

IRISHMAN CREEK STATION LTD

226. The applicant is seeking:

(a) *CRC011845* – to take and use water from Irishman Creek at a rate of 140 litres per second with an annual volume not exceeding 720,000 cubic metres for border-dyke irrigation of 48 hectares of crop and pasture, at Irishman Creek Station, State Highway 8, Lake Tekapo.

(b) *CRC084263* – Divert and use water from Irishman Creek at a rate of 500 litres per second for micro-hydroelectricity power generation with a capacity of 20kw.

(c) *CRC011846* – Discharge water into Irishman Creek at a rate of 500 litres per second from the diversion and use of water for micro-hydroelectricity generation.

ORIGINAL SECTION 42A REPORT

227. The original section 42A reports for this applicant were Reports 22A and 22B.

228. Matters that were identified as outstanding in my original section 42A reports included the following:

(a) *CRC011845* (Report 22A, paragraph 102)

(i) *Water quality* - No impact assessment or measures to address the water quality impacts that could arise from irrigation at this site. Given the conclusion regarding the potential cumulative adverse effects on water quality, it is premature to make any recommendation to grant or refuse this application as it relates to cumulative water quality;

(ii) *Efficient and reasonable use* – There is a lack of conclusive information to support the annual volume requested in accordance with the direction provided by Policies 15-20 of the WCWARP;

(iii) *Ecosystems* – The applicant has proposed a fish screen but has not included any details of what this will entail;

(iv) *Cultural values* – The applicant has not provided any assessment on cultural values and there are outstanding submissions from runanga in opposition to this proposal.

(b) *CRC084263* & *CRC011846* (Report 22B, paragraph 58) – I did not consider there to be any outstanding matters in my original report.

ADDITIONAL MATTERS OR AMENDMENTS

229. The following additional matters have been identified throughout the hearing, or changes have been proposed by the applicant.

230. Mr Wills (owner of Irishman Creek Station) noted (in section C(2)), that a draft FEMP was included with his evidence and an assessment of cumulative water quality effects was undertaken by MWRL.

231. In section C(1)(c), Mr Wills notes that a daily application depth of 7mm would be appropriate for the soils and climate, which equates to 672,670m³ per year (including 10% race losses). I note that this gives a total depth of 1400mm per year. I note that under Policy 28, the investment in the system must be considered. The applicant has proposed some improvements, however, it would still appear to be a poor system in terms of irrigation efficiency. Using Mr Potts method of 1300mm application depth (paragraph 27.3 of his brief of evidence on water allocation matters), would give a total volume of 624,000m³ per year. This may be more appropriate for this border-dyke system, however, I also recommend a condition be included that a report be prepared looking into the system efficiencies. This should be completed within 12 months of grant of consent to ensure that the system is being operated efficiently, with the intent of achieving a higher application efficiency than at present.

232. In his supplementary evidence, Mr Wills makes the following changes to recommended conditions:

(a) A maximum mesh size of 5mm for the fish screen and removal of the requirements set out in the NIWA Guidelines (paragraph 3.12).

(b) Removal of the backflow preventer (paragraph 3.10). I agree that this is inappropriate for an open race system.

(c) No requirement for flow sharing in condition (5) (paragraph 3.11). I agree with this amendment as set out in my addendum report for the original s42A report 2A.

(d) Removal of the requirement for telemetry to be installed on the intake meter and instream flow recorder (paragraph 3.13 and 3.15). I disagree with this deletion. The requirement for telemetry is discussed further by Ms Vesey in her addendum report.

(e) Deletion of the requirement for an electromagnetic or ultrasonic meter (paragraph 3.14). I agree with this amendment as it is not practicable for an open race system. I recommend amended metering conditions for open race systems which are detailed further in Ms Vesey's addendum report.

CRC084263

233. Mr Wills at section B(3) of his primary evidence (and paragraph 3.3 of his supplementary evidence), notes that a suitable fish screen is already placed on the penstock and turbine and that one on the race is not necessary as it provides good aquatic habitat. I am satisfied that as this race has been operating successfully since 1925, and the creek is not a significant habitat for native fish, that this is appropriate. However, I recommend that a report be prepared which certifies that the current fish screen will be effective at preventing fish from entering the penstock and turbine in accordance with the NIWA Guidelines and that there is a suitable bypass in place for fish to avoid the intake. Should this not be the case then a fish screen should be included at the head of the diversion race, constructed in accordance with the NIWA Guidelines.

Addendum section 42A report – Claire Penman File No: CO6C/26005 Page 42

234. At section B(4) (and paragraph 3.2 of his supplementary evidence), Mr Wills also proposes that there should be no minimum flow requirement. I do not agree with his assessment of Rule 2(3) of the WCWARP. I agree that the diversion, take and use of water for micro hydro-electricity generation is exempt from the allocation limits, but I do not consider that it should be exempt from the minimum flow requirements. Therefore, the proposed minimum flow should be retained.

235. At this same section (and paragraphs 3.4 and 3.5 of his supplementary evidence), Mr Wills considers that the water metering requirement be waived as the governor system is incapable of using more than 500l/s. I do not agree with the applicant, and consider that a flow measuring device should be maintained to ensure no more than 500l/s is diverted out of Irishman Creek. Comments on these recommended conditions are contained in the addendum s42A report of Ms Vesey.

236. In his supplementary evidence (at paragraph 3.6), Mr Wills proposes no flow recording device in Irishman Creek as no minimum flow is proposed. This relates to my comments in paragraph 234 above, and I consider should be retained.

237. Finally, Mr Wills suggests a change to the review condition (at paragraph 3.7), to be consistent with the discharge permit. I recommend that the condition as recommended in the s42A report be retained.

238. Mr Mark Webb, of Fish and Game, notes that the diversion for micro-hydro use at Irishman Creek Station may have the ability to dewater the entire reach of river between the diversion and discharge if they only have to comply with a minimum flow condition at SH8. Mr Webb also notes that there is a resident brown and rainbow trout population in the upper reaches of Irishman Creek, about 3km upstream of the proposed diversion. I have considered this recommendation, and note that this system has been operating with no minimum flow since the 1920s and as all flows go underground downstream of the intake, there are very few, if any, migratory fish present in the vicinity of the diversion. I consider that the environment would have adapted to the current system. In addition, the power system is predominantly operated in winter months when flows in the creek will be well above the minimum flow. Therefore, I consider that the effects of this system will be acceptable with only a minimum flow at SH8 and not downstream of the diversion.

CRC011846

239. Condition (4) (paragraph 3.8 of supplementary evidence) for the discharge has been deleted as Mr Wills does not consider it necessary to meter the rate of discharge. I agree with the deletion of this condition.

COMMENT ON OUTSTANDING MATTERS

240. I have reviewed the additional information identified above and can provide the following comment.

241. **Water quality** – The draft FEMP and water quality assessment provided by Mr Wills, and MWRL, has been audited by Environment Canterbury's technical experts (refer to Dr Mike Freeman's s42A addendum report) who consider that there are some uncertainties about the potential adverse effects and suggest that either more information is needed or strict monitoring and response conditions would be needed to address cumulative water quality effects. I note that to date, no appropriate conditions addressing water quality on a local or cumulative scale have been proposed by the applicant. Additionally I note the table attached to Mr McNae's s42A

report identifies there to be areas of concern with the parameters used in the running of OVERSEER for this applicant. Therefore, at this time local and cumulative water quality effects remain outstanding for CRC011845.

242. **Efficient & reasonable use** – I am not currently satisfied that the volume proposed is a suitable volume for irrigation of this property. I recommend amended conditions in paragraph 231 above.

243. **Ecosystems** – I am now satisfied that the proposed fish screen requirements, if conditions are amended appropriately, however, I would not be satisfied with the applicant's amended proposal to have no minimum flow or flow recording for the micro hydro-electricity application and would consider this may result adverse effects on aquatic ecosystems in the reach of the diversion.

244. **Cultural (Tangata whenua) values** – Given I have yet to hear the submission from Ngai Tahu, my comments in the original s42A report remain applicable.

SUMMARY

245. In summary, the applicant has provided some more information on the impacts on ecosystems in relation fish screens and it appears that these impacts may be adequately mitigated by the implementation of appropriate conditions. The outstanding matters which I identified in my original section 42A report that have not been resolved are identified below. I have listed, in order of importance, the outstanding issues associated with these applications:

- (a) Water quality
- (b) Ecosystems
- (c) Annual Volume
- (d) Cultural values.