

Tests

3 Tests sorted by name



The University of Texas at Austin

#108 5LSB - FPT -

Panelboard

NV5 Global | Seay Building Addition | 855119-0600992.00

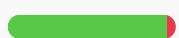
COMPLETE  95% Yes | 5% No | 0% N/A

0 ISSUES

Assigned To NV5

Asset  5LSB

Attempts Most Recent

Attempt No. 1 COMPLETE 

Status set by Kelley Dugosh on 12/1/2021.

- YES** 1 SAFE CONDITIONS (PROTECTIVE GEAR IN-PLACE, AVAILABLE & PROCEDURES OBSERVED).

John Gardner on 6/24/2021 8:25 AM

PFC AND CONTRACTOR TEST REPORTS REVIEW

CONFIRM EACH OF THE FOLLOWING:

- YES** 2 Equipment Information recorded in the PFC DOCUMENT matches the shop drawings and the nameplate data for the electrical equipment. Capture and attach clear photo of nameplate data.

John Gardner on 6/24/2021 8:25 AM

- YES** 3 Test report from Manufacturer (or 3rd party contractor) Panelboard testing and review of the Surge protection Device (SPD) has been submitted in CxAlloy.

John Gardner on 10/12/2021 12:33 PM

COMPLETE

NO testing is performed on the SPD unit

Brian Weise Electrical Contractor, Big State Electric 10_12_2021

SPD not tested or started up by Manufacturer Tech at this time

John Gardner on 10/12/2021 12:33 PM

- YES** 4 Test reports confirm that all conductors have been meggered after installation and before termination. Megger logs attached in Cx Alloy

John Gardner on 10/12/2021 9:59 AM

COMPLETE

3rd Party Insulation TEST REPORT performed by GRUBB ENGINEERING IS
UPLOADED to CxAlloy, April,2021

Megger reports NOT UPLOADED in CxAlloy

John Gardner on 10/12/2021 9:59 AM

- YES** 5 Test reports confirm that all accessible connections have been checked for proper torque/tightness and the torqued connections are properly marked. Torque logs attached in CxAlloy.

John Gardner on 6/24/2021 8:25 AM

Witnessed on 6_23_2021 the bus duct stub termination torque procedure for the

Electrical Equipment.

with Big State Electric,

Torqueing log to be provided in CxAlloy for the electrical equipment.by Big State

John Gardner on 6/24/2021 8:25 AM

- YES** 6 Reports confirm that the Panelboard is properly grounded and an acceptable ground resistance value has been recorded. A 3rd Party Report has been submitted and uploaded to Cx Alloy.

John Gardner on 10/12/2021 9:59 AM

COMPLETE

3rd Party Insulation TEST REPORT performed by GRUBB ENGINEERING IS
UPLOADED to CxAlloy, April,2021Testing NOT COMPLETE. Test the completed grounding system. If the
resistance of the grounding system is more than 5 ohms, install additional rod(s)
to lower to 5 ohms or less. (Fall of Potential Test Report data)

John Gardner on 10/12/2021 10:00 AM

- YES** 7 Reports confirm that Panelboard has been completed and is acceptable for operation. Updated in CxAlloy. John Gardner on 7/9/2021 12:44 PM

VISUAL INSPECTIONS

CONFIRM EACH OF THE FOLLOWING:

- YES** 8 Verify that there is no visible damage to enclosure.. John Gardner on 6/24/2021 8:25 AM
- YES** 9 Confirm interior of enclosure is clean and dry. John Gardner on 6/24/2021 8:25 AM
- YES** 10 Confirm all doors swing freely, latch in open and closed positions. John Gardner on 6/24/2021 8:25 AM
- YES** 11 Verify required NEC area clearances in front. John Gardner on 6/24/2021 8:25 AM
- YES** 12 Panelboard is properly anchored in locations shown on manufacturer's drawings. John Gardner on 6/24/2021 8:25 AM
- NO** 13 Panelboard has the final Circuit Breaker directory completed and installed inside panel door.
FINAL Circuit Breaker directory IS NOT complete and installed inside panel door John Gardner on 6/24/2021 8:25 AM
John Gardner on 6/21/2021 10:23 PM
- YES** 14 Panelboard is properly labeled with proper identification and arc flash labels.
COMPLETE
All identification for the panels have been installed.
Woody Thompson Electrical Contractor, Big State Electric 7_13_2021
All identification labels are NOT COMPLETE John Gardner on 10/12/2021 10:00 AM
John Gardner on 10/12/2021 10:00 AM
- YES** 15 Verify that the feeder cable/bus routing doesn't obstruct access for operation or maintenance for the panelboard. John Gardner on 6/24/2021 8:25 AM
- YES** 16 Confirm cable color coding is properly labeled to meet UT standard color coding for A/B/C/N/G is Red/Black/Blue/White/ Green for 120/208V systems John Gardner on 6/24/2021 8:26 AM
- YES** 17 Verify electrical contractor has the wiring and conduit for the SPD DEVICE and the Integral Disconnect is properly installed and connected per plans and specifications and input from manufacturer. (review SPD PFC)
COMPLETE
NO testing is performed on the SPD unit
Brian Weise Electrical Contractor, Big State Electric 10_12_2021
SPD not tested or started up by Manufacturer Tech at this time John Gardner on 10/12/2021 12:33 PM
John Gardner on 10/12/2021 12:33 PM
- YES** 18 Verify the Circuit breakers are bolt on type. John Gardner on 6/24/2021 8:26 AM

ELECTRICAL INTEGRITY

- YES** 19 After Panelboard is energized, measure and record voltage Phase -Phase ,Phase-Neutral, Phase -Ground & Neutral -Ground under no load conditions. Record results in comment field.
AB 207 AC 207 BC 207 AN 120 BN120 CN 120 AG 120 BG 120 CG 120 NG 0
7_9_2021 John Gardner on 7/9/2021 12:44 PM
John Gardner on 7/9/2021 12:45 PM
- YES** 20 Confirm phase rotation. Record results in comment field.
Phase Rotation COUNTER Clock wise
7_9_2021 John Gardner on 7/9/2021 11:47 AM
John Gardner on 7/9/2021 12:44 PM

END OF TEST

#40 Chilled Water - Chilled Water System

NV5 Global | Seay Building Addition | 855119-0600992.00

COMPLETE  98% Yes | 0% No | 0% N/A

5 ISSUES

Asset  Chilled Water

Attempts Most Recent

Attempt No. 1  Status set by Kelley Dugosh on 12/1/2021.

PRE FUNCTIONAL CHECKLIST SUMMARY

 1	Pre-functional checklist completed by contractor	Jessica Duenez on 11/4/2021 10:20 AM
 2	Contractor confirms system is ready for testing	Jessica Duenez on 11/4/2021 10:20 AM
 3	Contractor confirms all control devices have been installed and calibrated with tolerances specified	Jessica Duenez on 11/4/2021 10:20 AM
 4	Required personnel are available	Jessica Duenez on 11/4/2021 10:20 AM
 5	Required tools and testing materials are available	Jessica Duenez on 11/4/2021 10:21 AM
 6	Point to point completed and document provided	Jessica Duenez on 11/4/2021 10:21 AM
 7	TAB report is available for review	Jessica Duenez on 11/4/2021 10:21 AM
 8	O&M documents available for review	Jessica Duenez on 11/4/2021 10:21 AM
 9	All permanent labeling has been complete	Kelley Dugosh on 11/18/2021 2:36 PM
 10	Perform system inspection	Kelley Dugosh on 11/18/2021 2:36 PM

PREPARATION FOR TESTING

 11	Automatic control, no operator overrides	Jessica Duenez on 11/4/2021 10:22 AM
 12	Trending is setup for the control loops	Jessica Duenez on 11/4/2021 10:24 AM
 13	No alarms are present	Jessica Duenez on 11/4/2021 10:33 AM
1 Issue: TST-40-5		
 14	Graphics complete with links and dynamic visuals as per approved documentation	Kelley Dugosh on 11/18/2021 2:36 PM

VERIFY THE FOLLOWING POINTS ARE DISPLAYED ON THE BAS GRAPHICS:

 15	System Chilled Water Supply Temperature	Jessica Duenez on 11/4/2021 10:34 AM
 16	System Chilled Water Return Temperature	Jessica Duenez on 11/4/2021 10:34 AM
 17	System Chilled Water Flowrate	Jessica Duenez on 11/4/2021 10:34 AM
 18	Bypass Control Valve Removed through RFI	Kelley Dugosh on 8/21/2022 1:40 PM Jessica Duenez on 11/4/2021 3:04 PM
 19	Chilled Water Flow	Jessica Duenez on 11/4/2021 10:34 AM
 20	CHWP-1 Status	Jessica Duenez on 11/4/2021 10:34 AM
 21	CHWP-1 Start/Stop	Jessica Duenez on 11/4/2021 10:34 AM

YES	22	CHWP-1 Speed	Jessica Duenez on 11/4/2021 10:34 AM
YES	23	CHWP-1 Differential Pressure	Jessica Duenez on 11/4/2021 10:34 AM
YES	24	CHWP-2 Status	Jessica Duenez on 11/4/2021 10:34 AM
YES	25	CHWP-2 Start/Stop	Jessica Duenez on 11/4/2021 10:34 AM
YES	26	CHWP-2 Speed	Jessica Duenez on 11/4/2021 10:34 AM
YES	27	CHWP-2 Differential Pressure	Jessica Duenez on 11/4/2021 10:38 AM
YES	28	System Differential Pressure	Jessica Duenez on 11/4/2021 10:38 AM

PARAMETERS AND INITIAL CONDITIONS

YES	29	Record initial differential pressure setpoint 20 psi	Jessica Duenez on 11/4/2021 10:38 AM Jessica Duenez on 11/4/2021 10:38 AM
YES	30	Record differential pressure setpoint range 5 psi	Jessica Duenez on 11/4/2021 10:38 AM Jessica Duenez on 11/4/2021 10:38 AM
YES	31	Record current differential pressure 20 psi	Jessica Duenez on 11/4/2021 10:38 AM Jessica Duenez on 11/4/2021 10:38 AM
YES	32	Record current chilled water supply temperature 43 F	Jessica Duenez on 11/4/2021 10:38 AM Jessica Duenez on 11/4/2021 10:38 AM
YES	33	Record current chilled water return temperature 58 F	Jessica Duenez on 11/4/2021 10:39 AM Jessica Duenez on 11/4/2021 10:39 AM
YES	34	Record current system/building chilled water flow rate	Jessica Duenez on 11/4/2021 10:39 AM
YES	35	Record current campus chilled water flow rate 35 gpm	Jessica Duenez on 11/4/2021 10:39 AM Jessica Duenez on 11/4/2021 10:39 AM

PUMP OPERATION

YES	36	Pumps and DDC to be on standby power, confirmed during EFIT.	Kelley Dugosh on 11/18/2021 2:36 PM
	37	Chilled water pumps during AHU-4 freeze protection included in AHU-4 test	

SYSTEM DIFFERENTIAL PRESSURE CONTROL**PRIMARY PUMP STAGING**

YES	38	Begin test with chilled water pumps OFF	Jessica Duenez on 11/4/2021 1:27 PM
YES	39	Simulate actual DP less than setpoint (20 PSI by design) minus one for 15 minutes (timers can be adjusted for testing)	Jessica Duenez on 11/4/2021 1:29 PM
YES	40	BAS enables lead pump on. Record lead pump Pump 2	Jessica Duenez on 11/4/2021 1:30 PM Jessica Duenez on 11/4/2021 1:30 PM
YES	41	Verify lead pump speed modulates to maintain DP setpoint	Jessica Duenez on 11/4/2021 1:30 PM
YES	42	Record pump speed, actual DP, and system flow SP = 20 psi DP Pressure = 19.5 psi Flow = 15 gpm Speed = 35%	Jessica Duenez on 11/4/2021 1:30 PM Jessica Duenez on 11/4/2021 1:32 PM
YES	43	Simulate all cooling control valves below 90% open for five minutes (timers can be adjusted for testing)	Jessica Duenez on 11/4/2021 1:32 PM

YES	44 Verify DP setpoint resets down by 1 PSI 1 Issue: TST-40-3	Jessica Duenez on 11/4/2021 1:36 PM
YES	45 Verify lead pump speed modulates to maintain DP setpoint	Jessica Duenez on 11/4/2021 1:36 PM
YES	46 Reset down until DP setpoint reaches minimum (10 PSI by design) min sp = 15 psi	Jessica Duenez on 11/4/2021 1:36 PM Jessica Duenez on 11/4/2021 1:36 PM
YES	47 Record pump speed, actual DP, and system flow Pump Speed = 27% DP Pressure = 16 psi SP = 15 psi	Jessica Duenez on 11/4/2021 1:39 PM Jessica Duenez on 11/4/2021 1:39 PM
YES	48 Verify pump maintains DP setpoint	Jessica Duenez on 11/4/2021 2:34 PM
YES	49 Verify DP setpoint does not reduce past the minimum	Jessica Duenez on 11/4/2021 2:34 PM
YES	50 Simulate one cooling control valve 96% open	Jessica Duenez on 11/4/2021 2:34 PM
YES	51 Verify DP setpoint resets up by 1 PSI	Jessica Duenez on 11/4/2021 2:34 PM
YES	52 Verify pump maintains DP setpoint	Jessica Duenez on 11/4/2021 2:34 PM
YES	53 Allow system to return to maximum DP, wait another cycle and verify DP cannot be reset above maximum	Jessica Duenez on 11/4/2021 2:34 PM

STANDBY PUMP STAGING

YES	54 With lead pump running, simulate flow of 199 GPM for ten minutes	Jessica Duenez on 11/4/2021 10:40 AM
YES	55 Verify lead pump continues to modulate to DP setpoint	Jessica Duenez on 11/4/2021 2:21 PM
YES	56 Record lead pump speed and current DP	Jessica Duenez on 11/4/2021 2:21 PM
YES	57 Simulate flow of 201 GPM for ten minutes (timers can be adjusted for testing)	Jessica Duenez on 11/4/2021 2:21 PM
YES	58 Verify lag pump is enabled to start	Jessica Duenez on 11/4/2021 2:21 PM
YES	59 Verify DP setpoint changes to 10 PSI	Jessica Duenez on 11/4/2021 2:33 PM
YES	60 Lead pump matches lag pump speed and they modulate in unison to control to DP setpoint	Jessica Duenez on 11/4/2021 2:33 PM
YES	61 After stabilization. record lead pump speed, lag pump speed and current DP	Jessica Duenez on 11/4/2021 2:33 PM
YES	62 Simulate all cooling control valves below 90% open for five minutes (timers can be adjusted for testing)	Jessica Duenez on 11/4/2021 2:33 PM
YES	63 Verify DP setpoint resets down by 1 PSI	Jessica Duenez on 11/4/2021 2:33 PM
YES	64 Verify both pumps modulate together to maintain setpoint	Jessica Duenez on 11/4/2021 2:33 PM
YES	65 Reset down until DP setpoint reaches minimum (for two running pumps, 5 PSI by design)	Jessica Duenez on 11/4/2021 2:33 PM
YES	66 After stabilization. record lead pump speed, lag pump speed and current DP	Jessica Duenez on 11/4/2021 2:33 PM
YES	67 Verify DP setpoint does not reduce past the minimum	Jessica Duenez on 11/4/2021 2:33 PM
YES	68 Simulate one cooling control valve 96% open	Jessica Duenez on 11/4/2021 2:33 PM
YES	69 Verify DP setpoint resets up by 1PSI	Jessica Duenez on 11/4/2021 2:33 PM
YES	70 Verify both pumps modulate together to maintain setpoint	Jessica Duenez on 11/4/2021 2:34 PM
YES	71 Allow system to return to maximum DP, wait another cycle and verify DP cannot be reset above maximum	Jessica Duenez on 11/4/2021 2:34 PM

PUMP STAGING DOWN

YES	72 Verify both pumps are running at same speed, maintaining DP	Jessica Duenez on 11/4/2021 2:35 PM
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YES	73	Simulate system flow dropping to 199 GPM	Jessica Duenez on 11/4/2021 2:35 PM
YES	74	Verify lag pump stops and lead pump speed increases to maintain DP setpoint	Jessica Duenez on 11/4/2021 2:35 PM
YES	75	Record DP setpoint (could be 10 or 20 based on interpretation of sequence) When pumps turn OFF system goes to minimum.	Jessica Duenez on 11/4/2021 2:35 PM Jessica Duenez on 11/4/2021 2:43 PM
YES	76	Simulate lead pump at minimum speed with actual DP above setpoint+2 for ten minutes (timers can be adjusted for testing)	Jessica Duenez on 11/4/2021 2:35 PM
YES	77	Verify lead pump turns off	Jessica Duenez on 11/4/2021 2:35 PM
YES	78	Return all timers and setpoints to original settings and allow system to return to normal operation	Jessica Duenez on 11/4/2021 2:35 PM

PUMP VFD OPERATION AND PUMP FAILURE

CHWP-1

YES	79	With pump commanded OFF at the BAS, place HOA switch in HAND mode	Jessica Duenez on 11/4/2021 2:31 PM
YES	80	Verify pump starts	Jessica Duenez on 11/4/2021 3:03 PM
YES	81	Verify status mismatch alarm is generated at the BAS	Jessica Duenez on 11/4/2021 3:03 PM
YES	82	Verify pump speed responds to speed control at the VFD	Jessica Duenez on 11/4/2021 3:03 PM
YES	83	Record minimum and maximum programmed speeds (18-60Hz by design, adj) 20 Hz -	Jessica Duenez on 11/4/2021 3:03 PM Jessica Duenez on 11/4/2021 3:03 PM
YES	84	Return pump to AUTO operation and manipulate system so pump is commanded ON at the BAS	Jessica Duenez on 11/4/2021 3:03 PM
YES	85	Put HOA switch in OFF mode	Jessica Duenez on 11/4/2021 3:03 PM
YES	86	Verify pump turns OFF and verify BAS receives alarm	Jessica Duenez on 11/4/2021 3:03 PM
YES	87	Return pump to AUTO operation	Jessica Duenez on 11/4/2021 3:03 PM

CHWP-2

YES	88	With pump commanded OFF at the BAS, place HOA switch in HAND mode 1 Issue: TST-40-1	Jessica Duenez on 11/4/2021 2:32 PM
YES	89	Verify pump starts	Jessica Duenez on 11/4/2021 3:03 PM
YES	90	Verify status mismatch alarm is generated at the BAS	Jessica Duenez on 11/4/2021 3:03 PM
YES	91	Verify pump speed responds to speed control at the VFD	Jessica Duenez on 11/4/2021 3:03 PM
YES	92	Record minimum and maximum programmed speeds (18-60Hz by design, adj) 15 Hz	Jessica Duenez on 11/4/2021 3:03 PM Jessica Duenez on 11/4/2021 3:03 PM
YES	93	Return pump to AUTO operation and manipulate system so pump is commanded ON at the BAS	Jessica Duenez on 11/4/2021 3:03 PM
YES	94	Put HOA switch in OFF mode	Jessica Duenez on 11/4/2021 3:03 PM
YES	95	Verify pump turns OFF and verify BAS receives alarm	Jessica Duenez on 11/4/2021 3:03 PM
YES	96	Return pump to AUTO operation	Jessica Duenez on 11/4/2021 3:03 PM

PUMP FAILURE

YES	97	Manipulate the system such that one pump is commanded ON as the lead pump. 1 Issue: TST-40-2	Jessica Duenez on 11/4/2021 1:39 PM
YES	98	Turn the lead pump OFF at the disconnect.	Jessica Duenez on 11/4/2021 1:39 PM

YES	99	Verify pump failure alarm is generated at the BAS.	Jessica Duenez on 11/4/2021 1:41 PM
YES	100	Verify lag pump starts and becomes new lead pump.	Jessica Duenez on 11/4/2021 1:43 PM
YES	101	Turn the failed pump back on at the disconnect and verify it stays off as lag pump.	Jessica Duenez on 11/4/2021 1:46 PM
YES	102	Verify pump failure alarm clears.	Jessica Duenez on 11/4/2021 1:46 PM
YES	103	Turn the lead pump OFF at the disconnect.	Jessica Duenez on 11/4/2021 1:46 PM
YES	104	Verify pump failure alarm is generated at the BAS.	Jessica Duenez on 11/4/2021 1:46 PM
YES	105	Verify lag pump starts and becomes new lead pump.	Jessica Duenez on 11/4/2021 1:46 PM
YES	106	Turn the failed pump back on at the disconnect and verify it stays off as lag pump.	Jessica Duenez on 11/4/2021 1:46 PM

LEAD/LAG PUMP ROTATION

YES	107	Describe manner of pump rotation: two conflicting directives in sequence (every 7 days, every 750 hours). Test currently written to the 7 days sequence Every day 3:00 am systems looks for lead pump run time hours > lag pump run time hours + run time hours setpoint (750 hours)	Jessica Duenez on 11/4/2021 2:25 PM Jessica Duenez on 11/4/2021 2:27 PM
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1 Issue: [TST-40-4](#)

YES	108	Record CHWP-1 pump runtime hours	Jessica Duenez on 11/4/2021 2:25 PM
YES	109	Record CHWP-2 pump runtime hours	Jessica Duenez on 11/4/2021 2:25 PM
YES	110	Record lead pump	Jessica Duenez on 11/4/2021 2:25 PM
YES	111	Simulate a pump runtime switchover while lag pump is not operating, and lead pump is operating	Jessica Duenez on 11/4/2021 2:25 PM
YES	112	Lag pump starts and proves operation (via pump DP)	Jessica Duenez on 11/4/2021 2:25 PM
YES	113	Lead pump disabled by the BAS, turns off	Jessica Duenez on 11/4/2021 2:25 PM

LAG PUMP TESTING PERIOD

YES	114	Record lead pump 2	Kelley Dugosh on 11/11/2021 8:07 AM Kelley Dugosh on 11/11/2021 8:07 AM
YES	115	Simulate lag pump not running for 10 days	Kelley Dugosh on 11/11/2021 8:07 AM
YES	116	BAS starts the lag pump for a one hour testing period (timer can be changed for testing)	Kelley Dugosh on 11/11/2021 8:07 AM
YES	117	Verify lag pump runs at minimum speed for the testing period	Kelley Dugosh on 11/11/2021 8:07 AM
YES	118	Verify lead pump modulates to maintain the DP setpoint with the lag pump at minimum speed	Kelley Dugosh on 11/11/2021 8:07 AM
YES	119	Reset the timer to original setting of 1 hour	Kelley Dugosh on 11/11/2021 8:07 AM

ALARMS**SYSTEM TEMPERATURE ALARMS**

YES	120	Record supply temperature alarm limits 35 Low , 65 High	Jessica Duenez on 11/4/2021 2:53 PM Jessica Duenez on 11/4/2021 3:00 PM
YES	121	Simulate the low alarm and verify alarm is received at the BAS	Jessica Duenez on 11/4/2021 3:01 PM
YES	122	Simulate the high alarm and verify alarm is received at the BAS	Jessica Duenez on 11/4/2021 3:01 PM
YES	123	Record return temperature alarm limits 80 High, 40 Low	Jessica Duenez on 11/4/2021 3:01 PM Jessica Duenez on 11/4/2021 3:01 PM
YES	124	Simulate the low alarm and verify alarm is received at the BAS	Jessica Duenez on 11/4/2021 3:01 PM

YES 125 Simulate the high alarm and verify alarm is received at the BAS

Jessica Duenez on 11/4/2021 3:01 PM

Issues 5

TST-40-1 CLOSED

With CHWP01 pump running and feedback matching. KW is reading 0

Source Test 40, Attempt 1, Line 88

With pump commanded OFF at the BAS, place HOA switch in HAND mode

Assigned To Entech

Asset  Chilled Water

Due Date 11/18/2021

Created By Jessica Duenez

Identified On 11/4/2021 11:17 AM

Both pumps checked. kW is reading with pumps ON, 0 with pumps OFF. Issue closed.

Kelley Dugosh on 11/11/2021 at 08:22 AM

Commissioning Authority, NV5

TST-40-2 CLOSED

CHWP01 - DP value is bouncing and causing the pump status to switch between ON/OFF

Source Test 40, Attempt 1, Line 97

Manipulate the system such that one pump is commanded ON as the lead pump.

Assigned To Entech

Asset  Chilled Water

Due Date 11/18/2021

Created By Jessica Duenez

Identified On 11/4/2021 11:18 AM

DP across the pump alarm setpoint raised from 1.0 to 1.5 PSI. Not an issue all day, closing.

Kelley Dugosh on 11/11/2021 at 01:12 PM

Commissioning Authority, NV5

TST-40-3 CLOSED

DP setpoint did not change based on valve position

Source Test 40, Attempt 1, Line 44

Verify DP setpoint resets down by 1 PSI

Assigned To Entech

Asset  Chilled Water

Due Date 11/18/2021

Created By Jessica Duenez

Identified On 11/4/2021 11:19 AM

issue corrected.

Jessica Duenez on 11/04/2021 at 02:25 PM

Commissioning Authority

TST-40-4 CLOSED

Pumps alternate between lead and lag constantly if they are close in run time hours.

Source Test 40, Attempt 1, Line 107

Describe manner of pump rotation: two conflicting directives in sequence (every 7 days, every 750 hours).

Test currently written to the 7 days sequence

Assigned To Entech
Asset  Chilled Water

Due Date 11/18/2021

Created By Jessica Duenez

Identified On 11/4/2021 2:10 PM

issue verified.

Jessica Duenez on 11/04/2021 at 02:24 PM
Commissioning Authority

TST-40-5 CLOSED

BacNet points keep going in out on CHW pums. Observed during testing 11/4/2021.

Source Test 40, Attempt 1, Line 13

No alarms are present

Assigned To Chris Gerber
Asset  Chilled Water

Due Date 11/18/2021

Created By Jessica Duenez

Identified On 11/4/2021 3:05 PM

BacNet points still an issue. Recommend full cleaning of the VFDs (HWPAs as well).

Kelley Dugosh on 11/18/2021 at 10:46 AM
Commissioning Authority, NV5

Entech and Way checked the wiring and cover. Haven't seen the issue since they checked. Will continue to monitor before closing.

Kelley Dugosh on 11/11/2021 at 01:13 PM
Commissioning Authority, NV5

#51 Domestic Hot Water System

NV5 Global | Seay Building Addition | 855119-0600992.00

COMPLETE  100% Yes | 0% No | 0% N/A

3 ISSUES

Asset  Dom Hot Water

Attempts Most Recent

Attempt No. 1 COMPLETE

Status set by Kelley Dugosh on 3/2/2022.

PRE FUNCTIONAL CHECKLIST SUMMARY

 1	Pre-functional checklist completed by contractor	Kelley Dugosh on 10/15/2021 12:46 PM
 2	Contractor confirms system is ready for testing	Kelley Dugosh on 10/15/2021 12:46 PM
 3	Contractor confirms all control devices have been installed and calibrated with tolerances specified	Kelley Dugosh on 10/15/2021 12:46 PM
 4	Required personnel are available	Kelley Dugosh on 10/15/2021 12:46 PM
 5	Required tools and testing materials are available (water source for filling)	Kelley Dugosh on 10/15/2021 12:46 PM
 6	O&M documents available for review	Kelley Dugosh on 10/15/2021 12:46 PM
 7	All permanent labeling has been complete	Kelley Dugosh on 10/15/2021 12:48 PM

FUNCTIONAL TEST

 8	Perform visual inspection of Domestic Hot water system. 10.15.21 ET-1 damaged insulation needs to be replaced. On Spawglass punch list.	Kelley Dugosh on 10/15/2021 12:47 PM Kelley Dugosh on 3/2/2022 1:53 PM
	3.2.22 Update: Domestic hot water test had numerous failed starts and issues to resolve. Final test was 2.25.22. Issues that were resolved to fix the system. Local sink TMVs removed from system. Temperature gauges in the mech room checked for accuracy. Bathroom sinks/fixtures replaced. TMV replaced. TMV set screw needed dialing in multiple times. Test passed to sequence. Recommend increasing the 'pump enable' point for the DHW recirculation pump from 105degF to 110 degF to increase the lower end temperatures seen at the beginning of each test.	

 9	Verify Domestic hot water system has been balanced.	Kelley Dugosh on 10/15/2021 12:47 PM
 10	Verify Domestic water system has been cleaned, sterilized and sampled for quality.	Kelley Dugosh on 3/2/2022 1:53 PM
 11	BAS monitoring points established, graphics for the domestic hot water system complete and trending setup is complete and started.	Kelley Dugosh on 10/15/2021 12:48 PM

VERIFY FOLLOWING POINTS ARE MONITORED AT BAS:

 12	Domestic Hot Water Supply Temperature (not on detail, confirm not needed/wanted)	Kelley Dugosh on 11/11/2021 8:47 AM
 13	Domestic Hot Water Return Temperature	Kelley Dugosh on 10/15/2021 12:49 PM
 14	Hot Water Circulation Pump (HWCP-1) Status	Kelley Dugosh on 10/15/2021 12:49 PM

DOMESTIC WATER HEATERS

YES	15	Verify both water heaters are operating continuously	Kelley Dugosh on 10/13/2021 12:12 PM
YES	16	Record DHW temperature before entering the TMV	Kelley Dugosh on 10/13/2021 12:39 PM
YES	17	Verify temperature is 140°F	Kelley Dugosh on 10/13/2021 12:39 PM
YES	18	Adjust set point at each electric water heater down 5 degrees	Kelley Dugosh on 10/13/2021 12:39 PM
YES	19	Confirm electric water heaters maintain new setpoint	Kelley Dugosh on 10/13/2021 12:39 PM
YES	20	Record DHW temperature before entering the TMV	Kelley Dugosh on 10/13/2021 12:39 PM
YES	21	Return setpoint to 140°F	Kelley Dugosh on 10/13/2021 12:39 PM
YES	22	Verify system returns to maintaining original setpoint	Kelley Dugosh on 10/13/2021 12:39 PM
YES	23	Verify any temperature range alarms associated with the water heaters, describe alarm and record any issues DHWS Temp alarms Alarm setting: under 100F for five minutes. over 130F for five minutes	Kelley Dugosh on 11/11/2021 9:16 AM Kelley Dugosh on 11/11/2021 8:50 AM

1 Issue: [TST-51-1](#)**HOT WATER CIRCULATION PUMP**

YES	24	Record ranges for DHWR temperature sensor start/stop control for HWCP-1 105°F on, 115°F off	Kelley Dugosh on 10/13/2021 12:27 PM Kelley Dugosh on 10/13/2021 9:10 AM
YES	25	Override temp sensor reading at BAS to start HWCP-1	Kelley Dugosh on 10/13/2021 12:29 PM
YES	26	Record temperature, verify HWCP-1 starts	Kelley Dugosh on 10/13/2021 12:29 PM
YES	27	Override temp sensor reading at BAS to stop HWCP-1	Kelley Dugosh on 10/13/2021 12:29 PM
YES	28	Record temperature, verify HWCP-1 stops	Kelley Dugosh on 10/13/2021 12:29 PM
YES	29	Verify any temperature range alarms associated with the sensor and pump, describe alarm and record any issues	Kelley Dugosh on 10/13/2021 12:29 PM
YES	30	Verify pump disconnect	Kelley Dugosh on 10/13/2021 12:29 PM

THERMOSTATIC MIXING VALVE

YES	31	Record entering hot water temperature (should be 140°F)	Kelley Dugosh on 2/25/2022 8:56 AM
YES	32	Record entering cold water temperature	Kelley Dugosh on 2/25/2022 8:56 AM
YES	33	Record discharge hot water temperature (should be 120°F) 115	Kelley Dugosh on 2/25/2022 8:56 AM Kelley Dugosh on 2/25/2022 8:56 AM

1 Issue: [TST-51-2](#)

YES	34	Record discharge water pressure 53psi	Kelley Dugosh on 2/25/2022 8:57 AM Kelley Dugosh on 2/25/2022 8:57 AM
YES	35	Manipulate the TMV incoming water temperatures (use start/stop of pump or change settings in electric water heater). Describe which method was used	Kelley Dugosh on 3/2/2022 1:47 PM
YES	36	Confirm the TMV responds and continues to maintain 120°F DHWS temperature	Kelley Dugosh on 3/2/2022 1:47 PM
YES	37	Release overrides, allow system to return to normal operation	Kelley Dugosh on 3/2/2022 1:47 PM

Issues 3

TST-51-1 CLOSED

Supply temperature sensor not yet installed, once installed, verify BAS alarm as well.

Assigned To Entech
Asset Dom Hot Water

Alarm setting: under 100F for five minutes.
over 130F for five minutes

Source Test 51, Attempt 1, Line 23

Verify any temperature range alarms associated with the water heaters, describe alarm and record any issues

Discipline Controls
Due Date 10/27/2021
Created By Kelley Dugosh
Identified On 10/13/2021 12:33 PM

Alarms verified, issue closed.

Kelley Dugosh on 11/11/2021 at 09:17 AM
Commissioning Authority, NV5

Sensor installed, added to graphics and alarm setup.

Tim Stewart on 10/29/2021 at 10:44 AM
Controls Contractor, Entech

TST-51-2 CLOSED

TMV currently set to 130F, needs to be changed to 120F.

Assigned To Way Mechanical
Asset Dom Hot Water
Discipline Plumbing
Due Date 10/27/2021
Created By Kelley Dugosh
Identified On 10/13/2021 12:50 PM

Source Test 51, Attempt 1, Line 33

Record discharge hot water temperature (should be 120°F)

This has been completed. Still having DHW issues but tracking in new issue. Issue closed.

Kelley Dugosh on 12/08/2021 at 08:24 AM
Commissioning Authority, NV5

TST-51-3 CLOSED

Issues with DHW supply temperatures. TMV most likely reason, review system after placement/QC

Asset Dom Hot Water
Discipline Plumbing
Due Date 3/14/2022
Created By Kelley Dugosh
Identified On 2/28/2022 10:16 AM

Source Test 51

Domestic Hot Water System

Issues resolved/verified Feb 25. Issue closed.

Kelley Dugosh on 02/28/2022 at 10:17 AM
Commissioning Authority, NV5