	A	B	C	D	E	F	G	H	I
1				***THSR (MI-65UG) Horn and Target RAW, Target Air PLC***					
2				**THSR-LCW-PLC 131.225.124.228 Station 05**					
3				**THSR-LCW-OI 131.225.124.246 Station 08**					
4				8 slot main base plus 3 8 slot local expansion bases. 10" TFT OI.					
5				Andy page 630-266-0148 Analog Outs 2401-2500					
6							Base-		
7	ACNET Tag	PLC Adr	Format	Description	Type	Device	Slot	CNL/ADR	Range
8									
9				**THSR Analog Inputs:**					
10		VX0	Word	X17:0		F4-16AD-1			
11	E:H1RP01	V10000	IEEE	Horn 1 RAW Pump Discharge Pressure	4-20 mA	F4-16AD-1	0-1	1	0-400 psig
12	E:H1RP02	V10001	IEEE	Horn 1 RAW Supply Pressure	4-20 mA	F4-16AD-1	0-1	2	0-400 psig
13	E:H1RP03	V10002	IEEE	Horn 1 RAW Pump Suction Pressure	4-20 mA	F4-16AD-1	0-1	3	0-400 psig
14	E:H1RT01	V10003	IEEE	Horn 1 RAW Water Supply Temperature (retransmit from 535)	4-20 mA	F4-16AD-1	0-1	4	-40 to 160F
15	E:H1RT02	V10004	IEEE	Horn 1 RAW Water Return Temperature	4-20 mA	F4-16AD-1	0-1	5	-40 to 160F
16	E:H1RL01	V10005	IEEE	Horn 1 RAW Water Expansion Tank Level	4-20 mA	F4-16AD-1	0-1	6	0-36 in
17	E:H1RR01	V10006	IEEE	Horn 1 RAW Resistivity out of the DI Bottle (from Thorton meter)	4-20 mA	F4-16AD-1	0-1	7	0-18 Mohm
18	E:H1RP04	V10007	IEEE	Horn 1 RAW Expansion Tank Pressure	4-20 mA	F4-16AD-1	0-1	8	0-400 psig
19	E:H2RP01	V10010	IEEE	Horn 2 RAW Pump Discharge Pressure	4-20 mA	F4-16AD-1	0-1	9	0-400 psig
20	E:H2RP02	V10011	IEEE	Horn 2 RAW Supply Pressure	4-20 mA	F4-16AD-1	0-1	10	0-400 psig
21	E:H2RP03	V10012	IEEE	Horn 2 RAW Pump Suction Pressure	4-20 mA	F4-16AD-1	0-1	11	0-400 psig
22	E:H2RT01	V10013	IEEE	Horn 2 RAW Water Supply Temperature (retransmit from 535)	4-20 mA	F4-16AD-1	0-1	12	-40 to 160F
23	E:H2RT02	V10014	IEEE	Horn 2 RAW Water Return Temperature	4-20 mA	F4-16AD-1	0-1	13	-40 to 160F
24	E:H2RL01	V10015	IEEE	Horn 2 RAW Water Expansion Tank Level	4-20 mA	F4-16AD-1	0-1	14	0-36 in
25	E:H2RR01	V10016	IEEE	Horn 2 RAW Resistivity out of the DI Bottle (from Thornton meter)	4-20 mA	F4-16AD-1	0-1	15	0-18 Mohm
26	E:H2RP04	V10017	IEEE	Horn 2 RAW Expansion Tank Pressure	4-20 mA	F4-16AD-1	0-1	16	0-400 psig
27									
28		VX20	Word	X37:20		F4-16AD-1			
29	E:TBRP01	V10020	IEEE	Target RAW Pump Discharge Pressure	4-20 mA	F4-16AD-1	0-2	1	0-400 psig
30	E:TBRP02	V10021	IEEE	Target RAW Return Pressure	4-20 mA	F4-16AD-1	0-2	2	0-400 psig
31		V10022	IEEE	(spare) (was tgt RAW He leak det E:BTHP03)	4-20 mA	F4-16AD-1	0-2	3	
32	E:TBRT01	V10023	IEEE	Target RAW Water Supply Temperature	4-20 mA	F4-16AD-1	0-2	4	-40 to 160F
33	E:TBRT02	V10024	IEEE	Target RAW Water Return Temperature	4-20 mA	F4-16AD-1	0-2	5	-40 to 160F
34	E:TBRL01	V10025	IEEE	Target RAW Water Expansion Tank Level	4-20 mA	F4-16AD-1	0-2	6	0-24 in
35	E:TBRR01	V10026	IEEE	Target RAW Resistivity out of the DI Bottle (from Thornton meter)	4-20 mA	F4-16AD-1	0-2	7	0-18 Mohm
36	E:TBRP04	V10027	IEEE	Target RAW Expansion Tank Pressure	4-20 mA	F4-16AD-1	0-2	8	0-400 psig
37	E:DURP01	V10030	IEEE	Upstream Decay Pipe RAW Pump Return Pressure	4-20 mA	F4-16AD-1	0-2	9	0-400 psig
38	E:DURP02	V10031	IEEE	Upstream Decay Pipe RAW Pump Supply Pressure	4-20 mA	F4-16AD-1	0-2	10	0-400 psig
39		V10032	IEEE	(spare)	4-20 mA	F4-16AD-1	0-2	11	
40	E:DURT01	V10033	IEEE	Upstream Decay Pipe RAW Water Supply Temperature	4-20 mA	F4-16AD-1	0-2	12	-40 to 160F
41	E:DURT02	V10034	IEEE	Upstream Decay Pipe RAW Water Return Temperature	4-20 mA	F4-16AD-1	0-2	13	-40 to 160F
42	E:DURL01	V10035	IEEE	Upstream Decay Pipe RAW Water Expansion Tank Level	4-20 mA	F4-16AD-1	0-2	14	0-36 in
43		V10036	IEEE	(spare)	4-20 mA	F4-16AD-1	0-2	15	
44	E:DURP04	V10037	IEEE	Upstream Decay Pipe RAW Expansion Tank Pressure	4-20 mA	F4-16AD-1	0-2	16	0-400 psig
45									
46		VX60	Word	X77:X60					
47	E:TPCT01	V2610	Word	TJ0001 BTM CHANNEL FLOOR EAST	Thermo-J	F4-08THM-J	1-3	1	

	A	B	C	D	E	F	G	H	I
48	E:TPCT02	V2611	Word	TJ0002 BTM CHANNEL FLOOR MID	Thermo-J	F4-08THM-J	1-3	2	
49	E:TPCT03	V2612	Word	TJ0003 BTM CHANNEL FLOOR WEST	Thermo-J	F4-08THM-J	1-3	3	
50	E:TPCT04	V2613	Word	TJ0004 SIDE CHANNEL WALL EAST	Thermo-J	F4-08THM-J	1-3	4	
51	E:TPCT05	V2614	Word	TJ0005 SIDE CHANNEL WALL WEST	Thermo-J	F4-08THM-J	1-3	5	
52	E:TPCT06	V2615	Word	TJ0006 BLUE BLK AT HORN 1 EAST	Thermo-J	F4-08THM-J	1-3	6	
53	E:TPCT07	V2616	Word	TJ0007 BLUE BLK AT HORN 1 WEST	Thermo-J	F4-08THM-J	1-3	7	
54	E:TPCT08	V2617	Word	TJ0008 HORN 1 CARRIAGE BEAM	Thermo-J	F4-08THM-J	1-3	8	
55									
56		VX100	Word	X117:X100					
57	E:TPCT09	V2620	Word	TJ0009 AIR ABOVE HORN 1 MODULE	Thermo-J	F4-08THM-J	1-4	1	
58	E:BTHT01	V2621	Word	TJ0010	Thermo-J	F4-08THM-J	1-4	2	
59	E:BTHT02	V2622	Word	TJ0011	Thermo-J	F4-08THM-J	1-4	3	
60	E:BTHT03	V2623	Word	TJ0016	Thermo-J	F4-08THM-J	1-4	4	
61		V2624	Word	TJ0017	Thermo-J	F4-08THM-J	1-4	5	
62	E:BTHT04	V2625	Word	TJ0018	Thermo-J	F4-08THM-J	1-4	6	
63	E:BTHT05	V2626	Word	TJ0019	Thermo-J	F4-08THM-J	1-4	7	
64	E:BTHT06	V2627	Word	TJ0020	Thermo-J	F4-08THM-J	1-4	8	
65									
66		VX120	Word	X137:X120					
67	E:BTHT07	V2630	Word	TJ0021	Thermo-J	F4-08THM-J	1-5	1	
68	E:BTHT08	V2631	Word	TJ0022	Thermo-J	F4-08THM-J	1-5	2	
69	E:BTHT09	V2632	Word	TJ0023	Thermo-J	F4-08THM-J	1-5	3	
70	E:BTHT10	V2633	Word	TJ0024	Thermo-J	F4-08THM-J	1-5	4	
71		V2634	Word	TJ0025	Thermo-J	F4-08THM-J	1-5	5	
72		V2635	Word	TJ0026	Thermo-J	F4-08THM-J	1-5	6	
73	E:BTHT11	V2636	Word	TJ0027	Thermo-J	F4-08THM-J	1-5	7	
74	E:BTHT12	V2637	Word	TJ0028	Thermo-J	F4-08THM-J	1-5	8	
75									
76		VX140	Word	X157:X140					
77	E:BTHT13	V2640	Word	TJ0029	Thermo-J	F4-08THM-J	1-6	1	
78	E:BTHT14	V2641	Word	TJ0030	Thermo-J	F4-08THM-J	1-6	2	
79	E:BTHT15	V2642	Word	TJ0031	Thermo-J	F4-08THM-J	1-6	3	
80	E:BTHT16	V2643	Word	TJ0032	Thermo-J	F4-08THM-J	1-6	4	
81		V2644	Word	TJ0033	Thermo-J	F4-08THM-J	1-6	5	
82		V2645	Word	(spare)	Thermo-J	F4-08THM-J	1-6	6	
83		V2646	Word	(spare)	Thermo-J	F4-08THM-J	1-6	7	
84	E:TPCT90	V2647	Word	Chiller Compressor Discharge Temperature	Thermo-J	F4-08THM-J	1-6	8	
85									
86		VX200,220	Word	X237:X200 // MODULE IS PRESENT BUT NOT WIRED OR SCANNED					
87		V2660	Word	Unused (was Cooling Coil 1 Air Temp)	RTD	F4-08RTD	3-2	1	
88		V2661	Word	Unused (was Cooling Coil 2 Air Temp)	RTD	F4-08RTD	3-2	2	
89		V2662	Word	Unused (was Cooling Coil 3 Air Temp)	RTD	F4-08RTD	3-2	3	
90		V2663	Word	Unused (was Cooling Coil 4 Air Temp)	RTD	F4-08RTD	3-2	4	
91		V2664	Word	Unused (was Cooling Coil 5 Air Temp)	RTD	F4-08RTD	3-2	5	
92		V2665	Word	Unused (was Cooling Coil 6 Air Temp)	RTD	F4-08RTD	3-2	6	
93		V2666	Word	Unused (was Fan Discharge Temp)	RTD	F4-08RTD	3-2	7	
94		V2667	Word	Unused (was Return Air Temp)	RTD	F4-08RTD	3-2	8	

	A	B	C	D	E	F	G	H	I
95									
96		VX240,260	Word	X277:X240 // MODULE IS SET UP FOR 4 CHANNELS ONLY					
97	Wire TPCT24	V2670	Word	Glycol Supply Temp	RTD	F4-08RTD	3-3	1	
98	Wire TPCT25	V2671	Word	Glycol Return Temp	RTD	F4-08RTD	3-3	2	
99	Wire TPCT17-1	V2672	Word	Fan Discharge Temp	RTD	F4-08RTD	3-3	3	
100	Wire TPCT18	V2673	Word	Return Air Temp	RTD	F4-08RTD	3-3	4	
101		V2674	Word	(spare)	RTD	F4-08RTD	3-3	5	
102		V2675	Word	(spare)	RTD	F4-08RTD	3-3	6	
103		V2676	Word	(spare)	RTD	F4-08RTD	3-3	7	
104		V2677	Word	(spare)	RTD	F4-08RTD	3-3	8	
105									
106		VX160	Word	X177:X160					
107	Wire TPCT11-4	V10220	Word	TIC-11 Cooling Coil #1 Air Temp retransmit	4-20 mA	F4-16AD-1	3-1	1	0-100F
108	Wire TPCT12-4	V10221	Word	TIC-12 Cooling Coil #2 Air Temp retransmit	4-20 mA	F4-16AD-1	3-1	2	0-100F
109	Wire TPCT13-4	V10222	Word	TIC-13 Cooling Coil #3 Air Temp retransmit	4-20 mA	F4-16AD-1	3-1	3	0-100F
110	Wire TPCT14-4	V10223	Word	TIC-14 Cooling Coil #4 Air Temp retransmit	4-20 mA	F4-16AD-1	3-1	4	0-100F
111	Wire TPCT15-4	V10224	Word	TIC-15 Cooling Coil #5 Air Temp retransmit	4-20 mA	F4-16AD-1	3-1	5	0-100F
112	Wire TPCT16-4	V10225	Word	TIC-16 Cooling Coil #6 Air Temp retransmit	4-20 mA	F4-16AD-1	3-1	6	0-100F
113	Wire TPCT17-4	V10226	Word	TIC-17 retransmit	4-20 mA	F4-16AD-1	3-1	7	0-100%
114	Wire TPCT19-3	V10227	Word	Supply Air Temp	4-20 mA	F4-16AD-1	3-1	8	0-100F
115	Wire TPCT26	V10230	Word	Supply air temp tx (air temp measured at supply air rel humidity sensor)	4-20 mA	F4-16AD-1	3-1	9	-4.6 to 166.4 F
116	Wire TPCT27	V10231	Word	Supply Air Rel Humidity	4-20 mA	F4-16AD-1	3-1	10	0-100%RH
117	Wire TPCT28	V10232	Word	Return air temp tx (air temp measured at rtn air rel humidity sensor)	4-20 mA	F4-16AD-1	3-1	11	-4.6 to 166.4 F
118	Wire TPCT29	V10233	Word	Return Air Rel Humidity	4-20 mA	F4-16AD-1	3-1	12	0-100%RH
119	Wire TPCS37-1	V10234	Word	Tgt Pile Fan Speed	4-20 mA	F4-16AD-1	3-1	13	RPM
120	Wire TPCP58	V10235	Word	Fan discharge pressure-long term test	4-20 mA	F4-16AD-1	3-1	14	0-15 in WC
121	Wire TPCP59	V10236	Word	Fan Discharge Pressure	4-20 mA	F4-16AD-1	3-1	15	0-20 in WC
122	Wire TPCP60	V10237	Word	Fan Pressure Boost	4-20 mA	F4-16AD-1	3-1	16	0-20 in WC
123									
124		VX300	Word	X317:X300					
125	Wire TPCP50	V10240	Word	Prefilter 1 Delta P	4-20 mA	F4-16AD-1	3-4	1	0-2.5 in WC
126	Wire TPCP51	V10241	Word	Hi Eff Filter 1 Delta P	4-20 mA	F4-16AD-1	3-4	2	0-3 in WC
127	Wire TPCP52	V10242	Word	Prefilter 2 Delta P	4-20 mA	F4-16AD-1	3-4	3	0-2.5 in WC
128	Wire TPCP53	V10243	Word	Hi Eff Filter 2 Delta P	4-20 mA	F4-16AD-1	3-4	4	0-3 in WC
129	Wire TPCP54	V10244	Word	Prefilter 3 Delta P	4-20 mA	F4-16AD-1	3-4	5	0-2.5 in WC
130	Wire TPCP55	V10245	Word	Hi Eff Filter 3 Delta P	4-20 mA	F4-16AD-1	3-4	6	0-3 in WC
131	Wire TPCP56	V10246	Word	Prefilter 4 Delta P	4-20 mA	F4-16AD-1	3-4	7	0-2.5 in WC
132	Wire TPCP57	V10247	Word	Hi Eff Filter 4 Delta P	4-20 mA	F4-16AD-1	3-4	8	0-3 in WC
133	Wire TPCF71-2	V10250	Word	Fan Airflow Rate	4-20 mA	F4-16AD-1	3-4	9	1915-25500 ACFM
134	Wire TPCF72	V10251	Word	Glycol Coolant Flow	4-20 mA	F4-16AD-1	3-4	10	0-130GPM
135	Wire TPCS84	V10252	Word	Reheater Power	4-20 mA	F4-16AD-1	3-4	11	0-50kW
136	E:TPCL94	V10253	Word	Condensate Retention Tank Level	4-20 mA	F4-16AD-1	3-4	12	
137		V10254	Word	(spare)	4-20 mA	F4-16AD-1	3-4	13	
138		V10255	Word	Compressed Air Pressure (from xmtr at air compressor tank)	4-20 mA	F4-16AD-1	3-4	14	0-300psig
139	Conn #2 A-G	V10256	Word	Helium Pressure (Baratron) (E:BTHP01)(thru signal condx module)	4-20 mA	F4-16AD-1	3-4	15	0-30psia
140	Conn #2 C-D	V10257	Word	He Supply Pressure (E:BTHP02)(thru signal condx module)	4-20 mA	F4-16AD-1	3-4	16	0-2500 psi
141									

	A	B	C	D	E	F	G	H	I
142		VX360	Word	X377:X360 Chiller Temps					
143	E:TPCT40	V2750	Word	Chiller Evaporator Exit Circuit #1Temp	Thermo-T	F4-08THM-T	1-2	1	
144	E:TPCT41	V2751	Word	Chiller Evaporator Exit Circuit #2 Temp	Thermo-T	F4-08THM-T	1-2	2	
145	E:TPCT42	V2752	Word	Chiller Compressor Suction Temp	Thermo-T	F4-08THM-T	1-2	3	
146	E:TPCT43	V2753	Word	Chiller Compressor Discharge Temp	Thermo-T	F4-08THM-T	1-2	4	
147	E:TPCT44	V2754	Word	Chiller Hot Gas Bypass Temp	Thermo-T	F4-08THM-T	1-2	5	
148	E:TPCT45	V2755	Word	Chiller Subcooler Inlet Temp	Thermo-T	F4-08THM-T	1-2	6	
149	E:TPCT46	V2756	Word	Chiller Subcooler Outlet Temp	Thermo-T	F4-08THM-T	1-2	7	
150		V2757	Word	(spare)	Thermo-T	F4-08THM-T	1-2	8	
151									
152		VX400	Word	X400:X417 RAW Skid Flow Filter Differential Pressure Gauges	4-20 mA	F4-16AD-1	2-2		
153			Word		4-20 mA	F4-16AD-1	2-2	1	
154			Word		4-20 mA	F4-16AD-1	2-2	2	
155			Word		4-20 mA	F4-16AD-1	2-2	3	
156			Word		4-20 mA	F4-16AD-1	2-2	4	
157			Word		4-20 mA	F4-16AD-1	2-2	5	
158			Word		4-20 mA	F4-16AD-1	2-2	6	
159			Word		4-20 mA	F4-16AD-1	2-2	7	
160			Word		4-20 mA	F4-16AD-1	2-2	8	
161			Word		4-20 mA	F4-16AD-1	2-2	9	
162			Word		4-20 mA	F4-16AD-1	2-2	10	
163			Word		4-20 mA	F4-16AD-1	2-2	11	
164			Word		4-20 mA	F4-16AD-1	2-2	12	
165			Word		4-20 mA	F4-16AD-1	2-2	13	
166			Word		4-20 mA	F4-16AD-1	2-2	14	
167			Word		4-20 mA	F4-16AD-1	2-2	15	
168			Word		4-20 mA	F4-16AD-1	2-2	16	
169									
170				**THSR Analog Outputs:**					
171		VY40,60	Word	Y77:Y40					
172	Wire TPCT11-3	V10260	Word	Cooling Coil 1 Air Temp Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	1	0-100F
173	E:TPCL94	V10261	Word	Repeat of Condensate Tank Level for Fill Station Display	4-20 mA out	F4-16DA-1	2-1	2	
174	Wire TPCT12-3	V10262	Word	Cooling Coil 2 Air Temp Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	3	0-100F
175		V10263	Word	Unused (was Control signal to TCV-12)	4-20 mA out	F4-16DA-1	2-1	4	0-100%
176	Wire TPCT13-3	V10264	Word	Cooling Coil 3 Air Temp Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	5	0-100F
177		V10265	Word	Unused (was Control signal to TCV-13)	4-20 mA out	F4-16DA-1	2-1	6	0-100%
178	Wire TPCT14-3	V10266	Word	Cooling Coil 4 Air Temp Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	7	0-100F
179		V10267	Word	Unused (was Control signal to TCV-14)	4-20 mA out	F4-16DA-1	2-1	8	0-100%
180	Wire TPCT15-3	V10270	Word	Cooling Coil 5 Air Temp Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	9	0-100F
181		V10271	Word	Unused (was Control signal to TCV-15)	4-20 mA out	F4-16DA-1	2-1	10	0-100%
182	Wire TPCT16-3	V10272	Word	Cooling Coil 6 Air Temp Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	11	0-100F
183		V10273	Word	Unused (was Control signal to TCV-16)	4-20 mA out	F4-16DA-1	2-1	12	0-100%
184	Wire TPCT17-3	V10274	Word	TIC-17 Setpoint (not used)	4-20 mA out	F4-16DA-1	2-1	13	0-100F
185		V10275	Word	Unused	4-20 mA out	F4-16DA-1	2-1	14	0-100%
186	Wire TPCS36	V10276	Word	PLC speed control to SV9000 (E:TPCS36)	4-20 mA out	F4-16DA-1	2-1	15	0-1800RPM
187		V10277	Word	Unused (was Belimo North control)	4-20 mA out	F4-16DA-1	2-1	16	
188									

	A	B	C	D	E	F	G	H	I
189		VY100,120	Word	Y137:Y100 removed and replaced with ADC to accommodate differential pressure gauges	4-20 mA out	F4-16DA-1	2-2		
190									
191				**THSR Digital Inputs:**					
192	E:H1RI01	X40	Bit	Horn1 RAW A Pump Current Switch	24V AC/DC	D4-16NE3	0-7	A0	
193	E:H1RI02	X41	Bit	Horn1 RAW B Pump Current Switch	24V AC/DC	D4-16NE3	0-7	A1	
194	E:H2RI01	X42	Bit	Horn2 RAW A Pump Current Switch	24V AC/DC	D4-16NE3	0-7	A2	
195	E:H2RI02	X43	Bit	Horn2 RAW B Pump Current Switch	24V AC/DC	D4-16NE3	0-7	A3	
196	E:TBRI01	X44	Bit	Target RAW A Pump Current Switch	24V AC/DC	D4-16NE3	0-7	A4	
197	E:TBRI02	X45	Bit	Target RAW B Pump Current Switch	24V AC/DC	D4-16NE3	0-7	A5	
198		X46	Bit	(spare)	24V AC/DC	D4-16NE3	0-7	A6	
199		X47	Bit	(spare)	24V AC/DC	D4-16NE3	0-7	A7	
200	H2A-ON	X50	Bit	Horn2 RAW A Contactor On (via 110V:24V transformer)	24V AC/DC	D4-16NE3	0-7	B0	
201	H2B-ON	X51	Bit	Horn2 RAW B Contactor On (via 110V:24V transformer)	24V AC/DC	D4-16NE3	0-7	B1	
202	TGTA-ON	X52	Bit	Target RAW A Contactor On (via 110V:24V transformer)	24V AC/DC	D4-16NE3	0-7	B2	
203	TGTB-ON	X53	Bit	Target RAW B Contactor On (via 110V:24V transformer)	24V AC/DC	D4-16NE3	0-7	B3	
204	H1A-ON	X54	Bit	Horn1 RAW A Contactor On (via 110V:24V transformer)	24V AC/DC	D4-16NE3	0-7	B4	was x46
205	H1B-ON	X55	Bit	Horn1 RAW B Contactor On (via 110V:24V transformer)	24V AC/DC	D4-16NE3	0-7	B5	was x47
206		X56	Bit	(spare)	24V AC/DC	D4-16NE3	0-7	B6	
207		X57	Bit	(spare)	24V AC/DC	D4-16NE3	0-7	B7	
208									
209	Wire TPCS33	X320	Bit	Fermi Fan Interlock Made Up	DC Input	D4-16ND2F	3-5	A0	
210	Wire TPCS34	X321	Bit	SV9000 AFD On	DC Input	D4-16ND2F	3-5	A1	
211	Wire TPCS35	X322	Bit	SV9000 AFD Fault	DC Input	D4-16ND2F	3-5	A2	
212	Wire TPCS41	X323	Bit	Reheater Zone 1 Enabled	DC Input	D4-16ND2F	3-5	A3	
213	Wire TPCS42	X324	Bit	Reheater Zone 2 Enabled	DC Input	D4-16ND2F	3-5	A4	
214	Wire TPCS43	X325	Bit	Reheater Zone 3 Enabled	DC Input	D4-16ND2F	3-5	A5	
215	Wire TPCS44	X326	Bit	Reheater Zone 4 Enabled	DC Input	D4-16ND2F	3-5	A6	
216	Wire TPCP62	X327	Bit	Prefilter 1 DP HH	DC Input	D4-16ND2F	3-5	A7	
217	Wire TPCP63	X330	Bit	High Eff Filter 1 DP HH	DC Input	D4-16ND2F	3-5	B0	
218	Wire TPCP64	X331	Bit	Prefilter 2 DP HH	DC Input	D4-16ND2F	3-5	B1	
219	Wire TPCP65	X332	Bit	High Eff Filter 2 DP HH	DC Input	D4-16ND2F	3-5	B2	
220	Wire TPCP66	X333	Bit	Prefilter 3 DP HH	DC Input	D4-16ND2F	3-5	B3	
221	Wire TPCP67	X334	Bit	High Eff Filter 3 DP HH	DC Input	D4-16ND2F	3-5	B4	
222	Wire TPCP68	X335	Bit	Prefilter 4 DP HH	DC Input	D4-16ND2F	3-5	B5	
223	Wire TPCP69	X336	Bit	High Eff Filter 4 DP HH	DC Input	D4-16ND2F	3-5	B6	
224		X337	Bit	(spare)	DC Input	D4-16ND2F	3-5	B7	
225									
226	Wire TPCL73	X340	Bit	Glycol Tank Level	DC Input	D4-16ND2F	3-6	A0	
227	Wire TPCP74	X341	Bit	Glycol Tank Air Pres	DC Input	D4-16ND2F	3-6	A1	
228	Wire TPCS77	X342	Bit	Chiller Op Status	DC Input	D4-16ND2F	3-6	A2	
229	Wire TPCS80	X343	Bit	Glycol Pump 1 Op Status	DC Input	D4-16ND2F	3-6	A3	
230	Wire TPCS83	X344	Bit	Glycol Pump 2 Op Status	DC Input	D4-16ND2F	3-6	A4	
231	E:TPCL95	X345	Bit	Condensate Tank Level High	DC Input	D4-16ND2F	3-6	A5	
232	E:TPCL96	X346	Bit	Condensate Tank Level High High	DC Input	D4-16ND2F	3-6	A6	
233		X347	Bit	Drain Pan Corboy Level High	DC Input	D4-16ND2F	3-6	A7	
234		X350	Bit	(spare)	DC Input	D4-16ND2F	3-6	B0	

	A	B	C	D	E	F	G	H	I
235		X351	Bit	(spare)	DC Input	D4-16ND2F	3-6	B1	
236		X352	Bit	(spare)	DC Input	D4-16ND2F	3-6	B2	
237		X353	Bit	(spare)	DC Input	D4-16ND2F	3-6	B3	
238		X354	Bit	(spare)	DC Input	D4-16ND2F	3-6	B4	
239		X355	Bit	(spare)	DC Input	D4-16ND2F	3-6	B5	
240	Cable #2 B-H	X356	Bit	Vacuum Valve Open (E:BTHX01)	DC Input	D4-16ND2F	3-6	B6	
241	Cable #2 E-H	X357	Bit	Vacuum Valve Closed (E:BTHX02)	DC Input	D4-16ND2F	3-6	B7	
242									
243				**THSR Digital Outputs:**					
244	H1A-ILK	Y0	Bit	Horn1 RAW A Pump Interlock	NO Relay	F4-08TRS-2	0-3	0(Form C)	
245	H1B-ILK	Y1	Bit	Horn1 RAW B Pump Interlock	NO Relay	F4-08TRS-2	0-3	1(Form C)	
246	H1A-STP	Y2	Bit	Horn1 RAW A Pump STOP	NC Relay	F4-08TRS-2	0-3	2(Form C)	
247	H1B-STP	Y3	Bit	Horn1 RAW B Pump STOP	NC Relay	F4-08TRS-2	0-3	3(Form C)	
248	E:H1RS01	Y4	Bit	Horn1 RAW A Pump START	NO Relay	F4-08TRS-2	0-3	4(Form A)	
249	E:H1RS02	Y5	Bit	Horn1 RAW B Pump START	NO Relay	F4-08TRS-2	0-3	5(Form A)	
250	E:H1RE01	Y6	Bit	THSR Horn1 RAW Permit	NO Relay	F4-08TRS-2	0-3	6(Form A)	
251	E:H2RE01	Y7	Bit	THSR Horn2 RAW Permit	NO Relay	F4-08TRS-2	0-3	7(Form A)	
252									
253	H2A-ILK	Y10	Bit	Horn2 RAW A Pump Interlock	NO Relay	F4-08TRS-2	0-4	0(Form C)	
254	H2B-ILK	Y11	Bit	Horn2 RAW B Pump Interlock	NO Relay	F4-08TRS-2	0-4	1(Form C)	
255	H2A-STP	Y12	Bit	Horn2 RAW A Pump STOP	NC Relay	F4-08TRS-2	0-4	2(Form C)	
256	H2B-STP	Y13	Bit	Horn2 RAW B Pump STOP	NC Relay	F4-08TRS-2	0-4	3(Form C)	
257	E:H2RS01	Y14	Bit	Horn2 RAW A Pump START	NO Relay	F4-08TRS-2	0-4	4(Form A)	
258	E:H2RS02	Y15	Bit	Horn2 RAW B Pump START	NO Relay	F4-08TRS-2	0-4	5(Form A)	
259	E:TBRE01	Y16	Bit	THSR Target RAW Permit	NO Relay	F4-08TRS-2	0-4	6(Form A)	
260	E:DURE01	Y17	Bit	THSR Upstream Decay Pipe RAW Permit	NO Relay	F4-08TRS-2	0-4	7(Form A)	
261									
262	TGTA-ILK	Y20	Bit	Target RAW A Pump Interlock	NO Relay	F4-08TRS-2	0-5	0(Form C)	
263	TGTB-ILK	Y21	Bit	Target RAW B Pump Interlock	NO Relay	F4-08TRS-2	0-5	1(Form C)	
264	TGTA-STP	Y22	Bit	Target RAW A Pump STOP	NC Relay	F4-08TRS-2	0-5	2(Form C)	
265	TGTB-STP	Y23	Bit	Target RAW B Pump STOP	NC Relay	F4-08TRS-2	0-5	3(Form C)	
266	E:TBRS01	Y24	Bit	Target RAW A Pump START	NO Relay	F4-08TRS-2	0-5	4(Form A)	
267	E:TBRS02	Y25	Bit	Target RAW B Pump START	NO Relay	F4-08TRS-2	0-5	5(Form A)	
268	KICK	Y26	Bit	Watchdog Kick	NO Relay	F4-08TRS-2	0-5	6(Form A)	
269	PS-PER	Y27	Bit	THSR Power Supply Permit	NO Relay	F4-08TRS-2	0-5	7(Form A)	
270									
271		Y30	Bit	(spare)	NC Relay	F4-08TRS-2	0-6	0(Form C)	
272		Y31	Bit	(spare)	NC Relay	F4-08TRS-2	0-6	1(Form C)	
273		Y32	Bit	(spare)	NC Relay	F4-08TRS-2	0-6	2(Form C)	
274		Y33	Bit	(spare)	NC Relay	F4-08TRS-2	0-6	3(Form C)	
275		Y34	Bit	(wasHorn 1 control valve)	NO Relay	F4-08TRS-2	0-6	4(Form A)	
276		Y35	Bit	(was Horn 2 control valve)	NO Relay	F4-08TRS-2	0-6	5(Form A)	
277		Y36	Bit	(spare)	NO Relay	F4-08TRS-2	0-6	6(Form A)	
278		Y37	Bit	Upstairs PS Permit	NO Relay	F4-08TRS-2	0-6	7(Form A)	
279									
280	Wire TPCT11-2	Y100	Bit	Enable TIC-11 output (this group was at Y140-147)	NO Relay	F4-08TRS-2	2-3	0(Form C)	
281	Wire TPCT12-2	Y101	Bit	Enable TIC-12 output	NO Relay	F4-08TRS-2	2-3	1(Form C)	

	A	B	C	D	E	F	G	H	I
282	Wire TPCT13-2	Y102	Bit	Enable TIC-13 output	NO Relay	F4-08TRS-2	2-3	2(Form C)	
283	Wire TPCT14-2	Y103	Bit	Enable TIC-14 output	NO Relay	F4-08TRS-2	2-3	3(Form C)	
284	Wire TPCT15-2	Y104	Bit	Enable TIC-15 output	NO Relay	F4-08TRS-2	2-3	4(Form A)	
285	Wire TPCT16-2	Y105	Bit	Enable TIC-16 output	NO Relay	F4-08TRS-2	2-3	5(Form A)	
286	Wire TPCT17-2	Y106	Bit	Enable TIC-17 output	NO Relay	F4-08TRS-2	2-3	6(Form A)	
287	Wire TPCS31	Y107	Bit	Remote reset to Fermi fan interlock	NO Relay	F4-08TRS-2	2-3	7(Form A)	
288									
289	Wire TPCS32	Y150	Bit	Remote run to Fermi fan interlock	NO Relay	F4-08TRS-2	2-4	0(Form C)	
290	Wire TPCS45	Y151	Bit	Remote run to reheater	NO Relay	F4-08TRS-2	2-4	1(Form C)	
291	Wire TPCS75	Y152	Bit	Chiller Remote Start	NO Relay	F4-08TRS-2	2-4	2(Form C)	
292	Wire TPCS76	Y153	Bit	Chiller Remote Stop	NO Relay	F4-08TRS-2	2-4	3(Form C)	
293	Wire TPCS78	Y154	Bit	Gly Pump 1 Remote Start	NO Relay	F4-08TRS-2	2-4	4(Form A)	
294	Wire TPCS79	Y155	Bit	Gly Pump 1 Remote Stop	NO Relay	F4-08TRS-2	2-4	5(Form A)	
295	Wire TPCS81	Y156	Bit	Gly Pump 2 Remote Start	NO Relay	F4-08TRS-2	2-4	6(Form A)	
296	Wire TPCS82	Y157	Bit	Gly Pump 2 Remote Stop	NO Relay	F4-08TRS-2	2-4	7(Form A)	
297									
298		Y110	Bit	(spare)(this group was at Y160-167)	NO Relay	F4-08TRS-2	2-5	0(Form C)	
299		Y111	Bit	(spare)	NO Relay	F4-08TRS-2	2-5	1(Form C)	
300		Y112	Bit	(spare)	NO Relay	F4-08TRS-2	2-5	2(Form C)	
301		Y113	Bit	(spare)	NO Relay	F4-08TRS-2	2-5	3(Form C)	
302	Cable #1 G-A	Y114	Bit	Vacuum Valve (E:BTHV01)	NO Relay	F4-08TRS-2	2-5	4(Form A)	
303	Cable #1 H-B	Y115	Bit	Helium Valve(E:BTHV02)	NO Relay	F4-08TRS-2	2-5	5(Form A)	
304	Cable #1 F-C	Y116	Bit	Vacuum Pump Relay (E:BTHV03)	NO Relay	F4-08TRS-2	2-5	6(Form A)	
305	THB#8	Y117	Bit	Condensate Tank Level Permit	NO Relay	F4-08TRS-2	2-5	7(Form A)	
306									
307				**THSR Inputs from ACNET:**					
308		V2241	Word	ACNET Command Bits 1					
309	E:H1RS01	B2241.0	Bit	Horn1 RAW A Pump RUN/~STOP	Bit-Out				
310	E:H1RS02	B2241.1	Bit	Horn1 RAW B Pump RUN/~STOP	Bit-Out				
311	E:H2RS01	B2241.2	Bit	Horn2 RAW A Pump RUN/~STOP	Bit-Out				
312	E:H2RS02	B2241.3	Bit	Horn2 RAW B Pump RUN/~STOP	Bit-Out				
313	E:TBRS01	B2241.4	Bit	Target RAW A Pump RUN/~STOP	Bit-Out				
314	E:TBRS02	B2241.5	Bit	Target RAW B Pump RUN/~STOP	Bit-Out				
315									
316		V2242	Word	ACNET Command Bits 2					
317	E:H1RL90	B2242.0	Bit	Horn 1 Expansion Tank Trip Reset	Bit-Out				
318	E:H1RS90	B2242.1	Bit	Horn 1 Pump A Overtemp Trip Reset	Bit-Out				
319	E:H1RS91	B2242.2	Bit	Horn 1 Pump B Overtemp Trip Reset	Bit-Out				
320	E:H1RS92	B2242.3	Bit	Horn 1 Pump A Undercurrent Trip Reset	Bit-Out				
321	E:H1RS93	B2242.4	Bit	Horn 1 Pump B Undercurrent Trip Reset	Bit-Out				
322	E:H2RL90	B2242.5	Bit	Horn 2 Expansion Tank Trip Reset	Bit-Out				
323	E:H2RS90	B2242.6	Bit	Horn 2 Pump A Overtemp Trip Reset	Bit-Out				
324	E:H2RS91	B2242.7	Bit	Horn 2 Pump B Overtemp Trip Reset	Bit-Out				
325	E:H2RS92	B2242.8	Bit	Horn 2 Pump A Undercurrent Trip Reset	Bit-Out				
326	E:H2RS93	B2242.9	Bit	Horn 2 Pump B Undercurrent Trip Reset	Bit-Out				
327	E:TBRL90	B2242.10	Bit	Target Expansion Tank Trip Reset	Bit-Out				
328	E:TBRS90	B2242.11	Bit	Target Pump A Overtemp Trip Reset	Bit-Out				

	A	B	C	D	E	F	G	H	I
329	E:TBRS91	B2242.12	Bit	Target Pump B Overtemp Trip Reset	Bit-Out				
330	E:TBRS92	B2242.13	Bit	Target Pump B Undercurrent Trip Reset	Bit-Out				
331	E:TBRS93	B2242.14	Bit	Target Pump B Undercurrent Trip Reset	Bit-Out				
332	E:DURL90	B2242.15	Bit	UDP Expansion Tank Trip Reset	Bit-Out				
333									
334	E:H1RT90	B2243.0	Bit	Horn 1 Supply Temp Low Trip Reset	Bit-Out				
335	E:H1RT91	B2243.1	Bit	Horn 1 Supply Temp High Trip Reset	Bit-Out				
336	E:H2RT90	B2243.2	Bit	Horn 2 Supply Temp Low Trip Reset	Bit-Out				
337	E:H2RT91	B2243.3	Bit	Horn 2 Supply Temp High Trip Reset	Bit-Out				
338		B2243.4	Bit		Bit-Out				
339		B2243.5	Bit		Bit-Out				
340		B2243.6	Bit		Bit-Out				
341		B2243.7	Bit		Bit-Out				
342		B2243.8	Bit		Bit-Out				
343		B2243.9	Bit		Bit-Out				
344		B2243.10	Bit		Bit-Out				
345		B2243.11	Bit		Bit-Out				
346		B2243.12	Bit		Bit-Out				
347		B2243.13	Bit		Bit-Out				
348	E:TBRT90	B2243.14	Bit	BP Tgt Supply Temp High Trip Reset	Bit-Out				
349	E:TBRP90	B2243.15	Bit	BP Tgt Baratron Pressure Low Trip Reset	Bit-Out				
350									
351		V2244	Word	Tgt Pile Air Command					
352	E:TPCS31	B2244.0	Bit	Fermi Fan Interlock Reset	Bit-Out				
353	E:TPCS32	B2244.1	Bit	Fermi Fan RUN/~STOP	Bit-Out				
354	E:TPCS75	B2244.2	Bit	Chiller RUN/~STOP	Bit-Out				
355	E:TPCS78	B2244.3	Bit	Glycol Pump 1 RUN/~STOP	Bit-Out				
356	E:TPCS81	B2244.4	Bit	Glycol Pump 2 RUN/~STOP	Bit-Out				
357		B2244.5	Bit		Bit-Out				
358		B2244.6	Bit		Bit-Out				
359		B2244.7	Bit		Bit-Out				
360		B2244.8	Bit		Bit-Out				
361		B2244.9	Bit	Reserved for E:TPCL95 trip reset	Bit-Out				
362	E:DURT90	B2244.10	Bit	BP UDP Supply Temp Hi Trip Reset	Bit-Out				
363		B2244.11	Bit	Reserved for E:TPCL96 trip reset	Bit-Out				
364	E:BTHS99	B2244.12	Bit	Out-and-back test bit	Bit-Out				
365	E:BTHV01	B2244.13	Bit	Vacuum Valve**/NOT IN ACNET**	Bit-Out				
366	E:BTHV02	B2244.14	Bit	Helium Valve**/NOT IN ACNET**	Bit-Out				
367	E:BTHV03	B2244.15	Bit	Vacuum Pump Relay**/NOT IN ACNET**	Bit-Out				
368									
369		V2245	Word	Tgt Pile Resets					
370	E:TPCS90	B2245.0	Bit	Chiller Trip Reset	Bit-Out				
371	E:TPCS91	B2245.1	Bit	Glycol Pump #1 Trip Reset	Bit-Out				
372	E:TPCS92	B2245.2	Bit	Glycol Pump #2 Trip Reset	Bit-Out				
373									
374	E:TPCS36	V2403:2	IEEE	Fan Speed Command	Analog-Out				0-1800RPM
375									

	A	B	C	D	E	F	G	H	I
376				**THSR Outputs to ACNET:**					
377	**E:THSRST**	**V2001**	**Word**	**THSR Status**					
378	E:H1RS01	B2001.0	Bit	Horn1 RAW A Nominal Pump Current	Bit-In		7	A0	
379	E:H1RS02	B2001.1	Bit	Horn1 RAW B Nominal Pump Current	Bit-In		7	A1	
380	E:H2RS01	B2001.2	Bit	Horn2 RAW A Nominal Pump Current	Bit-In		7	A2	
381	E:H2RS02	B2001.3	Bit	Horn2 RAW B Nominal Pump Current	Bit-In		7	A3	
382	E:TBRS01	B2001.4	Bit	Target RAW A Nominal Pump Current	Bit-In		7	A4	
383	E:TBRS02	B2001.5	Bit	Target RAW B Nominal Pump Current	Bit-In		7	A5	
384		B2001.6	Bit	(unused)	Bit-In				
385		B2001.7	Bit	(unused)	Bit-In				
386	E:BTHE01	B2001.8	Bit	THSR Power Supply Permit (1=permit ok)	Bit-In		5	7	
387	E:H1RE01	B2001.9	Bit	Horn1 RAW Permit (1=permit ok)	Bit-In		3	6	
388	E:H2RE01	B2001.10	Bit	Horn2 RAW Permit (1=permit ok)	Bit-In		3	7	
389	E:TBRE01	B2001.11	Bit	Target RAW Permit (1=permit ok)	Bit-In		4	6	
390	E:DURE01	B2001.12	Bit	Upstream Decay Pipe RAW Permit (1=permit ok)	Bit-In		4	7	
391		B2001.13	Bit		Bit-In				
392		B2001.14	Bit		Bit-In				
393		B2001.15	Bit		Bit-In				
394									
395	**E:H1RSTS**	**V2002**	**Word**	**Horn 1 Alarm and Trip Bits**					
396	E:H1RA01	B2002.0	Bit	ALARM Horn1 RAW Expansion Tank Pressure Low	Bit-In		1	8	
397	E:H1RA02	B2002.1	Bit	ALARM Horn1 RAW Filter Differential Pressure Low	Bit-In		1	1,3	
398	E:H1RA03	B2002.2	Bit	ALARM Horn1 RAW Filter Differential Pressure High	Bit-In		1	1,3	
399	E:H1RA04	B2002.3	Bit	ALARM Horn1 RAW Water Supply Temperature High	Bit-In		1	4	
400	E:H1RA05	B2002.4	Bit	ALARM Horn1 RAW Water Return Temperature High	Bit-In		1	5	
401	E:H1RA06	B2002.5	Bit	ALARM Horn1 RAW Water Expansion Tank Level Low	Bit-In		1	6	
402	E:H1RL90	B2002.6	Bit	TRIP Horn1 RAW Water Expansion Tank Level Low Low	Bit-In		1	6	
403	E:H1RL90	B2002.7	Bit	TRIP Horn1 RAW Water Expansion Tank Level Low Low Low	Bit-In		1	6	
404	E:H1RA09	B2002.8	Bit	ALARM Horn1 RAW Water Expansion Tank Level High	Bit-In		1	6	
405	E:H1RA10	B2002.9	Bit	ALARM Horn1 RAW Water DI Bottle Resistivity Low	Bit-In		1	7	
406	E:H1RS90	B2002.10	Bit	TRIP Horn1 RAW Pump A Overtemp (latching)	Bit-In		7	B4	
407	E:H1RS91	B2002.11	Bit	TRIP Horn1 RAW Pump B Overtemp (latching)	Bit-In		7	B5	
408	E:H1RS92	B2002.12	Bit	TRIP Horn1 RAW Pump A Undercurrent (latching)	Bit-In		7	A0	
409	E:H1RS93	B2002.13	Bit	TRIP Horn1 RAW Pump B Undercurrent (latching)	Bit-In		7	A1	
410	E:H1RA15	B2002.14	Bit	TRIP Horn1 RAW Water Supply Temperature Low (latching)	Bit-In		1	4	
411	E:H1RA16	B2002.15	Bit	TRIP Horn1 RAW Water Supply Temperature High (latching)	Bit-In		1	4	
412									
413	**E:H2RSTS**	**V2003**	**Word**	**Horn 2 Alarm and Trip Bits**					
414	E:H2RA01	B2003.0	Bit	ALARM Horn2 RAW Expansion Tank Pressure Low	Bit-In		1	16	
415	E:H2RA02	B2003.1	Bit	ALARM Horn2 RAW Filter Differential Pressure Low	Bit-In		1	9,11	
416	E:H2RA03	B2003.2	Bit	ALARM Horn2 RAW Filter Differential Pressure High	Bit-In		1	9,11	
417	E:H2RA04	B2003.3	Bit	ALARM Horn2 RAW Water Supply Temperature High	Bit-In		1	12	
418	E:H2RA05	B2003.4	Bit	ALARM Horn2 RAW Water Return Temperature High	Bit-In		1	13	
419	E:H2RA06	B2003.5	Bit	ALARM Horn2 RAW Water Expansion Tank Level Low	Bit-In		1	14	
420	E:H2RA07	B2003.6	Bit	TRIP Horn2 RAW Water Expansion Tank Level Low Low	Bit-In		1	14	
421	E:H2RA08	B2003.7	Bit	TRIP Horn2 RAW Water Expansion Tank Level Low Low Low	Bit-In		1	14	
422	E:H2RA09	B2003.8	Bit	ALARM Horn2 RAW Water Expansion Tank Level High	Bit-In		1	14	

	A	B	C	D	E	F	G	H	I
423	E:H2RA10	B2003.9	Bit	ALARM Horn2 RAW Water DI Bottle Resistivity Low	Bit-In		1	15	
424	E:H2RS90	B2003.10	Bit	TRIP Horn2 RAW Pump A Overtemp (latching)	Bit-In		7	B0	
425	E:H2RS91	B2003.11	Bit	TRIP Horn2 RAW Pump B Overtemp (latching)	Bit-In		7	B1	
426	E:H2RS92	B2003.12	Bit	TRIP Horn2 RAW Pump A Undercurrent (latching)	Bit-In		7	A2	
427	E:H2RS93	B2003.13	Bit	TRIP Horn2 RAW Pump B Undercurrent (latching)	Bit-In		7	A3	
428	E:H2RA15	B2003.14	Bit	TRIP Horn1 RAW Water Supply Temperature Low (latching)	Bit-In		1	12	
429	E:H2RA16	B2003.15	Bit	TRIP Horn1 RAW Water Supply Temperature High (latching)	Bit-In		1	12	
430									
431	**E:TBRSTS**	**V2004**	**Word**	**Target Alarm and Trip Bits**					
432	E:TBRA01	B2004.0	Bit	ALARM Target RAW Expansion Tank Pressure Low	Bit-In		2	8	
433	E:TBRA02	B2004.1	Bit	ALARM Target RAW Pump Differential Pressure Low	Bit-In		2	?	
434	E:TBRA03	B2004.2	Bit	ALARM Target RAW Pump Return Pressure High	Bit-In		2	?	
435	E:TBRA04	B2004.3	Bit	ALARM Target RAW Water Supply Temperature High	Bit-In		2	4	
436	E:TBRA05	B2004.4	Bit	ALARM Target RAW Water Return Temperature High	Bit-In		2	5	
437	E:TBRA06	B2004.5	Bit	ALARM Target RAW Water Expansion Tank Level Low	Bit-In		2	6	
438	E:TBRL90	B2004.6	Bit	TRIP Target RAW Water Expansion Tank Level Low Low	Bit-In		2	6	
439	E:TBRL90	B2004.7	Bit	TRIP Target RAW Water Expansion Tank Level Low Low Low	Bit-In		2	6	
440	E:TBRA09	B2004.8	Bit	ALARM Target RAW Water Expansion Tank Level High	Bit-In		2	6	
441	E:TBRA10	B2004.9	Bit	ALARM Target RAW Water DI Bottle Resistivity Low	Bit-In		2	7	
442	E:TBRS90	B2004.10	Bit	TRIP Target RAW Pump A Overtemp (latching)	Bit-In		7	B2	
443	E:TBRS91	B2004.11	Bit	TRIP Target RAW Pump A Overtemp (latching)	Bit-In		7	B3	
444	E:TBRS92	B2004.12	Bit	TRIP Target RAW Pump A Undercurrent (latching)	Bit-In		7	A4	
445	E:TBRS93	B2004.13	Bit	TRIP Target RAW Pump B Undercurrent (latching)	Bit-In		7	A5	
446	E:TBRA15	B2004.14	Bit	TRIP Tgt Supply Temp High (was He leak det)	Bit-In				
447	E:TBRP90	B2004.15	Bit	TRIP Beam Permit Tgt Baratron Pressure Low	Bit-In				
448									
449	**E:DURSTS**	**V2005**	**Word**	**UDP Alarm and Trip Bits**					
450	E:DURA01	B2005.0	Bit	ALARM Upstream Decay Pipe RAW Expansion Tank Press. Low	Bit-In		2	16	
451		B2005.1	Bit		Bit-In				
452		B2005.2	Bit		Bit-In				
453	E:DURA04	B2005.3	Bit	ALARM Upstream Decay Pipe RAW Water Supply Temperature High	Bit-In		2	12	
454	E:DURA05	B2005.4	Bit	ALARM Upstream Decay Pipe RAW Water Return Temperature High	Bit-In		2	13	
455	E:DURA06	B2005.5	Bit	ALARM Upstream Decay Pipe RAW Expansion Tank Level Low	Bit-In		2	14	
456	E:DURA07	B2005.6	Bit	ALARM Upstream Decay Pipe RAW Expansion Tank Level Low Low	Bit-In		2	14	
457	E:DURA08	B2005.7	Bit	TRIP Upstream Decay Pipe RAW Expansion Tank Level Low Low Low	Bit-In		2	14	
458	E:DURA09	B2005.8	Bit	ALARM Upstream Decay Pipe RAW Expansion Tank Level High	Bit-In		2	14	
459		B2005.9	Bit		Bit-In				
460	E:DURA10	B2005.10	Bit	TRIP BP UDP Supply Temp High	Bit-In				
461		B2005.11	Bit		Bit-In				
462		B2005.12	Bit		Bit-In				
463		B2005.13	Bit		Bit-In				
464	E:BTHA02	B2005.14	Bit	ALARM THSR PLC Warning	Bit-In				
465	E:BTHA03	B2005.15	Bit	ALARM THSR PLC Error	Bit-In				
466									
467	**E:TPCSTS**	**V2006**	**Word**	**Tgt Pile Air Alarms and Trips**					
468		B2006.0	Bit		Bit-In				
469	E:TPCA04	B2006.1	Bit	ALARM Insufficient Cooling Coils Available**/NOT IN ACNET**	Bit-In				

	A	B	C	D	E	F	G	H	I
470	E:TPCS35	B2006.2	Bit	TRIP SV9000 AFD Fault	Bit-In				
471	E:TPCP62	B2006.3	Bit	ALARM Prefilter 1 DP HH	Bit-In				
472	E:TPCP63	B2006.4	Bit	ALARM High Eff Filter 1 DP HH	Bit-In				
473	E:TPCP64	B2006.5	Bit	ALARM Prefilter 2 DP HH	Bit-In				
474	E:TPCP65	B2006.6	Bit	ALARM High Eff Filter 2 DP HH	Bit-In				
475	E:TPCP66	B2006.7	Bit	ALARM Prefilter 3 DP HH	Bit-In				
476	E:TPCP67	B2006.8	Bit	ALARM High Eff Filter 3 DP HH	Bit-In				
477	E:TPCP68	B2006.9	Bit	ALARM Prefilter 4 DP HH	Bit-In				
478	E:TPCP69	B2006.10	Bit	ALARM High Eff Filter 4 DP HH	Bit-In				
479	E:TPCL73	B2006.11	Bit	ALARM Glycol Tank Level Low	Bit-In				
480	E:TPCP74	B2006.12	Bit	ALARM Glycol Tank Air Pres Low	Bit-In				
481	E:TPCS90	B2006.13	Bit	TRIP Chiller Shutdown	Bit-In				
482	E:TPCS91	B2006.14	Bit	TRIP Glycol Pump #1 Shutdown	Bit-In				
483	E:TPCS92	B2006.15	Bit	TRIP Glycol Pump #2 Shutdown	Bit-In				
484									
485	**E:TPCST**	**V2007**	**Word**	**Tgt Pile Air Status**					
486	E:TPCS31	B2007.0	Bit	Fermi Fan Interlock Made-Up	Bit-In				
487	E:TPCS32	B2007.1	Bit	SV9000 AFD On	Bit-In				
488	E:TCPS41	B2007.2	Bit	Reheater Zone 1 Enabled	Bit-In				
489	E:TCPS42	B2007.3	Bit	Reheater Zone 2 Enabled	Bit-In				
490	E:TCPS43	B2007.4	Bit	Reheater Zone 3 Enabled	Bit-In				
491	E:TCPS44	B2007.5	Bit	Reheater Zone 4 Enabled	Bit-In				
492	E:TPCS75	B2007.6	Bit	Chiller Running	Bit-In				
493	E:TPCS78	B2007.7	Bit	Glycol Pump #1 Running	Bit-In				
494	E:TPCS81	B2007.8	Bit	Glycol Pump #2 Running	Bit-In				
495	E:TPCL95	B2007.9	Bit	Condensate Tank Level High	Bit-In				
496	E:TPCL97	B2007.10	Bit	Drain Pan Corboy Level High	Bit-In				
497	E:TPCL96	B2007.11	Bit	Condensate Tank Level High High	Bit-In				
498	E:BTHS98	B2007.12	Bit	Out-and-back test bit	Bit-In				
499		B2007.13	Bit		Bit-In				
500	E:BTHX01	B2007.14	Bit	Target Vacuum Valve Open	Bit-In				
501	E:BTHX02	B2007.15	Bit	Target Vacuum Valve Closed	Bit-In				
502									
503	E:H1RP01	V2143:2	IEEE	Horn 1 RAW Pump Discharge Pressure (before filter)	Analog-In		1	1	0-400 psig
504	E:H1RP02	V2145:4	IEEE	Horn 1 RAW Supply Pressure (to spray line)	Analog-In		1	2	0-400 psig
505	E:H1RP03	V2147:6	IEEE	Horn 1 RAW Pump Suction Pressure	Analog-In		1	3	0-400 psig
506	E:H1RT01	V2151:0	IEEE	Horn 1 RAW Water Supply Temperature	Analog-In		1	4	-40 to 160F
507	E:H1RT02	V2153:2	IEEE	Horn 1 RAW Water Return Temperature	Analog-In		1	5	-40 to 160F
508	E:H1RL01	V2155:4	IEEE	Horn 1 RAW Water Expansion Tank Level	Analog-In		1	6	0-36 in
509	E:H1RR01	V2157:6	IEEE	Horn 1 RAW Resistivity out of the DI Bottle	Analog-In		1	7	0-18 Mohm
510	E:H1RP04	V2161:0	IEEE	Horn 1 RAW Expansion Tank Pressure	Analog-In		1	8	0-400 psig
511									
512	E:H2RP01	V2163:2	IEEE	Horn 2 RAW Pump Discharge Pressure (before filter)	Analog-In		1	9	0-400 psig
513	E:H2RP02	V2165:4	IEEE	Horn 2 RAW Supply Pressure (to spray line)	Analog-In		1	10	0-400 psig
514	E:H2RP03	V2167:6	IEEE	Horn 2 RAW Pump Suction Pressure	Analog-In		1	11	0-400 psig
515	E:H2RT01	V2171:0	IEEE	Horn 2 RAW Water Supply Temperature	Analog-In		1	12	-40 to 160F
516	E:H2RT02	V2173:2	IEEE	Horn 2 RAW Water Return Temperature	Analog-In		1	13	-40 to 160F

	A	B	C	D	E	F	G	H	I
517	E:H2RL01	V2175:4	IEEE	Horn 2 RAW Water Expansion Tank Level	Analog-In		1	14	0-36 in
518	E:H2RR01	V2177:6	IEEE	Horn 2 RAW Resistivity out of the DI Bottle	Analog-In		1	15	0-18 Mohm
519	E:H2RP04	V2201:0	IEEE	Horn 2 RAW Expansion Tank Pressure	Analog-In		1	16	0-400 psig
520									
521	E:TBRP01	V2203:2	IEEE	Target RAW Pump Discharge Pressure	Analog-In		2	1	0-400 psig
522	E:TBRP02	V2205:4	IEEE	Target RAW Return Pressure	Analog-In		2	2	0-400 psig
523		V2207:6	IEEE		Analog-In				
524	E:TBRT01	V2211:0	IEEE	Target RAW Water Supply Temperature	Analog-In		2	4	-40 to 160F
525	E:TBRT02	V2213:2	IEEE	Target RAW Water Return Temperature	Analog-In		2	5	-40 to 160F
526	E:TBRL01	V2215:4	IEEE	Target RAW Water Expansion Tank Level	Analog-In		2	6	0-36 in
527	E:TBRR01	V2217:6	IEEE	Target RAW Resistivity out of the DI Bottle	Analog-In		2	7	0-18 Mohm
528	E:TBRP04	V2221:0	IEEE	Target RAW Expansion Tank Pressure	Analog-In		2	8	0-400 psig
529									
530	E:DURP01	V2223:2	IEEE	Upstream Decay Pipe RAW Return Pressure	Analog-In		2	9	0-400 psig
531	E:DURP02	V2225:4	IEEE	Upstream Decay Pipe RAW Supply Pressure	Analog-In		2	10	0-400 psig
532	E:TPCS84	V2227:6	IEEE	Reheater Power	Analog-In				0-50 kW
533	E:DURT01	V2231:0	IEEE	Upstream Decay Pipe RAW Water Supply Temperature	Analog-In		2	12	-40 to 160F
534	E:DURT02	V2233:2	IEEE	Upstream Decay Pipe RAW Water Return Temperature	Analog-In		2	13	-40 to 160F
535	E:DURL01	V2235:4	IEEE	Upstream Decay Pipe RAW Water Expansion Tank Level	Analog-In		2	14	0-36 in
536	E:DURP04	V2237:6	IEEE	Upstream Decay Pipe RAW Expansion Tank Pressure	Analog-In		2	16	0-400 psig
537									
538									
539	E:H1RP05	V2601:0	IEEE	Horn1 RAW Filter Differential Pressure (calculated)	Analog-In				
540	E:H2RP05	V2603:2	IEEE	Horn2 RAW Filter Differential Pressure (calculated)	Analog-In				
541	E:TBRP05	V2605:4	IEEE	Target RAW Pump Differential Pressure (calculated)	Analog-In				
542	E:BTHA01	V2606	Word	THSR PLC Heartbeat Counter	Analog-In				
543									
544	E:TPCT01	V2610	Word	BTM Channel Floor East	Analog-In		1-3	1	deg F
545	E:TPCT02	V2611	Word	BTM Channel Floor Mid	Analog-In		1-3	2	deg F
546	E:TPCT03	V2612	Word	BTM Channel Floor West	Analog-In		1-3	3	deg F
547	E:TPCT04	V2613	Word	Side Channel Wall East	Analog-In		1-3	4	deg F
548	E:TPCT05	V2614	Word	Side Channel Wall West	Analog-In		1-3	5	deg F
549	E:TPCT06	V2615	Word	BluBlock at Horn 1 East	Analog-In		1-3	6	deg F
550	E:TPCT07	V2616	Word	BluBlock at Horn 1 West	Analog-In		1-3	7	deg F
551	E:TPCT08	V2617	Word	Horn1 Carriage Beam	Analog-In		1-3	8	deg F
552									
553	E:TPCT09	V2620	Word	Air Above Horn 1 Module	Analog-In		1-4	1	deg F
554	E:BTHT01	V2621	Word	Target Carrier TC1	Analog-In		1-4	2	deg F
555	E:BTHT02	V2622	Word	Target Carrier TC2	Analog-In		1-4	3	deg F
556	E:BTHT03	V2623	Word	Horn 1 UpStr Hanger TC	Analog-In		1-4	4	deg F
557		V2624	Word	TJ0017 Spare	Analog-In		1-4	5	deg F
558	E:BTHT04	V2625	Word	Horn 1 DnStr Clmp Top TC	Analog-In		1-4	6	deg F
559	E:BTHT05	V2626	Word	Horn 1 DnStr Hanger TC	Analog-In		1-4	7	deg F
560	E:BTHT06	V2627	Word	Horn 1 DnStr Bottom TC	Analog-In		1-4	8	deg F
561									
562	E:BTHT07	V2630	Word	Horn 1 Mid Clamp Top TC	Analog-In		1-5	1	deg F
563	E:BTHT08	V2631	Word	Horn 1 Mid Clamp Bot TC	Analog-In		1-5	2	deg F

	A	B	C	D	E	F	G	H	I
564	E:BTHT09	V2632	Word	Horn 1 UpStr Clmp Top TC	Analog-In		1-5	3	deg F
565	E:BTHT10	V2633	Word	Horn 1 UpStr Clmp Bot TC	Analog-In		1-5	4	deg F
566		V2634	Word	TJ0025 Spare	Analog-In		1-5	5	deg F
567		V2635	Word	TJ0026 Spare	Analog-In		1-5	6	deg F
568	E:BTHT11	V2636	Word	Horn 2 DnStr Clmp Top TC	Analog-In		1-5	7	deg F
569	E:BTHT12	V2637	Word	Horn 2 DnStr Clmp Bot TC	Analog-In		1-5	8	deg F
570									
571	E:BTHT13	V2640	Word	Horn 2 Mid Clamp Top TC	Analog-In		1-6	1	deg F
572	E:BTHT14	V2641	Word	Horn 2 Mid Clamp Bot TC	Analog-In		1-6	2	deg F
573	E:BTHT15	V2642	Word	Horn 2 UpStr Clmp Top TC	Analog-In		1-6	3	deg F
574	E:BTHT16	V2643	Word	Horn 2 UpStr Clmp Bot TC	Analog-In		1-6	4	deg F
575		V2644	Word	TJ0033 Spare	Analog-In		1-6	5	deg F
576		V2645	Word	(spare TJ channel)	Analog-In		1-6	6	deg F
577		V2646	Word	(spare TJ channel)	Analog-In		1-6	7	deg F
578		V2647	Word	(spare TJ channel)	Analog-In		1-6	8	deg F
579									
580	E:TPCT37	V2651:0	IEEE	Tgt Pile Fan Speed	Analog-In		3-1	13	0-1800RPM
581	E:TPCP59	V2653:2	IEEE	Fan Discharge Pressure	Analog-In		3-1	15	0-20 in WC
582	E:TPCP60	V2655:4	IEEE	Fan Pressure Boost	Analog-In		3-1	16	0-20 in WC
583	E:TPCQ85	V2657:6	IEEE	Tgt Pile Heat Load Calc	Analog-In				0-300 kW
584									
585	E:TPCT11	V2660	Word	Cooling Coil 1 Air Temp	Analog-In		3-2	1	0-100F
586	E:TPCT12	V2661	Word	Cooling Coil 2 Air Temp	Analog-In		3-2	2	0-100F
587	E:TPCT13	V2662	Word	Cooling Coil 3 Air Temp	Analog-In		3-2	3	0-100F
588	E:TPCT14	V2663	Word	Cooling Coil 4 Air Temp	Analog-In		3-2	4	0-100F
589	E:TPCT15	V2664	Word	Cooling Coil 5 Air Temp	Analog-In		3-2	5	0-100F
590	E:TPCT16	V2665	Word	Cooling Coil 6 Air Temp	Analog-In		3-2	6	0-100F
591	E:TPCT17	V2666	Word	TIC-17 Output	Analog-In		3-2	7	0-100%
592	E:TPCT18	V2667	Word	Supply Air Temp	Analog-In		3-2	8	0-100F
593									
594	E:TPCT24	V2670	Word	Glycol Supply Temp	Analog-In		3-3	1	deg F
595	E:TPCT25	V2671	Word	Glycol Return Temp	Analog-In		3-3	2	deg F
596		V2672	Word	Fan Discharge Temp	Analog-In		3-3	3	deg F
597		V2673	Word	Return Air Temp	Analog-In		3-3	4	deg F
598		V2674	Word	(spare RTD channel)	Analog-In		3-3	5	deg F
599		V2675	Word	(spare RTD channel)	Analog-In		3-3	6	deg F
600		V2676	Word	(spare RTD channel)	Analog-In		3-3	7	deg F
601		V2677	Word	(spare RTD channel)	Analog-In		3-3	8	deg F
602									
603	E:TPCT26	V2701:0	IEEE	Supply Air Temp at RH Sensor	Analog-In				(-4.6) to 166.4 deg F
604	E:TPCH27	V2703:2	IEEE	Supply Air Relative Humidity	Analog-In				0-100 %
605	E:TPCT28	V2705:4	IEEE	Return Air Temp at RH Sensor	Analog-In				(-4.6) to 166.4 deg F
606	E:TPCH29	V2707:6	IEEE	Return Air Relative Humidity	Analog-In				0-100 %
607									
608	E:TPCF71	V2711:0	IEEE	Fan Airflow Rate	Analog-In				0-25500 ACFM
609	E:TPCP50	V2713:2	IEEE	Prefilter 1 Delta P	Analog-In				0-2.5 inches WC
610	E:TPCP51	V2715:4	IEEE	Hi Eff Filter 1 Delta P	Analog-In				0-3 inches WC

	A	B	C	D	E	F	G	H	I
611	E:TPCP52	V2717:6	IEEE	Prefilter 2 Delta P	Analog-In				0-2.5 inches WC
612									
613	E:TPCP53	V2721:0	IEEE	Hi Eff Filter 2 Delta P	Analog-In				0-3 inches WC
614	E:TPCP54	V2723:2	IEEE	Prefilter 3 Delta P	Analog-In				0-2.5 inches WC
615	E:TPCP55	V2725:4	IEEE	Hi Eff Filter 3 Delta P	Analog-In				0-3 inches WC
616	E:TPCP56	V2727:6	IEEE	Prefilter 4 Delta P	Analog-In				0-2.5 inches WC
617									
618	E:TPCP57	V2731:0	IEEE	Hi Eff Filter 4 Delta P	Analog-In				0-3 inches WC
619	E:TPCP58	V2733:2	IEEE	Fan Discharge Press LT Test	Analog-In				0-15 inches WC
620		V2734	Integer	(unused. Was E:BTHP03 Tgt RAW He Leak Detect)	Analog-In				
621	E:BTHP04	V2737:6	IEEE	Compressed Air Pressure	Analog-In				0-300 psig
622									
623	E:TPCF72	V2741:0	IEEE	Glycol Coolant Flow	Analog-In				0-130 GPM
624	E:TPCT19	V2743:2	IEEE	Supply Air Temp-Process	Analog-In				0-100 deg F
625	E:BTHP01	V2744	Integer	Baratron Helium Pressure (trips TGT RAW at 21psi)	Analog-In				0-30 psia
626	E:BTHP02	V2746	Integer	He Supply Pressure	Analog-In				0-2500 psi
627	E:TPCL94	V2747	Integer	Condensate Tank Level	Analog-In				
628									
629									
630				**Outputs to AAT PLC via network:**					
631			IEEE	Upstream Decay Pipe RAW Expansion Tank Level					
632			Word	THSR PLC Heartbeat					
633									
634				**CMEM Usage**					
635		C0	Bit	Beam Permit Horn1 Diff pressure out of bounds					
636		C1	Bit	Beam Permit Horn1 Water supply temp high TRIP					
637		C2	Bit	Beam Permit Horn2 Diff pressure out of bounds					
638		C3	Bit	Beam Permit Horn2 Water supply temp high TRIP					
639		C4	Bit	Beam Permit Target Diff pressure out of bounds					
640		C5	Bit	Beam Permit Target Water supply temp high					
641		C6	Bit						
642		C7	Bit	Beam Permit UDP Water supply temp high					
643		C10	Bit	E:H1RA01 H1 tank pressure low					
644		C11	Bit	E:H1RA02 H1 diff pressure low					
645		C12	Bit	E:H1RA03 H1 diff presure high					
646		C13	Bit	E:H1RA04 H1 water supply hot					
647		C14	Bit	E:H1RA05 H1 water return hot					
648		C15	Bit	E:H1RA06 H1 tank low					
649		C16	Bit	E:H1RA07 H1 tank low low					
650		C17	Bit	E:H1RA08 H1 tank low low low TRIP					
651		C20	Bit	E:H1RA09 H1 tank high					
652		C21	Bit	E:H1RA10 H1 resistivity					
653		C22	Bit	E:H1RA11 H1 motor A overtemp TRIP					
654		C23	Bit	E:H1RA12 H1 motor B overtemp TRIP					
655		C24	Bit	E:H1RA13 H1 motor A undercurrent TRIP					
656		C25	Bit	E:H1RA14 H1 motor B undercurrent TRIP					
657		C26	Bit						

	A	B	C	D	E	F	G	H	I
658		C27	Bit						
659									
660		C30	Bit	E:H2RA01 H2 tank pressure low					
661		C31	Bit	E:H2RA02 H2 diff pressure low					
662		C32	Bit	E:H2RA03 H2 diff pressure high					
663		C33	Bit	E:H2RA04 H2 supply hot					
664		C34	Bit	E:H2RA05 H2 return hot					
665		C35	Bit	E:H2RA06 H2 tank low					
666		C36	Bit	E:H2RA07 H2 tank low low					
667		C37	Bit	E:H2RA08 H2 tank low low low TRIP					
668		C40	Bit	E:H2RA09 H2 tank high					
669		C41	Bit	E:H2RA10 H2 resistivity					
670		C42	Bit	E:H2RA11 H2 motor A overtemp TRIP					
671		C43	Bit	E:H2RA12 H2 motor B overtemp TRIP					
672		C44	Bit	E:H2RA13 H2 motor A undercurrent TRIP					
673		C45	Bit	E:H2RA14 H2 motor B undercurrent TRIP					
674		C46	Bit	(unused. Was BP Tgt Helium Leak Det)					
675		C47	Bit	BP Tgt Baratron Low Pressure					
676									
677		C50	Bit	E:TBRA01 Tgt tank pressure low					
678		C51	Bit	E:TBRA02 Tgt diff pressure low					
679		C52	Bit	E:TBRA03 Tgt diff pressure high					
680		C53	Bit	E:TBRA04 Tgt supply hot					
681		C54	Bit	E:TBRA05 Tgt return hot					
682		C55	Bit	E:TBRA06 Tgt tank low					
683		C56	Bit	E:TBRA07 Tgt tank low low					
684		C57	Bit	E:TBRA08 Tgt tank low low low TRIP					
685		C60	Bit	E:TBRA09 Tgt tank high alarm					
686		C61	Bit	E:TBRA10 Tgt resistivity					
687		C62	Bit	E:TBRA11 Tgt motor A overtemp TRIP					
688		C63	Bit	E:TBRA12 Tgt motor B overtemp TRIP					
689		C64	Bit	E:TBRA13 Tgt motor A undercurrent TRIP					
690		C65	Bit	E:TBRA14 Tgt motor B undercurrent TRIP					
691		C66	Bit						
692		C67	Bit	MI62 read interlock					
693									
694		C70	Bit	E:DURA01 UDP tank pressure low alarm					
695		C71	Bit						
696		C72	Bit						
697		C73	Bit	E:DURA04 UDP supply hot					
698		C74	Bit	E:DURA05 UDP return hot					
699		C75	Bit	E:DURA06 UDP tank low					
700		C76	Bit	E:DURA07 UDP tank low low					
701		C77	Bit	E:DURA08 UDP tank low low low					
702		C100	Bit	E:DURA09 UDP tank high					
703		C101	Bit	Clear UDP trips (local)					
704		C102	Bit	Clear H1 trips (local)					

	A	B	C	D	E	F	G	H	I
705		C103	Bit	Clear H2 trips (local)					
706		C104	Bit	Clear TGT trips (local)					
707		C105	Bit	Horn 1 Tripped					
708		C106	Bit	Horn 2 Tripped					
709		C107	Bit	Target Tripped					
710		C110	Bit	UDP Tripped					
711		C111	Bit	BP_H1RT01 Override					
712		C112	Bit	BP_H2RT01 Override					
713		C113	Bit	Beam Permit Horn1 Water supply temp low TRIP					
714		C114	Bit	Beam Permit Horn2 Water supply temp low TRIP					
715		C115	Bit	Horn1 Water supply temp TRIP (for display panel)					
716		C116	Bit	Horn2 Water supply temp TRIP (for display panel)					
717		C117	Bit	Clear TGTAIR trips (local)					
718		C120	Bit	Chiller TRIP (for display panel)					
719		C121	Bit	Glycol #1 TRIP (for display panel)					
720		C122	Bit	Glycol #2 TRIP (for display panel)					
721									
722		VC200	Word						
723		C200	Bit	First Coil Request					
724		C201	Bit	Second Coil Request					
725		C202	Bit	Third Coil Request					
726		C203	Bit	Fourth Coil Request					
727		C204	Bit	Fifth Coil Request					
728		C205	Bit	Sixth Coil Request					
729									
730		VC220	Word						
731		C220	Bit	Coil #1 On					
732		C221	Bit	Coil #2 On					
733		C222	Bit	Coil #3 On					
734		C223	Bit	Coil #4 On					
735		C224	Bit	Coil #5 On					
736		C225	Bit	Coil #6 On					
737									
738		VC240	Word						
739		C240	Bit	Coil #1 In-Service					
740		C241	Bit	Coil #2 In-Service					
741		C242	Bit	Coil #3 In-Service					
742		C243	Bit	Coil #4 In-Service					
743		C244	Bit	Coil #5 In-Service					
744		C245	Bit	Coil #6 In-Service					
745									
746		C254	Bit	Remove Coils					
747		C255	Bit	Add Coils					
748		C256	Bit	Fan AFD Fault					
749		C257	Bit	Airflow>9000 CFM					
750									
751		C260	Bit	Fan Interlock Reset from OI Panel					

	A	B	C	D	E	F	G	H	I
752		C261	Bit	Condensate High					
753		C262	Bit	Condensate High High					
754		C263	Bit	Condensate Tape High High					
755									
756				**VMEM Usage**					
757		V10041:0	IEEE	Pressure scale factor					
758		V10043:2	IEEE	Temperature scale factor					
759		V10045:4	IEEE	Resistivity scale factor					
760		V10047:6	IEEE	Horn and UDP tanks scale factor					
761		V10051:0	IEEE	Target tank scale factor					
762		V10061:0	IEEE	Resistivity Alarm Limit					
763		V10063:2	IEEE	Water Supply Temp Alarm Limit					
764		V10065:4	IEEE	TGT Water Supply Temp Alarm Limit					
765		V10067:6	IEEE	HORN Water Return Temp Alarm Limit					
766		V10071:0	IEEE	TGT Water Return Temp Alarm Limit					
767		V10073:2	IEEE	UDP Water Return Temp Alarm Limit					
768		V10075:4	IEEE	Expansion Tank Level Low Alarms Limit					
769		V10077:6	IEEE	Expansion Tank Level Low-Low Alarms Limit (exc. Target)					
770		V10101:0	IEEE	Expansion Tank Level REALLY Low Alarms Limit					
771		V10103:2	IEEE	Expansion Tank Level High Alarms Limit					
772		V10105:4	IEEE	Expansion Tank Air Pressure Low Limit					
773		V10107:6	IEEE	UDP Expansion Tank Air Pressure Low Limit					
774		V10111:0	IEEE	Differential Pressure Low Alarms Limit					
775		V10113:2	IEEE	UDP Differential Pressure Low Alarm Limit					
776		V10115:4	IEEE	Differential Pressure High Alarms Limit					
777		V10117:6	IEEE	UDP Differential Pressure High Alarm Limit					
778		V10120	Word	General Alarm Integration Delay					
779		V10121	Word	Beam Permit Integration Delay					
780		V10123:2	IEEE	Beam Permit Horn Water Supply Temp Low Limit					
781		V10125:4	IEEE	Beam Permit UDP Differential Pressure Low Limit					
782		V10127:6	IEEE	Beam Permit Horn Water Supply Temp High Limit					
783		V10131:0	IEEE	Beam Permit Target Supply Temp High Limit					
784		V10133:2	IEEE	Beam Permit UDP Supply Temp High Limit					
785		V10135:4	IEEE	Beam Permit UDP Differential Pressure High Limit					
786		V10137:6	IEEE	Target Expansion Tank High Limit					
787		V10140	Word	Motor On/Off delay					
788		V10142	Word	MI62 Power Supply Permit					
789		V10143	Word	MI62 Heartbeat Counter					
790		V10144	IEEE	Temperature offset					
791		V10147:6	IEEE	Target Expansion Tank Low Low Limit					
792									
793		V10150	Word	Old MI62 Heartbeat Counter					
794									
795		V10200	Word	Horn 1 Tank Level Alarms Mullti-Indicator					
796		V10201	Word	Horn 2 Tank Level Alarms Mullti-Indicator					
797		V10202	Word	Target Tank Level Alarms Mullti-Indicator					
798		V10203	Word	UDP Tank Level Alarms Mullti-Indicator					

	A	B	C	D	E	F	G	H	I
799		V10204	Word						
800		V10205	Word	TIC Channel Index (for RTD retrans)					
801		V10206	Word						
802		V10207	Word						
803									
804		V10210	Word	Channel pointer for analog output port					
805		V10211	Word	Low channel VMEM data pointer for analog output scan					
806		V10212	Word	High channel VMEM data pointer for analog output scan					
807		V10213	Word						
808		V10214	Word						
809		V10215	Word						
810		V10216	Word						
811		V10217	Word						
812									
813		V10220-10257	Word	Air MADCs					
814		V10260-10317	Word	Air DACs					
815									
816		V10320	Word	TIC #1 Setpoint (binary deg F, one dp implied)					
817		V10321	Word	TIC #2 Setpoint (binary deg F, one dp implied)					
818		V10322	Word	TIC #3 Setpoint (binary deg F, one dp implied)					
819		V10323	Word	TIC #4 Setpoint (binary deg F, one dp implied)					
820		V10324	Word	TIC #5 Setpoint (binary deg F, one dp implied)					
821		V10325	Word	TIC #6 Setpoint (binary deg F, one dp implied)					
822		V10326	Word	2nd request on threshold					
823		V10327	Word	3rd request on threshold					
824									
825		V10330	Word	4th request on threshold					
826		V10331	Word	5th request on threshold					
827		V10332	Word	6th request on threshold					
828		V10333	Word	2nd request off threshold					
829		V10334	Word	3rd request off threshold					
830		V10335	Word	4th request off threshold					
831		V10336	Word	5th request off threshold					
832		V10337	Word	6th request off threshold					
833									
834		V10340	Word	Normalized heat load, 0-FFFF					
835		V10341	Word	Number of coils requested					
836		V10342	Word	Number of coils that are in service					
837		V10343	Word	Number of coils that are running					
838		V10344	Word	Sliding bit mask					
839		V10345	Word	Coils that are available to place into service (not running & in svc)					
840									
841									
842									
843									
844									
845				**Timer Usage**					

	A	B	C	D	E	F	G	H	I
846		T0		Horn1 air pressure alarm delay					
847		T1		Horn1 differential pressure low alarm delay					
848		T2		Horn1 differential pressure high alarm delay					
849		T3		Horn1 water supply temp high alarm delay					
850		T4		Horn1 water return temp high alarm delay					
851		T5		Horn1 expansion tank low alarm delay					
852		T6		Horn1 expansion tank low-low alarm delay					
853		T7		Horn1 expansion tank REALLY low alarm delay					
854		T10		Horn1 expansion tank high alarm delay					
855		T11		Horn1 resistivity low alarm delay					
856		T12		Horn2 air pressure alarm delay					
857		T13		Horn2 differential pressure low alarm delay					
858		T14		Horn2 differential pressure high alarm delay					
859		T15		Horn2 water supply temp high alarm delay					
860		T16		Horn2 water return temp high alarm delay					
861		T17		Horn2 expansion tank low alarm delay					
862		T20		Horn2 expansion tank low-low alarm delay					
863		T21		Horn2 expansion tank REALLY low alarm delay					
864		T22		Horn2 expansion tank high alarm delay					
865		T23		Horn2 resistivity low alarm delay					
866		T24		Tgt air pressure alarm delay					
867		T25		Tgt differential pressure low alarm delay					
868		T26		Tgt differential pressure high alarm delay					
869		T27		Tgt water supply temp high alarm delay					
870		T30		Tgt water return temp high alarm delay					
871		T31		Tgt expansion tank low alarm delay					
872		T32		Tgt expansion tank low-low alarm delay					
873		T33		Tgt expansion tank REALLY low alarm delay					
874		T34		Tgt expansion tank high alarm delay					
875		T35		Tgt resistivity low alarm delay					
876		T36		UDP air pressure low alarm delay					
877		T37		BP Horn 1 supply temp low delay					
878		T40		BP Horn 2 supply temp low delay					
879		T41		UDP water supply temp high alarm delay					
880		T42		UDP water return temp high alarm delay					
881		T43		UDP expansion tank low alarm delay					
882		T44		UDP expansion tank low-low alarm delay					
883		T45		UDP expansion tank REALLY low alarm delay					
884		T46		UDP expansion tank high alarm delay					
885		T47		BP Tgt Baratron low pressure delay					
886									
887		T50		BP Horn1 supply temp high delay					
888		T51		BP Horn2 supply temp high delay					
889		T52		BP Target supply temp high delay					
890		T53		BP UDP supply temp high delay					
891		T54		Watchdog OFF delay					
892		T55		Watchdog ON delay					

	A	B	C	D	E	F	G	H	I
893		T56		MI62 Loss-of-Heartbeat delay					
894									
895		T60		Horn1 Motor A On-delay					
896		T61		Horn1 Motor A Off-delay					
897		T62		Horn1 Motor B On-delay					
898		T63		Horn1 Motor B Off-delay					
899		T64		Horn2 Motor A On-delay					
900		T65		Horn2 Motor A Off-delay					
901		T66		Horn2 Motor B On-delay					
902		T67		Horn2 Motor B Off-delay					
903									
904		T70		Target Motor A On-delay					
905		T71		Target Motor A Off-delay					
906		T72		Target Motor B On-delay					
907		T73		Target Motor B Off-delay					
908		T74		Chiller-on delay					
909		T75		Chiller-off delay					
910		T76		Glycol #1-on delay					
911		T77		Glycol #1-off delay					
912									
913		T100		Glycol #2-on delay					
914		T101		Glycol #2-off delay					
915		T102		Fan Interlock Reset Timer					
916		T103		First Coil Req Timer					
917		T104		2nd Coil Req Timer					
918		T105		3rd Coil Req Timer					
919		T106		4th Coil Req Timer					
920		T107		5th Coil Req Timer					
921									
922		T110		6th Coil Req Timer					
923		T111		Coil #1 Off Timer					
924		T112		Coil #2 Off Timer					
925		T113		Coil #3 Off Timer					
926		T114		Coil #4 Off Timer					
927		T115		Coil #5 Off Timer					
928		T116		Coil #6 Off Timer					
929									
930		T120		Condensate Tape Level Hi-Hi delay					
931									
932				**State Usage**					
933									
934		S0	Initial	Horn1 motor A off					
935		S1		Horn1 motor A start delay					
936		S2		Horn1 motor A on					
937		S3		Horn1 motor A stop delay					
938		S4		Horn1 motor A shutdown					
939									

	A	B	C	D	E	F	G	H	I
940		S5	Initial	Watchdog Idle					
941		S6		Watchdog Kick					
942									
943		S7	Initial	Dummy state to evaluate display parameters					
944									
945		S10	Initial	Horn1 motor B off					
946		S11		Horn1 motor B start delay					
947		S12		Horn1 motor B on					
948		S13		Horn1 motor B stop delay					
949		S14		Horn1 motor B shutdown					
950									
951		S20	Initial	Horn2 motor A off					
952		S21		Horn2 motor A start delay					
953		S22		Horn2 motor A on					
954		S23		Horn2 motor A stop delay					
955		S24		Horn2 motor A shutdown					
956									
957		S30	Initial	Horn2 motor B off					
958		S31		Horn2 motor B start delay					
959		S32		Horn2 motor B on					
960		S33		Horn2 motor B stop delay					
961		S34		Horn2 motor B shutdown					
962									
963		S40	Initial	Target motor A off					
964		S41		Target motor A start delay					
965		S42		Target motor A on					
966		S43		Target motor A stop delay					
967		S44		Target motor A shutdown					
968									
969		S50	Initial	Target motor B off					
970		S51		Target motor B start delay					
971		S52		Target motor B on					
972		S53		Target motor B stop delay					
973		S54		Target motor B shutdown					
974									
975		S60	Initial	Chiller OFF					
976		S61		Chiller start					
977		S62		Chiller run					
978		S63		Chiller stop					
979		S64		Chiller shutdown					
980		S65		Chiller condensate shutdown					
981		S66		Chiller condensate shutdown 5 minute delay					
982		S67		Chiller turn off of glycol pumps					
983									
984		S70	Initial	Glycol #1 OFF					
985		S71		Glycol #1 start					
986		S72		Glycol #1 run					

	A	B	C	D	E	F	G	H	I
987		S73		Glycol #1 stop					
988		S74		Glycol #1 shutdown					
989									
990		S100	Initial	Glycol #2 OFF					
991		S101		Glycol #2 start					
992		S102		Glycol #2 run					
993		S103		Glycol #2 stop					
994		S104		Glycol #2 shutdown					
995									
996		S110	Initial	Coil req #1 off					
997		S111		Coil req #1 on					
998		S112	Initial	Coil req #2 off					
999		S113		Coil req #2 on					
1000		S114	Initial	Coil req #3 off					
1001		S115		Coil req #3 on					
1002		S116	Initial	Coil req #4 off					
1003		S117		Coil req #4 on					
1004									
1005		S120	Initial	Coil req #5 off					
1006		S121		Coil req #5 on					
1007		S122	Initial	Coil req #6 off					
1008		S123		Coil req #6 on					
1009		S124	Initial	Coil #1 OFF					
1010		S125		Coil #1 ON					
1011		S126		Coil #1 Off Delay					
1012		S127	Initial	Coil #2 OFF					
1013									
1014		S130		Coil #2 ON					
1015		S131		Coil #2 Off Delay					
1016		S132	Initial	Coil #3 OFF					
1017		S133		Coil #3 ON					
1018		S134		Coil #3 Off Delay					
1019		S135	Initial	Coil #4 OFF					
1020		S136		Coil #4 ON					
1021		S137		Coil #4 Off Delay					
1022									
1023		S140	Initial	Coil #3 OFF					
1024		S141		Coil #3 ON					
1025		S142		Coil #3 Off Delay					
1026		S143	Initial	Coil #4 OFF					
1027		S144		Coil #4 ON					
1028		S145		Coil #4 Off Delay					
1029		S146	Initial	Placeholder for coil comparisons					
1030		S147	Initial	Coil requests balanced with active coils					
1031									
1032		S150		Add coil					
1033		S151		Remove coil					

	A	B	C	D	E	F	G	H	I
1034									
1035				**NOTES:**					
1036				Globe valve up=Cool					
1037				Factory 535=50,20,1 Initial=140,6,0					
1038				Beam permits rung 132, PS permit rung 136					
1039									
1040				**Local Status Display**					
1041				Automation Direct EZ-T10C-F Color Graphics Panel		VMEM			
1042									
1043				**THSR Output to Beam Permit System:**					
1044				Watchdog Timeout (from separate hardware watchdog timer)	NC Relay	JCK22-14			