

Document Owner: Manager Customer Planning

Reservoir ROV Cleaning

Health & Safety and Operational Information

Hazard Indicators



Personal Protection



Health and Safety Information

- Generic Traffic Management Plans or site-specific Traffic Management plan.
- Shutdown Plan
- Risk Control Plan (RCP)
- Clarifier Outflow Plan
- Working at Heights
- Confined space

Operation's & Maintenance Documentation

- Corridor Access Requests (CAR) and WIP Permits (site specific or generic/global)
- Design drawings
- Site plans
- Reservoir design drawings indicating internal hazards (P&ID, internal layout & structure).

Customer Information (Confidential)

- Blow Back at risk customers (WWL)
- Vulnerable customers (DHB supplied list)
- Priority customers (WWL)

Priority Customer Categories

- Schools and Childcare
- Commercial premises
- Hospitals
- Retirement Homes/Villages
- Correction Facilities
- Military Installations
- Oil and Gas Refinery

Emergency Procedure / Escalation

Emergency

- Make "Site Safe" and isolate risks to people or property with resources at hand.
- Dial 111 etc.

Escalate if extra resources required or problems occur!

- Escalate to Team Leader and inform of the issues faced and/or expected resources required if necessary.
- Call planning engineer for assistance.

Additional Documentation

- Reservoir internal structure diagrams and report.

Required Skills, Competencies (Qualifications and/or Certifications)

- At least 1 Working at Heights trained person.
- Operators trained in operating the ROV.
- Operators trained in clarifier operation and setup.

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Standard Operating Procedure

Required Equipment

Equipment and Information	Details
Fully Equipped Vehicle	Ensure vehicle, plant, equipment, and materials appropriate to the day's work schedule is available
Specialist Equipment	<p>Remotely Operated Vehicles (ROVs):</p> <ul style="list-style-type: none"> - Deep Trekker CCTV ROV - CCTV ROV tether - ROV remote control - Deep Trekker Utility Crawler ROV - Utility Crawler tether - Utility Crawler remote control - ROV assembly tools - Remote Controller with micro-SD card - Ballast adjustment kit - User manual - 1,000 mg/L (0.1%) chlorine solution in spray bottle <p>Suction equipment:</p> <ul style="list-style-type: none"> - Suction hose of adequate length - Pumps for specific site head - Extension cord/fuel <p>Comfort/Safety:</p> <ul style="list-style-type: none"> - Sunshade - Seats <p>Clarifier:</p> <ul style="list-style-type: none"> - Clarifier - Clarifier generators - Clarifier outflow pipe - Coagulant - Buckets for coagulant mixing - Drill and mixing rod for coagulant

Prepare to do the work

Action	Action Details
Prior to arriving at site	<ul style="list-style-type: none"> - Confirm Deep Trekker battery is charged. - Confirm micro-SD card is cleared of prior files. - Where required, relevant H&S compliance documentation to be in place. - RCP, TMP, working at heights plan, Reservoir Internal hazards and plans.
On site before starting work	<ul style="list-style-type: none"> - Complete Tailgate Meeting discuss relevant H&S documentation (RCP, TMP, working at heights plan, etc). - Ensure scaffolding is setup if required. - Setup clarifier, associated componentry, and generators. - Notify operations that reservoir hatch alarm will be activated as part of inspection activity. - Setup Deep Trekker Utility Crawler and CCTV ROVs. - Setup generators and hoses. - Disinfect Deep Trekker, tether cable and cable container by spraying 1000mg/L (0.1%) chlorine solution to ensure ROV is disinfected prior to entering reservoir. Place disinfected tether cable in container of drinking water, ensuring cable can

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	<p>freely uncoil from container during inspection.</p> <ul style="list-style-type: none"> - Check Deep Trekker tethers are secure. - Ensure clarifier is ready to begin pumping.
Compliance	Traffic Management Plan - Where required, TMP to be in place prior to work starting. TMP to be accessible on site.
Notifications	Notify all COG when this work is to be undertaken.
Organise	Organise all resources involved in completion of work. This includes, Internal staff, external contractors, service providers or IQPs.

Perform Reservoir Cleaning

Action	Trade	Action Details
Lowering ROVs into reservoir	Trained Operator	<ul style="list-style-type: none"> - Lower ROV slowly into reservoir being careful to avoid internal obstacles and dropping it on the bottom. - Use crane or hose and follow RCP ensuring operator is secured to railing. - -
Priming hoses	Trained Operator	<ul style="list-style-type: none"> - Prime hoses by lowering hose into reservoir, shortening the length of hose, or decreasing the head on the pumps if necessary.
Removal of silt	Trained Operator	<ul style="list-style-type: none"> - Work slowly using the ROV to cause minimal silt disturbance. - Assess silt depth to determine if it is feasible to continue. - Create a bare patch below drop zone to enable direction changes without silt disturbance. Silt is to be disposed of at approved disposal site.
Driving around	Trained Operator	<ul style="list-style-type: none"> - Maintain location awareness using CCTV ROV to avoid obstacles. - If lost, stop, and regain awareness. - If stuck, stop, follow procedures in RCP.

Post Reservoir Cleaning

Action	Trade	Action Details
Removal of ROVs from reservoir	Trained Operator	<ul style="list-style-type: none"> - Drive ROVs close to hatch. - Lift gently to avoid swinging into obstacles. - Follow safety procedures