Murphy Simple Actions: Prevent service damage | Operate Plant Safely | Safety Documents in Place | Control our work areas | Protect our health | Protect the Environment

CLIENT	Leixlip WWTW
CONTRACT TITLE	Leixlip PLC/HMI Upgrade
CONTRACT NUMBER	J0091
OPERATING UNIT	M6

METHOD STATEMENT

INSTALLATION OF NEW REPLACEMENT CP7 PLC

AUTHOR	REVIEWER	APPROVER	ACCEPTED BY CLIENT (if applicable)
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March 2021	March 2021	March 2021	March 2021

	2021.03.11 – J0091 – MS – New CP7 PLC Install

CURRENT REVISION	CURRENT STATUS CODE	SECURITY CLASSIFICATION
P01	**S3**	**Confidential**

REVISION HISTORY

REVISION	STATUS CODE	DATE	REVISION DESCRIPTION
P01	S3	11/03/2021	Issued for Review/Comment

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1.0 SCOPE OF ACTIVITY

1.1.1 The scope of the work is as follows:

The purpose of this Method Statement is to describe the works for the following:

1. Removal of the existing CP7 PLC
2. Installation of the new PLC in its place
3. Ensuring continuity of plant operation for the duration of work

This document will also act as a guide to personnel on how to carry out the works safely and in accordance with operational requirements due to the critical nature of the plants operation at Leixlip WWTW.

1.1.2 The services that require isolation are:

- CP7 PLC 230V Power Supply
- CP7 24VDC PSU

2.0 METHODOLOGY

2.1 Isolation works:

- The CP7 PLC and 24VDC PSU will be powered down locally from the CP7 control panel.
- Associated fuses will be removed for the duration of the work.

2.2 Ensuring Continuity of plant operation for the duration of the work:

During the replacement PLC works critical plant items may need be operated in Hand mode for the duration of the works in order to ensure the plants operation, as far as practical, at all times. The following procedures will be applied to ensure the plant remains in operation for the duration of the CP7 works.

The Controls Engineer will have to inhibit interlocks in the remaining PLCs in order to prevent the loss of communications from affecting the operation of equipment in other areas of the plant. A review of the network associated IO has been undertaken prior to drafting of this method statement and the appropriate temporary modifications will be made to the remaining PLCs program in order to ensure the plant remains operating. These include modifications to the PLC code in CP1, CP4, CP4A, & CP8. These modifications will be made before work commences and will not affect the plants operation.

As the B Basins modulating valve control is executed in CP7 we will lose automatic dissolved oxygen control for the duration of the work. The blowers that feed air to these basins are controlled in CP4 and control to pressure, as such with some minor modifications to the code to force the open signals of the modulating valves we can leave these blowers in automatic operation.

The modulating valves for the B basins will have to be powered down and opened to a fixed position (to be advised by the plant manager) in order to ensure a minimum air mix is achieved in the basins for the duration of the work. We estimate the work will take 3 days before we can return CP7 back into fully automatic operation.

During this time the D.O. of the basins will have to be monitored locally at the instrument displays and the valves adjusted locally if required. It is important that at least one of these valves remain open at all times during this period. All CP7 instrumentation and associated IO will be unavailable on the plant SCADA system for the duration and will have to be monitored using the instruments local displays where applicable.

The following sequence will be followed:

1. Method statements, Permit to work and lock off tag off to be applied before works commence.
2. The Controls Engineer will execute the required PLC interlocks in the remaining PLC’s.
3. The B Basins Modulating valves will be driven to the required position and powered down.
4. Once the plants operation has been checked and verified by the plant manager the removal of the CP7 PLC will commence.
5. The Fibre-Optic network will be linked out at the splice box in order to maintain the ring.
6. New PLC will be installed in its place and IO will be tested and verified.
7. New PLC will be powered up and verified.
8. The PLC will be returned to the fibre network and communications will be tested and verified.
9. Once testing is complete and the PLC is ready for operation the valves will be powered up and returned to service.
10. The Controls Engineer will now remove the interlocks from the remaining PLCs.
11. MPE in conjunction with the Plant Manager will ensure that all plant equipment has returned to its normal operating conditions.

2.3 Removal of the existing PLC

- Once the systems are isolated as described in section 2.1 above the existing PLC can be electrically disconnected and cables removed.
- Good housekeeping is to be maintained in the area for the duration of works.

2.4 Installation of new PLC

- New PLC racks are to be drilled and tapped to the backplane of the CP7 in the same rack location as the existing to ensure that all remaining inter-wiring will be long enough to terminate on to new card / terminal connections.
- New IO blocks and connector cables are to be clearly labelled.
- Good housekeeping is to be maintained in the area for the duration of works.

2.5 Completion of the works

- Works to be completed and plant returned to operation as outlined in Items 2.1 to 2.4 of this method statement.

2.6 Plant and Tools required for this task include:

- Hand tools
- Battery Drill
- Angle grinder
- Fixings
- Terminal Blocks
- Certified Handheld Instrumentation

3.0 WORKS SPECIFIC RISK ASSESSMENTS

See Appendix A.

4.0 DURATION OF WORKS

It is expected that the CP7 PLC replacement works will take 3 days to complete.

5.0 HEALTH & SAFETY

All works will comply with the Safety Health & Welfare at Work Act 2005 and all other relevant safety legislation, and in accordance with the Construction Stage Health & Safety Plan.

A Permit to Work will be issued for the works.

On a daily basis the supervisor shall complete a Safe Plan of Action.

Safety will be promoted by induction and training, all site personnel including sub-contractors will hold a Safe Pass Card or their entry to site will be forbidden.

All works shall be carried out in a safe and satisfactory manner, using approved certified plant and equipment.

All personnel will be required to wear PPE for the particular works which they undertake and as a minimum Hard Hats, Safety Glasses, Hi-Visible jackets or Vests and Steel Toe Cap Boots will be worn.

6.0 QUALITY

All works will be carried out in accordance with Company Quality Procedures.

7.0 SAFETY

All associated installation, testing and commissioning works are to adhere to the procedures outlined in this Method Statement.

A safe work plan is to be filled out daily by the site supervisor before work commences.

A permit to work is to completed and signed off by the site supervisor before work commences

8.0 RESTRICTED ITEMS

Prohibited and Restricted Items

Restricted Item	Mitigation
Step ladders	Work at height is at low level and short term
Hoodies	
1 ton dumpers	
Wooden or no bulkheads in vans	
Road plates without a non-slip surface and lifting holes	
Semi auto or single looking quick hitch	
Rigger boots	

9.0 SIGNATURES

All works will be carried out in accordance with the Company Procedure.
I have read the attached Method Statement and understand it. I have asked any necessary questions arising from the attached and I am happy to start work.

Name	Signature	Date

APPENDIX A RISK ASSESSMENTS

Hazard	*Possible Consequences*	*Controls*	*Assessed Risk*	*Controlled Risk*
Use of Hand Tools	Personal injury to operatives/users	All works shall be carried out in accordance with current Legislation. Prior to works commencing: • Daily Safe Plan of Action to be completed by the sub-contractor supervisor. • Correct maintenance of hand tools, Teams Leaders to inspect and record these on a regular basis. Replace or maintain as necessary. • Sub-contractor Supervisor to inspect hand tools during site visits. • Health and Safety Managers to inspect during scheduled audits. • Ensure the correct tool is used for the job. • Refer to Risk Assessment for portable electrical hand tools • Use appropriate PPE, gloves, eye protection, hard hat, high viz, safety footwear. Note when in close proximity or carrying out cutting and breaking activities (High noise activities) it is only then that it is mandatory to wear goggles and ear defenders. • Good quality hand tools to be used. Handles to be free from splinters, splits and cracks. • Tools to be stored when not in use. Any moving or adjustable parts should be kept oiled. • Hand tools used in the vicinity of services are to be insulated.	4 x 3 = 12	4 x 1 = 4

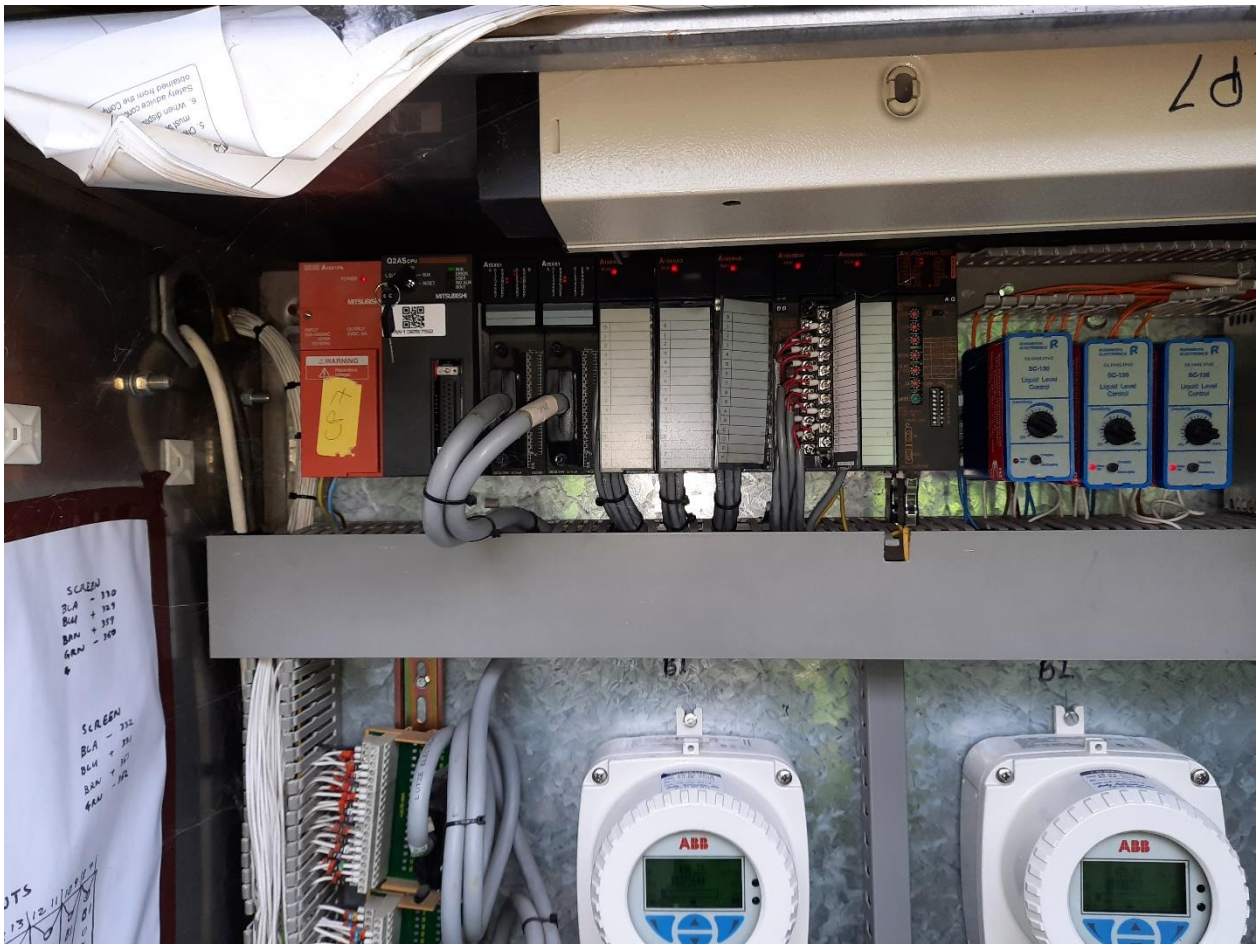
Manual handling and lifting.	Low	Risk of back injury/strained muscles/falls/crushing/bruises/cuts.	1) Manual handling can only be carried out by persons trained in manual handling by a qualified trainer.	☒ ALL ☐ OPERATOR ☐ OTHER:
Working at a height/ Use of scaffold	N/A	Injury from falling	1) Scaffold to be erected by trained personnel with relevant certification 2) Scaffolding to be certified and certificate checked 3) Safety helmets and boots to be worn 4) Safe means of access/egress to be provided 5) All equipment to be checked to ensure it is in good working order 6) Report and repair defects 7) Goods/materials are not to be transported using tower scaffolding	☐ ALL ☐ OPERATOR ☐ OTHER:
Items falling	Low	Injury to head/feet, death	1) Safety helmets and boots to be worn 2) Lifting area to be kept clear 3) Temp works to be tested 4) Access to works area to be restricted 5) Signs and barriers to be erected where required	☒ ALL ☐ OPERATOR ☐ OTHER:
Use of portable electrical tools and equipment	Low	Electrocution Eye injury Tripping Over Tools	1) 110v power supply only. 2) All cables to be free from damage and fully insulated. 3) All tools and equipment to be in good condition. 4) Users are responsible for inspecting the equipment prior to use 5) Tools not to be left lying around	☐ ALL ☐ OPERATOR ☐ OTHER:
Cutting/Grinding	High	Eye/Small digits/Limb damage	1) Gloves to be worn when cutting materials. 2) Goggles/safety glasses to be worn by operatives when cutting 3) Materials are to be cut at low level. Cutting of materials should not be conducted on top of scaffold.	☒ ALL ☐ OPERATOR ☐ OTHER:
PPE	Low	Damage to skin and body	1) General PPE, Hard Hat, Safety Boots and Hi-vis to be worn at all times.	☒ ALL ☐ OPERATOR ☐ OTHER:

Noise and vibration	Low	Damage to ears	1) Provide ear protection	☒ ALL ☐ OPERATOR ☐ OTHER:
Gantry Crane	N/A	Injury or crushing	1) To be operated by trained personnel only 2) Restrict access to area 3) All slings and lifting equipment to be certified 4) All items to be secured before lifting 5) CSCS slinger/signaller required 6) Refer to Method Statement procedures regarding restriction on access to area of works	☒ ALL ☐ OPERATOR ☐ OTHER:
Working with heavy plant/materials	Low	Injury/Crushing	1) CSCS certified personnel only to operate machinery/act as banksman/slingers 2) Refer to Method Statement for loading/unloading procedures	☒ ALL ☐ OPERATOR ☐ OTHER:
Working at a height/Working on flatbed	Low	Injury from falling	1) Refer to method statement for access 2) Refer to safely procedures for working at a height/use of scaffold 3) Restricted access to flatbed – only when no lifts are undertaken 4) Truck driver to be made aware of works on flatbed 5) Refer to Method Statement for loading/unloading procedures.	☒ ALL ☐ OPERATOR ☐ OTHER:
Wind	Medium	Risk of losing control of load	1) Works to be carried out in settled conditions	☒ ALL ☐ OPERATOR ☐ OTHER:
Electricity	Medium	Electrocution	1) All termination / isolation to be carried out by qualified electrician.	☒ ALL ☐ OPERATOR ☐ OTHER:

Plant Operation	Medium	Maintaining Plant operation as outlined in section 2.2 above.	1) KCC Plant Operators are to be informed of the works and to maintain regular visual checks on the associated items of equipment and instrumentation for the duration of the works.	☐ ALL ☒ OPERATOR ☐ OTHER:

APPENDIX B: Photographs

Works area showing the CP7 Control Panel kiosk enclosure.



Existing CP7 PLC to be replaced.

Amendments to MSRA during works