

LinkWater

compliance review report

Prepared by:
Office of the Water Supply regulator
Department of Environment and Resource Management
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Contact (07) 340 43070 or email <communications@derm.qld.gov.au>

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Compliance review report

Water Supply (Safety and Reliability) Act 2008

LinkWater

1. Allegation

It is alleged that LinkWater did not comply with the drinking water service provider (provider) monitoring and reporting requirement notice issued under section 630 of the *Water Supply (Safety and Reliability) Act 2008* (the Act) by the Office of the Water Supply Regulator (the regulator), Department of Environment and Resource Management.

2. Possible breaches/offences

Section 630 of the Act states a notice from the regulator can require a provider to do any of the following:

- to carry out monitoring, described in the notice, of the quality of water supplied to or from the providers drinking water service
- to give the regulator reports, at the intervals stated in the notice, about the results of monitoring mentioned above
- to give the regulator other reports about the operation of the drinking water service, including, for example, reports about whether the quality of water being supplied to or from the provider's drinking water service is consistent with the water quality criteria for drinking water.

Section 630 of the Act specifies that a provider must be in compliance of the above unless the provider has a reasonable excuse.

Using its powers under section 630, the regulator issued a notice to all providers requiring, from 2 January 2009 until an approved drinking water quality management plan is in place, the provider to:

- monitor for and report on the detection of *Escherichia coli* (*E. coli*) as specified in the Public Health Regulation 2005
- continue with its existing drinking water quality monitoring program(s) for other parameters (where one is in place)
- report any incident that will or is likely to adversely affect drinking water quality, and
- report drinking water quality monitoring results on a quarterly basis.

The alleged breach by LinkWater relates to the requirement to report any incident that will or is likely to adversely affect drinking water quality. An incident is defined¹ as:

- (a) failure to meet a water quality criterion
- (b) detection of a parameter for which there is no guideline value in the Australian Drinking Water Guidelines (ADWG), or
- (c) an event or a series of events likely to affect drinking water quality or cause difficulty in adequately treating drinking water.

¹ As per the definition in the draft 'Water quality and reporting guideline for a drinking water service'. A copy of the guidelines accompanied the notice that was sent to all drinking water service providers on 28 November 2008.

Specified under Attachment 1 of the notice an incident includes fluoride, where the fluoride level is greater than 1.5 mg/L². If above this level, the provider must report to the regulator:

1. by telephone within three hours of receipt of the test result
2. by written confirmation by fax or email within 24 hours (incident reporting form part A)
3. by written confirmation by fax or email upon resolution of the incident (incident reporting form part B).

3. Other legislation related to this incident

- *Public Health Act 2005*
- Public Health Regulation 2005

The Act complements the *Public Health Act 2005* and Public Health Regulation 2005, which specify the water quality standard and the frequency of monitoring and reporting requirements for fluoride.

4. Details of the incident

Incident summary

This summary is based on information, provided mainly from Seqwater, available to date. The North Pine Water Treatment Plant was shut down for scheduled maintenance from 27 to 30 April 2009. The fluoride dosing system remained active for a part of this time, however was not dosing immediately following the shut down of the North Pine Water Treatment Plant. On 28 April 2009 the fluoride dosing facility intermittently commenced injecting fluoride solution into the treated water main. This intermittent dosing occurred for an estimated total of two hours depositing approximately 12,900 litres of fluoride solution over a five-hour period. The fluoride dispersed along the main reaching a LinkWater sample point. A sample was collected by LinkWater and sent to the Moreton Bay Regional Council laboratory for testing. LinkWater was notified by the Moreton Bay Regional Council laboratory on 12 May 2009 of a high fluoride result of 31.2 mg/L. LinkWater verbally notified Seqwater of this result on that same day. Seqwater undertook initial investigations to assess the veracity of the result given that the North Pine Water Treatment Plant was offline at the time the sample was taken.

How the information was received

Time/date incident occurred:	13:28 12 May 2009 LinkWater was advised that the sample taken on 29 April 2009 at the Byrnes Road sample point had a fluoride concentration of 31.2 mg/L.
Location of incident:	Fluoride dosing facility at the LinkWater main leaving the pump station at the North Pine Water Treatment Plant.
Reporting process:	LinkWater did not directly report the incident by telephone to the regulator. Queensland Health first informed the regulator.
When it was reported:	16:41 on 13 May 2009 (by Queensland Health).
Format:	Incident reporting form part A from LinkWater was received 19:24 on 14 May 2009.

² The fluoride concentration may be in the treatment component, reticulation system transmission component or in the raw or source water and the parameter can not be reduced or removed

Timeline of the incident

Based on information available the table below has been compiled for the purposes of undertaking the compliance review by the regulator to illustrate the sequence of activities which led to the incident.

Date	Time	Details
27 April 09	13:14	The North Pine Water Treatment Plant shut down as part of scheduled maintenance.
28 April 09 29 April 09	19:38 to 00:36	Fluoride dosing pumps operate intermittently for an estimated total of two hours over a five-hour period due to incorrect flow readings by LinkWater's flow meter. The system deposited approximately 12,900 litres of solution into the main over this period.
29 April 09	00:36	Online fluoride analyser records 3 mg/L (the analyser's maximum recordable value) and the fluoride dosing is automatically shut down.
29 April 09	08:00	LinkWater sample taken near Byrnes Road pump station and sent to the Moreton Bay Regional Council laboratory.
30 April 09	07:48	First backwash draws 400 kL from Aspley main back into the plant.
30 April 09	08:45	Second backwash draws 400 kL from Aspley main back into the plant.
30 April 09	10:27	North Pine Water Treatment Plant commenced producing water into the treated water storages, but there was no delivery of water from the treated water cells until 1 May.
30 April 09	17:38	Seqwater disables the fluoride dosing system due to the flow meter fault.
1 May 09	20:32	Treated water pumps at North Pine Water Treatment Plant first commenced pumping and delivering water.
2 May 09	-	North Pine Water Treatment Plant back to full operation.
12 May 09	13:28	Fluoride result (Moreton Bay Regional Council laboratory) indicated fluoride concentration of 31.2 mg/L and was notified to LinkWater.
12 May 09	14:46	LinkWater notifies Seqwater of high fluoride result.
13 May 09	16:00	Seqwater declares the incident internally and advises the SEQ Water Grid Manager and Queensland Health of high fluoride result.
13 May 09	16:06	LinkWater reviewed other sample results downstream of North Pine Water Treatment Plant. A sample taken 5 May 2009 from Aspley Reservoir indicated a fluoride concentration of 0.48 g/L.
13 May 09	16:41	Queensland Health notifies the regulator.
13 May 09	17:00	Grid participants advised of a level 2 incident via email.
13 May 09	17:20	Queensland Health confirms notification and takes lead communication role.
13 May 09	18:00	Seqwater verbally notifies the regulator.
13 May 09	18:31	Minister for Natural Resources, Mines and Energy notified of incident by the regulator via the Director-General.
13 May 09	18:40	SEQ Water Grid Manager sends an email about the incident to LinkWater CC'd to the regulator, Deputy Director-General (Water & Catchment Division) and the Minister for Natural Resources, Mines and Energy.
13 May 09	20:00	SEQ Water Grid Manager notifies Brisbane City Council Water Distribution and the Moreton Bay Regional Council.
13 May 09	22:46	Seqwater receives SEQ Water Grid Manager Situation report 1: Fluoride incident. SEQ Water Grid Manager advised Seqwater that the incident has now been classified as a Level 3.
14 May 09	19:24	The regulator receives Part A of the incident report from LinkWater.
14 May 09	-	Duplicate water sample analysed by ALS Laboratory indicating a fluoride concentration of 19.6 mg/L.
15 May 09	-	Retest of sample by Moreton Bay Regional Council laboratory indicating a fluoride concentration of 17 mg/L.

5. Outcome of the incident

The incident could have posed a risk to public health. It was initially thought the over-fluoridated water entered the distribution system, potentially affecting up to 4,000 homes in the Warner and Brendale suburbs. Investigations and modeling have shown that it is most likely that the over-fluoridated water would have been drawn back into the filters at the North Pine Water Treatment Plant. Therefore little, if any, of the over-fluoridated water would have been left in the supply main. There is a possibility that some of the water could have been drawn into the Byrnes Road offtake and the service pipe reticulation systems that supply to residents in approximately 400 homes in Joyner, the YMCA camp Warrawee, four on-site houses and internal plant.

It is noted that if the back-wash did not operate, the incident would have led to a more widespread risk to public health, potentially affecting approximately 4,000 homes with over-fluoridated water. This incident has generated significant community interest in the potential health impacts of over-fluoridation and the ability of providers to supply fluoridated drinking water in South East Queensland.

6. Details of compliance review

It is alleged that LinkWater failed to comply with section 630 of the Act by failing to report an incident to the regulator within the timeframe specified in the notice. Specifically, LinkWater did not:

1. report the high fluoride level test result to the regulator by telephone as per the timeframes set out in the notice. That is, LinkWater did not notify the regulator of the incident by telephone on 12 May 2009.
2. provide written confirmation (incident reporting form part A) of the incident relating to the high fluoride levels by fax or email to the regulator as per the timeframes set out in the notice. That is, LinkWater submitted the incident reporting form part A on the evening of 14 May 2009, more than 48 hours after LinkWater became aware of the incident.

7. Mitigating circumstances

LinkWater has advised that it did not notify the regulator of the incident (i.e. the high fluoride sample result) because:

- there were concerns of the validity of the test result. LinkWater discussed the result with Seqwater. As the North Pine Water Treatment Plant was shut down at the time that the sample was taken, there were concerns that the sample did not represent actual water that would be supplied. Seqwater advised LinkWater that it would investigate the situation.
- of the timeliness of the result (the sample result was received 13 days after the sample was taken).
- on 13 May 2009 LinkWater compared a water sample taken from the Aspley Reservoir (which is supplied by the North Pine Water Treatment Plan). The reservoir's fluoride concentration was below 1.5 mg/L. It was determined by LinkWater that there were no drinking water quality concerns.
- LinkWater had notified Seqwater (who were responsible for the fluoride dosing) of the result.

LinkWater did not verbally report the incident to the regulator when it received the test results on 12 May 2009 indicating over-fluoridation had occurred.

LinkWater did:

- notify Seqwater within 1 hour and 15 minutes of receiving the results from the Moreton Bay Regional Council laboratory (despite the lengthy time frame taken by the laboratory to notify LinkWater of the high fluoride level result)
- advise Seqwater of the faulty flow meter

- indicate it was aware that the Water Grid Manager had advised the Regulator of the incident.

8. Outcome of review/investigation

Based on the information available to date, LinkWater did not inform the regulator of the high fluoride levels by telephone on 12 May 2009 or provide written confirmation within 24 hours as per the notice requirements.

The outcomes of this review are that LinkWater breached of the monitoring and reporting requirement notice. That is LinkWater:

1. did not notify the regulator by telephone within the required three hour timeframe of the fluoride results on 12 May 2009 that indicated a fluoride concentration of 31.2 mg/L
2. did not provide the regulator with written confirmation (incident reporting form part A) of the incident by fax or email within the required 24 hour timeframe.

Given the potential public health risk that this incident could have posed, and the desire to mitigate any future incidents of this nature occurring, it is recommended some formal action be taken. Formal action will indicate to LinkWater the seriousness of non-compliance with the notice.

A range of formal actions are available to the regulator including:

- a warning letter from the regulator outlining the alleged offence, reminding LinkWater of its drinking water quality responsibilities, and the list of remedial actions it will be required to implement
- a formal warning notice given to LinkWater (non-regulatory notice)
- prosecution action (up to 500 penalty units).

Prosecution action is not recommended at this stage. A formal warning notice is not considered appropriate given the nature of LinkWater's actions.

RECOMMENDED ACTIONS FOR EACH OFFENCE

A warning letter be sent to LinkWater outlining the alleged offence, reminding LinkWater of its drinking water quality responsibilities, and the action plan of remedial actions it will be required to implement.

The regulator has provided LinkWater with the opportunity to put forward actions it has taken and will take to prevent a similar incident from occurring in the future. These actions are detailed below.

For each of the listed actions below, a project plan including monthly milestones must be submitted to the regulator for approval by 31 July 2009. LinkWater must report on the progress of the below actions via email on a monthly basis to the regulator until all of the actions are complete.

The regulator may set additional requirements on LinkWater if the actions below are not achieved by the nominated completion dates, or monthly milestones are not achieved.

Equipment failure:

2. Urgent maintenance of flow meter to reinstate accurate performance. Specific actions to achieve this outcome are:

- LinkWater to replace the faulty flow meter (commenced, and to be completed by 30 September 2009).

Additional actions:

- Has developed a detailed Operational Incident Response Plan specifically for water quality incidents (which details the reporting requirements to the regulator), to complement LinkWater's Incident Management Plan.
- Amend the draft Water Quality Incident Reporting Standard to indicate that all potential water quality incidents (as defined by the regulator) must be reported as per regulatory requirements (by 31 July 2009).
- Develop a reporting checklist for use by LinkWater staff (by 31 July 2009).
- Train staff on the Operational Incident Response Plan for water quality incidents, the amended Water Quality Incident Reporting Standard and the reporting checklist (by 31 July 2009).
- Employ a Water Quality Technical Officer to provide additional capacity in monitoring water quality information to ensure timely notification of potential issues (by 31 October 2009) (subject to availability of a suitable candidate).
- Develop a comprehensive water quality database and automated reporting system which will immediately identify non-compliant sample test results for LinkWater to action. Interim database solution to be implemented (by 31 December 2009). Final Laboratory Information Management System (LIMS) to be in place (by 30 June 2010). Continue use of in-house spreadsheet and manual detection for communication of non-complaint results until then.
- Immediately renegotiate shorter turn-around times for water quality samples, ensuring future contracts with laboratories have improved turn-around times with penalties for non-adherence (Request for tender to be advertised for long term laboratory services by 31 August 2009).
- LinkWater/Seqwater interface - LinkWater to initiate discussions with Seqwater regarding issues with shared infrastructure (commence immediately).
- Improved communication - LinkWater to initiate discussion with Seqwater via the Operating Protocols with particular attention to where infrastructure is shared and ensure these discussions are ongoing (commence immediately).