

From: Tony Jack <tony.jack@pioneerenergy.co.nz>
Sent: Monday, 28 March 2022 1:36 p.m.
To: Natasha Pritchard; Will Nicolson
Subject: RE: Pioneer Energy Limited - RM18.004 - further information

Hi Natasha

The “what would the 400mm line look like compared to the ACTUAL record” question is impossible to model without making so many assumptions as to be meaningless. First you need to assume when to start and what the level would be, then how often would the full 400mm be exercised. Is it every week or is it every couple of weeks or is it a week per month. The reality is the rates may increase to 205mm/wk or 250mm/wk or if the lake gets REALLY low because it hasn't filled over the previous winter maybe up to or over 300mm/wk on occasion. But if it's that low we would be holding back because once it's gone we have to turn off everything. And if Onslow is empty there is a good chance the whole country has no storage and we need to be able to use what we have.

The reality is that we seldom get to the point that we are running at the 200mm/wk limit. It comes into play as the lake level drops and therefore so does surface area and the effective volume change as depth goes down. Operationally we are right now approaching the 200mm/wk with the lake approaching 2.5m below crest. To manage our commitments (we have a certain amount of power we need to produce) we are cutting back at night or generating at other sites to avoid using too much at Onslow. But our other main water storage site is Monowai and its also low.

None of this helps much in providing an answer to “but what will it look like”. Well It is impossible to tell. Just look at the historic record and you will see no two years are the same, some the lake stays in the top 1m, about half the time it drops to 2-2.5m. Why is that? Well it a function of Electricity market, hydrology at Onslow and every other PEL scheme, how much wind is blowing at PEL managed wind sites and a bunch of other unknowns.

I would like to think that we can trust in the professionalism of your amenity expert to not be drawn into debating the proposal on the trip. So yes its ok with me.

Our current policies do not preclude sharing a vehicle and I am happy to share a vehicle

Regards

Tony Jack
Development Engineer

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From: Natasha Pritchard <natasha.pritchard@orc.govt.nz>

Sent: Monday, 28 March 2022 12:02 PM

To: Tony Jack <tony.jack@pioneerenergy.co.nz>; Will Nicolson <will@landpro.co.nz>

Subject: RE: Pioneer Energy Limited - RM18.004 - further information

Hi Tony,

Thank you for this methodology. It is helpful to understand how the graphs were created.

I will send this with the further information to the submitters.

Further information

In terms of question 4 and 5 of the further information and the explanation responses by Will, I appreciate that the comparison for considering the effects of the proposed change is between the current consented regime and potential consented regime (orange and blue lines). However, there is also commentary that the lake management will continue similar to current and that a future regime is likely to be one where the lake level sits between the grey and orange line. There is an inference that any change to the current regime will result in less effects than what would occur if the current consents were exercised to the full extent. A visual representation of this would be helpful based on the 400 mm drawdown being applied since 2012 (even if this were two lines representing the range of likely scenarios). Are you able to confirm the limitations to preparing any accurate data on this or provide a graph that includes this additional data? I appreciate that this modelling may be much more complex than what has been run to generate the other scenarios and/or with reduced reliability due to more subjective assumptions that may need to be made.

Site visit

I will hopefully hear back from the submitters shortly on whether they plan on attending the site visit next week.

Are you happy with meeting outside the i-site in Roxburgh at 10.30 am next Monday and taking a couple of 4WDs to Lake Onslow? Kay and I can join your vehicle if your Company covid policy allows. For your information, Council's covid protocols are that if I am in a car with other people I need to wear a mask. I will also aim to maintain 1 m physical distance while on site.

Please let me know if you have any concerns with Kay sharing a ride with Fish and Game from Dunedin to Roxburgh. I will then advise her accordingly.

Any questions about the above, please let me know.

Kind regards,

Natasha



Natasha Pritchard
PRINCIPAL CONSENTS PLANNER

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From: Tony Jack <tony.jack@pioneerenergy.co.nz>
Sent: Monday, 28 March 2022 9:36 a.m.
To: Natasha Pritchard <natasha.pritchard@orc.govt.nz>; Will Nicolson <will@landpro.co.nz>
Subject: RE: Pioneer Energy Limited - RM18.004 - further information

Hi Natasha,

A short note on the methodology used to calculate the Lake Onslow response to historical inflows.

Tony Jack

Development Engineer

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From: Natasha Pritchard <natasha.pritchard@orc.govt.nz>
Sent: Thursday, 24 March 2022 11:14 AM
To: Will Nicolson <will@landpro.co.nz>

Cc: Tony Jack <tony.jack@pioneerenergy.co.nz>

Subject: RE: Pioneer Energy Limited - RM18.004 - further information

Hi Will/Tony,

One additional piece of information that will support the graph and its robustness would be a word document that explains how the graph was created and what restrictions were considered/assumptions made e.g. what were the data inputs used.

Is this something that can be simply prepared?

Thanks,
Natasha

From: Will Nicolson <will@landpro.co.nz>

Sent: Wednesday, 23 March 2022 5:39 p.m.

To: Natasha Pritchard <natasha.pritchard@orc.govt.nz>

Cc: Tony Jack <tony.jack@pioneerenergy.co.nz>

Subject: RE: Pioneer Energy Limited - RM18.004 - decision maker and further information

Hi Natasha,

In addition to my responses to your questions 6-8, below, the applicant has prepared a graph compiled via a range of data sources that provides, to the best of our ability, information relating to questions 1-5. The graph should be viewed in conjunction with my additional responses, below.

In the graph, Tony has roughly modelled the effect of draw down based on the theoretical limits of max consented take and drawdown rate since June 2007. It was assumed that the lake was full at the start of the period. Tony has also included the actual lake level from 2012, as that is all the data that is readily accessible at present. Note that there were too many conflicting assumptions involved in modelling just 1 January to 30 June specifically.

1. Based on the current consent conditions for 2001.475 and 2001.476 and known rainfall inputs to the lake over the period 2007-2020, what could have been the theoretical operating regime, most specifically between 1 January and 30 June each year? The operating regime being the level the lake is held at and the duration that the lake is at each lake level as detailed above.
This is shown in the attached graph by the orange line (200 mm/week).
2. Based on the current consent conditions for 2001.475 and 2001.476 and known rainfall inputs to the lake over the period 2007-2020, what was the actual operating regime for the period 2007-2020, most specifically between 1 January and 30 June each year?
This is shown in the attached graph by the grey line (actual level).
3. Based on the proposed change to the draw down rate from 0.2 to 0.4 m per 7-days but no change to any other consent conditions for 2001.475 and 2001.476 and considering the rainfall inputs for the period 2007-2020, what could the theoretical changes to the operating regime have been between 1 January and 30 June each year?

This is shown by comparing the orange line (200 mm/week) to the blue line (400 mm/week), both of which represent the theoretical operating regime under the two drawdown scenarios, whereby the applicant fully utilises their drawdown within consented limits.

4. Based on the proposed change to the draw down rate from 0.2 to 0.4 m per 7-days but no change to any other consent conditions for 2001.475 and 2001.476 and considering the rainfall inputs for the period 2007-2020 as well as taking into consideration likely demand for hydro electricity/irrigation water, what would you realistically expect the changes to the operating regime to have been between 1 January and 30 June each year?

The lake level is potentially going to be at a lower level at the end of summer than it would be currently, but it may not be at the level it could potentially be at if PEL was to consistently exercise the consent to its fullest entitlement even under the current restrictions (200 mm/week drawdown limit). If the full extent of the consented water take was to be exercised the lake would reach the consented minimum level under both 200mm/wk and 400mm/wk scenarios, but the 400mm/wk scenario may reach this minimum level (~5 m below dam crest) roughly 3 weeks faster than the 200 mm/wk scenario. However, it is not in PEL's interests to empty the lake to that extent in either scenario, as there is a good chance that the lake would not fill sufficiently to be able to provide useful storage in the following summer. As can be seen by the modelled actual lake levels from 2012, PEL has managed the lake to ensure that there is always plenty of water left in the lake – this approach will not change due to the proposal, as it would not be financially beneficial for PEL to do so.

5. Compare and contrast the difference in the duration and frequency of the lake being at 'lower lake levels' in the years 2007-2020 between the theoretical (1 and 3) and likely (2 and 4) scenarios.

The consented baseline is shown by the orange line in the attached graph. Any assessment of effects in relation to the proposed drawdown increase must be compared to that line alone, meaning the potential effect on lake levels due to the proposal in a worst-case scenario is the difference between the orange line and the blue. As can be seen, both scenarios have the potential to regularly lower the lake to its lowest consented extent regularly, with similar peaks and troughs, but with a higher residence time at the lowest lake level for the blue (400 mm/wk). As we know, however, we are unlikely to ever see trends similar to this in future, for 200 mm/wk OR 400 mm/wk drawdown, due to what we can see with the actual lake levels to date, and due to PEL's aforementioned interest in retaining as much water storage behind the dam as possible. As can also be seen by comparing the orange line to the grey line, the likely effects of PEL fully exercising its current consented maxima (including 200 mm/wk) would be significantly worse than the anticipated effects of PEL operating similarly to how it does now, but with a 400 mm/wk drawdown limit.

Regards,
Will

Will Nicolson

Senior Planner/Scientist



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From: Will Nicolson

Sent: Friday, 4 March 2022 11:56 AM

To: Natasha Pritchard <natasha.pritchard@orc.govt.nz>

Cc: Tony Jack <tony.jack@pioneerenergy.co.nz>

Subject: RE: Pioneer Energy Limited - RM18.004 - decision maker and further information

Good morning Natasha,

Reponses below in green.

Anything else, sing out.

Cheers,

Will

Will Nicolson

Senior Planner/Scientist



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From: Natasha Pritchard <natasha.pritchard@orc.govt.nz>
Sent: Tuesday, 1 March 2022 1:28 PM
To: Will Nicolson <will@landpro.co.nz>
Cc: Tony Jack <tony.jack@pioneerenergy.co.nz>
Subject: Pioneer Energy Limited - RM18.004 - decision maker and further information

Kia ora Will,

Apologies for the delay in getting back to you.

Decision maker

In terms of a decision maker for the application, we have not yet engaged a decision maker. If it were a Commissioner, it may be Rob van Voorthuysen as he has decided the majority of the applications that have gone to hearings in recent years. This would be dependent on his availability, conflicts, whether a site visit is required and the nature of the hearing (whether virtual or in-person). *Can you confirm at this point whether the applicant is seeking an independent commissioner to make a decision on the application, in accordance with section 100A of the RMA. We are not requesting an independent commissioner at this stage.*

Thank you for advising the most suitable dates in May for you and the applicant. We will look to set the hearing on a date that works for all parties. A later hearing date may be required, depending on the outcome of the below processes. *I think early to mid June would probably be safer for all parties involved. Our lawyer(s) will be involved in the RPS hearings, from end of May through to October, so if it is within your power to do so, it may be prudent to arrange the hearing for a week that is not already scheduled for an RPS hearing. I'll leave it with you and see what you can rustle up.*

Further information

As noted previously, the submission reviews did not raise any questions regarding new information required but do highlight the information deficits previously identified.

We have reviewed the submissions and given consideration to the factors that the decision maker will need to have regard to when making a decision on this application (s104). The key issues associated with the application are as follows:

- Uncertainty on whether the proposal will enable a change to the operating regime that is currently constrained by the consent condition and the extent of that change on the frequency and duration of lower lake levels.
- Effects on shore-based and boat-based angling including access and safety.
- Effects on trout production due to changes in habitat (macrophyte beds) and cicada hatch interaction with Lake Onslow (late Jan/Feb).

A decision maker will need to give consideration to how the change impacts on the maintenance and enhancement of the habitat of trout and the amenity and landscape values of Lake Onslow, including the health and safety of people and avoiding significant adverse effects on human health

The applicant information to date suggests that there will be no significant change to the operating regime and that any change in frequency and duration of lower lake levels will be limited and within the bounds of the current conditions. The submissions highlight the uncertainty of this and consequential effects that result from this outcome being different.

What we seek at this point

We would like to give the applicant a further opportunity to provide answers to the following.

- A hydro-electricity engineer (expert) to outline any changes in the operating regime that could result from a change to the rate of draw down where there are no changes to any other operating parameters, as consented.
 - The focus of the operating regime being on changes to the lake being at a lower levels (2.5, 3, 4 and 5 m below the crest) for longer periods of time and more frequently and the degree of change.
 - Lower lake levels are considered to be those below 2.0 m below the crest. The applicant indicates that the lake is typically managed between 1-3 m below the crest and 75-90% full. The Fish and Game submission includes data that since 2011 the lake has been held above 2 m below the crest for 94.5% of the time and above 3 m for 100% of the time.
1. Based on the current consent conditions for 2001.475 and 2001.476 and known rainfall inputs to the lake over the period 2007-2020, what could have been the theoretical operating regime, most specifically between 1 January and 30 June each year? The operating regime being the level the lake is held at and the duration that the lake is at each lake level as detailed above.
 2. Based on the current consent conditions for 2001.475 and 2001.476 and known rainfall inputs to the lake over the period 2007-2020, what was the actual operating regime for the period 2007-2020, most specifically between 1 January and 30 June each year?
 3. Based on the proposed change to the draw down rate from 0.2 to 0.4 m per 7-days but no change to any other consent conditions for 2001.475 and 2001.476 and considering the rainfall inputs for the period 2007-2020, what could the theoretical changes to the operating regime have been between 1 January and 30 June each year?
 4. Based on the proposed change to the draw down rate from 0.2 to 0.4 m per 7-days but no change to any other consent conditions for 2001.475 and 2001.476 and considering the rainfall inputs for the period 2007-2020 as well as taking into consideration likely demand for hydro

electricity/irrigation water, what would you realistically expect the changes to the operating regime to have been between 1 January and 30 June each year?

5. Compare and contrast the difference in the duration and frequency of the lake being at 'lower lake levels' in the years 2007-2020 between the theoretical (1 and 3) and likely (2 and 4) scenarios. We are still working through the viability of answering these additional questions (1-5). The applicant has indicated that it is very difficult to access and/or model historic inputs into Onslow, and it will likely be quite an onerous exercise to arrive at answers that may provide only limited value. I will get back to you on this.
6. Identify what management measures/restrictions/controls could be established to minimise/reduce or prevent any changes to the operating regime but that still provide flexibility for an increased draw down rate/discharge when required. The applicant is unwilling to provide further management measures/restrictions/controls to prevent changes to the operating regime, as this would largely defeat the purpose of the application in the first place, which is very specific in that it is only seeking to amend one aspect of that regime. We have sought to minimise any environmental risk associated with this change by proposing adaptive conditions in association with a robust environmental monitoring regime, which is aimed at identifying any adverse environmental effects stemming from the change and reverting back to the status quo where merited.
7. Evaluate the practicality to the operation of the Scheme of the suggested conditions proposed by Fish and Game in their submission; namely:
 - a. an additional drawdown restriction over a longer period, say 800mm or 1000mm/month, to provide short term variation without dramatically changing the operating regime; The applicant proposed 1200 mm/month to F&G in response to this suggestion in the submission, however it was not favourably received. Anything less than this would not be feasible from an operational or economic standpoint.
 - b. an additional restriction on the frequency or duration of low lake level events; and/or The applicant has indicated this is not feasible.
 - c. an additional restriction on the duration that the varied drawdown rate can be utilised before reverting back to the 200mm/week limit. The applicant has indicated this is not feasible.
8. Provide, If possible, a visual that shows the changes to the Lake Onslow exposed bed over 7 days between a 0.2 and 0.4 m per seven day draw down rate at different starting lake level. This is not a question that can be addressed with a simple visual, nor is there sufficient historic aerial imagery that could help. There has, however, been a fair amount of work undertaken already, and appended to the original application AEE (See Attachment A), that should help to clarify this. For example, Figure 1 and Table 3 from that Attachment A study would provide a good starting point:



Lake Onslow - Bathymetric Survey 15 October 2016

DRAWN	ANG	DATE	
MARKED	ANG	DATE	15

Table 3, cumulative distance (m) of lakebed exposed for each 0.5m drop in lake level.
L1S =Line 1 south end of transect, L8NW=line 8 northwest end of transect.

Site	0.5 drop	1m	1.5m	2m	2.5m	3m	3.5m
L1N	1	2	4	4	7	8	8.5
L1S	4	6	10	17	20	22	25
L2N	.5	5	7	10	20	40	55
L3N	2	3	4	8	10	12	15
L4N	20	50	65	70	90	140	215
L5E	20	40	50	50	75	80	130
L5W	10	15	20	20	27	30	50
L6S	25	50	325	330	340	345	350
L7S	20	125	240	500	510	530	560
L8SE	10	15	25	30	40	50	50
L8NW	1	1.5	5	10	15	20	25
L9N	1	2	5	10	15	25	30
L9S	20	115	250	350	500	540	550

At which point one could make some accurate inferences regarding effects on shoreline depending on the location. i.e. in certain locations, one could have less than 1 additional metre of lakebed exposed from 0.4 m/week drawdown, whereas in others and at lower lake levels this could be closer to 200 m additional lakebed exposed. If it was deemed particularly useful, we could possibly get Ross to revise the above table for 0.4 m increments.

Note, it would be helpful if questions 1-4 can be displayed in a visual format e.g. graphs with ideally a combined graph that shows each of the scenarios.

Depending on the information provided, we will consider whether any further information is required to make a recommendation on the application.

If you decide not to provide any further information on the above, we will consider whether we seek to commission a report under s92(2) of the RMA or engage an expert to provide evidence to support the s42A report. For both processes we will advise you of costs once we have someone engaged to complete this work.

Costs

Prior to the hearing you will be invoiced for all costs to date. There may be some minor administrative costs post hearing that are further charged but the pre-hearing invoice will include the bulk of the processing costs to date. Current costs for your application are: \$36,411

In addition, you will be invoiced for 90% of the estimated costs for the hearing. This includes the work undertaken before, during and after the hearing by consents staff, experts and decision makers. I will commence preparing this estimate of costs shortly and will send you a draft copy before an invoice is issued. At this point, I will prepare an estimate that includes options for an in-person and virtual hearing. *If you have a preference for a virtual hearing, please let me know promptly. We do not have a preference for a virtual hearing.*

Meeting

The above questions are what I consider are necessary first step to clarify one of the key issues raised in the submissions and to ultimately enable a decision to be made. I consider there is value in ensuring these questions are addressing the necessary matters and that they can be practicality answered by collaborating with both yourself and the submitters before finalising the questions that are responded to. In this regard, a meeting between all parties could facilitate this. I appreciate that consultation between the applicant and submitters has not been able to be progressed since the application was notified. Conversely, if you were willing, I could gather feedback from yourselves and the submitters before finalising the questions to be answered. *Please let me know if you have a preference.* It is in all our best interest that time is spent on providing information that supports a decision to be made rather than placing the decision maker in a position where they are unable to proceed without further information. *We will not be committing to any further mediation with submitters. I'm sure you can appreciate that the applicant has been consulting with affected parties for several years already with regards to this application, and we consider that the point has been reached where equitable resolution can only be achieved via a formal hearing.*

Timeframe extension

At this point, if the applicant agrees, I will look to extend the processing timeframes until the end of this month (March). We can revise where we have got to at that point and whether any further extensions are required to provide for the above. *Would it not make sense to extend the timeframe to, say, end of June, to incorporate the requested hearing?*

I appreciate there is a lot in this email to digest, please contact me if you have any questions.

Kind regards,
Natasha



Natasha Pritchard
PRINCIPAL CONSENTS PLANNER

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From: Will Nicolson <will@landpro.co.nz>
Sent: Thursday, 24 February 2022 4:10 p.m.
To: Natasha Pritchard <natasha.pritchard@orc.govt.nz>

Cc: Tony Jack <tony.jack@pioneerenergy.co.nz>

Subject: RE: Pioneer Energy Limited - RM18.004 - Timeframe extension ending on Monday

Thanks Natasha,

Who did you have in mind as commissioner for these rough dates, out of interest?

Happy to extend the timeframe if needed to accommodate the hearing. Thinking either weeks of May 30th or June 6th at this stage, as our lawyer(s) will be tied up in the preceding couple of weeks. Will get back to you on requested weeks, but can confirm that the weeks of May 16th and 23rd would probably be off the cards for us.

Cheers,

Will

From: Natasha Pritchard <natasha.pritchard@orc.govt.nz>

Sent: Wednesday, 23 February 2022 3:34 PM

To: Will Nicolson <will@landpro.co.nz>

Cc: Tony Jack <tony.jack@pioneerenergy.co.nz>

Subject: Pioneer Energy Limited - RM18.004 - Timeframe extension ending on Monday

Kia ora Will,

I am touching base regarding the Pioneer application (RM18.004). I am conscious that the timeframe extension for this ends next Monday.

Can you let me know if any decisions have been made by Pioneer on whether to proceed to a pre-hearing meeting/mediation meeting in the first instance or direct to hearing? Please also let me know any dates that do not suit the applicant in upcoming months for such meetings/a hearing. As noted below, any meetings/hearings while in the Red traffic light setting will need to be virtual (I anticipate this could be for the next couple of months but as we are all aware this is a continually evolving situation so could be shorter/longer).

If the applicant needs more time to consider their preferred next steps, please let me know (including anticipated time) so that we can consider whether to extend the timeframe extension and for what period.

In terms of further information, I identified below that I would let you know about this by the end of February. I have received advice from the technical experts on the submissions. Babbage Consulting Limited will be providing all future advice on ecological effects associated with the proposal as Mark James has confirmed he is retiring shortly and may not be available for hearings etc. There is no specific additional information that arises from these reviews. However, the reviews do highlight where additional information has been requested previously and where information gaps still lie. Before

confirming whether we seek this information via the commissioning of a report or otherwise, I think it would be useful to know if any meetings with submitters are planned. Issues may be resolved/clarified through such a process that may mean that further information is not considered necessary to make a decision or would enable any request made to be very specific.

I look forward to hearing from you.

Thanks,
Natasha



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