W4 Out of Session HRC Record - Meeting dated 5 November 2020

	Submission No. - Property and Issue No. Landholder Requests	**NRAR Recommendation. Follow up clarification if requested by committee in red**	**HRC member:** [redacted]	**HRC member:** [redacted]	**HRC member:** [redacted]	**HRC member:** [redacted]
1.	**G079** [redacted] 1. Contesting determination additional storage area (surge are)	1. The submission is regarding the 'surge dam'. The submission does not provide any further information, but confirms that there was a pending Part 8, and a proposal for a large surge dam. It would only be approved as an MHR or unregulated work, for the take of water in a 1st order stream. It is considered that the surge storage could only be allowed as a dam under the MHR policy.	1.Endorse: N	1. Endorse: Y to NRAR N to appeal Remarks I support NRAR position that this surge area is not eligible for FPH	1. Endorse: N to eligible works	1. Endorse: N
2.	**N018** [redacted] 1. Landholder requesting increase in storage for OFS1	Recommend: 1. OFS1 - Increase in volume from 210 ML to 214 ML, an increase of 4 ML.	1. Endorse: Y	1. Endorse: Y	1. Endorse: Y	1. Endorse: Y
	2. Request to removal pipes FPH3, FPH4	Recommend: 2. Support removal of pipes FPH3,	2. Endorse: Y	2. Endorse: Y	2. Endorse: Y	2. Endorse: Y

	and FPH6 from eligible works.	FPH4 and FPH6 from eligible works.				
	3. FPH15 changed from centrifugal to axial, and flow increased from 25ML/day to 29ML/day.	Recommend: 3. FPH15 – support pump as axial with capacity of 29ML/day.	3. Endorse: Y	3. Endorse: Y	3. Endorse: Y	3. Endorse: Y
	4. Following the 1:1 session the landholder is requesting to remove channels FPH19, FPH20 and FPH22 from eligible works.	Recommend: 4. Support removal of channels: FPH19, FPH20 and FPR22 from eligible works.	4. Endorse: Y	4. Endorse: Y	4. Endorse: Y	4. Endorse: Y
	5. Following the 1:1 session the landholder is requesting the addition of channel between FPH7 and FPH 15 as eligible works.	Recommend: The inclusion of the channel between FPH7 and FPH 15 as eligible works.	5. Endorse: Y	5. Endorse: Y	5. Endorse: Y	5. Endorse: Y
3.	**N119** [redacted] 1.Requesting OFS1 increase from 204ML to 235ML, an increase of 31ML.	Recommend: 1. OFS1 - increase from 204ML to 235ML, an increase of 31ML.	1. Endorse: Y	1. Endorse: Y	1. Endorse: Y	1. Endorse: Y
				No storage curve has been supplied in documentation . NRAR analysis is 228 ML. **NRAR advice:**	If requested volume is at 1.23m freeboard, then 1m freeboard is higher volume than they are requesting.	

				Desktop analysis by NRAR supports the PCT storage curve as it is very close in volume. Please note that as this is a hillside storage the SBM methodology will be less reliable.	**NRAR advice:** Requested volume assumes 1.23m freeboard due to storage having a TWL spillway.	
	2. Requesting change of OFS2 from permanent to temporary storage	Recommend: 2. Support change of OFS2 from permanent to temporary storage.	2. Endorse: Y	2. Endorse: Y	2. Endorse: Y	2. Endorse: Y
	3. Requesting change at FPH8 from two 16" axial pumps to one 16" axial pump and one 12" centrifugal pump.	Recommend: 3. FPH8 from two 16" axial pumps to one 16" axial pump and one 12" centrifugal pump.	3. Endorse: Y	3. Endorse: Y	3. Endorse: Y	3. Endorse: Y
	4. Requesting removal of channel FPH19 from eligible works.	4. Recommend: Support removal of channel FPH19 from eligible works.	4. Endorse: Y	4. Endorse: Y	4. Endorse: Y	2. Endorse: Y
4.	**N 241** [redacted] 1. Requesting increase in storage at OFS1, OFS2 and OFS3	1. Recommend: OFS1 - increase from 160 ML to 219 ML, an increase of 59 ML. OFS2 - increase from 210 ML to 240 ML, an increase of 30 ML.	1. Endorse: Y	1. Endorse: Y	1. Endorse: Y	1.Endorse: Y

		OFS3 - increase from 110 ML to 185 ML, an increase of 75 ML (moderate evidence).				
	2. Landholder requesting pump FPH5 be changed from an 18" axial pump with a capacity of 57 ML/day to a 16" (400mm) centrifugal pump with a capacity of 64 ML/day.	2.Recommend: ~~FPH5 - change of pump to a 400mm centrifugal pump with a capacity of 64ML/day. (moderate evidence)~~ FPH5 - NRAR supports pump noted as a 16" (406mm) centrifugal with capacity at 45 ML/day.	2. Endorse: Y Please endorse change: Y	2. Endorse: N Please endorse change: Y or N Y	2. Endorse: Y Please endorse change: Y or N Y to 16" centrifugal with capacity of 45ML/day	2. Endorse: Y Please endorse change: Y or N
				No photographic evidence, attached letter states 45ML/d operating speed - was this landholder provided with the list of required evidence? **NRAR advice:** Please refer to further review and analysis provided by NRAR at the end of this document, and revised recommendation.	Need more clarification from NRAR as pump assessment done Feb 2016 has flow discharge rates @ 45ML/day, then@ best operating point 64ML/day. Manufactures pump curve is around 45ML/day **NRAR advice:** Please refer to further review and analysis provided by NRAR at the end of this document, and revised recommendation.	
5.	**M015** [redacted]	1. Recommend:	1. Endorse:	1. Endorse:	1. Endorse:	1. Endorse:

	1. Contesting storage volume OFS2, OFS3 & OFS4	OFS2 - increase by 920 ML to 1092 ML, an increase of 172 ML. OFS3 - increase by 20 ML to 200 ML, an increase of 180 ML. OFS4 - increase by 290 ML to 1001 ML, an increase of 711 ML. An overall increase of ~~963~~ 1063ML for the property.	Y	Y	Y	Y

N241 [redacted] – response to HFPRC queries of Issue 2 - note blue text for further analysis

Issue Number	2
Description	Landholder requesting pump OFS5 be changes from an 18" Axial pump with a capacity of 57 ML/day to a 16" (400mm) centrifugal pump with a capacity of 64 ML/day.
Evidence Supplied	Pump capacity report by the National Centre for Engineering in Agriculture. Property design plans from 1997 showing a pump in current location.
NRAR Data	NRAR nominal pump flow rates. Inspection report has notes in comments that pump is a 18" china at 30-40 ML/day
Landholder Requesting	Landholder requesting pump OFS5 be changes from an 18" Axial pump with a capacity of 57 ML/day to a 16" (400mm) centrifugal pump with a capacity of 64 ML/day.
Photograph of work with verification of location and date	N/A - as per NRAR records.
Marked up map/image of works location	N/A - as per NRAR records.
HFP Analysis	2016 Pump capacity report states a maximum flow rate of 64 ML/day. The 1997 design plans show a pump at the same location, though no evidence that it is the same pump. Time lapse imagery indicates that the development commenced circa 2000 and the engine hours indicating at about 16 years pumping. Report done in 2016. Supports that the pump has been in existence since before 2008

Delineation as being an axial an error during data entry by NRAR.

Based on the report the practical and tested maximum capacity is 45 ML/day while the theoretical maximum is 64 ML/day

SUMMARY

MODERATE evidence for change of pump OFS5 to a 400mm centrifugal pump with a capacity of 64ML/day.

STRONG evidence provided for pump to be changed to centrifugal and capacity to be noted as 45 ML/day

NRAR supports pump noted as a 16" (406mm) centrifugal with capacity at 45 ML/day

Recommendation

(Review committee use)

[redacted]_26/11/20 Review of Lift Pump Assessment by NCEA - recognised authority on determining pump capacity and efficiency

Pump is a China centrifugal or mixed flow pump (400 H or 16HB-40) with 406mm impellor

Engine is a Cummins 6BT5.9 - P Drive motor of some 113 Kw

It is noted in the report that a number of situations were compared with the pump operating conditions in relation to key parameters.

Engine Speed

2. Pump Speed
3. Valve open position
4. Total Dynamic head

On Page 4, Flow Discharge Results section, the table indicates a maximum flow rates with engine at 1753 rpm, pump speed at 855 rpm, an open valve resulting in a TDH of 1.8m a rate of 1.89 ML/Hr or 46 ML/day was achieved

On Page 9, Best Operating Point section, with 1743 engine rpm, pump speed of 850 rpm, an Open Valve and with a TDH of 1.8m a flow rate of 2.65 ML/Hr or 65 ML/day can be achieved.

This is an increase of 0.76 ML/Hr or 18.24 ML/day a 40% increase

Based on the report this would seem a theoretical maximum pump capacity. As Noted in the report this takes the pump rates well off the chart and nearly off the page on the supplied pump curve.

From the supplied information the **practical maximum pump capacity**, which is effectively confirmed by the applicant in the submission is 45 ML/day.