

Southern SmartAudit is an innovative irrigation management tool developed by, and unique to, Southern Water Engineering. It encourages irrigation efficiency, improves land manager awareness of the importance of quality in irrigation design and servicing and delivers real operational, financial and production improvements for our clients.

The Story of SmartAudit

THE PROBLEM



- Poorly functioning irrigation systems.
- Degradation of systems caused by faults, e.g. incorrect operating pressures.
- A mix of older technologies with inefficient system designs.
- Land managers often do not have a copy of their irrigation plans.
- Few tests conducted on systems, except pressure tests.
- Lack of awareness of potential problem areas leading to unexpected, and often avoidable breakdowns.

THE PROCESS



Trained staff and expert design engineers visit the site and measure system performance, assess the components' condition and the efficiency of the design, incorporating the Irrigation NZ Code of Practice guidelines. Actual pump performance is tested against manufacturer's specifications. Filters and headworks, valves, relief valves and air valves are all tested and audited. Results are analysed and recommendations are made for servicing, efficiency improvements, and future problem areas. SmartAudits are updated annually.

THE SOLUTION



We started auditing irrigation systems to allow us to improve our 'Smart Maintenance' service. When clients perceived a wider range of benefits from the audits, we refined the process and launched it as SmartAudit. SmartAudit is an in-depth analysis of an irrigation system, pinpointing areas requiring immediate maintenance and those which will require maintenance or replacement in the next two years. We also identify opportunities to improve system performance. Options are being considered for extending the availability of SmartAudit to other regions, and for non-viticulture sites.

THE BENEFITS



- Improved uniformity of water delivery, improving plant health and yields.
- More efficient use of water.
- Fewer breakdowns and increased lifespan of irrigation components.
- Enables planning for capital expenditure for future maintenance and upgrades.
- May result in lower running and replacement costs.
- Creates excellent relationships between us and land managers.
- Clients have a better understanding of the complexities of irrigation design and benefits of regular maintenance.

ADDED EXTRAS

On all blocks we service, each part is labeled with a unique identifier (SWE tag) for use in reporting a breakdown or ordering new parts. This improves our customer service and the efficiency of breakdown responses by ensuring technicians take appropriate parts on callouts.

SOUTHERN WATER ENGINEERING

Southern Water Engineering is a leading water engineering and irrigation consultancy in Marlborough. Our small team of experts delivers a complete design, installation, and maintenance service to clients in the viticulture, winery, agriculture and dairy industries. We seek continuous improvement in our business processes, services and products to ensure our clients continue to get the best quality and service now and in the future. We are Irrigation NZ accredited suppliers.

WHAT CLIENTS SAY

"We knew we needed systems we could rely on; we needed to go back and find out what the systems were performing like [so we knew where to invest]."

"The audit reports are all standardised. It's easy to look at them and find out what we need to know."

"The guys do a great job and follow up any problems quickly."

"The audit was a tool for us to go forward. It gave us a solid background to take the system forward. It gave us evidence for the accountants of the need for capital investment."

CASE STUDY: EXAMPLES FROM ONE MARLBOROUGH VINEYARD SMARTAUDIT



Poor wiring will affect reliability of operation.



Burnt spots on circuit board indicate moisture in the remote terminal unit.



Poor wiring will result in the coil only operating intermittently.



Pilot Spring corroded, affecting pressure regulation from valve.



Sediment buildup and corrosion impedes the performance of the valve.

Corners			
SE	SW	NE	NW
55	25	60	15
180	50	200	70
50	25	110	45
180	215	210	260
100	150	95	220
95	145	110	150
290	210	320	200
260	210	145	170
45	25	20	20
45	10	60	10
470	350	450	360
100	110	95	140
50	0	90	0
100	100	110	155
460	500	460	490

Sample of pressure measurements. Variation across corners and zones (rows) should be < 20.

RECOMMENDATION EXAMPLES:

A mix of regular maintenance and long-term improvements were recommended for this site.

For example:

- Replace pilots.
- Long term, replace non-compensating dripline with pressure-compensating dripline.
- Improve wiring configuration.
- Install additional sub-mains and replace underspec valves.

To date we have completed audits on over 1,500 hectares of vineyards - and our key clients now demand the SmartAudit when purchasing an existing vineyard.



www.southernwaterengineering.co.nz