Sydney Water's response to EPA's Issues Paper

Review of the Load Based Licensing Scheme

23 December 2016

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1 Overview

Sydney Water welcomes the opportunity to respond to the NSW Environment Protection Authority's (EPA's) *Review of the Load Based Licensing Scheme – Issues Paper, October 2016* (the Issues Paper) and supports the purpose of the review: to ensure the load based licensing (LBL) scheme is fulfilling its potential to achieve emission reductions effectively and efficiently.

This submission provides Sydney Water's comments on issues raised by the EPA in its Issues Paper. We provide general commentary on the operation of the LBL scheme to date, as well as more detailed comments on issues we consider relevant to our business.

Our key positions regarding the LBL scheme are that:

- the licensing of pollutant discharges needs to be linked to specific environmental outcomes
- to achieve specific outcomes for waterways the scheme needs to be able to work within a framework for overall catchment management (point and diffuse source)
- priority pollutants should be defined based on specific catchment conditions
- pollutant load reductions targeted through licensing need to be scientifically linked to specific environmental outcomes
- the load based licensing tool should only be used where it can be a clear driver for investing in optimal outcomes. Where this is not possible other regulatory tools, such as setting concentration and load limits, should be used.

The current LBL scheme represents a tax-based scheme where the incentive to improve is driven by arbitrary costs with no clear link to environmental outcomes.

Our submission advocates for a scheme where pollutant reductions can be linked to environmental outcomes, with costs established through market-based trading schemes. We acknowledge this is a long term objective that will need to be achieved in a realistic timeframe. As an interim measure, Sydney Water advocates for an amended regulatory framework to include offset arrangements, similar to the new framework being proposed for the Hawkesbury Nepean Wastewater Treatment Plant Regulatory Framework project.

Key aspects of such an approach could include setting pollutant fees based on:

- specific issues or problems that need to be addressed in the catchment
- pollution reduction that takes into account all sources of pollution
- opportunities to reduce pollution from licensed and unlicensed sources
- scientific evidence that pollutant reductions will deliver a commensurate environmental benefit.

By introducing flexibility to reduce pollutants from a number of the sources, the effectiveness of economic incentives will be improved and the potential for positive environmental outcomes increased.

2 Has LBL been effective?

2.1 Our experience to date

In general, LBL has not been an effective tool to influence Sydney Water's investment decisions. It is also more complex, resource intensive and expensive, in terms of time and money, than potential alternative methods.

The LBL scheme uses the 'polluter pays' principle to provide a financial incentive to licensees to improve their environmental performance beyond licence compliance, thereby attracting a reduction in their total pollutant load fee. This is intended to incentivise licensees to implement plant improvements sooner than they may do otherwise.

In 2015-16, Sydney Water paid total licensing fees of:

- almost $2 million for administration fees
- slightly over $9 million in LBL fees.

Ninety six per cent of Sydney Water's LBL fees were attached to our three largest primary treatment ocean plants (Malabar, North Head and Bondi). For Sydney Water to significantly reduce these LBL fees, we would likely need to invest in a higher treatment grade for these plants, which could potentially cost billions.

Rather, the EPA has tended to use specific nutrient load and concentration limits to drive optimum performance at Sydney Water's wastewater treatment plants. This means that, effectively, Sydney Water has no discretion to reduce loads because the plants are:

- already using the best available technology
- performing at the limit of their current ability.

In terms of emission reduction, upgrades for production growth and avoiding non-compliance with EPL conditions are bigger drivers for emission reduction than LBL fees for Sydney Water.

In our experience, the additional financial disincentive from LBL fees is insufficient to influence further investment in our environmental performance. Nonetheless, for all our plants above a certain size threshold, we are still required to pay LBL fees.

2.2 General comments

The load based licensing tool should only be used where a clear economic incentive can be established for investing in optimal outcomes. Where this is not possible, other regulatory tools (such as setting concentration and load limits) should be used.

2.2.1 LBL should be linked to specific environmental targets

Load based limits that are not linked to specific environmental targets may be unnecessarily stringent in some areas but lax in others. Also, where the load limit is too high, it provides little to no incentive to reduce loads. Hence, it is important for load limits to be linked to the environmental conditions of the receiving environment.

The current LBL scheme represents a tax based scheme where the incentive to improve is driven by arbitrary costs with no clear link to environmental outcomes. An efficient licensing scheme designed to protect the environment should link loads discharged with receiving water concentrations. Such a scheme would need to take a catchment based approach, including a need to consider, and understand, diffuse contributions. Other jurisdictions, for example, in France, apply effluent charges to all surface and wastewater discharges. This includes non-point polluters such as the agricultural sector. This is meant to act as an incentive to fund a range of water-related investments to abate water pollution.

A more holistic approach is required in order to achieve the best overall environmental outcome (for example, the right balance of chemical use, energy use/generation of biosolids, truck movements as well as considering the appropriate quality for receiving waters). Effluent quality requirements should be in line with receiving water requirements, rather than potentially over-servicing for no benefit, which may result in adverse environmental outcomes on other fronts. Regulatory requirements should consider full life cycle environmental impacts and complement the government's strategies for reducing energy use and greenhouse gas emissions. Without including greenhouse emissions in load calculations, there is a risk that actions incentivised under a LBL scheme may result in an overall worse environmental impact, for example, from the use of energy intensive treatment processes.

A licensing scheme (of which LBL may be a part) should:

- consider the receiving environment, which also means understanding the proportion of diffuse contributions
- include all pollutant sources, small and large discharges, as well as diffuse contributions
- be site specific and tailored to the receiving environment
- apply a holistic approach to regulation
- be based on the latest available science for each individual region. For example, for Sydney Water we have the Sewerage Treatment System Impact Monitoring Program, which has considerable discharge and receiving water information.

Much of the above could be achieved by shifting to a market-based approach, such as that used in other countries. For example, the Total Maximum Daily Load (TMDL) used for Chesapeake Bay in the USA. A market-based approach would be established by:

- determining the total allowable loads of a pollutant through understanding point and non-point source contributions
- setting objectives and standards for each water body

- estimating the maximum pollutant load to a water body that will maintain set water quality standards
- allocating a portion of the allowable load to each source for them to manage.

A market-based approach could initially use baseline historic data to set water quality standards and use these as targets for assigning load reductions. Modelling and statistical correlation could be used to calculate required load reductions to achieve a specific water quality goal, and then construct nutrient budgets to apportion pollutant allocations. The different stakeholders and licensees could then use these allocations to trade between each other to achieve the most cost effective outcomes for the environment.

2.2.2 LBL should complement other licensing and regulatory approaches

The LBL should be designed to better complement other regulatory processes and frameworks to better align with the Ecologically Sustainable Development commitments which underpin EPA's pollution legislation. For example, LBL limits should be aligned with any limits set in planning consents under the *Environmental Planning and Assessment Act 1979*. This would require the LBL scheme to recognise the difference between continuous incremental load reductions as well as catering for step changes – such as upgrades of a facility that are likely to over-perform in loads discharged in the initial years but ultimately reach a design load discharge.

Sydney Water notes the EPA's proposal to introduce a new regulatory framework for nutrients in the Hawkesbury-Nepean River[1]. LBL should be consistent with this new licensing framework. In this respect, LBL should be consistent and complement critical zones and priority pollutants with the outcomes of this project, as well as all other licensing and consent frameworks.

2.2.3 LBL should focus on what the licensee can control

LBL should focus on what can be controlled by the licensee and not attempt to address the risk of 'spikes' from customers. For example Sydney Water's load based licences contain loads for dieldrin, a banned chemical. These spikes cannot be controlled by Sydney Water and the wastewater treatment process is not designed to treat these substances. The use and disposal of banned chemicals in the community is a broader issue for the EPA to manage and, as such, is beyond Sydney Water's control. In addition the intermittent nature of the releases of these types of chemicals in the wastewater system means they do not tend to contribute to cumulative impacts that LBL is designed to address.

LBL should also not unfairly penalise licensees if they are doing everything in their control to reduce their impact on the environment. Currently, the LBL scheme does not take into consideration whether there is technology available to further reduce emissions. The ACIL Allen Consulting report[2] commissioned by the EPA for the LBL review notes *that many of the low cost abatement measures may have already been adopted, or may be being developed, by licensees in NSW. For example, significant abatement efforts have been implemented over the last two*

[1] This framework is currently being developed by the EPA's Metropolitan Infrastructure Branch.
[2] ACIL Allen Consulting (2014), *Load-Based Licence Fee Comparison*.

decades at sewage treatment plants (STPs) in NSW. In these instances where low cost abatement options have already been exhausted, and there is a significant difference between the marginal abatement costs and the marginal environmental cost, the EPA should consider waiving LBL fees.

2.2.4 Reporting should be put in context

Whilst transparency is important to provide the wider community with visibility of licensees' performance, it should be noted that data not presented in context, or without sufficient accompanying explanation, can be misinterpreted by the public. This can result in additional costs in responding to enquiries and reputational impacts.

Appropriate context should be provided on the EPA website to educate the public when National Performance Indicator and load data is provided for viewing. This will avoid unnecessary costs for licensees to clarify queries based on misinterpretation of information presented to the public.

3 Specific LBL elements and issues

3.1 Assessable pollutants – are the right pollutants being captured?

Pollutants of concern need to be tailored for a specific area, including consideration of the receiving water environment (condition, sensitivity, flow, depth, use, etc). That is, assessable pollutants should be based on scientific evidence of their environmental impact. A generic list of pollutants applied across NSW has the potential to impose costs where there is no discernible impact.

For Sydney Water, the Sewerage Treatment System Impact Monitoring Program should be used to inform future licence conditions. Some pollutants monitored in this program have not been found in over ten years. Load and concentration limits for these pollutants should be removed from licences. The ongoing reporting and administration costs associated with these pollutants is not efficient.

Priority pollutants for each specific area should focus on what is being discharged and the actual impact on the receiving environment. Where pollutants have localised impacts, rather than contributing to cumulative impacts across a broad region, load based licencing is not the most suitable approach. Instead, these pollutants are better managed through licence conditions such as concentration limits.

In terms of the Issues Paper options for finalising a list of pollutants (page 35 of the Issues Paper), Option 2 is preferable, subject to an amendment to ensure that the receiving water environment is appropriately considered. This could be accommodated by the addition of words such as “for the area of interest” or “the local receiving waterway”. This would allow for a more sophisticated consideration of impacts (for example, BOD in oceans is different from BOD in rivers), and the linking of pollutants to specific problems.

For critical zones, such as the Hawkesbury-Nepean River, it would be useful to do a review of current pollutants, to determine if the right pollutants are being monitored. This could inform a more targeted, localised approach.

As noted in section 2.2.3, LBL fees should only be placed on pollutants that licensees can control. LBL fees and licence conditions should also be set to reflect current standards for an industry’s performance. That is, a discount should be included where a licensee is performing to the best possible standard, with no options for improvement.

3.2 Critical zones – are areas of highest concern appropriately targeted?

Specific area-based evidence should be used to define critical zones, define problems that need to be managed and inform solutions to address defined problems. As for assessable pollutants, critical zones should be site specific and based on the latest available science, rather than generic limits applied across the state. This would allow for targeted approaches for zones such as the Hawkesbury-Nepean River. Only by implementing whole of catchment approaches can effective

solutions be implemented at least cost. Without fully understanding all the sources of a specific pollutant and how they impact the environment, there is no guarantee that placing LBL conditions on licensees will result in an effective outcome for the environment.

There is a need to advance the science to establish an affects based or risk based assessment framework to more accurately target pollutants to manage waterway health outcomes. For example, in a critical zone such as the Hawkesbury-Nepean, we see issues that would indicate some areas are more critical than others. We need to fully understand waterway processes to allow the development of effective solutions for these problems.

It is important that any new, revised or confirmed critical zone/s and associated pollutants provide appropriate incentives to licensees. Licence conditions should be set in accordance with the actual risk that licensees pose to the environment.

3.3 Scheduled activities – are appropriate activities included?

LBL requirements for all scheduled activities should cover all EPA licensees. At the moment, LBL of scheduled activities only applies to large licensees. However, cumulatively, lots of small licences can have the same effect.

Even if all licensees are subject to LBL, there may still be polluters that are not captured. The current LBL scheme is unable to address the cumulative impacts of diffuse polluters. For example, wastewater treatment plants only discharge 20-30% of all nutrients into the Hawkesbury-Nepean River. The rest is from diffuse sources. This means most nutrient loads into the Hawkesbury-Nepean River are unregulated, with minimal ability to prevent impacts.

3.4 Load limits – are load limits being used effectively?

Limits for pollutants of concern need to be tailored for a specific area that considers the receiving water environment (condition, sensitivity, flow, depth, use, etc). If load limits are too stringent they can pose additional unnecessary costs with no discernible environmental benefit. Fixed load limits may also drive costs up where abatement is higher than the environmental benefit.

Under the current LBL scheme, there appears to be little consideration of market-based mechanisms such as:

- Total Maximum Daily Limits (TMDLs)
- trading schemes and offsets
- bubble licences.

These methods have proved very successful in other countries, as they go beyond point source regulation to include diffuse sources. This allows a greater focus on improved environmental outcomes.

Current load limits also do not account for:

- design capacity of wastewater treatment plants – where the plant is already utilising the best available technology and performing at its optimal level with no further ability to reduce loads
- providing wastewater services to serve future population growth – where increased flows to the wastewater treatment plants may increase loads but result in improved environmental outcomes. This is particularly the case when the wastewater treatment plant is receiving flows from backlog sewerage areas.
- variability of weather – which changes the nature of the receiving environment and resulting impacts
- improvements in the wastewater network – which may lead to increased loads to the wastewater treatment plants but improved environmental outcomes by treating nutrients that would be discharged directly to the environment.

These issues have varying implications for the overall load of pollutants entering the environment (not just from wastewater treatment plant discharges) and the overall impact on the environment. If Environment Protection Licences (EPLs) are managed to just reduce pollutant loads, this could lead to perverse outcomes where, in order to keep fees low, flows and pollutant loads are rejected but still enter the environment by other means. The purpose of wastewater treatment plants is to protect the environment by treating as much wastewater as possible. When calculating load limits and fees, consideration should be given to the benefit and improved environmental outcomes provided by the plants. Where a wastewater treatment plant has accepted flows to improve an overall outcome (for example, where Sydney Water has delivered the Priority Sewerage Program) consideration should be given to waiving fees when there is an increase in pollutant loads.

3.5 LBL fees – are they providing the right incentives?

As the EPA is aware, sewage treatment processing by large plants that discharge more than 30,000 ML annually are subject to significantly higher licensing administrative fees than other industries covered by EPA licences (2,650 units each). The only other activity rated at this administrative fee level is iron or steel production. Currently, administrative fees paid at the start of the period are subtracted from typically larger LBL fees calculated at the end of the period, largely offsetting the increases of administrative fees. The proposal to require payment of both LBL fees and administrative fees will have a significant financial impact on the administrative fees for our three largest coastal wastewater treatment systems. It is unclear how this additional cost impact will lead to any environmental benefit.

Environmental impacts should be the major consideration when setting LBL fees, with no fees required for pollutants with low impacts. Sydney Water's three largest coastal wastewater treatment systems currently attract a combined LBL fee of nearly $9 million. The ocean waters that receive the discharges from these plants continue to be a low sensitivity environment with plume dilution and surfacing meeting performance expectations over the long term. An extensive monitoring program of the sediments surrounding the outfalls was initiated when the deep ocean outfalls from these plants were commissioned. Over this time the monitoring has detected no

measurable impact in the marine benthos communities or sediment quality as a result of these discharges.[3] In this instance LBL fess are contributing to a potentially perverse outcome by providing a financial incentive to improve the environmental performance of a plant where there is no discernible problem. In these situations an exemption should be given for payment of LBL fees.

Current fees do not consider whether cleaner processes and technology are or are not available. As previously mentioned, in most cases, Sydney Water has no discretion to reduce loads because its plants are:

- already using the best available technology
- performing at the limit of their current ability.

Instead, improvements are planned when new technology becomes available and generally implemented when an amplification is required. In this situation the LBL fee is effectively penalising licensees for maintaining high levels of performance with no opportunity to further reduce loads. The LBL regime should include some consideration to waiving LBL fees where the licensee is already reducing loads using best available technology and performing at the limit of their ability.

Sydney Water's expenditure is also subject to an assessment by IPART to ensure spending to meet environmental requirements is delivered in the most efficient way. If IPART determines that any spending is not efficient, it may only allow us to recover a portion of costs from customer bills. If the costs of improving nutrient abatement (ie Marginal Abatement Costs) are greater than the environmental benefits (ie Marginal External Costs) as noted in the report *Load-Based Licence Fee Comparison*,[4] then we may be at risk of not having this expenditure allowed by our economic regulator.

It is also important to note that Sydney Water has no opportunity to reduce load based fees associated with load increases caused by population growth. We have statutory and regulatory obligations (under both our Act and Operating Licence) to accept additional inflows from growth, which increases our load and, hence, our fees. Although Sydney Water provides a wastewater service with the objective to protect the environment (by conducting our operations in compliance with the principles of ecologically sustainable development, as contained in section 6 (2) of the *Protection of the Environment Administration Act 1991*), LBL fees are applied with no consideration of the overall benefit these services provide to the environment.

The Issues Paper suggests a generalised fee increase should occur if evidence emerges, for example, that a particular pollutant is more harmful than originally thought and there is a need to reduce emissions of that pollutant in a uniform way across NSW. In general, we do not support across the board increases in fees, as this does not take account of the impact of specific load at a specific location. If a generalised fee increase in order to reduce emissions of a particular pollutant in a uniform way across NSW is to occur, this should be supported by robust science.

[3] Sydney Water 2011, *Volume II, Sewerage Treatment System Impact Monitoring Program, Interpretive Report 2011;* Sydney Water 2014, *2014 Interpretive Report, Sewerage Treatment System Impact Monitoring Program*.
[4] Report prepared for the EPA by ACIL Allen Consulting (2014) and released with the Issues Paper.

3.6 Offsets and recycling – are there any barriers?

3.6.1 Green offsets

A green offsets policy would help to guide the implementation of green offsets works. Guidance is particularly needed on some of the difficult questions such as sustainable load limits, load apportionment and equivalency between various discharges (including point and diffuse sources).

Such a policy should be linked to the proposed Hawkesbury-Nepean Wastewater Treatment Plant Regulatory Framework (currently being developed by the EPA's Metropolitan Infrastructure Branch) to establish offsets for diffuse sources of nutrients. This would need a whole of catchment approach to assess the contributions and impacts of all pollutants. A nutrient weighting based on eutrophication potential would make it easier to compare and balance offsets between different pollutants, as well as different sources.

The LBL scheme should also take into account that organisations have to consider many other factors on top of LBL incentives; including other regulatory and governance constraints in determining whether the benefits of reuse or green offsets approaches outweigh the risks. The setting of pollutant weightings should therefore be based, where possible, on a consideration of their equivalent environment effects. For example, greenhouse gas equivalencies or chemical use. This would ensure that positive LBL outcomes do not lead to other negative environmental outcomes (eg high energy use).

3.6.2 Nutrient offsets (recycling)

There is currently a lack of data to assess / ensure whether nutrient offset schemes are effective. This increases the risk of implementing an ineffective scheme. It would be useful for the EPA's Metropolitan Infrastructure Branch to work with the Regulatory Reform and Advice Branch to develop a framework to facilitate nutrient offsetting.

Any changes to the LBL scheme in this regard should also consider future trends in resource recovery when determining changes to incentives and / or other potential instruments (eg making phosphorus recovery more feasible via grants/subsidies).

In addition, any changes should also consider the NSW Government's carbon neutral target. It is important that striving for one positive environmental outcome does not lead to other negative environmental outcomes (eg high energy use).

Currently, LBL fees do not reflect the value of effluent volumes discharged for environmental flows. That is, although the load may be the same, there is a difference between a small volume of high concentration effluent and a large volume of lower concentration effluent. Having a more flexible scheme could account for such differences. For example, a credit system could be applied in instances where it can be demonstrated that an effluent discharge has a beneficial outcome for the environment and / or community.

3.7 Compliance costs – are they being minimised?

Sydney Water does not consider abatement costs associated with reducing pollutant loads as part of our compliance costs. This is because providing wastewater services to reduce pollution is part of our core business. Hence, Sydney Water strives to operate its wastewater treatment plants at optimal levels to discharge minimal loads.

Sydney Water's costs associated with LBL include fees, reporting and monitoring costs, and administration costs associated with managing these activities. These costs are in the order of $12 million a year. This is a significant cost burden, especially considering that approximately $9 million are for LBL fees, despite the limited opportunity to further reduce pollutant loads.

Sydney Water would welcome any opportunities to reduce compliance costs including:

- an online portal for calculating loads, which would reduce processing time
- removing requirements to monitor pollutants that are emitted in very small quantities.

However, the greatest opportunity to reduce compliance costs would be from eliminating fees where there is no clear economic incentive to reduce loads.

3.8 Load Reduction Agreements – can they be better used?

As mentioned above, Sydney Water's wastewater treatment plants already perform at optimum levels to discharge minimium loads. As a consequence Sydney Water does not have discretion to further improve load reductions, which means there is limited opportunity to enter into Load Reduction Agreements (LRAs).

When available, upgrades to improve treatment processes (such as introducing new technology) generally coincide with a need for increased plant capacity, thereby increasing, not reducing, loads. Under the current LBL scheme, there is no fee relief for reducing concentrations to effectively manage increased flows that Sydney Water is obligated to accept.

Traditionally, the EPA has tended to use Pollution Reduction Programs over LRAs. Our understanding is that any incremental improvement through a treatment upgrade is viewed as meeting the "continuous improvement" objective (Condition A1.4) in all of Sydney Water's Environment Protection Licences (EPLs). These works are therefore not seen as being 'above and beyond' our EPL requirements, which is what is required to justify a LRA.

3.9 Load calculation fees – how can they be improved?

Load calculation fees should consider the nature of specific pollutants, conditions of the receiving environment and the resultant environmental outcome. For example, it is noted that nutrient loads from wastewater treatment plants increase during wet weather. This is generally because stormwater carrying extra nutrients enters the wastewater system, increasing flows and loads at wastewater treatment plants. However, the impacts of wastewater discharges during storm events are considered to be less because of dilution and the huge influx of nutrients from diffuse sources at this time. LBL fees should be calculated to take into account the circumstances when

wastewater discharges have a reduced impact on the environment. In fact an argument could be presented that fees for wastewater treatment plants could be waived during wet weather events on the grounds that they treat and remove additional nutrients that would otherwise enter the environment unhindered via the stormwater system.

A further improvement would be to ensure the concentration values to calculate the pollutant loads are not set below the available limits of detection. Under the current protocol that uses concentration limits below the limit of detection, licensees may be faced with non-compliances and associated penalties if one monitoring result records a value above the limit of detection. Trying to prove that load limits have not been breached can require additional and expensive monitoring for no additional benefit to the environment.