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WIPP Conceptual Design Report

Addendum E: Electrical Load Summary for Waste Isolation
Pilot Plant (WIPP) Conceptual Design Report,
By Holmes & Narver, Inc., Anaheim, California,
April 1977

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ADDENDA E
Electrical Load Summary

For a
WASTE ISOLATION PILOT PLANT

April 1977

Submitted To
FENIX & SCISSON, INC.
TULSA, OKLAHOMA

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ADDENDUM E
ELECTRICAL LOAD SUMMARY

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ELECTRICAL LOAD SUMMARY SHEET

<u>Description</u>	<u>Connected Load (kVA)</u>	<u>Normal Load (Site Supplied By Commercial Power) (kVA)</u>	<u>Emergency Load (Site Supplied By Standby Generators (kVA)</u>
RH Waste Bldg. (Vital)	570.1	339.9	339.9
(Normal)	1310.4	1024.5	
TRU Waste Bldg. (Vital)	774.3	477.2	477.2
(Normal)	1552.9	1280.8	
Administration Facility (Vital)	272.7	145.1	145.1
(Normal)	575.7	575.7	
Mine Construction Fans (Normal)	446.7	446.7	
Man/Material Bldg. (Normal)	172.2	172.2	
Storage Vent Filter Bldg. (Vital)	695.2	695.2	695.2
(Normal)	128.4	128.4	
Suspect Waste Laundry (Normal)	187.3	119.6	
Mine Hoist Bldg. (Vital)	1448.5	1448.5	724.3
(Normal)	2542.0	2542.0	
Water System Pumps (Vital)	563.6	418.4	418.4
Mine Substation			
Upper level (Vital)	370	185	185
(Normal)	3864.4	3864.4	
Lower level (Vital)	1946.4	1751.4	1751.4
(Normal)	3864.4	3864.4	

ELECTRICAL LOAD SUMMARY SHEET

<u>Description</u>	<u>Connected Load</u> <u>(kVA)</u>	<u>Normal Load</u> <u>(Site Supplied By</u> <u>Commercial Power)</u> <u>(kVA)</u>	<u>Emergency Load</u> <u>(Site Supplied By</u> <u>Standby Generators)</u> <u>(kVA)</u>
Standby Generator Bldg. (Vital)	350.3	125.8	268.0
Surface Salt Conveyor	336.0	336	
Vehicle Maintenance Facility (Normal)	43.8	43.8	
Warehouse Shops (Normal)	<u>165.5</u>	<u>165.5</u>	<u> </u>
GRAND TOTAL	<u>22,180.8</u>	<u>20,150.5</u>	<u>5,004.5</u>

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>	
<u>RH WASTE FACILITY - VITAL LOADS</u>						
Drain pump	480 3 ph ac	1 hp	1.43	1.43	1.43	} .5 DF 53.5 KVA
Cask transfer gallery door	480 3 ph ac	1 hp	1.43	1.43	1.43	
Shield cooling						
Water pump	480 3 ph ac	10 hp	11.2	11.2	11.2	
Elevator	480 3 ph ac	25 hp	27.1	27.1	27.1	
Shield cooling						
Water pump	480 3 ph ac	10 hp	11.2	11.2	11.2	
Cask transfer gallery door	480 3 ph ac	1 hp	1.43	1.43	1.43	
Air compressor	480 3 ph ac	50 hp	51.7	51.7	51.7	
Shaft door	480 3 ph ac	1 hp	1.43	1.43	1.43	
Air exhaust fans						
Head frame	480 3 ph ac	75 hp	76.5	76.5	76.5	
Head frame (spare)	480 3 ph ac	75 hp	76.5	-	-	
Cask preparation/decon	480 3 ph ac	50 hp	51.7	51.7	51.7	
Cask preparation/decon (spare)	480 3 ph ac	50 hp	51.7	-	-	
Hot cell exhaust	480 3 ph ac	25 hp	27.1	27.1	27.1	
Hot cell exhaust (spare)	480 3 ph ac	25 hp	27.1	-	-	
Decon cell	480 3 ph ac	20 hp	21.5	21.5	21.5	
Decon cell (spare)	480 3 ph ac	20 hp	21.5	-	-	
Lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	79.6	
Transformer for monitor loads	120/208 3 ph ac		30	30	30	
Subtotal RH Facility Vital Loads			570.12	339.9	339.9	

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>RH WASTE FACILITY - NORMAL LOADS</u>					
125 Ton Crane					
Shipping & Receiving	480 3 ph ac	160 hp	154.4	154.4	} .5 DF 206 KVA
125 Ton Crane Cask preparation and Decontamination room	480 3 ph ac	160 hp	154.4	154.4	
25 Ton Crane					
Hot Cell	480 3 ph ac	40 hp	41.4	41.4	
10 Ton Crane Hot Cell	480 3 ph ac	20 hp	21.5	21.5	
20 Ton Crane Clean Cell	480 3 ph ac	40 hp	41.4	41.4	
Cooling tower fan	480 3 ph ac	20 hp	21.5	21.5	
Cooling tower fan	480 3 ph ac	20 hp	21.5	21.5	
Cooling tower pump	480 3 ph ac	15 hp	16.7	16.7	
Cooling tower pump	480 3 ph ac	15 hp	16.7	16.7	
Chilled water pump	480 3 ph ac	15 hp	16.7	16.7	
Chilled water pump	480 3 ph ac	15 hp	16.7	16.7	
Hot water circulating pump	480 3 ph ac	10 hp	11.2	11.2	
Hot water circulating pump	480 3 ph ac	10 hp	11.2	11.2	
Hot water supply pump	480 3 ph ac	10 hp	11.2	11.2	
Hot water supply pump	480 3 ph ac	10 hp	11.2	11.2	
Solar circulating pump	480 3 ph ac	5 hp	6	6	
Solar circulating pump	480 3 ph ac	5 hp	6	6	
Centrifugal heat pump	480 3 ph ac	150 hp	143.4	143.4	
Centrifugal heat pump	480 3 ph ac	150 hp	143.4	143.4	
Shipping & Receiving exhaust	480 3 ph ac	20 hp	21.5	21.5	
Shipping & Receiving exhaust (Spare)	480 3 ph ac	20 hp	21.5	-	
Filter room exhaust fan	480 3 ph ac	2 hp	2.7	2.7	
Office exhaust fan	480 3 ph ac	15 hp	16.7	16.7	
Cask preparation turntable	480 3 ph ac	20 hp	21.5	21.5	
Lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	
Lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
Elevator door	480 3 ph ac	7.5	8.75	8.75	} 19.8 KVA
Elevator shield door	480 3 ph ac	2 hp	2.7	2.7	
Transporter	480 3 ph ac	10 hp	11.2	11.2	
Transporter	480 3 ph ac	10 hp	11.2	11.2	
Decon shield door	480 3 ph ac	1 hp	1.43	1.43	
Decon shield door	480 3 ph ac	1 hp	1.43	1.43	
Decon shield door	480 3 ph ac	1 hp	1.43	1.43	
Decon shield door	480 3 ph ac	1 hp	1.43	1.43	} 19.8 KVA
Air supply fans					
Cask preparation/decon	480 3 ph ac	20 hp	21.5	21.5	
Cask preparation/decon (spare)	480 3 ph ac	20 hp	21.5	-	
Filter room	480 3 ph ac	2 hp	2.7	2.7	
Shipping & Receiving	480 3 ph ac	20 hp	21.5	21.5	
Shipping & Receiving (spare)	480 3 ph ac	20 hp	21.5	-	
Office	480 3 ph ac	10 hp	11.2	16.7	
Water pump	480 3 ph ac	60 hp	61.3	61.3	
			1310.4		
			Subtotal Normal Loads	1024.5	
			Subtotal Vital Loads	339.9	339.9
			TOTAL RH FACILITY LOADS	1364.4	339.9

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>TRU WASTE FACILITY - VITAL LOADS</u>					
Transformer for monitors	120/203 3 ph ac		30	30	30
Exhaust fans					
Head frame (operating)	480 3 ph ac	50 hp	51.7	51.7	51.7
Head frame (spare)	480 3 ph ac	50 hp	51.7	-	-
Hoist load area (operating)	480 3 ph ac	10 hp	11.2	11.2	11.2
Hoist load area (spare)	480 3 ph ac	10 hp	11.2	-	-
Inventory/preparation (oper.)	480 3 ph ac	150 hp	143.4	143.4	143.4
Inventory/preparation (oper.)	480 3 ph ac	150 hp	143.4	143.4	143.4
Inventory/preparation (spare)	480 3 ph ac	150 hp	143.4	-	-
Drain sump pump	480 3 ph ac	1 hp	1.43	1.43	1.43
Vehicle battery charging area (operating)	480 3 ph ac	5 hp	6	6	6
Vehicle battery charging area (spare)	480 3 ph ac	5 hp	6	-	-
Load/unload area (operating)	480 3 ph ac	50 hp	51.7	51.7	51.7
Load/unload area (spare)	480 3 ph ac	50 hp	51.7	-	-
Drain sump pump	480 3 ph ac	1 hp	1.43	1.43	1.43
Overpack area & labs. (operating)	480 3 ph ac	25 hp	27.1	27.1	27.1
Overpack area & labs. (spare)	480 3 ph ac	25 hp	27.1	-	-
Filter house	480 3 ph ac	3 hp	3.8	3.8	3.8
Minor repair area (operating)	480 3 ph ac	5 hp	6	6	6
Minor repair area (spare)	480 3 ph ac	5 hp	6	-	-
Subtotal TRU Waste Facility Vital Loads			774.3	477.2	477.2

TRU WASTE FACILITY - NORMAL LOADS

Cooling tower fan	480 3 ph ac	20 hp	21.5	21.5	
Cooling tower fan	480 3 ph ac	20 hp	21.5	21.5	

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
Lighting panel	277/480 3 ph ac	100 amp	83	83	
Cooling tower pump	480 3 ph ac	25 hp	27.1	27.1	
Cooling tower pump	480 3 ph ac	25 hp	27.1	27.1	
Chilled water pump	480 3 ph ac	25 hp	27.1	27.1	
Chilled water pump	480 3 ph ac	25 hp	27.1	27.1	
Hot water circulating pump	480 3 ph ac	20 hp	21.5	21.5	
Hot water circulating pump	480 3 ph ac	20 hp	21.5	21.5	
Hot water supply pump	480 3 ph ac	20 hp	21.5	21.5	
Hot water supply pump	480 3 ph ac	20 hp	21.5	21.5	
Solar circulating pump	480 3 ph ac	10 hp	11.2	11.2	
Solar circulating pump	480 3 ph ac	10 hp	11.2	11.2	
Centrifugal heat pump	480 3 ph ac	200 hp	191.2	191.2	
Centrifugal heat pump	480 3 ph ac	200 hp	191.2	191.2	
Vehicle battery chargers	480 3 ph ac	63 amp	50	50	
Lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	
Transformer for Lab and Instr. power	120/208 3 ph ac		112.5	112.5	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Internal airlock door	480 3 ph ac	2 hp	2.7	2.7	
Air compressor	480 3 ph ac	50 hp	51.7	51.7	
Power panel for 480V receptacles	480 3 ph ac	225 amp	179	179	
Crane 25 Ton load/unload	480 3 ph ac	40 hp	41.4	41.4	
Crane 25 Ton overpack & repair	480 3 ph ac	40 hp	41.4	41.4	
Crane 25 Ton load/unload	480 3 ph ac	40 hp	41.4	41.4	

.5 DF
177.5 KVA

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
Air exhaust fans					
east airlock (large)	480 3 ph ac	5 hp	5	6	
west airlock (large)	480 3 ph ac	5 hp	5	6	
east airlock (small)	480 3 ph ac	2 hp	2.7	2.7	
east airlock (small)	480 3 ph ac	2 hp	2.7	2.7	
Air supply fans					
main supply	480 3 ph ac	50 hp	51.7	51.7	
main supply	480 3 ph ac	50 hp	51.7	51.7	
main supply (spare)	480 3 ph ac	50 hp	51.7	-	
Overpack and Labs	480 3 ph ac	15 hp	16.7	16.7	
Offices supply	480 3 ph ac	10 hp	11.2	11.2	
Filter house	480 3 ph ac	2 hp	2.7	2.7	
Offices exhaust	480 3 ph ac	5 hp	6	6	
			1552.9		
		Subtotal Normal Loads		1280.8	
		Subtotal Vital Loads		477.2	477.2
		TOTAL TRU WASTE FACILITY LOADS		1758.0	477.2

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>ADMINISTRATION FACILITY - VITAL LOADS</u>					
Computer room chiller	480 3 ph ac	15 hp	16.7	16.7	16.7
Computer room chiller (spare)	480 3 ph ac	15 hp	16.7	-	-
Air compressor	480 3 ph ac	25 hp	27.1	27.1	27.1
Street and perimeter lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	79.6
Security lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	79.6
Transformer serving 120/208V loads	120/208 3 ph ac		30	30	30
Chilled water circulating pump	480 3 ph ac	2 hp	2.7	2.7	2.7
Chilled water circulating pump (spare)	480 3 ph ac	2 hp	2.7	-	-
Operations area supply fan	480 3 ph ac	7½ hp	8.8	8.8	8.8
Operations area exhaust fan	480 3 ph ac	5 hp	6	6	6
Operations area recirculating fan	480 3 ph ac	1 hp	1.4	1.4	1.4
Operations area recirculating fan	480 3 ph ac	1	1.4	1.4	1.4
Subtotal Administration Facility Vital Loads			272.7	145.1	145.1

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>ADMINISTRATION FACILITY-</u>					
<u>NORMAL LOADS</u>					
Air supply fan	480 3 ph ac	40 hp	41.4	41.4	
Air exhaust fans	480 3 ph ac	5 hp	6	6	
Air exhaust fans	480 3 ph ac	20 hp	21.5	21.5	
Air exhaust fans	480 3 ph ac	3 hp	3.8	3.8	
Air exhaust fans	480 3 ph ac	3 hp	3.8	3.8	
Air supply fans	480 3 ph ac	5 hp	6	6	
Air supply fans	480 3 ph ac	5 hp	6	6	
Air supply fan	480 3 ph ac	7½ hp	8.8	8.8	
Air supply fan	480 3 ph ac	7½ hp	8.8	8.8	
Air recirculating fan	480 3 ph ac	10 hp	11.2	11.2	
Solar circulating pump	480 3 ph ac	2 hp	2.7	2.7	
Solar circulating pump	480 3 ph ac	2 hp	2.7	2.7	
Cooling tower fan	480 3 ph ac	5 hp	6	6	
Cooling tower fan	480 3 ph ac	5 hp	6	6	
Chilled water pump	480 3 ph ac	10 hp	11.2	11.2	
Chilled water pump	480 3 ph ac	10 hp	11.2	11.2	
Hot water circulating pump	480 3 ph ac	5 hp	6	6	
Hot water circulating pump	480 3 ph ac	5 hp	6	6	
Reciprocating heat pump	480 3 ph ac	75 hp	76.5	76.5	
Reciprocating heat pump	480 3 ph ac	75 hp	76.5	76.5	
Cooling tower pump	480 3 ph ac	10 hp	11.2	11.2	
Cooling tower pump	480 3 ph ac	10 hp	11.2	11.2	
Hot water supply pump	480 3 ph ac	5 hp	6	6	
Hot water supply pump	480 3 ph ac	5 hp	6	6	
Air compressor		25 hp	27.1	27.1	
Lighting panel	277/480 3 ph ac	100 amp	79.6	79.6	
Transformer supplying 120/208V loads	120/208 3 ph ac		<u>112.5</u>	<u>112.5</u>	
	Subtotal Normal Loads		575.7	575.7	
	Subtotal Vital Loads			<u>145.1</u>	<u>145.1</u>
TOTAL ADMINISTRATION FACILITY LOADS				720.8	145.1

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System</u> <u>Voltage</u>	<u>Rating</u>	<u>Connected</u> <u>Load</u> <u>(KVA)</u>	<u>Normal</u> <u>Load</u> <u>(KVA)</u>	<u>Emergency</u> <u>Load</u> <u>(KVA)</u>
<u>MINE CONSTRUCTION VENT EXHAUST</u> <u>FANS</u>					
Mine exhaust fan	480 3 ph ac	150 hp	148.9	148.9	
Mine exhaust fan	480 3 ph ac	150 hp	148.9	148.9	
Mine exhaust fan	480 3 ph ac	150 hp	148.9	148.9	
TOTAL CONSTRUCTION VENT FANS			446.7	446.7	

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>Man/Material Bldg. (Normal)</u>					
Lighting panel	270/480 3 ph ac	50 amp	39.8	39.8	
Conveyor motor	480 3 ph ac	25 hp	27.1	27.1	
Conveyor motor	480 3 ph ac	25 hp	27.1	27.1	
Conveyor motor	480 3 ph ac	25 hp	27.1	27.1	
Conveyor motor	480 3 ph ac	25 hp	27.1	27.1	
Air supply/Return/Exhaust Fans	480 3 ph ac	13 hp	15	15	
Transformer for receptacle power	120/208 3 ph ac		9	9	
TOTAL MAN/MATERIAL BUILDING			172.2	172.2	-
<u>Mine storage filter Bldg. (Vital) Loads</u>					
Vent fan	480 3 ph ac	175 hp	173.8	173.8	173.8
Vent fan	480 3 ph ac	175 hp	173.8	173.8	173.8
Vent fan	480 3 ph ac	175 hp	173.8	173.8	173.8
Vent fan	480 3 ph ac	175 hp	173.8	173.8	173.8
Subtotal Vital Loads			695.2	695.2	695.2
<u>Mine storage filter Bldg. (Normal) Loads</u>					
Transformer serving receptacle power	120/208 3 ph ac		9	9	
Lighting panel	277/480 3 ph ac	50 amp	39.8	39.8	
Service to sewage treatment Bldg.	480 3 ph ac	100 amp	79.6	79.6	
Subtotal Normal Loads			128.4	128.4	-
Subtotal Vital Loads				695.2	695.2
TOTAL MINE STORAGE FILTER BUILDING LOADS				823.6	695.2

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>Suspect Waste Laundry - Normal Loads</u>					
Air supply fan	480 3 ph ac	7½ hp	8.8	8.8	
Air exhaust fan	480 3 ph ac	20 hp	21.5	21.5	
Air exhaust fan (spare)	480 3 ph ac	20 hp	21.5	21.5	
Lighting panel	277/480 3 ph ac	50 amp	39.6	39.6	
Air compressor	480 3 ph ac	25 hp	27.1	27.1	
Power panel (receptacle)	120/208 3 ph ac	9	9	9	
Laundry machine		2 hp	2.7	2.7	.5 DF
Laundry machine		2 hp	2.7	2.7	67.8 KVA
Drying machine		2 hp	2.7	2.7	
Radwaste pumps	480 3 ph ac	50 hp	51.7	51.7	
TOTAL SUSPECT WASTE LAUNDRY BUILDING			187.3	119.6	-
<u>Mine Hoist Buildings-Vital Loads</u>					
Mine hoist motor (RH)	4160 3 ph ac	700 hp	668.5	668.5	668.5
Mine hoist motor (TRU)	4160 3 ph ac	800 hp	780	780	780
Subtotal Vital Loads			1448.5	1448.5	724.3
<u>Mine Hoist Buildings-Normal Loads</u>					
Mine hoist motor (M/M)	4160 3 ph ac	1800 hp	1755	1755	
Mine hoist motor (M/M)	4160 3 ph ac	500 hp	487	487	
Transformer serving miscellaneous loads	277/480 3 ph ac		150	150	
Supply/exhaust fans	480 3 ph ac	129 hp	150	150	
Subtotal Normal Loads			2542.0	2542.0	
Subtotal Vital Loads				1448.5	724.3
TOTAL MINE HOIST BUILDING LOADS				3990.5	724.3

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>	
<u>West Water Tank-Vital Loads</u>						
Water tank pump	480 3 ph ac	50 hp	51.7	51.7	51.7	} .5 DF 34.7 KVA
Water tank pump	480 3 ph ac	7½ hp	8.8	8.8	8.8	
Sewage boost pump	480 3 ph ac	7½ hp	8.8	8.8	8.8	
				KVA		
Sewage boost pump	480 3 ph ac	7½ hp	8.8	8.8	8.8	} .5 DF 110.7 KVA
Fire pump	480 3 ph ac	200 hp	191	191.0	191	
				KVA		
Kicker pump	480 3 ph ac	20 hp	21.5	21.5	21.5	
<u>East Water Tank-Vital Loads</u>						
Water tank pump	480 3 ph ac	7½ hp	3.8	8.8	8.8	
Water tank pump	480 3 ph ac	50 hp	51.7	51.7	51.7	
Fire pump	480 3 ph ac	200 hp	191	191.0	191	
Kicker pump	480 3 ph ac	20 hp	21.5	21.5	21.5	
TOTAL WATER SYSTEM PUMP LOADS			563.6	418.4	418.4	
<u>Mine Loads</u>						
<u>Upper Level- Vital Loads</u>						
Lighting panel/shops/fans	277/480 3 ph ac	225 amp	179	179	179	} .5 DF 185 KVA
Sump pump	480 3 ph ac	200 hp	191	191	191	
			370	185	185	
<u>Upper Level-Normal Loads</u>						
Mining machine	4160 3 ph ac	1500 hp	1335.5	1335.5		
Mining machine	4160 3 ph ac	1500 hp	1335.5	1335.5		
Face conveyor	480 3 ph ac	260 hp	231.4	231.4		
Main conveyor	4160 3 ph ac	800 hp	712	712		
Transformer serving DC equipment	4160 3 ph ac		250	250		
Subtotal Normal Loads			3864.4	3864.4		
Subtotal Vital Loads				185	185	
TOTAL UPPER LEVEL MINE SUBSTATION				4049.4		

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>Mine Substation</u>					
<u>Lower Level- Vital Loads</u>					
Experimental heater	480 3 ph ac	276 amp	229.2	229.2	229.2
Experimental heater	480 3 ph ac	276 amp	229.2	229.2	229.2
Experimental heater	480 3 ph ac	276 amp	229.2	229.2	229.2
Experimental heater	480 3 ph ac	276 amp	229.2	229.2	229.2
Experimental heater	480 3 ph ac	276 amp	229.2	229.2	229.2
Experimental heater	480 3 ph ac	276 amp	229.2	229.2	229.2
Sump pump	480 3 ph ac	200 hp	191	186.5	186.5
Sump pump		200 hp	191	186.5	186.5
Lighting panel/shops/fans	277/480 3 ph ac	100 amp	79.6	79.6	79.6
Lighting panel/shops/fans	277/480 3 ph ac	100 amp	79.6	79.6	79.6
Transformer serving computer	120/208 3 ph ac		30	30	30
			1946.4	1751.4	1751.4
<u>Lower Level- Normal Loads</u>					
Mining Machine	4160 3 ph ac	1500 hp	1335.5	1335.5	
Mining Machine	4160 3 ph ac	1500 hp	1335.5	1335.5	
Face conveyor	480 3 ph ac	260 hp	231.4	231.4	
Main conveyor	4160 3 ph ac	800 hp	712.0	712.0	
Transformer serving DC equipment			250	250	
			3864.4	3864.4	
				1751.5	1751.4
Subtotal Normal Loads			3864.4	3864.4	
Subtotal Vital Loads				1751.5	1751.4
TOTAL LOWER LEVEL MINE SUBSTATION				5615.8	

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>Standby Generator Bldg. - Vital Loads</u>					
Lighting panel	277/480 3 ph ac	50 amp	39.6	39.5	39.6
Transformer for misc. loads	120/208 3 ph ac		75	75	75
Generator 1					
Bearing cooler pump	480 3 ph ac	3 hp	3.8		3.8
Radiator fan	480 3 ph ac	60 hp	61.3		61.3
Lube oil cooler pump	480 3 ph ac	5 hp	6		6
Generator 2					
Bearing cooler pump	480 3 ph ac	3 hp	3.8		3.8
Radiator fan	480 3 ph ac	60 hp	61.3		61.3
Lube oil cooler pump	480 3 ph ac	5 hp	6		6
Generator 3					
Bearing cooler pump	480 3 ph ac	3 hp	3.8		
Radiator fan	480 3 ph ac	60 hp	61.3		
Lube oil cooler pump	480 3 ph ac	5 hp	6		
Fuel pump	480 3 ph ac	10 hp	11.2	11.2	11.2
Fuel pump (spare)	480 3 ph ac	10 hp	11.2		
TOTAL STANDBY GENERATOR BUILDING LOADS			350.3	125.8	268.0
Surface Salt Conveyor	4160 3 ph ac	450 hp	336	336	-
TOTAL SALT CONVEYOR				336	
<u>Vehicle Maintenance Facility - Normal Loads</u>					
Evaporative cooler	480 3 ph ac	2 hp	2.7	2.7	
Air/compressor	480 3 ph ac	25 hp	27.1	27.1	
Lighting panel	120/208 3 ph ac	-	9	9	
Emergency lighting panel	480 3 ph ac	-	5	5	
TOTAL VEHICLE MAINTENANCE FACILITY			43.8	43.8	

ELECTRICAL LOAD SUMMARY

<u>Description</u>	<u>System Voltage</u>	<u>Rating</u>	<u>Connected Load (KVA)</u>	<u>Normal Load (KVA)</u>	<u>Emergency Load (KVA)</u>
<u>Warehouse/shops - Normal Loads</u>					
Shop area supply fan	480 3 ph ac	25 hp	27.1	27.1	
Shop area exhaust fan	480 3 ph ac	50 hp	51.7	51.7	
Office area supply fan	480 3 ph ac	4 hp	4.4	4.4	
Office area exhaust fan	480 3 ph ac	2 hp	2.7	2.7	
Miscellaneous service	277/480 3 ph ac	100 amp	<u>79.6</u>	<u>79.6</u>	
TOTAL WAREHOUSE/SHOPS			165.5	165.5	