

Mark Ferguson, General Manager
8am to 5:30pm Mon - Thurs, 8am to 5pm Fri

20 August 2014

Independent Pricing and Regulatory Tribunal
Level 8
1 Market Street
SYDNEY NSW 2000

Dear Sir/Madam

Re: End of Term Review of Sydney Water Operating Licence

Pittwater Council welcomes the opportunity to provide comment to the Independent Pricing and Regulatory Tribunal of NSW (IPART) in response to the end of term review of Sydney Water's Operating Licence.

IPART has prepared a Water Licencing – Issues Paper (June 2014) to assist interested parties in making submissions and identifies key issues for stakeholder consideration and response. In line with its best practice licencing framework IPART's review will consider, amongst other things, "whether government action is required to address a specific problem or risk and, if so, whether licencing is appropriate".

In this regard Council takes the opportunity to raise specific issues and problems which are of concern to our local community. Council provides comment to the review with reference to both the Issues Paper and Sydney Water's submission in response to that paper. Comments are provided in response to the specific questions most relevant to the issues of concern for Council and the Pittwater community as follows:

20 *Should the new operating licence contain any obligations for the Priority Sewerage Program (e.g., what, if any, requirements should be included in relation to the outstanding Priority Sewerage Program areas of Yanderra, Austral, Menangle and Menangle Park)?*

In addition to the four areas mentioned as Stage 1 carry over projects under the Priority Sewerage Program (PSP) two other areas are included as Stage 2 projects. The projects are Nattai and Scotland Island, with both identified by the Environment Protection Authority (EPA) as high priority and environmentally sensitive. Planning and construction has not commenced for these projects and there is no deadline for the provision of wastewater services to these areas.

Scotland Island in Pittwater was first subdivided in the early 1920's and is one of a number of isolated off-shore communities in the Pittwater area that rely wholly on water based transportation for access. The steep topography and heavy clay soils occurring on the island present real difficulties for the operation of on-site wastewater disposal systems. As a consequence, poor water quality is often experienced in the waterways surrounding the island, particularly following periods of heavy rainfall, with attendant risks to the health of the environment, island residents and waterway users.

Ongoing lobbying by the Scotland Island Resident's Association (SIRA) and Council has failed to motivate Sydney Water to undertake meaningful planning for the provision of a reticulated wastewater system, despite repeated advice to Council from Sydney Water that improved wastewater services would be provided to Scotland Island by 2010 under the PSP.

By removing the obligations to complete the outstanding projects on the PSP Council is most concerned that the costs associated with the provision of a reticulated sewage system for Scotland Island will not be afforded without state government funding and cross subsidisation by all wastewater customers. This is, after all, the process by which the majority of infrastructure has been delivered to Sydney Water's wastewater customers in the past, including those on the mainland of the Pittwater LGA.

Pittwater Council therefore strongly objects to any changes to the Sydney Water Operating Licence that would have the effect of removing the current obligations upon Sydney Water to complete all outstanding projects under the PSP.

21 *Should the Government consider alternative mechanisms to achieve the policy objectives of the Priority Sewerage Program in the remaining areas?*

The PSP was initiated to provide wastewater services to identified high priority urban towns and villages in environmentally sensitive areas where no wastewater service is currently provided.

Whilst other mechanisms to fund and deliver these services can and should be investigated, Sydney Water as the monopoly operator in the affected areas remains best placed to plan, design and implement the PSP. As such, the completion of outstanding projects under stages 1 and 2 of the PSP should remain an obligation of Sydney Water and a condition of their operating licence at least until an alternative delivery mechanism has been formally established for each project.

31 *Are there any other environmental obligations we should include in the operating licence?*

Beachgoers and surfers (including the Surfrider Foundation, Northern Beaches Branch) continue to raise issues over the performance of the Warriewood Sewage Treatment Plant and in particular, problems associated with adequate processing of wet weather flows, consequent plant bypasses and wastewater overflows throughout the sewerage system.

Warriewood Sewage Treatment Plant (STP) is one of only two remaining STPs in the Sydney Region that discharge treated sewage from cliff-face outfalls, the other being Cronulla. At Turimetta Head on the Northern Beaches, sewage treated to a secondary level with disinfection is discharged from the Warriewood STP. It is interesting to note that an ocean outfall included in the original design for the STP was subsequently not installed, but would now be a practical means of resolving some of the operational deficiencies of the plant.

The topography and geology of the Pittwater LGA as well as the age of and technology involved in the sewerage network creates circumstances whereby during wet weather rainwater entering the sewer causes the flow to exceed the capacity of the system resulting in discharges from overflow structures and other openings.

Similarly if the build-up of flow exceeds the capacity of the STP to treat the sewage stream, untreated or partially treated wastewater may be diverted from the plant directly to the outfall causing local pollution at Warriewood Beach. The processes involved and the reasons behind the plant bypasses and system overflows are well explained in a recent paper prepared for Council's Natural Environment Reference Committee (Porter and Gordon, 2014). A copy of the paper has been included for the further information of IPART with this submission.

In its submission dated July 2010 on the Review of Environmental Factors (REF) for the recently completed upgrade of the Warriewood STP, Pittwater Council also raised concerns over the projected population growth that the upgrade was designed to accommodate and service until 2031. Amongst other matters Council raised specific concerns that the projected population growth in the catchment of the Warriewood STP did not adequately account for:

- the total planned number of new dwellings in the Warriewood land release area;
- the anticipated number of dwellings to be developed as a part of the proposed Ingleside land release; and
- any planned dwelling increases in those parts of the catchment located in the Warringah LGA.

Council's concerns were, however, largely dismissed by Sydney Water in the review of submissions received in response to the REF.

Sydney Water is authorised to carry out its scheduled activities in the operation of the Warriewood sewage treatment system by way of a fee based Environment Protection Licence (Licence Number 1784) issued and regulated by the NSW Environment Protection Authority (EPA).

The Licence sets pollution limits, operating conditions as well as monitoring, recording and reporting conditions regarding the pollutants discharged to the environment. The objectives of the licence are to:

1. require practical measures to be taken to protect the environment and public health from sewage treatment, plant effluent and sewer overflows;
2. require proper and efficient management of the sewerage treatment system to minimise harm to the environment and public health;
3. require no deterioration and continuing improvement in the sewage treatment system environmental performance relative to existing conditions; and
4. minimise the frequency and volume of overflows and sewage treatment plant bypasses.

The construction of a deep ocean outfall for the Warriewood STP would resolve many of the operational problems now experienced throughout the Warriewood sewage treatment system. In view of the forecast population growth in the catchment and in consideration of the potential for ongoing environmental and community health risks to beach users, an ocean outfall also represents a practical means of fulfilling the specific objectives of the Plant's Environment Protection Licence.

Pittwater Council therefore urges IPART to consider compelling Sydney Water to install a deep water outfall at Warriewood STP as an environmental obligation under its Operating Licence. The significant financial costs of the outfall are acknowledged, however internalisation of the true costs of environmental damage and loss of beach amenity should also be a consideration in evaluating the benefit/cost of such a project. These costs are currently avoided by Sydney Water under current operating licence provisions.

Council is concerned at the limitations of the EPA licencing system in respect of independent oversight of the licence conditions, accountability of the licence holder and adequate disincentives for non-compliance with the environmental protection provisions of the Licence. An opportunity to redress these deficiencies may exist in preparing the new operating licence, particularly in regard to meeting the specific environmental objectives of Environment Protection Licences issued by the EPA.

To this end, Sydney Water should be compelled to take an active role in the management of the environmental impacts of plant bypasses and system overflows in a manner consistent with the objectives of its Environmental Protection Licences.

Council would be pleased to discuss any aspect of this submission, should IPART require further information or clarification of any matter.

Yours sincerely

 Mark Ferguson
GENERAL MANAGER

Warriewood Sewerage Treatment Plant - Proposal For Future Upgrades

Martin J. Porter, BSc(Physics), MSc

Surfrider Foundation Australia, Northern Beaches Branch

Angus Gordon, BE(Civil), MEngSc(Coastal), FIE Aust, CP Eng.

May, 2014

Abstract

This paper discusses the performance of Warriewood STP on Sydney's northern beaches. Performance of the plant are discussed with particular emphasis in its (in)ability to adequately process wet weather flows. A number of options for upgrading Warriewood STP and associated infrastructure to cope with long-term population and environmental factors are presented.

1 Introduction

Warriewood STP is situated on Sydney's northern beaches and provides secondary treatment and disinfection of sewage to a population of almost 65,000 people. The plant treats an average daily flow of about 16.4 ML/day and discharges to the ocean using a cliff-face outfall at Turimetta Head. Until recently the plant was operating near to its (average daily dry weather) capacity.

Recent upgrades to the plant have increased operating capacity by 17% - theoretically therefore it can now treat an average of 19.2 ML/day. The upgrades have the stated goals^[1] of:

1. improving the operating reliability of the STP,
2. providing sufficient capacity to service growth in the catchment to year 2031,
3. continuing to meet Environmental Protection Licence (EPL) requirements,
4. reducing the frequency of wet weather overflows from the STP.

It is the last point that is the focus of this document.

2 Wet Weather Flows

In designing sewer systems it is generally accepted that the wet weather flows can be 4 to 6 times the dry weather flows due to infiltration of surface and ground water into the pipes. In the case of Warriewood STP it currently services a catchment that stretches from Narrabeen Lagoon to Palm Beach and takes in the eastern side of Belrose through a pipe that follows down the Wakehurst Parkway. This catchment has a high proportion of sandstone and clay soils on sloping land. It is also heavily treed. While the natural catchment configuration makes for an interesting landscape, it unfortunately means there are often minor and major landslips, ground settlement and a proliferation of tree roots. The combination of sliding and settling land, and tree roots, is a recipe for broken pipes and cracked joints. Even small amounts of ground settlement can crack pipes and joints.

Because the sewer system was constructed in the 1970s to 1980s, the pipes are a mixture of the old terracotta type and the more modern PVC pipes. Because of their lack of flexibility terracotta pipes are notorious for cracking in ground that can settle or slide. However, even the PVC, while it can accommodate some settlement and ground creep, it tends to fail at the joints due to distortion of the pipe. Both types of pipe are vulnerable to tree root infestation once cracks occur.

Tree roots simply help open up the cracks further thereby letting more ground water in.

Hence the likely wet weather infiltration rates in a catchment like the one serviced by the Warriewood STP are at least the higher 6 times (the dry weather flows) and potentially more. The situation is exacerbated by the fact that a surprising number of properties are also located in the many floodplains in the base of the valleys of the catchment. In such locations, it is not just a matter of infiltration but also direct flow into the sewer pipes through submerged manholes and the many service “eyes” in the domestic pipes. So, the likely total wet weather flow to the STP is considerably greater than might be expected for a “standard” catchment.

The STP was never designed for this. Interestingly, the STP was in fact designed in the early 1970s and was intended to service a far less dense population that is now emerging in the catchment.

While it would seem the pipe infiltration, and even the direct ingress of flood-water is a Sydney Water issue, it is important to realise that the actual pipes and places where flood water can enter makes up less than 50% of the sewer system managed by Sydney Water. In fact, a majority of the length of pipe is located on private property in the form of the house connections to the Sydney Water mains. Similarly, many houses have fittings that can allow floodwater to directly enter the pipes - some of these are “legal” and others “illegal”. So, the cost and difficulties in reducing the wet weather flows are enormous and would most likely involve a majority of house holds. Further, any “fixes” would need to be repeated as land settled or slipped further and/or tree roots again invaded the system.

In the light of this understanding now consider Sydney waters recent statements regarding bypasses during wet weather conditions:^[2]

Sydney Waters 30 wastewater treatment plants operate under EPA licences. They are designed to protect health and the environment, and have the capacity to treat up to four times the dry weather flow.

Clearly in the case of Warriewood STP this statement is very misleading. As indicated previously, only 4 times the average dry weather flow is well short of what is required for a catchment like that serviced by the Warriewood STP. Further, the recent upgrades are a long way short of bringing the plant in line with the capacity suggested by Sydney Water. Reading on a bit further:

In extreme wet weather conditions, flows may exceed this capacity, and the plant cannot treat everything as it normally would. In these cases, around 90-95 per cent of the flow is still treated through the normal processes before being released, and the small remainder bypasses some internal processes.

The information on Warriewood STP^[1] however gives a peak average daily wet weather flow of 130ML/day - significantly higher than the capacity of the plant to process. This is 6.7 times even the upgraded capacity, which is more in line with what Sydney Water should have expected from the type of catchment serviced by the Warriewood STP. The claimed 90-95% would therefore appear completely unrealistic in these circumstances. Further, it demonstrates the design assumption of 4 times the average daily dry weather flow was in error.

The wet weather bypass figures^[2] (Sydney wide) are shown in Table 1. The number of wet weather bypasses is dependent on the amount and type of rain experienced such as the larger than average rainfall in 2007.

Year-No.	Year-No.
2006-70	2010-131
2007-156	2011-132
2008-90	2012-145
2009-86	2013 Jan-June-114

Table 1: Sydney-wide wet weather bypasses.

Of more concern however is the general trend in the data.

There is a further issue as well. The STP is designed to manage “average” daily flows. This is not an unusual design criteria however it assumes that development is sufficiently evenly spread throughout the catchment that the time delays for effluent to reach the STP from various areas within the catchment are such that the peak flows tend to be evened out. This was a reasonable assumption back in 1970 but the recent development of Warriewood Valley, and in particular the very recent higher density development right alongside the STP now means this evening out process has been compromised. What this in turn means is that the STP now experiences peaks which exceeds the “average” flows it was designed for.

3 The Problem

During periods of moderate to heavy rainfall, water enters the system through cracked pipes and joints as the water table in parts of the catchment rises. In some locations the groundwater rises to a level above that of the sewage infrastructure resulting in the direct ingress of stormwater into the system. In extreme cases the capacity of pipes can be exceeded and at various pressure relief points partially diluted raw sewage is released directly into the environment. A much more common situation occurs when the downstream sewage treatment plant’s capacity is exceeded.



Figure 1: Warriewood STP before recent upgrades.

In the case of Warriewood Sewage Treatment Plant all incoming material undergoes primary treatment (screening & filtering). The plant's capacity at secondary and higher levels is about 500 litres per second. If the volume of incoming material exceeds this then primary treated sewage is bypassed into a 5 ML bypass containment lagoon (triangular area near top of Figure 1) for processing later. Unfortunately it is often the case that this lagoon nears capacity and its contents are by necessity discharged directly without additional treatment. Further, unlike the rest of the STP that has been upgraded to reduce odours, the lagoon has no such protection so the adjacent properties, including the higher density unit blocks in the immediate vicinity of the STP, are subjected to offensive odours.

As previous data from Sydney water illustrates, this is a fairly common scenario across Sydney's sewer network though in the case of Warriewood the associated health risk is made much worse by the fact that the outfall at Turimetta is the site of the largest remaining cliff-face sewage ocean outfall in Sydney and is only a short distance from a number of well used beaches and iconic surfing breaks.

A sample of the pollution monitoring data for 2013 can be found in Appendix A.

4 Options

There are a number of options for upgrading Warriewood STP and associated infrastructure to cope with long-term population and environmental factors:

- Do nothing,
- Infrastructure - minimise stormwater ingress,
- Warriewood STP further upgrades,
- Reuse of the effluent,
- Deep water outfall.

4.1 Option: Do nothing

Sydney Water's response to an email inquiry about the long-term upgrade plans for Warriewood Sewage Treatment Plant:

Aside from routine maintenance on the ocean outlet there are no further plans for extra improvements to the Warriewood WWTP (other than those just delivered) at this time. While there are no plans or drivers for more improvements, Sydney Water is always monitoring its performance and requirements in regard to the future.

This option appears to be the favourite of Sydney Water though with the limited capacity of the Warriewood plant and the likelyhood of increased wet weather events due to climate change, increased development densities and the concentration of higher densities in the immediate vicinity of the STP, the option of doing nothing will not remain viable for long. In fact, it should no longer be a responsible option given the demonstrated under capacity of the works to manage average daily wet weather flows, let alone the real peak wet weather flows.

See Appendix B for Sydney Water's full response.

4.2 Option: Infrastructure - minimise stormwater ingress

Replace or line the leaking pipes. This is presented here mainly for completeness as it is unlikely to represent either a financially or practically viable option, particularly since much of the infrastructure is on private property and, even if repaired, could be expected to again fail due to ground conditions and trees.

4.3 Option: Warriewood STP further upgrades

Warriewood STP will require further upgrades in less than two decades to cope with population demands due to the ever increasing densities and the shift to the need for peak flow management because of the increased densities in the adjacent Warriewood Valley. Rather than wait as long as possible consider the option of bringing forward the upgrade process and ensuring it is done with a more long-term view.

By 2031 Sydney Water is predicting^[1] that an increased population will cause the plant to again reach an average dry weather capacity at about 18.3 ML/day and peak wet weather flows staying the same at 130 ML/day. It is interesting to note that the same document implies that the plant has a peak processing capacity of 450 L/second (possibly more) which equates to a potential average 39 ML/day if a way can be found to more efficiently use the plant's peak capacity. Clearly this still significantly underestimates the true demand if reasonable discharge quality is to be achieved.

A method for capturing peak flows in returning them in a controlled manner to the processing system is already in use elsewhere. The Northside Storage Tunnel feeding North Head STP is an excellent example of a large facility of this type and its use has resulted in a significant improvement in the water quality in Sydney Harbour but at massive cost. On a smaller scale the recently completed Northern Beaches Storage Project tank at Brookvale serves a similar purpose.

The construction of a similar tank at the Warriewood STP facility would not only provide a valuable buffer to the processing capacity of the plant but would also help to reduce the frequency of wastewater overflows during heavy rain. However it would need to be contained in such a manner that the odour was trapped and treated due to the immediate proximity of the now higher density residential development. Again such a facility would entail considerable cost.

4.4 Option: Reuse of the effluent

Reuse of the effluent has also been considered as a way for reducing the need for an outfall. The real problem with this as an option, however, is that the peak overload of the plant occurs in wet weather when the demand for water is low. A very major storage facility would need to be constructed to accommodate the wet weather supply and this would be in addition to having to upgrade the plant by approximately 7 times its current capacity — a costly exercise and one that would unlikely fit on the existing site. Likely a new site for the STP, and a storage dam, would be required, along with a major pumping station to transfer the effluent from the current site to a new location, to effectively deal with the wet weather

flow situation. All up this would result in a very expensive, and potentially environmentally undesirable undertaking.

This is not to say that reuse of well treated effluent for watering the many nearby playing fields during dry weather wouldnt be a good idea however to date this has been dismissed on the basis that it is more cost effective to use the normal water supply, augmented by rain water tanks to do this job.

4.5 Option: Deep water outfall

The final option to be discussed is the extension or replacing of Warriewood's cliff-face outfall with a deepwater outfall.

In the early 1990s three deepwater ocean sewage outfalls were commissioned (Malabar, North Head and Bondi) to alleviate the problem of frequent fouling of many of Sydney's ocean beaches.^[4] The main cause of the beach pollution was the discharge of inadequately treated sewage from cliff based shoreline outlets. These deepwater outfalls were sited a sufficient distance offshore, and at such a depth so the waste would be diffused and caught in the predominant southerly, East Australia Current and shoreline impacts would be minimised. The result was huge improvements in the water quality at Sydney's beaches.^[3]

It is a little known fact that Warriewood was originally designed to have an offshore outfall to cope with wet weather conditions. Initially a cliff-based outfall (the current arrangement) was installed while the offshore outfall was under construction. Unfortunately difficulties during construction saw the offshore outfall stage stall. At the time the relatively small number of properties connected to the STP meant the quality of effluent from the cliff-based outlet was well within the required guidelines. However, over time the need for the outfall, particularly during wet weather, has become essential. Because over 30 years has passed since the outfall project was initially deferred there has been an understandable loss of Sydney Waters corporate history. However some of those involved in the original design are still around.

Warriewood is Sydney's largest remaining cliff-face outfall. The design of the STP and its associated system along with the increased peak flows as a result of intensification of development mean that even modest wet weather events often result in inadequately treated sewage being output into the surf zone at the cliff-base. The result is not only a risk to the environment but the health of the users of nearby beaches. If the outfall were extended seaward, as originally envisaged, by a sufficient distance then many of the negative environmental and health impacts of the current system would be alleviated.

It is worth noting that although the financial cost of such an undertaking would

be significant, this would be at least partially offset by relaxed operating requirements and costs of the STP. This is because the level of treatment that needs to be applied to the waste water is significantly less than that currently used at Warriewood.

5 The Way Forward

In considering the long term future of Warriewood STP numerous factors must be evaluated such as long term population trends, environmental factors and the ongoing health risks to beach users that the inadequate treatment of wastewater can pose. Perhaps the best guide to the best way forward is given by the actions of Sydney Water itself — the upgrade of Sydneys North Head, Bondi and Malabar sewage treatment plants from cliff face to deepwater outfalls. To quote Sydney Water^[3]:

Sydneys deepwater ocean outfalls have delivered high-quality outcomes for the environment and the community. Beaches and harbours are cleaner and the marine environment is healthy. Since the deepwater ocean outfalls opened 16 years ago,

- *swimming conditions have significantly improved*
- *beach grease has been eliminated*
- *there has been no detectable negative effect on marine ecology or sediments*
- *effluent discharged has consistently been shown to be non-toxic at its diluted state.*

Upgrading Warriewood STP to a deepwater ocean outfall is not just the best option for the community and the environment but also represents a practical long-term solution to the disposal of wastewater on this part of Sydney's northern beaches.

References

- [1] Sydney Water. *Review of Environmental Factors - Warriewood Sewage Treatment Plant Upgrade Project.*, 2010.
- [2] Sydney Water Media Centre. *The Facts On Wet Weather Treatment.*, July 2013
- [3] Sydney Water *Sydney's Deepwater Ocean Outfalls - Long-term environmental performance*, 2007
- [4] FETT, MICHAEL J., JASON BAWDEN-SMITH, & SANTO CANNATA. *Impact of Sydney's deepwater ocean outfalls on Garie Beach.*, New South Wales Public Health Bulletin 5.10: 111-113.

A 2013 Pollution Monitoring Data

Pollution monitoring data for Warriewood STP is presented in Table 2 along with corresponding rainfall data for Warriewood STP's catchment area¹ Although a number of pollutants are monitored only *faecal coliform* data is presented here as it is often used as an indicator of possible sewage contamination. A high *faecal coliform* count also suggests that pathogenic micro-organisms might also be present and that swimming might be a health risk. The effect of rainfall is clearly seen.

Sydney Waters treatment plants operate under environmental protection licences issued by the NSW Environmental Protection Authority (EPA). For each monitoring/discharge point the concentration of a pollutant must not exceed the concentration limits specified for that pollutant. For Warriewood regular sampling for *faecal coliform* is only done every 6 days at the outfall pipeline on the plant's eastern boundary². The Licence stipulates that *faecal coliforms* have a 50 percentile concentration limit of 200 cfu (colony forming units) per 100millilitres which just means that 1/2 the test results must be within this limit *but the other 1/2 can be anything!*

Month 2013	Faecal Coliforms (cfu per 100millilitres)			Rainfall (mm per month)
	Minimum	Mean	Maximum	
February	10	67	230	130
March	9	77	250	110
April	10	274	950	160
May	21	790	3800	80
June	17	2852	13000	300
July	4	1238	5700	30
August	5	10	23	20
September	2	13	37	60
October	9	18	30	70
November	17	867	2400	240
December	8	10245	50000 ³	30
Jan2014	6	728	3600	30
Feb2014	4	13	47	90

Table 2: Warriewood STP pollution monitoring data, 2013.

¹Approximate values based on data published by the Australian Bureau of Meteorology.

²Data published by Sydney Water.

³Extremely high are levels due to STP equipment failure

B Emails

Following is the unedited message contents of an enquiry to Sydney Water and the subsequent response. For privacy reasons some names, email addresses and/or other details have been abbreviated or removed.

—Original Message—

From: Martin Porter [mailto:martinXX@XXX]

Sent: Friday, 28 June 2013 11:25 AM

To: W, ELIZABETH

Subject: Warriewood STP upgrade & long term plans

Dear Elizabeth

I am writing to inquire about the long term upgrade plans for Warriewood Sewage Treatment Plant.

As a member of Surfrider Foundation Australia, I am well aware of the consequences of the (recently upgraded) system's inability to cope with environmental flows caused by heavy rain. The situation is exacerbated by factors such as ongoing population growth in the region and an outfall only a few 100 metres from two well used beaches.

Storage tanks or tunnels, such as that being constructed in Brookvale may represent one solution. Extending the outfall into deeper water could also help reduce risks to public health.

I would ask to be informed of any future plans which would address the concerns mentioned.

I look forward to hearing from you,

Martin Porter,

Member Surfrider Foundation Australia, Northern Beaches Branch.

Member Natural Environment Reference Group - Pittwater Council

XXXX North Narrabeen 2101

—Original Message—

Subject: Warriewood STP upgrade & long term plans

Date: Tue, 2 Jul 2013 08:18:36 +1000

From: BARNES, ARTHUR <XXXX@sydneywater.com.au>

To: 'martinXX@XXXX'

CC: W, ELIZABETH <XXX>, H, S <XXX>

Hi Martin

Elizabeth has forwarded your email regarding long term plans for Warriewood Wastewater Treatment Plant (WWTP) to me for reply.

Aside from routine maintenance on the ocean outlet there are no further plans for extra improvements to the Warriewood WWTP (other than those just delivered) at

this time. While there are no plans or drivers for more improvements, Sydney Water is always monitoring its performance and requirements in regard to the future.

As you know, the latest upgrades were completed to meet the needs of population growth in the Warriewood catchment to 2031.

In terms of the health risks associated with wet weather flows from the plant, the risk management approach of our guidelines, which the Beachwatch system uses, allows the management of this type of risk by limiting the exposure of people to the water after storm events.

This approach is endorsed by our health and environmental regulators. This approach is in line with the risk based approach of the National Health and Medical Research Council's Guidelines for managing risks in recreational water (NHMRC 2008).

Beachwatch results show water quality on the northern beaches is either good or very good. However, during high rainfall events the receiving water can be impacted largely by a range of potential contaminants from stormwater more than the partially treated flows from the wastewater plant. This treatment includes screening, grit removal, primary treatment and partial disinfection i.e. all flows receive treatment. Sampling has shown that the impact of rainfall events is usually gone within 24 to 48 hours.

The risk based approach in all Australia's guidelines for drinking water, recycled water and recreational water, and those of the World Health Organisation, allow for potential risks to be removed by stopping people being exposed to water during elevated risk periods. This is particularly effective for events such as the impact of occasional high rainfall on water quality where the water quality recovers relatively quickly and people can avoid contact with that water for the required short period.

Regards

Arthur

*Arthur Barnes — Advisor, Community Relations
Communications — Sydney Water*