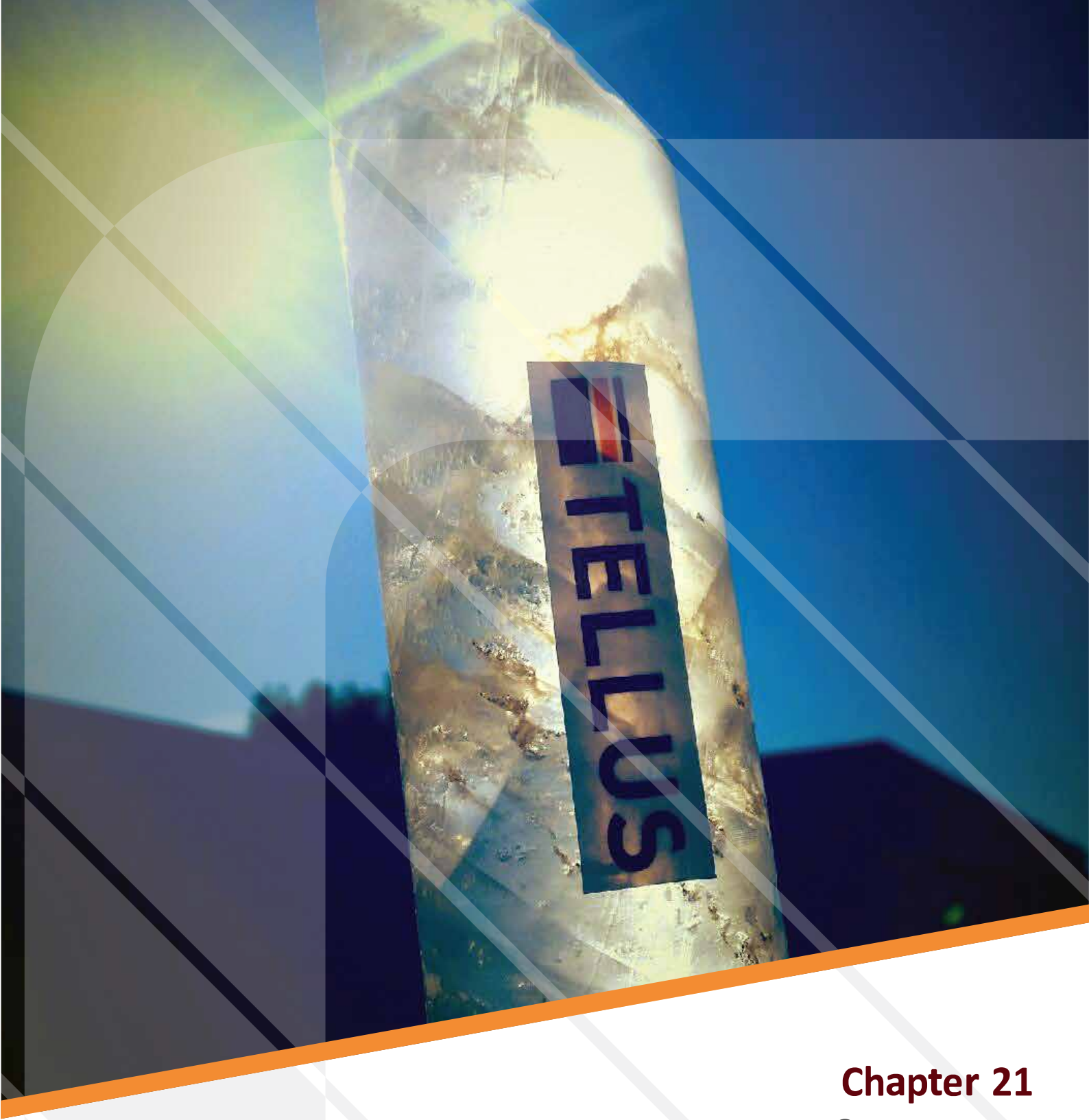




Chapter 21

Justification



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ABBREVIATIONS

CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
EPBC	Environmental Protection and Biodiversity Conservation Act
NT	Northern Territory
OEMP	Operational Environmental Management Plan
PFS	Pre-Feasibility Study
RCP	Rehabilitation Closure Plan
ToR	Terms of Reference
TPWC	Territory Parks and Wildlife Conservation Act

21 JUSTIFICATION

21.1 Proposal benefits

The Proposal is considered to be justified because it:

- Responds to a recognised need and is consistent with state and national waste management strategies.
- Provides many social and economic benefits including opportunities for long-term, full time employment.
- Would not result in significant adverse effects on the environment.
- Is consistent with the principles of ecologically sustainable development.

Proceeding with the Proposal would result in significant social and economic benefits in the NT and within Australia. The Proposal would:

- **Provide an innovative unique dual revenue business in remote Central Australia** -the business would commercialise an industrial bulk commodity (salt) and provides an equipment and archives storage business and a storage, recovery and permanent isolation business for hazardous waste generated in the NT and within Australia.
- **Diversify the economy.** - development of enabling environmental infrastructure which would assist in providing utility support services to other existing and new projects that generate waste as a result of the 'Developing the North' strategy.
- **Major investment in regional Australia** - the capital expenditure is estimated to be around A\$676 million (nominal, including finance and contingency) for the Proposal. Around 67 % of all construction costs would be spent in Australia (36% spent in the NT).
- **Boost the economy over the 29-year project life** - on average, there would be spending of just under \$81 million per annum to operate the Proposal. Of this, 64 % would be spent in Australia (a total of 52% would be spent in the NT). The site could be expanded for generations.
- **Royalties, taxes and levies** - over the 29-year term could support other parts of the NT and the Australian economy.
- **Create training and long term job opportunities** -
 - About 270 jobs during construction (720 jobs during peak build including in-directs).



Plate 21-1 Tellus has supported indigenous jobs during the development of the EIS and would continue to support indigenous employment through the construction, operation, and closure and rehabilitation of the Proposal.



- About 150 to 180 full time equivalent workers would be employed during operation. Just over 5,400 full-time equivalent job years would be created over the life of the Proposal, an average of 217 full time equivalent job years per annum.
- Jobs would be green, sustainable, and generally well paid covering technical (engineering, chemistry, science), commercial (sales, business) and operational skills.
- Proposed jobs and training programs, such as:
 - Tellus' School to Jobs Program (Annual Schools Tour).
 - Tellus' Pre-employment Training Program ('Getting Job Ready') comprising Tellus' Traineeships Program, Tellus' Apprenticeships Program and Training Accreditation.
 - Indigenous Employment Program; comprising a 10 % indigenous employment target as well as other commitments that would benefit local indigenous people such as the sponsorship of sporting and academic programs in the nearby community of Titjikala (refer to Plate ES-2 and Plate ES-3).
 - Tellus' Employment Programs and Systems comprising a 'Sisters in Mining' Program; Tellus' Disabled Worker Program, Tellus' Ranger Program and support for Social Enterprises that could generate more jobs.
- **Provide local business support and new business opportunities** - goods and services such as construction and operational materials, food, accommodation, etc. would be sourced from local business, where possible.
- **Fulfil the government's own environmental and waste policy obligations under the following four main regulatory regimes -**
 - Environmental protection regulations (to minimise adverse impacts on the environment and human health and to meet national and international obligations);
 - Meeting NT and national obligations by providing critical infrastructure that can safely store, recover or permanently isolate difficult to manage wastes.
 - Meeting international obligations under the Basel Convention (Regulation of Transboundary Movements) and Waigani Convention (Regulation of Exports and Imports) by providing critical infrastructure for our near-neighbors such as the Pacific Islands who do not have suitable infrastructure to manage such wastes. Australia currently exports waste mostly to Europe and Asia and imports small volumes of waste materials mostly from our near neighbors (Pacific Islands). The proponent is not planning on actively marketing this service, but in the event of a man-made or natural disaster, the proposed Chandler Facility would be suitable.
 - Transport of dangerous goods regulations (to prevent accidents and promote safe transport, regulated by national legislation and codes).
 - Work health and safety regulations (hazardous chemical regulations that reduce occupational health and safety risk in the workplace).



- Product stewardship regulations (the responsible management of products such as waste oil, asbestos, e-waste, tyres, batteries, mercury, medicines).
- **Support the circular economy** - by providing an opportunity for the future potential recovery of valuable materials (that are currently deemed waste). The Proposal could attract new salt and waste recycling and recovery industries to the NT.



Plate 21-2 Tellus would continue to support the local community through construction and operation of the Proposal.

21.2 Environmental impacts

Investigations were undertaken to assess the potential environmental impact during construction, operation and closure and rehabilitation of the Proposal. These included specialist studies of biodiversity, groundwater, surface water, historic and cultural heritage, social, economic, air quality (including a greenhouse gas assessment and risks to human health) and noise and vibration. The potential environmental impacts of the Proposal are documented and mitigation and management measures identified to avoid and reduce potential impacts and to protect the environment.

Based on the environmental assessment, the Proposal would result in the following environmental effects:

- **Biodiversity.** Construction of the Proposal would result in the removal of approximately 397.5 hectares of vegetation. The removal of this vegetation would result in the loss of fauna foraging, breeding, roosting, sheltering and/or dispersal habitat. Activities associated with construction and closure and rehabilitation may result in indirect impacts including habitat fragmentation, fauna displacement, injury or mortality; fauna strike; edge effects; altered hydrology; contamination; erosion and sedimentation; dust; increased light, noise and vibration; the introduction and spread of weeds and invasive species; increased predator species; increased introduced fauna use; and an increased incidence of fire. Indirect impacts during construction may include fauna strike; altered hydrology; contamination; increased light, noise and vibration; the introduction and spread of weeds and invasive species; an increased incidence of fire; and potential impacts associated with salt runoff and windblown salt from stockpiles.

There would be no significant impact on species listed as near threatened or data deficient under the TPWC Act, nor would there be significant impacts on species listed as threatened



under the TPWC Act and/or EPBC Act. At present, no biodiversity offsets are deemed necessary as there would be no significant impact to matters of national environmental significance during construction, operation, or closure and rehabilitation of the Proposal.

- **Groundwater.** The absence of permanent surface water features across the proposed development footprint means that the groundwater and surface water systems are not connected in the vicinity of the proposed Chandler Facility or the proposed Apirnta Facility. Shallow groundwater levels and gradients within the alluvium groundwater system indicate some potential for connectivity to the south-east along the Finke River about 20 kilometres from the Chandler Facility. The Proposal would cause localised changes to the groundwater conditions due to groundwater abstraction demands and potential mine dewatering arising from induced groundwater inflow.

The local groundwater systems are considered to be compartmentalised, with flow and storage restricted by claystone and siltstone aquitards, and as such potential impacts to surrounding receivers are significantly negated by the disconnection of these systems. Springs observed to be discharging along the Finke River (e.g. Horseshoe Bend Spring) about 20-50 kilometres south-south-east of the Chandler Facility are inferred to be deriving their source of water from perched shallow alluvium, and are therefore understood to be isolated from potential dewatering impacts arising from mining within the deeper local groundwater systems.

Any groundwater intercepted by the construction of subsurface works is likely to result in the dewatering of the localised perched groundwater systems. Due to the isolated extent of any shallow perched systems, the stratified nature of the underlying deeper aquifers, and the 90 metre depth to groundwater, dewatering impacts arising from mining operations would be localised in extent and would not impact nearby sensitive receivers or GDE's.

The conceptual model concluded that abstraction from the Langra Formation at the rate specified for construction and operation of the Proposal would result in localised drawdown (as demonstrated by the PB1 constant rate test over five days at 4 L/s). A similar dynamic response in groundwater levels is expected within the Stairway Sandstone along the Chandler Haul Road, with abstraction demands for dust suppression likely to result in localised drawdown. Impacts of localised drawdown within the Stairway Sandstone have the potential to extend to three surrounding landholder bores (RN10082, RN14492, and RN14584) but residual risks have been determined as low.

Elsewhere, the relatively minor drawdown associated with Proposal-related abstraction is unlikely to cause any impacts of concern to other sensitive landholder bore and environmental groundwater users.

It should also be noted that the drawdown impacts arising from the Proposal would be of such low magnitude and extent that they would not reach the spring areas. This is due to the low rate of groundwater pumping throughout the Proposal life (1.7 L/s, which is broadly consistent with stock and domestic rates), and also the limited extent of drawdown due to the relatively low permeability aquifer units, and the intervening aquitard units.

- **Surface water.** The Proposal is located in a remote, dry and sparsely populated part of the NT. Watercourses in the region are generally dry for the majority of the year. Rainfall is



seasonal, with the potential to generate large flood events. Due to generally dry antecedent conditions, the first rain to fall is needed to satisfy the moisture demand of the surface layer, with runoff generated from rain later in the storm.

Without suitable mitigation, flooding has the potential to affect the proposed Chandler Facility, Apirnta Facility and the Chandler Haul Road. Mitigation would be required to divert/convey flood flows from upstream catchments past the Chandler Facility and Apirnta Facility, and to manage stormwater falling on both sites. Stormwater management would include water quality treatment.

Where the proposed Henbury Access Road and Chandler Haul Road crosses drainage lines, the roads could be closed for up to 24 hours following the 100-year ARI 9-hour storm unless mitigation measures (culverts or causeways) are incorporated into the road design. The crossing of the Finke River (between the Apirnta Facility and the Stuart Highway) could require a bridge, if that section of road is to be kept open.

If managed correctly, the remote location of the Proposal limits the potential for the associated infrastructure to adversely affect other communities or the environment. The changes in hydrological regime due to the mine site development are unlikely to be observed at the Titjikala community near the Hugh River, as the affected area is a small percentage of the contributing catchment and hydrological connectivity from the proposed mine site area through the washout zone and dunes to the Hugh River is unlikely.

- **Historic and cultural heritage.** No historic items would be impacted during construction or operation of the Proposal. With regards to archaeological material, at least three site complexes, 11 individual sites, three background scatters and 11 isolated finds would be directly impacted during the construction of the Proposal. In addition, at least two site complexes, four individual sites, three background scatters and six isolated finds may be vulnerable to disturbance during construction given their close proximity to the proposed development footprint. Appropriate consent would be obtained for all sites that would be directly impacted or vulnerable to disturbance (and requiring protective measures). Consent would be obtained from the NT Heritage Branch under Section 72 of the NT Heritage Act. Additional mitigation and management measures to preserve cultural heritage values would be included in a Cultural Heritage Management Plan as part of the CEMP, OEMP and RCP for the Proposal.
- **Air quality.** The assessment has shown that pre-mitigated construction and operation risks on air quality range from neutral to major. Major risks relate to the transport of solid and liquid waste materials. Outline measures for managing and monitoring the impacts of air quality have been considered with respect to the receiving environment and human health. In addition, the Proposal would prepare a construction and operation Air Quality Management Plan. Post mitigation construction and operation risks on air quality were assessed. With mitigation and management measures in place, risks were reduced. They ranged from neutral to intermediate. The Proposal would be acceptable from an air quality and human health perspective.

Mitigation measures that would be implemented during construction, operation and closure and rehabilitation have been proposed to avoid (eliminate) or reduce these impacts. The environmental



performance of the Proposal would manage through the implementation of the construction, operational and closure and rehabilitation environmental management plans and monitoring programs. This would also help to ensure compliance with relevant legislation and any conditions of approval.

21.3 Consideration of ecologically sustainable development

The principals of ecologically sustainable development include:

- **Integration.** Decision making processes should effectively integrate both long term and short term economic, social, environmental and equitable considerations.
- **Precautionary principle.** Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- **Inter-generational and intra-generational equity.** The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. Intra-generational equity involves consideration of equity within the present generation.
- **Conservation of biological diversity and ecological integrity.** The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.
- **Improved valuation, pricing and incentive mechanisms.** This includes recognition of the principles that the costs of environmental externalities should be internalised and that the polluter should bear the costs associated with environmental pollution.
- **Public participation.** Decisions and actions relating to ecologically sustainable development should provide for broad community involvement on issues which affect them.

An assessment of the Proposal against these principles is provided below.

21.3.1 Integration

Environmental impacts during both construction (short term), operation (long term) and closure and rehabilitation (short term) of the Proposal have been considered for each of the key environmental risks identified. The Proposal would provide both short term and long term benefits including a boost to the economy, job creation, provision of local training opportunities and indigenous employment and training opportunities. It would also provide local business support and create new business opportunities. The Proposal would also provide a national solution of the safe and secure disposal of waste generated in Australia, within Australia.

21.3.2 Precautionary principle

A number of environmental investigations have been undertaken to ensure that the potential impacts of the Proposal are understood with a high degree of certainty. Where a higher degree of risk was identified, this included specialist studies. The assessment of potential impacts of the Proposal is considered to be consistent with the precautionary principle. The assessments undertaken are consistent with accepted scientific methodologies, and have taken into account relevant statutory and government agency requirements.



The Proposal has evolved to avoid environmental impacts, where possible, and to reflect the findings of the studies undertaken. For example, existing roads were chosen to be utilised for the proposed Chandler Haul Road and Henbury Access Road. A number of safeguards have also been proposed to minimise the potential environmental impacts. These safeguards would be implemented during construction, operation and during closure and rehabilitation of the Proposal. Both a CEMP, OEMP and RCP would be prepared prior to construction, operation and closure and rehabilitation of the Proposal.

21.3.3 Inter-generational and intra-generational equity

Construction, operation and closure and rehabilitation of the Proposal has the potential to lead to some environmental and social disturbance. These disturbances include potential temporary elevated levels of traffic, noise and dust generation during construction. There would also be an increased potential for hazards and risks (spills, etc.) during operation. However, strict implementation of the CEMP, OEMP and RCP would ensure there would be no significant impact that would diminish the health, diversity or productivity of the environment for present or future generations.

21.3.4 Conservation of biological diversity and ecological integrity

An ecological assessment has been undertaken to identify potential adverse effects on biodiversity. The study demonstrates that the Proposal would not have significant effect on any local populations of native biota including threatened and endangered species, populations or ecological communities listed under the TPWC Act and/or the EPBC Act.

21.3.5 Improved valuation, pricing and incentive mechanisms

The environmental assessment has identified the environmental and other consequences of the Proposal and identified mitigation measures where appropriate to manage potential adverse effects. If approved, the construction, operation, and closure and rehabilitation of the Proposal would be in accordance with relevant legislation, the conditions of approval and the CEMP, OEMP and RCP. These requirements would result in an economic cost to the proponent. The implementation of mitigation measures would increase both the capital and operating costs of the Proposal. This indicates that environmental resources have been given appropriate valuation in the development of the Proposal.

The concept design for the Proposal has been developed with an objective of minimising potential effects on the surrounding environment. This indicates that the concept design has been developed with consideration of environmental outcomes.

21.3.6 Public participation

Comprehensive government and community (including key stakeholder) consultation was undertaken during the development of the Proposal and during the preparation of the environmental impact assessment for the Proposal. The overall objective of the consultation process was to ensure clear, two-way communication by listening, recording and responding to issues as they arose. The specific objectives were to disseminate information about the Proposal and the



assessment process to key stakeholders and the community; increase stakeholder and community awareness and understanding of the Proposal and the assessment process; ensure that key stakeholders and the community were provided with opportunities through the consultation process to communicate feedback and to identify issues so that they could be included in the Proposal; and to identify stakeholder and community issues and views.

Issues identified during the consultation process were included in the design of the Proposal or within the mitigation measures developed to safeguard the environment from potential impacts during construction and operation.

Consultation will continue throughout the exhibition of the draft EIS. During the exhibition period, government agencies, key stakeholders and the community will be invited to make written submissions to the NT EPA.