

**From:** [Jason Augspurger](#)  
**To:** [Natasha Pritchard](#)  
**Subject:** RE: Pioneer Energy Consent Variation - RM18.004  
**Date:** Thursday, 11 January 2018 12:11:51 p.m.  
**Attachments:** [RSU comment on Onslow power scheme.docx](#)

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Hey Natasha-

Comment on additional information attached. Since whole components are missing it is a bit hard to say in specific detail what we need. Instead, I've outlined a few broad things we would need (e.g. water management plans and potential regimes) to actually get started and some reasoning behind it. Once we had those I think we would be in a better position to make the assessment and actually ask for specific details.

Have a read and let me know if that suits.

Cheers,  
jason

-----Original Message-----

From: Natasha Pritchard  
Sent: Wednesday, 10 January 2018 4:13 p.m.  
To: Jason Augspurger <[Jason.Augspurger@orc.govt.nz](mailto:Jason.Augspurger@orc.govt.nz)>; Pete Ravenscroft <[Pete.Ravenscroft@orc.govt.nz](mailto:Pete.Ravenscroft@orc.govt.nz)>  
Subject: RE: Pioneer Energy Consent Variation - RM18.004

Thanks Jason,

Sounds like a plan. I thought this could get a little complex. I am going to cast a wide net with written approvals required, given there is the potential for effects on invertebrates and aquatic life in the lake (and downstream?). Yes, give me a call when you have had a chance for a more thorough review and we can work out what further information the applicant may need to provide.

Cheers  
Natasha

-----Original Message-----

From: Jason Augspurger  
Sent: Wednesday, 10 January 2018 4:08 p.m.  
To: Natasha Pritchard; Pete Ravenscroft  
Subject: RE: Pioneer Energy Consent Variation - RM18.004

Hi again-

Had a quick look at this one too. It's going to be a bit tricky. The environmental assessment is fine for the questions it addresses, but since they aren't currently consented to draw the lake down as quickly as they are proposing the assessment stops short of being able to address the actual effects of the proposed changes. Instead it uses literature discussing pros and cons of lake drawdowns which is fine but the effects of drawdowns/drawdown rate are highly variable and system dependent. So, it's a bit of grab bag to make a call without any actual data on how this particular system may react.

I'll have a more thorough read and then give you a call and we can chat to see if there is a way to get a more relevant environmental assessment or if this is the best that can actually be done given the circumstance. If this is the best we can do, we may need to consider some monitoring conditions of some sort to assess what the more rapid drawdown rate has actually done.

Cheers,  
jason

-----Original Message-----

From: Natasha Pritchard

Sent: Wednesday, 10 January 2018 3:28 p.m.

To: Pete Ravenscroft <Pete.Ravenscroft@orc.govt.nz>; Jason Augspurger <Jason.Augspurger@orc.govt.nz>

Subject: Pioneer Energy Consent Variation - RM18.004

Hi Pete/Jason,

Pioneer Energy Limited are seeking to change two of their existing consents by increasing the rate at which Lake Onslow can be drawn down from 0.2 m to 0.5 m.

The application assesses the effects on invertebrates.

Can a technical review of this application please be made. Let me know if you require any further information from the applicant.

The charge code is RM18.004.

Thanks!

Natasha

Natasha Pritchard has sent you a link to "Pioneer Energy Consent Application to amend two consents associated with the Lake Onslow hydro scheme" (A1079773) from Objective.

Open in Navigator

Double click on the attachment

Open on an ORC iPad

[awbs://objective.orc.govt.nz/id:A1079773/document/versions/latest](https://objective.orc.govt.nz/id:A1079773/document/versions/latest)

Open in Your Browser

Latest: <https://objective.orc.govt.nz/id:A1079773/document/versions/latest>

Published: <https://objective.orc.govt.nz/id:A1079773/document/versions/published>



**Document Id:**

## **MEMORANDUM**

**To: Natasha Pritchard**

**From: Jason Augspurger**

**Date: 11/1/2017**

**Re: RSU Information assessment of RM18.004**

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### **Description of Proposed Activity**

The applicant is proposing to alter the lake allowed drawdown rate of lake Onslow from the currently consented 0.2 m/week to 0.5 m/week.

### **Ecological Values and Significance**

Lake Onslow represents regionally important brown trout fishery with over 3,000 angling hours a year (Unwin, 2015). The wider Teviot catchments contains the nationally critical Teviot flathead galaxias as well as common bully.

### **Assessment of Effects**

As currently proposed, the effects of the proposed change cannot be assessed. The applicant seeks to change the consent as the 0.2 m/week drawdown is limiting their power generation. If changed, more water is likely to be passed downstream and the status quo of lake level is likely to change.

"Hydroelectricity generation requires water to be released from the dam and both of these permits restrict the rate at which the water level in the lake can be drawn down (Condition 2 of Water Permit 2001.475 and Condition 3 of Water Permit 2001.476.V1):

The rate at which the lake shall be drawn down shall not exceed 0.2 m over any period of seven days

This application seeks to amend this condition to increase the authorised rate of drawn down to 0.5 m over seven days. No amendments to the rate of take, the minimum operating level of the lake or the residual flows are proposed.”

### *Downstream effects*

No information is currently provided about downstream effects or water management. As a result, the effects of this increased flow on hydrograph, mainstem aquatic communities, and potential inundation of surrounding areas/tributaries can be made. Further information about downstream water management, flows, ramping rates (and potential alterations to), and a downstream environment impact assessment must be provided.

### *Lake effects*

The information provided to assess potential effects on lake Onslow is also insufficient. We acknowledge that the applicant is currently unable to provide experimental type results to demonstrate the effects of lowering the lake level at a rate of .5 m/week as they are not consented to do so. However, at a minimum, models of lake surface area changes in relation to various lake levels and proposed management regimes under the .5 m/week allowance must be provided.

The applicant’s assessment shows lake bathymetry results in a large range of disproportionate losses (Figure 2). As a result of this variable loss, the relationship between lake level decrease and surface area decrease is unlikely to be linear. Variable bathymetry will result in more surface area loss when the overall gradient is shallow and less loss when the gradient is steep. However, the applicant’s water-level and area measurements suggest a linear relationship (see Table 5 in the applicant’s assessment or Figure 3 in this memo). A better estimate of surface area loss at various lake levels must be provided to assess effects on the lake. This could be done using either aerial imagery and historical records of lake level and then calculating the area or by using more intensive bathymetric mapping and modelling.

The applicant suggests that the increase in lake level alteration may provide higher productivity. This is entirely possible, but to fully assess this the applicant must also provide information about the recharge rate of the reservoir and potential durations of low vs. high lake levels. Factors such as vegetation of previously submerged areas and the inundation of these vegetated areas plays a role in nutrient and productivity changes. Without proposed temporal lake level regimes it’s difficult to assess the role that these factors may play.

### **Overall Opinion**

If more detailed water management plans and proposed regimes for both the lake and downstream catchment are not provided a suitable environmental impact assessment cannot be made. As there is potential for negative effects on both downstream and lake ecology, effects cannot currently be considered as less than minor. If this information can be provided, an assessment can be made and, with conditions, it may be possible to achieve the potential positive effects proposed by the applicant.

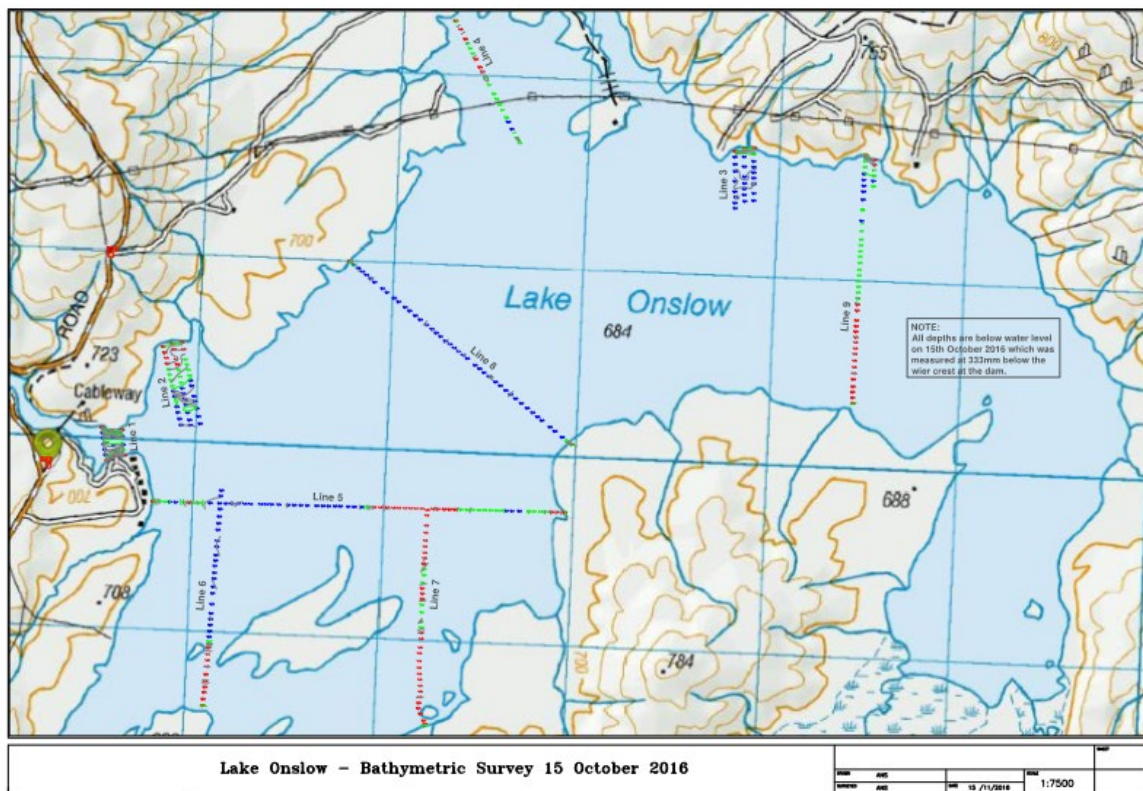


Figure 1, lines 1, 2, and 3 are invertebrate survey sites, others lines are water depths only, see appendix 1 for large scale map.

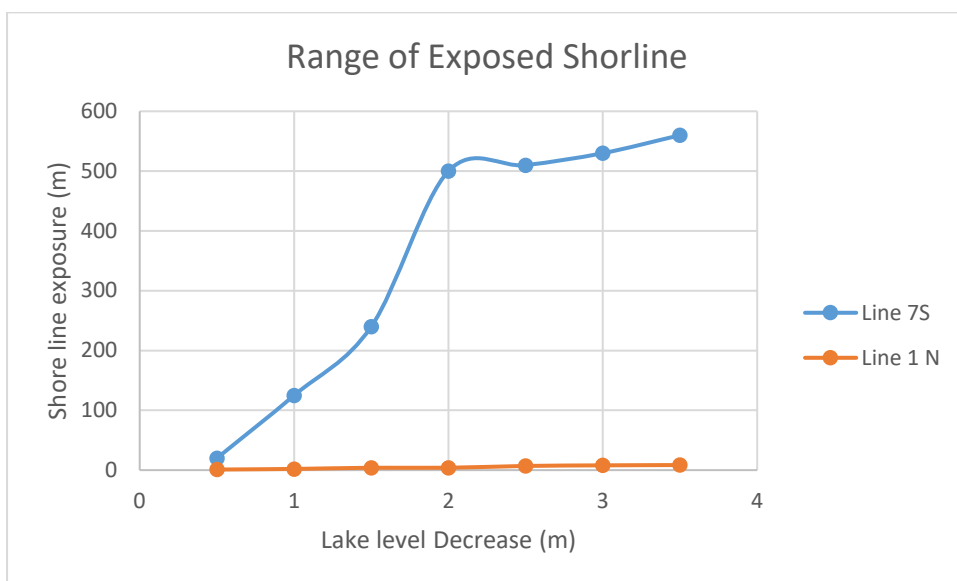


Figure 2: Range of losses supplied by the applicant.

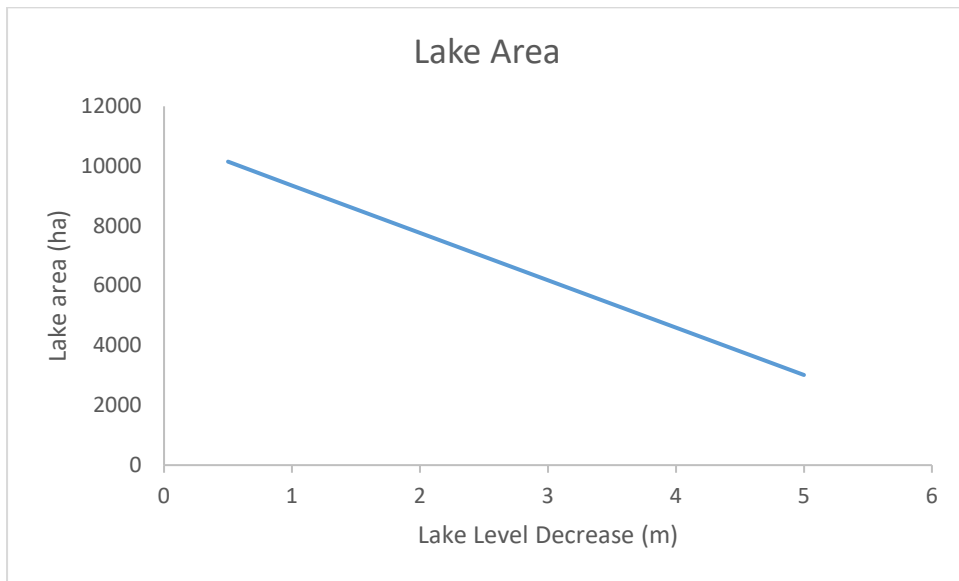


Figure 3: The applicants proposed decrease in lake area in relation to lake level decrease.

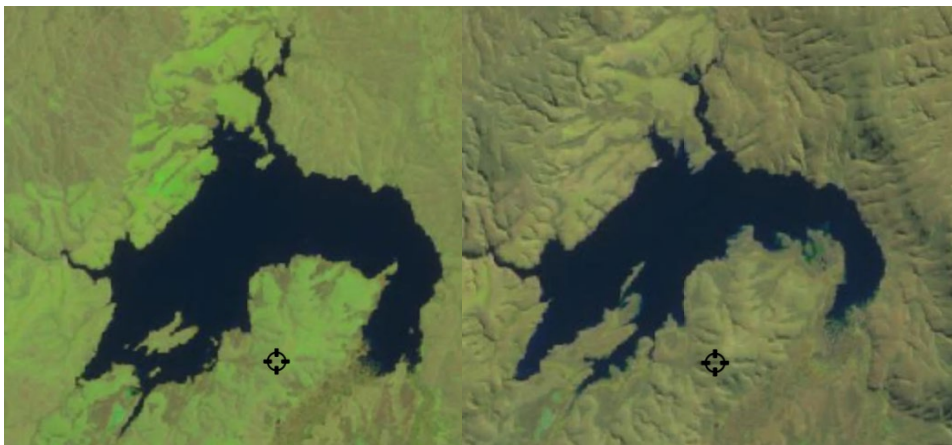


Figure 4: Sentinel-2 satellite imagery of Lake Onslow in January 2016 and May 2016 showing the area exposed by water level decreases.