

Hannah Bailey

From: Arno Benadie
Sent: Monday, 8 August 2016 10:59 a.m.
To: sally_gilbert@moh.govt.nz
Cc: Mark Hughes
Subject: RE: Whanganui Sewage Treatment and Disposal: follow-up to teleconference
Attachments: Watercare_Whanganui WWTP Review Report_2Aug2016.pdf

Hi Sally

As requested in your email below, I have attached the written advice and comments from Watercare to this email. All the concerns you have raised in your previous emails have been taken into consideration in our proposed design.

Regards
Arno

From: Mark Hughes
Sent: Monday, 1 August 2016 11:51 a.m.
To: Arno Benadie <Arno.Benadie@whanganui.govt.nz>
Subject: FW: Whanganui Sewage Treatment and Disposal: follow-up to teleconference

From: sally_gilbert@moh.govt.nz [mailto:sally_gilbert@moh.govt.nz]
Sent: Monday, 1 August 2016 11:33 a.m.
To: Mark Hughes <Mark.Hughes@whanganui.govt.nz>
Cc: David.Barnes@dia.govt.nz; Stacey.Hayward@dia.govt.nz; John_Harding@moh.govt.nz; Paul_Prendergast@moh.govt.nz; Kym Fell <Kym.Fell@whanganui.govt.nz>; Hannah Bailey <Hannah.Bailey@whanganui.govt.nz>; andrea.reeves@oag.govt.nz
Subject: re: Whanganui Sewage Treatment and Disposal: follow-up to teleconference

Dear Mark

Thank you for your further response to my emails.

I agree that Council has obtained a reports from highly respected experts, however, I am not sure if their terms of reference were as comprehensive as you may have assumed. In our view, an appropriate peer review would be a full engineering review. The terms of reference would include advice on whether the proposed wastewater treatment and disposal system is a cost-effective option and will provide appropriate and sustainable treatment and disposal of Whanganui's wastewater (with and/or without the trade waste contribution).

I would still be interested in seeing the terms of reference for Watercare's review and a copy of their review report. I note you have referred to verbal advice, but do have any written advice or comment from Watercare?

In your earlier email, you had suggested Melbourne Water's Western Treatment Plant was a successful example of wastewater treatment similar to that proposed for Whanganui. This was useful advice, thank you and we followed up on your suggestion. After communicating with their engineers, we identified a number of issues that could be problematic for Whanganui if it adopts the proposed approach. You have not made any comment on the issues we raised, so we are not sure whether the concerns have been taken into consideration in your proposed works. Perhaps some of your experts' reports have addressed these issues – if so are you able to provide copies? This would be very helpful.

I would like to reiterate that our concerns arise from our experience with (among other things) managing the

Government's sewerage subsidy schemes and being involved in public health issues arising from failed sewage and waste disposal systems. We share Council's desire to provide Whanganui with an effective and sustainable wastewater treatment plant (and that manages public health risks and avoids nuisance complaints).

However, the information we have been provided with to date does not give us the reassurance we were hoping for and does not address the concerns that we raised.

I look forward to seeing the terms of reference for Watercare's review and a copy of their review report, and for your response to the specific concerns in our previous correspondence. If it would be easier to discuss this by teleconference or in a meeting, we would be happy to make ourselves available.

Yours sincerely

Sally Gilbert
Manager
Environmental and Border Health
Public Health
Protection Regulation and Assurance
Ministry of Health
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----- Forwarded by Sally Gilbert/MOH on 26/07/2016 08:06 a.m. -----

From: Mark Hughes <Mark.Hughes@whanganui.govt.nz>
To: "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>, Mark Hughes <Mark.Hughes@whanganui.govt.nz>,
Cc: "David.Barnes@dia.govt.nz" <David.Barnes@dia.govt.nz>, "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>, Kym Fell <Kym.Fell@whanganui.govt.nz>, Mark Hughes <Mark.Hughes@whanganui.govt.nz>, "Paul_Prendergast@moh.govt.nz" <Paul_Prendergast@moh.govt.nz>, "Stacey.Hayward@dia.govt.nz" <Stacey.Hayward@dia.govt.nz>
Date: 25/07/2016 03:45 p.m.
Subject: RE: Whanganui Sewage Treatment and Disposal: follow-up to teleconference
Sent by: Hannah Bailey <Hannah.Bailey@whanganui.govt.nz>

Dear Sally

Please find attached Arno's response (on behalf of Mark) to your below email.

Kind regards
Hannah Bailey

From: sally_gilbert@moh.govt.nz [mailto:sally_gilbert@moh.govt.nz]
Sent: Wednesday, 13 July 2016 11:25 a.m.
To: Mark Hughes <Mark.Hughes@whanganui.govt.nz>
Cc: David.Barnes@dia.govt.nz; Hannah Bailey <Hannah.Bailey@whanganui.govt.nz>; John_Harding@moh.govt.nz; Kym Fell <Kym.Fell@whanganui.govt.nz>; Mark Hughes <Mark.Hughes@whanganui.govt.nz>; Paul_Prendergast@moh.govt.nz; Stacey.Hayward@dia.govt.nz
Subject: RE: Whanganui Sewage Treatment and Disposal: follow-up to teleconference

Dear Mark

Thank you for your email of 30 June 2016, and attached letter from Arno Benadie, in response to my email of 20 June 2016.

Your reference to Melbourne Water's Western Treatment Plant as an example of a covered primary pond was interesting and proved to be useful. We have contacted their water process engineer and had a number of exchanges of emails, which have provided some valuable information. I will ask John Harding, our public health engineer, to forward the relevant emails to you, because you may find them very helpful.

In summary, our discussions with Melbourne Water's Western Treatment Plant's engineer showed that:

- the Western Treatment Plant primary pond covers have a limited life and have been replaced twice since 1990

- removal of old covers presents many challenges and, at \$43M, cover replacement is very expensive
- the covers are highly sophisticated and needed an experienced designer
- wind is a significant design issue
- scum builds up under the covers and requires physical removal: the scum is 1- 2m deep and requires cutting out of 10 to 15% of the cover every 10 years to be able to cut out the solid mass that has accumulated. There is an obvious odour risk to manage.
- sludge removal is performed by open water dredging when the cover is replaced (sludge pipes laid in the bottom of primary lagoons tend to 'rathole')
- when replacing the covers, odour can be expected
- health and safety protection of construction workers during cover replacement is a significant issue
- gas collection is a design challenge.
-

In our reading of the information from Melbourne Water's engineers, we have identified a number of issues that do not appear to have been addressed in the August 2013 Developed Design Report. The Whanganui influent is likely to have higher oil and grease concentrations than Melbourne, therefore scum is a significant risk for your proposed treatment plant.

In your letter of 30 June 2016 you say *"....detailed design of the new proposed Waste Water Treatment Plant has been completed by Cardno and peer reviewed by AECOM and CH2MBeca, with a final technical review completed by Watercare Services in June 2016"*. As noted in my email, it is clear that both the AECOM and the CH2MBeca peer reviews were qualified by limited time. In any event these reviews took place before there were very substantial design changes which added some \$20M to the project cost. We would be keen to see the terms of reference for Watercare's review and a copy of their review report.

In light of the fact that the wastewater treatment plant commissioned in 2007 has failed, to protect the interests of the Whanganui ratepayers from another failure, it is important that all significant design and operational risks inherent in the revised Cardno design are identified, are properly managed and are peer reviewed by appropriately experienced engineers.

Melbourne Water's engineers have advised that Mark Simpson of Jacobs is an expert in the design of membrane pond covers and recommended him as a good person to peer review your cover design. I think this would be a prudent move.

However the cover design is only one part of this major project. There are numerous design elements that should be included in a careful and comprehensive overall peer review, including:

- influent characterisation, including trade waste management and trade waste agreements
- design flows and loads
- wet weather flow management and relationship with consent compliance
- fine screening design and odour control
- grit management
- primary pond cover design and a plan for cover replacement after around 20 years
- scum management, scum quantity, scum removal and scum disposal
- sludge management, sludge quantity, sludge removal, sludge beneficial use/disposal
- the relationship between the amount of sludge accumulation in the primary pond and design of the contact stabilisation stage, including blower capacity
- odour management and biofilter design
- contact stabilisation tanks, covers and odour control
- the design of the sludge dryer
- civil engineering design (geo-tech and structural)
- hydraulic design
-

I appreciate that you may well find the advice given in this email to be somewhat risk adverse. However, we have learned through long experience managing the Government's sewerage subsidy schemes, from being involved in public health issues arising from failed sewage and waste disposal systems, and from my engineers' experiences with wastewater projects, that what can go wrong will go wrong. There may be information that we have not seen, but from what we have been provided, the concerns that we raised in John Harding's letter of 13 December 2013 have not been addressed.

In our opinion there is a very real need for a comprehensive and properly documented peer review by a well briefed and appropriately experienced firm of consulting engineers. It may be that Watercare's review goes some or all the way to achieving this so look forward to seeing the terms of reference for the review and a copy of the review report.

Kind regards

Sally Gilbert
Manager
Environmental and Border Health
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<http://www.health.govt.nz>

From: Mark Hughes <Mark.Hughes@whanganui.govt.nz>
To: "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>, Mark Hughes <Mark.Hughes@whanganui.govt.nz>,
Cc: Kym Fell <Kym.Fell@whanganui.govt.nz>, "Stacey.Hayward@dia.govt.nz" <Stacey.Hayward@dia.govt.nz>, "David.Barnes@dia.govt.nz" <David.Barnes@dia.govt.nz>, "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>, "Paul_Prendergast@moh.govt.nz" <Paul_Prendergast@moh.govt.nz>
Date: 30/06/2016 12:28 p.m.
Subject: RE: Whanganui Sewage Treatment and Disposal: follow-up to teleconference
Sent by: Hannah Bailey <Hannah.Bailey@whanganui.govt.nz>

Dear Sally

Please find attached Arno's response (on behalf of Mark) to your below email.

Kind regards
Hannah Bailey

From: sally_gilbert@moh.govt.nz [mailto:sally_gilbert@moh.govt.nz]
Sent: Wednesday, 29 June 2016 2:24 p.m.
To: Mark Hughes <Mark.Hughes@whanganui.govt.nz>
Cc: Kym Fell <Kym.Fell@whanganui.govt.nz>; Stacey.Hayward@dia.govt.nz; David.Barnes@dia.govt.nz;
John_Harding@moh.govt.nz; Paul_Prendergast@moh.govt.nz
Subject: Whanganui Sewage Treatment and Disposal: follow-up to teleconference

Dear Mark

I just wanted to check you had received my email below and it has not got lost in cyberspace? If so, did you have an idea when you may be able to respond?

Thanks so much.

Kind regards - Sally

Sally Gilbert
Manager
Environmental and Border Health
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Sent by: Sally Gilbert/MOH 20/06/2016 06:54 a.m.	To: Mark.Hughes@whanganui.govt.nz, cc: Kym.Fell@whanganui.govt.nz, Stacey.Hayward@dia.govt.nz, David.Barnes@dia.govt.nz, John_Harding/MOH@MOH, Paul_Prendergast/MOH@MOH, Andrew_Forsyth/MOH@MOH, bcc: Subject: Whanganui Sewage Treatment and Disposal: follow-up to teleconference
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Dear Mark,

It was good to have the opportunity to discuss the Whanganui wastewater treatment project with yourself and your Chief Executive Kym Fell last week. As we agreed, this email summarises the concerns we have raised and outlines our outstanding queries. I have also attached the most relevant correspondence for background.

You will recall that in November 2013 Paul Prendergast, John Harding (Ministry of Health public health engineers) and the Medical Officer of Health Patrick O'Connor met with you and Kevin Ross to discuss odour complaints arising from the failed Whanganui wastewater treatment plant. On 16 December 2013, we wrote to you following our overview of the Cardno Design Report and several background reports that you kindly provided (copy attached).

Our letter provided a high level review of this documentation and raised a number of significant concerns. At this time, the estimated cost of the new plant was \$23M and Council was aiming to have the plant designed, constructed and commissioned by the summer of 2014/15. In our letter, we raised concerns that the programme was too optimistic and, in our experience, the estimate was too low. We noted that the sludge management strategy had not been properly resolved and considered that an overall estimate higher than \$40M was more realistic. In light of the fact that major wet industries discharge around 85% of the total organic load to the Whanganui wastewater system our public health engineers were concerned to learn that detailed design work was proceeding before trade waste agreements had been signed. We suggested an iterative methodology for designing any wastewater treatment plant that needs to cope with a mixture of domestic and industrial wastewater.

For the record I note that John held key positions during the implementation of the two largest greenfield wastewater treatment projects implemented in New Zealand recently, namely the Wellington and Hutt Valley wastewater treatment plants. For the Wellington wastewater treatment plant he managed the technical studies and option selection for Beca Steven (as CH2M Beca was then known). Trade waste management was an essential part of this work. For the Hutt Valley project he was the principal MWH technical advisor to Hutt City Council. Once again trade waste management and influent characterisation was a major design issue. John has also managed the sewerage subsidy scheme for the Ministry of Health so knows the details of many of the recent sewage treatment and disposal upgrades, including the challenges and risks (and adoption of innovative technology).

Paul managed the Water Resources Department for the Wellington Regional Council, and had previously been the Manager (Water Resources) of the Water and Soil Division of the Ministry of Works and Development before joining the Environmental Health Team of the Ministry of Health in April 1992. Paul has over 30 years experience in water, wastewater and waste management with both central and local government.

We consider that our advice from December 2013 is still valid and is consistent with the 10 April Final Peer Review summary comments provided by AECOM's Fabiana Tessele, namely *'the quality of the industrial trade waste to be received by the plant has to be agreed with local industries aiming to not overload the proposed treatment plant'*. AECOM expressed concern about *'the build up of fats, oils and grease (FOG) on the pond surface under the cover. This build up will be difficult to remove and may damage the cover.'*

In his review of the Cardno process design in 10 June 2014, Humphrey Archer also noted the risk of fat accumulation under the membrane cover.

Given that the covered primary pond is an innovative concept that has not been employed elsewhere (as far as we know) this is a significant issue. You may recall in February 2014 we had asked for examples of plants that use similar membrane covered primary ponds but we do not appear to have received a response - we would still be keen to hear of examples of this approach being used successfully elsewhere. Unfortunately, the only relevant experience we have is with the odour issues that arose from the Eltham EADER, which is a membrane covered pond. This has given us a keen appreciation of the problems that may arise with long term performance and maintenance of membrane covered ponds!

Sludge removal risks were also noted by both AECOM and CH2M Beca.

As you will know, the AECOM peer review was qualified along the lines of *this short time frame limited the chances for exploring in depth too many options. Decisions had to be streamlined aiming to bring agility to the process.* Humphrey Archer in his 10 June 2014 letter also qualifies his review, ie *Our review has been of an overview nature due to WDC's limited time constraints and has been confined to process engineering aspects. We have not reviewed other engineering aspects relating to disciplines such as: geotechnical, structural, mechanical, hydraulics, electrical, automation and cost estimating.*

More recently CH2MBeca were engaged to carry out a further peer review to address concerns raised by your councillors. We were optimistic that this peer review would be comprehensive, including trade waste management, and address concerns we had. Unfortunately, *The Whanganui Wastewater Treatment Plant - Report on Stage One*

Review by CH2M Beca dated 18 February 2016 was a disappointment because the brief was limited and did not address trade waste management.

During our teleconference last week you advised that you were aiming to have the construction contract signed by the end of this month, with construction starting in September. Based on the experience of our public health engineers, and our experiences with the sewerage subsidy scheme and with supporting other DHB public health units and councils address issues with failed plants, we caution strongly against committing to a construction contract prior to finalising the influent specification ie prior to signing trade waste agreements and cost sharing agreements with the large wet industries.

We hope that our advice will be seen as constructive and you understand our intentions are to support the Council find the best solution for your community. We have been involved in the past with projects that experienced cost blow-outs and process design failures, when our concerns and advice were ignored. This means we feel obliged to continue to raise concerns where we see them, to support councils provide sustainable sewage treatment and disposal systems that protect public health and avoid nuisance complaints (and avoid unnecessary opportunity costs). We understand this is not necessarily a comfortable process for us all, but we hope our advice will be received in this spirit in which we offer it.

Kind regards - sally

Sally Gilbert
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2 August 2016

Kym Fell
Chief Executive
Whanganui District Council
101 Guyton Street
Whanganui

Dear Sir,

Review of Wanganui Wastewater Treatment Plant proposed development

On 20th June 2016, Shane Morgan (Wastewater Manager) and Kenny Williamson (Plant Manager Rosedale), of Watercare Services Ltd, Auckland, visited the Whanganui District Council and Wanganui Wastewater Treatment Plant. Shane Morgan and Kenny Williamson are both experienced process engineers who specialise in wastewater treatment. Each has approximately 20 years of experience in public utility and consultancy companies working across planning, design, troubleshooting, commissioning and operations management of large modern wastewater treatment plants. The experience includes work in New Zealand, Australia, Scotland and England. Shane is responsible for all wastewater operations in Auckland, including the operation of large transmission sewers and 18 wastewater treatment plants, the largest being the one million population capacity Mangere Wastewater Treatment Plant. Kenny is the Plant Manager of the Rosedale Wastewater Treatment Plant, an advanced quarter of a million population capacity wastewater treatment plant on the North Shore of Auckland. The visit conducted by Shane and Kenny was in response to a request from Council staff for Watercare to provide a brief independent review of the approach planned for the upgrade of the wastewater facility. The review involved a site visit, a meeting with key stakeholders, and a final site visit and discussion with Mr. Arno Benadie (Council Water Engineer). Stakeholders met were Councillor Jenny Duncan, Mr Kym Fell (Chief Executive, Wanganui District Council), Mr. Mark Hughes (General Manager Infrastructure).

The review carried out by the Watercare staff was brief in nature and constrained by the availability of time and resource. The review focussed on a limited documentation review and relied on face to face discussion as a primary means for information exchange. The review occurred during a one day visit and was preceded by a limited review of council provided documentation and publically available information that covered the history of the plants previous upgrade and proposed reconfiguration under a new design. The intention of the review was to identify any areas of concern with regard to the current upgrade strategy. Watercare are in the process of upgrading a large number of wastewater treatment plants and are exposed to a range of scope relevant and project aligned issues. The review did not involve discussion with plant designers, nor review of design data, or any form of design 'check' or analysis of analytical information to determine the accuracy of design. The limit of review documentation around detailed design aspects extended only to the Tender Design Report (Cardno, 19 December 2013). The key focus of the review was the likely effectiveness of the proposed modifications to the works to enable it to better meet its design objectives. It was recognised that the Wanganui Wastewater Treatment Plant upgrade is a brownfield augmentation of an existing works which when opened in 2007 failed to meet its operational objectives. This included both an operational inability to achieve discharge standards and also the generation of significant and prolonged seasonal odour events. The original plant configuration is unique, involving the staged treatment of wastes in a very large

aerated lagoon system. Neither of the Watercare reviewers have seen such a system or have any experience of the operation of aerated lagoons of that depth. No comment can be made about the effectiveness of the original design concept in meeting performance requirements.

The proposed upgrade of the works involves the development within the existing plant footprint of a new Inlet Works, covered Primary Pond, Contact Stabilisation Activated Sludge process with separate Clarification, UV disinfection and sludge handling. The design also includes thermal sludge drying through the addition of a new direct heated belt dryer. The upgrade is designed to meet an easily achievable standard based on total suspended solids and bacteriological standards which do not appear to be problematic to achieve. The design appears to be based around ensuring there is process robustness and operational capacity to achieve this requirement without complex control or extensive operator input, whilst minimising the likelihood of odour events. The design does not provide for any nutrient removal which is now a typical requirement of most wastewater upgrades but this is allowable in this context because of the effluent quality limits used as the design basis. The design for the proposed plant looks to maximise the use of the existing assets, whilst improving on some of the key physical aspects which may have resulted in historically poor performance. The Primary Pond is sited to take advantage of a large volume of the old aerated lagoon, whilst the secondary treatment processes are benched and positioned to take advantage of a favourable hydraulic grade line through the plant. Where possible the roads and facilities appear to be reused and repurposed to minimise further development costs. The proposed plant stays within the physical boundaries of the current works and utilises the current site security, access roads and traffic management principals.

The unit processes and technologies that form the basis for the proposed design appear consistent with current industry practice. Whilst the proposed Tender process will firm up the specifics for process and equipment, the technologies proposed are commonly sourced in New Zealand and within the normal operational regime of a wastewater utility operator.

- The details of the Inlet Works suggest a level of redundancy consistent with normal industry practice. The proposed technology including equipment sizing is similar to a number of wastewater treatment plants operated by Watercare. Assuming a non-electrical/non-automation bypass channel is available for relief of flow, the facility should accommodate the full range of likely duties given a continuous 24/7 operational environment. Whilst only one grit removal tank is specified, this is consistent with the normal practice of not having uninstalled spare capacity with this unit process.
- The use of a covered anaerobic primary pond looks to be an appropriate means to manage the high variability in quality and flow from large trade discharges in to the catchment. The loads, particularly with respect to BOD, TSS and FOGs are quite significant, and the Primary Pond should attenuate these loads as well as provide an efficient form of pre-treatment. The detailed design and operation of the sludge withdrawal system will be critical to the long term operation of the pond. As this is a key risk item, reference to other operational sites should be used to influence design and operation. It is noted that the use of covered anaerobic ponds is the basis for treatment at the Western Treatment Plant in Melbourne, where it is an effective way of maximising the land area of the site to meet the demands of sewage treatment from a large city with significant industrial loads. Over the past two decades Melbourne Water have gained significant experience in managing covered primary ponds including maintenance and replacement if the covers and desludging. It is recommended that Council learn from these experiences with a particular focus on material selection, construction, maintenance and cleaning (desludging). Gas produced in the covered lagoon is to be exhausted through a new gas flare. It may be worthwhile in the future to consider the use of this gas to fuel the dryer or blend with natural gas in a cogeneration engine.

- Contact Stabilisation as a variant to Activated Sludge secondary treatment is an efficient way of treating BOD load when nutrient removal is not required. The proposed secondary treatment system should be reasonably resilient to variation in load from the pond. In operation, contact stabilisation is reasonably simple to operate and maintain. Gross solids loss from the pond may stress aeration and the performance of the secondary treatment system but assuming the secondary clarifiers can maintain settling performance then such an event should be manageable. It is proposed that the dewatering centrate is returned to the secondary treatment process. It is understood from discussions that dewatering may only run a few days per week during day time operations. This may present a 'slug' type load to the secondary treatment process and whilst nitrification should be inhibited at such low SRTs, there may be an impact on stable and consistent secondary treatment performance. Buffering recycle loads is always a wise approach on any wastewater treatment plant.
- Only a brief review of the Secondary Clarification system has been carried out. Based on this review it is unclear whether a single clarifier (when the second is out of service) is capable of managing the plant flow. Periodically it will be necessary to take a clarifier out of service for routine maintenance or in response to a mechanical failure. Typically, a design will accommodate this operational regime by loading the remaining clarifier(s). Given the proposed SVI and operational point on the State Point Analysis, it is not clear if this is accounted for in the proposed design. The proposed design also discusses the use of RAS chlorination and Chemically Assisted Sedimentation to assist clarification. RAS chlorination has some industry use including at one of the Watercare plants, albeit with gaseous chlorine due to the quantity requirements. CAS on secondary clarifiers is not commonly used in municipal wastewater treatment and as far as we understand, can be problematic in operation resulting in a float/scum buildup. It is noted that the proposed clarifiers do not have scum removal and this could be worth considering if CAS is likely to be implemented.
- UV disinfection is proposed to achieve the bacteriological standards imposed under the Resource Consent. There is a significant amount of operational experience in New Zealand with UV as the primary form of wastewater disinfection. Critical to the success of any UV system is the need for an effluent that meets the UV system design criteria, principally measured as UV transmittance. The design appears to reasonably match the consent requirements but it is noted that the plant design uses a TSS 95th %ile basis of 90mg/L whilst the UV design is a 90th %ile of 75. No redundancy is specified for the UV system, requiring both banks to be in service to meet disinfection compliance.
- The solids handling aspects of the plant were undergoing considerable redesign during the review, with the introduction of a direct fired belt dryer to achieve significant volume reduction and reduce ongoing operational costs associated with landfilling of biosolids. As aspects of this part of the plant were not incorporated in the site wide PFD or mass balance it is not possible to comment with any accuracy on the operational aspects of the process. However, it is understood that feed sludge will be blended with dry product to ensure the feed sludge is of a suitable quality to maintain reliable and consistent operation of the dryer. This aspect of operation is often cited as critical to the success of dryer operations in wastewater and sometimes requires considerable commissioning to optimise. It is noted that the commissioning and training phase of for the dryer is 3 weeks. This appears to be optimistic and may require extending to maximise the chance of project success. It is also noted that no dry product silo will be used and it is assumed that the dried material will discharge to covered bay or bin. There have been a number of incidents in the wastewater industry of fires associated with the storage of dry product and the self-combustion of material.

There were also a number of minor technical, operational and maintenance issues raised during the review and these were noted by the Council Water Engineer. These items we presume have been raised during the design workshops with the consultant engineer advising Council. These actions are not noted in this report.

In terms of ongoing operations and maintenance, the proposed plant is a combination of locally manageable mechanical and process equipment in combination with some very specialist equipment. The plant should be able to be operated and managed by Council staff after a suitable period of commissioning mentoring and training. Modern methods for commissioning treatment plants include the creation of training material (hard copy, soft copy and video recordings) that can be used to train new staff as team members change. Council will also need to consider the staffing requirements of the plant, and this depends on the preferred model of staffing, whether operators are separated from maintenance duties. Some of the specialised equipment may require a service contract to manage maintenance (both routine and major overhauls), especially the belt dryer and possibly the UV plant.

Control of the plant should be configured to allow full auto operation including startup and shutdown of duty and standby equipment. Control should also include remote access for monitoring and possibly operation, depending of the online security and on-call preferences of Council. Data and information gathered from the plant including laboratory data and online instrumentation should be data 'warehoused' and made available via online means for a range of business users.

Finally, it is recommended that Council develop a clear and simple Master Plan for the facility that incorporates a potential future response to change. It is understood that potential new wet industries may base themselves in the catchment and additional unsewered communities may also be connected to the scheme. The Resource Consent for the discharge of effluent is also due to expire in 2026 and it is always possible that future changes may be required to augment treatment standards. A Master Plan will ensure that the proposed design can be further extended to cover potential future treatment scenarios.

Yours sincerely,

Shane Morgan

Operations Manager Wastewater
Watercare Services Ltd
shane.morgan@water.co.nz

*Emailed
25 July 2016*



WHANGANUI
DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

Sally Gilbert
Ministry of Health
PO Box 5013
Wellington 6140

cc: Mark Hughes
Kym Fell

21 July 2016

Dear Sally

Thank you for your email dated 13 July 2016, in response to our letter dated 30 June 2016.

There seems to be some misunderstanding of the progression of our project to date. The detailed design has been peer reviewed by two large international consulting engineering firms, and have extensively covered all the numerous design elements mentioned in your email. The peer reviews were comprehensive and well documented. All subsequent design changes to the original design, was a direct result of the peer reviews. The only new item to the design is the addition of a thermal dryer for sludge management, and this addition has also been peer reviewed by AECOM.

It is important to acknowledge that very few wastewater treatment plant designs would have been subjected to two comprehensive peer reviews by two international engineering firms. It is surprising to Whanganui District Council that you hold the view that AECOM and CH2MBeca are not appropriately experienced firms. We believe AECOM and CH2MBeca are more than suitably qualified to complete the peer reviews of the detailed design.

Whanganui District Council requested Watercare to review the proposed design from an operational perspective, thus covering all aspects of the proposed plant (not just the covered primary pond). We found their input invaluable and discussed all potential operational challenges that might eventuate. Watercare verbally approved of the design and were satisfied that all operational challenges and risks had been considered.

Regards

Arno Benadie
Senior Wastewater Engineer

*emailed.
30-06-16.*



WHANGANUI
DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

Reference: 6-69-203

Sally Gilbert
Ministry of Health
PO Box 5013
Wellington 6140

Copy to: Kym Fell
Mark Hughes

Dear Sally,

Thank you for your email message of 20 June 2016 and your follow-up email message of 29 June 2016.

Concerns, based on the concept design, were initially raised by John Harding, Senior Advisor, in December 2013 and February 2014. Specifically, information was sought in relation to influent characterisation, the covered anaerobic lagoon, storm water management, and technical peer review, which were responded to in early 2014.

Since then, detailed design of the new proposed Waste Water Treatment Plant has been completed by Cardno and peer reviewed by AECOM and CH2MBeca, with a final technical review completed by Watercare Services in June 2016. Whanganui District Council is confident the proposed scheme will meet the needs of users and the community.

In relation to your request for an example of where a primary covered pond approach has been used successfully elsewhere, we draw your attention to Melbourne Water Western Treatment Plant, which we understand has been in successful operation for over 20 years.

Your caution against committing to a construction contract prior to finalising trade waste agreements with the wet industries is noted. We are in recent and ongoing discussion with the wet industries in relation to the proposed scheme.

We thank you for your advice and accept that your intentions are to support the Council to find the best solution for our community.

Yours sincerely,

Arno Benadie
Senior Wastewater Engineer

Hannah Bailey

From: sally_gilbert@moh.govt.nz
Sent: Monday, 20 June 2016 6:55 a.m.
To: Mark Hughes
Cc: Kym Fell; Stacey.Hayward@dia.govt.nz; David.Barnes@dia.govt.nz; John_Harding@moh.govt.nz; Paul_Prendergast@moh.govt.nz; andrew_forsyth@moh.govt.nz
Subject: Whanganui Sewage Treatment and Disposal: follow-up to teleconference
Attachments: 14062016112716-0001.pdf

Dear Mark,

It was good to have the opportunity to discuss the Whanganui wastewater treatment project with yourself and your Chief Executive Kym Fell last week. As we agreed, this email summarises the concerns we have raised and outlines our outstanding queries. I have also attached the most relevant correspondence for background.

You will recall that in November 2013 Paul Prendergast, John Harding (Ministry of Health public health engineers) and the Medical Officer of Health Patrick O'Connor met with you and Kevin Ross to discuss odour complaints arising from the failed Whanganui wastewater treatment plant. On 16 December 2013, we wrote to you following our overview of the Cardno Design Report and several background reports that you kindly provided (copy attached).

Our letter provided a high level review of this documentation and raised a number of significant concerns. At this time, the estimated cost of the new plant was \$23M and Council was aiming to have the plant designed, constructed and commissioned by the summer of 2014/15. In our letter, we raised concerns that the programme was too optimistic and, in our experience, the estimate was too low. We noted that the sludge management strategy had not been properly resolved and considered that an overall estimate higher than \$40M was more realistic. In light of the fact that major wet industries discharge around 85% of the total organic load to the Whanganui wastewater system our public health engineers were concerned to learn that detailed design work was proceeding before trade waste agreements had been signed. We suggested an iterative methodology for designing any wastewater treatment plant that needs to cope with a mixture of domestic and industrial wastewater.

For the record I note that John held key positions during the implementation of the two largest greenfield wastewater treatment projects implemented in New Zealand recently, namely the Wellington and Hutt Valley wastewater treatment plants. For the Wellington wastewater treatment plant he managed the technical studies and option selection for Beca Steven (as CH2M Beca was then known). Trade waste management was an essential part of this work. For the Hutt Valley project he was the principal MWH technical advisor to Hutt City Council. Once again trade waste management and influent characterisation was a major design issue. John has also managed the sewerage subsidy scheme for the Ministry of Health so knows the details of many of the recent sewage treatment and disposal upgrades, including the challenges and risks (and adoption of innovative technology).

Paul managed the Water Resources Department for the Wellington Regional Council, and had previously been the Manager (Water Resources) of the Water and Soil Division of the Ministry of Works and Development before joining the Environmental Health Team of the Ministry of Health in April 1992. Paul has over 30 years experience in water, wastewater and waste management with both central and local government.

We consider that our advice from December 2013 is still valid and is consistent with the 10 April Final Peer Review summary comments provided by AECOM's Fabiana Tessele, namely *'the quality of the industrial trade waste to be received by the plant has to be agreed with local industries aiming to not overload the proposed treatment plant'*. AECOM expressed concern about *'the build up of fats, oils and grease (FOG) on the pond surface under the cover. This build up will be difficult to remove and may damage the cover.'*

In his review of the Cardno process design in 10 June 2014, Humphrey Archer also noted the risk of fat accumulation under the membrane cover.

Given that the covered primary pond is an innovative concept that has not been employed elsewhere (as far as we know) this is a significant issue. You may recall in February 2014 we had asked for examples of plants that use similar membrane covered primary ponds but we do not appear to have received a response - we would still be keen to hear of examples of this approach being used successfully elsewhere. Unfortunately, the only relevant experience we have is with the odour issues that arose from the Eltham EADER, which is a membrane covered pond. This has

given us a keen appreciation of the problems that may arise with long term performance and maintenance of membrane covered ponds!

Sludge removal risks were also noted by both AECOM and CH2M Beca.

As you will know, the AECOM peer review was qualified along the lines of *this short time frame limited the chances for exploring in depth too many options. Decisions had to be streamlined aiming to bring agility to the process.* Humphrey Archer in his 10 June 2014 letter also qualifies his review, ie *Our review has been of an overview nature due to WDC's limited time constraints and has been confined to process engineering aspects. We have not reviewed other engineering aspects relating to disciplines such as: geotechnical, structural, mechanical, hydraulics, electrical, automation and cost estimating.*

More recently CH2MBeca were engaged to carry out a further peer review to address concerns raised by your councillors. We were optimistic that this peer review would be comprehensive, including trade waste management, and address concerns we had. Unfortunately, *The Whanganui Wastewater Treatment Plant - Report on Stage One Review* by CH2M Beca dated 18 February 2016 was a disappointment because the brief was limited and did not address trade waste management.

During our teleconference last week you advised that you were aiming to have the construction contract signed by the end of this month, with construction starting in September. Based on the experience of our public health engineers, and our experiences with the sewerage subsidy scheme and with supporting other DHB public health units and councils address issues with failed plants, we caution strongly against committing to a construction contract prior to finalising the influent specification ie prior to signing trade waste agreements and cost sharing agreements with the large wet industries.

We hope that our advice will be seen as constructive and you understand our intentions are to support the Council find the best solution for your community. We have been involved in the past with projects that experienced cost blow-outs and process design failures, when our concerns and advice were ignored. This means we feel obliged to continue to raise concerns where we see them, to support councils provide sustainable sewage treatment and disposal systems that protect public health and avoid nuisance complaints (and avoid unnecessary opportunity costs). We understand this is not necessarily a comfortable process for us all, but we hope our advice will be received in this spirit in which we offer it.

Kind regards - sally

Sally Gilbert
Manager
Environmental and Border Health
Public Health
Protection Regulation and Assurance
Ministry of Health
DDI: 04 816 4345
Mobile: 021 369 764

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Attachment A

*re: email
sent on
20 June 16*

16 December 2013

Mark Hughes
Infrastructure Manager
Wanganui District Council
PO Box 637
Wanganui

PH20-27-10-1

Dear Mark,

Re: Whanganui Wastewater Treatment Plant Odour Issues

Further to the visit to Whanganui by Paul Prendergast and myself on 26 November I have made time to read through the background reports that you arranged to send to the Ministry of Health. In particular I refer to the Environment Court Enforcement Order and the April and August reports by consultants Cardno BTO.

While it is not the role of the Ministry of Health to provide technical advice to councils on proposals to design and operate wastewater treatment plans, I have made the following comments to assist you and Dr O'Connor, the Medical Officer of Health, find a sustainable solution that will address public health and community concerns and be cost-effective for the council. My comments are along the lines of those I would have provided if this had been an application for a sewerage subsidy.

By way of background I note that during the 10 year life of the Sanitary Works Subsidy Scheme it has been my task to peer review preliminary design reports provided with subsidy applications to ensure that proposed wastewater treatment plants are fit for purpose, appropriately sized and cost effective. Checking the design flows and loads for new treatment plants was a fundamental part of my reviews, particularly when communities with relatively large wet industries have applied for subsidy to upgrade wastewater treatment plants. In these cases it is important to ensure that proper management of trade waste discharges is implemented to reduce the risk of treatment process failure caused by organic waste overloading.

As I noted during our meeting, when designing a waste water treatment plant to accommodate a mixture of domestic wastewater and industrial wastewater the achievement of cost effective management of trade wastes is an iterative process. The first step is for key wet industries to be asked to characterise and nominate the flows and loads they wish to discharge to the council system. The treatment plant designer should then carry out a preliminary design based on the nominated flows and loads, should estimate the capital and operating costs for the proposed new treatment plant and carry out a 'first cut' cost sharing exercise.

The wet industries are then formally advised what they will be charged for the loads they have nominated, with the charging basis determined in an equitable manner by the plant designer, typically based on flow, organic load and suspended solids.

Treatment of organic wastes is energy intensive and expensive, as you know. In my experience managers of wet industries will then discuss the 'first cut' trade waste charges with their own process advisers and seek to optimise the cost of onsite pretreatment versus treatment in a municipal facility. Cost savings for wet industries can generally be achieved by treating industrial wastewater as close to the source as possible. Typically this will result in the wet industries providing a revised estimate of their nominated flows and loads, which the treatment plant designer can input into a revised preliminary design and prepare a 'second cut' of the trade waste charges, both capital contribution and ongoing operating costs.

The next stage in the design process is to confirm the revised wet industry design flows and loads through trade waste agreements, with defined discharge limits and suitable penalties for exceeding the agreed limits. The wet industries need to be firmly incentivised to operate within the limits they have signed up to.

As I noted above I have reviewed the documentation you arranged to send to the Ministry of Health. Dealing first with the Enforcement Order, I found the accompanying report by Tracey Freeman commissioned by Horizons Regional Council of particular interest. Ms Freeman discusses the management of trade wastes in some detail and makes a number of important recommendations that I agree with.

I quote several of them:

Given the annually recurring problems with peak industrial loads arriving at the WWTP for treatment, it is recommended that WDC carry out a comprehensive review of trade waste discharges by sampling and site waste management audits.

anda similar review was urgently recommended by Cardno BTO in their 2011 report....

and AirQP is not aware of any such review having been carried out to date.

and Each industrial site considered by WDC to have trade waste components in sufficient quantity to have the potential to increase the risk of odour emissions from the WWTP should hold and adhere to a management plan for trade wastes.

Ms Freeman quotes from the Cardno BTO 2011 report, viz:

The trade waste charging strategy should be reviewed to ensure that it meets the costs incurred in delivering the upgraded treatment process.

and *The medium-term strategy and consideration of alternatives needs to be documented in a manner that can be independently peer reviewed by HRC, and HRC should have the opportunity to carry out this review.*

You advised during our meeting that Wanganui District Council has arranged to employ a trade wastes officer. This is a positive move given that some 80% of the organic load being received by the treatment plant is sourced from wet industries and there is a suspicion that very high peak loads are discharged intermittently.

I note that the proposed programme for the design and construction of the new treatment plant is driven by the wish to resolve the odour and consent compliance issues by the summer of 2014/15. From my reading of the Cardno BTO reports this is an extremely optimistic high risk programme given that the trade waste loads have not been agreed.

The 16 August 2013 Developed Design Report states on page 28 that *Special sampling and detailed wastewater characterisation must take place as soon as possible and any impact of the characteristics on the process design must be assessed.* As I noted above the design of a wastewater treatment plant with up to 80% of the load coming from wet industries is an iterative step-by-step process. Fast track shortcuts are risky, and I am sure you will agree that it is important to get it right this time.

There are four key aspects of the Developed Design Report that concern me.

1. The influent has not been adequately characterised (see Exec Summary). What is the design load for the peak week? I note on page 59 that it states *WDC is currently working with local industry to revise the trade waste policy and to create an appropriate charging regime, a process that is likely to take years.*
2. The covered anaerobic lagoon at the front end of the plant is unproven, particularly with high wet weather flows and the need to flow balance. Sludge withdrawal and management has not been detailed. Some similar working examples would be reassuring.
3. A preferred option for managing wet weather flows has not been determined (4.3.5)
4. The report has not been formally peer reviewed by an appropriately experienced wastewater treatment plant designer.

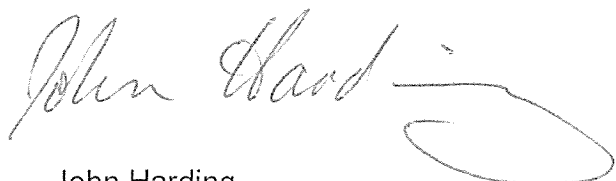
The Cardno BTO estimated cost for the new treatment plant is significantly less than I would have expected to treat an equivalent population of 250,000 people. Given that sludge management costs for an activated sludge treatment plant generally amount to more than 40% of the total cost of a complete treatment plant I can see the cost of the complete project easily

exceeding \$40M. Given that industry should be paying a fair share of this cost, it is very important that opportunities for onsite pretreatment are optimised.

Finally, the location of the wet industries in a cluster to the west of Beach Road pumping station suggests to me that a separate industrial pipeline to the outfall should also be revisited. Such a pipeline would need to be around 600mm dia, would preferably be High Density Polyethylene and would be funded by the industries. This would relieve the existing wastewater treatment plant which would then be able to accommodate the resulting largely domestic load with minimal additional investment. A liability would become an asset.

This wet industry wastewater management approach has been adopted in Hawkes Bay and in Gisborne, with significant savings for food processing industries. By way of example the equivalent population of the Hastings wastewater discharge is 1,000,000 people and pretreated wet industry wastewater bypasses the treatment plant and is pumped directly through the 2.8km long outfall.

Yours sincerely

A handwritten signature in dark ink, appearing to read 'John Harding', with a large, sweeping flourish at the end.

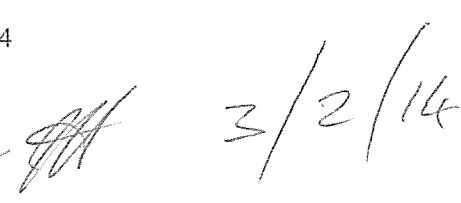
John Harding
Senior Adviser (Public Health Engineering)
Public Health Directorate

*cc: Patrick O'Connor
Medical Officer of Health
Whanganui Hospital
Private Bag 3003
Whanganui 4540*

*Dr Nic Peet
Horizons Regional Council
Private Bag 11025
Palmerston North*



29 January 2014

 3/2/14
John Harding
Senior Adviser (Public Health Engineering)
Ministry of Health
PO Box 5013
Wellington 6145

Copy to:
Nic Peet, Horizons Regional Council
Cameron Sherley, Dept of Internal Affairs

Dear John

RE: Whanganui Wastewater Treatment Plant Odour Issues

Thank you for your letter of 16 December 2013 and the comments you make for assistance to ourselves and Dr O'Connor.

In relation to the four key aspects of the Developed Design report that concern you I am pleased to report that:

1. The influent has now been fully characterised;
2. High wet weather flow management, flow balance, sludge withdrawal and management have all been decided;
3. Refer point 2 above;
4. The whole design and documentation has been and continues to be peer reviewed by AECOM for the past year. This on-going process has utilised their experts in both Auckland and Perth, West Australia.

In relation to some of the other comments you make I cannot go into too much detail because as we explained to you we are in the middle of a litigation process, but be assured we have considered them all carefully.

We are very aware of the required commitment to the new plant by our tradewaste users and are working hard to come to an arrangement acceptable to all. Any solution of course would need to comply with our existing consent from Horizons Regional Council. This clearly sets parameters within which we must operate.

Thank you for your interest and your comments; they were appreciated.

Yours sincerely



Mark Hughes
Infrastructure Manager

4 February 2014

Mark Hughes
Infrastructure Manager
Wanganui District Council
PO Box 637
Wanganui

No. 1 The Terrace
PO Box 5013
Wellington 6145
New Zealand
T +64 4 496 2000

PH20-27-10-1

Dear Mark,

Re: Wanganui Wastewater Treatment Plant Odour Issues

Thank you for your letter of 29 January responding to my letter of 16 December 2013. I am pleased that you found my advice helpful, and this further advice is offered in the same spirit of support to your Council as it deals with a difficult and long-standing issue.

Unfortunately, I was not reassured by your response as it seems to gloss over significant project risks.

However, I note that your consultants, in Section 14 of the 16 August 2013 Developed Design Report, recommended that a risk workshop take place at the completion of the developed design. Did a risk workshop take place? Was there an experienced independent facilitator and was the risk workshop attended by the Peer Reviewer?

I would find it very useful to be sent a copy of the minutes of the Risk Workshop. I am particularly interested in Council's management of the process risk in the event the new plant does not meet the conditions of the resource consent. Will this risk be carried by the Council, or by your consultants?

You advise that the design influent specification has been determined, but later you say that you are still working with the wet industries. Given that more than 80 percent of the organic load to the treatment plant is from industry, I cannot see how the design influent specification can be finalised before trade waste agreements are signed. Have the estimated future trade waste charges been determined and agreed with trade waste dischargers? Have the managers of the large wet industries decided on their pre-treatment options?

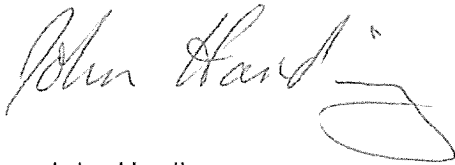
I would also appreciate details of the adopted strategy for managing wet weather flows (not decided at the time of the Developed Design Report). With your proposed strategy, how many times during an average year will the plant be bypassed and what is the expected duration of such bypass events?

The performance of the anaerobic primary lagoon is outside my experience, although I am familiar with the problems experienced with the Eltham Eader. Is it a proven technology? Can you provide a list of reference plants that use similar membrane-covered primary lagoons? Sludge withdrawal is an obvious risk that no doubt was addressed in the Risk Workshop. I would like to see the outcome of that discussion.

I am pleased to learn that the Perth and Auckland AECOM offices have peer reviewed the design, the cost estimates and the tender documentation. Who is the lead peer reviewer? I would expect all of the above matters to be addressed in a peer review report provided to Council prior to Council calling tenders for the treatment plant construction. It would be very helpful if Council can provide the Ministry of Health with a copy of the peer review, which I assume is a public document.

I look forward to receiving this additional information, and welcome this opportunity to support your Council to find an acceptable and sustainable solution.

Yours sincerely



John Harding
Senior Adviser (Public Health Engineering)
Public Health Directorate

*cc: Patrick O'Connor
Medical Officer of Health
Whanganui Hospital
Private Bag 3003
Whanganui 4540*

*Dr Nic Peet
Horizons Regional Council
Private Bag 11025
Palmerston North*

*Cameron Sherley
Policy Group
Department of Internal Affairs
PO Box 805
Wellington 6140*

Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Friday, 15 July 2016 10:24 a.m.
To: Mark Hughes
Cc: Kym Fell; Arno Benadie
Subject: Whanganui Wastewater Treatment Plant
Attachments: 55E cover removal 2012 Nov15 cutting cover.JPG; 55E cover removal 2012 Nov15 _barge.JPG; IMG_0021.JPG; IMG_0024.JPG; IMG_0056.JPG; IMG_2063.JPG; IMG_2144.JPG; MW Award Submission D1.pdf

Categories: Important, Copied to SharePoint

Dear Mark,

As noted in Sally Gilbert's email to you dated 13/7/16 we have been provided with a wealth of useful information on covered anaerobic primary ponds/lagoons by Suelin Haynes, a process engineer with Melbourne Water.

Sally has asked me to forward the email train to you to reinforce the advice that she gave in her email.

Scum accumulation and removal, sludge accumulation and removal and the design and replacement of the membrane lagoon cover are obvious challenges. There is an obvious need for a thorough, comprehensive and well documented peer review of the amended design of the proposed treatment plant, including the dryer, by an experienced firm of wastewater consultants. This is very clear to a conservative and prudent old engineer, like myself.

I trust that you find this information helpful.

Kind regards

John Harding

----- Document: RE: Western Treatment Plant inquiry response, forwarded by John Harding on 15/07/2016 09:58 am -

Sent By: Suelin Haynes <Suelin.Haynes@melbournewater.com.au> on 7/07/2016 2:33:00 p.m.
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>
Copy To: "Paul_Prendergast@moh.govt.nz" <Paul_Prendergast@moh.govt.nz>, "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>
Subject: RE: Western Treatment Plant inquiry response

Hi John,

It was good talking to you, and I've put answers to your questions below as well as attached some additional information.

If you are interested in a peer review of a design by a consultant with experience in covers, I would recommend Mark Simpson from Jacobs (formerly SKM). He completed the investigations, functional design and detailed design for the 55E Cover replacement, and as part of the investigation undertook a

review of covers worldwide and what the options are in terms of covers. He is also very familiar with the standards, technical requirements, and is connected to experts in cover materials. He has also done a lot of other work at the Western Treatment Plant, including our activated sludge plants.

Mark Simpson, BE, MEngSci, MIEAust, CPEng
Jacobs

Executive Engineer
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Level 11, 452 Flinders Street,
Melbourne, Victoria 3000
Australia
www.jacobs.com

It is important that the covers are built strong enough to cope not only with the wind forces, but the weight of people and plant that will need to be on top of the cover for operation and maintenance. There are industry standards for covers, membrane specifications and testing methods.

I've attached some photos of the cover removal, cutting, scum removal, and also a submission we put together for an engineering award that is a good summary.

Regards,

Suelin

Suelin Haynes | Senior Process Planner, Treatment & Resources – Western Region
Planning | **Melbourne Water**

T: (03) 9679 7060 | 990 Latrobe St, Docklands, 3008 | PO Box 4342 Melbourne VIC
3001 | melbournewater.com.au

Enhancing Life and Liveability.

From: John_Harding@moh.govt.nz [mailto:John_Harding@moh.govt.nz]
Sent: Monday, 4 July 2016 8:56 AM

To: Suelin Haynes

Cc: Paul_Prendergast@moh.govt.nz; sally_gilbert@moh.govt.nz

Subject: Re: Western Treatment Plant inquiry response

Dear Suelin,

Thank you very much for your prompt and helpful reply. The cover replacement project must have been challenging! Certainly very interesting. I would appreciate the opportunity to discuss the Melbourne covered primary ponds over the phone - how about today at 1pm NZ time, 11am your time, if this suits. If not, can you please suggest a time.

Points that I would like to clarify include:

- what proportion of the influent load (flow and organic) comes from industry? (for Whanganui the industrial flow share is 20% and organic load share is 85%) - I'll have to get back to you with these figures.
- influent characteristics would be useful, average and peak BOD5, SS and oil/grease

mg/L	Median	90 th percentile
BOD5	500	700
Oil & grease	54	240
TSS	400	550
TKN	69	82

- what is the max hydraulic peaking factor experienced? The design dry weather flow is 500 Ml/day, and it's design wet weather flow is 2500 Ml/d which means we can cope with a 1 in 10 year rainfall event. Although Melbourne has separate sewerage and stormwater there is a significant amount of infiltration in wet weather. In practice we have reached up to 1600 Ml/d.
- is there a peak flow bypass? There is on 25W anaerobic pond but not the 55E anaerobic pond. All wet weather flows are still treated in the following lagoons, but they bypass around the activated sludge plants. So in wet weather all flows are treated, but not to the same level of treatment as in dry weather.
- how is sludge removed? how often? A pump on a floating barge is the cheapest method, but requires the cover to be removed in order to do this. So far we have desludged using the barge when the cover has been replaced (about 10 year intervals). A machine was developed to desludge under the cover but it is very expensive. On the latest cover we are designing for the 25W we have made the cover about 10m shorter than the anaerobic section, so a barge can be placed at the end of the cover and desludge there. As our anaerobic pot is connected to the aerated pond, we do find that after wet weather events a lot of sludge is washed out to the aerobic section. This helps remove sludge, as it is easy to use the barge in the aerated section by turning off some aerators.
- what happens to the sludge? Sludge is pumped to drying pans. Dried sludge is currently stockpiled on site, as reuse is currently not approved by EPA.

- is grit removal a problem? Yes, grit will settle in the inlet of the pond, and needs to be pumped out using the barge. In future we will use the walrus holes to remove as much of the grit and sludge as we can using external pumps.
- how is the scum removed? (how do you get access to the 'walrus holes'?) Scum removal is difficult, and was done using an excavator and truck from the lagoon edge. It is floatable, and wind tended to blow it closer to shore. We won't use the walrus holes for scum removal, only sludge. The latest cover will be designed to be replaced every 20 years, but with a segmented inlet section that will be replaced every 10 years allowing for scum removal from shore. High pressure water jetting can break up consolidated 'scum bergs'.
- were there odour complaints during the works to replace the cover? None caused by the cover replacement, however we do have a very large buffer zone and the covers are 4km away from the closest residential area.

Whanganui is a small city with a population of around 30,000. There is a large abattoir and a tannery. The trade waste management could be improved - to put it kindly! – For effective anaerobic treatment it is important that they don't put down significant quantities of anything that is harmful to the bacteria.

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental and Border Health
Public Health
Protection Regulation and Assurance
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<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

From: Suelin Haynes <Suelin.Haynes@melbournewater.com.au>
To: "john_harding@moh.govt.nz" <john_harding@moh.govt.nz>,
Date: 01/07/2016 06:27 p.m.
Subject: Western Treatment Plant inquiry response

Dear John,

Thank you for your inquiry regarding our covered primary ponds.

We have two ponds each receiving half of the daily flow into the plant, which is about 500 ML/day. They operate in parallel, there is no redundancy, in either the carriers into the plant or the inlet ponds themselves.

The major inlet pump stations in the sewerage system have some capacity for storage, but only for a few hours, so the ponds are operational 100% of the time.

I've attached a photo of our two covered ponds, they are about 200m x 400m and 6-8m deep. They are connected to a shallower aerated pond (2m deep), separated by a plastic curtain. Their volume is about 500 ML, so the water retention time is quite short, but varies depending on the amount of sludge in the pond (1-5 days).

We have had covered ponds since the 1990's due to odour, and have been capturing methane successfully for electricity generation. Our latest cover replacement used an innovative design so it can be replaced in segments. In terms of energy generation the covered ponds are excellent, and over an annual basis they generate enough electricity to supply the entire plant. We have outsourced the electricity generation to an external provider (AGL).

<http://www.melbournewater.com.au/whatwedo/projectsaroundmelbourne/Pages/Western-Treatment-Plant-covers-renewal.aspx>

Our first cover used HDPE (high density polyethylene) and lasted for 20 years without failure, they then trialled more innovative new materials which unfortunately only lasted 10-15 years before failure. Our latest cover returned to HDPE, and the next replacement will also be HDPE, both with a 20 year design life.

As we have been operating the covers for many years, each cover replacement the design has been enhanced. Our first cover was a standard design, essentially one very large piece of plastic created by welding plastic sheets together, along with a series of floats and ballasts. The floats enable gas collection, whilst the ballasts keep the cover down. Gas blowers maintain a slight vacuum under the cover, which is done mostly for safety and to prolong the cover life. A large inflated cover is at risk of being exposed to high wind forces and being torn, which could cause serious injury if anyone were working in the area at the time. The wind catching the cover is also a high risk during removal and installation of new covers. This is why our new cover has arc shape segments, each of them has a wire cable that secures the segment against wind forces. At the end of the cover's life, each segment could be removed individually, whilst still ensuring that the open edge of the cover is secured. On smaller ponds you would simply remove and replace the whole cover, and not attempt segmented replacement.

Our inlet sewage is not screened, nor is there any grit removal. Grit tends to settle out at the inlet of the pond, whilst fats, oil, grease, plastics and other floatables form a solid floating mass we call 'scum'. Covering the ponds with plastic has made the sludge and scum removal quite difficult. We desludged the pond during cover removal and replacement, which significantly improved the process performance. In the new covers we have also included 'walrus holes' which are holes in the cover (normally covered) to put in a pump for desludging. When scum builds up to an unacceptable level we will cut a section of the cover open, remove the scum and then re-weld a new piece of HDPE back in place. This is another reason why HDPE is the preferred material, it tends to be easy to cut and weld, even after many years of operation.

You also requested data sheets/details – we have a lot of design information, can you please be a bit more specific about what information you are after?

Also I'm happy to discuss this over the phone if you would like – 613 9679 7060.

Yours Sincerely,

Suelin

Suelin Haynes | Senior Process Planner, Treatment & Resources – Western Region
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Please consider the environment before printing this email [attachment "WTP ponds.JPG" deleted by John Harding/MOH]

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Hannah Bailey

Subject: FW: John Harding
Attachments: John Harding CV July 2012.docx

From: sally_gilbert@moh.govt.nz [mailto:sally_gilbert@moh.govt.nz]
Sent: Saturday, 30 May 2015 12:52 p.m.
To: bede.brown@dia.govt.nz; Rowan Burns; Kevin Ross
Cc: stewart_jessamine@moh.govt.nz; Phil_Knipe@moh.govt.nz; John_Harding@moh.govt.nz; Paul_Prendergast@moh.govt.nz; Scott_Rostron@moh.govt.nz
Subject: John Harding

Dear colleagues

Following a phone conversation with Kevin Ross, I understand there are still concerns among Council about a perceived conflict of interest for John Harding providing engineering advice through the Ministry of Health on the Whanganui Wastewater Treatment Plant.

With John's permission, I have attached a copy of his CV.

You will see John Harding was employed by Becas from 1976 to 1980 and from 1984 until 1995. John was with MWH from 1995 to 2002, then in late 2002 he became an independent consultant. John's contract with the Ministry of Health commenced at the start of 2003. We would guess that the design of the Wanganui Wastewater Treatment Plant took place sometime around 2004-2005 and was commissioned in 2007, ie after John had left MWH (but John can't tell us because he was not involved).

Kevin - thank you for your frank discussion, I assume this will address any residual concerns you may have had. As I advised, we have discussed this with DIA officials who have assured us they do not consider there is a conflict of interest. I have copied Bede and Rowan into this email so they may clarify DIA's position if necessary.

As we all agree, the Ministry and Council want the residents of Whanganui to have safe, sustainable and affordable sewage treatment and disposal, that does not create public health risks or nuisance odours. The Ministry of Health relies on its public health engineers to be able to provide high quality and constructive advice on these highly technical issues. All such advice goes through appropriate peer review processes, so is not the opinion of an individual, but is the considered advice of professional experts.

I look forward to further discussions.

Kind regards - Sally

Sally Gilbert
Manager
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 4345
Mobile: 021 369 764

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Name: John Harding

Specialist Capabilities

- Peer review of wastewater proposals
- Feasibility studies of sewage treatment options
- Water supply and sewerage systems
- Environmental Impact Assessment
- Expert witness at resource consent hearings
- Outfall feasibility studies
- Project management of multi-disciplinary teams
- Sludge treatment and disposal

Professional Experience

- Director, PHE Consulting Ltd
- Technical adviser to Sanitary Works Technical Advisory Committee, 2003 to present
- Peer Reviewer to Masterton District Council for the Masterton wastewater upgrade project, 2003 to present
- Principal Environmental Engineer, MWH NZ Ltd Wellington, 1995 - 2002
- Associate and Senior Engineer, Beca Carter Hollings & Ferner, 1984 - 1995.
- Senior Environmental Health Engineer, Department of Health, Wellington, 1980 - 1984
- Senior Design Engineer, Beca Carter Hollings & Ferner Ltd, 1974 - 1980
- Design Engineer, Greater London Council, London, 1973 - 1974
- Design Engineer, Binnie & Partners, Consulting Engineers, London, 1972 - 1973
- Field Engineer, Fluor Australia Ltd, 1970 - 1972
- Assistant Engineer, Christchurch Drainage Board, 1969

Education and Qualifications

- Bachelor of Engineering (Hons)
- Master of Engineering Science (Public Health Engineering) 1982
- Member, IPENZ

Project Experience Summary

- Project Manager, Wellington Wastewater studies including 1988 and 1990 environmental impact statements
- Managed investigations and prepared tender documents for the \$22 M Wellington sea outfall
- Project Manager, Nelson Fisheries Outfall environmental studies and consent renewal
- Project Manager, Nelson sewage treatment upgrade including environmental impact assessment.
- Project Manager, Wellington sludge treatment study
- Project Manager, Hutt Valley Bulk Wastewater Management Study
- Project Manager, Otaki sewage treatment upgrade
- Project Manager, Levin Effluent Disposal Project
- Technical Adviser, Wellington Biosolids Design/Build/Operate Contract
- Technical Adviser, Hutt Wastewater Project Design/Build/Operate contract
- Technical Adviser, Tauranga Outfall consent renewal
- Principal Consultant, Palmerston North WWTP upgrade project
- Technical Adviser, Watercare biosolids project
- Sludge Expert, Shijiazhuang WWTP project (World Bank Project, China)
- Peer reviewer, mid-valley excess flow storage project (Hutt City Council)
- Peer reviewer, Masterton District Council wastewater treatment/disposal upgrade

Masterton Wastewater Peer Reviewer (2003-2010)

Masterton has been served by oxidation ponds for more than 30 years, with treated effluent discharged to the Ruamahanga River. John was engaged by the Masterton District Council to provide peer review services for this project. This involved reviewing all reports prepared by the consultant and attending Project Control Group Meetings, consultation meetings and Council briefings.

Ministry of Tourism Technical Adviser (2005-present)

Technical reviews of water and sewerage schemes put forward by consulting engineers on behalf of applicants for Tourism Demand Subsidies for upgrading water supply and sewerage infrastructure. More than 40 applications for Ministry of Tourism subsidies were reviewed.

High Court Expert Witness, Shellfish Litigation, 2006

Expert witness subpoenaed by Far North District Council to give evidence on effects of the Kawakawa sewage treatment plant on oyster farms in the Waikare Inlet, near Russell. The Council was sued by the oyster farmers and successfully defended the action.

Peer Reviewer, Milton Wastewater Treatment Plant Upgrade

Engaged by the Department of Corrections as Peer Reviewer for the upgrade of the Milton WWTP. Wastewater from a new prison is being pumped to this WWTP and the review involved assessment of the effects on the receiving environment, effluent standard and treatment technologies.

Shijiazhuang Sludge Treatment (2002-2003)

Sludge expert in international team advising the SJZ Wastewater Treatment Company during implementation of a new 1.5 million person treatment plant. Proposed sludge treatment involves digestion with energy recovery. Contract will be a Design/Build/Operate, internationally tendered. This ADB project involved 3 visits to Shijiazhuang.

Hutt Valley - Excess Flow Management - Options Review (1999-2004)

The bulk wastewater system could not cope with peak wet weather flows during heavy rain. Options examined include I/I management, flow attenuation and capacity upgrade. The recommended strategy involves a combination of I/I reduction and a 15,000 m3 flow attenuation tank. Original role was concept development, followed by peer review during detailed design and construction.

Hutt Valley Wastewater Project (1999-2002)

Responsible for management of technical investigations and drafting of specification for the Design-Build-Operate (DBO) contract. This has involved trade waste characterisation, definition of flows and loads, review of sludge management options and review of outfall pipeline hydraulics. Technical adviser to Hutt City Council during the design phase, construction and commissioning of this \$70 million project which involves a new contact stabilisation wastewater treatment plant and a sludge drier. During tender evaluation took part in a 3 week international study tour.

Palmerston North Wastewater Treatment Upgrade (2001-2002)

Prepared options report for the upgraded treatment and disposal of Palmerston North wastewater. Upgrade was required to meet the Water Quality Plan. Options investigated included land treatment, marine disposal, wetlands and nutrient removal prior to continuing discharge to the Manawatu River.

Tauranga Effluent Consent Renewal (2002)

Leader of technical studies to support the application to renew the discharge consent. Scope included effects monitoring, water quality modelling and evaluation of the condition and residual life of the existing 900m long concrete outfall (which suffered damage during construction.) Studies also included concept design and costing of a new outfall.

Watercare Biosolids (2000-2002)

technical evidence at these hearings and reviewed evidence presented to the Careys Gully sludge treatment/disposal hearing.

Mr Harding lead the technical witnesses giving evidence at the discharge to air consent hearing. This was the first significant air consent for a sewage treatment plant under the Resource Management Act.

Levin Effluent Disposal Scheme (1985 - 86)

Project Manager during statutory approvals, detailed design and construction of the Levin Effluent Disposal Scheme. This project takes effluent previously discharged into Lake Horowhenua and pumps it 7 km to a natural basin known as the "Pot" in the sandhills southwest of Levin. Effluent is stored in the Pot and part of the treated effluent infiltrates into the ground. The balance is irrigated on the sandhills, which have been specially planted with pines.

Drinking Water Standards For New Zealand (1984)

Editor of the 1984 Standards, which were based on the World Health Drinking Water Guidelines.

Masterton Water Supply Upgrade (1979)

Project Manager responsible for investigations and report leading to upgrading the Masterton water supply. The upgrading work involved boost pumping, a new reservoir and a water treatment plant.

Waikanae Water Treatment Plant (1976-1978)

Resident Engineer during construction of the intake, water treatment plant, pumping facilities, pipelines and reservoir. The Waikanae plant takes water from the Waikanae River and supplies the Kapiti Coast from Raumati to Waikanae.

Hannah Bailey

From: sally_gilbert@moh.govt.nz
Sent: Tuesday, 19 August 2014 5:37 p.m.
To: Kevin Ross
Cc: patrick.o'connor@midcentraldhb.govt.nz
Subject: Wanganui Wastewater Treatment Plant

Dear Kevin

Further to our very constructive discussion earlier, I was wanting to follow up on some of the outstanding queries we have about the proposed Whanganui Sewerage Treatment system.

I would also like to provide you with further information about perceptions that John Harding may have a conflict of interest, as I have followed up with him on his work for MWH around the time of the design of the Wanganui wastewater treatment plant. This may provide you with additional reassurance. John worked in the Wellington office of MWH until late 2002, at which time he resigned and became self employed. The treatment plant was designed in the Dunedin office of MWH under the leadership of Dr Dave Stewart after John had left MWH. John has been very clear that he never worked on the Wanganui project in any shape or form. Prior to working for MWH, John was employed by Beca-Steven (as it then was), and was actually with Beca for more years than he worked for MWH. prior to that, John worked for the Department of Health (including a secondment to the Ministry of Works).

As we discussed, Health officials have tried to provide helpful and constructive advice to Council, and hope that our advice was useful in encouraging Council to seek an independent peer review of the Cardno design. I understand that this peer review has been performed by Humphrey Archer of CH2MBeca and has resulted in significant design changes, including recognising there will be additional capital and operating costs, to assist Council understand the potential implications of the proposal.

We do have some outstanding queries, which we hope you may be able to advise:

- are trade wastes being properly managed? I think this is a very high risk item as I am of the view that unless there is competent trade waste management, it won't be possible to achieve a reliable treatment plant design. I don't have a view about who should pay for the trade waste disposal, but I doubt any sewage treatment plant could operate successfully if the trade waste entering the plant has not been adequately assessed and either pre-treated or allowed for in the plant design.
- on that issue, has the option of a separate trade waste pipeline bypassing the plant direct to the outfall been properly considered?
- what are the revised estimated costs (capital and operating) for the peer reviewed design? During our operation of the sewerage subsidy scheme, we have become aware of how these projects can blow out and place councils at significant financial risk. The problems that arose from the cost blow out of the Mangawhai sewerage treatment and disposal plant are not ones we would like to see any other council face...

I have copied this email to Dr O'Connor, your local Medical Officer of Health for his information and because he is your local public health expert. If we can provide any assistance or advice, please don't hesitate to contact me.

Kind regards

Sally Gilbert
Manager
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 4345
Mobile: 021 369 764

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Hannah Bailey

Subject: FW: Wanganui Wastewater Treatment Plant

From: sally_gilbert@moh.govt.nz [mailto:sally_gilbert@moh.govt.nz]

Sent: Friday, 25 July 2014 4:02 p.m.

To: Kevin Ross

Subject: Re: Wanganui Wastewater Treatment Plant

Dear Kevin

Thank you for your email and I am very sorry to hear of your daughter's illness. It is great to hear she is recovering but it must have been a very distressing time for you and your family.

I appreciated our frank and honest conversation and I hope that I was able to reassure you that John Harding has declared a potential/perceived conflict of interest with the Ministry of Health relating to his former employment with MWH and their involvement in the Whanganui Sewage Treatment and Disposal System. John has been very careful to refrain from commenting on any issues that relate to MWH including their current interactions with Council.

However, I recognise that Council has to be very careful in managing its relationships and risks across all its responsibilities. To assist Council ensure there is no risk that anyone may perceive a potential conflict of interest, I suggest that any communications about Whanganui sewage and trade waste including its treatment and disposal are between Council officers and Dr Patrick O'Connor (Medical Officer of Health) or me.

I hope this will be helpful, but if you would prefer alternative arrangements (for example correspondence being via the Dept of Internal Affairs), please don't hesitate to let me know.

Kind regards - Sally

Sally Gilbert
Manager
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 4345
Mobile: 021 369 764

From: Kevin Ross <Kevin.Ross@wanganui.govt.nz>
To: "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>,
Date: 25/07/2014 10:20 a.m.
Subject: Wanganui Wastewater Treatment Plant

Dear Sally

It was good to catch up by phone recently to discuss the e-mail sent by Mr John Harding regarding the future design for the Wanganui Wastewater Plant. I apologise for the delay in getting back to you but unfortunately my daughter was admitted to hospital in Christchurch and I have been with her. Thankfully, she is on the mend now.

I must admit, I clearly thought that we had agreed that Mr Harding had a conflict of interest when dealing with this issue, so was very surprised to receive the e-mail request. Mr Harding had been an employee of MWH around the time our current Wastewater Treatment Plant was designed. MWH, of course, were the designers of our plant which failed in late 2012, and, as you are also aware, the Council is currently in litigation with MWH over the issue.

The Council has been under considerable pressure from, amongst others, the community, the Regional Council and yourselves,

to make progress on the rectification of the Plant. Three expert consultants in the Wastewater area have stated that the original MWH design would never have worked. This has been strongly denied by MWH so you can see that there is considerable tension around the issue.

We remain happy to provide information regarding the new design of the plant so that the Ministry of Health can satisfy itself that the new Plant will address the odour issues and any other issue related to health. To this end, I have attached the unconfirmed minutes of the Council meeting that resolved to go ahead with the new design. You will see that the Council has taken a very conservative approach to the approved design in an attempt to ensure no issues are encountered with the Plant in the future. This undoubtedly has come at a substantial cost to this community. You will appreciate that the actual cost at this stage is not available as we are in negotiations with the selected tenderer.

Sally, I did appreciate the opportunity to discuss this issue with you and hope we can continue to move forward to solve what has been a very difficult issue for this community.

Regards

Kevin

Kevin Ross
Chief Executive
Office of Chief Executive
Wanganui District Council

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06 349 0000
021 246 6306
www.wanganui.govt.nz
101 Guyton Street
PO Box 637
Wanganui 4500
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Hannah Bailey

From: Kevin Ross
Sent: Thursday, 26 June 2014 4:02 p.m.
To: Mark Hughes; Julian Harkness
Cc: Jan Osborn
Subject: FW: Wanganui Wastewater Treatment Plant

From: John_Harding@moh.govt.nz [mailto:John_Harding@moh.govt.nz]
Sent: Wednesday, 25 June 2014 12:58 p.m.
To: Kevin Ross
Cc: Cameron.Sherley@dia.govt.nz; sally_gilbert@moh.govt.nz
Subject: Wanganui Wastewater Treatment Plant

Hi Kevin

I note from Council's media release that the Council has adopted the Cardno design, with modifications. So that I can understand what is proposed I would appreciate it your sending me the latest Cardno-BTO Design Report, the AECOM peer review report and the CH2M Beca independent expert opinion report that were referred to in the council media release.

I note from the media release that there are significant refinements to the original design (ie the addition of recuperative thickening, bioscrubber, Imm screens, site transferer?, contact tank covers, larger contact tanks etc.). I assume that your consultants have determined how much these changes will add to the estimated capital and operating costs. What are the estimated additional costs? (Not stated in the media report).

There is also a contingency allowance for the scum removal system, chlorine disinfection and permanent polymer dosing. What does this contingency allowance amount to?

Have trade waste agreements with the major industries been finalised?

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 3928
Mobile: 027 664 7134
Fax: 04 816 2340

<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

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Sent by:
Kevin.Ross@wanganui.govt.nz
vt.nz

22/04/2014 09:20 p.m.

To: "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>,
cc: Julian Harkness <Julian.Harkness@wanganui.govt.nz>, Mark Hughes
<Mark.Hughes@wanganui.govt.nz>, Nic Peet
<Nic.Peet@horizons.govt.nz>, Cameron Sherley

bcc:

Subject: Re: Wanganui Wastewater Treatment Plant

Dear Sally,

Thank you for your reply dated 17 April 2014.

As you are aware, the process of rectifying our Wastewater Treatment Plant is a complex one and one that is being developed under a fair amount of pressure. It has been difficult to simply respond to the amount of opinions and questions that have been raised by a number of individuals and organisations. For lay people like myself and our Councillors, it is a challenge to pick through all the advice we have, and the advice we are continuing to receive.

I can assure you that the design and review of the rectification project will continue to be closely scrutinised to ensure the Wanganui community gets a robust working plant.

Yours sincerely,

Kevin Ross

Sent from my iPad

On 17/04/2014, at 4:50 PM, "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz> wrote:

Dear Mr Ross

I have discussed your response with John Harding and I feel it is most appropriate for me to reply.

We would like to reassure you that the Ministry of Health's interest in finding a solution to Whanganui's long-standing sewage treatment and disposal issues is to help ensure the residents' health and well being is protected, and this includes the safe and appropriate disposal of sewage and waste, and the avoidance of nuisance odours.

Mr Harding's extensive experience with the Ministry's sewerage subsidy scheme, as well as his consulting engineering expertise, have been made freely available to your Council in good faith to assist you find a workable and effective solution. Mr Harding's advice has been discussed with our other public health engineer and with colleagues in this office, and have been copied to relevant parties to ensure his advice is appropriate (and transparent).

We had been reassured from your recent correspondence that Council was obtaining appropriate advice and had recognised the importance of dealing with the trade waste issues.

In light of this, and the concerns expressed in your letter, the Ministry of Health will provide no further engineering advice on this matter relating to the collection, treatment and disposal of sewage and waste in Whanganui, unless this is directly requested by the Medical Officer of Health.

Hannah Bailey

From: sally_gilbert@moh.govt.nz
Sent: Thursday, 17 April 2014 4:50 p.m.
To: Kevin Ross
Cc: Cameron.Sherley@dia.govt.nz; Cameron.Sherley@dia.govt.nz; Julian Harkness; Mark Hughes; 'nic.peet@horizons.govt.nz' (nic.peet@horizons.govt.nz); Patrick O'Connor (Patrick.O'Connor@midcentraldhb.govt.nz); Darren_Hunt@moh.govt.nz; Phil_Knipe@moh.govt.nz; Paul_Prendergast@moh.govt.nz
Subject: Re: Wanganui Wastewater Treatment Plant

Dear Mr Ross

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Yours sincerely

Sally Gilbert
Manager
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 4345
Mobile: 021 369 764

----- Received on 17/04/2014 -----

From: Kevin Ross <Kevin.Ross@wanganui.govt.nz>
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>,
Cc: "Cameron.Sherley@dia.govt.nz" <Cameron.Sherley@dia.govt.nz>, Julian Harkness <Julian.Harkness@wanganui.govt.nz>, Mark Hughes <Mark.Hughes@wanganui.govt.nz>, "nic.peet@horizons.govt.nz" (nic.peet@horizons.govt.nz) <nic.peet@horizons.govt.nz>, "Patrick O'Connor (Patrick.O'Connor@midcentraldhb.govt.nz)" <Patrick.O'Connor@midcentraldhb.govt.nz>, "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>
Date: 17/04/2014 02:10 p.m.
Subject: Wanganui Wastewater Treatment Plant

Dear Mr Harding

Thank you for your recent e-mails dated 26 March, 8 April and 11 April 2014. I have to say, the detailed design questions you are now asking, seem to be far removed from your original investigation which was looking into an odour complaint arising from the failure of the Wanganui

Wastewater Treatment Plant designed by MWH dated 16 December 2013.

I am also concerned that you are now challenging whether the wastewater consultants the Council have engaged to rectify the plant are appropriate to do so. Cardno-BTO, the designer of the new plant, and AECOM as the peer reviewer, are both reputable wastewater consultants with international experience who clearly have individuals within the respective firms that are competent to undertake a redesign of our plant. The CV's of the individuals within the two companies that are involved in the rectification process have been provided to you previously. I understand that our consultants are taking legal advice as to whether they take any action over these statements.

The Council has also approached Humphrey Archer, CH2M Beca to review the Cardno-BTO design, to provide absolute surety that proposed design will work. This should provide you confidence that the Council is making every effort to ensure previous mistakes are not repeated.

In answer to your current questions:

1. As outlined in my previous reply, the results from the risk workshops were communicated to the project team. Our consultants carry the risk of consent conditions not being met, although, as you will no doubt be aware, Councils generally are found to have some responsibility. There are no minutes.

2, 3 and 4. The Council is currently working with the trade waste users to determine final proposed flows and loads. Affco Imlay has declared a proposed pre-treatment option, a waste heat evaporator, which has been advised to you previously. Most are proposing similar or less loads than what they discharged this year. The Council is seeking confirmation of this. The Council has good records of the current influent composition as it flows through the Beach Road pumping station.

5. and 6. AECOM review key aspects 2 and 3 respond to these questions which have been provided previously. Wet weather flows are managed through flow buffering in the primary pond and partial flow bypass and blending prior to the UV disinfection process and effluent pump station. The upgrade design provides treatment of flows as required by the resource consent. Flows above the resource consent requirements, occurring during extreme wet weather, will continue to be bypassed directly to the outfall.

7. It is now termed a 'primary pond' and regardless of the name, its primary function is to:

- Act as primary settlement unit process
- Provide for sludge consolidation and storage.
- Allow for some flow buffering.

This unit process is typically provided as a purpose-built structure, but existing infrastructure is being used in order to optimise the use of existing infrastructure. The pond includes a cover to manage potentially odourous air.

8. Details of the proposed solids train, i.e. sludge withdrawal, sludge thickening, treatment and disposal is provided in the **attached** figure.

9. No separate "budget" exists for just the solids handling part of the project. Tenders are being evaluated for the whole project and the one with the lowest cost overall and proven capability will be selected.

10. A comprehensive final peer review report is to be provided.

I sincerely hope that you are now satisfied that sufficient scrutiny has been applied to this design and no doubt the engagement of Humphrey Archer will provide you with the comfort level you are seeking.

John, given that I have responded to your emails a number of times, I think that the best way going forward, if you have further questions, is a meeting between yourself, the Chief Executive of MOH, myself and our advisors.

Regards

Kevin

Kevin Ross
Chief Executive
Office of Chief Executive
Wanganui District Council

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www.wanganui.govt.nz
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[attachment "Sludge_Process.jpg" deleted by John Harding/MOH]

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Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Friday, 11 April 2014 9:23 a.m.
To: Kevin Ross
Cc: Cameron Sherley (Cameron.Sherley@dia.govt.nz); Julian Harkness; Mark Hughes; 'sally_gilbert@moh.govt.nz'
Subject: RE: Wanganui Wastewater Treatment Plant

Thanks Kevin,

That is a good move. I am pleased to learn that Humphrey has been engaged to help with reviewing the design of the new plant. He has strong trade waste management experience and can draw on the full resource of CH2MBeca for the process review.

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership
Protection & Regulation
Ministry of Health
DDI: 04 816 3928
Mobile: 027 664 7134
Fax: 04 816 2340

<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

From: Kevin Ross <Kevin.Ross@wanganui.govt.nz>
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>,
Cc: "Cameron Sherley (Cameron.Sherley@dia.govt.nz)" <Cameron.Sherley@dia.govt.nz>, "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>,
Mark Hughes <Mark.Hughes@wanganui.govt.nz>, Julian Harkness <Julian.Harkness@wanganui.govt.nz>
Date: 10/04/2014 12:27 p.m.
Subject: RE: Wanganui Wastewater Treatment Plant

Hi John,

We are currently working through a number of issues relating to the rectification of the Wanganui wastewater treatment plant. I will be in a position to give you a call or respond to your e-mail early next week. We have engaged Humphrey Archer to be part of the review process, so that may provide you with a level of comfort.

Council does remain absolutely committed to ensuring any new design of the plant will work for the community.

Kind regards

kevin

From: John_Harding@moh.govt.nz [mailto:John_Harding@moh.govt.nz]
Sent: Tuesday, 8 April 2014 12:22 p.m.

To: Kevin Ross
Cc: Cameron.Sherley@dia.govt.nz; sally_gilbert@moh.govt.nz; Patrick O'Connor
Subject: Wanganui Wastewater Treatment Plant

Dear Kevin,

This is a follow up to my email of 26 March 2014. Are you able to advise when you will be able to provide a response? If you would like to discuss my email I would welcome a call.

I appreciate that my email used rather blunt language, however I did this deliberately and can assure you that I am motivated by concern for the financial health of the ratepayers of Whanganui. Errors have been made, leading to the Whanganui wastewater treatment plant failing, at considerable cost to the community. Great care needs to be taken to prevent a repeat, which would compound the pain.

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 3928
Mobile: 027 664 7134
Fax: 04 816 2340

<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

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Hannah Bailey

From: Kevin Ross
Sent: Tuesday, 8 April 2014 1:07 p.m.
To: Mark Hughes; Julian Harkness
Subject: FW: Wanganui Wastewater Treatment Plant

From: John_Harding@moh.govt.nz [mailto:John_Harding@moh.govt.nz]
Sent: Tuesday, 8 April 2014 12:22 p.m.
To: Kevin Ross
Cc: Cameron.Sherley@dia.govt.nz; sally_gilbert@moh.govt.nz; Patrick O'Connor
Subject: Wanganui Wastewater Treatment Plant

Dear Kevin,

This is a follow up to my email of 26 March 2014. Are you able to advise when you will be able to provide a response? If you would like to discuss my email I would welcome a call.

I appreciate that my email used rather blunt language, however I did this deliberately and can assure you that I am motivated by concern for the financial health of the ratepayers of Whanganui. Errors have been made, leading to the Whanganui wastewater treatment plant failing, at considerable cost to the community. Great care needs to be taken to prevent a repeat, which would compound the pain.

Kind regards

John

John Harding
Senior Public Health Engineer
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Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Wednesday, 26 March 2014 4:17 p.m.
To: Kevin Ross
Cc: Cameron.Sherley@dia.govt.nz; Julian Harkness; Mark Hughes; 'nic.peet@horizons.govt.nz' (nic.peet@horizons.govt.nz); Patrick O'Connor; sally_gilbert@moh.govt.nz
Subject: Re: Wanganui Wastewater Treatment Plant

Dear Kevin,

Thanks for your email received today attempting to address the questions I asked in my letter of 4 February 2014. Your response suggests that possibly you do not understand the significance of the questions that I have asked. You have not focused in on the key risk issues, which are:

1. I would appreciate a copy of minutes of the risk workshops. They should provide a considerable level of reassurance.
2. Have the managers of the large wet industries decided on their pretreatment options? And if so, what are they doing?
3. Have the estimated future trade waste charges been determined and agreed with the managers of the large wet industries?
4. Has the influent specification been finalised?
5. Please provide details of the adopted strategy for managing wet weather flows.
6. How many times during an average year will the plant be bypassed and what is the expected duration of such bypass events?
7. I note that the Anaerobic Pond is now termed an Primary Lagoon. Is it a proven technology? Can you please provide a list of reference plants that are using the same membrane covered primary lagoons and incorporate a significant flow balancing function.
8. Can you please provide details of the proposed solids train, ie sludge withdrawal, sludge thickening, treatment and disposal.
9. What is the budget for the solids handling part of the project?
10. Finally, will there be a comprehensive peer review report to council prior to award of tender? I recommend that there should be a final peer review report to protect Council's interests. It should cover the current and future influent specification, the treatment process selection, the detailed design, the full capital and operating cost estimates and the tender documentation.

I certainly appreciate your sending through CV's for employees of the design firm (Cardno-BTO) and the peer reviewers, however I have to say that I am still not reassured.

There is a clear lack of track record on projects of this scale within the Cardno-BTO team. While not a fatal flaw, you will appreciate that this makes it especially important to have a solid peer review.

While the AECOM engineers are certainly well qualified, they lack NZ experience, particularly in respect of the RMA and the management of trade waste discharges from primary industries.

Also, I understand that Matt Mates is no longer with AECOM and hasn't been for some time. Has he been involved in the recent changes to the Primary Lagoon?

I have to say that I would feel far more comfortable if an experienced NZ based wastewater engineering consultant such as John Crawford from Opus, or Duncan Kingsbury from SKM, or Humphrey Archer from CH2M Beca, was advising the Council and providing the peer review.

Kind regards

John

1.

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
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Protection & Regulation
Ministry of Health
DDI: 04 816 3928
Mobile: 027 664 7134
Fax: 04 816 2340

<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

From: Kevin Ross <Kevin.Ross@wanganui.govt.nz>
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>,
Cc: Julian Harkness <Julian.Harkness@wanganui.govt.nz>, Mark Hughes <Mark.Hughes@wanganui.govt.nz>, "nic.peet@horizons.govt.nz" <nic.peet@horizons.govt.nz>, "Cameron.Sherley@dia.govt.nz" <Cameron.Sherley@dia.govt.nz>, Patrick O'Connor <Patrick.O'Connor@midcentraldhb.govt.nz>, "sally_gilbert@moh.govt.nz" <sally_gilbert@moh.govt.nz>
Date: 26/03/2014 11:59 a.m.
Subject: Wanganui Wastewater Treatment Plant

Dear John

Thank you for your most recent e-mail dated 17 March 2014.

I note that Mr Mike McCoy from Cardno-BTO did contact you directly to discuss aspects of the Wanganui Wastewater Treatment Plant that you had concerns with. I am advised that this conversation took place prior to your 17 March e-mail. It was hoped that a discussion with our expert Wastewater Consultant would enable you to discuss the proposed design of the plant and to have any queries answered directly by an expert in the field.

I understand that your discussion with Mr McCoy covered the treatment process overall and, more particularly, the peer review process, risks, the trade waste consents and communication issues.

Although the topics you raised in your 4 February 2014 correspondence would appear to have been answered either by Cardno-BTO direct or by AECOM's response dated 12 March 2014, the following answers are provided for your records (a further copy of AECOM's 12 March 2014 response is **attached**).

Risk Evaluation

Risk workshops were held at an engineering level with Cardno-BTO, the peer reviewer and Council. These risks were communicated to the project team. Our consultants carry the risk of consent conditions not being met, although, as you will no doubt be aware, Councils generally are found to have some responsibility.

Trade Waste Loads

This was the focus of AECOM's reply under Key Aspect 1. I can add that the major trade waste industries are due to provide their intended future discharge before the Trade Waste User Group meeting this week. Cardno-BTO have consistently stated that the capital cost and design will not change significantly due to discussions or reduction in trade waste load, but the operational cost will reduce if the loads reduce and any savings will be able to be passed on to industry. The proposed design has been based on good data and includes the ability to take fluctuating industrial discharges. AFFCO has declared that they are considering a waste heat evaporator, but Cardno-BTO advise that this will have no material effect on the design or the capital cost.

Council is currently focussed on working with our trade waste users and have engaged GHD to provide extra resources in this area.

Wet Weather Flows

Again, this has been directly answered by AECOM under Key Aspect 2 and 3.

I can also confirm that as more stormwater is extracted from the wastewater stream, the WDC is not expecting to have to bypass to the sea except for extreme exceptional circumstances.

Peer Review

A list of the peer reviewers and their experience was provided in the AECOM report under Key Aspect 4. The reports issued by Cardno-BTO were formally peer reviewed by AECOM's international specialists from August 2013 to March 2014. A final peer review of the completed design from AECOM is now due.

I can confirm that Cardno-BTO is responsible for the design of the new plant and AECOM is the peer reviewer. The CVs for Cardno-BTO staff (Mike McCoy, Josh Stones, James Mitchell, Laura Verry, Jon Blenkhorn, Dr Charles Law, Alex Soong, Simon Cartwright, Rosemary Williams, Lawrence Stephenson, Andrew Slaney and Sarah Lothman) and AECOM staff (Dr Isabel Silveira, Matthew Mates and Fabiana Tessele) are **attached**.

AECOM was approached to respond to your latest questions to ensure the issues you raised had been addressed and checked off by the peer reviewer.

John, I am disappointed that we have not been able to satisfactorily answer all of your questions despite you being able to talk directly with our expert and having AECOM address specifically your queries.

I hope the information provided in his e-mail has been helpful but should you have any further enquiries or issues do not hesitate to contact me again.

Regards

Kevin

Kevin Ross
Chief Executive

Office of Chief Executive
Wanganui District Council

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06 349 0000
021 246 6306
www.wanganui.govt.nz
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PO Box 637
Wanganui 4500
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----- Message from "ApeosPort-IV C3375" <xerox@wanganui.govt.nz> on Tue, 25 Mar 2014 20:18:23 +0000 -----

To: Jan Osborn <Jan.Osborn@wanganui.govt.nz>
Subject: SCAN

Number of Images: 2
Attachment File Type: PDF

Device Name: ApeosPort-IV C3375
Device Location: 1st Floor Reception

[attachment "26032014091823-0001.pdf" deleted by John Harding/MOH]

----- Message from Jan Osborn <Jan.Osborn@wanganui.govt.nz> on Tue, 25 Mar 2014 02:13:40 +0000 -----

To: Jan Osborn <Jan.Osborn@wanganui.govt.nz>
Subject: CVs Isabel Master; Fabiana Tessele

[attachment "Isabel Silveira Master.docx" deleted by John Harding/MOH] [attachment "ATT00001.htm" deleted by John Harding/MOH] [attachment "Fabiana Tessele master.docx" deleted by John Harding/MOH]

----- Message from Jan Osborn <Jan.Osborn@wanganui.govt.nz> on Tue, 25 Mar 2014 02:12:57 +0000 -----

To: Jan Osborn <Jan.Osborn@wanganui.govt.nz>
Subject: CVs Matthew Mates; Cardno BTO Team

[attachment "Matthew J Mates_ 2013_REV1.pdf" deleted by John Harding/MOH] [attachment "Cardno BTO Team CVs - Combined.pdf" deleted by John Harding/MOH]

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Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Monday, 17 March 2014 5:05 p.m.
To: Kevin Ross
Cc: Julian Harkness; Mark Hughes; 'nic.peet@horizons.govt.nz' (nic.peet@horizons.govt.nz); Cameron.Sherley@dia.govt.nz; Patrick O'Connor; sally_gilbert@moh.govt.nz
Subject: Re: FW: Memo Response to the letter from the Minstry of Health.docx
Attachments: Memo Response to the letter from the Minstry of Health.docx

Hi Kevin

Thanks for the memorandum from Fabiana Tessele. I note that she has written the memorandum in response to my letter to Mark Hughes dated 16 December 2013.

She has not addressed my follow up letter of 4 February 2014 in which I asked a number of important and specific questions. Would you kindly ask Fabiana to respond to my second letter.

Why has your peer reviewer been tasked with responding to the points that the Ministry of Health raised last December? This is highly unusual. Who exactly is responsible for the design?

Is it AECOM, in which case who is reviewing AECOM's work?

I have to put on record that I am far from convinced that the obvious and significant process, cost estimating and cost sharing risks inherent in the Whanganui wastewater treatment project are being properly managed.

Kind regards

John Harding

Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership
Protection & Regulation
Ministry of Health
DDI: 04 816 3928
Mobile: 027 664 7134
Fax: 04 816 2340

<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

From: Kevin Ross <Kevin.Ross@wanganui.govt.nz>
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>,
Cc: Mark Hughes <Mark.Hughes@wanganui.govt.nz>, "nic.peet@horizons.govt.nz" (nic.peet@horizons.govt.nz) <nic.peet@horizons.govt.nz>, Julian Harkness <Julian.Harkness@wanganui.govt.nz>
Date: 17/03/2014 04:10 p.m.
Subject: FW: Memo Response to the letter from the Minstry of Health.docx

Dear John

It was good to catch up with you last week by phone. AECOM have now provided answers to your questions and these are attached. I apologise for any inconvenience this delay has caused.

I understand that Mike McCoy, from Cardno-BTO, has also been in contact with you to discuss the design of the plant and hopefully address the issues you have raised.

Should you wish to discuss the matter further do not hesitate to contact me again.

Kind regards

Kevin

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Memorandum

To	Arno Benadie	Page	1
CC	Mark Hughes		
Subject	Response to the letter from the Ministry of Health		
From	Fabiana Tessele		
File/Ref No.	Wanganui WWTP	Date	12-Mar-2014

Hi Arno,

In response to your request, I am sending below our comments on the letter sent from John Harding, Senior Adviser, Public Health Directorate, issued on 16 December 2013.

The original comments are based on a site visit on 26th of November 2013 and reports issued prior to that date.

It is important to highlight that the design assumptions have changed since that period, and more developed documents were issued during this period.

Community concerns around the low efficiency of the anaerobic pond, odour emissions, wet weather management, among others, were addressed via changes on the initial concept design, and also by adopting a risk management approach.

Additionally, the conversations around the trade waste policy have progressed during this period, and it is expected that the local industries will be made responsible for their respective wastes.

More detailed comments addressing the four key aspects raised are presented in the table below:

	Key Aspects	Comments
1	<i>"The influent has not been adequately characterised (see Exec Summary). What is the design load for the peak week? I note on page 59 that it states WDC is currently working with local industry to revise the trade waste policy and to create an appropriate charging regime, a process that is likely to take years."</i>	The characterisation of the influent has been completed during a special sampling programme in August and October 2013. Wanganui District Council formed a trade waste users group that include all large industries and has also appointed a consulting Engineering company to assist with the creation of a new Trade Waste Bylaw and Trade Waste charging model. This work include all aspects of trade waste management including representative sampling; sampling structures and equipment and the most accessible positions for these; seconds tier trade waste contributions of smaller commercial properties; new bylaw and new trade waste charges. All of the trade waste work will be completed by the end of December 2014 before the new WWTP is commissioned.
2	<i>"The covered anaerobic lagoon at the front end of the plant is unproven particularly with high wet weather flows and the need to flow balance. Sludge withdrawal and management has not been detailed. Some similar working examples would be reassuring."</i>	As one of the outcomes of the Independent review Process, the Anaerobic Pond function in the project was redefined, and this lagoon was renamed as Preliminary Lagoon. The Preliminary lagoon has as main function settling of solids and the equalisation of the variable flows coming from the trade waste. It is expected the part of the insoluble organic matter will be removed via settling in this stage. Peak wet weather flows will be redirected to the disinfection system.

	Key Aspects	Comments
		The sludge withdrawal is better defined in more recent reports. Submersed mixers will be implemented in the bottom of the lagoon to ensure no dead zones will occur. The cover will be maintained as a preventive measure for controlling odours, and a bio scrubber will be incorporated to the design to handle the undesirable gases.
3	A preferred option for managing wet weather flows has not been determined (4.3.5)	The wet weather flow management is described in details in more recent reports. The wet weather exceeding the capacity of the treatment plant will be conducted directly to the disinfection process.
4	The report has not been formally peer reviewed by an appropriately experienced treatment plant designer	<p>We confirm that the various reports issued by Cardno were formally Peer Reviewed by AECOM's international specialists from August 2013 to March 2014. The professionals involved on the review were:</p> <ul style="list-style-type: none"> o Matthew Mates (25+ years experience in US and New Zealand) o Dr. Fabiana Tessele (20+ years experience in South America, Middle East, Australia and New Zealand) o Dr. Isabel Silveira (16 years experience in South America, Australia and New Zealand) <p>Several changes to the original design were proposed and discussed over three "design review workshops", including the designers, WDC and the reviewers.</p>

Finally, we agree with the consideration that the overall cost for a complete wastewater treatment plant based on activated sludge should be significantly higher than the available budget. However it is important to highlight that the consent limits for this particular treatment plant is focussed on removal of suspended solids (TSS) and partial disinfection. Removal of soluble contaminants, such as organic matter and nutrients, is not addressed by the current process design considerations.

Sincerely yours,

Fabiana Tessele
Water Team Leader WAC
fabiana.tessele@aecom.com

Mobile: +61 417 615 332
Direct Dial: +61 8 6208 1108
Direct Fax: +61 8 6208 0999

Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Tuesday, 11 March 2014 12:15 p.m.
To: Kevin Ross
Cc: sally_gilbert@moh.govt.nz; Cameron.Sherley@dia.govt.nz; Patrick O'Connor; Mark Hughes
Subject: RE: Replacement of Wanganui WWTP
Importance: High

Dear Kevin,

I left a message with your PA this morning asking that you give me a call to give me an update on progress with managing odour from the WWTP.

I have the file on my desk and am writing a briefing for Associate Minister of Health Jo Goodhew. She has been received emails from an affected resident.

I note that AECOM has been tasked with replying to my 4 February letter to Mark Hughes. I would have expected your treatment plant designer Cardno-BTO to address the issues I raised, with AECOM reviewing as necessary.

Can you please clarify why AECOM has been given this responsibility?

You will appreciate that it is not easy to brief the Minister when my questions have not been addressed 5 weeks after I wrote to Mark Hughes. It is causing growing concern that all is not well with the treatment plant replacement project.

Kind regards

John Harding

----- Document: RE: Replacement of Wanganui WWTP, forwarded by John Harding on 11/03/2014 12:01 pm -----

Sent By: Kevin Ross <Kevin.Ross@wanganui.govt.nz> on 21/02/2014 8:49:19 a.m.
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>
Copy To: Mark Hughes <Mark.Hughes@wanganui.govt.nz>
Subject: RE: Replacement of Wanganui WWTP

Dear Mr Harding

Thank you for your letter dated 4th February 2014, in which you raised a number of issues regarding our proposed Wastewater Treatment Plant.

As you are aware, we have engaged international Wastewater experts to redesign our current plant. Cardno-BTO are the principal designers of the new plant with AECOM charged with peer reviewing their design.

Rather than answer the issues you raised directly, we have forwarded your enquiries to AECOM for them to respond. This will ensure that all the points you have raised will have been appropriately addressed.

I will contact you when the response has been received.

Regards

Kevin

From: John_Harding@moh.govt.nz [mailto:John_Harding@moh.govt.nz]
Sent: Tuesday, 4 February 2014 4:00 p.m.
To: Mark Hughes
Cc: Kevin Ross; Patrick O'Connor; Cameron Sherley; sally_gilbert@moh.govt.nz;
Paul_Prendergast@moh.govt.nz
Subject: Replacement of Wanganui WWTP

Hi Mark,

Thanks for your letter of 29 January 2014. Please find my response attached, the original is in the mail.

Unfortunately I don't have Dr Nic Peet's email address and I would be grateful if you would forward this email to him.

I look forward to your response.

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
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Mobile: 027 664 7134
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Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Friday, 21 February 2014 10:05 a.m.
To: Kevin Ross
Cc: Cameron Sherley; sally_gilbert@moh.govt.nz; Mark Hughes; Paul_Prendergast@moh.govt.nz
Subject: RE: Replacement of Wanganui WWTP

Thanks for your email Kevin,

I have raised a number of significant issues that really should be addressed and resolved prior to going too far with the tender evaluation. When do you think I can expect to receive a response?

Did the Risk Workshop recommended by Cardno-BTO take place?

And finally, did my 4th February letter get forwarded to Dr Peet at Horizons?

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
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DDI: 04 816 3928
Mobile: 027 664 7134
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<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

From: Kevin Ross <Kevin.Ross@wanganui.govt.nz>
To: "John_Harding@moh.govt.nz" <John_Harding@moh.govt.nz>,
Cc: Mark Hughes <Mark.Hughes@wanganui.govt.nz>
Date: 21/02/2014 08:49 a.m.
Subject: RE: Replacement of Wanganui WWTP

Dear Mr Harding

Thank you for your letter dated 4th February 2014, in which you raised a number of issues regarding our proposed Wastewater Treatment Plant.

As you are aware, we have engaged international Wastewater experts to redesign our current plant. Cardno-BTO are the principal designers of the new plant with AECOM charged with peer reviewing their design.

Rather than answer the issues you raised directly, we have forwarded your enquiries to AECOM for them to respond. This will

ensure that all the points you have raised will have been appropriately addressed.

I will contact you when the response has been received.

Regards

Kevin

From: John_Harding@moh.govt.nz [mailto:John_Harding@moh.govt.nz]

Sent: Tuesday, 4 February 2014 4:00 p.m.

To: Mark Hughes

Cc: Kevin Ross; Patrick O'Connor; Cameron Sherley; sally_gilbert@moh.govt.nz; Paul_Prendergast@moh.govt.nz

Subject: Replacement of Wanganui WWTP

Hi Mark,

Thanks for your letter of 29 January 2014. Please find my response attached, the original is in the mail.

Unfortunately I don't have Dr Nic Peet's email address and I would be grateful if you would forward this email to him.

I look forward to your response.

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
DDI: 04 816 3928
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Hannah Bailey

From: John_Harding@moh.govt.nz
Sent: Tuesday, 4 February 2014 4:00 p.m.
To: Mark Hughes
Cc: Kevin Ross; Patrick O'Connor; Cameron Sherley; sally_gilbert@moh.govt.nz; Paul_Prendergast@moh.govt.nz
Subject: Replacement of Wanganui WWTP
Attachments: Letter to mark Hughes 4th Feb.pdf

Hi Mark,

Thanks for your letter of 29 January 2014. Please find my response attached, the original is in the mail.

Unfortunately I don't have Dr Nic Peet's email address and I would be grateful if you would forward this email to him.

I look forward to your response.

Kind regards

John

John Harding
Senior Public Health Engineer
Environmental & Border Health
Public Health
Clinical Leadership, Protection & Regulation
Ministry of Health
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<http://www.health.govt.nz>
mailto:John_Harding@moh.govt.nz

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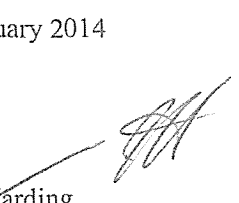
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29 January 2014

 3/2/14
John Harding
Senior Adviser (Public Health Engineering)
Ministry of Health
PO Box 5013
Wellington 6145

Copy to:
Nic Peet, Horizons Regional Council
Cameron Sherley, Dept of Internal Affairs

Dear John

RE: Whanganui Wastewater Treatment Plant Odour Issues

Thank you for your letter of 16 December 2013 and the comments you make for assistance to ourselves and Dr O'Connor.

In relation to the four key aspects of the Developed Design report that concern you I am pleased to report that:

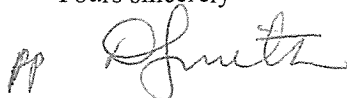
1. The influent has now been fully characterised;
2. High wet weather flow management, flow balance, sludge withdrawal and management have all been decided;
3. Refer point 2 above;
4. The whole design and documentation has been and continues to be peer reviewed by AECOM for the past year. This on-going process has utilised their experts in both Auckland and Perth, West Australia.

In relation to some of the other comments you make I cannot go into too much detail because as we explained to you we are in the middle of a litigation process, but be assured we have considered them all carefully.

We are very aware of the required commitment to the new plant by our tradewaste users and are working hard to come to an arrangement acceptable to all. Any solution of course would need to comply with our existing consent from Horizons Regional Council. This clearly sets parameters within which we must operate.

Thank you for your interest and your comments; they were appreciated.

Yours sincerely



Mark Hughes
Infrastructure Manager

4 February 2014

Mark Hughes
Infrastructure Manager
Wanganui District Council
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Wanganui

No. 1 The Terrace
PO Box 5013
Wellington 6145
New Zealand
T +64 4 496 2000

PH20-27-10-1

Dear Mark,

Re: Wanganui Wastewater Treatment Plant Odour Issues

Thank you for your letter of 29 January responding to my letter of 16 December 2013. I am pleased that you found my advice helpful, and this further advice is offered in the same spirit of support to your Council as it deals with a difficult and long-standing issue.

Unfortunately, I was not reassured by your response as it seems to gloss over significant project risks.

However, I note that your consultants, in Section 14 of the 16 August 2013 Developed Design Report, recommended that a risk workshop take place at the completion of the developed design. Did a risk workshop take place? Was there an experienced independent facilitator and was the risk workshop attended by the Peer Reviewer?

I would find it very useful to be sent a copy of the minutes of the Risk Workshop. I am particularly interested in Council's management of the process risk in the event the new plant does not meet the conditions of the resource consent. Will this risk be carried by the Council, or by your consultants?

You advise that the design influent specification has been determined, but later you say that you are still working with the wet industries. Given that more than 80 percent of the organic load to the treatment plant is from industry, I cannot see how the design influent specification can be finalised before trade waste agreements are signed. Have the estimated future trade waste charges been determined and agreed with trade waste dischargers? Have the managers of the large wet industries decided on their pre-treatment options?

I would also appreciate details of the adopted strategy for managing wet weather flows (not decided at the time of the Developed Design Report). With your proposed strategy, how many times during an average year will the plant be bypassed and what is the expected duration of such bypass events?

The performance of the anaerobic primary lagoon is outside my experience, although I am familiar with the problems experienced with the Eltham Eader. Is it a proven technology? Can you provide a list of reference plants that use similar membrane-covered primary lagoons? Sludge withdrawal is an obvious risk that no doubt was addressed in the Risk Workshop. I would like to see the outcome of that discussion.

I am pleased to learn that the Perth and Auckland AECOM offices have peer reviewed the design, the cost estimates and the tender documentation. Who is the lead peer reviewer? I would expect all of the above matters to be addressed in a peer review report provided to Council prior to Council calling tenders for the treatment plant construction. It would be very helpful if Council can provide the Ministry of Health with a copy of the peer review, which I assume is a public document.

I look forward to receiving this additional information, and welcome this opportunity to support your Council to find an acceptable and sustainable solution.

Yours sincerely



John Harding
Senior Adviser (Public Health Engineering)
Public Health Directorate

*cc: Patrick O'Connor
Medical Officer of Health
Whanganui Hospital
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Whanganui 4540*

*Dr Nic Peet
Horizons Regional Council
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Palmerston North*

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