Unitywater

Serving you today, **investing in tomorrow.**

F8943 - SPS Commissioning CheckSheet Template

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Document Details

This document is only valid on the day it was printed.

Document Owner	Manager Capital Delivery
References	SPS Commissioning Worksheet End to End Test Sheet

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Contents

General

In using this document, due consideration of all other relevant Unitywater Standard Drawings and Unitywater Standard Specifications should be adhered to.

Vendor Verification

PROJECT TITLE:			**FINANCE NO:**
General			**Result / Init. / Date**
Mechanical			
1. Pump test results been reviewed and conform with applicable standards			OK ☐
2. Flowmeter Calibration certificate received			OK ☐
Civil			
3. Check pressure test on rising main has passed			OK ☐
4. Check wet-well leakage test (hydrotest) has passed			OK ☐
CONSTRUCTOR			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER SIGNOFF			
Name:	*Position:*	*Signature:*	*Date:*

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PROJECT TITLE:	FINANCE NO:
Factory Acceptance Testing (FAT)	**Result / Init. / Date**
Electrical, Instruments and Control (E, I & C)	
Switchboards	
1. The switchboard manufacturer has been provided with current Unitywater Standard Switchboard Drawings (OR, if "Design and Construct", the 'For Construction' drawings have been reviewed by Unitywater and provided to the switchboard manufacturer)	OK ☐
2. The switchboard manufacturer has undertaken a full point-to-point test on all switchboard wiring	OK ☐
3. The switchboard manufacturer has provided evidence of point-to-point testing in the form of marked up wiring drawings (each connection highlighted as tested)	OK ☐
4. Any changes, outcomes or additional detail resulting from FAT testing have been marked on the drawings with the highlighted test connections. Mark-ups include all available circuits, inputs, power supply voltages, labels, wire numbers, terminals etc. These marked-up drawings are labled 'FAT'.	OK ☐
5. Cabinet and paintwork have been inspected for any visual damage	OK ☐
6. The following is as per current drawings: • Incomer arrangements • Cable entry provisions • Interlocking provisions • Incomer protection (Fault current rating) and discrimination	OK ☐
7. Switchboard rating nameplate is attached	OK ☐
8. Switchboard Test Certificate has been checked	OK ☐
9. Software used during FAT is available	OK ☐
10. Any deficiencies have been recorded to a 'FAT punchlist register' and rectified	OK ☐
Instrumentation	
11. Calibration certificates have been received for instruments	OK ☐
Software	
12. Software for Outstation Type is loaded	OK ☐
13. Software blocks have been fat tested (if non standard)	OK ☐

CONSTRUCTOR			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER SIGNOFF			
Name:	*Position:*	*Signature:*	*Date:*

Pre-commissioning

PROJECT TITLE:	FINANCE NO:
Preliminaries Checklist	**Result / Init. / Date**
1. Check all commissioning personnel have been inducted to site	OK ☐
2. Check risk assessments and SWMS have been produced for all Pre-commissioning and Commissioning activities	OK ☐
3. The site is safe for commisisoning works to commence. Safety requirements include: • Covers and grills installed and flush • Davit mounting points certified • Fall arest mounting points certified • Handrails, fencing, gates and chains installed correctly • Emergency procedures available • Safety signage in place (PPE, Elecricity, SWL, Danger etc.)	OK ☐
4. Check “danger electric” marker bricks are installed at ground level and painted yellow where applicable	OK ☐
5. Rising Main acceptance testing according to standard and passed	OK ☐
6. Gravity Main acceptance testing according to standard and passed	OK ☐
7. ‘As Constructed’ survey by licenced surveyor complete	OK ☐
8. Changes to any detail as shown on the ‘For Construction’ drawings noted on a set of ‘For Construction’ drawings and marked ‘As Constructed	OK ☐
9. Current Unitywater Standard Drawings are on site (OR, if “Design and Construct”, the ‘For Construction’ drawings have been reviewed by Unitywater)	OK ☐
10. All required civil works testing (ITPs) completed by Contracts Inspector	OK ☐
11. Operation and Maintenence Manuals have been received for Vendor supplied components and the Functional Specification is available	OK ☐
12. Electical supply and metering available on site	OK ☐
13. Pole / pillar termination method meets all requirements	OK ☐
14. Check operation of all locks on switchboards	OK ☐
15. Check all cable supports and check for obstructions (e.g. cables not obstructing when lifting pump)	OK ☐
16. Selected control equipment is suitable for selected pump manufacturer	OK ☐
17. Test documentation for Mechanical equipment and Instrumentation has been received. These generally include: • Factory test results • Test compliance cetificates • Instrument calibration certificates • Warranty information	OK ☐

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18. FAT completed and critical punchlist items rectified			OK ☐
CONSTRUCTOR			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER SIGNOFF			
Name:	*Position:*	*Signature:*	*Date:*

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PROJECT TITLE:		FINANCE NO:
Pre-commissioning Checklist		**Result / Init. / Date**
General		
1. Check Preliminaries Checklist completed and signed off		OK ☐
Network		
1. Check Commissioning Plan has been approved by Unitywater		OK ☐
2. Advise Network Operations and Control Room of commencement of pre-commissioning acivities and proposed timing of performance and SAT testing		OK ☐
3. Check Network Operations and Control Room are ready for performance and SAT testing and appropriate resources are availbale to assist		OK ☐
4. Confirm Network Operations are aware of impact on downstream infrastructure		OK ☐
5. Advise treatment plant operators of proposed timing of performance and SAT testing (fluctuating load)		OK ☐
6. Check sufficient water / recycled water is available for testing		OK ☐
7. Ensure impacts on upstream infrastructure from changes to overflow level have been assessed		OK ☐
Electrical, Instruments and Control (E, I & C)		
Generators		
1. Check generator mains and earth cables are installed and connected		OK ☐
2. Record the cable insulation resistance of the 3 phases	L1 L2 L3	_____ MΩ _____ MΩ _____ MΩ
3. Record earth loop impedance		_____ Ω
4. Check point-to-point phase continuity	R to L1 W to L2 B to L3	OK ☐ OK ☐ OK ☐
Switchboards		
5. ENSURE SWITCHBOARD IS <u>NOT</u> ENERGISED		OK ☐
6. Check mains and earth cables are installed and connected		OK ☐
7. Record the cable insulation resistance of the 3 phases	L1 L2 L3	_____ MΩ _____ MΩ _____ MΩ

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8. Record earth loop impedance		_____ Ω
9. Check point-to-point phase continuity	R to L1 W to L2 B to L3	OK ☐ OK ☐ OK ☐
10. Check Incomer protection set as per design		OK ☐
11. Check all CT and other links are in place		OK ☐
12. Check correct glands have been utilised for cable entries		OK ☐
13. Cable screens and earthing is as per design		OK ☐
14. Ensure switchboard main Incomer is turned OFF and tagged		OK ☐
15. Check MEN connection		OK ☐
16. Turn on mains switch		OK ☐
17. ACKNOWLEDGE SWITCHBOARD IS NOW ENERGISED		OK ☐
18. Check 3 phase voltages	AB BC CA	_____ V _____ V _____ V
Lighting and GPOs		
19. Check light circuit breaker conforms to electrical drawings		OK ☐
20. GPO circuit breaker(s) conform to electrical drawings		OK ☐
21. Check earth leakage circuit breaker has been tested and results are available		OK ☐
22. Internal and external lights are connected and working		OK ☐
23. Internal and external GPOs are connected and working		OK ☐
Level Transducers		
24. Check surge protection barriers are installed (control panel and field). Pay particular attention to earth screen terminators.		OK ☐
25. Check connection from hydrostatic level probe No.1 to the transmitter and confirm correct operation		OK ☐
26. Check connection from hydrostatic level probe No.2 to the transmitter and confirm correct operation		OK ☐
27. Check scaling conforms to wet well design requirements		OK ☐
Flowmeters		
28. Check calibration certificate has been received		OK ☐
29. Check mag flow head is connected to flowmeter converter		OK ☐
30. Check correct supply voltage available at converter		OK ☐

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31. Check analogue output is correctly connected to RTU and operating correctly	OK ☐
32. Check totaliser output is correctly connected to RTU and operating correctly	OK ☐
33. Check mechanical (vandal) and UV protection installed on external cable	OK ☐
Field Devices	
34. Check installation of high / overflow level switch	OK ☐
35. Check calibration of all analogue signals (including flow and pressure transmitters)	OK ☐
36. Check setting of pressure switches	OK ☐
37. Verify level controller (hydrostatic probe) calibration	OK ☐
Pump Motors	
38. Check pump motor name plate details have been received and applied to asset management form and electrical drawings and a second plate is mounted on the switchboard pump control door	OK ☐
39. Check pump motor name plate has been applied to MCC or disconnection box	OK ☐
40. Record pump motor winding insulation resistance R - W @ 1000V R - B @ 1000V W - B @ 1000V R - E @ 1000V W - E @ 1000V B - E @ 1000V	 _____ MΩ _____ MΩ _____ MΩ _____ MΩ _____ MΩ _____ MΩ
41. Record pump motor winding resistance U - U1 V – V1 W – W1	 _____ Ω _____ Ω _____ Ω
42. Check all motor protection equipment operates as specified (e.g. water in oil sensor, thermistors, vibration sensors, bearing temperatures etc.)	OK ☐
43. For variable frequiency drive (VFD), check drive settings are setup and settings recorded	OK ☐
44. For soft starter, confirm Soft Starter settings are setup and settings recorded	OK ☐
45. For direct on-line (DOL) starter, check overload settings correct and recorded on drawing	OK ☐
46. Perform bump test to confirm correct rotation direction	OK ☐
47. Tag pump motor “out of service” to indicate readiness for testing	OK ☐
Overflow and Emergency Start Circuits	
48. Confirm overflow level RL	_____ m RL

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49. Ensure overflow level switch is set up to the correct overflow level *(sufficient distance below overflow to allow for switch activation)* and confirm correct operation	OK ☐
50. Check installation and correct operation of emergency start circuit	OK ☐
Pump Disconnection Boxes	
51. Check incoming and outgoing cables have been secured correctly	OK ☐
52. Check all conduits have been sealed to prevent gassing through conduits	OK ☐
Radio	
53. Check radio feeder & antenna installation and cable testing (antenna to radio) have been performed, and results certificate received	OK ☐
54. Check surge protection and fly lead is connected between antenna and radio	OK ☐
55. Check Communications earthing kits and earthing are installed on feeder and Surge Diverter respectively	OK ☐
56. Record radio system information Check & Verify Make & Model are correct Record Serial #	OK ☐ _____
57. Check unit is powered with correct polarity and voltage 12V DC Supply	OK ☐
58. Check radio is programmed to the correct channel Record frequency	OK ☐ _____MHz
59. Check radio configuration including stream id serial paramaters are set correctly for the Outstation and record	OK ☐ _____ _____ _____ _____
60. Check data radio diagnostics communication working correctly	OK ☐
Remote Telemetry Units (RTU)	
61. Check unit is powered with correct polarity and voltage DC Supply(ies)	OK ☐
62. Check the UPS battery is connected and charging	OK ☐
63. Check communication is working	OK ☐
64. Check I/O is operational and conforms with current drawings	OK ☐
Control System	
65. Record type of control system installed (i.e. SCADAPack, MultiSmart, MT2-PC)	_____

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66. Record controller information Manufacturer Model type Serial no Firmware rev Software rev	 _____ _____ _____ _____ _____
End to End Testing	
67. Notify control room of impending end-to-end test (minimum 5 days notice)	OK ☐
68. Check end-to-end test sheet has been reviewed and approved by control room	OK ☐
69. Complete End-to-End Test Sheet to verify communication to SCADA	OK ☐
Mechanical	
General	
70. Check layout conforms with 'For Construction' piping drawings	OK ☐
71. Undertake visual examination of installation and finish of all pipework, mechanical devices, valves, fittings and pump units	OK ☐
72. Check accuracy of tagging and labelling	OK ☐
73. Check RPZD has been installed by appropriately licenced plumber	OK ☐
74. Check functionality and accessibility of mobile crane (franna)	OK ☐
75. Check for any debris capable of causing damage to mechanical equipment when pumps are started	OK ☐
76. Check accessibility of access covers and equipment for operational and maintenence purposes	OK ☐
77. Check equipment is guarded appropriately	OK ☐
78. Check stairways, landings and access ladders comply with design requirements	OK ☐
79. Check that all Device O&M Manuals are available	OK ☐
80. Check that manufacturers' requirements have been met (i.e. alignment, lubrication, preparation, priming etc.)	OK ☐
81. Check instrumentation nozzles are provided in accordance with design (correct side of equipment e.g. US/DS)	OK ☐
82. Check installation and operation of instrument isolation valves	OK ☐
83. Check directional requirements (i.e. pump rotation, check valve direction etc.)	OK ☐
84. Check commissioning pressure transmitters or gauges on either side of pump are operational	OK ☐
Flowmeter	
85. Flowmeter calibration certificate received	OK ☐

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86. Check earthing straps are installed accross both flowmeter flanges, earthing rings and to earth as specified by the equipment manufacturer			OK ☐
Pumps			
87. Check impeller has a free shaft			OK ☐
88. Prime pumps with water			OK ☐
89. Check correct pump curves are on site			OK ☐
Rising Main			
90. Check pressure test has been undertaken according to relevant standard and passed			OK ☐
91. Check pipework connections to UW network have been successfully completed			OK ☐
92. Charge the rising main and ensure air is purged			OK ☐
CONSTRUCTOR			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER SIGNOFF			
Name:	*Position:*	*Signature:*	*Date:*

Wet Testing

PROJECT TITLE:	FINANCE NO:	
Commissioning Schedule	**Result / Init. / Date**	**UW Witness / Initials**
General		
1. Check Pre-commissioning Checklist completed and signed off	OK ☐	
Level Sensor Checks		YES ☐
2. Record Top of Slab RL (m) and distance from Top of Slab to each level sensor in Commissioning Worksheet	OK ☐	
3. Record well diameter and total depth for volume calculations in Commissioning Worksheet	OK ☐	
4. Confirm wet well level indicated by the level probe is reflective of the actual wet well level and record readings in Commissioning Worksheet	OK ☐	
5. Confirm functioning of high and high high (overflow) level alarms ***Note that the overflow structure may only be brought on-line once 'As Constructed' overflow level has been confirmed (to remain bunged off until level confirmed)***	OK ☐	
Pump Checks		
Motor Checks		YES ☐
6. Ensure correct parameters are set in the VFD or Soft Starter if applicable	OK ☐	
7. Start pump with discharge valve closed and ensure the pump is running without undue noise, vibration and temperature	OK ☐	
8. To ensure motor load balancing, record: Pump running amps L1 Pump running amps L2 Pump running amps L3	 _____A _____A _____A	
9. Stop pump	OK ☐	
10. Complete Low Power Tuning (Danfoss VFD) and record values into Commissioning Worksheet	OK ☐	
11. Repeat steps 7 to 10 for second pump/drive	OK ☐	
Fill and Bleed Rising Main		YES ☐
12. Calculate volume of water required to fill rising main	OK ☐	
13. Ensure sufficient water in wet well to fill rising main and perform pump operation test	OK ☐	

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14. Open pump discharge valve	OK ☐	
15. Run pump and bleed air from rising main	OK ☐	
16. Operate pump from 35 to 50 Hz in 5 Hz increments (if VFD type), check for abnormal movement or vibration	OK ☐	
17. Perform visual inspection of pump, all piping, fittings and flanged joints for leakage	OK ☐	
Pump Performance and Flowmeter Accuracy		YES ☐
18. Complete Draw Down test and verify flowmeter accuracy	OK ☐	
19. Complete Pump Performance test including shutoff head	OK ☐	
20. Use Commissioning Worksheet to record and assess results	OK ☐	
Pump Control Checks		
Duty Pump Fault Test (2 pumps)		YES ☐
21. Select both pumps to “off” position	OK ☐	
22. Ensure assist start level > wet well level > duty start level	OK ☐	
23. Ensure pump discharge valves are open	OK ☐	
24. Confirm both drives have no faults present	OK ☐	
25. Select Pump 1 (Duty Pump) to “automatic” position	OK ☐	
26. Confirm Duty Pump running	OK ☐	
27. Select Pump 2 (Duty Assist) to “automatic” position	OK ☐	
28. Fault Duty Pump – i.e. open one c/b feeder for phase failure relay	OK ☐	
29. Confirm Duty Assist pump starts	OK ☐	
30. Stop system – both pumps to “off” position	OK ☐	
31. Select Pump 2 as Duty Pump	OK ☐	
32. Select Pump 1 as Duty Assist	OK ☐	
33. Repeat Steps 22 to 30	OK ☐	
Duty / Assist Test (2 pumps)		YES ☐
34. Select both pumps to “off” position	OK ☐	
35. Ensure assist start level > wet well level > duty start level	OK ☐	
36. Ensure pump discharge valves are open	OK ☐	
37. Confirm both drives have no faults present	OK ☐	
38. Select both pumps to “automatic” position	OK ☐	
39. Confirm Pump 2 (Duty Pump) running	OK ☐	

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40. Manually override wet well level > than assist start level	OK ☐	
41. Confirm Assist Pump started	OK ☐	
42. Manually override wet well level < assist stop level	OK ☐	
43. Confirm Duty Assist stopped	OK ☐	
44. Manually override wet well level < duty stop level	OK ☐	
45. Confirm Duty Pump stopped	OK ☐	
46. Select Pump 1 as Duty Pump	OK ☐	
47. Select Pump 2 as Duty Assist	OK ☐	
48. Repeat Steps 35 to 45	OK ☐	
49. Select both pumps to “off” position	OK ☐	
Pump Cycling		YES ☐
50. Manually override wet well level < duty stop level (pumps are stopped)	OK ☐	
51. Ensure wet well level > duty start level	OK ☐	
52. Confirm both drives have no faults present	OK ☐	
53. Ensure pump discharge valves are open	OK ☐	
54. Select both pumps to “automatic” position	OK ☐	
55. Record which pump is selected as Duty Pump by controller	_____	
56. Manually override wet well level > duty start level	OK ☐	
57. Confirm Duty Pump running	OK ☐	
58. Manually override wet well level < duty stop level	OK ☐	
59. Confirm Duty Pump stopped	OK ☐	
60. Record which pump is selected as Duty Pump by controller	_____	
61. Select both pumps to “off” position	OK ☐	
Emergency Start Circuit		YES ☐
62. Ensure sufficient water in wet well for test	OK ☐	
63. Turn off the RTU	OK ☐	
64. Select both pumps to “automatic” position	OK ☐	
65. Simulate a wet well high high level (manually lowering the probe is the preferred method)	OK ☐	
66. Confirm Pump 1 starts	OK ☐	
67. Confirm Pump 2 starts (after pump 2 start delay)	OK ☐	
68. Confirm both pumps stop when water level reaches the lowest probe (stop) on the start/stop three point probe	OK ☐	

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69. Select both pumps to “off” position	OK ☐	
70. Turn on the RTU	OK ☐	
Generator Checks		YES ☐
71. Ensure sufficient water in wet well for test	OK ☐	
72. Ensure generator main switch is off	OK ☐	
73. Select both pumps to “off” position	OK ☐	
74. Connect generator and check all connections	OK ☐	
75. Start generator and check phase direction and voltages	OK ☐	
76. Select changeover switch to generator supply	OK ☐	
77. Close main switch and check all voltages	OK ☐	
78. Select Pump 1 to “automatic” and confirm correct operation *NOTE: If sufficient water available for testing allow system to cycle confirming complete functionality. Otherwise override wet well level to confirm pump operation.*	OK ☐	
79. Select Pump 2 to “automatic” and confirm correct operation *Note due to portable generator size potentially both pumps may not be able to run and shall be decided on an individual site basis.*	OK ☐	
80. Select both pumps to “off” position	OK ☐	
81. Restore mains power and disconnect generator	OK ☐	

Wet Testing Signoff

CONSTRUCTOR			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER WITNESS			
Name:	*Position:*	*Signature:*	*Date:*
Name:	*Position:*	*Signature:*	*Date:*
Name:	*Position:*	*Signature:*	*Date:*

SAT / Performance Testing

PROJECT TITLE:	FINANCE NO:
SAT Schedule	**Result / Init. / Date**
SAT Pre-start Checks	
1. Check Wet Testing Checklist completed and signed off	OK ☐
2. Check SAT attendees are inducted to site	OK ☐
Level Sensor Checks	
3. Record Top of Slab RL (m) and distance from Top of Slab to each level sensor in Commissioning Worksheet	OK ☐
4. Record well diameter and total depth for volume calculations in Commissioning Worksheet	OK ☐
5. Confirm wet well level indicated by the level probe is reflective of the actual wet well level and record readings in Commissioning Worksheet	OK ☐
6. Confirm functioning of high and high high (overflow) level alarms ***Note that the overflow structure may only be brought on-line once 'As Constructed' overflow level has been confirmed (to remain bunged off until level confirmed)***	OK ☐
Pump Checks	
Pump Performance and Flowmeter Accuracy	
7. Complete Draw Down test and verify flowmeter accuracy	OK ☐
8. Complete Pump Performance test including shutoff head	OK ☐
9. Transfer readings into Commissioning Worksheet and assess results	OK ☐
Pump Control Checks	
Duty Pump Fault Test (2 pumps)	
10. Select both pumps to "off" position	OK ☐
11. Ensure assist start level > wet well level > duty start level	OK ☐
12. Ensure pump discharge valves are open	OK ☐
13. Confirm both drives have no faults present	OK ☐
14. Select Pump 1 (Duty Pump) to "automatic" position	OK ☐
15. Confirm Duty Pump running	OK ☐

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16. Select Pump 2 (Duty Assist) to “automatic” position	OK ☐
17. Fault Duty Pump – i.e. open one c/b feeder for phase failure relay	OK ☐
18. Confirm Duty Assist pump starts	OK ☐
19. Stop system – both pumps to “off” position	OK ☐
20. Select Pump 2 as Duty Pump	OK ☐
21. Select Pump 1 as Duty Assist	OK ☐
22. Repeat Steps 11 to 19	OK ☐
Duty / Assist Test (2 pumps)	
23. Select both pumps to “off” position	OK ☐
24. Ensure assist start level > wet well level > duty start level	OK ☐
25. Ensure pump discharge valves are open	OK ☐
26. Confirm both drives have no faults present	OK ☐
27. Select both pumps to “automatic” position	OK ☐
28. Confirm Pump 2 (Duty Pump) running	OK ☐
29. Manually override wet well level > than assist start level	OK ☐
30. Confirm Assist Pump started	OK ☐
31. Manually override wet well level < assist stop level	OK ☐
32. Confirm Duty Assist stopped	OK ☐
33. Manually override wet well level < duty stop level	OK ☐
34. Confirm Duty Pump stopped	OK ☐
35. Select Pump 1 as Duty Pump	OK ☐
36. Select Pump 2 as Duty Assist	OK ☐
37. Repeat Steps 24 and 34	OK ☐
38. Select both pumps to “off” position	OK ☐
Pump Cycling	
39. Manually override wet well level < duty stop level (pumps are stopped)	OK ☐
40. Ensure wet well level > duty start level	OK ☐
41. Confirm both drives have no faults present	OK ☐
42. Ensure pump discharge valves are open	OK ☐
43. Select both pumps to “automatic” position	OK ☐
44. Record which pump is selected as Duty Pump by controller	_____
45. Manually override wet well level > duty start level	OK ☐

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46. Confirm Duty Pump running	OK ☐
47. Manually override wet well level < duty stop level	OK ☐
48. Confirm Duty Pump stopped	OK ☐
49. Record which pump is selected as Duty Pump by controller	_____
50. Select both pumps to “off” position	OK ☐
Emergency Start Circuit	
51. Ensure sufficient water in wet well for test	OK ☐
52. Turn off the RTU	OK ☐
53. Select both pumps to “automatic” position	OK ☐
54. Simulate a wet well high high level (manually lowering the probe is the preferred method)	OK ☐
55. Confirm Pump 1 starts	OK ☐
56. Wait for several seconds (Pump 2 start delay)	OK ☐
57. Confirm Pump 2 starts	OK ☐
58. Confirm both pumps stop when water level reaches the lowest probe (stop) on the start/stop three point probe	OK ☐
59. Select both pumps to “off” position	OK ☐
60. Turn on the RTU	OK ☐
Generator Checks	
61. Ensure sufficient water in wet well for test	OK ☐
62. Ensure generator main switch is off	OK ☐
63. Select both pumps to “off” position	OK ☐
64. Connect generator and check all connections	OK ☐
65. Start generator and check phase direction and voltages	OK ☐
66. Select changeover switch to generator supply	OK ☐
67. Close main switch and check all voltages	OK ☐
68. Select Pump 1 to “automatic” and confirm correct operation *NOTE: If sufficient water available for testing allow system to cycle confirming complete functionality. Otherwise override wet well level to confirm pump operation.*	OK ☐
69. Select Pump 2 to “automatic” and confirm correct operation Note due to portable generator size potentially both pumps may not be able to run and shall be decided on an individual site basis	OK ☐
70. Select both pumps to “off” position	OK ☐
71. Restore mains power and disconnect generator	OK ☐

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SAT Signoff

To verify completion of all SAT items to the satisfaction of Stakeholders.

CONSTRUCTOR			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER WITNESS (Commissioning)			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER WITNESS (Operations)			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER WITNESS (Electrical)			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER WITNESS (SCADA)			
Name:	*Position:*	*Signature:*	*Date:*
UNITYWATER WITNESS (Mechanical)			
Name:	*Position:*	*Signature:*	*Date:*