IMPACTS OF TELECOMMUNICATIONS INSTALLATIONS ON WATER SERVICE RESERVOIRS

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ABSTRACT

Local Water Utilities (LWUs) are well aware that telecommunications companies have significant powers to enter upon property to install and maintain mobile phone equipment on existing structures, with service reservoirs being a particularly favoured location. LWUs have the requirement to be able to operate, maintain and repair their water supply facilities and ensure the safe delivery of drinking water at all times. It generally appears that often little if any regard has been given to date, by the telecommunications industry to these water supply regulatory and statutory requirements.

There are also "work health and safety" (WHS) issues to be met by LWUs as the owners of these service reservoirs, and the accessing of these sites by such third parties as the telecommunication companies and/or their contractors can have ongoing consequences to the LWUs.

Many LWUs have now found themselves with a large amount of telecommunications equipment installed upon their service reservoirs, with little effective control of the activities associated with this equipment. This paper will present some of the issues faced by LWUs when dealing with telecommunication equipment installations, the long term needs to address and rectify the issues, and some examples of how LWUs can gain back some control of their sites and assets.

KEY WORDS
Work Health & Safety, drinking water quality management and reservoir operations

1.0 INTRODUCTION

Balanced against the burden imposed by the installation of this mobile phone equipment, is the need for a LWU to be able to operate, maintain and repair its water supply facilities and also ensure the safety of drinking water quality at all times in accordance with Australian Drinking Water Guidelines, NSW Public Health Act 2010 and directions regularly issued by both NSW Health and NSW DPI – Water.

To date, it appears that little regard has often been given by the telecommunications industry to these regulatory and statutory requirements which are placed upon LWUs to ensure that they provide a safe drinking water supply to their consumers.

There are also "work health and safety" (WHS) requirements to be met by LWUs as the owners of these service reservoirs and the associated accessing of these sites by third parties such as the telecommunication companies and/or their contractors.

However, many LWUs have now found themselves with a large amount of telecommunications equipment installed upon their service reservoirs, lease agreements which have been prepared by the telecommunications companies that do not generally include any consideration of LWUs needs to operate, maintain and repair these facilities, un-restricted site access by the telecommunication's companies' staff and/or contractors and a loss of control over what is occurring at these locations.

2.0 DISCUSSION

2.1 Telecommunications Industry Standards

The Federal Government's "Telecommunications Act, 1997" aims to provide a balance between the needs of telephone companies to install mobile phone facilities and the rights of landowners, such Local Water Utilities (LWUs).

However as outlined above, the potential negative impact upon drinking water quality and the ability of LWUs being able to meet their ongoing obligations to protect community health in this regard has not been understood or well appreciated by the wider telecommunications industry. This industry has simply seen service reservoir sites as a convenient location and an existing structure on which to install mobile phone facilities, without the need in most situations for normal development controls and associated planning approvals processes.

When installing mobile phone telecommunications facilities, telephone companies generally do need to obtain local Council planning approvals and comply with relevant State and Territory planning laws, including town planning and environmental laws.

However, telephone companies licensed by the Australian Communications and Media Authority (ACMA) and then identified as "carriers", may install a limited range of facilities without seeking State of Territory planning approval. The most common of these facilities are the "low-impact facilities".

"Low-impact" facilities are those which, because of their size and location, are considered to have a low visual impact and be less likely to raise significant planning, heritage or environmental concerns. The "Telecommunications (Low-Impact Facilities) Determination, 1997" lists the types of low-impact facilities. Examples of "low-impact" facilities are:

- Small radio communications dishes & antennae; and
- Underground cabling & cable pits.

The "Low-Impact Facilities Determination, 1997" also identifies certain equipment as "low-impact" when it is mounted on "existing structures" such as water supply reservoirs, buildings, poles or towers. It also classifies an extension of up to five (5) metres on an existing tower as "low-impact".

As outlined above "low impact" facilities are generally exempt from normal planning and environmental approvals. This exemption also applies to the inspection and entry onto land, the installation of certain types of telecommunications facilities, including "low impact" facilities, and the maintenance of these facilities.

However, while engaged in these activities, the "carrier" must comply with the requirements in the "Telecommunications Act" and the "Telecommunications Code of Practice 1997" (COP).

The Act and COP requires that a "carrier" when installing "low-impact" facilities must take all reasonable steps to:

- Ensure as little detriment, damage and inconvenience as practical is caused,

- Ensure that the land is restored to a condition that is similar to its condition before the installation began,
- Act in accordance with good engineering practice,
- Protect the safety of persons and property,
- Minimise interference with public utilities, roads and paths, traffic and land use,
- Protect the environment (including: ecosystems, people and communities; resources; qualities and characteristics of locations and areas, and the social, economic and cultural aspects of all these,
- Co-locate facilities with the existing facilities of other carriers or public utilities, or utilise public easements,
- Cooperate with any other carriers or utilities engaging in a similar activity for the same land to cause as little detriment, damage and inconvenience as possible.

There is a requirement for "carriers" to make reasonable efforts to enter into an agreement with public utilities that makes provision for the manner in which the "carrier" will engage in maintenance activities. These maintenance activities are defined in Divisions 2, 3 or 4 of the Act and are also considered likely to affect the operations of the public utility. A "carrier" must then comply with such an agreement with a public utility.

There is also a requirement for "carriers" engaged in activities such as installation and maintenance works to do so in accordance with any "standard" that relates to the activity; and is recognised by the ACMA as a standard for use in that industry; and is likely to reduce a risk to the safety of the public if the "carrier" complies with the standard.

Facilities such as overhead cabling and freestanding mobile phone towers are not classified as "low-impact" facilities and their installation requires normal Local Council planning and environmental approvals.

2.2 NSW Local Water Utilities Requirements

The NSW Health Public Health Act 2010 and Regulations 2012 require all local water utilities (LWUs) to develop and implement a "quality assurance program" for drinking water supplies based upon the Australian Drinking Water Guidelines (ADWG) Framework for Management of Drinking Water Quality.

The NSW Department of Primary Industries – Water (DPI – Water) manages the Country Towns Water Supply and Sewerage Program, which includes the NSW water supply and sewerage best practice management framework, technical support and financial assistance to local water utilities.

The NSW Guidelines for Drinking Water Management Systems were jointly prepared by NSW Health and DPI – Water in 2013, to support LWUs in the preparation and implementation of **Drinking Water Quality Management Plans**, by 1st September 2014.

The **Drinking Water Quality Management Plans** include the identification and implementation of critical control points (CCPs) within the water supply system, which are associated with multiple barriers in the water supply chain, which then facilitate the prevention of any hazards reaching the consumers. Service reservoir sites have been identified as an important CCP in the water supply system due to the likelihood of microbial contamination occurring at these sites.

DPI – Water have also prepared **Circular No. LWU 18 entitled "Assuring the Safety of Drinking Water Supplies"**, which was issued on 4th June 2014 to provide advice and direction upon a new protocol for implementation by all NSW LWUs. The purpose of this new protocol is to provide details of the minimum requirements to ensure that each potable (drinking) water supply system is safe from microbial/pathogen contamination.

The new protocol requires all LWUs to ensure that the standard operating procedures (SOP) for its water supply systems, meet these requirements in order to achieve the following three (3) key barriers:

- **Barrier 1 – Effective disinfection** to kill, inactivate or remove pathogens in the water supply prior to distribution to consumers.
- **Barrier 2 – Ensure distribution system integrity** to prevent contamination.
- **Barrier 3 – Maintain free chlorine residual** in the water within the distribution system to help protect against prior contamination and as an indicator of a potential breach in the distribution system integrity.

Together, these three (3) barriers operate to assure the safety of each water supply and to prevent microbial contamination of the drinking water supply systems.

In particular these protocols also provide detailed advice and directions to LWUs upon the importance of preventing the ingress of contaminants to the drinking water supply at vulnerable points within the distribution system such as **service reservoirs**. Service reservoir integrity is a key system integrity barrier (Barrier 2) and a critical control point for the water supply and should be appropriately monitored at all times.

It is therefore essential that all water supply reservoirs are designed, constructed and maintained to prevent the ingress of contaminants and that each reservoir's roof, walls, access openings and hatches, bird meshing, etc. are regularly inspected and monitored in order to detect any breaches to the reservoir's integrity.

In addition to any requirements identified in each LWUs **Drinking Water Quality Management Plan,** DPI – Water has directed LWUs to implement the following steps at each service reservoir site to detect and rectify any breaches of reservoir integrity.

1. **Carry out a careful and detailed site examination of each service reservoir to ensure:**

    a) The reservoir and its roof are secured from the entry by birds, animals, vermin and windborne contaminants;
    b) Rainwater cannot enter into the reservoir (ie. no leaking roof or holes in the reservoir wall or gaps around the openings on the roof);
    c) The reservoir roof is adequately drained especially near the openings and landings on the roof area. The roof should extend beyond the reservoir wall;
    d) All access hatches or openings are closed and locked at all times; and
    e) The reservoir site and roof are secured from unauthorised access.

2. **Review the reservoir maintenance standard operating procedures to ensure that they are sound and fit for purpose:**

a) Where access to third parties (eg. Telephone companies, SES, NSW Police, etc.) is undertaken and/or approval has been given to install equipment, appropriate written reinstatement and communications protocols need to be established between the LWU and each third party to ensure the service reservoir integrity is not compromised at any time;
b) The LWU must conduct regular audits to ensure these protocols are being effectively implemented;
c) Similar protocols should also be effected between the LWU and any service providers authorised by the LWU to access its service reservoirs; and
d) A financial penalty should be imposed for any failures to comply with the protocol as these may breach the distribution system integrity, resulting in contamination of the drinking water supply and then requiring a "boil water alert" being issued to consumers.

The recent implementation of **Drinking Water Quality Management Plans** (NSW Public Health Act, 2010) and DPI – Water's **Circular No. LWU 18 - Assuring the Safety of Drinking Water Supplies**, have now placed upon LWUs a regulatory requirement and established industry standards to ensure that drinking water supply systems are operated and maintained to appropriately manage hazards and to prevent any contamination of the drinking water supplied to consumers.

The current situation with many LWU's service reservoirs having telecommunications equipment installed at these sites is impacting negatively upon the ability of LWUs to be able to meet their obligations in relation to these regulatory requirements and industry standards.

2.3 Some Additional Operational Questions for LWUs

The impacts of telecommunications fixtures upon service reservoirs has also recently been well documented by Aqualift Project Delivery, as this issue is now also affecting this companies' ability to perform its contract services to LWUs which include; maintenance, condition assessments and internal cleaning services for a large number of LWUs both in NSW and around Australia.

Aqualift has highlighted the following questions which need to be considered by LWUs in addressing the impacts of telecommunications installations on water service reservoirs;

1. How can LWU staff and/or contractors access the Radio Communications Site Management Book (RCSMB) for each particular reservoir site, see (http://www.mcf.amta.org.au)?
2. If the RCSMB is out of date and/or incomplete then is it necessary to use personal RF monitoring equipment (PPE) to verify safe working conditions, and who provides this PPE?
3. How to determine if a particular antenna should be powered down and/or turned off to allow work to be performed safely and how to arrange for this equipment to be powered down?
4. Is there a need for LWU staff and/or contractors to have specialised training in working near radio frequency (RF) equipment and if so who provides such training?
5. Should the RF "no-access-areas" be marked by some physical method on reservoir roof tops?

3.0 CONCLUSION

It is therefore recommended that consideration be given to the following suggestions which may assist LWUs in approaching a number of the major policy and operational issues associated with the installation of telecommunications equipment upon service reservoirs;

- LWU's to develop and adopt appropriate guidelines, policies and procedures to then be in a position to negotiate when notified by carriers of any proposed telecommunications works, to prevent the installation and/or renewal of telecommunications equipment upon service reservoirs and/or to require carriers to install their own towers at these locations,
- LWU's to develop site lease agreements for service reservoir sites which clearly articulate LWU requirements in relation to the operation, maintenance and repair of associated water supply infrastructure and systems. Noting that as the site owner these lease agreements should be written to firstly protect the interests of the LWU and the local communities which they serve with drinking water, and then secondly provide reasonable access arrangements for the mobile phone carriers,
- LWU's to develop requirements to ensure that the installation of telecommunications equipment on service reservoirs should be undertaken not to hinder future operations, maintenance and/or repairs. For example; the installation of cable trays and cabling would not be permitted to be placed across the top of roof areas, as this would interfere with any repairs to roof sheeting and/or the supporting roof structure and has proven to introduce roof drainage problems and/or contamination of the stored drinking water,
- Site management agreements, site inductions and site access control/reporting protocols to be established with telecommunication companies/subcontractors to adequately address issues including; service reservoir integrity to protect drinking water quality and WHS obligations, and
- LWUs to develop/amend standard operating procedures for service reservoirs and provide appropriate training of LWU staff and contractors to ensure safe access to service reservoir sites and roof areas.

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