

## Safe Work Instruction - Replacing and Cleaning the CO<sub>2</sub> Spargers at Bamarang WTP

**DO NOT** use this plant\* or complete this task unless you have been inducted in its safe use and operation by an Authorised Experienced Operator

This SWI may not cover all possible hazards and risks and should be referred to as a control measure in the risk assessment process. Additional training may be required for high risk plant. Site and task may change required PPE.

### PERSONAL PROTECTIVE EQUIPMENT



Eye protection must be worn



Foot protection must be worn



Hearing protection must be worn



Protective body clothing must be worn



Hand protection must be worn



P2 face mask must be worn when airborne dust or fumes are created

### POTENTIAL HAZARDS AND RISKS

#### Slip, Trips, Falls

- Slip, trip, fall due to uneven or slippery work surfaces
- Slip, trip, fall due to steep working surfaces

#### Other

- Exposure to atmospheric contamination
- Exposure to contaminated air

#### Manual Task Injury

- Manual task injury from incorrect manual handling techniques

### PRE-OPERATIONAL SAFETY CHECKS

**WARNING: Carbon dioxide is a hazardous substance as it is an asphyxiate as well as a dangerous goods. Before carrying out the following procedure workers are to familiarise themselves with the relevant SDS and follow all safety precautions listed on the data sheet**

- ✓ Complete site-specific risk assessment
- ✓ Complete the appropriate pre-operational plant checklist
- ✓ Ensure you are familiar with plant operations and controls
- ✓ Ensure that guards are fitted, secured and functional in accordance with manufacturers guidelines
- ✓ Refer to Energy Isolation Procedure P28
- ✓ Complete Confined Space Risk Assessment Checklist, refer to Confined Space Procedure and obtain Confined Space Permit

### OPERATING PROCEDURES

- ✓ On the Citec SCADA Tariff settings page - Turn the Plant "Off"
- ✓ Turn off all 3 Raw water pumps in the Raw water pump station
- ✓ Lock/Tag out all pumps
- ✓ Close the main CO<sub>2</sub> valve located bottom left in the CO<sub>2</sub> Rotameter cabinet
- ✓ Lock/Tag out CO<sub>2</sub> Rotameter cabinet
- ✓ The CO<sub>2</sub> Sparger pit is now deemed a Controlled Space (*providing all isolations are carried out*)
- ✓ Unlock and open the pit lids and extend the pit ladder handles

- ✓ Before entering the Sparger pit check the atmosphere using a gas detector
- ✓ Enter the pit and close both CO<sub>2</sub> valves
- ✓ Unbolt the Sparger flanges and disconnect the pipe unions. Remove the Spargers and pipework assembly.
- ✓ Unscrew the fouled Spargers and replace with clean serviced Spargers.

**Note: Turning off the CO<sub>2</sub> plant control switch on the CO<sub>2</sub> control panel does not isolate a potential CO<sub>2</sub> flow as the bypass valve bypasses the solenoid valves.**

### ENDING OPERATIONS

- ✓ Reinstall the Spargers and pipe work assembly, ensuring that all unions and flange bolts are sufficiently tightened
- ✓ Re-open both CO<sub>2</sub> valves
- ✓ Re-open the main CO<sub>2</sub> valve in the Rotameter cabinet
- ✓ Check for any CO<sub>2</sub> leaks by temporarily opening the CO<sub>2</sub> bypass valve
- ✓ If no leak detected, turn Raw water pumps back on in the Raw water pump station
- ✓ Select plant to "Auto" and start plant
- ✓ Once clear water flow is established, check the Sparger flanges for any water leaks
- ✓ Close CO<sub>2</sub> Sparger pit lids

### DO NOT

- ✗ Do not use if plant is faulty. Attach an Out of Service tag and report fault to your supervisor
- ✗ Do not wear loose jewellery
- ✗ Do not use mobile phone while operating plant

\*Plant in this SWI refers to any machinery, equipment, appliance, container, implement and tool.