

Re: Application by Invercargill City Council to have the Bluff Wastewater Treatment Plant project included in Schedule 2A of the Fast Track Act

Anticipated and Known Adverse Effects of the Project on the Environment

Invercargill City Council is seeking consent to continue to discharge treated wastewater from the Bluff WwTP within the same flows and limits as that authorised by the existing consent that was granted in 2000 for a 25 year term.

Because the project is a consent renewal of a discharge that has been occurring since 2021, there is a good level of understanding of the adverse effects. The historical performance data for the plant and the monitoring of environmental effects required by the conditions of the consent provide a better baseline than having to rely on modelled predictions.

Bluff WwTP parameters

The average daily volume of combined waster discharged from the Bluff WwTP is around 1300 m³/day. This includes a domestic contribution of around 500m³/day (for a population of around 1700 people) and 800 m³/day from trade waste. Most of the trade waste is from the fishing and aquaculture processing industries. The existing consent authorises a maximum discharge of 3850 m³/day, which reflects the seasonal variability in flows from trade waste streams.

The Bluff WwTP was constructed in 2000 to process Bluff domestic and industrial wastewater at a cost of \$1,025,000. The plant includes screening, an aerated lagoon, clarifier, and UV disinfection system. WwTP sludge is removed to the Invercargill City Council Clifton WwTP for processing.

Known and Potential Adverse Effects

The treatment plant provides an essential service for the small Bluff community and for regionally significant industries. Consequently, the treated wastewater at Bluff is a combination of treated human wastewater, which is culturally repugnant to be discharged to natural water, and seawater from the fish processing industries which has measurably elevated salt levels. The existing WwTP was designed for this mixed wastewater and has operated well since its construction in 2000. The wastewater discharge has been fully compliant with the conditions of consent.

While the WwTP is considered to produce a good and acceptable level of treatment the wastewater discharge environment options are still under consideration by the working group. From the short list of discharge options, the working group will determine the best practicable option (BPO) is to either:

1. Discharge to the coastal marine area at the existing outfall location; or
2. Discharge to land at one of several locations within 10km of the WwTP

The following sections consider the potential adverse effects of each option

1. Discharge to the Coastal Marine Area

The existing Bluff WwTP discharge is via an outfall pipe to Foveaux Strait (CMA). The discharge environment was originally selected based on the challenges of discharging wastewater elevated in salt (from the significant fishing and aquaculture processing waste streams) to freshwater or land.

Continuing the discharge of Bluff's treated wastewater to the CMA (depending upon how the discharge is achieved) may adversely affect:

- Cultural values
- The coastal environment and associated ecosystems in the vicinity of the discharge
- Human health
- Recreational values

Cultural Values :

Te Rununga o Ngai Tahu lodged an application for customary marine title under the Takutai Moana Act. The effects of a discharge to the CMA on the interest of TRONT in the Bluff area would necessarily be considered through engagement with TRONT representatives.

The direct discharge of human waste to natural water is considered abhorrent by mana whenua. Mana whenua support natural mixing of wastewater through land, a subsurface wetland, or a similar environment that provides a natural buffer or transition zone and makes use of the natural cleansing and purifying processes of Papatūānuku (the earth).

It is anticipated that any future discharge to the CMA would include a culturally acceptable method for cleansing and purifying treated wastewater prior to the discharge.

The discharge of treated wastewater to the CMA has a potential adverse effect on kai moana in the immediate discharge environment and therefore prevents cultural harvest practices around the outfall (see below).

The treated wastewater mixing zone represents a very small area and potential loss of kai moana gathering area compared with the extent of the Bluff coastline. Signage is in place to warn of the potential human health risk of consuming shellfish gathered in the vicinity of the discharge. Invercargill City Council continues to monitor the discharge and the discharge environment.

Coastal Environment Effects:

The Bluff WwTP processes domestic and trade wastewater to a good standard and within the water quality and flow limits set out in the existing consent. Invercargill City Council is seeking consent to continue to discharge treated wastewater within the same conditions as currently authorised i.e. to not increase the envelope of effects on the environment.

Monitoring of the existing discharge and the environment has demonstrated that the discharge is not having an adverse effect on the coastal environment. For this reason, the ongoing discharge of treated wastewater within the same limits as those authorised will similarly not have an adverse effect on the coastal environment and associated ecosystems beyond the reasonable mixing zone.

Impact on Shellfish:

Shellfish are particularly sensitive to water quality and are often used as bioindicators of environmental health. Discharging treated wastewater can introduce pathogens and pollutants into shellfish habitats rendering them unsafe for consumption. This may threaten public health and disrupt local shellfish industries.

Invercargill City Council monitors the existing discharge, discharge environment and undertakes shellfish monitoring. In 2006 Environment Southland granted Invercargill City Council's application to change the consent conditions of the existing Bluff discharge consent to reduce the coastal monitoring requirements (water quality and benthic surveys) since the monitoring data had demonstrated that the

potential adverse effects of the discharge were not being seen. Affected parties agreed to the reduced monitoring conditions.

Recreational Effects and Health Effects:

The Bluff coastal area is a recreational activity area drawing residents and tourists for walking, cycling, water sports, fishing, and other leisure pursuits. The area has a network of Department of Conservation and Invercargill City Council walking tracks around the coast and over Bluff Hill. Bluff Harbour provides boat access for fishing boats and recreational water uses.

Wastewater discharges can compromise the safety and enjoyment of these activities primarily due to health concerns from primary contact and shellfish consumption due to contamination concerns (see above). The outfall pipeline extends across a rocky area into the water. The outfall is known locally, and Invercargill City Council maintains signage alerting people to the human health risk of gathering shellfish and fishing in the vicinity of the outfall.

The human health effect risk of the activity can be mitigated through maintaining signage and continuing with the monitoring required as condition of the existing consent.

Conclusion:

The potential adverse effects of the proposal are considered to be mitigated and managed through

- Invercargill City Council partnering with kai Tahu on the working groups and through project governance group to inform and decide on an acceptable discharge method (Cultural values)
- Proposing the same flows, limits and envelope of effects as that authorised by the existing consent (and is demonstrated to be having a less than minor effect on the coastal environment) (Environment and human health effects).
- Ongoing compliance with the conditions of consent, including monitoring of the environment (Environment and human health effects).
- Maintenance of signage at the outfall to alert people to the human health risks of gathering shellfish and fishing in the outfall area (human health effects)

2. Discharge to Land

Invercargill City Council commissioned a report to consider suitable locations for the discharge of treated wastewater to land. The report is to support the project working group in their assessment of the short list of options. Any location is likely to be located within close proximity to the coast, which would be the ultimate receiving environment of treated wastewater.

While the discharge to land would likely address¹ the adverse cultural effects of the existing coastal discharge the high salt content may adversely affect:

- Cultural values
- Soil structure and productivity
- Freshwater quality and use
- Neighbouring properties

Cultural Values:

The adverse cultural effects of disposing of treated wastewater are better addressed through a discharge to land than a discharge to water. Therefore the cultural effects of a discharge to land may be adequately addressed. Engagement with Mana whenua representatives on the working group will determine whether there are any remaining adverse cultural effects of a discharge to land.

¹ Assuming it is delivered in a culturally acceptable way

Soil Structure and productivity effects:

The seawater contribution to wastewater from the fishing industry in the Bluff area results in elevated salts in the discharge. The WwTP is designed to effectively process wastewater high in salt .but the treated discharge remains elevated in salts.

The potential adverse effect of irrigating higher salinity wastewater to land is on soil structure. Over time the irrigated soil can become concentrated with sodium, the soil loses its structure, pores become clogged and the volume of water that can move into or through the soil profile is reduced. These effects at specific sites will need to be assessed to determine whether the site conditions are suitable to enable the option to be viable in the long term.

Any land based discharge would avoid high class soils.

Freshwater Effects

The discharge to land, depending on the location and site conditions, is likely to adversely affect groundwater quality and the environment that groundwater discharges to. The potential sites for land disposal would all discharge from groundwater into the sea, where the salinity will not generate any adverse effects.

The adverse effects on groundwater and on users of groundwater will be assessed over the next few months through the short list options assessment.

Effects on neighbouring landowners

The preferred location of a wastewater disposal field will require assessment of effects on adjacent property owners. This will be assessed through the short list options assessment and adjacent landowners will be identified before any application for approvals is made.

Conclusion:

The discharge of treated wastewater to land has effects that can only be assessed on a site by site basis. These effects will be determined through the short list options assessment by the project working group. .