83	
10/2008	99.2	1,790.2	1,331,909	2,343.6	1,150.2	0.76	35,981.52	8,854.12	44,835.64	BPA Rate Decrease.
11/2008	99.9	2,010.4	1,447,488	2,696.4	1,026.0	0.75	41,528.43	10,537.53	52,065.96	
12/2008	99.9	2,353.6	1,751,078	3,589.2	889.2	0.66	52,446.55	14,385.51	66,832.06	
01/2009	99.9	2,383.8	1,773,547	2,941.2	1,359.0	0.81	45,186.44	10,870.68	56,057.11	
02/2009	99.9	2,043.5	1,373,232	2,615.4	1,432.8	0.78	35,568.08	9,744.98	45,313.06	
03/2009	99.6	1,883.6	1,401,398	2,644.2	1,177.2	0.71	34,069.40	9,508.54	43,577.94	
04/2009	99.9	1,752.8	1,262,016	2,327.4	955.8	0.75	28,691.93	8,127.28	36,819.21	
05/2009	99.2	1,634.2	1,215,845	2,125.8	991.8	0.77	23,028.10	6,828.07	29,856.17	
06/2009	99.7	1,655.7	1,192,104	2,133.0	1,396.8	0.78	19,042.67	6,616.57	25,659.24	
07/2009	99.9	1,788.5	1,330,644	2,442.6	1,164.6	0.73	28,449.17	8,197.37	36,646.53	
Average	96.5	1,864.9	1,362,997	2,564.5	975.5	0.73	33,901.20	9,307.31	43,208.51	
Maximum	99.9	2,383.8	1,773,547	3,589.2	1,877.4	0.82	52,446.55	14,385.51	66,832.06	


METER 90-041-403
MONTHLY DEMAND PROFILE
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KILOWATTS
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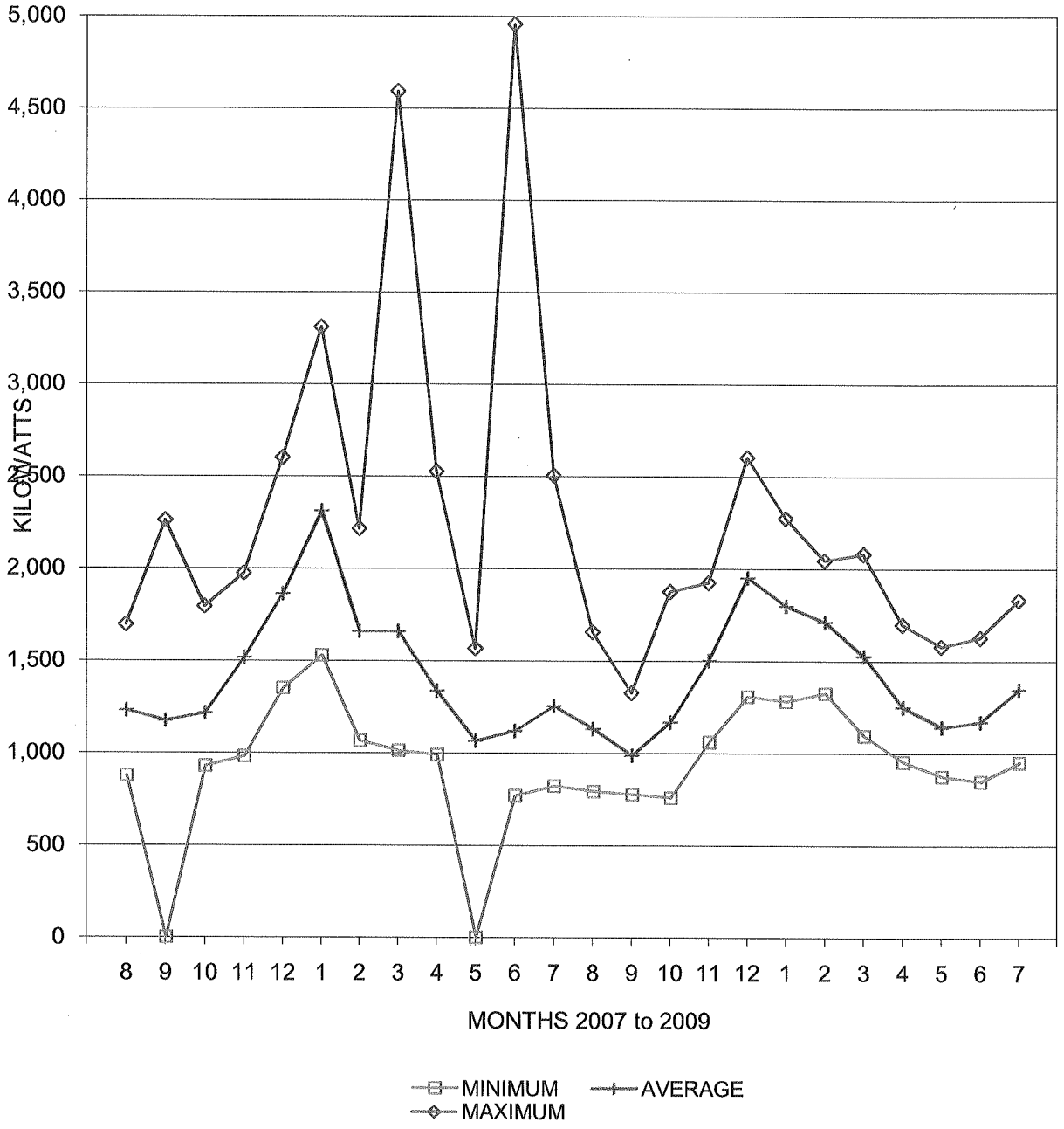
MONTHS 2007 to 2009
MINIMUM
AVERAGE
MAXIMUM

Building	251-W			
Service (Line,Breaker)	C8-L4, C8X4			Automatic Data
Transformer Number	Feeder			
New Meter Number	90-071-271	Old Meter Number	NA	
Data Logger Number	084			

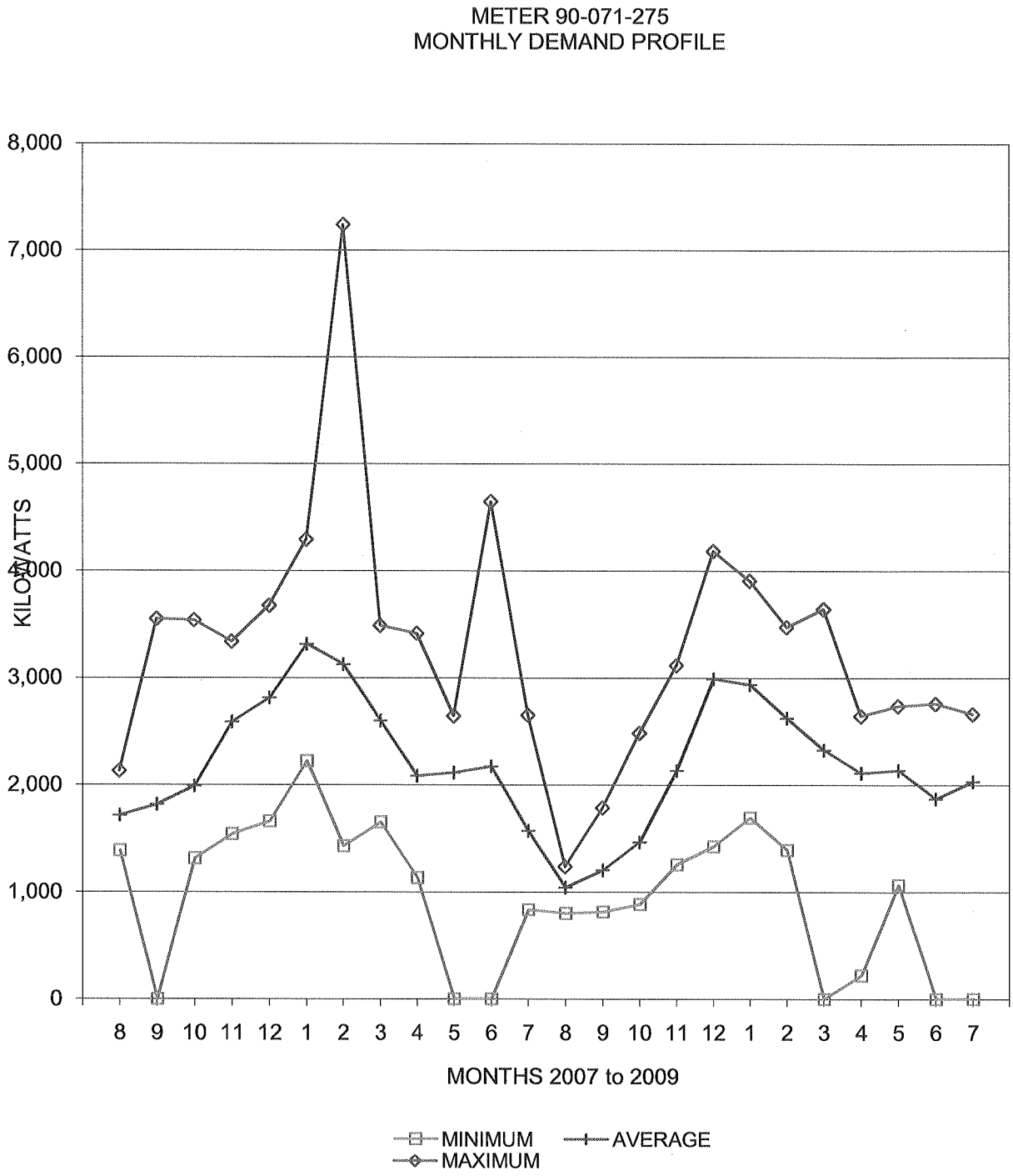
Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
-	-	-	-	-	-	-	-	-	-	- -
08/2007	99.9	1,231.2	916,013	1,697.4	876.6	0.73	23,294.21	6,210.79	29,504.99	
09/2007	99.9	1,174.6	845,712	2,262.6	0.0	0.52	22,786.86	8,414.61	31,201.47	
10/2007	99.7	1,215.7	904,481	1,796.4	928.8	0.68	24,882.27	6,840.69	31,722.96	BPA Rate Decrease.
11/2007	99.9	1,517.4	1,092,528	1,976.4	982.8	0.77	31,918.21	7,802.83	39,721.03	
12/2007	99.9	1,864.5	1,387,188	2,602.8	1,351.8	0.72	42,310.62	10,536.13	52,846.76	
01/2008	99.9	2,313.1	1,720,946	3,312.0	1,528.2	0.70	44,662.00	12,314.02	56,976.02	
02/2008	49.7	1,660.2	1,155,499	2,217.6	1,065.6	0.75	30,476.29	8,311.56	38,787.86	Low % Capture.
03/2008	99.3	1,661.0	1,235,784	4,593.6	1,013.4	0.36	30,598.01	16,619.64	47,217.66	Load Combined.
04/2008	99.7	1,337.9	963,288	2,529.0	990.0	0.53	22,303.97	8,871.73	31,175.70	
05/2008	96.4	1,067.9	794,518	1,569.6	0.0	0.68	15,331.81	5,066.67	20,398.47	
06/2008	99.7	1,120.7	806,904	4,959.0	768.6	0.23	13,144.47	15,462.16	28,606.63	Load Combined.
07/2008	98.1	1,255.7	934,241	2,507.4	820.8	0.50	20,349.63	8,520.15	28,869.78	
08/2008	76.1	1,132.3	842,431	1,659.6	792.0	0.68	21,406.18	6,070.82	27,476.99	
09/2008	99.6	988.6	711,792	1,330.2	775.8	0.74	19,164.29	4,945.68	24,109.97	
10/2008	99.2	1,168.3	869,215	1,877.4	757.8	0.62	23,481.85	7,092.82	30,574.67	BPA Rate Decrease.
11/2008	99.9	1,503.4	1,082,448	1,926.0	1,060.2	0.78	31,055.43	7,526.81	38,582.24	
12/2008	99.9	1,951.8	1,452,139	2,604.6	1,306.8	0.75	43,493.02	10,439.24	53,932.26	
01/2009	99.9	1,799.4	1,338,754	2,275.2	1,281.6	0.79	34,108.76	8,409.14	42,517.90	
02/2009	99.9	1,712.6	1,150,867	2,046.6	1,324.8	0.84	29,808.61	7,625.63	37,434.24	
03/2009	99.6	1,527.5	1,136,460	2,080.8	1,094.4	0.73	27,628.48	7,482.56	35,111.04	
04/2009	99.9	1,251.4	901,008	1,699.2	954.0	0.74	20,484.42	5,933.61	26,418.02	
05/2009	99.2	1,141.8	849,499	1,580.4	874.8	0.72	16,089.51	5,076.24	21,165.76	
06/2009	99.7	1,170.4	842,688	1,629.0	847.8	0.72	13,461.10	5,053.16	18,514.26	
07/2009	99.9	1,346.8	1,002,019	1,832.4	950.4	0.73	21,423.17	6,149.53	27,572.70	
Average	96.5	1,421.4	1,039,018	2,273.6	931.1	0.63	25,985.97	8,199.01	34,184.97	
Maximum	99.9	2,313.1	1,720,946	2,605	1,528.2	0.84	44,662.00	16,619.64	56,976.02	

METER 90-071-271
MONTHLY DEMAND PROFILE



Building	251-W			
Service (Line,Breaker)	C8-L6, C8X6			Automatic Data
Transformer Number	Feeder			
New Meter Number	90-071-275	Old Meter Number	NA	
Data Logger Number	084			

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.9	1,714.9	1,275,886	2,133.0	1,386.0	0.80	32,445.77	7,804.65	40,250.42	
09/2007	99.9	1,818.2	1,309,104	3,553.2	0.0	0.51	35,272.50	13,214.35	48,486.85	
10/2007	99.7	1,990.9	1,481,230	3,540.6	1,314.0	0.56	40,748.63	13,482.60	54,231.23	BPA Rate Decrease.
11/2007	99.9	2,591.0	1,865,520	3,340.8	1,540.8	0.78	54,501.17	13,189.48	67,690.65	
12/2007	99.9	2,815.1	2,094,434	3,677.4	1,661.4	0.77	63,882.34	14,886.12	78,768.46	
01/2008	99.9	3,316.3	2,467,327	4,294.8	2,223.0	0.77	64,032.08	15,968.07	80,000.14	
02/2008	49.7	3,126.0	2,175,696	7,243.2	1,429.2	0.43	57,383.98	27,147.51	84,531.50	Load Combined.
03/2008	99.3	2,598.9	1,933,582	3,490.2	1,650.6	0.74	47,875.48	12,627.54	60,503.02	
04/2008	99.7	2,084.9	1,501,128	3,416.4	1,132.2	0.61	34,757.12	11,984.73	46,741.85	
05/2008	96.4	2,115.1	1,573,634	2,646.0	0.0	0.80	30,366.42	8,541.29	38,907.71	
06/2008	99.7	2,173.4	1,564,848	4,649.4	0.0	0.47	25,491.37	14,496.83	39,988.20	Load Combined.
07/2008	98.1	1,572.3	1,169,791	2,653.2	833.4	0.59	25,480.39	9,015.57	34,495.97	
08/2008	76.1	1,042.6	775,694	1,240.2	799.2	0.84	19,710.39	4,536.65	24,247.05	
09/2008	99.6	1,203.2	866,304	1,789.2	813.6	0.67	23,324.37	6,652.25	29,976.61	
10/2008	99.2	1,466.2	1,090,853	2,485.8	885.6	0.59	29,469.39	9,391.35	38,860.74	BPA Rate Decrease.
11/2008	99.9	2,134.7	1,536,984	3,119.4	1,256.4	0.68	44,096.07	12,190.62	56,286.69	
12/2008	99.9	2,991.1	2,225,378	4,186.8	1,425.6	0.71	66,652.31	16,780.69	83,433.00	
01/2009	99.9	2,939.9	2,187,286	3,909.6	1,693.8	0.75	55,727.66	14,449.88	70,177.54	
02/2009	99.9	2,625.0	1,764,000	3,475.8	1,391.4	0.76	45,689.36	12,950.83	58,640.19	
03/2009	99.6	2,327.9	1,731,958	3,645.0	0.0	0.64	42,105.62	13,107.42	55,213.04	
04/2009	99.9	2,112.3	1,520,856	2,646.0	221.4	0.80	34,576.66	9,239.83	43,816.49	
05/2009	99.2	2,137.9	1,590,598	2,739.6	1,065.6	0.78	30,125.92	8,799.60	38,925.51	
06/2009	99.7	1,869.8	1,346,256	2,761.2	0.0	0.68	21,505.09	8,565.24	30,070.34	
07/2009	99.9	2,034.2	1,513,445	2,664.0	0.0	0.76	32,357.45	8,940.38	41,297.83	
Average	96.5	2,200.1	1,606,741	3,304.2	946.8	0.67	39,899.06	11,998.48	51,897.54	
Maximum	99.9	3,316.3	2,467,327	4,187	2,223.0	0.84	66,652.31	27,147.51	84,531.50	


METER 90-071-275
MONTHLY DEMAND PROFILE
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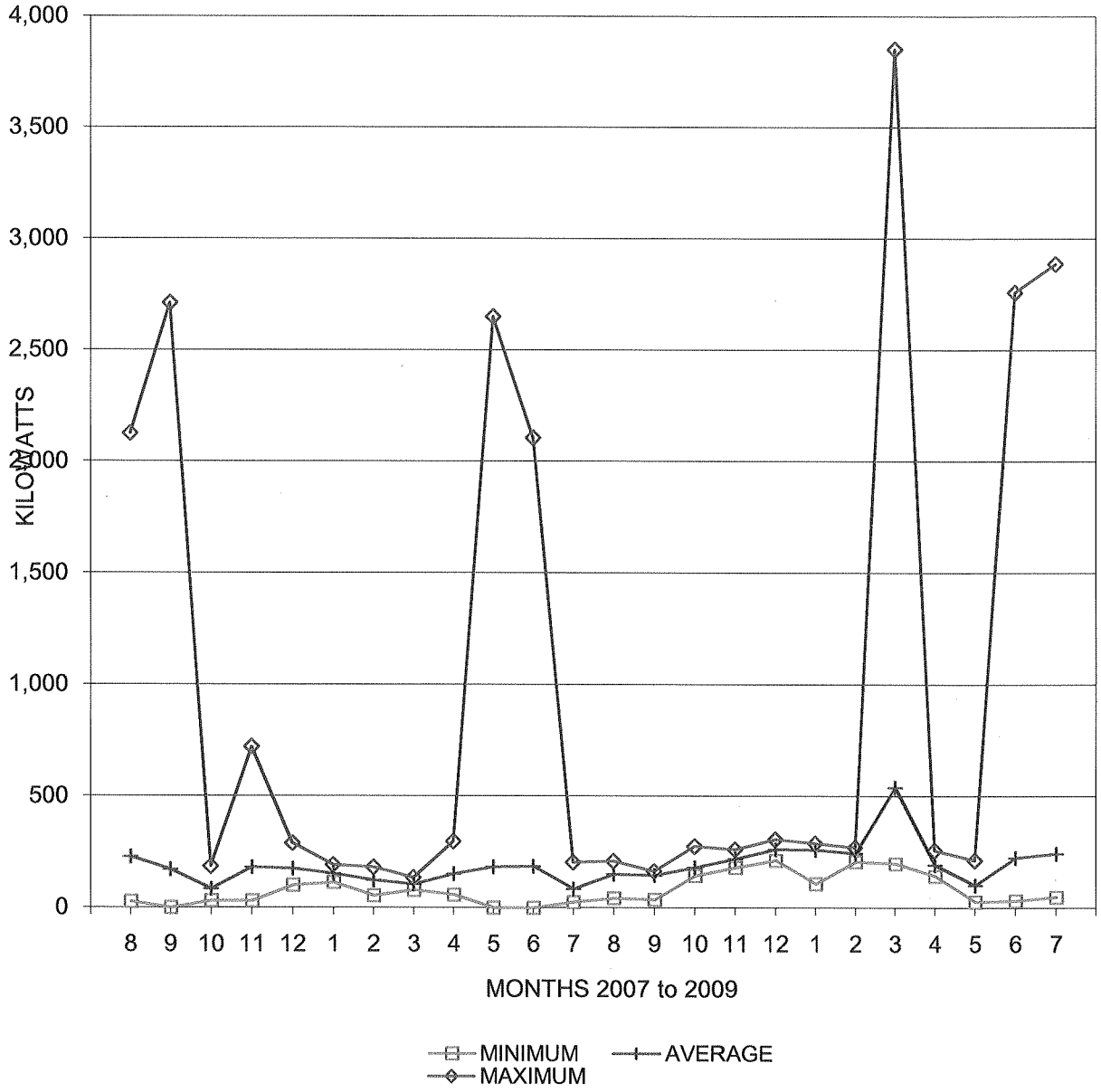
MONTHS 2007 to 2009
MINIMUM
AVERAGE
MAXIMUM

Building	251-W		
Service (Line,Breaker)	C8-L8, C8X8		Automatic Data
Transformer Number	Feeder		
New Meter Number	90-071-273	Old Meter Number	90-071-278
Data Logger Number	084		

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/2007	99.9	229.1	170,450	2,125.8	27.0	0.11	4,334.55	7,778.30	12,112.86	Load Combined.
09/2007	99.9	171.6	123,552	2,712.6	0.0	0.06	3,328.99	10,088.16	13,417.14	Load Combined.
10/2007	99.7	84.0	62,496	185.4	30.6	0.45	1,719.26	706.00	2,425.27	BPA Rate Decrease.
11/2007	99.9	181.2	130,464	721.8	30.6	0.25	3,811.51	2,849.67	6,661.17	Load Combined.
12/2007	99.9	174.6	129,902	289.8	100.8	0.60	3,962.15	1,173.11	5,135.26	
01/2008	99.9	153.5	114,204	192.6	113.4	0.80	2,963.82	716.09	3,679.91	
02/2008	49.7	122.7	85,399	181.8	54.0	0.67	2,252.40	681.39	2,933.79	Low % Capture.
03/2008	99.3	104.8	77,971	135.0	79.2	0.78	1,930.57	488.43	2,419.00	
04/2008	99.7	151.3	108,936	297.0	57.6	0.51	2,522.30	1,041.88	3,564.18	
05/2008	96.4	182.5	135,780	2,649.6	0.0	0.07	2,620.15	8,552.91	11,173.06	Load Combined.
06/2008	99.7	185.7	133,704	2,106.0	0.0	0.09	2,178.04	6,566.51	8,744.55	Load Combined.
07/2008	98.1	84.0	62,496	203.4	25.2	0.41	1,361.29	691.15	2,052.44	
08/2008	76.1	150.1	111,674	208.8	43.2	0.72	2,837.65	763.79	3,601.44	
09/2008	99.6	145.1	104,472	163.8	36.0	0.89	2,812.80	609.01	3,421.81	
10/2008	99.2	180.5	134,292	275.4	144.0	0.66	3,627.90	1,040.46	4,668.36	BPA Rate Decrease.
11/2008	99.9	218.9	157,608	261.0	180.0	0.84	4,521.77	1,019.99	5,541.76	
12/2008	99.9	262.6	195,374	306.0	212.4	0.86	5,851.66	1,226.45	7,078.11	
01/2009	99.9	259.1	192,770	288.0	108.0	0.90	4,911.40	1,064.45	5,975.85	
02/2009	99.9	244.2	164,102	270.0	207.0	0.90	4,250.42	1,006.02	5,256.44	
03/2009	99.6	539.2	401,165	3,852.0	198.0	0.14	9,752.72	13,851.79	23,604.51	Load Combined.
04/2009	99.9	191.5	137,880	257.4	142.2	0.74	3,134.70	898.84	4,033.54	
05/2009	99.2	100.7	74,921	212.4	27.0	0.47	1,419.00	682.23	2,101.23	
06/2009	99.7	224.3	161,496	2,759.4	32.4	0.08	2,579.74	8,559.66	11,139.40	Load Combined.
07/2009	99.9	242.7	180,569	2,887.2	48.6	0.08	3,860.56	9,689.44	13,550.00	Load Combined.
Average	96.5	191.0	139,653	980.9	79.1	0.19	3,439.39	3,406.07	6,845.46	
Maximum	99.9	539.2	401,165	306	212.4	0.90	9,752.72	13,851.79	23,604.51	

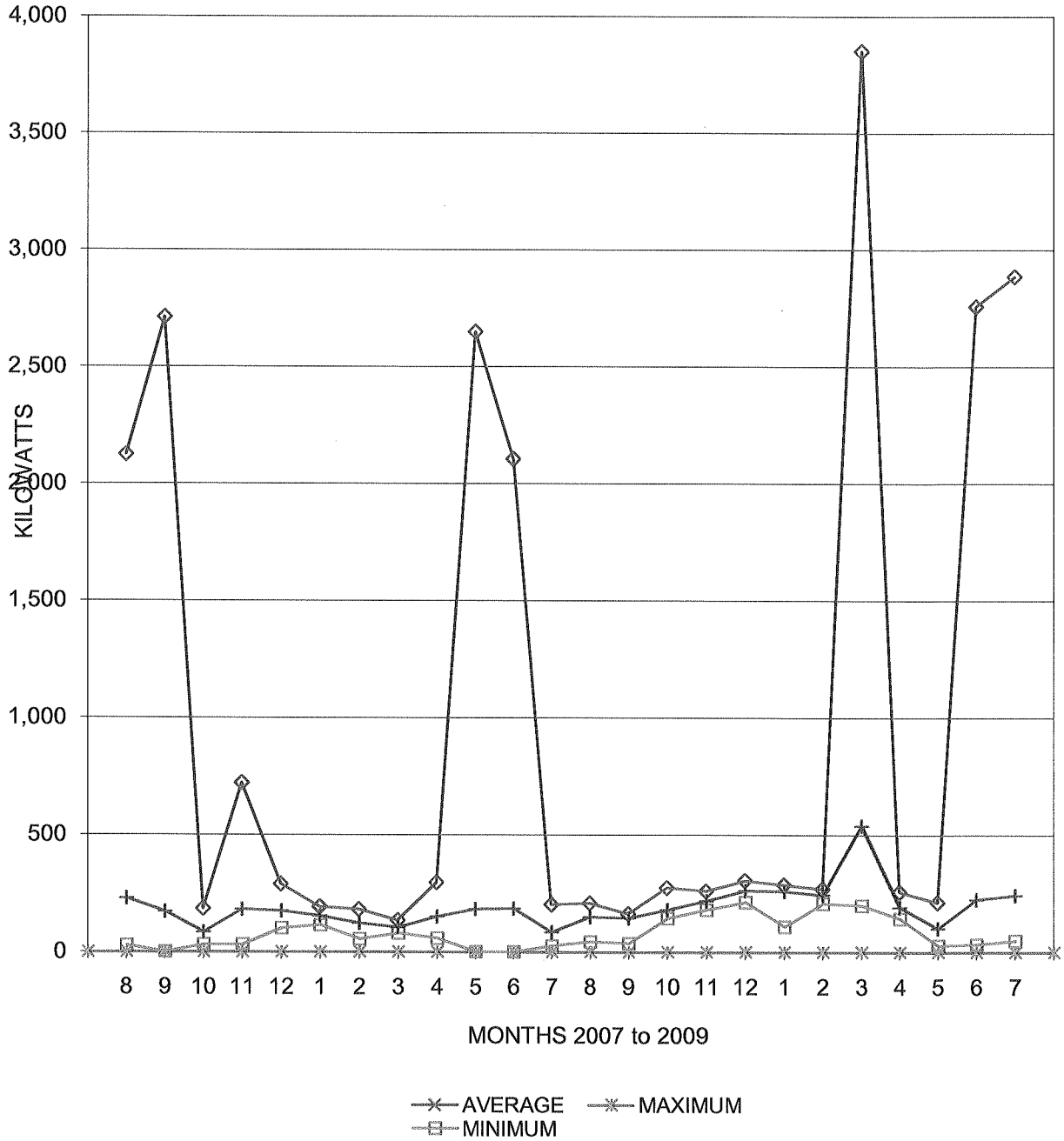
METER 90-071-273
MONTHLY DEMAND PROFILE



Building	241-C-106 Sluice Pumps			
Service (Line,Breaker)	C8-L6, F8X700			Manual Readings
Transformer Number	C6646P (225 KVA)			
New Meter Number	92-592-538	Old Meter Number	NA	
New Multiplier	40	Old Multiplier	NA	
New Number of Dials	4	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
-	-	-	-	-	-	-	-	-	-	-	- -
07/26/2007	617										
08/21/2007	953	336	13,440	21.5	0.85	34.0	0.63	341.78	124.41	466.19	
10/01/2007	1216	263	10,520	10.7	0.83	33.2	0.32	283.45	123.47	406.92	
10/23/2007	1298	82	3,280	6.2	0.67	26.8	0.23	90.23	102.05	192.29	BPA Rate Decrease.
11/20/2007	1572	274	10,960	16.3	0.66	26.4	0.62	320.20	104.23	424.42	
12/19/2007	1952	380	15,200	21.8	0.75	30.0	0.73	463.62	121.44	585.06	
01/24/2008	2482	530	21,200	24.5	0.91	36.4	0.67	550.18	135.34	685.52	
02/25/2008	2992	510	20,400	26.6	1.02	40.8	0.65	538.05	152.92	690.97	
03/24/2008	3261	269	10,760	16.0	0.84	33.6	0.48	266.42	121.56	387.98	
04/23/2008	3532	271	10,840	15.1	0.89	35.6	0.42	250.99	124.88	375.87	
05/20/2008	3832	300	12,000	18.5	0.94	37.6	0.49	231.56	121.37	352.94	
06/24/2008	4327	495	19,800	23.6	0.85	34.0	0.69	322.54	106.01	428.55	
07/21/2008	4706	379	15,160	23.4	0.79	31.6	0.74	330.22	107.38	437.59	
08/20/2008	5036	330	13,200	18.3	0.65	26.0	0.71	335.41	95.11	430.52	
09/22/2008	5156	120	4,800	6.1	0.33	13.2	0.46	129.24	49.08	178.31	
10/21/2008	5278	122	4,880	7.0	0.50	20.0	0.35	131.83	75.56	207.39	BPA Rate Decrease.
11/20/2008	5527	249	9,960	13.8	0.57	22.8	0.61	285.75	89.10	374.85	
12/22/2008	5950	423	16,920	22.0	0.88	35.2	0.63	506.77	141.08	647.85	
01/21/2009	6323	373	14,920	20.7	0.74	29.6	0.70	380.13	109.40	489.53	
02/24/2009	6681	358	14,320	17.5	0.63	25.2	0.70	370.90	93.90	464.80	
03/24/2009	7135	454	18,160	27.0	0.85	34.0	0.79	441.49	122.26	563.75	
04/22/2009	7443	308	12,320	17.7	0.77	30.8	0.57	280.10	107.55	387.65	
05/20/2009	7656	213	8,520	12.7	0.64	25.6	0.50	161.37	82.23	243.60	
06/23/2009	7830	174	6,960	8.5	0.37	14.8	0.58	111.18	45.91	157.09	
07/21/2009	7979	149	5,960	8.9	0.31	12.4	0.72	127.42	41.61	169.04	
Average			12,270	16.9		28.7	0.59	302.12	104.08	406.20	
Maximum			21,200	27.0		40.8	0.79	550.18	152.92	690.97	

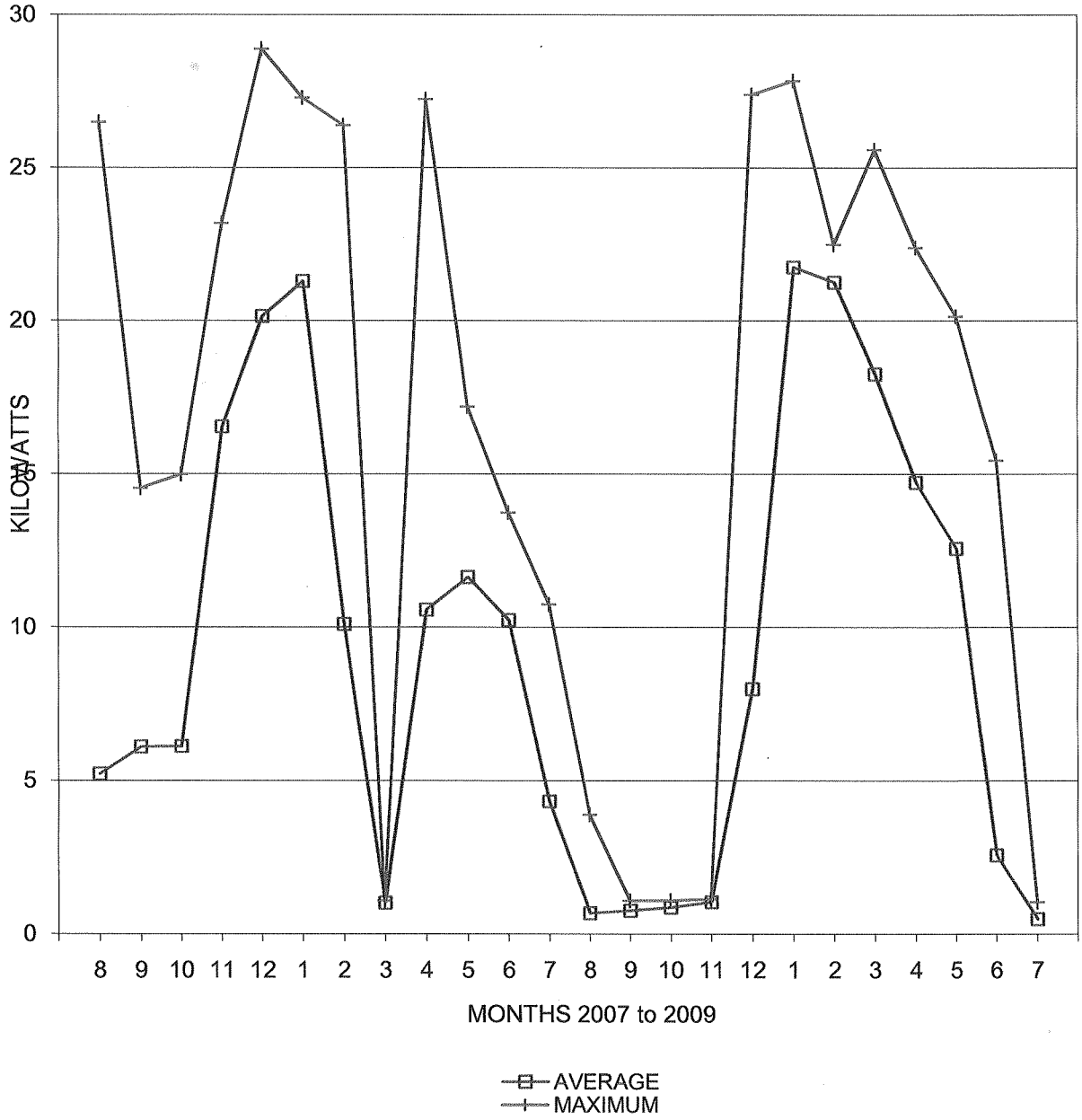
METER 90-071-273
MONTHLY DEMAND PROFILE



Building	241-C-200 TRU Retrieval Skid Mounted Transformer		
Service (Line,Breaker)	C8-L6		Manual Readings
Transformer Number	C6884P (500 KVA)		
New Meter Number	03-052-506	Old Meter Number	NA
New Multiplier	5	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

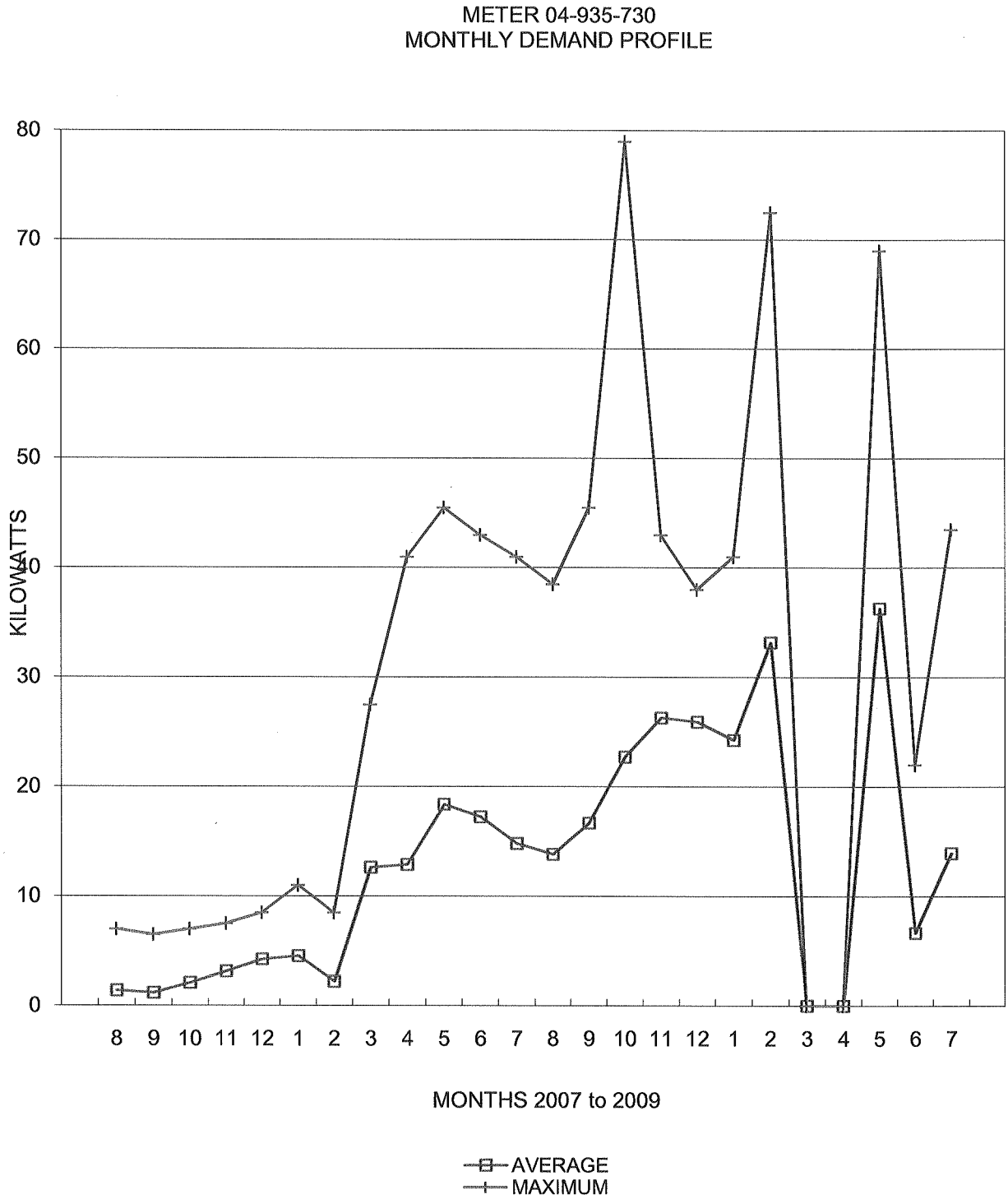
Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
07/26/2007	34351										
08/21/2007	35004	653	3,265	5.2	5.30	26.5	0.20	83.03	96.96	179.99	
10/01/2007	36207	1203	6,015	6.1	2.91	14.6	0.42	162.07	54.11	216.18	
10/23/2007	36854	647	3,235	6.1	3.00	15.0	0.41	88.99	57.12	146.11	BPA Rate Decrease.
11/20/2007	39079	2225	11,125	16.6	4.64	23.2	0.71	325.02	91.59	416.61	
12/19/2007	41886	2807	14,035	20.2	5.78	28.9	0.70	428.08	116.99	545.07	
01/24/2008	45568	3682	18,410	21.3	5.46	27.3	0.78	477.78	101.50	579.28	
02/25/2008	47122	1554	7,770	10.1	5.28	26.4	0.38	204.93	98.95	303.88	
03/24/2008	47260	138	690	1.0	0.22	1.1	0.93	17.08	3.98	21.06	
04/23/2008	48784	1524	7,620	10.6	5.45	27.3	0.39	176.43	95.59	272.03	
05/20/2008	50293	1509	7,545	11.6	3.44	17.2	0.68	145.60	55.52	201.12	
06/26/2008	52113	1820	9,100	10.2	2.75	13.8	0.75	148.24	42.87	191.11	
07/21/2008	52633	520	2,600	4.3	2.15	10.8	0.40	56.63	36.53	93.16	
08/20/2008	52732	99	495	0.7	0.78	3.9	0.18	12.58	14.27	26.84	
09/22/2008	52854	122	610	0.8	0.22	1.1	0.70	16.42	4.09	20.51	
10/21/2008	52976	122	610	0.9	0.22	1.1	0.80	16.48	4.16	20.63	BPA Rate Decrease.
11/20/2008	53127	151	755	1.0	0.23	1.2	0.91	21.66	4.49	26.16	
12/22/2008	54356	1229	6,145	8.0	5.48	27.4	0.29	184.05	109.82	293.87	
01/21/2009	57490	3134	15,670	21.8	5.57	27.9	0.78	399.24	102.93	502.17	
02/24/2009	60961	3471	17,355	21.3	4.50	22.5	0.95	449.51	83.84	533.35	
03/24/2009	63417	2456	12,280	18.3	5.12	25.6	0.71	298.54	92.06	390.60	
04/22/2009	65468	2051	10,255	14.7	4.48	22.4	0.66	233.15	78.22	311.37	
05/20/2009	67159	1691	8,455	12.6	4.03	20.2	0.62	160.14	64.72	224.86	
06/23/2009	67581	422	2,110	2.6	3.09	15.5	0.17	33.71	47.93	81.63	
07/21/2009	67648	67	335	0.5	0.21	1.1	0.47	7.16	3.52	10.69	
Average			6,937	9.4		16.7	0.56	172.77	60.91	233.68	
Maximum			18,410	21.8		28.9	0.95	477.78	116.99	579.28	

METER 03-052-506
MONTHLY DEMAND PROFILE



Building	241-C Skid-Mounted Substation			
Service (Line,Breaker)	C8-L6			Manual Readings
Transformer Number	C6900P (750 KVA)			
New Meter Number	04-935-730	Old Meter Number	NA	
New Multiplier	5	Old Multiplier	NA	
New Number of Dials	6	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
07/26/2007	764										
08/21/2007	938	174	870	1.4	1.4	7.0	0.20	22.12	25.61	47.74	
09/24/2007	1131	193	965	1.2	1.3	6.5	0.18	26.00	24.17	50.17	
10/22/2007	1413	282	1,410	2.1	1.4	7.0	0.30	38.79	26.66	65.45	BPA Rate Decrease.
11/19/2007	1837	424	2,120	3.2	1.5	7.5	0.42	61.94	29.61	91.55	
12/19/2007	2449	612	3,060	4.3	1.7	8.5	0.50	93.33	34.41	127.74	
01/23/2008	3215	766	3,830	4.6	2.2	11.0	0.41	99.40	40.90	140.29	
02/26/2008	3577	362	1,810	2.2	1.7	8.5	0.26	47.74	31.86	79.60	
03/20/2008	4973	1396	6,980	12.6	5.5	27.5	0.46	172.82	99.50	272.32	
04/23/2008	7078	2105	10,525	12.9	8.2	41.0	0.31	243.70	143.83	387.52	
05/20/2008	9463	2385	11,925	18.4	9.1	45.5	0.40	230.12	146.87	376.99	
06/24/2008	12363	2900	14,500	17.3	8.6	43.0	0.40	236.21	134.07	370.28	
07/21/2008	14285	1922	9,610	14.8	8.2	41.0	0.36	209.33	139.32	348.64	
08/20/2008	16279	1994	9,970	13.8	7.7	38.5	0.36	253.34	140.83	394.17	
09/22/2008	18923	2644	13,220	16.7	9.1	45.5	0.37	355.94	169.17	525.10	
10/21/2008	22086	3163	15,815	22.7	15.8	79.0	0.29	427.24	298.46	725.70	BPA Rate Decrease.
11/20/2008	25873	3787	18,935	26.3	8.6	43.0	0.61	543.25	168.04	711.29	
12/22/2008	29855	3982	19,910	25.9	7.6	38.0	0.68	596.32	152.30	748.63	
01/20/2009	33232	3377	16,885	24.3	8.2	41.0	0.59	430.20	151.54	581.73	
02/20/2009	38169	4937	24,685	33.2	14.5	72.5	0.46	639.37	270.14	909.50	
03/24/2009	38169	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Power Outage.
04/22/2009	38169	0	0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Power Outage.
05/20/2009	43047	4878	24,390	36.3	13.8	69.0	0.53	461.95	221.63	683.57	
06/23/2009	44133	1086	5,430	6.7	4.4	22.0	0.30	86.74	68.24	154.98	
07/21/2009	46007	1874	9,370	13.9	8.7	43.5	0.32	200.33	145.99	346.32	
Average			9,426	13.1		31.1	0.42	228.17	110.96	339.14	
Maximum			24,685	36.3		79.0	0.68	639.37	298.46	909.50	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MONTHLY DEMAND PROFILE
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MONTHS 2007 to 2009
AVERAGE
MAXIMUM

ELECTRICITY CONSUMPTION AND COST REPORT

Building	244-BX, MO-824		
Service (Line,Breaker)	C8-L6		Manual Readings
Transformer Number	C6699P, C6700P, C6701P (75 KVA)		
New Meter Number	95-927-794	Old Meter Number	NA
New Multiplier	1	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/21/2007	40773										
09/24/2007	41906	1133	1,133	1	1.66	2	0.84	30.53	6.17	36.70	
10/23/2007	42863	957	957	1	2.01	2	0.68	26.33	7.65	33.98	BPA Rate Decrease.
11/21/2007	44358	1495	1,495	2	5.01	5	0.43	43.68	19.78	63.46	
12/19/2007	46551	2193	2,193	3	6.03	6	0.54	66.89	24.41	91.30	
01/25/2008	49717	3166	3,166	4	6.46	5	0.55	82.16	24.02	106.18	
02/26/2008	52193	2476	2,476	3	6.31	6	0.51	65.30	23.65	88.95	
03/24/2008	53691	1498	1,498	2	4.88	5	0.47	37.09	17.66	54.75	
04/23/2008	55273	1582	1,582	2	4.97	5	0.44	36.63	17.43	54.06	
05/20/2008	56065	792	792	1	3.65	4	0.33	15.28	11.78	27.07	
06/26/2008	57329	1264	1,264	1	2.65	3	0.54	20.59	8.26	28.85	
07/21/2008	58206	877	877	1	1.73	2	0.84	19.10	5.88	24.98	
08/21/2008	59248	1042	1,042	1	1.75	2	0.80	26.48	6.40	32.88	
09/22/2008	60449	1201	1,201	2	1.65	2	0.95	32.34	6.13	38.47	
10/21/2008	61576	1127	1,127	2	2.81	3	0.58	30.45	10.62	41.06	BPA Rate Decrease.
11/20/2008	63026	1450	1,450	2	5.69	6	0.35	41.60	22.24	63.84	
12/22/2008	65677	2651	2,651	3	6.46	6	0.53	79.40	25.89	105.29	
01/21/2009	68190	2513	2,513	3	6.38	6	0.55	64.03	23.58	87.61	
02/24/2009	70856	2666	2,666	3	6.22	6	0.53	69.05	23.18	92.23	
03/24/2009	70856	0	0	0	0.00	0	0.00	0.00	0.00	0.00	Power Outage.
04/22/2009	73594	2738	2,738	4	5.19	5	0.76	62.25	18.12	80.37	
05/20/2009	74735	1141	1,141	2	3.43	3	0.50	21.61	11.02	32.63	
06/23/2009	75923	1188	1,188	1	1.63	2	0.89	18.98	5.06	24.03	
07/21/2009	76810	887	887	1	1.47	1	0.90	18.96	4.93	23.90	
08/26/2009	77935	1125	1,125	1	1.51	2	0.86	28.07	5.46	33.53	
Average			1,548	2		4	0.56	39.03	13.72	52.75	
Maximum			3,166	4		6	0.95	82.16	25.89	106.18	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-BY			
Service (Line,Breaker)	C8-L6			Manual Readings
Transformer Number	C5016P (1,000 KVA), C5256L (10 KVA)			
New Meter Number	92-656-482	Old Meter Number	NA	
New Multiplier	10	Old Multiplier	NA	
New Number of Dials	5	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/21/2007	21811										
09/24/2007	21921	110	1,100	1	0.32	3	0.42	29.64	11.90	41.54	
10/23/2007	22013	92	920	1	0.32	3	0.41	25.31	12.19	37.49	BPA Rate Decrease.
11/21/2007	22093	80	800	1	0.20	2	0.57	23.37	7.90	31.27	
12/19/2007	22177	84	840	1	0.20	2	0.63	25.62	8.10	33.72	
01/25/2008	22286	109	1,090	1	0.20	2	0.61	28.29	7.44	35.72	
02/26/2008	22373	87	870	1	0.20	2	0.57	22.95	7.50	30.44	
03/24/2008	22437	64	640	1	0.20	2	0.49	15.85	7.24	23.08	
04/23/2008	22499	62	620	1	0.20	2	0.43	14.36	7.02	21.37	
05/20/2008	22534	35	350	1	0.20	2	0.27	6.75	6.46	13.21	
06/26/2008	22591	57	570	1	0.20	2	0.32	9.29	6.24	15.52	
07/21/2008	22629	38	380	1	0.20	2	0.32	8.28	6.80	15.07	
08/21/2008	22682	53	530	1	0.20	2	0.36	13.47	7.32	20.78	
09/22/2008	22749	67	670	1	0.20	2	0.44	18.04	7.44	25.48	
10/21/2008	22819	70	700	1	0.20	2	0.50	18.91	7.56	26.47	BPA Rate Decrease.
11/20/2008	22902	83	830	1	0.20	2	0.58	23.81	7.82	31.63	
12/22/2008	22998	96	960	1	0.20	2	0.63	28.75	8.02	36.77	
01/21/2009	23087	89	890	1	0.20	2	0.62	22.68	7.39	30.07	
02/24/2009	23180	93	930	1	0.20	2	0.57	24.09	7.45	31.54	
03/24/2009	23248	68	680	1	0.20	2	0.51	16.53	7.19	23.72	
04/22/2009	23292	44	440	1	0.20	2	0.32	10.00	6.98	16.99	
05/20/2009	23341	49	490	1	0.20	2	0.36	9.28	6.42	15.70	
06/23/2009	23393	52	520	1	0.20	2	0.32	8.31	6.20	14.51	
07/21/2009	23436	43	430	1	0.20	2	0.32	9.19	6.71	15.91	
08/26/2009	23499	63	630	1	0.20	2	0.36	15.72	7.23	22.95	
Average			703	1		2	0.45	17.85	7.60	25.46	
Maximum			1,100	1		3	0.63	29.64	12.19	41.54	

ELECTRICITY CONSUMPTION AND COST REPORT

Building 241-C Tank Farm
Service (Line,Breaker) C8-L6 Automatic Data
Transformer Number C4684P, C4774P, C4778P (450 KVA)
New Meter Number 08-086-009 Old Meter Number NA
Data Logger Number 086

Month & Year	Percent Capture	Average (KW)	Monthly Consump. (KWH)	Maximum (KW)	Minimum (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
04/2007	98.1	35.4	25,488	72.5	5.2	0.49	590.66	254.40	845.06	
05/2007	93.1	21.9	16,294	60.4	0.0	0.36	314.74	195.03	509.78	
06/2007	92.9	26.0	18,720	60.4	7.8	0.43	305.32	188.39	493.71	
07/2007	92.9	25.4	18,898	56.1	7.8	0.45	412.02	190.68	602.71	
08/2007	99.9	27.0	20,088	53.5	7.8	0.50	510.84	195.76	706.59	
09/2007	97.6	13.7	9,864	50.0	0.0	0.27	265.78	185.95	451.73	
10/2007	100.0	31.7	23,585	53.5	6.9	0.59	648.82	203.73	852.55	BPA Rate Decrease.
11/2007	89.6	31.6	22,752	52.6	9.5	0.60	664.70	207.66	872.36	
12/2007	35.1	33.7	25,073	47.4	8.7	0.71	764.75	191.88	956.62	Low % Capture.
01/2008	85.6	32.1	23,882	49.2	8.7	0.65	619.80	182.93	802.72	
02/2008	37.9	21.6	15,034	41.4	6.9	0.52	396.51	155.17	551.68	Low % Capture.
03/2008										Logger Failure.
04/2008	18.1	13.8	9,936	20.7	6.9	0.67	230.06	72.62	302.67	Low % Capture.
05/2008	100.0	12.8	9,523	31.2	5.2	0.41	183.77	100.71	284.48	Estimated.
06/2008	99.0	12.4	8,928	23.4	5.2	0.53	145.44	72.96	218.40	Estimated.
07/2008	100.0	12.8	9,523	20.7	5.2	0.62	207.43	70.34	277.77	Estimated.
08/2008	100.0	11.8	8,779	18.3	5.2	0.64	223.08	66.94	290.02	Estimated.
09/2008	99.7	13.2	9,504	25.8	5.2	0.51	255.89	95.92	351.81	Estimated.
10/2008	19.8	14.6	10,862	25.8	5.2	0.57	293.45	97.47	390.92	BPA Rate Decrease.
11/2008	29.6	25.2	18,144	46.5	12.1	0.54	520.55	181.72	702.27	Low % Capture.
12/2008	100.0	26.4	19,642	49.2	12.1	0.54	588.29	197.19	785.48	Estimated.
01/2009	99.5	25.6	19,046	54.3	11.2	0.47	485.26	200.69	685.96	Estimated.
02/2009	99.9	26.0	17,472	54.3	11.2	0.48	452.54	202.32	654.86	Estimated.
03/2009	38.8	15.0	11,160	51.9	0.0	0.29	271.31	186.63	457.94	Service Removed.
Average	79.4	22.2	16,182	44.3	6.7	0.50	406.57	160.74	567.31	
Maximum	100.0	35.4	25,488	72.5	12.1	0.71	764.75	254.40	956.62	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	MO-822, C-100 Temporary Trailers		
Service (Line,Breaker)	C8-L6		Manual Readings
Transformer Number	C6749L (37.5 KVA)		
New Meter Number	04-075-453	Old Meter Number	NA
New Multiplier	1	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/21/2007	97870										
09/24/2007	3711	5841	5,841	7	18.6	19	0.38	157.38	69.17	226.55	
10/23/2007	7909	4198	4,198	6	22.0	22	0.27	115.49	83.78	199.26	BPA Rate Decrease.
11/20/2007	14207	6298	6,298	9	22.4	22	0.42	184.00	88.44	272.43	
12/19/2007	27577	13370	13,370	19	40.3	40	0.48	407.80	163.13	570.93	
01/24/2008	44362	16785	16,785	19	40.9	41	0.47	435.60	152.07	587.67	
02/26/2008	56808	12446	12,446	16	36.0	36	0.44	328.26	134.93	463.19	
03/24/2008	62548	5740	5,740	9	23.6	24	0.38	142.12	85.38	227.51	
04/23/2008	68680	6132	6,132	9	29.1	29	0.29	141.98	102.08	244.06	
05/20/2008	73099	4419	4,419	7	27.7	28	0.25	85.27	89.42	174.69	
06/26/2008	78585	5486	5,486	6	17.0	17	0.36	89.37	53.01	142.37	
07/21/2008	83998	5413	5,413	9	18.2	18	0.50	117.91	61.84	179.75	
08/20/2008	90092	6094	6,094	8	19.4	19	0.44	154.85	70.97	225.81	
09/22/2008	95168	5076	5,076	6	17.6	18	0.36	136.67	65.44	202.10	
10/21/2008	97735	2567	2,567	4	23.5	24	0.16	69.35	88.78	158.13	BPA Rate Decrease.
11/20/2008	2132	4397	4,397	6	22.4	22	0.27	126.15	87.54	213.69	
12/22/2008	12749	10617	10,617	14	36.6	37	0.38	317.99	146.69	464.68	
01/21/2009	23039	10290	10,290	14	33.0	33	0.43	262.17	121.97	384.14	
02/20/2009	33058	10019	10,019	14	27.2	27	0.51	259.50	101.35	360.85	
03/24/2009	40632	7574	7,574	10	34.4	34	0.29	184.13	123.70	307.83	
04/22/2009	45150	4518	4,518	6	24.1	24	0.27	102.72	84.16	186.87	
05/20/2009	48545	3395	3,395	5	18.0	18	0.28	64.30	57.82	122.12	
06/23/2009	55557	7012	7,012	9	20.3	20	0.42	112.01	62.97	174.98	
07/21/2009	62192	6635	6,635	10	21.8	22	0.45	141.86	73.16	215.02	
08/26/2009	75392	13200	13,200	15	27.5	28	0.56	329.35	99.44	428.79	
Average			7,397	10		26	0.38	186.09	94.47	280.56	
Maximum			16,785	19		41	0.56	435.60	163.13	587.67	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-SX-271, 2707-SX, SX-Farm Trailers		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	Primary Meter		
New Meter Number	70-142-194	Old Meter Number	NA
New Multiplier	50	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	22777										
09/28/2007	22972	195	9,750	11	0.48	24	0.47	262.70	89.26	351.96	
10/24/2007	23076	104	5,200	8	0.50	25	0.33	143.05	95.20	238.25	BPA Rate Decrease.
11/27/2007	23297	221	11,050	14	0.85	43	0.32	322.83	167.79	490.62	
12/20/2007	23522	225	11,250	20	0.77	39	0.53	343.14	155.85	498.98	
01/30/2008	23968	446	22,300	23	0.95	48	0.48	578.73	176.61	755.33	
02/28/2008	24203	235	11,750	17	0.93	47	0.36	309.91	174.28	484.19	
03/24/2008	24373	170	8,500	14	0.71	36	0.40	210.46	128.44	338.90	
04/28/2008	24590	217	10,850	13	0.75	38	0.34	251.22	131.55	382.77	
05/22/2008	24700	110	5,500	10	0.50	25	0.38	106.13	80.70	186.83	
07/02/2008	24885	185	9,250	9	0.47	24	0.40	150.68	73.27	223.96	
07/23/2008	24982	97	4,850	10	0.39	20	0.49	105.64	66.26	171.90	
08/27/2008	25167	185	9,250	11	0.42	21	0.52	235.04	76.82	311.86	
09/25/2008	25313	146	7,300	10	0.50	25	0.42	196.55	92.95	289.50	
10/23/2008	25443	130	6,500	10	0.64	32	0.30	175.60	120.90	296.49	BPA Rate Decrease.
11/25/2008	25569	126	6,300	8	0.89	45	0.18	180.75	173.91	354.65	
12/29/2008	25908	339	16,950	21	0.91	46	0.46	507.67	182.36	690.03	
01/26/2009	26167	259	12,950	19	0.82	41	0.47	329.94	151.54	481.48	
02/25/2009	26404	237	11,850	16	0.70	35	0.47	306.93	130.41	437.34	
03/27/2009	26609	205	10,250	14	0.90	45	0.32	249.19	161.82	411.01	
04/27/2009	26729	120	6,000	8	0.67	34	0.24	136.41	116.98	253.39	
05/22/2009	26801	72	3,600	6	0.44	22	0.27	68.18	70.66	138.85	
06/23/2009	26895	94	4,700	6	0.32	16	0.38	75.08	49.63	124.71	
07/27/2009	26997	102	5,100	6	0.32	16	0.39	109.04	53.70	162.73	
08/31/2009	27075	78	3,900	5	0.32	16	0.29	97.31	57.86	155.16	
Average			8,954	12		32	0.38	227.17	115.78	342.95	
Maximum			22,300	23		48	0.53	578.73	182.36	755.33	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-T			
Service (Line,Breaker)	C8-L4			Manual Readings
Transformer Number	C5969P, C5970P, C5971P (150 KVA)			
New Meter Number	64-691-646	Old Meter Number	NA	
New Multiplier	10	Old Multiplier	NA	
New Number of Dials	4	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	6203										
09/27/2007	6432	229	2,290	3	1.2	12	0.23	61.70	44.63	106.33	
10/24/2007	6433	1	10	0	0.9	9	0.00	0.28	34.27	34.55	BPA Rate Decrease.
11/27/2007	6433	0	0	0	0.3	3	0.00	0.00	11.84	11.84	
12/20/2007	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
01/25/2008	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
02/28/2008	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
03/24/2008	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
04/28/2008	6639	206	2,060	2	1.2	12	0.20	47.70	42.10	89.79	
05/23/2008	6789	150	1,500	3	1.2	12	0.21	28.95	38.74	67.68	
07/01/2008	7016	227	2,270	2	1.3	13	0.19	36.98	40.53	77.51	
07/22/2008	7141	125	1,250	2	1.3	13	0.20	27.23	42.48	69.70	
08/26/2008	7242	101	1,010	1	1.3	13	0.10	25.66	45.73	71.39	
09/24/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
10/22/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	BPA Rate Decrease.
11/21/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
12/29/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
01/22/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
02/25/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
03/25/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
04/24/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
05/22/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
06/23/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
07/23/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
08/31/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
Average			433	1		4	0.16	9.52	12.51	22.03	
Maximum			2,290	3		13	0.23	61.70	45.73	106.33	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-T			
Service (Line,Breaker)	C8-L4			Manual Readings
Transformer Number	C5969P, C5970P, C5971P (150 KVA)			
New Meter Number	64-691-646	Old Meter Number	NA	
New Multiplier	10	Old Multiplier	NA	
New Number of Dials	4	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	6203										
09/27/2007	6432	229	2,290	3	1.2	12	0.23	61.70	44.63	106.33	
10/24/2007	6433	1	10	0	0.9	9	0.00	0.28	34.27	34.55	BPA Rate Decrease.
11/27/2007	6433	0	0	0	0.3	3	0.00	0.00	11.84	11.84	
12/20/2007	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
01/25/2008	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
02/28/2008	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
03/24/2008	6433	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
04/28/2008	6639	206	2,060	2	1.2	12	0.20	47.70	42.10	89.79	
05/23/2008	6789	150	1,500	3	1.2	12	0.21	28.95	38.74	67.68	
07/01/2008	7016	227	2,270	2	1.3	13	0.19	36.98	40.53	77.51	
07/22/2008	7141	125	1,250	2	1.3	13	0.20	27.23	42.48	69.70	
08/26/2008	7242	101	1,010	1	1.3	13	0.10	25.66	45.73	71.39	
09/24/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
10/22/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	BPA Rate Decrease.
11/21/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
12/29/2008	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
01/22/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
02/25/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
03/25/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
04/24/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
05/22/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
06/23/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
07/23/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
08/31/2009	7242	0	0	0	0.0	0	0.00	0.00	0.00	0.00	
Average			433	1		4	0.16	9.52	12.51	22.03	
Maximum			2,290	3		13	0.23	61.70	45.73	106.33	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-TX		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	C5511P, C5513P, C5538P (500 KVA)		
New Meter Number	64-691-649	Old Meter Number	NA
New Multiplier	50	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	7666										
09/27/2007	7741	75	3,750	4	0.20	10	0.45	101.04	37.19	138.23	
10/24/2007	7816	75	3,750	6	0.35	18	0.33	103.16	66.64	169.80	BPA Rate Decrease.
11/27/2007	7949	133	6,650	8	0.35	18	0.47	194.28	69.09	263.37	
12/20/2007	8060	111	5,550	10	0.35	18	0.57	169.28	70.84	240.12	
01/25/2008	8246	186	9,300	11	0.36	18	0.60	241.35	66.92	308.28	
02/28/2008	8398	152	7,600	9	0.35	18	0.53	200.45	65.59	266.04	
03/24/2008	8491	93	4,650	8	0.32	16	0.48	115.13	57.89	173.02	
04/25/2008	8587	96	4,800	6	0.25	13	0.50	111.14	43.85	154.99	
05/23/2008	8643	56	2,800	4	0.25	13	0.33	54.03	40.35	94.38	
07/02/2008	8719	76	3,800	4	0.15	8	0.53	61.90	23.38	85.29	
07/22/2008	8758	39	1,950	4	0.15	8	0.54	42.47	25.49	67.96	
08/26/2008	8828	70	3,500	4	0.16	8	0.52	88.93	29.26	118.20	
09/24/2008	8886	58	2,900	4	0.15	8	0.56	78.08	27.89	105.96	
10/22/2008	8947	61	3,050	5	0.22	11	0.41	82.40	41.56	123.95	BPA Rate Decrease.
11/21/2008	9032	85	4,250	6	0.25	13	0.47	121.93	48.85	170.78	
12/29/2008	9211	179	8,950	10	0.35	18	0.56	268.06	70.14	338.20	
01/22/2009	9320	109	5,450	9	0.35	18	0.54	138.86	64.68	203.54	
02/25/2009	9467	147	7,350	9	0.35	18	0.51	190.37	65.21	255.58	
03/25/2009	9569	102	5,100	8	0.34	17	0.45	123.99	61.13	185.12	
04/24/2009	9654	85	4,250	6	0.30	15	0.39	96.62	52.38	149.00	
05/22/2009	9711	57	2,850	4	0.25	13	0.34	53.98	40.15	94.13	
06/23/2009	9760	49	2,450	3	0.16	8	0.40	39.14	24.82	63.95	
07/23/2009	9809	49	2,450	3	0.15	8	0.45	52.38	25.17	77.55	
08/31/2009	9879	70	3,500	4	0.15	8	0.50	87.33	27.12	114.45	
Average			4,610	6		13	0.48	117.35	47.73	165.08	
Maximum			9,300	11		18	0.60	268.06	70.84	338.20	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-TY, 242-T-701		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	C5972P, C5973P, C5974P (150 KVA)		
New Meter Number	64-696-158	Old Meter Number	NA
New Multiplier	10	Old Multiplier	NA
New Number of Dials	4	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	182										
09/27/2007	580	398	3,980	5	1.3	13	0.36	107.24	48.35	155.58	
10/24/2007	833	253	2,530	4	1.0	10	0.39	69.60	38.08	107.68	BPA Rate Decrease.
11/27/2007	1289	456	4,560	6	1.6	16	0.35	133.22	63.17	196.39	
12/20/2007	1618	329	3,290	6	1.2	12	0.48	100.35	49.79	150.14	
01/25/2008	2150	532	5,320	6	1.4	14	0.44	138.06	52.05	190.12	
02/28/2008	2631	481	4,810	6	1.3	13	0.45	126.86	48.72	175.59	
03/24/2008	2973	342	3,420	6	1.2	12	0.48	84.68	43.42	128.10	
04/25/2008	3382	409	4,090	5	1.3	13	0.41	94.70	45.60	140.30	
05/23/2008	3679	297	2,970	4	1.2	12	0.37	57.31	38.74	96.05	
07/01/2008	4069	390	3,900	4	1.0	10	0.42	63.53	31.18	94.71	
07/22/2008	4291	222	2,220	4	1.0	10	0.44	48.36	33.98	82.34	
08/26/2008	4633	342	3,420	4	1.0	10	0.41	86.90	36.58	123.48	
09/24/2008	4927	294	2,940	4	1.0	10	0.42	79.16	37.18	116.34	
10/22/2008	5210	283	2,830	4	1.0	10	0.42	76.45	37.78	114.23	BPA Rate Decrease.
11/21/2008	5608	398	3,980	6	1.2	12	0.46	114.19	46.90	161.08	
12/29/2008	6193	585	5,850	6	1.4	14	0.46	175.21	56.11	231.33	
01/22/2009	6542	349	3,490	6	1.3	13	0.47	88.92	48.05	136.97	
02/25/2009	6970	428	4,280	5	1.2	12	0.44	110.86	44.71	155.57	
03/25/2009	7289	319	3,190	5	1.2	12	0.40	77.55	43.15	120.70	
04/24/2009	7598	309	3,090	4	1.0	10	0.43	70.25	34.92	105.17	
05/22/2009	7853	255	2,550	4	1.2	12	0.32	48.30	38.54	86.84	
06/23/2009	8198	345	3,450	4	1.2	12	0.37	55.11	37.22	92.33	
07/23/2009	8498	300	3,000	4	1.0	10	0.42	64.14	33.56	97.70	
08/31/2009	8884	386	3,860	4	1.2	12	0.34	96.31	43.39	139.70	
Average			3,626	5		12	0.41	90.30	42.97	133.27	
Maximum			5,850	6		16	0.48	175.21	63.17	231.33	

ELECTRICITY CONSUMPTION AND COST REPORT

submeter to 64-696-158

Building	242-T-701 Modular Compressor			
Service (Line,Breaker)	C8-L4			Manual Readings
Transformer Number	C5972P, C5973P, C5974P (150 KVA)			
New Meter Number	92-555-787	Old Meter Number	NA	
New Multiplier	1	Old Multiplier	NA	
New Number of Dials	5	Old Number of Dials	NA	

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	64686										
09/27/2007	65663	977	977	1	3.3	3	0.35	26.32	12.27	38.60	
10/24/2007	65968	305	305	0	1.4	1	0.34	8.39	5.33	13.72	BPA Rate Decrease.
11/27/2007	66936	968	968	1	5.5	6	0.22	28.28	21.71	49.99	
12/20/2007	67551	615	615	1	1.6	2	0.70	18.76	6.48	25.23	
01/25/2008	68671	1120	1,120	1	1.9	2	0.68	29.07	7.06	36.13	
02/28/2008	69523	852	852	1	1.8	2	0.58	22.47	6.75	29.22	
03/24/2008	69991	468	468	1	1.3	1	0.60	11.59	4.70	16.29	
04/25/2008	70450	459	459	1	1.3	1	0.46	10.63	4.56	15.19	
05/23/2008	70773	323	323	0	0.7	1	0.69	6.23	2.26	8.49	
07/01/2008	70968	195	195	0	0.4	0	0.52	3.18	1.25	4.42	
07/22/2008	71126	158	158	0	0.3	0	1.04	3.44	1.02	4.46	
08/26/2008	71377	251	251	0	0.3	0	1.00	6.38	1.10	7.48	
09/24/2008	71599	222	222	0	0.5	1	0.64	5.98	1.86	7.84	
10/22/2008	71891	292	292	0	0.9	1	0.48	7.89	3.40	11.29	BPA Rate Decrease.
11/21/2008	72450	559	559	1	1.3	1	0.60	16.04	5.08	21.12	
12/29/2008	73872	1422	1,422	2	2.6	3	0.60	42.59	10.42	53.01	
01/22/2009	74831	959	959	2	2.3	2	0.72	24.43	8.50	32.93	
02/25/2009	76184	1353	1,353	2	2.4	2	0.69	35.04	8.94	43.99	
03/25/2009	77135	951	951	1	2.0	2	0.71	23.12	7.19	30.31	
04/24/2009	77899	764	764	1	1.9	2	0.56	17.37	6.63	24.00	
05/22/2009	78332	433	433	1	1.6	2	0.40	8.20	5.14	13.34	
06/23/2009	78682	350	350	0	0.5	1	0.91	5.59	1.55	7.14	
07/23/2009	78934	252	252	0	0.4	0	0.87	5.39	1.34	6.73	
08/31/2009	79232	298	298	0	0.4	0	0.80	7.44	1.45	8.88	
Average			606	1		2	0.54	15.58	5.67	21.24	
Maximum			1,422	2		6	1.04	42.59	21.71	53.01	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-Ü Lights & Freeze Protection		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	C5762L (10 KVA)		
New Meter Number	02-501-427	Old Meter Number	NA
New Multiplier	1	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	47862										
09/28/2007	49505	1643	1,643	2	3.9	4	0.49	44.27	14.50	58.77	
10/24/2007	50874	1369	1,369	2	4.8	5	0.46	37.66	18.28	55.94	BPA Rate Decrease.
11/27/2007	53032	2158	2,158	3	5.0	5	0.53	63.05	19.74	82.79	
12/20/2007	54791	1759	1,759	3	6.0	6	0.53	53.65	24.29	77.94	
01/30/2008	58299	3508	3,508	4	6.1	6	0.58	91.04	22.68	113.72	
02/28/2008	60537	2238	2,238	3	6.1	6	0.53	59.03	22.86	81.89	
03/24/2008	62457	1920	1,920	3	5.5	6	0.58	47.54	19.90	67.44	
04/24/2008	64218	1761	1,761	2	5.5	6	0.43	40.77	19.29	60.07	
05/22/2008	65342	1124	1,124	2	3.9	4	0.43	21.69	12.59	34.28	
07/02/2008	66839	1497	1,497	2	4.9	5	0.31	24.39	15.28	39.66	
07/23/2008	67606	767	767	2	3.9	4	0.39	16.71	13.25	29.96	
08/27/2008	69029	1423	1,423	2	3.9	4	0.43	36.16	14.27	50.42	
09/25/2008	70378	1349	1,349	2	3.9	4	0.50	36.32	14.50	50.82	
10/23/2008	71846	1468	1,468	2	4.1	4	0.53	39.66	15.49	55.15	BPA Rate Decrease.
11/25/2008	74124	2278	2,278	3	5.0	5	0.58	65.36	19.54	84.90	
12/29/2008	77018	2894	2,894	4	5.3	5	0.67	86.68	21.24	107.92	
01/26/2009	77018	0	0	0	0.0	0	0.00	0.00	0.00	0.00	Power Outage.
02/25/2009	77018	0	0	0	0.0	0	0.00	0.00	0.00	0.00	Power Outage.
03/27/2009	78320	1302	1,302	2	6.0	6	0.30	31.65	21.58	53.23	
04/27/2009	80282	1962	1,962	3	6.2	6	0.43	44.61	21.65	66.26	
05/22/2009	81646	1364	1,364	2	6.0	6	0.38	25.83	19.27	45.11	
06/23/2009	83008	1362	1,362	2	5.9	6	0.30	21.76	18.30	40.06	
07/27/2009	84467	1459	1,459	2	5.1	5	0.35	31.19	17.12	48.31	
08/31/2009	86179	1712	1,712	2	5.1	5	0.40	42.72	18.44	61.16	
Average			1,597	2		5	0.46	40.07	16.84	56.91	
Maximum			3,508	4		6	0.67	91.04	24.29	113.72	

ELECTRICITY CONSUMPTION AND COST REPORT

Building	241-U Tank Farm, 241-U Dilution, MO-297, U-200 Temporary Trailer		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	Primary Meter		
New Meter Number	02-492-316	Old Meter Number	NA
New Multiplier	10	Old Multiplier	NA
New Number of Dials	6	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	316680										
09/28/2007	318552	1872	18,720	22	2.98	30	0.73	504.39	110.83	615.22	
10/24/2007	320116	1564	15,640	25	3.61	36	0.69	430.26	137.47	567.73	BPA Rate Decrease.
11/27/2007	322601	2485	24,850	30	4.42	44	0.69	725.99	174.50	900.49	
12/20/2007	324456	1855	18,550	34	5.21	52	0.65	565.79	210.90	776.69	
01/25/2008	327586	3130	31,300	36	4.93	49	0.73	812.30	183.30	995.60	
02/28/2008	330147	2561	25,610	31	4.78	48	0.66	675.46	179.15	854.62	
03/24/2008	331813	1666	16,660	28	3.92	39	0.71	412.50	141.83	554.33	
04/24/2008	333758	1945	19,450	26	4.24	42	0.62	450.35	148.74	599.08	
05/23/2008	335268	1510	15,100	22	3.42	34	0.63	291.38	110.40	401.78	
07/02/2008	337233	1965	19,650	20	3.42	34	0.60	320.10	106.64	426.73	Demand Not Reset.
07/23/2008	338251	1018	10,180	20	2.59	26	0.78	221.74	88.01	309.75	
08/27/2008	339985	1734	17,340	21	2.72	27	0.76	440.61	99.50	540.11	
09/25/2008	341438	1453	14,530	21	2.88	29	0.72	391.21	107.08	498.28	
10/23/2008	342958	1520	15,200	23	3.28	33	0.69	410.63	123.92	534.55	BPA Rate Decrease.
11/25/2008	344988	2030	20,300	26	3.53	35	0.73	582.41	137.95	720.36	
12/29/2008	347609	2621	26,210	32	4.91	49	0.65	785.02	196.79	981.81	
01/26/2009	347609	0	0	0	0.00	0	0.00	0.00	0.00	0.00	Power Outage.
02/25/2009	347609	0	0	0	0.00	0	0.00	0.00	0.00	0.00	Power Outage.
03/27/2009	348476	867	8,670	12	4.39	44	0.27	210.78	157.86	368.64	
04/27/2009	349488	1012	10,120	14	2.33	23	0.58	230.08	81.36	311.44	
05/26/2009	350362	874	8,740	13	2.23	22	0.56	165.54	71.63	237.16	
06/25/2009	351204	842	8,420	12	1.54	15	0.76	134.50	47.77	182.27	
07/23/2009	352028	824	8,240	12	1.54	15	0.80	176.17	51.68	227.85	
08/31/2009	353207	1179	11,790	13	1.61	16	0.78	294.17	58.22	352.39	
Average			15,220	20		31	0.66	384.64	113.56	498.20	
Maximum			31,300	36		52	0.80	812.30	210.90	995.60	

ELECTRICITY CONSUMPTION AND COST REPORT

submeter to 02-492-316

Building	241-U Dilution System		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	C6840P, C6841P, C6842P (300 KVA)		
New Meter Number	02-492-317	Old Meter Number	NA
New Multiplier	5	Old Multiplier	NA
New Number of Dials	6	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	108566										
09/28/2007	109166	600	3,000	3	0.9	5	0.77	80.83	16.74	97.57	
10/24/2007	109650	484	2,420	4	1.0	5	0.78	66.57	19.04	85.61	BPA Rate Decrease.
11/27/2007	110322	672	3,360	4	1.0	5	0.82	98.16	19.74	117.90	
12/20/2007	110772	450	2,250	4	1.0	5	0.82	68.63	20.24	88.87	
01/25/2008	111517	745	3,725	4	1.0	5	0.86	96.67	18.59	115.26	
02/28/2008	112192	675	3,375	4	1.0	5	0.83	89.02	18.74	107.76	
03/24/2008	112680	488	2,440	4	1.0	5	0.81	60.41	18.09	78.50	
04/24/2008	113269	589	2,945	4	1.0	5	0.79	68.19	17.54	85.73	
05/23/2008	113773	504	2,520	4	1.0	5	0.72	48.63	16.14	64.77	
07/02/2008	114442	669	3,345	3	1.0	5	0.70	54.49	15.59	70.08	
07/23/2008	114765	323	1,615	3	0.9	5	0.71	35.18	15.29	50.47	
08/27/2008	115326	561	2,805	3	0.9	5	0.74	71.28	16.46	87.74	
09/25/2008	115817	491	2,455	4	0.9	5	0.78	66.10	16.73	82.83	
10/23/2008	116323	506	2,530	4	0.9	5	0.84	68.35	17.00	85.35	BPA Rate Decrease.
11/25/2008	116957	634	3,170	4	0.9	5	0.89	90.95	17.59	108.53	
12/29/2008	117815	858	4,290	5	1.3	7	0.81	128.49	26.05	154.54	
01/26/2009	117815	0	0	0	0.0	0	0.00	0.00	0.00	0.00	Power Outage.
02/25/2009	117815	0	0	0	0.0	0	0.00	0.00	0.00	0.00	Power Outage.
03/27/2009	118003	188	940	1	1.3	7	0.20	22.85	23.37	46.23	
04/27/2009	118010	7	35	0	0.1	1	0.09	0.80	1.75	2.54	
05/26/2009	118016	6	30	0	0.1	1	0.09	0.57	1.61	2.17	
06/23/2009	118022	6	30	0	0.1	1	0.09	0.48	1.55	2.03	
07/23/2009	118027	5	25	0	0.1	1	0.07	0.53	1.68	2.21	
08/31/2009	118036	9	45	0	0.1	1	0.10	1.12	1.81	2.93	
Average			1,973	3		4	0.73	50.76	13.39	64.15	
Maximum			4,290	5		7	0.89	128.49	26.05	154.54	

ELECTRICITY CONSUMPTION AND COST REPORT

submeter to 02-492-316

Building	MO-297, U-200 Temporary Trailer @ 241-U Tank Farm		
Service (Line,Breaker)	C8-L4		Manual Readings
Transformer Number	C6421L (10 KVA)		
New Meter Number	03-027-709	Old Meter Number	NA
New Multiplier	1	Old Multiplier	NA
New Number of Dials	5	Old Number of Dials	NA

Date	Energy Reading	Differ-ence	Monthly Consump. (KWH)	Average (KW)	Demand Reading	Demand (KW)	Load Factor	Energy Cost ($)	Demand Cost ($)	Total Cost ($)	Comments
08/23/2007	61515										
09/28/2007	62556	1041	1,041	1	3.2	3	0.38	28.05	11.90	39.95	
10/24/2007	63104	548	548	1	2.3	2	0.38	15.08	8.76	23.83	BPA Rate Decrease.
11/27/2007	64292	1188	1,188	1	8.8	9	0.17	34.71	34.74	69.45	
12/20/2007	65373	1081	1,081	2	10.9	11	0.18	32.97	44.12	77.09	
01/25/2008	67309	1936	1,936	2	10.3	10	0.22	50.24	38.30	88.54	
02/28/2008	68776	1467	1,467	2	8.4	8	0.21	38.69	31.48	70.18	
03/24/2008	69669	893	893	1	2.9	3	0.51	22.11	10.49	32.60	
04/24/2008	70745	1076	1,076	1	5.1	5	0.28	24.91	17.89	42.80	
05/23/2008	71593	848	848	1	3.5	4	0.35	16.36	11.30	27.66	
07/02/2008	72793	1200	1,200	1	3.5	4	0.36	19.55	10.91	30.46	
07/23/2008	73611	818	818	2	3.5	4	0.46	17.82	11.89	29.71	
08/27/2008	74620	1009	1,009	1	3.3	3	0.36	25.64	12.07	37.71	
09/25/2008	75238	618	618	1	3.1	3	0.29	16.64	11.53	28.16	
10/23/2008	75799	561	561	1	3.8	4	0.22	15.16	14.36	29.51	BPA Rate Decrease.
11/25/2008	76712	913	913	1	5.8	6	0.20	26.19	22.67	48.86	
12/29/2008	78615	1903	1,903	2	10.7	11	0.22	57.00	42.89	99.88	
01/26/2009	78615	0	0	0	0.0	0	0.00	0.00	0.00	0.00	Power Outage.
02/25/2009	78615	0	0	0	0.0	0	0.00	0.00	0.00	0.00	Power Outage.
03/27/2009	79199	584	584	1	10.9	11	0.07	14.20	39.20	53.39	
04/27/2009	79873	674	674	1	8.6	9	0.11	15.32	30.03	45.35	
05/26/2009	80495	622	622	1	3.1	3	0.29	11.78	9.96	21.74	
06/23/2009	81335	840	840	1	3.0	3	0.42	13.42	9.31	22.72	
07/23/2009	82390	1055	1,055	1	3.1	3	0.47	22.56	10.40	32.96	
08/31/2009	83881	1491	1,491	2	3.3	3	0.48	37.20	11.93	49.13	
Average			932	1		5	0.25	23.15	18.59	41.74	
Maximum			1,936	2		11	0.51	57.00	44.12	99.88	