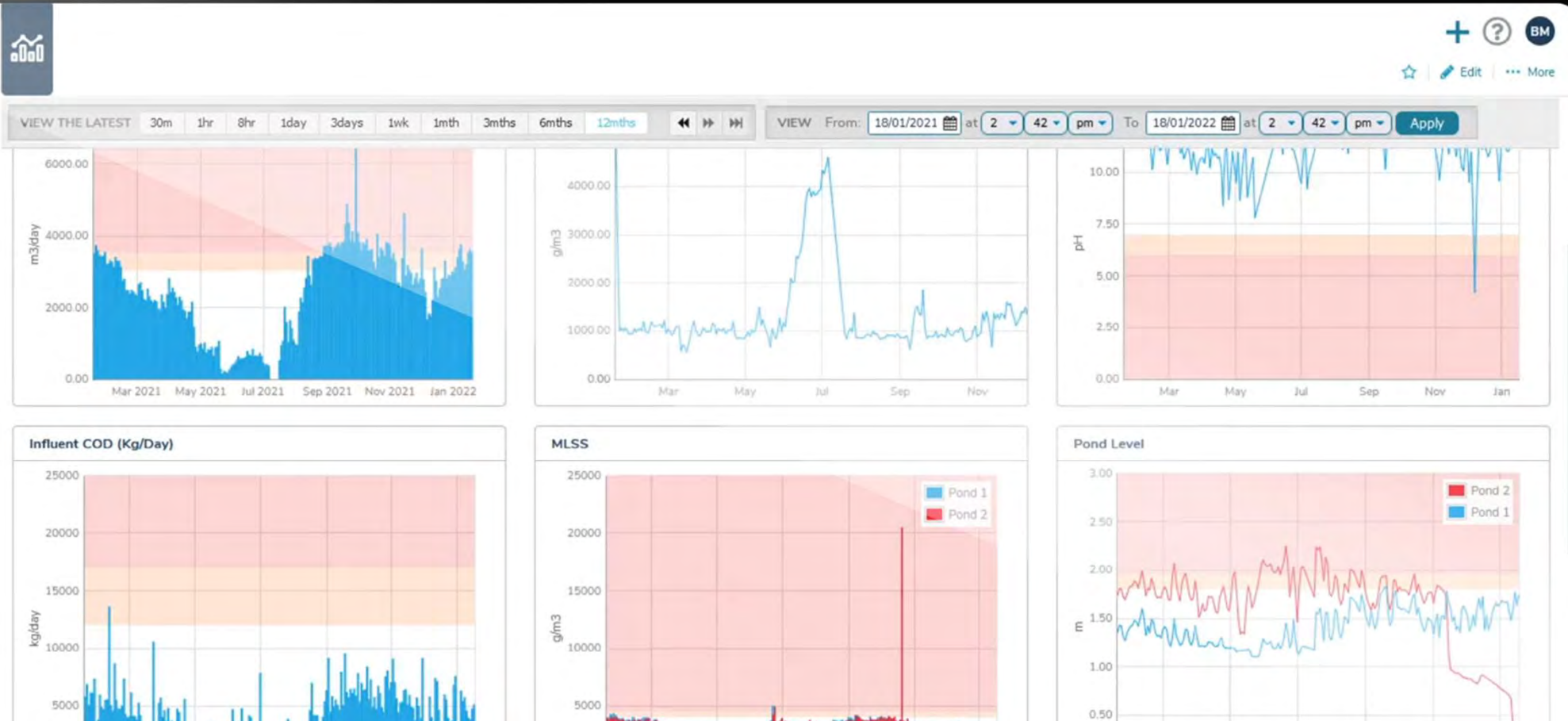




Infrastructure Data



Infrastructure Data (ID) is a modular cloud-based system that streamlines the process of managing, monitoring, and reporting on your water and wastewater asset performance and compliance to local and federal regulation and guidelines.

Developed alongside councils across New Zealand and Australia, ID provides a single source of truth, capturing data from SCADA systems, external laboratories, field operations and external providers i.e., weather data, and serving this up in an easily assessable platform.

ID is designed to work on water or wastewater plants of any size. By using ID's powerful reporting, dashboarding, and compliance modules, which directly integrate with regulatory bodies, our clients can automate all their Drinking Water reporting, resource consent monitoring and Environmental Protection Agency KPI's management.

Utilized by over 35 councils across Australia and New Zealand, as well as some of the largest dairy producers, Infrastructure Data is a proven solution.

A short introductory video can be seen [here](#).

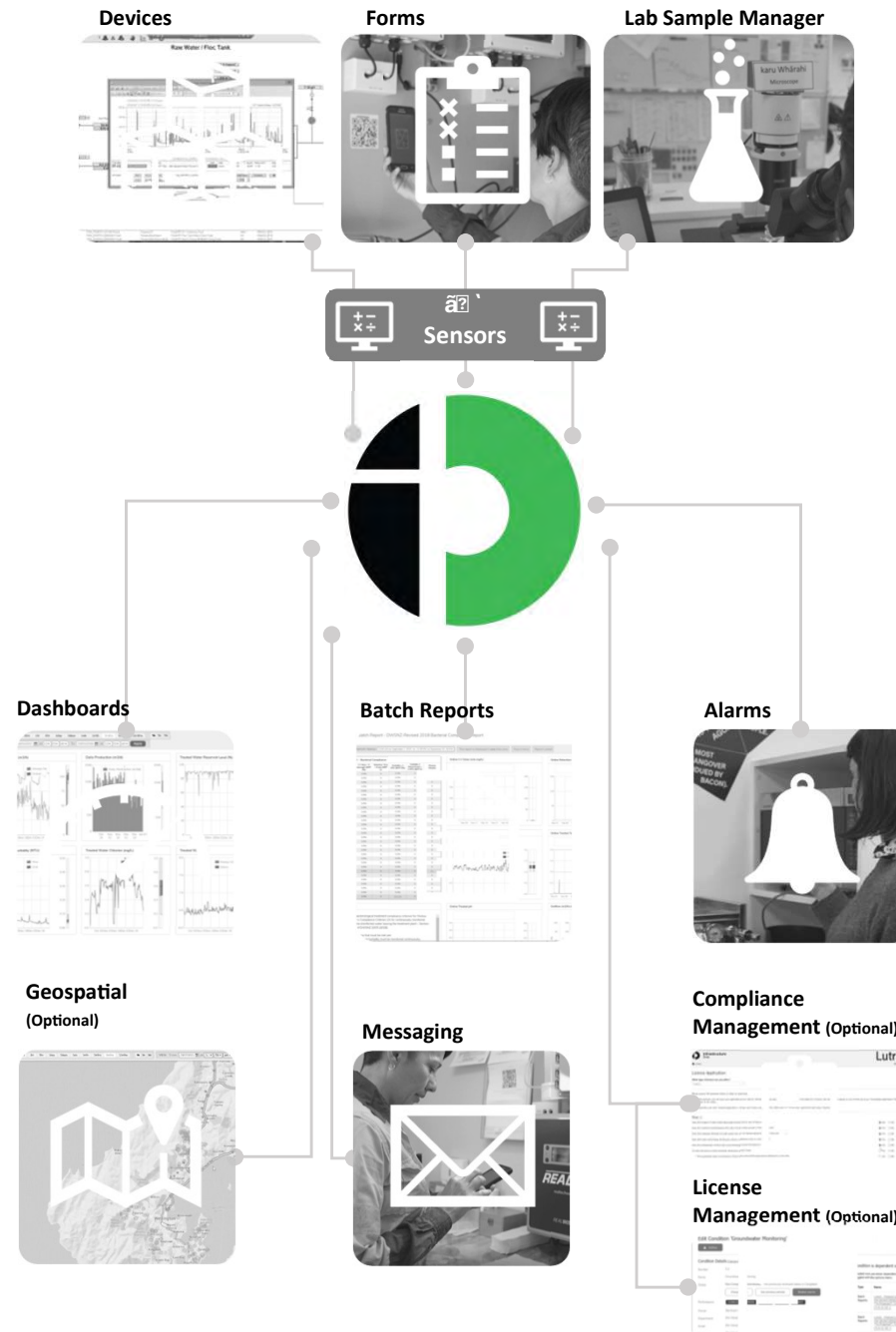


ID is a modular system made up from a range of input and output modules. Each module is fully integrated with one another, to provide a full plant monitoring and reporting solution. Whilst most of these modules are part of the core ID offering, there are optional add-ons which are designed to provide added value to our clients.

Modules can be split into Input and Output modules as well as Soft sensors.

The next few pages explain these modules in more detail, click a module on the infographic to go to that page directly.

Modules-



Input Modules

Input modules collect the raw data from various sources and bring it into ID.

Soft Sensors

Soft sensors cleanse and transform data as necessary.

Output Modules

Output modules are various and are there to visualize, and report on the data, these range from dashboards through to full compliance reports.



Forms

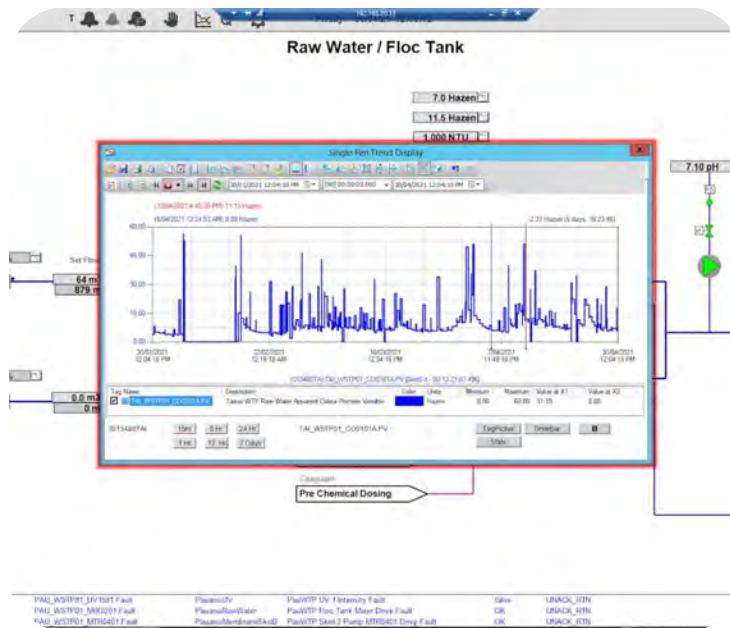


Field data collection such as meter readings, inspections, sensor calibrations, site visits and so on are commonly recorded on paper forms or in logbooks which need to be manually entered into a system following completion.

ID removes the need for paper with our Forms module. Our mobile app allows users to collect data on their devices, automatically uploading this into ID when they are back in cell phone reception.

Forms can be scheduled to ensure critical tasks are never missed. All field data, i.e., calibrations, can be linked back to the SCADA tags, allowing you to easily highlight and evidence a limit breach which is caused by a calibration event for example.

Devices



ID automates the collection of data using our Devices module. Linked directly to your historian, SCADA or telemetered field devices, data is automatically pulled into ID at a frequency defined by you.

Available Data Collection Methods:

- **API**
- **ID Agent**
- **Manual Upload**
- **Automatic SFTP or FTPS**
- **Remote FTP, SFTP or FTPS**

See [Data Acquisition Methods](#) for more detail.

**Soft
Sensors**

Lab Sample Manager (Optional)

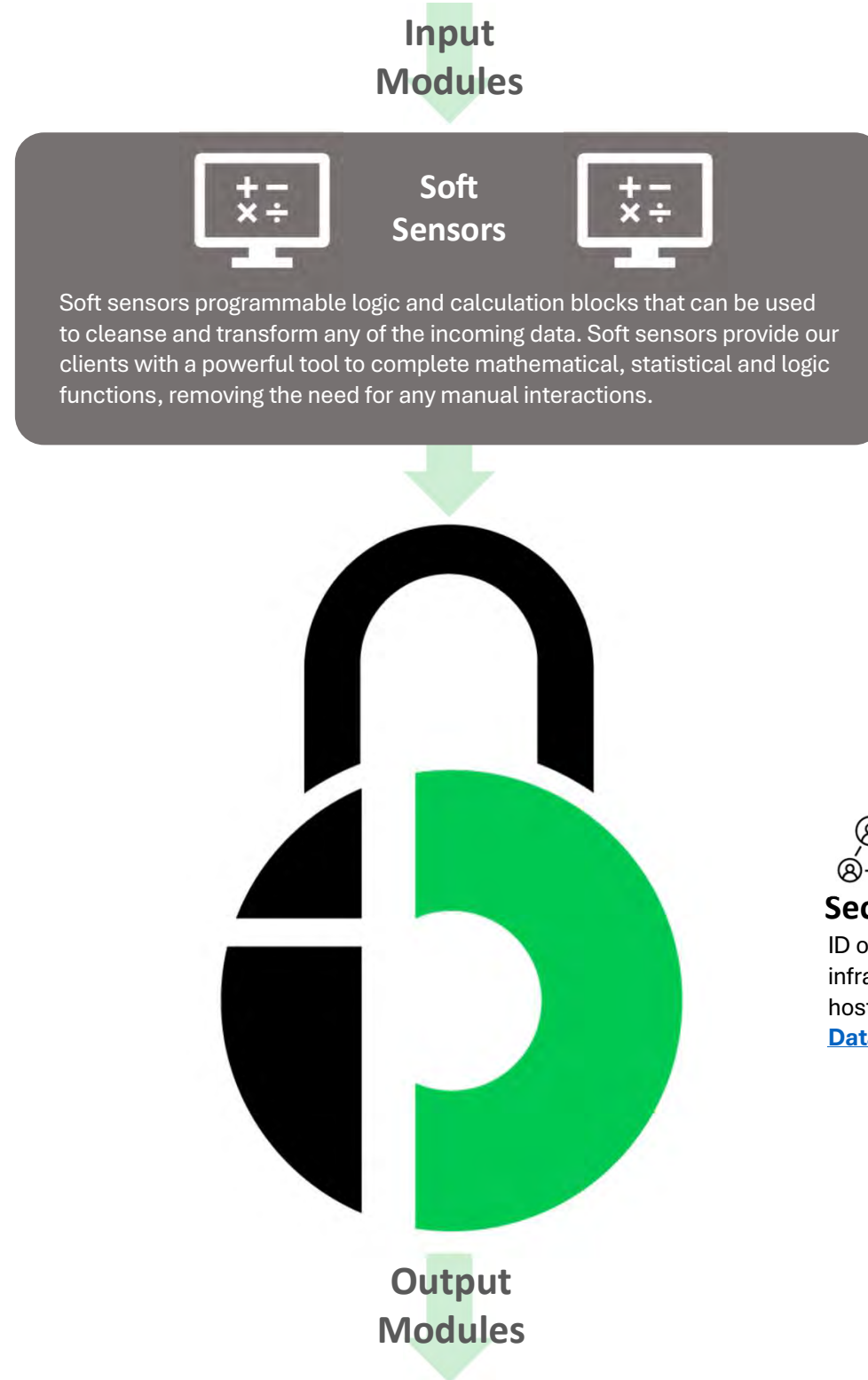


The Lab Sample Manager (LSM) is an optional module which is fully integrated to several commercial testing laboratories.

With LSM, users can schedule samples through ID, scheduling these with your lab and allowing you to actively monitor the samples as they progress through the full chain of custody.

Once the results are available, they are automatically imported into ID, and all the related reports/ dashboards are automatically updated.

Any limit breaches are alerted on immediately, allowing you to proactively respond to any issues.

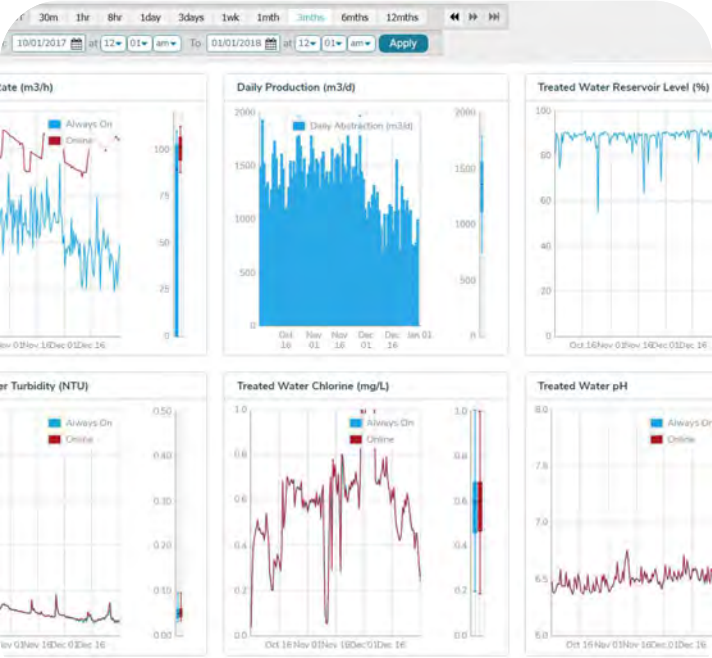


Secure Cloud Storage

ID operates within the secure cloud infrastructure platform, **Microsoft Azure**, hosted in Australia. See [How we keep your Data Safe](#) for more information.

Modules Overview: Output Modules-

Dashboards



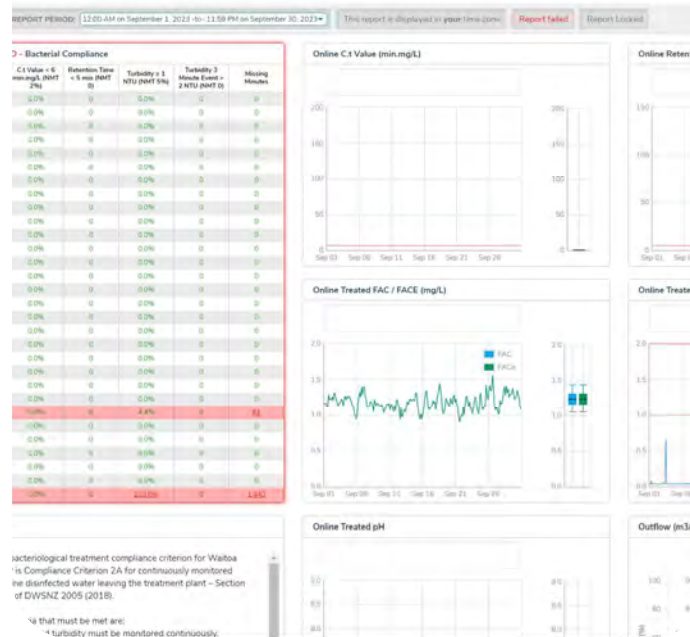
Dashboards allow users to quickly develop interactive dashboards to display plant performance data, compliance related events as well as statistics and analytics.

With a range of graph types available and the ability to add tables, ID users can incorporate any data within ID into the dashboards enabling detailed analysis. i.e., leak results in zones, pump efficiency monitoring, chemical usage, power consumption etc.

Secure Storage

Batch reports

Batch Report - DWSNZ-Revised 2018 Bacterial Compliance Report

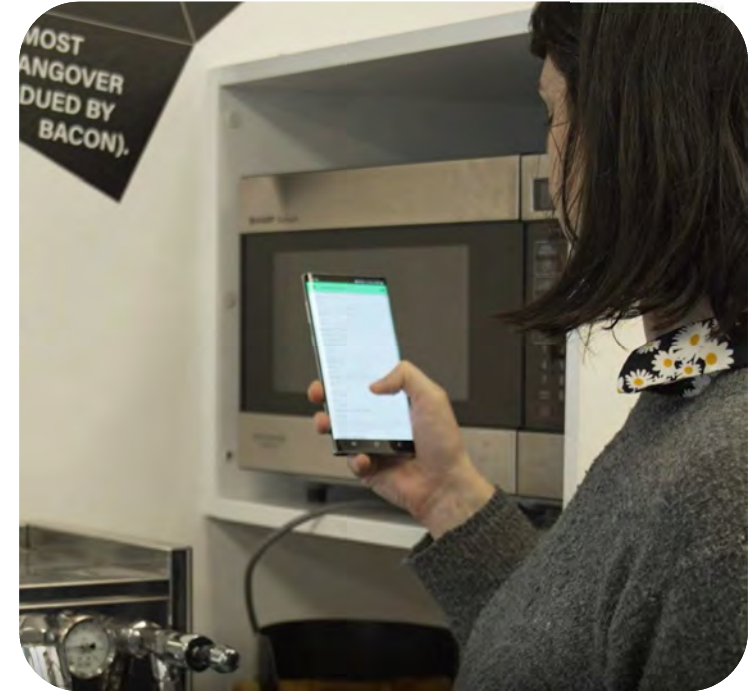


Batch reports are automated reports which run at predetermined frequencies. Batch reports have a Pass/ Fail criterion with limit levels/ranges and can include alarms based on such parameters.

Used for compliance monitoring and reporting, the batch reports are essential for suppliers as they monitor their compliance to drinking water standards, environmental reporting or wastewater compliance reporting across all of their treatment assets.

Lutra.

Alarms

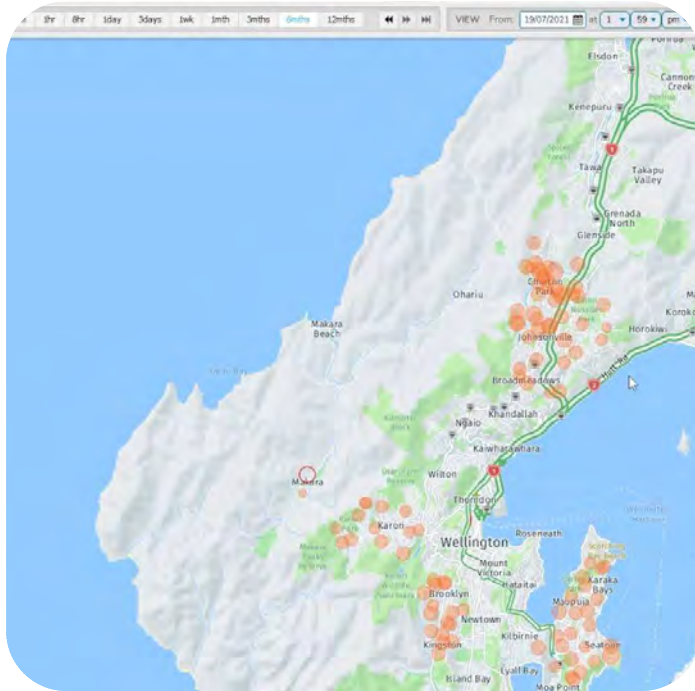


The **Alarms module** provides alerts for events within ID. These events could include missed forms, warnings for data that is trending outside of a range, lab result exceedances, compliance breaches and so forth.

This module allows up to three levels of escalation to ensure that events are acted on within an appropriate timeframe.

More Output Modules

Geospatial (Optional)



The **Geospatial module** allows users to visualize their network in a spatial context.

Taking data such as lab results, users can quickly identify hotspots within their network, and take corrective actions.

Data from other sources can also be visualised, over custom time periods, allowing users to track how a data point is change over time across their points of interest.

Messaging



The **Messaging module** allows emails and text messages to be automatically sent, providing reports, reminders or alerts on events within ID.

For example, a daily work schedule can be sent to operators, highlighting what forms (tasks) are due to be completed that day or week.

A message can be received by individuals or groups, ensuring that tasks are being completed on time. Reports can also be sent on a scheduled basis, ensuring that reports are being delivered on time to the correct stakeholders.

Compliance Management (Optional)



Edit Condition 'Groundwater Monitoring'

[Archive](#)

Condition Details [Change details](#)

Number: 5.2

Name: Groundwater Monitoring

Status: **Non Compliant (Unreviewed)** - The previously reviewed status is **Compliant**

[Change status](#) [See previous periods](#) [Review events](#)

Performance: **12/06/21** **12/06/20** **12/06/19** **12/06/18** **12/06/17**

Owner: Bertram Pierce

Department: (No Value)

Issue: (No Value)

Location: (No Value)

Condition Manager: Consent Mgr

Priority: (No Value)

Validity Period: Same as Consent (12/06/95 to 31/05/30)

Reporting Period: Yearly

Description: Once during 1995 and thereafter on a five (5) yearly basis, monitor the following groundwater quality parameters from monitoring bores CG1, CG2, and CG3S: pH, Conductivity, Temperature, Sulphate, Boron, Ammonium Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen, Silica, Sodium, Potassium, Calcium, Magnesium, Chloride, Bicarbonate (as alkalinity), COD, Iron*, Zinc*, Copper*, Lead*
*(Water soluble ie, field filtered and preserved)

Documents: There are no documents associated with this condition

[Browse documents in Objective](#)

Condition is dependent on

Shaded rows are minor dependencies - if toggled with the options menu.

Type	Name
Batch Reports	LAND - PINNACLE RD - GW MONITORING - YS - "In Progress" - Total Flu (TLN 2) - GC 2
Batch Reports	LAND - PINNACLE RD - GW MONITORING - YS - "In Progress" - Total Flu (TLN 2) - GC 3
Batch Reports	LAND - PINNACLE RD - GW MONITORING - YS - "In Progress" - Total Flu (TLN 2) - GC 4S

[Add Dependent Content](#)

Conditional Steps

If a condition failure occurs, the following

Type	Name
You have no conditional steps associated	

[Add Conditional Step](#)

The **Compliance Management (CM)** module is essential for actively monitoring and managing consents, permit or plans that have a multitude of conditions that need to be managed i.e. Water Safety Plans, Business Continuity Plans etc.

CM leverages off all other ID modules, automatically monitoring each individual condition and giving an overall performance summary of the individual consents, as well as an overall organisation performance summary.

License Management (Optional)



Infrastructure Data

Home

Licence Application

What type of licence are you after?

[Licence](#)

Please answer the questions below to make an application.

During this process, you can save your application at any time by clicking the "Save Application" button. This will not apply for a license, but will instead appear in your license list as an "Incomplete Application" (in red) at any stage.

Please note that you must "Submit Application", and pay your license application fee, before we can review your application and make a decision.

Step 1:

Does the volume of trade waste discharged exceed 5kl in any 24 hour period?

Does the maximum instantaneous flow rate of trade waste exceed 2 litres per second?

Does the maximum flow rate of trade waste over any 15 minute period exceed 0.3 litres per second?

Does the trade waste being discharged contain (comprising water or storm water)?

Does the temperature of the trade waste discharge exceed 40 degrees C?

Do any total gross solids maximum discharges exceed 1 tonne?

Does the suspended solids concentration of the trade waste discharged exceed 2000g/m³ at any time?

Does the settleable solids content of the trade waste discharged exceed 50g/l?

Does the trade waste discharged contain any fibrous, woven, or sheet film or any other materials that may adversely interfere with the free flow of wastewater in the wastewater system?

Does the trade waste discharged contain a free or floating layer of fat, oil or grease?

Is there a floating or settled layer of solvents or organic liquids in the trade waste at the discharge point?

Do radioactive levels exceed guidelines?

Does the trade waste discharged contain any radioactive colour or colour substances?

Does the trade waste discharged have a pH level less than 6.0 and higher than 10.0 at any one time?

Does the chemical oxygen demand of the trade waste discharged exceed a total mass of 1.5kg/day?

Does the trade waste discharged comply with the permitted discharge characteristics in tables 1-4 of the Trade Waste Bylaw 2019?

If not, please provide detail:

[Save Application](#) [Submit App](#)

The **License Management (LM)** Module streamlines the application process and management of trade waste licenses and permits.

LM provides a customer facing portal, allowing users to work through an application process and submit supporting information. Upon submission, a notification is sent to your team, allowing them to review, approve or request additional information.

Licenses can be issued directly, and then tracked through the compliance module.

With the addition of a billing module, costs can be tracked and exported to your internal billing system.

Frameworks and Standards

We take our clients information security very seriously and understand that we are entrusted with the availability, confidentiality, and integrity of your data. As such we have adopted NIST 800-39 Risk Framework and the NIST.SP.800-53r4 security controls. These standards provide recognised, robust controls appropriate for cloud-based information systems and organisations handling government-level data. To ensure our platform remains secure, system penetration testing is conducted annually by an independent third-party security specialist.



Roles & Permissions

Roles and Permissions controlled by clients.
Calculations & Reports locked for quality control.



Upgrades

Regular upgrades are release outside of business hours.
Pre & Post release testing.



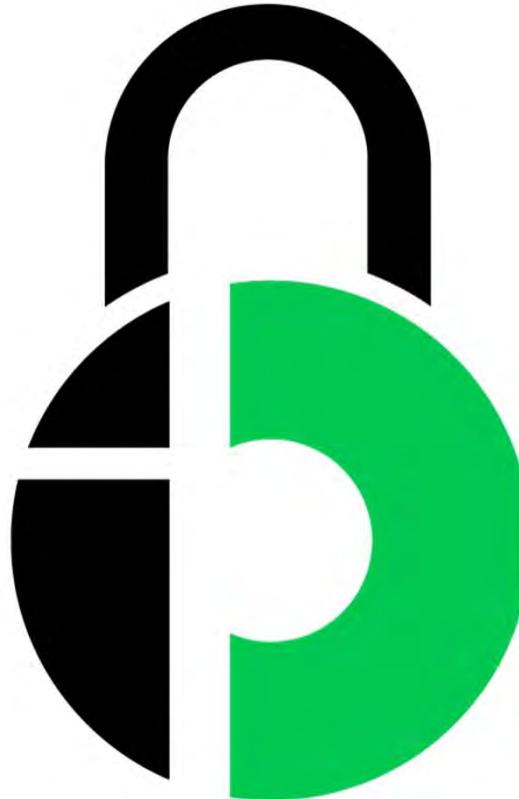
Audit Trails

All activity is logged, and an audit trail is provided.



Data Storage

ID is hosted in **Microsoft Azure**, Daily and Weekly Backups.



Hosting and Encryption

ID operates within the secure cloud infrastructure platform, **Microsoft Azure**, hosted in Australia. Administration access to the back end of ID and various components is tightly controlled to authorised Lutra staff only. ID constraints and data controls ensure that clients data can only be accessed and used by the approved client users. All data is encrypted by TLS/SSL on the wire. The platform ensures data is always consistent and is enforced by the application. ID analysis features, such as batch reports, also assist with ensuring the integrity and rationality of client's data, such as finding issues with the ingested data, or anomalies in the data. ID alerts and messaging provide operators with feedback about data related issues so they can be addressed in a timely manner.

Client data is logically segmented, such that it is produced for a single tenant only. There is no ability to access client's data without explicit approval and the accessor being added to the clients set up by the Lutra support team. Control of data access internally is through the design of user groups with specific permission levels. Typical access levels are Full Administration across all modules, Full Administration across selected modules, edit rights for some locations, Read access only. Security levels are associated with the locations enabling permissions to be granted to one, a few or all sites.

Back ups

These are subject to change without notice; they are operational backups for ID internal purposes and disaster planning and not intended for client-level backup/restore functionality.

Current schedule:

- **App + Test server** – Daily backup, 7 daily retentions, 1 monthly retained on the first Sunday of each month.
- **Time server** – Weekly backup, 2 weekly retentions, 1 monthly retention on the first Saturday of each month.
- **Core + Test databases** – Daily full backup, 7 daily retentions, 1 monthly retention on the first Sunday of each month.
- **Time database** – Daily full backup, 7 daily retentions, 2 weekly retentions (Saturday) + one monthly retained on the first Saturday of each month.



Lutra take an agile approach to implementing Infrastructure Data, working in two-week sprints. To kick off the project, Lutra will hold a discovery session with our clients to understand their wider requirements and outline the information that will be needed to be provided for Lutra to complete the implementation. During this discovery session, priorities will be set to ensure the most urgent requirements (i.e., compliance reporting for Drinking Water) are delivered quickly to assist our clients with their ongoing compliance monitoring and reporting

Following each sprint, updates will be released to our clients for field testing to ensure that their requirements are being converted into the appropriate inputs and outputs. This early engagement with testing assists with bringing your team on the implementation journey, ensuring buy in from across the organisation.



Implementation Flow:

Forms

- Forms developed covering compliance, maintenance, inspections & sampling.
- Schedules implemented
- Forms released to staff to test & request changes.

Optional Modules

- Optional modules are prioritised with our clients.
- Consents are uploaded, linked and released to client to review and approve.
- Lab sample plans are uploaded, tested and released.
- Trade waste applications are created and conditions loaded.

Step 1

Step 2

Step 3

Step 4

Step 5

Testing & Training

- Testing & mini training sessions will be run throughout the implementation phase.
- At the completion of the implementation formal training will be provided.

Project Kick-off

- Kickoff meeting- requirements gathering.
- Project setup.
- Stakeholders identified.
- Priorities set for project.
- SCADA, Labs connections established.

Reporting

- Dashboards & reports developed for current & future compliance needs.
- Labs reports created.
- Value-add dashboards created for performance & maintenance insights.
- Released to you for testing & iterations.

Go Live

- Functionality will be switched online throughout implementation process, allowing users to start using ID in day to day operates.
- Implementation across all assets and optional modules completed.

Indicative Implementation Timelines:

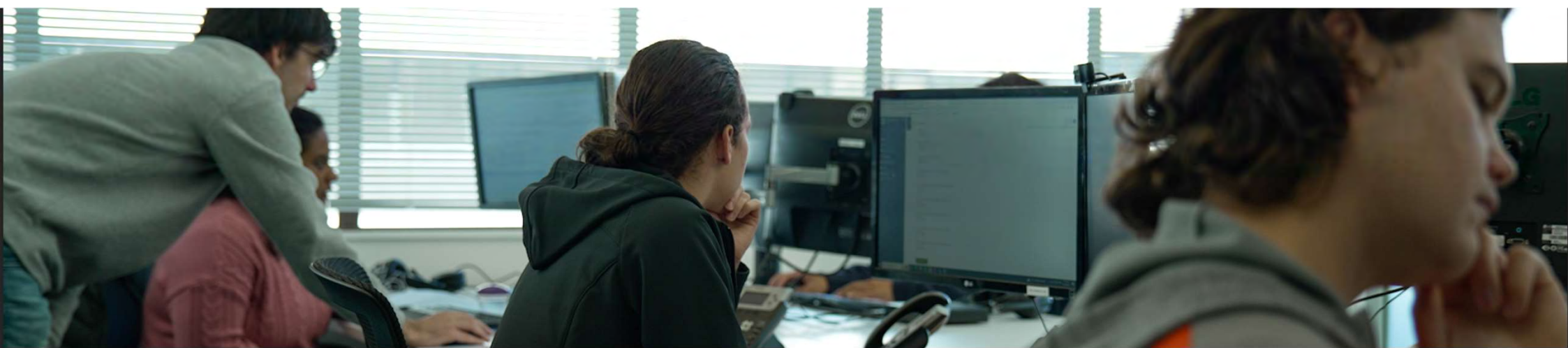
Implementing a system like ID can take time, this will vary depending on the complexity of your requirements, some example timelines are below:

Small setup – Standard Modules only, up to 5 Plants, – **3 Months**

Medium setup – Standard Modules + an optional module, up to 15 Plants – **6 Months**

Large setup – Standard Modules + all optional, 15+ Plants – **12 Months**

Note: Implementation time is highly dependent on the Lutra receiving the required support and data from our clients, the above are given as an indication only.



User Training

Prior to ID going live, customised training is delivered to all staff that will be required to interact with ID or have some responsibility for the compliance performance and reporting. The training is grouped, based on the different levels of access, interaction, and responsibility.

On-site training can be provided upon request.





BRONZE -

Technical Product Support



Technical product support for licensed apps and modules



Support available via ticket system or phone, between the hours of 09:00 - 17:00 NZ time



Support Response Time: 2 Working Hours



Access to user guides, manuals and videos



User/Administrator permission changes

Bronze support is included in SaaS fees at no additional cost



SILVER -

Business Support



BRONZE Technical Product Support, plus+



Support available via ticket system or phone, between the hours of 08:00 - 17:00 NZ time



Support Response Time: 1 Working Hour



Provision of assistance with data issues & problem solving support extending beyond technical product support*



Site maintenance

Silver support fee is +10% of annual SaaS Fees



ENTERPRISE -

Customer Success Partner



SILVER Business Support, plus+



Lutra. Customer Success Manager



Assistance with forms rationalisation and development*



Assistance with set up of QR code*



Assistance with dashboard development*



Assistance with development of batch reports*



Assistance with setup of soft sensors*



Training Service:

- Provision of 5 days product training to client and its personnel via virtual group training sessions and/or one on one sessions.
- Provision of further virtual training services to Client during normal business hours at the Clients reasonable request*



Proactive Client partnering to find value through the identification of best practise usage improvements and implementation support

Gold support fee is +20% of the annual SaaS fees. Enterprise is available for clients with a SaaS over \$100k

*Lutra will apply commercially reasonable efforts to support the Customer and subject to any usage restrictions that may be imposed from time to time

Infrastructure Data is a standalone platform that stores data on a Microsoft Azure based cloud instance (refer to the [Security page](#) for more details). It requires no additional infrastructure to be setup on the client's site, meaning that it can be quickly deployed.

To ensure that the platform is secure, it is penetration tested annually and security patches are applied as required. Backups are run on a regular basis, ensuring that all of your data is kept safe.

With a built-in identity management system, as well as support for SAML v2.0 single sign on (SSO), user management is made simple through either a standalone system or through an integrated approach with your existing identity management system. Supported by strict audit logs, all the actions undertaken by users are tracked for security and auditability purposes.

When considering integrations, ID has well defined pathway's meaning it can be easily integrated with systems such as SCADA, online IoT devices and other applications via API.

During an implementation of ID, it is common for the IT team to be involved at the beginning of the project, providing the required integrations with existing systems. Depending on the level of integration, the time requirement can be as little as 1-hour.



SAML v2.0

Single Sign On (SSO)



Penetration Tested

Annually and security patches are applied as required.



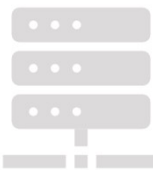
Minimal IT Team Involvement

As little as 1-hour.



Data Storage

ID is hosted in **Microsoft Azure**, Daily and Weekly Backups.



Infrastructure Data can collect data in various ways:



API – This provides a way for direct, secure, system-to-system access to ID, allowing data to be pushed or retrieved on demand. The API is JSON-based.



Internal acquisition tool (ID Agent) – This is a windows service in the form of a console programme that can be deployed within a clients' network – ideally on a historian or server, which is a step removed from the SCADA system. The agent maintains an HTTP-based bidirectional communications path with the website using only outbound HTTP connections, so works behind firewalls. The agent can function within a DMZ as long as it has access to the historian from within the DMZ.

The agent requests data using an ODBC or OleDb connection or alternative command set to request data before passing it from the client system to ID. The data pull frequency is determined by the client; this can be as frequent as 1 minute. With a one touch configuration for the client-side; you put a copy on your system, run one command and it takes care of the rest, reducing the overall setup time.



Automatic uploads – For systems that do not support APIs or the Agent collection method, ID can also automatically ingest CSV and XML files. These can be stored in a secure network location (i.e. SFTP), with ID scanning on a regular interval to pick up new files.



Manual upload – CSV files can also be uploaded manually via IDs bulk upload functionality.



All data acquisition methods are tested as part of the implementation before client handover is complete.

Data Export – Data can be exported via the export tools available in ID. This will allow clients to retain a local copy of data only in ID, in a CSV based format for ease of data manipulation.

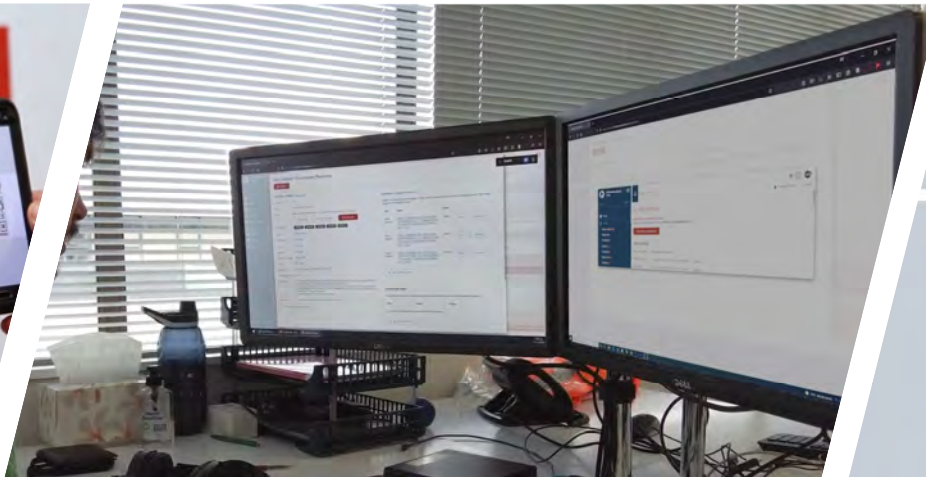


Paper to digital field forms

Tauranga City Council have embedded Infrastructure Data into their day-to-day operations, transitioning away from their paper-based forms, into our digital forms module.

Deploying Infrastructure Data across all their field devices, the Tauranga team immediately noticed the improvement to their overall traceability across their operational tasks, as well as the reduced administration due to missing paper forms or checking if tasks had been completed on time.

A short video case study from Tauranga City Council can be found [here](#).

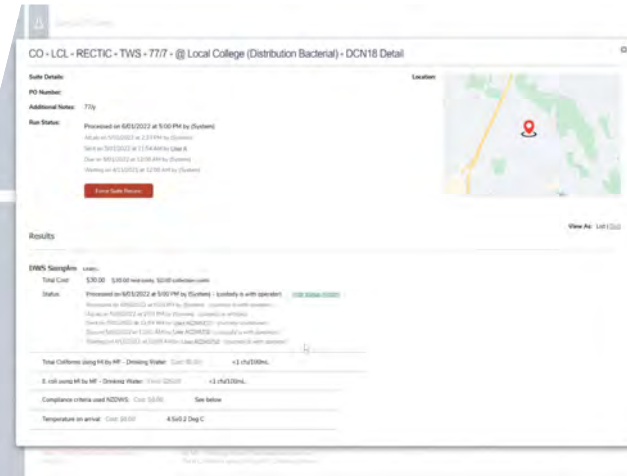


Consent & permit management

Developed in conjunction with several councils, Infrastructure Data's compliance module was created to automate much of the manual monitoring required for resource consents and permits.

Linking data from field operations, automated sensors, and external data stores i.e., weather data, Infrastructure Data has been proven to save significant administrative overheads – with twenty-five complex resource consents, equating to approximately a 75% time saving for a full-time employee.

Find out more about the Compliance module [here](#).



Sample scheduling & management

The scheduling, analysis, and management of laboratory samples across a utilities three waters network is essential to ensure the delivery of safe drinking water, and that wastewater discharges are correctly treated and do not pose any risk to humans or the environment.

Infrastructure Data is used by all our clients to actively manage their sampling schedules, receive, and analyse their lab results and track the samples as they progress through the full chain of custody.

Find out more about the lab sample management [here](#).



Automated compliance monitoring & reporting

Batch reports are automated reports which run at predetermined frequencies. Batch reports have a Pass/ Fail criterion with limit levels/ranges and can include alarms based on such parameters.

Used for compliance monitoring and reporting, the batch reports are essential for suppliers as they monitor their compliance to Bacteriological and Protozoal reporting requirements across their treatment assets.

Irrigation Load Reporting

Across several Australian and New Zealand Utilities and Dairy producers, Infrastructure Data is used to actively monitor compliance of wastewater treatment plants to environmental protection agency standards, as well as discharge permits.

A common example is the monitoring of irrigation loading for land discharges, ensuring that the nitrogen loading across the land discharge is in line with the local authorities standards.

Trade waste license application & management

Developed alongside leading trade waste officers in New Zealand, the trade waste module is designed to streamline the application process for licenses, as well as the ongoing monitoring and management of these.

With a public facing portal our clients have embedded the application process into their council websites, reducing the application time and administration required from both the council and their end users.

Find out more [here](#).



Carbon accounting and tracking

With an increasing need to understand our impact on the environment, Infrastructure Data has been used to assist municipalities with tracking their carbon emissions generated from their water and wastewater treatment plants operations.

Utilising data from SCADA, field operations, and external sources such as energy meters and carbon emission factors, Infrastructure Data can track and report in near real time the carbon emissions from a treatment plant.

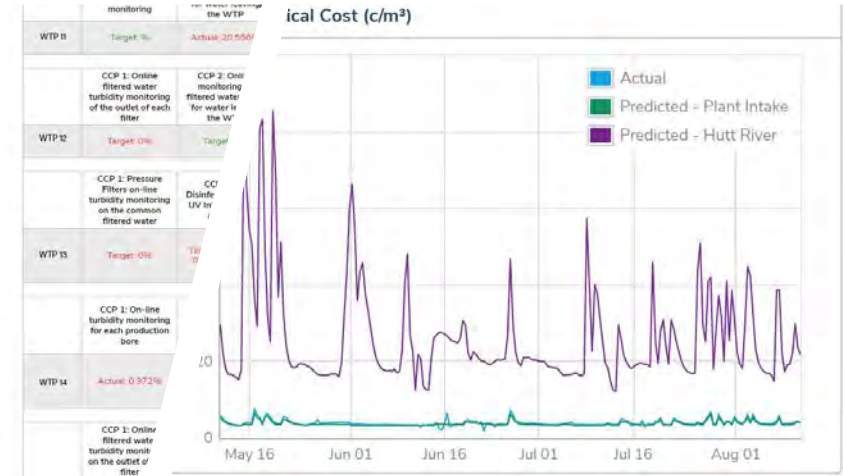
See our video on the on Green House Gases in Wastewater treatment [here](#).

WTP	CCP	Monitoring	Target	Actual
WTP 6	CCP 1: Online monitoring of filtered water turbidity	Target: 0%	Actual: 0%	0%
WTP 7	CCP 2: Online monitoring of UV intensity (UVI) and filtered water flow	Target: 0%	Actual: 0%	0%
WTP 8	CCP 3: Online monitoring of filtered water (pre-reservoir) FACe	Target: 0%	Actual: 0%	0%
WTP 9	CCP 4: Ion exchange	Target: 0%	Actual: 0%	0%
WTP 10	CCP 1: Online monitoring of filtered water turbidity	Target: 0%	Actual: 0%	0%
WTP 11	CCP 2: Online monitoring of UV intensity (UVI) and filtered water flow	Target: 0%	Actual: 0%	0%
WTP 12	CCP 3: Online monitoring of filtered water (pre-reservoir) FACe	Target: 0%	Actual: 0%	0%
WTP 13	CCP 4: Ion exchange	Target: 0%	Actual: 0%	0%
WTP 14	CCP 1: Online monitoring of filtered water turbidity	Target: 0%	Actual: 0%	0%
WTP 15	CCP 2: Online monitoring of UV intensity (UVI) and filtered water flow	Target: 0%	Actual: 0%	0%
WTP 16	CCP 3: Online monitoring of filtered water (pre-reservoir) FACe	Target: 0%	Actual: 0%	0%
WTP 17	CCP 4: Ion exchange	Target: 0%	Actual: 0%	0%

Critical Control Points monitoring

Critical Control Points (CCP) are essential to ensuring preventative measures are in place to protect against contaminants entering the drinking water supply.

CCPs can be actively recorded, monitored, and measured using the compliance module – surfacing the corrective actions and monitoring that these have been completed in the event of a failure.



Plant performance

Tracking treatment performance is essential for municipalities to understand how their plants are performing when compared to an 'ideal plant'.

Modelling the chemical consumption and tracking the overall chemical costs vs the raw water quality, gives a good indication of potential issues that are arising in a treatment plant and can allow operations teams to investigate, before a plant failure occurs.

See how our ID can be used to [monitor plant performance](#).

Process Engineering Services

As well as Data Management Lutra offer a full suite of process engineering services across both water and wastewater, whether this is providing additional insight and optimisations from your ID data or stand-alone projects, Lutra can help improve your treatment.



Process Optimisation

Utilising your ID data, along with other data such as specific sampling or testing (which Lutra can perform if required), the engineering team can suggest ways to optimise your processes.

Optimisation can improve plant performance, lessen material use and save money.

Our expert team has provided optimisation services at many plants, on processes such as CO2 dosing, coag floc, and filter performance.

See our video on Process Optimisation [here](#).



Process Design

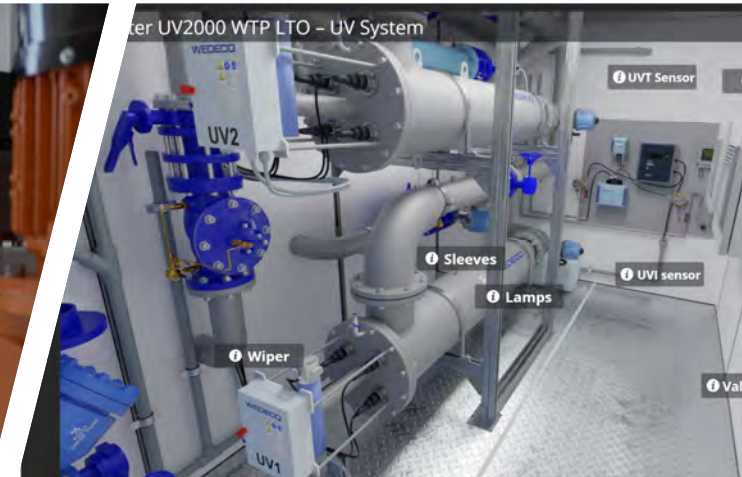
Lutra offer a full range of process engineering services, including; initial investigations, process design, sampling & testing, workshops, water safety plans, commissioning and more.

Lutra's engineering team can work on projects of any size, for both municipal and industrial water suppliers.

Our hands on engineering team always look to raise the bar and strive to offer you the best possible solutions.

Check out some of our engineering [case studies here](#).

Speak to us, to see what our engineering team can do for you.



Training

Lutra offer training services, both onsite training and our License To Operate (LTO) online training system.

LTO's are custom training systems designed around your treatment plants and training needs. Capturing your staff's institutional knowledge through videos and presentations. LTO's are online, available on almost any device with both app and web access available.

LTO's also track your staff's training progress with full reports, so you get a full training management platform.

Get in touch to find out more about our training services and try out our demo LTO.

Lutra.



Contact:

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Quentin.Griffiths@lutra.com

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Australia: **1800 879 026**



www.Lutra.com