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APS10A NAC 1A - Battery Calculation									
POWER SUPPLY DESIGNATOR	NAC	POWER SUPPLY PREFIX	1A	STANDBY DURATION REQUIRED (HRS)	4				
PANEL LOCATION	LEVEL 1				ALARM RING TIME REQUIRED (MIN)	15			
AREA SERVED	LEVEL 1				Spare Capacity (%)	25%			
POWER SUPPLY BASE LOAD/AUXILIARY POWER OUTPUT									
PART #	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
APS10A	AUXILIARY BOOSTER POWER SUPPLY	1	70	70	270	270			
APS ALX	BPS CIRCUITS SET TO ALX OUTPUT	1	35	35	35	35			
SIGA-CT1	DUAL INPUT MODULE	1	0.396	0.396	0.68	0.68			
NAC/AUX OUTPUTS									
NAC/AUX OUTPUTS	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
1	AUX. POWER ASD FW-1.1, ASD FW-1.2, ASD FW-1.3		1733		1868				
2	SPARE SPARE		0		0				
3	SPARE SPARE		0		0				
4	SPARE SPARE		0		0				
					SUBTOTAL SUPERVISORY CURRENT (AMPS):	1.838			
					TOTAL SUPERVISORY CURRENT WITH STANDBY (AMPS):	7.354			
					SUBTOTAL ALARM CURRENT (AMPS):	2.174			
					TOTAL ALARM CURRENT WITH ALARM RING TIME (AMPS):	0.543			
					SPARE CAPACITY:	25%			
					TOTAL AMP HOUR REQUIRED (AMPS):	9.871			
					BATTERY SIZE REQUIRED (AH):	10			
					BATTERY CABINET PROVIDED:	NO			
CIRCUIT N1A-1 - AUX. POWER SUMMARY									
CIRCUIT TYPE		AUX. POWER							
DESCRIPTION		ASD FW-1.1, ASD FW-1.2, ASD FW-1.3							
POWER SUPPLY INFORMATION					CABLE PROPERTIES				
NOMINAL STARTING VOLTAGE (Vdc)	19.7	LOAD FACTOR (LF)	0.59	WIRE GAUGE (AWG)	14				
MINIMUM DEVICE VOLTAGE (Vdc)	16	VOLTAGE W/LOAD FACTOR (VDC)	18.59788	Ω PER 1K FEET (OHMS)	3.07				
TOTAL SUPERVISORY CURRENT (AMPS)	1.733	TOTAL ALARM CURRENT (AMPS)	1.868						
PART #	DEVICE	QTY	STANDBY CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
VEP-A10-P (F5)	VESDA-E, ASPIRATOR @ FAN SETTING 5	1	417	417	484	484			
VEU-A10	VESDA-E VEU	2	658	1316	692	1384			

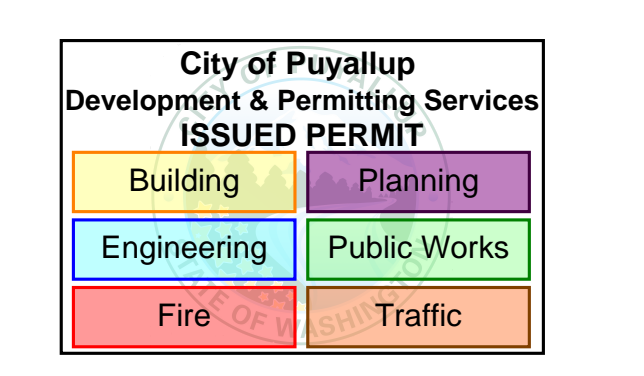
APS10A NAC 1B - Battery Calculation									
POWER SUPPLY DESIGNATOR	NAC	POWER SUPPLY PREFIX	1B	STANDBY DURATION REQUIRED (HRS)	4				
PANEL LOCATION	LEVEL 1				ALARM RING TIME REQUIRED (MIN)	15			
AREA SERVED	LEVEL 1				Spare Capacity (%)	25%			
POWER SUPPLY BASE LOAD/AUXILIARY POWER OUTPUT									
PART #	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
APS10A	AUXILIARY BOOSTER POWER SUPPLY	1	70	70	270	270			
APS ALX	BPS CIRCUITS SET TO ALX OUTPUT	1	35	35	35	35			
SIGA-CT1	DUAL INPUT MODULE	1	0.396	0.396	0.68	0.68			
NAC/AUX OUTPUTS									
NAC/AUX OUTPUTS	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
1	AUX. POWER ASD FW-2.1, ASD FW-2.2, ASD FW-2.3		1733		1868				
2	SPARE SPARE		0		0				
3	SPARE SPARE		0		0				
4	SPARE SPARE		0		0				
					SUBTOTAL SUPERVISORY CURRENT (AMPS):	1.838			
					TOTAL SUPERVISORY CURRENT WITH STANDBY (AMPS):	7.354			
					SUBTOTAL ALARM CURRENT (AMPS):	2.174			
					TOTAL ALARM CURRENT WITH ALARM RING TIME (AMPS):	0.543			
					SPARE CAPACITY:	25%			
					TOTAL AMP HOUR REQUIRED (AMPS):	9.871			
					BATTERY SIZE REQUIRED (AH):	10			
					BATTERY CABINET PROVIDED:	NO			
CIRCUIT N1B-1 - AUX. POWER SUMMARY									
CIRCUIT TYPE		AUX. POWER							
DESCRIPTION		ASD FW-2.1, ASD FW-2.2, ASD FW-2.3							
POWER SUPPLY INFORMATION					CABLE PROPERTIES				
NOMINAL STARTING VOLTAGE (Vdc)	19.7	LOAD FACTOR (LF)	0.59	WIRE GAUGE (AWG)	14				
MINIMUM DEVICE VOLTAGE (Vdc)	16	VOLTAGE W/LOAD FACTOR (VDC)	18.59788	Ω PER 1K FEET (OHMS)	3.07				
TOTAL SUPERVISORY CURRENT (AMPS)	1.733	TOTAL ALARM CURRENT (AMPS)	1.868						
PART #	DEVICE	QTY	STANDBY CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
VEP-A10-P (F5)	VESDA-E, ASPIRATOR @ FAN SETTING 5	1	417	417	484	484			
VEU-A10	VESDA-E VEU	2	658	1316	692	1384			

APS10A NAC 1C - Battery Calculation									
POWER SUPPLY DESIGNATOR	NAC	POWER SUPPLY PREFIX	1C	STANDBY DURATION REQUIRED (HRS)	4				
PANEL LOCATION	LEVEL 1				ALARM RING TIME REQUIRED (MIN)	15			
AREA SERVED	LEVEL 1				Spare Capacity (%)	25%			
POWER SUPPLY BASE LOAD/AUXILIARY POWER OUTPUT									
PART #	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
APS10A	AUXILIARY BOOSTER POWER SUPPLY	1	70	70	270	270			
APS ALX	BPS CIRCUITS SET TO ALX OUTPUT	1	35	35	35	35			
SIGA-CT1	DUAL INPUT MODULE	1	0.396	0.396	0.68	0.68			
NAC/AUX OUTPUTS									
NAC/AUX OUTPUTS	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
1	AUX. POWER BATT-1, UPS-1		734		800				
2	SPARE SPARE		0		0				
3	SPARE SPARE		0		0				
4	SPARE SPARE		0		0				
					SUBTOTAL SUPERVISORY CURRENT (AMPS):	0.839			
					TOTAL SUPERVISORY CURRENT WITH STANDBY (AMPS):	3.358			
					SUBTOTAL ALARM CURRENT (AMPS):	1.106			
					TOTAL ALARM CURRENT WITH ALARM RING TIME (AMPS):	0.276			
					SPARE CAPACITY:	25%			
					TOTAL AMP HOUR REQUIRED (AMPS):	4.543			
					BATTERY SIZE REQUIRED (AH):	7			
					BATTERY CABINET PROVIDED:	NO			
CIRCUIT N1C-1 - AUX. POWER SUMMARY									
CIRCUIT TYPE		AUX. POWER							
DESCRIPTION		BATT-1, UPS-1							
POWER SUPPLY INFORMATION					CABLE PROPERTIES				
NOMINAL STARTING VOLTAGE (Vdc)	19.7	LOAD FACTOR (LF)	0.59	WIRE GAUGE (AWG)	14				
MINIMUM DEVICE VOLTAGE (Vdc)	16	VOLTAGE W/LOAD FACTOR (VDC)	19.228	Ω PER 1K FEET (OHMS)	3.07				
TOTAL SUPERVISORY CURRENT (AMPS)	0.734	TOTAL ALARM CURRENT (AMPS)	0.800						
PART #	DEVICE	QTY	STANDBY CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
VEP-A00-1P	VESDA-E, ASPIRATOR @ FIXED RPM	2	367	734	400	800			

APS10A NAC 1D - Battery Calculation									
POWER SUPPLY DESIGNATOR	NAC	POWER SUPPLY PREFIX	1D	STANDBY DURATION REQUIRED (HRS)	4				
PANEL LOCATION	LEVEL 1				ALARM RING TIME REQUIRED (MIN)	15			
AREA SERVED	LEVEL 1				Spare Capacity (%)	25%			
POWER SUPPLY BASE LOAD/AUXILIARY POWER OUTPUT									
PART #	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
APS10A	AUXILIARY BOOSTER POWER SUPPLY	1	70	70	270	270			
APS ALX	BPS CIRCUITS SET TO ALX OUTPUT	1	35	35	35	35			
SIGA-CT1	DUAL INPUT MODULE	1	0.396	0.396	0.68	0.68			
NAC/AUX OUTPUTS									
NAC/AUX OUTPUTS	DESCRIPTION	QTY.	SUPV. CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
1	AUX. POWER ASD FW-1.1, ASD FW-1.2, ASD FW-1.3		1733		1868				
2	SPARE SPARE		0		0				
3	SPARE SPARE		0		0				
4	SPARE SPARE		0		0				
					SUBTOTAL SUPERVISORY CURRENT (AMPS):	1.838			
					TOTAL SUPERVISORY CURRENT WITH STANDBY (AMPS):	7.354			
					SUBTOTAL ALARM CURRENT (AMPS):	2.174			
					TOTAL ALARM CURRENT WITH ALARM RING TIME (AMPS):	0.543			
					SPARE CAPACITY:	25%			
					TOTAL AMP HOUR REQUIRED (AMPS):	9.871			
					BATTERY SIZE REQUIRED (AH):	10			
					BATTERY CABINET PROVIDED:	NO			
CIRCUIT N1D-1 - AUX. POWER SUMMARY									
CIRCUIT TYPE		AUX. POWER							
DESCRIPTION		ASD FW-1.1, ASD FW-1.2, ASD FW-1.3							
POWER SUPPLY INFORMATION					CABLE PROPERTIES				
NOMINAL STARTING VOLTAGE (Vdc)	19.7	LOAD FACTOR (LF)	0.59	WIRE GAUGE (AWG)	14				
MINIMUM DEVICE VOLTAGE (Vdc)	16	VOLTAGE W/LOAD FACTOR (VDC)	18.59788	Ω PER 1K FEET (OHMS)	3.07				
TOTAL SUPERVISORY CURRENT (AMPS)	1.733	TOTAL ALARM CURRENT (AMPS)	1.868						
PART #	DEVICE	QTY	STANDBY CURRENT (mA)		ALARM CURRENT (mA)				
			EACH	TOTAL	EACH	TOTAL			
VEP-A10-P (F5)	VESDA-E, ASPIRATOR @ FAN SETTING 5	1	417	417	484	484			
VEU-A10	VESDA-E VEU	2	658	1316	692	1384			

NOTE:
CALCULATIONS ASSUME POWER SUPPLIES ARE SUPPORTED BY AN EMERGENCY GENERATOR CAPABLE OF 24 HOURS OF RUNTIME.
IF GENERATOR SUPPORTED CIRCUITS ARE NOT AVAILABLE< ADDITIONAL POWER SUPPLIES ARE REQUIRED.

IF DRAWING IS NOT 30" x 42" IT IS A SCALED COPY



REV	JOB# - DESCRIPTION	DATE	BY
0	ISSUED FOR PERMIT	04/15/2024	JU

DRAWN BY: OBADIAN B.
PROJECT DESIGNER: JACOB U.
PROJECT MANAGER: CHARLEY W.
JOB NUMBER: 1903-00029129
SCALE: AS SHOWN DATE: 04/11/2024

CENTERIS DATACENTER
1ST FLOOR VESDA UPDATES
1023 39TH AVE SE
PUYALLUP, WA, 98374

CALCULATIONS
FIRE ALARM SYSTEM

DRAWING:
FA-5-1